Volume VI
FINAL RECIRCULATED PORTIONS OF THE ENVIRONMENTAL IMPACT REPORT
State Clearinghouse No. 2009061113

LYTLE CREEK RANCH SPECIFIC PLAN

Lead Agency:
City of Rialto
Development Services Department
150 South Palm Avenue
Rialto, California 92376

May 2012

Volume VI
FINAL RECIRCULATED PORTIONS OF THE ENVIRONMENTAL IMPACT REPORT

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LYTLE CREEK RANCH SPECIFIC PLAN

Pre-Annexation/Development Agreement No. 170
General Plan Amendment No. 29
Specific Plan No. 12
Environmental Assessment Review No. 90-19

Lead Agency:
City of Rialto
Development Services Department - Planning & Business License Division
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May 2012

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Section 1.0

Introduction

1.0 INTRODUCTION

1.1 Purpose and Contents

In accordance with the Guidelines for the California Environmental Quality Act (CEQA Guidelines) Sections 15089 and 15132, a lead agency must prepare a Final Environmental Impact Report (EIR) before approving a project. The purpose of a Final EIR is to provide an opportunity for the lead agency to respond to comments made by the general public and public agencies regarding the project. The City of Rialto (City) acting as lead agency has prepared this Final EIR, which is based upon the Recirculated Portions of the Draft EIR (RPDEIR) and is referred to herein as the Final Recirculated Portions of the EIR (Final RPEIR), regarding the Lytle Creek Ranch Specific Plan project (LCRSP or Project) in compliance with the California Environmental Quality Act (CEQA). Pursuant to CEQA Guidelines Section 15132, this Final RPEIR includes: a summary of the scope of the RPDEIR; corrections and additions to the EIR, including revisions to the Mitigation Monitoring and Reporting Program (MMRP) provided in the original Draft EIR; a list of persons, organizations, and agencies commenting on the RPDEIR; and responses to the public comments received.

This Final RPEIR is intended to be a companion to the February 2012 RPDEIR, which is incorporated by reference and bound separately as EIR Volume V. Given the narrow scope of the RPDEIR, which was prepared in response to the San Bernardino County Superior Court's September 30, 2011 ruling (referred to herein as the Court Ruling and discussed further in Section 1.2 below; see also Appendix V-A to the RPDEIR) in Case No. CIVDS 1011874, *Endangered Habitats League, et al. v. City of Rialto, et al*., this Final RPEIR focuses on responses to those comments directly related to the contents of the RPDEIR, in accordance with CEQA Guidelines Section 15088.5.

This Final RPEIR is organized into eight main sections and appendices, as follows:

Section 1.0 Introduction—This section provides an overview and background of the Final RPEIR and the associated RPDEIR, including a summary of relevant CEQA requirements.

Section 2.0 Corrections and Additions to the RPDEIR—This section provides a list of revisions that have been made to the RPDEIR based on comments received from the general public and public agencies, and other items requiring updating and/or corrections.

Section 3.0 Responses to Comments and Original Comment Letters—This section presents a matrix of the parties that commented on the RPDEIR and the issues that they raised, followed by the text of each comment within the comment letters and a corresponding response. Each set of comments and responses is followed by a copy of the original comment letter that was submitted.

Appendix VI-A Notice of Recirculation and Availability and Notice of Completion—This appendix to the Final RPEIR includes the notices that were sent to all relevant public agencies and/or interested parties, as required under CEQA.

Appendix VI-B Mitigation Monitoring and Reporting Program—This appendix updates and supersedes the MMRP provided in the original DEIR.

Appendix VI-C Updated Greenhouse Gas Emissions Memorandum—This appendix responds to comments regarding the updated GHG methodology used in the RPDEIR.

Appendix VI-D Golf Course Habitat Conditions Memorandum—This appendix addresses updated habitat conditions at the El Rancho Verde Golf Course.

Appendix VI-E Sunnyvale Traffic Noise Analysis—This appendix evaluates the significance of the Project's traffic noise impacts as compared to existing conditions, in accordance with the opinion in *Sunnyvale West Neighborhood Assn. v. City of Sunnyvale City Council* (2010) 190 Cal.App.4th 1351.

In addition, this Final RPEIR is part of the "Complete FEIR," which consists of the following documents:[1]

(a) The original Draft EIR (DEIR) for the Project, consisting of EIR Volumes I through III (except for those portions of the DEIR that have been superseded and replaced by the corresponding portions in the RPDEIR);

(b) The original Final EIR (FEIR) for the Project, consisting of EIR Volume IV, which includes comments and responses to comments on the original DEIR received during the DEIR public comment period (March 1, 2010 through April 15, 2010), corrections and additions to the original DEIR, and additional appendices;

(c) The RPDEIR, consisting of EIR Volume V; and

(d) This Final RPEIR, consisting of EIR Volume VI.

The Complete FEIR provides the basis for City decision makers to consider the environmental implications of the Project as well as possible ways to mitigate any significant environmental impacts. Prior to making a decision on the Project, the City must certify that the Complete FEIR was completed in compliance with CEQA, was presented to the City's decision making body and that the decision making body reviewed and considered the information contained in the Complete FEIR prior to approving the Project, and that the Complete FEIR reflects the lead agency's independent judgment and analysis.

1.2 Scope of the RPDEIR

Although the scope of the RPDEIR was discussed in detail in Section 1.0 of the RPDEIR, this issue is addressed herein since a number of commentors raised the issue.

[1] Please note that for additional clarification, the term "Revised Final EIR," which was used in the RPDEIR, is not used in this document and has been corrected in the Final RPEIR. See Final RPEIR, Section 2.0, Corrections and Additions, of this document.

As previously indicated, in 2010 the City approved the Project and certified its EIR. The EIR included the original DEIR and the original FEIR, the latter of which consisted of Responses to Comments on the DEIR, as well as changes, revisions, and other clarifications to the DEIR and the LCRSP.

In 2011, the San Bernardino County Superior Court decided, in *Endangered Habitats League, et al. v. City of Rialto, et al.*, Case No. CIVDS 1011874, that the EIR contained legal deficiencies with respect to certain (but not all) of its analyses. The Superior Court's ruling (Court Ruling), attached as Appendix V-A to the RPDEIR, held that the City failed to comply with CEQA because: (1) the EIR did not provide substantial evidence to support the conclusion that impacts related to global climate change, specifically greenhouse gas (GHG) emissions, would be less than significant; (2) the EIR improperly assessed the Project's traffic impacts against future conditions as opposed to existing conditions; (3) the EIR's mitigation measures with respect to seismic hazards (Mitigation Measures 3-1 to 3-3) and fire protection impacts (Mitigation Measures 9-4 to 9-5) constituted improperly deferred mitigation; and (4) the EIR's analyses of Habitat Avoidance Alternative 1 (Avoidance of San Bernardino Kangaroo Rat/Least Bell's Vireo Occupied Habitat, referred to as HAA1 in the Court Ruling) and Habitat Avoidance Alternative 2 (Avoidance of Riversidian Alluvial Fan Sage Scrub Areas, referred to as HAA2 in the Court Ruling) did not contain sufficient evidence to support its conclusions regarding those alternatives' air quality, noise, and growth inducement impacts, and the City's findings regarding those alternatives' economic infeasibility and failure to meet project objectives were not supported by evidence in the record.

The Court Ruling ordered the City "to revise the EIR with respect to the GHG emissions discussion, traffic impact analysis, Mitigation Measures 3.1 to 3.3 and 9.4 to 9.5, and alternatives HAA1 and HAA2 and recirculate those portions of the EIR." On October 7, 2011, the Superior Court issued a Writ of Mandate (Writ) limited to the items identified by the Court Ruling. The Superior Court ruled that other challenged sections of the EIR complied with CEQA.

The City circulated the RPDEIR to address the inadequacies in the EIR noted above. Impact analyses concerning matters beyond these topics were not re-examined in the RPDEIR. Every other environmental impact area relevant to the Project was analyzed in the original EIR and either unchallenged in the prior litigation or expressly approved by the Court Ruling.[2] Under applicable law, those impact areas were not addressed in the RPDEIR.[3]

Several commentors, however, have raised comments on the RPDEIR beyond the scope of the Court Ruling and the Writ, including requests that the RPDEIR expand its analyses beyond that scope. Such analyses are not appropriate for inclusion in the RPDEIR for a number of reasons. Except under limited circumstances, CEQA does not require a public agency to revisit environmental analyses in an EIR that are unchallenged in litigation or those that are

[2] This includes many CEQA claims asserted in the Petition for Writ of Mandate in *Endangered Habitats League, et al. v. City of Rialto, et al.*, but which were abandoned by the petitioners during the substantive briefing of the case.

[3] See, e.g., *Ballona Wetlands Land Trust v. City of Los Angeles* (2011) 201 Cal.App.4th 455, 479-81; *Federation of Hillside & Canyons Associations v. City of Los Angeles* (2000) 126 Cal.App.4th 1180, 1202-05; CEQA Guidelines, Section 15088.5. (The CEQA Guidelines can be found in the California Code of Regulations, Title 14, §§ 15000 *et seq.*)

unsuccessfully challenged. The limited circumstances under which a lead agency is required to address in additional CEQA analysis a potential impact that was previously analyzed in an EIR prior to the certification are specified in Section 15088.5 of the CEQA Guidelines.[4]

Similarly, several commentors also refer to the RPDEIR as a Revised Draft Environmental Impact Report (and/or an RDEIR), and contend that because the Court Ruling overturned the City's approval of the entire EIR for the previously approved Project, the City must also now respond to issues regarding impacts not addressed in the revised sections of the RPDEIR. That, too, is an incorrect statement of the law.

CEQA Guidelines Section 15088.5(c) directs that, if revisions to a Draft EIR are "limited to a few chapters or portions of the EIR, the lead agency need only recirculate the chapters or portions that have been modified." Moreover, as noted above, the Court Ruling only obligated the City to recirculate those portions of the EIR which the Court deemed to be inadequate.

As stated in the RPDEIR, CEQA Guidelines Section 15088.5(f)(2) authorizes a lead agency to respond only to comments on the portions of a Draft EIR that were recirculated for additional public review and comment. Consistent with that guidance, the City stated in the RPDEIR that commentors should limit comments to the issues discussed in the RPDEIR. In this Final RPEIR, the City provides responses to comments made on the RPDEIR.

In addition, the City has responded herein to comments that claim that "significant new information" exists concerning the Project's potential impacts that were not analyzed in the RPDEIR. In certain circumstances, CEQA requires a lead agency to recirculate an EIR for additional public review and comment. Recirculation is required when "significant new information is added to the EIR after public notice is given of the availability of the draft EIR for public review under Section 15087 but before certification" of the EIR.[5] "Significant new information" added to an EIR requires recirculation only when that information discloses that:

> *(1) a new significant environmental impact would result from the project or from a new mitigation measure proposed to be implemented.*
>
> *(2) a substantial increase in the severity of an environmental impact would result unless mitigation measures are adopted that reduce the impact to a level of insignificance.*
>
> *(3) a feasible project alternative or mitigation measure considerably different from others previously analyzed would clearly lessen the environmental impacts of the project, but the project's proponents decline to adopt it.*
>
> *(4) the draft EIR was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded.*

[4] See also Cal. Public Resources Code, Section 21092.1.
[5] CEQA Guidelines, Section 15088.5(a); Cal. Public Resources Code, Section 21092.1.

A lead agency's determination not to recirculate a Draft EIR must be supported by substantial evidence in light of the whole record before the agency.[6]

The City received several written comments purporting to introduce "significant new information" necessitating recirculation of the RPDEIR to revise various impact analyses beyond the analyses contained in the RPDEIR. These comments are addressed individually in Section 3.2, Responses to Comments, of this Final RPEIR. The City has considered each of these comments, and recirculation of the RPDEIR is not warranted because: (1) such comments raise issues already addressed in the original EIR; and/or (2) the information in the comments does not constitute "significant new information" within the meaning of CEQA.

1.3 RPDEIR Review Period

The RPDEIR was made available for public review and comment in accordance with the procedures contained in the Notice of Recirculation and Availability (NOA) that was published on February 17, 2012. In accordance with CEQA Guidelines Section 15105(a), the RPDEIR was circulated for a 45-day public comment period beginning on February 17, 2012, and ending on April 3, 2012. Following the RPDEIR public comment period, this RPFEIR was prepared and includes responses to the comments raised regarding the RPDEIR. In addition, a Notice of Completion (NOC) was prepared and submitted to the State Clearinghouse, along with a copy of the RPDEIR, in accordance with CEQA Section 21161. Copies of the NOA and NOC, as well as proof of publication of the NOA in a local newspaper, are provided in Appendix VI-A of this Final RPEIR.

In addition, a community workshop was held on February 16, 2012. The intent of the community workshop was to provide an open forum for the general public to review the RPDEIR, have questions regarding the RPDEIR answered, and submit written comments. Notice of the community workshop was sent to individuals who attended the original DEIR scoping meeting, public agencies that received copies of the Notice of Preparation (NOP), persons residing within a 500-foot radius of the project site, and a stakeholders list.

As CEQA Guidelines Section 15088.5, subdivision (f)(2) permits, the City requested reviewers to limit the scope of their comments to that material which was addressed within the text of the revised portions and the appendices included in the RPDEIR. The City also requested that reviewers not make new comments on old matters not included in the RPDEIR. Accordingly, pursuant to CEQA Guidelines Section 15088.5, subdivision (f)(2)(ii), this RPFEIR focuses on responses to those comments directly related to the contents of the RPDEIR.

The RPDEIR did not revise the original EIR in any respect other than as directed by the Court, as the Court Ruling upheld all other aspects of the EIR. As the contents of the RPDEIR were limited to a few portions of the EIR, pursuant to CEQA Guidelines Section 15088.5, subdivision (c), the original DEIR and FEIR were not recirculated for public review and comment.

[6] CEQA Guidelines, Sections 15088.5(e), 15384(a); *Laurel Heights Improvement Assn. v. Regents of University of California* (1993) 6 Cal. 4th 1112, 1135. CEQA Guidelines Section 15384 defines "substantial evidence" as "enough relevant information and reasonable inferences from this information that a fair argument can be made to support a conclusion, even though other conclusions might also be reached."

Section 2.0

Corrections and Additions

2.0 CORRECTIONS AND ADDITIONS

2.1 Introduction

This section of the Final RPEIR provides changes to the EIR that have been made to clarify, correct, or supplement the environmental impact analysis for the Project. Such changes are a result of recognition of inadvertent errors or omissions as well as public and agency comments received in response to the RPEIR. The changes described in this section do not result in any new or increased significant environmental impacts that would result from the Project.

Provided below are corrections and additions to the original DEIR, the original FEIR (including the MMRP), and the RPDEIR, including, where appropriate, the associated technical appendices. Such changes are indicated under the appropriate document and EIR section or appendix heading. Deletions are shown with ~~strikethrough~~ and additions are shown with underline.

2.2 Corrections and Additions to the EIR

2.2.1 Corrections and Additions to the DEIR (EIR Volume I)

Executive Summary, page 66, Table ES-4, revise Geology and Soils Mitigation Measure 3-1 in the Draft Mitigation Reporting and Monitoring Program as follows:[1]

> ~~Unless otherwise waived or superceded, all~~ All development activities conducted on the ~~project~~ Project site shall be consistent with the ~~recommendations contained in the~~ following ~~studies~~:
>
> (1) The recommendations contained in the following studies: "EIR Level Geotechnical Review, Lytle Creek Ranch Land Use Plan, City of Rialto, San Bernardino County, California" (GeoSoils, Inc., May 22, 2008) and "Updated Geological and Geotechnical EIR Level Review of Documents Pertaining to the Lytle Creek Ranch Land Use Plan, City of Rialto, County of San Bernardino, California" (Pacific Soils Engineering, Inc., September 3, 2008), including but not limited to measures such as those listed below, provided the recommendations meet the conditions specified in Subsection (3) of this Mitigation Measure.
>
> – Use of engineered foundation design and/or ground-improvement techniques in areas subject to liquefaction-induced settlement;
>
> – Use of subdrains in canyon areas or within fill lots underlain by bedrock;
>
> – Use of buttress or stabilization fills with appropriate factors-of-safety (including placing compacted non-structural fill against existing slopes subject to erosion/failure);

[1] Table ES-4 of the DEIR was previously corrected in Section 2.3.1 of the FEIR. The corrections provided herein supplement those previously made.

– Engineering design incorporating post-tension/structural slabs, mat, or deep foundations; or

(2) ~~such alternative~~ Alternative recommendations ~~as may be approved by the City Engineer~~ based on the findings of a ~~project~~ site-specific, design-level geologic and geotechnical investigation(s) and approved by the City Engineer, including but not limited to the use of proven methods generally accepted by registered engineers to reduce the risk of seismic hazards to a less than significant level, provided such recommendations meet the conditions specified in Subsection (3) of this Mitigation Measure.

(3) All recommendations shall comply with or exceed applicable provisions and standards set forth in or established by:

(a) California Geological Survey's "Guidelines for Evaluating and Mitigating Seismic Hazards in California, Special Publication No. 117" (Special Publication 117);

(b) The version of the Uniform Building Code (UBC), as adopted and amended by the City of Rialto, in effect at the time of approval of the investigation(s) by the City Engineer;

(c) Relevant State, County and City laws, ordinances and Code requirements; and

(d) Current standards of practice designed to minimize potential geologic and geotechnical impacts.

Executive Summary, page 67, Table ES-4, revise Geology and Soils Mitigation Measure 3-2 in the Draft Mitigation Reporting and Monitoring Program as follows:[2]

Prior to the approval of a tentative "B" level subdivision map for residential or commercial development proposed as part of the Project (excluding any "A" level subdivision map for financing purposes only), the Project Applicant shall:

(1) Submit to the City of Rialto Building & Safety Division a ~~subsequent~~ site-specific, ~~and design-specific~~ design-level geotechnical and geologic ~~report shall be submitted to and, when acceptable, approved by the City Engineer documenting~~ investigation(s) prepared for the Project by a registered geotechnical engineer. The investigation(s) shall comply with all applicable State, County and City Code requirements and:

(a) Document the feasibility of each proposed ~~use and the appropriate~~ structure and its associated use based on an evaluation of the relevant geotechnical, geologic, and seismic conditions ~~associated with that use~~ present at each structure's location using accepted methodologies.

[2] Table ES-4 of the DEIR was previously corrected in Section 2.3.1 of the FEIR. The corrections provided herein supplement those previously made.

Included in this documentation shall be verification of soil conditions (including identification of organic and oversized materials) and a specific evaluation of collapsible and expansive soils;

(b) Determine structural design requirements prescribed by the version of the UBC, as adopted and amended by the City of Rialto, in effect at the time of approval of the investigation(s) by the City Engineer, to ensure the structural integrity of all proposed development; and

(c) In addition to the recommendations included in Subsections (1) and (2) of Mitigation Measure 3-1, include site-specific conditions, recommendations and/or measures designed to minimize risks associated with surface rupture, ground shaking, soil stability (including collapsible and expansive soils), liquefaction and other seismic hazards, provided such conditions, recommendations and/or measures meet the conditions set forth in subsection (3) of Mitigation Measure 3-1. Such measures shall specify liquefaction measures such as deep foundations extending below the liquefiable layers, soil cover sufficiently thick over liquefaction soil to bridge liquefaction zones, dynamic compaction, compaction grouting, and jet grouting. In accordance with Special Publication No. 117, other measures may include edge containment structures (e.g., berms, retaining structures, and compacted soil zones), removal or treatment of liquefiable soils, reinforced shallow foundations, and other structural design techniques that can withstand predicted displacements.

(2) Unless otherwise modified, ~~any~~ all conditions, recommendations, and/or mitigation measures contained ~~therein~~ within the geotechnical and geologic investigation(s), including the imposition of specified setback requirements for proposed development activities within Alquist-Priolo Earthquake Fault Zones, shall become conditions of approval for the requested ~~use~~ development.

(3) The Project structural engineer shall: review the geotechnical and geologic investigation(s); provide any additional conditions, recommendations and/or mitigation measures necessary to meet UBC requirements; incorporate all conditions, recommendations and/or mitigation measures from the investigation(s) in the structural design plans; and ensure that all structural plans for the Project meet the requirements of the version of the UBC, as adopted and amended by the City of Rialto, in effect at the time of approval of the investigation(s) by the City Engineer.

(4) The City Engineer shall: review the geotechnical and geologic investigation(s); approve the final report; and require compliance with all conditions, recommendations and/or mitigation measures set forth in the investigation(s) in the plans submitted for grading, foundation, structural, infrastructure and all other relevant construction permits.

(5) The City Building & Safety Division shall: review all Project plans for grading, foundation, structural, infrastructure and all other relevant construction permits to ensure compliance with the applicable geotechnical and geologic investigation(s) and other applicable Code requirements.

Executive Summary, page 67, Table ES-4, revise Geology and Soils Mitigation Measure 3-3 in the Draft Mitigation Reporting and Monitoring Program as follows:[3]

> In recognition of the potential lateral forces exerted by predicted seismic activities, ~~no~~ habitable structures that may be located on the ~~project~~ Project site and which are located within the defined Alquist-Priolo Fault-Rupture Hazard Zones shall not be over two stories in height. Habitable structures of greater height within defined Alquist-Priolo Fault-Rupture Hazard Zones may only be ~~authorized~~ permitted following the submittal of a subsequent site-specific, design-level ~~and design-specific~~ geologic and geotechnical ~~and geologic report acceptable to~~ investigation(s) and its approval by the City Engineer and, at a minimum, the imposition of both the recommendations contained therein and such additional conditions as may be imposed by the City Engineer, including but not limited to the use of proven methods generally accepted by registered engineers to reduce the risk of seismic hazards to a less than significant level, provided such recommendations meet the conditions specified in Mitigation Measure 3-1, Subsection (3).

Executive Summary, page 84, Table ES-4, revise Fire Protection Mitigation Measure 9-4 in the Draft Mitigation Reporting and Monitoring Program as follows:[4]

> Fire Protection. Prior to the issuance of building permits for any habitable use in Neighborhoods I and IV, the Applicant shall demonstrate to the satisfaction of the ~~RFD~~ Rialto Fire Department and/or to the agency with fire protection and emergency ~~service~~ jurisdiction over that area that ~~either: (1) NFPA~~ National Fire Protection Association 1710 response standards can and will be satisfied prior to the issuance of any occupancy permits within those areas~~; or (2) although NFPA 1710 response standards cannot be satisfied, that alternative actions, measures, and/or design features, acceptable to the RFD and/or the jurisdictional agency, have been incorporated into the project's development plans and/or habitable uses as to constitute an acceptable response standard for those areas~~.

Executive Summary, page 84, Table ES-4, revise Fire Protection Mitigation Measure 9-5 in the Draft Mitigation Reporting and Monitoring Program as follows:[5]

> Fire Protection. ~~The~~ At the time of building permit issuance, the Applicant shall ~~take such actions and~~ pay ~~such fees as may be reasonably imposed by the RFD to ensure the timely provision of adequate and appropriate fire protection and emergency services~~

[3] Table ES-4 of the DEIR was previously corrected in Section 2.3.1 of the FEIR. The corrections provided herein supplement those previously made.

[4] Table ES-4 of the DEIR was previously corrected in Section 2.3.1 of the FEIR. The corrections provided herein supplement those previously made.

[5] Table ES-4 of the DEIR was previously corrected in Section 2.3.1 of the FEIR. The corrections provided herein supplement those previously made.

~~to the LCRSP and the uses authorized therein. This measure neither precludes the Applicant from suggesting alternative actions and/or fees which can be demonstrated to result in the attainment of those same or similar objectives nor obligates the RFD to accept those alternative measures and/or fees in lieu of those identified by the RFD. If consensus cannot be reached between the RFD and the Applicant, the City Council shall establish the actions and fees applicable to the proposed project. Should the City subsequent adopt an impact fee program for fire protection services, unless a substitute measure(s) is imposed by the City, payment of applicable impact fees would effectively mitigation project-related impacts upon fire protection services and serve to fulfill the Applicant's obligations hereunder~~ to the City of Rialto Development Impact Fees for fire protection, based on the number of residential units or square footage of non-residential development included in each permitted building. Such fees shall be paid in accordance with the fee schedules set forth in the proposed Pre-Annexation and Development Agreement (Development Agreement) between the City and the Applicant. If such a Development Agreement is not approved, such fees shall be paid pursuant to the City's Fire Protection Services Development Fee program under Chapter 3.60 of the City of Rialto Municipal Code.

Section 2.0, Project Description, pages 2-15 to 2-16, revise the last paragraph as follows:

As proposed, the approximately 829.2-acre natural (undisturbed) open space area ~~will~~ includes: (1) approximately 612.5 acres of natural open space, including 444.8 acres within and adjacent to Lytle Creek and 167.7 acres adjacent to the SBNF and GHRP; (2) approximately 160.5 acres of land in Lytle Creek previously set aside for San Bernardino kangaroo rat (SBKR) conservation through consultation with federal agencies as part of the LCNPD; (3) an additional 52.2 acres for SBKR mitigation in Lytle Creek to be set aside by the Applicant in conjunction with the ~~LCRSP~~ LCNPD; and (4) in connection with mitigation of the West Valley Water District's Reservoir Nos. 7-3 and 7-4 construction projects along Lytle Creek Road, an additional 4.0 acres of SBKR habitat was set aside as an expansion of the "SBKR Conservation Area." The "SBKR Conservation Area" was established for the conservation of the SBKR as part of the County-approved LCNPD.

Section 2.0, Project Description, page 2-35, Table 2-2, revise the table as shown on page 2-6 herein (only that portion of the table which has been modified is included herein).[6]

Section 4.3, Geology and Soils, page 4.3-130, revise the first three Mitigation Measures as follows:

- **Mitigation Measure 3-1**. ~~Unless otherwise waived or superceded, all~~ All development activities conducted on the ~~project~~ Project site shall be consistent with the ~~recommendations contained in the~~ following ~~studies~~:

  (1) The recommendations contained in the following studies: "EIR Level Geotechnical Review, Lytle Creek Ranch Land Use Plan, City of Rialto, San

[6] Table 2-2 of the DEIR was previously corrected in Section 2.3.1 of the FEIR. The corrections provided herein incorporate those previously made and supersede any previous versions of the table.

Table 2-2 (Continued)
LYTLE CREEK RANCH SPECIFIC PLAN—DETAILED STATISTICAL SUMMARY: NEIGHORHOOD III

PA	Land Use	Approximate Acreage	Product Type	Density Range (DU/ac)	Estimated Aver. Product Density (DU/ac)	Dwelling Units	Square Footage	Assumptions
28	Open Space	396.0	—	—	—	—	—	Natural Open Space
29	Open Space/Recreation	5.0	—	—	—	—	—	—
30c	HDR Residential	4.5	Apartments	25–35	31.4	~~499~~ 126	—	—
31c	HDR Residential	15.9	Apartments	25–35	—	~~—~~ 499	—	—
32	Open Space/Recreation	9.8	—	—	—	—	—	SCE ROW
33	Village Center Commercial	24.1	—	~~25–35~~	—	—	230,955	—
34	Open Space/Recreation	7.3	—	—	—	—	—	SCE ROW
35c	SFR-3 Residential	11.5	Single-Family Detached/ Attached	8–14	10.0	115	—	—
36c	SFR-2 Residential	3.8	Single-Family Detached	5–8	7.4	28	—	—
37	Open Space/Recreation	2.6	—	—	—	—	—	Grand Paseo
38c	SFR-2 Residential	10.6	Single-Family Detached	5–8	7.3	77	—	
39c	MRF Residential	5.8	Apartments	14–28	20.0	196		
40c	Open Space/Recreation	6.0	—	—	—	—	—	Neighborhood Park
41c	MRF Residential	4.8	Single-Family Attached/ Apartments	14–28	28.0	96		
42c	SFR-2 Residential	13.0	Single-Family Detached	5–8	5.1	66	—	
43	SFR-1 Residential	22.0	Single-Family Detached	2–5	2.8	62	—	—
44	MFR Residential	4.5	Single-Family Attached/ Apartments	14–28	16.0	72	—	—
45	Open Space/Recreation	3.1	—	—	—	—	—	—
46	SFR-2 Residential	9.9	Single-Family Detached	5–8	7.6	75	—	—
47	SFR-3 Residential	5.4	Condominiums	8–14	10.0	54	—	—
48a	Open Space/Joint Use	5.0	—	2–14	—	—	—	Joint-Use Park
49a	Elementary School	10.0	Elementary School	2–14	—	—	—	K–6 School
50	MFR Residential	4.8	Single-Family Attached/ Apartments	14–28	20.0	96	—	—
51	Open Space/Recreation	1.0	—	—	—	—	—	Grand Paseo
52	MFR Residential	9.4	Single-Family Attached/ Apartments	14–28	15.0	141	—	—

Bernardino County, California" (GeoSoils, Inc., May 22, 2008) and "Updated Geological and Geotechnical EIR Level Review of Documents Pertaining to the Lytle Creek Ranch Land Use Plan, City of Rialto, County of San Bernardino, California" (Pacific Soils Engineering, Inc., September 3, 2008), including but not limited to measures such as those listed below, provided the recommendations meet the conditions specified in Subsection (3) of this Mitigation Measure.

– Use of engineered foundation design and/or ground-improvement techniques in areas subject to liquefaction-induced settlement;

– Use of subdrains in canyon areas or within fill lots underlain by bedrock;

– Use of buttress or stabilization fills with appropriate factors-of-safety (including placing compacted non-structural fill against existing slopes subject to erosion/failure);

– Engineering design incorporating post-tension/structural slabs, mat, or deep foundations; or

(2) ~~such alternative~~ Alternative recommendations ~~as may be approved by the City Engineer~~ based on the findings of a ~~project~~ site-specific, design-level geologic and geotechnical investigation(s) and approved by the City Engineer, including but not limited to the use of proven methods generally accepted by registered engineers to reduce the risk of seismic hazards to a less than significant level, provided such recommendations meet the conditions specified in Subsection (3) of this Mitigation Measure.

(3) All recommendations shall comply with or exceed applicable provisions and standards set forth in or established by:

(a) California Geological Survey's "Guidelines for Evaluating and Mitigating Seismic Hazards in California, Special Publication No. 117" (Special Publication 117);

(b) The version of the Uniform Building Code (UBC), as adopted and amended by the City of Rialto, in effect at the time of approval of the investigation(s) by the City Engineer;

(c) Relevant State, County and City laws, ordinances and Code requirements; and

(d) Current standards of practice designed to minimize potential geologic and geotechnical impacts.

- **Mitigation Measure 3-2**. Prior to the approval of a tentative "B" level subdivision map for residential or commercial development proposed as part of the Project (excluding any "A" level subdivision map for financing purposes only), the Project Applicant shall:

(1) Submit to the City of Rialto Building & Safety Division a ~~subsequent~~ site-specific, design-level ~~and design-specific~~ geotechnical and geologic ~~report shall be submitted to and, when acceptable, approved by the City Engineer documenting~~ investigation(s) prepared for the Project by a registered geotechnical engineer. The investigation(s) shall comply with all applicable State, County and City Code requirements and:

(a) Document the feasibility of each proposed ~~use and the appropriate~~ structure and its associated use based on an evaluation of the relevant geotechnical, geologic, and seismic conditions ~~associated with that use~~ present at each structure's location using accepted methodologies. Included in this documentation shall be verification of soil conditions (including identification of organic and oversized materials) and a specific evaluation of collapsible and expansive soils;

(b) Determine structural design requirements prescribed by the version of the UBC, as adopted and amended by the City of Rialto, in effect at the time of approval of the investigation(s) by the City Engineer, to ensure the structural integrity of all proposed development; and

(c) In addition to the recommendations included in Subsections (1) and (2) of Mitigation Measure 3-1, include site-specific conditions, recommendations and/or measures designed to minimize risks associated with surface rupture, ground shaking, soil stability (including collapsible and expansive soils), liquefaction and other seismic hazards, provided such conditions, recommendations and/or measures meet the conditions set forth in subsection (3) of Mitigation Measure 3-1. Such measures shall specify liquefaction measures such as deep foundations extending below the liquefiable layers, soil cover sufficiently thick over liquefaction soil to bridge liquefaction zones, dynamic compaction, compaction grouting, and jet grouting. In accordance with Special Publication No. 117, other measures may include edge containment structures (e.g., berms, retaining structures, and compacted soil zones), removal or treatment of liquefiable soils, reinforced shallow foundations, and other structural design techniques that can withstand predicted displacements.

(2) Unless otherwise modified, ~~any~~ all conditions, recommendations, and/or mitigation measures contained ~~therein~~ within the geotechnical and geologic investigation(s), including the imposition of specified setback requirements for proposed development activities within Alquist-Priolo Earthquake Fault Zones, shall become conditions of approval for the requested ~~use~~ development.

(3) The Project structural engineer shall: review the geotechnical and geologic investigation(s); provide any additional conditions, recommendations and/or mitigation measures necessary to meet UBC requirements; incorporate all conditions, recommendations and/or mitigation measures from the investigation(s) in the structural design plans; and ensure that all structural plans for the Project meet the requirements of the version of the UBC, as adopted and

amended by the City of Rialto, in effect at the time of approval of the investigation(s) by the City Engineer.

(4) The City Engineer shall: review the geotechnical and geologic investigation(s); approve the final report; and require compliance with all conditions, recommendations and/or mitigation measures set forth in the investigation(s) in the plans submitted for grading, foundation, structural, infrastructure and all other relevant construction permits.

(5) The City Building & Safety Division shall: review all Project plans for grading, foundation, structural, infrastructure and all other relevant construction permits to ensure compliance with the applicable geotechnical and geologic investigation(s) and other applicable Code requirements.

- **Mitigation Measure 3-3**. In recognition of the potential lateral forces exerted by predicted seismic activities, ~~no~~ habitable structures that may be located on the ~~project~~ Project site and which are located within the defined Alquist-Priolo Fault-Rupture Hazard Zones shall not be over two stories in height. Habitable structures of greater height within defined Alquist-Priolo Fault-Rupture Hazard Zones may only be ~~authorized~~ permitted following the submittal of a subsequent site-specific, design-level geologic and ~~design-specific~~ geotechnical ~~and geologic report acceptable to~~ investigation(s) and its approval by the City Engineer and, at a minimum, the imposition of both the recommendations contained therein and such additional conditions as may be imposed by the City Engineer, including but not limited to the use of proven methods generally accepted by registered engineers to reduce the risk of seismic hazards to a less than significant level, provided such recommendations meet the conditions specified in Mitigation Measure 3-1, Subsection (3).

Section 4.9, Public Services and Recreation, page 4.9-120, revise the first two Mitigation Measures as follows (the underlining of any original text is not underlined below so as to distinguish from new text):

- **Mitigation Measure 9-4**. Fire Protection. Prior to the issuance of building permits for any habitable use in Neighborhoods I and IV, the Applicant shall demonstrate to the satisfaction of the ~~RFD~~ Rialto Fire Department and/or to the agency with fire protection and emergency ~~service~~ jurisdiction over that area that ~~either: (1) NFPA~~ National Fire Protection Association 1710 response standards can and will be satisfied prior to the issuance of any occupancy permits within those areas~~; or (2) although NFPA 1710 response standards cannot be satisfied, that alternative actions, measures, and/or design features, acceptable to the RFD and/or the jurisdictional agency, have been incorporated into the project's development plans and/or habitable uses as to constitute an acceptable response standard for those areas~~.

- **Mitigation Measure 9-5**. Fire Protection. ~~The~~ At the time of building permit issuance, the Applicant shall ~~take such actions and~~ pay ~~such fees as may be reasonably imposed by the RFD to ensure the timely provision of adequate and appropriate fire protection and emergency services to the LCRSP and the uses authorized therein. This measure neither precludes the Applicant from suggesting alternative actions and/or fees which~~

~~can be demonstrated to result in the attainment of those same or similar objectives nor obligates the RFD to accept those alternative measures and/or fees in lieu of those identified by the RFD. If consensus cannot be reached between the RFD and the Applicant, the City Council shall establish the actions and fees applicable to the proposed project.~~

~~Should the City subsequent adopt an impact fee program for fire protection services, unless a substitute measure(s) is imposed by the City, payment of applicable impact fees would effectively mitigation project-related impacts upon fire protection services and serve to fulfill the Applicant's obligations hereunder~~ to the City of Rialto Development Impact Fees for fire protection, based on the number of residential units or square footage of non-residential development included in each permitted building. Such fees shall be paid in accordance with the fee schedules set forth in the proposed Pre-Annexation and Development Agreement (Development Agreement) between the City and the Applicant. If such a Development Agreement is not approved, such fees shall be paid pursuant to the City's Fire Protection Services Development Fee program under Chapter 3.60 of the City of Rialto Municipal Code.

2.2.2 Corrections and Additions to the RPDEIR (EIR Volume V)

Section 1.1, Purpose, page 1-2, first full paragraph, revise the fifth sentence as follows:

> Responses to all comments received during the review period regarding the environmental analysis in this RPDEIR will be provided in a separate document—a ~~Revised Final EIR (Revised FEIR)~~ Final Recirculated Portions of the EIR (Final RPEIR).

Section 2.2.5, Level of Significance after Incorporation of 2011 Roadway Improvements and Mitigation Measures, page 2-125, revise Table 2.2-3 as shown on page 2-10. The same changes should be reflected in Appendix V-C-A, page 14, in Table 2 therein.

Section 2.2.5, Level of Significance after Incorporation of 2011 Roadway Improvements and Mitigation Measures, page 2-128, revise Table 2.2-4 as shown on page 2-12. The same changes should be reflected in Appendix V-C-A, page 16, in Table 3 therein.

Section 2.2.4, Recent Roadway Improvements and Recommended Mitigation Measures, Subsection 2.2.4.1, Operational Impacts, page 2-122, revise the last full bullet item on the page as follows (the underlining of any original text is not underlined below so as to distinguish from new text):

- **Baseline Road & Alder Avenue (Study Intersection No. 59).** Flare and restripe Alder Avenue to provide one left-turn lane, one through lane, and one through/right shared lane in the Southbound direction. (*The "Sunnyvale" Analysis determined that the Project would not result in significant impacts at this intersection, due to the completion of the SRs-210/SR-30 gap closure project and Glen Helen Parkway extension project.*)

Table 2.2-3
Level of Service Summary
Existing (2007) Plus Project Conditions With Traffic Study Period (2007)
And Current (2011) Freeway/Roadway Improvements

No.	Intersection	Peak Hour	Existing (2007) Without Project V/C	Delay	LOS	Existing (2007) With Project V/C	Delay	LOS		Existing (2007) With Current (2011) Route With Project V/C	Delay	LOS	
7	I-215 SB On/Off Ramps &	AM	0.810	20.3	C	0.828	21.3	C		1.118	82.9	F	*
	University Parkway	PM	1.162	72.3	E	1.180	76.7	E	*	1.018	56.2	E	*
8	I-15 SB On/Off Ramps &	AM	[1]	9.9	A	[1]	16.7	C		[1]	336.6	F	*
	Glen Helen Parkway	PM	[1]	10.6	B	[1]	35.4	E	*	[1]	680.2	F	*
9	I-15 NB On/Off Ramps &	AM	[1]	8.7	A	[1]	10.0	A		[1]	10.4	B	
	Glen Helen Parkway	PM	[1]	37.1	E	[1]	207.2	F	*	[1]	14.8	B	
11	Lytle Creek Road &	AM	[1]	9.0	A	[1]	13.1	B		~~0.384~~ [1]	~~10.2~~ 10.9	B	
	Sierra Avenue	PM	[1]	11.9	B	[1]	236.5	F	*	~~0.707~~ [1]	~~18.5~~ 64.8	~~C~~ F	*
12	I-15 SB On/Off Ramps &	AM	[1]	43.8	E	[1]	275.2	F	*	1.731	155.3	F	*
	Sierra Avenue	PM	[1]	15.5	C	[1]	252.9	F	*	1.916	275.7	F	*
13	I-15 NB On/Off Ramps &	AM	[1]	30.3	D	[1]	293.2	F	*	1.539	208.7	F	*
	Sierra Avenue	PM	[1]	25.6	D	[1]	445.3	F	*	2.307	456.4	F	*
16	I-15 SB On/Off Ramps &	AM	1.288	114.6	F	1.304	118.1	F	*	0.062	18.0	B	
	Summit Avenue	PM	0.864	21.2	C	0.886	22.9	C		0.115	12.4	B	
17	I-15 NB On/Off Ramps &	AM	0.791	19.1	B	0.819	20.4	C		0.322	7.1	A	
	Summit Avenue	PM	1.240	99.4	F	1.279	110.6	F	*	0.185	14.2	B	
18	Riverside Avenue &	AM	[1]	40.7	E	[1]	399.2	F	*	1.101	59.0	F	*
	Sierra Avenue	PM	[1]	22.8	C	[1]	406.0	F	*	1.474	150.2	F	*
22	Riverside Avenue &	AM	[1]	35.3	E	1.069	58.6	E	*	1.168	76.1	E	*
	Linden Avenue	PM	[1]	15.3	C	1.127	91.7	F	*	1.636	253.1	F	*
31	Bohnert Avenue &	AM	[1]	75.2	F	[1]	210.6	F	*	[1]	15.0	B	
	Locust Avenue	PM	[1]	24.6	C	[1]	171.1	F	*	[1]	23.1	C	
34	Casmalia Street &	AM	0.836	33.3	C	0.931	49.3	D		0.368	19.2	B	
	Alder Avenue	PM	1.187	124.2	F	1.331	173.2	F	*	0.570	35.3	D	
39	SR-210 Freeway WB On/Off Ramps &	AM	1.029	42.7	D	1.123	67.3	E	*	0.437	16.3	B	
	Alder Avenue	PM	0.807	10.8	B	0.868	12.8	B		0.365	10.9	B	
55	Easton Street &	AM	0.753	19.5	B	0.773	19.9	B		0.334	16.4	B	
	Ayala Drive	PM	1.120	65.5	E	1.164	79.1	E	*	0.430	21.1	C	
56	Easton Street &	AM	0.956	46.9	D	1.159	88.9	F	*	0.525	13.7	B	
	Riverside Avenue	PM	1.202	101.5	F	1.616	195.4	F	*	0.662	20.6	C	
59	Baseline Road &	AM	0.684	23.6	C	0.718	25.5	C		0.471	18.7	B	
	Alder Avenue	PM	0.919	46.8	D	0.969	56.2	E	*	0.633	29.4	C	

* Denotes a significant project traffic impact, prior to mitigation.
[1] Volume to capacity ratio is not provided for two-way, STOP sign-controlled intersections.

Source: Addendum to the Traffic Impact Analysis Report for the Lytle Creek Ranch Planned Development Project, Crain and Associates, January 2012.

Table 2.2-4
Level of Service Summary
Existing (2007) Plus Project With Current (2011) Freeway/Roadway Improvement and Future (2030) Mitigation Traffic Conditions

No.	Intersection	Peak Hour	Existing (2007) Without Project V/C	Delay	LOS	Existing (2007) With Project V/C	Delay	LOS		Existing (2007) With Current (2011) Routes With Project V/C	Delay	LOS		Existing (2007) With Proj. With Current (2011) Routes and Intersection Specific Mit V/C	Delay	LOS
7	I-215 SB On/Off Ramps &	AM	0.810	20.3	C	0.828	21.3	C		1.118	82.9	F	*	0.612	11.2	B
	University Parkway	PM	1.162	72.3	E	1.180	76.7	E	*	1.018	56.2	E	*	0.619	23.7	C
8	I-15 SB On/Off Ramps &	AM	[1]	9.9	A	[1]	16.7	C		[1]	336.6	F	*			
	Glen Helen Parkway	PM	[1]	10.6	B	[1]	35.4	E	*	[1]	680.2	F	*			
9	I-15 NB On/Off Ramps &	AM	[1]	8.7	A	[1]	10.0	A		[1]	10.4	B				
	Glen Helen Parkway	PM	[1]	37.1	E	[1]	207.2	F	*	[1]	14.8	B				
11	Lytle Creek Road &	AM	[1]	9.0	A	[1]	13.1	B		0.384	10.2	B		0.215	5.5	A
	Sierra Avenue	PM	[1]	11.9	B	[1]	236.5	F	*	0.707	18.5	C		0.504	12.3	B
12	I-15 SB On/Off Ramps &	AM	[1]	43.8	E	[1]	275.2	F	*	1.731	155.3	F	*	0.476	20.1	C
	Sierra Avenue	PM	[1]	15.5	C	[1]	252.9	F	*	1.916	275.7	F	*	0.620	23.4	C
13	I-15 NB On/Off Ramps &	AM	[1]	30.3	D	[1]	293.2	F	*	1.539	208.7	F	*	0.624	18.7	B
	Sierra Avenue	PM	[1]	25.6	D	[1]	445.3	F	*	2.307	456.4	F	*	0.996	40.7	D
16	I-15 SB On/Off Ramps &	AM	1.288	114.6	F	1.304	118.1	F	*	0.062	18.0	B				
	Summit Avenue	PM	0.864	21.2	C	0.886	22.9	C		0.115	12.4	B				
17	I-15 NB On/Off Ramps &	AM	0.791	19.1	B	0.819	20.4	C		0.322	7.1	A				
	Summit Avenue	PM	1.240	99.4	F	1.279	110.6	F	*	0.185	14.2	B				
18	Riverside Avenue &	AM	[1]	40.7	E	[1]	399.2	F	*	1.101	59.0	F	*	0.676	13.1	B
	Sierra Avenue	PM	[1]	22.8	C	[1]	406.0	F	*	1.474	150.2	F	*	0.846	17.0	B
22	Riverside Avenue &	AM	[1]	35.3	E	1.069	58.6	E	*	1.168	76.1	E	*	0.531	13.2	B
	Linden Avenue	PM	[1]	15.3	C	1.127	91.7	F	*	1.636	253.1	F	*	0.834	27.4	C
31	Bohnert Avenue &	AM	[1]	75.2	F	[1]	210.6	F	*	[1]	15.0	B				
	Locust Avenue	PM	[1]	24.6	C	[1]	171.1	F	*	[1]	23.1	C				
34	Casmalia Street &	AM	0.836	33.3	C	0.931	49.3	D		0.368	19.2	B				
	Alder Avenue	PM	1.187	124.2	F	1.331	173.2	F	*	0.570	35.3	D				
39	SR-210 Freeway WB On/Off	AM	1.029	42.7	D	1.123	67.3	E	*	0.437	16.3	B				
	Ramps & Alder Avenue	PM	0.807	10.8	B	0.868	12.8	B		0.365	10.9	B				
55	Easton Street &	AM	0.753	19.5	B	0.773	19.9	B		0.334	16.4	B				
	Ayala Drive	PM	1.120	65.5	E	1.164	79.1	E	*	0.430	21.1	C				
56	Easton Street &	AM	0.956	46.9	D	1.159	88.9	F	*	0.525	13.7	B				
	Riverside Avenue	PM	1.202	101.5	F	1.616	195.4	F	*	0.662	20.6	C				
59	Baseline Road &	AM	0.684	23.6	C	0.718	25.5	C		0.471	18.7	B				
	Alder Avenue	PM	0.919	46.8	D	0.969	56.2	E	*	0.633	29.4	C				

* Denotes a significant project traffic impact, prior to mitigation.
[1] Volume to capacity ratio is not provided for two-way, STOP sign-controlled intersections.

Source: Addendum to the Traffic Impact Analysis Report for the Lytle Creek Ranch Planned Development Project, Crain and Associates, January 2012

Section 2.2.4, Recent Roadway Improvements and Recommended Mitigation Measures, Subsection 2.2.4.1, Operational Impacts, page 2-123, delete the sixth full bullet item:

- ~~**SR-210 Freeway Westbound On/Off Ramps & Alder Avenue (Study Intersection No. 39).** Restripe the Westbound approach to provide one~~

~~left-turn lane and one left/through/right shared lane, and one right-turn lane.~~

Section 2.5.3, Air Quality Impacts, Subsection 2.5.3.1, Habitat Avoidance Alternative 1, pages 2-144 to 2-145, revise the discussion of operational air quality impacts, including Table 2.5-5, as follows:

Operation

As shown in Appendix V-D, the number of daily trips generated by this alternative would decrease by ~~4~~ 9 percent in comparison to the Project. As vehicular emissions are dependent on the number of trips, vehicular sources would have a similar decrease in pollutant emissions compared to the Project as shown in Table 2.5-5 on page 2-145 [page 2-14 herein]. Since the overall square footage is less than the Project, both area sources and stationary sources would generate a similar decrease in pollutant emissions.

Regional Operational Air Quality Analysis

As shown in Table 2.5-5, maximum daily operational emissions for this alternative would result in ~~837~~ 797 pounds per day of VOC, ~~725~~ 698 pounds per day of NO_X, ~~3,911~~ 3,617 pounds per day of CO, ~~30~~ 29 pounds per day of SO_X, ~~1,538~~ 1,451 pounds per day of PM_{10}, and ~~306~~ 288 pounds per day of $PM_{2.5}$. In comparison to the Project, this alternative would reduce maximum daily operational emissions by ~~6~~ 10 percent for VOC (~~54~~ 93 pounds per day), ~~6~~ 11 percent for NO_X (~~48~~ 85 pounds per day), ~~2~~ 10 percent for CO (~~94~~ 388 pounds per day), ~~10~~ 12 percent for SO_X (~~3~~ 4 pounds per day), ~~4~~ 10 percent for PM_{10} (~~67~~ 154 pounds per day), and ~~4~~ 10 percent for $PM_{2.5}$ (~~14~~ 31 pounds per day). Thus, the total contributions to regional emissions under this alternative would exceed the significance thresholds established for CO, NOx, PM_{10}, $PM_{2.5}$, and VOC. Thus, similar to the Project, such impacts would be significant and unavoidable.

The local CO hotspot analysis conducted for the Project showed a maximum CO concentration of 4.6 parts per million (ppm) for the 1-hour CO concentration (approximately 77 percent below the 20 ppm standard) and 3.4 ppm for the 8-hour concentration (approximately 62 percent below the 9.0 ppm standard), of which the Project contribution was less than 0.5 ppm for the 1-hour concentration and 0.3 ppm for the 8-hour concentration.[7] This alternative would decrease vehicular traffic by ~~4~~ 9 percent in comparison to the Project with a resultant decrease in the Project contribution by approximately ~~4~~ 9 percent. Since the localized CO hotspot analysis for the Project did not result in any significant impacts, this alternative would likewise not have any localized impacts.

Section 2.5.3, Air Quality Impacts, Subsection 2.5.3.2, Habitat Avoidance Alternative 2, pages 2-152 to 2-153, revise the discussion of operational air quality impacts, including Table 2.5-9, as follows:

[7] Intersection of Riverside Avenue and Sierra Avenue, Table 4.7-15 of Section 4.7, Air Quality, of the DEIR.

Table 2.5-5
Maximum Habitat Avoidance Alternative 1: Operational Emissions[1]
(Pounds per Day)

Emission Source	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Alternative						
Mobile	~~375~~ 355	~~418~~ 395	~~3,601~~ 3,395	~~10~~ 9	~~1,530~~ 1,443	~~298~~ 281
Area	~~460~~ 441	~~116~~ 104	~~277~~ 189	<1	1	1
Stationary	2	190	33	20	7	7
Total Operational Emissions	**~~837~~ 797**	**~~725~~ 688**	**~~3,911~~ 3,617**	**~~30~~ 29**	**~~1,538~~ 1,451**	**~~306~~ 288**
SCAQMD Significance Threshold	55	55	550	150	150	55
Difference	~~782~~ 742	~~670~~ 633	~~3,361~~ 3,067	(~~120~~ 121)	~~1,388~~ 1,301	~~251~~ 233
Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Comparison to Project Emissions						
Project Total Emissions[2]	891	773	4,004	33	1,604	319
Alternative Total Emissions	~~837~~ 797	~~725~~ 688	~~3,911~~ 3,617	~~30~~ 29	~~1,538~~ 1,451	~~306~~ 288
Difference	(~~54~~ 93)	(~~48~~ 85)	(~~94~~ 388)	(~~3~~ 4)	(~~67~~ 154)	(~~14~~ 31)
Percent Difference	(~~6~~ 10%)	(~~6~~ 11%)	(~~2~~ 10%)	(~~10~~ 12%)	(~~4~~ 10%)	(~~4~~ 10%)

Notes:

1. Mobile and area emissions are calculated using the URBEMIS2007 emissions model. Area sources include natural gas consumption, landscape fuel consumption, residential consumer products and miscellaneous sources (e.g., among other things, commercial solvent usage, architectural coatings). Emissions due to Project-related electricity generation are calculated based on guidance provided in the SCAQMD CEQA Air Quality Handbook. Worksheets and modeling output files are provided in Appendix V-D.
2. Project operational emissions as presented in Table 4.7-14 of Section 4.7, Air Quality, of the DEIR. Please note that the Project total emissions were updated to reflect the total mobile, area, and stationary emissions provided in Table 4.7-14 of the DEIR.

Source: PCR Services Corporation, 2009; Matrix Environmental, 2012.

Operation

As shown in Appendix V-D, the number of daily trips generated by this alternative would decrease by ~~32~~ 39 percent in comparison to the Project. As vehicular emissions are dependent on the number of trips, vehicular sources would have a similar decrease in pollutant emissions compared to the Project as shown in Table 2.5-9 on page 2-153 [page 2-15 herein]. Since the overall square footage is less than the Project, both area sources and stationary sources would generate a similar decrease in pollutant emissions under this alternative.

Regional Operational Air Quality Analysis

As shown in, maximum daily operational emissions for this alternative would result in ~~530~~ 499 pounds per day of VOC, ~~431~~ 404 pounds per day of NO_X, ~~2,194~~ 1,975 pounds per day of CO, 18 pounds per day of SO_X, ~~820~~ 759 pounds per day of PM_{10}, and

Table 2.5-9
Unmitigated Maximum Habitat Avoidance Alternative 2: Operational Emissions[1]
(Pounds per Day)

Emission Source	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Alternative						
Mobile	~~226~~ 211	~~228~~ 211	~~1,976~~ 1,828	5	~~815~~ 754	~~159~~ 147
Area	~~303~~ 287	~~78~~ 68	~~196~~ 125	<1	~~1~~ <1	~~1~~ <1
Stationary	1	125	22	13	4	4
Total Operational Emissions	**~~530~~ 499**	**~~431~~ 404**	**~~2,194~~ 1,975**	**18**	**~~820~~ 759**	**~~164~~ 152**
SCAQMD Significance Threshold	55	55	550	150	150	55
Difference	~~475~~ 444	~~376~~ 349	~~1,644~~ 1,425	(132)	~~670~~ 609	~~109~~ 97
Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Comparison to Project Emissions						
Project Total Emissions[2]	891	773	4,004	33	1,604	319
Alternative Total Emissions	~~530~~ 499	~~431~~ 404	~~2,194~~ 1,975	18	~~820~~ 759	~~164~~ 152
Difference	(~~361~~ 392)	(~~342~~ 370)	(~~1,810~~ 2,030)	(15)	(~~784~~ 845)	(~~155~~ 167)
Percent Difference	(~~40~~ 44%)	(~~44~~ 48%)	(~~45~~ 51%)	(~~44~~ 46%)	(~~49~~ 53%)	(~~49~~ 52%)

Notes:

1. Mobile and area emissions are calculated using the URBEMIS2007 emissions model. Area sources include natural gas consumption, landscape fuel consumption, residential consumer products and miscellaneous sources (e.g., among other things, commercial solvent usage, architectural coatings). Emissions due to Project-related electricity generation are calculated based on guidance provided in the SCAQMD CEQA Air Quality Handbook. Worksheets and modeling output files are provided in Appendix V-D.
2. Project operational emissions as presented in Table 4.7-14 of Section 4.7, Air Quality, of the DEIR. Please note that the Project total emissions were updated to reflect the total mobile area, and stationary emissions provided in Table 4.7-14 of the DEIR.

Source: PCR Services Corporation, 2009; Matrix Environmental 2012.

~~164~~ 152 pounds per day of $PM_{2.5}$. In comparison to the Project, this alternative would reduce maximum daily operational emissions by ~~40~~ 44 percent for VOC (~~361~~ 392 pounds per day), ~~44~~ 48 percent for NO_X (~~342~~ 370 pounds per day), ~~45~~ 51 percent for CO (~~1,810~~ 2,030 pounds per day), ~~44~~ 46 percent for SO_X (15 pounds per day), ~~49~~ 53 percent for PM_{10} (~~784~~ 845 pounds per day), and ~~49~~ 52 percent for $PM_{2.5}$ (~~155~~ 167 pounds per day). However, the total contributions to regional emissions under this alternative would remain significant for CO, NO_X, PM_{10}, $PM_{2.5}$, and VOC, as is the case with the Project.

As discussed above, this alternative is forecasted to generate ~~32~~ 39 percent fewer operational trips than the Project. The local CO hotspot analysis conducted for the Project showed a maximum CO concentration of 4.6 parts per million (ppm) for the 1-hour CO concentration (approximately 77 percent below the 20 ppm standard) and 3.4 ppm for the 8-hour concentration (approximately 62 percent below the 9.0 ppm

standard), of which the Project contribution was less than 0.5 ppm for the 1-hour concentration and 0.3 ppm for the 8-hour concentration.[8] This alternative would potentially decrease vehicular traffic by ~~32~~ 39 percent in comparison to the Project with a resultant decrease in the Project contribution by approximately ~~32~~ 39 percent. Since the localized CO hotspot analysis for the Project did not result in any significant impacts, this alternative would likewise not have any localized impacts.

Section 2.5.4, Noise Impacts, Subsection 2.5.4.1, Habitat Avoidance Alternative 1, pages 2-156 to 2-157, revise the discussion of operational noise impacts as follows:

Operation

Similar to the Project, vehicular traffic upon build-out would introduce new mobile noise sources and may create a higher noise exposure to residents and other sensitive receptors beyond the noise levels currently experienced or otherwise predicted in the absence of this alternative. As shown in Appendix V-D, daily traffic volumes would be approximately ~~4~~ 9 percent less under this alternative than that forecasted to occur under the Project due to the reduction of dwelling units and total square footage of non-residential land uses. This reduction in traffic would occur across the local roadway network and beyond. As such, operational traffic noise impacts under this alternative would be incrementally less than the Project. As shown in Table 4.8-10 (Off-Site Traffic Noise Analysis—Project-Related and Cumulative Noise Impacts) in Section 4.8, Noise, of the DEIR, increases in project-related traffic noise levels would exceed the significance threshold of 3.0 dBA CNEL at two intersections, resulting in an increase of 3.1 dBA CNEL on Riverside Avenue (between Alder Avenue and Locust Avenue) and 4.4 dBA CNEL on Country Club Drive (north of Riverside Avenue). With the ~~4~~ 9 percent reduction in traffic, the increase in noise levels along Riverside Avenue (between Alder Avenue and Locust Avenue) would be reduced to ~~3.0~~ 2.9 dBA CNEL and ~~4.3~~ 4.1 dBA CNEL for Country Club Drive (north of Riverside Avenue). ~~While the noise levels along these roadway segments would be reduced, as with the Project,~~ While noise levels along Riverside Avenue (between Alder Avenue and Locust Avenue) would not be considered significant under Criterion 2 (cause ambient noise levels to increase by 3 dBA CNEL or more at a sensitive receptor location and the resulting noise exceeds 65 dBA CNEL), noise impacts along Country Club Drive (north of Riverside Avenue) ~~and along the south (west) side of Riverside Avenue (between Alder Avenue and Locust Avenue)~~ would be considered significant ~~under Criterion 2 (cause ambient noise levels to increase by 3 dBA CNEL or more at a sensitive receptor location and the resulting noise exceeds 65 dBA CNEL)~~. Thus, as with the Project, ~~these~~ this alternative would result in operational noise impacts that would be significant and unavoidable.

Section 2.5.4, Noise Impacts, Subsection 2.5.4.2, Habitat Avoidance Alternative 2, pages 2-157 to 2-158, revise the discussion of operational noise impacts as follows:

[8] Intersection of Riverside Avenue and Sierra Avenue, Table 4.7-15 of Section 4.7, Air Quality, of the DEIR.

Operation

Similar to the Project, vehicular traffic upon build-out would introduce new mobile noise sources and may create a higher noise exposure to residents and other sensitive receptors beyond the noise levels currently experienced or otherwise predicted in the absence of this alternative. As shown in Appendix V-D, daily traffic volumes would be approximately ~~32~~ 39 percent less under this alternative than that forecasted to occur under the Project due to the reduction of dwelling units and total square footage of non-residential land uses. This reduction in traffic would occur across the local roadway network and beyond. As such, operational traffic noise impacts under this alternative would be incrementally less than the Project. As shown in Table 4.8-10 (Off-Site Traffic Noise Analysis—Project-Related and Cumulative Noise Impacts) in Section 4.8, Noise, of the DEIR, increases in project-related traffic noise levels would exceed the significance threshold of 3.0 dBA CNEL at two intersections, resulting in an increase of 3.1 dBA CNEL on Riverside Avenue (between Alder Avenue and Locust Avenue) and 4.4 dBA CNEL on Country Club Drive (north of Riverside Avenue). With the ~~32~~ 39 percent reduction in traffic, the increase in noise levels along Riverside Avenue (between Alder Avenue and Locust Avenue) would be reduced to ~~2.2~~ 2.1 dBA CNEL and the increase in noise levels along Country Club Drive (north of Riverside Avenue) would be reduced to ~~3.4~~ 3.2 dBA CNEL. While noise levels along Riverside Avenue (between Alder Avenue and Locust Avenue) would not be considered significant under Criterion 2 (cause ambient noise levels to increase by 3 dBA CNEL or more at a sensitive receptor location and the resulting noise exceeds 65 dBA CNEL), noise levels along Country Club Drive (north of Riverside Avenue) would be considered significant. Thus, as with the Project, this alternative would result in operational noise impacts that would be significant and unavoidable.

Section 2.5.9, Rejection of Alternatives as Infeasible, page 2-261, revise footnote 170 as follows:

[170] Public Resources Code, § 21061.1; see also CEQA Guidelines, § 15364 (defining feasible as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors").

Appendix V-C-A, Addendum to the Traffic Impact Analysis Report for the Lytle Creek Ranch Planned Development Project, Impacts to Existing Roadway Network, replace the cover page of the report with the update cover page provided on page 2-18 herein.

Appendix V-D-B, Operation Emissions, replace the appendix in full with the updated appendix provided on pages 2-19 through 2-30 herein.

Appendix V-D-C, Noise Output Sheets, replace the appendix in full with the updated appendix provided on pages 2-31 through 2-32 herein.

ADDENDUM TO THE TRAFFIC IMPACT ANALYSIS REPORT FOR THE LYTLE CREEK RANCH PLANNED DEVELOPMENT PROJECT IMPACTS TO EXISTING ROADWAY NETWORK

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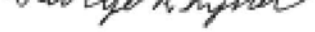

January 2012

Appendix V-D-B

- Summary of Operational Emissions for Habitat Avoidance Alternatives 1 and 2
- Electricity Usage Emissions for Habitat Avoidance Alternatives 1 and 2
- Average Daily Trips for Habitat Avoidance Alternatives 1 and 2
- Regional Operational Emissions (URBEMIS Output and Worksheets)

Regional Emission Calculations (lbs/day)

	VOC	NOx	CO	SO2	PM10	PM2.5
Alternative 1						
Mobile	355	395	3395	9	1443	281
Area	441	104	189	0	1	1
Stationary	2	190	33	20	7	7
Total Alt 1	**797**	**688**	**3617**	**29**	**1451**	**288**
Significance Threshold	55	55	550	150	150	55
Over/Under	742	633	3067	(121)	1301	233
Significant?	Yes	Yes	Yes	No	Yes	Yes
Alternative 2						
Mobile	211	211	1828	5	754	147
Area	287	68	125	0	0	0
Stationary	1	125	22	13	4	4
Total Alt 2	**499**	**404**	**1975**	**18**	**759**	**152**
Significance Threshold	55	55	550	150	150	55
Over/Under	444	349	1425	(132)	609	97
Significant?	Yes	Yes	Yes	No	Yes	Yes
Project						
Mobile	394	436	3755	10	1596	311
Area	495	116	211	0	1	1
Stationary	2	222	39	23	8	8
Total Project	**891**	**773**	**4004**	**33**	**1604**	**319**
Significance Threshold	55	55	550	150	150	55
Over/Under	836	718	3454	(117)	1454	264
Significant?	Yes	Yes	Yes	No	Yes	Yes
Comparison						
Project	891	773	4004	33	1604	319
Alt 1	797	688	3617	29	1451	288
Difference	(93)	(85)	(388)	(4)	(154)	(31)
% Difference	-10%	-11%	-10%	-12%	-10%	-10%
Project	891	773	4004	33	1604	319
Alt 2	499	404	1975	18	759	152
Difference	**(392)**	**(370)**	**(2030)**	**(15)**	**(845)**	**(167)**
% Difference	**-44%**	**-48%**	**-51%**	**-46%**	**-53%**	**-52%**

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Regional Emissions.xls Regional

Lytle Creek Ranch Specific Plan Altenatives

Electricity Usage Emissions
April 2012

Alternative 1						Emission Rate (lbs/day)[a]					
						VOC	NOx	CO	SOx	PM10	PM2.5
Existing Land Uses	Amount	Units	SCAQMD Electricity Usage Factor (kWh/Sq. Ft./Year)	Project Electricity Usage (MWh/Day)	Rate (lbs/Mwh) --->	0.01	1.15	0.2	0.12	0.04	0.04
Office	0.00	KSF	12.95	0.0		0.00	0.00	0.00	0.00	0.00	0.00
Retail	820.54	KSF	13.55	30.5		0.30	35.03	6.09	3.66	1.22	1.22
Hotel/Motel	0.00	KSF	9.95	0.0		0.00	0.00	0.00	0.00	0.00	0.00
Restaurant	0.00	KSF	47.45	0.0		0.00	0.00	0.00	0.00	0.00	0.00
Food Store	0.00	KSF	53.3	0.0		0.00	0.00	0.00	0.00	0.00	0.00
Warehouse	0.00	KSF	4.35	0.0		0.00	0.00	0.00	0.00	0.00	0.00
College/University	0.00	KSF	11.55	0.0		0.00	0.00	0.00	0.00	0.00	0.00
High School	0.00	KSF	10.5	0.0		0.00	0.00	0.00	0.00	0.00	0.00
Elementary School	1,200.00	KSF	5.9	19.4		0.19	22.31	3.88	2.33	0.78	0.78
Hospital	0.00	KSF	21.7	0.0		0.00	0.00	0.00	0.00	0.00	0.00
Miscellaneous	0.00	KSF	10.5	0.0		0.00	0.00	0.00	0.00	0.00	0.00
Residential (DU)	7,485	DU	5626.5	115.4		1	133	23	14	5	5
Total Existing Emissions						**1.7**	**190.0**	**33.0**	**19.8**	**6.6**	**6.6**

Alternative 2						Emission Rate (lbs/day)[a]					
						VOC	NOx	CO	SOx	PM10	PM2.5
Future Buildout Land Uses	Amount	Units	SCAQMD Electricity Usage Factor (kWh/Sq. Ft./Year)	Project Electricity Usage (MWh/Day)	Rate (lbs/Mwh) --->	0.01	1.15	0.2	0.12	0.04	0.04
Office	0.00	KSF	12.95	0.0		0	0	0	0	0	0
Retail	602.83	KSF	13.55	22.4		0	26	4	3	1	1
Hotel/Motel	0.00	KSF	9.95	0.0		0	0	0	0	0	0
Restaurant	0.00	KSF	47.45	0.0		0	0	0	0	0	0
Food Store	0.00	KSF	53.3	0.0		0	0	0	0	0	0
Warehouse	0.00	KSF	10.5	0.0		0	0	0	0	0	0
College/University	0.00	KSF	11.55	0.0		0	0	0	0	0	0
Library	0.00	KSF	10.5	0.0		0.00	0.00	0.00	0.00	0.00	0.00
Elementary School	700.00	KSF	5.9	11.3		0	13	2	1	0	0
Hospital	0.00	KSF	21.7	0.0		0	0	0	0	0	0
Miscellaneous	0.00	KSF	10.5	0.0		0	0	0	0	0	0
Residential (DU)	4,872	DU	5626.5	75.1		1	86	15	9	3	3
Total Future Buildout Emissions						**1.1**	**125.1**	**21.8**	**13.1**	**4.4**	**4.4**

a Electricity Usage Rates from Table A9-11-A, CEQA Air Quality Handbook, SCAQMD, 1993.

b Emission Factors from Table A9-11-B, CEQA Air Quality Handbook, SCAQMD, 1993.

Summary of Land Uses

Proposed Project

Land Use Type	Trip Rate	Unit Type	No. Units	Total Trips
Single family housing	9.57	dwelling units	3,409	32,624
Condo/townhouse general	6.90	dwelling units	4,998	34,486
Elementary school	0.88	students	1,950	1,716
City park	1.59	acres	318	506
Strip mall	29.36	1000 sq ft	849	24,939
				94,271

Habitat Avoidance Alternative 1

Land Use Type	Trip Rate	Unit Type	No. Units	Total Trips
Single family housing	9.57	dwelling units	3,047	29,160
Condo/townhouse general	6.90	dwelling units	4,437	30,615
Elementary school	0.88	students	1,200	1,056
City park	1.59	acres	313	498
Strip mall	29.36	1000 sq ft	821	24,091
				85,420

Habitat Avoidance Alternative 2

Land Use Type	Trip Rate	Unit Type	No. Units	Total Trips
Single family housing	9.57	dwelling units	1,960	18,757
Condo/townhouse general	6.90	dwelling units	2,913	20,100
Elementary school	0.88	students	700	616
City park	1.59	acres	67	106
Strip mall	29.36	1000 sq ft	603	17,699
				57,278

Comparison of Proposed Project and Habitat Avoidance Alternative 1

Reduction in Dwell ing Units	923
Reduction in Dwelling Units (%)	11%
Reduction in Total Trips (%)	9%

Comparison of Proposed Project and Habitat Avoidance Alternative 2

Reduction in Dwell ing Units	3,534
Reduction in Dwelling Units (%)	47%
Reduction in Total Trips (%)	39%

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Dropbox\Lytle Creek\RTC\Urbemis OPS Alt 1.urb924

Project Name: Lytle Creek Ranch Final Buildout-Alternative 1

Project Location: San Bernadino County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	440.71	103.51	189.19	0.01	0.57	0.57

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	352.58	318.70	3,394.51	9.45	1,443.46	281.34
TOTALS (lbs/day, mitigated)	337.81	303.43	3,231.60	9.01	1,374.30	267.86
Percent Reduction	4.19	4.79	4.80	4.66	4.79	4.79

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	793.29	422.21	3,583.70	9.46	1,444.03	281.91

Both Area and Operational Mitigation must be turned on to get a combined mitigated total.

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5
Natural Gas	7.83	101.89	46.99	0.00	0.19	0.19
Hearth						
Landscape	25.07	1.62	142.20	0.01	0.38	0.38
Consumer Products	383.93					
Architectural Coatings	23.88					
TOTALS (lbs/day, unmitigated)	440.71	103.51	189.19	0.01	0.57	0.57

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25
Single family housing	122.92	112.35	1,210.43	3.35	509.49	99.36
Condo/townhouse general	134.70	117.96	1,270.85	3.51	534.92	104.32
Elementary school	9.18	3.88	40.62	0.11	17.58	3.42
City park	3.08	1.73	17.93	0.05	7.82	1.52
Strip mall	82.70	82.78	854.68	2.43	373.65	72.72

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TOTALS (lbs/day, unmitigated)	352.58	318.70	3,394.51	9.45	1,443.46	281.34

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2030 Temperature (F): 85 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	1,015.67	9.57	dwelling units	3,047.00	29,159.79	294,595.52
Condo/townhouse general	277.31	6.90	dwelling units	4,437.00	30,615.30	309,300.26
Elementary school		0.88	students	1,200.00	1,056.00	10,169.28
City park		1.59	acres	313.40	498.31	4,525.86
Strip mall		29.36	1000 sq ft	820.54	24,091.05	216,169.02
					85,420.45	834,759.94

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	44.2	0.0	100.0	0.0
Light Truck < 3750 lbs	9.9	0.0	99.0	1.0
Light Truck 3751-5750 lbs	21.8	0.0	100.0	0.0
Med Truck 5751-8500 lbs	12.1	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.3	0.0	82.6	17.4
Lite-Heavy Truck 10,001-14,000 lbs	0.7	0.0	57.1	42.9
Med-Heavy Truck 14,001-33,000 lbs	1.1	0.0	18.2	81.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.1	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	0.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	4.0	32.5	67.5	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.7	0.0	88.2	11.8

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)			
Elementary school	20.0	10.0	70.0
City park	5.0	2.5	92.5
Strip mall	2.0	1.0	97.0

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: C:\Dropbox\Lytle Creek\RTC\Urbemis OPS Alt 1.urb924

Project Name: Lytle Creek Ranch Final Buildout-Alternative 1

Project Location: San Bernadino County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	415.64	101.89	46.99	0.00	0.19	0.19

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	354.85	394.73	3,053.90	7.86	1,443.46	281.34
TOTALS (lbs/day, mitigated)	338.70	375.83	2,907.37	7.47	1,374.30	267.86
Percent Reduction	4.55	4.79	4.80	4.96	4.79	4.79

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	770.49	496.62	3,100.89	7.86	1,443.65	281.53

Both Area and Operational Mitigation must be turned on to get a combined mitigated total.

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25
Single family housing	124.87	139.18	1,087.65	2.78	509.49	99.36
Condo/townhouse general	133.37	146.13	1,141.94	2.92	534.92	104.32
Elementary school	6.26	4.80	36.52	0.10	17.58	3.42
City park	2.38	2.14	16.17	0.04	7.82	1.52
Strip mall	87.97	102.48	771.62	2.02	373.65	72.72
TOTALS (lbs/day, unmitigated)	354.85	394.73	3,053.90	7.86	1,443.46	281.34

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2030 Temperature (F): 60 Season: Winter

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	1,015.67	9.57	dwelling units	3,047.00	29,159.79	294,595.52

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Condo/townhouse general	277.31	6.90	dwelling units	4,437.00	30,615.30	309,300.26
Elementary school		0.88	students	1,200.00	1,056.00	10,169.28
City park		1.59	acres	313.40	498.31	4,525.86
Strip mall		29.36	1000 sq ft	820.54	24,091.05	216,169.02
					85,420.45	834,759.94

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	44.2	0.0	100.0	0.0
Light Truck < 3750 lbs	9.9	0.0	99.0	1.0
Light Truck 3751-5750 lbs	21.8	0.0	100.0	0.0
Med Truck 5751-8500 lbs	12.1	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.3	0.0	82.6	17.4
Lite-Heavy Truck 10,001-14,000 lbs	0.7	0.0	57.1	42.9
Med-Heavy Truck 14,001-33,000 lbs	1.1	0.0	18.2	81.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.1	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	0.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	4.0	32.5	67.5	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.7	0.0	88.2	11.8

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Elementary school				20.0	10.0	70.0
City park				5.0	2.5	92.5
Strip mall				2.0	1.0	97.0

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Dropbox\Lytle Creek\RTC\Urbemis OPS Alt 2.urb924

Project Name: Lytle Creek Ranch Final Buildout-Alternative 2

Project Location: San Bernadino County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	287.29	67.86	124.72	0.00	0.38	0.38

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	208.26	170.44	1,828.31	4.96	754.16	147.23

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	495.55	238.30	1,953.03	4.96	754.54	147.61

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5
Natural Gas	5.13	66.79	31.04	0.00	0.13	0.13
Hearth						
Landscape	16.31	1.07	93.68	0.00	0.25	0.25
Consumer Products	249.98					
Architectural Coatings	15.87					
TOTALS (lbs/day, unmitigated)	287.29	67.86	124.72	0.00	0.38	0.38

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25
Single family housing	74.05	64.03	693.74	1.89	287.00	56.02
Condo/townhouse general	83.06	68.61	743.40	2.03	307.54	60.03
Elementary school	4.93	1.57	16.52	0.04	6.81	1.33
City park	0.61	0.29	2.98	0.01	1.27	0.25
Strip mall	45.61	35.94	371.67	0.99	151.54	29.60
TOTALS (lbs/day, unmitigated)	208.26	170.44	1,828.31	4.96	754.16	147.23

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Operational Settings:

Includes correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2030 Temperature (F): 85 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	653.33	9.57	dwelling units	1,960.00	18,757.20	165,907.45
Condo/townhouse general	182.06	6.90	dwelling units	2,913.00	20,099.70	177,781.88
Elementary school		0.88	students	700.00	616.00	3,938.90
City park		1.59	acres	66.50	105.74	732.74
Strip mall		29.36	1000 sq ft	602.83	17,699.09	87,585.88
					57,277.73	435,946.85

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	44.2	0.0	100.0	0.0
Light Truck < 3750 lbs	9.9	0.0	99.0	1.0
Light Truck 3751-5750 lbs	21.8	0.0	100.0	0.0
Med Truck 5751-8500 lbs	12.1	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.3	0.0	82.6	17.4
Lite-Heavy Truck 10,001-14,000 lbs	0.7	0.0	57.1	42.9
Med-Heavy Truck 14,001-33,000 lbs	1.1	0.0	18.2	81.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.1	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	0.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	4.0	32.5	67.5	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.7	0.0	88.2	11.8

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Elementary school				20.0	10.0	70.0
City park				5.0	2.5	92.5
Strip mall				2.0	1.0	97.0

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: C:\Dropbox\Lytle Creek\RTC\Urbemis OPS Alt 2.urb924

Project Name: Lytle Creek Ranch Final Buildout-Alternative 2

Project Location: San Bernadino County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	270.98	66.79	31.04	0.00	0.13	0.13

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	210.70	210.71	1,663.03	4.12	754.16	147.23

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	481.68	277.50	1,694.07	4.12	754.29	147.36

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5
Natural Gas	5.13	66.79	31.04	0.00	0.13	0.13
Hearth						
Landscaping - No Winter Emissions						
Consumer Products	249.98					
Architectural Coatings	15.87					
TOTALS (lbs/day, unmitigated)	270.98	66.79	31.04	0.00	0.13	0.13

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25
Single family housing	75.31	79.25	626.74	1.57	287.00	56.02
Condo/townhouse general	82.19	84.92	671.60	1.68	307.54	60.03
Elementary school	3.23	1.93	15.14	0.04	6.81	1.33
City park	0.46	0.36	2.73	0.01	1.27	0.25
Strip mall	49.51	44.25	346.82	0.82	151.54	29.60
TOTALS (lbs/day, unmitigated)	210.70	210.71	1,663.03	4.12	754.16	147.23

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Operational Settings:

Includes correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2030 Temperature (F): 60 Season: Winter

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	653.33	9.57	dwelling units	1,960.00	18,757.20	165,907.45
Condo/townhouse general	182.06	6.90	dwelling units	2,913.00	20,099.70	177,781.88
Elementary school		0.88	students	700.00	616.00	3,938.90
City park		1.59	acres	66.50	105.74	732.74
Strip mall		29.36	1000 sq ft	602.83	17,699.09	87,585.88
					57,277.73	435,946.85

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	44.2	0.0	100.0	0.0
Light Truck < 3750 lbs	9.9	0.0	99.0	1.0
Light Truck 3751-5750 lbs	21.8	0.0	100.0	0.0
Med Truck 5751-8500 lbs	12.1	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.3	0.0	82.6	17.4
Lite-Heavy Truck 10,001-14,000 lbs	0.7	0.0	57.1	42.9
Med-Heavy Truck 14,001-33,000 lbs	1.1	0.0	18.2	81.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.1	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	0.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	4.0	32.5	67.5	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.7	0.0	88.2	11.8

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Elementary school				20.0	10.0	70.0
City park				5.0	2.5	92.5
Strip mall				2.0	1.0	97.0

Appendix V-D-C

- Roadway Noise Calculations for Habitat Avoidance Alternatives 1 and 2

Lytle Creek Ranch Specific Plan
Traffic Noise Analysis - HAA1 and HAA2 Alternatives

ADT CALCULATION FOR ROADWAY SEGMENTS

Roadway/Segment	Average Daily Trips (ADT)	Scenario
Riverside Avenue between Alder Avenue and Locust Avenue	19,892	No Project
	40,500	Future + Project
	38,565	HAA Alt 1
	32,413	HAA Alt 2
Country Club Drive n/o Riverside Avenue	5,917	No Project
	16,243	Future + Project
	15,437	HAA Alt 1
	12,300	HAA Alt 2

Notes: Average daily trip rates for each alternative were calculated by scaling the project increment (future with project less future no project) calculated in the DEIR based on the change in daily trips generated for the alternative.
HAA Alt 1 Riverside = 19892+(40,500-19,892)*(1-((94,271-85,420)/94,271)) = 38,565 ADT
HAA Alt 2 Riverside = 19892+(40,500-19,892)*(1-((94,271-57,278/94,271)) = 32,413 ADT
HAA Alt 1 Country Club = 5917+(16,243-5,917)*(1-((94,271-85,420)/94,271)) = 15,437 ADT
HAA Alt 2 Country Club = 5917+(16,243-5,917)*(1-((94,271-57,278)/94,271)) = 12,300 ADT

DRAFT EIR RESULTS

Future No Project Roadway/Segment	Speed MPH	Traffic ADT	CNEL 25 ft. from ROW
Riverside Avenue between Alder Avenue and Locust Avenue	40	19,892	69.0
Country Club Dr. n/o Riverside Avenue	35	5,917	62.9
Future With Project			
Roadway/Segment	**Speed MPH**	**Traffic ADT**	**CNEL 25 ft. from ROW**
Riverside Avenue between Alder Avenue and Locust Avenue	40	40,500	72.1
Country Club Dr. n/o Riverside Avenue	35	16,243	67.3

ALTERNATIVES

Future No Project Roadway/Segment	Speed MPH	Traffic ADT	CNEL 25 ft. from ROW
Riverside Avenue between Alder Avenue and Locust Avenue (Alt 1)	40	19,892	69.0
Country Club Dr. n/o Riverside Avenue (Alt1)	35	5,917	62.9
Future With Project			
Roadway/Segment	**Speed MPH**	**Traffic ADT**	**CNEL 25 ft. from ROW**
Riverside Avenue between Alder Avenue and Locust Avenue (Alt 1)	40	38,565	71.9
Country Club Dr. n/o Riverside Avenue (Alt1)	35	15,437	67.0
Riverside Avenue between Alder Avenue and Locust Avenue (Alt 2)	40	32,413	71.1
Country Club Dr. n/o Riverside Avenue (Alt 2)	35	12,300	66.1

Summary Roadway/Segment	Project Increment	Comparison to Project
Riverside Avenue between Alder Avenue and Locust Avenue (Project)	3.1	
Country Club Dr. n/o Riverside Avenue (Project)	4.4	
Riverside Avenue between Alder Avenue and Locust Avenue (Alt 1)	2.9	-0.2
Country Club Dr. n/o Riverside Avenue (Alt1)	4.1	-0.3
Riverside Avenue between Alder Avenue and Locust Avenue (Alt 2)	2.1	-1.0
Country Club Dr. n/o Riverside Avenue (Alt 2)	3.2	-1.2

% of ADT				
Vehicle Type	Day	Evening	Night	Sub total
Auto	78.4%	9.8%	9.8%	98.0%
Medium Truck	0.8%	0.1%	0.1%	1.0%
Heavy Truck	0.8%	0.1%	0.1%	1.0%
Total:	80.0%	10.0%	10.0%	100.0%

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Section 3.0

Responses to Comments and Original Comment Letters

3.0 RESPONSES TO COMMENTS AND ORIGINAL COMMENT LETTERS

3.1 Introduction

CEQA Guidelines Section 15088(a) states that "[t]he lead agency shall evaluate comments on environmental issues received from persons who reviewed the Draft EIR and shall prepare a written response. The lead agency shall respond to comments that were received during the notice comment period and any extensions and may respond to late comments." Additionally, as discussed in Section 1.2 of this Final RPEIR, CEQA Guidelines Section 15088.5(f)(2) authorizes a lead agency to respond only to comments on the portions of a Draft EIR that were recirculated for additional public review and comment. Consistent with that guidance, the City stated in the RPDEIR that commentors should limit comments to the issues discussed in the RPDEIR. In this Final RPEIR, the City provides responses to comments made on the RPDEIR.

In accordance with these requirements, this Section of the Final RPEIR provides responses to each of the written comments received regarding the RPDEIR during the comment period. Table 3-1 on page 3-2 provides a summary of the issues raised in response to the RPEIR by commentor.

Table 3-1
Comment Summary

Letter No.	Commentors	General Support	GHG Emissions and Climate Impact Analysis	Transportation/Traffic: "Sunnyvale" Analysis	Seismic Mitigation Measures	Fire Protection Mitigation Measures	Alternatives Analysis	Other / Outside of Scope of RPDEIR	Date of Written Comments
Governmental Entities									
1	Scott Morgan, Director, State Clearinghouse **State of California Governor's Office of Planning and Research** 1400 10th St. P.O. Box 3044 Sacramento, CA 95812-3044							X	April 3, 2012
2	Annesley Ignatius, P.E., Deputy Director **County of San Bernardino Department of Public Works** Land Development & Construction 825 East Third Street San Bernardino, CA 92415-0835							X	April 12, 2012
3	Christine Kelly, Director **County of San Bernardino Planning Division** Land Use Services Department 385 N. Arrowhead Ave. San Bernardino, CA 92415-0182		X	X	X	X	X	X	April 3, 2012
4	Greg Holmes, Unit Chief Brownfields and Environmental Restoration Program **Department of Toxic Substances Control** 5796 Corporate Ave. Cypress, CA 90630							X	March 7, 2012

Letter No.	Commentors	General Support	GHG Emissions and Climate Impact Analysis	Transportation/Traffic: "Sunnyvale" Analysis	Seismic Mitigation Measures	Fire Protection Mitigation Measures	Alternatives Analysis	Other / Outside of Scope of RPDEIR	Date of Written Comments
5	Robert J. DiPrimio, Vice President **Fontana Water Company** 15966 Arrow Route P.O. Box 987 Fontana, CA 92334						X	X	April 3, 2012
6	Kathleen Rollings-McDonald, Executive Officer **Local Agency Formation Commission** 215 N. "D" St., Ste. 204 San Bernardino, CA 92415-0490							X	April 3, 2012
7	Mark G. Adelson, Chief Regional Planning Programs Section **Santa Ana Regional Water Quality Control Board** 3737 Main St., Ste. 500 Riverside, CA 92501						X	X	April 2, 2012
8	Ian MacMillan, Program Supervisor, CEQA IGR Planning, Rules Development, Area Sources **South Coast Air Quality Management District** 21865 Copley Dr. Diamond Bar, CA 91765-4178		X					X	April 4, 2012
9	Huasha Lu, Director Land Use and Environmental Planning **Southern California Association of Governments** 818 W. Seventh St., Fl. 12 Los Angeles, CA 90017-3435							X	April 3, 2012

Letter No.	Commentors	General Support	GHG Emissions and Climate Impact Analysis	Transportation/Traffic: "Sunnyvale" Analysis	Seismic Mitigation Measures	Fire Protection Mitigation Measures	Alternatives Analysis	Other / Outside of Scope of RPDEIR	Date of Written Comments
Non-Governmental Entities/Organizations									
10	Amy Minteer **Chatten-Brown & Carstens** **on behalf of Save Lytle Creek Wash** 2601 Ocean Park Blvd., Ste. 205 Santa Monica, CA 90405		X	X			X	X	April 3, 2012
11	Dan Silver, MD, Executive Director **Endangered Habitats League**		X	X			X	X	April 3, 2012
12	Kim Floyd, Conservation Chair **San Gorgonio Chapter Sierra Club** 4079 Mission Inn Ave. Riverside, CA 92501							X	April 3, 2012
Individuals									
13	Joe Ayala 5879 Sycamore Avenue Rialto, CA 92377							X	February 16, 2012
14	Lynn Boshart							X	February 16, 2012
15	Gerald T. Braden P.O. Box 64 Angelus Oaks, CA 92305-0064							X	April 3, 2012
16	Maria Sonia Braganza 1245 W. Grove St. Rialto, CA 92376	X							February 16, 2012
17	Tony Braganza 1245 W. Grove St. Rialto, CA 92376	X							February 16, 2012

Letter No.	Commentors	General Support	GHG Emissions and Climate Impact Analysis	Transportation/Traffic: "Sunnyvale" Analysis	Seismic Mitigation Measures	Fire Protection Mitigation Measures	Alternatives Analysis	Other / Outside of Scope of RPDEIR	Date of Written Comments
18	Mary Jaramillo 5635 N. Riverside Ave. Rialto, CA 92377-3968			X					Received April 2, 2012
19	Albert Kelly P.O. Box 844 Redlands, CA 92373							X	April 2, 2012
20	Marcia Lentz 5605 Larch Ave. Rialto, CA 92377			X				X	April 3, 2012
21	Steve Loe, Biologist 33832 Nebraska Yucaipa, CA 92399							X	February 16, 2012
22	Steve Loe, Biological Consultant Certified Wildlife Biologist, TWS							X	April 3, 2012
23	Steve Loe, Biological Consultant Certified Wildlife Biologist, TWS							X	April 3, 2012
24	Steve Loe, Biological Consultant Certified Wildlife Biologist, TWS							X	April 3, 2012
25	Steve Loe, Biological Consultant Certified Wildlife Biologist, TWS							X	April 18, 2012
26	Richard Serrano 3938 White Ash Rd. San Bernardino, CA 92407	X							February 16, 2012

3.2 Comment Letters and Responses

Comment Letter No. 1

Scott Morgan
Director, State Clearinghouse
State of California
Governor's Office of Planning and Research
1400 10th Street
P.O. Box 3044
Sacramento, California 95812-3044

Comment No. 1-1

The State Clearinghouse submitted the above named Draft EIR to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on April 2, 2012, and the comments from the responding agency (ies) is (are) enclosed. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

Please note that Section 21104(c) of the California Public Resources Code states that:

> "A responsible or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency. Those comments shall be supported by specific documentation."

These comments are forwarded for use in preparing your final environmental document. Should you need more information or clarification of the enclosed comments, we recommend that you contact the commenting agency directly.

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act Please contact the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process.

Response to Comment No. 1-1

This comment acknowledges distribution of the RPDEIR to relevant public agencies in accordance with CEQA. The comment is noted for the record and will be forwarded to the decision makers.

Comment No. 1-2

Document Details Report
State Clearinghouse Data Base

SCH# 2009061113
Project Title Lytle Creek Ranch Specific Plan
Lead Agency Rialto, City of

Type EIR Draft EIR

Description The Project involves the adoption and implementation of the proposed Lytle Creek Ranch Specific Plan for an approximately 2,447.3-acre area, approximately 694.2 acres of which are located within the City of Rialto and approximately 1,753.1 acres of which are currently located in unincorporated San Bernardino County, within the City's adopted Sphere of Influence. The LCRSP, in combination with a development agreement/pre-annexation agreement between the City and the Applicant, would guide land use and development of the

Lead Agency Contact

Name Gina Gibson
Agency City of Rialto Development Services Department
Phone 909 421 7240 *Fax*
email
Address 150 South Palm Avenue
City Rialto *State* CA *Zip* 92376

Project Location

County San Bernardino
City Rialto, Unincorporated
Region
Lat / Long
Cross Streets I-15/Lytle Creek Rd/Riverside Ave/Glen Helen Parkway
Parcel No. Numerous
Township 1N *Range* 5W *Section* 4,5,17 *Base* SBB&M

Proximity to:

Highways SR 15, 210
Airports No
Railways No
Waterways Lytle/Cajon Creeks
Schools Several
Land Use RL, RS, FW, SD, SP.
City: Specific Plan, Residential 6, Open Space - Recreation, Open Space - Resources

Project Issues Fiscal Impacts; Geologic/Seismic; Public Services; Traffic/Circulation; Growth Inducing; Cumulative Effects; Other Issues

Reviewing Agencies Resources Agency; Department of Conservation; Department of Fish and Game, Region 6; Office of Historic Preservation; Department of Parks and Recreation; Department of Water Resources; California Highway Patrol; Caltrans, District 8; Regional Water Quality Control Board, Region 8; Department of Toxic Substances Control; Native American Heritage Commission

Date Received 02/17/2012 *Start of Review* 02/17/2012 *End of Review* 04/02/2012

Note: Blanks in data fields result from insufficient information provided by lead agency.

Response to Comment No. 1-2

This comment is noted for the record and will be forwarded to the decision makers.

Comment No. 1-3

ATTACHMENT

Department of Toxic Substances Control

Matthew Rodriquez
Secretary for
Environmental Protection

Deborah O. Raphael, Director
5796 Corporate Avenue
Cypress, California 90630

Edmund G. Brown Jr.
Governor

March 7, 2012

4/2/12 accept

RECEIVED
MAR 26 2012
STATE CLEARING HOUSE

Ms. Gina Gibson, Senior Planner
City of Rialto - Development Services Department
150 South Palm Avenue
Rialto, California 92376

NOTICE OF AVAILABILITY OF RECIRCULATED PORTIONS OF THE DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE LYTLE CREEK RANCH SPECIFIC PLAN PROJECT(SCH #2009061113), SAN BERNARDINO COUNTY

Dear Ms. Gibson:

The Department of Toxic Substances Control (DTSC) has received your submitted Recirculated Portions of the Draft Environmental Impact Report (EIR) for the above-mentioned project. The following project description is stated in your document: "The project involves the adoption and implementation of the proposed Lytle Creek Ranch Specific Plan (LCRSP) for an approximately 2,447.3-acre area, approximately 694.2 acres of which are located within the City of Rialto and approximately 1,753.1 acres of which are currently located in unincorporated San Bernardino County (County), within the City's adopted Sphere of Influence. The LCRSP would: authorize the development of up to 8,407 dwelling units and 849,420 gross leasable square feet of general and specialty commercial, office, business park, light industrial and manufacturing, warehouse and distribution center, and other similar uses. The project site can be generally described as being located to the southwest of the unincorporated community of Devore, to the west of the City of San Bernardino, to the south of the San Bernardino National Forest (SBNF), to the east of the City of Fontana, and to the north of confluence of Cajon and Lytle Creeks".

Based on the review of the submitted document DTSC has the following comments:

1) DTSC provided comments on the project original Notice of Preparation (NOP) on July 27, 2009 and then, on the Notice of Availability of a Draft Environmental Impact Report (EIR) on March 11, 2010; those comments have not been addressed in the Notice of Availability of the Draft EIR or in the submitted Recirculated Portions of the Draft EIR. Please ensure that all those comments will be addressed in the final Environmental Impact Report for the project.

Ms. Gina Gibson
March 7, 2012
Page 2

2) DTSC can provide cleanup oversight through an Environmental Oversight Agreement (EOA) for government agencies that are not responsible parties, or a Voluntary Cleanup Agreement (VCA) for private parties. For additional information on the EOA or VCA, please see www.dtsc.ca.gov/SiteCleanup/Brownfields, or contact Ms. Maryam Tasnif-Abbasi, DTSC's Voluntary Cleanup Coordinator, at (714) 484-5489.

If you have any questions regarding this letter, please contact Rafiq Ahmed, Project Manager, at rahmed@dtsc.ca.gov, or by phone at (714) 484-5491.

Sincerely,

Greg Holmes
Unit Chief
Brownfields and Environmental Restoration Program

cc: Governor's Office of Planning and Research
State Clearinghouse
P.O. Box 3044
Sacramento, California 95812-3044
state.clearinghouse@opr.ca.gov.

CEQA Tracking Center
Department of Toxic Substances Control
Office of Environmental Planning and Analysis
P.O. Box 806
Sacramento, California 95812
Attn: Nancy Ritter
nritter@dtsc.ca.gov

CEQA # 3473

Response to Comment No. 1-3

This letter is a copy of that received from the Department of Toxic Substances Control. Please refer to Letter No. 3 for responses to the comments contained therein.

STATE OF CALIFORNIA
GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

EDMUND G. BROWN JR.
GOVERNOR

KEN ALEX
DIRECTOR

April 3, 2012

RECEIVED
APR - 9 2012
By

Gina Gibson
City of Rialto Development Services Department
150 South Palm Avenue
Rialto, CA 92376

Subject: Lytle Creek Ranch Specific Plan
SCH#: 2009061113

Dear Gina Gibson:

The State Clearinghouse submitted the above named Draft EIR to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on April 2, 2012, and the comments from the responding agency (ies) is (are) enclosed. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

Please note that Section 21104(c) of the California Public Resources Code states that:

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These comments are forwarded for use in preparing your final environmental document. Should you need more information or clarification of the enclosed comments, we recommend that you contact the commenting agency directly.

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Enclosures
cc: Resources Agency

1400 10th Street P.O. Box 3044 Sacramento, California 95812-3044
(916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

Document Details Report
State Clearinghouse Data Base

SCH# 2009061113
Project Title Lytle Creek Ranch Specific Plan
Lead Agency Rialto, City of

Type EIR Draft EIR

Description The Project involves the adoption and implementation of the proposed Lytle Creek Ranch Specific Plan for an approximately 2,447.3-acre area, approximately 694.2 acres of which are located within the City of Rialto and approximately 1,753.1 acres of which are currently located in unincorporated San Bernardino County, within the City's adopted Sphere of Influence. The LCRSP, in combination with a development agreement/pre-annexation agreement between the City and the Applicant, would guide land use and development of the

Lead Agency Contact

Name Gina Gibson
Agency City of Rialto Development Services Department
Phone 909 421 7240 ***Fax***
email
Address 150 South Palm Avenue
City Rialto ***State*** CA ***Zip*** 92376

Project Location

County San Bernardino
City Rialto, Unincorporated
Region
Lat / Long
Cross Streets I-15/Lytle Creek Rd/Riverside Ave/Glen Helen Parkway
Parcel No. Numerous
Township 1N ***Range*** 5W ***Section*** 4,5,17 ***Base*** SBB&M

Proximity to:

Highways SR 15, 210
Airports No
Railways No
Waterways Lytle/Cajon Creeks
Schools Several
Land Use RL, RS, FW, SD, SP.
City: Specific Plan, Residential 6, Open Space - Recreation, Open Space - Resources

Project Issues Fiscal Impacts; Geologic/Seismic; Public Services; Traffic/Circulation; Growth Inducing; Cumulative Effects; Other Issues

Reviewing Agencies Resources Agency; Department of Conservation; Department of Fish and Game, Region 6; Office of Historic Preservation; Department of Parks and Recreation; Department of Water Resources; California Highway Patrol; Caltrans, District 8; Regional Water Quality Control Board, Region 8; Department of Toxic Substances Control; Native American Heritage Commission

Date Received 02/17/2012 ***Start of Review*** 02/17/2012 ***End of Review*** 04/02/2012

Note: Blanks in data fields result from insufficient information provided by lead agency.

Department of Toxic Substances Control

Matthew Rodriquez
Secretary for
Environmental Protection

Deborah O. Raphael, Director
5796 Corporate Avenue
Cypress, California 90630

Edmund G. Brown Jr.
Governor

March 7, 2012

4/2/12 accept

RECEIVED
MAR 26 2012
STATE CLEARING HOUSE

Ms. Gina Gibson, Senior Planner
City of Rialto - Development Services Department
150 South Palm Avenue
Rialto, California 92376

NOTICE OF AVAILABILITY OF RECIRCULATED PORTIONS OF THE DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE LYTLE CREEK RANCH SPECIFIC PLAN PROJECT(SCH #2009061113), SAN BERNARDINO COUNTY

Dear Ms. Gibson:

The Department of Toxic Substances Control (DTSC) has received your submitted Recirculated Portions of the Draft Environmental Impact Report (EIR) for the above-mentioned project. The following project description is stated in your document: "The project involves the adoption and implementation of the proposed Lytle Creek Ranch Specific Plan (LCRSP) for an approximately 2,447.3-acre area, approximately 694.2 acres of which are located within the City of Rialto and approximately 1,753.1 acres of which are currently located in unincorporated San Bernardino County (County), within the City's adopted Sphere of Influence. The LCRSP would: authorize the development of up to 8,407 dwelling units and 849,420 gross leasable square feet of general and specialty commercial, office, business park, light industrial and manufacturing, warehouse and distribution center, and other similar uses. The project site can be generally described as being located to the southwest of the unincorporated community of Devore, to the west of the City of San Bernardino, to the south of the San Bernardino National Forest (SBNF), to the east of the City of Fontana, and to the north of confluence of Cajon and Lytle Creeks".

Based on the review of the submitted document DTSC has the following comments:

1) DTSC provided comments on the project original Notice of Preparation (NOP) on July 27, 2009 and then, on the Notice of Availability of a Draft Environmental Impact Report (EIR) on March 11, 2010; those comments have not been addressed in the Notice of Availability of the Draft EIR or in the submitted Recirculated Portions of the Draft EIR. Please ensure that all those comments will be addressed in the final Environmental Impact Report for the project.

Ms. Gina Gibson
March 7, 2012
Page 2

2) DTSC can provide cleanup oversight through an Environmental Oversight Agreement (EOA) for government agencies that are not responsible parties, or a Voluntary Cleanup Agreement (VCA) for private parties. For additional information on the EOA or VCA, please see www.dtsc.ca.gov/SiteCleanup/Brownfields, or contact Ms. Maryam Tasnif-Abbasi, DTSC's Voluntary Cleanup Coordinator, at (714) 484-5489.

If you have any questions regarding this letter, please contact Rafiq Ahmed, Project Manager, at rahmed@dtsc.ca.gov, or by phone at (714) 484-5491.

Sincerely,

Greg Holmes
Unit Chief
Brownfields and Environmental Restoration Program

cc: Governor's Office of Planning and Research
State Clearinghouse
P.O. Box 3044
Sacramento, California 95812-3044
state.clearinghouse@opr.ca.gov.

CEQA Tracking Center
Department of Toxic Substances Control
Office of Environmental Planning and Analysis
P.O. Box 806
Sacramento, California 95812
Attn: Nancy Ritter
nritter@dtsc.ca.gov

CEQA # 3473

Comment Letter No. 2

Annesley Ignatius, P.E., Deputy Director
County of San Bernardino Department of Public Works
Land Development & Construction
825 East Third Street
San Bernardino, CA 92415-0835

Comment No. 2-1

This is to confirm our request on March 27, 2012 rescinding the comment letter dated March 26, 2012 (copy attached).

Please note that the comment letter from San Bernardino County Land Use Services Department, dated April 3, 2012 shall supersede that letter.

Response to Comment No. 2-1

This comment indicates that a comment letter was previously submitted but has been retracted. The comment is noted for the record and will be forwarded to the decision makers.

DEPARTMENT OF PUBLIC WORKS
FLOOD CONTROL • LAND DEVELOPMENT & CONSTRUCTION • OPERATIONS
SOLID WASTE MANAGEMENT • SURVEYOR • TRANSPORTATION

COUNTY OF SAN BERNARDINO

825 East Third Street • San Bernardino, CA 92415-0835 • (909) 387-8104
Fax (909) 387-8130

GERRY NEWCOMBE
Director of Public Works

April 12, 2012

File: 10(ENV)-4.01

Gina Gibson, Senior Planner
City of Rialto, Development Services Department
Planning & Business License Division
150 S. Palm Ave
Rialto, CA. 92376-6487

RE: NOTICE OF RECIRCULATION AND AVAILABILITY OF RECIRCULATED PORTIONS OF THE DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE LYTLE CREEK RANCH PROJECT

Dear Ms. Gibson:

This is to confirm our request on March 27, 2012 rescinding the comment letter dated March 26, 2012 (copy attached).

Please note that the comment letter from San Bernardino County Land Use Services Department, dated April 3, 2012 shall supersede that letter.

Sincerely,

ANNESLEY IGNATIUS, P.E.
Deputy Director – Land Development & Construction

ARI:mb/CEQA Comments to DEIR_Rialto_Lytle Creek Rec Rescind.doc

Enclosures: As noted

GREGORY C. DEVEREAUX
Chief Executive Officer

Board of Supervisors
BRAD MITZELFELT ..... First District
JANICE RUTHERFORD ..... Second District
JOSIE GONZALES ..... Fifth District
NEIL DERRY ..... Third District
GARY C. OVITT ..... Fourth District

Comment Letter No. 3

Christine Kelly, Director
County of San Bernardino Land Use Services Department
Planning Division
385 N. Arrowhead Ave.
San Bernardino, CA 92415-0182

Comment No. 3-1

The following comments are submitted in response to the recirculation of portions of the Draft Environmental Impact Report for the Lytle Creek Ranch Specific Plan project. In accordance with the February 17, 2012 Notice of Recirculation and Availability and the September 30, 2011 Superior Court ruling, the scope of the comments will be limited to the contents of the RPDEIR, as follows:

1. **Revised Greenhouse Gas (GHG) Impact Analysis:** The RPDEIR contains substantial analysis and evidence added to support the conclusions relative to GHG reduction, as required.

Response to Comment No 3-1

This comment is noted for the record and will be forwarded to the decision makers.

Comment No. 3-2

2. **Revised Traffic Analysis:** The revised traffic analysis was reviewed by the County Traffic Engineering Division of the Public Works Department, and the following comments were submitted:

    a. The traffic analysis shall be stamped and signed by a Registered Engineer in the State of California.

Response to Comment No. 3-2

At the request of the commentor, Section 2.2 of this Final RPEIR contains a corrected cover page to Appendix V-C-A, Addendum To The Traffic Impact Analysis Report For The Lytle Creek Ranch Planned Development Project, Impacts to Existing Roadway Network, Crain & Associates, January 2012 (the "Sunnyvale" Analysis). The corrected cover page is stamped and signed by George Rhyner of Crain & Associates, a Registered Professional Civil and Traffic Engineer in the State of California.

Comment No. 3-3

    b. Table 3, Intersection 11, Lytle Creek Road and Sierra Avenue, the Existing 2007 with Current 2011 Routes with Project analysis is showing an all-way stop control. Currently this is a two-way stop control.

Response to Comment No. 3-3

With respect to the commentor's query regarding Table 3, the Existing 2007 with Current 2011 Routes with Project column in the table should have shown footnote "[1]" for the Volume to Capacity ratio for Intersection 11, as that intersection is currently a two way stop control. Footnote [1] to the table states that "Volume to Capacity ratio is not provided for two way, STOP sign-controlled intersections." This minor error does not change any of the analysis or conclusions regarding that intersection or potential traffic impacts. To reflect the above, Section 2.2 of this Final RPEIR, contains corrections to Tables 2.2-3 and 2.2-4 of the RPDEIR, which correspond to Tables 2 and 3 of the "Sunnyvale" Analysis.

Comment No. 3-4

c. Caltrans is proposing to install a traffic signal at Glen Helen Parkway and the 1-15 northbound ramp.

Response to Comment No. 3-4

The commentor notes that Caltrans is proposing to install a traffic signal at Glen Helen Parkway and the I-15 northbound ramp, which is identified as Study Intersection No. 9 in the "Sunnyvale" Analysis. The Proposed Project will not result in significant unmitigable impacts at that intersection. The "Sunnyvale" Analysis determined that, as a result of the SR-210/S-30 gap closure project and extension of the Glen Helen Parkway, impacts at Glen Helen Parkway and the I-15 northbound ramp will be less than significant.

Comment No. 3-5

3. **Revised Mitigation Measures 3-1 to 3-3:** The RPDEIR was referred to the County Geologist, Wes Reeder, PG, EG, for review of the revised geologic/geotechnical mitigation measures. He stated that the revised measures appear to provide appropriate clarification with regard to the timing and scope of required design-level investigations, and added the following comments:

   a. Regarding Measure 3-1, he reiterated his previously stated concern with the lack of peer review of the Geo Soils, Inc. fault rupture hazard investigations in Sycamore Canyon and Sycamore Flats. However, he did not take issue with the timing and method of implementation.

Response to Comment No. 3-5

The commentor acknowledges that this comment was raised previously. Accordingly, the commentor is referred to Response to Comment Nos. I-11-6 and I-11-7 in the original FEIR which contain full responses to this comment.

Comment No. 3-6

b. Regarding Measure 3-3, he pointed out that the effects of fault rupture and seismic shaking seem to be somewhat confused, because building setbacks mitigate for fault rupture, and lateral seismic forces are mitigated by the California Building Code. He

noted that the measure limiting all structures in the fault rupture zone to a maximum of two stories may be unnecessarily restrictive.

Response to Comment No. 3-6

The commentor states that the effects of fault rupture and seismic shaking in Mitigation Measure 3-3 appear to be "somewhat confused." Mitigation Measure 3-3 is only a general limitation on building heights in habitable structures that may be located on the Project site and which are located within the defined Alquist-Priolo Fault-Rupture Hazard Zones. Habitable structures of greater height within defined Alquist-Priolo Fault-Rupture Hazard Zones may only be permitted following a site-specific geotechnical investigation which imposes recommendations meeting the conditions of Subsection (3) of Mitigation Measure 3-1. That geotechnical investigation and the recommendations based thereon may result in additional building conditions, including but not limited to, building setbacks necessary to ensure fault rupture impacts are minimized. As such, Mitigation Measure 3-3 appropriately addresses the issues of fault rupture and seismic shaking.

Comment No. 3-7

4. **Revised Mitigation Measures 9-4 to 9-5:** These mitigation measures were revised to correct what the Court deemed to be deferral of fire hazard mitigation. The County did not comment on these measures for provision of fire protection in the original DEIR, so there are no new comments on the revised measures.

Response to Comment No. 3-7

This comment is noted for the record and will be forwarded to the decision makers.

Comment No. 3-8

5. **Revised Alternatives Analysis:** The Court ruled that the analysis of the habitat avoidance alternatives was inadequate relative to air quality, noise, and growth-inducing impacts, financial feasibility, project objectives, and General Plan consistency. The RPDEIR contains the additional analysis and supporting evidence required by the Court for these specific portions of the analysis.

Response to Comment No. 3-8

This comment is noted for the record and will be forwarded to the decision makers.

Comment No. 3-9

Thank you for the opportunity to comment on the RPDEIR. If you have any questions, please contact Terri Rahhal, Planning Manager, at 909-387-4518.

Response to Comment No. 3-9

This comment is noted for the record and will be forwarded to the decision makers.

LAND USE SERVICES DEPARTMENT

COUNTY OF SAN BERNARDINO

PLANNING DIVISION
385 N. Arrowhead Avenue, San Bernardino, CA 92415-0182
(909) 387-8311 Fax (909) 387-3223
http://www.sbcounty.gov/landuseservices

CHRISTINE KELLY
Director

April 3, 2012

Gina Gibson, Senior Planner
City of Rialto
Development Services Department
150 South Palm Avenue
Rialto, CA 92376-6487

SUBJECT: RECIRCULATED PORTIONS OF THE DRAFT ENVIRONMENTAL IMPACT REPORT (RPDEIR) FOR THE LYTLE CREEK RANCH SPECIFIC PLAN PROJECT SCH #2009061113

Dear Ms. Gibson:

The following comments are submitted in response to the recirculation of portions of the Draft Environmental Impact Report for the Lytle Creek Ranch Specific Plan project. In accordance with the February 17, 2012 Notice of Recirculation and Availability and the September 30, 2011 Superior Court ruling, the scope of the comments will be limited to the contents of the RPDEIR, as follows:

1. **Revised Greenhouse Gas (GHG) Impact Analysis:** The RPDEIR contains substantial analysis and evidence added to support the conclusions relative to GHG reduction, as required.

2. **Revised Traffic Analysis:** The revised traffic analysis was reviewed by the County Traffic Engineering Division of the Public Works Department, and the following comments were submitted:

   a. The traffic analysis shall be stamped and signed by a Registered Engineer in the State of California.

   b. Table 3, Intersection 11, Lytle Creek Road and Sierra Avenue, the Existing 2007 with Current 2011 Routes with Project analysis is showing an all-way stop control. Currently this is a two-way stop control.

   c. Caltrans is proposing to install a traffic signal at Glen Helen Parkway and the I-15 northbound ramp.

GREGORY C. DEVEREAUX
Chief Executive Officer

BRAD MITZELFELT
JANICE RUTHERFORD

Board of Supervisors
NEIL DERRY
GARY C. OVITT

Third District
Fourth District

CITY OF RIALTO
LYTLE CREEK RANCH RPDEIR
APRIL 3, 2012
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3. **Revised Mitigation Measures 3-1 to 3-3:** The RPDEIR was referred to the County Geologist, Wes Reeder, PG, EG, for review of the revised geologic/ geotechnical mitigation measures. He stated that the revised measures appear to provide appropriate clarification with regard to the timing and scope of required design-level investigations, and added the following comments:

    a. Regarding Measure 3-1, he reiterated his previously stated concern with the lack of peer review of the Geo Soils, Inc. fault rupture hazard investigations in Sycamore Canyon and Sycamore Flats. However, he did not take issue with the timing and method of implementation.

    b. Regarding Measure 3-3, he pointed out that the effects of fault rupture and seismic shaking seem to be somewhat confused, because building setbacks mitigate for fault rupture, and lateral seismic forces are mitigated by the California Building Code. He noted that the measure limiting all structures in the fault rupture zone to a maximum of two stories may be unnecessarily restrictive.

4. **Revised Mitigation Measures 9-4 to 9-5:** These mitigation measures were revised to correct what the Court deemed to be deferral of fire hazard mitigation. The County did not comment on these measures for provision of fire protection in the original DEIR, so there are no new comments on the revised measures.

5. **Revised Alternatives Analysis:** The Court ruled that the analysis of the habitat avoidance alternatives was inadequate relative to air quality, noise, and growth-inducing impacts, financial feasibility, project objectives, and General Plan consistency. The RPDEIR contains the additional analysis and supporting evidence required by the Court for these specific portions of the analysis.

Thank you for the opportunity to comment on the RPDEIR. If you have any questions, please contact Terri Rahhal, Planning Manager, at 909-387-4518.

Sincerely,

T. Rahhal

For: CHRISTINE KELLY, Director
Land Use Services Department

cc: Daniel Flores, Chief of Staff to Supervisor Gonzales
Dena Smith, Deputy Executive Officer
Gerry Newcombe, Public Works Director
Annesley Ignatius, P.E. Deputy Director, Department of Public Works
Terri Rahhal, Planning Manager

Comment Letter No. 4

Greg Holmes
Unit Chief
Brownfields and Environmental Restoration Program
Department of Toxic Substances Control
5796 Corporate Ave.
Cypress, CA 90630

Comment No. 4-1

The Department of Toxic Substances Control (DTSC) has received your submitted Recirculated Portions of the Draft Environmental Impact Report (EIR) for the above-mentioned project. The following project description is stated in your document: "The project involves the adoption and implementation of the proposed Lytle Creek Ranch Specific Plan (LCRSP) for an approximately 2,447.3-acre area, approximately 694.2 acres of which are located within the City of Rialto and approximately 1,753.1 acres of which are currently located in unincorporated San Bernardino County (County), within the City's adopted Sphere of Influence. The LCRSP would: authorize the development of up to 8,407 dwelling units and 849,420 gross leasable square feet of general and specialty commercial, office, business park, light industrial and manufacturing, warehouse and distribution center, and other similar uses. The project site can be generally described as being located to the southwest of the unincorporated community of Devore, to the west of the City of San Bernardino, to the south of the San Bernardino National Forest (SBNF), to the east of the City of Fontana, and to the north of confluence of Cajon and Lytle Creeks".

Response to Comment No. 4-1

This comment is noted for the record and will be forwarded to the decision makers.

Comment No. 4-2

Based on the review of the submitted document DTSC has the following comments:

1) DTSC provided comments on the project original Notice of Preparation (NOP) on July 27, 2009 and then, on the Notice of Availability of a Draft Environmental Impact Report (EIR) on March 11, 2010; those comments have not been addressed in the Notice of Availability of the Draft EIR or in the submitted Recirculated Portions of the Draft EIR. Please ensure that all those comments will be addressed in the final Environmental Impact Report for the project.

Response to Comment No. 4-2

The commentor states that comments previously made on the original NOP and DEIR were not addressed by the City. That is incorrect. The Department of Toxic Substances Control's NOP comments were incorporated into the analysis provided in relevant sections of the original DEIR (Volume I of the EIR), and the City provided direct responses to the DEIR comments in the original FEIR (Volume IV of the EIR). See the Responses to Letter No. I-2, provided on pages 3-3 through 3-15 of the FEIR and repeated below for reference.

Comment I-2-1 The Department of Toxic Substances Control (DTSC) has received your submitted draft Environmental Impact Report (EIR) for the above-mentioned project. The following project description is stated in your document: "The proposed Lytle Creek Ranch Specific Plan (LCRSP) is the adoption of the proposed LCRSP. The LCRSP, in combination with a development agreement/pre-annexation agreement between the City of Rialto and the Applicant, will establish new land-use policies affecting the approximately 2,447.3-acre project site. The specific plan would authorizing the development of up to 8,407 dwelling units and 849,420 gross leasable square feet of general and specialty commercial, office, business par, light industrial and manufacturing, warehouse and distribution center, and other similar uses (excluding institutional, educational, recreational, and infrastructure-related uses), allow for the retaining a substantial portion of the project site for open space and conservation purposes, create diverse opportunities for range of public, semi-public, and private recreational facilities, and promote the development of associated public improvements, public works, and infrastructure facilities. The proposed project is located, in part, in the City of Rialto and, in part, in unincorporated County of San Bernardino within the City's adopted Sphere of Influence. The project site can be generally described as being located to the southwest of the unincorporated community of Devore, to the west of the City of San Bernardino, to the south of the San Bernardino National Forest (SBNF), to the east of the City of Fontana, and to the north of confluence of Cajon and Lytle Creeks."

Response I-2-1 This comment is acknowledged. The information cited by the DTSC is taken from the DEIR's "Executive Summary" (p. 2).

Comment I-2-2 DTSC provided comments on the project Notice of Preparation (NOP) on July 27, 2009; those comments have not been addressed in the draft EIR. Please address DTSC's comments in the final EIR.

Response I-2-2 DTSC's letter to the City, as submitted in response to the NOP, is included in Appendix I-A-B (Pre-Circulation Comments) in the DEIR. That letter, entitled "Notice of Preparation for a Draft Environmental Impact Report for the Lytle Creek Ranch Specific Plan (Specific Plan No. 12) Project (SCH#2009061113), City of Rialto, San Bernardino County," contains two separate dates. The first page of the letter is dated "July 23, 2009." Subsequent pages are dated "July 27, 2009." The following comments were raised therein. The Lead Agency's responses to the DTSC's comments are provided below.

1. The EIR should identify the current or historic uses at the project site that may have resulted in a release of hazardous wastes/substances, and any known or potentially contaminated sites within the proposed Project area. For all identified sites, the EIR should evaluate whether conditions at the site may pose a threat to human health or the environment. Following are the databases of some of the pertinent regulatory agencies: [A] National Priority List (NPL): A list maintained by the United States Environmental Protection Agency (U.S. EPA). [B] Envirostor: A Database primarily used by the California Department of Toxic Substances Control, accessible through DTSC's website (see below). [C] Resource Conservation and Recovery Information System (RCRIS): A database of RCRA facilities that is maintained by the U.S. EPA. [D] Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS): A database of CERCLA sites that is maintained by the U.S. EPA. [E] Solid Waste Information System (SWIS): A database provided b the California Integrated Waste Management Board which consists of both open as well as closed and inactive solid waste disposal facilities and transfer stations. [F] Leaking Underground Storage Tanks (LUST) / Spills, Leaks, Investigations and Cleanups (SLIC): A list that is maintained by Regional Water Quality Control Boards. [G] Local Counties and Cities maintain lists for hazardous substances cleanup sites and leaking underground storage tanks. [H] The United States Army Corps of Engineers, 911 Wilshire Boulevard, Los Angeles, California, 90017, (213) 452-3908, maintains a list of Formally Used Defense Sites (FUDS).

Lead Agency Response 1:

As noted in Section 4.11 (Hazards and Hazardous Materials) and the "Summary Report: Site Reconnaissance and Database Review Related to Hazardous Materials - Proposed Lytle Creek Ranch Project 2,450± Acres Lytle Creek Area, San Bernardino County, California" (Summary Report) (C.H.J. Incorporated, April 11, 2008), included as Appendix III-L to the DEIR, four Phase I Environmental Site Assessments (ESA) were prepared for the project site (pp. 4.11-18 to -19). The information from all of the Phase I ESAs were included in the Summary Report together with a database review and site reconnaissance survey. Section 4.11 of the DEIR and the Summary Report

documented any current or historic uses at the project site that may have resulted in a release of hazardous wastes. As indicated in the Summary Report: "County, State, and Federal listings were compiled and searched for this update by a nationwide regulatory agency database company, EDR [EDR Environmental Data Resources Inc.], and reviewed by CHJ. All listings/databases were searched for sites located within 1 mile of the general subject site boundary. The database results required to be reported in accordance with ASTM 1527-05 are summarized in this section. The full EDR Area Study report is included as Enclosure 'B' of this report" (Summary Report, p. 10).

As indicated in the Summary of Significant Results derived from the database search and records review that was contained in the Summary Report: "Results of the EDR search indicated on-site results for the El Rancho Verde Golf Club in the southeast portion of the subject site. The golf course was identified with County permits for hazardous materials handling and generating. These are related to the waste oil collection and the diesel AST in the maintenance area. No violations were noted. County HMD records review results indicated the removal of an underground UST from a location adjacent to the former maintenance facility in 1993. The case was given County closure following soil sampling and analysis. Offsite groundwater contamination was indicated in the EDR report. EDR and other sources regarding known perchlorate groundwater contamination southwest of the subject site were reviewed. The plume is reported to be confined south of the San Juan Fault and is mapped off-site; therefore, it is considered unlikely to have the potential to impact groundwater beneath the subject site. Offsite Leaking Underground Storage Tank (LUST) facilities were identified. Several soil and groundwater gasoline contamination cases were noted. Due to case types and status, as well as groundwater flow patterns and groundwater barriers, the identified contamination cases are considered unlikely to have the potential to impact the soils and groundwater of the subject site" (Summary Report, p. 11).

2. The EIR should identify the mechanism to initiate any required investigation and/or remediation for any site that may be contaminated, and the government agency to provide appropriate regulatory oversight. If necessary,

DTSC would require an oversight agreement in order to review such documents. Please see comment No. 11 below for more information.

Lead Agency Response 2:

Since no contaminants and/or petroleum products at actionable levels are anticipated to be present on the project site and since the Summary Report and the information from the Phase I ESAs contained in the Summary Report did not contain recommendations for further on-site investigation (pp. 4.11-20 through 4.11-21), the Lead Agency did not include a discussion of "any required investigation and/or remediation for any site that may be contaminated." Should contaminants be subsequently identified, existing regulations are in place to ensure their appropriate identification and remediation.

3. All environmental investigations, sampling and/or remediation for the site should be conducted under a Workplan approved and overseen by a regulatory agency that has jurisdiction to oversee hazardous substance cleanup. The findings of any investigations, including any Phase I or II Environmental Site Assessment Investigations should be summarized in the document. All sampling results in which hazardous substances were found should be clearly summarized in a table.

Lead Agency Response 3:

Based on the findings of the Phase I ESAs reported in the Summary Report, unless other information is uncovered at a later date indicating the presence or potential presence of hazardous materials and/or petroleum products on the project site, no further environmental investigations, sampling, and/or remediation of the site is required at this time. The DEIR concluded that sufficient "best management practices and regulatory controls are now in place to minimize the potential discharge of hazardous materials to the environment" (p. 4.11-28), such that no "Workplan approved and overseen by a regulatory agency" needs to be initiated.

4. Proper investigation, sampling and remedial actions overseen by the responsible regulatory agencies, if necessary, should be conducted at the site prior to the new development or any construction. All closure, certification

or remediation approval reports by these agencies should be included in the EIR.

Lead Agency Response 4:

See Response No. I-2-2(3).

5. If buildings or other structures, asphalt or concrete-paved surface areas are being planned to be demolished, an investigation should be conducted for the presence of other related hazardous chemicals, lead-based paints or products, mercury, and asbestos containing materials (ACMs). If other hazardous chemicals, lead-based paints or products, mercury or ACMs are identified, proper precautions should be taken during demolition activities. Additionally, the contaminants should be remediated in compliance with California environmental regulations and policies.

Lead Agency Response 5:

With the exception of Monier Lifetile and the El Rancho Verde Country Club, the project site is generally vacant and undeveloped. The Summary Report expressly addressed both of those existing land uses. The Monier Lifetile facility will continue as an existing use and no changes are proposed to its operations. A new golf clubhouse is proposed by the project. The Summary Report described the existing clubhouse as a wood-frame structure that housed typical facilities for a gold course. No significant areas of concern were identified (Summary Report, p. 5). At such time as the existing clubhouse is demolished, if lead-based paints or ACMs are identified during pre-demolition surveys, removal of these materials will be conducted in compliance with State environmental regulations and policies and the materials disposed of in accordance with State law.

As presented below and as indicated in Section 2.0 (Changes, Revisions, and Other Modifications) herein, the DEIR (p. 4.11-24) has been revised to discuss the proper removal and disposal of ACMs and lead-based paints, if subsequently identified, during site clearance and project construction in Section 4.11 (Hazards and Hazardous Materials).

Asbestos-Containing Materials

Although not specifically identified, on-site structures built before January 1, 1981, such as the El Rancho Verde Royal Vista Golf Course Clubhouse and Monier Lifetile, if constructed before that date, could asbestos-containing materials (ACMs).

Asbestos is the name given to a group of six different fibrous minerals (amosite, chrysotile, crocidolite, and the fibrous varieties of tremolite, actinolite, and anthophyllite) that occur naturally in the environment and which were historically used in certain building materials. Regulations pertaining to asbestos management during building demolition are established in SCAQMD Rule 1403 (Asbestos Emissions from Demolition/ Renovation Activities). This rule is designed to limit asbestos emissions from building demolition activities. The rule requires buildings to be surveyed for asbestos-containing building materials (ACMs or ACBMs) before building demolition and mandates ACM removal procedures to limit emissions.

Asbestos materials fall into two broad categories: friable and non-friable. Friable ACMs are products, which, when dry, can be crumbled, pulverized, disturbed, punctured, and easily reduced to powder by hand pressure. Friable ACMs emit fibers into the atmosphere with relative ease when disturbed. Non-friable ACMs are bound into some type of hard matrix such as roofing, siding, or flooring, and generally do not escape under ordinary use. Non-friable ACMs may, however, become friable due to extreme disturbance or deterioration.

With regards to ACMs, federal requirements regulate: (1) worker exposure to asbestos; (2) procedures for abating asbestos when a building undergoes renovation or demolition; and (3) disposal of ACMs. The

United States Environmental Protection Agency (USEPA) and the United States Department of Labor Occupational Safety and Health Administration (OSHA) have major responsibility for federal regulatory control over exposure to asbestos. The USEPA regulates asbestos procedures for renovation (i.e., modernization and other actions that require removal of ACM) or demolition (including partial demolition) actions under the federal Clean Air Act and require notification and strict work practices for asbestos handling, removal, storage, and transport under 40 CFR Part 61, Subpart M and 40 CFR Part 763. OSHA regulates worker protection standards and exposures during construction (29 CFR 1926.1101) and non-construction (29 CFR 1910.1001).

In California, asbestos is regulated by the SCAQMD and by the Department of Industrial Relations Division of Occupational Safety and Health (CalOSHA). As required under SCAQMD Rule 1403, the owner or operator of any demolition or renovation activity shall comply with the following requirements: (1) the affected facility or facility component shall be thoroughly surveyed for the presence of asbestos prior to any demolition or renovation activity; and (2) the SCAQMD shall be provided written notification at least ten days prior to any demolition or renovation activities, except for emergency work, where the scope of work calls for the removal of more than 100 square feet of ACMs. In addition, twenty-four hours prior to the start of any asbestos removal project, notification of DOSH is also required.

The CalOSHA enforcement unit enforces California's Asbestos Standards in Construction (8 CCR Section 1529), Shipyards (8 CCR Section 8358), and General Industry (8 CCR Section 5208). Section 1539 of the CCR, establishes

specific regulations concerning asbestos exposure in all construction work including, but not limited to: (1) demolition or salvage of structures where asbestos is present; (2) removal or encapsulation of materials containing asbestos; (3) Construction, alteration, repair, maintenance, or renovation of structures, substrates, or portions thereof, that contain asbestos; (4) installation of products containing asbestos; (5) asbestos spill/emergency cleanup; (6) transportation, disposal, storage, containment of, and housekeeping activities involving asbestos or products containing asbestos, on the site or location at which construction activities are performed; (7) excavation which may involve exposure to asbestos as a natural constituent which is not related to asbestos mining and milling activities; (8) routine facility maintenance; and (9) erection of new electric transmission and distribution lines and equipment, and alteration, conversion and improvement of the existing transmission and distribution lines and equipment.

Existing environmental control systems, permit, and notification requirements are presently in place to ensure both worker safety and to reduce the release of fiable [sic] ACMs into the environment. As a result, since all ACMs must be removed and disposed of in the manner required by law, project-related impacts with regards to ACMs would be less than significant.

Lead-Based Paint

Although not specifically identified, on-site structures built before 1978, such as the El Rancho Verde Royal Vista Golf Course Clubhouse and Monier Lifetile, if constructed before that date, could contain lead-based paint.

Lead compounds were an important component of many paint products utilized prior to 1978. Lead found in pre-1978 paint,

in the forms of lead carbonate and lead oxides, had excellent adhesion, drying, and covering abilities. LBP was used extensively on wooden exteriors and interior trimwork, window sash, window frames, baseboards, wainscoting, doors, frames, and high gloss wall surfaces. Almost all painted metals were primed with red lead or painted with lead-based paints. Lead compounds were also historically used as driers in paint and window glazing putty. In 1978, the use of LBP in residential housing was banned by the federal government.

LBP includes any paint or surface coating that contains at least 0.5 percent lead by weight. Work activities that disturb paint with any amount of lead are, however, regulated by Cal/OSHA (8 CCR 1532.1). In addition to worker protection requirements, CalOSHA regulations specify that persons performing lead-related work in residential or public buildings must be certified by the California Department of Health Services (DHS) when and where exposure levels exceed permissible exposure limits, regardless of whether “abatement” (rather than only disturbance) of LBP is being performed.

Sections 6716-6716 of the California Labor Code (CLC) provides for the establishment of standards that protect the health and safety of employees who engage in lead-related construction work, including construction, demolition, renovation and repair. Section 1532.1 in Title 8 of the CCR establishes regulations implement Sections 6716-6717 of the CLC.

Section 105250 of the H&SC establishes a program to accredit lead-related construction training providers and certify individuals to conduct lead-related construction activities. As required under Section 105255(a) of the H&SC: “No person shall perform lead-related construction work on any residential or public building in a

manner that creates a lead hazard." Contractors performing certain types of lead-related work must provide regulatory notifications to DHS and to CalOSHA. Waste containing greater than 350 milligrams per kilogram (mg/kg) total lead or 5 mg/l milligrams per liter (mg/l) soluble lead is subject to special disposal requirements. Title 17, Division 1, Chapter 8 of the CCR provide regulations implementing the provisions of Section 105250 of the H&SC.

Under Senate Bill (SB) 460, as codified in Sections 105253 and 105254 of the H&SC, beginning January 1, 2003, it is a criminal offense to violate certain elements of existing DHS regulations (Title 17 CCR Section 35001 et seq.) relating to lead hazard inspection, risk assessment, and/or abatement work in residential or public (public-accessible) buildings. As indicated therein, it is a criminal offense for an individual to conduct lead inspection, risk assessment, and/or abatement work in a residential or public building without a current certification from a DHS-accredited training provider.

Existing environmental control systems, permit, and notification requirements are presently in place to ensure both worker safety and to reduce the release of LBP into the environment. As a result, since all LBP must be removed and disposed of in the manner required by law, project-related impacts with regards to LBP would be less than significant.

6. Project construction may require soil excavation or filing in certain areas. Sampling may be required. If soil is contaminated, it must be properly disposed and not simply placed in another location onsite. Land Disposal Restrictions (LDRs) may be applicable to such soils. Also, if the project proposes to import soil to backfill the areas excavated, sampling should be conducted to ensure that the imported soil is free of contaminants.

Lead Agency Response 6:

Based on the negative findings of the Phase I ESAs described in the Summary Report and required compliance with existing local, State, and federal regulations regarding the handling and treatment of hazardous materials and implementation of best management practices, in the absence of any identified significant or potentially significant environmental effects, no specific mitigation measures were included in the DEIR (pp. 4.11-18 through 4.11-21).

As presented below and as indicated in Section 2.0 (Changes, Revisions, and Other Modifications) herein, the DEIR (p. 4.11-24) has been revised to ensure that the removal and remediation of on-site soil contaminants, if subsequently identified, is conducted in compliance with applicable local, State, and federal requirements and procedures during site clearance and project construction in Section 4.11 (Hazards and Hazardous Materials).

> Soil Contaminants
>
> No actionable soil contaminants have been identified as occurring or suspected of occurring on the project site. During construction, contaminated soils may, however, be encountered. If encountered, these contaminated materials could be classified as hazardous wastes and would require disposal in accordance with applicable hazardous material regulations at accepted depositors. Owners and contractors encountering these materials are required to comply with and conform to all institutional controls governing the storage, transportation, use, handling, and disposal of hazardous materials.
>
> During construction, soil suspected of being contaminated by visual observations of debris, discoloration or sheen, and/or odor may be encountered. If encountered, these contaminated materials could be classified as hazardous wastes and would require disposal or remediation in accordance with applicable County hazardous waste regulations.

Excavated soils which contain concentrations of certain substances including heavy metals and hydrocarbons generally are regulated under California hazardous waste regulations. Numerous local, State (Title 22, CCR) and federal rules regulate the handling, transportation, and disposition of these soils. Existing laws and regulations address the discovery and remediation of contaminated sites, and require the preparation of health and safety plans and mandate worker training and other activities designed to protection workers from exposure to contamination (e.g., 29 CFR Part 1910.120, Section 5192 of the CCR). These regulations establish specific requirements for hazardous waste handling, transport and disposal, including requirements to use approved disposal and treatment facilities, use certified hazardous waste transporters, and use manifests to track hazardous materials.

7. Human health and the environment of sensitive receptors should be protected during the construction or demolition activities. If it is found necessary, a study of the site and a health risk assessment overseen and approved by the appropriate government agency and a qualified health risk assessor should be conducted to determine if there are, have been, or will be, any release of hazardous materials that may pose a risk to human health or the environment.

Lead Agency Response 7:

Based upon the information set forth in the Summary Report, no areas of environmental concern were identified (pp. 4.11-18 through 4.11-21 and 4.11-24). In the DEIR, Section 4.7 (Air Quality) evaluated the proposed project's potential impact on human health and sensitive receptors from construction activities and identified mitigation measures, such limiting idling time of all construction equipment within 100 feet of homes and schools (Mitigation Measure 7-5); limiting active grading activities within 1,000 feet of residential receptors (Mitigation Measure 7-6); watering active grading areas three times per day to control dust (Mitigation Measure 7-1); and locating stationary equipment at least 100 feet away from

homes or schools wherever possible (Mitigation Measure 7-8). See also Response Nos. I-2-2(5) and I-2-2(6).

8. If it is determined that hazardous wastes are, or will be, generated by the proposed operations, the wastes must be managed in accordance with the California Hazardous Waste Control Law (California Health and Safety Code, Division 20, Chapter 6.5) and the Hazardous Waste Control Regulations (California Code of Regulations, Title 22, Division 4.5). If it is determined that hazardous wastes will be generated, the facility should also obtain a United States Environmental Protection Agency Identification Number by contacting (800) 618-6942. Certain hazardous waste treatment processes or hazardous materials, handling, storage or uses may require authorization from the local Certified Unified Program Agency (CUPA). Information about the requirement for authorization can be obtained by contacting your local CUPA.

Lead Agency Response 8:

The potential presence of on-site hazardous wastes associated with the proposed project's operation are expressly addressed under Environmental Impact 11-3 in the DEIR (pp. 4.11-30 through 4.11-31). Specifically, the DEIR notes: "Other than through the exclusion of heavy-industrial uses and the presence of existing federal and State laws and regulations relating to the transport, storage, use, and consumption of hazardous materials, the specific plan contains no prohibitions or use restrictions regarding hazardous materials and/or the generation and disposal of hazardous, medical, universal, or mixed wastes" (p. 4.11-30). The DEIR recognizes the potential for land-use compatibility impacts associated with the placement of certain permitted or conditionally permitted land uses adjacent to other existing uses within and adjacent to the LCRSP and recognizes that Environmental Impact 11-3 would be mitigated to a less-than-significant level by implementation of Mitigation Measure 1-1, as well as Mitigation Measures 7-16 and 7-17. See also Response Nos. I-2-2(5) and I-2-2(6).

9. If during construction/demolition of the project, the soil and/or groundwater contamination is suspected, construction/demolition in the area should cease and appropriate health and safety procedures should be implemented.

Lead Agency Response 9:

The potential presence of on-site hazardous wastes associated with the project's construction is expressly addressed under Environmental Impact 11-1 in the DEIR (p. 4.11-28). The DEIR recognizes that, pursuant to Health & Safety Code Section 25507, "[a]ll significant hazardous material spills or threatened releases, including petroleum products (such as gasoline, diesel, and hydraulic fluid), regardless of quantity spilled, must be immediately reported if the spill has entered waters of the State, including streams and storm drains, or has caused an injury to a person or threatened injury to public health" (p. 4.11-28). Accordingly, best management construction practices and regulatory controls are now in place to both minimize the potential discharge of hazardous materials into the environment during construction operations and, should discharge occur, to provide appropriate notification and institute appropriate cleanup and disposal actions. Construction–term impacts associated with the potential release of hazardous materials will, therefore, not manifest as a significant impact. See also Response Nos. I-2-2(5) and I-2-2(6).

10. If the site was used for agricultural, livestock or related activities, onsite soils and groundwater might contain pesticides, agricultural chemicals, organic waste or other related residue. Proper investigation, and remedial actions, if necessary, should be conducted under the oversight of and approval by a government agency at the site prior to construction of the project.

Lead Agency Response 10:

The Summary Report addressed historical uses of the project site based upon a review of historic photographs. With the exception of the Sycamore Flat and Sycamore Canyon areas (Neighborhood I), no evidence was identified indicating that the project site was historically used for agricultural, livestock, or related activities. In the Sycamore Flat and Sycamore Canyon areas, portions of that area were used for vineyards and groves; however, all agricultural activity appeared to have ceased in the mid-1980's and the Summary Report did not identify any areas of stained soils or conditions of concern (Summary Report, pp. 2-3; 17, and 19-20). As noted in the Summary Report: "No significant soil staining or distressed vegetation were noted. There was no evidence during our site

reconnaissance that significant quantities of hazardous materials have been mishandled or disposed of on the site" (Summary Report, p. 20). See also Response Nos. I-2-2(5) and I-2-2(6).

11. DTSC can provide guidance for cleanup oversight through an Environmental Oversight Agreement (EOA) for governmental agencies, or a Voluntary Cleanup Agreement (VCA) for private parties. For additional information on the EOA or VCA, please see www.dtsc.ca.gov/SiteClearance/Brownfields, or contact Ms. Maryam Tasnif-Abbasi, DTSC's Voluntaryt [sic] Cleanup Coordinator, at (714) 484-5489.

    Lead Agency Response 11:

    This comment is acknowledged.

12. Also, in future CEQA documents, please provide your e-mail address, so DTSC can send you comments both electronically and by mail.

    Lead Agency Response 12:

    This comment is acknowledged.

Comment I-2-3 DTSC can provide guidance for cleanup oversight through an Environmental Oversight Agreement (EOA) for government agencies which would not be responsible parties under CERCLA, or a Voluntary Cleanup Agreement (VCA) for private parties. For additional information on EOA or VCA, please see www.dtsc.ca.gov/SiteCleanup/Brownfields, or contact Maryam Tasnif-Abbasi, DTSC's Voluntary Cleanup Coordinator, at (714) 484-5489.

Response I-2-3 This comment is acknowledged.

Comment I-2-4 In future CEQA documents, please provide your e-mail address, so DTSC can send you the comments both electronically and by mail.

Response I-2-4 This comment is acknowledged.

Comment I-2-5 If you have any questions regarding this letter, please contact Mr. Rafiq Ahmen, Project Manager, at rahmed@dtsc.ca.gov or by phone at (714) 484-5491.

Response I-2-5 This comment is acknowledged.

Comment No. 4-3

2) DTSC can provide cleanup oversight through an Environmental Oversight Agreement (EOA) for government agencies that are not responsible parties, or a Voluntary Cleanup Agreement (VCA) for private parties. F or additional information on the EOA or VCA, please see www.dtsc.ca.gov/SiteCleanup/Brownfields, or contact Ms. Maryam Tasnif-Abbasi, DTSC's Voluntary Cleanup Coordinator, at (714) 484-5489.

If you have any questions regarding this letter, please contact Rafiq Ahmed, Project Manager, at rahmed@dtsc.ca.gov, or by phone at (714) 484-5491.

Response to Comment No. 4-3

This comment is noted for the record and will be forwarded to the decision makers.

Department of Toxic Substances Control

Matthew Rodriquez
Secretary for
Environmental Protection

Deborah O. Raphael, Director
5796 Corporate Avenue
Cypress, California 90630

Edmund G. Brown Jr.
Governor

March 7, 2012

RECEIVED
MAR 12 2012
By

Ms. Gina Gibson, Senior Planner
City of Rialto - Development Services Department
150 South Palm Avenue
Rialto, California 92376

NOTICE OF AVAILABILITY OF RECIRCULATED PORTIONS OF THE DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE LYTLE CREEK RANCH SPECIFIC PLAN PROJECT(SCH #2009061113), SAN BERNARDINO COUNTY

Dear Ms. Gibson:

The Department of Toxic Substances Control (DTSC) has received your submitted Recirculated Portions of the Draft Environmental Impact Report (EIR) for the above-mentioned project. The following project description is stated in your document: "The project involves the adoption and implementation of the proposed Lytle Creek Ranch Specific Plan (LCRSP) for an approximately 2,447.3-acre area, approximately 694.2 acres of which are located within the City of Rialto and approximately 1,753.1 acres of which are currently located in unincorporated San Bernardino County (County), within the City's adopted Sphere of Influence. The LCRSP would: authorize the development of up to 8,407 dwelling units and 849,420 gross leasable square feet of general and specialty commercial, office, business park, light industrial and manufacturing, warehouse and distribution center, and other similar uses. The project site can be generally described as being located to the southwest of the unincorporated community of Devore, to the west of the City of San Bernardino, to the south of the San Bernardino National Forest (SBNF), to the east of the City of Fontana, and to the north of confluence of Cajon and Lytle Creeks".

Based on the review of the submitted document DTSC has the following comments:

1) DTSC provided comments on the project original Notice of Preparation (NOP) on July 27, 2009 and then, on the Notice of Availability of a Draft Environmental Impact Report (EIR) on March 11, 2010; those comments have not been addressed in the Notice of Availability of the Draft EIR or in the submitted Recirculated Portions of the Draft EIR. Please ensure that all those comments will be addressed in the final Environmental Impact Report for the project.

Ms. Gina Gibson
March 7, 2012
Page 2

2) DTSC can provide cleanup oversight through an Environmental Oversight Agreement (EOA) for government agencies that are not responsible parties, or a Voluntary Cleanup Agreement (VCA) for private parties. For additional information on the EOA or VCA, please see www.dtsc.ca.gov/SiteCleanup/Brownfields, or contact Ms. Maryam Tasnif-Abbasi, DTSC's Voluntary Cleanup Coordinator, at (714) 484-5489.

If you have any questions regarding this letter, please contact Rafiq Ahmed, Project Manager, at rahmed@dtsc.ca.gov, or by phone at (714) 484-5491.

Sincerely,

Greg Holmes
Unit Chief
Brownfields and Environmental Restoration Program

cc: Governor's Office of Planning and Research
State Clearinghouse
P.O. Box 3044
Sacramento, California 95812-3044
state.clearinghouse@opr.ca.gov.

CEQA Tracking Center
Department of Toxic Substances Control
Office of Environmental Planning and Analysis
P.O. Box 806
Sacramento, California 95812
Attn: Nancy Ritter
nritter@dtsc.ca.gov

CEQA # 3473

Comment Letter No. 5

Robert J. DiPrimio
Vice President
Fontana Water Company
a Division of San Gabriel Valley Water Company
15966 Arrow Route
P.O. Box 987
Fontana, CA 92334

Comment No. 5-1

Thank you for the opportunity to comment on the Recirculated Portions of the Draft Environmental Impact: Report for the proposed Lytle Creek Ranch Specific Plan Project ("Project"). Fontana Water Company, a division of San Gabriel Valley Water Company, provides public utility water service in the cities of Fontana and Rialto and unincorporated areas of San Bernardino County. Fontana Water Company develops, diverts, and produces groundwater from the Lytle Creek Region and Lyle [sic] Creek Basin pursuant to longstanding water rights adjudications.

Fontana Water Company and Fontana Union Water Company own and operate groundwater wells, surface water diversion and spreading facilities, pipelines, and related facilities located within the Lytle Creek Region and development footprint of the proposed Project. In addition, Fontana Water Company and Fontana Union Water Company jointly hold extensive easements and rights-of-way within the Lytle Creek Region and development footprint of the proposed Project. These operating facilities and easements and rights-of-way are essential to our access to and continued beneficial use of our water rights within the Lytle Creek Region.

Response to Comment No. 5-1

This comment is noted for the record and will be forwarded to the decision makers.

Comment No. 5-2

The revised alternatives analysis as written for the Habitat Avoidance Alternative 1 and the Habitat Avoidance Alternative 2 should, but do not, include a discussion of what effects the mitigation measures (such as dedicating open space areas or conservation easements) might have on Fontana Water Company's access to and continued use of its water rights and facilities.

Final adoption of the Lytle Creek Ranch Specific Plan Environmental Impact Report needs to recognize the existing prior rights and ongoing operations of Fontana Water Company and Fontana Union Water Company. We also request that the following condition be included in the Project's Conditions of Approval, to be adopted by the City of Rialto:

> "No actions taken pursuant to or in furtherance of the Lytle Creek Ranch Specific Plan will be permitted or allowed to take, diminish, conflict or interfere with or

> subordinate the water rights, easements or rights-of-way of Fontana Water Company and Fontana Union Water Company."

Should you have any question, please contact me.

Response to Comment No. 5-2

The commentor states that the EIR does not assess Fontana Water Company's and Fontana Union Water Company's water rights within the Lytle Creek region. In accordance with the Court Ruling, the revisions to the original EIR contained in the RPDEIR were limited to only a few impact areas (GHG emissions, traffic impacts, seismic mitigation measures, fire protection mitigation measures, and two habitat avoidance alternatives). As such, the RPDEIR does not contain any further discussion of Fontana Water Company's water rights.

Contrary to the commentor's concern, however, the original DEIR did address those water rights and recognized the need for Fontana Water Company to be able continue to exercise those rights. The DEIR stated:

> There are several ground water wells owned and operated by both the Fontana Water Company and the WVWD that are located within and in close proximity to the project site. The vast majority of these existing operating wells are located within those portions of the proposed LCRSP's that contain an "open space" designation. There are currently no known plans to remove and/or relocate or otherwise alter any of those existing wells.
>
> Any development activities that may occur in proximity to those existing wells must be undertaken in recognition of their presence, need for continuing operation (including access, maintenance, and security obligations), and potential impacts on any proposed adjacent land uses. (DEIR page 4.1-185.)

The DEIR also noted:

> The [Fontana Water Company] diverts and receives Lytle Creek surface water and produces groundwater in the Lytle, Rialto, and No-Man's Land Basins as an agent for the Fontana Union Water Company, which holds extensive water rights to these sources of supply pursuant to long-standing court judgments (Source: San Bernardino Valley Water Conservation District [GEI Consultants, Inc.], Upper Santa Ana Watershed Integrated Water Management Plan, November 2007, p. 1-48). (DEIR page 4.10-20, footnote 50.)

The RPDEIR's assessment of Habitat Avoidance Alternative 1 and Habitat Avoidance Alternative 2 did not need to separately discuss Fontana Water Company's existing water rights since the existing discussion in the DEIR also applies to the Alternatives, as they would be developed on the same Project site. As such, similar to the Proposed Project, development of either of these Alternatives would be undertaken in recognition of Fontana Water Company's and Fontana Union Water Company's water rights within the Lytle Creek region.

In sum, because of the original DEIR's recognition that the Proposed Project's development activities would not inhibit the commentor's existing water rights, no condition of approval would be necessary should the City approve the Proposed Project. Nevertheless, the commentor's request will be forwarded to the decision makers.

FONTANA WATER COMPANY
A DIVISION OF SAN GABRIEL VALLEY WATER COMPANY
15966 ARROW ROUTE • P.O. BOX 987, FONTANA, CALIFORNIA 92334 • (909) 822-2201

April 3, 2012

City of Rialto
Development Services Department
Planning & Business License Division
150 South Palm Avenue
Rialto, CA 92376-6487

Subject: Recirculated Draft Environmental Impact Report
Lytle Creek Ranch Specific Plan Project, State
Clearinghouse No. 2009061113

Gentleman:

Thank you for the opportunity to comment on the Recirculated Portions of the Draft Environmental Impact Report for the proposed Lytle Creek Ranch Specific Plan Project ("Project"). Fontana Water Company, a division of San Gabriel Valley Water Company, provides public utility water service in the cities of Fontana and Rialto and unincorporated areas of San Bernardino County. Fontana Water Company develops, diverts, and produces groundwater from the Lytle Creek Region and Lyle Creek Basin pursuant to longstanding water rights adjudications.

Fontana Water Company and Fontana Union Water Company own and operate groundwater wells, surface water diversion and spreading facilities, pipelines, and related facilities located within the Lytle Creek Region and development footprint of the proposed Project. In addition, Fontana Water Company and Fontana Union Water Company jointly hold extensive easements and rights-of-way within the Lytle Creek Region and development footprint of the proposed Project. These operating facilities and easements and rights-of-way are essential to our access to and continued beneficial use of our water rights within the Lytle Creek Region.

City of Rialto
Page 2
April 3, 2012

The revised alternatives analysis as written for the Habitat Avoidance Alternative 1 and the Habitat Avoidance Alternative 2 should, but do not, include a discussion of what effects the mitigation measures (such as dedicating open space areas or conservation easements) might have on Fontana Water Company's access to and continued use of its water rights and facilities.

Final adoption of the Lytle Creek Ranch Specific Plan Environmental Impact Report needs to recognize the existing prior rights and ongoing operations of Fontana Water Company and Fontana Union Water Company. We also request that the following condition be included in the Project's Conditions of Approval, to be adopted by the City of Rialto:

> "No actions taken pursuant to or in furtherance of the Lytle Creek Ranch Specific Plan will be permitted or allowed to take, diminish, conflict or interfere with or subordinate the water rights, easements or rights-of-way of Fontana Water Company and Fontana Union Water Company."

Should you have any question, please contact me.

Very truly yours,

Robert J. DiPrimio
Vice President

RJD:sm
Sent via: email (ggibson@rialtoca.gov)
Facsimile (909) 873-4814

Comment Letter No. 6

Kathleen Rollings-McDonald
Executive Officer
Local Agency Formation Commission
215 North "D" St., Ste. 204
San Bernardino, CA 92415-0490

Comment No. 6-1

LAFCO received the documents identified above related to the Lytle Creek Ranch Specific Plan. With regard to the recirculated portions of the Draft EIR, LAFCO has no further comments and/or concerns.

Thank you for allowing us to provide comments on the recirculated portions of the Draft EIR and Specific Plan and we look forward to working with the City on the processing of the project. Please maintain LAFCO on your distribution list to receive further information related to this process.

Response to Comment No. 6-1

This comment is noted for the record and will be forwarded to the decision makers.

LOCAL AGENCY FORMATION COMMISSION

San Bernardino County LAFCO

215 North "D" Street, Suite 204 • San Bernardino, CA 92415-0490
(909) 383-9900 • Fax (909) 383-9901
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MICHAEL TUERPE
Project Manager

Vacant
Clerk to the Commission

ANGELA M. SCHELL
Deputy Clerk to the Commission

REBECCA LOWERY
Deputy Clerk to the Commission

LEGAL COUNSEL

CLARK H. ALSOP

April 3, 2012

Ms. Gina Gibson, Senior Planner
City of Rialto
Development Services Department
150 South Palm Avenue
Rialto, CA 92376

RE: Recirculated Portions of the Draft Environmental Impact Report (EIR) for the Lytle Creek Ranch Specific Plan

Dear Ms. Gibson:

LAFCO received the documents identified above related to the Lytle Creek Ranch Specific Plan. With regard to the recirculated portions of the Draft EIR, LAFCO has no further comments and/or concerns.

Thank you for allowing us to provide comments on the recirculated portions of the Draft EIR and Specific Plan and we look forward to working with the City on the processing of the project. Please maintain LAFCO on your distribution list to receive further information related to this process.

Sincerely,

KATHLEEN ROLLINGS-McDONALD
Executive Officer

Comment Letter No. 7

Mark G. Adelson, Chief
Regional Planning Programs Section
Santa Ana Regional Water Quality Control Board
3737 Main St., Ste. 500
Riverside, CA 92501

Comment No. 7-1

Staff of the Regional Water Quality Control Board, Santa Ana Region (Regional Board) has reviewed the City of Rialto (City) Recirculated Portions of the Draft Environmental Impact Report (RPDEIR) for the proposed Lytle Creek Ranch Specific Plan, Tentative Tract Map No. 18767 (Project). The Project would subdivide and develop approximately two-thirds of 2,447.3 acres extending along the southwestern bank, and within the historically active floodplain, of Lytle Creek. To separate the development from the remaining braided floodplain, a revetment levee would be constructed parallel to the bank for approximately seven miles, including improvements to existing levees. A separate, northeastern portion of the Project (Sycamore Flat portion) would develop the mouth of a canyon containing a Lytle Creek tributary, Sycamore Creek.

Of the 2,447.3 acres, 694.2 acres are currently in the City and 1,753.1 acres are in an unincorporated area within Rialto's Sphere of Influence (SOI). The area within the SOI would be annexed. Parts of several earlier plans, such as the Lytle Creek North Planned Development Project (LCNPDP), Glen Helen Specific Plan, El Rancho Verde Specific Plan, etc., were consolidated into this comprehensive Specific Plan.

The proposed Project would construct a series of four phased residential, commercial, school, and recreational groupings ("Neighborhoods I through IV") located beside Lytle Creek, and, in the northeast portion of the Project, on either side of Interstate 15 (southwest of the 1-15 junction with Interstate 215). As many as 8,407 dwelling units would be constructed with an associated 840,420 square feet (sf) of commercial and other uses. On April 28, 2010, Regional Board staff submitted a comment letter on the Project's 2010 Draft Environmental Impact Report (DEIR). The RPDEIR has retained the proposed Project in virtually its original form.

The RPDEIR (Table 2.5-15, p.2-224-5) anticipates the preservation of "at least 829.2 acres of natural open space, including along portions of the Lytle Creek floodplain and fault-impacted areas," apart from additional recreational-use open space. Of the 829.2 acres, 52.2 acres has already been set aside in conjunction with the LCNPDP and 160.5 acres were separately dedicated as mitigation for habitat loss of the San Bernardino kangaroo rat (SBKR).

Response to Comment No. 7-1

This introductory comment correctly summarizes various aspects of the Project, with one notable correction: the Project would include up to 849,420 gross leasable square feet of retail and commercial floor area. This comment is noted for the record and will be forwarded to the decision makers.

Comment No. 7-2

On July 13, 2010, the City certified the DEIR and later approved the Project. Petitioners sought a stay of the City's actions, a Writ of Mandate, and declaratory relief, citing violations of the California Environmental Quality Act (CEQA). In an October 7, 2011, ruling on *Endangered Habitats League and Save Lytle Creek Wash v. City of Rialto* (Ruling), the San Bernardino County Superior Court vacated the City's approvals and adoptions of the Final EIR, its Findings of Fact and Statement of Overriding Considerations, the Specific Plans applied to the Project, and Project development agreements.

Further, the Court "denied in part" writs of mandate for two EIR sections, but "granted in part" four writs of mandate ordering the City to revise other portions of EIR sections. The final writ of mandate, regarding the City's DEIR findings on significant impacts for Project Habitat Avoidance Alternatives 1 and 2 (HAA1 and HAA2[1]), is most germane to current Regional Board review. The Ruling states (p.66): *"The findings of economic infeasibility for alternatives HAA 1 and 2 are not supported by substantial evidence. Findings with respect to alternatives HAA 1 and 2 not sufficiently meeting stated objectives are not supported by substantial evidence. Taken as a whole, the City abused its discretion with respect to evaluating alternatives HAA 1 and HAA2."*

In response, the City revised its findings in the RPDEIR, providing the basis for our comments.

Response to Comment No. 7-2

This comment correctly summarizes various aspects of the Court Ruling regarding the Project. However, it is noted that revised findings and a Statement of Overriding Considerations by the City were not included in the RPDEIR and are forthcoming. This comment is noted for the record and will be forwarded to the decision makers.

Comment No. 7-3

COMMENTS

Please incorporate the following comments into the Final EIR, in order for the Project to best protect water quality standards (water quality objectives and beneficial uses) contained in the Water Quality Control Plan for the Santa Ana River Basin, 1995, as amended (Basin Plan):

[1] HAA 1 - Habitat Avoidance Alternative 1, Avoidance of San Bernardino Kangaroo Rat/Least Bell's Vireo Occupied Habitat, ("SBKR/LBV'; Figure 2.5-1)
HAA2 - Habitat Avoidance Alternative 2, Avoidance of Riversidean Alluvial Fan Sage Scrub Areas ("RAFSS"; Figure 2.5-2)

1. RPDEIR Alternatives and Recommended Alternative HAA2:

	Number of Dwelling Units	Commercial/ Other (Square Feet)	Total Area Developed (Acres)	Total Habitat Area Conserved (Acres)
Proposed Project	8,407	849,420	1,618.1	829.2 Of this, 612.5 ac within Lytle Creek (Tab.2.5-15)
Alt HAA1 (revised golf course)	7,484	820,540	1,215.5	1,071.0
Alt HAA2 (paseo park included but no golf course)	4,873	602,827	740.1	1,640.7
Avoidance of Jurisdictional Waters Alternative*	5,846	730,893	854.9	1,283.3

*Board staff believes that comments concerning the Avoidance of Jurisdictional Waters Alternative, including the related Clean Water Act 401 Certification, should be accepted at this time because the City referred to this alternative for economic comparisons in RPDEIR Appendix V-E, December 2011 (Updated Financial Feasibility Analysis) and in two footnotes on DEIR p. 2-161. Given the City's apparent determination to approve a Specific Plan that covers the project area, we choose not to discuss Alternative 1 of App. V-E, the "No Project/ Existing Zoning Alternative" (2,215 residential units and more than 1 million sq. ft. of commercial space).

From our study of the above alternatives, we strongly urge the City to adopt Alternative HAA2, instead of the proponent's preferred Project, as most protective of the water quality standards of Lytle Creek and its tributaries, waters of the state. The Basin Plan identifies these beneficial uses for Lytle Creek and its tributaries:

- Rare, Threatened, or Endangered Species (RARE);
- Wildlife Habitat (WILD);
- Cold Freshwater Habitat (COLD);
- Warm Freshwater Habitat (WARM)
- Municipal and Domestic Supply (MUN);
- Agricultural Supply (AGR)
- Industrial Process Supply (PROC)
- Industrial Supply (IND)
- Groundwater Recharge (GWR);
- Hydropower Generation (POW);
- Water Contact Recreation (REC1); and
- Non-Contact Water Recreation (REC2).

We support the Avoidance of Jurisdictional Waters Alternative that remains from the original DEIR, and we believe that a combination of portions of all three Alternatives tabulated above would support these beneficial uses more effectively than the proponent's preferred Project. However, Alternative HAA2 clearly avoids large portions of jurisdictional waters within the Project and provides the greatest accommodation for 1) natural flow regimes and sediment transport, 2) riparian habitat, and 3) wildlife movement associated with riparian corridors, all of which support RARE, WARM, COLD and WILD. Because of its smaller development footprint, Alternative HAA2 also affords greater protection of GWR.

The Regional Board jurisdiction extends to all waters of the state and recognizes beneficial uses supported by perennial and intermittent waters, including flows over alluvial fans, floodplains, and defined streambeds. The Project area's 1,143.7 acres of Riversidean Alluvial Fan Sage Scrub (RAFSS) represents a vegetative community dependent on intermittent flow regimes, including runoff through microdrainages and sheeting across alluvial fans. The RARE beneficial use accounts for those sensitive species such as SBKR moving within, and between, RAFSS and streambeds with active hydrological regimes (Ruling p.48-9, quoting the Project's Biological Resources Assessment). Alternative HAA2 minimizes impacts to RAFSS, [sic]

The Final EIR should emphasize that an underlying, guiding premise for development, particularly for this project in a geologically dynamic and biologically sensitive area, is that impacts to the water quality standards of all surface waters (including intermittent drainages and identified wetlands/isolated waters) and groundwater must first and foremost be avoided whenever possible. Therefore, we do not believe that the preservation proposed by the Project, while commendable, sufficiently avoids or compensates for the following impacts to beneficial uses and impairments that the proposed Project (and those that will inevitably follow it) will likely cause:

- Permanent habitat destruction and loss, impairing WILD, WARM, and RARE (and potentially COLD), and REC2:,
- Hydromodification posed by levee revisions, impairing WILD, WARM, COLD and RARE, REC2 and GWR;
- New impervious surfaces, impairing WILD, WARM, GWR and RARE (and potentially COLD) and contributing to hydromodification;
- Discharge of urban dry weather and stormwater runoff, potentially impairing WILD, WARM, COLD and RARE by habitat type conversion, and by causing or contributing to violations of water quality objectives for pathogen indicators; and
- Narrowing of the floodplain, impairing WILD, WARM, and RARE (and potentially GWR and COLD) by and contributing to hydromodification.

Response to Comment No. 7-3

The commentor states concerns about the hydrology and water quality impacts associated with the Project and some of the alternatives to the Project, including potential related impacts to biological resources. These matters are outside the scope of the RPDEIR. Please refer to

Section 1.2 of this Final RPEIR for a discussion of the scope of the RPDEIR, the City's obligation to respond to comments outside the scope of the RPDEIR, and the standards for recirculation of a Draft EIR due to "significant new information." The commentor offers no "significant new information" with respect to cumulative impacts within the meaning of CEQA Section 21092.1 and CEQA Guidelines Section 15088.5. However, these issues were addressed in the original DEIR. (See DEIR Volume I, Section 4.4.2.2 regarding the beneficial uses of Lytle Creek, specifically Table 4.4-2 therein, and Sections 4.4.5 and 4.5.5 regarding impacts related to hydrology/water quality impacts and biological resources, respectively. In addition, it is noted that the Project would include a Stormwater Quality Management Plan, as discussed in Section 2.7.4 of the DEIR Volume I.)

The commentor's stated preference for a particular alternative is simply a policy/agency preference for this alternative. It does not indicate a deficiency in the CEQA analysis regarding the alternatives. None of the potential impacts mentioned above were found to be significant after implementation of mitigation as part of the Project.

For purposes of clarification, it should be noted that Lytle Creek Wash no longer functions as an alluvial fan. (See discussion to this effect in the National Academy of Sciences report referenced and discussed in the PACE May 5, 2010 Technical Memorandum provided as Appendix IV-C of the original FEIR Volume IV.) In addition, Lytle Creek Wash is no longer considered dynamic, in the manner and extent apparently suggested by the commentor, as the channel is fairly incised. Furthermore, as it relates to the Riversidian Alluvial Fan Sage Scrub (RAFSS) vegetation community, as discussed extensively within the Draft EIR, a total of approximately 472.2 acres of RAFSS habitat on the Project site are hydrologically disconnected from the natural hydrologic regime, and, therefore, are no longer exposed to the natural flood regime characteristic of this community and required for the community to naturally maintain itself over time. (See DEIR Volume I, Section 4.5.3.2, pages 4.5-30 to 4.5-32.) Please refer to Section 4.4, Hydrology/Water Quality, of the DEIR Volume I and Appendix IV-C of the FEIR Volume IV for further discussion of potential water quality impacts.

Finally, the commentor notes in a footnote that because the Updated Financial Feasibility Analysis includes an evaluation of all three habitat avoidance alternatives, along with the No Project/Existing Zoning Alternative and the Project, that the commentor may provide comments regarding all three Habitat Avoidance Alternatives. However, the Court Ruling was clear in directing the City to only address Habitat Avoidance Alternatives 1 and 2; the other alternatives were included in the report for update consistency only. As such, Habitat Avoidance Alternative 3 (Avoidance of Jurisdictional Waters) is outside the scope of the RPDEIR. Please refer to Section 1.2 of this Final RPEIR for a discussion of the scope of the RPDEIR and the City's obligation to respond to comments outside the scope of the RPDEIR.

Comment No. 7-4

2. Alternatives. Impacts. Mitigation

We disagree with the City's rejection of both Alternatives HAA1 and HAA2 as infeasible (RPDEIR Section 2.5.9). The RPDEIR (p.2-261) references CEQA guidelines Section 15364, which defines "feasible" as, " ... capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and

technological factors." The City's recitation omitted the word "legal." Legality is discussed below. Then, the RPDEIR cites a 2012 case, *The Flanders Foundation v. City of Carmel-by-the-Sea*, stating that an agency, "...may reject [project] alternatives if it properly finds them to be infeasible for <u>any</u> of the statutorily specified reasons, including economic infeasibility." The City adds that alternatives may be rejected for being inconsistent with project objectives, or for conflicting with or inadequately accommodating agency planning goals and policies. We maintain that the City has not met the test of "properly" finding the alternatives infeasible, when the substantial evidence responding to the Court overwhelmingly prioritizes economics and General Plan goals ahead of meeting state (and federal) regulations regarding avoidance of sensitive habitat, protection of water quality standards (particularly those related to wildlife and aquatic habitat), and compensatory mitigation.

The General Plan does not trump state and federal regulations. The Ruling (p.46) quotes the EIR itself as stating that the *"proposed project would normally be deemed to produce a significant or potentially significant biological resource impact if the project or if project-related activities were to:*

- *Result in a violation of any applicable regulations promulgated by a State or federal resource agency for the protection of rare, threatened, endangered, or otherwise protected species and their habitats, including wetlands.*

- *Result in a violation of any applicable State or federal laws prohibiting the elimination or net reduction in a site's or an area's biological value through either direct removal of sensitive or protected on-site or near-site biological resources or through the direct or indirect disruption or interference with those resources whose impact is not substantially offset through the avoidance of such impacts or through the provision of substitute resources or environs or other measures providing reasonable and relatively equivalent compensation for such impacts.*

Violations of water quality standards are significant impacts. The potential impairments identified above would cause or contribute to violations of water quality standards, and violations of the Basin Plan. Basin Plans are required by Porter-Cologne Water Quality Control Act (Water Code Division 7) Section 13240, and are regulation, having been adopted as such according to approved administrative procedures (which are regulations themselves). Regional Board staff believes that if the proponent's preferred project alternative proceeds, implementation of the project will cause or contribute to violation of water quality standards. The City ignores these potentially significant impacts in its analysis of the preferred project alternative, by advocating the Project alternative that has the maximum disturbance to lands that support WARM, WILD, RARE, COLD, GWR, REC2 and potentially REC1 beneficial uses.

The City's newly updated General Plan Conservation Element (or Open Space Element, or equivalent) should have equal emphasis among the City's economic and community-based goals[2] in Table 2.5-15 (p.2-176-260), given that much of the site's RAFSS resource would be destroyed by the proposed Project. (Government Code Sections 65562(a), and 65561 (b) speak to the importance of open space Elements in general plans, and 65302(d) addresses conservation of water and waterways in general plans.) General Plan goals not met for the

[2] Sierra Club v. Board of Supervisors, 126 Cal. App.3rd 698,708 (1981).

Project can be met, or partly met, elsewhere in Rialto. Regional Board staff does not agree with the RPDEIR's dismissal of alternatives that provide greater protection of beneficial uses, on the basis of "financial infeasibility" and other economic findings.

Response to Comment No. 7-4

With respect to the claim that the term "legal" was omitted from the definition of "feasible," as cited in the RPDEIR, please note that the source of the definition is cited in Footnote 170 (see RPDEIR Volume V (Part 1), page 2-261), which lists Public Resources Code [CEQA] Section 21061.1 followed by CEQA Guidelines Section 15364. The definition of "feasible" provided in CEQA Section 21061.1 does not include "legal" among the list of factors to consider, and thus the definition is correct as cited. Nonetheless, for purposes of clarity, Footnote 170 has been revised in the Corrections and Additions provided in Section 3.2 of this Final RPEIR to also reflect the full definition of "feasible" that is provided in CEQA Guidelines Section 15364.

Regarding the feasibility of the alternatives, nothing in administrative record for the Project indicates that the EIR "prioritizes economics and General Plan goals ahead of meeting state (and federal) regulations." In fact, the CEQA Guidelines emphasize that the selection of project alternatives should be based primarily on the ability of an alternative to reduce significant impacts of a project, "even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly."[3] Most recently, Section 2.5.9 of the RPDEIR (Volume V (Part 1)) includes discussion of a variety of reasons why the alternatives are considered infeasible, including the failure to avoid or substantially lessen the Project's significant impacts (RPDEIR Section 2.5.9.1), financial infeasibility (RPDEIR Section 2.5.9.2), failure to meet key Project objectives (RPDEIR Section 2.5.9.3), and failure to satisfy key goals and policies of the General Plan (RPDEIR Section 2.5.9.4). While the SARWQCB is entitled to its option regarding the "dismissal of alternatives that provide greater protection of beneficial uses, on the basis of 'financial infeasibility' and other economic findings," the alternatives have nonetheless been determined infeasible due to a variety of reasons, including financial infeasibility, in accordance with CEQA. Further, it is recognized that the Project, or one of the alternatives, if implemented, would be subject to all applicable City, County, State and federal regulations, as evidenced in the significance thresholds against which the Project and alternatives were evaluated. In particular, the significance thresholds with respect to water quality impacts include the violation of any water quality standards or waste discharge requirements. (See Section 4.4.4 of the DEIR Volume I.) Moreover, hydrology and water quality impacts were determined to be less than significant after mitigation for the Project as well as the alternatives. (See Sections 4.4.7 and 7.5.3 of the DEIR Volume I.) Similarly, biological impacts were determined to be less than significant after mitigation for the Project as well as the alternatives. (See Sections 4.5.7 and 7.5.3 of the DEIR Volume I.) While it is inferred, the comment above does not present any evidence that the Project or the alternatives would violate water quality standards or waste discharge requirements.

Finally, in response to the commentor's statement that the City's General Plan Conservation Element "should have equal emphasis among the City's economic and community-based goals[4] in Table 2.5-15," please refer to the full text of Table 2.5-15 in the RPDEIR (see RPDEIR

[3] CEQA Guidelines Section 15126.6(b).
[4] Sierra Club v. Board of Supervisors, 126 Cal. App.3rd 698,708 (1981).

Volume V (Part 1), pages 2-176 through 2-260), which provides an exhaustive analysis of the consistency of the Project and alternatives with all applicable 2010 General Plan goals and policies, including those set forth in the Land Use, Community Design, Open Space and Recreation, Conservation, [emphasis added] Economic Development, Infrastructure, Water, Wastewater, Solid Waste and Recycling, Public Services and Facilities, Education and Library, Community Services, Circulation, Safety and Noise, and Housing Elements.

Comment No. 7-5

We understand the RPDEIR discussion that much of the site's habitat is not of high quality and that it has been determined that the site is only partially occupied by riparian/RAFSS sensitive species (SBKR, Least Bell's vireo, southwestern willow flycatcher, orange-throated whiptaillizard, etc.) previously observed there. However, we believe that Project mitigation planning should presume that there will be future occupation and that mitigation planning will lead to timely restoration and enhancement of RAFSS habitat. We disagree with the statements in RPDEIR, on p.2-135, for example, that impacts to SBKR in one known occupied site cannot be avoided given the alignment of the levee, but that the site would be unlikely future habitat anyway, as a way of avoiding the project's responsibility to mitigate for impacts to habitat that supports RARE, WILD, and COLD and/or WARM.

Alternative HAA2 would eliminate the Project's anticipated golf course and adult community. RPDEIR p.2-264 states that habitat avoidance would cause an unwanted juxtaposition of incompatible Project components. If this Alternative's original design has proven to be self-defeating, then the Alternative should be redesigned.

RPDEIR p.2-173 concedes that Alternative HAA2 would be more than sufficient for the City to meet its projected housing need of 4,323 units, although specific housing categories and related revenues would not be sufficient. We believe that both General Plan goals and habitat mitigation can be met by recognizing that housing and other goals may be satisfied by development in other, less environmentally sensitive sites in Rialto.

North (upstream) of the Devore Cutoff in Neighborhood IV, a current ARC-INFO image indicates that the siting of the proposed levee and residences will be within part of the currently braided channel at the mouth of Lytle Canyon. This situation poses, at minimum, a highly likely risk for hydraulic conditions of concern. Alternative HAA2 would not have this encroachment.

Response to Comment No. 7-5

The commentor states concerns about the biological mitigation for the Project. This matter is outside the scope of the RPDEIR. Please refer to Section 1.2 of this Final RPEIR for a discussion of the scope of the RPDEIR, the City's obligation to respond to comments outside the scope of the RPDEIR, and the standards for recirculation of a Draft EIR due to "significant new information." The commentor offers no "significant new information" with respect to cumulative impacts within the meaning of CEQA Section 21092.1 and CEQA Guidelines Section 15088.5. Nonetheless, it is noted that the commentor's suggestion that Project mitigation take into account future [unknown] occupation of the Project site by various species would require speculation as to the future use of the site, which falls outside of the requirements of CEQA and, importantly, as noted in the RPDEIR on page 2-135, "[t]he biological assessment concluded that

this area would not remain as suitable habitat for the SBKR in the long-term (even in the absence of development) because vegetation would be anticipated to reestablish itself as a dense, mature chaparral/shrub cover unsuitable for occupation by the species", thus future occupation is highly unlikely. Mitigation is not required for speculative impacts. However, it should be noted, as explained in the DEIR, that the Project provides mitigation for the full amount of habitats and habitat conditions (for example, RAFSS habitat and SBKR habitat) as they exist presently on the site, even if some portions of such sensitive habitats would not be expected to exist on the site over the long-term even without the Project.

With respect to the impacts of Habitat Avoidance Alternative 1 (Avoidance of SBKR/LBV-Occupied Habitat), it is noted that the alternative would incorporate all relevant mitigation measures proposed under the Project, including those related to habitat, and it was concluded in the DEIR that, like the Project, the alternative would result in less than significant impacts to biological resources after mitigation. (See Sections 4.5.7 and 7.5.3 of the DEIR Volume I.) As such, the commentor's claim that the design of the alternative would "[avoid] the project's responsibility to mitigate for impacts to habitat" is erroneous. Also refer to Response to Comment Nos. I-9-7 to I-9-9 of the original FEIR regarding this issue.

With respect to the design of Habitat Avoidance Alternative 2 (Avoidance of RAFSS Areas), CEQA requires an EIR to describe a reasonable range of alternatives to a project.[5] An EIR need not consider every conceivable alternative to a project, but rather the range of alternatives should be guided by a "rule of reason," such that only those alternatives necessary to permit a reasoned choice are analyzed.[6] HAA2 was designed specifically with the objective to avoid or substantially reduce significant Project-related impacts affecting RAFSS areas located on the Project site. Although ultimately determined in the EIR to be infeasible (see Response to Comment No. 7-4 above), HAA2 is not considered self-defeating in its design. In addition, the commentor's suggestion that the City utilize the development of other properties elsewhere in the area to meet its housing and other goals is well beyond the scope of the Project. Furthermore, the statement that the Project would pose "a highly likely risk for hydraulic conditions of concern," which HAA2 would avoid, is vague and unsubstantiated. As previously indicated, both the Project and the alternatives would result in less than significant hydrology impacts after mitigation.

<u>Comment No. 7-6</u>

4. [sic] Water Quality Regulation

RPDEIR p.2-153-4 notes the probability of plating shops, vehicle repair shops, service stations, welding, metal (chrome) plating, and other "heavy industrial uses." We note that many industrial activities that utilize publically owned treatment works (POTW), such as sewer systems, are subject to a locally implemented pretreatment program required by and enforced through the POTW's National Pollutant Discharge Elimination System (NPDES) permit. The RPDEIR should discuss this program as it relates probable new industrial facilities.

The Project, [sic] must conform to the requirements of Regional Board Order No. R8-201 0-0036, NPDES Permit No. CAS618036, "Waste Discharge Requirements for the San

[5] CEQA Guidelines Section 15126.6(a).
[6] Ibid, Section 15126.6(f).

Bernardino County Flood Control District, the County of San Bernardino, and the Incorporated Cities of San Bernardino County within the Santa Ana Region, Area-Wide Urban Storm Water Runoff Management Program," and its subsequent iterations, also known as the "San Bernardino County municipal separate storm sewer system (MS4) permit." This includes having an approved Water Quality Management Plan, and Best Management Practices and management measures to address all pollutant loads carried by dry-weather runoff and first-flush stormwater runoff.

Lytle Creek is listed as impaired by pathogens (sources unknown) by the State Water Resources Control Board, in accordance with CWA Section 303(d), and therefore the Regional Board is planning a pathogen Total Maximum Daily Load (TMDL) for Lytle Creek. Management measures implementing the control of non-point source pollutants in urban surface runoff will be necessary for compliance with this TMDL.

We appreciate the opportunity to comment on the City's RPDEIR for this Project. If you have any questions, please contact Glenn Robertson of my staff at (951) 782-3259, or grobertson@waterboards.ca.gov, or me at (951) 782-3234, madelson@waterboards.ca.gov.

Response to Comment No. 7-6

To correct and supplement the comment above, the RPDEIR indicates that Habitat Avoidance Alternative 1 (Avoidance of SBKR/LBV-Occupied Habitat) and Habitat Avoidance Alternative 2 (Avoidance of RAFSS Areas) would include one of the Project's mitigation measures (Mitigation Measure 7-15) which would preclude the development of certain land uses that would have an increased potential of emitting toxic pollutants, including: (1) heavy industrial; (2) landfills and transfer stations; (3) hazardous waste and medical waste incinerators; and (4) chrome plating facilities. (See RPDEIR Volume V (Part 1), Sections 2.5.3.1 and 2.5.3.2, pages 2-146 and 2-153 to 2-154, respectively.)

Comments regarding the regulatory requirements of the Project are outside the scope of the RPDEIR. Please refer to Section 1.2 of this Final RPEIR for a discussion of the scope of the RPDEIR, the City's obligation to respond to comments outside the scope of the RPDEIR, and the standards for recirculation of a Draft EIR due to "significant new information." The commentor offers no "significant new information" with respect to cumulative impacts within the meaning of CEQA Section 21092.1 and CEQA Guidelines Section 15088.5. However, it is noted that the original EIR provided an extensive discussion of the regulatory environment applicable to the Project, including discussion of the RWQCB's National Pollution Discharge Elimination System (NPDES) Permit, Order No. R8-2002-0012, NPDES Permit No. CAS618036, as well as the MS4 permit. (See DEIR Volume I, Section 4.4.2.2.) It is also noted that the Project would include a Stormwater Quality Management Plan, which would include a water quality management system to control the discharge of pollutants to the municipal separate storm sewer system (MS4). This system would include Best Management Practices (BMPs) to treat storm and non-storm runoff to reduce pollutants from the on-site watershed to acceptable levels prior discharging to Lytle and/or Sycamore Creeks. (See DEIR Volume I, Section 2.7.4.) Ultimately, the Project would comply with all applicable regulatory requirements, including TMDL requirements for Lytle Creek.

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Water Boards

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

Santa Ana Regional Water Quality Control Board

April 2, 2012

Gina Gibson, Senior Planner
City of Rialto Development Services Dept.
Planning and Business License Division
150 South Palm Avenue
Rialto, CA 92376-6487

RECIRCULATED PORTIONS OF DRAFT ENVIRONMENTAL IMPACT REPORT, LYTLE CREEK RANCH SPECIFIC PLAN, CITY OF RIALTO, SCH# 2009061113

Dear Ms. Gibson:

Staff of the Regional Water Quality Control Board, Santa Ana Region (Regional Board) has reviewed the City of Rialto (City) Recirculated Portions of the Draft Environmental Impact Report (RPDEIR) for the proposed Lytle Creek Ranch Specific Plan, Tentative Tract Map No. 18767 (Project). The Project would subdivide and develop approximately two-thirds of 2,447.3 acres extending along the southwestern bank, and within the historically active floodplain, of Lytle Creek. To separate the development from the remaining braided floodplain, a revetment levee would be constructed parallel to the bank for approximately seven miles, including improvements to existing levees. A separate, northeastern portion of the Project (Sycamore Flat portion) would develop the mouth of a canyon containing a Lytle Creek tributary, Sycamore Creek.

Of the 2,447.3 acres, 694.2 acres are currently in the City and 1,753.1 acres are in an unincorporated area within Rialto's Sphere of Influence (SOI). The area within the SOI would be annexed. Parts of several earlier plans, such as the Lytle Creek North Planned Development Project (LCNPDP), Glen Helen Specific Plan, El Rancho Verde Specific Plan, etc., were consolidated into this comprehensive Specific Plan.

The proposed Project would construct a series of four phased residential, commercial, school, and recreational groupings ("Neighborhoods I through IV") located beside Lytle Creek, and, in the northeast portion of the Project, on either side of Interstate 15 (southwest of the I-15 junction with Interstate 215). As many as 8,407 dwelling units would be constructed with an associated 840,420 square feet (sf) of commercial and other uses. On April 28, 2010, Regional Board staff submitted a comment letter on the Project's 2010 Draft Environmental Impact Report (DEIR). The RPDEIR has retained the proposed Project in virtually its original form.

The RPDEIR (Table 2.5-15, p.2-224-5) anticipates the preservation of "at least 829.2 acres of natural open space, including along portions of the Lytle Creek floodplain and fault-impacted areas," apart from additional recreational-use open space. Of the 829.2 acres, 52.2 acres has already been set aside in conjunction with the LCNPDP and 160.5 acres were separately dedicated as mitigation for habitat loss of the San Bernardino kangaroo rat (SBKR).

CAROLE H. BESWICK, CHAIR | KURT V. BERCHTOLD, EXECUTIVE OFFICER

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On July 13, 2010, the City certified the DEIR and later approved the Project. Petitioners sought a stay of the City's actions, a Writ of Mandate, and declaratory relief, citing violations of the California Environmental Quality Act (CEQA). In an October 7, 2011, ruling on *Endangered Habitats League and Save Lytle Creek Wash v. City of Rialto* (Ruling), the San Bernardino County Superior Court vacated the City's approvals and adoptions of the Final EIR, its Findings of Fact and Statement of Overriding Considerations, the Specific Plans applied to the Project, and Project development agreements.

Further, the Court "denied in part" writs of mandate for two EIR sections, but "granted in part" four writs of mandate ordering the City to revise other portions of EIR sections. The final writ of mandate, regarding the City's DEIR findings on significant impacts for Project Habitat Avoidance Alternatives 1 and 2 (HAA1 and HAA2[1]), is most germane to current Regional Board review. The Ruling states (p.66): *"The findings of economic infeasibility for alternatives HAA1 and 2 are not supported by substantial evidence. Findings with respect to alternatives HAA1 and 2 not sufficiently meeting stated objectives are not supported by substantial evidence. Taken as a whole, the City abused its discretion with respect to evaluating alternatives HAA1 and HAA2."*

In response, the City revised its findings in the RPDEIR, providing the basis for our comments.

COMMENTS

Please incorporate the following comments into the Final EIR, in order for the Project to best protect water quality standards (water quality objectives and beneficial uses) contained in the Water Quality Control Plan for the Santa Ana River Basin, 1995, as amended (Basin Plan):

1. RPDEIR Alternatives and Recommended Alternative HAA2:

	Number of Dwelling Units	Commercial/Other (Square Feet)	Total Area Developed (Acres)	Total Habitat Area Conserved (Acres)
Proposed Project	8,407	849,420	1,618.1	829.2 Of this, 612.5 ac within Lytle Creek (Tab.2.5-15)
Alt HAA1 (revised golf course)	7,484	820,540	1,215.5	1,071.0
Alt HAA2 (paseo park included but no golf course)	4,873	602,827	740.1	1,640.7
Avoidance of Jurisdictional Waters Alternative *	5,846	730,893	854.9	1,283.3

* Board staff believes that comments concerning the Avoidance of Jurisdictional Waters Alternative, including the related Clean Water Act 401 Certification, should be accepted at this time because the City referred to this alternative for economic comparisons in RPDEIR Appendix V-E, December 2011 (Updated Financial Feasibility Analysis) and in two footnotes on DEIR p. 2-161. Given the City's apparent determination to approve a Specific Plan that covers the project area, we choose not to discuss Alternative 1 of App. V-E, the "No Project/ Existing Zoning Alternative" (2,215 residential units and more than 1 million sq. ft. of commercial space).

[1] HAA1 - Habitat Avoidance Alternative 1, Avoidance of San Bernardino Kangaroo Rat/Least Bell's Vireo Occupied Habitat, ("SBKR/LBV"; Figure 2.5-1)

HAA2 - Habitat Avoidance Alternative 2, Avoidance of Riversidean Alluvial Fan Sage Scrub Areas ("RAFSS"; Figure 2.5-2)

From our study of the above alternatives, we strongly urge the City to adopt Alternative HAA2, instead of the proponent's preferred Project, as most protective of the water quality standards of Lytle Creek and its tributaries, waters of the state. The Basin Plan identifies these beneficial uses for Lytle Creek and its tributaries:

- Rare, Threatened, or Endangered Species (RARE);
- Wildlife Habitat (WILD);
- Cold Freshwater Habitat (COLD);
- Warm Freshwater Habitat (WARM)
- Municipal and Domestic Supply (MUN);
- Agricultural Supply (AGR)
- Industrial Process Supply (PROC)
- Industrial Supply (IND)
- Groundwater Recharge (GWR);
- Hydropower Generation (POW);
- Water Contact Recreation (REC1); and
- Non-Contact Water Recreation (REC2).

We support the Avoidance of Jurisdictional Waters Alternative that remains from the original DEIR, and we believe that a combination of portions of all three Alternatives tabulated above would support these beneficial uses more effectively than the proponent's preferred Project. However, Alternative HAA2 clearly avoids large portions of jurisdictional waters within the Project and provides the greatest accommodation for 1) natural flow regimes and sediment transport, 2) riparian habitat, and 3) wildlife movement associated with riparian corridors, all of which support RARE, WARM, COLD and WILD. Because of its smaller development footprint, Alternative HAA2 also affords greater protection of GWR.

The Regional Board jurisdiction extends to all waters of the state and recognizes beneficial uses supported by perennial and intermittent waters, including flows over alluvial fans, floodplains, and defined streambeds. The Project area's 1,143.7 acres of Riversidean Alluvial Fan Sage Scrub (RAFSS) represents a vegetative community dependent on intermittent flow regimes, including runoff through microdrainages and sheeting across alluvial fans. The RARE beneficial use accounts for those sensitive species such as SBKR moving within, and between, RAFSS and streambeds with active hydrological regimes (Ruling p.48-9, quoting the Project's Biological Resources Assessment). Alternative HAA2 minimizes impacts to RAFSS,

The Final EIR should emphasize that an underlying, guiding premise for development, particularly for this project in a geologically dynamic and biologically sensitive area, is that impacts to the water quality standards of <u>all</u> surface waters (including intermittent drainages and identified wetlands/ isolated waters) and groundwater must first and foremost be avoided whenever possible. Therefore, we do not believe that the preservation proposed by the Project, while commendable, sufficiently avoids or compensates for the following impacts to beneficial uses and impairments that the proposed Project (and those that will inevitably follow it) will likely cause:

- Permanent habitat destruction and loss, impairing WILD, WARM, and RARE (and potentially COLD), and REC2:,
- Hydromodification posed by levee revisions, impairing WILD, WARM, COLD and RARE, REC2 and GWR;

- New impervious surfaces, impairing WILD, WARM, GWR and RARE (and potentially COLD) and contributing to hydromodification;
- Discharge of urban dry weather and stormwater runoff, potentially impairing WILD, WARM, COLD and RARE by habitat type conversion, and by causing or contributing to violations of water quality objectives for pathogen indicators; and
- Narrowing of the floodplain, impairing WILD, WARM, and RARE (and potentially GWR and COLD) by and contributing to hydromodification.

2. Alternatives, Impacts, Mitigation

We disagree with the City's rejection of both Alternatives HAA1 and HAA2 as infeasible (RPDEIR Section 2.5.9). The RPDEIR (p.2-261) references CEQA guidelines Section 15364, which defines "feasible" as, "...capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors." The City's recitation omitted the word "legal." Legality is discussed below. Then, the RPDEIR cites a 2012 case, *The Flanders Foundation v. City of Carmel-by-the-Sea*, stating that an agency, "...may reject [project] alternatives if it properly finds them to be infeasible for any of the statutorily specified reasons, including economic infeasibility." The City adds that alternatives may be rejected for being inconsistent with project objectives, or for conflicting with or inadequately accommodating agency planning goals and policies. We maintain that the City has not met the test of "properly" finding the alternatives infeasible, when the substantial evidence responding to the Court overwhelmingly prioritizes economics and General Plan goals ahead of meeting state (and federal) regulations regarding avoidance of sensitive habitat, protection of water quality standards (particularly those related to wildlife and aquatic habitat), and compensatory mitigation.

The General Plan does not trump state and federal regulations. The Ruling (p.46) quotes the EIR itself as stating that the *"proposed project would normally be deemed to produce a significant or potentially significant biological resource impact if the project or if project-related activities were to:*

- *Result in a violation of any applicable regulations promulgated by a State or federal resource agency for the protection of rare, threatened, endangered, or otherwise protected species and their habitats, including wetlands.*

- *Result in a violation of any applicable State or federal laws prohibiting the elimination or net reduction in a site's or an area's biological value through either direct removal of sensitive or protected on-site or near-site biological resources or through the direct or indirect disruption or interference with those resources whose impact is not substantially offset through the avoidance of such impacts or through the provision of substitute resources or environs or other measures providing reasonable and relatively equivalent compensation for such impacts.*

Violations of water quality standards are significant impacts. The potential impairments identified above would cause or contribute to violations of water quality standards, and violations of the Basin Plan. Basin Plans are required by Porter-Cologne Water Quality Control Act (Water Code Division 7) Section 13240, and are regulation, having been adopted as such according to approved administrative procedures (which are regulations themselves). Regional Board staff believes that if the proponent's preferred project alternative proceeds, implementation of the project will cause or contribute to violation of water quality standards. The City ignores these potentially significant impacts in its analysis of the preferred project alternative, by advocating the Project alternative that has the maximum disturbance to lands that support WARM, WILD, RARE, COLD, GWR, REC2 and potentially REC1 beneficial uses.

The City's newly updated General Plan Conservation Element (or Open Space Element, or equivalent) should have equal emphasis among the City's economic and community-based goals[2] in Table 2.5-15 (p.2-176-260), given that much of the site's RAFSS resource would be destroyed by the proposed Project. (Government Code Sections 65562(a), and 65561(b) speak to the importance of open space Elements in general plans, and 65302(d) addresses conservation of water and waterways in general plans.) General Plan goals not met for the Project can be met, or partly met, elsewhere in Rialto. Regional Board staff does not agree with the RPDEIR's dismissal of alternatives that provide greater protection of beneficial uses, on the basis of "financial infeasibility" and other economic findings.

We understand the RPDEIR discussion that much of the site's habitat is not of high quality and that it has been determined that the site is only partially occupied by riparian/RAFSS sensitive species (SBKR, Least Bell's vireo, southwestern willow flycatcher, orange-throated whiptail lizard, etc.) previously observed there. However, we believe that Project mitigation planning should presume that there will be future occupation and that mitigation planning will lead to timely restoration and enhancement of RAFSS habitat. We disagree with the statements in RPDEIR, on p.2-135, for example, that impacts to SBKR in one known occupied site cannot be avoided given the alignment of the levee, but that the site would be unlikely future habitat anyway, as a way of avoiding the project's responsibility to mitigate for impacts to habitat that supports RARE, WILD, and COLD and/or WARM.

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North (upstream) of the Devore Cutoff in Neighborhood IV, a current ARC-INFO image indicates that the siting of the proposed levee and residences will be within part of the currently braided channel at the mouth of Lytle Canyon. This situation poses, at minimum, a highly likely risk for hydraulic conditions of concern. Alternative HAA2 would not have this encroachment.

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The Project, must conform to the requirements of Regional Board Order No. R8-2010-0036, NPDES Permit No. CAS618036, "Waste Discharge Requirements for the San Bernardino County Flood

[2] *Sierra Club v. Board of Supervisors*, 126 Cal. App.3rd 698,708 (1981).

Ms. Gina Gibson - 6 - April 2, 2012

Control District, the County of San Bernardino, and the Incorporated Cities of San Bernardino County within the Santa Ana Region, Area-Wide Urban Storm Water Runoff Management Program," and its subsequent iterations, also known as the "San Bernardino County municipal separate storm sewer system (MS4) permit." This includes having an approved Water Quality Management Plan, and Best Management Practices and management measures to address all pollutant loads carried by dry-weather runoff and first-flush stormwater runoff.

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We appreciate the opportunity to comment on the City's RPDEIR for this Project. If you have any questions, please contact Glenn Robertson of my staff at (951) 782-3259, or grobertson@waterboards.ca.gov, or me at (951) 782-3234, madelson@waterboards.ca.gov

Sincerely,

Mark G. Adelson, Chief
Regional Planning Programs Section

Cc : State Clearinghouse
San Bernardino County Land Use Services Dept. – Mathew Slowik
San Bernardino County Flood Control Dept. - Dave Lovell
California Dept. of Fish and Game, Ontario – Joanna Gibson
U.S. Fish and Wildlife Service – Karin Cleary-Rose
U.S. Army Corps of Engineers – Jason Lambert
Environmental Protection Agency – Jorine Campopiano

X:Groberts on Magnolia/Data/CEQA/CEQA Responses/ DEIR – City of Rialto- Lytle Creek Ranch SP-Recirculated EIR Following Ruling.doc

Comment Letter No. 8

Ian MacMillan
Program Supervisor, CEQA IGR
Planning, Rules Development, Area Sources
South Coast Air Quality Management District
21865 Copley Dr.
Diamond Bar, CA 91765-4178

Comment No. 8-1

The South Coast Air Quality Management District (AQMD) staff appreciates the opportunity to comment on the above-mentioned document, including with a one day extended review period. The conversation we had with the project team on April 3 as well as the follow-up documentation sent to us today helped to clarify our understanding of the greenhouse gas (GHG) analysis for the proposed project. Because of the complexities of greenhouse gas analyses for projects such as the Lytle Creek Ranch project, AQMD staff encourages the lead agency to consult with our agency early in the planning process for future projects. The following comments are meant as guidance for the Lead Agency and should be incorporated into the Final CEQA document.

In the project description, the lead agency proposes the construction of an approximately 2,447 acre area to build approximately 8,407 dwelling units and 849,420 gross leasable square feet of commercial and industrial uses. The RPDEIR was prepared following the San Bernardino County Superior Court's ruling, dated September 30, 2011, which included an order for the lead agency to revise the EIR with respect to the GHG emissions discussion, traffic analysis, and other areas.

Response to Comment No. 8-1

This comment is noted for the record and will be forwarded to the decision makers.

Comment No. 8-2

Business-As-Usual and Project Mitigation

The GHG emissions baseline is based on a "business-as-usual" (BAU) approach that assumes future development (including the project site) would occur in the same fashion/pattern as the surrounding Rialto community. The BAU baseline scenario includes some assumptions that should be described further in the final CEQA document. For example, the BAU scenario of 8,407 residences does not appear to include any sidewalks or trees.[7] However, the surrounding Rialto community appears to be made up of single family housing tracts containing an extensive network of sidewalks, streets, and landscaping trees. As a result, it is not clear how the addition of new trees, sidewalks, and other design measures in the project is different from BAU. Although the project may be conditioned to require these elements at an enhanced level, it

[7] The URBEMIS model used to estimate vehicular emissions reduces vehicular trip rates (and thus emissions) with the inclusion of sidewalks in a residential development. Trees have the ability to sequester carbon as they grow, which also provides an emission "credit".

appears that the existing development pattern in the Rialto community should be used to determine a baseline development level rather than assuming that these project elements would not exist at all. Additional clarification regarding this portion of the analysis should be provided in the final CEQA document.

Response to Comment No. 8-2

The commentor asks for a number of clarifications, all of which are provided below.

ENVIRON based the BAU scenario on information from the City's policies that were in place at the time of the NOP/EIR (the 1992 City of Rialto General Plan (General Plan)). As to bicycle paths, the General Plan stated a policy to "provide bicycle trail design and construction" but did not provide any substantive or specific obligations for new development projects. The Project specifies an extensive and well-connected bike network, beyond that envisioned in the General Plan. The General Plan required sidewalks on at least one side of the street for all new developments, whereas the Project requires sidewalks on both sides of the street for the vast majority of its streets, thus enhancing walkability. The General Plan had no requirement for a development to plant trees, whereas the Project requires the planting of 30,000 additional trees. (See LCRSP, Section 4.3.7, Planting Guidelines.)

The BAU scenario comprised a condition with no bike paths, trees or sidewalks, as correctly noted in the comment above. If the Project were to take no credit for planting 30,000 trees and the concomitant increase in carbon sequestration, the Project's overall reduction from BAU would not materially change. As indicated in Tables 4-3 and 4-4 of the Revised Climate Change Technical Report for Lytle Creek, provided as Appendix V-B of the RPDEIR, the total carbon sequestration due to planting 30,000 trees results in 20,520 tonnes CO_2e of one-time emissions. As indicated in Table 2.1-42 of the RPDEIR, one-time emissions are amortized/annualized over the 40-year life of the Project. Accordingly, tree carbon sequestration accounts for 513 tonnes CO_2e per year (20,520 ÷ 40). If it were conservatively assumed that the same number of trees would be planted under the Project and BAU scenarios, the Project GHG inventory would remain the same but the BAU GHG inventory would decrease by 513 tonnes CO_2e per year to 154,825 tonnes CO_2e per year. As such, the Project's reduction from BAU would be lowered by 0.2 percent to 32.5 percent, which still exceeds the percent improvement necessary to achieve AB 32's mandates.

The General Plan did require sidewalks on one side of the street for new developments. The CAPCOA document entitled "Quantifying Greenhouse Gas Mitigation Measures: A Resource for Local Government to Assess Emission Reductions from Greenhouse Gas Mitigation Measures" contains quantitative information on the quantity of reduction that may be available from a variety of GHG mitigation.[8] Table 6-2 of that document indicates that the maximum reduction in GHG emissions that may result from "Providing Pedestrian Network Improvements" is 2 percent. As a result, even if the sidewalks were assumed on one side of the street for BAU, there would be little if any difference in the predicted reduction in GHG emissions for the Project as compared to the BAU scenario.

[8] CAPCOA (2010). Quantifying Greenhouse Gas Mitigation Measures: A Resource for Local Government to Assess Emission Reductions from Greenhouse Gas Mitigation Measures. August, 2010. Website www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf.

Comment No. 8-3

Business-As-Usual Project Size

In both the BAU scenario and the proposed project, the number of dwelling units totals 8,407 with a mix of multi-family and single family homes. The proposed project has a higher proportion of multi-family homes than the BAU scenario. Based on communication from the lead agency, the project includes approximately 607 acres of residential development, while the BAU scenario would require approximately 1,406 acres of residential development due to the lower density associated with more single family homes. Because the size of the BAU development would be so much larger than the proposed project in areal extent, AQMD staff asks that the lead agency clarify why it isn't more appropriate to assume that the development acreage would remain the same in both scenarios with the BAU scenario assuming a lower number of dwelling units to fit in the project's 607 acres.

Response to Comment No. 8-3

The commentor asks why it isn't more appropriate to assume the development acreage would be the same under the Project as under the BAU scenario. Assuming that the BAU scenario comprises fewer residents than the Project scenario would substantively alter the nature of the Project and would not be a like comparison. There is not a requirement that the BAU scenario be constrained to the same land area as the Project. Rather, the BAU scenario is a hypothetical in which the Project mitigation measures and the AB 32 measures are not in effect. Consequently, the BAU scenario as evaluated in the Revised Climate Change Technical Report is appropriate. Incidentally, the total Project area of 2,447 acres could accommodate the 1,406 acres of residential development in the BAU scenario.

Comment No. 8-4

High Quality Transit

It appears that the project includes high quality transit with access to high-speed rail as mitigation, but it appears that the closest high frequency transit access is further than the minimum distance recommended under the California Air Pollution Control Officers Association (CAPCOA) GHG Quantification Guidelines or the URBEMIS User Guide. Clarification should be provided about how the project can take credit for this mitigation measure.

Response to Comment No. 8-4

Trip counts and trip distances for the Project were provided by the traffic consultant, Crain and Associates. In calculating the Project's improvement over the BAU scenario, ENVIRON used URBEMIS to calculate the reduction in vehicle miles traveled (VMT) attributable to the Project's mitigation measures. In this analysis, the URBEMIS mitigation measure for proximity to transit was incorporated. URBEMIS uses a Transit Service Index that takes into account the number of average daily weekday buses stopping within ¼ mile of the site, the number of daily rail or bus rapid transit trips stopping within ½ mile of the site, and the number of dedicated daily

shuttle buses serving the project.[9] The Project was credited with a 1.04 percent reduction in trips due to the transit service to the Project.

The ratio of mitigated project VMT to the BAU scenario VMT was 141 percent. If a transit service index of zero were modeled (i.e., if no credit were taken for the existing bus service), the ratio would be reduced to 139 percent. The GHG emissions due to traffic in the BAU scenario would be reduced from 100,168 tonnes CO_2e per year to 98,518 tonnes CO_2e per year. The resulting improvement of the Project over the BAU scenario would be reduced by 0.7 percent from 32.7 percent to 32.0 percent. Under such an analysis, the Project's climate change impacts would remain less than significant, as the Project would not impede the State's ability to achieve the reduction to 1990 levels in GHG emissions required by AB 32. (See RPDEIR Volume V (Part 1), page 2-30.)

With respect to ENVIRON's incorporation of Project trip reductions into the URBEMIS model due to bus and Metrolink rail travel, as well as pedestrian and bicycle-friendly design, there are multiple factors that bear on calculating trips. (See the Revised Climate Change Technical Report for Lytle Creek, provided as Appendix V-B of the RPDEIR Volume V (Part 2), pp. 125-126.) Nothing in CEQA precluded ENVIRON, the City's climate change expert for the Project, from assuming benefits from the Project's commitment to alternate modes of travel in the analysis. As ENVIRON's Revised Climate Change Technical Report notes on page 125, "Lytle Development Company [the Applicant] has committed to enhancements of the public transportation in the region." That commitment can be shown in many ways. For instance, implementation of the Project would include a park-and-ride/park-and-pool facility with covered transit benches in Neighborhood III or IV, in proximity to the intersection of Sierra Avenue and Riverside Avenue. (See Section 4.7 of the original DEIR Volume I, Mitigation Measures 7-13 and 7-14.) The Project would also be located near an existing bus route (Omnitrans' Route 22) with connections to the Rialto Metrolink Station, thus encouraging the use of transit and fixed-rail public transportation systems.

Furthermore, the Project would incorporate pedestrian and bicycle-friendly design. As the LCRSP states on page 3-69:

> Lytle Creek Ranch has been designed to promote the use of alternative forms of transportation. The project site is located close to several major transportation routes, including the I-15 (which bisects a portion of the site), I-210, and I-10 freeways. Bus transportation is currently provided along portions of Riverside Avenue (Bus Route 22) by Omnitrans. Bus Route 22 includes stops along a portion of Riverside Avenue and at or near Carter High School, Kolb Junior High School, the Rialto Civic Center, and the Metrolink station located at 261 South Palm Avenue in Rialto. The Metrolink line provides stops in San Bernardino to the east and Fontana, Rancho Cucamonga, Upland, Montclair, Claremont, Pomona, Covina, Baldwin Park, El Monte, Cal State Los Angeles, and Union Station in downtown Los Angeles to the west. Many of the Omnitrans buses are low emitting vehicles and run on Compressed Natural Gas (CNG), while the newest vehicles are electric/gasoline hybrids.

[9] URBEMIS2007 for Windows Users' Guide, Version 9.2, November 2007, page 39.

> The project proposes a system of bicycle trails and walking trails throughout the project site. These trails will follow the alignment of the major streets in Lytle Creek Ranch and connect to a trail system to be established along the northeast side of Riverside Avenue. Thus, residents will be able to walk or ride their bikes to Riverside Avenue and catch a ride on the bus to other portions of the City. (LCRSP, p. 3-69.)

As such, ENVIRON appropriately included trip reductions due to transit use in the URBEMIS model for the Project.

Comment No. 8-5

Classification of Mitigation Effectiveness

Table ES-1 of the RPDEIR includes a 42.8 percent reduction of GHG emissions for mobile sources compared with BAU. These reductions are based upon mitigation measures included in the URBEMIS computer modeling and from other sources in the air quality analysis. Since the percentage reduction is a consolidated figure, AQMD staff requests that the final CEQA document include a single table that breaks down the percent reduction with each corresponding mobile source measure to clarify the effectiveness of each measure. An example of this table is below.

Measure	Effectiveness in BAU	Effectiveness in Project
Statewide Measures	**XX%**	**XX%**
Pavley Standards	XX%	XX%
Renewable Portfolio Standard		
Project Specific Measures	**XX%**	**XX%**
Vegetation	XX%	XX%
Access to public transit	XX%	XX%
Sidewalks	XX%	XX%
Mix of Land Use Types	XX%	XX%
Building Energy Efficiency (Title 24)	XX%	XX%
Etc.		

Response to Comment No. 8-5

The commentor asks for clarification of the effectiveness of individual “mobile source” mitigation measures addressed in the ENVIRON’s Revised Climate Change Technical Report prepared as part of the RPDEIR (Appendix V-B). As an initial matter, it is noted that some of the measures in the comment’s sample table are not related to mobile source greenhouse gas emissions (e.g., Building Energy Efficiency (Title 24) and Renewables Portfolio Standard). The Revised Climate Change Technical Report compares the overall GHG emissions of the Project with the GHG emissions for the BAU scenario. Accordingly, the evaluation requested by the SCAQMD was not included in either the Revised Climate Change Technical Report or the RPDEIR.

However, based on information in the RPDEIR and the Revised Climate Change Technical Report, this information largely can be found.

There was no reduction taken for statewide measures (e.g., renewables portfolio standard, Pavley Standards, or the Low Carbon Fuel Standard) in the BAU scenario, consistent with the definition of BAU. As stated on page ES-2 of the Revised Climate Change Technical Report, "[t]he BAU scenario consists of projected GHG emissions for LCR that would occur from the project if it were to be built without the project design features and energy reduction commitments made by Lytle Development Company, and in the absence of regulations promulgated to comply with AB 32, including GHG reduction measures discussed in the AB 32 Scoping Plan." As noted in Section 5.2.1 of the Revised Climate Change Technical Report, it is assumed that neither the preservation of open space, nor the commitment to plant additional trees will occur under the BAU scenario. As noted in Section 5.2.3 of the Revised Climate Change Technical Report, "ENVIRON estimated the trip rates for a BAU scenario assum[e] no project design features such as mixed use, local serving retail, and pedestrian friendliness." Accordingly, there was no reduction in the BAU scenario for access to public transit, sidewalks, and mix of land use types. In addition, Section 5.2.2 states that the BAU scenario is a minimally Title 24 compliant building of the same size, based on 2005 Title 24 requirements. Therefore, there is no reduction for building energy efficiency beyond that already incorporated into 2005 Title 24 requirements.

The reductions resulting from the implementation of California regulations associated with AB 32 can also be found in the Revised Climate Change Technical Report. The reductions resulting from implementation of the Pavley standards can be seen to be approximately 20 percent, using a comparison of Tables 4-30 and 4-31, in which the difference that results from the Pavley standards is explicitly laid out. The effect of the Renewables Portfolio Standard (RPS) on the Project's emissions can be determined using Table 4-21 of the Revised Climate Change Technical Report. There it states that the RPS emission factor for Southern California Edison (SCE), which supplies energy to the Rialto area, is 0.583 pounds (lbs) CO2e (carbon dioxide equivalent) per kilowatt-hour (kWh), as compared to the BAU values of 0.631 lbs CO2e per kWh. This difference results in an approximately 8 percent reduction in CO2e emissions from electricity use in the built environment due to implementation of the RPS.

The reduction in GHG emissions from implementation of the current (2008) Title 24 standards are discussed in Section 4.9 and 4.10 of the Revised Climate Change Technical Report. Due to the complex interaction between the breakdown of natural gas and electricity use in both non-residential and residential buildings, the amount energy use associated with the parts of the built environment regulated by Title 24, and the Project's additional energy efficiency commitments (i.e., Energy Star major appliances and reduction in building envelope energy use of 15 percent below that required by 2008 Title 24), it is difficult to categorize the reduction of each measure. However, the overall reduction of GHG emissions attributable to energy use of the built environment is presented in Table ES-2 of the Revised Climate Change Technical Report, and is 23.0 percent and 13.5 percent, respectively, for residential and non-residential buildings. As noted earlier, approximately 8 percent of that reduction results from the implementation of the RPS.

As discussed in the CAPCOA mitigation manual, the reduction in GHG emissions from landform and land use/location, neighborhood site enhancements and transit system improvements are

difficult to separate because they are interactive.[10] As shown in Table ES-2 of the Revised Climate Change Technical Report, the overall reduction, including implementation of the Pavely standards is 42.8 percent, with approximately 20 percent of the reduction from the implementation of the Pavley Standards as discussed above.

Comment No. 8-6

Consistency with the RTP/SCS

The final CEQA document should clarify whether the lead agency's assumptions in the GHG analysis are consistent with the assumptions in the recently adopted Regional Transportation Plan/Sustainable Community Strategy. Since GHG reductions from AB32 are partially accounted for through implementation of the SCS, the GHG analysis for this project should clarify how this project is consistent with this plan.

Response to Comment No. 8-6

Whether the Project is consistent with the Regional Transportation Plan/Sustainable Community Strategy (RTP/SCS) is irrelevant to the assessment of the Project's GHG emissions in the RPDEIR. As described on page ES-1 of the Revised Climate Change Technical Report, provided as Appendix V-B to the RPDEIR, revisions were made "…in accordance with the Court's Ruling, in particular pages 17 to 20 thereof, to demonstrate more clearly how the [Project's] GHG inventory represents a 32.7% reduction in GHG emissions over a Business as Usual (BAU) scenario." In accordance with the Court Ruling, the Revised Climate Change Technical Report "serves only to further clarify how the 32.7% reduction set forth in the November 2009 report [i.e., the original Climate Change Technical Report provided in Appendix III-G of the DEIR] was calculated." (Revised Climate Change Technical Report, p. ES-1.) The Court Ruling did not require the City to recalculate and reanalyze the Project's GHG emissions impacts under new methodology or to reflect assumptions in newly adopted policies. As such, this matter is outside the scope of the RPDEIR. Please refer to Section 1.2 of this Final RPEIR for a discussion of the scope of the RPDEIR, the City's obligation to respond to comments outside the scope of the RPDEIR, and the standards for recirculation of a draft EIR due to "significant new information." The commentor offers no "significant new information" within the meaning of CEQA Section 21092.1 and CEQA Guidelines Section 15088.5.

In addition, when the original Climate Change Technical Report was prepared as part of the original DEIR and the Project's GHG emissions were originally analyzed, the RTP/SCS was not in existence (in either draft or final form). Indeed, even upon the recirculation of portions of the DEIR, which began on February 17, 2012, the RTP/SCS was still a draft document. SCAG did not approve the final RTP/SCS and certify its Program Environmental Impact Report until April 4, 2012, after the public comment period on the RPDEIR had ended (http://www.scag.ca.gov/media/pdf/pressReleases/2012/PR006_Nations_Largest_MPO_Approves_RTP_SCS.pdf). Accordingly, no discussion of consistency with the RTP/SCS is required.

Moreover, given the differing purposes, geographic scopes covered, and calculation methodologies between the RTP/SCS and the Project, a comparison between the two is not

[10] CAPCOA 2010, www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf.

directly informative of the Project's impact on global climate change. For example, a standard GHG analysis used in an EIR for a development project covers only one project, whereas the SCAG's RTP model covers a six county region that contains four air basins administered by five air districts. SCAG's RTP model is a complex tool that divides the SCAG region into 11,267 Transportation Analysis Zones (TAZ's) with an additional 40 external cordon stations, 12 airport nodes, and 31 port nodes for the Ports of Los Angeles and Long Beach. The GHG analysis contained in the Project RPDEIR is based on correlations with certain aspects of transportation, such as housing size, density and availability of transit, whereas the SCAG model contains much more complicated considerations, such as socioeconomic data by census block group, highway networks, Land use and accessibility for auto ownership; land use, parking, pricing, TDM, walk and bike for mode choice model; and transit networks. Accordingly, the relative simplicity of the model used in the Project's RPDEIR make it inappropriate to compare to the complex and much larger models used for the SCAG RTP.

Comment No. 8-7

Pursuant to Public Resources Code 21092.5, please provide AQMD with written responses to all comments contained herein prior to the adoption of the Final EIR. The AQMD staff is available to work with the lead agency to address these issues and any other air quality questions that may arise. Please contact me at (909) 396-3244 if you have any questions regarding these comments.

Response to Comment No. 8-7

This comment is noted for the record and will be forwarded to the decision makers.

South Coast Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

E-Mailed: April 4, 2012 April 4, 2012
ggibson@rialtoca.gov

Ms. Gina Gibson, Senior Planner
Development Services Department
City of Rialto
150 S. Palm Avenue
Rialto, CA 92376-6487

Recirculated Portions of the Draft Environmental Impact Report (RPDEIR) for the Proposed Lytle Creek Ranch Specific Plan Project

The South Coast Air Quality Management District (AQMD) staff appreciates the opportunity to comment on the above-mentioned document, including with a one day extended review period. The conversation we had with the project team on April 3 as well as the follow-up documentation sent to us today helped to clarify our understanding of the greenhouse gas (GHG) analysis for the proposed project. Because of the complexities of greenhouse gas analyses for projects such as the Lytle Creek Ranch project, AQMD staff encourages the lead agency to consult with our agency early in the planning process for future projects. The following comments are meant as guidance for the Lead Agency and should be incorporated into the Final CEQA document.

In the project description, the lead agency proposes the construction of an approximately 2,447 acre area to build approximately 8,407 dwelling units and 849,420 gross leasable square feet of commercial and industrial uses. The RPDEIR was prepared following the San Bernardino County Superior Court's ruling, dated September 30, 2011, which included an order for the lead agency to revise the EIR with respect to the GHG emissions discussion, traffic analysis, and other areas.

Business-As-Usual and Project Mitigation
The GHG emissions baseline is based on a "business-as-usual" (BAU) approach that assumes future development (including the project site) would occur in the same fashion/pattern as the surrounding Rialto community. The BAU baseline scenario includes some assumptions that should be described further in the final CEQA document. For example, the BAU scenario of 8,407 residences does not appear to include any sidewalks or trees.[1] However, the surrounding Rialto community appears to be made up of single family housing tracts containing an extensive network of sidewalks, streets, and landscaping trees. As a result, it is not clear how the addition of new trees, sidewalks,

[1] The URBEMIS model used to estimate vehicular emissions reduces vehicular trip rates (and thus emissions) with the inclusion of sidewalks in a residential development. Trees have the ability to sequester carbon as they grow, which also provides an emission "credit".

and other design measures in the project is different from BAU. Although the project may be conditioned to require these elements at an enhanced level, it appears that the existing development pattern in the Rialto community should be used to determine a baseline development level rather than assuming that these project elements would not exist at all. Additional clarification regarding this portion of the analysis should be provided in the final CEQA document.

Business-As-Usual Project Size
In both the BAU scenario and the proposed project, the number of dwelling units totals 8,407 with a mix of multi-family and single family homes. The proposed project has a higher proportion of multi-family homes than the BAU scenario. Based on communication from the lead agency, the project includes approximately 607 acres of residential development, while the BAU scenario would require approximately 1,406 acres of residential development due to the lower density associated with more single family homes. Because the size of the BAU development would be so much larger than the proposed project in areal extent, AQMD staff asks that the lead agency clarify why it isn't more appropriate to assume that the development acreage would remain the same in both scenarios with the BAU scenario assuming a lower number of dwelling units to fit in the project's 607 acres.

High Quality Transit
It appears that the project includes high quality transit with access to high-speed rail as mitigation, but it appears that the closest high frequency transit access is further than the minimum distance recommended under the California Air Pollution Control Officers Association (CAPCOA) GHG Quantification Guidelines or the URBEMIS User Guide. Clarification should be provided about how the project can take credit for this mitigation measure.

Classification of Mitigation Effectiveness
Table ES-1 of the RPDEIR includes a 42.8 percent reduction of GHG emissions for mobile sources compared with BAU. These reductions are based upon mitigation measures included in the URBEMIS computer modeling and from other sources in the air quality analysis. Since the percentage reduction is a consolidated figure, AQMD staff requests that the final CEQA document include a single table that breaks down the percent reduction with each corresponding mobile source measure to clarify the effectiveness of each measure. An example of this table is below.

Measure	Effectiveness in BAU	Effectiveness in Project
Statewide Measures	**XX%**	**XX%**
Pavley Standards	*XX%*	*XX%*
Renewable Portfolio Standard		
Project Specific Measures	**XX%**	**XX%**
Vegetation	*XX%*	*XX%*
Access to public transit	*XX%*	*XX%*
Sidewalks	*XX%*	*XX%*
Mix of Land Use Types	*XX%*	*XX%*
Building Energy Efficiency (Title 24)	*XX%*	*XX%*
Etc.		

Mr. Richard Cameron 3 January 20, 2012

Consistency with the RTP/SCS
The final CEQA document should clarify whether the lead agency's assumptions in the GHG analysis are consistent with the assumptions in the recently adopted Regional Transportation Plan / Sustainable Community Strategy. Since GHG reductions from AB32 are partially accounted for through implementation of the SCS, the GHG analysis for this project should clarify how this project is consistent with this plan.

Pursuant to Public Resources Code 21092.5, please provide AQMD with written responses to all comments contained herein prior to the adoption of the Final EIR. The AQMD staff is available to work with the lead agency to address these issues and any other air quality questions that may arise. Please contact me at (909) 396-3244 if you have any questions regarding these comments.

Sincerely,

Ian MacMillan
Program Supervisor, CEQA IGR
Planning, Rules Development, Area Sources

IM:GM

SBC120221-01
Control Number

Comment Letter No. 9

Huasha Liu
Director, Land Use and Environmental Planning
Southern California Association of Governments
818 W. Seventh St., Fl. 12
Los Angeles, CA 90017-3435

Comment No. 9-1

Thank you for submitting the **Recirculated Portions of the Draft Environmental Impact Report (RPDEIR) for the Lytle Creek Ranch Specific Plan Project [120120044]** to the Southern California Association of Governments (SCAG) for review and comment. SCAG is the authorized regional agency for Inter-Governmental Review of Programs proposed for federal financial assistance and direct development activities, pursuant to Presidential Executive Order 12372. Additionally, SCAG reviews the Environmental Impact Reports of projects of regional significance for consistency with regional plans pursuant to the California Environmental Quality Act (CEQA) and CEQA Guidelines. SCAG is also the designated Regional Transportation Planning Agency and as such is responsible for both preparation of the Regional Transportation Plan (RTP) and Federal Transportation Improvement Program (FTIP) under California Government Code Sections 65080 and 65082.[11] As the clearinghouse for regionally significant projects per Executive Order 12372, SCAG reviews the consistency of local plans, projects, and programs with regional plans. Guidance provided by these reviews is intended to assist local agencies and project sponsors to take actions that contribute to the attainment of regional goals and policies.

SCAG staff has reviewed the proposed Lytle Creek Ranch Specific Plan (LCRSP) and RPDEIR for the LCRSP, and determined that this proposed project is regionally significant per CEQA Guidelines, Sections 15125 and 15206. The LCRSP project would authorize the development of up to 8,407 dwelling units and 849,420 gross leasable square feet in the City of Rialto, California.

We have evaluated the proposed project based on the policies of SCAG's 2008 RTP and Compass Growth Vision Principles that may be applicable to this project. The RTP and Compass Growth Visioning Principles can be found on the SCAG web site at: http:// scag.ca.qov/iqr. The attached detailed comments are intended to provide guidance for considering the proposed project within the context of our regional goals and policies. We also encourage the use of the SCAG List of Mitigation Measures extracted from the 2008 RTP to aid with demonstrating consistency with regional plans and policies. Please send a copy of the Final Environmental Impact Report (FEIR) to the attention of Pamela Lee at SCAG, 818 W. 7th St., 12th floor, Los Angeles, California, 90017. If you have any questions regarding the attached comments, please contact Ms. Lee at (213) 236-1895. Thank you.

[11] SCAG is further responsible under state law (Senate Bill 375; Steinberg, 2008) for preparation of a Sustainable Communities Strategy (SCS) as part of the RTP. SCAG is required to update the RTP every four years. The 2012-2035 RTP/SCS is scheduled for adoption by the SCAG Regional Council on April 4, 2012.

Response to Comment No. 9-1

It is acknowledged that SCAG is the federally-designated metropolitan planning organization for the region and reviews the EIRs of regionally significant projects. This comment is noted for the record and will be forwarded to the decision makers.

Comment No. 9-2

PROJECT LOCATION

The project site is located on an approximately 2,447.3-acre area, of which approximately 694.2 acres are located within the City of Rialto and approximately 1,753.1 acres are currently located in unincorporated San Bernardino County.

PROJECT DESCRIPTION

The proposed project involves the adoption and implementation of the proposed Lytle Creek Ranch Specific Plan (LCRSP). The LCRSP, in combination with a development agreement/pre-annexation agreement between the City and Lytle Development Joint Venture III, would guide land use and development of the project site. The LCRSP would: authorize the development of up to 8,407 dwelling units and 849,420 gross leasable square feet of general and specialty commercial, office, business park, light industrial and manufacturing, warehouse and distribution center, and other similar uses (excluding institutional, education, recreational and infrastructure-related uses); allow for the retention of a substantial portion of the project site for open space and conservation purposes; create diverse opportunities for a range of public, semi-public, and private recreational facilities; and promote the development of associated public improvements, public works and infrastructure facilities.

Implementation of the LCRSP would result in a master-planned community consisting of four separate and distinct neighborhoods comprised of a total of 103 planning areas (PAs).

- Neighborhood I: Neighborhood I would comprise approximately 417.2 acres. The primary land use in neighborhood I would be single-family residential, in addition to open space. A portion of the neighborhood, commonly referred to as Sycamore Creek East (Sycamore flat) and Sycamore Creek West (Sycamore Canyon), is located within the boundaries of the 3,400-acre County-approved Glen Helen Specific Plan (GHSP). The remaining land is located within the boundaries of the County-approved Lytle Creek North Planned Development. The LCRSP proposes an annexation of these areas into the City, and upon project approval the LCRSP would supersede the GHSP and LCNPD with respect to these areas.

- Neighborhood II: Neighborhood II is planned as a gated, active adult community on approximately 801.8 acres and would include the entire 221-acre, City-approved El Rancho Verde Specific Plan (ERVSP) area and the El Rancho Verde Royal Vista Golf Course. In addition to open space, the primary land uses in this neighborhood would be single-family residential, multi-family, and commercial. Portions of Neighborhood II contain a Single Family Residential (SFR Overlay) and a High Density Residential Overlay (HDR Overlay). If approved, the permitted land uses and related plans and policies presented in the LCRSP would supersede those contained in the ERVSP.

- Neighborhood III: Neighborhood III is located south of the Interstate 15 (1-15) Freeway and would primarily include a mix of single-family and multi-family residential uses, school sites and commercial development on approximately 968.8 acres. Portions of Neighborhood III contain a SFR Overlay and Park Overlay.

- Neighborhood IV: Neighborhood IV would consist primarily of multi-family residential and commercial development on 259.5 acres located north of the 1-15 Freeway.

Three of the proposed neighborhoods (Neighborhoods I, III, and IV) would include housing designed to attract a variety of households, preferences and lifestyles. As previously described, Neighborhood II would be built as a gated, age-qualified community for residents age 55 and older. More than half of the overall project site area would be preserved or retained as open space.

Response to Comment No. 9-2

This comment correctly summarizes the major elements of the Project. This comment is noted for the record and will be forwarded to the decision makers.

Comment No. 9-3

CONSISTENCY WITH REGIONAL TRANSPORTATION PLAN

Regional Growth Forecasts

The Draft Environmental Impact Report (DEIR) for the LCRP project should reflect the most recently adopted SCAG forecasts, which are the 2008 RTP (May 2008) Population, Household and Employment forecasts. The forecasts for the region, subregion, and city are as follows:

Adopted SCAG Regionwide Forecasts[1]

	2010	2015	2020	2025	2030	2035
Population	19,418,344	20,465,830	21,468,948	22,395,121	23,255,377	24,057,286
Households	6,086,986	6,474,074	6,840,328	7,156,645	7,449,484	7,710,722
Employment	8,349,453	8,811,406	9,183,029	9,546,773	9,913,376	10,287,125

Adopted San Bernardino Association of Governments Subregion Forecasts[1]

	2010	2015	2020	2025	2030	2035
Population	2,182,049	2,385,761	2,582,773	2,773,938	2,957,754	3,133,797
Households	637,252	718,601	787,138	852,994	914,575	972,565
Employment	810,232	897,493	965,781	1,045,471	1,134,964	1,254,752

Adopted City of Rialto Forecasts[1]

	2010	2015	2020	2025	2030	2035
Population	107,849	115,846	123,079	130,098	136,846	143,310
Households	27,519	30,550	33,029	35,411	37,638	39,735
Employment	26,492	30,295	33,237	36,676	40,555	46,580

1. The 2008 RTP growth forecast at the regional, subregional, and city level was adopted by the Regional Council In May 2008.

SCAG Staff Comments:

SCAG staff cannot determine whether or not the RPDEIR population, household and employment analyses were based on 2008 RTP Regional Growth Forecasts. The RPDEIR did not include a population, household and employment analyses (and SCAG did not review and comment on the originally released DEIR for the LCRP project).

Response to Comment No. 9-3

The commentor indicates that the EIR for the Project should address the most recent growth forecasts provided in SCAG's 2008 RTP. This matter is outside the scope of the RPDEIR; however, this issue was fully addressed in the original DEIR. (See DEIR Volume I, Sections 4.2.3.2 and 4.2.5.2; as cross referenced in Section 4.2.3.2, the 2008 RTP population, household, and employment projections for the County and City are presented in Table 3-4 on page 3-6 and Table 3-5 on page 3-8, respectively, of the DEIR Volume I.) It is also noted that SCAG commented on the NOP for the Project on July 20, 2009, and provided a similar comment (see Appendix I-A-B in the original DEIR Volume I for a copy of the comment letter). Please refer to Section 1.2 of this Final RPEIR for a discussion of the scope of the RPDEIR, the City's obligation to respond to comments outside the scope of the RPDEIR, and the standards for recirculation of a Draft EIR due to "significant new information." The commentor offers no "significant new information" with respect to cumulative impacts within the meaning of CEQA Section 21092.1 and CEQA Guidelines Section 15088.5.

Comment No. 9-4

The **2008 Regional Transportation Plan (RTP)** also has goals and policies that are pertinent to this proposed project. The 2008 RTP links the goal of sustaining mobility with the goals of fostering economic development, enhancing the environment, reducing energy consumption, promoting transportation-friendly development patterns, and encouraging fair and equitable access to residents affected by socio-economic, geographic and commercial limitations. The 2008 RTP continues to support all applicable federal and state laws in implementing the proposed project. Among the relevant goals and policies of the 2008 RTP are the following:

Regional Transportation Plan Goals:

RTP G1 *Maximize mobility and accessibility for all people and goods in the region.*
RTP G2 *Ensure travel safety and reliability for all people and goods in the region.*
RTP G3 *Preserve and ensure a sustainable regional transportation system.*
RTP G4 *Maximize the productivity of our transportation system.*

RTP G5 *Protect the environment, improve air quality and promote energy efficiency.*
RTP G6 *Encourage land use and growth patterns that complement our transportation investments.*
RTP G7 *Maximize the security of our transportation system through improved system monitoring, rapid recovery planning, and coordination with other security agencies.*

SCAG Staff Comments:

Where applicable, SCAG staff finds that the proposed project is partially consistent with Regional Transportation Plan Goals. RTP G7 is not applicable to the proposed project in that it is not a transportation project.

SCAG staff finds the proposed project is consistent with RTP G1. Through Policy 2-38.3, the proposed project aims to support public transit, including public bus service, Metrolink and potential Bus Rapid Transit, and enhance bicycling and walking infrastructure. Thus, the proposed project addresses accessibility and encourages a transportation system that provides (Page 2-223, RPDEIR).

SCAG staff cannot determine consistency with RTP G2. The RPDEIR did not include an analysis of travel safety and reliability of a regional transportation and focused on specific portions of the traffic/transportation analysis (and SCAG did not did not review and comment on the originally released DEIR for the LCRP project)

The proposed project meets consistency with RTP G3. The proposed project plans to incorporate “green” and sustainable practices that would ensure a sustainable regional transportation system (Page 2-171, RPDEIR).

With regard to RTP G4, the proposed project meets consistency. The proposed project would not have significant impacts on the regional transportation and freeway segments within the project site (Page 22 - Addendum to Traffic Impact Analysis).

The proposed project meets consistency with RTP G5. The EIR determined that all biological resource impacts could be mitigated to a less than significant level (Page 2-134, RPDEIR).

SCAG staff cannot determine consistency with RTP G6. The proposed project is located near existing transportation infrastructure, yet also would result in an intensification of uses beyond what is allowable under existing zoning. Page 2-158 of the RPDEIR specifically states, “ ... with the adoption of the LCRSP and other discretionary actions, the changes in jurisdiction authority and land use regulations would result in an intensification of uses and substantial growth beyond what is allowable under existing City and County zoning.”

Response to Comment No. 9-4

The commentor lists those SCAG 2008 RTP goals that are applicable to the Project, the consistency with which should be evaluated. This matter is outside the scope of the RPDEIR; however, this issue was fully addressed in the original DEIR. (See DEIR Volume I, Section

4.1.5.2, and in particular Table 4.1-17 on pages 4.1-169 through 4.1-178 wherein Project consistency with applicable SCAG policies is evaluated.) It is also noted that SCAG commented on the NOP for the Project on July 20, 2009 and provided a similar comment (see Appendix I-A-B in the original DEIR Volume I for a copy of the comment letter). Please refer to Section 1.2 of this Final RPEIR for a discussion of the scope of the RPDEIR, the City's obligation to respond to comments outside the scope of the RPDEIR, and the standards for recirculation of a Draft EIR due to "significant new information." The commentor offers no "significant new information" with respect to cumulative impacts within the meaning of CEQA Section 21092.1 and CEQA Guidelines Section 15088.5.

Comment No. 9-5

COMPASS GROWTH VISIONING

The fundamental goal of the Compass Growth Visioning effort is to make the SCAG region a better place to live, work and play for all residents regardless of race, ethnicity or income class. Thus, decisions regarding growth, transportation, land use, and economic development should be made to promote and sustain the region's mobility, livability and prosperity for future generations. The following "Regional Growth Principles" are proposed to provide a framework for local and regional decision making that improves the quality of life for all SCAG residents. Each principle is followed by a specific set of strategies intended to achieve this goal.

Principle 1: Improve mobility for all residents.

GV P1.1 *Encourage transportation investments and land use decisions that are mutually supportive.*

GV P1.2 *Locate new housing near existing jobs and new jobs near existing housing.*

GV P1.3 *Encourage transit-oriented development.*

GV P1.4 *Promote a variety of travel choices.*

SCAG Staff Comments:

SCAG staff finds that the proposed project partially meets consistency with Principle 1, where applicable.

SCAG staff cannot determine consistency with GV P1.1. The proposed project is located near existing transportation infrastructure, yet also would result in an intensification of uses beyond what is allowable under existing zoning. Page 2-158 of the RPDEIR specifically states, "... with the adoption of the LCRSP and other discretionary actions, the changes in jurisdiction authority and land use regulations would result in an intensification of uses and substantial growth beyond what is allowable under existing City and County zoning."

SCAG staff finds the proposed project is consistent with GV P1.2. The proposed project and its alternatives will provide approximately 3,000 jobs and 7,343 residential units, which exceed the City's projected housing needs, per RHNA (Page 2-170 and 2-171, RPDEIR).

SCAG staff cannot determine consistency with GV P1.3 based on the information provided in the RPDEIR.

The proposed project meets consistency with GV P1.4. The proposed project aims to provide recreation parks and open space that will promote walking and use of alternative modes of transportation (Page 2-224, RPDEIR).

Response to Comment No. 9-5

The commentor lists the Compass Growth Visioning principle and associated strategies that are applicable to the Project, the consistency with which should be evaluated. This matter is outside the scope of the RPDEIR; however, this issue was fully addressed in the original DEIR. (See DEIR Volume I, Section 4.1.5.2, and in particular Table 4.1-17 on pages 4.1-169 through 4.1-178 wherein Project consistency with applicable SCAG policies is evaluated.) It is also noted that SCAG commented on the NOP for the Project on July 20, 2009 and provided a similar comment (see Appendix I-A-B in the original DEIR Volume I for a copy of the comment letter). Please refer to Section 1.2 of this Final RPEIR for a discussion of the scope of the RPDEIR, the City's obligation to respond to comments outside the scope of the RPDEIR, and the standards for recirculation of a Draft EIR due to "significant new information." The commentor offers no "significant new information" with respect to cumulative impacts within the meaning of CEQA Section 21092.1 and CEQA Guidelines Section 15088.5.

Furthermore, note that the issue of consistency with the Compass Growth Visioning principles was raised in litigation challenging the City's compliance with CEQA when it originally approved the Project in 2010. The Court Ruling expressly rejected Petitioners' claims regarding the EIR's discussion of land use impacts and jobs-housing balance issues, stating:

> When the discussions in the EIR regarding SCAG's jobs-housing goal are reviewed, to the extent inconsistencies between the proposed project and applicable regional plans exist, the EIR includes a sufficient discussion of the inconsistencies as required by Guidelines § 15125(d).
>
> Therefore, the Court denies the writ of mandate with respect to the jobs-housing issue, because the EIR sufficiently discussed inconsistencies with SCAG's jobs-housing goal as required by Guidelines, § 15125(a).

Comment No. 9-6

Principle 2: Foster livability in all communities.

GV P2.1 *Promote infill development and redevelopment to revitalize existing communities.*
GV P2.2 *Promote developments, which provide a mix of uses.*
GV P2.3 *Promote "people scaled," walkable communities.*
GV P2.4 *Support the preservation of stable, single-family neighborhoods.*

SCAG Staff Comments:

SCAG staff finds that the proposed project is consistent with Principle 2, where applicable.

The proposed project meets consistency with GV P2.1. The proposed project would develop within a vacant area surrounded by existing developments and/or established recreational areas and could be considered an infill project (Page 2-259, RPDEIR).

Per GV P2.2, the proposed project meets consistency. The proposed project includes four development types: Neighborhood I, Neighborhood II, Neighborhood III, and Neighborhood IV. Recreation and open space is also included in the proposed project (Page 1-3, RPDEIR).

The proposed project meets consistency with GV P2.3. The landscape and street design of the proposed project promote a pedestrian scale and provide pedestrian amenities that would encourage street activity, promote walking and allow convenient access to parks, schools and local shopping (Pages 2-245 - 2-246, RPDEIR).

The proposed project is consistent with GV P2.4. The proposed project will respect the scale, massing and landscape of nearby single-family residential areas and improve, preserve, and stabilize nearby established residential areas (Page 2-258, RPDEIR).

Response to Comment No. 9-6

The commentor lists the Compass Growth Visioning principle and associated strategies that are applicable to the Project, the consistency with which should be evaluated. This matter is outside the scope of the RPDEIR; however, this issue was fully addressed in the original DEIR. (See DEIR Volume I, Section 4.1.5.2, and in particular Table 4.1-17 on pages 4.1-169 through 4.1-178 wherein Project consistency with applicable SCAG policies is evaluated.) It is also noted that SCAG commented on the NOP for the Project on July 20, 2009 and provided a similar comment (see Appendix I-A-B in the original DEIR Volume I for a copy of the comment letter). Please refer to Section 1.2 of this Final RPEIR for a discussion of the scope of the RPDEIR, the City's obligation to respond to comments outside the scope of the RPDEIR, and the standards for recirculation of a Draft EIR due to "significant new information." The commentor offers no "significant new information" with respect to cumulative impacts within the meaning of CEQA Section 21092.1 and CEQA Guidelines Section 15088.5. Also refer to Response to Comment No. 8-5 above.

Comment No. 9-7

Principle 3: Enable prosperity for all people.

GV P3.1 *Provide, in each community, a variety of housing types to meet the housing needs of all income levels.*
GV P3.2 *Support educational opportunities that promote balanced growth.*
GV P3.3 *Ensure environmental justice regardless of race, ethnicity or income class.*
GV P3.4 *Support local and state fiscal policies that encourage balanced growth.*
GV P3.5 *Encourage civic engagement.*

SCAG Staff Comments:

SCAG staff finds that the proposed project partially meets consistency with Principle 3, where applicable.

The proposed project meets consistency with GV P3.1. The proposed project includes a variety of housing types including both single-family and multi-family residential (Page 1-3, RPDEIR).

SCAG staff cannot determine consistency with GV P3.2, GV P3.3, GV P3.4 and GV P3.5 based on the information provided in in [sic] the RPDEIR.

Response to Comment No. 9-7

The commentor lists the Compass Growth Visioning principle and associated strategies that are applicable to the Project, the consistency with which should be evaluated. This matter is outside the scope of the RPDEIR; however, this issue was addressed in the original DEIR. (See DEIR Volume I, Section 4.1.5.2, and in particular Table 4.1-17 on pages 4.1-169 through 4.1-178 wherein Project consistency with applicable SCAG policies is evaluated.) It is also noted that SCAG commented on the NOP for the Project on July 20, 2009 and provided a similar comment (see Appendix I-A-B in the original DEIR Volume I for a copy of the comment letter). Please refer to Section 1.2 of this Final RPEIR for a discussion of the scope of the RPDEIR, the City's obligation to respond to comments outside the scope of the RPDEIR, and the standards for recirculation of a Draft EIR due to "significant new information." The commentor offers no "significant new information" with respect to cumulative impacts within the meaning of CEQA Section 21092.1 and CEQA Guidelines Section 15088.5. Also refer to Response to Comment No. 8-5 above.

Comment No. 9-8

Principle 4: Promote sustainability for future generations.

GV P4.1 *Preserve rural, agricultural, recreational, and environmentally sensitive areas*
GV P4.2 *Focus development in urban centers and existing cities.*
GV P4.3 *Develop strategies to accommodate growth that uses resources efficiently, eliminate pollution and significantly reduce waste.*
GV P4.4 *Utilize "green" development techniques*

SCAG Staff Comments:

Where applicable, SCAG staff finds that the project is partially consistent with Principle 4.

The proposed project meets consistency with GV P4.1. The project includes neighborhood community areas including recreational areas and open space (Page 2-85, RPDEIR).

SCAG staff finds the proposed project to be partially consistent with GV P4.2. The proposed project is located in existing vacant land near or surrounded by existing developments. Also, the proposed project will be located within an incorporated jurisdiction, but will change boundaries to incorporate the entire project site into the City of Rialto.

Per GV P4.3 and GV P4.4, SCAG staff finds the proposed project to meet consistency. The proposed project will incorporate 'green' and sustainable practices in the development of buildings and infrastructure, one of the proposed project's stated objectives (Page 2-169, RPDEIR).

Response to Comment No. 9-8

The commentor lists the Compass Growth Visioning principle and associated strategies that are applicable to the Project, the consistency with which should be evaluated. This matter is outside the scope of the RPDEIR; however, this issue was fully addressed in the original DEIR. (See DEIR Volume I, Section 4.1.5.2, and in particular Table 4.1-17 on pages 4.1-169 through 4.1-178 wherein Project consistency with applicable SCAG policies is evaluated.) It is also noted that SCAG commented on the NOP for the Project on July 20, 2009, and provided a similar comment (see Appendix I-A-B in the original DEIR Volume I for a copy of the comment letter). Please refer to Section 1.2 of this Final RPEIR for a discussion of the scope of the RPDEIR, the City's obligation to respond to comments outside the scope of the RPDEIR, and the standards for recirculation of a Draft EIR due to "significant new information." The commentor offers no "significant new information" with respect to cumulative impacts within the meaning of CEQA Section 21092.1 and CEQA Guidelines Section 15088.5. Also refer to Response to Comment No. 8-5 above.

Comment No. 9-9

CONCLUSION

Where applicable, the proposed project generally meets consistency with SCAG Regional Transportation Plan Goals and also meets consistency with Compass Growth Visioning Principles.

All feasible measures needed to mitigate any potentially negative regional impacts associated with the proposed project should be implemented and monitored, as required by CEQA. We recommend that you review the SCAG List of Mitigation Measures for additional guidance, and encourage you to follow them, where applicable to your project. The SCAG List of Mitigation Measures may be found here: http://www.scag.ca.gov/igr/documents/SCAG_IGRMMRP_2008.pdf

When a project is of statewide, regional, or area wide significance, transportation information generated by a required monitoring or reporting program shall be submitted to SCAG as such information becomes reasonably available, in accordance with Public Resource Code Section 21081.7, and CEQA Guidelines Section 15097 (g).

Response to Comment No. 9-9

The commentor summarizes the comments presented above, indicates that the Project should include all feasible mitigation to mitigate significant impacts, and specifies the submittal requirements related to SCAG. These matters are outside the scope of the RPDEIR; however, these issue were addressed in the original DEIR (see DEIR Volume I, Section 4.1.5.2), and submittals will continue to be made to SCAG in accordance with State requirements. It is also noted that SCAG commented on the NOP for the Project on July 20, 2009, and provided similar comments (see Appendix I-A-B in the original DEIR Volume I for a copy of the comment letter). Please refer to Section 1.2 of this Final RPEIR for a discussion of the scope of the RPDEIR, the City's obligation to respond to comments outside the scope of the RPDEIR, and the standards for recirculation of a Draft EIR due to "significant new information." The commentor offers no

"significant new information" with respect to cumulative impacts within the meaning of CEQA Section 21092.1 and CEQA Guidelines Section 15088.5.

This comment is noted for the record and will be forwarded to the decision makers.

SOUTHERN CALIFORNIA
ASSOCIATION of GOVERNMENTS

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Bill Jahn, Big Bear Lake

Energy & Environment
Margaret Clark, Rosemead

Transportation
Paul Glaab, Laguna Niguel

April 3, 2012

Ms. Gina Gibson
Senior Planner
City of Rialto
Development Services Department
Planning & Business License Division
Rialto, CA 92376-6487
ggibson@rialtoca.gov

RE: SCAG Comments on the Recirculated Portions of the Draft Environmental Impact Report for the Lytle Creek Ranch Specific Plan Project [I20120044]

Dear Ms. Gibson:

Thank you for submitting the **Recirculated Portions of the Draft Environmental Impact Report (RPDEIR) for the Lytle Creek Ranch Specific Plan Project [I20120044]** to the Southern California Association of Governments (SCAG) for review and comment. SCAG is the authorized regional agency for Inter-Governmental Review of Programs proposed for federal financial assistance and direct development activities, pursuant to Presidential Executive Order 12372. Additionally, SCAG reviews the Environmental Impact Reports of projects of regional significance for consistency with regional plans pursuant to the California Environmental Quality Act (CEQA) and CEQA Guidelines. SCAG is also the designated Regional Transportation Planning Agency and as such is responsible for both preparation of the Regional Transportation Plan (RTP) and Federal Transportation Improvement Program (FTIP) under California Government Code Sections 65080 and 65082.[1] As the clearinghouse for regionally significant projects per Executive Order 12372, SCAG reviews the consistency of local plans, projects, and programs with regional plans. Guidance provided by these reviews is intended to assist local agencies and project sponsors to take actions that contribute to the attainment of regional goals and policies.

SCAG staff has reviewed the proposed Lytle Creek Ranch Specific Plan (LCRSP) and RPDEIR for the LCRSP, and determined that this proposed project is regionally significant per CEQA Guidelines, Sections 15125 and 15206. The LCRSP project would authorize the development of up to 8,407 dwelling units and 849,420 gross leasable square feet in the City of Rialto, California.

We have evaluated the proposed project based on the policies of SCAG's 2008 RTP and Compass Growth Vision Principles that may be applicable to this project. The RTP and Compass Growth Visioning Principles can be found on the SCAG web site at: http://scag.ca.gov/igr. The attached detailed comments are intended to provide guidance for considering the proposed project within the context of our regional goals and policies. We also encourage the use of the SCAG List of Mitigation Measures extracted from the 2008 RTP to aid with demonstrating consistency with regional plans and policies. Please send a copy of the Final Environmental Impact Report (FEIR) to the attention of Pamela Lee at SCAG, 818 W. 7th St., 12th floor, Los Angeles, California, 90017. If you have any questions regarding the attached comments, please contact Ms. Lee at (213) 236-1895. Thank you.

Sincerely,

Huasha Liu
Director, Land Use and Environmental Planning

[1] SCAG is further responsible under state law (Senate Bill 375; Steinberg, 2008) for preparation of a Sustainable Communities Strategy (SCS) as part of the RTP. SCAG is required to update the RTP every four years. The 2012-2035 RTP/SCS is scheduled for adoption by the SCAG Regional Council on April 4, 2012.

The Regional Council is comprised of 84 elected officials representing 190 cities, six counties, six County Transportation Commissions and a Tribal Government representative within Southern California.

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April 3, 2012 **SCAG No. I20120044**
Ms. Gibson

COMMENTS ON THE RECIRCULATED PORTIONS OF THE DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE LYTLE CREEK RANCH SPECIFIC PLAN PROJECT [I20120044]

PROJECT LOCATION

The project site is located on an approximately 2,447.3-acre area, of which approximately 694.2 acres are located within the City of Rialto and approximately 1,753.1 acres are currently located in unincorporated San Bernardino County.

PROJECT DESCRIPTION

The proposed project involves the adoption and implementation of the proposed Lytle Creek Ranch Specific Plan (LCRSP). The LCRSP, in combination with a development agreement/pre-annexation agreement between the City and Lytle Development Joint Venture III, would guide land use and development of the project site. The LCRSP would: authorize the development of up to 8,407 dwelling units and 849,420 gross leasable square feet of general and specialty commercial, office, business park, light industrial and manufacturing, warehouse and distribution center, and other similar uses (excluding institutional, education, recreational and infrastructure-related uses); allow for the retention of a substantial portion of the project site for open space and conservation purposes; create diverse opportunities for a range of public, semi-public, and private recreational facilities; and promote the development of associated public improvements, public works and infrastructure facilities.

Implementation of the LCRSP would result in a master-planned community consisting of four separate and distinct neighborhoods comprised of a total of 103 planning areas (PAs).

- Neighborhood I: Neighborhood I would comprise approximately 417.2 acres. The primary land use in neighborhood I would be single-family residential, in addition to open space. A portion of the neighborhood, commonly referred to as Sycamore Creek East (Sycamore flat) and Sycamore Creek West (Sycamore Canyon), is located within the boundaries of the 3,400-acre County-approved Glen Helen Specific Plan (GHSP).The remaining land is located within the boundaries of the County-approved Lytle Creek North Planned Development. The LCRSP proposes an annexation of these areas into the City, and upon project approval the LCRSP would supersede the GHSP and LCNPD with respect to these areas.

- Neighborhood II: Neighborhood II is planned as a gated, active adult community on approximately 801.8 acres and would include the entire 221-acre, City-approved El Rancho Verde Specific Plan (ERVSP) area and the El Rancho Verde Royal Vista Golf Course. In addition to open space, the primary land uses in this neighborhood would be single-family residential, multi-family, and commercial. Portions of Neighborhood II contain a Single Family Residential (SFR Overlay) and a High Density Residential Overlay (HDR Overlay). If approved, the permitted land uses and related plans and policies presented in the LCRSP would supersede those contained in the ERVSP.

- Neighborhood III: Neighborhood III is located south of the Interstate 15 (I-15) Freeway and would primarily include a mix of single-family and multi-family residential uses, school sites and commercial development on approximately 968.8 acres. Portions of Neighborhood III contain a SFR Overlay and Park Overlay.

- Neighborhood IV: Neighborhood IV would consist primarily of multi-family residential and commercial development on 259.5 acres located north of the I-15 Freeway.

Three of the proposed neighborhoods (Neighborhoods I, III, and IV) would include housing designed to attract a variety of households, preferences and lifestyles. As previously described, Neighborhood II would

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be built as a gated, age-qualified community for residents age 55 and older. More than half of the overall project site area would be preserved or retained as open space.

CONSISTENCY WITH REGIONAL TRANSPORTATION PLAN

Regional Growth Forecasts

The Draft Environmental Impact Report (DEIR) for the LCRP project should reflect the most recently adopted SCAG forecasts, which are the 2008 RTP (May 2008) Population, Household and Employment forecasts. The forecasts for the region, subregion, and city are as follows:

Adopted SCAG Regionwide Forecasts[1]

	2010	2015	2020	2025	2030	2035
Population	19,418,344	20,465,830	21,468,948	22,395,121	23,255,377	24,057,286
Households	6,086,986	6,474,074	6,840,328	7,156,645	7,449,484	7,710,722
Employment	8,349,453	8,811,406	9,183,029	9,546,773	9,913,376	10,287,125

Adopted San Bernardino Association of Governments Subregion Forecasts[1]

	2010	2015	2020	2025	2030	2035
Population	2,182,049	2,385,761	2,582,773	2,773,938	2,957,754	3,133,797
Households	637,252	718,601	787,138	852,994	914,575	972,565
Employment	810,232	897,493	965,781	1,045,471	1,134,964	1,254,752

Adopted City of Rialto Forecasts[1]

	2010	2015	2020	2025	2030	2035
Population	107,849	115,846	123,079	130,098	136,846	143,310
Households	27,519	30,550	33,029	35,411	37,638	39,735
Employment	26,492	30,295	33,237	36,676	40,555	46,580

1. The 2008 RTP growth forecast at the regional, subregional, and city level was adopted by the Regional Council in May 2008.

SCAG Staff Comments:

SCAG staff cannot determine whether or not the RPDEIR population, household and employment analyses were based on 2008 RTP Regional Growth Forecasts. The RPDEIR did not include a population, household and employment analyses (and SCAG did not review and comment on the originally released DEIR for the LCRP project).

The **2008 Regional Transportation Plan (RTP)** also has goals and policies that are pertinent to this proposed project. The 2008 RTP links the goal of sustaining mobility with the goals of fostering economic development, enhancing the environment, reducing energy consumption, promoting transportation-friendly development patterns, and encouraging fair and equitable access to residents affected by socio-economic, geographic and commercial limitations. The 2008 RTP continues to support all applicable federal and state laws in implementing the proposed project. Among the relevant goals and policies of the 2008 RTP are the following:

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RTP G1 *Maximize mobility and accessibility for all people and goods in the region.*
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RTP G3 *Preserve and ensure a sustainable regional transportation system.*
RTP G4 *Maximize the productivity of our transportation system.*

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RTP G5 *Protect the environment, improve air quality and promote energy efficiency.*
RTP G6 *Encourage land use and growth patterns that complement our transportation investments.*
RTP G7 *Maximize the security of our transportation system through improved system monitoring, rapid recovery planning, and coordination with other security agencies.*

SCAG Staff Comments:

Where applicable, SCAG staff finds that the proposed project is partially consistent with Regional Transportation Plan Goals. RTP G7 is not applicable to the proposed project in that it is not a transportation project.

SCAG staff finds the proposed project is consistent with RTP G1. Through Policy 2-38.3, the proposed project aims to support public transit, including public bus service, Metrolink and potential Bus Rapid Transit, and enhance bicycling and walking infrastructure. Thus, the proposed project addresses accessibility and encourages a transportation system that provides (Page 2-223, RPDEIR).

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The proposed project meets consistency with RTP G3. The proposed project plans to incorporate "green" and sustainable practices that would ensure a sustainable regional transportation system (Page 2-171, RPDEIR).

With regard to RTP G4, the proposed project meets consistency. The proposed project would not have significant impacts on the regional transportation and freeway segments within the project site (Page 22 – Addendum to Traffic Impact Analysis).

The proposed project meets consistency with RTP G5. The EIR determined that all biological resource impacts could be mitigated to a less than significant level (Page 2-134, RPDEIR).

SCAG staff cannot determine consistency with RTP G6. The proposed project is located near existing transportation infrastructure, yet also would result in an intensification of uses beyond what is allowable under existing zoning. Page 2-158 of the RPDEIR specifically states, "…with the adoption of the LCRSP and other discretionary actions, the changes in jurisdiction authority and land use regulations would result in an intensification of uses and substantial growth beyond what is allowable under existing City and County zoning."

COMPASS GROWTH VISIONING

The fundamental goal of the **Compass Growth Visioning** effort is to make the SCAG region a better place to live, work and play for all residents regardless of race, ethnicity or income class. Thus, decisions regarding growth, transportation, land use, and economic development should be made to promote and sustain the region's mobility, livability and prosperity for future generations. The following "Regional Growth Principles" are proposed to provide a framework for local and regional decision making that improves the quality of life for all SCAG residents. Each principle is followed by a specific set of strategies intended to achieve this goal.

Principle 1: Improve mobility for all residents.
GV P1.1 *Encourage transportation investments and land use decisions that are mutually supportive.*
GV P1.2 *Locate new housing near existing jobs and new jobs near existing housing.*
GV P1.3 *Encourage transit-oriented development.*
GV P1.4 *Promote a variety of travel choices.*

Page 4

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SCAG Staff Comments:

SCAG staff finds that the proposed project partially meets consistency with Principle 1, where applicable.

SCAG staff cannot determine consistency with GV P1.1. The proposed project is located near existing transportation infrastructure, yet also would result in an intensification of uses beyond what is allowable under existing zoning. Page 2-158 of the RPDEIR specifically states, "...with the adoption of the LCRSP and other discretionary actions, the changes in jurisdiction authority and land use regulations would result in an intensification of uses and substantial growth beyond what is allowable under existing City and County zoning."

SCAG staff finds the proposed project is consistent with GV P1.2. The proposed project and its alternatives will provide approximately 3,000 jobs and 7,343 residential units, which exceed the City's projected housing needs, per RHNA (Page 2-170 and 2-171, RPDEIR).

SCAG staff cannot determine consistency with GV P1.3 based on the information provided in the RPDEIR.

The proposed project meets consistency with GV P1.4. The proposed project aims to provide recreation parks and open space that will promote walking and use of alternative modes of transportation (Page 2-224, RPDEIR).

Principle 2: Foster livability in all communities.
GV P2.1 *Promote infill development and redevelopment to revitalize existing communities.*
GV P2.2 *Promote developments, which provide a mix of uses.*
GV P2.3 *Promote "people scaled," walkable communities.*
GV P2.4 *Support the preservation of stable, single-family neighborhoods.*

SCAG Staff Comments:

SCAG staff finds that the proposed project is consistent with Principle 2, where applicable.

The proposed project meets consistency with GV P2.1. The proposed project would develop within a vacant area surrounded by existing developments and/or established recreational areas and could be considered an infill project (Page 2-259, RPDEIR).

Per GV P2.2, the proposed project meets consistency. The proposed project includes four development types: Neighborhood I, Neighborhood II, Neighborhood III, and Neighborhood IV. Recreation and open space is also included in the proposed project (Page 1-3, RPDEIR).

The proposed project meets consistency with GV P2.3. The landscape and street design of the proposed project promote a pedestrian scale and provide pedestrian amenities that would encourage street activity, promote walking and allow convenient access to parks, schools and local shopping (Pages 2-245 – 2-246, RPDEIR).

The proposed project is consistent with GV P2.4. The proposed project will respect the scale, massing and landscape of nearby single-family residential areas and improve, preserve, and stabilize nearby established residential areas (Page 2-258, RPDEIR).

Principle 3: Enable prosperity for all people.
GV P3.1 *Provide, in each community, a variety of housing types to meet the housing needs of all income levels.*

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GV P3.2 *Support educational opportunities that promote balanced growth.*
GV P3.3 *Ensure environmental justice regardless of race, ethnicity or income class.*
GV P3.4 *Support local and state fiscal policies that encourage balanced growth.*
GV P3.5 *Encourage civic engagement.*

SCAG Staff Comments:

SCAG staff finds that the proposed project partially meets consistency with Principle 3, where applicable.

The proposed project meets consistency with GV P3.1. The proposed project includes a variety of housing types including both single-family and multi-family residential (Page 1-3, RPDEIR).

SCAG staff cannot determine consistency with GV P3.2, GV P3.3, GV P3.4 and GV P3.5 based on the information provided in in the RPDEIR.

Principle 4: Promote sustainability for future generations.
GV P4.1 *Preserve rural, agricultural, recreational, and environmentally sensitive areas*
GV P4.2 *Focus development in urban centers and existing cities.*
GV P4.3 *Develop strategies to accommodate growth that uses resources efficiently, eliminate pollution and significantly reduce waste.*
GV P4.4 *Utilize "green" development techniques*

SCAG Staff Comments:

Where applicable, SCAG staff finds that the project is partially consistent with Principle 4.

The proposed project meets consistency with GV P4.1. The project includes neighborhood community areas including recreational areas and open space (Page 2-85, RPDEIR).

SCAG staff finds the proposed project to be partially consistent with GV P4.2. The proposed project is located in existing vacant land near or surrounded by existing developments. Also, the proposed project will be located within an incorporated jurisdiction, but will change boundaries to incorporate the entire project site into the City of Rialto.

Per GV P4.3 and GV P4.4, SCAG staff finds the proposed project to meet consistency. The proposed project will incorporate 'green' and sustainable practices in the development of buildings and infrastructure, one of the proposed project's stated objectives (Page 2-169, RPDEIR).

CONCLUSION

Where applicable, the proposed project generally meets consistency with SCAG Regional Transportation Plan Goals and also meets consistency with Compass Growth Visioning Principles.

All feasible measures needed to mitigate any potentially negative regional impacts associated with the proposed project should be implemented and monitored, as required by CEQA. We recommend that you review the SCAG List of Mitigation Measures for additional guidance, and encourage you to follow them, where applicable to your project. The SCAG List of Mitigation Measures may be found here: http://www.scag.ca.gov/igr/documents/SCAG_IGRMMRP_2008.pdf

When a project is of statewide, regional, or area wide significance, transportation information generated by a required monitoring or reporting program shall be submitted to SCAG as such information becomes reasonably available, in accordance with Public Resource Code Section 21081.7, and CEQA Guidelines Section 15097 (g).

Comment Letter No. 10

Chatten-Brown & Carstens
2601 Ocean Park Blvd., Ste. 205
Santa Monica, CA 90405

April 3, 2012

Via Email (ggibson@rialtoca.gov)
Gina Gibson
Development Services Department-Planning & Business License Division
City of Rialto
150 S. Palm Ave.
Rialto, CA 92376-6487

Re: Comments on Proposed Lytle Creek Ranch Specific Plan

Comment No. 10-1

Dear Ms. Gibson:

On behalf of Save Lytle Creek Wash, we provide the following comments on the Recirculated Draft Environmental Impact Report (RDEIR) that was prepared for the Lytle Creek Ranch Specific Plan (the "Project"). Save Lytle Creek Wash also joins in the comments submitted by Endangered Habitats League.

The massive proposed Project was originally approved by the City in 2010. This approval of the Project and the certification of the 2010 EIR were struck down by the San Bernardino Superior Court's decision in *Endangered Habitats League v. City of Rialto* (Case No. CIVDS 1011874). The RDEIR was prepared as an attempt to revise the sections of the 2010 EIR the Court found to be inadequate. Additionally, the Court found findings adopted by the City to approve a project with significant and unavoidable impacts were inadequate because substantial evidence did not support the rejection of less impactful alternatives.

Response to Comment No. 10-1

This comment is introductory in nature and does not specifically address the contents of the RPDEIR. Specific comments on the RPDEIR are set forth below with accompanying responses.

It is noted that the reference in the comment to the "RDEIR" is incorrect and should reference the RPDEIR, as discussed further in Section 1.2 of this Final RPEIR. The RPDEIR contains select revised portions of the original DEIR, in response to the Court Ruling, that replace only those corresponding portions of and/or sections in the DEIR. The RPDEIR does not replace the original DEIR in full, nor does it supersede any portions of the original DEIR that were not specifically supplemented, updated, or otherwise revised in the RPDEIR. Comments regarding the original DEIR are outside the scope of the RPDEIR. Please refer to Section 1.2 of this Final RPEIR for a discussion of the scope of the RPDEIR, the City's obligation to respond to

comments outside the scope of the RPDEIR, and the standards for recirculation of a Draft EIR due to "significant new information."

In addition, the comment correctly notes that the RPDEIR was prepared in response to the Court Ruling and only addresses those issues which the Court specifically required the City to address. See Section 1.2 of this Final RPEIR for a full description of the portions of the DEIR that the Court required the City to revise and recirculate.

Comment No. 10-2

The Project analyzed in the RDEIR is exactly the same as that proposed in the 2010 EIR. It would allow the construction of 8,407 residential dwelling units and 849,420 square feet of commercial space on 2,447.3 acres. This is nearly a fourfold increase in allowable residential construction in the Project area; under current zoning for the Project area, only 2,215 dwelling units could be constructed. The Project also includes the construction of seven miles of levee in the Lytle Creek floodplain and requires the annexation of 1,700 acres of unincorporated County of San Bernardino land. Many of the flaws identified by the Court remain in the RDEIR. The analysis of greenhouse gas emissions and traffic remain inadequate as detailed in comments submitted by Endangered Habitats League. Additionally, the conclusion that less impactful alternatives are not feasible remains unsupported.

Response to Comment No. 10-2

The comment is correct in stating that the Project assessed in the RPDEIR is the same Project described in the previously approved EIR. Although as part of the Court Ruling the City was required to decertify the previously certified EIR and rescind the Project approvals, nothing in the Court Ruling required the Applicant to modify the Project. Rather, as discussed in Response to Comment No. 10-1 above and addressed in additional detail in Section 1.2 of this Final RPEIR, the Court Ruling required the City to recirculate portions of the analysis contained in the original DEIR to address the Court's comments. None of the Court's comments nor rulings in any way required modifications of the Project, and thus no Project substantive modifications have been made. As such, comments regarding the scope and design of the Project fall outside the scope of issues permitted to be addressed in comments on the RPDEIR. See Section 1.2 of this Final RPEIR regarding the appropriate scope of comments and the Court Ruling.

The comment also makes a general assertion, without any specificity, regarding "flaws identified by the Court." To the extent those issues are raised herein, they are responded to accordingly. To the extent those issues are raised in the referenced Endangered Habitats League comment letter, please refer to Letter No. 11 for responses to the comments contained therein. Further, judgment as to whether the RPDEIR is considered adequate under CEQA will ultimately be made by the Court.

Moreover, the comment indicates that the Project includes the construction of seven miles of levee in the Lytle Creek floodplain. However, the flood control facility for the Project is not a levee but rather a revetment designed to protect against erosion because of the dynamic nature of the floodplain, not due to a flooding condition or water surface elevation. A leveed condition would indicate that the water level in the creek is higher than the development, but this is not the

case since the existing floodplain is limited in extent by the existing U.S. Army Corps of Engineers' rock groin structures which have been in place since the 1960s, and the revetment would not extend beyond these structures.

Comment No. 10-3

The City has requested that reviewers limit the scope of their comments to the information contained in the revised sections of the RDEIR pursuant to CEQA Guidelines section 15088.5(f)(2) and has indicated that it will only respond to comments regarding those sections. Due to changes in circumstances and newly discovered information, Save Lytle Creek Wash believes it is necessary for the City to also respond to issues regarding impacts not addressed in the revised sections of the RDEIR. Moreover, the Court's decision in *Endangered Habitats League v. City of Rialto* overturned the City's approval of the entire EIR that was previously approved. This means that the City will have to reapprove findings for all impacts when determining whether to approve the Project. If there is not substantial evidence to support the previous findings, these findings must be revised and any significant impacts must be mitigated. The City must reconsider the 2010 findings regarding the Project's aesthetic, wastewater, noise, and biological impacts, in addition to preparing revised findings for the traffic, greenhouse gas emissions, and alternatives.

Response to Comment No. 10-3

While the commentor is correct in stating that the City will be asked to reapprove the Project, which will necessarily include approval of findings in support of the Project, the commentor is incorrect in claiming that the approval of such findings consequently reopens the entire original EIR for public comment. As discussed in the Section 1.2 of this Final RPEIR, the CEQA Guidelines and recent case law both indicate that all environmental impact areas relevant to the Project that were analyzed in the original EIR and either unchallenged in the prior litigation or approved by the Court Ruling, including aesthetics, wastewater, noise, and biological impacts (which are addressed below in this comment letter), are beyond the scope of permitted comments on the RPDEIR.[12,13] Under applicable law, those impact areas did not need to be addressed further in the RPDEIR, nor are they subject to further review by the Court.

Comment No. 10-4

I. There Is a Lack of Evidence to Support a Statement of Overriding Considerations.

Any single one of the Project's significant unavoidable impacts would require disapproval of the proposed Lytle Creek Ranch Specific Plan unless there are no feasible mitigation measures or alternatives and specific benefits outweigh the significant impact. (Pub. Resources Code § 21081.) That is because CEQA requires public agencies to deny approval of a project with significant adverse effects when feasible alternatives or feasible mitigation measures can

[12] See, e.g., *Ballona Wetlands Land Trust v. City of Los Angeles* (2011) 201 Cal.App.4th 455, 479-81; *Federation of Hillside & Canyons Associations v. City of Los Angeles* (2000) 126 Cal.App.4th 1180, 1202-05; CEQA Guidelines, Section 15088.5. (The CEQA Guidelines can be found in the California Code of Regulations, Title 14, §§ 15000 *et seq.*)

[13] This includes many CEQA claims asserted in the Petition for Writ of Mandate in *Endangered Habitats League, et al. v. City of Rialto, et al.*, but which were abandoned by the petitioners during the substantive briefing of the case.

substantially lessen such effects. (Pub. Resources Code § 21002; *Sierra Club v. Gilroy City Council* (6th Dist. 1990) 222 Cal.App.3d 30, 41.) The Legislature has stated:

> [I]t is the policy of the state that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects....

(Pub. Resources Code § 21002.)

The CEQA Guidelines require an agency to "Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved." In order to implement this policy, the CEQA Guidelines specify that:

> A public agency may approve a project even though the project would cause a significant effect on the environment if the agency makes a fully informed and publicly disclosed decision that:
>
> (a) *There is no feasible way to lessen or avoid the significant effect...*"

(CEQA Guidelines § 15043, emphasis added.)

The 2010 EIR analyzed three habitat avoidance alternatives: HAA1-avoiding listed species habitat; HAA2-avoiding Riversidean alluvial fan sage scrub habitat; and HAA3-avoiding jurisdictional waters, as well as a no project-existing zoning alternative. The RDEIR re-analyzes HAA1 and HAA2, reaching the unsupported conclusions that: 1) these alternatives would not substantially lessen significant impacts; 2) these alternatives are financially infeasible; and 3) these alternatives are infeasible because they do not meet all of the Project objectives and are inconsistent with General Plan policies.

Response to Comment No. 10-4

The commentor states concerns about the Project's significant and unavoidable impacts. These concerns are outside the scope of the RPDEIR. Please refer to Section 1.2 of this Final RPEIR for a discussion of the scope of the RPDEIR and the City's obligation to respond to comments outside the scope of the RPDEIR.

The comment is correct in stating that the previously certified EIR analyzed three habitat avoidance alternatives and that two of those alternatives, Habitat Avoidance Alternative 1 (Avoidance of SBKR/LBV-Occupied Habitat, sometimes referred to herein as HAA1) and Habitat Avoidance Alternative 2 (Avoidance of RAFSS Areas, sometimes referred to herein as HAA2), were reevaluated in the RPDEIR pursuant to the Court Ruling. However, the comment incorrectly states that the RPDEIR reaches "unsupported conclusions" regarding these two alternatives. Conclusions are supported in Section 2.5 of the RPDEIR. (See Section 2.5 of the RPDEIR Volume V (Part 1) and supporting technical Appendices V-D-A, V-D-B, V-D-C, and V-E in RPDEIR Volume V (Part 2).)

Comment No. 10-5

A. The RDEIR's Analysis of Impacts Associated with Alternatives Lacks Substantial Evidence to Support Assumptions.

"CEQA contains a 'substantive mandate' requiring public agencies to refrain from approving projects with significant environmental effects if 'there are feasible alternatives or mitigation measures' that can substantially lessen or avoid those effects." (*County of San Diego v. Grossmont-Cuyamaca Cmty. Coll. Dist.* (2006) 141 Cal. App. 4th 86, 98.) The 2010 EIR found that, even after mitigation, the proposed Project would have significant construction and operational air quality impacts, traffic noise impacts, and growth inducing impacts. The RDEIR provides additional information regarding the reduction in significance of these impacts under HAA1 and HAA2.

An alternative need not reduce impacts to a less than significant level to prevent an agency from adopting a project with a significant environmental impact; the alternative need only substantially lessen one of the project's significant impacts. (Public Resources Code § 21002.) The RDEIR finds only that the alternatives would not reduce impacts to a less than significant level; it does not conclude, nor does it provide a basis for concluding, that HAA1 and HAA2 would not substantially lessen the significant impacts associated with the Project. In several areas, the RDEIR's analysis shows the alternatives would substantially reduce the Project's impacts. In others areas, the RDEIR's analysis relies on an inequitable comparison of the Project to alternatives to support a claim that the alternatives would not reduce impacts associated with the proposed Project. These comparisons do not constitute substantial evidence.

Response to Comment No. 10-5

As Section 2.5.9 of the RPDEIR indicates, under CEQA, where an EIR has identified significant environmental effects that have not been mitigated or avoided, the lead agency may nonetheless approve the Project if it finds that "[s]pecific economic, legal, social, technological, or other considerations...make infeasible the mitigation measures or alternatives identified in the environmental impact report."[14] In such cases, the lead agency's task with respect to project approval must include an evaluation as to whether the identified alternatives are "actually feasible."[15]

CEQA defines "feasible" as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors."[16] An agency "may reject [project] alternatives if it properly finds them to be infeasible for **any** of the statutorily specified reasons."[17]

Substantial evidence in the record demonstrates that both Habitat Avoidance Alternative 1 (Avoidance of SBKR/LBV-Occupied Habitat) and Habitat Avoidance Alternative 2 (Avoidance of RAFSS Areas) are infeasible for environmental reasons, a permissible rationale for rejecting

[14] Public Resources Code, § 21081, subdivision (a)(3); CEQA Guidelines, § 15091, subdivision (a)(3).
[15] California Native Plant Society v. City of Santa Cruz (2009) 177 Cal.App.4th 957, 981.
[16] Public Resources Code, § 21061.1; CEQA Guidelines, § 15364.
[17] *The Flanders Foundation v. City of Carmel-by-the-Sea* (2012) 202 Cal.App.4th 603, 623.

alternatives under CEQA. Contrary to the commentor's assertion, as discussed further below, Sections 2.5.3, 2.5.4, and 2.5.5 of the RPDEIR (as well as Appendices V-D-A through V-D-C attached thereto) demonstrate that both alternatives analyzed in the RPDEIR would not substantially lessen the significant impacts of the Project. Neither of these alternatives would avoid or substantially lessen the Project's significant and unavoidable air quality, noise, and growth-inducing impacts. Accordingly, the City may reject Habitat Avoidance Alternative 1 (Avoidance of SBKR/LBV-Occupied Habitat) and Habitat Avoidance Alternative 2 (Avoidance of RAFSS Areas) as infeasible, in accordance with the requirements of CEQA.

Comment No. 10-6

1. Construction Air Quality

According to the EPA, particulate matter emissions can have significant human health impacts:

> Health studies have shown a significant association between exposure to fine particles and premature death from heart or lung disease. Fine particles can aggravate heart and lung diseases and have been linked to effects such as: cardiovascular symptoms; cardiac arrhythmias; heart attacks; respiratory symptoms; asthma attacks; and bronchitis. These effects can result in increased hospital admissions, emergency room visits, absences from school or work, and restricted activity days. **Individuals that may be particularly sensitive to fine particle exposure include people with heart or lung disease, older adults, and children.**

(www.epa.gov/airquality/particlepollution/designations/basicinfo.htm, incorporated by reference.) The impacts of PM10 and PM2.5 emissions are particularly significant in the areas surrounding the Project site because many of the residents in this area, particularly near Neighborhoods II and III, are older adults that would be greatly impacted by the particulate matter.

While PM2.5 impacts would remain significant under the alternatives, HAA1 and HAA2 would substantially reduce this impact to the many sensitive receptors living near the Project site. Localized PM2.5 impacts for residents to the south would be reduced by 9 percent under HAA1 and by 9.5 percent for HAA2. (RDEIR p. 2-143, 2-151.) Both HAA1 and HAA2 would reduce localized PM10 impacts for residential receptors to the east by 10 percent. Localized PM10 impacts for residential receptors to the south would be reduced by nearly 11 percent under each of these alternatives. These reductions, on their own and when viewed together, are a substantial lessening of the particulate matter to which the sensitive residents near the Project site would be exposed.

The alternatives' particulate matter emissions would be reduced further if a more realistic assumption regarding the number of acres that would be graded at one time were used. To analyze the emission levels, the RDEIR assumes that there would be 50 acres graded at a time under the Project and under each of the alternatives. What is the basis for assuming the amount of land graded at one time would be the same for the proposed Project as it would be for the reduced size alternatives? If this assumption were correct, the alternatives would be completed much more quickly that the proposed Project; however, according to the financial feasibility analysis the alternatives are predicted to be completed in the same timeframe as the

proposed Project. If a more reasonable smaller acreage is used, the emissions associated with HAA1 and HAA2 would be reduced even further.

The alternatives would also substantially lessen other construction emissions. HAA1 would result in a 19 percent reduction in regional construction related carbon monoxide emissions. (RDEIR p. 2-142.) HAA2 would result in substantial reduction in many of the significant regional emissions: carbon monoxide emissions would be reduced by 47 percent; nitrogen oxides emissions would be reduced by 9 percent; and volatile organic compound emissions would be reduced by 24 percent. (RDEIR p. 2-149.)

Response to Comment No. 10-6

As discussed in the RPDEIR, the overall amount of building construction under Habitat Avoidance Alternative 1 (Avoidance of SBKR/LBV-Occupied Habitat) and Habitat Avoidance Alternative 2 (Avoidance of RAFSS Areas) would be less than that of the Project. However, fugitive dust and pollutant emissions from grading operations associated with the alternatives would be similar to the Project on a daily basis, as the intensity of earthwork activities would remain unchanged from the Project (as opposed to the duration of such activities, which would decrease). Maximum daily site grading operations under the alternatives would require the same amount of heavy-duty construction equipment and would result in 50 acres of disturbed area per day, similar to the Project. Contrary to what is purported in the comment, the use of 50 acres of disturbed area per day for all three scenarios (i.e., the Project and the two alternatives) is appropriate given the large overall scale of development. Since 50 acres is a manageable daily grading area based on Project site conditions and the proposed equipment mix, there would be no reason to limit the amount of grading activities to less than 50 acres for the two alternatives. A reduction in daily grading activities would potentially underestimate potential air quality impacts given that the SCAQMD's thresholds are based on maximum daily emissions. The comment correctly states that overall grading operations would be slightly reduced. However, the overall construction duration is driven by building construction, not grading activities. The overall duration of building construction was anticipated to remain unchanged since an earlier buildout year would result in increased operational emissions (e.g., mobile source emission factors decrease in future years as a result of cleaner burning engines) for the alternatives as compared to the Project. Therefore, the impact analysis accounted for the reduction in overall square footage and a corresponding decrease in the use of on-site equipment and vehicular trips proportional to the decrease in square footage on a daily basis.

The comment correctly identifies the RPDEIR's conclusion that regional and localized construction air quality impacts associated with HAA1 and HAA2 would be reduced as compared to the Project. However, as shown in Tables 2.5-3 and 2.5-7 of the RPDEIR, regional pollutant emissions for the two alternatives would still represent a substantial increase over SCAQMD thresholds. In comparison to the SCAQMD thresholds, HAA1 regional construction emissions would represent 3.2 times the CO threshold, 12.0 times the NO_X threshold, 13.0 times the PM_{10} threshold, 8.2 times the $PM_{2.5}$ threshold, and 2.9 times the VOC threshold. Similarly, HAA2 regional construction emissions would represent 2.1 times the CO threshold, 10.9 times the NO_X threshold, 12.9 times the PM_{10} threshold, 8.1 times the $PM_{2.5}$ threshold, and 2.4 times the VOC threshold. From a localized standpoint, HAA1 and HAA2 would result in a nine percent decrease in localized PM_{10} impacts at the maximum exposed receptor. As shown in Table 2.5-4 and Table 2.5-8 of the RPDEIR, this impact would remain approximately

7.3 times the significance threshold for both HAA1 and HAA2. For $PM_{2.5}$, HAA1 and HAA2 would also result in a nine percent decrease in localized $PM_{2.5}$ impacts at the maximum exposed receptor. This impact would remain approximately 1.6 times the significance threshold for both alternatives.

Based on the analysis presented in the RPDEIR, regional and localized construction impacts associated with HAA1 and HAA2 were concluded to substantially exceed the SCAQMD significance thresholds. Specifically, it was determined that although the impacts would be reduced in comparison to the Project, similar to the Project, the emissions associated with the alternatives would exceed the significance thresholds established by the SCAQMD for regional CO, NO_X, PM_{10}, $PM_{2.5}$, and VOC, and localized PM_{10} and $PM_{2.5}$. Thus, like the Project, such impacts under these alternatives would be significant and unavoidable, even with incorporation of mitigation measures.

Comment No. 10-7

2. Operational Air Quality Impacts

The misleading analysis of operational air quality impacts of HAA1 and HAA2 leads the RDEIR to an incorrect conclusion that these alternatives would not substantially reduce operational impacts. The majority of the operational air quality impacts associated with the Project are a result of vehicle traffic generated by new residences. RDEIR Appendix V-D-B calculates the vehicle trips generated by the proposed Project and compares that with a calculation of the vehicle trips that would be generated by the alternatives. The daily trips per single family housing unit is calculated at a rate of 9.57 trips per unit, while the daily trips for condos and townhomes is calculated at a much lower rate of 6.9 per unit. When calculating the trips generated by the proposed Project, the majority of the residential units designated as SFR-3 for the proposed Project appear to have been determined to be condos or townhomes. This appears to be the case because the analysis includes 3,409 units as single family units and 4,998 units as condos and townhomes. The proposed Project includes 943 SFR-1 units, 1,908 SFR-2 units, 2,403 SFR-3 units, 1,828 MFR units and 1,325 HDR units. Thus, only 558 of the proposed Project's SFR-3 units are considered single family units for trip generation calculations. The SFR-3 units that are considered to be condos or townhomes in the analysis are calculated to have a significantly lower traffic generation rate.

The analysis of the trip generation rates for the alternatives is inequitable and leads to an overestimation of trips generated by HAA1 and HAA2 because all of the SFR-3 units included in both of these alternatives are analyzed as generating traffic at the much higher single family housing rate. The analysis provides no explanation for this unequal apportionment of housing types. In both the alternatives and the proposed Project, the RDEIR assumes the density for the SFR-3 units would be 10.9 units per acre. Additionally, the SFR-3 units would be in approximately the same locations under the alternatives. Thus, there is no support in the record for concluding all of the SFR-3 units in HAA1 and HAA2 fall under the single family home category, whereas only a small portion of the SFR-3 units in the proposed Project are considered to be single family homes when calculating trip generation rates.

The daily vehicle trips contained in Appendix V-D-B are the basis for the RDEIR's conclusion that the alternatives would not result in a substantial lessening of operational emissions. This

apples-to-oranges comparison results in an overestimation in the daily vehicle trips that would be produced by HAA1 and HAA2 and an underestimation of the reductions in operational emissions these alternatives would provide.

Additionally, even with the overweighting of units deemed single family homes, HAA2 would substantially lessen operational emissions. HAA2 would produce a 40 percent reduction in volatile organic compound emissions, a 44 percent reduction in nitrogen oxides emissions, a 45 percent reduction in carbon monoxide, and a 49 percent reduction in both PM10 and PM2.5 emissions.

Further, both HAA1 and HAA2 would substantially lessen excess cancer risk burden from toxic air contaminants. HAA1 would result in an 11 percent reduction. HAA2 would result in a 42 percent reduction.

Response to Comment No. 10-7

In response to this comment, further evaluation of trip generation rates for Habitat Avoidance Alternative 1 (Avoidance of SBKR/LBV-Occupied Habitat) and Habitat Avoidance Alternative 2 (Avoidance of RAFSS Areas) was conducted. It was determined that too many SFR-3 units were considered "single-family detached" units for purposes of the trip generation rates for the those alternatives.

In response to this comment, the regional operational analysis was updated as follows. The commentor is correct in noting that the Project would have 2,403 SFR-3 units. The commentor states that 558 of these units are considered single-family for trip generation calculations, with the rest considered condos/townhomes. Those 558 SFR-3 units represent 23.2 percent of the 2,403 overall Project SFR-3 units.

It was confirmed that the mobile source emissions runs for HAA1 and HAA2 included all SFR-3 units as single-family detached. Consequently, to ensure consistency in the analysis of the alternatives' mobile source emissions, the analysis was updated to allocate 23.2 percent of each alternative's SFR-3 units to the single-family detached trip rate, and the remaining amount to the condo/townhome rate. That corresponds to the following breakdown:

- Habitat Avoidance Alternative 1: 2,419 SFR-3 units are proposed under this alternative., 23.2 percent of which is 562 units. Thus, for the updated regional operational analysis, 562 SFR-3 units were allocated as single-family detached, and 1,857 SFR-3 units were allocated as condo/townhome attached. That corresponds to the following overall numbers: (1) 3,047 single-family housing units; (2) 4,437 condo/townhouse units; and (3) 7,484 total units.

- Habitat Avoidance Alternative 2: 1,955 SFR-3 units are proposed under this alternative, 23.2 percent of which is 454 units. Thus, for the updated regional operational analysis, 454 SFR-3 units were allocated as single-family detached, and 1,501 SFR-3 units were allocated as condo/townhome attached. That corresponds to the following overall numbers: (1) 1,960 single family housing units; (2) 2,193 condo/townhouse units; and (3) 4,873 total units.

In response to this comment, regional operational emissions have been updated for the alternatives based on the updated allocation of residential uses discussed above. A revised regional operational analysis (i.e., an updated Appendix V-D-B of the RPDEIR) is provided in Section 2.2 of this Final RPEIR. Also included in Section 2.2 is a revised discussion of that analysis, which was originally provided in Section 2.5.3 of the RPDEIR. A summary of the updated impacts is provided below.

The revised daily trip rate for HAA1 compared to the Project, when accounting for the change in the mix of residential units, would increase the reduction from 4 percent to 9 percent. Overall, regional emissions for HAA1 compared to the Project would be reduced by 10 percent for VOC, 11 percent for NO_X, 10 percent for CO, 12 percent for SO_X, and 10 percent for PM_{10} and $PM_{2.5}$. As concluded in the RPDEIR, HAA1 would result in a reduction in regional operation emissions in comparison to the Project. However, in comparison to the SCAQMD thresholds, HAA1 regional emissions would represent 14.4 times the VOC threshold, 12.5 times the NO_X threshold, 6.6 times the CO threshold, 9.7 times the PM_{10} threshold, and 5.3 times the $PM_{2.5}$ threshold. Thus, even under the updated regional operational emissions analysis, regional operational emissions for HAA1 would substantially exceed the SCAQMD significance thresholds. Although the impacts would be reduced in comparison to the Project, similar to the Project, the emissions associated with HAA1 would exceed the significance thresholds established by the SCAQMD for regional CO, NO_X, PM_{10}, $PM_{2.5}$, and VOC. Thus, like the Project, such impacts under HAA1 were concluded in the RPDEIR to be significant and unavoidable, even with the incorporation of mitigation measures.

The revised daily trip rate for HAA2 compared to the Project, when accounting for the change in the mix of residential units, would increase the reduction from 35 percent to 39 percent. Overall, regional emissions for HAA2 compared to the Project would be reduced by 44 percent for VOC, 48 percent for NO_X, 51 percent for CO, 46 percent for SO_X, 53 percent for PM_{10}, and 52 percent for $PM_{2.5}$. As concluded in the RPDEIR, HAA2 would result in a reduction in regional operation emissions in comparison to the Project. However, in comparison to the SCAQMD thresholds, HAA2 regional emissions would represent 9.1 times the VOC threshold, 7.4 times the NO_X threshold, 3.6 times the CO threshold, 5.1 times the PM_{10} threshold, and 2.8 times the $PM_{2.5}$ threshold. Thus, even under the updated regional operational emissions analysis, regional operational emissions for HAA2 would substantially exceed the SCAQMD significance thresholds. Although the impacts would be reduced in comparison to the Project, similar to the Project, the emissions associated with HAA2 would exceed the significance thresholds established by the SCAQMD for regional CO, NO_X, PM_{10}, $PM_{2.5}$, and VOC. Thus, like the Project, such impacts under HAA2 were concluded in the RPDEIR to be significant and unavoidable, even with the incorporation of mitigation measures.

The commentor correctly identifies the conclusions in Table 2.5-6 and Table 2.5-10 in the RPDEIR which show that HAA1 and HAA2 would result in a reduction of estimated excess cancer risk per one million people as compared to the Project. Table 2.5-6 of the RPDEIR shows that the maximum on-site residence for HAA1 would be reduced from 224 to 199 estimated excess cancer risks per one million people over a 70-year duration. Table 2.5-10 of the RPDEIR shows that the maximum on-site residence for HAA2 would be reduced from 224 to 130 estimated excess cancer risks per one million people over a 70-year duration. However, note that the SCAQMD significance threshold is 10 excess cancer risks per one million people.

In comparison to the SCAQMD threshold, HAA1 would represent 20 times the threshold for the maximum on-site residence over a 70-year exposure duration, and HAA2 would represent 13 times the threshold for the maximum on-site residence over a 70-year exposure duration. Thus, as with the Project, HAA1 and HAA2 would substantially exceed the SCAQMD threshold. The RPDEIR correctly discloses that HAA1 and HAA2 would reduce the estimated excess cancer risk burden in comparison to the Project. However, similar to the Project, even with the incorporation of mitigation measures, HAA1 and HAA2 would result in significant and unavoidable impacts to on-site sensitive receptors from off-site sources of toxic air contaminants (TACs).

Comment No. 10-8

3. Traffic Noise Impacts

The RDEIR's comparison of the alternatives' traffic noise impacts to that of the proposed Project is infected by the same inequitable comparison of daily vehicle trips as the analysis of operational emissions. The analysis of traffic noise impacts relies on the calculations included in Appendix V-D-B, which as discussed above overestimates the traffic generated by HAA1 and HAA2. By overestimating the trips generated by the alternatives, the RDEIR overestimates the traffic noise that would result from the alternatives.

Additionally, the calculated reduction for HAA1 appears to just reduce traffic across the board for all roadways. (See Appendix V-D-C.) It does not consider which specific areas would include less development and which streets would have less traffic. Under HAA1, the majority of the reduction in development would be in Neighborhood III. All access to Neighborhood III is provided via Riverside Avenue. The RDEIR should consider whether there would be a greater reduction in traffic noise on Riverside Avenue based on the specific locations of development in this alternative.

Even under the RDEIR's inequitable calculations, HAA2 would reduce the significant noise impacts on Riverside Avenue to less than significant levels. When more accurate traffic calculations are used and the location of the reduction in traffic is considered, it is likely the impacts on Country Club Road would also be reduced to a less than significant level.

Response to Comment No. 10-8

As discussed above in Response to Comment No. 10-7, the daily vehicle trips calculated for the two alternatives have been updated to reflect a mix of residential units consistent with the Project. In response to this comment, traffic noise impacts have also been updated for the alternatives based on the updated allocation of residential uses presented above. A revised traffic noise analysis (i.e., an updated Appendix V-D-C of the RPDEIR Volume V (Part 2)) is provided in Section 2.2 of this Final RPEIR. Also included in Section 2.2 is a revised discussion of that analysis, which was originally provided in Section 2.5.4 of the RPDEIR Volume V (Part 1). A summary of the updated impacts is provided below.

The revised daily trip rate for Habitat Avoidance Alternative 1 (Avoidance of SBKR/LBV-Occupied Habitat) compared to the Project, when accounting for the change in the mix of residential units, would increase the reduction from 4 percent to 9 percent. With a 9 percent

reduction in traffic, the increase in noise levels along Riverside Avenue (between Alder Avenue and Locust Avenue) would be reduced from 3.0 to 2.9 dBA CNEL and 4.3 to 4.1 dBA CNEL for Country Club Drive (north of Riverside Avenue). As a result, the impact along Riverside Avenue (between Alder Avenue and Locust Avenue) would not be considered significant under Criterion 2 (i.e., to cause ambient noise levels to increase by 3 dBA CNEL or more at a sensitive receptor location, where the resulting noise exceeds 65 dBA CNEL). Although noise impacts along Country Club Drive (north of Riverside Avenue) would decrease by an additional 0.2 dBA, that noise impact would remain significant. Thus, as with the Project, that operational noise impact would be significant and unavoidable.

The revised daily trip rate for Habitat Avoidance Alternative 2 (Avoidance of RAFSS Areas) compared to the Project, when accounting for the change in the mix of residential units, would increase the reduction from 35 percent to 39 percent. With a 39 percent reduction in traffic, the increase in noise levels along Riverside Avenue (between Alder Avenue and Locust Avenue) would be reduced from 2.2 to 2.1 dBA CNEL and from 3.4 to 3.2 dBA CNEL along Country Club Drive (north of Riverside Avenue). As a result, the impact along Riverside Avenue (between Alder Avenue and Locust Avenue) would remain less than significant, but would result in an additional 0.1 dBA decrease. Although noise impacts along Country Club Drive (north of Riverside Avenue) would decrease by an additional 0.2 dBA, that noise impact would remain significant. Thus, as with the Project, that operational noise impact would be significant and unavoidable.

Regarding the distribution of traffic for Habitat Avoidance Alternative 1 (Avoidance of SBKR/LBV-Occupied Habitat) and Habitat Avoidance Alternative 2 (Avoidance of RAFSS Areas), both alternatives are mainly residential development with supporting retail services, which is similar to the Project. In addition, the locations of the developments are similar to the Project. Thus, it was an appropriate assumption that traffic for HAA1 and HAA2 would be reduced proportionally with the change in average daily trips.

Comment No. 10-9

4. Growth Inducing Impacts

HAA1 and HAA2 would also substantially lessen growth inducing impacts. The RDEIR again only considers whether the growth inducing impacts of the alternatives would remain significant. It does not consider whether HAA1 and HAA2 would substantially lessen the impacts as compared to the Project. HAA1 would substantially reduce growth inducing impacts by providing an 11 percent reduction in residential units and new residents. HAA2 would result in an even greater reduction in growth inducing impacts by providing a 42 percent reduction in residential units and new residents.

Response to Comment No. 10-9

As indicated in Section 2.5.5.1 of the RPDEIR, Habitat Avoidance Alternative 1 (Avoidance of SBKR/LBV-Occupied Habitat) would result in a total of 7,484 residential units and 820,540 square feet of commercial, office, and light industrial uses. In comparison to the Project's 8,407 residential units and 849,420 square feet of retail and commercial uses, this represents an approximately 11 percent reduction in residential units and an approximately 3 percent

reduction in retail and commercial floor area. While "substantial" in this context is not defined in CEQA or the CEQA Guidelines, it can be reasonably argued that such reductions in development are not considered substantial. Furthermore, growth-inducing impacts are a function of far more than the size of a development and take into account such characteristics as size, use, population, employment, demographic and socio-economic factors, infrastructure, etc. To simply compare the size of the alternative with the size of the Project is an oversimplification and does not accurately reflect any meaningful comparison of the alternative's growth-inducing impacts with those of the Project. In addition, given the large increase in growth that would result from the alternative as compared to what would otherwise occur with development under existing zoning (i.e., not only a greater amount of development and associated population and employment, but the inevitable resulting increases in demographic and socio-economic diversity, necessary infrastructure, consumer spending, etc.), HAA1 was determined to result in a significant growth-inducing impact, and the alternative would not avoid the Project's significant impact.

Similarly, as indicated in Section 2.5.5.2 of the RPDEIR, Habitat Avoidance Alternative 2 (Avoidance of RAFSS Areas) would result in a total of 4,873 residential units and 602,827 square feet of commercial, office, and light industrial uses. In comparison to the Project, this represents an approximately 42 percent reduction in residential units and an approximately 29 percent reduction in non-residential floor area. It could be reasonably argued that such reductions in development are considered substantial. However, as discussed above, growth-inducing impacts are a function of numerous development characteristics, including size, use, population, employment, demographic and socio-economic factors, infrastructure, etc., and thus a simple comparison of development size is not an accurate indicator of relative growth-inducing impacts. Moreover, as discussed in the RPDEIR, given the increase in growth that would result from the alternative as compared to what would otherwise occur with development under existing zoning (i.e., not only a greater amount of residential development and associated population, but the inevitable resulting increases in demographic and socio-economic diversity, necessary infrastructure, consumer spending, etc.), HAA2 was determined to result in a significant growth-inducing impact, and as such the alternative would not avoid the Project's significant impact.

Comment No. 10-10

B. The Fiscal Feasibility Analysis Contains Many Unsupported Assumptions.

Save Lytle Creek Wash and Endangered Habitats League have engaged the services of Developers Research to review the financial feasibility analysis provided with the RDEIR. Developers Research is a highly experienced company providing land owners, investors, developers and builders with the most comprehensive financial evaluation services in the industry on all types of property from individual projects and master plans to large residential and commercial portfolios. Its specialties also include the assessment of corporate-owned and environmentally impaired real estate assets. For more information regarding Developers Research and its qualifications, please see its website at www.dev-res.com, incorporated by reference.)

Developers Research has prepared a memorandum critiquing the RDEIR's financial feasibility analysis. This memorandum is included as **Attachment 1**. Developers Research found that

the financial feasibility analysis includes many unexplained conclusions and often relies on an inequitable comparison of Project costs and benefits to those of the alternatives. In particular, the financial feasibility analysis manipulates the amenities included in HAA1, which decreases the profitability of this alternative. As set forth in Developers Research memorandum, the feasible inclusion of additional amenities in HAA1 would substantially increase the rate of return for this alternative.

Without further analysis and detailed information, the financial feasibility analysis cannot serve as substantial evidence that HAA1 and HAA2 are financially infeasible.

Response to Comment No. 10-10

This is an introductory comment to the attached memorandum by Developers Research. Each of the critiques set forth in the Developers Research memorandum are specifically responded to in Responses to Comment Nos. 9-29 to 9-52, below. Moreover, the statement that the financial feasibility analysis cannot "serve as substantial evidence" is without merit and belied by the extensive report entitled *Financial Feasibility Analysis of the Lytle Creek Ranch Specific Plan Project and Alternatives to the Project Discussed in the Lytle Creek Ranch Specific Plan EIR*, December 2011 (Updated Financial Feasibility Analysis), contained in Appendix V-E of the RPDEIR.

Comment No. 10-11

C. The Conclusions Regarding Project Objective Attainment and General Plan Consistency Are Not Supported by Substantial Evidence.

The RDEIR claims HAA1 and HAA2 are also infeasible because they do not meet all of the Project objectives and are inconsistent with general plan policies. Many of the RDEIR's claims are not supported by substantial evidence. CEQA defines feasible as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors." (Public Resources Code § 21061.1) Project alternatives can still be considered feasible "even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly." (CEQA Guidelines § 15126.6(b).) As discussed below, the alternatives would meet a majority of the Project objectives and are consistent with the general plan. Thus, these less impactful alternatives are feasible.

Response to Comment No. 10-11

Contrary to the commentor's assertion and as noted in the RPDEIR, under CEQA, "an alternative 'may be found infeasible on the ground it is inconsistent with the Project objectives as long as the finding is supported by substantial evidence in the record.'"[18] As Sections 2.5.7 and 2.5.9.3 of the RPDEIR demonstrate, both Habitat Avoidance Alternative 1 (Avoidance of SBKR/LBV-Occupied Habitat) and Habitat Avoidance Alternative 2 (Avoidance of RAFSS Areas) would fail to meet key Project objectives. Similarly under CEQA, "an alternative that 'is impractical or undesirable from a policy standpoint' may be rejected as infeasible," so long as

[18] California Native Plant Society v. City of Santa Cruz (2009) 177 Cal.App.4th 957, 1001.

that finding is supported by substantial evidence."[19] As Sections 2.5.8 and 2.5.9.4 of the RPDEIR indicate, both Habitat Avoidance Alternative 1 and Habitat Avoidance Alternative 2 would not meet key goals and policies of the City's updated General Plan.

Comment No. 10-12

1. Financial Objectives and Goals

First, the RDEIR claims the alternatives are infeasible because they do not meet the financially focused Project objectives and general plan policies. (Objectives LA-6, LA-10; general plan goal 2-7.) As discussed in section I.B above and in the Developers Research memorandum, many of the conclusions contained in the financial feasibility analysis are highly questionable and cannot be relied upon to support a finding that the alternatives are financially infeasible.

The RDEIR also asserts that the alternatives would not expand economic opportunities to the same extent as the proposed Project. (RDEIR p. 2-172, 174.) The only support for this claim is a comparison of the number of jobs that would be provided under the Project to the number of jobs provided under the alternatives. A straight comparison of the number of jobs provided is inappropriate in a project such as this that would both add new jobs and new employees. HAA1 and HAA2 would provide more jobs per new household than the proposed Project. The proposed Project would have a jobs/housing balance of .40, providing 3,398 jobs (1 job per 250 square feet of commercial space) and 8,407 residential units. HAA1 would provide a jobs housing balance of .44 (3,282 jobs/7,484 residential units). HAA2 would provide an even better jobs housing balance of .49 (2,411 jobs/4,873 residential units). Thus, these alternatives are consistent with project objectives and general plan policies regarding employment opportunities to a greater extent than the proposed Project, not inconsistent as claimed by the RDEIR.

Response to Comment No. 10-12

Each of the critiques set forth in the Developers Research memorandum are specifically responded to in Responses to Comment Nos. 9-29 to 9-52, below. As indicated therein, in general terms, the Updated Financial Feasibility Analysis contained in Appendix V-E of the RPDEIR, contains an extensive reasoned evaluation of the Project and the alternatives based on unit counts, types of units, and amenities, among other criteria. Further, the discussions below support the conclusions of the Updated Financial Feasibility Analysis, namely that Habitat Avoidance Alternative 1 (Avoidance of SBKR/LBV-Occupied Habitat) and Habitat Avoidance Alternative 2 (Avoidance of RAFSS Areas) would not generate a sufficient rate of return (IRR) and therefore would be considered financially infeasible. Consequently, as evaluated in Sections 2.5.7, 2.5.8, 2.5.9.3, and 2.5.9.4 of the RPDEIR, the alternatives would fail to meet key Project objectives and key goals and policies of the City's updated General Plan, including those related to financial impacts and economic development.

Economic opportunities are typically evaluated in terms of employment opportunities and various sources of revenue such as taxes and can be applied on a project-specific basis. By contrast, a jobs/housing balance is a ratio typically addressed on a Citywide or regional basis that is used to evaluate quality of life issues such as the ability for people to live close to their place of work, the ability to take public transit to work, etc., which has little import on a project-

[19] Id.

specific level with respect to economic opportunities. While the jobs/housing balance may vary slightly between the Project and the alternatives, the fact remains that Habitat Avoidance Alternative 1 (Avoidance of SBKR/LBV-Occupied Habitat) and Habitat Avoidance Alternative 2 (Avoidance of RAFSS Areas) would offer fewer employment opportunities, less retail and commercial floor area and fewer residential units (and therefore fewer development fees, property tax revenues, sales and use tax revenues generated by smaller employee and residential populations, etc.), and therefore would not expand economic opportunities to the same degree nor generate as much revenue for the City as the Project, as indicated in Sections 2.5.7.1 and 2.5.7.2 of the RPDEIR. Refer to Response to Comment No. 10-5 for additional discussion.

Comment No. 10-13

2. Rialto Housing Needs

Secondly, the RDEIR claims HAA1 and HAA2 do not provide the same amount of housing and do not address the long-term housing needs of the City. (Objectives LA-4, A-9.) The Southern California Association of Governments provides a Regional Housing Needs Allocation (RHNA) for all areas of Southern California. According to the 2007-2014 RHNA, Rialto needs only 4,323 new housing units. Both HAA1 and HAA2 would provide more than 4,323 housing units. HAA1 provides 7,484 units and HAA2 provides 4,873 units. Additionally, according to the draft 2014-2023 RHNA, the need for additional housing in Rialto has dropped dramatically, from 4,323 to 2,715 needed units. (**Attachment 2**, SCAG draft 2014-2023 RHNA.) The need for housing in unincorporated San Bernardino County has also dropped dramatically. In the 2007-2014 RHNA, the need for additional housing in unincorporated San Bernardino was 20,622 housing units. This has dropped to just 39 units in the 2014-2023 RHNA. Further, other housing developments planned within the City and surrounding area, in particular the 1,500 acre Renaissance project at the Rialto Airport. With both alternatives providing housing units in excess of the totals needed, other developments providing numerous housing units, and the need for housing in this area significantly dropping, the RDEIR's claim that HAA1 and HAA2 do not meet the housing needs of the City is not supported by substantial evidence. To the contrary, the Project will only exacerbate the excess housing in the City and County, resulting in a continuation of a depressed housing market and reduced property values. The unintended consequence will be reduced property taxes for the County.

The proposal to increase development on the Project site by nearly four times over what is currently allowed is inconsistent with the downward trend in the need for housing. According to the 2010 census, there are already approximately 2,000 vacant units in Rialto. (http://rtpscs.scag.ca.gov/Documents/rhna/RHNAFinalMethodologyAppendices110311.pdf, Attachment 3, incorporated by reference.)

The RDEIR also claims the alternatives would not necessarily provide the types of affordable housing set forth in the RHNA. While this is true for the alternatives, it is also true for the proposed Project. There are no conditions requiring the Project to include any affordable housing. Although HAA1 and HAA2 provide fewer units, they both provide a similar mix of housing types to those provided by the proposed Project. There is no support for the RDEIR's claim that the reduced number of units provided by these alternatives would result in a narrower range of available prices or rents on the Project site. (RDEIR p. 2-172.)

Response to Comment No. 10-13

The ability of the alternatives to meet the City's projected housing need of 4,323 units, as identified in SCAG's RHNA, is discussed in Sections 2.5.7.1 and 2.5.7.2 of the RPDEIR. It is clearly acknowledged therein that based on sheer numbers, the residential units proposed under each of the alternatives would be sufficient to meet the City's projected housing need. However, the analysis goes on to address a variety of reasons why a simple comparison of numbers of units is not sufficient to conclude that the housing need would be met, since: (1) SCAG's housing need is broken down by income category; (2) the currently adopted housing need projection covers a timeframe through 2014 (and the draft housing need projection referenced above and provided in Attachment 2 to this comment letter covers a timeframe through 2023), whereas build-out of the alternative would not occur until 2030; and (3) a portion of the new units would be located in areas outside of the City's current boundaries (areas which were not accounted for in SCAG's housing need calculations for the City but which would ultimately be annexed into the City), thus the when accounting for those areas the housing need would be greater than the current SCAG projections indicate.

Moreover, the commentor's discussion of SCAG's draft RHNA is irrelevant, as that is only a draft document. As the Court Ruling noted, reliance on a draft plan as setting forth policy is "questionable." (Court Ruling, p. 63 [citing *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 949-51].) Accordingly, SCAG's draft RHNA has no bearing on policy determinations regarding the Project.

The commentor also asserts that there is no support for a claim in the RPDEIR that the reduced number of units provided by these alternatives would result in a narrower range of available prices or rents on the Project site. The Project would provide 8,407 residential dwelling units. Habitat Avoidance Alternative 1 and Habitat Avoidance Alternative 2 contain lesser overall units than the Project. Due to the reduction in unit counts, overall the Alternatives would contain fewer housing options than the Project. Further, Habitat Avoidance Alternative 2 would not contain an active adult golf course-oriented community. In any event, the RPDEIR does not conclude that the alternatives would not meet Objectives LA-4 and A-9. Rather, the RPDEIR notes that the Alternatives would meet those objectives, but to a lesser extent than the Project. (RPDEIR, page 2-175.)

Comment No. 10-14

3. Provision of Master Plan Amenities

Project alternatives analyzed in an EIR are required to be potentially feasible, and as such should be designed to meet project objectives if possible. CEQA requires the EIR to include "range of reasonable alternatives to the project… which would feasibly attain most of the basic objectives of the project." (CEQA Guidelines § 15126.6(a).) The RDEIR defines HAA1 in such a way that it would not meet several project objectives, contrary to CEQA's requirements. Additionally, the RDEIR fails to provide any explanation as to why the alternative could not be designed to meet the project objectives. The RDEIR cannot manipulate the design of an alternative in an attempt to support a finding that the alternatives are infeasible.

The RDEIR claims HAA1 does not meet project objectives and is inconsistent with the general plan because it is not a master planned community, and thus does not provide adequate amenities. The RDEIR and the accompanying financial feasibility analysis provide no basis for the conclusion that HAA1 could not be designed as a master planned community. Regardless, the City would still need to approve a specific plan for this alternative. The specific plan would contain the overarching design themes and would ensure cohesiveness of the development as required by the project objectives and General Plan policies. (General Plan policy 2-12.5.)

The RDEIR also states that HAA1 would not meet project objectives because it does not promote walking and biking. Bike lanes should be included in HAA1, as should sidewalks and trails that promote a connected neighborhood. (Project Objective A-6.) Even if HAA1 is not a master planned community, although as discussed above there is no reason it could not be master planned, the alternative could still provide the pedestrian connections sought by the project objectives and General Plan policies 2-12.5.

The RDEIR further faults HAA1 for failing to provide an entryway to the City. (Project Objective A-1.) There is no reason an entryway to the City could not be included in this alternative and since it is a project objective, HAA1 should include a gateway to the City. There is also no reason HAA1 could not include distinctive entry points into Rialto and individual neighborhoods, as well as monument signs, themed landscaping , and ground signs in neighborhoods. (General Plan goal 2-10, policies 2-10.1, 2-10.2, 2-10.3.) The specific plan for HAA1 should provide specifications for landscaping, signage, and entryways.

Response to Comment No. 10-14

The commentor alleges that the EIR manipulated the design of Habitat Avoidance Alternative 1 in order to support a finding that this alternative is infeasible. That is an incorrect and unsupported allegation. Moreover, the commentor takes issues with the formulation of Habitat Avoidance Alternative 1, including its design features. But members of the public do not choose alternatives to a proposed project; that task is for the lead agency. "CEQA establishes no categorical legal imperative as to the scope of alternatives to be analyzed in an EIR." (*Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 566.) The City is not legally obligated to analyze alternatives proposed by members of the public that are merely variations of alternatives already evaluated in the EIR. (See *Preservation Action Council v. City of San Jose* (2006) 141 Cal.App.4th 1336, 1358-59.) Accordingly, courts have rejected claims that an EIR must discuss additional alternatives or varieties of existing and already studied alternatives proposed by project opponents that further reduce impacts when the EIR already includes discussions of alternatives that would provide some relief from the project's impacts. (*Sequoyah Hills Homeowners Ass'n v. City of Oakland* (1993) 23 Cal.App.4th 704, 713-14.) An EIR "should not become vulnerable because it fails to consider in detail each and every conceivable variation of the alternatives stated." (*Village Laguna of Laguna Beach, Inc. v. Board of Supervisors* (1982) 134 Cal.App.3d 1022, 1029.)

For an example, the Court of Appeal noted in *Village of Laguna Beach v. Board of Supervisors* (1982) 134 Cal.App.3d 1022, there can be "literally thousands of 'reasonable alternatives' to the proposed project" and so '[t]he statutory requirement for consideration of alternatives must be judged against a rule of reason.'" (Id. at pp.1028-1029 (citations omitted).) That court then

upheld a project that was described as creating a "new city" with approximately 60,000 residents in 20,000 new housing units with an alternatives analysis that included four alternatives, including the "no development" alternative.

In assessing the feasibility of the alternatives presented in the RPDEIR, the City relied on an expert report prepared by HM2 Solutions LLC, entitled *Lytle Creek Ranch Analysis: The Impact Of Amenities On Home Values As Relates To The Proposed Lytle Creek Ranch Specific Plan and EIR Alternatives*, December 2011 (Amenities Report), among other substantial evidence regarding feasibility as defined under CEQA. That report, prepared by marketing consultants with over 40 years combined experience providing expertise to developers and home builders (see Amenities Report, pp. 43-44), is provided as an appendix to the Updated Financial Feasibility Analysis, which is included as Appendix V-E to the RPDEIR Volume V (Part 2).

The Amenities Report thoroughly assessed the Project and Alternatives, including amenities provided therein, to determine the impact of community amenities on home prices. According to the Amenities Report, from a feasibility perspective, the premium in home prices associated with homes being located within a "True" Master Plan Community Setting is the result of several factors that combine to produce an overall perceived higher value for consumers. (Amenities Report, page 23.) The Amenities Report discusses factors contributing to the finding that a development plan is a "True" Master Plan Community Setting:

> **"True" Master Plan Community Setting.** For the purpose of this analysis, a "true" master planned community is defined as a community that has been planned and developed as a cohesive, integrated whole, with a master developer responsible for developing and completing most or all major community infrastructure and improvements in a timely manner (generally in conjunction with the construction of homes in the community, not after all homes are completed). Also, a master planned community most likely will have a funding mechanism in place for on-going maintenance of community facilities (such as a master home owners association) and have community features/amenities greater in scope or higher in quality than might otherwise be developed.
>
> With a master developer completing community improvements in a timely manner, there is less "market risk" associated with those features actually being completed, and more "usage utility" assuming that the facilities are completed sooner and available for use. There is therefore more value to the homes here, than if the same features were merely promised as potential future amenities to be completed at some point in the future, potentially by a different entity than the master developer. (Amenities Report, pages 23 and 48.)

A "True" Master Plan Community Setting associated with a home premium over a Non-Master Plan Setting is not defined by sidewalks or the use of signage. A Non-Master Plan Setting (or, a stand-alone development), is typically developed "piece-by-piece" instead of all at once. (*Id.*) For this reason, homes in a given area typically do not achieve full value enhancement until promised community features are actually built (and built as originally approved/proposed), and in most market areas, homes in a non-MPC and/or stand-alone setting, usually sell at discounted values versus homes in a cohesively developed and maintained master planned community. (*Id.*, p. 49.) Based on HM2's expert review of various developments in the Rialto-

Fontana region, as well as the amenities that would be provided under the Project and the Alternatives, HM2 determined that the No Project/Existing Zoning Alternative and Habitat Avoidance Alternative 1 were not "True" Master Plan Community Settings. (*Id.,* p. 23.)

The commenter also states that Habitat Avoidance Alternative 1 would still need a specific plan in order to be implemented, and that this implies that the alternative would then have to be a master planned community. That is incorrect. The Amenities Report specifically noted that:

> [N]on-master plans, and/or "stand-alone" developments, tend to be more "piecemeal" in nature, and tend to have lower values than cohesively developed master plans, *even if the non-MPC project is part of a Specific Plan*. (Amenities Report, page 48, emphasis added.)

Comment No. 10-15

4. Provision of Recreational Amenities

The RDEIR also rejects the alternatives for failing to provide the exact same type of park amenities as the proposed Project. As an initial matter, both alternatives provide adequate park land to comply with the Quimby Act and Rialto's Municipal Code. Under the Quimby Act and section 17.23 of Rialto's Municipal Code, residential developments are required to dedicate land for provision of neighborhood and community recreational facilities at the rate of 3.0 acres per thousand residents. The Municipal Code provides a formula for determining the amount of community recreational facilities/park space a residential development must provide: 3 x (density factor according to Census data x number of development units) ÷ 1,000. (Municipal Code section 17.23.060.)[20] For HAA1, 84.7 acres of park space would need to be provided (3 x [3.7531 x 7,484] ÷ 1,000). HAA1 would provide 301.4 acres of land designated for recreation/ open space--more than three times the park space required to comply with the Quimby Act and the Municipal Code. HAA2 would also provide more than the 54.8 acres of park space it is required to provide. The RDEIR should not find these alternatives to be inconsistent with General Plan policies and goals relating to park space when they both provide park space in excess of the Municipal Code's requirements.

The RDEIR states HAA1 would not provide any formal active recreational parks dedicated to the community, but again provides no basis for why such a park could not be included in this alternative. HAA1 provides 301.4 acres of land designated as recreation/open space. This is just 27.4 acres fewer park space than the 328.8 acres of recreation/open space provided by the Project. Moreover, HAA1 actually provides more open space recreation than the Project on a per household basis.

Response to Comment No. 10-15

Please refer to Response to Comment No. 10-14. The comment states that the Habitat Avoidance Alternatives analyzed in the RPDEIR would comply with the City's Quimby Act ordinance and thus, the RPDEIR should not find the alternatives to be inconsistent with General Plan policies and goals relating to park space when they both provide park space in excess of the Municipal Code's requirements. As an initial point, compliance with the Quimby Act neither

[20] The 2010 EIR states that 3.753 is the correct density rate to use. (2010 EIR p. 4.9-106-107.)

defines the recreational amenities for the alternatives nor does it drive the amenities valuation for each of the alternatives. Design principles and amenities provided in the alternatives dictate marketability and pricing for those alternatives.

Nevertheless, the commentor simplifies and incorrectly assesses whether the alternatives would comply with the City's Quimby Act ordinance (Section 17.23 of the Municipal Code). (See DEIR Volume I, pages 4.9-106 to 4.9-114.) Specifically, Habitat Avoidance Alternative 1, like the Project, would provide a redesigned golf course constituting 207.0 acres, greater than the existing 183.0 acre course. The City's Quimby Act ordinance contains certain provisions allowing for the receipt of partial "credit" for special facilities, such as the golf course. As authorized under Section 17.23.140 (Credit for Special Facilities) in the City Municipal Code, the additional approximately 24 acres (207 - 183 = 24) may be eligible to receive a 50 percent Quimby Act "credit" of about 12 acres. (See DEIR Volume I, page 4.9-109.) Thus, the commentor incorrectly states that Habitat Avoidance Alternative 1's 301.4 acres of land designated for open space/recreation would be more than three times the park space required to comply with the Quimby Act and Municipal Code.

In addition, the Quimby Act permits a developer to pay in lieu fees to satisfy park dedication requirements. Habitat Avoidance Alternative 1 was designed to include the redesigned golf course, with the remainder of open space/recreational area serving only as green space areas (with paths and benches), and no formal active recreation parks dedicated to the community. The Amenities Report noted that Habitat Avoidance Alternative 1 is a non-master planned community, and thus likely to be developed in a piecemeal fashion. As such, for Habitat Avoidance Alternative 1 to comply with the Quimby Act and Municipal Code, it is expected that the developer would pay in lieu fees rather than specifically dedicate all of the open/space recreational area to the community.

Further, the commenter is incorrect in stating that the RPDEIR determined that Habitat Avoidance Alternative 2 to be inconsistent with General Plan policies and goals relating to park space. The RPDEIR's assessment of consistency with the General Plan determined that Habitat Avoidance Alternative 2 would be consistent with those policies. (See RPDEIR Volume V (Part 1), pages 2-211 to 2-212.)

Comment No. 10-16

HAA1 and HAA2 are found to be infeasible because they would not provide a sports park like the proposed Project would. Again, there is no reason this sports park could not be provided under the alternatives. The terms for inclusion of a sports park in the Project were set out in a development agreement that was part of the rescinded 2010 approval of the Project. The City has indicated the same development agreement would be considered for the revised approval. The development agreement makes clear the Project would not be paying for the sports park as part of the proposed Project. (2010 Development Agreement pp. 25-26.) Under the agreement, the City would be required to purchase the land for the sports park, and development of the sports park would be paid for by a tax levied on residents of up to two percent of the value of their property. The development agreement provides that: "Both the purchase of the land for the Sports Park by the City and the construction and acquisition of the Sports Park may be funded through the (Community Facilities District);" "the Sports Park site will be purchased by and transferred to the City" after grading of site. (Ibid.)

The RDEIR provides no reason why the City would not buy the land or levy a similar tax to fund some or all of the costs of the sports park if the HAA1 or HAA2 were approved instead of the proposed Project. The development agreement commits the Project proponent to provide the same space for the sports park (35.7 acres) even if the approved number of residential units is limited to 5,885 or above. (Development Agreement p. 28.) HAA1 would vastly exceed this number with 7,408 units, yielding one acre of sports park for every 209 units (7484 units/35.7 acres). The Project by contrast would only provide an acre of sports park for every 235 units (8407 units/35.7 acres). And even though HAA2 would provide less than 5,885 units, the development agreement still requires a 23-acre sports park for a development of this size, yielding an acre of sports park for every 211 units (4873 units/23 acres) versus the Project's acre per every 235 units. Thus, under the deal previously agreed upon by the City and Project proponent, even more sports park per household would be provided to the community even if development is limited to the amounts allowed under the HAAs.

Response to Comment No. 10-16

Please refer to Response to Comment No. 10-14. Again, the commentor takes issue with the formulation of the alternatives, a task which is within the full discretion of the City. An EIR "should not become vulnerable because it fails to consider in detail each and every conceivable variation of the alternatives stated." (*Village Laguna of Laguna Beach, Inc. v. Board of Supervisors* (1982) 134 Cal.App.3d 1022, 1029.)

Each of the Habitat Avoidance Alternatives studied in the RPDEIR is directed towards minimizing the direct disturbance of sensitive habitats and the correspondingly sensitive species that occupy those habitats. As such, those alternatives were designed and planned with these specific objectives in mind. With respect to Habitat Avoidance Alternative 2, especially, that alternative was formulated to avoid or substantially reduce project-related impacts to Riversidean Alluvial Fan Sage Scrub (RAFSS) areas. That means that the sports park, designated to be constructed in Planning Area 72 (part of Neighborhood III) would be unable to be constructed, as it lies directly on preserved RAFSS community land.

In addition, the Development Agreement between the City and the Applicant is proposed to give the Applicant vested rights and assurances that it can build-out the entire Project over a 25-year period. The guarantee of being able to build the entire Project – including 8,407 residential units and 849,420 square feet of industrial and commercial development – makes feasible building the sports park under the Project.

Comment No. 10-17

The final basis for claiming HAA2 is infeasible is that it does not provide golf course amenities. As admitted by the Project proponent when closing the golf course last fall and as discussed in Developers Research memorandum, a public golf course is a money losing venture at this location. The need for inclusion of an unprofitable golf course as part of the Project should be reconsidered now that the previously existing golf course has been shut down. Including a Project component that would lose money would conflict with Project objectives and General Plan policies regarding profitability. Further, it is well settled that "[i]f there are feasible alternatives or feasible mitigation measures that would accomplish most of the objectives of a project and substantially lessen the significant environmental effects of a project subject to

CEQA, the project may not be approved without incorporating those measures." (*Center for Biological Diversity, Inc. v. FPL Group, Inc.* (2008) 166 Cal.App.4th 1349, 1371 fn 19, citation to (Pub. Resources Code §§ 21000(g), 21002, CEQA Guidelines § 15091); see also CEQA Guidelines § 15126.6(b).) Both HAA1 and HAA2 would accomplish most of the Project objectives and would substantially lessen the impacts associated with the Project.

Response to Comment No. 10-17

The commentor contends that the Project's inclusion of a redesigned golf course would be unprofitable and conflict with Project objectives and General Plan policies regarding profitability, given that the existing El Rancho Verde Golf Course has closed. The commentor is incorrect.

As discussed on page 2-263 of the RPDEIR, the existing El Rancho Verde Golf Course, a public City golf course, was forced to close in 2011 due to steep financial losses. The golf course was a place of community congregation for over 50 years in the City. Just because the existing golf course was unprofitable does not mean that the Project's inclusion of a redesigned golf course would be similarly unprofitable.

Indeed, the Project proposes to redesign the existing golf course and upgrade it with new clubhouse facilities. The redesigned and upgraded golf course would incorporate a different configuration and layout and would include a new approximately 19,339 square foot clubhouse, pro shop, locker rooms, office, bar, restaurant, and banquet facilities. (DEIR, page 2-42.) In addition, and contrary to current conditions, the redesigned golf course would be surrounded by clusters of senior housing in Neighborhood II, which would be a gated, "active adult" community. Other features include a tournament lawn, driving range, and carts storage barn. Although the golf course would be surrounded by active adult housing, the course and clubhouse would be open for use by the general public. (LCRSP, page 1-13.) The Southern California region has dozens of popular and profitable "active adult" communities with golf course amenities, such as Sun City Palm Desert (see http://www.55places.com/california/communities/sun-city-palm-desert), Sun Lakes Country Club in Banning (see http://www.55places.com/california/communities/sun-lakes-country-club), The Colony in Murrieta (see http://www.55places.com/california/communities/the-colony), and many, many more. (See http://www.55places.com/california/region/southern-california.)

Overall, the redesigned golf course would be a major renovation and improvement from conditions at the existing golf course prior to its closure in 2011, which had an outdated clubhouse, and was surrounded only by unaltered land, as opposed to a gated, golf course community. Accordingly, the Project's inclusion of a redesigned golf course would not conflict with Project objectives and General Plan policies, as the commentor contends.

Comment No. 10-18

D. An Analysis of a Reasonable Range of Alternatives Is Required.

"A major function of an EIR 'is to ensure that all reasonable alternatives to proposed projects are thoroughly assessed by the responsible official.'" (*Save Round Valley Alliance v. County of Inyo* (2007) 157 Cal. App. 4th 1437, 1456, citations omitted.) Reasonable alternatives should only be eliminated from consideration in the EIR if the alternative would not meet most of the

basic project objectives, is infeasible, or it would not avoid significant environmental impacts. (CEQA Guidelines § 15126.6(c).)

As discussed above, the RDEIR defines HAA1 with the apparent intent to make this alternative conflict with Project objectives and general plan policies. HAA1 should be revised to be a master planned community, with pedestrian and bike connections, entryways and themes for development and landscaping. Additionally, as discussed above, HAA1 and HAA2 should include a sports park similar to that which would be provided under the proposed Project.

Additionally, based on recommendations provided by Developers Research, an alternative should be analyzed that reduces the development footprint and includes a revised mix of housing types, focusing on small lot single family homes, with profit maximizing amenities.

Response to Comment No. 10-18

Please refer to Responses to Comment Nos. 9-14 to 9-17, above. In addition, the commentor implies that the RPDEIR did not contain a reasonable range of alternatives. However, the Court Ruling only required that the City revise the EIR's analysis of Habitat Avoidance Alternative 1 (Avoidance of SBKR/LBV-Occupied Habitat) and Habitat Avoidance Alternative 2 (Avoidance of RAFSS Areas) with respect to their feasibility determination, not their design. The Court Ruling did not require further analysis of the other alternatives to the Project that were evaluated in the original EIR, nor did it require the assessment of additional alternatives not previously analyzed in the EIR. Moreover, as described in Section 1.2 of this Final RPEIR, under current CEQA case law, claims unasserted or abandoned in the litigation are not subject to further review by the Court. The commentor's petition for writ of mandate against the City claimed that the original EIR failed to analyze a reasonable range of alternatives, and that claim was not pursued in substantive court briefing. Accordingly, this comment is outside the scope of the RPDEIR. The commentor is referred to Section 1.2 of this Final RPEIR for a discussion of the scope of the RPDEIR, the City's obligation to respond to comments outside the scope of the RPDEIR, and the standards for recirculation of a Draft EIR due to "significant new information."

Comment No. 10-19

II. Analysis of Impacts Is Inadequate.

A. Assumptions Regarding Reductions in Greenhouse Gas Emissions Are Unsupported.

Endangered Habitats League has provided detailed comments regarding the inadequacies of the analysis of greenhouse gas emissions. Save Lytle Creek Wash joins in those comments.

Additionally, the RDEIR assumes large greenhouse gas emission reductions due to car manufacturers meeting the USEPA's standards for miles per gallon efficiency. Car manufacturers have consistently failed to meet timeline milestones for efficiency standards. Indeed, in the early 2000's average fleet mileage efficiencies actually declined. According to the attached MIT Energy Initiative report, there is only a .5 percent chance car manufacturers will meet the efficiency standards by 2025 or a 99.5 percent chance that car manufacturers will not meet these efficiencies. (Attachment 3, Analysis of CAFE Standards, p. 2.) Thus, the RDEIR

should not rely on reductions that would occur if car manufactures achieve these standards to calculate greenhouse gas emissions for the Project.

Response to Comment No. 10-19

Please refer to Response to Comment Nos. 10-2 through 10-11.

The commentor also contends that the RPDEIR should not be allowed to take credit for future mandated increases in fuel efficiency, as an MIT study indicates a low likelihood for achieving the new fuel efficiency standards proposed for 2025. The calculations in the RPDEIR incorporate only the Pavley standards which are intended to increase fuel efficiency in vehicle model years 2009 through 2016. The study that is cited by the commenter cites compliance with 2025 fuel efficiency standards, which were not used in the RPDEIR. In addition, the study conducted by the MIT researchers also evaluates national compliance and does not evaluate California compliance. This is important because the compliance with the CAFE standards is a strong function of buyer's choices in the automobile market. California has made public policy choices to encourage the adoption of alternative-fueled vehicles. These incentives have led to substantially higher hybrid sales in California than in the US market overall (see Figure 8, http://gradworks.umi.com/3311951.pdf). As a result, not only are the cited statistics from the study for CAFE standards that are not used in the RPDEIR, but the geography of the study (the United States) is not relevant to the geography represented in the RPDEIR (California).

Moreover, when analyzing whether a project will have significant impacts, CEQA allows an EIR to rely on a project's future compliance with state efficiency standards. (*Tracy First v. City of Tracy* (2009) 177 Cal. App. 4th 912, 932-934 [upholding EIR's reliance on compliance with California Title 24 energy efficiency standards to determine "that the project would not have a significant energy impact].) Accordingly, it is proper for the RPDEIR to take credit for compliance with the Pavley standards when analyzing the significance of the Project's GHG emissions.

Comment No. 10-20

B. Baseline for Analyzing Traffic Impacts Remains Inadequate.

Endangered Habitats League has provided detailed comments regarding the improper baseline relied upon for traffic impact analysis. Save Lytle Creek Wash joins in those comments. Individual members of Save Lytle Creek Wash have also submitted comments detailing their personal observations regarding traffic impacts and Save Lytle Creek Wash joins these individual comments.

Response to Comment No. 10-20

Please refer to Response to Comment Nos. 10-11 through 10-13 and 18-1 through 18-12.

Comment No. 10-21

C. Aesthetic Impacts Resulting From Decreased Housing Demand Should Be Analyzed.

As set forth in section I.C.2 above, the proposed Project provides far more housing than needed in Rialto. Housing needs for the City and the surrounding area have sharply decreased since the release of the 2010 EIR and there are numerous vacant units throughout the City. The EIR failed to consider the aesthetic and other impacts of graded land lying fallow for years due to lack of a market for housing. An example of these negative impacts is located adjacent to the Project site. In 2006, the Rosena Ranch (Lytle Creek North) project graded over a large natural open space area. With the decreased demand for housing in this area, the site has lain bare and graded without the anticipated housing development for years, resulting in a highly visible eyesore for the whole community. The EIR must analyze and mitigate the potential for the Lytle Creek Ranch project to result in a similar negative aesthetic impact given the decreased need for housing and other large housing development projects planned for Rialto, Fontana, and Rancho Cucamonga. Such an impact would be significant at a project level and cumulatively with Rosena Ranch.

Response to Comment No. 10-21

Please refer to Response to Comment No. 10-13. The commentor states concerns regarding aesthetic impacts. This matter is outside the scope of the RPDEIR. Please refer to Section 1.2 of this Final RPEIR for a discussion of the scope of the RPDEIR, the City's obligation to respond to comments outside the scope of the RPDEIR, and the standards for recirculation of a draft EIR due to "significant new information." The commentor offers no "significant new information" with respect to aesthetic impacts within the meaning of CEQA Section 21092.1 and CEQA Guidelines Section 15088.5. In any event, the original DEIR fully assessed the Project's potential aesthetic impacts. (See Section 4.13 of the original DEIR Volume I.) In addition, the comment is pure speculation. The commentor essentially claims that should the Project be approved and the Project site be graded, that it will sit bare and graded for years and become a community eyesore. The commentor provides no evidence to support this claim other than a statement that the nearby Rosena Ranch development site "has lain bare and graded" for years. "Argument, speculation, unsubstantiated opinion or narrative, [or] evidence which is clearly erroneous or inaccurate….does not constitute substantial evidence…..Substantial evidence shall include facts, reasonable assumptions predicated on facts, and expert opinion supported by facts." (CEQA Guidelines, § 15384.)

Comment No. 10-22

D. Mitigation for Wastewater Impacts Is Uncertain.

The 2010 EIR acknowledges that the City currently has inadequate wastewater capacity to supply the proposed Project. To mitigate this significant impact, additional wastewater capacity is required for the Project. Since the 2010 EIR was prepared, the City has entered into negotiations with American Water Company to provide upgrades to the City's water and wastewater systems, including additional capacity. The City approved an agreement with American Water Company on March 27, 2012. However, if a majority of the rate payers in the City object to the agreement, it will not go forward. As this agreement provides for rate

increases of 130 percent, and numerous residents spoke out in opposition to the agreement, it is likely the rate payers will reject this agreement. There is no alternative plan for providing additional wastewater capacity for the City. The RDEIR must analyze the impacts that would occur if the agreement with American Water Company is rejected. Without the needed capacity, a significant impact would remain. The reduction in use provided in both HAA1 and HAA2 should reduce this impact to a less than significant level.

Response to Comment No. 10-22

The commentor states concerns regarding wastewater impacts. This matter is outside the scope of the RPDEIR. Please refer to Section 1.2 of this Final RPEIR for a discussion of the scope of the RPDEIR, the City's obligation to respond to comments outside the scope of the RPDEIR, and the standards for recirculation of a draft EIR due to "significant new information." The commentor offers no "significant new information" with respect to wastewater impacts within the meaning of CEQA Section 21092.1 and CEQA Guidelines Section 15088.5. In any event, the original DEIR fully assessed the Project's potential wastewater impacts. (See Section 4.10 of the original DEIR Volume I.) In any event, mitigation proposed to reduce the Project's wastewater impacts to less than significant levels is not uncertain and, in fact, is unrelated to the proposed City contract with American Water Company. Mitigation Measure 9-4 states:

> Prior to the issuance of building permits for any use that generates additional sewer flows, the City Engineer shall verify that adequate sewer capacity is in place to accommodate that development. This measure neither obligates the City to fund nor stipulates a performance schedule whereby any publicly funded improvements to the City's sewer collection and treatment system shall be implemented. (DEIR, page 4.10-69.)

All this mitigation measure requires is that the City Engineer verify that adequate sewer capacity is in place prior to issuing building permits for new Project development. It is not tied to the proposed City contract, and nothing about it is uncertain.

Comment No. 10-23

E. Analysis of Noise Impacts Relied on Improper Baseline.

The 2010 EIR relied on an improper future baseline when analyzing the noise impacts associated with the Project. The court rejected the use of such a baseline for the traffic impacts. As the 2010 EIR's analysis of traffic noise impacts relied on this same improper baseline, it must also be revised. The 2010 EIR stated "Potential noise impacts due to project-related off-site traffic were analyzed by estimating the increase in noise levels due to project-related traffic at full build-out (2030) *compared with the future (2030) ambient noise levels that would exist without the proposed project*. (2010 EIR p. 4.8-28, emphasis added.) The EIR must be revised to determine the significance of traffic noise impacts of the Project as compared to existing conditions. (*Sunnyvale West Neighborhood Assn. v. City of Sunnyvale City Council* (2010) 190 Cal.App.4th 1351, 1373.)

Response to Comment No. 10-23

The commentor states concerns regarding noise impacts. This matter is outside the scope of the RPDEIR. Please refer to Section 1.2 of this Final RPEIR for a discussion of the scope of the RPDEIR, the City's obligation to respond to comments outside the scope of the RPDEIR, and the standards for recirculation of a draft EIR due to "significant new information." The commentor offers no "significant new information" whatsoever with respect to noise impacts within the meaning of CEQA Section 21092.1 and CEQA Guidelines Section 15088.5.

Moreover, though the Court Ruling obligated the City to revise the traffic impact analysis to reflect the *Sunnyvale* opinion, nothing in the Court Ruling required revision of the original DEIR's assessment of noise impacts; the issue was never raised to the Court at any point in the proceeding. Indeed, as described further in Section 1.2 of this Final RPEIR, under current CEQA case law, claims unasserted or abandoned in the litigation are not subject to further review by the Court. The commentor's petition for writ of mandate against the City claimed that the original DEIR failed to properly analyze the Project's noise impacts, and that claim was not pursued in substantive court briefing. Accordingly, this comment is outside the scope of the RPDEIR.

Furthermore, it should be noted that subsequent to the close of the public comment period for the RPDEIR, the California Court of Appeal for the Second District issued a decision sharply questioning the holding in the *Sunnyvale* opinion.[21] In any event, to be conservative, the lead agency prepared a *Sunnyvale* noise analysis to determine the significance of the Project's traffic noise impacts when compared to existing conditions. (See Appendix VI-E, Sunnyvale Traffic Noise Analysis, of this Final RPEIR). That analysis shows, similar to the noise analysis provided in the original DEIR, that implementation of the Project would result in significant traffic noise impacts at two locations: (1) Riverside Drive between Alder Avenue and Locust Avenue; and (2) Country Club Drive (north of Riverside Drive). In sum, the *Sunnyvale* noise analysis determined that there would be no new significant noise impacts beyond those already identified in the original DEIR.

Comment No. 10-24

F. Biological Impacts Require Additional Analysis.

Circumstances have changed since the biological impacts of the Project were analyzed in the 2010 EIR. The El Rancho Verde Golf Course was shut down in September 2012. [sic] Since the golf course was shut down, the site has not been irrigated and is reverted to a more natural state. It is possible species of special concern have begun using the habitat on the golf course. A revised analysis of the biological impacts should consider this possibility.

Response to Comment No. 10-24

The commentor states concerns regarding the use of the El Rancho Verde Golf Course (currently non-operational) by species of concern. This matter is outside the scope of the RPDEIR. Please refer to Section 1.2 of this Final RPEIR for a discussion of the scope of the

[21] *Neighbors for Smart Rail v. Exposition Metro Line Construction Authority* (Case No. B232655, 2012 Cal.App.LEXIS 434, 2d Dist., Apr. 17, 2012).

RPDEIR, the City's obligation to respond to comments outside the scope of the RPDEIR, and the standards for recirculation of a draft EIR due to "significant new information." The commentor offers no "significant new information" with respect to biological resources within the meaning of CEQA Section 21092.1 and CEQA Guidelines Section 15088.5.

In any event, the commentor is referred to a Technical Memorandum from Steve Nelson at PCR Services Corporation, provided in Appendix VI-D to this Final RPEIR (Golf Course Habitat Conditions Memo). The Golf Course Habitat Conditions Memo notes that, based on a site investigation, no native habitats have reconstituted themselves on the golf course property since its closure. In addition, the Golf Course Habitat Conditions Memo states:

> The functions and values of the habitat on the property remain restricted to that provided by ornamental landscaping, including non-native trees, shrubs and turf-grass, which are very low in their suitability to support more than typical and common suburban wildlife species, let alone special status species. In fact, the golf course property remains in the same condition as it was prior to its closure, except the turf-grass making up the former fairways has not been mowed or manicured. In addition, the ornamental trees and shrubs on-site have not been trimmed and root sprouts now grow up from their root crowns.

The Golf Course Habitat Conditions Memo concludes that "it will take many years, perhaps decades, for the former golf course to even come close to reconstituting enough native character to support other than typical suburban wildlife. At present, it remains a highly altered habitat with very low value to wildlife." (See Appendix VI-D of this Final RPEIR.)

Comment No. 10-25

Additionally, in 2011 the critical habitat for the San Bernardino Kangaroo Rat was expanded from 7,779 acres to 33,245 acres by a federal court order. The Project site would now contain areas that are designated as critical habitat for this endangered species. The analysis of biological impacts should be revised to take the need for this critical habitat into account and should also reconsider the adequacy of mitigating habitat loss through replacement habitat. (http://www.endangeredspecieslawandpolicy.com/2011/01/articles/critical-habitat/federal-judge-expands-critical-habitat-for-the-kangaroo-rat/, incorporated by reference.)

Response to Comment No. 10-25

The commentor indicates concerns about newly designated critical habitat for the San Bernardino Kangaroo Rat (SBKR). This matter is outside the scope of the RPDEIR. Please refer to Section 1.2 of this Final RPEIR for a discussion of the scope of the RPDEIR, the City's obligation to respond to comments outside the scope of the RPDEIR, and the standards for recirculation of a Draft EIR due to "significant new information." The commentor offers no "significant new information" with respect to cumulative impacts within the meaning of CEQA Section 21092.1 and CEQA Guidelines Section 15088.5.

The original DEIR contains a discussion of the role of critical habitat designated by the United States Fish and Wildlife Service (USFWS) under the federal Endangered Species Act (ESA) and explains that this regulatory term/designation is intended "to guide the actions of federal

agencies." (See Sections 4.5.2.1 and 4.5.3.2 of the DEIR Volume I). The DEIR notes that for purposes of a proper analysis of the impacts of the Project on the SBKR through modifications and loss of SBKR habitat, the analysis took into consideration the information available about the species in the 2008 critical habitat designation rule (which incorporated information about the species and its habitat in the 2002 rule designating critical habitat that is currently in effect), but that a much more detailed and accurate habitat analysis was applied using more extensive, detailed and ground-verified information about habitat conditions on the Project site and in the surrounding area than was available simply by reference to whether the land was or was not designated by the USFWS as critical habitat. (See Section 4.5.5.1 of the DEIR Volume I.) Actual habitat conditions and functioning on the Project site and in the surrounding area were thus utilized in the DEIR analysis, which provided a more accurate analysis of impacts than simply calculating the number of acres designated by the USFWS as critical habitat being preserved and being impacted by the Project. The information, analysis, and conclusions regarding the impact of the Project on the SBKR (including indirect impacts to the species as a result of habitat loss and modification) were never dependent on the more broad-brushed critical habitat designation, intended to guide the actions of federal agencies. (See Sections 4.5.5.1 and 4.5.5.3 of the DEIR Volume I.)

The commentor has failed to establish the existence of "significant new information" with regard to SBKR critical habitat for another reason. Since certification of the EIR in 2010, no new information satisfying the standards of CEQA Section 21092.1 and CEQA Guidelines Section 15088.5 has been introduced. The only change with regard to SBKR critical habitat is that a federal district court has found that the USFWS acted "arbitrarily and capriciously" in adopting a revised designation of SBKR critical habitat in 2008. The effect of that judicial order was to automatically reinstate the critical habitat designation in effect prior to the revised designation made in 2008, until such time as the USFWS elects to re-propose modifications to the designation and complete the proper rule-making procedures. The biological information associated with the 2002 critical habitat designation was known and available in 2002 and at the time the City prepared and adopted the EIR for the Project. The EIR cited the 2008 revised critical habitat designation and rule (which included extensive information about the SBKR and its habitat, both what was known when it designated critical habitat in 2002 and when it revised the designation in 2008), and all of this information was considered in the overall CEQA analysis for the Project as part of the original EIR. (See reference to 73 Federal Regulation 20581 on page 4.5-134 of the DEIR Volume I.) Thus, the fact that the USFWS and federal agencies must refer to the older 2002 critical habitat in conducting <u>their</u> activities (which does not take into consideration all of the additional information known about the SBKR and its habitat developed since 2002) has no bearing on calling into question the analysis and conclusion by the City of the Project's impact on the SBKR.

<u>Comment No. 10-26</u>

Also, the 2010 EIR failed to consider impacts to and include mitigation for cactus wrens and other migratory birds. The Project site provides habitat for the cactus wren. (**Attachment 4**, May 2011 powerpoint presentation by USFWS and Santa Ana Watershed Association regarding cactus wren habitat.) In the EIR prepared for the El Rancho Verde project in 1998, the City required the landscaping include "cholla cactus in order to afford opportunities for the San Diego cactus wren to re-establish nest(s)" on the Project site. (**Attachment 5**, excerpt of El Rancho Verde Statement of Overriding Considerations.) The 2010 EIR fails to include a similar

provision. Additionally, the San Diego cactus wren is considered a bird species of special concern by the California Department of Fish and Game. The 2010 EIR failed to analyze impacts to this species.

Response to Comment No. 10-26

The commentor indicates concerns about impacts to cactus wrens and other migratory birds. This matter is outside the scope of the RPDEIR. Please refer to Section 1.2 of this Final RPEIR for a discussion of the scope of the RPDEIR, the City's obligation to respond to comments outside the scope of the RPDEIR, and the standards for recirculation of a Draft EIR due to "significant new information." The commentor offers no "significant new information" with respect to cumulative impacts within the meaning of CEQA Section 21092.1 and CEQA Guidelines Section 15088.5. In any event, the issues mentioned in this comment were fully addressed in the original DEIR. (See Section 4.5 of the DEIR Volume I, specifically Mitigation Measure 5-5 therein which offers protection for nesting birds in accordance with the Migratory Bird Treaty Act, as well as the species compendium provided in the Biological Resources Assessment provided in Appendix III-D to the DEIR Volume III (Part 1)).

Comment No. 10-27

Further, Save Lytle Creek Wash requests clarification regarding mitigation habitat. The County's approval of the Rosena Ranch (Lytle Creek North) project required the project proponent to dedicate 52.2 acres of land owned by the proponent to the south and southwest of the project boundary. The project proponent for the Rosena Ranch was an entity closely related to the proponent for this Project and the land for this Project is located to the south and southwest of the Rosena Ranch site. Where is mitigation habitat for the Rosena Ranch project located in relation to this proposed Project? Does the EIR count the Rosena Ranch mitigation habitat as mitigation habitat for the proposed Project as well? Is any of the land proposed for development in the Project part of the area required to be dedicated as mitigation for the Rosena Ranch project?

Response to Comment No. 10-27

The commentor indicates concerns about habitat mitigation for the Rosena Ranch project. This matter is outside the scope of the RPDEIR. Please refer to Section 1.2 of this Final RPEIR for a discussion of the scope of the RPDEIR, the City's obligation to respond to comments outside the scope of the RPDEIR, and the standards for recirculation of a Draft EIR due to "significant new information." The commentor offers no "significant new information" with respect to cumulative impacts within the meaning of CEQA Section 21092.1 and CEQA Guidelines Section 15088.5. However, for informational purposes, the 52.2-acre mitigation area associated with the Rosena Ranch (Lytle Creek North) project is located within Neighborhood III of the Project site and is included in the minimum 829.2 acres that would be preserved as natural (undisturbed) open space under the Project, but this area is <u>not</u> counted as mitigation for the Project. Please refer to Section 2.2 of this Final RPEIR for a correction to the original DEIR regarding this matter.

Comment No. 10-28

Conclusion

Thank you for your consideration of these comments. We look forward to reviewing the revisions to this draft environmental impact report.

Response to Comment No. 10-28

This comment is noted for the record and will be forwarded to the decision makers.

Comment Letter No. 10 (continued)

Save Lytle Creek Wash April 3, 2012 Comment Letter

ATTACHMENT 1:

Developers Research Memorandum

Comment No. 10-29

At your request, Developers Research reviewed the *Financial Feasibility Analysis of the Lytle Creek Ranch Specific Plan Project and Alternatives to the Project Discussed in the Lytle Creek Ranch Specific Plan EIR* ("RDEIR") by CBRE Consulting dated December 2011. The purpose of this report is to compare various alternatives for development of this 2,447 acre parcel.

The Financial Feasibility Analysis states that it contains information provided to CBRE Consulting by: CBRE Valuation and Advisory Services, the Otte Berkeley Group, HM-2, Marketing Development and Reeb Development Consulting. These independent reports have been combined by CBRE Consulting to support the basis of their findings. This information has not been made available as part of the RDEIR or its appendices.

On Page iii of the letter from CBRE Valuation and Advisory Services to CBRE Consulting, there is a disclaimer titled Extraordinary Assumptions and Hypothetical Conditions. This disclaimer states,

> *"This is a Restricted Appraisal Report that is intended to comply with reporting requirements set forth under Standards Rule 2–2 (c) of the Uniform Standards of Professional Appraisal Practice for a Restricted Appraisal Report. As such, it does not include discussions of the data, reasoning, and analysis that we used in the appraisal process to develop the appraiser's opinion of value. Supporting documentation concerning the data, reasoning, and analyses is retained in the appraiser's file. The information contained in this report is specific to the needs of the client and for the intended use stated in this report. The appraiser is not responsible for unauthorized use of this report.*

Developers Research has pointed out several areas in our accompanying discussion where CBRE Consulting appears to have internal inconsistencies in their treatment of the data. However, as stated in the quotation above, supporting documentation has been withheld, largely precluding substantive critique of the conclusions reached in the document.

Response to Comment No. 10-29

The introductory comment is noted for the record and will be forwarded to the decision makers prior to any action on the Project. Specific comments regarding the *Financial Feasibility Analysis of the Lytle Creek Ranch Specific Plan Project and Alternatives to the Project Discussed in the Lytle Creek Ranch Specific Plan EIR*, December 2011 (Updated Financial Feasibility Analysis), contained in Appendix V-E of the RPDEIR, are provided and responded to below.

The commentor states that certain independent reports provided to CBRE were not made available. This is incorrect. In all forms of access to the RPDEIR (hard copy, CD, and Internet access from a public link on the City's website), the Updated Financial Feasibility Analysis (RPDEIR Appendix V-E) contained all eight of its appendices (A-1 through A-6, B, and C) which included CBRE Valuation and Advisory Services Restricted Use Appraisal Report (Appendix B), the Otte-Berkeley Groupe Infrastructure Cost Estimates (Appendix A-6), and the HM2 Marketing Development Report: Lytle Creek Ranch Analysis: The Impact of Amenities on Home Values, December 2011 (Appendix C). It appears that the commentor had at least one of the Updated

Financial Feasibility Analysis appendices, given the reference citation to and quote from page iii of the CBRE Valuation and Advisory Services Restricted Use Appraisal Report included in the commentor's report.

In addition, the reference in the comment to the "RDEIR" is incorrect and should reference the RPDEIR, as discussed further in Section 1.2 of this Final RPEIR. The RPDEIR contains select revised portions of the original DEIR, in response to the Court Ruling, that replace only those corresponding portions of and/or sections in the DEIR. The RPDEIR does not replace the original DEIR in full, nor does it supersede any portions of the original DEIR that were not specifically supplemented, updated, or otherwise revised in the RPDEIR. Comments regarding the original DEIR are outside the scope of the RPDEIR. Please refer to Section 1.2 of this Final RPEIR for a discussion of the scope of the RPDEIR, the City's obligation to respond to comments outside the scope of the RPDEIR, and the standards for recirculation of a Draft EIR due to "significant new information."

Comment No. 10-30

The report contains financial analyses for 5 project alternatives including:

1. Proposed Project
2. No Project / Existing Zoning
3. Avoidance of SBKR / LBV-Occupied Habitat
4. Avoidance of Riversidian Alluvium Fan Sage Scrub (RAFSS)
5. Avoidance of the Jurisdictional Waters

Response to Comment No. 10-30

This comment correctly indicates that the Project and proposed alternatives to the Project are evaluated in the Updated Financial Feasibility Analysis, included as Appendix V-E of the RPDEIR. This comment is noted for the record and will be forwarded to the decision makers.

Comment No. 10-31

Financial Feasibility

The report makes an argument in favor of the proposed specific plan based on financial feasibility stating:

> *"In order to obtain financing commitments for these high-risk projects, commercial developers must be able to demonstrate potential return on total capital investment of 15 to 25 percent to offset the significant risks related to entitlements, construction cost overruns, interest rate changes, capitalization rate changes and ups and downs in the local, national and international economy during the 15 to 20 year construction period that will affect future commercial and residential land prices."*

Figure 1 below is a summary of the IRR conclusions for each project shown in the CBRE Consulting report.

Figure 1

Project (Millions)	Gross Revenues	Net Dev. Costs	Developer Cash Flow	Developer IRR
Proposed Project	$654	$340	$314	15.2%
No Project/Existing	$234	$231	$3	0.3%
Avoidance of SBKR	$389	316	$74	3.8%
Avoidance of Riversidian Alluvium Fan Sage Scrub (RAFSS)	$396	$306	$89	7.1%
Avoidance of Jurisdictional Waters	$311	$253	$58	5.3%

Based on the table reproduced above (Figure 1), CBRE concluded that the only feasible project for the 2,447 acre parcel is the proposed specific plan as it is the only project with an IRR greater than 15%.

Developers Research reviewed the various cash flows that produced the IRR figures listed above and compiled comments and questions on various aspects of the document. These issues are discussed below.

Response to Comment No. 10-31

This comment correctly summarizes information provided in the Updated Financial Feasibility Analysis, included as Appendix V-E of the RPDEIR. This comment is noted for the record and will be forwarded to the decision makers.

Comment No. 10-32

Commercial Revenue

The Proposed Project cash flow shows a total of $38.1 Million in revenues from Retail Town Center on a total of 849,000 sf. This equates to an average sales price of $44.81/sf. For sake of comparison, the SBKR Avoidance alternative shows $23.3 Million in Retail Town Center sales on a total of 820,000 sf. This equates to an average sales price of $28.41/sf.

Decreasing the Proposed Project's Commercial sales price to that of the other projects reduces the IRR by approximately 0.25% to 14.95%

Other alternatives commercial sales prices are similarly deflated relative to the Proposed Project. For comparison, a $44.81/sf Commercial sales price equates to approximately 150% of the prices for comparable land currently achieved in Irvine, CA, which is a higher priced market than Rialto, CA.

The RDEIR contains no explanation why the Commercial sales price per square foot increases dramatically only for the Proposed Project.

Response to Comment No. 10-32

As shown in Figures 2, 6, and 8, and on page 22 of the Updated Financial Feasibility Analysis, the Project contains more housing units, higher-value units, and more amenities within the town center than the alternatives. As a result of these differences, CBRE assumed a market value of $30 per square foot (psf) of commercial building area (equal to $6 to $7 psf of land area) for Project and $20 per building foot for alternatives. Thus there was no improper "deflation" as to the alternatives, but rather a reasoned evaluation based on units, type of units, and amenities.

This comment is noted for the record and will be forwarded to the decision makers.

Comment No. 10-33

Commercial Revenue Inflation Rate

The Proposed Project has an anomalous Commercial Revenue Inflation Rate, which starts at 100% and increases to 170.24% by 2029. All other projects start at 100% and increase to 155.97% by 2029.

Decreasing the Commercial Revenue Inflation Rate to that applied to the Project alternatives reduces the Proposed Project IRR by approximately 0.1%.

The RDEIR contains no explanation why the CBRE Commercial Revenue Inflation Rate is 3% for the Proposed Project while it is 2.5% for all other projects.

Response to Comment No. 10-33

As noted above in Response to Comment No. 10-32, the Project contains more housing units, higher-value units, and more amenities within the town center than the alternatives. Based on these differences, and on CBRE's vast experience assessing the increase in land values in master planned communities throughout California, CBRE utilized a 0.5 percent annual appreciation rate premium for the Project over the alternatives to reflect the higher-density and higher-income households, as compared to the alternatives. In any event, even if the Updated Financial Feasibility Analysis used the same inflation rate for the alternatives as for the Project, the change in IRR would be minimal, and the resulting IRRs for each alternative would remain well below 15 percent and, thus, be infeasible. This comment is noted for the record and will be forwarded to the decision makers.

Comment No. 10-34

Commerical [sic] Revenue Conclusions

It appears the commercial revenues between the Proposed Project and Project Alternatives have not been given equal treatment in the CBRE Analysis. The result of this unequal treatment is a total of approximately 0.35% in additional IRR being attributed to the Proposed Project.

With the Commercial Revenues being treated equally between projects, the Proposed Project would have an IRR of 14.85%, below the investment threshold defined by CBRE.

Response to Comment No. 10-34

The comment suggests that the commercial revenues between the Project and the alternatives should be treated equally. However, there is no reason to expect commercial land values to be equal among the alternatives. As noted above in Response to Comment No. 10-32, the Project contains more housing units, higher-value units, and more amenities within the town center than the alternatives. Moreover, hypothetically, even if the alternatives were given the same values and appreciation as Project, the change in IRR would be minimal (i.e., the IRR would increase by no more than 0.2 to 0.3 percent), and the resulting IRRs for each alternative would remain well below 15 percent and, thus, be infeasible.

This comment is noted for the record and will be forwarded to the decision makers.

Comment No. 10-35

Inconsistent Unit Counts

Developers Research compared the unit count for the Proposed Project to the detail provided in *Volume 1 Draft Environmental Impact Report State Clearinghouse No. 2009061113 Lytle Creek Specific Plan* and there is an inconsistency in Neighborhood III on Page 2-36. The Specific Plan states that Neighborhood III has 3,329 units but summing the individual line items yields 3,203 units. This arithmetic error is pervasive throughout the documents and into the CBRE report.

If the detail in the Specific Plan is correct, the Proposed Project should have 8,281 units instead of 8,407 units. For the sake of this memorandum, Developer's Research has assumed that this was an arithmetic error and the Proposed Project should have 8,281 units.

The obvious result of this error is that additional revenue is attributed to the Proposed Project. $3.5 million in Blue Top value or $7.3 million in Finished Lot value has been added because of these 126 extra units.

The addition of 126 units to the Proposed Project increases the IRR by approximately 0.2%.

Response to Comment No. 10-35

The comment claims that there is an inconsistency in the unit count for the Project. That is incorrect. There is no inconsistency in unit count. The Project includes the development of 8,407 residential dwelling units, which is consistently set forth throughout the RPDEIR, the original DEIR, and the FEIR, as well as the Lytle Creek Ranch Specific Plan (LCRSP). (See, for example, RPDEIR Volume V (Part 1), pages 1-2, 1-4, 1-6, 2-105; DEIR Volume I, pages 2-1, 2-15, 2-17, 4.1-132, 4.9-87; FEIR Volume IV, pages 3-30, 3-88, 3-102; and LCRSP, pages 1-11, 3-2, 3-5.) The DEIR table to which the commentor refers contains an inadvertent omission of 126 units. Indeed, the Dwelling Units column of that table should show Planning Area (PA) 30 with 126 dwelling units and PA 31 with 499 units. This inadvertent error has been corrected in Section 2.2 of this Final RPEIR. As such, it is incorrect to assume an arithmetic error in either the DEIR or the Updated Financial Feasibility Analysis regarding the number of units. As such,

all of the calculations contained in this commentor's report based on 8,281 units for the Project, instead of 8,407 units, are in error.

Comment No. 10-36

Backbone Improvement Costs

Table 2 on page 20 of the appraisal titled, "Summary Comparison of Development Cost" includes estimated backbone costs prepared by the Otte-Berkeley Group. This table (Figure 2) includes backbone cost estimates for the various alternatives in the project, which may be summarized as follows:

Figure 2

Project	Backbone Costs	Units	Cost per Unit	Residential Acres	Cost per Residential Acre
Proposed Project	$216,048,588	8,281	$25,700	940	$229,800
No Project/Existing	$132,915,205	2,215	$60,000	940	$141,400
Avoidance of Riversidian Alluvium Fan Sage Scrub (RAFSS)	$137,128,640	4,873	$28,100	566	$242,300
Avoidance of Listed Species	$198,179,345	7,484	$26,500	841	$235,000
Waters of US and State	$191,776,660	5,846	$32,800	636	$301,500

Developers Research has extensive experience preparing budgets for large-scale developments such as Lytle Creek and has reviewed over 8,000 different projects; however, we only were provided with specific plan level documents that did not indicate the type and size of specific improvements. As a result, analysis of these costs is not possible with the data provided. Our standard operating procedure for reviewing costs is to review maps and documents that indicate the specific quantity and specific location of each improvement. At a summary level, it appears that the Backbone Costs for the Proposed Project are too low and the alternative projects are too high; however, it is difficult to make an informed opinion without the detailed cost assumptions and review of a preliminary improvement plan. Generally, estimates of development costs before detailed drawings are made on a per-unit or acre basis, and the costs provided by Otte-Berkeley group are not linearly related to either acres or units.

Developers Research would like the opportunity to review the Otte-Berkeley Group's detailed cost to make an informed opinion on the reasonableness of these Backbone costs.

Response to Comment No. 10-36

The summary table correctly sets forth the Otte-Berkeley Groupe's backbone costs among other numbers. The commentor provides no basis to call into question the accuracy of the backbone costs, nor is there any. Otte-Berkeley Groupe is an expert in preparing project budgets and is the project manager for this Project. (See Appendix B to the Updated Financial Feasibility Analysis, provided as Appendix V-E to the RPDEIR Volume V (Part 2).) CBRE appropriately used Otte-Berkeley Groupe's costs in their analysis.

For informational purposes, the Backbone Improvement Costs are inclusive of the major improvements for the Project in order to bring to a blue top condition. (See also Response to Comment No. 10-37 regarding blue top versus finished lot definition and valuation.) The Backbone Improvement Costs for the Project and each of the alternatives were created in the following manner. A separate and distinct Backbone Improvement Cost budget was developed for each of the four Neighborhoods as defined by the boundaries set forth in the LCRSP. Using the exhibits in the LCRSP, the DEIR and other available information, the major improvements were identified within each neighborhood as listed below:

List of Major Improvements:

Neighborhood I

- Grading
- Storm Drain Facilities
- Other misc off-sites[22]

Neighborhood II

- Grading
- Riverside Avenue Improvements
- Spine Road improvements
- Golf Course improvements
- Club House
- Revetment
- Rec. Center
- Country Club Drive
- Exit road
- Other misc off-sites

Neighborhood III

- Grading
- Riverside/Sierra Avenue Improvements
- Spine/Entry Road Improvements
- Grand Paseo
- Revetment
- Rec. Center/Park
- Other misc off-sites

Neighborhood IV

- Grading
- Revetment/Storm Drain Facilities
- Lytle Creek Road Improvements
- Other misc off-sites

[22] The other off-site budget was used for miscellaneous items that didn't warrant a full and complete budget, such as the traffic Mitigation fees.

Within each of these listed major improvements, a budget that considered all the costs associated with those improvements was created. That line item list is provided below:

Line Items Within Each Budget:

- Planning
- Printing/Delivery
- Civil Engineering
- Soils Engineering
- Traffic Engineering
- Utility Consultant
- Landscape Architect
- Special Consultants
- Legal
- Fees/Bonds/Permits
- Impact Fees
- Grading
- Removals/Relos
- Maint. Special Const.
- Retention/Detent Basins
- Temp. Erosion Control
- Sewer System
- Water System
- Storm Dr./ Revetment System
- Street Improvements
- Dry Utilities
- Perimeter/Ret. Walls
- Special Amenities
- Entry Features
- Parks
- Landscaping
- Contingency

The individual line items were created by using the information available in the LCRSP and DEIR, as well as other available information. For example, utilizing the Riverside Avenue budget as an example, street section quantities were calculated by scaling off the linear length of the street and multiplying it by the cross section as detailed in the LCRSP. Hence, various quantities including, but not limited to, ac/base, curb/gutter, sidewalk, rough grade, cross-gutters, medians, etc. were calculated. The costs per line item were then calculated by multiplying the estimated quantity by the unit price (the unit price was obtained via vendors and/or from available recent contracts). Additionally, other improvements associated with the construction of Riverside Avenue, such as sewer, water, dry utilities, perimeter walls, entry features, landscaping, etc., would be similarly budgeted for and included within the Riverside Avenue improvement budget. Separate associated soft costs, such as engineering, surveying, soils engineering, landscape architect, fees, etc., are also similarly included within Riverside Avenue budget. The summation of all these major improvement budgets is what was included in the development costs for each of the Project and the alternatives.

The comment suggests that major improvement costs are linearly related. Such an assumption is incorrect because most of these improvements (i.e., revetment, major street improvements, golf course, etc.) need to be installed, regardless of the number of developable acres and/or number of units. Therefore, the less developable the acreage/units, the higher the per-unit costs will typically be when addressing off-site costs. Per-unit costs and per-acre costs are typically more consistent and applicable with each other when referring to on-site costs, as the local improvements are typically consistent with each other than are the off-site costs.

In addition, the commentor appears to take issue with the cost items for the Project and the alternatives. Such concern is irrelevant, as minor variations in costing will have minimal to no effect on the calculation of the Project's and the alternatives' internal rates of return (IRR). As such, for the purpose of generating IRRs, cost approximations that fall within the range of reason, as determined by CBRE, the expert retained to evaluate financial feasibility, are more than acceptable. Moreover, the commentor fails to demonstrate any error in the cost items considered or used in the IRR calculation and, instead, makes incorrect assumptions and other mathematical errors.

Comment No. 10-37

Impact Fees

The Otte-Berkeley Group included Impact Fees for the Proposed Project of approximately $21.3 million. Developers Research contacted the appropriate public agencies to obtain their impact fee schedules and our estimate of the Impact Fees for the proposed project is approximately $175 million. Figure 3 is the schedule of the impact fees that we obtained.

Figure 3

Agency	Unit	Description	Amount
Rialto Water Connection Fee 5/8 - 3/4 Inch - Displacement	DU	Detached	$5,100.00
Rialto Wastewater Collection Fee	DU	Detached	$1,200.00
Rialto Wastewater Connection Fee	DU	Detached	$2,170.00
Rialto General Facilities Fee	DU	Detached	$247.00
Rialto Open Space Fee	DU	Detached	$606.82
Rialto Open Space Fee	DU	Attached	$137.81
Rialto Traffic Fee	DU	Detached	$2,775.77
Rialto Traffic Fee	DU	Attached	$1,923.03
Rialto Park Fee	DU	Detached	$2,102.32
Rialto Park Fee	DU	Attached	$1,977.97
Rialto Library Fee	DU	Detached	$65.96
Rialto Library Fee	DU	Attached	$51.51
Rialto Law Enforcement Fee	DU	Detached	$422.00
Rialto Law Enforcement Fee	DU	Attached	$988.00
Rialto Fire Facilities Fee	DU	Detached	$390.00
Rialto Fire Facilities Fee	DU	Attached	$413.00
Rialto Storm Drainage Fee	DU	Detached	$3,051.00
Rialto Storm Drainage Fee	DU	Attached	$769.00
Rialto Unified School District	SF		$3.62
Total fees for 8,281 units			$175,500,000

When we see large discrepancies such as this one in impact fees, it usually relates to the definition of the product being delivered (Blue Topped lots vs. Finished Lots). Most often, Impact Fees, although paid at the purchase of building permits, are included in the definition of a finished lot. Some firms will only include the Storm Drainage fees if providing Blue Topped lots, but if this were the case the total should be $18.5 million. Based upon the information provided to us, we are unable to determine which of the impact fees included in the Otte Berkeley Group budget of $21.3 million are included in the list above.

Developers Research would like the opportunity to review the Otte-Berkeley Group's fee schedule to make an informed opinion on the reasonableness of these costs.

Response to Comment No. 10-37

The comment states that impact fees are calculated differently depending on whether one is looking at Finished Lot values versus Blue Top Lot values, the difference being to what impact fees are assessed. Here, as the comment appears to recognize, impact fees were evaluated under Blue Top Lot values, not Finished Lot values. The following explains the difference between Blue Top Lots and Finished Lots:

- **Finished Lot**—A parcel which has legal entitlements whose physical characteristics are a finished, graded level pad with infrastructure contiguous to each individual lot, asphalt paved road, and the necessary utilities. This term assumes the payment of all applicable

development fees with the exception of building permit and other fees due at the issuance or a building permit.

- **Blue Top Lot**—A parcel which has legal entitlements whose physical characteristics are graded pads with streets cut in and utilities to the perimeter property line.[23]

(See, for example, California Debt and Investment Advisory Commissions, *Recommended Practices in the Appraisal of Real Estate for Land-Secured Financings*, July 2004, http://www.treasurer.ca.gov/cdiac/reports/recmndPracticeR-E.pdf.)

The commentor appears unclear as to how impact fees were determined. In the Otte-Berkeley Groupe analysis, the blue top lots included the traffic fees. All other impact fees are considered in the finished lot costs. As set forth below, when traffic impact fees are calculated based on accurate unit counts, the total impact fee is $21.3 million, not $18.5 million as the comment states.

Proposed Project Blue Top Impact Fees—Traffic Fees Only

Unit Type and Location	Units	Unit Cost	
Neighborhood III detached units	1,550	2,776	$4,302,800.00
Neighborhood III attached units	1,779	1,923	$3,421,017.00
Neighborhood II detached units	1,656	2,776	$4,597,056.00
Neighborhood II attached units	1,275	1,923	$2,451,825.00
Neighborhood I detached units	709	2,776	$1,968,184.00
Neighborhood I attached units	569	1,923	$1,094,187.00
Neighborhood IV attached units	869	1,923	$1,671,087.00
Proposed Project Traffic Mitigation Fee (Fair Share)	1	1,800,884	$1,800,884.00
Total			**$21,307,040.00**
Summary	**Units**	**Unit Cost**	
Detached units	3,915	2,776	$10,868,040.00
Attached units	4,492	1,923	$8,638,116.00
sub total	8,407		$19,506,156.00
Traffic Mitigation Fee (Fair Share)	1	1,800,884	$1,800,884.00
Total			**$21,307,040.00**

Moreover, the comment appears to suggest that the storm drain impact fees should have been included in the blue top impact fees considered. However, the City and the Applicant are in negotiations to enter into a Development Agreement for the property, which will be considered along with Project. As proposed, the Development Agreement indicates that the site "will treat all storm water within the project boundaries without discharge into the City's existing storm drain system. Accordingly, the owners shall be exempt from all storm drain fees…" In addition, the commentor is referred to Response to Comment No. 10-36.

[23] Thus Blue Top Lots include very limited impact fees—just streets and utilities.

Comment No. 10-38

Representative Comments on Costs

In Table 1 on Page 19 titled "Development Cost for Project by Phase" there are high-level budgets for the various projects. Without having the detailed backup prepared by the Otte-Berkeley Group, we are unable to compare "apples to apples". However, we can comment on the reasonableness of their estimate at a summary level. We have extracted certain line items from this budget, which are shown below.

[Figure 4]

Extracted Cost Estimate Items				
Description	**Proposed Project**	**No Project Alternative**	**Avoidance of RAFSS Area**	**Avoidance SB Kangaroo Rat**
Units	8,281	2,215	4,872	7,485
Civil Engineering	$5,427,000	$5,020,000	$4,692,000	$5,751,000
Per Unit	*$655*	*$2,266*	*$963*	*$768*
Impact Fees	$21,325,040	$7,030,868	$11,224,318	$18,673,565
Per Unit	*$2,575*	*$3,174*	*$2,304*	*$2,495*
Grading	$46,043,229	$30,761,308	$21,988,080	$41,420,255
Per Unit	*$5,560*	*$13,888*	*$4,513*	*$5,534*
Storm Drain / Levee	$48,032,091	$38,653,295	$35,505,705	$49,630,691
Per Unit	*$5,800*	*$17,451*	*$7,288*	*$6,631*
Special Amenities	$30,704,125	$14,574,125	$8,500,000	$23,074,125
Per Unit	*$3,708*	*$6,580*	*$1,745*	*$3,083*
Parks	$15,173,750	$1,007,500	$15,173,750	$14,573,750
Per Unit	*$1,832*	*$455*	*$3,114*	*$1,947*

Response to Comment No. 10-38

Figure 4 sets forth certain of the development costs contained Table 2 of the Updated Financial Feasibility Analysis, though not with 100 percent accuracy. However, Table 2 does not contain "per unit" costs. As noted in Response to Comment No. 10-35, the Project would include 8,407 units, not 8,281 units, and, therefore, the per-unit costs provided in the comment are inaccurate. In addition, refer to Response to Comment No. 10-36, above.

This comment is noted for the record and will be forwarded to the decision makers.

Comment No. 10-39

Civil Engineering Costs:

In the table above (Figure 4), the civil engineering budget per dwelling unit varies dramatically. They range from $655 per unit for the Proposed Project to as much as $2,266 for the No Project Alternative, a variance of more than 3 times. In our experience, civil engineering costs for

projects over 2,000 units are usually estimated at approximately $2,000 per unit. The scope of work for this figure would include preparation of all tentative tract maps and subsequent improvement drawings. Our database indicates that when the project exceeds approximately 2,000 units, the cost for providing the civil engineering services is directly proportional to the number of lots included in the project.

Response to Comment No. 10-39

The comment notes that the civil engineering costs vary between the Project and the alternatives. Recognizing that there are significant differences between the Project and the alternatives, as well as among the alternatives themselves, such variation is expected. However, as discussed above, with some minor variation, the majority of the major improvements (i.e., revetment, major street improvements, spine roads, etc.) would need to be installed for the Project, as well as the alternatives, and those engineering costs are similar. That is why (again, with some minor variations considered, due to their differences) the total civil engineering costs are of the same magnitude, regardless of the unit count. The range in the per-unit costs is largely a factor of the amount of dwelling units that the costs are able to be allocated against within these various alternatives. As noted in Response to Comment No. 10-35, above, the Project would include 8,407 units, not 8,281 units, and, therefore, the per-unit costs provided by the commentor are inaccurate. In addition, refer to Response to Comment No. 10-36, above.

Comment No. 10-40

Grading Costs:

The Grading line item includes a cost of $46 million for the Proposed Project and over $41 million for the avoidance of the San Bernardino Kangaroo Rat Alternative (SBKR). In reviewing the disturbed acres, the SBKR alternative disturbs a total of 937 acres whereas the proposed project disturbs approximately 1,540 acres. Although we have not been provided with the data supporting these cost estimates, exactly how a 40% reduction in disturbed area would only yield a 10% reduction in grading costs is not explained; these costs are usually, on average, linearly related to disturbed acres.

Response to Comment No. 10-40

The comment appears to suggest that the grading cost line item on Table 2 of the Updated Financial Feasibility Analysis, provided by the Otte-Berkeley Groupe, is incorrect. It is the commentor, however, that is incorrect in asserting that Habitat Avoidance Alternative 1 would disturb a total of 937 acres. It appears that the commentor is not considering all of the grading costs for the Project and the alternatives. Specifically, it appears the commentor failed to consider schools and the open-space recreation, joint use, and roads when referring to the developable acreage for Habitat Avoidance Alternative 1, but included it in the Project, as set forth in the table below. As shown, the acreage percentage and the grading budget percentage are very close. The small differences are due to the ancillary items associated with the grading (engineering, surveying, temp erosion control etc.). The following table provides further specificity:

Disturbed Acreage—Grading

	Project	SBKR Alternative
Single-Family Residential–1	263.2	259.9
Single-Family Residential–2	304.5	245.9
Single-Family Residential–3	220	221.9
Multi-Family Residential	106.3	73
High-Density Residential	45.4	40.9
Village Commercial	95.6	96.1
Elementary School	10	0
Middle School	14	14
Open Space/Recreation	328.8	301.4
Open Space/Joint Use	17	12
Roadways	134.5	111.2
Total	1,539.3	1,376.3
Acreage %		**89.41%**
Grading Budget %		**89.96%**

As noted above in Response to Comment No. 10-35, the Project would include 8,407 units, not 8,281 units, and, therefore, the per-unit costs provided by the commentor are inaccurate. In addition, the commentor is referred to Response to Comment No. 10-36, above.

Comment No. 10-41

Levee Costs:

The levee is a substantial line item in each of the project alternatives (greater than $35 million). Without having any preliminary design information, we cannot form an informed opinion on the reasonableness of these costs. Generally, levees such as the one proposed at Lytle Creek are intended to raise the proposed development above the 100 year flood level. Developers Research reviewed FEMA (Federal Emergency Management Agency) Map 06071C7920H, which depicts the 100 year flood zone for the Lytle Creek area and it appears not all of the subject property is within the 100 year flood zone. Therefore, it is possible if the development envelope is limited to areas outside of the 100 year flood zone; this cost could potentially be avoided. While we are not licensed civil engineers or engineering geologists, we recommend that a formal study be conducted to assess a different development option, one which avoids building the levee.

Large, up-front backbone costs such as the levee proposed at Lytle Creek drives down the IRR of smaller projects because the major infrastructure cost is distributed over a smaller number of units. Also, the up-front nature of the cost requires the developer to borrow more money increasing financing costs and extends revenue events until later in the development timeline. All of these factors negatively affect a project's IRR.

We believe that not all potentially feasible development options have been considered. It is possible that a smaller project which specifically avoids the levee costs would provide the developer with an IRR of over 15%.

Response to Comment No. 10-41

The comment suggests that the cost of the levee could be avoided if the proposed development were to stay outside the FEMA floodzone. However, the flood control facility for the Project is not a levee, but is a revetment designed to protect against erosion because of the dynamic nature of the floodplain, not due to a flooding condition or water surface elevation. A leveed condition would indicate that the water level in the creek is higher than the development, but this is not the case, since the existing floodplain is limited in extent by the existing U.S. Army Corps of Engineers' rock groin structures that have been in place since the 1960s, and the revetment would not extend beyond these structures. Therefore, due to the dynamic nature of this floodplain, a revetment would be needed for the Project, as well as the Habitat Avoidance Alternatives. The commentor only speculates that there could be other options that would either avoid the construction of the levee or avoid the upfront infrastructure cost and, thus, manipulate the IRR. However, the Updated Financial Feasibility Analysis correctly analyzed the Project and alternatives as designed with revetment infrastructure costs in the determination of IRRs. The commentor's assessment of the civil and geological engineering of the Project design is inaccurate.

Comment No. 10-42

Special Amenities:

The Special Amenities are a particularly important aspect of the Financial Feasibility analysis because they affect both development costs and revenues. Below is a table reproduced from the report that is based upon the marketing report prepared by HM2 Marketing Development.

Figure 5

Project	Impact of Amenities on Home Prices
Proposed Project	+8.0%
Avoidance of Jurisdictional Waters	+4.9%
Avoidance of RAFSS Areas	+2.2%
Avoidance of SBKR / LBV Habitat	-6.0%
No Project/Existing Zoning	-8.4%

This table (Figure 5) shows the percentage increase (or decrease) in home prices based on amenities included (or not included) in the various development alternatives. This becomes extremely significant when the size of the project is as large as Lytle Creek. Referring to Figure 1 above, the Proposed Project shows $654 Million in Finished Lot Revenues and Figure 5 shows an 18.4% swing in home prices (between the Existing Zoning and Proposed Project).

This potentially provides a revenue swing of $120 million.

Response to Comment No. 10-42

The commentor refers to a "revenue swing" between the Project and the alternatives. Projected gross revenues of the Project and the alternatives set forth in the Updated Financial Feasibility Analysis are a function of the number of homes and home pricing, which is tied to the varied community amenity levels associated with the Project and the alternatives. As such, there is a large swing in gross revenues among the diverse products offered under the Project and the alternatives; this is to be expected, given the differences between the Project, the alternatives, and among the alternatives themselves. However, the comment is incorrect in stating that there is an 18.4 percent difference in the impact of amenities on home prices between the No Project/Existing Zoning Alternative and the Project; that number is actually 16.4 percent.

In addition, as the *Lytle Creek Ranch Analysis: The Impact of Amenities On Home Values As Relates to the Proposed Lytle Creek Ranch Specific Plan and EIR Alternatives*, December 2011 (Amenities Report), provided as an appendix to the Updated Financial Feasibility Analysis, which is included as Appendix V-E to the RPDEIR, found:

> In general, the more amenitized the community, the higher the value of the homes within the community, and vice-versa. Broadly speaking, homes in communities with the lowest" level or mix of amenities had lower values, homes in communities with a "medium" level or mix of amenities had values more towards the middle of the market, and homes with a "high" level or mix of amenities had higher values. Also, homes located within a non-master planned community setting have a value discount associated with them.

Comment No. 10-43

Knowing the importance of the Amenity score applied by HM2, we researched this issue further. The Otte-Berkeley Group included special amenity costs for all of the project alternatives that range from $30.7 million for the proposed Project to $8.5 million for the RAFSS avoidance program as shown on the Extracted Cost Estimate Table below (Figure 6). Again, the lack of detail makes it impossible to make anything more than summary comments; however, we calculated per unit costs budgeted by Otte-Berkeley Group for amenities and other improvements that HM2 valued highly in their analysis.

Figure 6

Budget Items that will affect Home Prices (according to HM2)				
Description	**Proposed Project**	**No Project Alternative**	**Avoidance of RAFSS Area**	**Avoidance SB Kangaroo Rat**
Units	8,281	2,215	4,872	7,485
Premium Entry	$780,000	$400,000	$375,000	$780,000
Per Unit	***$94***	***$181***	***$77***	***$104***
Perimeter Upgrade	$3,714,500	$3,199,000	$3,118,000	$3,714,500
Per Unit	***$449***	***$1,444***	***$640***	***$496***
Enhanced Landscaping	$6,129,205	$3,530,305	$5,969,655	$3,648,408
Per Unit	***$740***	***$1,593***	***$1,225***	***$487***
Streets With Medians and Parkways	$7,668,328	$7,114,793	$7,940,642	$7,339,048
Per Unit	***$926***	***$3,212***	***$1,629***	***$980***
Parks	$15,173,750	$1,007,500	$15,173,750	$14,573,750
Per Unit	***$1,832***	***$455***	***$3,114***	***$1,947***
Special Amenities	$30,704,125	$14,574,125	$8,500,000	$23,074,125
Per Unit	***$3,707***	***$6,579***	***$1,744***	***$3,083***

Reviewing the table above (Figure 6), many of the gross line items are higher in the Proposed Project; however, many of the *per unit costs are lower*, oftentimes substantially lower. We are therefore unsure why HM2 assigned some of the amenity values that they did (pp. 24-33 HM2 Report).

Response to Comment No. 10-43

The commentor questions why certain amenity values were assigned in the Amenities Report. HM2's analysis of the value added to homes in a master planned community based on varying levels of community amenities was made based on the actual observed home market values attributable to different amenity levels and was not based on the cost to provide those amenities. (See Amenities Report, Exhibits I-3 and I-4, provided in Appendix V-E in RPDEIR Volume V (Part 2).)

The actual sale price of homes is the final arbiter of the value enhancement potential of any given community amenity, not what the cost was to provide that amenity. Therefore, using cost as a basis for determining home value, and particularly applying a per-unit cost in the manner of suggested by the commentor, is not a necessary approach to determining the relative value-enhancing potential of amenities, particularly in an area such as the Rialto/Fontana market, where there are many examples of master plans with different amenity levels that can be observed to determine the actual market-based value-enhancing capabilities of master plan

amenities. (See Amenities Report, pages 34 to 40, provided in Appendix V-E in RPDEIR Volume V (Part 2).)

In determining the relative amenity rankings for each master plan, information on the amenities offered in each master plan were compiled, and the amenities were ranked relative to one another. (See Amenities Report, Exhibits I-3 to I-5, provided in Appendix V-E in RPDEIR Volume V (Part 2).) Typically, communities that had more extensive amenities received higher rankings than communities with less extensive amenities (i.e., a larger clubhouse would typically rank higher than a smaller clubhouse, a larger park would rank higher than a smaller park, etc.). Profiles were created for each master plan based on actual existing amenities, and each of the eight master plans evaluated in the Rialto/Fontana market area were ranked in this manner. (See Amenities Report, pages 10 and 34 to 40, provided in Appendix V-E in RPDEIR Volume V (Part 2).) Based on the mix of amenities offered in each master plan, an overall average amenity score was determined for each master plan. (See Amenities Report, pages 12 and 13, provided in Appendix V-E in RPDEIR Volume V (Part 2).)

The comment also refers to pages 24 to 33 of the Amenities Report, which is contrary to the commentor's assertion that certain independent reports provided to CBRE were not made available to the public as appendices to the Updated Financial Feasibility Analysis in the RPDEIR. Refer to Response to Comment No. 10-29, above, for additional discussion.

Further, as noted above in Response to Comment No. 10-35, the Project would include 8,407 units, not 8,281 units, and, therefore, the per-unit costs provided by the commentor are inaccurate. In addition, refer to Response to Comment No. 10-36, above.

Comment No. 10-44

For example, the Proposed Project received 7 out of 9 for "Private Recreational Facilities" and the No Project Alternative received a 1.

Because the No Project Alternative has a higher per unit cost for Special Amenities (nearly double at $3,707 vs. $6,579) the data provided does not show where the $14,574,125 budgeted for Special Amenities is being spent.

As stated above, this is extremely significant because not only is a large cost introduced; the No Project Alternative seems to have been denied its revenue benefit from the Special Amenities included in the budget. Similarly, the Avoidance of SBKR plan also received 1 out of 9 in "Private Recreational Facilities" and has $23,074,125 budgeted for Special Amenities. These are only two examples, and, as shown in the table above, there are many other instances of the per unit prices being higher in the budgets but inexplicably these projects are receiving a revenue penalty rather than a benefit.

We believe the Marketing Scores should reflect *per unit* or *per acre* costs that are in the Otte-Berkeley budget because many development costs are estimated to be linearly related to unit count or disturbed acres. The data provided do not justify why the project alternatives do not receive equal treatment when it comes to the amenity scores applied. Reviewing the per unit costs in Figure 6 indicates that many of the Amenity scores in the project alternatives should be

higher. The Project Alternatives are therefore not receiving the revenue benefits associated with the amenities in their respective budgets.

There is a disconnect between the amounts budgeted by the Otte-Berkeley Group and the Amenity ratings received by the project alternatives.

Response to Comment No. 10-44

The commentor suggests that there is a "disconnect" between budgeted amounts and amenity ratings. This is not correct. The Project and alternatives were all compared relative to each other, based on the anticipated mix of land uses and community amenities indicated for each plan. The same criteria utilized in ranking amenities in existing master plans were used in ranking the alternatives. (See Amenities Report, Exhibits I-5 and I-6, provided in Appendix V-E in RPDEIR Volume V (Part 2).) In this manner, all the existing Rialto/Fontana master plans and all the alternatives were evaluated based on the same relative scale. (See Amenities Report, pages 12 to 13, provided in Appendix V-E in RPDEIR Volume V (Part 2).)

Since there are plenty of existing master plans in the Rialto/Fontana market area that can be observed to determine what the market is actually willing to pay for a house in communities with different levels of master plan community amenities (Amenities Report, pages 34 to 40), this is, by far, the preferred approach for determining the home value enhancement potential for the alternatives. The appraisal approach of determining market value based on cost is not the best approach for determining home values at Lytle Creek. In market areas, such as the Rialto/ Fontana area, where there are plenty of actual home sales comparables to evaluate, the sales-comparison approach is much more applicable. The cost approach to determining end-market value is most applicable in situations where there are no actual sales comparables to compare to, or if there are not appropriate sales comparables, neither of which is the case in this market area.

There is no disconnect between budgeted costs at Lytle Creek and the amenity ratings received by the alternatives. Amenity ratings were consistently applied across both existing master plans in the Rialto/Fontana market area and at Lytle Creek. The commentor's notion that higher per-unit costs should translate into higher amenity rankings for the alternatives and, therefore, higher home values, is not rooted in market realities, particularly since it is often the case that "superior" amenities can be offered in a community with more units, precisely because the community with more units allows the per-unit cost to be lower, bringing home prices to levels that more buyers could, therefore, afford to buy, which might not be the case if the cost of the same amenity were spread over fewer homes.

Comment No. 10-45

Master Planned Developments

The definition of a "true" master planned community is discussed on pg. 14 of the HM2 Marketing Report. They determined that two of the project alternatives did not fall into this category: Existing Zoning and SBKR Avoidance. This led HM2 to subtract 1.5 points from their Amenity Score. This subtraction is much more important than it seems on the surface. In reality, they have subtracted 1.5 ***average*** points which equates to ***6%*** decrease in sales value.

This amounts to a loss of $24.8 million in revenues, and, according to the definition of a master planned community, the Otte-Berkeley group has adequate funds budgeted to satisfy most of the requirements.

Based on the definition of a master planned community and the budgets provided, it seems that the moniker "true master planned community" is not being distributed fairly between the project alternatives.

Response to Comment No. 10-45

The commentor questions the application of the definition of "true master planned community" as applied to the Alternatives. The Amenities Report (Appendix C to the Updated Financial Feasibility Analysis) provided the definition of a "true master plan" vs. a "non-master plan setting" on page 23 of the report. As the Amenities Report states:

> **"True" Master Plan Community Setting.** For the purpose of this analysis, a "true" master planned community is defined as a community that has been planned and developed as a cohesive, integrated whole, with a master developer responsible for developing and completing most or all major community infrastructure and improvements in a timely manner (generally in conjunction with the construction of homes in the community, not after all homes are completed). Also, a master planned community most likely will have a funding mechanism in place for on-going maintenance of community facilities (such as a master home owners association) and have community features /amenities greater in scope or higher in quality than might otherwise be developed.
>
> . . .
>
> **Non-Master Plan Community Setting.** In this analysis, non-master plans, and/or "stand-alone" developments, are considered to be more "piecemeal" in nature. Typically, if a community is developed "piece-by-piece" instead of all at once, major community infrastructure such as roads, schools, parks, etc. are not completed all upfront, but are done either after a certain number of homes have been completed, or after all homes have been completed, and in some cases, never at all. Selling or deeding land to a local municipality for later development often, though of course not always, results in delays in improvements being implemented, improvements taking place in a manner not consistent with the original community vision, or in extreme cases, not taking place at all. There are many examples of school and park sites never being developed after land has been either sold or deeded to a local municipality, either due to lack of funding, or for whatever reason. (Amenities Report, page 23.)

Those definitions were consistently applied in looking at both existing neighborhoods in the Rialto/Fontana market area and for the alternatives. The master plan and non-master plan definitions incorporate a broad spectrum of project, market, timing, and funding attributes that all play a role in the proper classification of a development as a true master plan or not, irrespective of cost. HM2 determined that two alternatives (No Project, Avoidance of SBKR/LBV) do not meet this definition of a true master plan. (Amenities Report, page 23.)

According to HM2's analysis of actual home sale prices in a non-master plan setting versus homes in a true master plan community setting in the Rialto/Fontana market, homes in non-master plan settings sell for lower prices, on average, than the same homes in a true master plan, and therefore value adjustments are proper and necessary for the non-master plan alternatives (No Project, Avoidance of SBKR/LBV) versus the true master plan alternatives (Avoidance of RAFSS Area, Avoidance of Jurisdictional Waters). (See, e.g., Amenities Report, pages 48 to 52, provided in Appendix V-E in RPDEIR Volume V (Part 2).) The 1.5 point deduction in the average amenity score for the No Project and Avoidance of SBKR/LBV Alternatives results in home value differentials versus the true master plan Alternatives that are entirely consistent with the actual observed home value difference determined for non-master plan versus true master plan settings in the Rialto/Fontana market area, and therefore represent realistic market results.

Comment No. 10-46

Figure 7 below shows the total Gross Sales for the No Project / Existing Zoning alternative. According to Figure 5, if the amenities included in the proposed project were added to the existing project, it would receive an 18.4% swing in home values amounting to a total of $156,000,000 in increased sales prices. Furthermore, as shown in Figure 6, it seems that many of these improvements are already budgeted. On a per-unit basis, only the Parks budget would need to be increased by $1377/unit for a total of $3,050,000.

Following the CBRE logic, a $3 million dollar expense will provide $156 million in revenue benefit to the Existing Zoning. If this is true, any reasonable developer would invest the additional money.

[Figure 7]

	Units	Proposed Plan Price	Total Sales	Deflated Existing Zoning Price	Total Sales
SFR - 1	1,887	$450,000	$849,150,000	$376,200	$709,889,400
SFR - 2	328	$325,000	$106,600,000	$271,700	$89,117,600
SFR - 3	0	$250,000	$0	$209,000	$0
MDR	0	$175,000	$0	$146,300	$0
HDR	0	$150,000	$0	$125,400	$0
Total	2,215		$955,750,000	$360,726	$799,007,000

Response to Comment No. 10-46

The commentor is referred to Responses to Comment No. 10-36, and No. 10-42 through No. 10-45, above. As noted in Response to Comment No. 10-42, the comment is incorrect in stating there is an 18.4 percent difference in the impact of amenities on home prices between the No Project/Existing Zoning Alternative and the Project; that number is actually 16.4. The

comment incorrectly simplifies the assessment of financial feasibility in the Updated Financial Feasibility Analysis. The No Project/Existing Zoning Alternative does not contain SFR-1 and SFR-2 units as the commentor contends in Figure 7, above. (See Updated Financial Feasibility Analysis, page 10, provided in Appendix V-E in RPDEIR Volume V (Part 2).) Rather, that Alternative contains SFR-6, SFR-10, SFR-20, and Golf Course community units, which are subject to different price ranges than the unit types proposed under the Project. (See *id.*, pages 22 to 23.) Accordingly, based on those differences, the comment cannot reasonably compare total projected sales between the Project and the No Project/Existing Zoning Alternative. Further, the comment does not include a correct representation of how the Updated Financial Feasibility Analysis assessed the effect of community amenities on lot values. The Report stated:

> The above average home prices are derived from the appraisal report and past CBRE experience that indicates finished lot values are typically 25–35 percent of the ultimate home price. CBRE then multiplied the net percent change indicated in HM2's report and conservatively assumed 50% of this change would be reflected in lot value, leaving the other 50% for builder profit and overhead. (*Id.*, page 23.)

Moreover, it is not simply a matter of spending $3 million more on the No Project/Existing Zoning Alternative to obtain a $156 million revenue increase; the No Project/Existing Zoning Alternative would need to be wholly redesigned with premium amenities in an attempt to obtain the same level of overall market appeal as the Project. Moreover, as noted above in Response to Comment No. 10-36, there are significant infrastructure costs necessary for the No Project/Existing Zoning Alternative, similar to the Project, but those costs would be shared by a significantly smaller number of residential units (No Project Alternative—2,215 units; Project—8,407 units); thus, the cost per unit would be significantly higher. It is speculative that this could be achieved such that the IRR would reach 15 percent. This comment is noted for the record and will be forwarded to the decision makers.

Comment No. 10-47

Similarly, for the Avoidance of SBKR alternative, enhanced landscaping could be increased by $253/unit and Special Amenities by $624/unit for a total of $6.6 million to reach the equivalent of the Proposed Project. Furthermore, cost savings could be refunded to the SBKR project if some of the line items are lowered to that of the Proposed Project. For example, Premium Entry, Perimeter Upgrade, Streets with Medians and Parkways and Parks could be decreased by a total of $226/unit for $1.7 million in savings.

Therefore, a net investment of $4.9 million in the SBKR alternative would account for a 14% increase in sales price (Figure 5; -6.0% to +8.0%), a total of $272 million in additional revenues (See Figure 7-2)

Figure 7-2

	Units	Proposed Plan Price	Total Sales	Deflated SBKR Price	Total Sales

SFR - 1	936	$450,000	$421,200,000	$387,000	$362,232,000
SFR - 2	1,549	$325,000	$503,425,000	$279,500	$432,945,500
SFR - 3	2,419	$250,000	$604,750,000	$215,000	$520,085,000
MDR	1,256	$175,000	$219,800,000	$150,500	$189,028,000
HDR	1,325	$150,000	$198,750,000	$129,000	$170,925,000
Total	7,485		$1,947,925,000	$223,810	$1,675,215,500

Response to Comment No. 10-47

Please refer to Responses to Comment No. 10-34 and No. 10-42 to No. 10-46, above.

Comment No. 10-48

Discrepancies between July 2010 and December 2011 Reports

We also reviewed a Financial Feasibility Analysis of Alternatives to the Project Discussed in the Lytle Creek Specific Plan and EIR also prepared by CBRE dated July 2010. There were several modified assumptions between the two reports. The first item is that the sales prices for finished lots and related costs have changed (Figure 8).

Figure 8

	July 2010 Report			**December 2011 Report**			**Variance**		
	Finished Lot Value	**Intract Costs**	**Blue Top Value**	**Finished Lot Value**	**Intract Costs**	**Blue Top Value**	**Finished Lot Value**	**Intract Costs**	**Blue Top Value**
SFR – 1	$140,000	$55,000	$85,000	$164,000	$65,000	$99,000	$24,000	$10,000	$14,000
SFR – 2	$105,000	$50,000	$55,000	$120,000	$55,000	$65,000	$15,000	$5,000	$10,000
SFR – 3	$80,000	$45,000	$35,000	$93,000	$45,000	$48,000	$13,000	$0	$13,000
MFR	$60,000	$35,000	$25,000	$69,000	$35,000	$34,000	$9,000	$0	$9,000
HDR	$45,000	$30,000	$15,000	$58,000	$30,000	$28,000	$13,000	$0	$13,000
Total	**$694 Mil**	**$359 Mil**	**$335 Mil**	**$810 Mil**	**$378 Mil**	**$432 Mil**	**$116 Mil**	**$19 Mil**	**$97 Mil**

In Figure 8 above, the total finished lot value increased by $116 million and the total blue top values increased by $97 million. More specifically, the report indicates the value for SFR-1 finished lots increased from $140,000 per unit to $164,000, an increase of approximately 17%. In fact, for all the product types, finished lot values have increased by more than 10%. Although we do not prepare market studies, this information does not reasonably reflect what we perceive to be current market conditions.

We also noted that for products SFR-1 and SFR-2, the costs have increased by more than 10% whereas the costs for the SFR-3, MFR and HDR have remained static. Our experience

indicates that the different product types are not being treated equally; however, again it is difficult to make an informed opinion when so little of the detail is included in the report.

Developers Research would like the opportunity to review the reasoning behind the differences of the July 2010 report and the December 2011 report.

Response to Comment No. 10-48

The commentor asks about differences between the July 2010 and December 2011 CBRE reports as to finished lot, intract, and blue top values. In response the Court Ruling in this matter, CBRE revised its financial feasibility report. As part of that update, CBRE obtained a revised appraisal report to reflect the change in market conditions as between its first report and the time of the Court ruling. Specifically, CBRE utilized the independent services of the Valuation Advisory Services Group to determine finished lot and blue top lot values for both the July 2010 report and the December 2011 report.

The comment notes that there was a difference in appraised values as between the July 2010 and December 2011 appraisal reports. Such a difference is a reflection of the changes in the market between those points in time. Indeed, the period in question reflected the 2008–09 economic recession, where there was a dramatic decline in land prices resulting in housing prices dropping 20 to 30 percent, followed by a slight increase in home prices, resulting in a significant increase in land values. Further, the comment notes that there was an increase in intract costs for SFR-1 and SFR-2 products, with SFR-3, MFR, and HDR remaining constant. The uptick in such costs reflects market changes between July 2010 and December 2011, which have generally seen an increase in costs to build single-family detached homes, but not to build attached residential units, as that housing product appears not to have recovered as well during the relevant time frame.

This comment is noted for the record and will be forwarded to the decision makers.

Comment No. 10-49

Community Facilities District Financing

On page 3 of the report, CBRE states, “In light of the current market conditions and recent case law, which creates major uncertainties as to future development costs (Azusa Land Partners vs. Dept. of Industrial Relations), combined with the weak financial standing of the City of Rialto, it is highly unlikely that CFD would be approved for the project or any of the alternatives.” We agree with the assumptions contained in the statement, however, we do not agree with the conclusion. The appraisal indicates that the seller has projected that for any of the alternatives, the sales will exceed 10 years. There is also considerable debate regarding the court’s decision for inclusion of future development costs any public financing district. Finally, the financial condition of the city of Rialto may not have a significant impact on the ability to sell bonds since another public agency could be the bond sponsor. In our opinion, a public financing district that includes a minimal tax burden of 0.3% would be acceptable in the local marketplace and the proceeds could be used to offset certain of the backbone development costs.

Response to Comment No. 10-49

The commentor agrees with the fact that under current market conditions and recent case law, CFDs are uncertain. The commentor suggests that there could possibly be an agency that would still sponsor the bonds; however, no such agency is identified. Importantly, it should be recognized that CFD financing provides some financial benefit to land development projects, but at the risk of reducing market demand. CFDs have a bad image among many home buyers, due to excessive fees incurred by home buyers in the late 1980s and 1990s. Based on CBRE's extensive experience with CFD financing, there is no indication that even if there was buyer acceptance of CFD special taxes that it would materially impact the feasibility of any Alternative such that the IRRs would increase to above 15 percent.

This comment is noted for the record and will be forwarded to the decision makers.

Comment No. 10-50

Existing Golf Course

Page 18 of the CBR appraisal states that the appraised value of a "substantial portion of the project site" was $58 million, based upon a CBRE appraisal completed in September 2009. To this appraised value, CBRE added $20 million for the acquisition of an existing adjacent golf course with the potential for an additional 300 residential lots. For the purposes of calculating the land residual value for the development envelope, CBRE deducted $15 million which they state is the "operating value of the existing golf course."

Our experience in providing land residual valuations for public "pay for play" golf courses is that they rarely generate positive cash flow. We have observed operating expenses for many Southern California golf courses and the costs, especially the cost of irrigation water, reduce the value of a golf course significantly. Furthermore, the greens fees for "pay for play" golf courses have been reduced during the past real estate cycle as many golfers are unable to afford the costs associated with playing. If the golf course is currently an operating facility, we would like the opportunity to review the current discounted cash flow to determine the investment value of the course.

In fact, our recent observation of indicated that the most significant benefit of an active golf course is the lot premiums associated with houses constructed adjacent to the course and HM2 has taken this into consideration in its pricing analysis.

We have not had a chance to review the September 2009 CBRE appraisal for the golf course but we believe that during the intervening 3 years, the value the golf course has been reduced, which conclusion is further supported by the fact the golf course is currently not operating.

Based upon our experience, we believe the existing golf course that is currently closed and not maintained, is overvalued in the CBRE Appraisal.

Response to Comment No. 10-50

The comment suggests that the value of the existing golf course on the Project site is overvalued. However, the purchase of the golf course land is a fixed amount ($20 million), and

the value of the golf course land is an accounting exercise to allocate the acquisition cost of the large purchase. Since some of the land would be used for one business entity and some for another, the standard practice is to allocate the cost among the business units at the time of purchase. If the value of one portion of land (i.e., golf course) declines in future years, it is not normal to go back and reallocate more of cost to the other business unit. In sum, even if less value was reallocated to the golf course property, there would be no material impact on the feasibility of the Project, as that is a sunk cost.

This comment is noted for the record and will be forwarded to the decision makers.

Comment No. 10-51

Absorption Rates

The absorption rates assumed in the CBRE report are delineated on pages 24-25 and are not consistent between the project alternatives. The Proposed Project is projected to absorb 100 multifamily units per year eventually increasing to 400 units per year in 2021. The Avoidance of RAFSS is projected to absorb 100 units per year and eventually increasing to 300 units per year. We understand the difficulty in projecting absorption rates over long time frames; however, it is unclear to us why the projections would change depending on the project alternative. CBRE makes no justification for these discrepancies. In our experience, these absorption rates are aggressive, but taking them at face value, we believe they should at least be kept consistent.

It is unclear to us why the residential absorption rates are not kept consistent between the project alternatives.

Response to Comment No. 10-51

The comment suggests that absorption rates should have been uniform as between the Project and the alternatives, as well as among the alternatives themselves. However, such a suggestion fails to recognize the significant difference between the Project and the alternatives. For example, there is a major difference in the number of homes and product types between Project (8,407 units) and the Avoidance of RAFFS Alternative (4,873 units). Variation in absorption rates is also dependent upon the number of subdivisions available at any one time, which also vary among the Project and the alternatives, as well as the fact that the amenities associated with the Project also help attract more buyers, as compared to the alternatives. As such, based on these factors, it is CBRE's expert opinion that a uniform absorption rate would be inappropriate and fail to account for market differences between the Project and the alternatives, and among the alternatives, and that the slight differential in absorption rates is extremely reasonable given those factors.

This comment is noted for the record and will be forwarded to the decision makers.

Comment No. 10-52

Conclusions

Generally, the report intends to show that the Proposed Project is the only feasible project because it generates an internal rate of return greater than 15%, which is above the investment threshold determined by CBRE. For many of the reasons discussed above, we believe the various project alternatives were not treated equally in this analysis. For example, if the Commercial Revenue Inflation and Commercial sales prices were not inexplicably inflated in the Proposed Project and not the other projects, the proposed project would not have reached its target of greater than 15% IRR (which it barely achieves). Furthermore, the project alternatives would have higher IRR's if they were not arbitrarily penalized for lacking amenities which can be clearly found in the Otte-Berkeley budget. Based on per unit costs, many of the project alternatives should have received higher amenity scores than the Proposed Project and would thus have an increased revenue benefit applied.

As stated above, without cost detail schedules or justifications for many of the CBRE assumptions, it seems that the Project Alternatives are being arbitrarily penalized while the Proposed Project is being arbitrarily *increased* to reach the target >15% IRR.

Before any further decision is made on the feasibility of the Project Alternatives, we believe that CBRE needs to explain the assumptions and reasoning behind the various issues described above.

Response to Comment No. 10-52

The commentor suggests additional explanation is needed regarding CBRE's various assumptions and reasoning. The Updated Financial Feasibility Analysis is fully presented in Appendix V-E to the RPDEIR. That analysis shows that CBRE tried to be as conservative as possible in all of its assumptions. Each of CBRE's assumptions are grounded in sources which are provided in the accompanying appendices to the analysis. Both the report and the appendices assist the reader in understanding the complexity of large-scale land development. For example, as to the amenities scores, the Amenities Report is provided, which is a detailed 53-page report, with exhibits, that walks through the careful quantitative and qualitative analysis that leads to the amenities scoring system to reflect actual market conditions and application to the Project and alternatives. In addition, as requested, additional explanation has been provided to the individual issues commented on in this letter.

As noted above, the Project was given higher land sale revenues because of the greater number of housing units, the higher value homes to be developed, and the greater amenities provided. Such a conclusion is expected given these differences as compared to the Alternatives. Refer to Response to Comment No. 10-32, above. It is CBRE's expert opinion that hypothetically standardizing all of the assumptions cited by the commentor still will not generate sufficient revenue to yield a feasible IRR for any of the alternatives. This comment is noted for the record and will be forwarded to the decision makers.

Comment Letter No. 10 (continued)

Save Lytle Creek Wash April 3, 2012 Comment Letter

ATTACHMENT 2:

SCAG Draft 2014-2023 RHNA

Comment No. 10-53

Draft Regional Housing Needs Allocation (by Components and Income), 1/1/2014-9/30/2021

Draft

County	Household Growth (2014-2021)	Base Vacancy Needs	Total Replacement Needs	Vacancy Credit	Net RHNA	Number of very low income households	Number of low income households	Number of moderate income households	above moderate income households	Total
Imperial	17,428	479	49	1,404	16,551	4,194	2,553	2,546	7,258	16,551
Los Angeles	200,572	6,131	1,268	28,297	180,067	45,720	27,497	30,074	76,779	180,070
Orange	41,530	1,143	414	6,150	37,965	8,734	6,246	6,971	16,015	37,966
Riverside	120,308	2,948	175	22,059	101,372	24,117	16,319	18,459	42,479	101,374
San Bernardino	70,623	1,890	469	16,833	57,208	13,399	9,265	10,490	24,053	57,207
Ventura	19,628	523	41	647	19,553	4,612	3,160	3,617	8,164	19,553
SCAG	470,089	13,113	2,416	75,390	412,716	100,776	65,040	72,157	174,748	412,721

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Draft Regional Housing Needs Allocation (by Components and Income), 1/1/2014-9/30/2021

Draft

County	City	Household Growth (2014-2021)	Base Vacancy Needs	Total Replacement Needs	Vacancy Credit	Net RHNA	Number of very low income households	Number of low income households	Number of moderate income households	above moderate income households	Total
Imperial	Brawley city	3,080	90	4	141	3,034	760	470	466	1,338	3,034
Imperial	Calexico city	3,139	91	8	13	3,224	817	489	490	1,428	3,224
Imperial	Calipatria city	187	5	0	48	144	37	22	22	63	144
Imperial	El Centro city	2,118	64	8	265	1,924	487	300	297	840	1,924
Imperial	Holtville city	222	7	1	20	209	54	31	32	92	209
Imperial	Imperial city	1,367	32	1	91	1,309	349	205	202	553	1,309
Imperial	Westmorland city	230	7	3	8	233	57	35	36	105	233
Imperial	Unincorporated	7,085	182	25	819	6,474	1,633	1,001	1,001	2,839	6,474
Los Angeles	Agoura Hills city	113	2	0	0	115	31	19	20	45	115
Los Angeles	Alhambra city	1,580	52	0	141	1,492	380	224	246	642	1,492
Los Angeles	Arcadia city	1,141	30	0	117	1,054	276	167	177	434	1,054
Los Angeles	Artesia city	112	3	5	0	120	31	18	20	51	120
Los Angeles	Avalon city	149	6	3	79	80	20	12	14	34	80
Los Angeles	Azusa city	868	25	6	120	779	198	118	127	336	779
Los Angeles	Baldwin Park city	528	14	15	0	557	142	83	90	242	557
Los Angeles	Bell city	40	1	6	0	47	11	7	8	21	47
Los Angeles	Bellflower city	91	3	0	115	2	1	1	0	0	2
Los Angeles	Bell Gardens city	33	1	12	0	46	11	7	8	20	46
Los Angeles	Beverly Hills city	271	9	34	324	3	1	1	1	0	3
Los Angeles	Bradbury city	7	0	1	7	2	1	1	0	0	2
Los Angeles	Burbank city	2,767	88	62	234	2,684	694	413	443	1,134	2,684
Los Angeles	Calabasas city	325	7	0	3	330	88	54	57	131	330
Los Angeles	Carson city	1,662	36	0	0	1,698	447	263	280	708	1,698
Los Angeles	Cerritos city	84	2	0	0	86	23	14	14	35	86
Los Angeles	Claremont city	372	9	0	8	373	98	59	64	152	373
Los Angeles	Commerce city	44	1	0	0	46	12	7	7	20	46
Los Angeles	Compton city	11	0	4	302	2	1	1	0	0	2
Los Angeles	Covina city	310	9	2	90	230	60	35	38	97	230
Los Angeles	Cudahy city	303	12	3	0	318	80	46	51	141	318
Los Angeles	Culver City city	180	5	0	0	185	48	29	31	77	185
Los Angeles	Diamond Bar city	1,122	23	0	0	1,146	308	182	190	466	1,146
Los Angeles	Downey city	854	25	19	84	814	210	123	135	346	814
Los Angeles	Duarte city	329	8	0	0	337	87	53	55	142	337

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Draft Regional Housing Needs Allocation (by Components and Income), 1/1/2014-9/30/2021

Draft

County	City	Household Growth (2014-2021)	Base Vacancy Needs	Total Replacement Needs	Vacancy Credit	Net RHNA	Number of very low income households	Number of low income households	Number of moderate income households	above moderate income households	Total
Los Angeles	El Monte city	2,069	67	34	28	2,142	529	315	352	946	2,142
Los Angeles	El Segundo city	60	2	7	0	69	18	11	12	28	69
Los Angeles	Gardena city	394	12	0	9	397	98	60	66	173	397
Los Angeles	Glendale city	2,291	77	61	411	2,017	508	310	337	862	2,017
Los Angeles	Glendora city	661	15	9	0	686	181	106	115	284	686
Los Angeles	Hawaiian Gardens city	124	4	3	2	129	32	19	21	57	129
Los Angeles	Hawthorne city	711	26	0	55	683	170	101	112	300	683
Los Angeles	Hermosa Beach city	1	0	0	0	2	1	1	0	0	2
Los Angeles	Hidden Hills city	18	0	3	2	18	5	3	3	7	18
Los Angeles	Huntington Park city	845	31	18	0	895	216	128	149	402	895
Los Angeles	Industry city	0	0	0	0	0	0	0	0	0	0
Los Angeles	Inglewood city	1,159	39	75	261	1,013	250	150	167	446	1,013
Los Angeles	Irwindale city	15	0	1	1	15	4	2	2	7	15
Los Angeles	La Canada Flintridge city	110	2	0	0	112	30	18	20	44	112
Los Angeles	La Habra Heights city	117	2	1	1	119	32	19	21	47	119
Los Angeles	Lakewood city	425	10	0	32	403	107	63	67	166	403
Los Angeles	La Mirada city	230	5	0	0	235	62	37	40	96	235
Los Angeles	Lancaster city	3,980	107	33	1,610	2,510	627	384	413	1,086	2,510
Los Angeles	La Puente city	942	25	0	0	967	246	143	159	419	967
Los Angeles	La Verne city	585	13	3	39	562	147	88	94	233	562
Los Angeles	Lawndale city	368	13	0	0	381	96	57	62	166	381
Los Angeles	Lomita city	36	1	9	0	47	12	7	8	20	47
Los Angeles	Long Beach city	9,487	309	0	2,748	7,048	1,773	1,066	1,170	3,039	7,048
Los Angeles	Los Angeles city	95,023	3,186	0	16,207	82,002	20,427	12,435	13,728	35,412	82,002
Los Angeles	Lynwood city	453	14	27	0	494	123	72	81	218	494
Los Angeles	Malibu city	130	3	3	198	2	1	1	0	0	2
Los Angeles	Manhattan Beach city	37	1	0	0	38	10	6	7	15	38
Los Angeles	Maywood city	50	2	1	0	53	13	8	9	23	53
Los Angeles	Monrovia city	388	12	14	25	389	101	61	65	162	389
Los Angeles	Montebello city	1,031	32	3	0	1,066	269	161	175	461	1,066
Los Angeles	Monterey Park city	755	21	41	2	815	205	123	137	350	815
Los Angeles	Norwalk city	187	5	9	0	201	52	31	33	85	201

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Draft Regional Housing Needs Allocation (by Components and Income), 1/1/2014-9/30/2021

Draft

County	City	Household Growth (2014-2021)	Base Vacancy Needs	Total Replacement Needs	Vacancy Credit	Net RHNA	Number of very low income households	Number of low income households	Number of moderate income households	above moderate income households	Total
Los Angeles	Palmdale city	6,432	158	0	1,139	5,452	1,395	827	898	2,332	5,452
Los Angeles	Palos Verdes Estates city	3	0	15	2	16	4	3	3	6	16
Los Angeles	Paramount city	151	5	0	51	105	26	16	17	46	105
Los Angeles	Pasadena city	2,051	65	29	812	1,332	340	207	224	561	1,332
Los Angeles	Pico Rivera city	829	20	0	0	850	217	131	140	362	850
Los Angeles	Pomona city	3,862	110	0	346	3,626	919	543	592	1,572	3,626
Los Angeles	Rancho Palos Verdes city	30	1	0	0	31	8	5	5	13	31
Los Angeles	Redondo Beach city	1,293	38	121	56	1,397	372	223	238	564	1,397
Los Angeles	Rolling Hills city	9	0	2	5	6	2	1	1	2	6
Los Angeles	Rolling Hills Estates city	14	0	2	11	5	1	1	1	2	5
Los Angeles	Rosemead city	550	17	35	0	601	153	88	99	262	602
Los Angeles	San Dimas city	457	11	4	9	463	121	72	77	193	463
Los Angeles	San Fernando city	221	6	5	15	217	55	32	35	95	217
Los Angeles	San Gabriel city	958	29	0	57	930	236	142	154	398	930
Los Angeles	San Marino city	2	0	0	0	2	1	1	0	0	2
Los Angeles	Santa Clarita city	8,338	197	2	216	8,322	2,208	1,315	1,410	3,389	8,322
Los Angeles	Santa Fe Springs city	350	9	0	35	324	82	50	53	139	324
Los Angeles	Santa Monica city	1,745	64	83	218	1,674	428	263	283	700	1,674
Los Angeles	Sierra Madre city	60	2	0	7	55	14	9	9	23	55
Los Angeles	Signal Hill city	197	6	0	34	169	44	27	28	70	169
Los Angeles	South El Monte city	162	5	6	0	172	43	25	28	76	172
Los Angeles	South Gate city	1,172	37	53	0	1,262	314	185	205	558	1,262
Los Angeles	South Pasadena city	130	4	3	74	63	17	10	11	25	63
Los Angeles	Temple City city	531	14	61	2	603	159	93	99	252	603
Los Angeles	Torrance city	1,416	40	38	43	1,450	380	227	243	600	1,450
Los Angeles	Vernon city	0	0	0	0	2	1	1	0	0	2
Los Angeles	Walnut city	892	17	0	0	908	246	144	155	363	908
Los Angeles	West Covina city	806	20	5	0	831	217	129	138	347	831
Los Angeles	West Hollywood city	408	16	0	347	77	19	12	13	33	77
Los Angeles	Westlake Village city	44	1	0	0	45	12	7	8	18	45
Los Angeles	Whittier city	911	25	3	60	878	228	135	146	369	878
Los Angeles	Unincorporated	30,574	804	269	1,503	30,144	7,854	4,650	5,060	12,581	30,145

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Draft Regional Housing Needs Allocation (by Components and Income), 1/1/2014-9/30/2021

Draft

County	City	Household Growth (2014-2021)	Base Vacancy Needs	Total Replacement Needs	Vacancy Credit	Net RHNA	Number of very low income households	Number of low income households	Number of moderate income households	above moderate income households	Total
Orange	Aliso Viejo city	38	1	0	0	39	9	7	7	16	39
Orange	Anaheim city	6,877	209	0	1,385	5,702	1,256	907	1,038	2,501	5,702
Orange	Brea city	1,826	47	4	26	1,851	426	305	335	785	1,851
Orange	Buena Park city	349	10	7	27	339	76	53	62	148	339
Orange	Costa Mesa city	174	6	24	312	2	1	1	0	0	2
Orange	Cypress city	295	7	6	0	308	71	50	56	131	308
Orange	Dana Point city	474	13	17	178	327	76	53	61	137	327
Orange	Fountain Valley city	350	8	0	0	358	83	59	65	151	358
Orange	Fullerton city	2,163	62	32	416	1,841	411	299	337	794	1,841
Orange	Garden Grove city	715	20	12	0	747	164	120	135	328	747
Orange	Huntington Beach city	1,478	40	11	175	1,353	313	220	248	572	1,353
Orange	Irvine city	12,686	380	0	918	12,149	2,817	2,034	2,239	5,059	12,149
Orange	Laguna Beach city	32	1	1	172	2	1	1	0	0	2
Orange	Laguna Hills city	124	3	0	166	2	1	1	0	0	2
Orange	Laguna Niguel city	158	4	21	0	182	43	30	34	75	182
Orange	Laguna Woods city	129	3	0	443	2	1	1	0	0	2
Orange	La Habra city	135	4	0	135	4	1	1	1	1	4
Orange	Lake Forest city	2,663	63	0	0	2,727	647	450	497	1,133	2,727
Orange	La Palma city	9	0	0	0	9	2	2	2	3	9
Orange	Los Alamitos city	55	2	4	0	61	14	10	11	26	61
Orange	Mission Viejo city	173	4	0	0	177	42	29	33	73	177
Orange	Newport Beach city	533	15	0	608	5	1	1	1	2	5
Orange	Orange city	394	11	7	49	363	83	59	66	155	363
Orange	Placentia city	479	12	1	0	492	112	81	90	209	492
Orange	ıncho Santa Margarita ci	12	0	1	31	2	1	1	0	0	2
Orange	San Clemente city	662	17	4	101	581	134	95	108	244	581
Orange	San Juan Capistrano city	625	14	0	2	638	147	104	120	267	638
Orange	Santa Ana city	503	15	25	339	204	45	32	37	90	204
Orange	Seal Beach city	19	0	10	186	2	1	1	0	0	2
Orange	Stanton city	329	10	2	28	313	68	49	56	140	313
Orange	Tustin city	1,219	36	127	155	1,227	283	195	224	525	1,227
Orange	Villa Park city	14	0	0	0	14	3	2	3	6	14

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Draft Regional Housing Needs Allocation (by Components and Income), 1/1/2014-9/30/2021

Draft

County	City	Household Growth (2014-2021)	Base Vacancy Needs	Total Replacement Needs	Vacancy Credit	Net RHNA	Number of very low income households	Number of low income households	Number of moderate income households	above moderate income households	Total
Orange	Westminster city	110	3	5	297	2	1	1	0	0	2
Orange	Yorba Linda city	633	13	24	0	669	160	113	126	270	669
Orange	Unincorporated	5,094	111	67	0	5,272	1,240	879	979	2,174	5,272
Riverside	Banning city	4,120	101	8	437	3,792	872	593	685	1,642	3,792
Riverside	Beaumont city	5,415	122	2	289	5,250	1,267	854	969	2,160	5,250
Riverside	Blythe city	565	17	15	194	402	91	64	75	172	402
Riverside	Calimesa city	2,439	51	1	150	2,341	543	383	433	982	2,341
Riverside	Canyon Lake city	141	3	0	61	83	21	14	16	32	83
Riverside	Cathedral City city	1,241	32	19	693	600	141	95	110	254	600
Riverside	Coachella city	6,871	181	1	283	6,771	1,555	1,059	1,212	2,945	6,771
Riverside	Corona city	1,081	27	5	343	770	192	128	142	308	770
Riverside	Desert Hot Springs city	4,944	151	3	903	4,196	946	661	772	1,817	4,196
Riverside	Hemet city	2,797	74	0	2,267	604	134	96	112	262	604
Riverside	Indian Wells city	291	6	1	138	160	40	27	31	62	160
Riverside	Indio city	4,053	103	0	1,131	3,025	714	487	553	1,271	3,025
Riverside	Lake Elsinore city	5,211	131	11	424	4,929	1,196	801	897	2,035	4,929
Riverside	Menifee city	6,842	150	0	748	6,245	1,488	1,007	1,140	2,610	6,245
Riverside	La Quinta city	1,336	30	18	1,020	364	91	61	66	146	364
Riverside	Moreno Valley city	7,114	182	15	1,142	6,169	1,500	993	1,112	2,564	6,169
Riverside	Murrieta city	2,174	52	4	657	1,573	395	262	289	627	1,573
Riverside	Norco city	809	17	4	12	818	205	136	151	326	818
Riverside	Palm Desert city	1,960	50	0	1,596	413	98	67	76	172	413
Riverside	Palm Springs city	2,010	55	8	1,802	272	63	43	50	116	272
Riverside	Perris city	4,693	118	4	536	4,280	1,026	681	759	1,814	4,280
Riverside	Rancho Mirage city	594	12	0	511	95	23	15	18	39	95
Riverside	Riverside city	9,534	270	35	1,556	8,283	2,002	1,336	1,503	3,442	8,283
Riverside	San Jacinto city	3,000	74	5	646	2,433	562	394	441	1,036	2,433
Riverside	Temecula city	1,903	46	14	470	1,493	375	251	271	596	1,493
Riverside	Wildomar city	2,620	60	1	146	2,535	621	415	461	1,038	2,535
Riverside	Unincorporated	36,548	834	0	3,903	33,478	7,956	5,396	6,115	14,011	33,478
San Bernardino	Adelanto city	3,276	91	8	534	2,841	633	459	513	1,236	2,841
San Bernardino	Apple Valley town	4,055	98	0	819	3,334	764	541	622	1,407	3,334

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Draft Regional Housing Needs Allocation (by Components and Income), 1/1/2014-9/30/2021

Draft

County	City	Household Growth (2014-2021)	Base Vacancy Needs	Total Replacement Needs	Vacancy Credit	Net RHNA	Number of very low income households	Number of low income households	Number of moderate income households	above moderate income households	Total
San Bernardino	Barstow city	1,456	44	4	662	843	188	138	154	363	843
San Bernardino	Big Bear Lake city	188	5	11	776	2	1	1	0	0	2
San Bernardino	Chino city	3,008	73	0	187	2,894	707	478	533	1,176	2,894
San Bernardino	Chino Hills city	844	18	0	0	862	217	148	164	333	862
San Bernardino	Colton city	2,265	67	17	425	1,923	443	302	347	831	1,923
San Bernardino	Fontana city	6,385	155	0	564	5,977	1,442	974	1,090	2,471	5,977
San Bernardino	Grand Terrace city	158	4	0	44	118	28	19	22	49	118
San Bernardino	Hesperia city	2,416	60	7	768	1,715	398	274	314	729	1,715
San Bernardino	Highland city	1,744	44	3	291	1,500	349	246	280	625	1,500
San Bernardino	Loma Linda city	1,354	45	3	308	1,095	254	177	202	462	1,095
San Bernardino	Montclair city	709	19	3	35	697	164	114	125	294	697
San Bernardino	Needles city	359	10	3	191	181	38	29	34	80	181
San Bernardino	Ontario city	10,921	310	22	392	10,861	2,592	1,745	1,977	4,547	10,861
San Bernardino	Rancho Cucamonga city	1,002	26	9	188	848	209	141	158	340	848
San Bernardino	Redlands city	2,765	74	8	418	2,429	579	396	453	1,001	2,429
San Bernardino	Rialto city	3,304	85	0	674	2,715	636	432	496	1,151	2,715
San Bernardino	San Bernardino city	6,116	183	113	2,028	4,384	980	696	808	1,900	4,384
San Bernardino	Twentynine Palms city	807	28	2	384	454	103	72	84	195	454
San Bernardino	Upland city	1,945	54	3	412	1,589	382	260	294	653	1,589
San Bernardino	Victorville city	8,879	230	42	1,579	7,371	1,698	1,207	1,342	3,124	7,371
San Bernardino	Yucaipa city	1,942	44	13	395	1,605	376	261	299	669	1,605
San Bernardino	Yucca Valley town	1,262	33	2	366	930	209	149	172	400	930
San Bernardino	Unincorporated	3,662	89	197	4,392	39	9	6	7	17	39
Ventura	Camarillo city	2,229	54	0	59	2,224	539	366	411	908	2,224
Ventura	Fillmore city	714	18	2	40	694	160	112	128	294	694
Ventura	Moorpark city	1,135	25	4	0	1,164	289	197	216	462	1,164
Ventura	Ojai city	382	11	0	22	371	87	59	70	155	371
Ventura	Oxnard city	7,090	200	11	0	7,301	1,688	1,160	1,351	3,102	7,301
Ventura	Port Hueneme city	162	5	0	173	2	1	1	0	0	2
Ventura	Buenaventura (Ventura	3,706	105	6	163	3,654	861	591	673	1,529	3,654
Ventura	Santa Paula city	1,261	35	2	14	1,285	288	201	241	555	1,285
Ventura	Simi Valley city	1,228	28	0	0	1,256	310	208	229	509	1,256

11/30/2011
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Draft Regional Housing Needs Allocation (by Components and Income), 1/1/2014-9/30/2021

Draft

County	City	Household Growth (2014-2021)	Base Vacancy Needs	Total Replacement Needs	Vacancy Credit	Net RHNA	Number of very low income households	Number of low income households	Number of moderate income households	above moderate income households	Total
Ventura	Thousand Oaks city	188	4	0	0	192	47	32	36	77	192
Ventura	Unincorporated	1,534	37	15	177	1,410	342	233	262	573	1,410

Notes

* The city boundaries for the base year and the projected year are based on January 1, 2011.

** Eastvale and Jurupa Valley RHNA figures are still part of Riverside County RHNA allocation and will be determined and provided shortly.

*** Draft RHNA allocation (by components) = household growth (1/1/2014-9/30/2021)+base market vacancy needs+total replacement needs- vacancy credit

**** Draft RHNA allocation (by components) by jurisdiction is subject to rounding adjustment.

***** Tribal Land household growth credit (2,810) was already applied to household growth of selected local jurisdictions.

****** If the excess vacancy credit exceeds the sum of household growth, base vacancy needs, and replacement needs , then Draft RHNA allocation (Net RHNA) can be either of 2 units or 1% of the sum of household growth, base vacancy needs, and replacement needs, whichever is bigger.

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Response to Comment No. 10-53

The Draft Regional Housing Needs Allocation presented above is outside the scope of the RPDEIR. Please refer to Section 1.2 of this Final RPEIR for a discussion of the scope of the RPDEIR, the City's obligation to respond to comments outside the scope of the RPDEIR, and the standards for recirculation of a Draft EIR due to "significant new information." The commentor offers no "significant new information" with respect to cumulative impacts within the meaning of CEQA Section 21092.1 and CEQA Guidelines Section 15088.5.

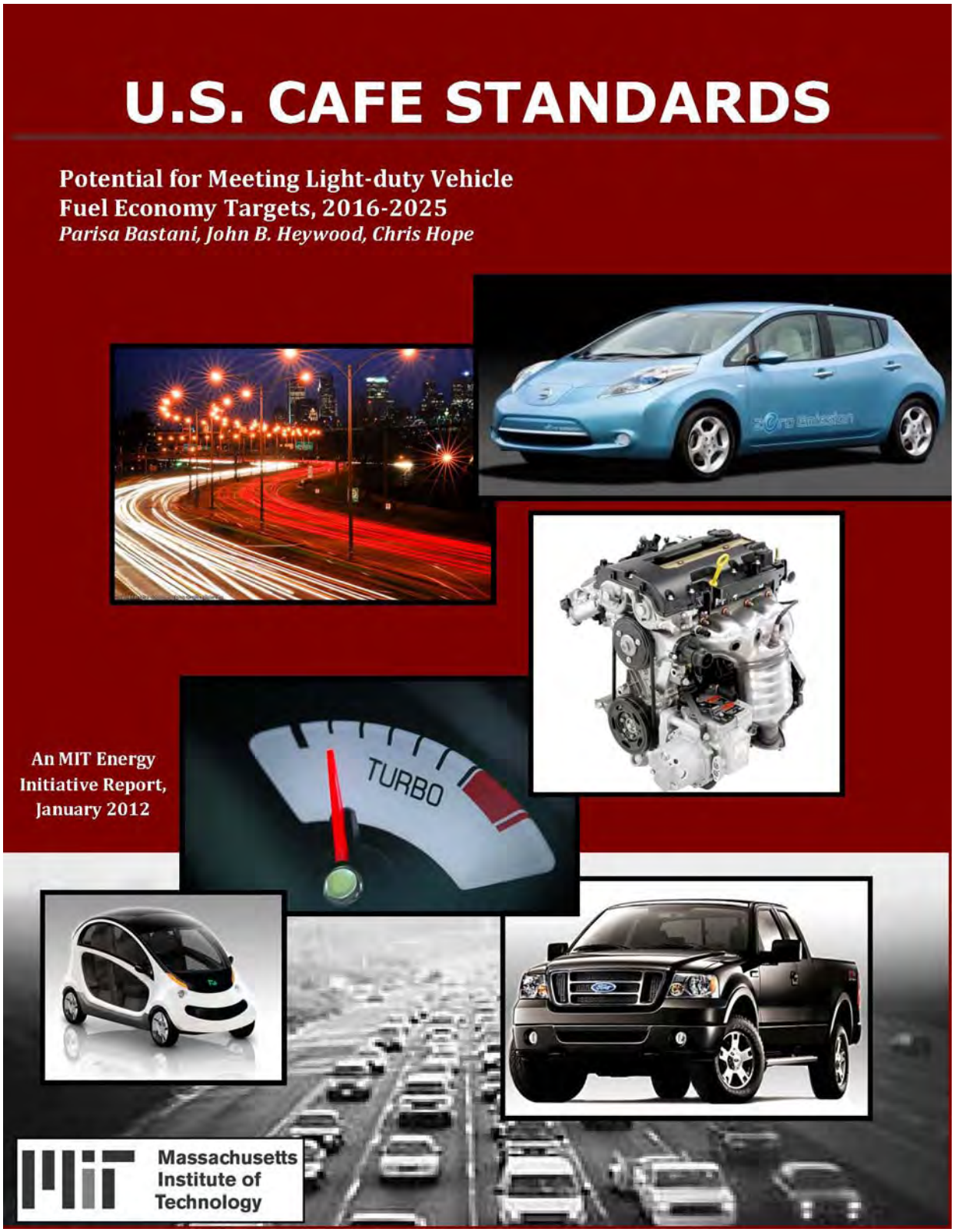
Refer to Response to Comment No. 10-13. This comment is noted for the record and will be forwarded to the decision makers.

Comment Letter No. 10 (continued)

Save Lytle Creek Wash April 3, 2012 Comment Letter

ATTACHMENT 3:
Analysis of CAFE Standards

Comment No. 10-54



U.S. CAFE Standards

Potential for meeting light-duty vehicle fuel economy targets, 2016-2025

Parisa Bastani, John B. Heywood, Chris Hope

MIT Energy Initiative Report

2012@Massachussets Institute of Technology

January 2012

ACKNOWLEDGMENT

The authors wish to acknowledge the support of MIT Sloan Automotive Laboratory, Dr. Matthew Jones, Professor Danny Ralph, and Anthony Haynes at the University of Cambridge.

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U.S. CAFE STANDARDS:

Abstract

In August 2011, NHTSA published the EPA and DOT notice of intent to propose further regulations for the light-duty vehicle fleet which mandate foot-print based corporate average fuel economy and GHG emissions standards for model years 2017 to 2025. Policy makers are setting more stringent fuel economy and emissions targets out to 2025 in a context of significant uncertainty, especially in the rate of improved mainstream technologies progress, the development and market deployment of alternative technologies, the supply of alternative fuels, and the evolution of travel demand over the next few decades. These uncertainties need to be quantified and taken into account systematically when evaluating policies, to quantify the probability of meeting the targets, and identify the key areas in which we need to develop knowledge to reduce uncertainties. This research aims to help decision making using quantitative risk modelling, given that decision makers are always faced with uncertainties as they look to set targets into the future. A stochastic technology and market vehicle fleet analysis is carried out, using the STEP (Stochastic Transport Emissions Policy model), to assess the probability of meeting the proposed CAFE targets in 2016 and 2025, and identify factors that play key roles in the near and midterm. The analysis further identifies what other measures could be taken in parallel with CAFE to increase the probability of a greater reduction in the U.S. fleet fuel use and GHG emissions. Our results indicate that meeting the proposed targets requires (a) aggressive technological progress rate and deployment, (b) aggressive penetration of advanced engines and powertrains in the market, (c) aggressive vehicle downsizing and weight reduction, and (d) a high emphasis on reducing fuel consumption (ERFC). Three scenarios are examined to assess the likelihood of meeting the proposed targets under uncertainty. The targets examined here are 32.5 and 34.1 mpg in 2016 and 44 and 54.5 mpg in 2025. We have assessed these reduced targets from the nominal CAFE values after allowing for the various credits in the proposed rulemaking. These numbers are combined sales-weighted averages for cars and light trucks. Cars will need to meet higher mpg targets, and light trucks lower targets, depending on the relative percentages of these two vehicle categories. The results show that there is about a 42.5% likelihood of the passenger cars average fuel economy being less than 32.5 mpg and a 5.3% likelihood of it exceeding 34.1 mpg in 2016, and about a 4% chance of it exceeding 44 mpg in 2025, under the plausible-ambitious scenario. The likelihood of meeting or exceeding the combined CAFE targets of 32.5 mpg in 2016 and 44 mpg in 2025 drops to less than 0.5%, once light trucks are included in the mix, under the plausible-ambitious scenario. Under the EPA/DOT preferred alternative scenario, the likelihood of passenger cars average fuel economy meeting or exceeding 34.1 mpg in 2016 and 44 mpg in 2025 increases to about 74% and 34.5% respectively. Similarly, the probability of meeting these combined CAFE targets drop to less than 1% in both near and mid terms, once light trucks are included in the mix, under the EPA/DOT scenario. The results further indicate that in the presence of other policies in addition to CAFE, there is a 20% increase in the likelihood of reducing the fleet fuel use by 10% in 2025; highlighting the need for complementary policies to CAFE standards to make a meaningful reduction in the U.S. fleet fuel use and GHG emissions into the future. This analysis quantifies the probability of meeting the targets to enable risk-based contingency planning, and identifies key drivers of uncertainty to promote research and develop knowledge in these areas, such as: naturally-aspirated spark ignition (NASI) engine technology development, ERFC, market acceptance of turbo SI characteristics, cost reduction of batteries and penetration of BEVs, vehicle scrappage and demand dynamics.

U.S. CAFE STANDARDS:

Proposed Rulemaking

DOT and EPA jointly announced their intent for proposed rulemaking of light-duty vehicle fuel economy standards for 2017 through 2025 (NHTSA, 2011). The aim of this paper is to evaluate the proposed standards and quantify the likelihood of achieving such targets, given technological and market uncertainties. The proposed standards are foot-print based and increase in stringency over time, on average about 5% per year from the CO2 footprint based curves for passenger cars from the model year 2016 to 2025 and 3.5% per year for light-duty trucks from 2017 to 2021. EPA currently intends to propose standards which would achieve, on an industry average new vehicle basis, 54.4 mpg in year 2025, while NHTSA intends to propose standards that would achieve an average industry new vehicle fleet-wide fuel economy of 40.9 mpg in 2021 and 49.6 mpg in 2025. The annual increase in stringency between model years 2017 to 2021 is expected to average 4.1 percent, and to average 4.3 percent between model years 2017 and 2025 for passenger cars. NHTSA is further considering allowing manufactures to include air conditioning system efficiency improvements as a means to comply with fuel economy standards. The regulatory bodies believe that these standards can be met through improving conventional gasoline and hybrid vehicle technologies and an increased market share of more advanced technologies including electric vehicles and plug-in hybrid electric vehicles. Given the long time horizon of the new rulemaking, EPA and NHTSA intend to propose a comprehensive mid-term evaluation to reassess the proposed standards and their impact.

The agencies have also proposed including off-cycle credits to encourage penetration of advanced technologies, but intend to propose a limit on these credits. Automakers can apply for additional credits beyond the minimum credit value of listed technologies if they have sufficient supporting data. In addition, the agencies are planning to propose that companies may also apply for off-cycle credit for technologies that are not on the predefined list, based on the submission of sufficient supporting data. Moreover, to encourage electrification, EPA intends to propose an incentive multiplier for all electric vehicles (EVs), plug-in hybrid electric vehicles (PHEVs), and fuel cell vehicles (FCVs) sold in years 2017 to 2021. This multiplier approach would count each EV/PHEV/FCV as more than one vehicle in the manufacturer's compliance calculation. Additionally, EPA intends to propose allowing a value of 0 g/mile for the tailpipe compliance value for EVs, PHEVs (electric miles) and FCVs for 2017 to 2021, with no limit on the quantity of vehicles eligible for 0 g/mi tailpipe emissions accounting. There will be a sales cap for this 0 g/mile from year 2022 to 2025, however, as manufacturers' sales increase.

The agencies furthermore intend to propose credits for manufacturers that employ significant quantities of hybridization on full size pickup trucks, by including a per vehicle credit available for mild and strong hybrid electric vehicles (HEVs). This is to reward the challenges of fuel economy improvement with "game changing" technologies on full size trucks. As in previous years, manufacturers can also earn credits for improvements in air conditioning (A/C) systems, both for efficiency improvements (reduced tailpipe CO2 and improved fuel consumption) and for leakage or alternative, lower GWP (global warming potential) refrigerant use (reducing hydrofluorocarbon (HFC) emissions). EPA further intends to propose additional CO2 credits for plug in hybrid electric vehicles (PHEVs) and bi-fuel compressed natural gas (CNG) vehicles, and to continue the previous credit procedure for the flex fuel vehicles through 2019. Credit banking and trading is intended to be continued with the exception of a one time credit carry forward beyond 5 years, and the exclusion from GHG standards of small businesses (as defined by the Small Business Administration) is intended to continue.

U.S. CAFE STANDARDS:

Meeting the 2016 and 2025 U.S. fuel economy targets

This analysis examines the likelihood of achieving the 2016 and 2025 average fuel economy targets , and what factors play a key role in meeting these proposed fuel economy standards in the near and mid terms. In the light of the details of the proposed credits and the possibility of implementation deviations, this analysis refers to both the nominal targets of 34.1 mpg in 2016 and 54.5 mpg in 2025, as well as, reduced targets of 32.5 mpg in 2016 and 44 mpg in 2025, we judge to be the actual implementation levels after allowing for credits of many kind in the rulemaking. The results presented in this paper can be readily interpreted, however, to obtain the likelihood of meeting other average fuel economy targets in 2016 and 2025.

A stochastic analysis methodology is used to define a technology and market operational space derived from technical simulations and market deployment assessments in the authors' earlier study Bastani, Heywood, Hope, 2012 (Bastani, 2012) is used here to examine three different scenarios including uncertainty, and assess the likelihood of meeting the targets under each scenario. The scenarios are:

1. Plausible-ambitious scenario: a plausible yet ambitious pathway that achieves 50% fleet fuel use reduction by 2050, developed in the author's earlier study (Bastani, 2012)
2. High ERFC scenario: a scenario with a high emphasis on reducing fuel consumption, with the same market assumptions as the plausible-ambitious scenario but with more aggressive fuel consumption reduction from engine and powertrain technologies (ERFC is assumed to be 100% over time, indicating that all technological progress in the future will be used to improve fuel economy instead of increasing vehicle size, weight, or performance)
3. DOT/EPA preferred alternative scenario: the agencies proposed preferred scenario, described in detail in the rulemaking document (NHTSA, 2011)

Meeting the average fuel economy standards is strongly sales mix dependent, and particularly sensitive to the penetration and the rate of deployment of turbo-charged gasoline and HEV vehicles. These factors in turn are dependent on market readiness and acceptance for these new technologies, and incentives that would make turbo-charged gasoline and HEV vehicles most attractive to consumers. Average fuel economy standards in 2025 are not only demanding on the absolute market share of advanced technologies but also require 8-10% deployment rate per year, much higher than historical trends on new technology uptake rate (Zoepf, 2011).

For the purpose of CAFE, battery electric vehicle (BEV) and PHEV (electric miles) vehicles fuel economies are converted on a fuel energy density basis. Such conversion, however, overstates the benefit of BEVs and PHEVs, which are highly dependent on the greening of the electricity grid , notwithstanding the current dominance of coal and expected penetration of natural gas in the U.S. electricity supply mix in the near and mid terms.

Meeting the proposed fuel economy targets requires substantial changes from today's situation in various areas, these include:

1. Aggressive deployment rate of new technologies in the market on the order of 10-20% for HEVs, BEVs, and PHEVs, higher than historical market uptake rates of new technologies (Zoepf, 2011).
2. Aggressive weight reduction and downsizing to achieve high average fuel economy levels: the fleet needs to be downsized with substantial additional weight reduction per vehicle on average: this would require a shift to new light weight materials, fleet downsizing, and vehicle redesign (Cheah, 2010)

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3. Significant technological progress in implementing higher efficiency technology, both for conventional and advanced engine and powertrain technologies: relative fuel consumption improvements of 1.5-3% per year, which is higher than historical trends (Knittel, 2012)
4. High emphasis on reducing fuel consumption (ERFC=100%) in the near to long term, much higher than the historical trends and present value of about 50% (MacKenzie, 2009, Knittel, 2012): ERFC characterizes what percentage of technological gains is used towards improving fuel economy rather than increasing vehicle performance and weight (Figure 1). An ERFC value of 100% implies immediate and complete focus of every technological improvement on maximizingfuel consumption reduction instead of offsetting any increases in vehicle performance, size, or weight (Cheah, 2009)

The impact of the proposed fuel economy standards on greenhouse gas emissions reduction is not clear. A substantive positive impact would require demanding coordinated fuel standards (such as EISA) and clean energy source mandates for upstream emissions from non-conventional oil supply and the electricity grid, to have a meaningful impact on the fleet greenhouse gas emissions

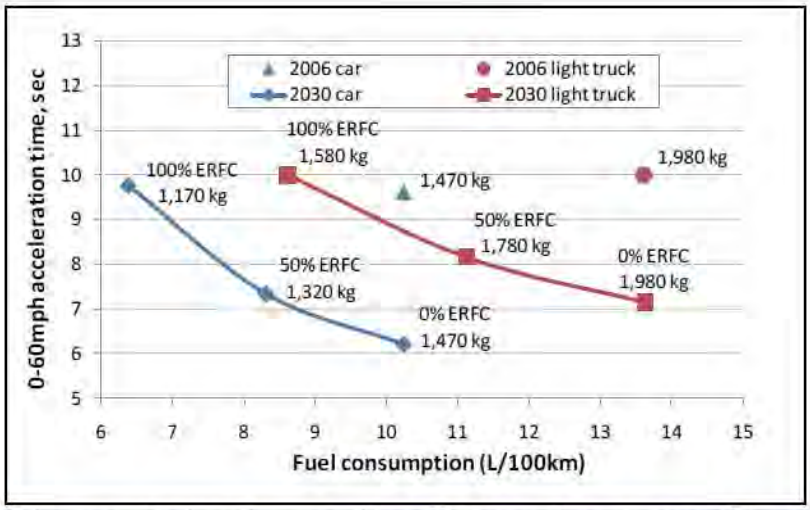

Figure 1-Tradeoffs between acceleration performance, weight, and fuel consumption: average car and light truck (Cheah, 2010)

Methodology

The authors' earlier study Bastani, Heywood, Hope 2012 quantified a large number of possible outcomes, effectively an operational space, defining the full range of uncertainties in the future fleet fuel use and GHG emissions out to 2050. This operational space was derived using the STEP (Stochastic Transport Emissions Policy) model (Bastani, 2012), which incorprates the uncertainties in the performance of various vehicle technologies, fuel availability and life-cycle emissions, as well as demand and market deployment of the new vehicle technologies and alternative fuels. The operational space defines, using stochastic calculations, the total light-duty vehicle fleet GHG emissions (Mt CO_2 equivalent/year) and fuel use (billion litres gasoline equivalent/year) as probability density functions overtime out to the year 2050. This space shows the range of possible

outcomes that can be expected from a chosen policy pathway and their likelihood. Full life-cycle emissions of fuels are taken into account by tracking the fuel consumption of each powertrain as well as the WTT (well-to-tank) and TTW (tank-to-wheel) emissions of conventional and alternative fuels. Vehicle weight reduction is further taken into account through powertrain fuel use improvements that result over time(Bastani, 2011).

The methodology used to derive this operational space is based on decision theory, which is designed to distinguish between a set of alternatives, where each alternative faces uncertain states of the world that can be represented by probability distributions (Lindley, 1985). Subjective probability is used to estimate the underlying uncertainty in the inputs. These probabilities are subjective because they depend on the experts' assessments and judgements , which are likely to vary based on the information they each have available (Lindley, 1985). These subjective assessments will be subject to representativeness, availability and anchoring effects leading to predictable biases (Tversky, 1974). To reduce such biases, a range of different sources were consulted to determine the probability distribution in the inputs represented in this paper, and probability elicitation techniques were followed using direct probability assessment techniques to obtain probability estimates while minimizing bias and overconfidence (Henrion, 1991, Morgan, 1990). Complete details of the methodology are given in Bastani, Heywood, Hope, 2012 (Bastani, 2011)

This operational space is used here to evaluate the likelihood of meeting the targets under the three scenarios outlined above. The scenarios are analyzed and compared under the same uncertainty boundaries to yield conditional probabilities of meeting the average fuel economy targets in 2016 and 2025 under each scenario, in the same uncertain state of the world. The uncertainty boundaries are assumed to be unchanged by the CAFE standards: changing the extreme values are judged to be costly and thus unlikely under the proposed regulations in the near and mid term. The results are discussed in the following section under the three scenarios: the plausible-ambitious scenario, the high ERFC scenario, and the EPA/DOT preferred alternative scenario, defined earlier in the paper.

Likelihood of meeting average fuel economy targets in 2016 and 2025

The likelihood of achieving the CAFE targets under the three previously described scenarios are examined here. Meeting the combined CAFE targets depends on the split between cars and light trucks. For instance, to meet the LDV combined target of 32.5 mpg in 2016, cars need to achieve 36.5 mpg and LTs 26.5 mpg with 60% cars and 40% LTs market shares (Table 1). Similarly, to meet the 44mpg target in 2025 with 55% cars and 45% LTS, cars need to achieve 51 mpg and LTs need to meet 35.5 mpg. The higher the share of light trucks, therefore, the more stringent fuel economy levels need to be met by passenger cars to meet the overall combined targets.

	Fuel economy (mpg)	Market Share	Fuel economy (mpg)	Market Share	Fuel economy (mpg)	Market Share	Fuel economy (mpg)	Market Share
2016								
Cars	36.5	60%	37	55%	37.5	50%	38.5	40%
LTs	26.5	40%	27	45%	27.5	50%	28.5	60%
Combined	32.5	100%	32.5	100%	32.5	100%	32.5	100%
2025								
Cars	50	60%	51	55%	52	50%	53	40%
LTs	35	40%	35.5	45%	36	50%	38	60%
Combined	44.0	100%	44.0	100%	44.0	100%	44.0	100%

Table 1- Examples of CAFE miles per gallon numbers for cars and light trucks, fordifferent car/LT market splits

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Plausible-ambitious Scenario

The results illustrate the likelihood of meeting the CFAE targets under the plausible-ambitious scenario over time, with an uncertain and lower than 100% ERFC (Table 2). The average fuel economy expected values for passenger cars and combined CAFE (including light trucks) as well as their 5%, 25%, 75% and 95% percentiles are shown over time out to 2025 (Figures 2, 3). The graph illustrates an increase in the expected fuel economy over time, given a plausible yet ambitious pathway which was developed in our earlier study (Bastani, Heywood, Hope 2012). The 95% and 5% dotted lines bound the range of outcomes expected with 90% confidence and the 75% and 25% dotted lines bound the range of outcomes expected with 50% confidence. There is, for instance, a 90% chance that the fuel economy of passenger cars will be somewhere between about 31.6 and 34.1 mpg in 2016, and 35.2 and 43.9 mpg in 2025 (Figure 2). Once the light trucks are included in the mix, the combined CAFE will be lowered to somewhere between 28.2 and 29.9 mpg in 2016, and between 32.1 and 38.5 mpg in 2025 Figure 3). . As indicated in these results, the uncertainty in the new vehicle sales weighted average fuel economy is significant and grows considerably over time. The major contributors to these uncertainties are ranked and discussed later in the paper (Figure 32).

Table 2 2025 Emphasis on Reducing Fuel Consumption (ERFC) Input, plausible-ambitious scenario

ERFC	Min	Mean	Max
Cars	43%	68%	87%
Light Trucks	35.5%	62.5%	87%

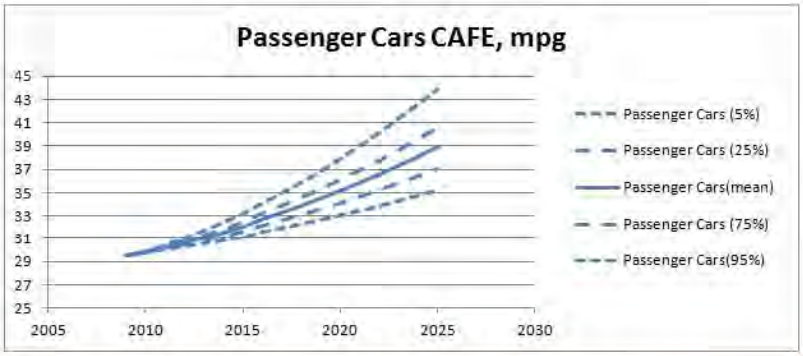

Figure 2-Corporate average fuel economy (mpg) of new passenger cars under plausible-ambitious scenario

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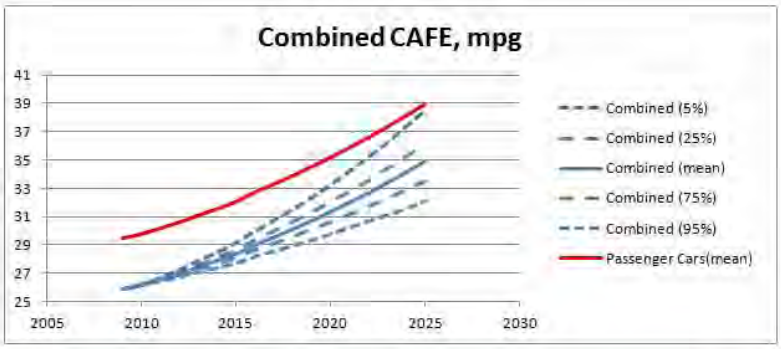

Figure 3-Combined new car and light truck corporate average fuel economy (mpg) under plausible-ambitious scenario

As the results illustrate, the achieved CAFE will be much lowered when light trucks are included in the mix. Table 3 shows the distribution of the percentage of cars as a fraction of total new light-duty vehicle sales in this scenario. The percentage of OLTs (other light trucks including pick-up trucks and vans) has been historically around 22%. SUVs are the most significant portion of the light trucks mix with great potential for downsizing.

Table 3-Percent car in car plus light truck mix, 2016 and 2025 under plausible-ambitious scenario

%Car	Min	Mean	Max
2016	49.6%	54.9%	59.6%
2025	47.1%	60.3%	72.3%

Under the plausible-ambitious scenario, there is a 42.5% chance of the passenger cars average fuel economy being less than about 32.5 mpg and about 5% chance of achieving fuel economy of 34.1 mpg or higher, with an expected value of about 32.7 mpg in 2016 (Figure 4). Similarly, Figure 7 shows the passenger cars CAFE probability density function in 2025, with 68% chance of being less than 40 mpg and less than 5% chance of achieving or exceeding CAFE of 44 mpg, and an extremely low likelihood of achieving 54.5 mpg. To meet the combined CAFE targets, however, the passenger cars need to meet a higher fuel economy level to make up for the low fuel economy of the light trucks (Table 1). Under this scenario, for instance, the passenger cars need to achieve 37 mpg in 2016 and 50 mpg in 2025 (Table 1) to meet the combined targets of 32.5 and 34.1 mpg respectively. Achieving these higher levels of fuel economy for passenger cars has an extremely low likelihood in the near and mid terms. Figure 5 and 8 illustrate the probability distribution function for the light trucks (SUVs and OLTs (vans, pick-up trucks, and cross-overs) in 2016 and 2025. There is a 5% chance that the SUVs would achieve 26.5 mpg, and about 3.5% chance that other light trucks would attain 24.5 mpg in 2016. In 2025, there is a 90% chance that SUVs fuel economy lies between about 27 and 33.8 mpg, and 60% chance that other light trucks meet and exceed 27 mpg, under the plausible-ambitious scenario. The probability of achieving the combined CAFE targets is thus significantly lowered when light trucks are included in the mix. For instance, achieving a combined CAFE of 32.5 mpg in 2016 is extremely unlikely (less than 0.5% chance) (Figure 6), and there is only about 2% likelihood of exceeding 40 mpg in 2025. (Figure 9). The coefficient of variation in combined CAFE is about 4% in 2016 and is increased to 11% in 2025. The probability density function is

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negatively skewed in 2025 indicating the possibility of achieving a much lower level of fuel economy but at a lower risk.

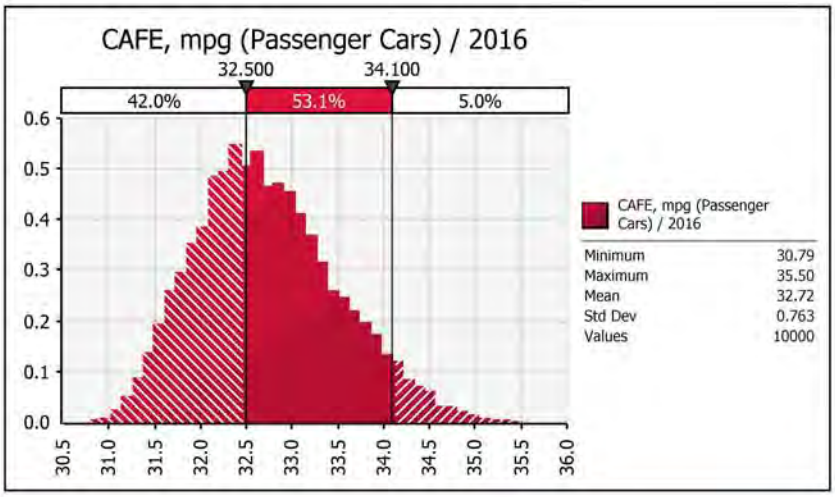

Figure 4-2016 corporate average fuel economy probability density function: plausible-ambitious scenario (passenger cars)

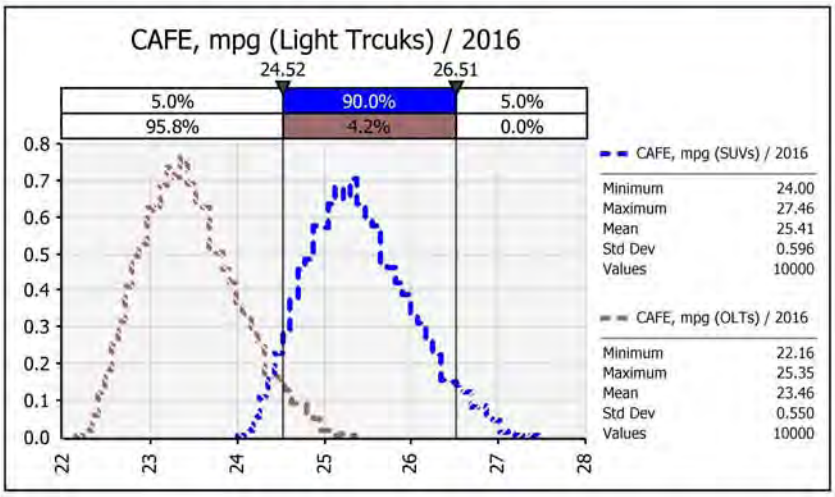

Figure 5-2016 corporate average fuel economy probability density function: plausible-ambitious scenario (light trucks)

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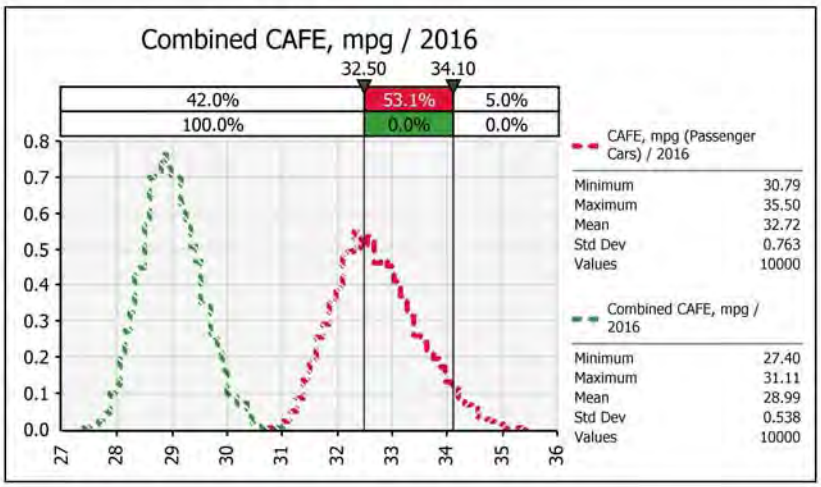

Figure 6-2016 corporate average fuel economy probability density function: plausible-ambitious scenario (combined)

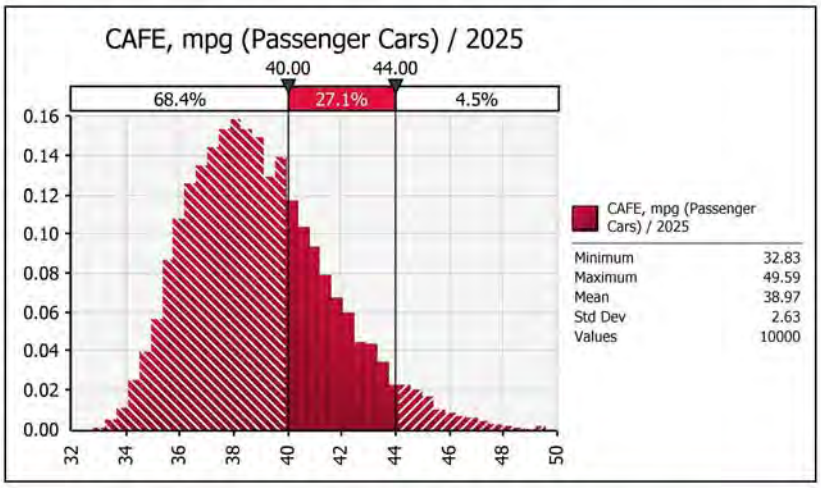

Figure 7- 2025 corporate average fuel economy probability density function: plausible-ambitious scenario (passenger cars)

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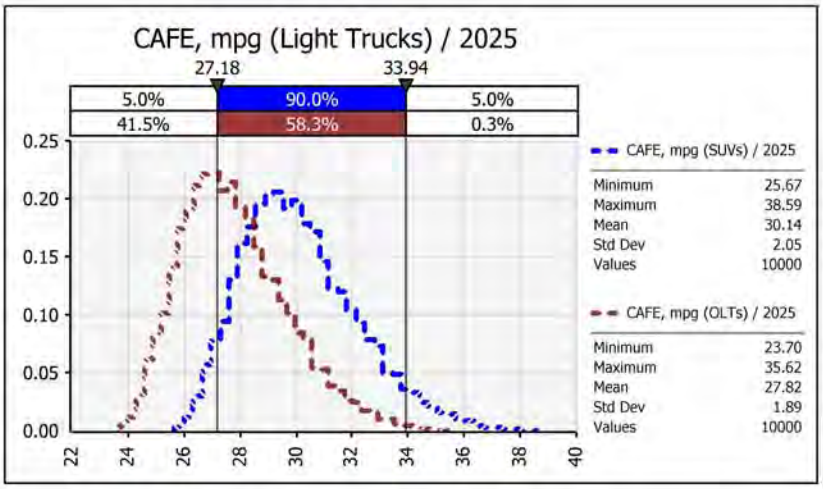

Figure 8- 2025 corporate average fuel economy probability density function: plausible-ambitious scenario (light trucks)

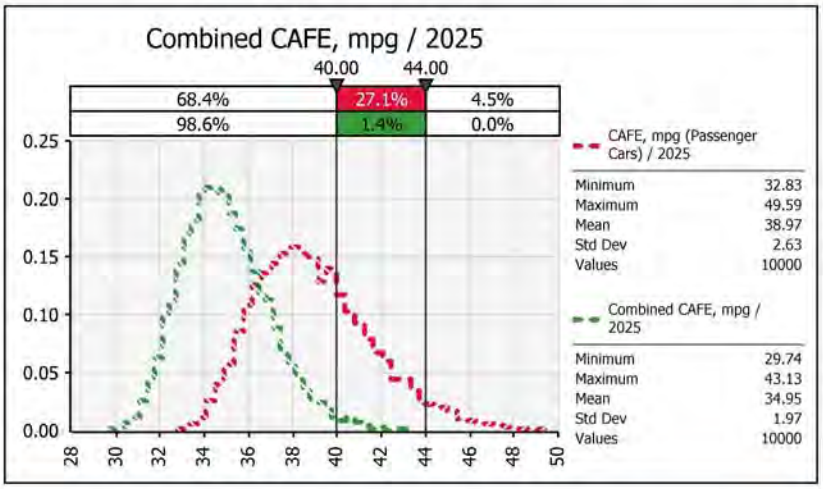

Figure 9- 2025 corporate average fuel economy probability density function: plausible-ambitious scenario (combined)

High ERFC Scenario

The emphasis on reducing fuel consumption is constant at 100% over time in the high EFC scenario. In 2016, the results indicate about a 8% chance of the average fuel economy being less than about 32.5 mpg and about a 55% chance of achieving or exceeding CAFE of 34.2 mpg (Figure 10). The expected value for CAFE is about 34 mpg in 2016 with a standard deviation of about 1.4 mpg, given constant ERFC at 100% over time. Similarly, Figure 13 illustrates the average fuel economy cumulative probability density function in 2025, with a about a 65.5% chance of being less than 44 mpg, and very low likelihood of achieving or exceeding 54.5 mpg. There is about a 34% chance of CAFE lying between 44 and 53.5 mpg in 2025, under the high ERFC scenario. The

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expected fuel economy is about 43 mpg with a standard deviation of about 3.81 mpg. The probability density function is positively skewed in 2025 indicating the possibility of achieving a higher level of fuel economy but with a very low probability. Figure 14 and 17 illustrate the probability distribution function for the light trucks (SUVs and OLTs (vans, pick-up trucks, and cross-overs) in 2016 and 2025. The probability of achieving the fuel economy targets are significantly lowered when light trucks are included in the mix. For instance, achieving a combined CAFE of 32.5 mpg in 2016 is about 1% (Figure 12), and there is only about a 2.5% likelihood of exceeding 40 mpg in 2025, under the high ERFC scenario (Figure 15). Passenger cars thus need to meet a much more stringent target than the combined CAFE levels (Table 1), for instance, 37 and 50 mpg in 2016 and 2025 with about 4% and 5% likelihood respectively. Aggressive downsizing of the fleet would be therefore needed to meet the combined CAFE targets with passenger cars and light trucks included in the mix, even if all the technological progress is being used to improve fuel economy, with no increase in power performance and vehicle size.

These results therefore show that the future fuel economy levels are highly sensitive to the emphasis on reducing fuel consumption. There is a much lower (in the order of 50% in 2016 and 30% in 2025) chance of meeting the fuel economy targets when ERFC is not 100%. The changes in ERFC over time play a significant role: moving from a lower ERFC in the past to a higher ERFC in the future not only implies a need to use a higher fraction of technologies towards fuel economy improvements in a given year, but also requires further fuel economy gains or tradeoffs with weight and vehicle performance to make up for lower ERFC levels in the past (Cheah, 2009). The assumed ERFC of 100% in this scenario is much higher than the historical and present values, and implies a much faster progress rate and vehicle weight reduction from historical trends (MacKenzie, 2009, Knittel, 2012). This is further specially demanding on vehicle weight reduction, as weight needs to be removed from an ever increasing weight trend, due to safety and added features (Zoepf, 2011). These results therefore highlight the need for policies and measures to promote a high ERFC, rather than taking this key assumption for granted.

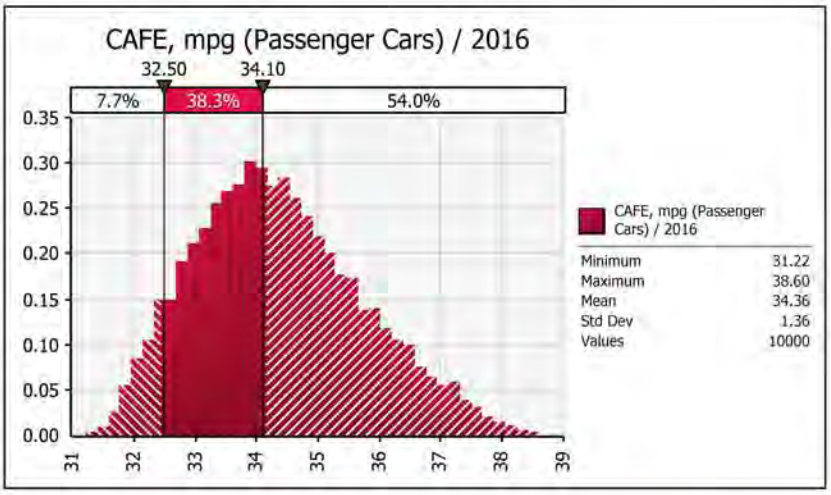

Figure 10- 2016 corporate average fuel economy probability density function: high ERFC scenario (passenger cars)

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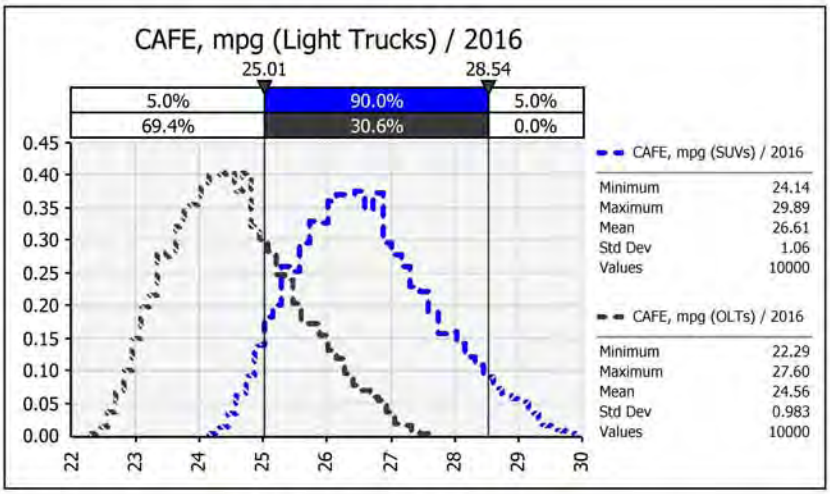

Figure 11-2016 corporate average fuel economy probability density function: high ERFC scenario (light trucks)

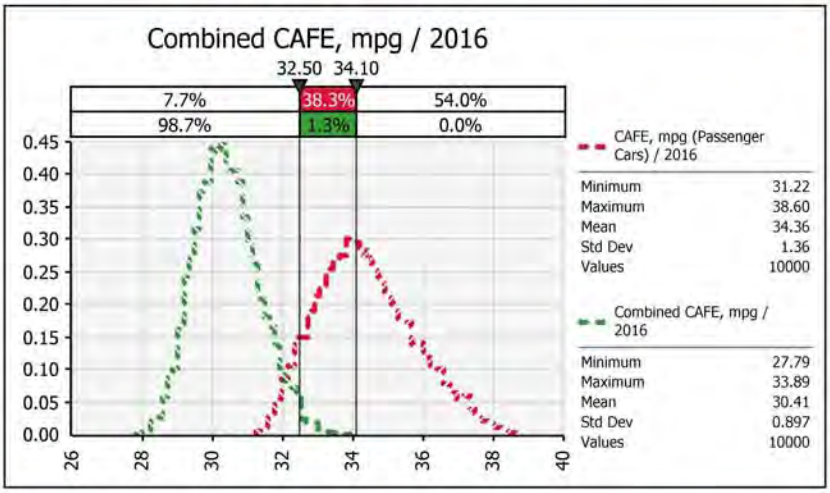

Figure 12-2016 corporate average fuel economy probability density function: high ERFC scenario (combined)

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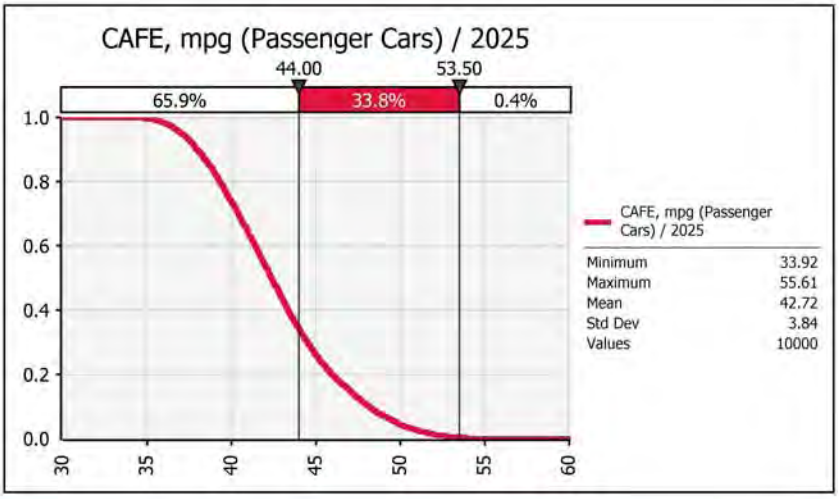

Figure 13 2025 corporate average fuel economy cumulative probability density function: high ERFC scenario (passenger cars)

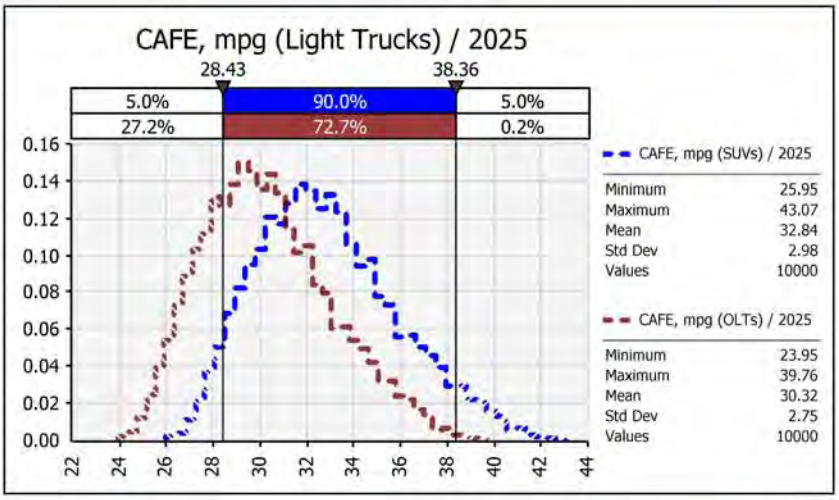

Figure 14-2025 corporate average fuel economy probability density function: high ERFC scenario (light trucks)

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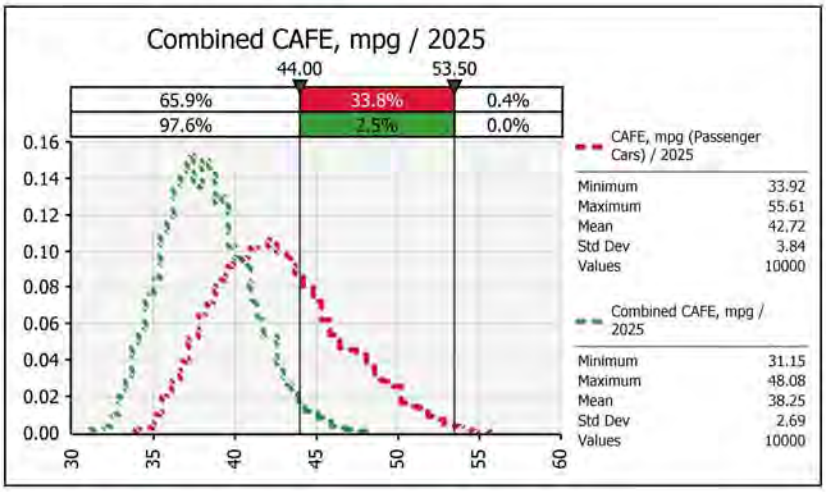

Figure 15-2025 corporate average fuel economy probability density function: high ERFC scenario (combined)

EPA/DOT Preferred Alternative Scenario

The following results show the corporate average fuel economy and market penetration of advanced technologies under the proposed regulations for 2016 through 2025, EPA/DOT preferred alternative scenario (NHTSA, 2011). ERFC is assumed to be constant over time at 100% in this scenario. The CAFE expected value and 5%, 25%, 75% and 95% percentile values are presented out to 2025 under the EPA/DOT preferred alternative scenario in (Figure 16) . The graph indicates the expected increase in average fuel economy that can be achieved over time, given the regulatory pathway. The 95% and 5% dotted lines bound the range of outcomes expected with 90% confidence and the 75% and 25% dotted lines bound the range of outcomes expected with 50% confidence. In other words, there is a 90% chance that the fuel use would be somewhere between the outer dotted lines and 50% chance that it lies between the two inner 25% and 75% dotted lines in (Figure 16). Figure 17 illustrates the mean market share of vehicle sales in order to meet the average fuel economy standards in 2016 and 2025 under the EPA/DOT preferred alternative scenario.

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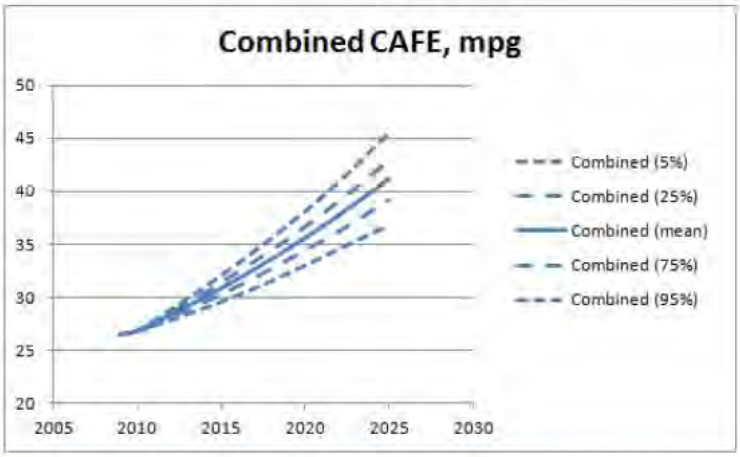

Figure 16 Corporate average fuel economy of new vehicles, mpg: DOT/EPA preferred alternative scenario

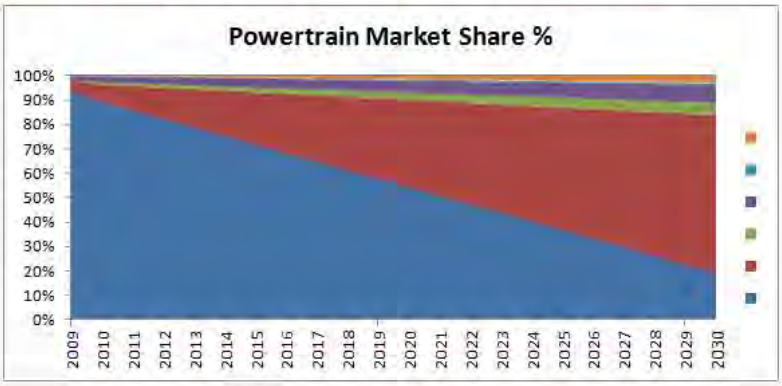

Figure 17 Mean market share of alternative powertrains out to 2050, % : the EPA/DOT alternative preferred scenario

The following figures (Figure 18 and 21) show the probability density function and cumulative density function of passenger cars CAFE in 2016 and 2025 respectively. The results indicate about a 2.4% likelihood of CAFE being less than 32.5 mpg, and a 74% chance of achieving or exceeding 34.1 mpg in 2016. The coefficient of variance is about 3% in 2016 and it increases to about a 7% in 2025, due to the increase in the level of uncertainty in the mid term. There is a 24% chance that the passenger car corporate average fuel economy will lie between about 32.5 and 34.1 mpg in 2016, and about 45% chance of it being less than 44 mpg and less than a 1% chance of achieving or exceeding 53.5 mpg in 2025. There is about a 54% chance of the passenger cars average fuel economy lying between 32.5 and 53.5 mpg in 2025. Figure 19 and 22 illustrate the probability distribution function for the light trucks (SUVs and OLTs (vans, pick-up trucks, and cross-overs) in 2025. The probability of achieving the fuel economy targets are significantly lowered when light trucks are included in the mix. For instance, achieving a combined CAFE of 34.1 mpg in 2016 is extremely low with about 19.5% likelihood of it exceeding 32.5 mpg (Figure 20). The likelihood of exceeding 54.5 mpg in 2025 is extremely low, and there is about a 66% likelihood of achieving 32.5 mpg or higher, under the plausible-ambitious scenario (Figure 23).

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Passenger cars therefore need to meet a much more stringent target than 34.1 mpg, and aggressive downsizing of the fleet would be needed to increase the likelihood of meeting the targets with the combined passenger cars and light trucks mix in 2016 and 2025, even under the EPA/DOT preferred alternative scenario with aggressive penetration of advanced technologies and alternative powertarins, 100% emphasis on reducing the fuel consumption, and significant downsizing of the fleet.

The aggressive focus of technological progress towards fuel consumption reduction over time, significant vehicle weight reduction, downsizing of the fleet, and rapid development and penetration of advanced alternative powertrains are all required simultaneously in this scenario to achieve such high average fuel economy targets. The likelihood of achieving the average fuel economy targets are significantly lower in 2025 due to these aggressive requirements on all fronts and the increased stringency given the short period of time allowed for significant technological development, and the reduced margin for using the more accessible waste reduction opportunities. The likelihood of achieving these targets would be substantially decreased if the emphasis on reducing fuel consumption was assumed to follow the historical trends. The cumulative distribution functions have a relatively sharp slope, indicating a larger change in probabilities for a given change in fuel economy target.

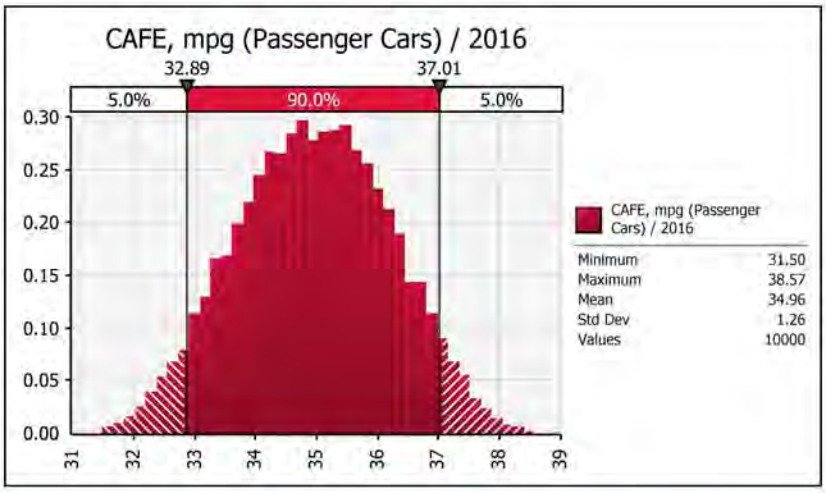

Figure 18 2016 Corporate Average Fuel Economy probability density function: EPA/DOT preferred alternative scenario (passenger cars)

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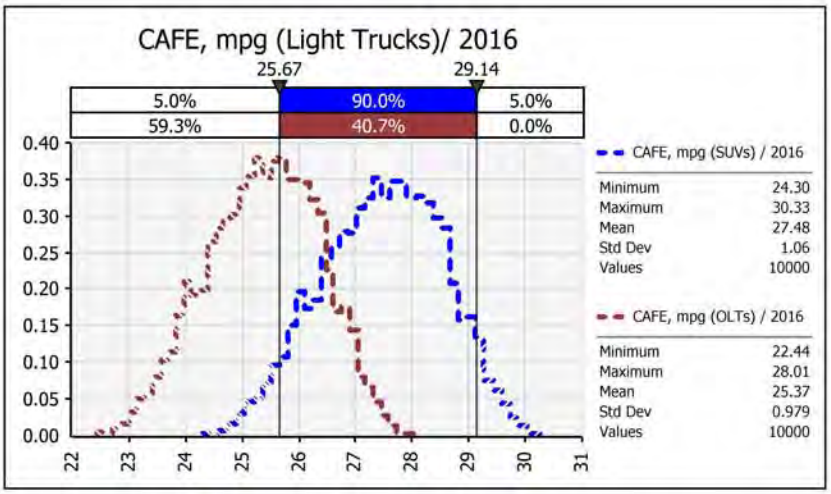

Figure 19-2016 Corporate Average Fuel Economy probability density function: EPA/DOT preferred alternative scenario (light trucks)

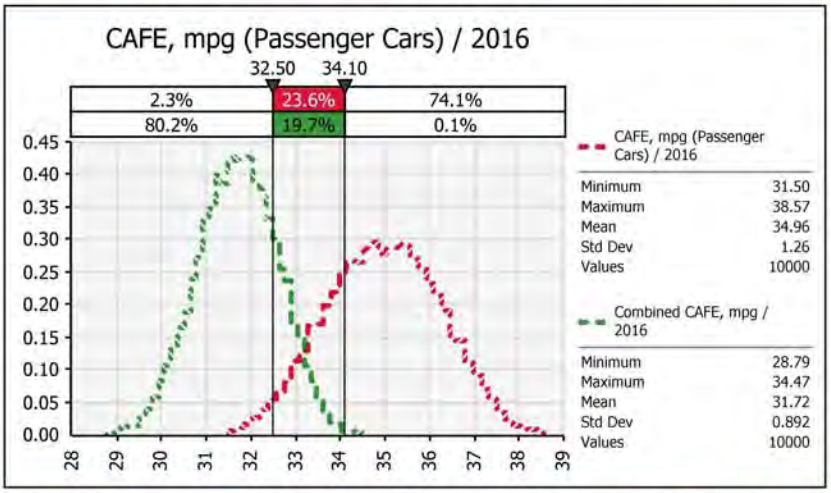

Figure 20-2016 Corporate Average Fuel Economy probability density function: EPA/DOT scenario (combined)

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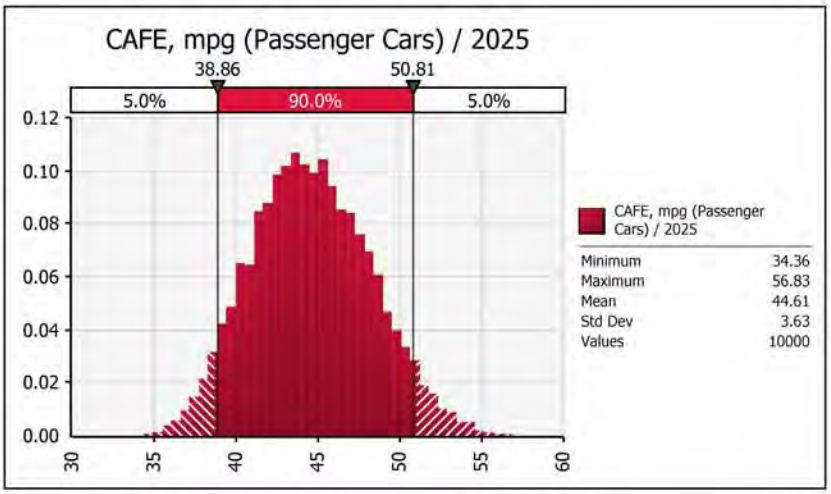

Figure 21 2025 Corporate Average Fuel Economy Cumulative probability density function under EPA/DOT scenario (passenger cars)

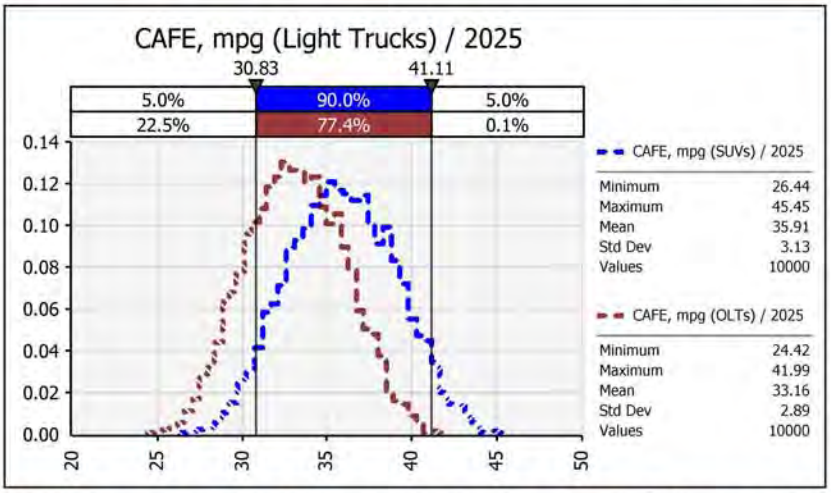

Figure 22-2025 Corporate Average Fuel Economy probability density function: EPA/DOT scenario (light trucks)

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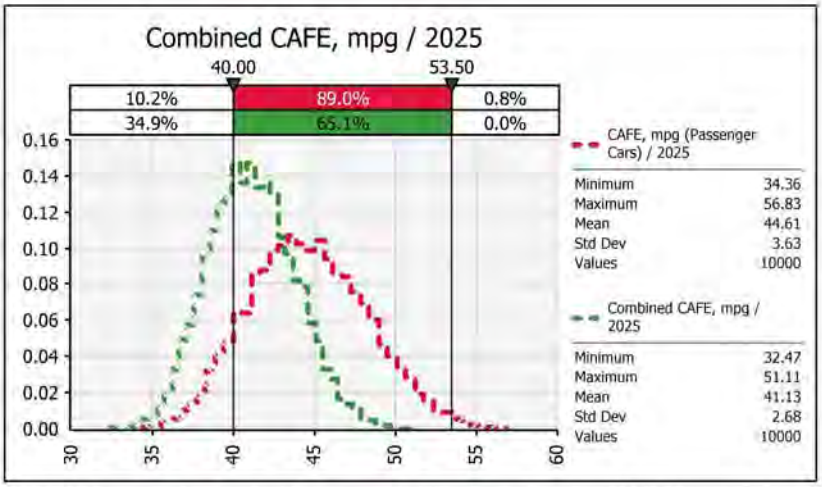

Figure 23-2025 Corporate Average Fuel Economy probability density function: EPA/DOT scenario (combined)

Table 4 summarizes the results from the three different scenarios and the likelihood of meeting the targets in 2016 and 2025 under each scenario. The probability of meeting the targets increases under the EPA/DOT preferred alternative scenario, however, this scenario requires substantial changes in both technological progress rate and market deployment rate of advanced technologies. The EPA/DOT preferred alternative scenario in 2025 lies in the 5th percentile of the operational space defined in the author's earlier study (Figure 24), indicating a low likelihood of such pathway given the authors' technology and market assessment in the earlier study(Bastani, 2012). Figure 25 shows the 2016 and 2025 CAFE cumulative density function under the high ERFC scenario, the shift and change in the slope in the CDF functions indicates the rate at which the likelihood of meeting targets changes over time. The large gap and sharp slope of the CDF functions thus quantifies the importance of allowing time to increase the likelihood of a greater improvement in the average fuel economy targets. This therefore highlights the importance of lead time in setting fuel economy targets, given automakers design and production lead time (3-5 years) as well as allowing for development, concept generation, and testing stages.

Scenario	Likelihood of Meeting Targets in 2016		Likelihood of Meeting Targets in 2025	
	Passenger cars CAFE (Combined CAFE)			
	under 32.5 mpg	Exceed 34.1 mpg	under 44 mpg	Exceed 54.5 mpg
Palusible-ambitious scenario from Bastani, Heywood, Hope, 2012	42.5% (~100%)	5.3% (~0%)	95.8% (~100%)	~0% (~0%)
High ERFC Scenario	8.0% (98.9%)	54.6% (~0%)	65.5% (97.6%)	0.3% (~0%)
EPA/DOT preferred alternative scenario	2.4% (80%)	74.1% (0.1%)	45.4% (85%)	0.6% (0.4%)

Table 4-Comparison between the likelihood of meeting targets under different scenarios, passenger cars and combined CAFE

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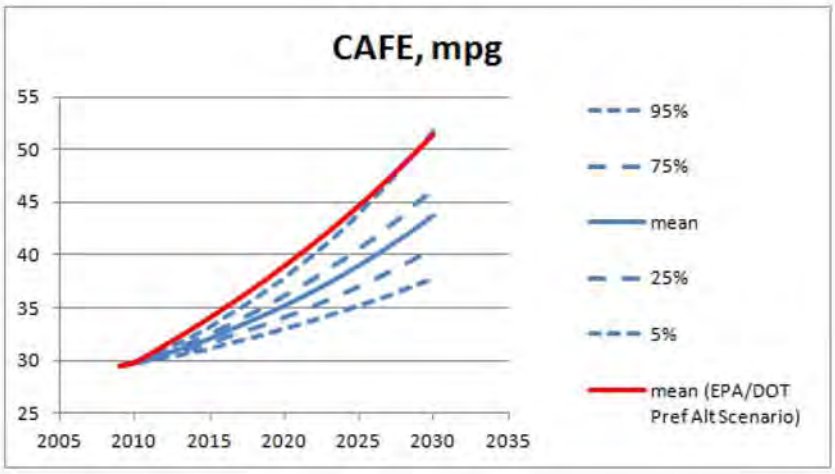

Figure 24-Comparison between the EPA/DOT preferred alternative scenario and plausible-ambitious scenario (passenger cars)

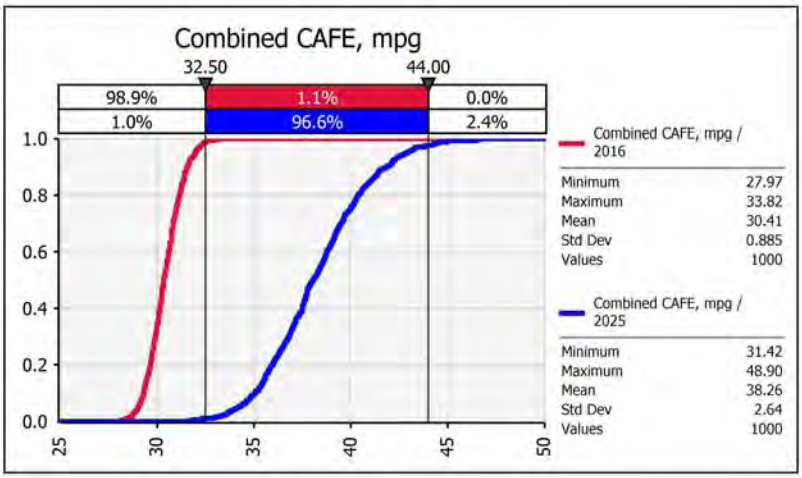

Figure 25 Comparison between 2016 and 2025 CAFE cumulative probability density functions: high ERFC scenario

Impact of proposed regulations on fleet fuel use

The impact of the proposed fuel economy targets is examined under two different scenarios: 1- CAFE only scenario, where technology and market deployment progress following the EPA/DOT preferred alternative scenario but travel and vehicle demand continue to grow without any policy interjections, 2-CAFE and demand scenario, where travel and vehicle demand growth reduces over time to 25% by 2025, and ERFC increases by 50% by 2025 with significant downsizing of the fleet with 40% increase from today's baseline by 2025, in

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addition to technology and market deployment progress. The impact of the CAFE only policy and CAFE and demand reduction complementary policies on the fleet fuel use in 2025 are shown in Figure 26 and Figure 27. Under the CAFE only scenario, there is a less than 1% chance of reducing fleet fuel use more than 10% below 2008 levels and about 50% chance of reducing the fleet fuel use to about 540 billion litres of gasoline equivalent or lower (Figure 26). In the absence of other measures to control the fleet size and demand, therefore, there is less than a 1% chance of reducing the fleet fuel use through the proposed fuel economy standards and 50% chance of a modest growth from today's baseline. The expected value is about 540 with a standard deviation of about 30 billion litres of gasoline equivalent (Figure 26). In this scenario thus the barriers to reducing the fleet fuel use come from a growing fleet with an increase in vehicle weight and vehicle performance, and thus a rising fleet fuel use projection. Under the CAFE and demand scenario, there is about 30% chance of reducing the fleet fuel use by 10% below the 2008 levels and 1% chance of 15% reduction below 2008 levels (Figure 27). There is about 70% chance of fleet fuel use exceeding 472 billion litres of gasoline equivalent in 2025. The expected value is about 488 billion litres with standard deviation of 30 billions litres of gasoline equivalent. The fleet fuel use probability distribution is negatively skewed in 2025, cautioning that there is a small risk the fleet fuel use could be much higher.

The fleet fuel use expected value and 5%, 25%, 75% and 95% percentile values out to 2025 are presented in Figure 28, given the proposed regulations and other policies to reduce demand and increase emphasis on reducing fuel consumption and fleet downsizing. The results illustrate the expected reduction in fleet fuel use that can be achieved over time, given the regulatory pathway (Figure 28). The 95% and 5% dotted lines bound the range of outcomes expected with 90% confidence and the 75% and 25% dotted lines bound the range of outcomes expected with 50% confidence. In other words, there is a 90% chance that the fuel use will be somewhere between the outer dotted lines (Figure 28) out to year 2025. As shown in these results, the uncertainty in the new vehicle average fuel economy is significant and grows considerably over time.

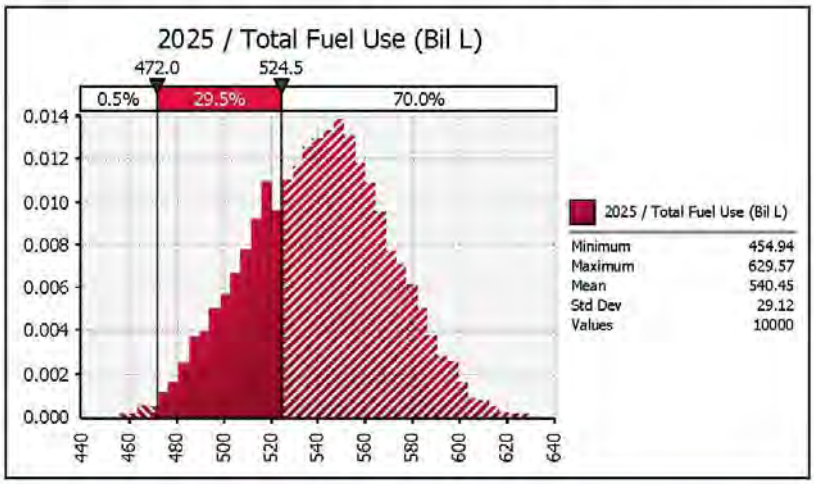

Figure 26 2025 U.S. fleet fuel use probability distribution function (billion litres of gasoline equivalent): CAFE only scenario

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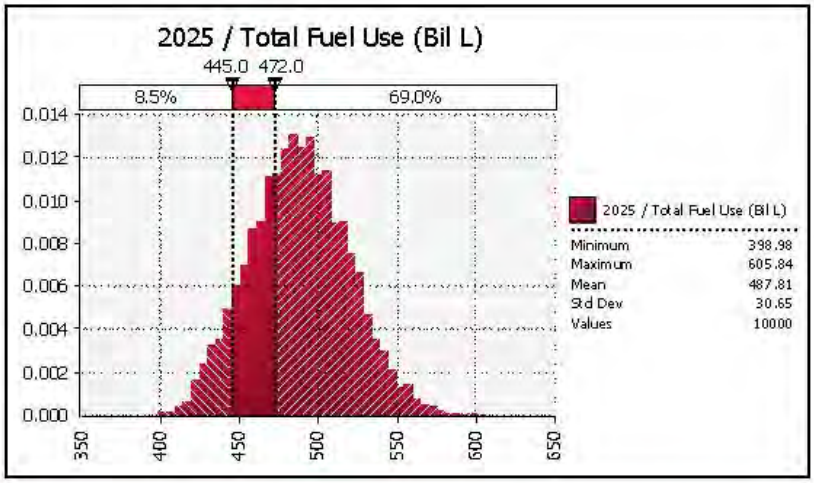

Figure 27 2025 U.S. fleet fuel use probability distribution function (billion litres of gasoline equivalent): CAFE and demand scenario

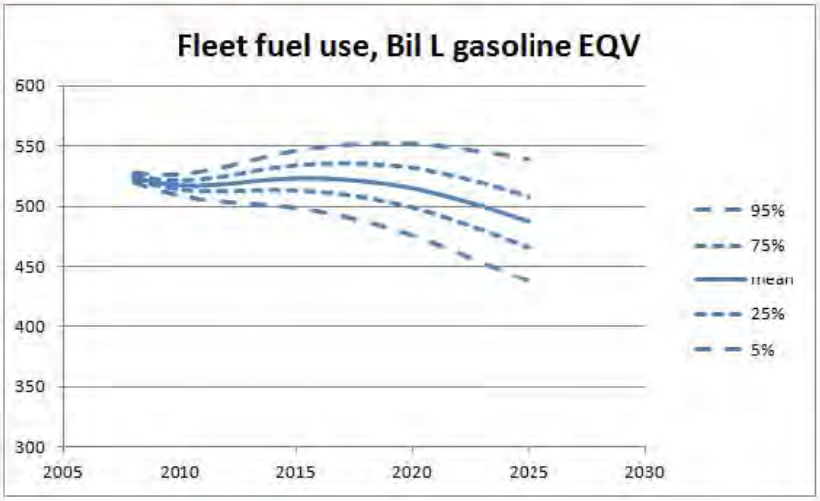

Figure 28 U.S. on road fleet fuel use (billion litres of gasoline equivalent): Meeting CAFE and demand reduction scenario over time out to 2025

The results indicate a greater reduction in the fleet fuel use with a higher likelihood, if additional measures such as VKT growth reduction, vehicle sales reduction, and fleet downsizing are implemented to complement the proposed fuel economy standards. These results therefore highlight the need for policies and measures that control and reduce other drivers of fleet fuel use such as VKT growth and demand reduction (ranked high in major influences in Figure 29) to complement the fuel economy standards in achieving a significant reduction in the light-duty vehicle fuel use and the likelihood of achieving such targets in the mid and long term.

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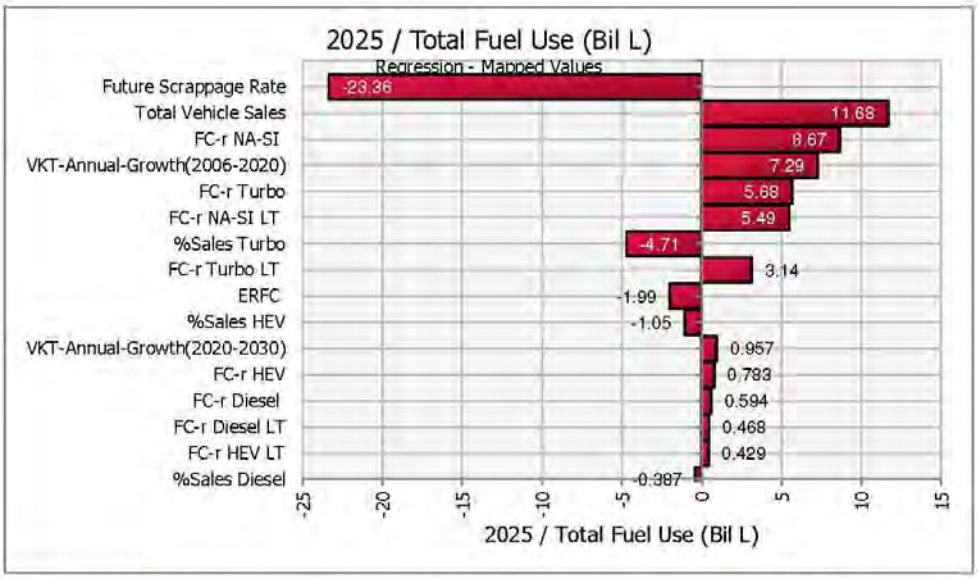

Figure 29-2025 U.S. Fleet fuel use ranked major influences: Meeting CAFE and demand reduction scenario

Impact of proposed regulations on fleet GHG Emissions

The impact of the proposed fuel economy targets on fleet GHG emissions in 2025 is examined under the CAFE only scenario and CAFE and demand scenario previously defined. The impact of the fuel economy regulation on GHG emissions is dependent on the upstream emissions assumptions and the availability of alternative fuels. With an ever increasing enthusiasm for electrification, the extent and rate of reductions in electricity generation emissions becomes extremely significant. Electricity and biofuels are counted with a dirty component (coal/ corn ethanol), and a clean component (renewable electricity/cellulosic biomass), and an average GHG emissions are calculated based on the availability and integration rate of renewable sources in the electricity generation mix (Bastani, Heywood, Hope, 2012). The use of fuel from tar sands is also assumed to grow over time. Substantial, but achievable, changes on the energy supply side are assumed here. The average grid electricity emissions is assumed to reduce significantly (by almost a factor of two by 2025). The amount of fuel coming from sources such as tar sands also grows substantially by 2025.

The fleet GHG emissions probability distribution function under the CAFE and demand scenario in 2025 indicates about a 16% chance of a 25% reduction below 2008 levels and only less than a 5% chance of exceeding 1,525 Mt CO2 equivalent in 2025 (Figure 30). The expected value is about 1,340 with a standard deviation of about 105 million metric tons of CO2 equivalent. The fleet GHG emissions probability distribution is negatively skewed in 2025, cautioning against much higher fleet GHG emissions at very low likelihood. Figure 31 illustrates the fleet GHG emissions expected value and 5%, 25%, 75% and 95% percentile values out to 2025, given the proposed regulations and other policies to reduce demand and increase emphasis on reducing fuel consumption and fleet downsizing. Figure 31 shows the expected reduction in fleet fuel use that can be achieved over time, under the CAFE and demand scenario, as well as the 5th, 25th, 75th and 95th percentile values. As shown in these results, the uncertainty in the fleet GHG emissions is significant and grows considerably over time.

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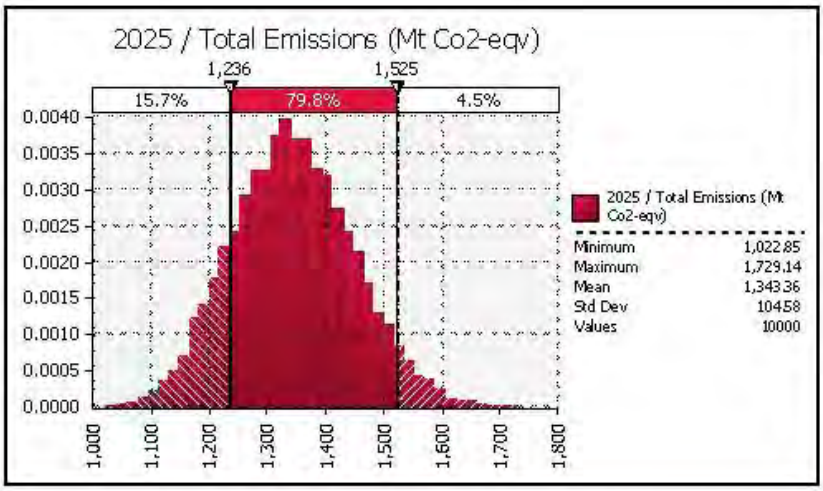

Figure 30 2025 U.S. fleet life-cycle GHG emissions (million tons of CO_2 equivalent): Meeting CAFE and demand reduction scenario with significant greening of upstream energy sources

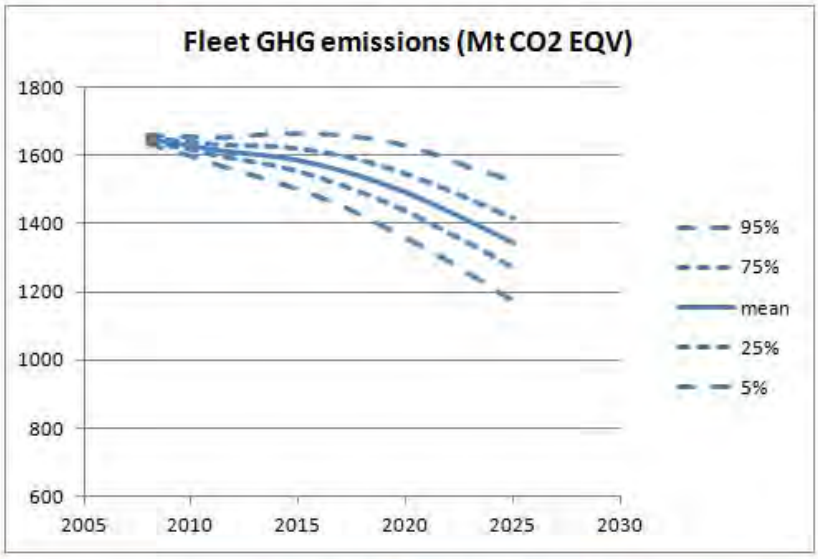

Figure 31 U.S. Fleet life-cycle GHG emissions (million tons of CO_2 equivalent): Meeting CAFE and demand reduction scenario with significant greening of upstream energy sources

Strategies for meeting fuel economy targets in 2016 and 2025

Major contributors to CAFE are identified and ranked here based on their relative importance and level of uncertainty. These graphs are developed using ranked linear regression analysis of the inputs and outputs. The labels on the y-axis indicate the major influencing factors, and the numbers on the bar in front of each parameter, along the x-axis, shows by how much (in mpg) CAFE would increase with a one standard deviation

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increase in the input shown on the y-axis. The major contributors from this graph are then used as strategy levers to develop scenarios that meet the 2016 and 2025 targets, summarized in Table 5.

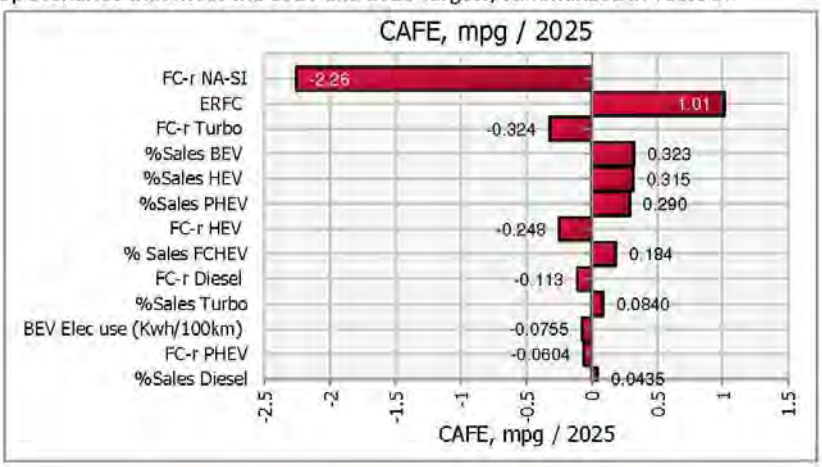

Figure 32- 2025 CAFE major influences (mpg) under uncertainty

Table 5 summarizes strategies for meeting the average on-road fuel economy targets of 25 mpg and 34 mpg in 2016 and 2025, through light weighting of the vehicles, downsizing the fleet, deployment and rapid penetration of alternative powertrains, and higher emphasis on reducing fuel consumption. A significant weight reduction of about 19.5% for an average vehicle and a fully downsized fleet would be required to meet an average industry fuel economy target of about 25.2 mpg in 2016, if no other measures are taken. This strategy requires even more aggressive weight reduction of about 27% and a substantially downsized fleet to meet the 2025 target of 34 mpg. Similarly, an aggressive shift of market to alternative vehicles with a 50% market share would be required in addition to some reduction in average vehicle curb weight (about 7.5%) to achieve 25.7 mpg in 2016.

The total market share of alternative powertrains would need to be 100% with significant average vehicle curb weight reduction of about 17.5% along with a relatively high emphasis on reducing fuel consumption (25% higher than its historical value) to achieve 34.8 mpg in 2025, following an alternative powertrains strategy (Table 5). Combining strategies such as light weighting, downsizing, high emphasis on reducing fuel consumption, and deployment of alternative powertrains can achieve 26.2 mpg in 2016, though it requires substantial simultaneous changes in all aspects from historical trends. These changes need to be even more aggressive and demanding if they are to meet the stringent 2025 fuel economy targets. The required changes compared to the historical trends to meet the 2016 and 2025 on-road industry average fuel economy targets of 26 and 37 mpg are significant (Figure 33-36). As illustrated in Figure 33-36, meeting the proposed fuel economy targets requires substantial changes from the historical trends on all fronts (a) rapid deployment rate of new technologies in the market (b) aggressive downsizing and weight reduction, which becomes even more demanding if put in the historical context of increasing vehicle weight in the U.S., (c) rapid technological progress rate both for conventional and advanced engine and powertrain technologies, and (d) high emphasis on reducing fuel consumption: implying the need for reducing consumers' expectation on increasing vehicle performance and

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size to instead focus technological progress on fuel economy improvement gains. These scenarios therefore highlight the need for allowing enough time to meet stringent fuel economy standards and the need for early preparation and implementation of harmonized policies to regulate all key drivers of fuel economy progress and fleet fuel use with coordinated measures.

Strategies	%ERFC	% curb wt reduction from 2009 (average new vehicle weight)	% cars	% market share by powertrains								On-road CAFE, MPG (test cycle)
				NA SI	Turbo SI	Diesel	HEV	PHEV	BEV	FCHEV	Total alt.	
2009	50%	...(1,727 Kg)	51%	94%	4%	0%	2%	0%	0%	0%	6%	21.04 (25.5)
2016												
Lightweight and downsize	85%	19.5% (1,390 Kg)	90%	94%	4%	0%	2%	0%	0%	0%	6%	25.2 (30.5)
Alt. powertrains	75%	7.5% (1,598 Kg)	51%	53%	30%	4%	9%	3%	3%	1%	50%	25.7 (31.1)
Combination	85%	12.5% (1,512 Kg)	65%	55%	21%	4%	15%	2%	2%	1%	45%	26.9 (32.5)
2025												
Lightweight and downsize	85%	27% (1,261 Kg)	90%	46%	27%	9%	9%	4%	4%	1%	54%	34.3 (41.5)
Alt. powertrains	75%	17.5% (1,428 Kg)	60%	0%	57%	7%	21%	6%	6%	3%	100%	34.8 (42.1)
All approaches	85%	22% (1,350 Kg)	70%	22%	33%	7%	23%	6%	6%	3%	83%	36.4 (44.0)

Table 5 Strategies for Meeting the 2016 and 2025 CAFE targets

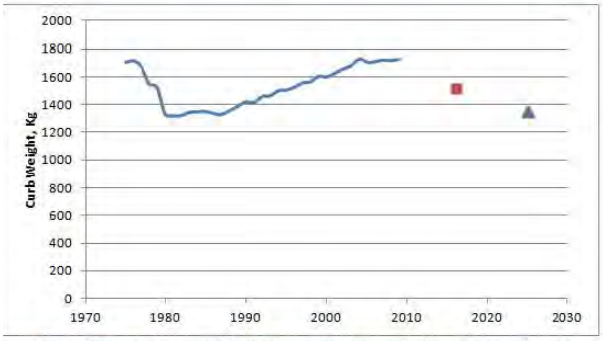

Figure 33 Average vehicle Curb weight, historical trend and future "combination" scenario 2016 and 2025 (See Table 5)

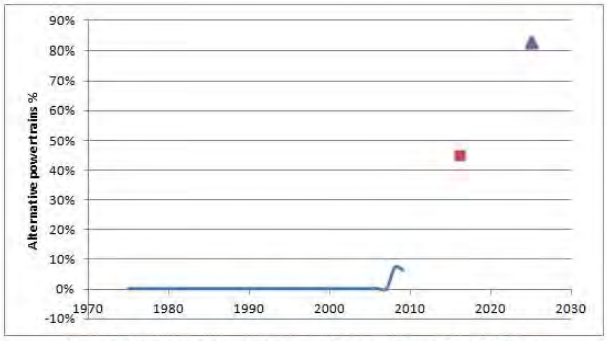

Figure 34 Market share of cars, historical trend and future "combination" scenario 2016 and 2025 (See Table 5)

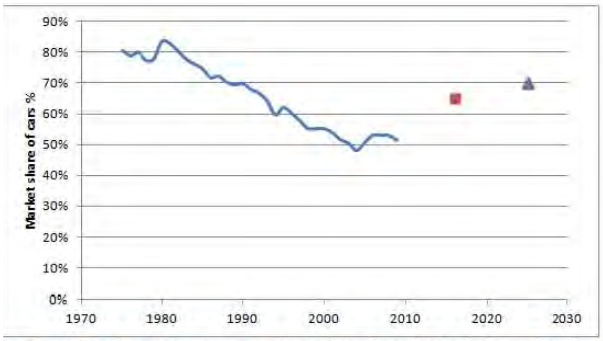

Figure 35 Alternative powertrain market share, historical trend and future "combination" scenario 2016 and 2025 (See Table 5)

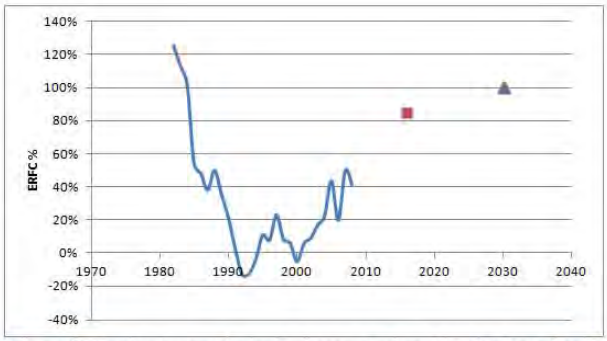

Figure 36 Emphasis on reducing fuel consumption, historical trend and future "combination" scenario 2016 and 2025 (See Table 5)

U.S. CAFE STANDARDS:

Conclusions

This analysis quantifies the likelihood of achieving the average light duty new vehicle fuel economy targets of 32.5 and 34.1 mpg in 2016 and 44 and 54.5 mpg in 2025, the nominal CAFE values and what is assessed as representative after allowing for various credits in the recent joint EPA/DOT proposed rulemaking. These numbers are combined sales-weighted averages for cars and light trucks. Cars therefore will need to meet higher mpg targets, and light trucks lower targets, depending on the relative percentages of these two vehicle categories. Three scenarios were assessed in this study: (a) an ambitious yet plausible technology and fuel development pathway resulting in an expected reduction of 50% in the fleet fuel use by 2050 (b) a scenario with an assumed ERFC of 100%, where all technological progress is used to improve fuel economy instead of offsetting any increase in vehicle size, weight, or horsepower (c) the EPA/DOT preferred alternative scenario, proposed in the draft rulemaking documents by the agencies to meet the CAFE targets, through aggressive penetration of alternative powertrains, significant technological progress in mainstream technologies, and moderate downsizing of the fleet . The expected passenger car and combined (including light trucks) sales weighted average fuel economy are about 33 and 29 mpg respectively in 2016, and about 39 and 35 mpg in 2025, under the plausible-ambitious scenario. The probabilities to meet or exceed the combined CAFE targets in 2016 and 2025 are both extremely low (less than 0.5%) in this scenario. The expected passenger car and combined CAFE increase to about 34 and 30 mpg respectively in 2016, and 43 and 38 mpg in 2025, under the high ERFC scenario: highlighting the significance of the emphasis on reducing fuel consumption in meeting the CAFE targets. The likelihood of meeting the combined targets, with light trucks included in the mix, are slightly higher than the plausible-ambitious scenario, though still highly unlikely. Under the EPA/DOT preferred alternative scenario, there is about 2.4% chance of passenger cars CAFE falling below 32.5 mpg in 2016, which increases to about 80% for combined CAFE. Similarly, in 2025 there is about 45% likelihood of passenger cars CAFE falling below 44 mpg, which increases to 85% for combined CAFE. The likelihood of meeting or exceeding the nominal CAFE targets of 34.1 and 54.5 mpg in 2016 and 2025 are about 74% and less than 1% for passenger cars respectively, which drop to about less 0.5% in 2016 and 2025 for combined CAFE (including light trucks) under the EPA/DOT scenario.

The proposed regulations are highly demanding on both technological and market deployment fronts. Strong coordinated policies will thus be required to incentivize aggressive technological development and rapid penetration of alternative vehicles and fuels in the market, and thus increase the likelihood of achieving these near and mid term goals. Emphasis on reducing fuel consumption (ERFC) is also shown to be a key assumption in meeting the stringent fuel economy improvement targets. ERFC has been historically below 50% in the past two decades, indicating that only 50% of technological progress has been used directly to improve fuel economy, with the remainder offsetting the penalties of increases in performance and vehicle size and weight. The level of ERFC should not thus be taken for granted: coordinated policies and incentives for both suppliers and consumers are required to achieve a high ERFC in the future. The analysis shows that there is a higher likelihood of achieving the 2016 fuel economy targets. The likelihood of achieving the 2025 targets reduces significantly due to the substantial changes required in the various key influencing factors and the short time allowed for such significant technological development and market changes, given the reducing margin of readily accessible efficiency opportunities in engine, powertrain, and vehicle technologies. The U.S. government agencies involved are proposing a midterm review, which will play an important role in re-evaluating the baselines and required adjustments in these and further regulatory targets.

U.S. CAFE STANDARDS:

The strategies examined in this analysis for meeting the 2016 and 2025 fuel economy targets reveal the level of change from historical trends that is required to meet these targets. These strategies require substantial changes in all the major influencing factors including vehicle light weighting, fleet downsizing, higher emphasis on reducing fuel consumption, and rapid development and deployment of alternative powertrains to meet these near and mid term targets. Even by combining these strategies, however, the required change on all these fronts is substantial compared to the historical trends. The achievement of such significant changes further highlights the need for timely policy making and rapid implementation of harmonized policies to regulate all key determinants of average fuel economy and fleet fuel use to increase the likelihood of a greater impact in the near and mid term. The impact of the proposed fuel economy regulations on the fleet GHG emissions is also highly dependent on the upstream emissions and availability of alternative fuels. Decarbonisation of the electricity generation mix is of particular importance as large scale and rapid fleet electrification is encouraged.

The results indicate that in the presence of other policies in addition to CAFE, there is a 20% increase in the likelihood of reducing the fleet fuel use by 10% in 2025. In the absence of fuel standards and electricity grid decarbonisation policies, CAFE will not have a meaningful impact in reducing the fleet GHG emissions. In the presence of such polices, increased supply of alternative fuels, and demand reduction, however, the results show about a 16% chance of a 25% reduction below 2008 levels and only a 5% chance of exceeding 1,525 Mt CO2 equivalent by 2025: highlighting the need for complementary policies to CAFE standards to make a meaningful reduction in the U.S. fleet fuel use and GHG emissions into the future. Policies to coordinate various aspects of vehicle improvements, fuel developments, and demand dynamics are thus needed to increase the likelihood of a more substantial impact on fleet fuel use, energy consumption, and transport GHG emissions. Such policies may include higher fuel quality standards that coordinate fuel production and vehicle fleet capabilities to ensure the most effective use of produced volumes, particularly for bio-fuels. Better coordination between federal and state policies, such as Renewable Fuel Standard (RFS) at federal level and (Low Carbon Fuel Standard) LCFS at state level is needed to set harmonized national fuel standards. Price signals to reduce incentives for unconventional oil with negative emissions impacts need to be considered, especially as the price of oil and the likelihood of fuel switching rise. Furthermore, standards to regulate the upstream energy sources from electricity becomes more important as the fleet transitions towards battery electric, plug-in hybrid electric, and fuel cell vehicles, to realize any emissions reduction benefits from the penetration of alternative vehicles in the fleet. National grid coordination and drivers' education becomes also increasingly significant to optimize charging schedules and achieve minimum emissions from current power plants, while electricity sources shifts towards renewable. Policies such as dynamic demand-supply electricity pricing may be explored for more effective and timely consumer response. Further, policy priority should include research and development in improving battery capacities, efficiencies, and cost reductions for higher penetration of battery electric vehicles in the near and mid terms. Vehicle registration and VKT taxes, congestion pricing, tolls and parking fees may also be considered for vehicle and travel demand reduction to realize a more significant fleet-wide energy and emissions impact in the mid and long terms. Coordinated feebates on new and used vehicle registration and fuel-efficiency feebates should be explored to achieve optimum scrappage rate for faster penetration of new and improved vehicles in the fleet, and induce a market based supply and demand pull for an increase in emphasis on reducing fuel consumption (ERFC). The determinants and thus the impact of these policies and their interactions remain uncertain, however, as one considers the future of light-duty vehicles. These uncertainties need thus to be accounted for systematically in the assessing the impact of these policies on fuel

and emissions reductions, in the light of future policy interventions and achieving an optimum likelihood of impact.

The results from this paper demonstrate the effect of uncertainty on future fleet average fuel economy, fleet fuel use and emissions reduction in the context of meeting the newly proposed regulations. This analysis highlights the importance of taking uncertainties into account when analyzing the future of the light-duty vehicle fleet to inform more robust policy making, given the real world uncertainties in technology development and market behaviour. Key strategic areas to reduce uncertainties are further identified, to inform research priorities. Quantifying the impact of uncertainties using stochastic modelling allows decision makers to better understand the consequences of their decisions in the light of their associated risk, and thus take a step closer towards evidence-based numerical decision making under uncertainty. Various scenarios should be explored including the uncertainties, to make policies robust to the most likely range of outcomes given regulatory interventions. Understanding the probability of achievement of certain targets allows a more robust cost benefit analysis among policies, given their likelihood of achieving different targets and conditional probabilities. Uncertainties therefore are essential to be taken into account as policy makers and regulatory bodies make decisions and set standards that shape the future of light-duty vehicles over the next several decades, while facing considerable uncertainties in technology and market characteristics in the mid to long term.

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Response to Comment No. 10-54

The analysis of CAFÉ standards presented above is outside the scope of the RPDEIR. Please refer to Section 1.2 of this Final RPEIR for a discussion of the scope of the RPDEIR, the City's obligation to respond to comments outside the scope of the RPDEIR, and the standards for recirculation of a Draft EIR due to "significant new information." The commentor offers no "significant new information" with respect to cumulative impacts within the meaning of CEQA Section 21092.1 and CEQA Guidelines Section 15088.5.

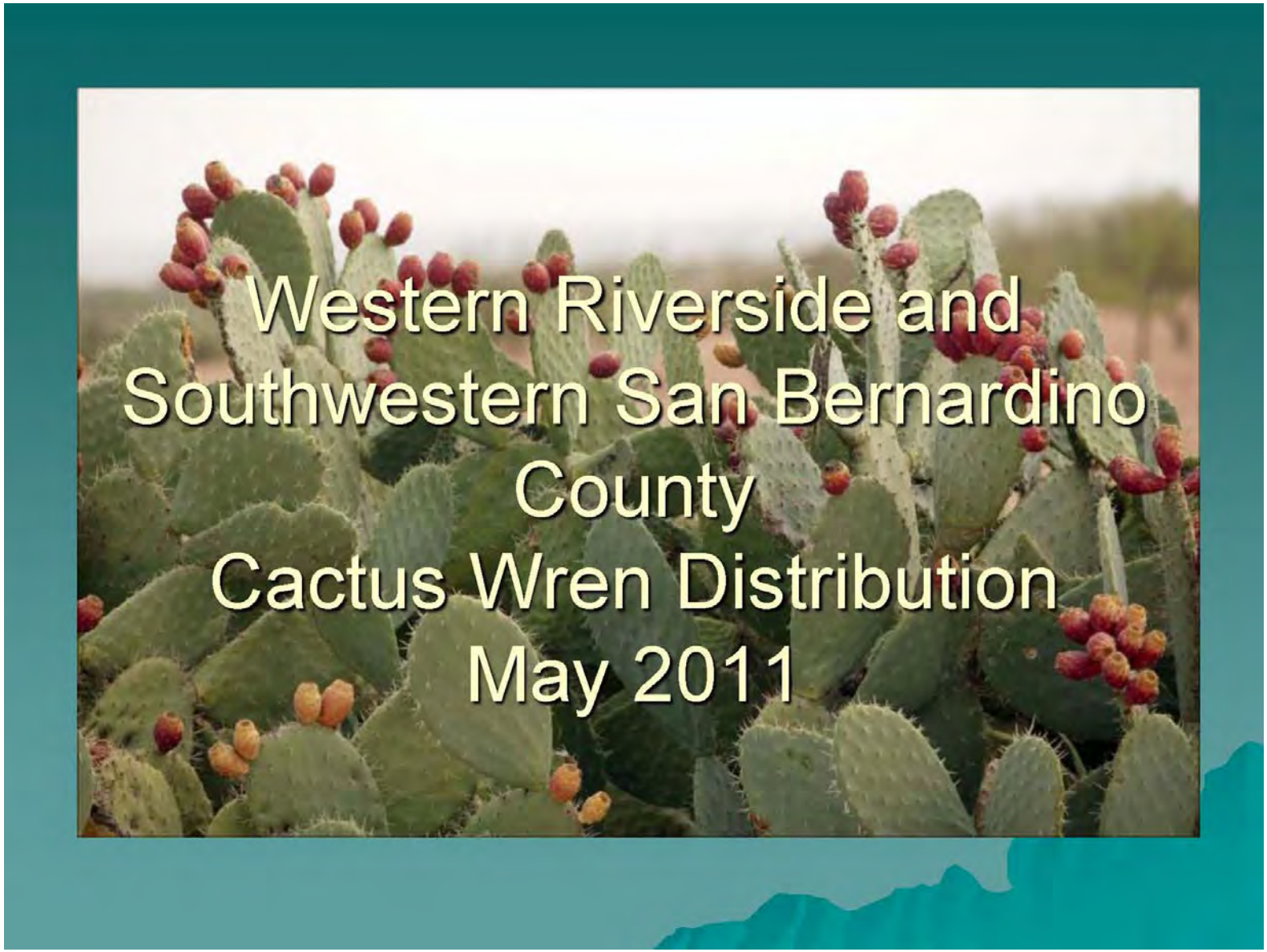
Refer to Response to Comment No. 10-17. This comment is noted for the record and will be forwarded to the decision makers.

Comment Letter No. 10 (continued)

Save Lytle Creek Wash April 3, 2012 Comment Letter

ATTACHMENT 4:
USFWS Cactus Wren Presentation

Comment No. 10-55

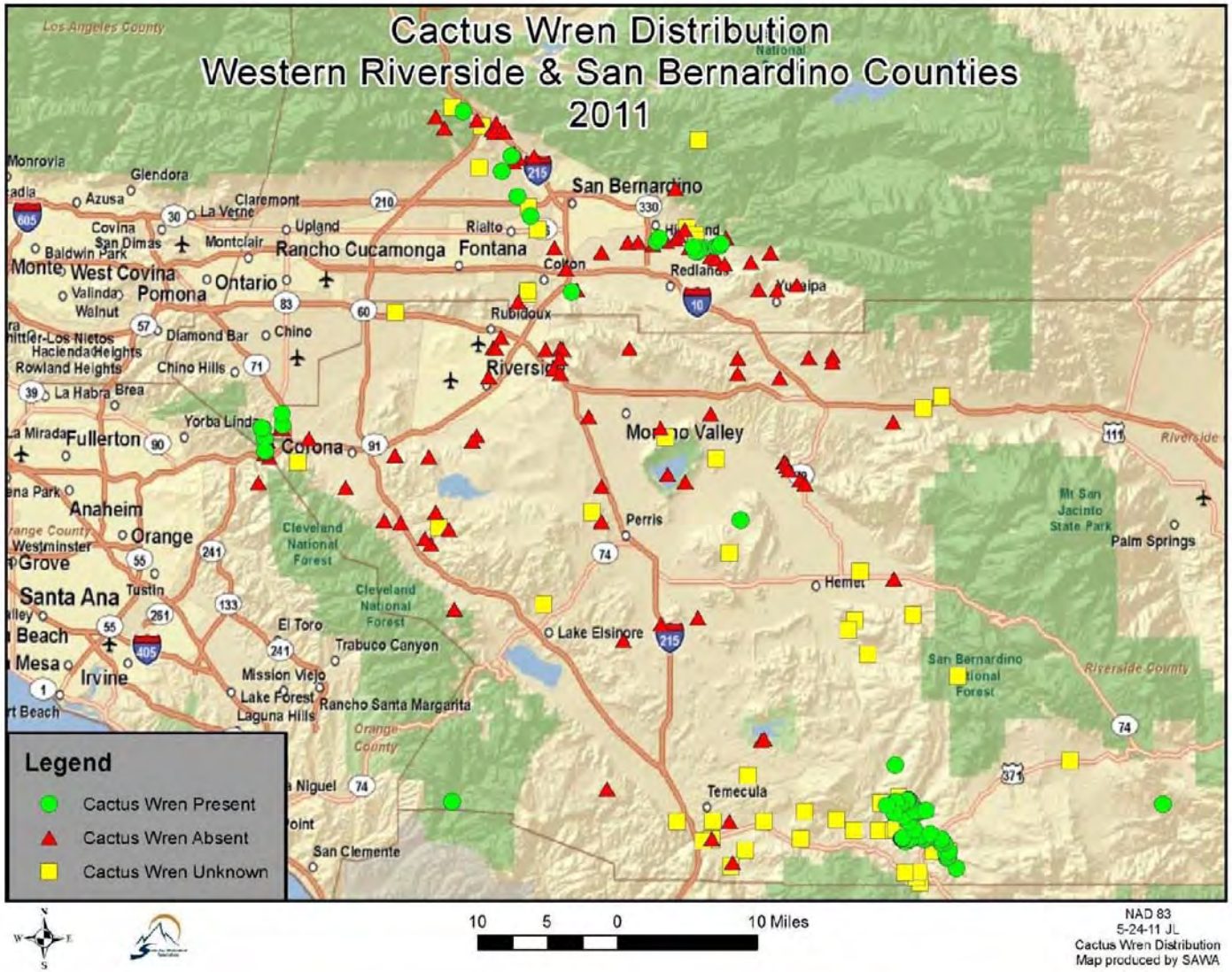


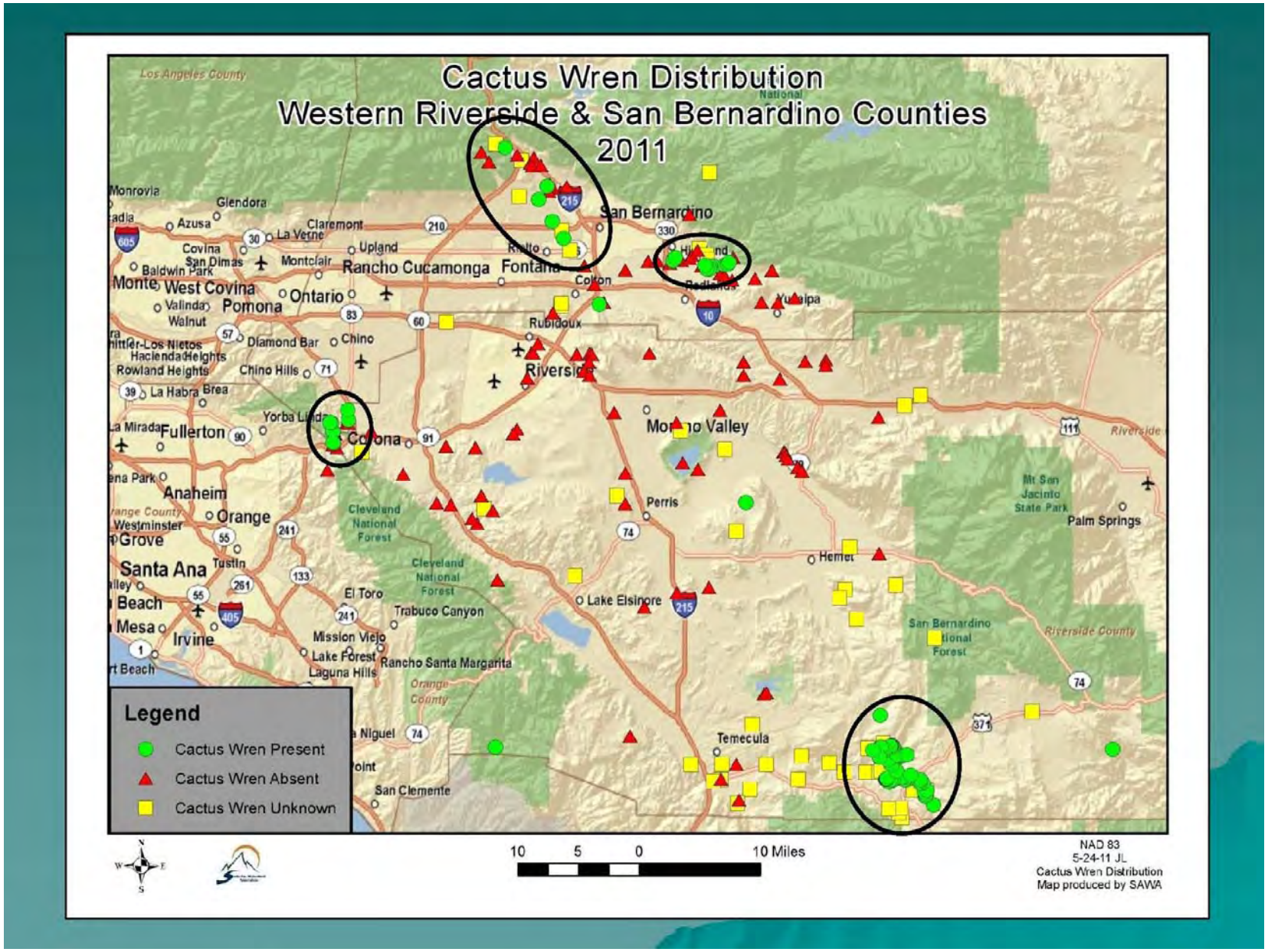
Outline

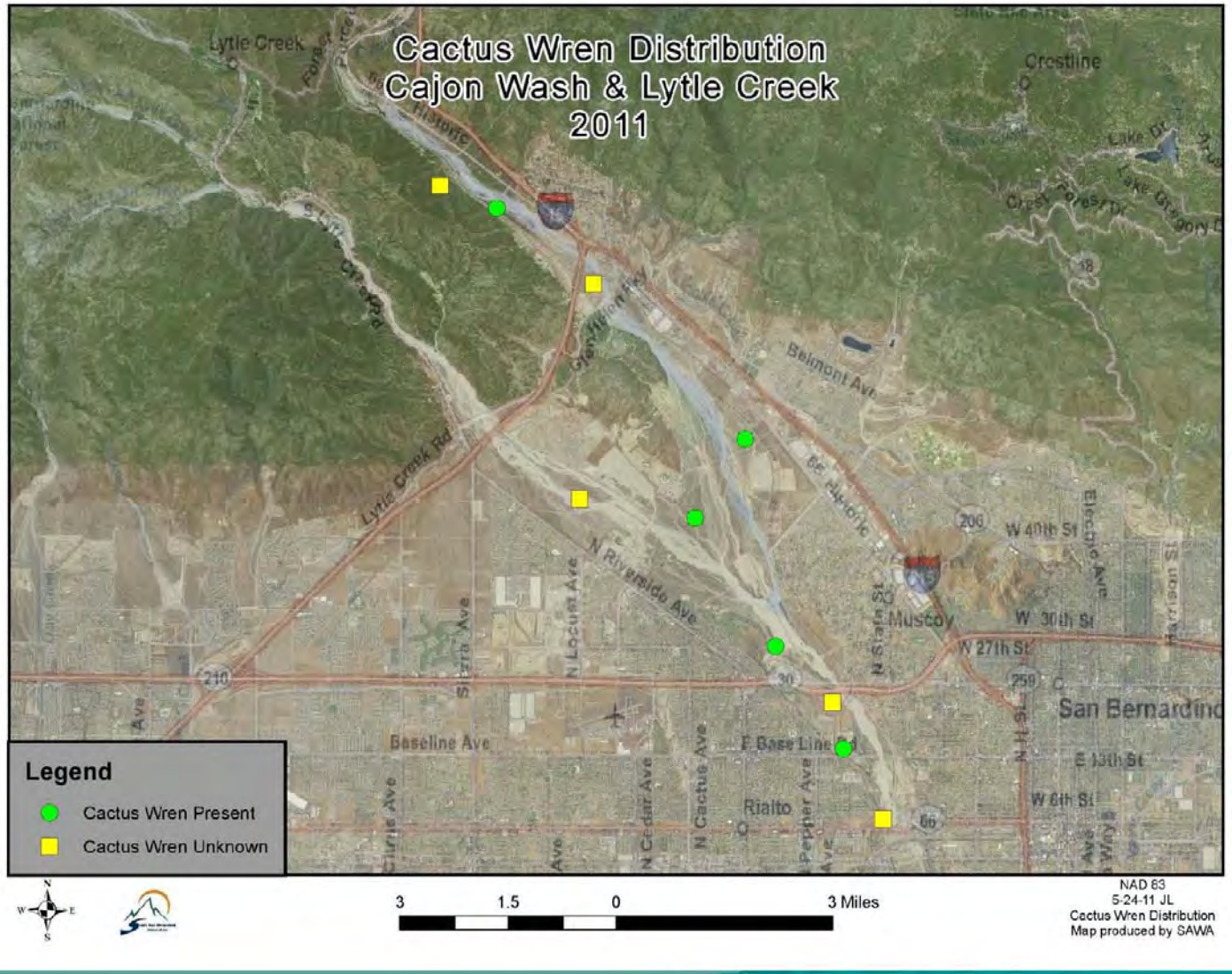
- Data Collection Methods
- Distribution Maps
- Potential Threats
  - Chino Hills State Park Fire
  - Lytle Creek Development
  - SAR pipeline project
  - No Regulatory Protection
- Restoration
  - State Parks
  - Prado Basin
- Future Plans
- Contributors

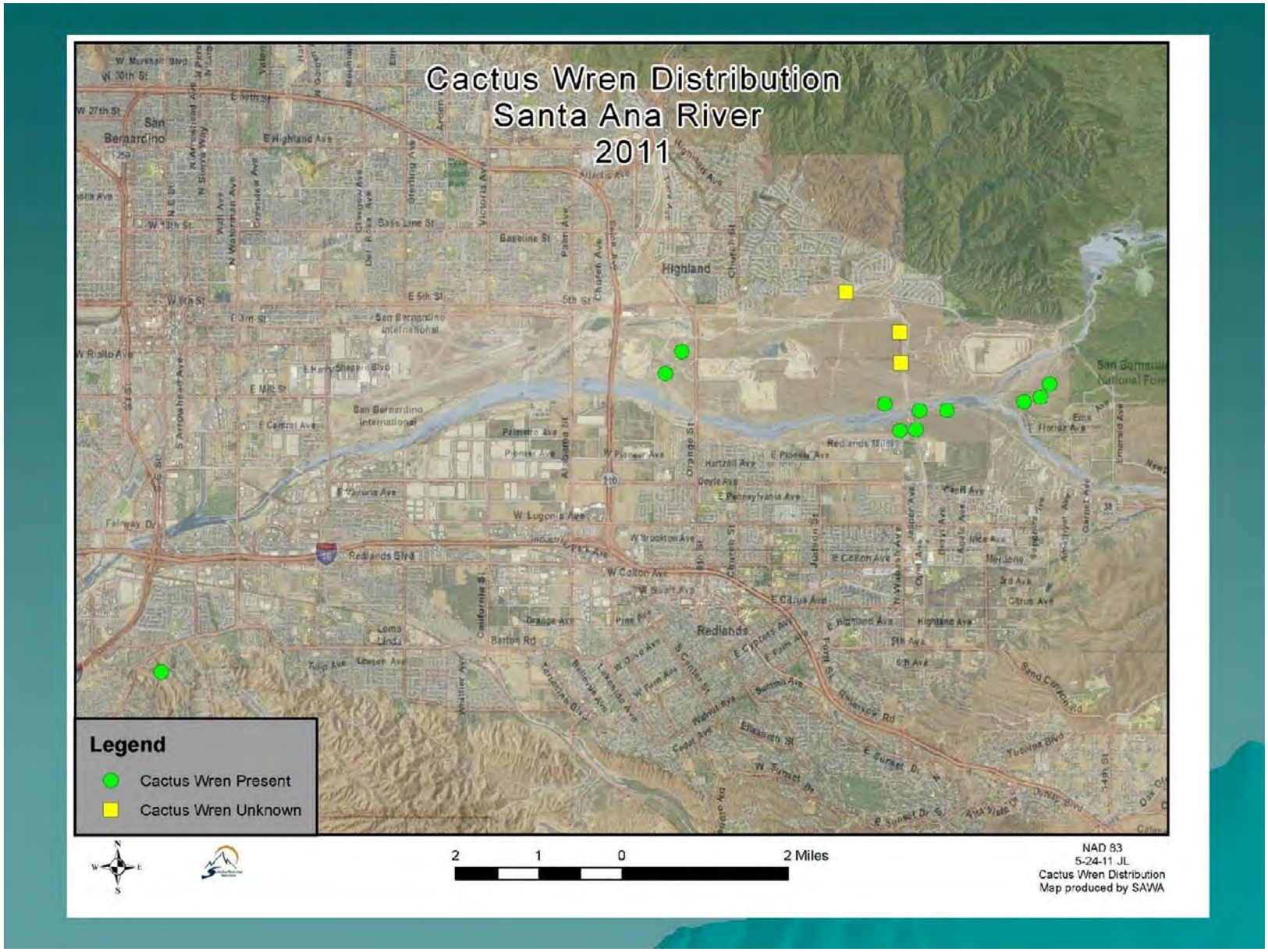
Data Collection Methods

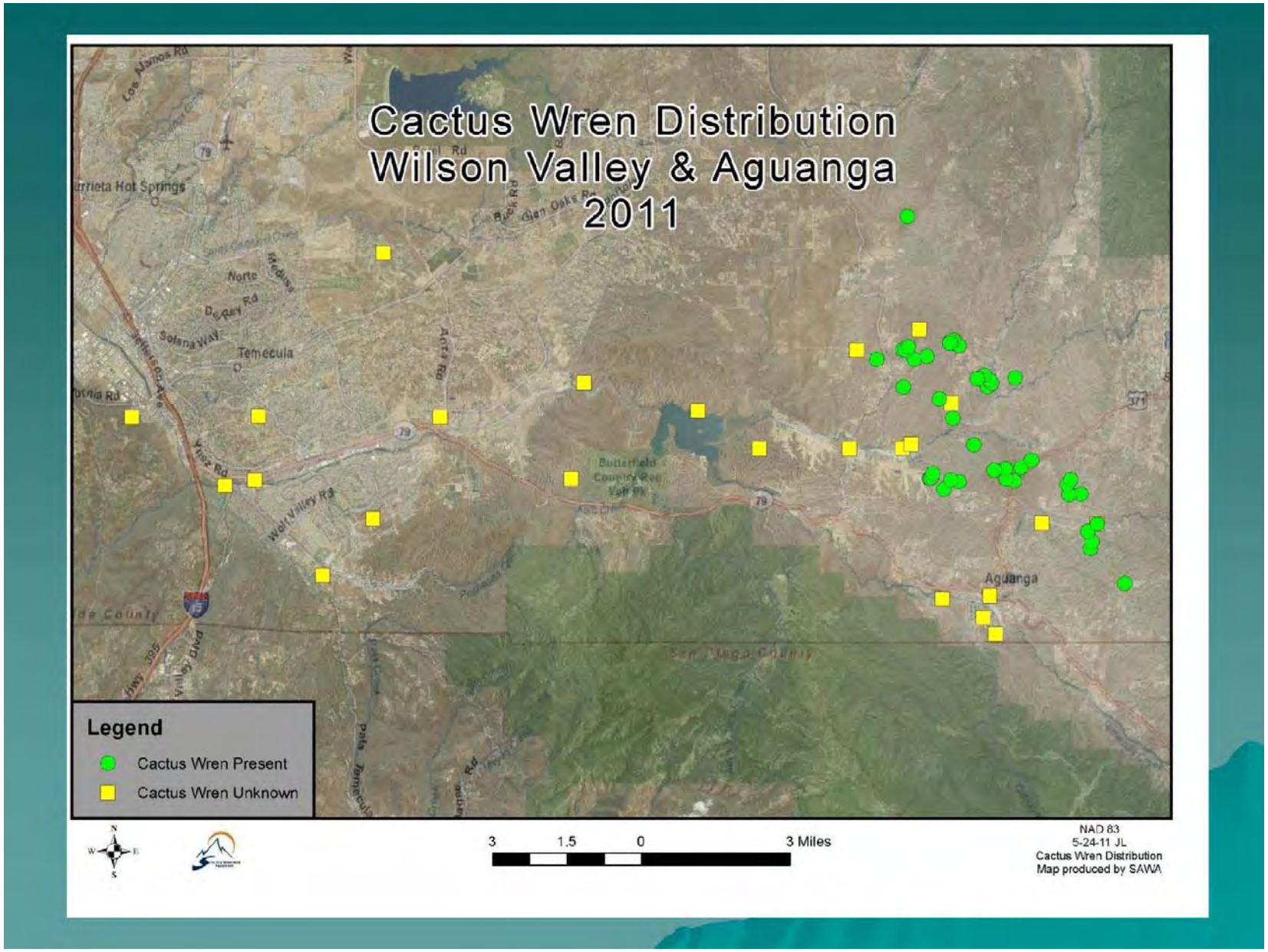
- Inquire agency databases
  - USFWS
- inlandcountybirds@yahoogroups.com
- MSHCP Biological Monitoring Program
- Re-survey any sightings over 2 years old
- Investigate known cactus scrub habitat
- Organize data to map

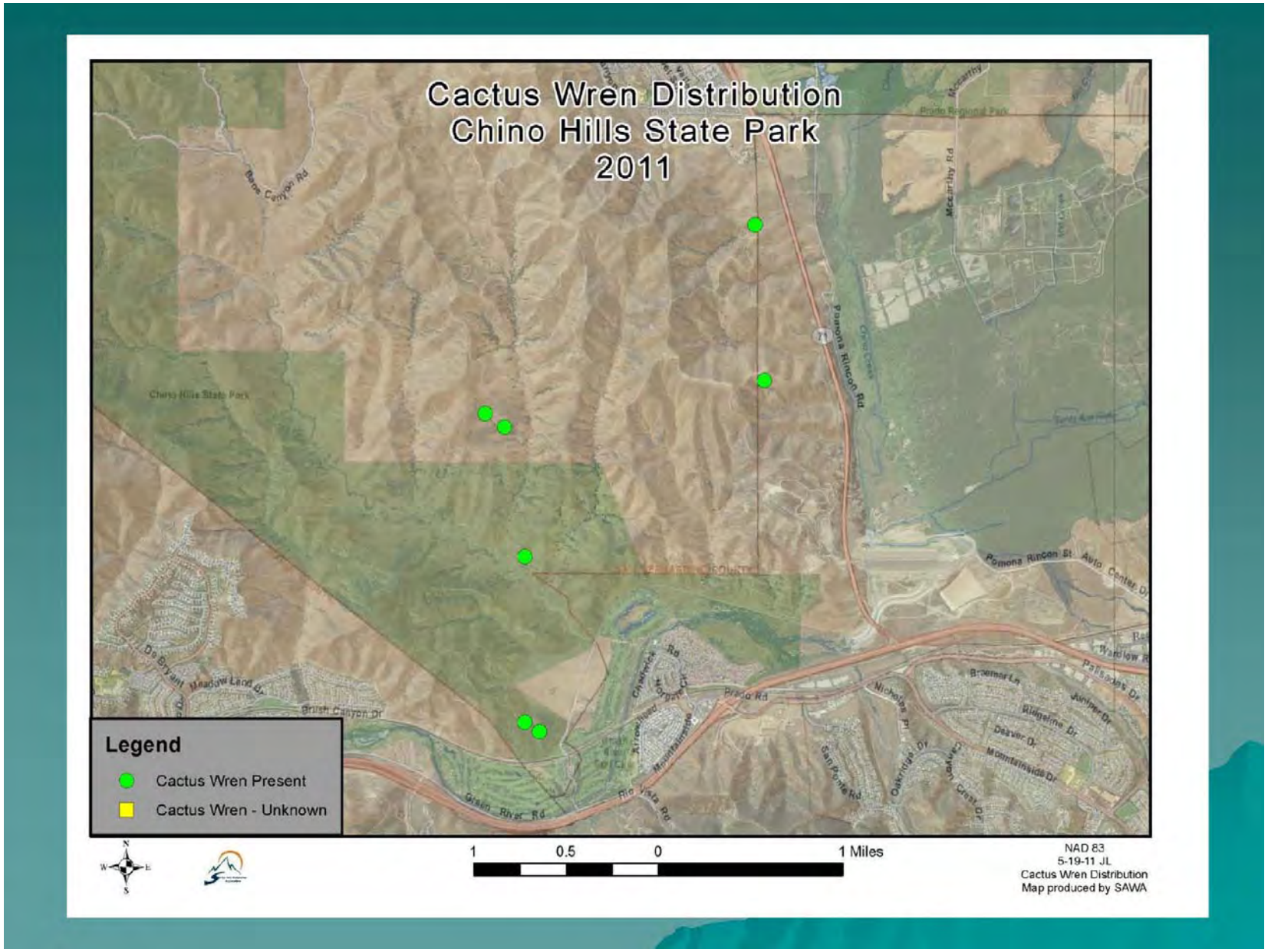

Cactus Wren Distribution
Western Riverside & San Bernardino Counties
2011
Legend
Cactus Wren Present
Cactus Wren Absent
Cactus Wren Unknown
10 5 0 10 Miles
NAD 83
5-24-11 JL
Cactus Wren Distribution
Map produced by SAWA
San Bernardino
Rialto
Fontana
Rancho Cucamonga
Ontario
Pomona
West Covina
Claremont
Upland
Montclair
Colton
Redlands
Riverside
Rubidoux
Chino
Corona
Fullerton
Anaheim
Orange
Santa Ana
Tustin
Irvine
Mission Viejo
Lake Forest
Rancho Santa Margarita
Laguna Hills
El Toro
Trabuco Canyon
Lake Elsinore
Perris
Hemet
Temecula
San Clemente
Palm Springs
Cleveland National Forest
Mt San Jacinto State Park
San Bernardino National Forest
Los Angeles County
Orange County
Riverside County


Cactus Wren Distribution
Western Riverside & San Bernardino Counties
2011
Legend
Cactus Wren Present
Cactus Wren Absent
Cactus Wren Unknown
10 5 0 10 Miles
NAD 83
5-24-11 JL
Cactus Wren Distribution
Map produced by SAWA
San Bernardino
Rancho Cucamonga
Fontana
Ontario
Pomona
Riverside
Corona
Fullerton
Anaheim
Orange
Santa Ana
Irvine
Perris
Hemet
Lake Elsinore
Temecula
Palm Springs
Cleveland National Forest
Los Angeles County
Orange County
Riverside County


Cactus Wren Distribution
Cajon Wash & Lytle Creek
2011
Legend
Cactus Wren Present
Cactus Wren Unknown
Lytle Creek
Crestline
Belmont Ave
Lytle Creek Rd
N Riverside Ave
Muscoy
W 40th St
W 30th St
W 27th St
San Bernardino
Baseline Ave
E Base Line Rd
Rialto
W 6th St
3
1.5
0
3 Miles
NAD 83
5-24-11 JL
Cactus Wren Distribution
Map produced by SAWA


Cactus Wren Distribution
Santa Ana River
2011
Legend
Cactus Wren Present
Cactus Wren Unknown
2
1
0
2 Miles
NAD 83
5-24-11 JL
Cactus Wren Distribution
Map produced by SAWA


Cactus Wren Distribution
Wilson Valley & Aguanga
2011
Temecula
Aguanga
Legend
Cactus Wren Present
Cactus Wren Unknown
3
1.5
0
3 Miles
NAD 83
5-24-11 JL
Cactus Wren Distribution
Map produced by SAWA


Cactus Wren Distribution
Chino Hills State Park
2011
Legend
Cactus Wren Present
Cactus Wren - Unknown
1
0.5
0
1 Miles
NAD 83
5-19-11 JL
Cactus Wren Distribution
Map produced by SAWA

Chino Hills State Park

Melody Aimar
12/11/2008

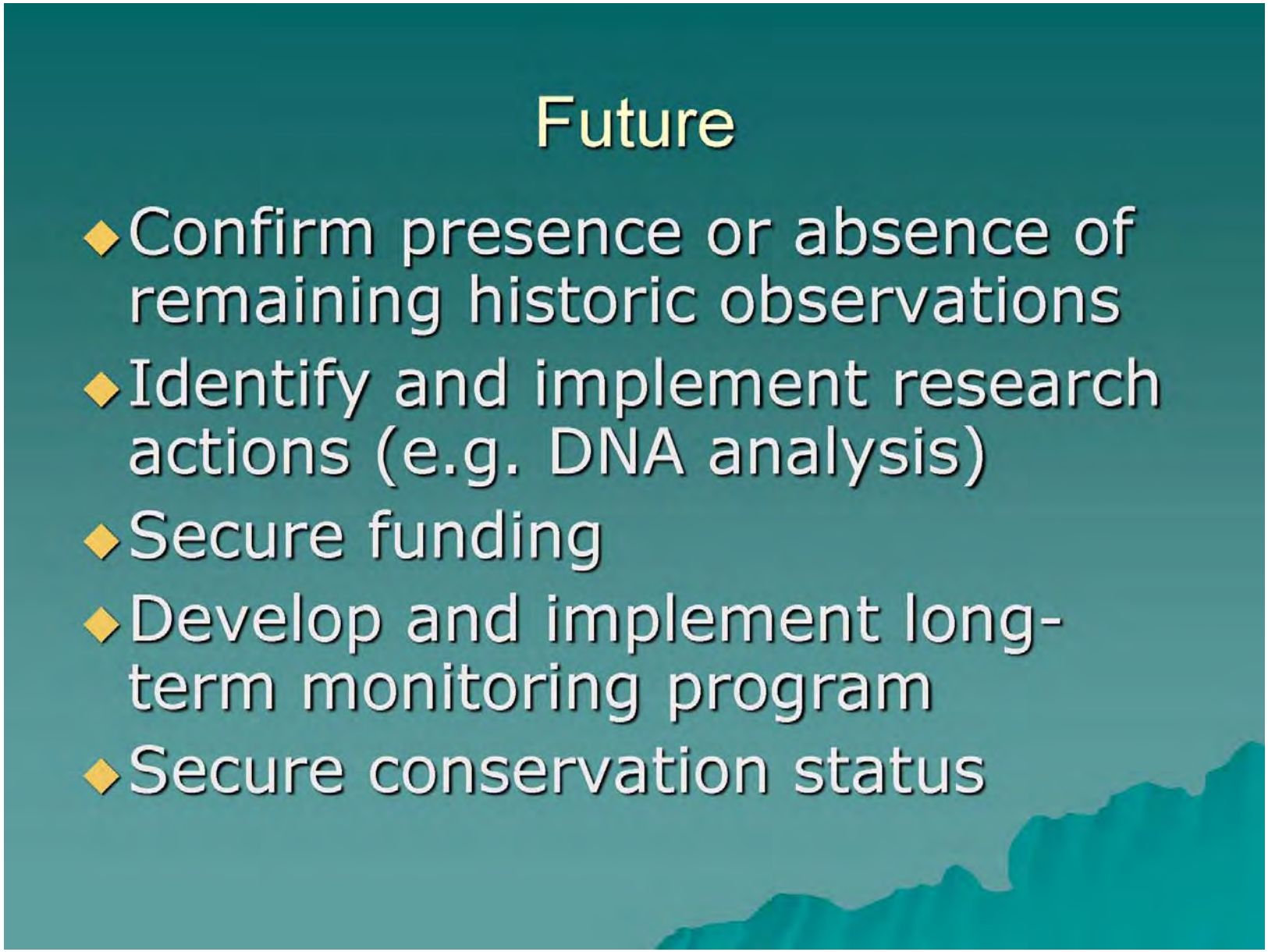
Melody Aimar
12/11/08

AREA CLOSED
FOR PLANT
Melody Aimar
12/11/2008

Restoration

- Chino Hills State Park
  - State Parks propagating cactus to restore CHSP and currently planting cholla at Lake Perris (historic)
- Prado Basin (OCWD)
  - Restoration in the ground
  - Attempt to make connection to CHSP

Prado CSS/Cactus Scrub
Restoration Area


Future
Confirm presence or absence of remaining historic observations
Identify and implement research actions (e.g. DNA analysis)
Secure funding
Develop and implement long-term monitoring program
Secure conservation status

Contributors

- John Green, Al Kelly, Matt Baker, Dave Goodward, Jim Pike
- USFWS
- Santa Ana Watershed Association
  - Biologists: Dave McMichael, Talula Barbee, Allyson Beckman, Jill Coumoutso, Nicole Housel, Giovanni Arechavaleta
  - Funding
  - GIS – James Law
- MSHCP Biological Monitoring Program
  - Nick Peterson

Thank You
Photo by Bob Manzo

Response to Comment No. 10-55

The USFWS Cactus Wren Presentation presented above is outside the scope of the RPDEIR. Please refer to Section 1.2 of this Final RPEIR for a discussion of the scope of the RPDEIR, the City's obligation to respond to comments outside the scope of the RPDEIR, and the standards for recirculation of a Draft EIR due to "significant new information." The commentor offers no "significant new information" with respect to cumulative impacts within the meaning of CEQA Section 21092.1 and CEQA Guidelines Section 15088.5.

Refer to Response to Comment No. 10-24. This comment is noted for the record and will be forwarded to the decision makers.

Comment Letter No. 10 (continued)

Save Lytle Creek Wash April 3, 2012 Comment Letter

ATTACHMENT 5:
Excerpt of El Rancho Verde SOOC

Comment No. 10-56

16. Configure construction parking to minimize traffic interference.

17. Minimize obstruction of through-traffic lanes.

18. Provide a flag-person to properly guide traffic and ensure safety at construction sites.

19. Schedule operations affecting traffic for off-peak hours, where feasible.

20. Develop a traffic plan to minimize traffic flow interference from construction activities (the plan may include advance public notice of routing, use of public transportation and satellite parking areas with a shuttle service).

21. Schedule goods movements for off-peak hours.

The Commission further finds it is not possible to provide for full development of this project without contributing to regionally significant air quality impacts. The Commission finds that no additional measures are known that can further reduce air quality impacts for the proposed project. Therefore, the Commission concludes that the proposed project has the potential to contribute to unavoidable, significant adverse effects on the region's air quality.

2. *Biological Resources*

Significant Unavoidable Impact: The proposed project will eliminate habitat of several sensitive and possibly listed plant and wildlife species. The City determined that the loss of habitat for two of these species, Los Angeles pocket mouse and San Bernardino Kangaroo rat, would be an unavoidable adverse impact.

Finding: Biological resource impacts, mitigation measures and the effectiveness of these measures in reducing impacts are discussed in the Final EIR in Section VII, 7.7 and in Responses to Comments, specifically responses to the letter from the State Department of Fish and Game. Even with implementation of the proposed mitigation measures, the City concluded in its responses to DFG that impacts to the Kangaroo rat and pocket mouse were adverse and unavoidable. Specific economic, social, or other considerations make infeasible additional mitigation measures to reduce projected biological resource impacts.

Facts Supporting Finding: The project site contains five natural plant communities that encompass approximately 58 acres of the 220 acre site, including areas to be annexed. Two biological surveys of the project site were performed and two sensitive wildlife species were determined to inhabit the site. Three sensitive habitats, including a variant of coastal sage scrub, occur on the site. In responses to the DFG comment letter (response 24 of the Responses to Comments (page 12), the City concurred that unavoidable adverse impacts will be caused by proposed project development. The City concluded that all other biological resource impacts are nonsignificant. The Commission finds that the following measures can substantially reduce biological resource impacts. These measures are:

1. Prior to the issuance of grading permits, the applicant shall present a mitigation plan for impacts to non-rare, threatened or endangered species acceptable to the City of Rialto.

2. Landscaping associated with the proposed project shall include cholla cactus in order to afford opportunities for the San Diego cactus wren to re-establish nest(s) on the subject property. Inclusion of the cholla cactus into the project's landscape pallette shall be depicted in the Landscape Plan for the subject project. Said plan shall be reviewed and approved by the City of Rialto's Planning Director prior to any subsequent issuance of building permits.

3. Landscaping associated with the proposed project shall, to the extent practicable, include plant species

Response to Comment No. 10-56

The Statement of Overriding Considerations for the El Rancho Verde Specific Plan presented above is outside the scope of the RPDEIR. Please refer to Section 1.2 of this Final RPEIR for a discussion of the scope of the RPDEIR, the City's obligation to respond to comments outside the scope of the RPDEIR, and the standards for recirculation of a Draft EIR due to "significant new information." The commentor offers no "significant new information" with respect to cumulative impacts within the meaning of CEQA Section 21092.1 and CEQA Guidelines Section 15088.5.

Refer to Response to Comment No. 10-24. This comment is noted for the record and will be forwarded to the decision makers.

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E-MAIL:
ACM@CBCEARTHLAW.COM

April 3, 2012

Via Email (ggibson@rialtoca.gov)
Gina Gibson
Development Services Department-Planning & Business License Division
City of Rialto
150 S. Palm Avenue
Rialto, CA 92376-6487

Re: Comments on Proposed Lytle Creek Ranch Specific Plan

Dear Ms. Gibson:

On behalf of Save Lytle Creek Wash, we provide the following comments on the Recirculated Draft Environmental Impact Report (RDEIR) that was prepared for the Lytle Creek Ranch Specific Plan (the "Project"). Save Lytle Creek Wash also joins in the comments submitted by Endangered Habitats League.

The massive proposed Project was originally approved by the City in 2010. This approval of the Project and the certification of the 2010 EIR were struck down by the San Bernardino Superior Court's decision in *Endangered Habitats League v. City of Rialto* (Case No. CIVDS 1011874). The RDEIR was prepared as an attempt to revise the sections of the 2010 EIR the Court found to be inadequate. Additionally, the Court found findings adopted by the City to approve a project with significant and unavoidable impacts were inadequate because substantial evidence did not support the rejection of less impactful alternatives.

The Project analyzed in the RDEIR is exactly the same as that proposed in the 2010 EIR. It would allow the construction of 8,407 residential dwelling units and 849,420 square feet of commercial space on 2,447.3 acres. This is nearly a fourfold increase in allowable residential construction in the Project area; under current zoning for the Project area, only 2,215 dwelling units could be constructed. The Project also includes the construction of seven miles of levee in the Lytle Creek floodplain and requires the annexation of 1,700 acres of unincorporated County of San Bernardino land. Many of the flaws identified by the Court remain in the RDEIR. The analysis of greenhouse gas emissions and traffic remain inadequate as detailed in comments submitted by Endangered Habitats League. Additionally, the conclusion that less impactful alternatives are not feasible remains unsupported.

The City has requested that reviewers limit the scope of their comments to the information contained in the revised sections of the RDEIR pursuant to CEQA Guidelines section 15088.5(f)(2) and has indicated that it will only respond to comments regarding those sections. Due to changes in circumstances and newly discovered information, Save Lytle Creek Wash believes it is necessary for the City to also respond to issues regarding impacts not addressed in the revised sections of the RDEIR. Moreover, the Court's decision in *Endangered Habitats League v. City of Rialto* overturned the City's approval of the entire EIR that was previously approved. This means that the City will have to reapprove findings for all impacts when determining whether to approve the Project. If there is not substantial evidence to support the previous findings, these findings must be revised and any significant impacts must be mitigated. The City must reconsider the 2010 findings regarding the Project's aesthetic, wastewater, noise, and biological impacts, in addition to preparing revised findings for the traffic, greenhouse gas emissions, and alternatives.

I. There Is a Lack of Evidence to Support a Statement of Overriding Considerations.

Any single one of the Project's significant unavoidable impacts would require disapproval of the proposed Lytle Creek Ranch Specific Plan unless there are no feasible mitigation measures or alternatives <u>and</u> specific benefits outweigh the significant impact. (Pub. Resources Code § 21081.) That is because CEQA requires public agencies to deny approval of a project with significant adverse effects when feasible alternatives or feasible mitigation measures can substantially lessen such effects. (Pub. Resources Code § 21002; *Sierra Club v. Gilroy City Council* (6th Dist. 1990) 222 Cal.App.3d 30, 41.) The Legislature has stated:

> [I]t is the policy of the state that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects. . . .

(Pub. Resources Code § 21002.)

The CEQA Guidelines require an agency to "Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved." In order to implement this policy, the CEQA Guidelines specify that:

> A public agency may approve a project even though the project would cause a significant effect on the environment if the agency makes a fully informed and publicly disclosed decision that:

(a) *There is no feasible way to lessen or avoid the significant effect...*"

(CEQA Guidelines § 15043, emphasis added.)

The 2010 EIR analyzed three habitat avoidance alternatives: HAA1-avoiding listed species habitat; HAA2-avoiding Riversidean alluvial fan sage scrub habitat; and HAA3-avoiding jurisdictional waters, as well as a no project-existing zoning alternative. The RDEIR re-analyzes HAA1 and HAA2, reaching the unsupported conclusions that: 1) these alternatives would not substantially lessen significant impacts; 2) these alternatives are financially infeasible; and 3) these alternatives are infeasible because they do not meet all of the Project objectives and are inconsistent with General Plan policies.

A. The RDEIR's Analysis of Impacts Associated with Alternatives Lacks Substantial Evidence to Support Assumptions.

"CEQA contains a 'substantive mandate' requiring public agencies to refrain from approving projects with significant environmental effects if 'there are feasible alternatives or mitigation measures' that can substantially lessen or avoid those effects." (*County of San Diego v. Grossmont-Cuyamaca Cmty. Coll. Dist.* (2006) 141 Cal. App. 4th 86, 98.) The 2010 EIR found that, even after mitigation, the proposed Project would have significant construction and operational air quality impacts, traffic noise impacts, and growth inducing impacts. The RDEIR provides additional information regarding the reduction in significance of these impacts under HAA1 and HAA2.

An alternative need not reduce impacts to a less than significant level to prevent an agency from adopting a project with a significant environmental impact; the alternative need only substantially lessen one of the project's significant impacts. (Public Resources Code § 21002.) The RDEIR finds only that the alternatives would not reduce impacts to a less than significant level; it does not conclude, nor does it provide a basis for concluding, that HAA1 and HAA2 would not substantially lessen the significant impacts associated with the Project. In several areas, the RDEIR's analysis shows the alternatives would substantially reduce the Project's impacts. In others areas, the RDEIR's analysis relies on an inequitable comparison of the Project to alternatives to support a claim that the alternatives would not reduce impacts associated with the proposed Project. These comparisons do not constitute substantial evidence.

1. Construction Air Quality

According to the EPA, particulate matter emissions can have significant human health impacts:

> Health studies have shown a significant association between exposure to fine particles and premature death from heart or lung disease. Fine particles can aggravate heart and lung diseases and have been linked to effects such as: cardiovascular symptoms; cardiac arrhythmias; heart attacks; respiratory symptoms; asthma attacks; and bronchitis. These effects can result in increased hospital admissions, emergency room visits, absences from school or work, and restricted activity days. **Individuals that may be particularly sensitive to fine particle exposure include people with heart or lung disease, older adults, and children**.

(www.epa.gov/airquality/particlepollution/designations/basicinfo.htm, incorporated by reference.) The impacts of PM10 and PM2.5 emissions are particularly significant in the areas surrounding the Project site because many of the residents in this area, particularly near Neighborhoods II and III, are older adults that would be greatly impacted by the particulate matter.

While PM2.5 impacts would remain significant under the alternatives, HAA1 and HAA2 would substantially reduce this impact to the many sensitive receptors living near the Project site. Localized PM2.5 impacts for residents to the south would be reduced by 9 percent under HAA1 and by 9.5 percent for HAA2. (RDEIR p. 2-143, 2-151.) Both HAA1 and HAA2 would reduce localized PM10 impacts for residential receptors to the east by 10 percent. Localized PM10 impacts for residential receptors to the south would be reduced by nearly 11 percent under each of these alternatives. These reductions, on their own and when viewed together, are a substantial lessening of the particulate matter to which the sensitive residents near the Project site would be exposed.

The alternatives' particulate matter emissions would be reduced further if a more realistic assumption regarding the number of acres that would be graded at one time were used. To analyze the emission levels, the RDEIR assumes that there would be 50 acres graded at a time under the Project and under each of the alternatives. What is the basis for assuming the amount of land graded at one time would be the same for the proposed Project as it would be for the reduced size alternatives? If this assumption were correct, the alternatives would be completed much more quickly that the proposed Project; however, according to the financial feasibility analysis the alternatives are predicted to be completed in the same timeframe as the proposed Project. If a more reasonable smaller acreage is used, the emissions associated with HAA1 and HAA2 would be reduced even further.

The alternatives would also substantially lessen other construction emissions. HAA1 would result in a 19 percent reduction in regional construction related carbon monoxide emissions. (RDEIR p. 2-142.) HAA2 would result in substantial reduction in many of the significant regional emissions: carbon monoxide emissions would be

reduced by 47 percent; nitrogen oxides emissions would be reduced by 9 percent; and volatile organic compound emissions would be reduced by 24 percent. (RDEIR p. 2-149.)

2. *Operational Air Quality Impacts*

The misleading analysis of operational air quality impacts of HAA1 and HAA2 leads the RDEIR to an incorrect conclusion that these alternatives would not substantially reduce operational impacts. The majority of the operational air quality impacts associated with the Project are a result of vehicle traffic generated by new residences. RDEIR Appendix V-D-B calculates the vehicle trips generated by the proposed Project and compares that with a calculation of the vehicle trips that would be generated by the alternatives. The daily trips per single family housing unit is calculated at a rate of 9.57 trips per unit, while the daily trips for condos and townhomes is calculated at a much lower rate of 6.9 per unit. When calculating the trips generated by the proposed Project, the majority of the residential units designated as SFR-3 for the proposed Project appear to have been determined to be condos or townhomes. This appears to be the case because the analysis includes 3,409 units as single family units and 4,998 units as condos and townhomes. The proposed Project includes 943 SFR-1 units, 1,908 SFR-2 units, 2,403 SFR-3 units, 1,828 MFR units and 1,325 HDR units. Thus, only 558 of the proposed Project's SFR-3 units are considered single family units for trip generation calculations. The SFR-3 units that are considered to be condos or townhomes in the analysis are calculated to have a significantly lower traffic generation rate.

The analysis of the trip generation rates for the alternatives is inequitable and leads to an overestimation of trips generated by HAA1 and HAA2 because all of the SFR-3 units included in both of these alternatives are analyzed as generating traffic at the much higher single family housing rate. The analysis provides no explanation for this unequal apportionment of housing types. In both the alternatives and the proposed Project, the RDEIR assumes the density for the SFR-3 units would be 10.9 units per acre. Additionally, the SFR-3 units would be in approximately the same locations under the alternatives. Thus, there is no support in the record for concluding all of the SFR-3 units in HAA1 and HAA2 fall under the single family home category, whereas only a small portion of the SFR-3 units in the proposed Project are considered to be single family homes when calculating trip generation rates.

The daily vehicle trips contained in Appendix V-D-B are the basis for the RDEIR's conclusion that the alternatives would not result in a substantial lessening of operational emissions. This apples-to-oranges comparison results in an overestimation in the daily vehicle trips that would be produced by HAA1 and HAA2 and an underestimation of the reductions in operational emissions these alternatives would provide.

Additionally, even with the overweighting of units deemed single family homes, HAA2 would substantially lessen operational emissions. HAA2 would produce a 40 percent reduction in volatile organic compound emissions, a 44 percent reduction in nitrogen oxides emissions, a 45 percent reduction in carbon monoxide, and a 49 percent reduction in both PM10 and PM2.5 emissions.

Further, both HAA1 and HAA2 would substantially lessen excess cancer risk burden from toxic air contaminants. HAA1 would result in an 11 percent reduction. HAA2 would result in a 42 percent reduction.

3. Traffic Noise Impacts

The RDEIR's comparison of the alternatives' traffic noise impacts to that of the proposed Project is infected by the same inequitable comparison of daily vehicle trips as the analysis of operational emissions. The analysis of traffic noise impacts relies on the calculations included in Appendix V-D-B, which as discussed above overestimates the traffic generated by HAA1 and HAA2. By overestimating the trips generated by the alternatives, the RDEIR overestimates the traffic noise that would result from the alternatives.

Additionally, the calculated reduction for HAA1 appears to just reduce traffic across the board for all roadways. (See Appendix V-D-C.) It does not consider which specific areas would include less development and which streets would have less traffic. Under HAA1, the majority of the reduction in development would be in Neighborhood III. All access to Neighborhood III is provided via Riverside Avenue. The RDEIR should consider whether there would be a greater reduction in traffic noise on Riverside Avenue based on the specific locations of development in this alternative.

Even under the RDEIR's inequitable calculations, HAA2 would reduce the significant noise impacts on Riverside Avenue to less than significant levels. When more accurate traffic calculations are used and the location of the reduction in traffic is considered, it is likely the impacts on Country Club Road would also be reduced to a less than significant level.

4. Growth Inducing Impacts

HAA1 and HAA2 would also substantially lessen growth inducing impacts. The RDEIR again only considers whether the growth inducing impacts of the alternatives would remain significant. It does not consider whether HAA1 and HAA2 would substantially lessen the impacts as compared to the Project. HAA1 would substantially reduce growth inducing impacts by providing an 11 percent reduction in residential units

and new residents. HAA2 would result in an even greater reduction in growth inducing impacts by providing a 42 percent reduction in residential units and new residents.

B. The Fiscal Feasibility Analysis Contains Many Unsupported Assumptions.

Save Lytle Creek Wash and Endangered Habitats League have engaged the services of Developers Research to review the financial feasibility analysis provided with the RDEIR. Developers Research is a highly experienced company providing land owners, investors, developers and builders with the most comprehensive financial evaluation services in the industry on all types of property from individual projects and master plans to large residential and commercial portfolios. Its specialties also include the assessment of corporate-owned and environmentally impaired real estate assets. For more information regarding Developers Research and its qualifications, please see its website at www.dev-res.com, incorporated by reference.)

Developers Research has prepared a memorandum critiquing the RDEIR's financial feasibility analysis. This memorandum is included as **Attachment 1**. Developers Research found that the financial feasibility analysis includes many unexplained conclusions and often relies on an inequitable comparison of Project costs and benefits to those of the alternatives. In particular, the financial feasibility analysis manipulates the amenities included in HAA1, which decreases the profitability of this alternative. As set forth in Developers Research memorandum, the feasible inclusion of additional amenities in HAA1 would substantially increase the rate of return for this alternative.

Without further analysis and detailed information, the financial feasibility analysis cannot serve as substantial evidence that HAA1 and HAA2 are financially infeasible.

C. The Conclusions Regarding Project Objective Attainment and General Plan Consistency Are Not Supported by Substantial Evidence.

The RDEIR claims HAA1 and HAA2 are also infeasible because they do not meet all of the Project objectives and are inconsistent with general plan policies. Many of the RDEIR's claims are not supported by substantial evidence. CEQA defines feasible as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors." (Public Resources Code § 21061.1) Project alternatives can still be considered feasible "even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly." (CEQA Guidelines § 15126.6(b).) As discussed below, the alternatives would meet a majority of the Project objectives and are consistent with the general plan. Thus, these less impactful alternatives are feasible.

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1. Financial Objectives and Goals

First, the RDEIR claims the alternatives are infeasible because they do not meet the financially focused Project objectives and general plan policies. (Objectives LA-6, LA-10; general plan goal 2-7.) As discussed in section I.B above and in the Developers Research memorandum, many of the conclusions contained in the financial feasibility analysis are highly questionable and cannot be relied upon to support a finding that the alternatives are financially infeasible.

The RDEIR also asserts that the alternatives would not expand economic opportunities to the same extent as the proposed Project. (RDEIR p. 2-172, 174.) The only support for this claim is a comparison of the number of jobs that would be provided under the Project to the number of jobs provided under the alternatives. A straight comparison of the number of jobs provided is inappropriate in a project such as this that would both add new jobs and new employees. HAA1 and HAA2 would provide more jobs per new household than the proposed Project. The proposed Project would have a jobs/housing balance of .40, providing 3,398 jobs (1 job per 250 square feet of commercial space) and 8,407 residential units. HAA1 would provide a jobs housing balance of .44 (3,282 jobs/7,484 residential units). HAA2 would provide an even better jobs housing balance of .49 (2,411 jobs/4,873 residential units). Thus, these alternatives are consistent with project objectives and general plan policies regarding employment opportunities to a greater extent than the proposed Project, not inconsistent as claimed by the RDEIR.

2. Rialto Housing Needs

Secondly, the RDEIR claims HAA1 and HAA2 do not provide the same amount of housing and do not address the long-term housing needs of the City. (Objectives LA-4, A-9.) The Southern California Association of Governments provides a Regional Housing Needs Allocation (RHNA) for all areas of Southern California. According to the 2007-2014 RHNA, Rialto needs only 4,323 new housing units. Both HAA1 and HAA2 would provide more than 4,323 housing units. HAA1 provides 7,484 units and HAA2 provides 4,873 units. Additionally, according to the draft 2014-2023 RHNA, the need for additional housing in Rialto has dropped dramatically, from 4,323 to 2,715 needed units. (**Attachment 2**, SCAG draft 2014-2023 RHNA.) The need for housing in unincorporated San Bernardino County has also dropped dramatically. In the 2007-2014 RHNA, the need for additional housing in unincorporated San Bernardino was 20,622 housing units. This has dropped to just 39 units in the 2014-2023 RHNA. Further, other housing developments planned within the City and surrounding area, in particular the 1,500 acre Renaissance project at the Rialto Airport. With both alternatives providing housing units in excess of the totals needed, other developments providing numerous

housing units, and the need for housing in this area significantly dropping, the RDEIR's claim that HAA1 and HAA2 do not meet the housing needs of the City is not supported by substantial evidence. To the contrary, the Project will only exacerbate the excess housing in the City and County, resulting in a continuation of a depressed housing market and reduced property values. The unintended consequence will be reduced property taxes for the County.

The proposal to increase development on the Project site by nearly four times over what is currently allowed is inconsistent with the downward trend in the need for housing. According to the 2010 census, there are already approximately 2,000 vacant units in Rialto. (http://rtpscs.scag.ca.gov/Documents/rhna/RHNAFinalMethodologyAppendices110311.pdf, Attachment 3, incorporated by reference.)

The RDEIR also claims the alternatives would not necessarily provide the types of affordable housing set forth in the RHNA. While this is true for the alternatives, it is also true for the proposed Project. There are no conditions requiring the Project to include any affordable housing. Although HAA1 and HAA2 provide fewer units, they both provide a similar mix of housing types to those provided by the proposed Project. There is no support for the RDEIR's claim that the reduced number of units provided by these alternatives would result in a narrower range of available prices or rents on the Project site. (RDEIR p. 2-172.)

3. *Provision of Master Plan Amenities*

Project alternatives analyzed in an EIR are required to be potentially feasible, and as such should be designed to meet project objectives if possible. CEQA requires the EIR to include "range of reasonable alternatives to the project…which would feasibly attain most of the basic objectives of the project." (CEQA Guidelines § 15126.6(a).) The RDEIR defines HAA1 in such a way that it would not meet several project objectives, contrary to CEQA's requirements. Additionally, the RDEIR fails to provide any explanation as to why the alternative could not be designed to meet the project objectives. The RDEIR cannot manipulate the design of an alternative in an attempt to support a finding that the alternatives are infeasible.

The RDEIR claims HAA1 does not meet project objectives and is inconsistent with the general plan because it is not a master planned community, and thus does not provide adequate amenities. The RDEIR and the accompanying financial feasibility analysis provide no basis for the conclusion that HAA1 could not be designed as a master planned community. Regardless, the City would still need to approve a specific plan for this alternative. The specific plan would contain the overarching design themes and

would ensure cohesiveness of the development as required by the project objectives and General Plan policies. (General Plan policy 2-12.5.)

The RDEIR also states that HAA1 would not meet project objectives because it does not promote walking and biking. Bike lanes should be included in HAA1, as should sidewalks and trails that promote a connected neighborhood. (Project Objective A-6.) Even if HAA1 is not a master planned community, although as discussed above there is no reason it could not be master planned, the alternative could still provide the pedestrian connections sought by the project objectives and General Plan policies 2-12.5.

The RDEIR further faults HAA1 for failing to provide an entryway to the City. (Project Objective A-1.) There is no reason an entryway to the City could not be included in this alternative and since it is a project objective, HAA1 should include a gateway to the City. There is also no reason HAA1 could not include distinctive entry points into Rialto and individual neighborhoods, as well as monument signs, themed landscaping , and ground signs in neighborhoods. (General Plan goal 2-10, policies 2-10.1, 2-10.2, 2-10.3.) The specific plan for HAA1 should provide specifications for landscaping, signage, and entryways.

4. Provision of Recreational Amenities

The RDEIR also rejects the alternatives for failing to provide the exact same type of park amenities as the proposed Project. As an initial matter, both alternatives provide adequate park land to comply with the Quimby Act and Rialto's Municipal Code. Under the Quimby Act and section 17.23 of Rialto's Municipal Code, residential developments are required to dedicate land for provision of neighborhood and community recreational facilities at the rate of 3.0 acres per thousand residents. The Municipal Code provides a formula for determining the amount of community recreational facilities/park space a residential development must provide: 3 x (density factor according to Census data x number of development units) ÷ 1,000. (Municipal Code section 17.23.060.) For HAA1, 84.7 acres of park space would need to be provided (3 x [3.753[1] x 7,484] ÷ 1,000). HAA1 would provide 301.4 acres of land designated for recreation/open space--more than three times the park space required to comply with the Quimby Act and the Municipal Code. HAA2 would also provide more than the 54.8 acres of park space it is required to provide. The RDEIR should not find these alternatives to be inconsistent with General Plan policies and goals relating to park space when they both provide park space in excess of the Municipal Code's requirements.

The RDEIR states HAA1 would not provide any formal active recreational parks dedicated to the community, but again provides no basis for why such a park could not be

1 The 2010 EIR states that 3.753 is the correct density rate to use. (2010 EIR p. 4.9-106-107.)

included in this alternative. HAA1 provides 301.4 acres of land designated as recreation/open space. This is just 27.4 acres fewer park space than the 328.8 acres of recreation/open space provided by the Project. Moreover, HAA1 actually provides more open space recreation than the Project on a per household basis.

HAA1 and HAA2 are found to be infeasible because they would not provide a sports park like the proposed Project would. Again, there is no reason this sports park could not be provided under the alternatives. The terms for inclusion of a sports park in the Project were set out in a development agreement that was part of the rescinded 2010 approval of the Project. The City has indicated the same development agreement would be considered for the revised approval. The development agreement makes clear the Project would not be paying for the sports park as part of the proposed Project. (2010 Development Agreement pp. 25-26.) Under the agreement, the City would be required to purchase the land for the sports park, and development of the sports park would be paid for by a tax levied on residents of up to two percent of the value of their property. The development agreement provides that: "Both the purchase of the land for the Sports Park by the City and the construction and acquisition of the Sports Park may be funded through the (Community Facilities District);" "the Sports Park site will be purchased by and transferred to the City" after grading of site. (*Ibid.*)

The RDEIR provides no reason why the City would not buy the land or levy a similar tax to fund some or all of the costs of the sports park if the HAA1 or HAA2 were approved instead of the proposed Project. The development agreement commits the Project proponent to provide the same space for the sports park (35.7 acres) even if the approved number of residential units is limited to 5,885 or above. (Development Agreement p. 28.) HAA1 would vastly exceed this number with 7,408 units, yielding one acre of sports park for every 209 units (7484 units/35.7 acres). The Project by contrast would only provide an acre of sports park for every 235 units (8407 units/35.7 acres). And even though HAA2 would provide less than 5,885 units, the development agreement still requires a 23-acre sports park for a development of this size, yielding an acre of sports park for every 211 units (4873 units/23 acres) versus the Project's acre per every 235 units. Thus, under the deal previously agreed upon by the City and Project proponent, even more sports park per household would be provided to the community even if development is limited to the amounts allowed under the HAAs.

The final basis for claiming HAA2 is infeasible is that it does not provide golf course amenities. As admitted by the Project proponent when closing the golf course last fall and as discussed in Developers Research memorandum, a public golf course is a money losing venture at this location. The need for inclusion of an unprofitable golf course as part of the Project should be reconsidered now that the previously existing golf course has been shut down. Including a Project component that would lose money would conflict with Project objectives and General Plan policies regarding profitability.

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Further, it is well settled that "[i]f there are feasible alternatives or feasible mitigation measures that would accomplish most of the objectives of a project and substantially lessen the significant environmental effects of a project subject to CEQA, the project may not be approved without incorporating those measures." (*Center for Biological Diversity, Inc. v. FPL Group, Inc.* (2008) 166 Cal.App.4th 1349, 1371 fn 19, citation to (Pub. Resources Code §§ 21000(g), 21002, CEQA Guidelines § 15091); see also CEQA Guidelines § 15126.6(b).) Both HAA1 and HAA2 would accomplish most of the Project objectives and would substantially lessen the impacts associated with the Project.

D. An Analysis of a Reasonable Range of Alternatives Is Required.

"A major function of an EIR 'is to ensure that all reasonable alternatives to proposed projects are thoroughly assessed by the responsible official.'" (*Save Round Valley Alliance v. County of Inyo* (2007) 157 Cal. App. 4th 1437, 1456, citations omitted.) Reasonable alternatives should only be eliminated from consideration in the EIR if the alternative would not meet most of the basic project objectives, is infeasible, or it would not avoid significant environmental impacts. (CEQA Guidelines § 15126.6(c).)

As discussed above, the RDEIR defines HAA1 with the apparent intent to make this alternative conflict with Project objectives and general plan policies. HAA1 should be revised to be a master planned community, with pedestrian and bike connections, entryways and themes for development and landscaping. Additionally, as discussed above, HAA1 and HAA2 should include a sports park similar to that which would be provided under the proposed Project.

Additionally, based on recommendations provided by Developers Research, an alternative should be analyzed that reduces the development footprint and includes a revised mix of housing types, focusing on small lot single family homes, with profit maximizing amenities.

II. Analysis of Impacts Is Inadequate.

A. Assumptions Regarding Reductions in Greenhouse Gas Emissions Are Unsupported.

Endangered Habitats League has provided detailed comments regarding the inadequacies of the analysis of greenhouse gas emissions. Save Lytle Creek Wash joins in those comments.

Additionally, the RDEIR assumes large greenhouse gas emission reductions due to car manufacturers meeting the USEPA's standards for miles per gallon efficiency. Car manufacturers have consistently failed to meet timeline milestones for efficiency

standards. Indeed, in the early 2000's average fleet mileage efficiencies actually declined. According to the attached MIT Energy Initiative report, there is only a .5 percent chance car manufacturers will meet the efficiency standards by 2025 or a 99.5 percent chance that car manufacturers will not meet these efficiencies. (**Attachment 3**, Analysis of CAFE Standards, p. 2.) Thus, the RDEIR should not rely on reductions that would occur if car manufactures achieve these standards to calculate greenhouse gas emissions for the Project.

B. Baseline for Analyzing Traffic Impacts Remains Inadequate.

Endangered Habitats League has provided detailed comments regarding the improper baseline relied upon for traffic impact analysis. Save Lytle Creek Wash joins in those comments. Individual members of Save Lytle Creek Wash have also submitted comments detailing their personal observations regarding traffic impacts and Save Lytle Creek Wash joins these individual comments.

C. Aesthetic Impacts Resulting From Decreased Housing Demand Should Be Analyzed.

As set forth in section I.C.2 above, the proposed Project provides far more housing than needed in Rialto. Housing needs for the City and the surrounding area have sharply decreased since the release of the 2010 EIR and there are numerous vacant units throughout the City. The EIR failed to consider the aesthetic and other impacts of graded land lying fallow for years due to lack of a market for housing. An example of these negative impacts is located adjacent to the Project site. In 2006, the Rosena Ranch (Lytle Creek North) project graded over a large natural open space area. With the decreased demand for housing in this area, the site has lain bare and graded without the anticipated housing development for years, resulting in a highly visible eyesore for the whole community. The EIR must analyze and mitigate the potential for the Lytle Creek Ranch project to result in a similar negative aesthetic impact given the decreased need for housing and other large housing development projects planned for Rialto, Fontana, and Rancho Cucamonga. Such an impact would be significant at a project level and cumulatively with Rosena Ranch.

D. Mitigation for Wastewater Impacts Is Uncertain.

The 2010 EIR acknowledges that the City currently has inadequate wastewater capacity to supply the proposed Project. To mitigate this significant impact, additional wastewater capacity is required for the Project. Since the 2010 EIR was prepared, the City has entered into negotiations with American Water Company to provide upgrades to the City's water and wastewater systems, including additional capacity. The City approved an agreement with American Water Company on March 27, 2012. However, if

a majority of the rate payers in the City object to the agreement, it will not go forward. As this agreement provides for rate increases of ***130 percent***, and numerous residents spoke out in opposition to the agreement, it is likely the rate payers will reject this agreement. There is no alternative plan for providing additional wastewater capacity for the City. The RDEIR must analyze the impacts that would occur if the agreement with American Water Company is rejected. Without the needed capacity, a significant impact would remain. The reduction in use provided in both HAA1 and HAA2 should reduce this impact to a less than significant level.

E. Analysis of Noise Impacts Relied on Improper Baseline.

The 2010 EIR relied on an improper future baseline when analyzing the noise impacts associated with the Project. The court rejected the use of such a baseline for the traffic impacts. As the 2010 EIR's analysis of traffic noise impacts relied on this same improper baseline, it must also be revised. The 2010 EIR stated "Potential noise impacts due to project-related off-site traffic were analyzed by estimating the increase in noise levels due to project-related traffic at full build-out (2030) *compared with the future (2030) ambient noise levels that would exist without the proposed project*. (2010 EIR p. 4.8-28, emphasis added.) The EIR must be revised to determine the significance of traffic noise impacts of the Project as compared to existing conditions. (*Sunnyvale West Neighborhood Assn. v. City of Sunnyvale City Council* (2010) 190 Cal.App.4th 1351, 1373.)

F. Biological Impacts Require Additional Analysis.

Circumstances have changed since the biological impacts of the Project were analyzed in the 2010 EIR. The El Rancho Verde Golf Course was shut down in September 2012. Since the golf course was shut down, the site has not been irrigated and is reverted to a more natural state. It is possible species of special concern have begun using the habitat on the golf course. A revised analysis of the biological impacts should consider this possibility.

Additionally, in 2011 the critical habitat for the San Bernardino Kangaroo Rat was expanded from 7,779 acres to 33,245 acres by a federal court order. The Project site would now contain areas that are designated as critical habitat for this endangered species. The analysis of biological impacts should be revised to take the need for this critical habitat into account and should also reconsider the adequacy of mitigating habitat loss through replacement habitat.
(http://www.endangeredspecieslawandpolicy.com/2011/01/articles/critical-habitat/federal-judge-expands-critical-habitat-for-the-kangaroo-rat/, incorporated by reference.)

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Also, the 2010 EIR failed to consider impacts to and include mitigation for cactus wrens and other migratory birds. The Project site provides habitat for the cactus wren. (**Attachment 4**, May 2011 powerpoint presentation by USFWS and Santa Ana Watershed Association regarding cactus wren habitat.) In the EIR prepared for the El Rancho Verde project in 1998, the City required the landscaping include "cholla cactus in order to afford opportunities for the San Diego cactus wren to re-establish nest(s)" on the Project site. (**Attachment 5**, excerpt of El Rancho Verde Statement of Overriding Considerations.) The 2010 EIR fails to include a similar provision. Additionally, the San Diego cactus wren is considered a bird species of special concern by the California Department of Fish and Game. The 2010 EIR failed to analyze impacts to this species.

Further, Save Lytle Creek Wash requests clarification regarding mitigation habitat. The County's approval of the Rosena Ranch (Lytle Creek North) project required the project proponent to dedicate 52.2 acres of land owned by the proponent to the south and southwest of the project boundary. The project proponent for the Rosena Ranch was an entity closely related to the proponent for this Project and the land for this Project is located to the south and southwest of the Rosena Ranch site. Where is mitigation habitat for the Rosena Ranch project located in relation to this proposed Project? Does the EIR count the Rosena Ranch mitigation habitat as mitigation habitat for the proposed Project as well? Is any of the land proposed for development in the Project part of the area required to be dedicated as mitigation for the Rosena Ranch project?

Conclusion

Thank you for your consideration of these comments. We look forward to reviewing the revisions to this draft environmental impact report.

Sincerely,

Amy Minteer

cc: Save Lytle Creek Wash
Endangered Habitats League
Sierra Club San Gorgonio Chapter
Jimmy L. Gutierrez, Rialto City Attorney

Enclosures:

Attachment 1: Developers Research memorandum re CBRE Report

Attachment 2: SCAG draft 2014-2023 RHNA

Attachment 3: Analysis of CAFE Standards

Attachment 4: May 2011 USFWS and Santa Ana Watershed Association Presentation re Cactus Wren Habitat

Attachment 5: El Rancho Verde Statement of Overriding Considerations. excerpt

Save Lytle Creek Wash April 3, 2012 Comment Letter

ATTACHMENT 1:

Developers Research Memorandum

DEVELOPERS RESEARCH

To: Dan Silver, Endangered Habitat League

From: Barry Gross, Developers Research

RE: CBRE Report, December 2011

Date: April 2, 2012

At your request, Developers Research reviewed the *Financial Feasibility Analysis of the Lytle Creek Ranch Specific Plan Project and Alternatives to the Project Discussed in the Lytle Creek Ranch Specific Plan EIR* ("RDEIR") by CBRE Consulting dated December 2011. The purpose of this report is to compare various alternatives for development of this 2,447 acre parcel.

The Financial Feasibility Analysis states that it contains information provided to CBRE Consulting by: CBRE Valuation and Advisory Services, the Otte Berkeley Group, HM-2, Marketing Development and Reeb Development Consulting. These independent reports have been combined by CBRE Consulting to support the basis of their findings. This information has not been made available as part of the RDEIR or its appendices.

On Page iii of the letter from CBRE Valuation and Advisory Services to CBRE Consulting, there is a disclaimer titled Extraordinary Assumptions and Hypothetical Conditions. This disclaimer states,

> *"This is a Restricted Appraisal Report that is intended to comply with reporting requirements set forth under Standards Rule 2–2 (c) of the Uniform Standards of Professional Appraisal Practice for a Restricted Appraisal Report. As such, it does not include discussions of the data, reasoning, and analysis that we used in the appraisal process to develop the appraiser's opinion of value. Supporting documentation concerning the data, reasoning, and analyses is retained in the appraiser's file. The information contained in this report is specific to the needs of the client and for the intended use stated in this report. The appraiser is not responsible for unauthorized use of this report.*

Developers Research has pointed out several areas in our accompanying discussion where CBRE Consulting appears to have internal inconsistencies in their treatment of the data. However, as stated in the quotation above, supporting documentation has been withheld, largely precluding substantive critique of the conclusions reached in the document.

The report contains financial analyses for 5 project alternatives including:

1. Proposed Project
2. No Project / Existing Zoning
3. Avoidance of SBKR / LBV-Occupied Habitat
4. Avoidance of Riversidian Alluvium Fan Sage Scrub (RAFSS)
5. Avoidance of the Jurisdictional Waters

Financial Feasibility

The report makes an argument in favor of the proposed specific plan based on financial feasibility stating:

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> *"In order to obtain financing commitments for these high-risk projects, commercial developers must be able to demonstrate potential return on total capital investment of 15 to 25 percent to offset the significant risks related to entitlements, construction cost overruns, interest rate changes, capitalization rate changes and ups and downs in the local, national and international economy during the 15 to 20 year construction period that will affect future commercial and residential land prices."*

Figure 1 below is a summary of the IRR conclusions for each project shown in the CBRE Consulting report.

Figure 1

Project (Millions)	Gross Revenues	Net Dev. Costs	Developer Cash Flow	Developer IRR
Proposed Project	$654	$340	$314	15.2%
No Project/Existing	$234	$231	$3	0.3%
Avoidance of SBKR	$389	$316	$74	3.8%
Avoidance of Riversidian Alluvium Fan Sage Scrub (RAFSS)	$396	$306	$89	7.1%
Avoidance of Jurisdictional Waters	$311	$253	$58	5.3%

Based on the table reproduced above (Figure 1), CBRE concluded that the only feasible project for the 2,447 acre parcel is the proposed specific plan as it is the only project with an IRR greater than 15%.

Developers Research reviewed the various cash flows that produced the IRR figures listed above and compiled comments and questions on various aspects of the document. These issues are discussed below.

Commercial Revenue

The Proposed Project cash flow shows a total of $38.1 Million in revenues from Retail Town Center on a total of 849,000 sf. This equates to an average sales price of $44.81/sf. For sake of comparison, the SBKR Avoidance alternative shows $23.3 Million in Retail Town Center sales on a total of 820,000 sf. This equates to an average sales price of $28.41/sf.

Decreasing the Proposed Project's Commercial sales price to that of the other projects reduces the IRR by approximately 0.25% to 14.95%

Other alternatives commercial sales prices are similarly deflated relative to the Proposed Project. For comparison, a $44.81/sf Commercial sales price equates to approximately 150% of the prices for comparable land currently achieved in Irvine, CA, which is a higher priced market than Rialto, CA.

The RDEIR contains no explanation why the Commercial sales price per square foot increases dramatically only for the Proposed Project.

Commercial Revenue Inflation Rate

The Proposed Project has an anomalous Commercial Revenue Inflation Rate, which starts at 100% and increases to 170.24% by 2029. All other projects start at 100% and increase to 155.97% by 2029.

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Decreasing the Commercial Revenue Inflation Rate to that applied to the Project alternatives reduces the Proposed Project IRR by approximately 0.1%.

The RDEIR contains no explanation why the CBRE Commercial Revenue Inflation Rate is 3% for the Proposed Project while it is 2.5% for all other projects.

Commerical Revenue Conclusions

It appears the commercial revenues between the Proposed Project and Project Alternatives have not been given equal treatment in the CBRE Analysis. The result of this unequal treatment is a total of approximately 0.35% in additional IRR being attributed to the Proposed Project.

With the Commercial Revenues being treated equally between projects, the Proposed Project would have an IRR of 14.85%, below the investment threshold defined by CBRE.

Inconsistent Unit Counts

Developers Research compared the unit count for the Proposed Project to the detail provided in *Volume 1 Draft Environmental Impact Report State Clearinghouse No. 2009061113 Lytle Creek Specific Plan* and there is an inconsistency in Neighborhood III on Page 2-36. The Specific Plan states that Neighborhood III has 3,329 units but summing the individual line items yields 3,203 units. This arithmetic error is pervasive throughout the documents and into the CBRE report.

If the detail in the Specific Plan is correct, the Proposed Project should have 8,281 units instead of 8,407 units. For the sake of this memorandum, Developer's Research has assumed that this was an arithmetic error and the Proposed Project should have 8,281 units.

The obvious result of this error is that additional revenue is attributed to the Proposed Project. $3.5 million in Blue Top value or $7.3 million in Finished Lot value has been added because of these 126 extra units.

The addition of 126 units to the Proposed Project increases the IRR by approximately 0.2%.

Backbone Improvement Costs

Table 2 on page 20 of the appraisal titled, "Summary Comparison of Development Cost" includes estimated backbone costs prepared by the Otte-Berkeley Group. This table (Figure 2) includes backbone cost estimates for the various alternatives in the project, which may be summarized as follows:

Figure 2

Project	Backbone Costs	Units	Cost per Unit	Residential Acres	Cost per Residential Acre
Proposed Project	$216,048,588	8,281	$25,700	940	$229,800
No Project/Existing	$132,915,205	2,215	$60,000	940	$141,400
Avoidance of Riversidian Alluvium Fan Sage Scrub (RAFSS)	$137,128,640	4,873	$28,100	566	$242,300
Avoidance of Listed Species	$198,179,345	7,484	$26,500	841	$235,000
Waters of US and State	$191,776,660	5,846	$32,800	636	$301,500

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Developers Research has extensive experience preparing budgets for large-scale developments such as Lytle Creek and has reviewed over 8,000 different projects; however, we only were provided with specific plan level documents that did not indicate the type and size of specific improvements. As a result, analysis of these costs is not possible with the data provided. Our standard operating procedure for reviewing costs is to review maps and documents that indicate the specific quantity and specific location of each improvement. At a summary level, it appears that the Backbone Costs for the Proposed Project are too low and the alternative projects are too high; however, it is difficult to make an informed opinion without the detailed cost assumptions and review of a preliminary improvement plan. Generally, estimates of development costs before detailed drawings are made on a per-unit or acre basis, and the costs provided by Otte-Berkeley group are not linearly related to either acres or units.

Developers Research would like the opportunity to review the Otte-Berkeley Group's detailed cost to make an informed opinion on the reasonableness of these Backbone costs.

Impact Fees

The Otte-Berkeley Group included Impact Fees for the Proposed Project of approximately $21.3 million. Developers Research contacted the appropriate public agencies to obtain their impact fee schedules and our estimate of the Impact Fees for the proposed project is approximately $175 million. Figure 3 is the schedule of the impact fees that we obtained.

Figure 3

Agency	Unit	Description	Amount
Rialto Water Connection Fee 5/8 - 3/4 Inch - Displacement	DU	Detached	$5,100.00
Rialto Wastewater Collection Fee	DU	Detached	$1,200.00
Rialto Wastewater Connection Fee	DU	Detached	$2,170.00
Rialto General Facilities Fee	DU	Detached	$247.00
Rialto Open Space Fee	DU	Detached	$606.82
Rialto Open Space Fee	DU	Attached	$137.81
Rialto Traffic Fee	DU	Detached	$2,775.77
Rialto Traffic Fee	DU	Attached	$1,923.03
Rialto Park Fee	DU	Detached	$2,102.32
Rialto Park Fee	DU	Attached	$1,977.97
Rialto Library Fee	DU	Detached	$65.96
Rialto Library Fee	DU	Attached	$51.51
Rialto Law Enforcement Fee	DU	Detached	$422.00
Rialto Law Enforcement Fee	DU	Attached	$988.00
Rialto Fire Facilities Fee	DU	Detached	$390.00
Rialto Fire Facilities Fee	DU	Attached	$413.00
Rialto Storm Drainage Fee	DU	Detached	$3,051.00
Rialto Storm Drainage Fee	DU	Attached	$769.00
Rialto Unified School District	SF		$3.62
Total fees for 8,281 units			$175,500,000

When we see large discrepancies such as this one in impact fees, it usually relates to the definition of the product being delivered (Blue Topped lots vs. Finished Lots). Most often, Impact Fees, although paid at the purchase of building permits, are included in the definition of a finished lot. Some firms will only include the Storm Drainage fees if providing Blue

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Topped lots, but if this were the case the total should be $18.5 million. Based upon the information provided to us, we are unable to determine which of the impact fees included in the Otte Berkeley Group budget of $21.3 million are included in the list above.

Developers Research would like the opportunity to review the Otte-Berkeley Group's fee schedule to make an informed opinion on the reasonableness of these costs.

Representative Comments on Costs

In Table 1 on Page 19 titled "Development Cost for Project by Phase" there are high-level budgets for the various projects. Without having the detailed backup prepared by the Otte-Berkeley Group, we are unable to compare "apples to apples". However, we can comment on the reasonableness of their estimate at a summary level. We have extracted certain line items from this budget, which are shown below.

Figure 4

Extracted Cost Estimate Items

Description	Proposed Project	No Project Alternative	Avoidance of RAFSS Area	Avoidance SB Kangaroo Rat
Units	8,281	2,215	4,872	7,485
Civil Engineering	$5,427,000	$5,020,000	$4,692,000	$5,751,000
Per Unit	*$655*	*$2,266*	*$963*	*$768*
Impact Fees	$21,325,040	$7,030,868	$11,224,318	$18,673,565
Per Unit	*$2,575*	*$3,174*	*$2,304*	*$2,495*
Grading	$46,043,229	$30,761,308	$21,988,080	$41,420,255
Per Unit	*$5,560*	*$13,888*	*$4,513*	*$5,534*
Storm Drain / Levee	$48,032,091	$38,653,295	$35,505,705	$49,630,691
Per Unit	*$5,800*	*$17,451*	*$7,288*	*$6,631*
Special Amenities	$30,704,125	$14,574,125	$8,500,000	$23,074,125
Per Unit	*$3,708*	*$6,580*	*$1,745*	*$3,083*
Parks	$15,173,750	$1,007,500	$15,173,750	$14,573,750
Per Unit	*$1,832*	*$455*	*$3,114*	*$1,947*

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Civil Engineering Costs:

In the table above (Figure 4), the civil engineering budget per dwelling unit varies dramatically. They range from $655 per unit for the Proposed Project to as much as $2,266 for the No Project Alternative, a variance of more than 3 times. In our experience, civil engineering costs for projects over 2,000 units are usually estimated at approximately $2,000 per unit. The scope of work for this figure would include preparation of all tentative tract maps and subsequent improvement drawings. Our database indicates that when the project exceeds approximately 2,000 units, the cost for providing the civil engineering services is directly proportional to the number of lots included in the project.

Grading Costs:

The Grading line item includes a cost of $46 million for the Proposed Project and over $41 million for the avoidance of the San Bernardino Kangaroo Rat Alternative (SBKR). In reviewing the disturbed acres, the SBKR alternative disturbs a total of 937 acres whereas the proposed project disturbs approximately 1,540 acres. Although we have not been provided with the data supporting these cost estimates, exactly how a 40% reduction in disturbed area would only yield a 10% reduction in grading costs is not explained; these costs are usually, on average, linearly related to disturbed acres.

Levee Costs:

The levee is a substantial line item in each of the project alternatives (greater than $35 million). Without having any preliminary design information, we cannot form an informed opinion on the reasonableness of these costs. Generally, levees such as the one proposed at Lytle Creek are intended to raise the proposed development above the 100 year flood level. Developers Research reviewed FEMA (Federal Emergency Management Agency) Map 06071C7920H, which depicts the 100 year flood zone for the Lytle Creek area and it appears not all of the subject property is within the 100 year flood zone. Therefore, it is possible if the development envelope is limited to areas outside of the 100 year flood zone; this cost could potentially be avoided. While we are not licensed civil engineers or engineering geologists, we recommend that a formal study be conducted to assess a different development option, one which avoids building the levee.

Large, up-front backbone costs such as the levee proposed at Lytle Creek drives down the IRR of smaller projects because the major infrastructure cost is distributed over a smaller number of units. Also, the up-front nature of the cost requires the developer to borrow more money increasing financing costs and extends revenue events until later in the development timeline. All of these factors negatively affect a project's IRR.

We believe that not all potentially feasible development options have been considered. It is possible that a smaller project which specifically avoids the levee costs would provide the developer with an IRR of over 15%.

Special Amenities:

The Special Amenities are a particularly important aspect of the Financial Feasibility analysis because they affect both development costs *and* revenues. Below is a table reproduced from the report that is based upon the marketing report prepared by HM2 Marketing Development.

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Figure 5

Project	Impact of Amenities on Home Prices
Proposed Project	+8.0%
Avoidance of Jurisdictional Waters	+4.9%
Avoidance of RAFSS Areas	+2.2%
Avoidance of SBKR / LBV Habitat	-6.0%
No Project/Existing Zoning	-8.4%

This table (Figure 5) shows the percentage increase (or decrease) in home prices based on amenities included (or not included) in the various development alternatives. This becomes extremely significant when the size of the project is as large as Lytle Creek. Referring to Figure 1 above, the Proposed Project shows $654 Million in Finished Lot Revenues and Figure 5 shows an 18.4% swing in home prices (between the Existing Zoning and Proposed Project).

This potentially provides a revenue swing of $120 million.

Knowing the importance of the Amenity score applied by HM2, we researched this issue further. The Otte-Berkeley Group included special amenity costs for all of the project alternatives that range from $30.7 million for the proposed Project to $8.5 million for the RAFSS avoidance program as shown on the Extracted Cost Estimate Table below (Figure 6). Again, the lack of detail makes it impossible to make anything more than summary comments; however, we calculated *per unit costs* budgeted by Otte-Berkeley Group for amenities and other improvements that HM2 valued highly in their analysis.

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Figure 6

Budget Items that will affect Home Prices (according to HM2)				
Description	**Proposed Project**	**No Project Alternative**	**Avoidance of RAFSS Area**	**Avoidance SB Kangaroo Rat**
Units	8,281	2,215	4,872	7,485
Premium Entry	$780,000	$400,000	$375,000	$780,000
Per Unit	***$94***	***$181***	***$77***	***$104***
Perimeter Upgrade	$3,714,500	$3,199,000	$3,118,000	$3,714,500
Per Unit	***$449***	***$1,444***	***$640***	***$496***
Enhanced Landscaping	$6,129,205	$3,530,305	$5,969,655	$3,648,408
Per Unit	***$740***	***$1,593***	***$1,225***	***$487***
Streets With Medians and Parkways	$7,668,328	$7,114,793	$7,940,642	$7,339,048
Per Unit	***$926***	***$3,212***	***$1,629***	***$980***
Parks	$15,173,750	$1,007,500	$15,173,750	$14,573,750
Per Unit	***$1,832***	***$455***	***$3,114***	***$1,947***
Special Amenities	$30,704,125	$14,574,125	$8,500,000	$23,074,125
Per Unit	***$3,707***	***$6,579***	***$1,744***	***$3,083***

Reviewing the table above (Figure 6), many of the gross line items are higher in the Proposed Project; however, many of the *per unit costs* are *lower*, oftentimes substantially lower. We are therefore unsure why HM2 assigned some of the amenity values that they did (pp. 24-33 HM2 Report).

For example, the Proposed Project received 7 out of 9 for "Private Recreational Facilities" and the No Project Alternative received a 1.

Because the No Project Alternative has a higher per unit cost for Special Amenities (nearly double at $3,707 vs. $6,579) the data provided does not show where the $14,574,125 budgeted for Special Amenities is being spent.

As stated above, this is extremely significant because not only is a large cost introduced; the No Project Alternative seems to have been denied its revenue benefit from the Special Amenities included in the budget. Similarly, the Avoidance of SBKR plan also received 1 out of 9 in "Private Recreational Facilities" and has $23,074,125 budgeted for Special Amenities. These are only two examples, and, as shown in the table above, there are many other instances of the per unit prices being higher in the budgets but inexplicably these projects are receiving a revenue penalty rather than a benefit.

We believe the Marketing Scores should reflect *per unit* or *per acre* costs that are in the Otte-Berkeley budget because many development costs are estimated to be linearly related to unit count or disturbed acres. The data provided do not justify why the project alternatives do not receive equal treatment when it comes to the amenity scores applied. Reviewing the per

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unit costs in Figure 6 indicates that many of the Amenity scores in the project alternatives should be higher. The Project Alternatives are therefore not receiving the revenue benefits associated with the amenities in their respective budgets.

There is a disconnect between the amounts budgeted by the Otte-Berkeley Group and the Amenity ratings received by the project alternatives.

Master Planned Developments

The definition of a "true" master planned community is discussed on pg. 14 of the HM2 Marketing Report. They determined that two of the project alternatives did not fall into this category: Existing Zoning and SBKR Avoidance. This led HM2 to subtract 1.5 points from their Amenity Score. This subtraction is *much* more important than it seems on the surface. In reality, they have subtracted 1.5 ***average*** points which equates to ***6%*** decrease in sales value. This amounts to a loss of $24.8 million in revenues, and, according to the definition of a master planned community, the Otte-Berkeley group has adequate funds budgeted to satisfy most of the requirements.

Based on the definition of a master planned community and the budgets provided, it seems that the moniker "true master planned community" is not being distributed fairly between the project alternatives.

Figure 7 below shows the total Gross Sales for the No Project / Existing Zoning alternative. According to Figure 5, if the amenities included in the proposed project were added to the existing project, it would receive an 18.4% swing in home values amounting to a total of $156,000,000 in increased sales prices. Furthermore, as shown in Figure 6, it seems that many of these improvements are already budgeted. On a per-unit basis, only the Parks budget would need to be increased by $1377/unit for a total of $3,050,000.

Following the CBRE logic, a $3 million dollar expense will provide $156 million in revenue benefit to the Existing Zoning. If this is true, any reasonable developer would invest the additional money.

Figure 7

	Units	Proposed Plan Price	Total Sales	Deflated Existing Zoning Price	Total Sales
SFR - 1	1,887	$450,000	$849,150,000	$376,200	$709,889,400
SFR - 2	328	$325,000	$106,600,000	$271,700	$89,117,600
SFR - 3	0	$250,000	$0	$209,000	$0
MDR	0	$175,000	$0	$146,300	$0
HDR	0	$150,000	$0	$125,400	$0
Total	2,215		$955,750,000	$360,726	$799,007,000

Similarly, for the Avoidance of SBKR alternative, enhanced landscaping could be increased by $253/unit and Special Amenities by $624/unit for a total of $6.6 million to reach the equivalent of the Proposed Project. Furthermore, cost savings could be refunded to the

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SBKR project if some of the line items are lowered to that of the Proposed Project. For example, Premium Entry, Perimeter Upgrade, Streets with Medians and Parkways and Parks could be decreased by a total of $226/unit for $1.7 million in savings.

Therefore, a net investment of $4.9 million in the SBKR alternative would account for a 14% increase in sales price (Figure 5; -6.0% to +8.0%), a total of $272 million in additional revenues (See Figure 7-2)

Figure 7-2

	Units	Proposed Plan Price	Total Sales	Deflated SBKR Price	Total Sales
SFR - 1	936	$450,000	$421,200,000	$387,000	$362,232,000
SFR - 2	1,549	$325,000	$503,425,000	$279,500	$432,945,500
SFR - 3	2,419	$250,000	$604,750,000	$215,000	$520,085,000
MDR	1,256	$175,000	$219,800,000	$150,500	$189,028,000
HDR	1,325	$150,000	$198,750,000	$129,000	$170,925,000
Total	7,485		$1,947,925,000	$223,810	$1,675,215,500

Discrepancies between July 2010 and December 2011 Reports

We also reviewed a Financial Feasibility Analysis of Alternatives to the Project Discussed in the Lytle Creek Specific Plan and EIR also prepared by CBRE dated July 2010. There were several modified assumptions between the two reports. The first item is that the sales prices for finished lots and related costs have changed (Figure 8).

Figure 8

	July 2010 Report			December 2011 Report			Variance		
	Finished Lot Value	Intract Costs	Blue Top Value	Finished Lot Value	Intract Costs	Blue Top Value	Finished Lot Value	Intract Costs	Blue Top Value
SFR – 1	$140,000	$55,000	$85,000	$164,000	$65,000	$99,000	$24,000	$10,000	$14,000
SFR – 2	$105,000	$50,000	$55,000	$120,000	$55,000	$65,000	$15,000	$5,000	$10,000
SFR – 3	$80,000	$45,000	$35,000	$93,000	$45,000	$48,000	$13,000	$0	$13,000
MFR	$60,000	$35,000	$25,000	$69,000	$35,000	$34,000	$9,000	$0	$9,000
HDR	$45,000	$30,000	$15,000	$58,000	$30,000	$28,000	$13,000	$0	$13,000
Total	$694 Mil	$359 Mil	$335 Mil	$810 Mil	$378 Mil	$432 Mil	$116 Mil	$19 Mil	$97 Mil

In Figure 8 above, the total finished lot value increased by $116 million and the total blue top values increased by $97 million. More specifically, the report indicates the value for SFR-1 finished lots increased from $140,000 per unit to $164,000, an increase of approximately 17%. In fact, for all the product types, finished lot values have increased by more than 10%. Although we do not prepare market studies, this information does not reasonably reflect what we perceive to be current market conditions.

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We also noted that for products SFR-1 and SFR-2, the costs have increased by more than 10% whereas the costs for the SFR-3, MFR and HDR have remained static. Our experience indicates that the different product types are not being treated equally; however, again it is difficult to make an informed opinion when so little of the detail is included in the report.

Developers Research would like the opportunity to review the reasoning behind the differences of the July 2010 report and the December 2011 report.

Community Facilities District Financing

On page 3 of the report, CBRE states, "In light of the current market conditions and recent case law, which creates major uncertainties as to future development costs (Azusa Land Partners vs. Dept. of Industrial Relations), combined with the weak financial standing of the City of Rialto, it is highly unlikely that CFD would be approved for the project or any of the alternatives." We agree with the assumptions contained in the statement, however, we do not agree with the conclusion. The appraisal indicates that the seller has projected that for any of the alternatives, the sales will exceed 10 years. There is also considerable debate regarding the court's decision for inclusion of future development costs any public financing district. Finally, the financial condition of the city of Rialto may not have a significant impact on the ability to sell bonds since another public agency could be the bond sponsor. In our opinion, a public financing district that includes a minimal tax burden of 0.3% would be acceptable in the local marketplace and the proceeds could be used to offset certain of the backbone development costs.

Existing Golf Course

Page 18 of the CBR appraisal states that the appraised value of a "substantial portion of the project site" was $58 million, based upon a CBRE appraisal completed in September 2009. To this appraised value, CBRE added $20 million for the acquisition of an existing adjacent golf course with the potential for an additional 300 residential lots. For the purposes of calculating the land residual value for the development envelope, CBRE deducted $15 million which they state is the "operating value of the existing golf course."

Our experience in providing land residual valuations for public "pay for play" golf courses is that they rarely generate positive cash flow. We have observed operating expenses for many Southern California golf courses and the costs, especially the cost of irrigation water, reduce the value of a golf course significantly. Furthermore, the greens fees for "pay for play" golf courses have been reduced during the past real estate cycle as many golfers are unable to afford the costs associated with playing. If the golf course is currently an operating facility, we would like the opportunity to review the current discounted cash flow to determine the investment value of the course.

In fact, our recent observation of indicated that the most significant benefit of an active golf course is the lot premiums associated with houses constructed adjacent to the course and HM2 has taken this into consideration in its pricing analysis.

We have not had a chance to review the September 2009 CBRE appraisal for the golf course but we believe that during the intervening 3 years, the value the golf course has been reduced, which conclusion is further supported by the fact the golf course is currently not operating.

Based upon our experience, we believe the existing golf course that is currently closed and not maintained, is overvalued in the CBRE Appraisal.

Absorption Rates

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The absorption rates assumed in the CBRE report are delineated on pages 24-25 and are not consistent between the project alternatives. The Proposed Project is projected to absorb 100 multifamily units per year eventually increasing to 400 units per year in 2021. The Avoidance of RAFSS is projected to absorb 100 units per year and eventually increasing to 300 units per year. We understand the difficulty in projecting absorption rates over long time frames; however, it is unclear to us why the projections would change depending on the project alternative. CBRE makes no justification for these discrepancies. In our experience, these absorption rates are aggressive, but taking them at face value, we believe they should at least be kept consistent.

It is unclear to us why the residential absorption rates are not kept consistent between the project alternatives.

Conclusions

Generally, the report intends to show that the Proposed Project is the only feasible project because it generates an internal rate of return greater than 15%, which is above the investment threshold determined by CBRE. For many of the reasons discussed above, we believe the various project alternatives were not treated equally in this analysis. For example, if the Commercial Revenue Inflation and Commercial sales prices were not inexplicably inflated in the Proposed Project and not the other projects, the proposed project would not have reached its target of greater than 15% IRR (which it barely achieves). Furthermore, the project alternatives would have higher IRR's if they were not arbitrarily penalized for lacking amenities which can be clearly found in the Otte-Berkeley budget. Based on per unit costs, many of the project alternatives should have received *higher* amenity scores than the Proposed Project and would thus have an *increased* revenue benefit applied.

As stated above, without cost detail schedules or justifications for many of the CBRE assumptions, it seems that the Project Alternatives are being arbitrarily penalized while the Proposed Project is being arbitrarily increased to reach the target >15% IRR.

Before any further decision is made on the feasibility of the Project Alternatives, we believe that CBRE needs to explain the assumptions and reasoning behind the various issues described above.

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Save Lytle Creek Wash April 3, 2012 Comment Letter

ATTACHMENT 2:

SCAG Draft 2014-2023 RHNA

Draft Regional Housing Needs Allocation (by Components and Income), 1/1/2014-9/30/2021

Draft

County	Household Growth (2014-2021)	Base Vacancy Needs	Total Replacement Needs	Vacancy Credit	Net RHNA	Number of very low income households	Number of low income households	Number of moderate income households	above moderate income households	Total
Imperial	17,428	479	49	1,404	16,551	4,194	2,553	2,546	7,258	16,551
Los Angeles	200,572	6,131	1,268	28,297	180,087	45,720	27,497	30,074	76,779	180,070
Orange	41,530	1,143	414	6,150	37,965	8,794	6,246	6,971	16,015	37,986
Riverside	120,308	2,948	175	22,059	101,372	24,117	16,319	18,459	42,479	101,374
San Bernardino	70,623	1,890	469	16,833	57,208	13,399	9,285	10,490	24,053	57,207
Ventura	19,628	523	41	647	19,553	4,612	3,160	3,617	8,164	19,553
SCAG	470,089	13,113	2,416	75,390	412,716	100,776	65,040	72,157	174,748	412,721

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Draft Regional Housing Needs Allocation (by Components and Income), 1/1/2014-9/30/2021

Draft

County	City	Household Growth (2014-2021)	Base Vacancy Needs	Total Replacement Needs	Vacancy Credit	Net RHNA	Number of very low income households	Number of low income households	Number of moderate income households	above moderate income households	Total
Imperial	Brawley city	3,080	90	4	141	3,034	760	470	466	1,338	3,034
Imperial	Calexico city	3,139	91	8	13	3,224	817	489	490	1,428	3,224
Imperial	Calipatria city	187	5	0	48	144	37	22	22	63	144
Imperial	El Centro city	2,118	64	8	265	1,924	487	300	297	840	1,924
Imperial	Holtville city	222	7	1	20	209	54	31	32	92	209
Imperial	Imperial city	1,367	32	1	91	1,309	349	205	202	553	1,309
Imperial	Westmorland city	230	7	3	8	233	57	35	36	105	233
Imperial	Unincorporated	7,085	182	25	819	6,474	1,633	1,001	1,001	2,839	6,474
Los Angeles	Agoura Hills city	113	2	0	0	115	31	19	20	45	115
Los Angeles	Alhambra city	1,580	52	0	141	1,492	380	224	246	642	1,492
Los Angeles	Arcadia city	1,141	30	0	117	1,054	276	167	177	434	1,054
Los Angeles	Artesia city	112	3	5	0	120	31	18	20	51	120
Los Angeles	Avalon city	149	8	3	79	80	20	12	14	34	80
Los Angeles	Azusa city	868	25	8	120	779	198	118	127	336	779
Los Angeles	Baldwin Park city	528	14	15	0	557	142	83	90	242	557
Los Angeles	Bell city	40	1	6	0	47	11	7	8	21	47
Los Angeles	Bellflower city	91	3	0	115	2	1	1	0	0	2
Los Angeles	Bell Gardens city	33	1	12	0	46	11	7	8	20	46
Los Angeles	Beverly Hills city	271	9	34	324	3	1	1	1	0	3
Los Angeles	Bradbury city	7	0	1	7	2	1	1	0	0	2
Los Angeles	Burbank city	2,767	88	62	234	2,684	694	413	443	1,134	2,684
Los Angeles	Calabasas city	325	7	0	3	330	88	54	57	131	330
Los Angeles	Carson city	1,662	36	0	0	1,698	447	263	280	708	1,698
Los Angeles	Cerritos city	84	2	0	0	86	23	14	14	35	86
Los Angeles	Claremont city	372	9	0	8	373	98	59	64	152	373
Los Angeles	Commerce city	44	1	0	0	46	12	7	7	20	46
Los Angeles	Compton city	11	0	4	302	2	1	1	0	0	2
Los Angeles	Covina city	310	9	2	90	230	60	35	38	97	230
Los Angeles	Cudahy city	303	12	3	0	318	80	46	51	141	318
Los Angeles	Culver City city	180	5	0	0	185	48	29	31	77	185
Los Angeles	Diamond Bar city	1,122	23	0	0	1,146	308	182	190	466	1,146
Los Angeles	Downey city	854	25	19	84	814	210	123	135	346	814
Los Angeles	Duarte city	329	8	0	0	337	87	53	55	142	337

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Draft Regional Housing Needs Allocation (by Components and Income), 1/1/2014-9/30/2021

Draft County	City	Household Growth (2014-2021)	Base Vacancy Needs	Total Replacement Needs	Vacancy Credit	Net RHNA	Number of very low income households	Number of low income households	Number of moderate income households	above moderate income households	Total
Los Angeles	El Monte city	2,069	67	34	28	2,142	529	315	352	946	2,142
Los Angeles	El Segundo city	60	2	7	0	69	18	11	12	28	69
Los Angeles	Gardena city	394	12	0	9	397	98	60	66	173	397
Los Angeles	Glendale city	2,291	77	61	411	2,017	508	310	337	862	2,017
Los Angeles	Glendora city	661	15	9	0	686	181	108	115	284	686
Los Angeles	Hawaiian Gardens city	124	4	3	2	129	32	19	21	57	129
Los Angeles	Hawthorne city	711	26	0	55	683	170	101	112	300	683
Los Angeles	Hermosa Beach city	1	0	0	0	2	1	1	0	0	2
Los Angeles	Hidden Hills city	18	0	3	2	18	5	3	3	7	18
Los Angeles	Huntington Park city	845	31	18	0	895	216	128	149	402	895
Los Angeles	Industry city	0	0	0	0	0	0	0	0	0	0
Los Angeles	Inglewood city	1,159	39	75	261	1,013	250	150	167	446	1,013
Los Angeles	Irwindale city	15	0	1	1	15	4	2	2	7	15
Los Angeles	La Canada Flintridge city	110	2	0	0	112	30	18	20	44	112
Los Angeles	La Habra Heights city	117	2	1	1	119	32	19	21	47	119
Los Angeles	Lakewood city	425	10	0	32	403	107	63	67	166	403
Los Angeles	La Mirada city	230	5	0	0	235	62	37	40	96	235
Los Angeles	Lancaster city	3,980	107	33	1,610	2,510	627	384	413	1,086	2,510
Los Angeles	La Puente city	942	25	0	0	967	246	143	159	419	967
Los Angeles	La Verne city	585	13	3	39	562	147	88	94	233	562
Los Angeles	Lawndale city	368	13	0	0	381	96	57	62	166	381
Los Angeles	Lomita city	38	1	9	0	47	12	7	8	20	47
Los Angeles	Long Beach city	9,487	309	0	2,748	7,048	1,773	1,066	1,170	3,039	7,048
Los Angeles	Los Angeles city	95,023	3,186	0	16,207	82,002	20,427	12,435	13,728	35,412	82,002
Los Angeles	Lynwood city	453	14	27	0	494	123	72	81	218	494
Los Angeles	Malibu city	130	3	3	198	2	1	1	0	0	2
Los Angeles	Manhattan Beach city	37	1	0	0	38	10	6	7	15	38
Los Angeles	Maywood city	50	2	1	0	53	13	8	9	23	53
Los Angeles	Monrovia city	388	12	14	25	389	101	61	65	162	389
Los Angeles	Montebello city	1,031	32	3	0	1,066	269	161	175	461	1,066
Los Angeles	Monterey Park city	755	21	41	2	815	205	123	137	350	815
Los Angeles	Norwalk city	187	5	9	0	201	52	31	33	85	201

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Draft Regional Housing Needs Allocation (by Components and Income), 1/1/2014-9/30/2021

Draft County	City	Household Growth (2014-2021)	Base Vacancy Needs	Total Replacement Needs	Vacancy Credit	Net RHNA	Number of very low income households	Number of low income households	Number of moderate income households	above moderate income households	Total
Los Angeles	Palmdale city	6,432	158	0	1,139	5,452	1,395	827	898	2,332	5,452
Los Angeles	Palos Verdes Estates city	3	0	15	2	16	4	3	3	6	16
Los Angeles	Paramount city	151	5	0	51	105	26	16	17	46	105
Los Angeles	Pasadena city	2,051	65	29	812	1,332	340	207	224	561	1,332
Los Angeles	Pico Rivera city	829	20	0	0	850	217	131	140	362	850
Los Angeles	Pomona city	3,862	110	0	346	3,626	919	543	592	1,572	3,626
Los Angeles	Rancho Palos Verdes city	30	1	0	0	31	8	5	5	13	31
Los Angeles	Redondo Beach city	1,293	38	121	56	1,397	372	223	238	564	1,397
Los Angeles	Rolling Hills city	9	0	2	5	6	2	1	1	2	6
Los Angeles	Rolling Hills Estates city	14	0	2	11	5	1	1	1	2	5
Los Angeles	Rosemead city	550	17	35	0	601	153	88	99	262	602
Los Angeles	San Dimas city	457	11	4	9	463	121	72	77	193	463
Los Angeles	San Fernando city	221	6	5	15	217	55	32	35	95	217
Los Angeles	San Gabriel city	958	29	0	57	930	236	142	154	398	930
Los Angeles	San Marino city	2	0	0	0	2	1	1	0	0	2
Los Angeles	Santa Clarita city	8,338	197	2	216	8,322	2,208	1,315	1,410	3,389	8,322
Los Angeles	Santa Fe Springs city	350	9	0	35	324	82	50	53	139	324
Los Angeles	Santa Monica city	1,745	54	83	218	1,674	428	263	283	700	1,674
Los Angeles	Sierra Madre city	60	2	0	7	55	14	9	9	23	55
Los Angeles	Signal Hill city	197	6	0	34	169	44	27	28	70	169
Los Angeles	South El Monte city	162	5	6	0	172	43	25	28	76	172
Los Angeles	South Gate city	1,172	37	53	0	1,262	314	185	205	558	1,262
Los Angeles	South Pasadena city	130	4	3	74	63	17	10	11	25	63
Los Angeles	Temple City city	531	14	61	2	603	159	93	99	252	603
Los Angeles	Torrance city	1,416	40	38	43	1,450	390	227	243	600	1,450
Los Angeles	Vernon city	0	0	0	0	2	1	1	0	0	2
Los Angeles	Walnut city	892	17	0	0	908	246	144	155	363	908
Los Angeles	West Covina city	806	20	5	0	831	217	129	138	347	831
Los Angeles	West Hollywood city	408	16	0	347	77	19	12	13	33	77
Los Angeles	Westlake Village city	44	1	0	0	45	12	7	8	18	45
Los Angeles	Whittier city	911	25	3	60	878	228	135	146	369	878
Los Angeles	Unincorporated	30,574	804	269	1,503	30,144	7,854	4,650	5,060	12,581	30,145

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Draft Regional Housing Needs Allocation (by Components and Income), 1/1/2014-9/30/2021

Draft County	City	Household Growth (2014-2021)	Base Vacancy Needs	Total Replacement Needs	Vacancy Credit	Net RHNA	Number of very low income households	Number of low income households	Number of moderate income households	above moderate income households	Total
Orange	Aliso Viejo city	38	1	0	0	39	9	7	7	16	39
Orange	Anaheim city	6,977	209	0	1,385	5,702	1,256	907	1,038	2,501	5,702
Orange	Brea city	1,826	47	4	26	1,851	426	305	335	785	1,851
Orange	Buena Park city	349	10	7	27	339	76	53	62	148	339
Orange	Costa Mesa city	174	6	24	312	2	1	1	0	0	2
Orange	Cypress city	295	7	6	0	308	71	50	56	131	308
Orange	Dana Point city	474	13	17	178	327	76	53	61	137	327
Orange	Fountain Valley city	350	8	0	0	358	83	59	65	151	358
Orange	Fullerton city	2,163	62	32	416	1,841	411	299	337	794	1,841
Orange	Garden Grove city	715	20	12	0	747	164	120	135	328	747
Orange	Huntington Beach city	1,478	40	11	175	1,353	313	220	249	572	1,353
Orange	Irvine city	12,686	380	0	918	12,149	2,817	2,034	2,239	5,059	12,149
Orange	Laguna Beach city	32	1	1	172	2	1	1	0	0	2
Orange	Laguna Hills city	124	3	0	166	2	1	1	0	0	2
Orange	Laguna Niguel city	158	4	21	0	182	43	30	34	75	182
Orange	Laguna Woods city	129	3	0	443	2	1	1	0	0	2
Orange	La Habra city	135	4	0	135	4	1	1	1	1	4
Orange	Lake Forest city	2,663	63	0	0	2,727	647	450	497	1,133	2,727
Orange	La Palma city	9	0	0	0	9	2	2	2	3	9
Orange	Los Alamitos city	55	2	4	0	61	14	10	11	26	61
Orange	Mission Viejo city	173	4	0	0	177	42	29	33	73	177
Orange	Newport Beach city	533	15	0	608	5	1	1	1	2	5
Orange	Orange city	394	11	7	49	363	83	59	66	155	363
Orange	Placentia city	479	12	1	0	492	112	81	90	209	492
Orange	ancho Santa Margarita ci	12	0	1	21	2	1	1	0	0	2
Orange	San Clemente city	662	17	4	101	581	134	95	108	244	581
Orange	San Juan Capistrano city	625	14	0	2	638	147	104	120	267	638
Orange	Santa Ana city	503	15	25	339	204	45	32	37	90	204
Orange	Seal Beach city	19	0	10	186	2	1	1	0	0	2
Orange	Stanton city	329	10	2	28	313	68	49	56	140	313
Orange	Tustin city	1,219	36	127	155	1,227	283	195	224	525	1,227
Orange	Villa Park city	14	0	0	0	14	3	2	3	6	14

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Draft Regional Housing Needs Allocation (by Components and Income), 1/1/2014-9/30/2021

Draft

County	City	Household Growth (2014-2021)	Base Vacancy Needs	Total Replacement Needs	Vacancy Credit	Net RHNA	Number of very low income households	Number of low income households	Number of moderate income households	above moderate income households	Total
Orange	Westminster city	110	3	5	297	2	1	1	0	0	2
Orange	Yorba Linda city	633	13	24	0	669	160	113	126	270	669
Orange	Unincorporated	5,094	111	67	0	5,272	1,240	879	979	2,174	5,272
Riverside	Banning city	4,120	101	3	437	3,792	872	593	685	1,642	3,792
Riverside	Beaumont city	5,415	122	2	289	5,250	1,267	854	969	2,160	5,250
Riverside	Blythe city	565	17	15	194	402	91	64	75	172	402
Riverside	Calimesa city	2,439	51	1	150	2,341	543	383	433	982	2,341
Riverside	Canyon Lake city	141	3	0	61	83	21	14	16	32	83
Riverside	Cathedral City city	1,241	32	19	693	600	141	95	110	254	600
Riverside	Coachella city	8,871	181	1	283	6,771	1,555	1,059	1,212	2,945	6,771
Riverside	Corona city	1,081	27	5	343	770	192	128	142	308	770
Riverside	Desert Hot Springs city	4,944	151	3	903	4,196	946	661	772	1,817	4,196
Riverside	Hemet city	2,797	74	0	2,267	604	134	96	112	262	604
Riverside	Indian Wells city	291	6	1	138	160	40	27	31	62	160
Riverside	Indio city	4,053	103	0	1,131	3,025	714	487	553	1,271	3,025
Riverside	Lake Elsinore city	5,211	131	11	424	4,929	1,196	801	897	2,035	4,929
Riverside	Menifee city	6,842	150	0	748	6,245	1,488	1,007	1,140	2,610	6,245
Riverside	La Quinta city	1,336	30	18	1,020	364	91	61	66	146	364
Riverside	Moreno Valley city	7,114	182	15	1,142	6,169	1,500	993	1,112	2,564	6,169
Riverside	Murrieta city	2,174	52	4	657	1,573	395	262	289	627	1,573
Riverside	Norco city	809	17	4	12	818	205	136	151	326	818
Riverside	Palm Desert city	1,960	50	0	1,596	413	99	67	76	172	413
Riverside	Palm Springs city	2,010	55	8	1,802	272	63	43	50	116	272
Riverside	Perris city	4,693	118	4	536	4,280	1,026	681	759	1,814	4,280
Riverside	Rancho Mirage city	594	12	0	511	95	23	15	18	39	95
Riverside	Riverside city	9,534	270	35	1,556	8,283	2,002	1,336	1,503	3,442	8,283
Riverside	San Jacinto city	3,000	74	5	646	2,433	562	394	441	1,036	2,433
Riverside	Temecula city	1,903	46	14	470	1,493	375	251	271	596	1,493
Riverside	Wildomar city	2,620	60	1	146	2,535	621	415	461	1,038	2,535
Riverside	Unincorporated	36,548	834	0	3,903	33,478	7,956	5,396	6,115	14,011	33,478
San Bernardino	Adelanto city	3,276	91	8	534	2,841	633	459	513	1,236	2,841
San Bernardino	Apple Valley town	4,055	98	0	819	3,334	764	541	622	1,407	3,334

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Draft Regional Housing Needs Allocation (by Components and Income), 1/1/2014-9/30/2021

Draft County	City	Household Growth (2014-2021)	Base Vacancy Needs	Total Replacement Needs	Vacancy Credit	Net RHNA	Number of very low income households	Number of low income households	Number of moderate income households	above moderate income households	Total
San Bernardino	Barstow city	1,456	44	4	662	843	188	138	154	363	843
San Bernardino	Big Bear Lake city	198	5	11	776	2	1	1	0	0	2
San Bernardino	Chino city	3,008	73	0	187	2,894	707	478	533	1,176	2,894
San Bernardino	Chino Hills city	844	18	0	0	862	217	148	164	333	862
San Bernardino	Colton city	2,285	67	17	425	1,923	443	302	347	831	1,923
San Bernardino	Fontana city	6,385	155	0	564	5,977	1,442	974	1,090	2,471	5,977
San Bernardino	Grand Terrace city	158	4	0	44	118	28	19	22	49	118
San Bernardino	Hesperia city	2,416	60	7	768	1,715	398	274	314	729	1,715
San Bernardino	Highland city	1,744	44	3	291	1,500	349	246	280	625	1,500
San Bernardino	Loma Linda city	1,354	45	3	308	1,095	254	177	202	462	1,095
San Bernardino	Montclair city	709	19	3	35	697	164	114	125	294	697
San Bernardino	Needles city	359	10	3	191	181	39	29	34	80	181
San Bernardino	Ontario city	10,921	310	22	392	10,861	2,592	1,745	1,977	4,547	10,861
San Bernardino	Rancho Cucamonga city	1,002	26	9	188	848	209	141	158	340	848
San Bernardino	Redlands city	2,785	74	8	418	2,429	579	396	453	1,001	2,429
San Bernardino	Rialto city	3,304	85	0	674	2,715	636	432	496	1,151	2,715
San Bernardino	San Bernardino city	5,116	183	113	2,028	4,384	980	696	808	1,900	4,384
San Bernardino	Twentynine Palms city	807	28	2	384	454	103	72	84	195	454
San Bernardino	Upland city	1,945	54	3	412	1,589	382	260	294	653	1,589
San Bernardino	Victorville city	8,679	230	42	1,579	7,371	1,698	1,207	1,342	3,124	7,371
San Bernardino	Yucaipa city	1,942	44	13	395	1,605	376	261	299	669	1,605
San Bernardino	Yucca Valley town	1,262	33	2	366	930	209	149	172	400	930
San Bernardino	Unincorporated	3,662	89	197	4,392	39	9	6	7	17	39
Ventura	Camarillo city	2,229	54	0	59	2,224	539	368	411	908	2,224
Ventura	Fillmore city	714	18	2	40	694	160	112	128	294	694
Ventura	Moorpark city	1,135	25	4	0	1,164	289	197	216	462	1,164
Ventura	Ojai city	382	11	0	22	371	87	59	70	155	371
Ventura	Oxnard city	7,090	200	11	0	7,301	1,686	1,160	1,351	3,102	7,301
Ventura	Port Hueneme city	162	5	0	173	2	1	1	0	0	2
Ventura	Buenaventura (Ventura	3,706	105	8	163	3,654	861	591	673	1,529	3,654
Ventura	Santa Paula city	1,261	35	2	14	1,285	288	201	241	555	1,285
Ventura	Simi Valley city	1,228	28	0	0	1,256	310	209	229	509	1,256

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Draft Regional Housing Needs Allocation (by Components and Income), 1/1/2014-9/30/2021

Draft County	City	Household Growth (2014-2021)	Base Vacancy Needs	Total Replacement Needs	Vacancy Credit	Net RHNA	Number of very low income households	Number of low income households	Number of moderate income households	above moderate income households	Total
Ventura	Thousand Oaks city	188	4	0	0	192	47	32	36	77	192
Ventura	Unincorporated	1,534	37	15	177	1,410	342	233	262	573	1,410

Notes

* The city boundaries for the base year and the projected year are based on January 1, 2011

** Eastvale and Jurupa Valley RHNA figures are still part of Riverside County RHNA allocation and will be determined and provided shortly.

*** Draft RHNA allocation (by components) = household growth (1/1/2014-9/30/2021)+base market vacancy needs+total replacement needs- vacancy credit

**** Draft RHNA allocation (by components) by jurisdiction is subject to rounding adjustment.

***** Tribal Land household growth credit (2,810) was already applied to household growth of selected local jurisdictions.

****** If the excess vacancy credit exceeds the sum of household growth, base vacancy needs, and replacement needs , then Draft RHNA allocation (Net RHNA) can be either of 2 units or 1% of the sum of household growth, base vacancy needs, and replacement needs, whichever is bigger.

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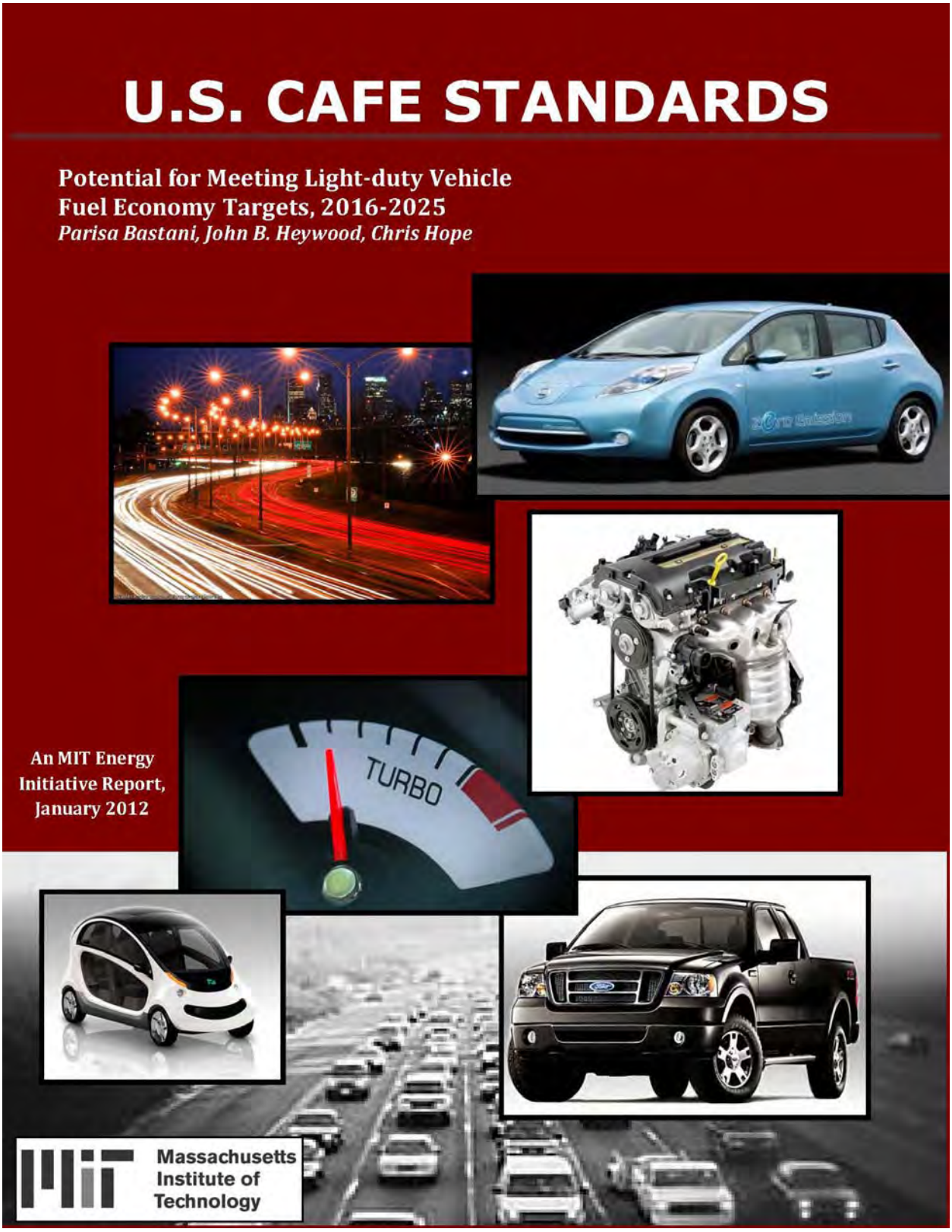
Save Lytle Creek Wash April 3, 2012 Comment Letter

ATTACHMENT 3:
Analysis of CAFE Standards


U.S. CAFE STANDARDS
Potential for Meeting Light-duty Vehicle Fuel Economy Targets, 2016-2025
Parisa Bastani, John B. Heywood, Chris Hope
TURBO
An MIT Energy Initiative Report, January 2012
Massachusetts Institute of Technology

U.S. CAFE Standards

Potential for meeting light-duty vehicle fuel economy targets, 2016-2025

Parisa Bastani, John B. Heywood, Chris Hope

MIT Energy Initiative Report

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January 2012

ACKNOWLEDGMENT

The authors wish to acknowledge the support of MIT Sloan Automotive Laboratory, Dr. Matthew Jones, Professor Danny Ralph, and Anthony Haynes at the University of Cambridge.

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Abstract

In August 2011, NHTSA published the EPA and DOT notice of intent to propose further regulations for the light-duty vehicle fleet which mandate foot-print based corporate average fuel economy and GHG emissions standards for model years 2017 to 2025. Policy makers are setting more stringent fuel economy and emissions targets out to 2025 in a context of significant uncertainty, especially in the rate of improved mainstream technologies progress, the development and market deployment of alternative technologies, the supply of alternative fuels, and the evolution of travel demand over the next few decades. These uncertainties need to be quantified and taken into account systematically when evaluating policies, to quantify the probability of meeting the targets, and identify the key areas in which we need to develop knowledge to reduce uncertainties. This research aims to help decision making using quantitative risk modelling, given that decision makers are always faced with uncertainties as they look to set targets into the future. A stochastic technology and market vehicle fleet analysis is carried out, using the STEP (Stochastic Transport Emissions Policy model), to assess the probability of meeting the proposed CAFE targets in 2016 and 2025, and identify factors that play key roles in the near and midterm. The analysis further identifies what other measures could be taken in parallel with CAFE to increase the probability of a greater reduction in the U.S. fleet fuel use and GHG emissions. Our results indicate that meeting the proposed targets requires (a) aggressive technological progress rate and deployment, (b) aggressive penetration of advanced engines and powertrains in the market, (c) aggressive vehicle downsizing and weight reduction, and (d) a high emphasis on reducing fuel consumption (ERFC). Three scenarios are examined to assess the likelihood of meeting the proposed targets under uncertainty. The targets examined here are 32.5 and 34.1 mpg in 2016 and 44 and 54.5 mpg in 2025. We have assessed these reduced targets from the nominal CAFE values after allowing for the various credits in the proposed rulemaking. These numbers are combined sales-weighted averages for cars and light trucks. Cars will need to meet higher mpg targets, and light trucks lower targets, depending on the relative percentages of these two vehicle categories. The results show that there is about a 42.5% likelihood of the passenger cars average fuel economy being less than 32.5 mpg and a 5.3% likelihood of it exceeding 34.1 mpg in 2016, and about a 4% chance of it exceeding 44 mpg in 2025, under the plausible-ambitious scenario. The likelihood of meeting or exceeding the combined CAFE targets of 32.5 mpg in 2016 and 44 mpg in 2025 drops to less than 0.5%, once light trucks are included in the mix, under the plausible-ambitious scenario. Under the EPA/DOT preferred alternative scenario, the likelihood of passenger cars average fuel economy meeting or exceeding 34.1 mpg in 2016 and 44 mpg in 2025 increases to about 74% and 34.5% respectively. Similarly, the probability of meeting these combined CAFE targets drop to less than 1% in both near and mid terms, once light trucks are included in the mix, under the EPA/DOT scenario. The results further indicate that in the presence of other policies in addition to CAFE, there is a 20% increase in the likelihood of reducing the fleet fuel use by 10% in 2025: highlighting the need for complementary policies to CAFE standards to make a meaningful reduction in the U.S. fleet fuel use and GHG emissions into the future. This analysis quantifies the probability of meeting the targets to enable risk-based contingency planning, and identifies key drivers of uncertainty to promote research and develop knowledge in these areas, such as: naturally-aspirated spark ignition (NASI) engine technology development, ERFC, market acceptance of turbo SI characteristics, cost reduction of batteries and penetration of BEVs, vehicle scrappage and demand dynamics.

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Proposed Rulemaking

DOT and EPA jointly announced their intent for proposed rulemaking of light-duty vehicle fuel economy standards for 2017 through 2025 (NHTSA, 2011). The aim of this paper is to evaluate the proposed standards and quantify the likelihood of achieving such targets, given technological and market uncertainties. The proposed standards are foot-print based and increase in stringency over time, on average about 5% per year from the CO2 footprint based curves for passenger cars from the model year 2016 to 2025 and 3.5% per year for light-duty trucks from 2017 to 2021. EPA currently intends to propose standards which would achieve, on an industry average new vehicle basis, 54.4 mpg in year 2025, while NHTSA intends to propose standards that would achieve an average industry new vehicle fleet-wide fuel economy of 40.9 mpg in 2021 and 49.6 mpg in 2025. The annual increase in stringency between model years 2017 to 2021 is expected to average 4.1 percent, and to average 4.3 percent between model years 2017 and 2025 for passenger cars. NHTSA is further considering allowing manufactures to include air conditioning system efficiency improvements as a means to comply with fuel economy standards. The regulatory bodies believe that these standards can be met through improving conventional gasoline and hybrid vehicle technologies and an increased market share of more advanced technologies including electric vehicles and plug-in hybrid electric vehicles. Given the long time horizon of the new rulemaking, EPA and NHTSA intend to propose a comprehensive mid-term evaluation to reassess the proposed standards and their impact.

The agencies have also proposed including off-cycle credits to encourage penetration of advanced technologies, but intend to propose a limit on these credits. Automakers can apply for additional credits beyond the minimum credit value of listed technologies if they have sufficient supporting data. In addition, the agencies are planning to propose that companies may also apply for off-cycle credit for technologies that are not on the predefined list, based on the submission of sufficient supporting data. Moreover, to encourage electrification, EPA intends to propose an incentive multiplier for all electric vehicles (EVs), plug-in hybrid electric vehicles (PHEVs), and fuel cell vehicles (FCVs) sold in years 2017 to 2021. This multiplier approach would count each EV/PHEV/FCV as more than one vehicle in the manufacturer's compliance calculation. Additionally, EPA intends to propose allowing a value of 0 g/mile for the tailpipe compliance value for EVs, PHEVs (electric miles) and FCVs for 2017 to 2021, with no limit on the quantity of vehicles eligible for 0 g/mi tailpipe emissions accounting. There will be a sales cap for this 0 g/mile from year 2022 to 2025, however, as manufacturers' sales increase.

The agencies furthermore intend to propose credits for manufacturers that employ significant quantities of hybridization on full size pickup trucks, by including a per vehicle credit available for mild and strong hybrid electric vehicles (HEVs). This is to reward the challenges of fuel economy improvement with "game changing" technologies on full size trucks. As in previous years, manufacturers can also earn credits for improvements in air conditioning (A/C) systems, both for efficiency improvements (reduced tailpipe CO2 and improved fuel consumption) and for leakage or alternative, lower GWP (global warming potential) refrigerant use (reducing hydrofluorocarbon (HFC) emissions). EPA further intends to propose additional CO2 credits for plug in hybrid electric vehicles (PHEVs) and bi-fuel compressed natural gas (CNG) vehicles, and to continue the previous credit procedure for the flex fuel vehicles through 2019. Credit banking and trading is intended to be continued with the exception of a one time credit carry forward beyond 5 years, and the exclusion from GHG standards of small businesses (as defined by the Small Business Administration) is intended to continue.

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Meeting the 2016 and 2025 U.S. fuel economy targets

This analysis examines the likelihood of achieving the 2016 and 2025 average fuel economy targets , and what factors play a key role in meeting these proposed fuel economy standards in the near and mid terms. In the light of the details of the proposed credits and the possibility of implementation deviations, this analysis refers to both the nominal targets of 34.1 mpg in 2016 and 54.5 mpg in 2025, as well as, reduced targets of 32.5 mpg in 2016 and 44 mpg in 2025, we judge to be the actual implementation levels after allowing for credits of many kind in the rulemaking. The results presented in this paper can be readily interpreted, however, to obtain the likelihood of meeting other average fuel economy targets in 2016 and 2025.

A stochastic analysis methodology is used to define a technology and market operational space derived from technical simulations and market deployment assessments in the authors' earlier study Bastani, Heywood, Hope, 2012 (Bastani, 2012) is used here to examine three different scenarios including uncertainty, and assess the likelihood of meeting the targets under each scenario. The scenarios are:

1. Plausible-ambitious scenario: a plausible yet ambitious pathway that achieves 50% fleet fuel use reduction by 2050, developed in the author's earlier study (Bastani, 2012)
2. High ERFC scenario: a scenario with a high emphasis on reducing fuel consumption, with the same market assumptions as the plausible-ambitious scenario but with more aggressive fuel consumption reduction from engine and powertrain technologies (ERFC is assumed to be 100% over time, indicating that all technological progress in the future will be used to improve fuel economy instead of increasing vehicle size, weight, or performance)
3. DOT/EPA preferred alternative scenario: the agencies proposed preferred scenario, described in detail in the rulemaking document (NHTSA, 2011)

Meeting the average fuel economy standards is strongly sales mix dependent, and particularly sensitive to the penetration and the rate of deployment of turbo-charged gasoline and HEV vehicles. These factors in turn are dependent on market readiness and acceptance for these new technologies, and incentives that would make turbo-charged gasoline and HEV vehicles most attractive to consumers. Average fuel economy standards in 2025 are not only demanding on the absolute market share of advanced technologies but also require 8-10% deployment rate per year, much higher than historical trends on new technology uptake rate (Zoepf, 2011).

For the purpose of CAFE, battery electric vehicle (BEV) and PHEV (electric miles) vehicles fuel economies are converted on a fuel energy density basis. Such conversion, however, overstates the benefit of BEVs and PHEVs, which are highly dependent on the greening of the electricity grid , notwithstanding the current dominance of coal and expected penetration of natural gas in the U.S. electricity supply mix in the near and mid terms.

Meeting the proposed fuel economy targets requires substantial changes from today's situation in various areas, these include:

1. Aggressive deployment rate of new technologies in the market on the order of 10-20% for HEVs, BEVs, and PHEVs, higher than historical market uptake rates of new technologies (Zoepf, 2011).
2. Aggressive weight reduction and downsizing to achieve high average fuel economy levels: the fleet needs to be downsized with substantial additional weight reduction per vehicle on average: this would require a shift to new light weight materials, fleet downsizing, and vehicle redesign (Cheah, 2010)

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3. Significant technological progress in implementing higher efficiency technology, both for conventional and advanced engine and powertrain technologies: relative fuel consumption improvements of 1.5-3% per year, which is higher than historical trends (Knittel, 2012)
4. High emphasis on reducing fuel consumption (ERFC=100%) in the near to long term, much higher than the historical trends and present value of about 50% (MacKenzie, 2009, Knittel, 2012): ERFC characterizes what percentage of technological gains is used towards improving fuel economy rather than increasing vehicle performance and weight (Figure 1). An ERFC value of 100% implies immediate and complete focus of every technological improvement on maximizingfuel consumption reduction instead of offsetting any increases in vehicle performance, size, or weight (Cheah, 2009)

The impact of the proposed fuel economy standards on greenhouse gas emissions reduction is not clear. A substantive positive impact would require demanding coordinated fuel standards (such as EISA) and clean energy source mandates for upstream emissions from non-conventional oil supply and the electricity grid, to have a meaningful impact on the fleet greenhouse gas emissions

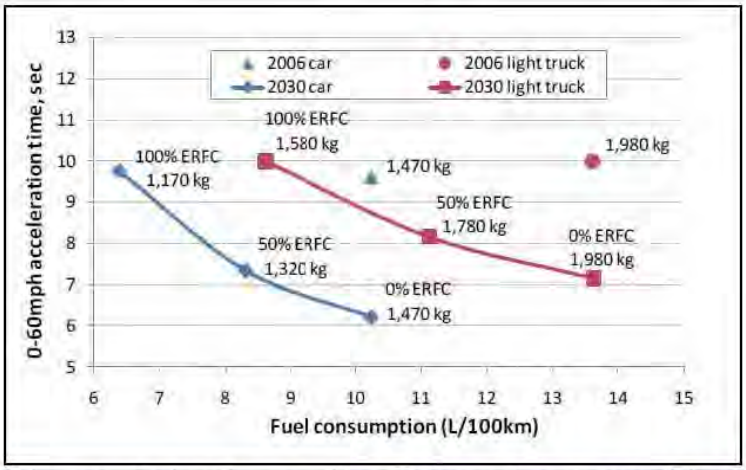

Figure 1-Tradeoffs between acceleration performance, weight, and fuel consumption: average car and light truck (Cheah, 2010)

Methodology

The authors' earlier study Bastani, Heywood, Hope 2012 quantified a large number of possible outcomes, effectively an operational space, defining the full range of uncertainties in the future fleet fuel use and GHG emissions out to 2050. This operational space was derived using the STEP (Stochastic Transport Emissions Policy) model (Bastani, 2012) , which incorprates the uncertainties in the performance of various vehicle technologies, fuel availability and life-cycle emissions, as well as demand and market deployment of the new vehicle technologies and alternative fuels. The operational space defines, using stochastic calculations, the total light-duty vehicle fleet GHG emissions (Mt CO_2 equivalent/year) and fuel use (billion litres gasoline equivalent/year) as probability density functions overtime out to the year 2050. This space shows the range of possible

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outcomes that can be expected from a chosen policy pathway and their likelihood. Full life-cycle emissions of fuels are taken into account by tracking the fuel consumption of each powertrain as well as the WTT (well-to-tank) and TTW (tank-to-wheel) emissions of conventional and alternative fuels. Vehicle weight reduction is further taken into account through powertrain fuel use improvements that result over time(Bastani, 2011).

The methodology used to derive this operational space is based on decision theory, which is designed to distinguish between a set of alternatives, where each alternative faces uncertain states of the world that can be represented by probability distributions (Lindley, 1985). Subjective probability is used to estimate the underlying uncertainty in the inputs. These probabilities are subjective because they depend on the experts' assessments and judgements , which are likely to vary based on the information they each have available (Lindley, 1985). These subjective assessments will be subject to representativeness, availability and anchoring effects leading to predictable biases (Tversky, 1974). To reduce such biases, a range of different sources were consulted to determine the probability distribution in the inputs represented in this paper, and probability elicitation techniques were followed using direct probability assessment techniques to obtain probability estimates while minimizing bias and overconfidence (Henrion, 1991, Morgan, 1990). Complete details of the methodology are given in Bastani, Heywood, Hope, 2012 (Bastani, 2011)

This operational space is used here to evaluate the likelihood of meeting the targets under the three scenarios outlined above. The scenarios are analyzed and compared under the same uncertainty boundaries to yield conditional probabilities of meeting the average fuel economy targets in 2016 and 2025 under each scenario, in the same uncertain state of the world. The uncertainty boundaries are assumed to be unchanged by the CAFE standards: changing the extreme values are judged to be costly and thus unlikely under the proposed regulations in the near and mid term. The results are discussed in the following section under the three scenarios: the plausible-ambitious scenario, the high ERFC scenario, and the EPA/DOT preferred alternative scenario, defined earlier in the paper.

Likelihood of meeting average fuel economy targets in 2016 and 2025

The likelihood of achieving the CAFE targets under the three previously described scenarios are examined here. Meeting the combined CAFE targets depends on the split between cars and light trucks. For instance, to meet the LDV combined target of 32.5 mpg in 2016, cars need to achieve 36.5 mpg and LTs 26.5 mpg with 60% cars and 40% LTs market shares (Table 1). Similarly, to meet the 44mpg target in 2025 with 55% cars and 45% LTS, cars need to achieve 51 mpg and LTs need to meet 35.5 mpg. The higher the share of light trucks, therefore, the more stringent fuel economy levels need to be met by passenger cars to meet the overall combined targets.

	Fuel economy (mpg)	Market Share	Fuel economy (mpg)	Market Share	Fuel economy (mpg)	Market Share	Fuel economy (mpg)	Market Share
2016								
Cars	36.5	60%	37	55%	37.5	50%	38.5	40%
LTs	26.5	40%	27	45%	27.5	50%	28.5	60%
Combined	32.5	100%	32.5	100%	32.5	100%	32.5	100%
2025								
Cars	50	60%	51	55%	52	50%	53	40%
LTs	35	40%	35.5	45%	36	50%	38	60%
Combined	44.0	100%	44.0	100%	44.0	100%	44.0	100%

Table 1- Examples of CAFE miles per gallon numbers for cars and light trucks, fordifferent car/LT market splits

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Plausible-ambitious Scenario

The results illustrate the likelihood of meeting the CFAE targets under the plausible-ambitious scenario over time, with an uncertain and lower than 100% ERFC (Table 2). The average fuel economy expected values for passenger cars and combined CAFE (including light trucks) as well as their 5%, 25%, 75% and 95% percentiles are shown over time out to 2025 (Figures 2, 3). The graph illustrates an increase in the expected fuel economy over time, given a plausible yet ambitious pathway which was developed in our earlier study (Bastani, Heywood, Hope 2012). The 95% and 5% dotted lines bound the range of outcomes expected with 90% confidence and the 75% and 25% dotted lines bound the range of outcomes expected with 50% confidence. There is, for instance, a 90% chance that the fuel economy of passenger cars will be somewhere between about 31.6 and 34.1 mpg in 2016, and 35.2 and 43.9 mpg in 2025 (Figure 2). Once the light trucks are included in the mix, the combined CAFE will be lowered to somewhere between 28.2 and 29.9 mpg in 2016, and between 32.1 and 38.5 mpg in 2025 Figure 3). . As indicated in these results, the uncertainty in the new vehicle sales weighted average fuel economy is significant and grows considerably over time. The major contributors to these uncertainties are ranked and discussed later in the paper (Figure 32).

Table 2 2025 Emphasis on Reducing Fuel Consumption (ERFC) Input, plausible-ambitious scenario

ERFC	Min	Mean	Max
Cars	43%	68%	87%
Light Trucks	35.5%	62.5%	87%

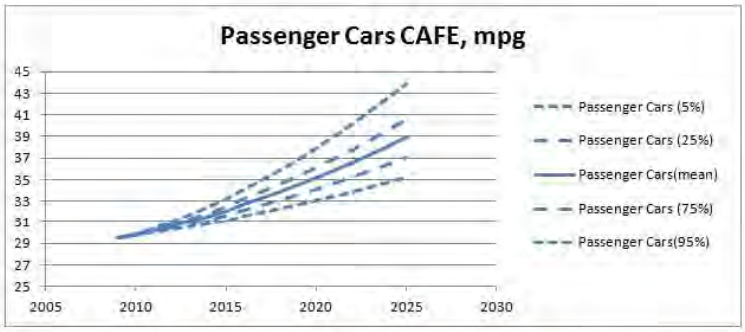

Figure 2-Corporate average fuel economy (mpg) of new passenger cars under plausible-ambitious scenario

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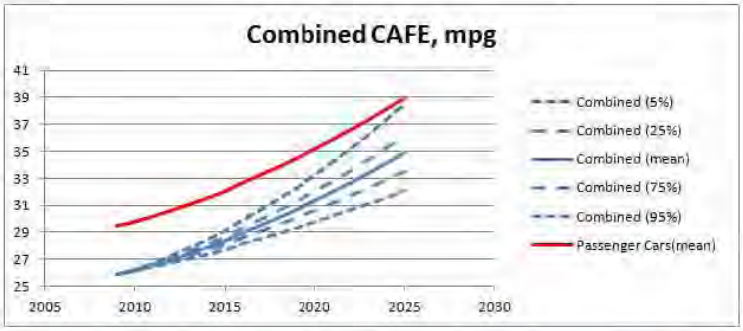

Figure 3-Combined new car and light truck corporate average fuel economy (mpg) under plausible-ambitious scenario

As the results illustrate, the achieved CAFE will be much lowered when light trucks are included in the mix. Table 3 shows the distribution of the percentage of cars as a fraction of total new light-duty vehicle sales in this scenario. The percentage of OLTs (other light trucks including pick-up trucks and vans) has been historically around 22%. SUVs are the most significant portion of the light trucks mix with great potential for downsizing.

Table 3-Percent car in car plus light truck mix, 2016 and 2025 under plausible-ambitious scenario

%Car	Min	Mean	Max
2016	49.6%	54.9%	59.6%
2025	47.1%	60.3%	72.3%

Under the plausible-ambitious scenario, there is a 42.5% chance of the passenger cars average fuel economy being less than about 32.5 mpg and about 5% chance of achieving fuel economy of 34.1 mpg or higher, with an expected value of about 32.7 mpg in 2016 (Figure 4). Similarly, Figure 7 shows the passenger cars CAFE probability density function in 2025, with 68% chance of being less than 40 mpg and less than 5% chance of achieving or exceeding CAFE of 44 mpg, and an extremely low likelihood of achieving 54.5 mpg. To meet the combined CAFE targets, however, the passenger cars need to meet a higher fuel economy level to make up for the low fuel economy of the light trucks (Table 1). Under this scenario, for instance, the passenger cars need to achieve 37 mpg in 2016 and 50 mpg in 2025 (Table 1) to meet the combined targets of 32.5 and 34.1 mpg respectively. Achieving these higher levels of fuel economy for passenger cars has an extremely low likelihood in the near and mid terms. Figure 5 and 8 illustrate the probability distribution function for the light trucks (SUVs and OLTs (vans, pick-up trucks, and cross-overs) in 2016 and 2025. There is a 5% chance that the SUVs would achieve 26.5 mpg, and about 3.5% chance that other light trucks would attain 24.5 mpg in 2016. In 2025, there is a 90% chance that SUVs fuel economy lies between about 27 and 33.8 mpg, and 60% chance that other light trucks meet and exceed 27 mpg, under the plausible-ambitious scenario. The probability of achieving the combined CAFE targets is thus significantly lowered when light trucks are included in the mix. For instance, achieving a combined CAFE of 32.5 mpg in 2016 is extremely unlikely (less than 0.5% chance) (Figure 6), and there is only about 2% likelihood of exceeding 40 mpg in 2025. (Figure 9). The coefficient of variation in combined CAFE is about 4% in 2016 and is increased to 11% in 2025. The probability density function is

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negatively skewed in 2025 indicating the possibility of achieving a much lower level of fuel economy but at a lower risk.

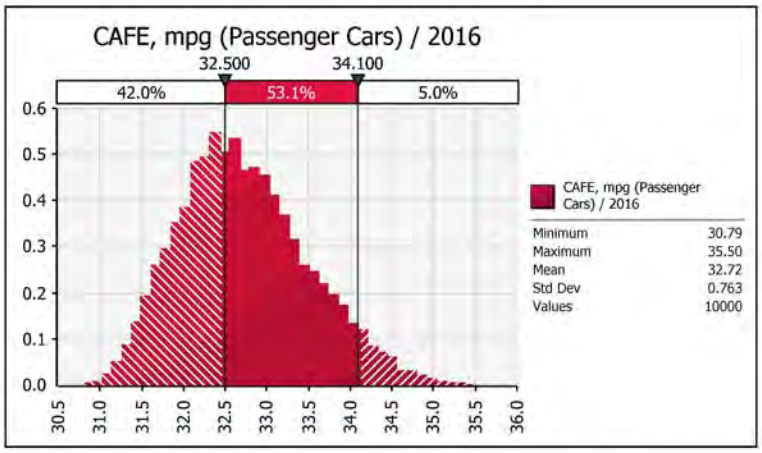

Figure 4-2016 corporate average fuel economy probability density function: plausible-ambitious scenario (passenger cars)

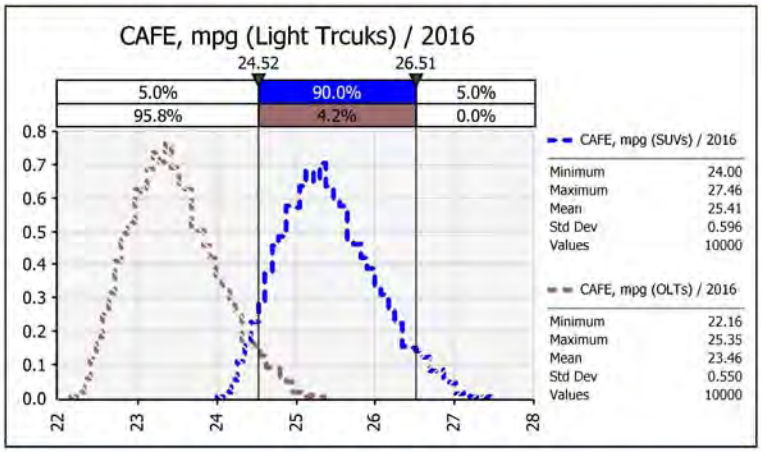

Figure 5-2016 corporate average fuel economy probability density function: plausible-ambitious scenario (light trucks)

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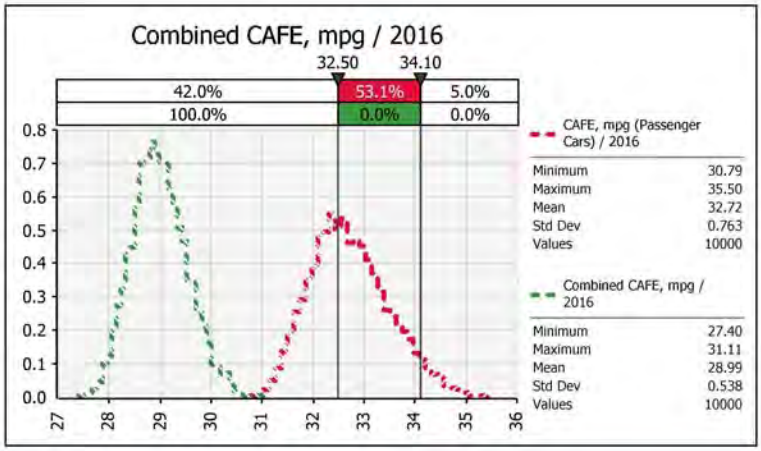

Figure 6-2016 corporate average fuel economy probability density function: plausible-ambitious scenario (combined)

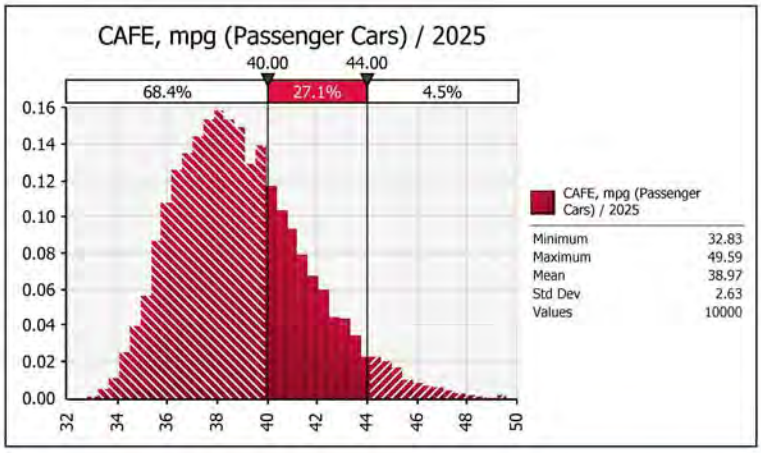

Figure 7- 2025 corporate average fuel economy probability density function: plausible-ambitious scenario (passenger cars)

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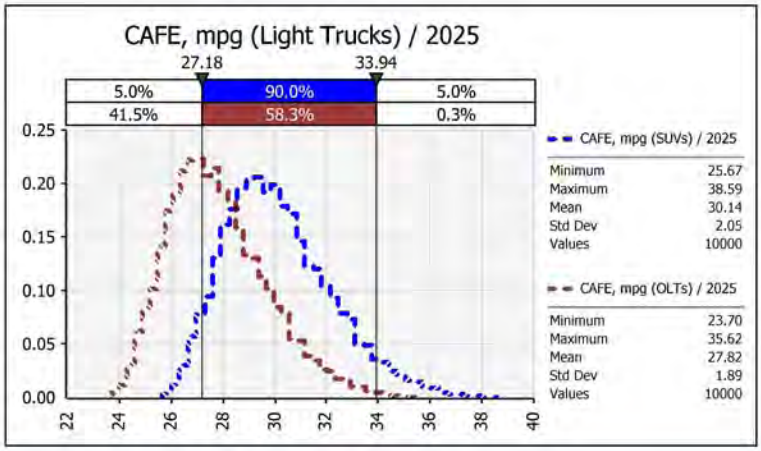

Figure 8- 2025 corporate average fuel economy probability density function: plausible-ambitious scenario (light trucks)

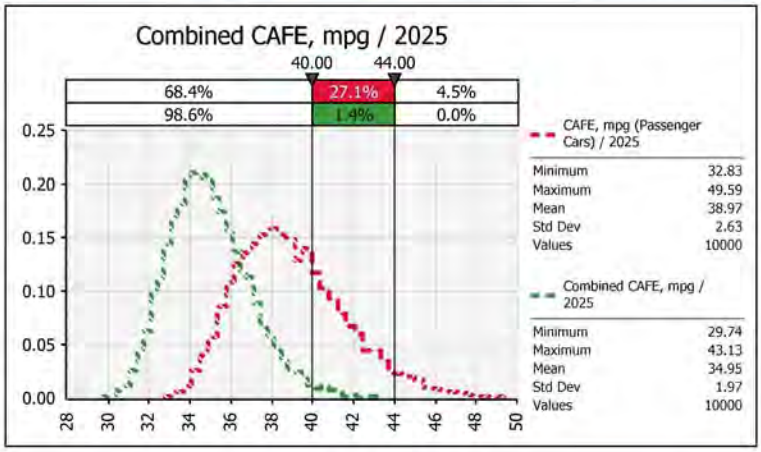

Figure 9- 2025 corporate average fuel economy probability density function: plausible-ambitious scenario (combined)

High ERFC Scenario

The emphasis on reducing fuel consumption is constant at 100% over time in the high EFC scenario. In 2016, the results indicate about a 8% chance of the average fuel economy being less than about 32.5 mpg and about a 55% chance of achieving or exceeding CAFE of 34.2 mpg (Figure 10). The expected value for CAFE is about 34 mpg in 2016 with a standard deviation of about 1.4 mpg, given constant ERFC at 100% over time. Similarly, Figure 13 illustrates the average fuel economy cumulative probability density function in 2025, with a about a 65.5% chance of being less than 44 mpg, and very low likelihood of achieving or exceeding 54.5 mpg. There is about a 34% chance of CAFE lying between 44 and 53.5 mpg in 2025, under the high ERFC scenario. The

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expected fuel economy is about 43 mpg with a standard deviation of about 3.81 mpg. The probability density function is positively skewed in 2025 indicating the possibility of achieving a higher level of fuel economy but with a very low probability. Figure 14 and 17 illustrate the probability distribution function for the light trucks (SUVs and OLTs (vans, pick-up trucks, and cross-overs) in 2016 and 2025. The probability of achieving the fuel economy targets are significantly lowered when light trucks are included in the mix. For instance, achieving a combined CAFE of 32.5 mpg in 2016 is about 1% (Figure 12), and there is only about a 2.5% likelihood of exceeding 40 mpg in 2025, under the high ERFC scenario (Figure 15). Passenger cars thus need to meet a much more stringent target than the combined CAFE levels (Table 1), for instance, 37 and 50 mpg in 2016 and 2025 with about 4% and 5% likelihood respectively. Aggressive downsizing of the fleet would be therefore needed to meet the combined CAFE targets with passenger cars and light trucks included in the mix, even if all the technological progress is being used to improve fuel economy, with no increase in power performance and vehicle size.

These results therefore show that the future fuel economy levels are highly sensitive to the emphasis on reducing fuel consumption. There is a much lower (in the order of 50% in 2016 and 30% in 2025) chance of meeting the fuel economy targets when ERFC is not 100%. The changes in ERFC over time play a significant role: moving from a lower ERFC in the past to a higher ERFC in the future not only implies a need to use a higher fraction of technologies towards fuel economy improvements in a given year, but also requires further fuel economy gains or tradeoffs with weight and vehicle performance to make up for lower ERFC levels in the past (Cheah, 2009). The assumed ERFC of 100% in this scenario is much higher than the historical and present values, and implies a much faster progress rate and vehicle weight reduction from historical trends (MacKenzie, 2009, Knittel, 2012). This is further specially demanding on vehicle weight reduction, as weight needs to be removed from an ever increasing weight trend, due to safety and added features (Zoepf, 2011). These results therefore highlight the need for policies and measures to promote a high ERFC, rather than taking this key assumption for granted.

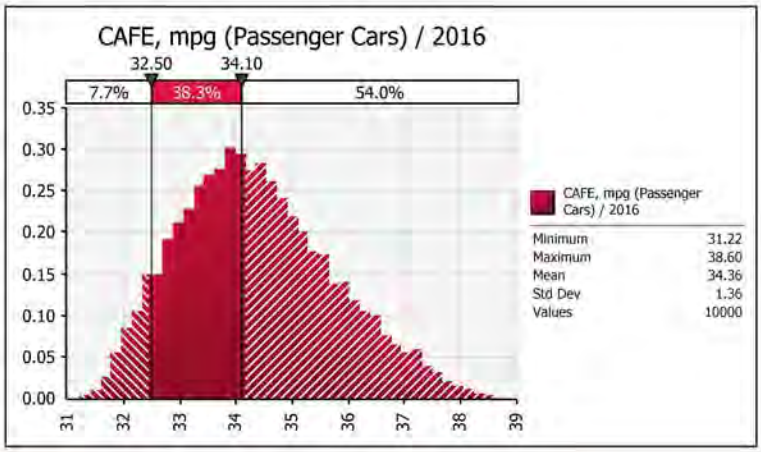

Figure 10- 2016 corporate average fuel economy probability density function: high ERFC scenario (passenger cars)

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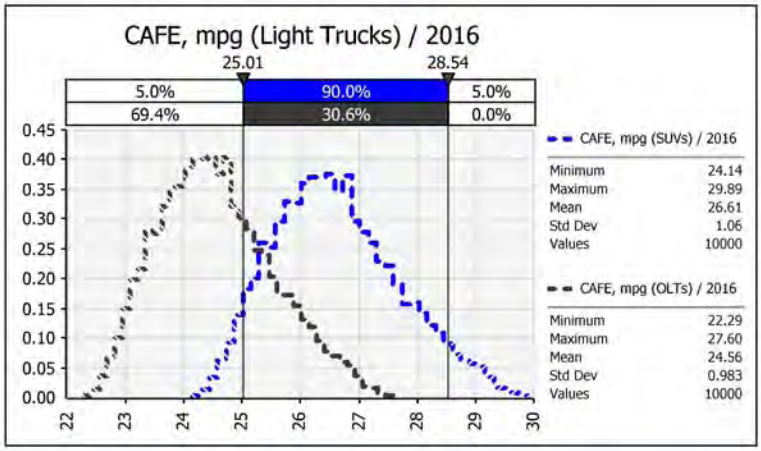

Figure 11-2016 corporate average fuel economy probability density function: high ERFC scenario (light trucks)

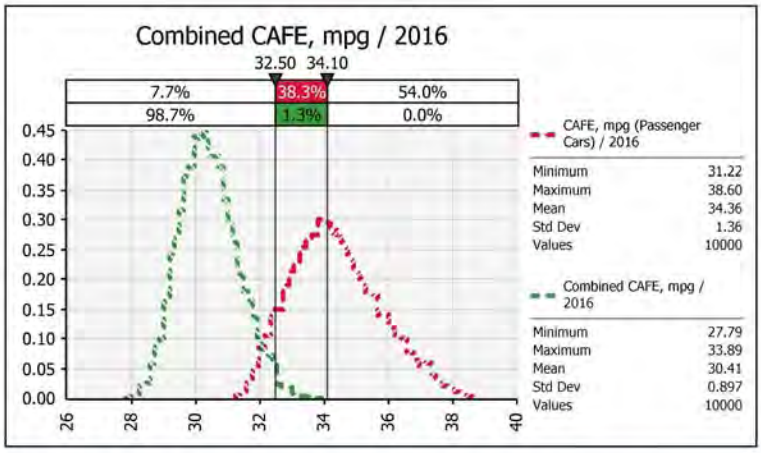

Figure 12-2016 corporate average fuel economy probability density function: high ERFC scenario (combined)

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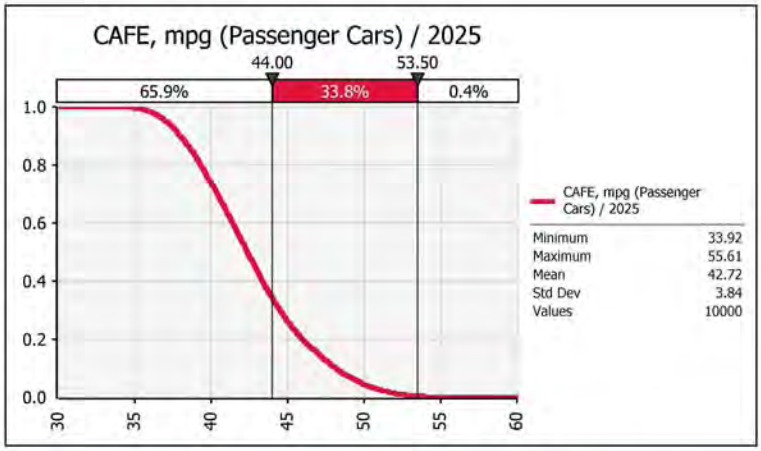

Figure 13 2025 corporate average fuel economy cumulative probability density function: high ERFC scenario (passenger cars)

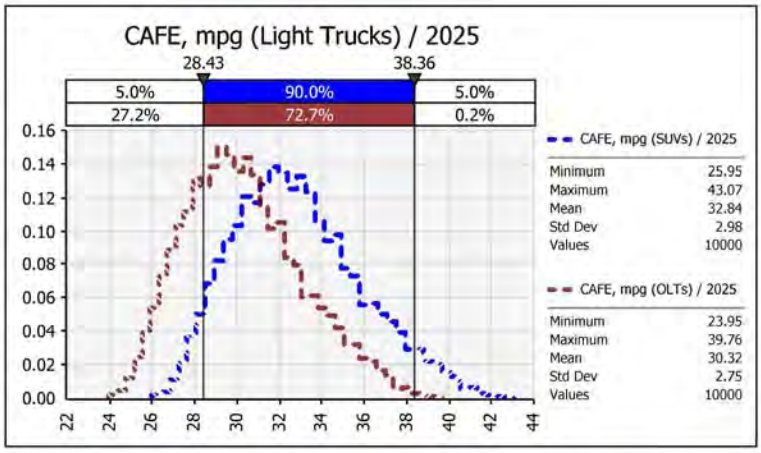

Figure 14-2025 corporate average fuel economy probability density function: high ERFC scenario (light trucks)

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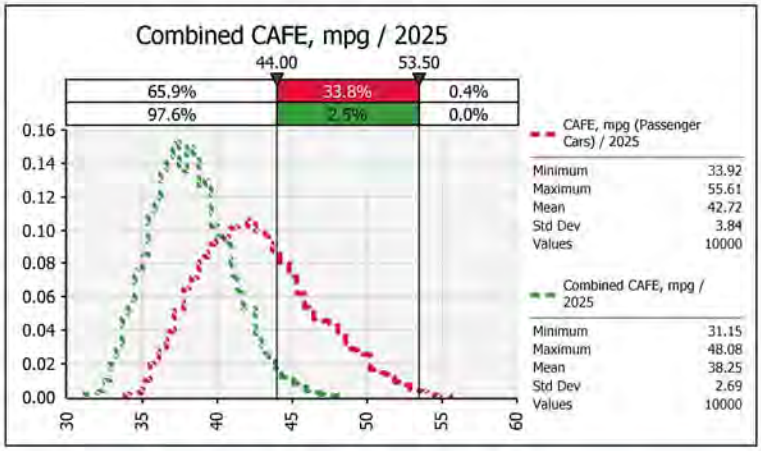

Figure 15-2025 corporate average fuel economy probability density function: high ERFC scenario (combined)

EPA/DOT Preferred Alternative Scenario

The following results show the corporate average fuel economy and market penetration of advanced technologies under the proposed regulations for 2016 through 2025, EPA/DOT preferred alternative scenario (NHTSA, 2011). ERFC is assumed to be constant over time at 100% in this scenario. The CAFE expected value and 5%, 25%, 75% and 95% percentile values are presented out to 2025 under the EPA/DOT preferred alternative scenario in (Figure 16) . The graph indicates the expected increase in average fuel economy that can be achieved over time, given the regulatory pathway. The 95% and 5% dotted lines bound the range of outcomes expected with 90% confidence and the 75% and 25% dotted lines bound the range of outcomes expected with 50% confidence. In other words, there is a 90% chance that the fuel use would be somewhere between the outer dotted lines and 50% chance that it lies between the two inner 25% and 75% dotted lines in (Figure 16). Figure 17 illustrates the mean market share of vehicle sales in order to meet the average fuel economy standards in 2016 and 2025 under the EPA/DOT preferred alternative scenario.

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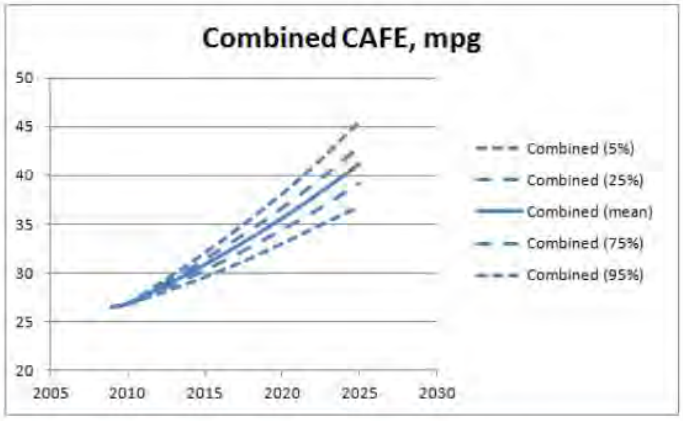

Figure 16 Corporate average fuel economy of new vehicles, mpg: DOT/EPA preferred alternative scenario

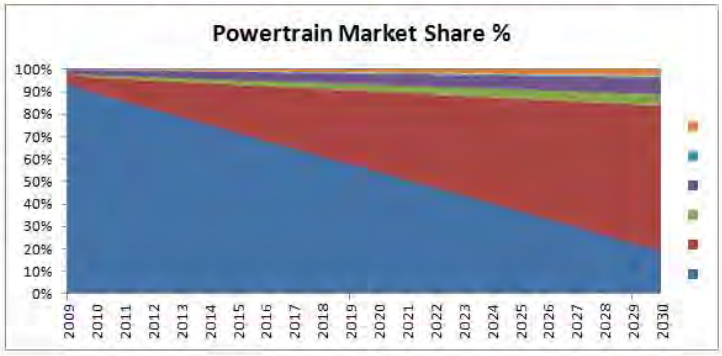

Figure 17 Mean market share of alternative powertrains out to 2050, % : the EPA/DOT alternative preferred scenario

The following figures (Figure 18 and 21) show the probability density function and cumulative density function of passenger cars CAFE in 2016 and 2025 respectively. The results indicate about a 2.4% likelihood of CAFE being less than 32.5 mpg, and a 74% chance of achieving or exceeding 34.1 mpg in 2016. The coefficient of variance is about 3% in 2016 and it increases to about a 7% in 2025, due to the increase in the level of uncertainty in the mid term. There is a 24% chance that the passenger car corporate average fuel economy will lie between about 32.5 and 34.1 mpg in 2016, and about 45% chance of it being less than 44 mpg and less than a 1% chance of achieving or exceeding 53.5 mpg in 2025. There is about a 54% chance of the passenger cars average fuel economy lying between 32.5 and 53.5 mpg in 2025. Figure 19 and 22 illustrate the probability distribution function for the light trucks (SUVs and OLTs (vans, pick-up trucks, and cross-overs) in 2025. The probability of achieving the fuel economy targets are significantly lowered when light trucks are included in the mix. For instance, achieving a combined CAFE of 34.1 mpg in 2016 is extremely low with about 19.5% likelihood of it exceeding 32.5 mpg (Figure 20). The likelihood of exceeding 54.5 mpg in 2025 is extremely low, and there is about a 66% likelihood of achieving 32.5 mpg or higher, under the plausible-ambitious scenario (Figure 23).

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Passenger cars therefore need to meet a much more stringent target than 34.1 mpg, and aggressive downsizing of the fleet would be needed to increase the likelihood of meeting the targets with the combined passenger cars and light trucks mix in 2016 and 2025, even under the EPA/DOT preferred alternative scenario with aggressive penetration of advanced technologies and alternative powertarins, 100% emphasis on reducing the fuel consumption, and significant downsizing of the fleet.

The aggressive focus of technological progress towards fuel consumption reduction over time, significant vehicle weight reduction, downsizing of the fleet, and rapid development and penetration of advanced alternative powertrains are all required simultaneously in this scenario to achieve such high average fuel economy targets. The likelihood of achieving the average fuel economy targets are significantly lower in 2025 due to these aggressive requirements on all fronts and the increased stringency given the short period of time allowed for significant technological development, and the reduced margin for using the more accessible waste reduction opportunities. The likelihood of achieving these targets would be substantially decreased if the emphasis on reducing fuel consumption was assumed to follow the historical trends. The cumulative distribution functions have a relatively sharp slope, indicating a larger change in probabilities for a given change in fuel economy target.

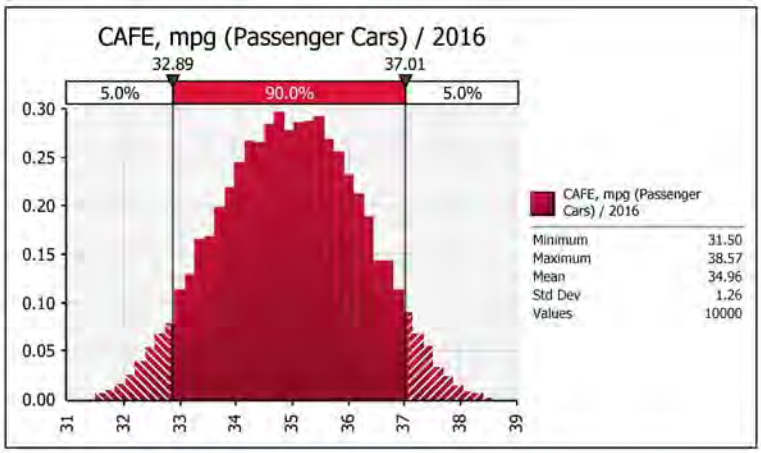

Figure 18 2016 Corporate Average Fuel Economy probability density function: EPA/DOT preferred alternative scenario (passenger cars)

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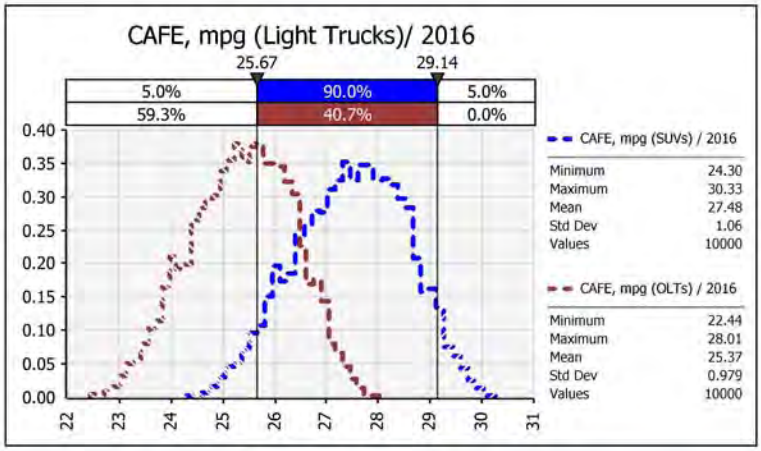

Figure 19-2016 Corporate Average Fuel Economy probability density function: EPA/DOT preferred alternative scenario (light trucks)

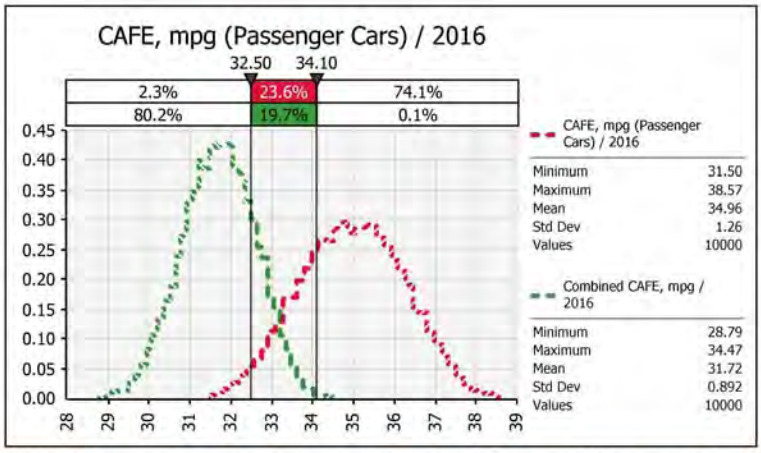

Figure 20-2016 Corporate Average Fuel Economy probability density function: EPA/DOT scenario (combined)

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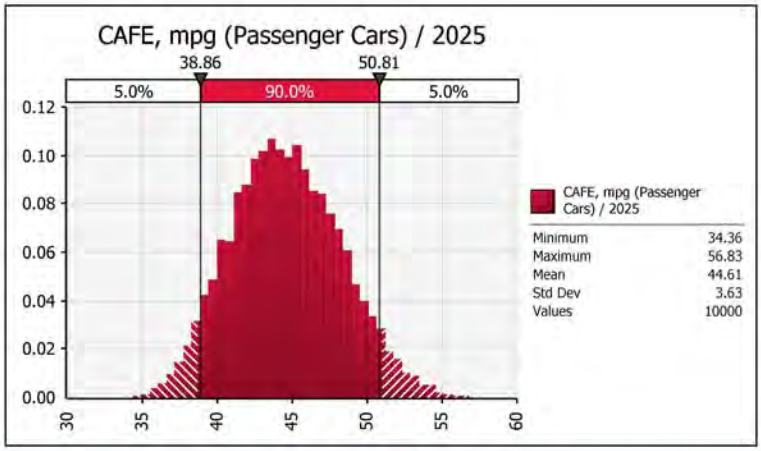

Figure 21 2025 Corporate Average Fuel Economy Cumulative probability density function under EPA/DOT scenario (passenger cars)

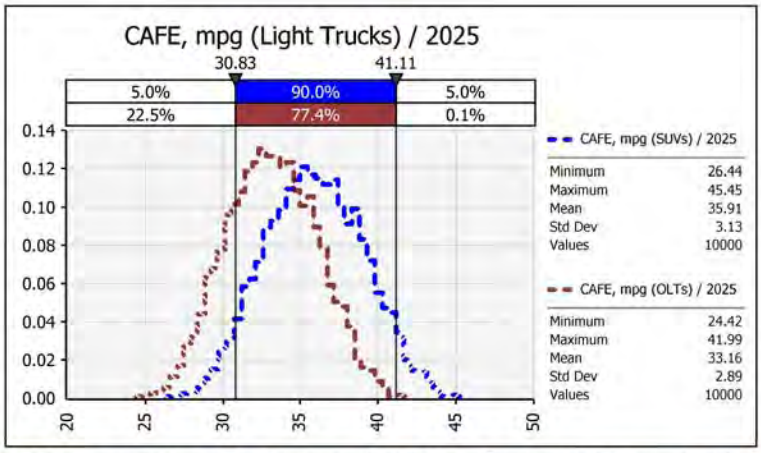

Figure 22-2025 Corporate Average Fuel Economy probability density function: EPA/DOT scenario (light trucks)

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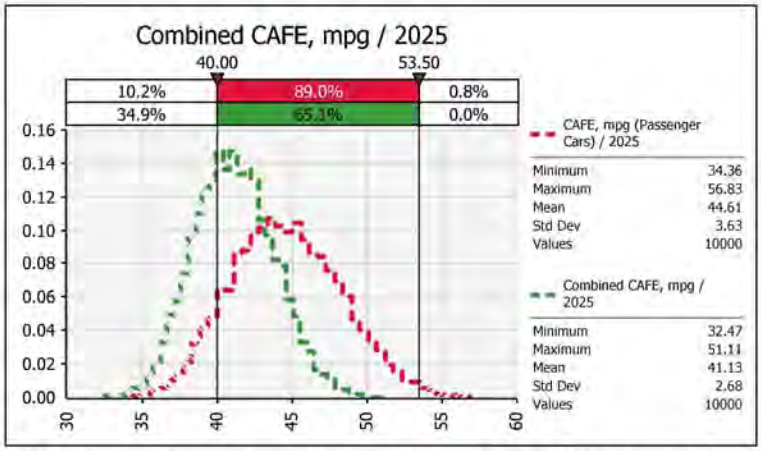

Figure 23-2025 Corporate Average Fuel Economy probability density function: EPA/DOT scenario (combined)

Table 4 summarizes the results from the three different scenarios and the likelihood of meeting the targets in 2016 and 2025 under each scenario. The probability of meeting the targets increases under the EPA/DOT preferred alternative scenario, however, this scenario requires substantial changes in both technological progress rate and market deployment rate of advanced technologies. The EPA/DOT preferred alternative scenario in 2025 lies in the 5th percentile of the operational space defined in the author's earlier study (Figure 24), indicating a low likelihood of such pathway given the authors' technology and market assessment in the earlier study(Bastani, 2012). Figure 25 shows the 2016 and 2025 CAFE cumulative density function under the high ERFC scenario, the shift and change in the slope in the CDF functions indicates the rate at which the likelihood of meeting targets changes over time. The large gap and sharp slope of the CDF functions thus quantifies the importance of allowing time to increase the likelihood of a greater improvement in the average fuel economy targets. This therefore highlights the importance of lead time in setting fuel economy targets, given automakers design and production lead time (3-5 years) as well as allowing for development, concept generation, and testing stages.

Scenario	Likelihood of Meeting Targets in 2016		Likelihood of Meeting Targets in 2025	
	Passenger cars CAFE (Combined CAFE)			
	under 32.5 mpg	Exceed 34.1 mpg	under 44 mpg	Exceed 54.5 mpg
Palusible-ambitious scenario from Bastani, Heywood, Hope, 2012	42.5% (~100%)	5.3% (~0%)	95.8% (~100%)	~0% (~0%)
High ERFC Scenario	8.0% (98.9%)	54.6% (~0%)	65.5% (97.6%)	0.3% (~0%)
EPA/DOT preferred alternative scenario	2.4% (80%)	74.1% (0.1%)	45.4% (85%)	0.6% (0.4%)

Table 4-Comparison between the likelihood of meeting targets under different scenarios, passenger cars and combined CAFE

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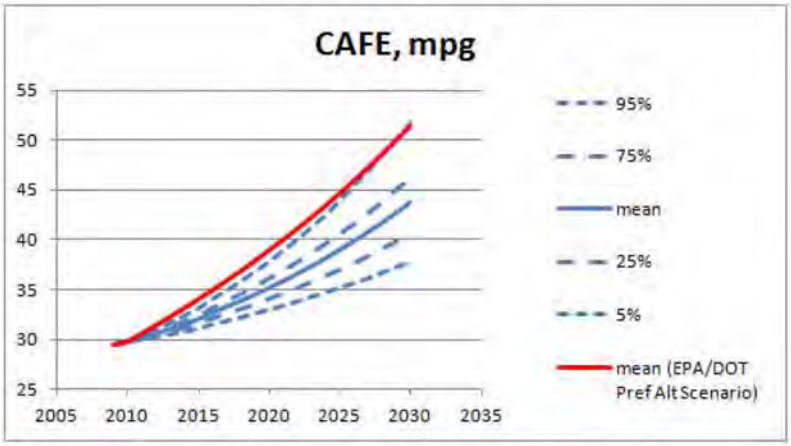

Figure 24-Comparison between the EPA/DOT preferred alternative scenario and plausible-ambitious scenario (passenger cars)

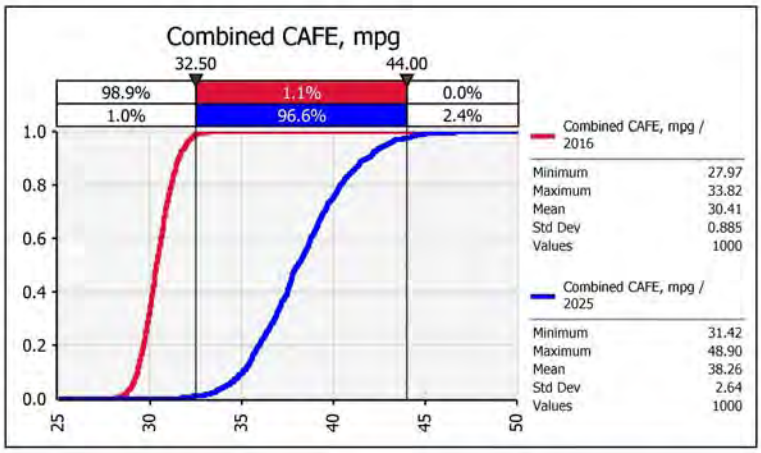

Figure 25 Comparison between 2016 and 2025 CAFE cumulative probability density functions: high ERFC scenario

Impact of proposed regulations on fleet fuel use

The impact of the proposed fuel economy targets is examined under two different scenarios: 1- CAFE only scenario, where technology and market deployment progress following the EPA/DOT preferred alternative scenario but travel and vehicle demand continue to grow without any policy interjections, 2-CAFE and demand scenario, where travel and vehicle demand growth reduces over time to 25% by 2025, and ERFC increases by 50% by 2025 with significant downsizing of the fleet with 40% increase from today's baseline by 2025, in

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addition to technology and market deployment progress. The impact of the CAFE only policy and CAFE and demand reduction complementary policies on the fleet fuel use in 2025 are shown in Figure 26 and Figure 27. Under the CAFE only scenario, there is a less than 1% chance of reducing fleet fuel use more than 10% below 2008 levels and about 50% chance of reducing the fleet fuel use to about 540 billion litres of gasoline equivalent or lower (Figure 26). In the absence of other measures to control the fleet size and demand, therefore, there is less than a 1% chance of reducing the fleet fuel use through the proposed fuel economy standards and 50% chance of a modest growth from today's baseline. The expected value is about 540 with a standard deviation of about 30 billion litres of gasoline equivalent (Figure 26). In this scenario thus the barriers to reducing the fleet fuel use come from a growing fleet with an increase in vehicle weight and vehicle performance, and thus a rising fleet fuel use projection. Under the CAFE and demand scenario, there is about 30% chance of reducing the fleet fuel use by 10% below the 2008 levels and 1% chance of 15% reduction below 2008 levels (Figure 27). There is about 70% chance of fleet fuel use exceeding 472 billion litres of gasoline equivalent in 2025. The expected value is about 488 billion litres with standard deviation of 30 billions litres of gasoline equivalent. The fleet fuel use probability distribution is negatively skewed in 2025, cautioning that there is a small risk the fleet fuel use could be much higher.

The fleet fuel use expected value and 5%, 25%, 75% and 95% percentile values out to 2025 are presented in Figure 28, given the proposed regulations and other policies to reduce demand and increase emphasis on reducing fuel consumption and fleet downsizing. The results illustrate the expected reduction in fleet fuel use that can be achieved over time, given the regulatory pathway (Figure 28). The 95% and 5% dotted lines bound the range of outcomes expected with 90% confidence and the 75% and 25% dotted lines bound the range of outcomes expected with 50% confidence. In other words, there is a 90% chance that the fuel use will be somewhere between the outer dotted lines (Figure 28) out to year 2025. As shown in these results, the uncertainty in the new vehicle average fuel economy is significant and grows considerably over time.

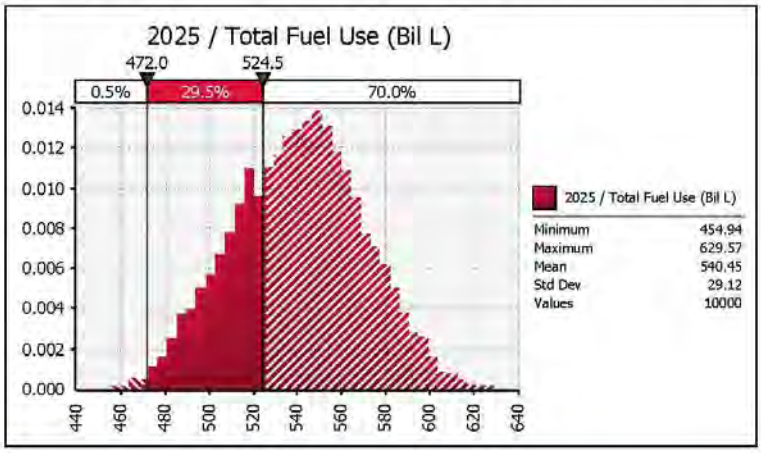

Figure 26 2025 U.S. fleet fuel use probability distribution function (billion litres of gasoline equivalent): CAFE only scenario

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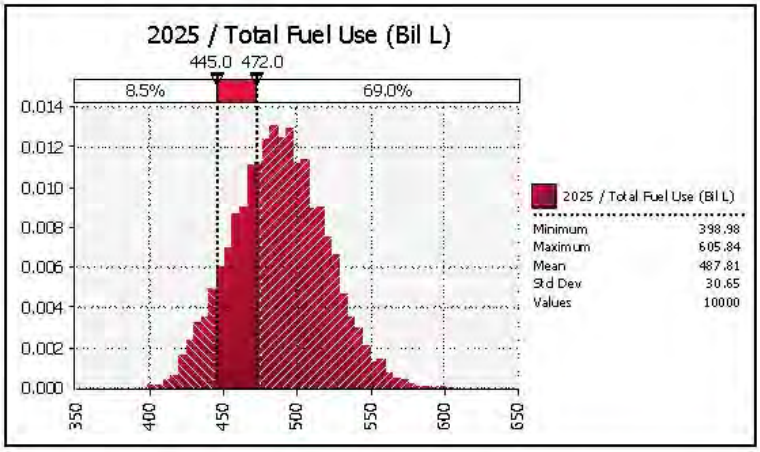

Figure 27 2025 U.S. fleet fuel use probability distribution function (billion litres of gasoline equivalent): CAFE and demand scenario

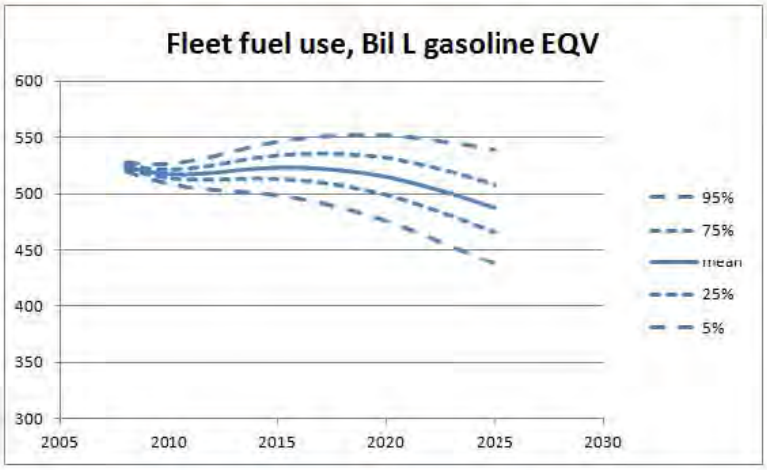

Figure 28 U.S. on road fleet fuel use (billion litres of gasoline equivalent): Meeting CAFE and demand reduction scenario over time out to 2025

The results indicate a greater reduction in the fleet fuel use with a higher likelihood, if additional measures such as VKT growth reduction, vehicle sales reduction, and fleet downsizing are implemented to complement the proposed fuel economy standards. These results therefore highlight the need for policies and measures that control and reduce other drivers of fleet fuel use such as VKT growth and demand reduction (ranked high in major influences in Figure 29) to complement the fuel economy standards in achieving a significant reduction in the light-duty vehicle fuel use and the likelihood of achieving such targets in the mid and long term.

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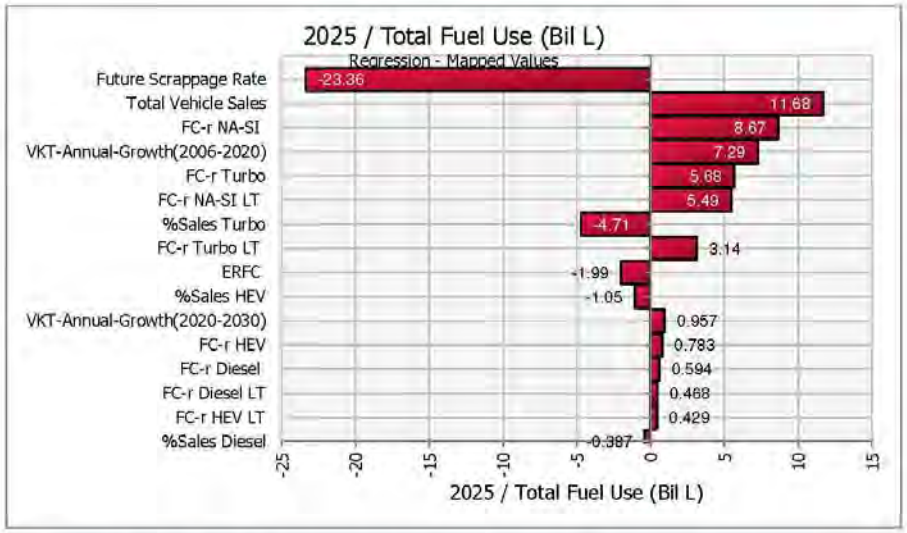

Figure 29-2025 U.S. Fleet fuel use ranked major influences: Meeting CAFE and demand reduction scenario

Impact of proposed regulations on fleet GHG Emissions

The impact of the proposed fuel economy targets on fleet GHG emissions in 2025 is examined under the CAFE only scenario and CAFE and demand scenario previously defined. The impact of the fuel economy regulation on GHG emissions is dependent on the upstream emissions assumptions and the availability of alternative fuels. With an ever increasing enthusiasm for electrification, the extent and rate of reductions in electricity generation emissions becomes extremely significant. Electricity and biofuels are counted with a dirty component (coal/ corn ethanol), and a clean component (renewable electricity/cellulosic biomass), and an average GHG emissions are calculated based on the availability and integration rate of renewable sources in the electricity generation mix (Bastani, Heywood, Hope, 2012). The use of fuel from tar sands is also assumed to grow over time. Substantial, but achievable, changes on the energy supply side are assumed here. The average grid electricity emissions is assumed to reduce significantly (by almost a factor of two by 2025). The amount of fuel coming from sources such as tar sands also grows substantially by 2025.

The fleet GHG emissions probability distribution function under the CAFE and demand scenario in 2025 indicates about a 16% chance of a 25% reduction below 2008 levels and only less than a 5% chance of exceeding 1,525 Mt CO2 equivalent in 2025 (Figure 30). The expected value is about 1,340 with a standard deviation of about 105 million metric tons of CO2 equivalent. The fleet GHG emissions probability distribution is negatively skewed in 2025, cautioning against much higher fleet GHG emissions at very low likelihood. Figure 31 illustrates the fleet GHG emissions expected value and 5%, 25%, 75% and 95% percentile values out to 2025, given the proposed regulations and other policies to reduce demand and increase emphasis on reducing fuel consumption and fleet downsizing. Figure 31 shows the expected reduction in fleet fuel use that can be achieved over time, under the CAFE and demand scenario, as well as the 5th, 25th, 75th and 95th percentile values. As shown in these results, the uncertainty in the fleet GHG emissions is significant and grows considerably over time.

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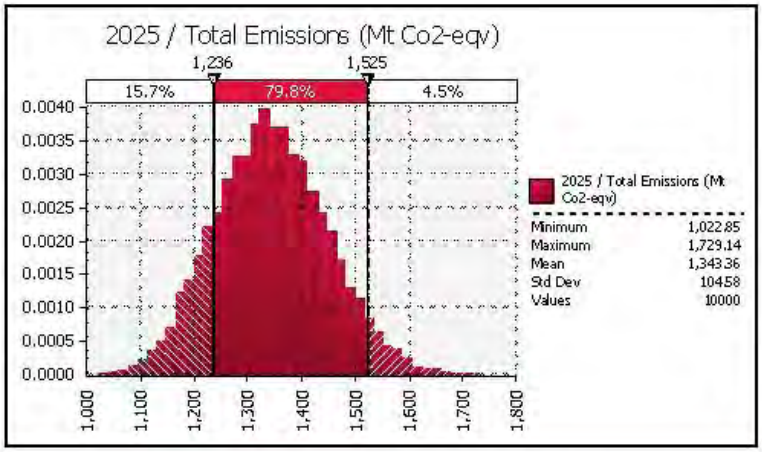

Figure 30 2025 U.S. fleet life-cycle GHG emissions (million tons of CO_2 equivalent): Meeting CAFE and demand reduction scenario with significant greening of upstream energy sources

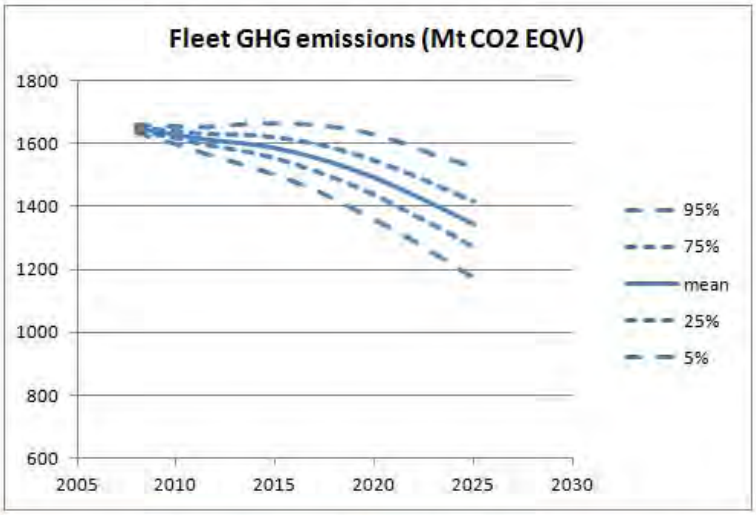

Figure 31 U.S. Fleet life-cycle GHG emissions (million tons of CO_2 equivalent): Meeting CAFE and demand reduction scenario with significant greening of upstream energy sources

Strategies for meeting fuel economy targets in 2016 and 2025

Major contributors to CAFE are identified and ranked here based on their relative importance and level of uncertainty. These graphs are developed using ranked linear regression analysis of the inputs and outputs. The labels on the y-axis indicate the major influencing factors, and the numbers on the bar in front of each parameter, along the x-axis, shows by how much (in mpg) CAFE would increase with a one standard deviation

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increase in the input shown on the y-axis. The major contributors from this graph are then used as strategy levers to develop scenarios that meet the 2016 and 2025 targets, summarized in Table 5.

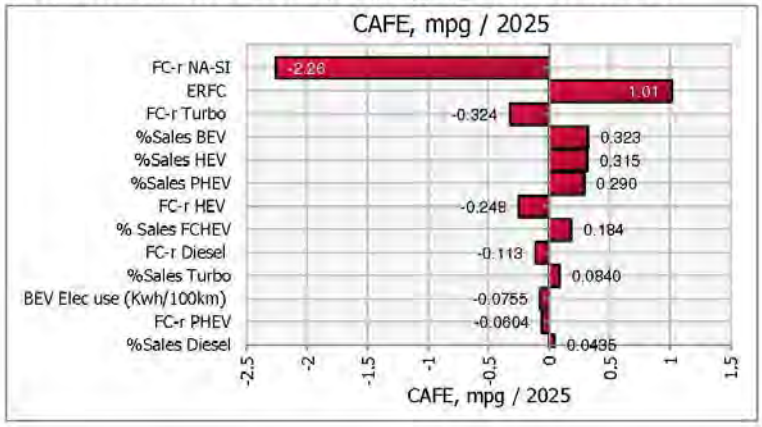

Figure 32- 2025 CAFE major influences (mpg) under uncertainty

Table 5 summarizes strategies for meeting the average on-road fuel economy targets of 25 mpg and 34 mpg in 2016 and 2025, through light weighting of the vehicles, downsizing the fleet, deployment and rapid penetration of alternative powertrains, and higher emphasis on reducing fuel consumption. A significant weight reduction of about 19.5% for an average vehicle and a fully downsized fleet would be required to meet an average industry fuel economy target of about 25.2 mpg in 2016, if no other measures are taken. This strategy requires even more aggressive weight reduction of about 27% and a substantially downsized fleet to meet the 2025 target of 34 mpg. Similarly, an aggressive shift of market to alternative vehicles with a 50% market share would be required in addition to some reduction in average vehicle curb weight (about 7.5%) to achieve 25.7 mpg in 2016.

The total market share of alternative powertrains would need to be 100% with significant average vehicle curb weight reduction of about 17.5% along with a relatively high emphasis on reducing fuel consumption (25% higher than its historical value) to achieve 34.8 mpg in 2025, following an alternative powertrains strategy (Table 5). Combining strategies such as light weighting, downsizing, high emphasis on reducing fuel consumption, and deployment of alternative powertrains can achieve 26.2 mpg in 2016, though it requires substantial simultaneous changes in all aspects from historical trends. These changes need to be even more aggressive and demanding if they are to meet the stringent 2025 fuel economy targets. The required changes compared to the historical trends to meet the 2016 and 2025 on-road industry average fuel economy targets of 26 and 37 mpg are significant (Figure 33-36). As illustrated in Figure 33-36, meeting the proposed fuel economy targets requires substantial changes from the historical trends on all fronts (a) rapid deployment rate of new technologies in the market (b) aggressive downsizing and weight reduction, which becomes even more demanding if put in the historical context of increasing vehicle weight in the U.S., (c) rapid technological progress rate both for conventional and advanced engine and powertrain technologies, and (d) high emphasis on reducing fuel consumption: implying the need for reducing consumers' expectation on increasing vehicle performance and

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size to instead focus technological progress on fuel economy improvement gains. These scenarios therefore highlight the need for allowing enough time to meet stringent fuel economy standards and the need for early preparation and implementation of harmonized policies to regulate all key drivers of fuel economy progress and fleet fuel use with coordinated measures.

Strategies	%ERFC	% curb wt reduction from 2009 (average new vehicle weight)	% cars	% market share by powertrains								On-road CAFE, MPG (test cycle)
				NA SI	Turbo SI	Diesel	HEV	PHEV	BEV	FCHEV	Total alt.	
2009	50%	...(1,727 Kg)	51%	94%	4%	0%	2%	0%	0%	0%	6%	21.04 (25.5)
2016												
Lightweight and downsize	85%	19.5% (1,390 Kg)	90%	94%	4%	0%	2%	0%	0%	0%	6%	25.2 (30.5)
Alt. powertrains	75%	7.5% (1,598 Kg)	51%	53%	30%	4%	9%	3%	3%	1%	50%	25.7 (31.1)
Combination	85%	12.5% (1,512 Kg)	65%	55%	21%	4%	15%	2%	2%	1%	45%	26.9 (32.5)
2025												
Lightweight and downsize	85%	27% (1,261 Kg)	90%	46%	27%	9%	9%	4%	4%	1%	54%	34.3 (41.5)
Alt. powertrains	75%	17.5% (1,428 Kg)	60%	0%	57%	7%	21%	6%	6%	3%	100%	34.8 (42.1)
All approaches	85%	22% (1,350 Kg)	70%	22%	33%	7%	23%	6%	6%	3%	83%	36.4 (44.0)

Table 5 Strategies for Meeting the 2016 and 2025 CAFE targets

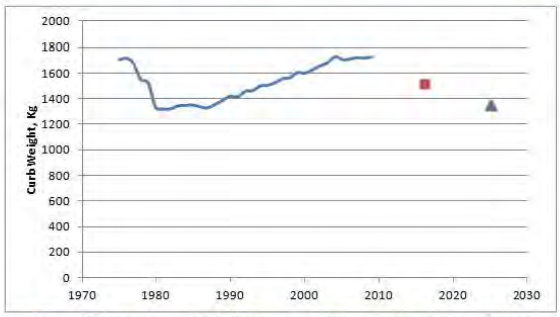

Figure 33 Average vehicle Curb weight, historical trend and future "combination" scenario 2016 and 2025 (See Table 5)

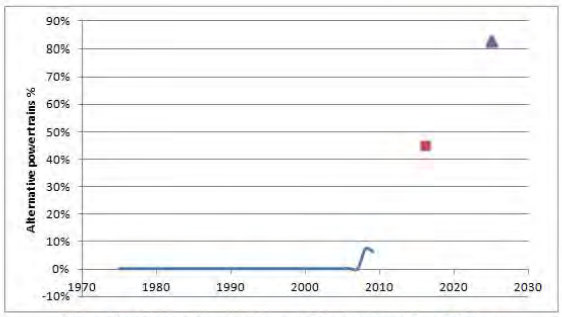

Figure 34 Market share of cars, historical trend and future "combination" scenario 2016 and 2025 (See Table 5)

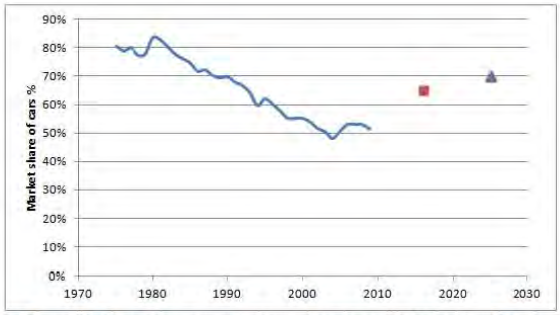

Figure 35 Alternative powertrain market share, historical trend and future "combination" scenario 2016 and 2025 (See Table 5)

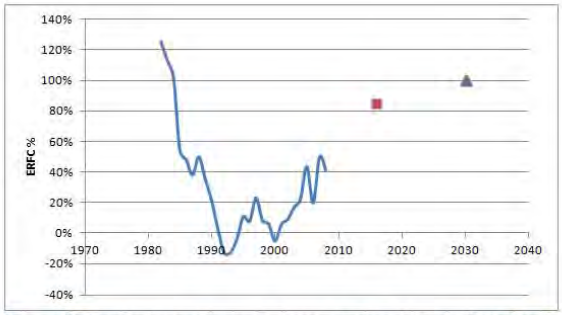

Figure 36 Emphasis on reducing fuel consumption, historical trend and future "combination" scenario 2016 and 2025 (See Table 5)

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Conclusions

This analysis quantifies the likelihood of achieving the average light duty new vehicle fuel economy targets of 32.5 and 34.1 mpg in 2016 and 44 and 54.5 mpg in 2025, the nominal CAFE values and what is assessed as representative after allowing for various credits in the recent joint EPA/DOT proposed rulemaking. These numbers are combined sales-weighted averages for cars and light trucks. Cars therefore will need to meet higher mpg targets, and light trucks lower targets, depending on the relative percentages of these two vehicle categories. Three scenarios were assessed in this study: (a) an ambitious yet plausible technology and fuel development pathway resulting in an expected reduction of 50% in the fleet fuel use by 2050 (b) a scenario with an assumed ERFC of 100%, where all technological progress is used to improve fuel economy instead of offsetting any increase in vehicle size, weight, or horsepower (c) the EPA/DOT preferred alternative scenario, proposed in the draft rulemaking documents by the agencies to meet the CAFE targets, through aggressive penetration of alternative powertrains, significant technological progress in mainstream technologies, and moderate downsizing of the fleet . The expected passenger car and combined (including light trucks) sales weighted average fuel economy are about 33 and 29 mpg respectively in 2016, and about 39 and 35 mpg in 2025, under the plausible-ambitious scenario. The probabilities to meet or exceed the combined CAFE targets in 2016 and 2025 are both extremely low (less than 0.5%) in this scenario. The expected passenger car and combined CAFE increase to about 34 and 30 mpg respectively in 2016, and 43 and 38 mpg in 2025, under the high ERFC scenario: highlighting the significance of the emphasis on reducing fuel consumption in meeting the CAFE targets. The likelihood of meeting the combined targets, with light trucks included in the mix, are slightly higher than the plausible-ambitious scenario, though still highly unlikely. Under the EPA/DOT preferred alternative scenario, there is about 2.4% chance of passenger cars CAFE falling below 32.5 mpg in 2016, which increases to about 80% for combined CAFE. Similarly, in 2025 there is about 45% likelihood of passenger cars CAFE falling below 44 mpg, which increases to 85% for combined CAFE. The likelihood of meeting or exceeding the nominal CAFE targets of 34.1 and 54.5 mpg in 2016 and 2025 are about 74% and less than 1% for passenger cars respectively, which drop to about less 0.5% in 2016 and 2025 for combined CAFE (including light trucks) under the EPA/DOT scenario.

The proposed regulations are highly demanding on both technological and market deployment fronts. Strong coordinated policies will thus be required to incentivize aggressive technological development and rapid penetration of alternative vehicles and fuels in the market, and thus increase the likelihood of achieving these near and mid term goals. Emphasis on reducing fuel consumption (ERFC) is also shown to be a key assumption in meeting the stringent fuel economy improvement targets. ERFC has been historically below 50% in the past two decades, indicating that only 50% of technological progress has been used directly to improve fuel economy, with the remainder offsetting the penalties of increases in performance and vehicle size and weight. The level of ERFC should not thus be taken for granted: coordinated policies and incentives for both suppliers and consumers are required to achieve a high ERFC in the future. The analysis shows that there is a higher likelihood of achieving the 2016 fuel economy targets. The likelihood of achieving the 2025 targets reduces significantly due to the substantial changes required in the various key influencing factors and the short time allowed for such significant technological development and market changes, given the reducing margin of readily accessible efficiency opportunities in engine, powertrain, and vehicle technologies. The U.S. government agencies involved are proposing a midterm review, which will play an important role in re-evaluating the baselines and required adjustments in these and further regulatory targets.

U.S. CAFE STANDARDS:

The strategies examined in this analysis for meeting the 2016 and 2025 fuel economy targets reveal the level of change from historical trends that is required to meet these targets. These strategies require substantial changes in all the major influencing factors including vehicle light weighting, fleet downsizing, higher emphasis on reducing fuel consumption, and rapid development and deployment of alternative powertrains to meet these near and mid term targets. Even by combining these strategies, however, the required change on all these fronts is substantial compared to the historical trends. The achievement of such significant changes further highlights the need for timely policy making and rapid implementation of harmonized policies to regulate all key determinants of average fuel economy and fleet fuel use to increase the likelihood of a greater impact in the near and mid term. The impact of the proposed fuel economy regulations on the fleet GHG emissions is also highly dependent on the upstream emissions and availability of alternative fuels. Decarbonisation of the electricity generation mix is of particular importance as large scale and rapid fleet electrification is encouraged.

The results indicate that in the presence of other policies in addition to CAFE, there is a 20% increase in the likelihood of reducing the fleet fuel use by 10% in 2025. In the absence of fuel standards and electricity grid decarbonisation policies, CAFE will not have a meaningful impact in reducing the fleet GHG emissions. In the presence of such polices, increased supply of alternative fuels, and demand reduction, however, the results show about a 16% chance of a 25% reduction below 2008 levels and only a 5% chance of exceeding 1,525 Mt CO2 equivalent by 2025: highlighting the need for complementary policies to CAFE standards to make a meaningful reduction in the U.S. fleet fuel use and GHG emissions into the future. Policies to coordinate various aspects of vehicle improvements, fuel developments, and demand dynamics are thus needed to increase the likelihood of a more substantial impact on fleet fuel use, energy consumption, and transport GHG emissions. Such policies may include higher fuel quality standards that coordinate fuel production and vehicle fleet capabilities to ensure the most effective use of produced volumes, particularly for bio-fuels. Better coordination between federal and state policies, such as Renewable Fuel Standard (RFS) at federal level and (Low Carbon Fuel Standard) LCFS at state level is needed to set harmonized national fuel standards. Price signals to reduce incentives for unconventional oil with negative emissions impacts need to be considered, especially as the price of oil and the likelihood of fuel switching rise. Furthermore, standards to regulate the upstream energy sources from electricity becomes more important as the fleet transitions towards battery electric, plug-in hybrid electric, and fuel cell vehicles, to realize any emissions reduction benefits from the penetration of alternative vehicles in the fleet. National grid coordination and drivers' education becomes also increasingly significant to optimize charging schedules and achieve minimum emissions from current power plants, while electricity sources shifts towards renewable. Policies such as dynamic demand-supply electricity pricing may be explored for more effective and timely consumer response. Further, policy priority should include research and development in improving battery capacities, efficiencies, and cost reductions for higher penetration of battery electric vehicles in the near and mid terms. Vehicle registration and VKT taxes, congestion pricing, tolls and parking fees may also be considered for vehicle and travel demand reduction to realize a more significant fleet-wide energy and emissions impact in the mid and long terms. Coordinated feebates on new and used vehicle registration and fuel-efficiency feebates should be explored to achieve optimum scrappage rate for faster penetration of new and improved vehicles in the fleet, and induce a market based supply and demand pull for an increase in emphasis on reducing fuel consumption (ERFC). The determinants and thus the impact of these policies and their interactions remain uncertain, however, as one considers the future of light-duty vehicles. These uncertainties need thus to be accounted for systematically in the assessing the impact of these policies on fuel

and emissions reductions, in the light of future policy interventions and achieving an optimum likelihood of impact.

The results from this paper demonstrate the effect of uncertainty on future fleet average fuel economy, fleet fuel use and emissions reduction in the context of meeting the newly proposed regulations. This analysis highlights the importance of taking uncertainties into account when analyzing the future of the light-duty vehicle fleet to inform more robust policy making, given the real world uncertainties in technology development and market behaviour. Key strategic areas to reduce uncertainties are further identified, to inform research priorities. Quantifying the impact of uncertainties using stochastic modelling allows decision makers to better understand the consequences of their decisions in the light of their associated risk, and thus take a step closer towards evidence-based numerical decision making under uncertainty. Various scenarios should be explored including the uncertainties, to make policies robust to the most likely range of outcomes given regulatory interventions. Understanding the probability of achievement of certain targets allows a more robust cost benefit analysis among policies, given their likelihood of achieving different targets and conditional probabilities. Uncertainties therefore are essential to be taken into account as policy makers and regulatory bodies make decisions and set standards that shape the future of light-duty vehicles over the next several decades, while facing considerable uncertainties in technology and market characteristics in the mid to long term.

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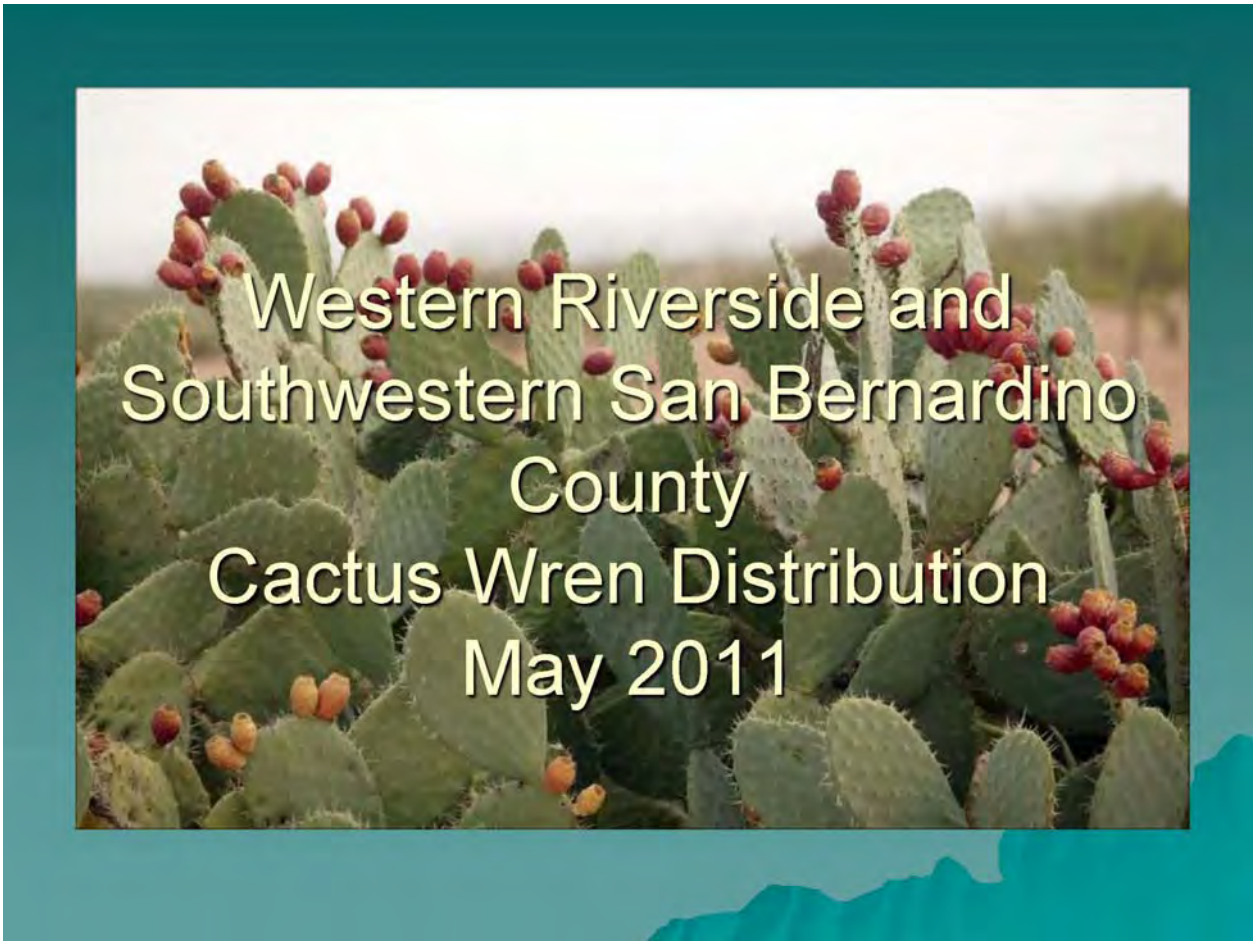
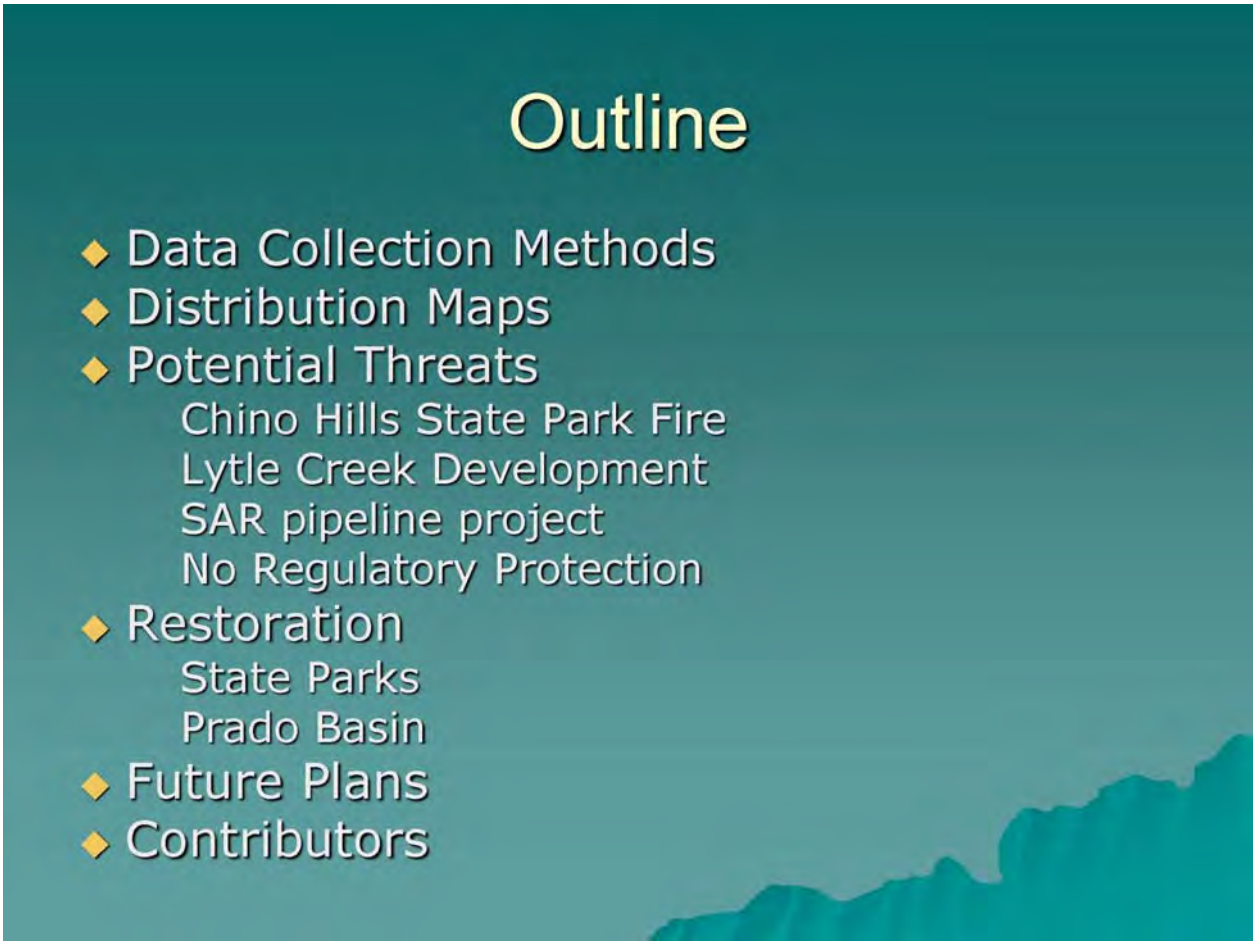
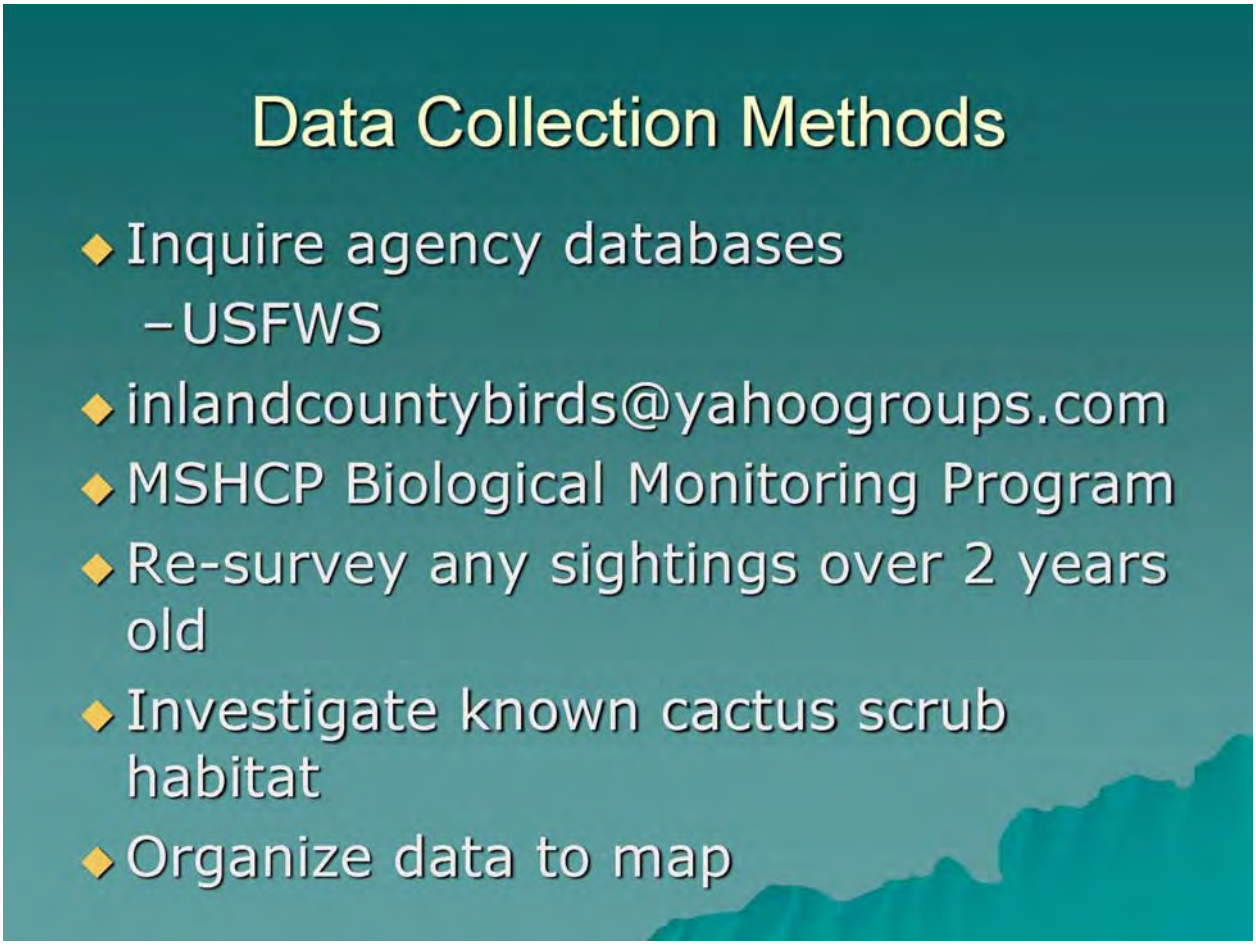
Save Lytle Creek Wash April 3, 2012 Comment Letter

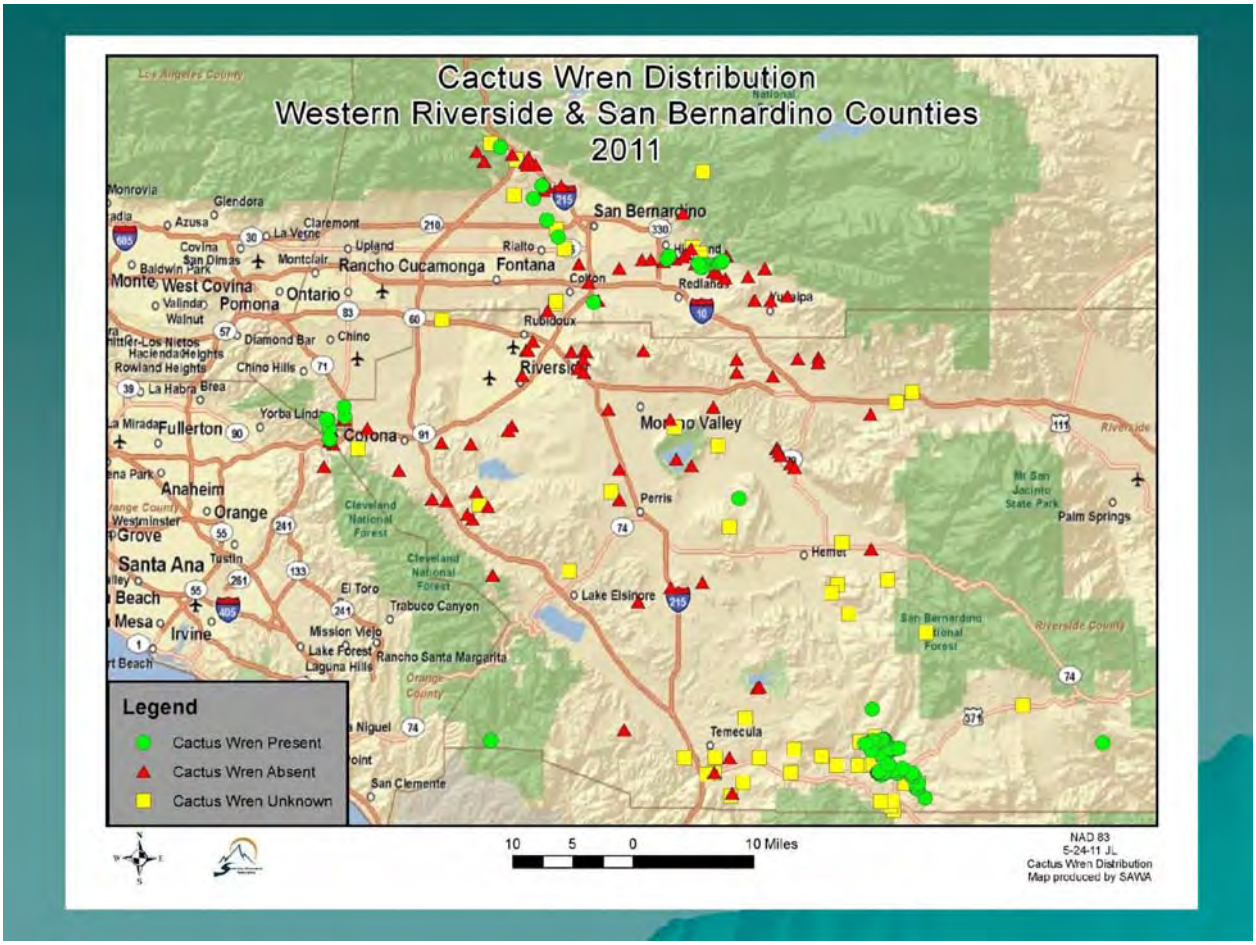
ATTACHMENT 4:

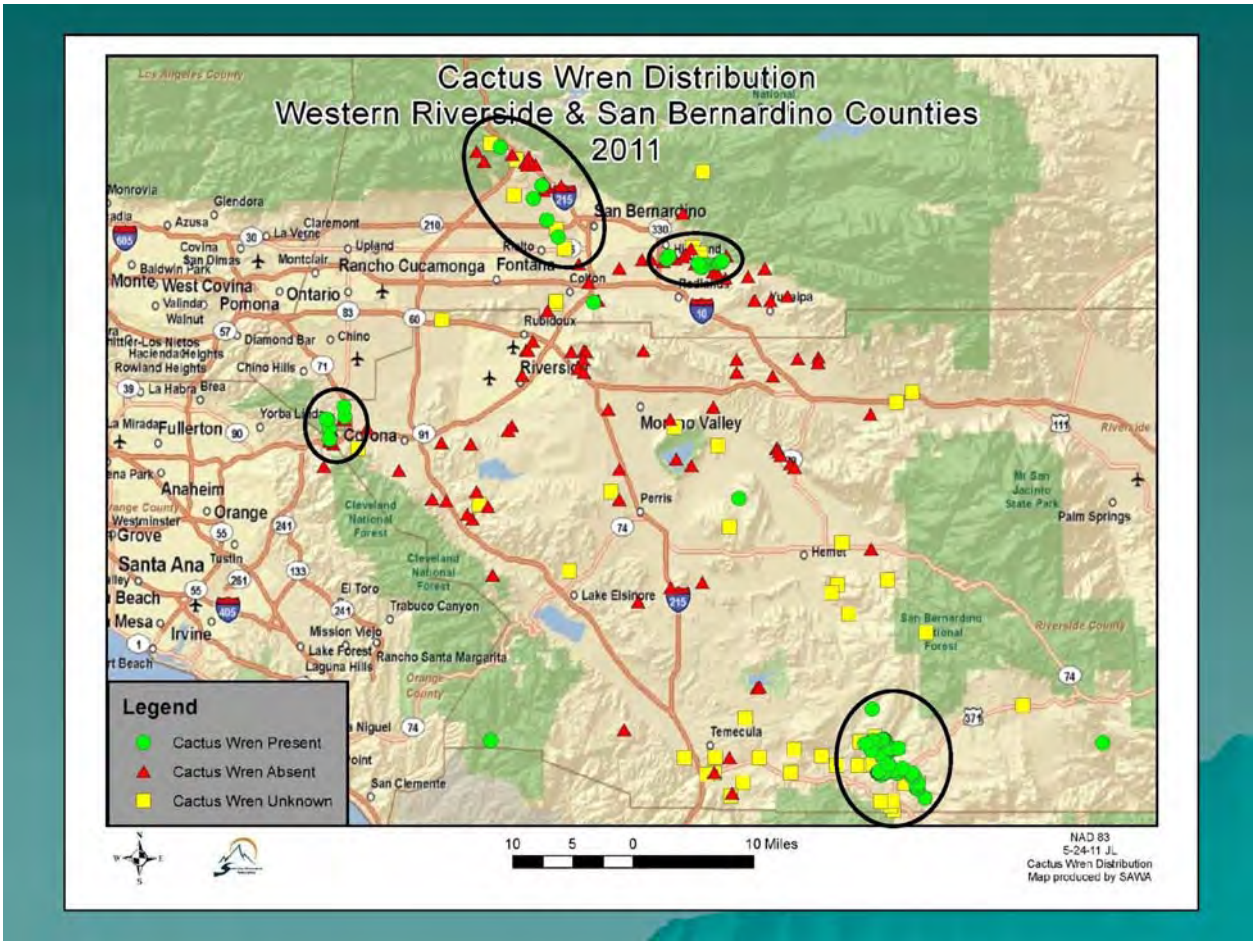
USFWS Cactus Wren Presentation


Western Riverside and
Southwestern San Bernardino
County
Cactus Wren Distribution
May 2011

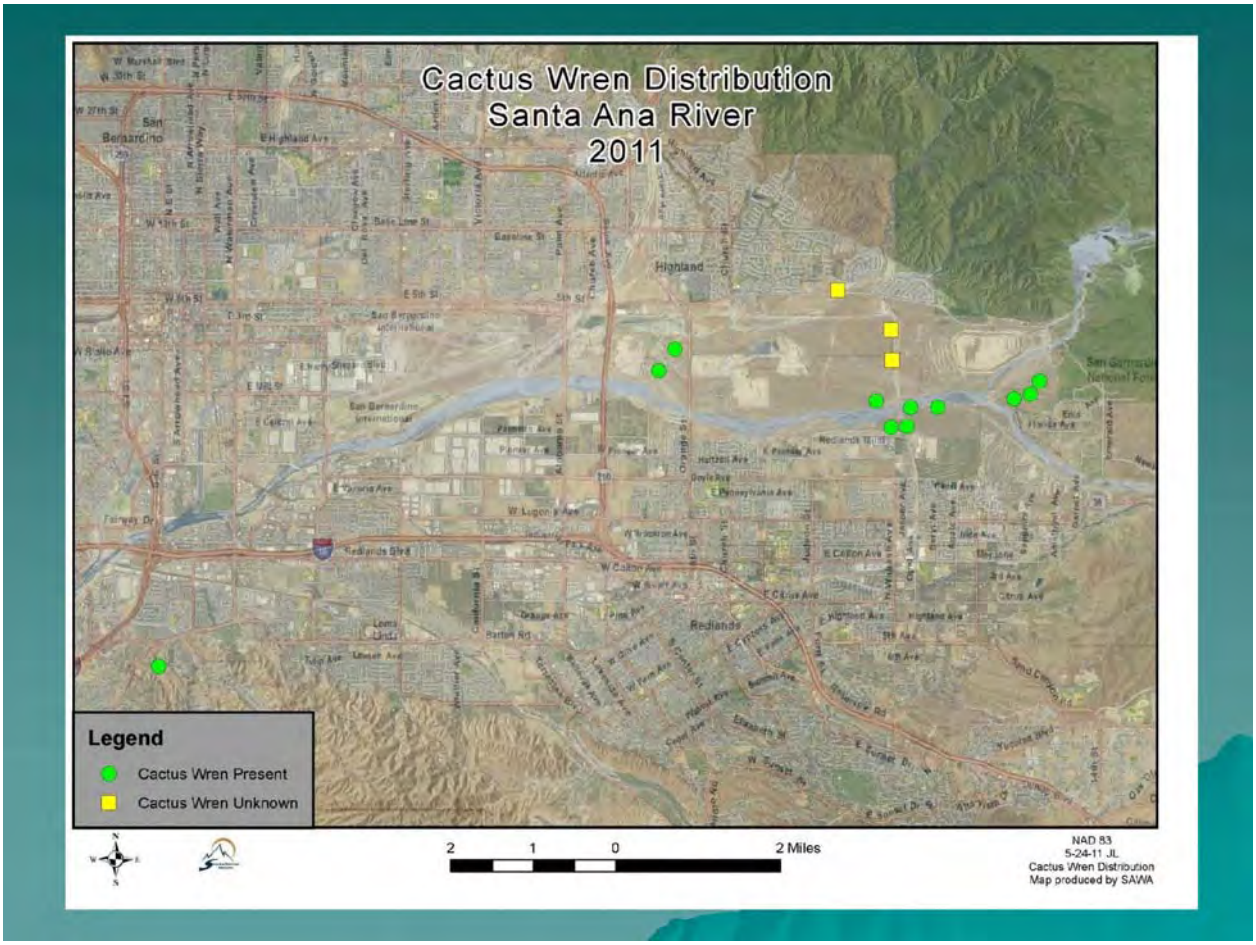

Outline
Data Collection Methods
Distribution Maps
Potential Threats
Chino Hills State Park Fire
Lytle Creek Development
SAR pipeline project
No Regulatory Protection
Restoration
State Parks
Prado Basin
Future Plans
Contributors

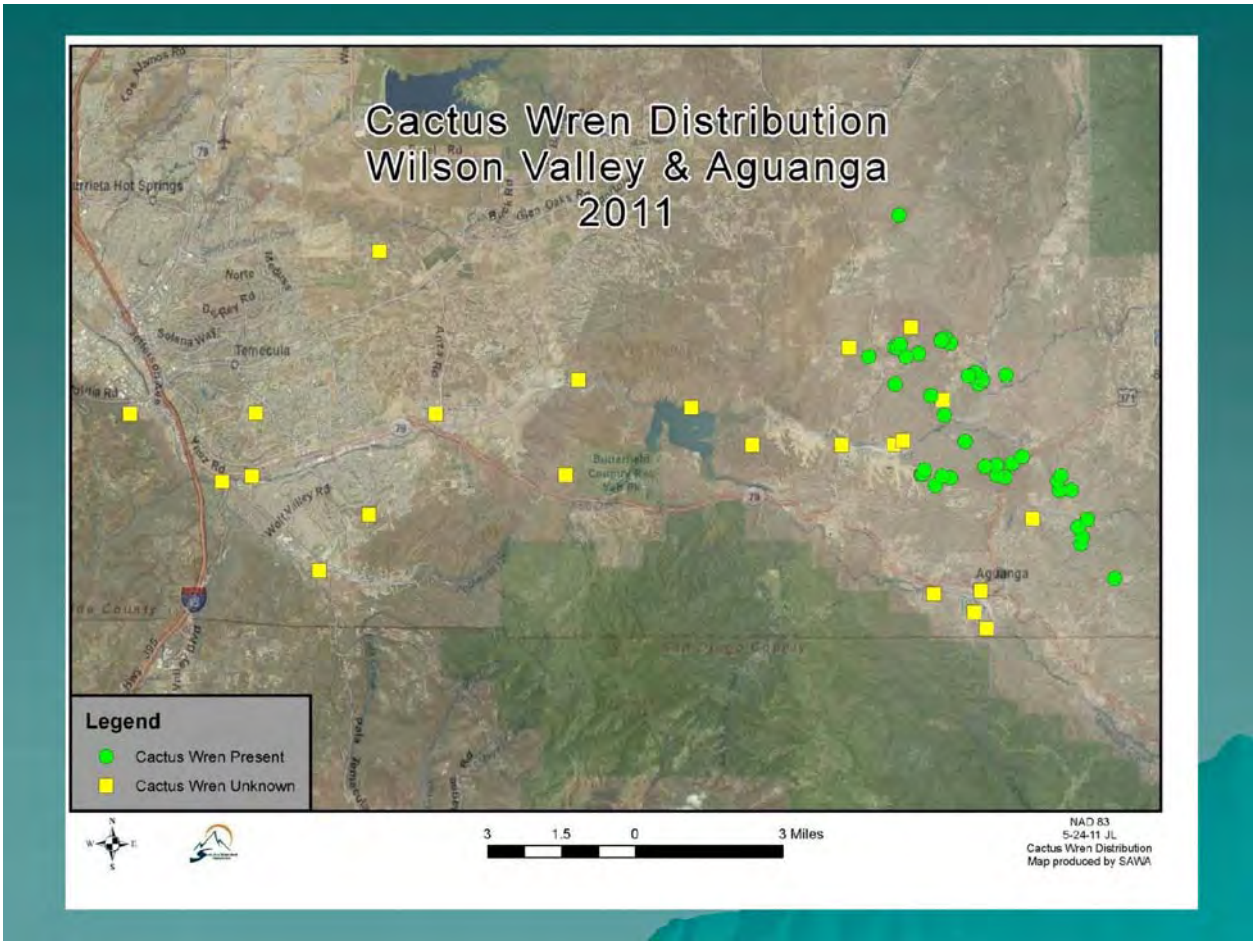

Data Collection Methods
Inquire agency databases
–USFWS
inlandcountybirds@yahoogroups.com
MSHCP Biological Monitoring Program
Re-survey any sightings over 2 years old
Investigate known cactus scrub habitat
Organize data to map

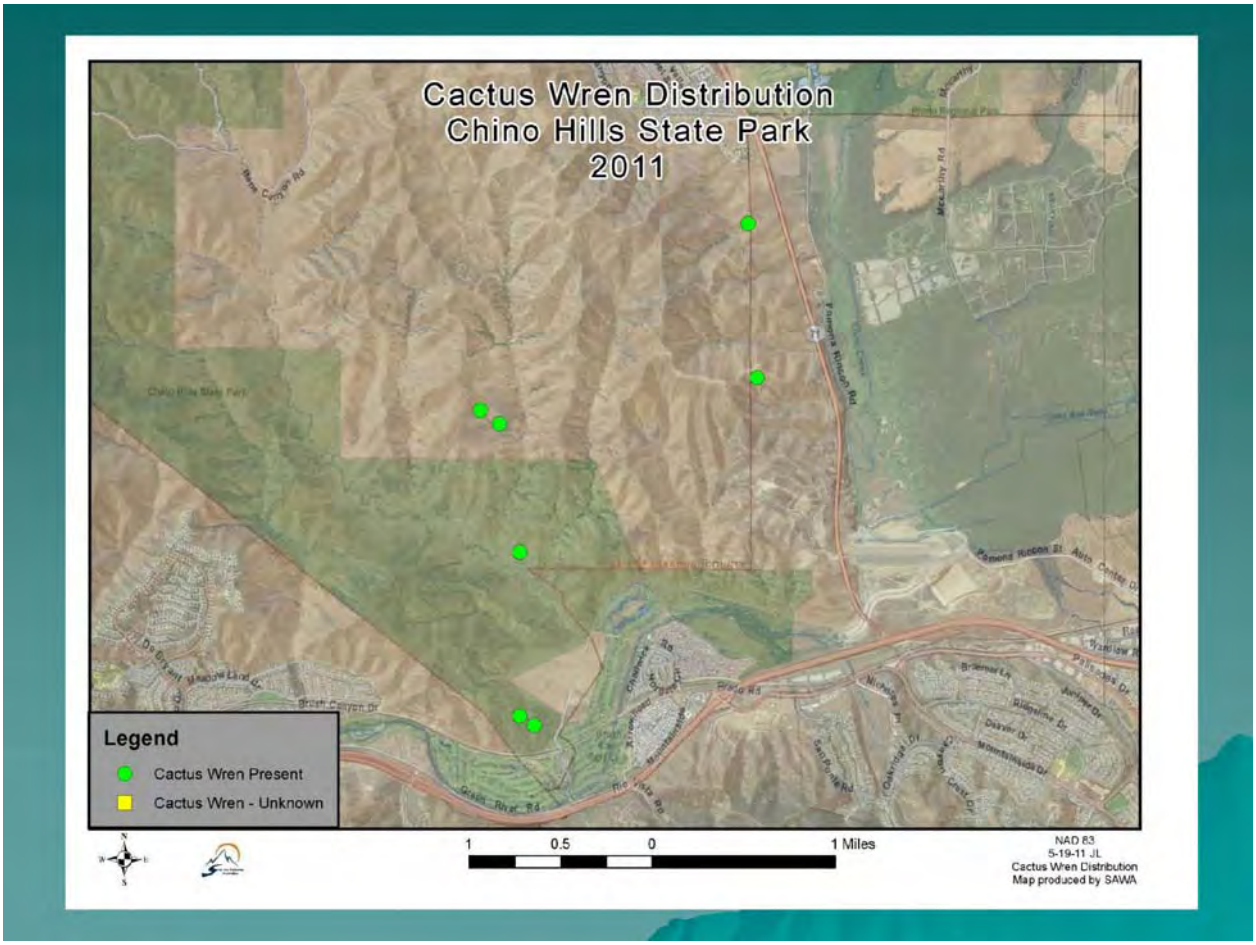

Cactus Wren Distribution
Western Riverside & San Bernardino Counties
2011
Legend
Cactus Wren Present
Cactus Wren Absent
Cactus Wren Unknown
10 5 0 10 Miles
NAD 83
5-24-11 JL
Cactus Wren Distribution
Map produced by SAWA
San Bernardino
Rialto
Fontana
Rancho Cucamonga
Ontario
Pomona
West Covina
Riverside
Corona
Moreno Valley
Perris
Hemet
Lake Elsinore
Temecula
Fullerton
Anaheim
Orange
Santa Ana
Irvine
Mission Viejo
Rancho Santa Margarita
San Clemente
Palm Springs
Redlands
Colton
Rubidoux
Chino
Claremont
Upland
Glendora
Azusa
Monrovia
Covina
Baldwin Park
Montclair
Diamond Bar
Chino Hills
La Habra
Brea
Yorba Linda
Tustin
El Toro
Trabuco Canyon
Lake Forest
Laguna Hills
Cleveland National Forest
San Bernardino National Forest
Mt San Jacinto State Park
Los Angeles County
Orange County
Riverside County


Cactus Wren Distribution
Western Riverside & San Bernardino Counties
2011
Legend
Cactus Wren Present
Cactus Wren Absent
Cactus Wren Unknown
10 5 0 10 Miles
NAD 83
5-24-11 JL
Cactus Wren Distribution
Map produced by SAWA
San Bernardino
Rialto
Fontana
Rancho Cucamonga
Ontario
Pomona
West Covina
Riverside
Corona
Moreno Valley
Perris
Hemet
Lake Elsinore
Temecula
Fullerton
Anaheim
Orange
Santa Ana
Irvine
Palm Springs
Claremont
Upland
Chino
Yorba Linda
Trabuco Canyon
Mission Viejo
Rancho Santa Margarita
San Clemente
Redlands
Colton
Rubidoux
Glendora
Azusa
Monrovia
Baldwin Park
Covina
San Dimas
Montclair
Diamond Bar
Chino Hills
Rowland Heights
La Habra
Brea
Tustin
El Toro
Lake Forest
Laguna Hills
Cleveland National Forest
San Bernardino National Forest
Riverside County
Orange County
Los Angeles County

Cactus Wren Distribution
Cajon Wash & Lytle Creek
2011
Legend
Cactus Wren Present
Cactus Wren Unknown
3
1.5
0
3 Miles
NAD 83
5-24-11 JL
Cactus Wren Distribution
Map produced by SAWA
Lytle Creek
Crestline
Muscoy
Rialto
San Bernardino
Baseline Ave
Lytle Creek Rd
N Riverside Ave
Sierra Ave
N Locust Ave
N Cedar Ave
N Cactus Ave
Pepper Ave
N State St
Eucalyptus Ave
Belmont Ave
W 40th St
W 30th St
W 27th St
E 13th St
W 6th St
E Base Line St


Cactus Wren Distribution
Santa Ana River
2011
Legend
Cactus Wren Present
Cactus Wren Unknown
2
1
0
2 Miles
NAD 83
5-24-11 JL
Cactus Wren Distribution
Map produced by SAWA


Cactus Wren Distribution
Wilson Valley & Aguanga
2011
Temecula
Aguanga
Legend
Cactus Wren Present
Cactus Wren Unknown
3
1.5
0
3 Miles
NAD 83
5-24-11 JL
Cactus Wren Distribution
Map produced by SAWA


Cactus Wren Distribution
Chino Hills State Park
2011
Legend
Cactus Wren Present
Cactus Wren - Unknown
1
0.5
0
1 Miles
NAD 83
5-19-11 JL
Cactus Wren Distribution
Map produced by SAWA

Chino Hills State Park

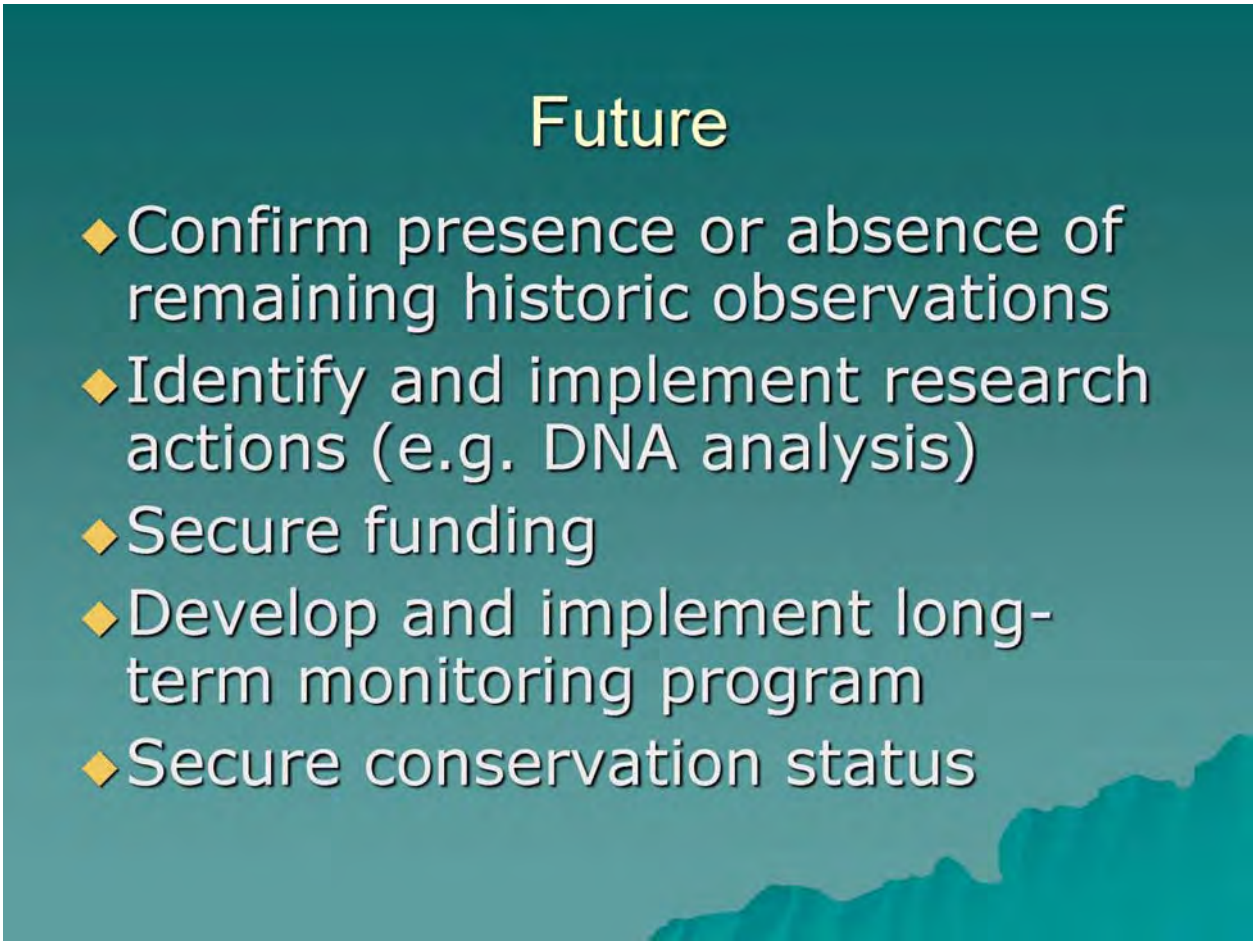
Melody Aimar
12/11/2008

Melody Aimar
12/11/08

AREA CLOSED
FOR PLANT
Melody Aimar
12/11/2008

Restoration
Chino Hills State Park
– State Parks propagating cactus to restore CHSP and currently planting cholla at Lake Perris (historic)
Prado Basin (OCWD)
– Restoration in the ground
– Attempt to make connection to CHSP

Prado CSS/Cactus Scrub
Restoration Area


Future
Confirm presence or absence of remaining historic observations
Identify and implement research actions (e.g. DNA analysis)
Secure funding
Develop and implement long-term monitoring program
Secure conservation status

Contributors
John Green, Al Kelly, Matt Baker, Dave Goodward, Jim Pike
USFWS
Santa Ana Watershed Association
– Biologists: Dave McMichael, Talula Barbee, Allyson Beckman, Jill Coumoutso, Nicole Housel, Giovanni Arechavaleta
– Funding
– GIS – James Law
MSHCP Biological Monitoring Program
– Nick Peterson

Thank You
Photo by Bob Manzo

Save Lytle Creek Wash April 3, 2012 Comment Letter

ATTACHMENT 5:

Excerpt of El Rancho Verde SOOC

16. Configure construction parking to minimize traffic interference.

17. Minimize obstruction of through-traffic lanes.

18. Provide a flag-person to properly guide traffic and ensure safety at construction sites.

19. Schedule operations affecting traffic for off-peak hours, where feasible.

20. Develop a traffic plan to minimize traffic flow interference from construction activities (the plan may include advance public notice of routing, use of public transportation and satellite parking areas with a shuttle service).

21. Schedule goods movements for off-peak hours.

The Commission further finds it is not possible to provide for full development of this project without contributing to regionally significant air quality impacts. The Commission finds that no additional measures are known that can further reduce air quality impacts for the proposed project. Therefore, the Commission concludes that the proposed project has the potential to contribute to unavoidable, significant adverse effects on the region's air quality.

2. *Biological Resources*

Significant Unavoidable Impact: The proposed project will eliminate habitat of several sensitive and possibly listed plant and wildlife species. The City determined that the loss of habitat for two of these species, Los Angeles pocket mouse and San Bernardino Kangaroo rat, would be an unavoidable adverse impact.

Finding: Biological resource impacts, mitigation measures and the effectiveness of these measures in reducing impacts are discussed in the Final EIR in Section VII, 7.7 and in Responses to Comments, specifically responses to the letter from the State Department of Fish and Game. Even with implementation of the proposed mitigation measures, the City concluded in its responses to DFG that impacts to the Kangaroo rat and pocket mouse were adverse and unavoidable. Specific economic, social, or other considerations make infeasible additional mitigation measures to reduce projected biological resource impacts.

Facts Supporting Finding: The project site contains five natural plant communities that encompass approximately 58 acres of the 220 acre site, including areas to be annexed. Two biological surveys of the project site were performed and two sensitive wildlife species were determined to inhabit the site. Three sensitive habitats, including a variant of coastal sage scrub, occur on the site. In responses to the DFG comment letter (response 24 of the Responses to Comments (page 12), the City concurred that unavoidable adverse impacts will be caused by proposed project development. The City concluded that all other biological resource impacts are nonsignificant. The Commission finds that the following measures can substantially reduce biological resource impacts. These measures are:

1. Prior to the issuance of grading permits, the applicant shall present a mitigation plan for impacts to non-rare, threatened or endangered species acceptable to the City of Rialto.

2. Landscaping associated with the proposed project shall include cholla cactus in order to afford opportunities for the San Diego cactus wren to re-establish nest(s) on the subject property. Inclusion of the cholla cactus into the project's landscape pallette shall be depicted in the Landscape Plan for the subject project. Said plan shall be reviewed and approved by the City of Rialto's Planning Director prior to any subsequent issuance of building permits.

3. Landscaping associated with the proposed project shall, to the extent practicable, include plant species

Comment Letter No. 11

BY ELECTRONIC MAIL AND FACSIMILE

April 3, 2012

Gina Gibson, Planner
City of Rialto
150 S. Palm Avenue
Rialto, CA 92376-6487
ggibson@rialtoca.gov

RE: Proposed Lytle Creek Ranch Specific Plan Recirculated Draft Environmental Impact Report

Comment No. 11-1

Dear Ms. Gibson:

The Endangered Habitats League (EHL) is pleased to provide the following comments on the Recirculated Draft Environmental Impact Report (RDEIR) for the Lytle Creek Ranch Specific Plan (the "Project"). EHL also joins in the comments submitted concurrently by Chatten-Brown & Carstens on behalf of Save Lytle Creek Wash (SLCW).

Although the RDEIR purports to remedy the deficiencies in the original EIR the court found in *Endangered Habitats League v. City of Rialto* (Case No. CIVDS 1011874), it fails to provide the accurate and good faith analysis of the Project's impact on climate change-inducing greenhouse gas emissions and on traffic, in addition to the issues identified by SLCW. The RDEIR thus does not provide an adequate basis for the City to re-approve the Project consistent with CEQA.

Response to Comment No. 11-1

This comment is introductory in nature and does not specifically address sections of the RPDEIR. Specific comments on the RPDEIR are set forth below with accompanying responses.

It is noted that the reference in the comment to the "RDEIR" is incorrect and should reference the RPDEIR, as discussed further in Section 1.2 of this Final RPEIR. The RPDEIR contains select revised portions of the original DEIR in response to the Court Ruling that replace only those corresponding portions of and/or sections in the DEIR. The RPDEIR does not replace the original DEIR in full, nor does it supersede any portions of the original DEIR or analyses that were not specifically supplemented, updated, or otherwise revised in the RPDEIR. Comments regarding the original DEIR are outside the scope of the RPDEIR. Please refer to Section 1.2 of this Final RPEIR for a discussion of the scope of the RPDEIR, the City's obligation to respond to comments outside the scope of the RPDEIR, and the standards for recirculation of a Draft EIR due to "significant new information."

In addition, the comment correctly notes that the RPDEIR was prepared in response to the Court Ruling and only addresses those issues which the Court specifically required the City to address. See Section 1.2 of this Final RPEIR for a full description of the portions of the DEIR that the Court required the City to revise and recirculate.

The commentor also joins in the comments submitted by Save Lytle Creek Wash. Please refer to Letter No. 10 for responses to the comments contained therein.

Comment No. 11-2

The RDEIR Fails to Provide an Accurate Picture of the Project's Contribution to Climate Change.

The trial court found the original EIR's treatment of GHG emissions inadequate because it failed to adequately explain the basis for its claim that the Project would result in an overall 32.6% reduction in emissions from a Business As Usual (BAU) scenario. Despite this finding, the RDEIR essentially repeats in substance the earlier analysis. It is still a mystery exactly how these reductions will be achieved and to what extent *Project* features (as opposed to contextual changes) is responsible for these claimed reductions.

For example, the RDEIR claims that operational GHG emissions from transportation sources—totaling over half of total emissions associated with the Project (RDEIR Table 2.1-31 at p. 2-87)—will decline by 43% from a BAU scenario (see Table 2.1-40, at p. 2-99). Excluding the benefits of the Pavley low emissions requirements for autos contained in AB 1493,[24] emissions would decline by a whopping 29% (id) from a BAU scenario, apparently solely from what the RDEIR cryptically refers to as "project design features"—a reduction absolutely necessary to support a "less-than significant" conclusion with respect to GHG emissions. (RDEIR at p. 2-93.)

As applied to mobile source emissions, project design will:

> "(1) provide physical linkages between land uses that promote walking and bicycling and provide alternatives to automobile use; (2) link together parks and other activity nodes on the site via a 23.5-acre 'Grand Paseo'; (3) reduce its footprint and allow for transportation and open space corridors; (4).[have] commercial areas [that are] centrally located and walkable; and(5) [have] a circulation system designed to encourage residents to make multiple stops per trip." (RDEIR at p. 2-85.)

These vague "project design features" are all well and good, but how do these features realistically translate into travel behavior changes so fundamental that they collectively account for GHG emissions reductions that are roughly *double* the emissions reductions attributable to aggressive vehicle and fuel technology mandates? (See Table 2.1-40, at p. 2-99 [attributing approximately 14% of reductions to AB 1493 out of a total of 43%].) The RDEIR itself "leaves

[24] Signed into law in 2002, AB 1493 requires carmakers to reduce GHG emissions from new passenger cars and light trucks beginning in 2011. The California Air Resources Board (CARB) adopted regulations in 2004, which took effect in 2009 with the release of a waiver from the US Environmental Protection Agency (EPA) granting California the right to implement the bill. CARB anticipates that the Pavley standards will reduce GHG emissions from new California passenger vehicles by about 22% in 2012 and about 30% in 2016, all while improving fuel efficiency and reducing motorists' costs.

the reader in the dark" as to how these massive reductions from travel behavior are achieved. (See Court Order at p. 20.)

Response to Comment No. 11-2

The commentor asks for details regarding land form (i.e., how the Project's design and layout would impact traffic) and how additional transportation options would reduce vehicle miles travelled (VMT) for the Project residents. The commentor then goes on to compare the reductions introduced by the Pavley fuel technology mandates to that which is reduced by well-designed land forms. There is ample literature that describes how well designed land forms can reduce VMT. One well referenced compendium is Growing Cooler (ULI 2007), which synthesizes numerous studies on this issue into one tractable reference. Studies such as those cited in Growing Cooler are the basis of the calculations in Urban Emissions Model (known as URBEMIS) (Jones & Stokes 2007), which was used to estimate the reductions in vehicle miles travelled as a result of the land form, neighborhood enhancements and access to transit. At the time the FEIR was published, URBEMIS was the accepted method of estimating the reduction in vehicle miles travelled that resulted from project design features. It has since been replaced with the California Emissions Estimation Model (CalEEMod), but URBEMIS is still accepted by the South Coast Air Quality Management District (SCAQMD).

URBEMIS was originally developed by the California Air Resources Board (CARB) as a modeling tool to assist local public agencies with estimating air quality impacts from land use projects when preparing a CEQA environmental analysis. (See SCAQMD Guidance, http://www.aqmd.gov/ceqa/faq.html.) The URBEMIS model was developed as a user-friendly computer program that estimates construction, area source, and operational air pollution emissions from a wide variety of land use development projects in California, such as residential neighborhoods, shopping centers, and office buildings. In addition, the URBEMIS model identifies mitigation measures and emission reductions associated with specific mitigation measures. Id. Regarding transportation sources of emissions, the URBEMIS 2007 model uses the California Air Resources Board's EMFAC2007 model for on-road vehicle emissions and the OFFROAD2007 model for off-road vehicle emissions. (See SCAQMD Guidance, http://www.aqmd.gov/ceqa/urbemis.html.) The use of URBEMIS is accepted by the SCAQMD for calculating air emissions impacts under CEQA from proposed projects in southern California, and has been for more than a decade. As such, the use of URBEMIS should be considered substantial evidence for calculating air emissions impacts under CEQA from proposed projects in southern California.

In addition, the commentor makes a misleading and mathematically incorrect comparison between the 14 percent reduction due to the Pavley standards (a low emissions requirement for vehicles) and the 29 percent reduction in VMT due to project design features. As shown in a comparison of Table 4-30 and Table 4-31 of the Revised Climate Change Technical Report, the Pavley standards in isolation (i.e., without combining them with other emission reduction measures) would reduce GHG emissions approximately 20 percent from the BAU scenario. However, because project design features would reduce VMT by 29 percent, the Pavley standards only will affect the reduced amount of VMT (i.e., the standards cannot affect miles that will never be traveled). Accordingly, the 20 percent reduction in GHG emissions attributable to the Pavley standards affects only the remaining 71 percent of VMT that actually would be traveled: 100 percent - 29 percent reduction due to project design features = 71

percent. A 20 percent reduction applied to the 71 percent of remaining VMT results in a 14.2 percent reduction in GHG emissions: 0.2 * 71 percent = 14.2 percent. Therefore, the informative and mathematically sound comparison is between the reduction in GHG emissions due to the Pavley standards (20 percent) and the reduction due to project design features (29 percent). Note that the 29 percent reduction in VMT due to project design features also results in a corresponding 29 percent reduction in GHG emissions. The overall reduction from BAU is calculated as 1 – (1-0.20)*(1-0.29), which results in a 43 percent reduction in GHG emissions.

Comment No. 11-3

The study contained in the RDEIR technical appendix purports to describe the analytical methodology, but close scrutiny actually raises more questions than answers. The RDEIR's "Revised Climate Change Technical Report" by ENVIRON states that mobile source GHG emissions were calculated using URBEMIS, an urban emissions model designed to estimate air emissions from land use development projects. According to the technical report, total daily vehicle trips from the Project with its "design features" would total 49,964, while an "unmitigated" hypothetical development without those design features would generate 70,377 trips, a whopping 41% increase. (ENVIRON Report at Table 5-7, p. 127.) In other words, the Project would be so innovative and so significantly depart from the typical ex-urban auto-dependent development that walking, bicycling, transit and trip chaining would replace almost one out of every three trips that would otherwise be taken by a car—over 20,000 trips per day.

To put this startling claim into perspective, the Inland Empire is currently one of the most auto-dependent places on the planet. The Lincoln Land Institute estimated U.S. GHG emissions from the transportation sector (Brown et al. 2008) and ranked the Riverside-San Bernardino-Ontario metropolitan area near the bottom—number 92 out of the 100 U.S. metro areas in terms of the highest GHG emissions per capita from transportation (1.89 metric tons per person in the Inland Empire versus 1.30 for the 100-metro average). This is largely because the region as a whole "lacks a well developed transit infrastructure and an existing mixed-use land use pattern to build on. *Land use and transit system changes occur over many decades*."[25] (Emphasis added.) An already severe regional jobs-housing imbalance exacerbates this trend.

According to the San Bernardino Association of Governments' 2011 Non-Motorized Vehicle Transportation Plan, currently only about one out every 300 trips to work in the County is taken on a bicycle (0.038%). Over the next 20 years, or by 2030 (build-out year for the Project), SANBAG hopes to increase this share to 0.53%, or about one in every 200 work trips. Similarly, about one of every seventy-five work trips is a walking one (1.53%).[26] According to the SCAG 2012 Regional Transportation Plan PEIR, total transit mode share for all trips for the County is currently at 0.58%, or a little more than one of every 200 trips. (See SCAG 2012 RTP PEIR, Table 3.2-16 at p 3.12-11.) These statistics are in sharp contrast to the claims of the RDEIR that about *one of every three* of total trips generated by the residential portions of the Project will use alternative transportation modes or trip-chaining.

Similarly, GHG emissions reductions from land use and transportation for the entire SCAG region under SB 375 is 16% by 2035. (See SCAG 201 RTP Performance Measures Appendix

[25] Willson, Draft Travel Characteristics of Residents of Multi-Family Housing in the Inland Empire, (Leonard Transportation Center California State University San Bernardino, August 2010) at p. 3.
[26] See 2011 SANBAG Non-Motorized Transportation Plan, submitted concurrently

at p. 13.) If the RDEIR's conclusions are to be believed, the Project's 29% reduction from project design features would likely vastly out-perform most new development in the region—including urban infill in dense Los Angeles County—despite the project's location in one of the most auto-dependent sub-regions in the SCAG region.

How is what can only be called a *miraculous* transformation in travel behavior—when viewed in light of the sobering regional statistics cited above—by the eventual occupants of the Project to be achieved? The ENVIRON Technical Report does not specifically say. It only says that the increased density of the Project and other "project design features" are responsible. It also says that an unspecified "portion" of Project residents would take transit. How this translates into a massive 29% reduction in mobile source GHG emissions is not stated.

Response to Comment No. 11-3

The commentor compares the 29 percent reduction in VMT predicted as a result of the Project with the overall reduction in VMT for the entire SCAG region of 16 percent and implies that the estimated reduction for the Project is unreasonable. The comment fails to underscore that the 16 percent reduction in VMT predicted for the SCAG region is for the entire SCAG region, not just new development. In order for this reduction in VMT to be realized, new development must be far more efficient than the 16 percent average reduction that is predicted. In fact, new development must increase density and offer a diversity of services not only for its own new residents and workers, but for the neighborhoods around it if the proposed reduction under SB 375 is to be achieved. The Project will bring services to a service poor environment. For example, as the LCRSP states:

> The project proposes a system of bicycle trails and walking trails throughout the project site. These trails will follow the alignment of the major streets in Lytle Creek Ranch and connect to a trail system to be established along the northeast side of Riverside Avenue. Thus, residents will be able to walk or ride their bikes to Riverside Avenue and catch a ride on the bus to other portions of the City.
>
> Convenient access to Village Center Commercial development in Lytle Creek Ranch will be available via the project's internal trail and roadway systems. Retail, commercial and office uses are planned along Riverside Avenue. It is anticipated that there will be a shopping center located near the juncture of Sierra Avenue/Riverside Avenue/I-15 in Planning Areas 31 and 33. This shopping center may contain such uses as big and medium box retailers, a supermarket or, grocery store, and other services such as dry cleaners and restaurants. Residents will be able to walk or bike to this center, or drive to the center without placing additional strain on the surrounding off-site roads. (LCRSP, page 3-69.)

In providing such services, the Project not only reduces VMT for its residents, but will also reduce VMT for the service-poor surrounding areas. The additional reduction in VMT that would be realized by the Project's neighbors was not considered in the estimated reductions for the Project. The commentor also notes that land form changes take place over decades. This Project is designed to change the land form of the area and would be built out over several decades, consistent with the commentor's statement. Refer to Response to Comment No. 11-2 for additional discussion.

Comment No. 11-4

The Technical Report does assert that housing density scales with trip rates according to an equation it provides. (See ENVIRON Report at p. 124.) The Report also accurately states that the equation comes from Appendix D of the URBEMIS User's Guide. What the ENVIRON Report does *not* disclose, however, is that the URBEMIS User's Guide explicitly states that this equation *was derived from Los Angeles* and is consistent with empirically derived curves *for San Francisco and Chicago*. (See Appendix D of the URBEMIS User's Guide, at pp. D-14 and D-15, submitted concurrently.) Unlike the Rialto area, these cities have the highest population densities in the nation, huge job bases and massive transit systems. Indeed, Los Angeles metropolitan area has the *highest* such density in the nation.[27]

Nothing in the Users Guide states that this formula is valid for the ex-urban fringes of Rialto in San Bernardino County. To the contrary, the Users Guide emphasizes that the effect of density on transportation behavior is highly context specific:

> "there is a significant, quantifiable relationship between residential density and automobile use (see Figure D-6), but there is uncertainty regarding the degree to which this effect is due to the inherent effects of density, as opposed to factors for which density serves as a proxy, such as parking price, local retail, transit service frequency and pedestrian friendliness." (URBEMIS Users Guide at p. D-13, emphasis added.)

The Users Guide also cautions that the values stated in the model are just a starting point; care should be taken to make sure the model is appropriate in a particular location: "[U]sers should recognize that travel behavior is very complex and difficult to predict. The component relies on the user to determine factors critical to travel behavior that are somewhat subjective." (Id. at p. D-3.) Indeed, the creators of URBEMIS underscored that it is not just density, but a combination of regional and sub-regional attributes that affect travel behavior:

- Net residential density (measured by Households per Residential Acre)
- Mix of uses (using a jobs/housing measure)
- Presence of local-serving retail
- Level of transit service (measured by a transit service index)
- Bicycle and pedestrian friendliness (measured by a "pedestrian factor" index based on intersection density, sidewalk completeness, and bike lane completeness)

[27] Los Angeles' average densities handily exceed even those of the New York City metropolitan area. As of the year 2000, average density in New York NY—Newark was 5, 309 residents per square mile while Los Angeles--Long Beach--Santa Ana, CA has 7,068 residents per square mile. San Francisco comes in second at 7,004 residents, while Chicago has 3,914 residents per square mile. (http://www.demographia.com/db-ua2000r.htm) Los Angeles also has relative robust transit. The region is second in the nation in transit patronage, behind only New York. Even on a market share basis (passenger transit miles traveled as a share of all miles traveled), Los Angeles's ridership rate is relatively high: 11th among the 50 largest urban areas. (http://www.freakonomics.com/2009/03/03/los-angeles-transportation-facts-and-fiction-transit/) Los Angeles is and will be very "jobs rich," while Rialto is and will be very "jobs poor." (See Maps 2 & 3: http://www.scag.ca.gov/Housing/pdfs/introduction.pdf)

(URBEMIS2007 for Windows Users' Guide Appendix D – URBEMIS 2007 Mobile Source Mitigation Component, Page D-8 Version 9.2 November 2007)

Neither the ENVIRON Report nor the RDEIR attempt to calculate the impact of these other factors, even though it is clear from the discussion above that on virtually all them the area around Rialto would fare very poorly. Nor is there any effort to quantify any of these factors (other than density) for the BAU scenario against which the Project is compared. Without knowing how much transit and cycling and walking infrastructure was assumed for the BAU scenario, it is impossible to make an informed comparison.

Response to Comment No. 11-4

The commentor states that the relationship between density and reduction in VMT used in the URBEMIS program stems from studies in Chicago, San Francisco, and Los Angeles. The commentor goes on to state that these cities are among the densest in the United States, and then cites average densities of the metropolitan areas.

The URBEMIS program states that the studies were conducted for the Los Angeles region, the Chicago region and the San Francisco region, not for the cities, themselves, as the comment implies. (See Appendix D of the URBEMIS User's Guide, page D-14.)

The three curves that show VMT as a function of density for the three regions (Chicago, San Francisco, and Los Angeles) in Appendix D of the URBEMIS manual ("density curves") are nearly identical despite a large difference in population densities for the Los Angeles, San Francisco and Chicago regions of 7,069, 7,004 and 3,914 people per square mile. The same reference cited by the commentor as the source of population densities also contains the population density of the Riverside-San Bernardino metropolitan area of 3,434 people per square mile (http://www.demographia.com/db-ua2000r.htm). This is quite similar to the population density of the Chicago area. Accordingly, based on the commentor's statement that population density of the metropolitan area is relevant to whether these density curves should be applicable to a metropolitan area, these density curves should be applicable for Rialto, which is located in the Riverside-San Bernardino metropolitan area.

The commentor also states that the Revised Climate Change Technical Report and RPDEIR did not take into account location-based travel factors. In fact, such factors (daily weekday buses, daily rail/rapid transit, streets with single or double side sidewalks and bike lanes) were input into the URBEMIS model as shown on Table 5-6 (URBEMIS Operational Mitigation Component Inputs for Mitigated Scenario) of the Revised Climate Change Technical Report (provided as RPDEIR Appendix V-B) and in RPDEIR Table 2.1-36 (URBEMIS Operational Mitigation Component Inputs for Mitigated Scenario), page 2-94.

Comment No. 11-5

We do know, however, that on jobs/housing balance, both the region and the Project get a failing grade. Neither the City nor Real Parties disputed the following discussion of this issue in Petitioners' Opening Brief:

> "The Project would worsen the severe jobs/housing imbalance in the Inland Empire region. While 1.5 jobs per housing unit is considered to be a "standard"

> balance (T:11 P:909.), the City of Rialto had only 0.78 jobs per household in 1997, unincorporated San Bernardino County had a dismal ratio of 0.46. (T:11 P:917.) The EIR states that the Project's projected operational jobs-housing ratio is estimated to be 0.40 (3,398 jobs/8,407 units) jobs per dwelling unit (T:11 P:929), but the actual contribution to the imbalance could be much worse. While the Specific Plan contemplates 101 sq ft of retail/commercial space per dwelling unit (849,420 sq. ft/8,407 d/u), the actual development agreement would permit full build-out of the residential portion of the project after the completion of only 250,000 sq ft of retail commercial--resulting in only 29 sq ft per d/u. (T:8 P:121.) Using the EIR's assumption of one new primary job for every 250 square feet of commercial use (T:9 P:371), the Project could permissibly result in a jobs/housing ratio of about 0.12. The long commutes from this extreme imbalance would further contribute to adverse environmental impacts and congestion burdens on regional highways." (Opening Brief, at p. 4.)

Response to Comment No. 11-5

The commentor states concerns regarding jobs/housing balance issues. This matter is outside the scope of the RPDEIR. Please refer to Section 1.2 of this Final RPEIR for a discussion of the scope of the RPDEIR, the City's obligation to respond to comments outside the scope of the RPDEIR, and the standards for recirculation of a draft EIR due to "significant new information." The commentor offers no "significant new information" with respect to jobs/housing balance issues within the meaning of CEQA Section 21092.1 and CEQA Guidelines Section 15088.5.

Indeed, the Court Ruling expressly rejected Petitioners' claims regarding the EIR's discussion of land use impacts and jobs-housing balance issues, stating:

> When the discussions in the EIR regarding SCAG's jobs-housing goal are reviewed, to the extent inconsistencies between the proposed project and applicable regional plans exist, the EIR includes a sufficient discussion of the inconsistencies as required by Guidelines § 15125(d).
>
> Therefore, the Court denies the writ of mandate with respect to the jobs-housing issue, because the EIR sufficiently discussed inconsistencies with SCAG's jobs-housing goal as required by Guidelines, § 15125(a).

As such, the commentor's assertions regarding jobs-housing issues and the Project are without merit.

Comment No. 11-6

On level of transit service, the ENVIRON report states merely that there are 34 Daily Weekday Buses and 19 Daily Rail or Rapid Transit Buses. (ENVIRON Report at p. 126.) There is no mention of head times, hours of service, or other key indicia of transit service. There is no reference to the funding these transit lines and they are not part of the Project; CEQA accordingly precludes assuming these benefits. (See *Save Our Peninsula Committee v. Monterey County Board of Supervisors* (2001) 87 Cal.App.4th 99; *Endangered Habitats League, Inc. v. County of Orange* (2005) 131 Cal.App.4th 777 [fee program must support traffic

mitigation to be valid].) And current transit service levels in the Project area are almost nonexistent.

Response to Comment No. 11-6

The commentor seeks information regarding bus and rail lines that service the Project area. Information regarding daily weekday bus and rail numbers were obtained from Omnitrans' and Metrolink's websites. Currently, Omnitrans' website shows that Route 22 operates daily on weekdays between 5:00 A.M. and 10:23 P.M., with service every 30 minutes. (See http://www.omnitrans.org/routes/list/route22.shtml.) Moreover, weekday Metrolink service at the Rialto Station is nearly identical to that identified when the original Climate Change Technical Report included in the DEIR was prepared in 2009. (See http://www.metrolinktrains.com/schedules/line_station/name/San%20Bernardino/stop_id/119.html.)

The commenter appears to take issue with ENVIRON's incorporation of Project trip reductions into the URBEMIS model due to bus and Metrolink rail travel. (See Revised Climate Change Technical Report, pages 125 to 126, provided in Appendix V-B in RPDEIR Volume V (Part 2).) Nothing in CEQA precluded ENVIRON, the City's climate change expert for the Project, from assuming these benefits in the analysis. As the Revised Climate Change Technical Report notes, "Lytle Development Company [the Applicant] has committed to enhancements of the public transportation in the region." (See Revised Climate Change Technical Report, page 125, provided in Appendix V-B in RPDEIR Volume V (Part 2).) That commitment can be shown in many ways. For instance, implementation of the Project will include a park-and-ride/park-and-pool facility with covered transit benches in Neighborhood III or IV, in the proximity to the intersection of Sierra Avenue and Riverside Avenue. (See Section 4.7 of the original DEIR Volume I, Mitigation Measures 7-13 and 7-14.) The Project would also be located near an existing bus route (Omnitrans' Route 22) with connections to the Rialto Metrolink Station, thus encouraging the use of transit and fixed-rail public transportation systems.

Comment No. 11-7

While the ENVIRON report also mentions that most streets will have sidewalks and there will be some bike lanes. However, this is also true of many newer, auto dependent communities. There is no showing or explanation how the presence of these amenities will cut the number of auto trips otherwise taken by nearly one third. For example, these same amenities exist in most parts of the auto-dependent city of Irvine, California.

Response to Comment No. 11-7

The commentor states that there is no showing or explanation of how sidewalks and bike lanes will cut the number of auto trips otherwise taken by one-third. The commentor mischaracterizes the RPDEIR. As noted in the RPDEIR, the reduction in automobile trips is a result of a number of characteristics of the land form and neighborhood design, of which sidewalks and bike lanes are only a small portion. See Response to Comment Nos. 11-2 and 11-3 above. As such, it is not appropriate to isolate individual characteristics of land form design and attempt to draw substantive conclusions from it. In fact, the URBEMIS Manual provides that many aspects of trip reduction are a combination of measures. For example, the reduction associated with

transportation and neighborhood biking and walking amenities are drawn from a relationship that combines the effects. (See URBEMIS Manual, Page D-19.)

Comment No. 11-8

Most fundamentally, there is no discussion of how or whether the values and relationships in the sample equation lifted from the URBEMIS Users Guide accurately reflects the land use and transportation characteristics of the surrounding area, which is one of entrenched auto-dependency. Nor is there any discussion of how a relationship between travel behavior and density that was derived from urban, dense, and jobs and retail-rich Los Angeles is valid for Inland Empire jobs-starved residential sprawl. In summary, the GHG analysis takes a density number without properly factoring in the surrounding land use and transportation context, and disregards the other crucial factors.

Because the mobile source component is by far the largest source of GHG emissions, this lack of transparency and misapplication of the URBEMIS model is fatal to the revised GHG emissions analysis. Just as the trial court originally found in reviewing the adequacy of the GHG emissions reduction demonstration, "the discussion leaves the reader in the dark as to how the 32.6% reduction was arrived. [citations.] Substantial evidence is not demonstrated to support [the] conclusion" that GHG emissions are reduced to an insignificant level. (Judgment at p. 20.)

Response to Comment No. 11-8

The commentor states, without evidence, that the URBEMIS model is misapplied when used in the Riverside-San Bernardino metropolitan area. However, the URBEMIS model was designed by the SCAQMD for use in the entire Air District, which includes the Riverside-San Bernardino metropolitan area. See Response to Comment No. 11-4 above. There is nothing in the URBEMIS User's Guide which limits its use to portions of the District; rather just the opposite is true as noted in Response to Comment No. 11-4. And use of characteristics of land form and neighborhood design are properly accounted for in the analysis. See Response to Comment No. 11-2 above for further discussion.

Comment No. 11-9

The Project Inappropriately Takes Credit for Underlying Regulatory Changes in Assessing GHG Emissions Reductions.

In calculating the purported GHG emissions reductions attributable to the Project, the RDEIR and supporting technical reports make clear that already enacted laws mandating decreased GHG emissions from light duty autos are included for purposes of assessing Project emissions, but are omitted for purposes of the future BAU land use scenario. The ENVIROM [*sic*] Report states that the BAU scenario uses "EMFAC2007 values for the year 2030, which are based upon past vehicle emission trends and do not incorporate future regulatory actions." (ENVIRON Report at p. 123, emphasis added; See also table 5-10, at p. 130; RDEIR at p. 2-92.)

The most prominent regulatory action, AB 1493, or the Pavley law, has already been enacted and is currently being implemented statewide. As a result, autos used by drivers in the hypothetical BAU community against which the Project is compared would also be subject to its

mandates. There is consequently no reason why the Project alone should be credited with the GHG emissions benefits of AB 1493. Doing so misleads the reader into thinking that the Project is more beneficial than it really is when determining the significance of impacts.

To comply with CEQA, the GHG emissions impacts should be recalculated and reanalyzed after attributing the benefits of AB 1493 to both the Project and the hypothetical BAU land use scenario.

Response to Comment No. 11-9

The commentor states concerns about the significance threshold's adoption of the definition of BAU developed and utilized by the California Air Resources Board in implementing the California Global Warming Solutions Act of 2006 (also known as Assembly Bill 32). This particular aspect of the climate change analysis is outside the scope of the RPDEIR. The Court Ruling required revisions to the climate change analysis to clarify how the Project's reduction from BAU was calculated. The Court Ruling does not require revisions to the definition of BAU used in the significance threshold.

Importantly, this comment is not properly raised here because the Court Ruling explicitly approved of the DEIR's significance threshold that includes the California Air Resources Board's definition of BAU, which is the same significance threshold utilized in the RPDEIR: "[T]he record supports the threshold of significance used…." (Court Ruling at p. 17.) Also, the Court favorably cited *Citizens for Responsible Equitable Environmental Development v. City of Chula Vista*, 197 Cal App. 4th 327 (2011), which found utilizing a break from BAU test an acceptable climate change significance threshold and that the project's 29 percent break from BAU satisfied that significance threshold. (Court Ruling at p. 16, footnote.7.)

Please refer to Section 1.2 of this Final RPEIR for a discussion of the scope of the RPDEIR, the City's obligation to respond to comments outside the scope of the RPDEIR, and the standards for recirculation of a draft EIR due to "significant new information." The commentor offers no "significant new information" with respect to the definition of BAU used in the significance threshold within the meaning of CEQA Section 21092.1 and CEQA Guidelines Section 15088.5.

Further, the comment suggests a definition of BAU inconsistent with Assembly Bill 32 and the California Air Resources Board's Climate Change Scoping Plan. The RPDEIR adopts the definition of BAU developed and utilized by the California Air Resources Board in implementing Assembly Bill 32. The California Air Resources Board defines BAU as the greenhouse gases that would be emitted statewide in the absence of any greenhouse gas reduction measures discussed in its Climate Change Scoping Plan. In its Climate Change Scoping Plan, the California Air Resources Board compares the BAU greenhouse gas inventory it projected for the year 2020 (based on a 2002–2004 baseline period) to the greenhouse gases emitted statewide in 1990. The difference between these two inventories is the amount of greenhouse gas reductions that must be achieved for California to meet the mandate of Assembly Bill 32; returning to 1990 greenhouse gas emission levels by 2020. Once the amount of necessary greenhouse gas reductions was calculated, the California Air Resources Board crafted emission reduction measures responsive to the scope of the challenge facing the State. In sum, the California Air Resources Board's definition of BAU necessarily is static vis-à-vis emission reducing regulations and, accordingly, the RPDEIR similarly utilizes a static definition of BAU.

Notably, the regulatory action identified in the comment, AB 1493, is discussed in the Climate Change Scoping Plan and relied upon by California Air Resources Board to meet the mandate of Assembly Bill 32. As such, it is appropriate for the RPDEIR to take credit for AB 1493, and other regulatory actions identified in the Climate Change Scoping Plan, vis-à-vis the BAU scenario.

Moreover, the Court Ruling demonstrates the Court's understanding and acceptance of the DEIR's adoption of California Air Resources Board's definition of BAU as "emissions in the absence of any GHG reduction measures discussed in the 'Climate Change Scoping Plan.' (AR 4:11:1443, fn.21 & 1444-1445.)." (Court Ruling at p. 15.)

Further, if this Final RPEIR were to have gone beyond what the Court's Ruling required (i.e., clarifying how the Project's reduction from BAU was calculated) and "recalculated and reanalyzed" the Project's impact on greenhouse gas emissions and global climate change per the comment's suggestion, then the significance threshold's required reduction from BAU would decrease from 28.5 percent to 21.7 percent. As indicated above, the significance threshold's required 28.5 percent reduction is based on the difference between the State's BAU greenhouse gas inventory projected for 2020 (596 MMTCO2E, estimated using a 2002–2004 baseline period) and the State's greenhouse gas inventory in 1990 (427 MMTCO2E): 596-427 = 169; 169/596 = 28.356 percent; rounded up conservatively to 28.5 percent. As part of a recent update to the Climate Change Scoping Plan, the California Air Resources Board also updated the State's BAU greenhouse gas inventory projected for 2020:

> Since 2008, ARB has updated projected BAU emissions based on current economic forecasts (i.e., as influenced by the economic downturn) and reduction measures already in place. The BAU projection for 2020 GHG emissions in California was originally estimated to be 596 MMTCO2E. … ARB staff derived the updated emissions estimates by projecting emissions from a past baseline estimate using three-year average emissions, by sector, for 2006-2008 and considering the influence of the recent recession and reduction measures that are already in place. Growth factors specific to each of the different economic sectors were used to forecast emissions to 2020. This three-year average of known emissions dampened unusual variations in any single year that would make the baseline year unrepresentative for forecasting. Considering the updated BAU estimate of 507 MMTCO2E by 2020, a 16 percent reduction below the estimated BAU levels would be necessary to return to 1990 levels (i.e., 427 MMTCO2E) by 2020. (California Air Resources Board, Final Supplement to the AB 32 Scoping Plan Functional Equivalent Document, at 10-11 (August 24, 2011), available at http://www.arb.ca.gov/cc/scopingplan/document/final_supplement_to_sp_fed.pdf.)

When the "reduction measures already in place" (i.e., Pavley I and the 20 percent Renewables Portfolio Standard) are removed, which would ensure consistency with the Final RPEIR's climate change analysis, the BAU forecast for 2020 decreases to 545 MMTCO2E due to the economic downturn alone:

> The 2020 emissions baseline used in the 2008 Scoping Plan is 596 MMTCO2e. This estimate of statewide 2020 emissions was developed using pre-recession

> 2007 IEPR data and reflects GHG emissions expected to occur in the absence of any reduction measures in 2010. ARB staff re-evaluated the baseline in light of the economic downturn and updated the projected 2020 emissions to 545 MMTCO2e. (California Air Resources Board, Status Of Scoping Plan Recommended Measures, at 1, available at http://www.arb.ca.gov/cc/scopingplan/status_of_scoping_plan_measures.pdf; *see also id.* at Attachment (illustrating the calculations in graphical form).)

Considering the updated projection of 2020 emissions of 545 MMTCO2E by 2020, a 21.7 percent reduction below the estimated BAU levels would be necessary to return to 1990 levels (i.e., 427 MMTCO2E) by 2020: 545-427 = 118; 118/545 = 21.65 percent; rounded up conservatively to 21.7 percent. Accordingly, if this Final RPEIR were to have gone beyond what the Court's Ruling required and "recalculated and reanalyzed" the Project's impact on greenhouse gas emissions and global climate change, the Project would only have needed to demonstrate a 21.7 percent reduction from BAU to be deemed to have an insignificant impact.

ENVIRON, the City's climate change expert for the Project, calculated the Project and BAU inventories using the California Emissions Estimator Model (CalEEMod), which was released after the DEIR's GHG inventories were prepared. CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions associated with both construction and operations from a variety of land use projects. CalEEMod was developed in collaboration with the air districts of California. Default data (e.g., emission factors, trip lengths, meteorology, source inventory, etc.) have been provided by the various California air districts to account for local requirements and conditions. The model is considered by the South Coast Air Quality Management District (SCAQMD, caleemod.com) to be an accurate and comprehensive tool for quantifying air quality and GHG impacts from land use projects throughout California. ENVIRON's CalEEMod analysis indicates that the Project reduces GHG emissions 37 percent below BAU, which is far greater than the 21.7 percent required for compliance with AB 32. (See Appendix VI-C of this Final RPEIR.) As such, if the Project's impact on GHG emissions and global climate change were to be "recalculated and reanalyzed," the impact would be considered less than significant.

Comment No. 11-10

The RDEIR Uses an Improper Threshold of Significance to Assess GHG Impacts.

The threshold of significance for evaluating the Project's GHG emissions is articulated as follows:

> "Impede the State's ability to achieve the reduction to 1990 levels in GHG emissions required by California Global Warming Solutions Act of 2006 (AB 32). An impediment to the achievement of the GHG reduction goals of AB 32 would occur if Project-wide emissions are not reduced to achieve a 28.5 percent reduction of GHG emissions over 2020 forecasted BAU conditions." (RDEIR at p. 2-30.)

The implementation period for the Project spans a 20-year period commencing in 2014, meaning that the Project will not be built out and occupied until approximately 2034, about 14 years *after* the year 2020 emissions reduction goal of AB 32. This means that standards the Legislature deemed appropriate for the year 2020 are being arbitrarily applied to activities that will commence as late as 2034. This is absurd on its face.

Indeed, the State of California has recognized that AB 32 is only a first step in regulating GHG emissions, and that further reductions are needed urgently. For example, the Governor's Executive Order S-3-05 provides

> "That the following greenhouse gas emission reduction targets are hereby established for California: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; by 2050, reduce GHG emissions to 80 percent below 1990 levels"

For this reason, using a 2020-based standard for a project that will largely be built and come into operation well after that year could actually be counter-productive. The City therefore abused its discretion in setting this threshold for the Project.

Although other thresholds may also be appropriate, EHL suggests interpolating the 2050 standard of reductions equaling 80% below 1990 levels contained in Governor Schwarzenegger's Executive Order. Interpolating for the year 2034 would result in a goal of about 37% below 1990 levels by the year 2034.

The GHG emissions analysis must be re-done after a threshold method that is defensible for projects implemented in 2034 is developed.

Response to Comment No. 11-10

The comment criticizes the RPDEIR's use of consistency with Assembly Bill 32, measured via the Project's ability to achieve a 28.5 percent reduction of greenhouse gas emissions over 2020 forecasted BAU conditions, as a significance threshold. As noted above in Response to Comment No. 11-9, this comment is not properly raised here because the Court explicitly approved of the DEIR's significance threshold, which is the same significance threshold utilized in the RPDEIR: "[T]he record supports the threshold of significance used…." (Court Ruling at p. 17.) Also, the Court favorably cited *Citizens for Responsible Equitable Environmental Development v. City of Chula Vista*, 197 Cal App. 4th 327 (2011), which found utilizing a break from BAU test an acceptable climate change significance threshold and that the project's 29 percent break from BAU satisfied that significance threshold. (Court Ruling at p. 16, footnote.7.) With regard to the target set by Executive Order S-3-05 of reducing greenhouse gases to 80 percent below 1990 levels by 2050, it is important to note that, in contrast to Assembly Bill 32's mandate to return to 1990 emission levels by 2020, the 2050 target is not mandated by law. The 2050 target is only an aspirational goal. But it also should be noted that the California Air Resources Board's Climate Change Scoping Plan recognizes that Assembly Bill 32 establishes an emissions reduction trajectory that will allow California to achieve the 2050 target: "These [greenhouse gas emission reduction] measures also put the state on a path to meet the long-term 2050 goal of reducing California's greenhouse gas emissions to 80 percent below 1990

levels. This trajectory is consistent with the reductions that are needed globally to help stabilize the climate." (Climate Change Scoping Plan at p. 15.)

Comment No. 11-11

Traffic Assumptions Used for the Traffic and GHG Analyses Are Internally Inconsistent.

In a footnote, the RDEIR acknowledges that for purposes of estimating traffic impacts, Crain and Associates estimates 47,545 added daily vehicle trips for the Project, while the GHG emissions analysis assumes 49,946 added weekday vehicle trips. (RDEIR at p. 2-95, n. 143.) Both cannot be right, and the RDEIR makes no effort to reconcile the two figures.

This discrepancy casts further doubt on the reliability of the methods used to assess both the traffic and GHG emission impacts.

Response to Comment No. 11-11

The commentor raises concerns about the use of Crain and Associates (C&A) and URBEMIS models for calculation of added daily vehicle trips related to the Project. However, the differences in methodology and output are relatively minor. Moreover, the issues raised in the comment are properly addressed in the RPDEIR and GHG analysis.

As stated in the Comment, the RPDEIR provides trip generation rates based on use of the URBEMIS methodology. For the "Mitigated Scenario," the GHG analysis uses 3,409 units of Single-Family and 4,998 of Condo/Townhouse housing. Based on the URBEMIS file outputs, the trip rates for the Project are 6.86 trips per day per unit for Single-Family, and 5.31 trips per day per unit for Condo/Townhouse. (See RPDEIR Volume V (Part 1), Table 2.1-37.) According to URBEMIS, a total of 49,946 added trips per day are associated with the Mitigated Scenario. (*Id*.) The number of units and housing type for each phase of the Mitigated Scenario are based on the Lytle Creek Specific Plan. (*Id*. at fn. 1.) The Mitigated Scenario also takes into account multiple factors, include housing density, mixed uses, local serving retail, mass transit and pedestrian and bicycle features of the Project. (*Id*. at fn. 2.)

In comparison, the site generation values for C&A were taken from the computerized East Valley Transportation Model (EVTM) used for the Project's traffic analysis. (See RPDEIR Volume V (Part 2), Appendix V-C-A, page 3.) The EVTM model was run by the Southern California Association of Government (SCAG) Inland Empire office and was an appropriate modification of their RivSan Model used in order to reflect the Project. (*Id*.) The RivSan Model was model developed for the subject area and used to project traffic volumes for the San Bernardino County CMP. This model was developed from the regional model which SCAG uses for regional analyses. (*Id*. at p. 2.) The regional model is accepted for air quality and other regional analyses, and utilizes the federally issued Urban Transportation Planning Software (UTPS) package. (*Id*.)

The commentor's first issue is addressed in Section 2.0 of the RPDEIR in footnote 143:

> The 49,946 added weekday trips were predicted using the URBEMIS model. This URBMIS-based value was used in this analysis only to establish the percent trip reduction relative to the low-density unmitigated scenario also modeled in

> URBEMIS. The EVTM model estimate of 47,545 added daily trips provided by C&A was used to calculate project emissions. *Note that the difference between the two methodologies is less than 5 percent*. (Emphasis added.)

As demonstrated above, the RPDEIR assumes the larger value of 49,946 added weekday trips based on the use of the URBEMIS model and not the smaller value of 47,545 added daily trips provided by C&A. By accepting a larger value for added daily trips, the GHG analysis in the RPDEIR is conservative. Moreover, the difference in predicted added weekday trips from the Project between the two methodologies is less than 5 percent. Even if the smaller value of 47,545 added daily trips provided by C&A was used, the calculated break from BAU would not change significantly.

The relatively minor difference in added weekday trips set forth in the RPDEIR does not cast "doubt on the reliability of the methods used to assess both the traffic and GHG emission impacts." On the contrary, the URBEMIS and C&A methodologies are in agreement by over 95 percent regarding the generation of predicted added weekday trips from the Project. A difference of less than 5 percent is acceptable when comparing outputs from different models, as it is the *de minimis* threshold for quantification.

The comment that the RPDEIR "makes no effort to reconcile the two figures" is also erroneous. The differences between the C&A and URBEMIS methodologies were addressed in the RPDEIR. For example, the traffic numbers reported by C&A were factored into the URBEMIS methodology, as set forth in the RDEIR at foot note 144:

> The analysis relies on the traffic numbers reported by C&A. To estimate the reductions due to the traffic mitigation measures, the trip generation in URBEMIS with and without the mitigation measures was calculated. *The resulting percent reduction was used to scale the numbers provided by C&A to estimate the mitigated VMT consistent with the C&A analysis*. (Emphasis added.)

Both the C&A and URBEMIS methodologies are acceptable for use in calculating added weekday trips. The RPDEIR assumes the larger value of 49,946 added weekday trips based on the use of the URBEMIS model and is conservative. Even if the smaller value of 47,545 added daily trips provided by C&A was used, the calculated break from BAU would not change significantly. Moreover, the differences between the two methodologies, and the traffic numbers reported by C&A were factored into the URBEMIS methodology, as set forth in the RPDEIR.

<u>Comment No. 11-12</u>

The RDEIR's Traffic Analysis Fails to Employ a Consistent Baseline Premised on Existing Conditions in Violation of Sunnyvale.

A core CEQA requirement is that a Project's impacts must be measured against existing conditions, generally defined in the issuance of the Notice of Preparation of the EIR. In Sunnyvale West Neighborhood Assn. v. City of Sunnyvale City Council (2010) 190 Cal.App.4th 1351, the court invalidated an EIR for using hypothetical future traffic conditions as the baseline against which to measure the traffic impacts of a project. The trial court invalidated the EIR here for the same reason.

In revising the EIR to remedy the Sunnyvale problem, the City has again committed the legal error of failing to use existing conditions as the baseline against which to measure Project impacts on traffic. Instead of using existing 2011 conditions as required by Sunnyvale, the RDEIR uses 2011 only for the transportation infrastructure component of the existing environmental setting. For the levels of existing traffic against which the trips from the Project would be added, the City reaches nearly 5 years back in time to the year 2007. There is no explanation or justification provided for this internal discrepancy.

Although Sunnyvale invalidated the improper reliance on hypothetical future conditions, the same risk of misleading the public exists when historical conditions are used in lieu of existing conditions to assess a project. Intervening growth and impacts may not be accounted for. Moreover, if any date in the past could be used, then the analysis could be subject to manipulation to achieve a desired outcome. That is particularly true here, where the supply of transportation infrastructure has been maximized by updating the baseline to 2011, but where the traffic demand for that infrastructure may be potentially understated by holding the demand constant at 2007 rates. The RDEIR must be revised to employ a consistent baseline year.

Response to Comment No. 11-12

The commentor asserts that the "Sunnyvale" Analysis (Section 2.2 and Appendix V-C-A of the RPDEIR) failed to use existing conditions as the baseline against which to measure Project impacts on traffic. That is incorrect.

Section 15125(a) of the CEQA Guidelines specifies that in evaluating a project's significant impacts on the environment, a lead agency "should normally limit its examination to changes in the existing physical conditions in the affected area as they exist at the time the notice of preparation is published, or where no notice of preparation is published, at the time environmental analysis is commenced. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant." Environmental analysis for the Project began in 2007, and the traffic counts for existing conditions were completed in the first three months of 2007. Those existing conditions were identified in the traffic impact analysis in the original EIR.

The Court Ruling held that the City failed to assess the Project's traffic impacts on existing conditions, as required by the Sunnyvale decision. The Court Ruling did not say that the City needed to alter its formulation of existing conditions in the traffic analysis or issue a new NOP for the RPDEIR. Accordingly, it was appropriate for the City to use the existing conditions estimated in the original DEIR as those against which to assess Project traffic impacts under the Sunnyvale case.

Furthermore, the commentor is incorrect in stating that the RPDEIR uses 2011 as the "transportation infrastructure component of the existing environmental setting." The "Sunnyvale" Analysis determined that, in assessing Project impacts against existing (2007) conditions, sixteen study intersections would be significantly impacted prior to mitigation. To assess what mitigation measures would be needed to reduce impacts to less than significant levels, C&A, the City's traffic expert for this Project, conducted field checks in November 2011 to confirm the roadway network improvement status. A new model run was performed, incorporating into the roadway network the added routes provided by the current (2011) freeway and roadway system

conditions. As reflected by the modeling procedures, with the implementation of the SR-210/SR-30 freeway gap closure project, the traffic flow in the area has shifted from surface streets to the freeway system. These volumes were used to determine traffic impacts directly attributable to the Proposed Project. As shown in Table 2 of the "Sunnyvale" Analysis, 10 of the 16 significantly impacted study intersections under the existing (2007) conditions would be fully mitigated by the already completed freeway and roadway system improvements. Accordingly, 2011 physical conditions are relevant only to the degree that some mitigation can be moved into the already completed category and thereby no longer require Project responsibility.

Furthermore, the commentor voices concern that using "historical," rather than "existing" conditions risks misleading the public because historical conditions may not account for intervening growth and impacts, and the analysis could be subject to "manipulation to achieve a desired outcome." This concern is speculative and does not constitute substantial evidence under CEQA. Here, the Project "Sunnyvale" Analysis properly used existing (2007) conditions, and assessed how the 2011 roadway network could mitigate Project impacts.

Comment No. 11-13

Final Remarks

Thank you for your consideration of these comments. As always, EHL seeks to engage in a productive dialogue to find mutually acceptable solutions for all stakeholders. Should you wish to discuss the Project or any of the matters raised in EHL's or SLCW's letters, please contact the undersigned.

Response to Comment No. 11-13

This comment is noted for the record and will be forwarded to the decision makers.

Comment Letter No. 11 (continued)

Developers Research

To: Dan Silver, Endangered Habitat League

From: Barry Gross, Developers Research

RE: CBRE Report, December 2011

Date: April 2, 2012

Comment No. 11-14

At your request, Developers Research reviewed the *Financial Feasibility Analysis of the Lytle Creek Ranch Specific Plan Project and Alternatives to the Project Discussed in the Lytle Creek Ranch Specific Plan EIR* ("RDEIR") by CBRE Consulting dated December 2011. The purpose of this report is to compare various alternatives for development of this 2,447 acre parcel.

The Financial Feasibility Analysis states that it contains information provided to CBRE Consulting by: CBRE Valuation and Advisory Services, the Otte Berkeley Group, HM-2, Marketing Development and Reeb Development Consulting. These independent reports have been combined by CBRE Consulting to support the basis of their findings. This information has not been made available as part of the RDEIR or its appendices.

On Page iii of the letter from CBRE Valuation and Advisory Services to CBRE Consulting, there is a disclaimer titled Extraordinary Assumptions and Hypothetical Conditions. This disclaimer states,

> *"This is a Restricted Appraisal Report that is intended to comply with reporting requirements set forth under Standards Rule 2–2 (c) of the Uniform Standards of Professional Appraisal Practice for a Restricted Appraisal Report. As such, it does not include discussions of the data, reasoning, and analysis that we used in the appraisal process to develop the appraiser's opinion of value. Supporting documentation concerning the data, reasoning, and analyses is retained in the appraiser's file. The information contained in this report is specific to the needs of the client and for the intended use stated in this report. The appraiser is not responsible for unauthorized use of this report.*

Developers Research has pointed out several areas in our accompanying discussion where CBRE Consulting appears to have internal inconsistencies in their treatment of the data. However, as stated in the quotation above, supporting documentation has been withheld, largely precluding substantive critique of the conclusions reached in the document.

Response to Comment No. 11-14

This comment is a duplicate of Comment No. 10-29; please refer to Response to Comment No. 10-29.

Comment No. 11-15

The report contains financial analyses for 5 project alternatives including:

1. Proposed Project
2. No Project / Existing Zoning
3. Avoidance of SBKR / LBV-Occupied Habitat
4. Avoidance of Riversidian Alluvium Fan Sage Scrub (RAFSS)
5. Avoidance of the Jurisdictional Waters

Response to Comment No. 11-15

This comment is a duplicate of Comment No. 10-30; please refer to Response to Comment No. 10-30.

Comment No. 11-26

Financial Feasibility

The report makes an argument in favor of the proposed specific plan based on financial feasibility stating:

> *"In order to obtain financing commitments for these high-risk projects, commercial developers must be able to demonstrate potential return on total capital investment of 15 to 25 percent to offset the significant risks related to entitlements, construction cost overruns, interest rate changes, capitalization rate changes and ups and downs in the local, national and international economy during the 15 to 20 year construction period that will affect future commercial and residential land prices."*

Figure 1 below is a summary of the IRR conclusions for each project shown in the CBRE Consulting report.

Figure 1

Project (Millions)	**Gross Revenues**	**Net Dev. Costs**	**Developer Cash Flow**	**Developer IRR**
Proposed Project	$654	$340	$314	15.2%
No Project/Existing	$234	$231	$3	0.3%
Avoidance of SBKR	$389	316	$74	3.8%
Avoidance of Riversidian Alluvium Fan Sage Scrub (RAFSS)	$396	$306	$89	7.1%
Avoidance of Jurisdictional Waters	$311	$253	$58	5.3%

Based on the table reproduced above (Figure 1), CBRE concluded that the only feasible project for the 2,447 acre parcel is the proposed specific plan as it is the only project with an IRR greater than 15%.

Developers Research reviewed the various cash flows that produced the IRR figures listed above and compiled comments and questions on various aspects of the document. These issues are discussed below.

Response to Comment No. 11-16

This comment is a duplicate of Comment No. 10-31; please refer to Response to Comment No. 10-31.

Comment No. 11-17

Commercial Revenue

The Proposed Project cash flow shows a total of $38.1 Million in revenues from Retail Town Center on a total of 849,000 sf. This equates to an average sales price of $44.81/sf. For sake of comparison, the SBKR Avoidance alternative shows $23.3 Million in Retail Town Center sales on a total of 820,000 sf. This equates to an average sales price of $28.41/sf.

Decreasing the Proposed Project's Commercial sales price to that of the other projects reduces the IRR by approximately 0.25% to 14.95%

Other alternatives commercial sales prices are similarly deflated relative to the Proposed Project. For comparison, a $44.81/sf Commercial sales price equates to approximately 150% of the prices for comparable land currently achieved in Irvine, CA, which is a higher priced market than Rialto, CA.

The RDEIR contains no explanation why the Commercial sales price per square foot increases dramatically only for the Proposed Project.

Response to Comment No. 11-17

This comment is a duplicate of Comment No. 10-32; please refer to Response to Comment No. 10-32.

Comment No. 11-18

Commercial Revenue Inflation Rate

The Proposed Project has an anomalous Commercial Revenue Inflation Rate, which starts at 100% and increases to 170.24% by 2029. All other projects start at 100% and increase to 155.97% by 2029.

Decreasing the Commercial Revenue Inflation Rate to that applied to the Project alternatives reduces the Proposed Project IRR by approximately 0.1%.

The RDEIR contains no explanation why the CBRE Commercial Revenue Inflation Rate is 3% for the Proposed Project while it is 2.5% for all other projects.

Response to Comment No. 11-18

This comment is a duplicate of Comment No. 10-33; please refer to Response to Comment No. 10-33.

Comment No. 11-19

Commerical [sic] Revenue Conclusions

It appears the commercial revenues between the Proposed Project and Project Alternatives have not been given equal treatment in the CBRE Analysis. The result of this unequal treatment is a total of approximately 0.35% in additional IRR being attributed to the Proposed Project.

With the Commercial Revenues being treated equally between projects, the Proposed Project would have an IRR of 14.85%, below the investment threshold defined by CBRE.

Response to Comment No. 11-19

This comment is a duplicate of Comment No. 10-34; please refer to Response to Comment No. 10-34.

Comment No. 11-20

Inconsistent Unit Counts

Developers Research compared the unit count for the Proposed Project to the detail provided in *Volume 1 Draft Environmental Impact Report State Clearinghouse No. 2009061113 Lytle Creek Specific Plan* and there is an inconsistency in Neighborhood III on Page 2-36. The Specific Plan states that Neighborhood III has 3,329 units but summing the individual line items yields 3,203 units. This arithmetic error is pervasive throughout the documents and into the CBRE report.

If the detail in the Specific Plan is correct, the Proposed Project should have 8,281 units instead of 8,407 units. For the sake of this memorandum, Developer's Research has assumed that this was an arithmetic error and the Proposed Project should have 8,281 units.

The obvious result of this error is that additional revenue is attributed to the Proposed Project. $3.5 million in Blue Top value or $7.3 million in Finished Lot value has been added because of these 126 extra units.

The addition of 126 units to the Proposed Project increases the IRR by approximately 0.2%.

Response to Comment No. 11-20

This comment is a duplicate of Comment No. 10-35; please refer to Response to Comment No. 10-35.

Comment No. 11-21

Backbone Improvement Costs

Table 2 on page 20 of the appraisal titled, "Summary Comparison of Development Cost" includes estimated backbone costs prepared by the Otte-Berkeley Group. This table (Figure 2) includes backbone cost estimates for the various alternatives in the project, which may be summarized as follows:

Figure 2

Project	Backbone Costs	Units	Cost per Unit	Residential Acres	Cost per Residential Acre
Proposed Project	$216,048,588	8,281	$25,700	940	$229,800
No Project/Existing	$132,915,205	2,215	$60,000	940	$141,400
Avoidance of Riversidian Alluvium Fan Sage Scrub (RAFSS)	$137,128,640	4,873	$28,100	566	$242,300
Avoidance of Listed Species	$198,179,345	7,484	$26,500	841	$235,000
Waters of US and State	$191,776,660	5,846	$32,800	636	$301,500

Developers Research has extensive experience preparing budgets for large-scale developments such as Lytle Creek and has reviewed over 8,000 different projects; however, we only were provided with specific plan level documents that did not indicate the type and size of specific improvements. As a result, analysis of these costs is not possible with the data provided. Our standard operating procedure for reviewing costs is to review maps and documents that indicate the specific quantity and specific location of each improvement. At a summary level, it appears that the Backbone Costs for the Proposed Project are too low and the alternative projects are too high; however, it is difficult to make an informed opinion without the detailed cost assumptions and review of a preliminary improvement plan. Generally, estimates of development costs before detailed drawings are made on a per-unit or acre basis, and the costs provided by Otte-Berkeley group are not linearly related to either acres or units.

Developers Research would like the opportunity to review the Otte-Berkeley Group's detailed cost to make an informed opinion on the reasonableness of these Backbone costs.

Response to Comment No. 11-21

This comment is a duplicate of Comment No. 10-36; please refer to Response to Comment No. 10-36.

Comment No. 11-22

Impact Fees

The Otte-Berkeley Group included Impact Fees for the Proposed Project of approximately $21.3 million. Developers Research contacted the appropriate public agencies to obtain their impact

fee schedules and our estimate of the Impact Fees for the proposed project is approximately $175 million. Figure 3 is the schedule of the impact fees that we obtained.

Figure 3

Agency	Unit	Description	Amount
Rialto Water Connection Fee 5/8 - 3/4 Inch - Displacement	DU	Detached	$5,100.00
Rialto Wastewater Collection Fee	DU	Detached	$1,200.00
Rialto Wastewater Connection Fee	DU	Detached	$2,170.00
Rialto General Facilities Fee	DU	Detached	$247.00
Rialto Open Space Fee	DU	Detached	$606.82
Rialto Open Space Fee	DU	Attached	$137.81
Rialto Traffic Fee	DU	Detached	$2,775.77
Rialto Traffic Fee	DU	Attached	$1,923.03
Rialto Park Fee	DU	Detached	$2,102.32
Rialto Park Fee	DU	Attached	$1,977.97
Rialto Library Fee	DU	Detached	$65.96
Rialto Library Fee	DU	Attached	$51.51
Rialto Law Enforcement Fee	DU	Detached	$422.00
Rialto Law Enforcement Fee	DU	Attached	$988.00
Rialto Fire Facilities Fee	DU	Detached	$390.00
Rialto Fire Facilities Fee	DU	Attached	$413.00
Rialto Storm Drainage Fee	DU	Detached	$3,051.00
Rialto Storm Drainage Fee	DU	Attached	$769.00
Rialto Unified School District	SF		$3.62
Total fees for 8,281 units			$175,500,000

When we see large discrepancies such as this one in impact fees, it usually relates to the definition of the product being delivered (Blue Topped lots vs. Finished Lots). Most often, Impact Fees, although paid at the purchase of building permits, are included in the definition of a finished lot. Some firms will only include the Storm Drainage fees if providing Blue Topped lots, but if this were the case the total should be $18.5 million. Based upon the information provided to us, we are unable to determine which of the impact fees included in the Otte Berkeley Group budget of $21.3 million are included in the list above.

Developers Research would like the opportunity to review the Otte-Berkeley Group's fee schedule to make an informed opinion on the reasonableness of these costs.

Response to Comment No. 11-22

This comment is a duplicate of Comment No. 10-37; please refer to Response to Comment No. 10-37.

Comment No. 11-23

Representative Comments on Costs

In Table 1 on Page 19 titled "Development Cost for Project by Phase" there are high-level budgets for the various projects. Without having the detailed backup prepared by the Otte-Berkeley Group, we are unable to compare "apples to apples". However, we can comment on the reasonableness of their estimate at a summary level. We have extracted certain line items from this budget, which are shown below.

[Figure 4]

Extracted Cost Estimate Items				
Description	**Proposed Project**	**No Project Alternative**	**Avoidance of RAFSS Area**	**Avoidance SB Kangaroo Rat**
Units	8,281	2,215	4,872	7,485
Civil Engineering	$5,427,000	$5,020,000	$4,692,000	$5,751,000
Per Unit	*$655*	*$2,266*	*$963*	*$768*
Impact Fees	$21,325,040	$7,030,868	$11,224,318	$18,673,565
Per Unit	*$2,575*	*$3,174*	*$2,304*	*$2,495*
Grading	$46,043,229	$30,761,308	$21,988,080	$41,420,255
Per Unit	*$5,560*	*$13,888*	*$4,513*	*$5,534*
Storm Drain / Levee	$48,032,091	$38,653,295	$35,505,705	$49,630,691
Per Unit	*$5,800*	*$17,451*	*$7,288*	*$6,631*
Special Amenities	$30,704,125	$14,574,125	$8,500,000	$23,074,125
Per Unit	*$3,708*	*$6,580*	*$1,745*	*$3,083*
Parks	$15,173,750	$1,007,500	$15,173,750	$14,573,750
Per Unit	*$1,832*	*$455*	*$3,114*	*$1,947*

Response to Comment No. 11-23

This comment is a duplicate of Comment No. 10-38; please refer to Response to Comment No. 10-38.

Comment No. 11-24

Civil Engineering Costs:

In the table above (Figure 4), the civil engineering budget per dwelling unit varies dramatically. They range from $655 per unit for the Proposed Project to as much as $2,266 for the No Project Alternative, a variance of more than 3 times. In our experience, civil engineering costs for projects over 2,000 units are usually estimated at approximately $2,000 per unit. The scope of work for this figure would include preparation of all tentative tract maps and subsequent improvement drawings. Our database indicates that when the project exceeds approximately 2,000 units, the cost for providing the civil engineering services is directly proportional to the number of lots included in the project.

Response to Comment No. 11-24

This comment is a duplicate of Comment No. 10-39; please refer to Response to Comment No. 10-39.

Comment No. 11-25

Grading Costs:

The Grading line item includes a cost of $46 million for the Proposed Project and over $41 million for the avoidance of the San Bernardino Kangaroo Rat Alternative (SBKR). In reviewing the disturbed acres, the SBKR alternative disturbs a total of 937 acres whereas the proposed project disturbs approximately 1,540 acres. Although we have not been provided with the data supporting these cost estimates, exactly how a 40% reduction in disturbed area would only yield a 10% reduction in grading costs is not explained; these costs are usually, on average, linearly related to disturbed acres.

Response to Comment No. 11-25

This comment is a duplicate of Comment No. 10-40; please refer to Response to Comment No. 10-40.

Comment No. 11-26

Levee Costs:

The levee is a substantial line item in each of the project alternatives (greater than $35 million). Without having any preliminary design information, we cannot form an informed opinion on the reasonableness of these costs. Generally, levees such as the one proposed at Lytle Creek are intended to raise the proposed development above the 100 year flood level. Developers Research reviewed FEMA (Federal Emergency Management Agency) Map 06071C7920H, which depicts the 100 year flood zone for the Lytle Creek area and it appears not all of the subject property is within the 100 year flood zone. Therefore, it is possible if the development envelope is limited to areas outside of the 100 year flood zone; this cost could potentially be avoided. While we are not licensed civil engineers or engineering geologists, we recommend that a formal study be conducted to assess a different development option, one which avoids building the levee.

Large, up-front backbone costs such as the levee proposed at Lytle Creek drives down the IRR of smaller projects because the major infrastructure cost is distributed over a smaller number of units. Also, the up-front nature of the cost requires the developer to borrow more money increasing financing costs and extends revenue events until later in the development timeline. All of these factors negatively affect a project's IRR.

We believe that not all potentially feasible development options have been considered. It is possible that a smaller project which specifically avoids the levee costs would provide the developer with an IRR of over 15%.

Response to Comment No. 11-26

This comment is a duplicate of Comment No. 10-41; please refer to Response to Comment No. 10-41.

Comment No. 11-27

Special Amenities:

The Special Amenities are a particularly important aspect of the Financial Feasibility analysis because they affect both development costs and revenues. Below is a table reproduced from the report that is based upon the marketing report prepared by HM2 Marketing Development.

Figure 5

Project	Impact of Amenities on Home Prices
Proposed Project	+8.0%
Avoidance of Jurisdictional Waters	+4.9%
Avoidance of RAFSS Areas	+2.2%
Avoidance of SBKR / LBV Habitat	-6.0%
No Project/Existing Zoning	-8.4%

This table (Figure 5) shows the percentage increase (or decrease) in home prices based on amenities included (or not included) in the various development alternatives. This becomes extremely significant when the size of the project is as large as Lytle Creek. Referring to Figure 1 above, the Proposed Project shows $654 Million in Finished Lot Revenues and Figure 5 shows an 18.4% swing in home prices (between the Existing Zoning and Proposed Project).

This potentially provides a revenue swing of $120 million.

Response to Comment No. 11-27

This comment is a duplicate of Comment No. 10-42; please refer to Response to Comment No. 10-42.

Comment No. 11-28

Knowing the importance of the Amenity score applied by HM2, we researched this issue further. The Otte-Berkeley Group included special amenity costs for all of the project alternatives that range from $30.7 million for the proposed Project to $8.5 million for the RAFSS avoidance program as shown on the Extracted Cost Estimate Table below (Figure 6). Again, the lack of detail makes it impossible to make anything more than summary comments; however, we calculated per unit costs budgeted by Otte-Berkeley Group for amenities and other improvements that HM2 valued highly in their analysis.

Figure 6

Budget Items that will affect Home Prices (according to HM2)				
Description	**Proposed Project**	**No Project Alternative**	**Avoidance of RAFSS Area**	**Avoidance SB Kangaroo Rat**
Units	8,281	2,215	4,872	7,485
Premium Entry	$780,000	$400,000	$375,000	$780,000
Per Unit	***$94***	***$181***	***$77***	***$104***
Perimeter Upgrade	$3,714,500	$3,199,000	$3,118,000	$3,714,500
Per Unit	***$449***	***$1,444***	***$640***	***$496***
Enhanced Landscaping	$6,129,205	$3,530,305	$5,969,655	$3,648,408
Per Unit	***$740***	***$1,593***	***$1,225***	***$487***
Streets With Medians and Parkways	$7,668,328	$7,114,793	$7,940,642	$7,339,048
Per Unit	***$926***	***$3,212***	***$1,629***	***$980***
Parks	$15,173,750	$1,007,500	$15,173,750	$14,573,750
Per Unit	***$1,832***	***$455***	***$3,114***	***$1,947***
Special Amenities	$30,704,125	$14,574,125	$8,500,000	$23,074,125
Per Unit	***$3,707***	***$6,579***	***$1,744***	***$3,083***

Reviewing the table above (Figure 6), many of the gross line items are higher in the Proposed Project; however, many of the *per unit costs are lower*, oftentimes substantially lower. We are therefore unsure why HM2 assigned some of the amenity values that they did (pp. 24-33 HM2 Report).

Response to Comment No. 11-28

This comment is a duplicate of Comment No. 10-43; please refer to Response to Comment No. 10-43.

Comment No. 11-29

For example, the Proposed Project received 7 out of 9 for "Private Recreational Facilities" and the No Project Alternative received a 1.

Because the No Project Alternative has a higher per unit cost for Special Amenities (nearly double at $3,707 vs. $6,579) the data provided does not show where the $14,574,125 budgeted for Special Amenities is being spent.

As stated above, this is extremely significant because not only is a large cost introduced; the No Project Alternative seems to have been denied its revenue benefit from the Special Amenities included in the budget. Similarly, the Avoidance of SBKR plan also received 1 out of 9 in

"Private Recreational Facilities" and has $23,074,125 budgeted for Special Amenities. These are only two examples, and, as shown in the table above, there are many other instances of the per unit prices being higher in the budgets but inexplicably these projects are receiving a revenue penalty rather than a benefit.

We believe the Marketing Scores should reflect *per unit* or *per acre* costs that are in the Otte-Berkeley budget because many development costs are estimated to be linearly related to unit count or disturbed acres. The data provided do not justify why the project alternatives do not receive equal treatment when it comes to the amenity scores applied. Reviewing the per unit costs in Figure 6 indicates that many of the Amenity scores in the project alternatives should be higher. The Project Alternatives are therefore not receiving the revenue benefits associated with the amenities in their respective budgets.

There is a disconnect between the amounts budgeted by the Otte-Berkeley Group and the Amenity ratings received by the project alternatives.

Response to Comment No. 11-29

This comment is a duplicate of Comment No. 10-44; please refer to Response to Comment No. 10-44.

Comment No. 11-30

Master Planned Developments

The definition of a "true" master planned community is discussed on pg. 14 of the HM2 Marketing Report. They determined that two of the project alternatives did not fall into this category: Existing Zoning and SBKR Avoidance. This led HM2 to subtract 1.5 points from their Amenity Score. This subtraction is much more important than it seems on the surface. In reality, they have subtracted 1.5 ***average*** points which equates to ***6%*** decrease in sales value. This amounts to a loss of $24.8 million in revenues, and, according to the definition of a master planned community, the Otte-Berkeley group has adequate funds budgeted to satisfy most of the requirements.

Based on the definition of a master planned community and the budgets provided, it seems that the moniker "true master planned community" is not being distributed fairly between the project alternatives.

Response to Comment No. 11-30

This comment is a duplicate of Comment No. 10-45; please refer to Response to Comment No. 10-45.

Comment No. 11-31

Figure 7 below shows the total Gross Sales for the No Project / Existing Zoning alternative. According to Figure 5, if the amenities included in the proposed project were added to the existing project, it would receive an 18.4% swing in home values amounting to a total of $156,000,000 in increased sales prices. Furthermore, as shown in Figure 6, it seems that many

of these improvements are already budgeted. On a per-unit basis, only the Parks budget would need to be increased by $1377/unit for a total of $3,050,000.

Following the CBRE logic, a $3 million dollar expense will provide $156 million in revenue benefit to the Existing Zoning. If this is true, any reasonable developer would invest the additional money.

[Figure 7]

	Units	Proposed Plan Price	Total Sales	Deflated Existing Zoning Price	Total Sales
SFR - 1	1,887	$450,000	$849,150,000	$376,200	$709,889,400
SFR - 2	328	$325,000	$106,600,000	$271,700	$89,117,600
SFR - 3	0	$250,000	$0	$209,000	$0
MDR	0	$175,000	$0	$146,300	$0
HDR	0	$150,000	$0	$125,400	$0
Total	2,215		$955,750,000	$360,726	$799,007,000

Response to Comment No. 11-31

This comment is a duplicate of Comment No. 10-46; please refer to Response to Comment No. 10-46.

Comment No. 11-32

Similarly, for the Avoidance of SBKR alternative, enhanced landscaping could be increased by $253/unit and Special Amenities by $624/unit for a total of $6.6 million to reach the equivalent of the Proposed Project. Furthermore, cost savings could be refunded to the SBKR project if some of the line items are lowered to that of the Proposed Project. For example, Premium Entry, Perimeter Upgrade, Streets with Medians and Parkways and Parks could be decreased by a total of $226/unit for $1.7 million in savings.

Therefore, a net investment of $4.9 million in the SBKR alternative would account for a 14% increase in sales price (Figure 5; -6.0% to +8.0%), a total of $272 million in additional revenues (See Figure 7-2)

Figure 7-2

	Units	Proposed Plan Price	Total Sales	Deflated SBKR Price	Total Sales
SFR - 1	936	$450,000	$421,200,000	$387,000	$362,232,000

SFR - 2	1,549	$325,000	$503,425,000	$279,500	$432,945,500
SFR - 3	2,419	$250,000	$604,750,000	$215,000	$520,085,000
MDR	1,256	$175,000	$219,800,000	$150,500	$189,028,000
HDR	1,325	$150,000	$198,750,000	$129,000	$170,925,000
Total	7,485		$1,947,925,000	$223,810	$1,675,215,500

Response to Comment No. 11-32

This comment is a duplicate of Comment No. 10-47; please refer to Response to Comment No. 10-47.

Comment No. 11-33

Discrepancies between July 2010 and December 2011 Reports

We also reviewed a Financial Feasibility Analysis of Alternatives to the Project Discussed in the Lytle Creek Specific Plan and EIR also prepared by CBRE dated July 2010. There were several modified assumptions between the two reports. The first item is that the sales prices for finished lots and related costs have changed (Figure 8).

Figure 8

	July 2010 Report			**December 2011 Report**			**Variance**		
	Finished Lot Value	**Intract Costs**	**Blue Top Value**	**Finished Lot Value**	**Intract Costs**	**Blue Top Value**	**Finished Lot Value**	**Intract Costs**	**Blue Top Value**
SFR – 1	$140,000	$55,000	$85,000	$164,000	$65,000	$99,000	$24,000	$10,000	$14,000
SFR – 2	$105,000	$50,000	$55,000	$120,000	$55,000	$65,000	$15,000	$5,000	$10,000
SFR – 3	$80,000	$45,000	$35,000	$93,000	$45,000	$48,000	$13,000	$0	$13,000
MFR	$60,000	$35,000	$25,000	$69,000	$35,000	$34,000	$9,000	$0	$9,000
HDR	$45,000	$30,000	$15,000	$58,000	$30,000	$28,000	$13,000	$0	$13,000
Total	**$694 Mil**	**$359 Mil**	**$335 Mil**	**$810 Mil**	**$378 Mil**	**$432 Mil**	**$116 Mil**	**$19 Mil**	**$97 Mil**

In Figure 8 above, the total finished lot value increased by $116 million and the total blue top values increased by $97 million. More specifically, the report indicates the value for SFR-1 finished lots increased from $140,000 per unit to $164,000, an increase of approximately 17%. In fact, for all the product types, finished lot values have increased by more than 10%. Although we do not prepare market studies, this information does not reasonably reflect what we perceive to be current market conditions.

We also noted that for products SFR-1 and SFR-2, the costs have increased by more than 10% whereas the costs for the SFR-3, MFR and HDR have remained static. Our experience indicates that the different product types are not being treated equally; however, again it is difficult to make an informed opinion when so little of the detail is included in the report.

Developers Research would like the opportunity to review the reasoning behind the differences of the July 2010 report and the December 2011 report.

Response to Comment No. 11-33

This comment is a duplicate of Comment No. 10-48; please refer to Response to Comment No. 10-48.

Comment No. 11-34

Community Facilities District Financing

On page 3 of the report, CBRE states, "In light of the current market conditions and recent case law, which creates major uncertainties as to future development costs (Azusa Land Partners vs. Dept. of Industrial Relations), combined with the weak financial standing of the City of Rialto, it is highly unlikely that CFD would be approved for the project or any of the alternatives." We agree with the assumptions contained in the statement, however, we do not agree with the conclusion. The appraisal indicates that the seller has projected that for any of the alternatives, the sales will exceed 10 years. There is also considerable debate regarding the court's decision for inclusion of future development costs any public financing district. Finally, the financial condition of the city of Rialto may not have a significant impact on the ability to sell bonds since another public agency could be the bond sponsor. In our opinion, a public financing district that includes a minimal tax burden of 0.3% would be acceptable in the local marketplace and the proceeds could be used to offset certain of the backbone development costs.

Response to Comment No. 11-34

This comment is a duplicate of Comment No. 10-49; please refer to Response to Comment No. 10-49.

Comment No. 11-35

Existing Golf Course

Page 18 of the CBR appraisal states that the appraised value of a "substantial portion of the project site" was $58 million, based upon a CBRE appraisal completed in September 2009. To this appraised value, CBRE added $20 million for the acquisition of an existing adjacent golf course with the potential for an additional 300 residential lots. For the purposes of calculating the land residual value for the development envelope, CBRE deducted $15 million which they state is the "operating value of the existing golf course."

Our experience in providing land residual valuations for public "pay for play" golf courses is that they rarely generate positive cash flow. We have observed operating expenses for many Southern California golf courses and the costs, especially the cost of irrigation water, reduce the value of a golf course significantly. Furthermore, the greens fees for "pay for play" golf courses have been reduced during the past real estate cycle as many golfers are unable to afford the costs associated with playing. If the golf course is currently an operating facility, we would like the opportunity to review the current discounted cash flow to determine the investment value of the course.

In fact, our recent observation of indicated that the most significant benefit of an active golf course is the lot premiums associated with houses constructed adjacent to the course and HM2 has taken this into consideration in its pricing analysis.

We have not had a chance to review the September 2009 CBRE appraisal for the golf course but we believe that during the intervening 3 years, the value the golf course has been reduced, which conclusion is further supported by the fact the golf course is currently not operating.

Based upon our experience, we believe the existing golf course that is currently closed and not maintained, is overvalued in the CBRE Appraisal.

Response to Comment No. 11-35

This comment is a duplicate of Comment No. 10-50; please refer to Response to Comment No. 10-50.

Comment No. 11-36

Absorption Rates

The absorption rates assumed in the CBRE report are delineated on pages 24-25 and are not consistent between the project alternatives. The Proposed Project is projected to absorb 100 multifamily units per year eventually increasing to 400 units per year in 2021. The Avoidance of RAFSS is projected to absorb 100 units per year and eventually increasing to 300 units per year. We understand the difficulty in projecting absorption rates over long time frames; however, it is unclear to us why the projections would change depending on the project alternative. CBRE makes no justification for these discrepancies. In our experience, these absorption rates are aggressive, but taking them at face value, we believe they should at least be kept consistent.

It is unclear to us why the residential absorption rates are not kept consistent between the project alternatives.

Response to Comment No. 11-36

This comment is a duplicate of Comment No. 10-51; please refer to Response to Comment No. 10-51.

Comment No. 11-37

Conclusions

Generally, the report intends to show that the Proposed Project is the only feasible project because it generates an internal rate of return greater than 15%, which is above the investment threshold determined by CBRE. For many of the reasons discussed above, we believe the various project alternatives were not treated equally in this analysis. For example, if the Commercial Revenue Inflation and Commercial sales prices were not inexplicably inflated in the Proposed Project and not the other projects, the proposed project would not have reached its target of greater than 15% IRR (which it barely achieves). Furthermore, the project alternatives would have higher IRR's if they were not arbitrarily penalized for lacking amenities which can be

clearly found in the Otte-Berkeley budget. Based on per unit costs, many of the project alternatives should have received higher amenity scores than the Proposed Project and would thus have an increased revenue benefit applied.

As stated above, without cost detail schedules or justifications for many of the CBRE assumptions, it seems that the Project Alternatives are being arbitrarily penalized while the Proposed Project is being arbitrarily *increased* to reach the target >15% IRR.

Before any further decision is made on the feasibility of the Project Alternatives, we believe that CBRE needs to explain the assumptions and reasoning behind the various issues described above.

Response to Comment No. 11-37

This comment is a duplicate of Comment No. 10-52; please refer to Response to Comment No 9-52, above.

Comment Letter No. 11 (continued)

Comment No. 11-38

RESOURCE PAPER

The Effect of Housing Near Transit Stations on Vehicle Trip Rates and Transit Trip Generation

A summary review of available evidence

by

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and
Robert Cervero

for the

California Department of Housing and Community Development and the California Department of Transportation

September 20, 2007

University of California, Insitute of Urban and Regional Development
WC07-2460

Acknowledgements: Special thanks to: Linda Wheaton, Department of Housing and Community Development, and Judith MacBrine Department of Transportation. Thanks also to Fehr & Peers, particularly Jerry Walters, Ellen Robinson, Jamie Henson, Matt Haynes, as well as to Reid Ewing, for assistance in compiling and reviewing documents. Mike Rodriguez of Fehr & Peers provided assistance with the formatting and production of the report.

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INTRODUCTION: DESCRIPTION OF STUDY PURPOSE

Pursuant to the passage of Proposition 1C (codified as Chapter 27, 2006 (SB 1689)), the Department of Housing and Community Development will provide local assistance for the development of Transit Oriented Development (TODs), more specifically, assistance for developing or facilitating the development of higher density housing uses within close proximity to transit stations. By doing this, it is expected that public transit ridership will increase and private vehicle use will be minimized.

The legislation provides for State Assistance Loans for the development and construction of housing within one-quarter mile of a transit station as well as grants for the provision of infrastructure necessary to support higher density uses within close proximity to a transit station (within one-half mile). A total of approximately $285 million from Prop 1C bond funds will be awarded over a period of three to four years.

1. To be eligible, a proposed Housing Development must:

   a. Be located within one of the following urbanized areas as defined by the U.S. Census Bureau:
      - Antioch
      - Concord
      - Fairfield
      - Fresno
      - Livermore
      - Los Angeles-Long Beach-Santa Ana
      - Mission Viejo
      - Riverside-San Bernardino
      - Sacramento
      - San Diego
      - San Francisco-Oakland
      - San Jose
      - Santa Barbara
      - Santa Cruz
      - Santa Rosa
      - Stockton
      - Tracy
      - Vallejo

      i. b, Have a qualifying Transit Station defined as a rail or light-rail station, ferry terminal, bus hub, or bus transfer station. Included in this definition are planned transit stations whose construction is programmed into a Regional or State Transportation Improvement Program to be completed prior to the scheduled completion and occupancy of the supported Housing Development(s) but in no case more than five years from the application due date. Transit service available along the primary travel corridor from the qualifying Transit Station must:

2. Be within one-fourth mile from a Transit Station, measured in a straight line from the nearest boundary of the Housing Development parcel to the outer boundary of the Transit Station property, and

3. Be within one-half mile from a Transit Station, measured from the Transit Station fare machines to the entrance of the housing unit furthest from the Transit Station fare machines, along a walkable route. The walkable route, after completion of the proposed Project, shall be free of negative environmental conditions, such as barriers; stretches without sidewalks or walking

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paths; noisy tunnels; streets, arterials or highways without regulated pedestrian crossing; or stretches without lighted streets.

Eligible Applicants include: Cities, cities and counties, transit agencies, and developers.

Per the proposed evaluation criteria developments assisted pursuant to this program must include at least 15 percent of the proposed housing units affordable to persons of very low and low income for a period of at least 55 years. Eligible infrastructure must be necessary for the development of higher density uses within close proximity to a transit station, or to facilitate connections between that development and the station. Housing developments may include mixed uses consisting of both residential and nonresidential (e.g., retail) activities.

Rating/Ranking criteria for applications must include, but are not limited to:

1) the extent to which the project or development will increase public transit ridership and reduce automobile trips.

2) bonus points for projects or developments that are in an area designated by the appropriate council of governments for infill development as part of a regional plan.

This Resource Paper is intended to clarify and substantiate these criteria, particularly the criteria relevant to item #1.

Outline of Approach for Estimating Ridership and Vehicle Trip Reduction Benefits of TOD

In order to show the ridership benefits of TOD, we examined the best empirical information available for adjusting vehicle trip generation rates and estimating transit ridership. Fortunately, a fair amount of empirical evidence has been gathered in California over the past decade on TOD's ridership impacts.

The approach taken parallels somewhat that employed for the Air Resources Board's URBEMIS model that aims to evaluate the potential emission-reduction benefits of smart-growth strategies. The URBEMIS model provides a range of "adjustment factors" for reducing estimated vehicle trip volumes by specific percentages based on characteristics of built environments – including the 3Ds of density, diversity, and design. We propose that the evaluative tool, like URBEMIS, will begin with standard ITE vehicle trip generation rates to estimate the potential reductions in vehicle use a TOD offers compared to a conventional suburban development (the basis of the most use ITE trip rates).

Much research has now been published that suggests either elasticities or "percentage reductions" that might be applied in adjusting vehicle trip rates based on key land use and access factors that have come to be known as the 5Ds: density, diversity, design, destination accessibility, and distance to transit. This Resource Paper attempts to pull together the best empirical evidence available demonstrating how different elements of the 5Ds are associated with two or three key travel-demand metrics: transit modals splits; vehicle trips (per 1000 households); and VMT per household. These are summarized in a matrix format. The matrices for distance to transit are currently stratified by specific mode of transit (e.g., commuter rail; heavy rail; light rail). While introducing different modes helps to refine the analysis, it does so at the expense of creating multiple dimensions and thus greater data demands. Data on the first four Ds is only available at an aggregate level, while data on the 5th D – the crucial effect of distance to transit, is only readily available for the San Francisco Bay Area. Nonetheless, this proved a useful starting point for operationalizing the analysis. An expert panel's informed judgments were used to generalize the findings to all California metropolitan environments and transit modes. The presence of data gaps can serve help guide future research and studies.

Thus, this Resource Paper combines best available empirical evidence with expert judgment to "fill the cells" of the matrices. While many empirical studies are available on built environments and travel, as mentioned earlier, this analysis focuses on relationships in California transit station areas.

Proposed Evaluation Tool Format and Content:

1) Standard ITE vehicle trip generation rates will be the starting point for estimating vehicle trip volumes for station-based TODs. Trip rates will be stratified by land uses that are likely to be proposed as part of TODs.

2) Based on the best empirical evidence available, a range of "adjustment factors" for reducing estimated vehicle trip volumes by specific percentages based on the 5D characteristics of built environments, individually and in combinations, was developed.

The literature reviewed for this Resource Paper suggests that Distance to frequent, reliable Transit, along with Density and Destination Accessibility appear to have the biggest impacts on travel behavior for projects in transit environments, while Diversity has a larger impact on non-work trips. Within a quarter- to half-mile walkshed of a transit stop, Design appears to matter somewhat less, at least in influencing the decision of taking transit or not. The influence of urban design and amenities could be indirect, however – such as allowing higher densities to be attained (by "softening" peoples' perceptions of densities) so as to support high-quality transit services. Moreover, design may encourage more pedestrian travel among both transit users and other station area residents and visitors.

Beyond the 5Ds, Transportation demand management (TDM) strategies, such as parking and enhanced shuttle connections, also are known to influence travel behavior. How such TDM measures interact with the 5Ds (individually and collectively) to shape transit usage in and around stations has received little empirical attention to date. In this regard, the views and inputs from the panel of experts proved of value, in that they suggested that many such TDM measures are correlated with the density of transit station area's catchment area. This is an area for further research.

3) Based on these data, matrices were developed for modifying the ITE vehicle trip generation rates for potential TOD projects. It is recognized that some cells contain provisional values, reflecting knowledge gaps. A separate step to estimate increased transit ridership generated by TOD projects was also devised, as this is also a legally mandated transportation criterion for evaluating Proposition 1C TOD proposals.

Expert Research Panel Meeting

A draft of this Resource Paper was sent to a panel of experts (representing both the research community and California's four largest MPOs; see Appendix C). A meeting of this panel took place on August 20, 2007 in Oakland to discuss, refine and validate the methodology. In a quasi-Delphi format, the panel reviewed and discussed the proposed trip rate adjustments, and through group discussions suggested changes and refinements and identified further studies and data of value. The views of the Expert Research Panel on how the 5Ds might interact with TDM strategies like parking management to influence travel behavior were also solicited. In the end, a plausible range of adjustment factors was agreed upon for specific types of TOD settings in California.

SUMMARY OF THE LITERATURE REVIEW

Theory and Background on the 5-Ds and Transit Oriented Development

The beginnings of the 5-D analysis methodology lie in research by Robert Cervero[1]. This original research found that certain characteristics of the neighborhood around a household affected the number of vehicle trips and vehicle-miles traveled generated by that household. This effect was independent of household characteristics (income, household size, number of workers, etc.) typically used in vehicle trip generation equations. Related research has found that 5-D factors also promote transit ridership when they occur near rail transit stations.

The trip generation step in traffic impact analyses should therefore include an adjustment of household-based trip-generation rates to reflect the characteristics of the area surrounding the household. In fact the ITE *Trip Generation* manual has been recommending such an adjustment for its last three editions. Presently, the Transit Cooperative Research Program (TCRP) project H-27A ("Ensuring Full Potential Ridership from Transit-Oriented Development") is being conducted to develop such trip-rate adjustments. TCRP H-27A has compiled driveway tube counts for 17 multi-family housing projects near rail stations in the San Francisco Bay Area and San Diego County and its findings will be available sometime in 2008 to further refine the data presented in this resource paper.

Development near transit that is higher density has an appropriate diversity of land uses in an environment designed for easy walking and biking reduces auto use for several interrelated reasons:

Better regional accessibility – especially via high-capacity transit, reduces auto commuting

[1] Cervero, R. and K. Kockelman (1997) "Travel Demand and the 3Ds: Density, Diversity, and Design," *Transportation Research D*, Vol. 2, pp. 199-219

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- More local opportunities lessen need for auto dependence
- Diversity of uses near transit stops encourages station-area residents to ride transit by allowing "trip chaining" (i.e., walking to nearby shops en route to residences from stations after work).

There will also be reduced vehicle trips and vehicle miles of travel due to:

- Fewer autos owned
- More trips by walking
- Shorter auto trips

It is noteworthy that many TOD proponents point to benefits beyond transportation. For example, local shops and services would provide a benefit to residents even if they do not use transit

The 5-D TOD Characteristics Explored for the Trip Rate Adjustment Model

The literature on neighborhood characteristics that affect trip generation is evolving over time and may definitions still vary from study to study. The variables described below define the 5Ds.

Net Residential Density – This variable is measured in units of dwelling units per residential acre. The acreage should include not only land zoned and devoted to residential uses but also associated pocket parks and local streets, but exclude large parks, open space, lakes, steep slopes, and off-site non-residential uses. This matches the practice in general plans where areas designated for residential development typically show large non-residential features separately but typically do include acreage that will be devoted to local streets and neighborhood amenities. Research suggests that, all else being equal, denser developments generate fewer vehicle-trips per dwelling unit than less dense developments.

Jobs/Housing Diversity – Research suggests that having residences and jobs in close proximity will reduce the vehicle-trips generated by each by allowing some trips to be made on foot or by bicycle. This variable measures how closely the neighborhood in question matches the "ideal" mix of jobs and households, which is assumed to be the ratio of jobs to households measured across the region as a whole.

Walkable Design – Many pedestrian and bicycle improvement projects are based on the assumption (supported by some research findings) that improving the walking/biking environment will result in more non-auto trips and a reduction in auto travel. The difficulty with using this variable in an equation is that there are many factors that influence the pedestrian experience and it is difficult to come up with a single definition that captures them all. It has also been found that the data required to specify the design variable is often either not available or would be expensive and time-consuming to obtain. In any case, the design variable when isolated usually has the weakest influence on the overall adjustment of the D factors, though it also seems to have important synergistic effects in conjunction with density and diversity.

Destinations – Research shows that, all else being equal, households situated near the regional center of activity generate fewer auto trips and vehicle-miles of travel. When comparing different potential sites for the same type of development, this variable is very important.

Distance to Rail Mass Transit Station – If a site is located near a rail transit station, research indicates that further reductions in the automobile trip-generate rate are warranted. In general, transit ridership rates among station-area residents increase exponentially as the distance to a rail station declines. This is documented in a recent and comprehensive study of TODs in California[2].

Distance to Transit – The Fifth and Foremost D: Summary of Findings of Lund, Willson, Cervero Study of TOD and Ridership in California

Travel Characteristics of Transit-Oriented Development in California gauges the ridership bonus of TOD residency in California, followed by statistical modeling of factors influencing residents' mode choices and before-and-after comparisons of travel behavior. The work builds upon an earlier study of transit ridership among households located near rail stations in California's five largest metropolitan areas.[3] Both studies found that the fifth D – Distance to Transit -- the most influential "D" in increasing transit ridership and reducing vehicle use. Lund et al's (2004) analyses draw upon a database on travel and other attributes of

[2] Lund, Cervero, Willson, (January 2004), *Travel Characteristics of Transit-Oriented Development in California*

[3] Cervero (1993), *Ridership Impacts of Transit-Focused Development in California.* Berkeley: Report to the California Department of Transportation, IURD Monograph.

nearly 1000 residents living in 26 housing projects within ½ mile of California urban rail stations who were surveyed in 2003 The 26 surveyed housing projects were served by a variety of rail services: heavy rail (i.e., powered by a high-voltage third rail in an exclusive right-of-way) in the San Francisco Bay Area and Los Angeles; light rail (i.e., powered by overhead electrical wires) in Los Angeles, San Diego, and Sacramento; and commuter rail (i.e., diesel-electric locomotion) serving the San Francisco-San Jose axis, northern San Diego County, and Los Angeles-Orange County.

Findings on the Ridership Bonus of TOD. Based on one-day travel diaries completed by adult residents of the 26 surveyed TOD housing projects, the mean share of commute trips by transit was 27 percent. This figure was compared to those living in a "donut": an area between ½ and 3 miles of a station. The mean share of commute trips via transit among those residing in the donut was 7 percent. Thus, those living within ½ mile of a rail stop were around four times as likely to rail-commute as those living within a distance more oriented to bus access (i.e., ½ to 3 miles). And when compared to those living beyond 3 miles but within the same city as the housing projects under study, the differential in transit commute shares was six-fold.

Analysis and modeling by Cervero (2006) of the survey data collected by Lund et al suggests local policy-makers have fewer levers available to influence transit riding among station-area residents than regional policy-makers. Local officials can control land uses around stations, however these variables had minimal explanatory power. Regional agencies, on the other hand, are in a position to introduce measures that encourage employers to promote transit (e.g., underwriting the cost of transit passes) and discourage car commuting (e.g., eliminating free parking) – both "workplace policy" variables were significant predictors. California has considerable precedence in this regard under the "Employer Commute Options" initiatives mandated by Federal and State clean-air legislation in the 1990s; today, such employer-based policies are largely voluntary.

The findings of Lund et al and Cervero confirm that when it comes to transit-based residences, the greatest ridership pay-off comes for intensifying station-area housing. While streetscape improvements, parking provisions, and other physical-design elements might influence the attractiveness of station-area housing among prospective tenants, such factors appear to exert minimal influences on whether station-area residents opt for transit or not. It is housing supplies, not station-area designs and parking levels, which are the strongest localized factors influencing ridership in neighborhoods abutting rail stations in California. Moreover, studies suggest that high ridership among those living near California rail stations is significantly a product of "self selection" – for lifestyle reasons (e.g., the desire to rail commute instead of drive to work), some households purposely move into residences that are convenient to high-quality transit (Cervero 2007). Using data from the San Francisco Bay Area, Cervero (2007) estimates that around 40% of the change in the odds-ratio of rail commuting among station-area residences can be attributed to residential self-selection. The policy implications of this finding is that local officials should seek to zone land, set building codes, and provide local services so that market-responsive housing products are built near California rail stations.

The finding that urban design factors have relatively minor influence on transit riding within a walkshed of rail stations suggests the presence of an "indifference zone": for those living within a half-mile or so of a station, they will generally ride transit regardless of local urban design features, as long as there is a safe walkable route to the station. On the other hand, out-of-neighborhood attributes, like job accessibility and street connectivity at the destination, have a significant bearing on transit usage (Cervero 2006).

Quantifying the Effects of Proximity to Transit: A Keystone Study by MTC

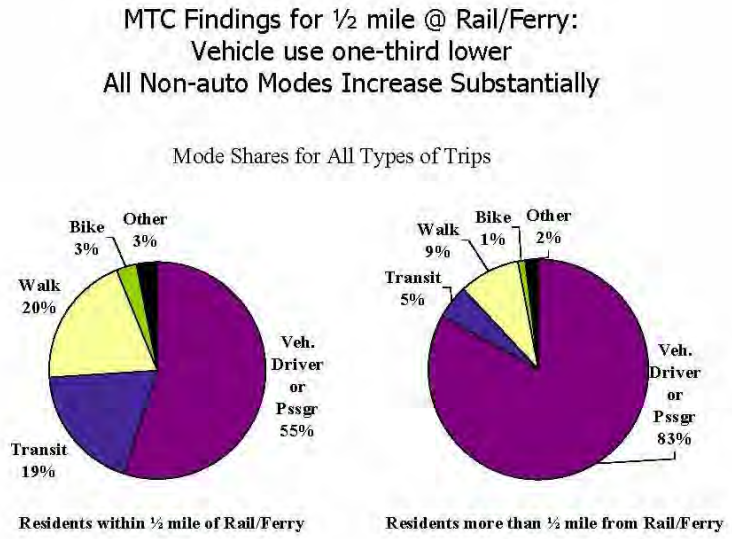
In *Characteristics of Rail and Ferry Station Area Residents in the San Francisco Bay Area (2006)* the San Francisco Bay Area Metropolitan Transportation Commission studied existing Transit Oriented Development (defined as development within a one-half-mile *walking* distance of a rail or ferry terminal. Demographic and travel data were from MTC's 2000 Household Travel Survey. This survey compiled

travel and demographic data for some 35,000 individuals age 16 years and above residing in nearly 15,000 Bay Area households.

Extensive analysis of this large Bay Area data base reveals that people living within a half mile of a transit or ferry station are four times more likely to use transit than those living more than a half mile from a transit or ferry station. This more or less confirms the findings on variation in modal splits by distance to transit found by Cervero (1994) and Lund et al. (2003). The Bay Area survey results show that residents living and working within a half mile of transit or ferry stations average 42% of their daily trips by transit, walking or biking (see Figure 1). Nearly a third of households within a half mile of ferry or transit stations have no vehicle. Households within a half mile of ferry or transit stations generate half the VMT of suburban and rural residents.

Figure 1 also indicates that residents within a half mile of a rail station or ferry terminal have a vehicle mode share 28 percent lower than for the region as a whole. The same data also indicate that the transit mode share of residents increased by 14 percent. This suggests that about half of the reduction in vehicle trips observed for station/terminal area residents may be attributed to the substitution of transit for private vehicle trips.

FIGURE 1: MTC Findings for ½ Mile around Rail/Ferry



MTC Study Method

Using Geographic Information Systems (GIS), BATS2000 households and residents were parsed into groups based on the household's proximity to rail and ferry stations in the Bay Area (the report's Volume II, Appendix G contains a detailed discussion of the GIS methodology). Only stations or stops that existed in the year 2000 (the year the BATS survey was administered) were examined. The seven rail and ferry operators included in this study are:

1) Altamont Commuter Express (ACE) stations,
2) Amtrak stations,
3) Bay Area Rapid Transit (BART) stations,
4) Caltrain stations
5) Ferry terminals (excluding Alcatraz Island ferries and seasonal ball park ferries),
6) San Francisco Municipal Railway (MUNI light rail lines and cable car stops), and
7) Santa Clara Valley Transit Authority (VTA) light rail stations.

Geographic areas (or buffers) were created around each rail and ferry stop in the Bay Area (in the case of MUNI, buffers were created around the light rail lines). The buffers were created around rail/ferry stops to create three distance categories: within ½ mile, ½ mile to 1 mile, and greater than 1 mile. Households were then placed into one of the three distance categories based on the location of the household with respect to the nearest rail/ferry stop. Households beyond one mile from a rail/ferry station were further disaggregated by population density, which was determined using Census 2000 block group data. The four population density categories along with examples of cities and communities for each group were as follows:

1) Urban 10,000 or more persons/square mile e.g., San Francisco, Berkeley, Oakland
2) High-Suburban 6,000 to 9,999 persons/ square mile, e.g., Palo Alto, Vallejo, Richmond, San Leandro
3) Low-Suburban 500 to 5,999 persons/ square mile, e.g., Lafayette, Walnut Creek, Sausalito
4) Rural Less than 500 persons/square mile e.g., Oakland Hills, Point Reyes Station, Guerneville

Since the station areas studied vary from ferry terminals with fewer than ten daily departures to BART and Muni light rail (with average headways under 15 minutes at most stations and major stops) the results are truly a composite – a theoretical "average" transit station. MTC also conducted some mode specific analysis, which is summarized in Table 1 and Figure 2 below. Detailed mode split data, used to estimate vehicle trip reductions in TODs surrounding various rail modes, is found in Appendix A.

The important finding: TOD residents living around high frequency rapid rail (BART or Muni LRT) stations exhibit 50% fewer vehicle trips compared to the region. Commuter rail and VTA light rail station area residents appear to make vehicle trips at rates more comparable to the rates observed for region as a whole; residents living within ½ mile of a VTA station do make significantly more transit trips compared to the region as a whole (nearly 50 percent more); within ¼ mile of VTA, residents make more than twice as many trips by transit as the regional average.

TABLE 1: Effect of Transit Proximity by Mode
Vehicle Trip Reduction Factors and Transit Increase Factors by Transit Operator/Mode
Calculated as Station Area Mode Share ÷ Regional mode share
(First factor in each cell is for within ¼ mile circle; second is for ¼ – ½ mile band
See Appendix A for Data and Calculations)

BART (Rapid Rail)	**Caltrain (Commuter Rail)**	**SF Muni (Light Rail)**	**VTA (Light Rail)**
Vehicle Trip Rate Reduction Factor:	Vehicle Trip Rate Reduction Factor:	Vehicle Trip Rate Reduction Factor:	Vehicle Trip Rate Reduction Factor:
0.63 | 0.57	**1.03 | 1.10**	**0.58 | 0.64**	**0.94 | 1.04**
Transit Trip Rate Increase Factor: ¼ mile: | ¼ – ½ mile	Transit Trip Rate Increase Factor:	Transit Trip Rate Increase Factor:	Transit Trip Rate Increase Factor:
3.16 | 3.56	**1.01 | 0 .74**	**3.22 | 3.61**	**2.40 | 0.55**

The effects are shown to vary by mode, with the most marked effects observed around rail systems with high frequency service that includes direct service to the region's major transit-oriented employment and service center, downtown San Francisco, i.e., BART and Muni. Somewhat ironically, BART and MUNI exhibit a higher transit trip rate increase factor, and MUNI lower vehicle trip rates, in the ¼-mile to ½-mile band versus the immediate ¼-mile station buffer. The differences are minor, and the authors recommend that for services with comparable frequencies and system-wide access to regional destinations, there may not be a need to distinguish between the first and second ¼-mile rings.

For VTA, whose light rail lines came within ¼ mile of approximately 7 square miles of Santa Clara County in 2000 (about two percent of its urbanized service area of 326 square miles at that date), the first ¼ mile ring appears to be more productive of transit trips (and, reductive of vehicle trips) compared to the second ring. The ¼-mile circle is also more productive/reductive (though to a much lesser degree) for Caltrain, which in 2000 had peak frequencies of over 20 minutes and hourly headways through much of the day.

The authors believe these systems roughly bracket the range of rail transit modes in California. *There is a need to fill in the gaps with data for other rail systems in the state, and well as for high-frequency bus hubs zones that are also eligible for TOD housing grants.*

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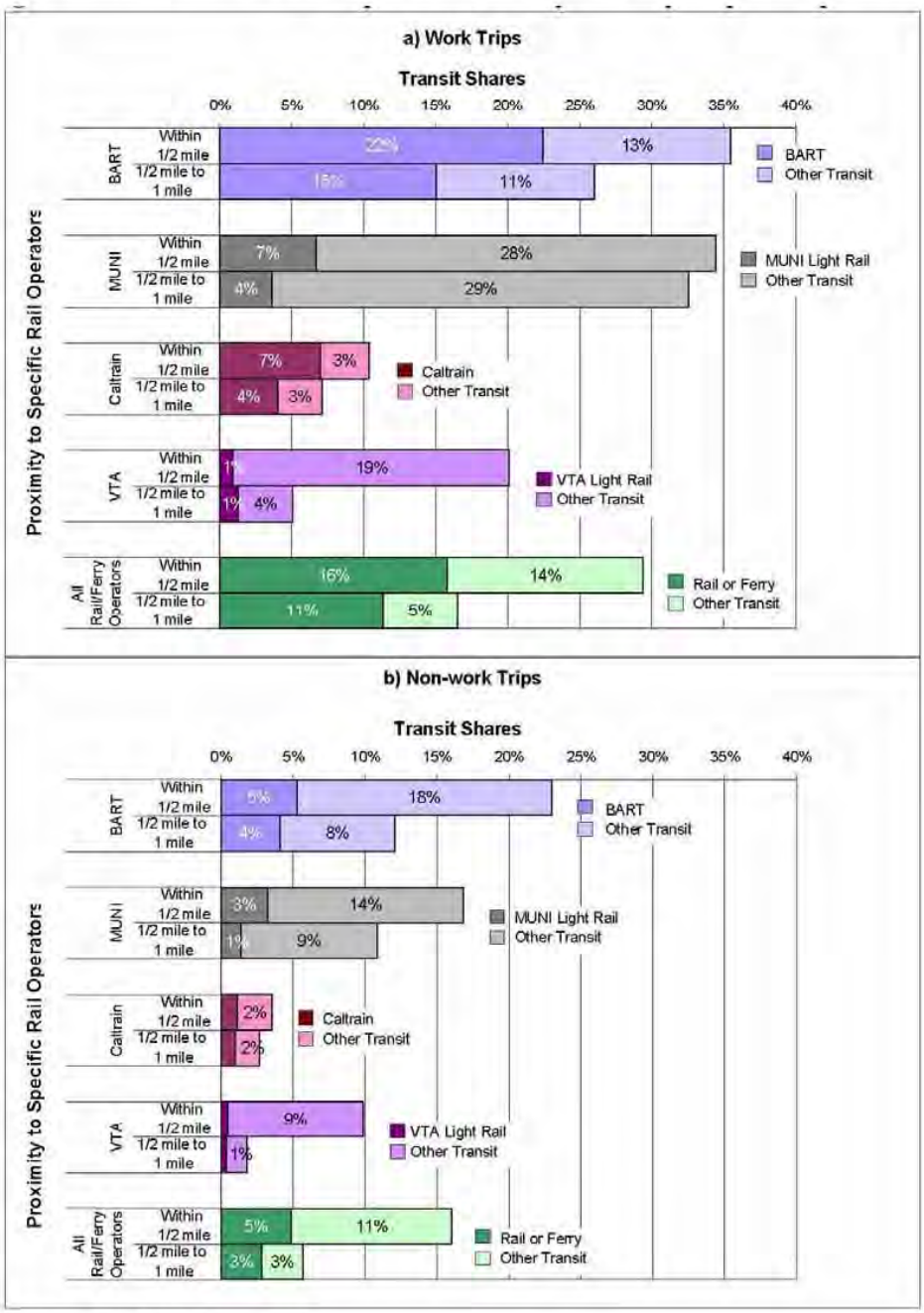
FIGURE 2: Work and Non-Work Trip Transit Shares by Proximity to Specific Operators (MTC 2006)



Source: Bay Area Travel Survey 2000

In response to questions regarding how the Bay Area compares to the rest of the State of California, MTC extended the analysis, performing a statewide analysis of all transit (rail and ferry) stations. This was limited to journey to work data from the US Census, which asks approximately one-in-eight households about commute behavior, but not about non-work trips. (Each of the four major MPOs conduct a household survey which does ask about non-work trips, but the format and survey year vary too significantly for the other MPOs travel surveys to permit easy comparisons).

The MTC comparative analysis indicates that the drive-alone mode share of work trips is approximately one-third lower within a half mile of a transit station compared to the regional/statewide average. This holds true both within the MTC region and for the remainder of the state. Transit ridership also increases by comparable proportions.

This leads to an important conclusion: *Assuming relationships between commute and non-work travel observed in the Bay Area hold elsewhere, this comparative analysis suggests that the Bay Area data can be applied elsewhere in the state.*

The Effectiveness of the Other 4Ds: Consensus Results

In 2001 Fehr & Peers, under contract through Criterion Engineers and Planners to the US EPA, developed a literature synthesis and a methodology for estimating travel demand impacts from land-use and urban design changes. The methodology uses a set of elasticity factors that relate a neighborhood's built environment characteristics and regional accessibility to the amount of vehicular travel generated in the neighborhood. These factors are used to compute the percentage change in vehicle trips (VT) and vehicle miles traveled (VMT) resulting from different land-use plans and urban designs.

The methodology was developed by Fehr & Peers Associates under contract to Criterion Planners/Engineers for use in Criterion's INDEX models, including the U.S. EPA version known as Smart Growth INDEX.

Research Approach

The 4D method is based on research into the relationship between land-use and travel behavior. Nationally, over forty studies were reviewed; each of the studies examine how changes in land-use characteristics, such as density, relate to changes in travel generation was measured by vehicle trips and vehicle miles of travel. The bibliography of the research is included as Attachment A.

Using this research data, a 4D traffic analysis method was developed in three steps as follows:

1) Elasticities were derived between vehicular travel (VT and VMT) and primary descriptors of the built environment and accessibility for each study whose research provided valid, comparable results. An elasticity is a measure of the percentage change that occurs in a dependent variable (VT or VMT) as a result of a percentage change in an influential variable (density, diversity, design or destinations). For example, if vehicle trips increase by 0.1% for each 1% increase in development density, then vehicle trips are said to have an elasticity of 0.1 with respect to density. If vehicle trips *decrease* by 0.05% for each 1% increase in density, then vehicle trips are said to have an elasticity of -0.05 with respect to density.

2) Individual study results were synthesized into a unified matrix of partial elasticities. These express percentage changes in VT and VMT as a function of percentage changes in each of the 4Ds. The 4Ds are expressed in terms of: 1) density (population and employment per square mile); 2) diversity (the ratio of jobs to population); 3) design (pedestrian environment variables including street grid density, sidewalk completeness, and route directness); and 4) destinations (accessibility to other activity concentrations, expressed as the mean travel time to all other destinations within the region, e.g. a location within the

regional core will ordinarily have a higher 'destinations' rating than a location on the fringe of the urban area, because the central location offers greater accessibility to a higher percentage of the region's employment).

3) Creation of a table of elasticities for assessing the relative benefits of one land-use pattern compared with another.

In 2003, these synthesis values were updated using a Delphi Panel. The tables below present the results of the Delphi Panel survey's recommendations regarding the 4D elasticities, i.e., the 4 Ds apart from Distance to rail transit or other transit with performance characteristics similar to urban rail transit:

TABLE 2: Delphi Panel Consensus Elasticity Values for the 3 Ds[1]

	Vehicle Trips$_{total}$	**Vehicle Miles Traveled (VMT)$_{total}$**
	Recommended Value	**Recommended Value**
Residential Density	-0.05	-0.11
Diversity	-0.07	-0.12
Design	-0.03	-0.09

Note
1. For use when relative regional accessibility between study sites cannot be estimated or is constant.

TABLE 3: 2003 Delphi Panel Consensus Elasticity Values for the 4 Ds[2]

	Vehicle Trips$_{total}$	**Vehicle Miles Traveled (VMT)$_{total}$**
	Recommended Value	**Recommended Value**
Density	-0.04	-0.05
Diversity	-0.06	-0.05
Design	-0.02	-0.04
Destination Accessibility	-0.03	-0.20

Note:
2. For use when relative regional accessibility between study sites can be estimated or is not constant.

Using the data in Table 3 is straightforward once the relevant D variable is calculated. For example, if a project is twice the prevailing density in the station area, it would produce 4 percent fewer vehicle trips per unit.

With respect to transit trip production, analysis by Ross and Dunning (1997) of the 1995 National Personal Transportation Survey (NPTS) suggests that about one-third of the vehicle trip reduction in denser urban areas compared to less dense areas translates into new transit trips. As noted above in the discussion of Figure 1, MTC data for 2000 suggests that in station areas there ratio of new transit trips produced to auto trips reduced is greater, i.e., about one-half. The consensus of the Expert Panel was to use the MTC ratio. Thus in the example in the preceding paragraph, two percent of the eliminated vehicle trips would translate to new transit trips. The other two percent would be attributable to other modes, e.g., walking.

The studies reviewed in 2001 used a variety of definitions of the 4Ds; the 2003 Delphi Panel update standardized the definition for the study participants: these standard definitions are presented in Table 4.

TABLE 4:
D-Variable Definitions for Tables 1 and 2

Density	=	Percent Change in [(Population + Employment) per Square Mile]
Diversity	=	Percent Change in {1 - [ABS(b * population - employment) / (b * population + employment)]}
where:		*b* = regional employment / regional population
Design	=	Percent Change in Design Index (see below)
Design Index	=	0.0195 * street network density + 1.18 * sidewalk completeness + 3.63 * route directness
where:		
street network density = length of street in miles/area of neighborhood in square miles		
sidewalk completeness = length of sidewalk/length of public street frontage		
route directness = average airline distance to the neighborhood center/average road distance to the neighborhood center		
Destination Accessibility	=	Percent Change in Gravity Model denominator for study TAZs "i": Sum[Attractions(j)*Travel Impedance(i,j)] for all regional TAZs "j"

Review of Recent Literature

For this Resource Paper, more than 200 studies were reviewed with an eye toward updating these consensus elasticities. These are listed in the appended Bibliography; About half of the more relevant studies have been included in an annotated bibliography, also appended. Studies that address the themes of interest (TOD area vehicular trip generation, transit trip generation, and elasticities associated with the 5Ds generally) were examined in detail. Most of these studies are based on relationships in urban settings outside of California, an appreciable share are drawn from California's five largest metropolitan areas.

While there have been many newer studies, apart from the studies discusses above by Cervero (1993), Lund et al (2003), and MTC (both of which are primarily concerned with the effects of distance to transit), the new studies tend to reinforce the direction and magnitude of the effects of the other four Ds. Relevant findings of studies that address the 5Ds and travel variable elasticities associated with the 5Ds are summarized in Appendix B. Again, based on the review of the current authors, there is support for the direction and general magnitude of the elastiticies listed in Table 3 above. Neither the authors nor the Expert Panel found any compelling reasons to change these consensus values.

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Findings of the Expert Research Panel

A draft of this Resource Paper, *The Effect of Housing Near Transit Stations on Vehicle Trip Rates and Transit Trip Generation: A Summary Review of Available Evidence* (August 10, 2007 v2), was prepared and distributed for review by a panel of researchers and transportation modelers, referred to as the "Expert Research Panel". Panel members and their affiliations are listed in Appendix C.

This Expert Research Panel was called together to discuss the findings of a draft and further refine the vehicle trip rates and transit trip generation information in support of the development of a spreadsheet model. This spreadsheet model, to be subsequently developed by the researchers through a Caltrans contract with California PATH, will be used to calculate the relative benefits as they relate to reduced auto trips and increased transit ridership of proposed projects applying for TOD Program funding.

The Expert Research Panel, in a session facilitated by Judith MacBrine of Caltrans, and using a modified Delphi process, reached a working consensus on the following items. These will be incorporated into the evaluation method embedded in the model

Item 1: There is insufficient basis to warrant distinguishing between residential Transit-Oriented Developments located within a quarter-mile of a transit station and a half-mile of a transit station.

Item 2: The relative impact of TODs on standard ITE rates is as shown in Table 5 below:

TABLE 5:
Expert Panel Recommendations of Vehicle Trip Reduction by Mode and Station Vicinity Density

Vehicle Trip Rate → **↓ Transit Mode**	**Low Density**	**Medium Density**	**High Density**
Heavy Rail (e.g., electrified 3rd Rail: BART, METRO)	80%	63%	50%
Light Rail	95%	80%	60%
Bus Rapid Transit (BRT)	95%	80%	65%
Rapid Bus/Express Bus	99%	90%	80%
Commuter Rail, (e.g., Capitol Corridor, Caltrain, Metrolink, Surfliner)	97%	90%	85%
Ferry, Non-Express Bus Hub	97%	90%	85%

Example: If 100 vehicle trips were typically expected from a housing development in high density location, then location of that housing development as a TOD within one-half mile of a BART station (heavy rail) would result in a 50 percent reduction of vehicle trips (or 50 vehicle trips).

Item 3: High, Medium and Low Densities will be determined by measuring the gross density within a four-mile radius of the transit station. Density will be measured as gross residential population divided by square miles of land (excluding water). All Census 2000 census blocks with any portion falling within the four-mile radius will be included in this calculation.

Based on analysis of California station-areas, it is anticipated that the density ranges will be:

- High Density: 7,500+ residents per square mile.
- Medium Density: 4,500 to 7,499 residents per square mile.
- Low Density: <4,500 residents per square mile.

Additional data will be reviewed to determine whether the resident per square mile values should be further adjusted.

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The four-mile radius measurement is based on research by Cervero and Duncan (2006). This research indicates that the balance point for a vehicle reduction shed is a four-mile radius rather than a two-, three- or six-mile radius.

Item 4: Additional adjustments based on elasticity values can be made for the following, subject to adjustment relative to measurement feasibility:

- Residential Density: -0.04.
- Diversity: -0.06
- Design (re: pedestrian and bicycle): -0.02.

Item 5: The increase in transit ridership would be identified as 50 percent of the reduction in vehicle trips. In the above example of a TOD at a BART station within a high density location, the TOD would be projected to generate 25 transit trips.

Other General Comments by the Expert Research Panel on the Proposed TOD Program Guidelines:

- The definition of "bus hub" (which in the statute) should be refined
- Transit service quality is important.
- There may be a sixth 'D" to consider: demographics (ethnicity, income, and years in U.S. for immigrants)?
- Parking policies and unbundled parking are critical components to successful TODs.

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Summary and Recommendations

(1) The tool will apply the TOD vehicle trip factors for the appropriate transit mode and station vicinity per Table 5). This effectively covers the most important D factor – Distance to Transit – and also serves as a surrogate for the regional Destinations accessibility variable.

(2) Next, the tool will apply elasticity factors for density, diversity and design as summarized in Table 3 and as defined in Table 4. The elasticity should be applied to the ratio of the proposed projects value versus that of the entire half-mile station area. These adjustments will be applied to the extent that it is feasible to quantify these values using data available to all applicants.

(3) Finally, factors beyond the 5Ds, such as TDM measures, that might further increase transit ridership or decrease vehicle trips, will be noted qualitatively.

A Hypothetical Example of Method as Envisaged:

Project:: A 150-unit multifamily housing development at a Light Rail Station in a high-density area

Vehicle Trip Reduction:

(Unadjusted) ITE vehicle trips projection:	900 daily vehicle trips
Apply vehicle trips reduction factor:	.60 x 900
Result after application of 5th D factor:	540 vehicle trips (-360)

Then apply additional factors for the station area:
(From Table 3)

Assume that the Project:

Density = 2 x the ½ mile TOD average:	-4% reduction → -22 vehicle trips (4% of 540)
Diversity measure increases by 100%:	-6% reduction → -32 vehicle trips (6% of 540)
Design Index increases by 100%	-2% reduction → -11 vehicle trips (2% of 540)
Total Vehicle Trip Reduction:	-360 - 22 -32 -11 = -425;
Resulting Vehicle Trips:	900 – 425 = 475 vehicle trips

Transit Trip Increase:

Assume 1/2 of Vehicle trip reduction from other 4Ds represents additional transit trips	1/2 x (-425) → -212
Resulting Transit Trip Generation:	212 new daily transit trips

Following the process outlined above, credits would be applied for TDM measures such as parking charges, parking management, or frequent shuttle services.

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APPENDIX A: MODE SHARES, AND VEHICLE AND TRANSIT TRIP RATES (MTC)

TABLE A-1: Mode Shares and Calculated Vehicle Trip Reduction and Transit Trip Increase Factors – BART Rapid Rail

CIRCULAR BUFFER ANALYSIS

	Proximity of Resident's Home to **BART Stations**							
	Within	1/4 mile to	1/2 mile to	Greater than 1 mile				
Travel Characteristic	1/4 mile	1/2 mile	1 mile	Urban	High-Sub	Low-Sub	Rural	Total
MODE SHARES								
Home-Based Work								
In-Vehicle Person	**49.4%**	**47.9%**	**63.3%**	**79.1%**	**89.1%**	**88.8%**	**94.0%**	**81.7%**
Vehicle Driver	42.9%	36.2%	55.7%	71.3%	82.5%	83.4%	88.6%	74.9%
Vehicle Passenger	6.5%	11.7%	7.6%	7.7%	6.6%	5.3%	5.5%	6.8%
Total Transit	**39.2%**	**28.7%**	**25.1%**	**14.6%**	**7.4%**	**7.2%**	**4.0%**	**12.2%**
BART	31.3%	18.8%	11.7%	3.4%	2.6%	3.9%	1.4%	5.1%
Other Transit	8.0%	9.9%	13.4%	11.2%	4.8%	3.3%	2.6%	7.0%
Bicycle	**0.8%**	**6.2%**	**2.6%**	**1.3%**	**1.3%**	**1.7%**	**0.5%**	**1.8%**
Walk	**8.7%**	**15.4%**	**6.9%**	**3.5%**	**1.8%**	**1.8%**	**1.2%**	**3.4%**
Other	**1.9%**	**1.8%**	**2.2%**	**1.4%**	**0.4%**	**0.5%**	**0.2%**	**1.0%**
Non-Work Trips								
In-Vehicle Person	**52.1%**	**47.5%**	**65.3%**	**73.8%**	**84.7%**	**87.2%**	**88.9%**	**79.5%**
Vehicle Driver	33.2%	30.5%	40.2%	45.1%	52.6%	56.3%	57.0%	50.0%
Vehicle Passenger	18.9%	16.9%	25.1%	28.7%	32.1%	30.9%	31.9%	29.5%
Total Transit	**15.2%**	**19.7%**	**11.5%**	**5.4%**	**2.1%**	**1.7%**	**1.2%**	**4.4%**
BART	8.5%	4.0%	2.9%	0.9%	0.4%	0.5%	0.2%	1.0%
Other Transit	6.7%	15.7%	8.5%	4.6%	1.7%	1.2%	1.0%	3.4%
Bicycle	**4.6%**	**2.9%**	**1.7%**	**1.3%**	**1.2%**	**1.3%**	**0.6%**	**1.4%**
Walk	**23.1%**	**28.1%**	**19.8%**	**15.7%**	**9.7%**	**8.4%**	**5.8%**	**12.3%**
Other	**5.0%**	**1.8%**	**1.8%**	**3.8%**	**2.2%**	**1.4%**	**3.5%**	**2.4%**
Total Trips								
In-Vehicle Person	**51.6%**	**47.6%**	**64.8%**	**75.1%**	**85.7%**	**87.5%**	**89.9%**	**80.0%**
Vehicle Driver	34.9%	31.9%	43.9%	51.4%	59.3%	61.7%	63.2%	55.5%
Vehicle Trip Factor	***62.9%***	***57.4%***						
Vehicle Passenger	16.7%	15.7%	20.9%	23.6%	26.4%	25.8%	26.7%	24.5%
Total Transit	**19.4%**	**21.9%**	**14.7%**	**7.7%**	**3.3%**	**2.8%**	**1.7%**	**6.2%**
Transit Trip Factor	***315.7%***	***355.6%***						
BART	12.5%	7.6%	5.0%	1.5%	0.9%	1.2%	0.4%	1.9%
Other Transit	6.9%	14.3%	9.7%	6.2%	2.4%	1.6%	1.3%	4.2%
Bicycle	**3.9%**	**3.7%**	**1.9%**	**1.3%**	**1.2%**	**1.4%**	**0.6%**	**1.5%**
Walk	**20.6%**	**25.0%**	**16.7%**	**12.7%**	**7.9%**	**7.1%**	**4.9%**	**10.3%**
Other	**4.4%**	**1.8%**	**1.9%**	**3.3%**	**1.8%**	**1.2%**	**2.9%**	**2.1%**

Note: Trip Factors = "within ¼ mile" & "¼ mile to ½ mile" mode share divided by Regional "Total" mode share

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TABLE A-2: Mode Shares and Calculated Vehicle Trip Reduction and Transit Trip Increase Factors – Caltrain Commuter Rail

CIRCULAR BUFFER ANALYSIS

	Proximity of Resident's Home to **Caltrain Stations**							
	Within	1/4 mile to	1/2 mile to	Greater than 1 mile				
Travel Characteristic	1/4 mile	1/2 mile	1 mile	Urban	High-Sub	Low-Sub	Rural	Total
MODE SHARES								
Home-Based Work								
In-Vehicle Person	**80.8%**	**87.4%**	**81.0%**	**68.8%**	**87.9%**	**87.8%**	**94.9%**	**81.7%**
Vehicle Driver	76.8%	78.8%	75.1%	60.4%	80.8%	82.4%	89.4%	74.9%
Vehicle Passenger	4.0%	8.7%	5.9%	8.3%	7.1%	5.3%	5.4%	6.8%
Total Transit	**12.4%**	**7.8%**	**12.4%**	**20.6%**	**8.6%**	**7.9%**	**3.2%**	**12.2%**
Caltrain	5.0%	4.9%	3.4%	0.9%	0.5%	0.3%	0.2%	0.9%
Other Transit	7.3%	2.9%	9.0%	19.7%	8.0%	7.7%	3.0%	11.3%
Bicycle	**1.1%**	**1.9%**	**2.7%**	**2.3%**	**1.1%**	**1.7%**	**0.5%**	**1.8%**
Walk	**5.7%**	**2.7%**	**2.8%**	**6.5%**	**1.8%**	**2.0%**	**1.2%**	**3.4%**
Other	**0.0%**	**0.2%**	**1.0%**	**1.7%**	**0.7%**	**0.6%**	**0.2%**	**1.0%**
Non-Work Trips								
In-Vehicle Person	**72.1%**	**81.0%**	**75.4%**	**66.8%**	**83.8%**	**86.3%**	**89.9%**	**79.5%**
Vehicle Driver	50.6%	54.6%	48.0%	40.5%	51.9%	55.6%	57.8%	50.0%
Vehicle Passenger	21.5%	26.4%	27.4%	26.4%	31.8%	30.7%	32.1%	29.5%
Total Transit	**4.3%**	**3.4%**	**5.9%**	**9.5%**	**2.5%**	**1.9%**	**1.2%**	**4.4%**
Caltrain	1.6%	1.4%	0.5%	0.1%	0.1%	0.1%	0.0%	0.1%
Other Transit	2.7%	2.0%	5.4%	9.4%	2.4%	1.8%	1.1%	4.3%
Bicycle	**2.6%**	**1.7%**	**1.3%**	**1.8%**	**1.1%**	**1.3%**	**0.6%**	**1.4%**
Walk	**16.8%**	**12.4%**	**13.9%**	**18.7%**	**10.3%**	**9.1%**	**5.2%**	**12.3%**
Other	**4.2%**	**1.6%**	**3.6%**	**3.2%**	**2.3%**	**1.4%**	**3.2%**	**2.4%**
Total Trips								
In-Vehicle Person	**74.2%**	**82.7%**	**76.8%**	**67.3%**	**84.7%**	**86.6%**	**90.9%**	**80.0%**
Vehicle Driver	56.9%	60.9%	54.6%	45.2%	58.5%	61.0%	64.0%	55.5%
Vehicle Trip Factor	***102.5%***	***109.6%***						
Vehicle Passenger	17.3%	21.8%	22.2%	22.1%	26.3%	25.6%	26.9%	24.5%
Total Transit	**6.2%**	**4.5%**	**7.5%**	**12.1%**	**3.9%**	**3.1%**	**1.6%**	**6.2%**
Transit Trip Factor	***101.2%***	***73.5%***						
Caltrain	2.4%	2.3%	1.2%	0.3%	0.2%	0.1%	0.1%	0.3%
Other Transit	3.8%	2.2%	6.3%	11.9%	3.7%	3.0%	1.5%	5.9%
Bicycle	**2.2%**	**1.7%**	**1.6%**	**2.0%**	**1.1%**	**1.4%**	**0.6%**	**1.5%**
Walk	**14.1%**	**9.9%**	**11.2%**	**15.8%**	**8.4%**	**7.7%**	**4.4%**	**10.3%**
Other	**3.2%**	**1.2%**	**2.9%**	**2.8%**	**2.0%**	**1.2%**	**2.6%**	**2.1%**

Note: Trip Factors = "within ¼ mile" & "¼ mile to ½ mile" mode share divided by Regional "Total" mode share

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TABLE A-3: Mode Shares and Calculated Vehicle Trip Reduction and Transit Trip Increase Factors – San Francisco MUNI Light Rail

CIRCULAR BUFFER ANALYSIS

	Proximity of Resident's Home to **MUNI Light Rail Lines**							
	Within	1/4 mile to	1/2 mile to	Greater than 1 mile				
Travel Characteristic	1/4 mile	1/2 mile	1 mile	Urban	High-Sub	Low-Sub	Rural	Total
MODE SHARES								
Home-Based Work								
In-Vehicle Person	**43.2%**	**41.6%**	**60.2%**	**79.7%**	**88.0%**	**87.8%**	**93.7%**	**81.7%**
Vehicle Driver	36.4%	36.5%	54.3%	70.6%	81.2%	82.4%	88.3%	74.9%
Vehicle Passenger	6.8%	5.2%	5.9%	9.1%	6.8%	5.4%	5.3%	6.8%
Total Transit	**32.5%**	**38.0%**	**31.9%**	**13.8%**	**8.2%**	**8.0%**	**4.4%**	**12.2%**
MUNI Light Rail	8.2%	2.7%	2.3%	0.2%	0.1%	0.1%	0.0%	0.7%
Other Transit	24.3%	35.4%	29.6%	13.6%	8.1%	7.9%	4.4%	11.5%
Bicycle	**5.7%**	**1.9%**	**1.8%**	**1.8%**	**1.3%**	**1.7%**	**0.5%**	**1.8%**
Walk	**15.6%**	**16.5%**	**5.9%**	**3.2%**	**1.8%**	**2.0%**	**1.2%**	**3.4%**
Other	**3.0%**	**1.9%**	**0.2%**	**1.5%**	**0.6%**	**0.5%**	**0.2%**	**1.0%**
Non-Work Trips								
In-Vehicle Person	**52.1%**	**56.3%**	**61.3%**	**72.0%**	**83.9%**	**86.3%**	**89.0%**	**79.5%**
Vehicle Driver	30.9%	34.9%	34.3%	44.7%	52.1%	55.7%	57.2%	50.0%
Vehicle Passenger	21.2%	21.4%	27.1%	27.3%	31.8%	30.6%	31.8%	29.5%
Total Transit	**15.6%**	**17.3%**	**10.5%**	**7.1%**	**2.4%**	**2.0%**	**1.1%**	**4.4%**
MUNI Light Rail	4.1%	0.8%	0.8%	0.2%	0.0%	0.2%	0.0%	0.3%
Other Transit	11.5%	16.5%	9.8%	7.0%	2.4%	1.8%	1.1%	4.1%
Bicycle	**2.0%**	**2.0%**	**1.3%**	**1.7%**	**1.3%**	**1.3%**	**0.6%**	**1.4%**
Walk	**27.5%**	**23.4%**	**25.5%**	**15.4%**	**10.1%**	**9.1%**	**5.9%**	**12.3%**
Other	**2.8%**	**1.1%**	**1.3%**	**3.7%**	**2.3%**	**1.4%**	**3.4%**	**2.4%**
Total Trips								
In-Vehicle Person	**49.8%**	**52.8%**	**61.1%**	**73.8%**	**84.9%**	**86.6%**	**89.9%**	**80.0%**
Vehicle Driver	32.3%	35.3%	38.7%	50.9%	58.7%	61.1%	63.3%	55.5%
Vehicle Trip Factor	***58.2%***	***63.5%***						
Vehicle Passenger	17.5%	17.5%	22.4%	23.0%	26.2%	25.5%	26.6%	24.5%
Total Transit	**19.9%**	**22.2%**	**15.2%**	**8.7%**	**3.7%**	**3.2%**	**1.8%**	**6.2%**
Transit Trip Factor	***322.9%***	***361.4%***						
MUNI Light Rail	5.1%	1.2%	1.1%	0.2%	0.0%	0.1%	0.0%	0.4%
Other Transit	14.7%	21.0%	14.1%	8.5%	3.7%	3.0%	1.8%	5.7%
Bicycle	**2.9%**	**2.0%**	**1.4%**	**1.7%**	**1.3%**	**1.3%**	**0.6%**	**1.5%**
Walk	**24.5%**	**21.7%**	**21.2%**	**12.5%**	**8.2%**	**7.7%**	**5.0%**	**10.3%**
Other	**2.9%**	**1.3%**	**1.1%**	**3.2%**	**2.0%**	**1.2%**	**2.8%**	**2.1%**

Note: Trip Factors = "within ¼ mile" & "¼ mile to ½ mile" mode share divided by Regional "Total" mode share

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TABLE A-4: Mode Shares and Calculated Vehicle Trip Reduction and Transit Trip Increase Factors – Santa Clara VTA Light Rail
CIRCULAR BUFFER ANALYSIS

	Proximity of Resident's Home to **VTA Light Rail Stations**							
	Within	1/4 mile to	1/2 mile to	Greater than 1 mile				
Travel Characteristic	1/4 mile	1/2 mile	1 mile	Urban	High-Sub	Low-Sub	Rural	Total
MODE SHARES								
Home-Based Work								
In-Vehicle Person	**74.2%**	**90.8%**	**89.7%**	**69.6%**	**87.1%**	**87.5%**	**93.7%**	**81.7%**
Vehicle Driver	70.6%	81.5%	83.2%	61.2%	80.1%	82.2%	88.3%	74.9%
Vehicle Passenger	3.6%	9.3%	6.5%	8.3%	7.0%	5.2%	5.4%	6.8%
Total Transit	**24.0%**	**6.1%**	**4.3%**	**20.3%**	**8.8%**	**8.1%**	**4.5%**	**12.2%**
VTA Light Rail	0.4%	1.4%	1.2%	0.4%	0.1%	0.0%	1.0%	0.3%
Other Transit	23.6%	4.7%	3.1%	19.9%	8.6%	8.1%	3.4%	11.9%
Bicycle	**1.3%**	**0.7%**	**0.3%**	**2.4%**	**1.4%**	**1.8%**	**0.4%**	**1.8%**
Walk	**0.6%**	**2.2%**	**1.5%**	**6.4%**	**2.0%**	**2.0%**	**1.2%**	**3.4%**
Other	**0.0%**	**0.2%**	**4.2%**	**1.3%**	**0.7%**	**0.6%**	**0.2%**	**1.0%**
Non-Work Trips								
In-Vehicle Person	**72.6%**	**84.7%**	**78.0%**	**67.1%**	**83.4%**	**86.3%**	**88.9%**	**79.5%**
Vehicle Driver	45.3%	49.4%	46.4%	41.4%	51.8%	55.7%	57.2%	50.0%
Vehicle Passenger	27.3%	35.4%	31.6%	25.8%	31.6%	30.5%	31.8%	29.5%
Total Transit	**11.3%**	**2.5%**	**1.9%**	**9.7%**	**2.5%**	**1.9%**	**1.1%**	**4.4%**
VTA Light Rail	0.6%	0.2%	0.6%	0.0%	0.0%	0.0%	0.0%	0.1%
Other Transit	10.7%	2.3%	1.3%	9.7%	2.5%	1.9%	1.1%	4.4%
Bicycle	**0.7%**	**0.5%**	**0.5%**	**1.8%**	**1.3%**	**1.3%**	**0.6%**	**1.4%**
Walk	**7.1%**	**9.0%**	**9.7%**	**19.0%**	**10.5%**	**9.2%**	**5.9%**	**12.3%**
Other	**8.3%**	**3.3%**	**9.9%**	**2.3%**	**2.4%**	**1.4%**	**3.5%**	**2.4%**
Total Trips								
In-Vehicle Person	**73.0%**	**86.2%**	**80.8%**	**67.7%**	**84.2%**	**86.5%**	**89.9%**	**80.0%**
Vehicle Driver	52.1%	57.4%	55.2%	46.1%	58.1%	61.1%	63.3%	55.5%
Vehicle Trip Factor	***93.9%***	***103.5%***						
Vehicle Passenger	20.9%	28.8%	25.6%	21.6%	26.1%	25.4%	26.6%	24.5%
Total Transit	**14.7%**	**3.4%**	**2.5%**	**12.2%**	**3.9%**	**3.1%**	**1.8%**	**6.2%**
Transit Trip Factor	***239.7%***	***54.9%***						
VTA Light Rail	0.6%	0.5%	0.7%	0.1%	0.1%	0.0%	0.2%	0.1%
Other Transit	14.2%	2.9%	1.8%	12.1%	3.8%	3.1%	1.6%	6.0%
Bicycle	**0.9%**	**0.5%**	**0.5%**	**2.0%**	**1.3%**	**1.4%**	**0.6%**	**1.5%**
Walk	**5.3%**	**7.3%**	**7.8%**	**16.0%**	**8.6%**	**7.7%**	**5.0%**	**10.3%**
Other	**6.1%**	**2.5%**	**8.5%**	**2.1%**	**2.0%**	**1.2%**	**2.8%**	**2.1%**

Note: Trip Factors = "within ¼ mile" & "¼ mile to ½ mile" mode share divided by Regional "Total" mode share

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APPENDIX B: SUMMARIES OF ELASTICITY DATA FROM SELECTED STUDIES REVIEWED FOR THIS RESOURCE PAPER (*Thanks To Reid Ewing, who compiled the majority of the studies' data*)

Table B-1. Multivariate Statistical Studies Using Aggregate Data

	Study Design	Subjects	Geography	Sample (N)	Source of Elasticities	Model Form	Outcome Variables	Built Environmental Variables	Control Variables	Elasticities	Comments
Messenger and Ewing (1996)	cross sectional	bus stops	¼ mile buffers		computed from model coefficients	linear equations estimated jointly					
Bhatia (2004)	cross sectional	general population	communities of varying size	20 DC area communities	derived from author's dataset	linear regression for walk share loglinear regression of transit share	% walk trips % transit trips	household density	average household size median household income	walk share of all trips household density: 1.100 (median household income: 0.1973) transit share of all trips household density: 0.7889 (median household income: -0.4055)	
Braza et al., (2004)	cross sectional	elementary school students		34 schools in California (with their aggregate mode shares)	derived from authors' dataset	linear regression	% walk or bike to school	population density within ½ mile of school intersections per street mile within ½ mile of school	school size % students receiving public assistance % students of various ethnicities minimum distance for busing	walk share of school trips population density: 0.2963 intersections per street mile: 0.5776 (% receiving public assistance: 0.1788)	

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Table B-2. Multivariate Statistical Studies Using Disaggregate Data

	Study Design	Subjects	Geography	Sample (N)	Source of Elasticities	Model Form	Outcome Variables	Built Environmental Variables	Control Variables	Elasticities	Comments
Ewing et al. (1996)	cross sectional							accessibility index walking quality factor proportion four-way intersections proportion quadrilateral blocks average sidewalk proportion of area within ¼ mile of proportion commercial parcels with front or side parking	annual income per person number of children under 5 gender driver's license employed status trip distance transit service intensity	proportion within ¼ mile of store: 0.365 walking quality factor: 0.119 walking/biking/transit choice for non-work intensity factor: 0.084 walking quality factor: 0.183 sidewalk width: 0.087 front and side parking: -0.121	other variables have insignificant coefficients
Kitamura et al. (1997)	cross sectional (with neighborhoods matched on income and disparate in land use characteristics)	general population	large neighborhoods and varying distances around residences	3,795-10,767 individuals in San Francisco Bay Area	computed from model coefficients	linear regression	fraction of walk/bike trips fraction of transit trips	high density presence of backyard distance to nearest grocery store distance to nearest distance to nearest bus stop sidewalks in neighborhood	household size number of driver's license high school graduate degree professional occupation high personal income medium personal income attitudes on a variety of subjects	share of walk/bike distance to nearest bus stop: -1.034 distance to nearest park: -1.07 (household size: - share of transit trips distance to nearest rail station: -1.619 distance to nearest park: -1.450 (number of vehicles: -8.794)	
Kockelman (1997)	cross sectional	adults	TAZs and census tracts	52,650 trips in the San Francisco Bay Area	reported by author	binomial logit	probability of walking or biking	job accessibility (gravity formulation) population density job density land use mix (dissimilarity index) land use balance (entropy formulation) non-work land use balance (entropy formulation)	household size auto ownership income per gender age driver's license employment race professional occupation	walk/bike choice accessibility: 0.22 non-work land use balance: 0.23 (vehicles per person: -0.60) (household size: 0.48)	

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Greenwald and Boarnet (2001)	cross sectional	general population		1,084 individuals in Portland, OR	computed from model coefficients	ordered probit	number of nonwork walk trips per person	population density of census block group retail employment density w/i 1-mile of % quadrilateral street sections pedestrian environment factor population density of zip code retail job density w/i zip code	age number of vehicles per gender household number of number of employed ethnicity workday median trip distance median trip speed		mean values of dependent and independent variables supplied by used census block group and 1-mile buffer variables rather than zip code level variables as the smaller geography is more
Cervero (2002)	cross sectional	general population		1,960 trips for all purposes in Montgomery County, MD	reported by author	multinomial logit	probability of taking transit	gross density land-use diversity ratio of sidewalk to road miles proportion of multi-family households within ½ mile of metrorail station	vehicle gender driver's license full-time employment	transit choice all trip purposes gross density origin: 0.511 gross density destination: 0.268 land-use diversity origin: 0.615 land-use diversity destination: 0.452 sidewalk ratio destination: 0.327 proportion multifamily with ¼ mile of station origin: 0.195	add Cervero's explanation
Reilly (2002)	cross sectional	general population	buffer widths around residences of ¼ to 4 miles	7,604 trips for non-work purposes in San Francisco, CA	computed from model coefficients	multinomial logit	probability of walking probability of taking transit	population density distance to closest commercial use proportion commercial uses dissimilarity index mean block size intersection density proportion detached homes median year built mean parcel size	age driver's license employment race/ethnicity household size household vehicles/driver home ownership weekend trip transit access index		

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Cervero and Duncan (2003)	cross sectional	general population		7,836 trips for selected purposes in San Francisco, CA	computed from model coefficients	multnomial logit	probability of walking on a trip of less than 5 miles probability of biking on a trip of less than 5 miles	employment density land-use diversity factor pedestrian-friendly design factor	gender race disability number of household vehicles number of household bicycles trip purpose trip distance weekend trip nighttime trip rainfall slope low-income neighborhood	walk choice employment density at origin: 0.0411 land-use diversity at origin land-use diversity at destination pedestrian-friendly design at origin pedestrian-friendly design at destination (trip distance: -3.334) (number of vehicles: -1.241)	
Rajamani et al. (2003)	cross sectional	general population		2,500 home-based nonwork trips in Portland, OR	reported by authors	multinomial logit	probability of walking on nonwork trip probability of taking transit on nonwork trip	population density land use mix diversity index % cul-de-sacs in neighborhood street connectivity index accessibility indices (only for recreation trips)	age gender handicap race household income vehicles per adult number of children number of adults travel times and costs	walk choice for nonwork trips population density: 0.0096 land use mix diversity index: 0.3610 % cul-de-sacs: -0.0046 (walk travel time: -0.8655) (vehicles per adult: -1.0464) (number of children: -0.1687) transit choice for nonwork trips population density: 0.0775 land use mix: -0.0370 % cul-de-sacs: 0.0004 (transit travel time: -0.8689) (vehicles per adult: 0.0444) (number of children: -0.2104)	check with Gerritt both on calculation of elasticities and definitions of BE variables what happened to other variables they say higher densities improve the chances of walking but elasticity is small probabilities aggregated to obtain elasticities of mode shares didn't include bike elasticities due to small sample of bike trips
Ewing et al. (2004)	cross sectional	students	TAZs	711 trips to school in Gainesville, FL	reported by author	multinomial logit					

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Zhang (2004)	cross sectional	general population		1,619 home-based work trips and 1,036 home-based nonwork trips in Boston (separate sample of trips for Hong Kong)	reported by author	multinomial logit	probability of walk or bike trip probability of transit trip	population density (origin and destination) job density (origin and destination) land use balance (origin and destination – entropy formulation) % cul-de-sac intersections (origin and destination)	age less than 30 full-time worker status home ownership female no children vehicles per worker distance to nearest transit station travel cost and time by different modes	walk/bike choice for work population density: 0.105 job density: 0.026 land use balance: -0.017 % cul-de-sacs: -0.072 (walk time: -0.5534) (vehicles per worker: -0.2483) walk/bike choice for population density: 0.060 job density: -0.004 land use balance: 0.118 % cul-de-sacs: -0.047 (walk time: -0.8285) (vehicles per worker: -0.2817) transit choice for work trips population density: 0.118 job density: 0.090 land use balance: -0.020 % cul-de-sacs: -0.083 (transit time: -0.2794) (vehicles per worker: -0.3688) transit choice for nonwork trips population density: 0.126 job density: 0.004 land use balance: 0.121 % cul-de-sacs: -0.044 (transit time: -0.2367) (vehicles per worker: -0.2828)	elasticities reported are probability weighted average individual elasticities for each mode relative to built environmental variables averaged for origin and destination these elasticities may not relate to mode share but instead to probabilities – ask author

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Hedel and Vance (2006)	German Mobility Panel: eight overlapping waves (1996-2003) each comprising a group of households surveyed for one week in three successive years	Each licensed driver of each household (4300 individuals in 2600 households)	Germany	4300 individuals in 2600 households	Reported by authors	2-part model: probit and OLS estimators. 3-tiers: individual, household, zip code (insufficient data for hierarchical modeling) Instrumented neighborhood variables (IV): % bldgs <1945 % bldgs 1945 85	Vehicle trips VMT	Commercial diversity: entropy mix of 3 types of commercial Commercial density: commercial businesses per acre in zip code. Street density: sq feet per acre in zip code Access to transit: walk minutes to bus stop	Disposable per capita income, age, gender, education, employment status, home/work distance, auto ownership	VT elasticities: Commerc density = -0.031 Comm diversity* = +0.132 Transit walk dist = +0.022 VMT elasticities: Commerc density = -1.556 Comm diversity* = +2.646 Transit walk dist = +1.151 Street density* = -0.092 ** Not significant at the 5% level* VT elasticities: Commerc density = -0.051 Comm diversity* = -0.336 Transit walk dist = +0.032 VMT elasticities: Commerc density = -4.349 Comm diversity* = -34.53 Transit walk dist = +2.567 Street density = -0.394 ** Not significant at the 5% level*	
Guo, Bhat, Copperman	SF Bay Area Travel Survey, 2000	Statistical sample of Bay Area households	Sample of households in 9 urban area counties	19,400 individuals	Probit model "parameters" reported.	Bivariate ordered probit model	Home-based auto trip generation (excludes NHB) for: 1) maintenance and 2) discretionary	Mix of resid, comer, other land use; Pop density, bike network density, street density and grain, transit availability, maintenance businesses density, discretionary business density, TAZ accessibility to shopping, rec, employment	Household size, income, structure, autos, individual age, gender, ethnicity	"Parameters" for Maintenance trips: Pop density = -2.664 "Parameters" for Discretionary trips: ¼ mi diversity: -0.188 Fraction residential = +0.32 Pop density = -1.531 Highway density = -0.046	Does not address self-selection

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Cao, Mokhtarian, Handy	Mail-out survey to with response by 320 movers and 230 non-movers	Households who moved within region in 4 traditional and 4 suburban neighborhoods.	Eight No. Cal. neighborhoods in Mt View area, Sacramento, Santa Rosa, Modesto	547 households, of which about 320 had moved within year prior to survey		Maximum Likelihood Est. Structural Equations Model	Changes in auto ownership, driving	Accessibility to mall, downtown, amenities Outdoor spaciousness yard size, off-street parking Socializing: diverse neighbors, outdoor presence	Residential preference, travel attitudes	SEM Total Effects: Spaciousness = +0.014 Accessibility = -0.223 Socializing = -0.132 Leisure businesses = -0.011	

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Table B-3. Quasi-Experimental Studies Using Disaggregate Data

	Study Design	Subjects	Geography	Sample (N)	Source of Elasticities/ Effect Sizes	Model Form	Outcome Variables	Built Environmental Variables	Control Variables	Marginal Effects	Comments
Ewing et al. (1994)					derived from authors' dataset						
Cervero and Radisch (1996)	quasi-experimental with neighborhoods matched on regional location, transit and freeway access, and household	general population	2 neighborhoods in East Bay of San Francisco-Oakland	820 work trips (620 residents for nonwork travel survey) (840 residents for work travel survey)	computed from model coefficients	binomial logit	probability of walking to work	traditional neighborhood design (Rockridge dummy variable)	household size household income	with traditional design % greater probability of walking to nonwork destinations	assumed a mean of two vehicles per household
Hess et al. (1999)	quasi-experimental with neighborhoods matched on population density and median	neighborhood commercial centers	12 neighborhoods in Seattle, WA	12 commercial centers	derived from authors' dataset	linear regression	pedestrians/1000 residents	urban neighborhood design (dummy for urban neighborhoods with small blocks, sidewalks, and direct routes)	population density median household income number of businesses	with urban neighborhood design 146% more walk trips to commercial centers	sidewalk completeness and block size are highly correlated
Handy and Clifton (2001)	quasi-experimental with neighborhoods matched on income (statistical controls for individual SES differences)	general population	6 neighborhoods in Austin, TX (2 traditional, 2 early-modern, 2 late-modern)	1,377 residents	computed from model coefficients	linear regression	number of walk trips for shopping	traditional neighborhood design (Old West Austin neighborhood dummy)	age children in household gender income miles to store quality of stores index walking incentive index walking comfort index strolling frequency	with traditional design 120% more walk trips for shopping	marginal effect size computed at mean values of all independent variables
Lund (2003)	quasi-experimental with neighborhoods matched on *** (statistical controls for individual SES differences)	residents of single-family homes	8 neighborhoods in Portland, OR (4 urban, 4 suburban)	427 residents	computed from model coefficients	linear regression	number of walk trips to destinations number of strolling trips	on-site retail on-site retail and park inner-city location	age gender race children of varying ages homemaker status length of residence attitudes on a variety of subjects	with on-site retail 14% more walk trips to destinations 18% fewer strolling trips with on-site retail and park 33% more walk trips to destinations 9% fewer strolling trips at inner-city locations 6% more walk trips to destinations 2% fewer strolling trips	marginal effect sizes

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Khattak and Rodriguez (2004)	quasi-experimental with neighborhoods matched on house value, age of development, transit service availability, and regional	residents of single-family homes	2 suburban neighborhoods in Chapel Hill, NC	711 residents	computed from model coefficients	negative binomial regression	number of walk and bike trips	neo-traditional neighborhood design (Southern Village dummy)	gender age number of vehicles household size housing type (single family)	with neo-traditional design 88% more walk and bike trips overall 22% more recreational walk and bike trips 189% more utilitarian walk and bike trips	
Rose and Dill (2004)	quasi-experimental with neighborhoods matched on house size, house value, age of development, and regional location (statistical	residents of single-family homes	3 suburban neighborhoods in Portland, OR	210 residents	computed from model coefficients	poisson regression	number of walk trips number of walk trips for shopping number of walk trips for recreation	neo-traditional neighborhood design (Fairview Village dummy)	age number of vehicles gender number of children	% more walk trips % more walk trips for shopping % more walk trips for recreation	marginal effect size computed at mean values of all independent variables base is average for two conventional neighborhoods
Mohammadian, A; Zhang	US National Household Travel Survey, 2001; market-segment cluster analysis	Statistical sample of US households	Sample of households in 50 US states	640,000 trips, 160,000 people, 70,000 households	(none available, just cluster differences)	Cluster analysis, categories incl: Young achievers	Trips by purpose, VMT, % transit, non-motorized trips, tours	Census tract: Housing density, employt density, pop density, intersection density, road density, block size,	Household age group, education, occupation Other component analysis factors: vehicles, income, ethnicity,	(None available)	Sample cluster results for: 2,3. Young suburbans
Dill	Home-delivered survey with response by 312 households		8 developments near MAX stations in the Portland, OR area	312 households, 247 suburban, between 13 and 68 households in each study development			Percen t Commuting by Transit	Estimated walk trip time from transit station to work/school		>30% transit share for walk trip times <15 minutes 20-25% transit share for walk trip times 15-30 minutes <5% transit share for walk trip times > 30 minutes	
Zhou, Gould, O'Flaherty	South Coast Air Quality Management District Survey	UCLA Faculty and Staff	Greater Los Angeles area	2,484 employees			Transit share	Within 1/4 Mile of Bus Stop Transit Carrier		7-12% higher transit mode share, depending on carrier	
MTC Planning Section	SF Bay Area Travel Survey, 2000	Statistical sample of Bay Area households	San Francisco Bay Area	35,000 residents in 15,000 households			Transit share Auto Ownership VMT	Distance from train/ferry station for residence and work		Those living and working within 1/2 mile of transit make 42% of commutes About 1/3 of households within 1/2 mile radius of transit/ferry station have no auto Households within 1/2 mile of transit/ferry station generate half the VMT of suburban and rural residents	

APPENDIX C: EXPERT RESEARCH PANEL PARTICIPANTS

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ANNOTATED BIBLIOGRAPHY

ANNOTATED BIBLIOGRAPHY (Partial):

Anderson, Michael David and Sharfi, Khalid and Gholston, Sampson. *Direct Demand Forecasting Model for Small Urban Communities Using Multiple Linear Regression*. Transportation Research Board, 2006.

Forecasting traffic volumes to support infrastructure decisions is the heart of the travel demand modeling process. The most commonly used methodology for obtaining these forecasted traffic volumes is the four-step process that considers generation, distribution, mode choice, and route assignment of trips. Each step of the process is performed independently, almost always through the use of computer software, to achieve the final traffic volumes. This paper examines the possibility of forecasting traffic volumes by using a multiple linear regression model to perform what is termed direct demand forecasting. The direct demand forecasting model generates traffic volumes for roadways through the development of a functional relationship between roadway characteristics and socioeconomic influences. A direct demand travel forecasting model has been developed and applied, with a small urban area as a case study community. Results are consistent with those obtained from the traditional four-step methodology.

de Abreu e Silva, João and Golob, Thomas F and Goulias, Konstadinos G. Effects of Land Use Characteristics on Residence and Employment Location and Travel Behavior of Urban Adult Workers. Transportation Research Board, TRR 1977, 2006.

The relationships between socioeconomic and demographic characteristics, land use characteristics around the residence and work locations, and a variety of travel behavior indicators are examined by using a structural equations model. This simultaneous equations system allows one to model the effects of land use characteristics on travel behavior while controlling for self-selection bias: certain types of persons choose to live and work in areas that suit their lifestyles and resources. In the model, travel behavior choices are multidimensional; total time away from home, trips and trip distances by three types of modes, car ownership, and possession of a transit pass are included. Land use is captured in geographic information system-based measures of land use and transport supply variables centered on both home and work locations. These measures are reduced to eight land use factors. The analysis provides strong evidence in favor of using land use and urban form designs and planning both around residential neighborhoods and workplace areas. Results provide quantitative evidence of the extent to which workers living in denser, central, compact, and mixed zones make more intense use of transit and nonmotorized modes and tend to have lower car ownership levels. Workers in areas well served by freeways tend to make more intense use of their cars, although this does not inhibit use of transit. The results show that land use measures differ in their ability to explain different travel demands even when controlling for socioeconomic and demographic effects.

Bagley, M. & Mokhtarian, P. (2002). The Impact of Residential Neighborhood Type on Travel Behavior: A Structural Equations Modeling Approach. *Annals of Regional Science*, *36*, 279-297.

In this paper, the authors examine the relationship of residential neighborhood type to travel behavior, incorporating attitudinal lifestyle, and demographic variables. The variable are drawn from data collected from residents of five neighborhoods in the San Francisco Bay Area in 1993.

Barnes, G. (2001). *Population and Employment Density and Travel Behavior in Large U.S. Cities*. Minneapolis: Minnesota Department of Transportation.

This research project sought to determine whether high-population density or some other aggregate land use characteristic can be used to create beneficial effects on travel behavior at the level of the entire urbanized area. The research also looked at gaining a better understanding of the reasons for variations in travel behavior across large U.S. cities. This research involved a comprehensive analysis, considering an unusually large number of factors. Researchers also developed a number of ways to describe aggregate "macro" land use in an urbanized area specifically for this study. The study found that land use, at the aggregate level studied in this project, is not a major leverage point in determining overall population travel choices. Much policy seems to be based on the belief that relatively small changes to land use will have a big impact on travel choices. The findings here imply

just the opposite - that even very big, widespread differences in land use have very little impact on travel behavior, in good ways or in bad ways.

Bhat, C. R and Guo, J. Y. (2006). *Comprehensive Analysis of Built Environment Characteristics on Household Residential Choice and Automobile Ownership Levels.* Washington, DC: Transportation Research Board.

This research paper identifies the research designs and methodologies that may be used to test the presence of ?true? causality versus residential sorting-based ?spurious? associations in the land-use transportation connection. The paper then develops a methodological formulation to control for residential sorting effects in the analysis of the effect of built environment attributes on travel behavior-related choices. The formulation is applied to comprehensively examine the impact of the built environment, transportation network attributes, and demographic characteristics on residential choice and car ownership decisions. The model formulation takes the form of a joint mixed multinomial logit-ordered response structure that accommodates differential sensitivity to the built environment and transportation network variables due to both demographic and unobserved household attributes and controls for the self-selection of individuals into neighborhoods based on car ownership preferences stemming from both demographic characteristics and unobserved household factors. The analysis in the paper represents, to our knowledge, the first instance of the formulation and application of a unified mixed multinomial logit-ordered response structure in the econometric literature. The empirical analysis in the paper is based on the residential choice and car ownership decisions of San Francisco Bay area residents.

Boarnet, M and Crane, R. (2001, November). The Influence of Land Use on Travel Behavior: Specification and Estimation Strategies. *Transportation Research Part A: Policy and* Practice, *35*(9), 823-845.

Even though the relationship between urban form and travel behavior is a key element of many current planning initiatives aimed at reducing car travel, the literature faces 2 major problems. First, this relationship is extremely complex, and second, several specification and estimation issues are poorly addressed in prior work, possibly generating biased results. In this paper, the authors argue that many of the latter problems are overcome by systematically isolating the separable influences of urban design characteristics on travel and then properly analyzing individual-level data. The results that directly follow from alternative land use arrangements, as well as those that do not, are then clarified, thus identifying specific hypotheses to be tested against the data. More reliable tests of these hypotheses are then developed, and implications of alternative behavioral assumptions regarding travel costs are explored. The measured influence of land use on travel behavior is shown to be very sensitive to the form of the empirical strategy.

Boarnet, M & Crane, R. (2001). *Travel by Design: The Influence of Urban Form on Travel.* New York: Oxford University Press.

Combining urban design and transportation planning with the idea that neighborhoods and cities can be designed to change travel behavior is a popular idea. The goal is to reduce car use and increase the quality of life in the neighborhood. This book looks into the premise of urban design and transportation planning. It seeks to answer three questions: Can it work, Will it be put into practice, and Is it a good idea? The book is divided into four parts: an introduction, a section on travel behavior, a section on the supply of place, and a section on the role of travel by design. Topics include traffic, urban form, travel, demand for travel, a study of travel behavior, neighborhood supply, mathematical models for trip generation, transit-oriented planning, and a case study of planning.

Cao, X., Mokhtarian, P. L., & Handy, S. L. (2006). Neighborhood Design and Vehicle Type Choice: Evidence from Northern California. *Transportation Research Part D, 11,* 133–145.

Previous studies have found that suburban development is associated with the unbalanced choice of light duty trucks. The specific aspects of the built environment that influence vehicle choice, however, have not been well-established. Further, these studies have not shed much light on the underlying direction of causality: whether neighborhood designs themselves, as opposed to preferences for neighborhood characteristics or attitudes towards travel, more strongly influence individuals' decisions regarding vehicle type. Using a sample from Northern California, this study investigated the relationship between neighborhood design and vehicle type choice, controlling for residential self-

selection. Correlation analyses showed that neighborhood design has a strong association with vehicle type choice. Specifically, traditional neighborhood designs are correlated with the choice of passenger cars, while suburban designs are associated with the choice of light duty trucks. The nested logit model suggests that sociodemographic and attitudinal factors play an important role, and that an outdoor spaciousness measure (based on perceptions of yard sizes and off-street parking availability) and commute distance also impact vehicle type choice after controlling for those other influences. This study, therefore, supports the premise that land use policies have at least some potential to reduce the choice of light duty trucks, thereby reducing emissions.

Cao, X., Mokhtarian, P. L., & Handy, S. L. (2006). *Impacts of the Built Environment and Residential Self-Selection on Nonwork Travel: Seemingly Unrelated Regression Approach.* Washington, DC: Transportation Research Board.

Many studies have found that residents living in suburban neighborhoods drive more and walk less than their counterparts in traditional neighborhoods. This evidence provides support to the idea of using smart growth strategies to alter individuals' travel behavior. However, the observed differences in travel behavior may be more of a residential choice than a travel choice. Applying seemingly unrelated regression to a sample from Northern California, we explored the relationship between the built environment and nonwork travel behavior, controlling for measures of residential self-selection. This study shows that, at the neighborhood level, individuals' non-motorized travel is greatly influenced by residential self-selection, and residential preference and travel attitudes provide an incremental contribution in explaining the variation in auto and transit travel. After accounting for the influence of self-selection, we also found that neighborhood characteristics themselves affect individuals' travel choices. Therefore, if cities use land use policies to offer residents opportunities to drive less and use alternative modes more, the evidence suggests that they will tend to do so.

Cao, X., Handy, S. L., & Mokhtarian, P. L. (2006). The influences of built environment and residential self-selection on pedestrian behavior: evidence from Austin, TX. *Transportation, 33*, 1-20.

Planners and public health officials are encouraging policies that improve the quality of the built environment for pedestrians: mixed land uses, interconnected street networks, sidewalks, and other facilities. Whether such policies will prove effective partly depends on two issues. First, the impact of the built environment on pedestrian behavior may depend on the purpose of the trip, whether for utilitarian or recreational purposes. Second, the connection between the built environment and pedestrian behavior may be more a matter of residential location choice than of travel choice. This study aims to provide new evidence on both questions. Using information from a 1995 survey conducted in six neighborhoods in Austin, TX, two separate negative binomial models were estimated for the frequencies of strolling trips and pedestrian shopping trips within neighborhoods. An overview of average frequencies for both types of travel in these neighborhoods shows that strolling trips account for the majority of total walking trips made by respondents. Findings suggest that although residential self-selection impacts both types of trips, it is the most important factor explaining walking to a destination, i.e. for shopping. After accounting for self-selection, neighborhood characteristics (especially perceptions of these characteristics) impact strolling frequency, while characteristics of local commercial areas are important in facilitating shopping trips. This result implies that strolling trips and shopping trips are influenced by different dimensions of the built environment.

Cao, Xinyu, Mokhtarian, Patricai L., and Handy, Susan L. (2007) *Do Changes in Neighborhood Characteristics Lead to Changes in Travel Behavior?* Paper Presentation at the 11th World Conference on Transportation Research, June 24-28, 2007. University of California, Berkeley.

Suburban sprawl has been widely criticized for its contribution to auto dependence. Numerous studies have found that residents in suburban neighborhoods drive more and walk less than their counterparts in traditional environments. However, most studies confirm only an association between the built environment and travel behavior, and have yet to establish the predominant underlying causal link: whether neighborhood design independently influences travel behavior or whether preferences for travel options affect residential choice. That is, residential self-selection may be at work. A few studies have recently addressed the influence of self-selection. However, our understanding on the causality issue is still immature. To address this issue, this study took into account individuals' self-selection by employing a quasi-longitudinal design and by controlling for

residential preferences and travel attitudes. In particular, using data collected from 547 movers currently living in four traditional neighborhoods and four suburban neighborhoods in Northern California, we developed a Structural Equations Model to investigate the relationships among changes in the built environment, changes in auto ownership, and changes in travel behavior. The results provide some encouragement that land-use policies designed to put residents closer to destinations and provide them with alternative transportation options will actually lead to less driving and more walking.

Cervero, R. (1993). Ridership Impacts of Transit-Focused Development in California. Berkeley: Report to the California Department of Transportation, IURD Monograph.
This report examines evidence on the degree to which existing large-scale developments near rail stations in California have encouraged transit usage. Ridership patterns are studied for housing, office-workplace, and retail developments. In addition to quantifying the ridership impacts of transit-focused developments, the study also seeks to explain those factors which appear to most directly account for the travel choices of people living, working, and shopping near rail stations.

Cervero, R. (1994). Rail-Oriented Office Development in California: How Successful? *Transportation Quarterly*, *48*, 33-44.
Can transit-focused development lure significant number of Californians out of their cars? This paper explores this question by examining the ridership impacts of existing large-scale office projects near stations of five rail transit systems in the state--Bay Area Rapid Transit (BART), Santa Clara Light Rail Transit, Peninsula CalTrain, Sacramento Regional Transit and San Diego Trolley. Among California's urban rail systems, these have been in operation the longest and thus provide a context for studying the ridership impacts of office developments around more mature station environments. In addition to documenting transit ridership impacts, this paper also identifies key factors that influence the modal choices of station-area office workers. The effects of the built environment--such as density and land-use mixtures--on rail modal splits are also studied.

Cervero, R. (1995). Rail Access Modes and Catchment Areas for the BART System. BART @ 20 Study, IURD, Monograph 50.
The purpose of this report is to provide a 20-year perspective into the land use impacts of BART. The analysis concentrates on historical changes in private residential and non-residential land development for a sample of stations on various segments of the BART system. This report concentrates on documenting land use changes around specific stations and generalizing about the land use impacts of BART among classes of stations. For a sample of stations, differences in land use changes around BART stations and matched pairs of nearby freeway interchanges are also compared. Models are also presented that identify factors associated with station-area land-use changes. The report concludes by merging the results of individual station-area studies, and drawing policy inferences from these findings.

Cervero, R. (1996). Mixed Land-Uses and Commuting: Evidence from the American Housing Survey. *Transportation Research A*, 30, 361-377.
This paper investigates how mixed land-uses influence the commuting choices of residents from large metropolitan areas using data from the 1985 American Housing Survey. The analysis examines the effects of mixed-use levels as well as other features of the built environment like residential densities on three measures of transportation demand: commuting mode choice, commuting distance and household vehicle ownership levels. The effects of land-use environments on mode choice are modeled using binomial logit analysis.

Cervero, R. (2001). Walk-and-Ride: Factors Influencing Pedestrian Access to Transit, *Journal of Public Transportation*, 3(4), 1-23.
The article discusses the problems pedestrians face in trying to gain access to transit, as the predominant means of reaching suburban transit stations in the United States is by private car. In this article, analyses are carried out at two resolutions to address the problem: San Francisco Bay Area's compact, mixed-use settings with minimal obstructions that are conductive to walk-and-ride rail patronage; and Montgomery County, Maryland's urban design with sidewalk provisions and street dimensions that significantly aid access to transit by foot. The paper presents elasticities that summarize findings.

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Cervero, R. (2002, June), Built Environments and Mode Choice: Toward a Normative Framework. *Transportation Research Part D: Transport and Environment, 7*(4), 265-284.
Many studies contend that compact, mixed-use, pedestrian friendly urban development can significantly influence mode choice. However, most of these studies have failed to adequately specify relationships for purposes of drawing inferences about the importance of built-environmental factors in shaping mode choice. This paper seeks to overcome some of the deficiencies of past mode-choice analyses through an expanded specification of mode-choice utility. Mode choice in Montgomery County, Maryland is considered around a normative model that weighs the influences of not only three core dimensions of build environments (density, diversity and design) but factors related to generalized cost and socioeconomic attributes of travelers as well. The marginal contributions of built-environment factors to a traditionally specified utility-based model of mode choice are measured. The analysis reveals intensities and mixtures of land use significantly influence decisions to drive alone, share a ride or use public transit, while the influences of urban design tend to be less significant. Elasticities that summarize relationships are also presented. Results indicate that land-use variables should be explicitly included in the utility expressions of mode choice models in urban settings. It is also important to include economic attributes such as travel time and price variables of competing modes in the specification of models that test the influences of land-use factors on travel demand.

Cervero, R. (2006). Alternative Approaches to Modeling the Travel-Demand Impacts of Smart Growth. *Journal of the American Planning Association, 72*(3), 285-295.
Although planners have often used traditional four-step travel demand forecasting models to estimate the travel impacts of smart growth, they are not really appropriate for estimating the travel impacts of neighborhood-scale projects or development near transit stops. This article presents some alternatives to traditional modeling of neighborhood-scale transportation projects, including the direct (or off-line) modeling approach. Examples are presented of direct modeling of rail and transit-oriented land use proposals for the Charlotte, North Carolina metropolitan area, the San Francisco Bay Area, and south St. Louis County in Missouri. Results indicate that concentrating development near rail stations produced an appreciable jump in ridership. These applications also demonstrate that the alternative modeling approaches are well-suited for producing orders-of-magnitude estimates of the travel demand effects of smart growth scenarios and are useful supplements to traditional four-step models.

Cervero, R. (2006). Office Development, Rail Transit, and Commuting Choices, *Journal of Public Transportation*, 9(5), 41-55.
Decentralized employment growth has cut into transit ridership across the United States. In California, about 20% of those working in office buildings near rail stations regularly commute by transit, nearly 3 times transit's modal share among those working away from rail stations. Mode choice models reveal that office workers are most likely to rail-commute if frequent feeder bus services are available, employers help cover the cost of taking transit, and parking is in short supply. However, factors such as trip-chaining and absence of restaurants and retail shops near suburban offices deter transit-commuting. Policymakers can promote transit-commuting to offices near rail stops by flexing parking standards, introducing high-quality feeder buses, and initiating workplace incentives such as deeply discounted transit passes. While housing has generally been the focus of transit-oriented development, unless the workplace end of the commute trip is also convenient to transit, transit will continue to struggle in winning over commuters in an environment of increasingly decentralized employment growth.

Cervero, R & Duncan, M. (2006). Which Reduces Vehicle Travel More: Jobs-Housing Balance or Retail-Housing Mixing? *Journal of the American Planning Association*, *72*(4), 475-490.
This paper investigates which land-use strategy yields the greatest reductions in vehicular travel: improving the proximity of jobs to housing, or bringing retail services closer to residential areas. Using data from the San Francisco Bay Area, the degree to which job accessibility is associated with reduced work travel is examined. In addition, the correlation of retail and service accessibility with mile sand hours spent getting to shopping destinations is probed. Findings show that the jobs-housing balance more successfully reduces travel. However, the vehicle miles traveled and vehicle hours traveled reduction elasticities for both polices were estimated to be well above zero, suggesting

that pursuing both strategies could yield benefits in many settings. Local and regional initiatives to balance the growth of jobs and housing are discussed.

Cervero, R. & Duncan, M. (2002). Residential Self Selection and Rail Commuting: A Nested Logit Analysis. Berkeley: UCTC Working Paper; http://www.uctc.net/papers/604.pdf
In this article, the authors examine the influence of transit-based housing on rail commuting in the San Francisco Bay Area. Using a logit formulation, factors such as travel times of competing modes and demographic characteristics of trip-makers are used for predicting the probabilities that residents opt for rail transit to reach their workplaces. The authors focus on improving upon model specifications by strongly rooting their analysis in urban location theory. They hypothesize that the decision to commute by rail can be significantly explained by residential choice.

Cervero, R. and Duncan, M. (2006). Which Reduces Vehicle Travel More: Jobs-Housing Balance or Retail-Housing Mixing? *Journal of the American Planning Association*, 72(4), 475-490.
This paper investigates which land-use strategy yields the greatest reductions in vehicular travel: improving the proximity of jobs to housing, or bringing retail services closer to residential areas. Using data from the San Francisco Bay Area, the degree to which job accessibility is associated with reduced work travel is examined. In addition, the correlation of retail and service accessibility with mile sand hours spent getting to shopping destinations is probed. Findings show that the jobs-housing balance more successfully reduces travel. However, the vehicle miles traveled and vehicle hours traveled reduction elasticities for both polices were estimated to be well above zero, suggesting that pursuing both strategies could yield benefits in many settings. Local and regional initiatives to balance the growth of jobs and housing are discussed.

Cervero, R and Ewing, R. (2002). Travel and the Built Environment-Synthesis, University of California at Berkeley Institute of Urban and Regional Development.
The potential to moderate travel demand through changes in the built environment is the subject of more than 50 recent empirical studies. The majority of recent studies are summarized. Elasticities of travel demand with respect to density, diversity, design, and regional accessibility are then derived from selected studies. These elasticity values may be useful in travel forecasting and sketch planning and have already been incorporated into one sketch planning tool, the Environmental Protection Agency's Smart Growth Index model. In weighing the evidence, what can be said, with a degree of certainty, about the effects of built environments on key transportation "outcome" variables: trip frequency, trip length, mode choice, and composite measures of travel demand, vehicle miles traveled (VMT) and vehicle hours traveled ((VHT)? Trip frequencies have attracted considerable academic interest of late. They appear to be primarily a function of socioeconomic characteristics of travelers and secondarily a function of the built environment. Trip lengths have received relatively little attention, which may account for the various degrees of importance attributed to the built environment in recent studies. Trip lengths are primarily a function of the built environment and secondarily a function of socioeconomic characteristics. Mode choices have received the most intensive study over the decades. Mode choices depend on both the built environment and socioeconomics (although they probably depend more on the latter). Studies of overall VMT or VHT find the built environment to be much more significant, a product of the differential trip lengths that factor into calculations of VMT and VHT.

Cervero, R & Gorham, R. (1995). Commuting in Transit Versus Automobile Neighborhoods. *Journal of the American Planning Association*, *61(1)*, 210-225.
A recent shift in the suburbs from automobile dependence to transit accessibility, walking, and bicycling is occurring nationwide. This article compares commuting characteristics of transit-oriented and auto-oriented suburban neighborhoods in the San Francisco Bay Area and in Southern California. Researchers found that transit neighborhoods averaged higher densities and had more gridded street patterns compared to their auto-oriented counterparts. Neighborhoods were matched in terms of median incomes and, to the extent possible, transit service levels, to control for these effects. For both metropolitan areas, pedestrian modal shares and trip generation rates tended to be considerably higher in transit than in auto-oriented neighborhoods. Transit neighborhoods had significantly higher rates of bus commuting only in the Bay Area. Islands of transit-oriented

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neighborhoods surrounded by freeway-oriented suburbs seem to have negligible effects on transit commuting.

Cervero, R & Kockelman, K. (1997). Travel Demand and the 3Ds: Density, Diversity, & Design. *Transportation Research D*, *2*, 199-219.
This paper examines the connection between the 3Ds of the built environment and travel demand. Notably, it tries to sort through the relative influences of the three dimensions after controlling for other explainers, like travellers' demographic characteristics. It does this mainly by applying the technique of factor analysis to gauge the relative influence of each dimension as well as their collective impacts. The paper tests the propositions of the new urbanists and others that compact neighborhoods, mixed land uses, and pedestrian-friendly designs 'degenerate' vehicle trips and encourage residents to walk, bike, or take transit as substitutes for automobile travel, particularly for non-work purposes.

Cervero, R., Landis, J., and Hall, P. (1992). Transit Joint Development in the United States: A Review of Recent Experiences and an Assessment of Future Potential. Washington: Urban Mass Transportation Administration, U.S. Department of Transportation; Monograph 42, Institute of Urban and Regional Development.
This report reviews transit-linked development in over two dozen U.S> cities, the history of joint development, and the evolving role of the Federal Transit Administration. The report attempts to classify and catalogue existing joint-development projects by size, type, location, and year of completion. Included as an appendix are brief description of the more than one hundred existing U.S. joint-development projects. An analysis was made on the financial impact joint development has had on the capital budgets of transit agencies that pursue joint development and the policy framework in which it occurs. In addition, the study presents the results of a survey of transit officials responsible for negotiating joint development agreements and their appraisal of its effect on their agency's operating and financial performance as well as other goals. The study concludes with an assessment of the institutional and market conditions necessary for successful joint development and recommendations to FTA for promoting and facilitating local joint-development efforts.

Cervero, R & Seskin, S. (1995). *An Evaluation of the Relationships Between Transit and Urban Form*. Washington, D.C: Transit Cooperative Research Program, Transportation Research Board.
This TCRP Digest summarizes the results of Phase I of TCRP Project H-1, "An Evaluation of the Relationships Between Transit and Urban Form". The objectives of this phase were to 1) review the existing literature on transit and urban form relations, 2) develop a framework to synthesize this knowledge, 3) identify gaps in current knowledge, and 4) develop the research plan for the balance of the project. This Digest, which brings together the results of more than 30 years of theoretical and practical examinations of transit and urban form relationships, provides a base of knowledge for future planning and decision making. The research plan will be implemented in Phase II. The contents of this Digest are organized as follows: (1.1) Introduction; (1.2) The Changing Urban Form of North American Cities; (1.3) Transit Impacts on Urban Form and Land Use; (1.4) Urban Form and Land-Use Impacts on Transit Demand; (1.5) Interactive Impacts of Transit and Urban Form; and (1.6) Research in Progress. A Bibliography is included.

Cervero, R., et. al. (2004). *Transit Oriented Development in the United States: Experiences, Challenges, Prospects*. TCRP Report 102.
Focusing development around transit facilities has become a significant way to improve accessibility, support community and regional goals of enhancing the quality of life, and support the financial success of transit investment. The experiences of a new generation of transit systems highlight the powerful role that transit investments play in channeling urban development. Benefits attributable to transit-oriented development (TOD) initiatives include improved air quality, preservation of open space, pedestrian-friendly environments, increased ridership and revenue, reduction of urban sprawl, and reorientation of urban development patterns around both rail and bus transit facilities. Today, many transit systems and communities across the country are participating in TOD programs. TOD participants range from small local and intercity bus systems with community-related services to large local and intercity rail systems with numerous projects. Increasingly, transit agencies are looking at programs and analyzing real-estate competitiveness to solicit developer interest. This report defines

TOD and joint development and offers insight into the various aspects of implementing TOD, including political and institutional factors; planning and land-use strategies, benefits, and impacts; fiscal considerations and partnerships; and design challenges and considerations. The report focuses on TOD and joint development and practice; the level of collaboration between various partners (e.g., the development community, financial partners, planning and land-use agencies, and government entities); the impacts of TOD and joint development on land values; the potential benefits of TOD; and successful design principles and characteristics. This report will be helpful to transit agencies, the development community, and local decision makers considering TOD. Some data on travel behavior is presented, including evidence that grid street networks can increase transit use by as much as 20 percent.

Chapleau, R and Morency, C and Maditiuc, G. *IMPACTS OF SETTLEMENT PATTERNS AND DYNAMICS ON URBAN MOBILITY BEHAVIOUR: FINDINGS FROM THE ANALYSIS OF MULTIPLE DATA SOURCES.* Elsevier, 2001.
This paper describes how there is a widespread recognition that transportation and land-use are strongly related. Actually, an extensive literature documents our current understanding of relationships linking urban form factors (residential and employment density, transit supply, auto ownership, accessibility and socio-economic factors such as income, age, gender and occupation) with travel activity (travel distances, modal split, mobility rate). Worth mention is a review of literature conducted in 1998 that summarized the current understanding of the implications of land-use on transit and the implications of transit on urban form in terms of influent factors. Noted in this research is the fact that "while transportation and land-use are strongly related, the current means of analyzing this relationship are limited". Urban sprawl, when observed according to its time dynamics, generates strong structural changes in travel behavior for commuters. For metropolitan transportation planners, recent and urgent concerns are emphasizing needs for clarifying the mutual impacts between land-use and transportation networks. In the same context, transport systems analysis at the metropolitan level faces the methodological challenge of accessing, structuring and exploiting relevant information from multiple data sources. This paper defines an analytical framework for modeling the impacts of settlement patterns and related mobility behavior by the incorporation of multi-dimensional variables in order to represent the complexity of the urban process phenomena. The question of forecasting future settlement pattern and related mobility is also addressed. An extensive experimentation with the Montreal data constitutes a demonstration of the applied methodology.

Chatman, D. G. (2003). How Density and Mixed Uses at the Workplace Affect Personal Commercial Travel and Commute Mode Choice. *Transportation Research Board*, TRR 1831.
A high density of shops and services near the workplace may make it easier to carry out personal commercial activities on foot before, during, and after work, enabling reduced vehicle use during the rest of the day. Investigating this question is an important addition to the current research, which has focused on residential neighborhoods. Data from the 1995 Nationwide Personal Transportation Survey are used to investigate the influence of workplace employment density and share of retail employment on commute mode choice and vehicle miles traveled (VMT) to access personal commercial activities. The analysis controls for socioeconomic characteristics and accounts for the endogeneity of commute mode choice and personal commercial VMT by employing a joint logit-Tobit model. Employment density at the workplace is found to be associated with a lower likelihood of automobile commuting and reduced personal commercial VMT, while the presence of employment in the retail category does not play a significant role. Workplace density is more clearly related to reduced VMT and automobile commuting than to characteristics of workers' residential neighborhoods and could have significant influences on personal commercial VMT and automobile commuting when increasing over a large area. The results suggest that land use planners should focus on encouraging employment density to a greater extent than is the current practice, although further research is needed on the role played by correlated factors such as higher parking costs, increased road congestion, and better transit service

Clifton, K. J. & Dill, J. (2005). *Women's Travel Behavior and Land Use: Will New Styles of Neighborhoods Lead to More Women Walking?* Washington, DC: Transportation Research Board.

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Many travel behavior researchers have explored the links between land use characteristics and travel patterns. Several of them have demonstrated that certain patterns, such as density, mixed uses, and street connectivity, are associated with fewer or shorter vehicle trips, or both. There is also a considerable body of literature demonstrating the differences between men's and women's travel patterns. Yet less effort has been devoted to examining how land use may interact with sex to influence travel outcomes. If land use does affect travel, does it affect men's and women's travel differently? In particular, will both women and men take advantage of the walkable features of new urbanist neighborhoods? This study examines these questions in more detail through empirical analysis of land use and travel data. The relationships between walking behaviors, land use, and sex are emphasized. The findings reveal that women in new urbanist neighborhoods may walk more than do women in less walkable environments. However, men appear more likely to respond to these environments and walk more than their female counterparts. Land use and urban design may also remove some of the current barriers to women's walking, particularly safety concerns; however, the results indicate that women's ability or inclination to walk may be rooted in other reasons, such as family responsibilities.

Crane, R. (1996) On form versus function: Will the New Urbanism reduce traffic or increase it? *Journal of Planning Education and Research, 15*(3), 117-126.
A major attraction of the popular and influential planning movements known as the new urbanism, transit-oriented development, and neotraditional planning are their presumed transportation benefits. Though the architects and planners promoting these ideas are usually careful to emphasize the many ingredients necessary to obtain desired results--straightening of streets to open the local network, "calming" of traffic, better integration of land uses and densities, and so on -- a growing literature and number of plans feature virtually any combination of these elements as axiomatic improvements. The potential problem is that the traffic impacts of the new plans are generally indeterminate, and it is unclear whether designers understand the reasons well enough to avoid unintended results. This paper proposes a simple behavioral model to identify and assess the tradeoffs these ideas impose on transportation and subdivision planners.

Crane, R. (1996). Cars and Drivers in the New Suburbs: Linking Access to Travel in Neotraditional Planning. *Journal of the American Planning Association*, *62*, 51-65.
Various "new suburb" land-use designs have emerged to address several social and environmental problems, including the dominance of automobile travel. Transportation benefits are expected from reducing the surface street distance between locations, mixing land uses, "calming" traffic, and promoting walking, bicycling, and transit via redesigned streets and streetscapes. The assumption that auto travel will decrease is a largely unchallenged premise of these designs. The evidence that exists on the subject is weak or contrary; this paper presents a simple behavioral argument to explain why. Generally speaking, driving is both discouraged and facilitated in the new suburbs, with the net effect being an empirical matter. The number of automobile trips and vehicle-miles traveled can actually increase with an increase in access, such as a move to a more grid-like land-use pattern. Clearly, the merits of the neotraditional and transit-oriented designs with their transportation benefits have been oversold. Each development must be evaluated as a separate case to determine whether its net impact on auto use is positive or negative.

Crane, R. (2000). The Influence of Urban Form on Travel: An Interpretive Review. *Journal of Planning Literature*, *15*(1), 3-23.
This article explores whether neighborhood design can improve traffic. A scheme is first proposed for categorizing research addressing this and other related issues. Next, a detailed discussion of key studies of urban form and travel behavior is presented. The research strategies employed and the data, methods, and results of these studies are then evaluated in detail. The article concludes that although this body of research is improving in several respects and should be encouraged by policymakers and scholars alike, the current understanding of this complex group of relationships remains tentative. The basis for using land use and urban design to selectively change travel behavior thus appears limited in the near term, whereas research opportunities abound.

Dill, Jennifer. (2003). "Transit Use and Proximity to Rail: Results from Large Employment Sites in the San Francisco Bay Area", Transportation Research Board Annual Meeting CD-ROM.

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Survey data from more than 1,000 large employment sites in the San Francisco Bay Area are used to examine the link between transit use and proximity to rail stations. The data were collected as part of an employer trip-reduction rule. Findings show that sites within one-quarter mile of a rail station have significantly higher rates of transit use than sites between one-quarter and one-half mile from stations. Transit use drops even further one-half mile from stations. That relationship holds true for all three rail systems in the Bay area. A closer look at 20 work sites near two light rail stations in Santa Clara County reveals that actual walking distance is also an important factor related to transit use. However, site design often lengthens walking distance unnecessarily. In addition, certain types of employers have higher rates of transit use than others.

Dill, J. (2006). *Travel and Transit Use at Portland Area Transit-Oriented Developments (TODs)*. TransNow, Department of Civil Engineering, University of Washington, Seattle WA.

In recent years there has been a growing interest in using land use planning to reduce reliance on the automobile long-term, through ideas such as smart growth, New Urbanism, pedestrian pockets, and transit-oriented developments (TODs). Many growing regions throughout the United States, are turning to these concepts to address problems of traffic congestion and suburban sprawl. However, the effectiveness of such policies in reducing automobile travel and improving livability is largely unknown. Portland was one of the early adopters and is often pointed to as a model for other regions. The Region's 2040 Growth Concept, adopted by the Metro regional government, includes many smart growth concepts. Metro uses a number of programs and policies to implement the 2040 Growth Concept, including subsidies to TODs. This research surveyed residents of TODs in the Portland area to help answer the following questions: (1) Do residents of TODs drive vehicles less, use transit more, and/or walk and bicycle more than residents of other neighborhoods? (2) To what extent can TODs increase transit ridership? (3) How do features of the TOD influence travel choices? (4) Do the features of TODs induce people to change their travel behavior? Alternatively, are people who move to these neighborhoods already active transit users, walkers, or cyclists, i.e., are they seeking an environment in which to practice their preferred travel behaviors? These questions are key to understanding the cause-effect relationship between the built environment and travel behavior. (5) How do people's attitudes toward travel and their neighborhood influence travel behavior?

DKS Associates, University of California, Irvine, University of California, Santa Barbara and Utah State University. (2007). Assessment of Local Models and Tools for Analyzing Smart-Growth Strategies: Final Report. Prepared for the State of California Business, Transportation and Housing Agency, and California Department of Transportation.

There is a growing interest in California in "smart-growth" land- use and transportation strategies designed to provide mobility options and reduce demand on automobile-oriented facilities. This study focuses on models and tools available for use by cities and counties in California for assessing the potential effects of smart-growth strategies.

The majority of regional agencies and local jurisdictions in California currently use a version of the Urban Transportation Modeling System (UTMS), commonly referred to as the "four-step travel demand model." This study provides a review of the steps in the UTMS process to identify where sensitivity to smart-growth strategies may be limited during the modeling process, and suggests ways that improvements could be made.

The greatest degree of modeling smart-growth sensitivity was found among UTMS models used by larger Metropolitan Planning Organizations (MPOs) or Congestion Management Agencies (CMAs). Several larger MPOs in California are also implementing new types of models, such as activity-based travel models or integrated land use/economic/transportation models. Some local jurisdictions also already use advanced models or travel demand models with high levels of smart-growth sensitivity. The report suggests that if local jurisdictions are already using models with "moderate" to "high" levels of smart-growth sensitivity, they should continue to enhance their models.

However, many local jurisdictions' models have very little sensitivity to smart-growth land use or transportation strategies. In such cases, the study suggests the appropriate use of a planning tool and/or post-processing application that incorporates "4D elasticities" (e.g., Density, Diversity, Design and Destinations). The report finds that 4D elasticities tools can be used as part of local planning, public participation, and decision-making processes, such as: reviewing major land-use development

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proposals, preparing updates to city and county general plans and specific area community plans, and during regional "visioning" and other public participation processes. Therefore, local jurisdictions with low-sensitivity models should consider using a 4Ds methodology to gain increased sensitivity to smart-growth strategies, either applied in "sketch-planning" software (such as I-PLACE[3] S, INDEX), or as a spreadsheet post-processor to a travel demand model.

However, before a decision is made to implement a 4D elasticities tool, the available travel demand model should first be tested to determine its sensitivity to smart-growth strategies. In addition, the report suggests that methods used to capture smart-growth sensitivity (either via improvements to a travel model and/or supplemental tools) should first be calibrated with local data and tested for reasonableness before being applied.

The report cautions against using 4D elasticities tools for conducting detailed corridor planning of streets or highways, for transportation impact studies of proposed land-use projects or traffic impact fee programs, or for CEQA or NEPA documentation - unless they are applied in specific ways (which are described). Other significant findings, conclusions, and recommendations are provided in Chapter 7.

Eliasson, John and Mattsson, L-G. *A Model for Integrated Analysis of Household Location and Travel Choices*. Transportation Research A 34, 375-394, Elsevier, 2000.

In this paper, the authors develop a model for integrated analysis of household location and travel choices and investigate it from a theoretical point of view. Each household makes a joint choice of location (zone and house type) and a travel pattern that maximizes utility subject to budget and time constraints. Prices for housing are calculated so that demand equals supply in each submarket. The travel pattern consists of a set of expected trip frequencies to various destinations with different modes. Joint time and budget constraints ensure that time and cost sensitivities are consistent throughout the model. Choosing the entire travel pattern at once, as opposed to doing so as a series of isolated choices, allows the marginal utilities of trips to depend on which other trips are made. When choosing trip frequencies to destinations, households are assumed to prefer variation to an extent varying with the purpose of the trip. The travel pattern will tend to be more evenly distributed across trip ends the less similar destinations and individual preferences are. These heterogeneities of destinations and individual preferences, respectively, are expressed in terms of a set of parameters to be estimated.

Ewing, R. (1995). Beyond Density, Mode Choice, & Single-Purpose Trips. *Transportation Quarterly*, *49*, 15-24.

This study investigates the independent effects of land use on house-hold travel behavior, controlling for sociodemographic differences among households. It appears that even in a sprawling sunbelt environment, land use patterns matter. However, their effect is not exactly as envisioned by the advocates. Accessibility to regional activities has much more effect on household travel patterns than does density or land use mix in the immediate area; accessibility has as much effect on the frequency and length of trips as the mode of travel; and these relationships can be best understood in terms of multi-purpose trip making.

Ewing, R & R. Cervero. (2001). Travel and the Built Environment: A Synthesis. *Transportation Research Record*, *1780*, 87-114.

The potential to moderate travel demand through changes in the built environment is the subject of more than 50 recent empirical studies. The majority of recent studies are summarized. Elasticities of travel demand with respect to density, diversity, design, and regional accessibility are then derived from selected studies. These elasticity values may be useful in travel forecasting and sketch planning and have already been incorporated into one sketch planning tool, the Environmental Protection Agency's Smart Growth Index model. In weighing the evidence, what can be said, with a degree of certainty, about the effects of built environments on key transportation "outcome" variables: trip frequency, trip length, mode choice, and composite measures of travel demand, vehicle miles traveled (VMT) and vehicle hours traveled ((VHT)? Trip frequencies have attracted considerable academic interest of late. They appear to be primarily a function of socioeconomic characteristics of travelers and secondarily a function of the built environment. Trip lengths have received relatively little

attention, which may account for the various degrees of importance attributed to the built environment in recent studies. Trip lengths are primarily a function of the built environment and secondarily a function of socioeconomic characteristics. Mode choices have received the most intensive study over the decades. Mode choices depend on both the built environment and socioeconomics (although they probably depend more on the latter). Studies of overall VMT or VHT find the built environment to be much more significant, a product of the differential trip lengths that factor into calculations of VMT and VHT.

Ewing, R., DeAnna, M., & Li, S. (1996). Land Use Impacts on Trip Generation Rates. *Transportation Research Record, 1518*, 1-7.

In the conventional four-step travel demand modeling process, the number of trips made by a household is modeled in terms of household size, income, and other sociodemographic variables; any effect of location, land use, or transportation service level is discounted. This is the same as discounting any effect of household accessibility to out-of-home activities as a factor in trip generation (accessibility depending on all three: location, land use, and transportation service level). In contrast to the practice of trip generation, theory tells us that trip rates must vary with accessibility, and some (not all) empirical studies have found that they do. In light of conflicting empirical studies, and the obvious need for more precise and policy-sensitive travel forecasts, this issue is revisited. The independent effects of land use and accessibility variables on household trip rates were tested for using data from Florida travel surveys. It was found that, after controlling for sociodemographic variables, residential density, mixed use, and accessibility do not have significant, independent effects on household trip rates. Conventional trip generation models, which generate person trips by vehicle (not by all modes) and do so without regard to residential location, may not be as bad as one would imagine a priori.

Ewing, R., Dumbaugh, E., & Brown, M. (2001). *Internalizing Travel by Mixing Land Uses: Study of Master-Planned Communities in South Florida*. Washington, DC: Transportation Research Board.

Planners, public officials, and large-scale land developers increasingly promote mixed-use developments as an alternative to sprawl. They list among the benefits of such developments the "internal capture" of trips; that is, trips that would otherwise have filtered onto the regional road network will remain on site. Yet, so little information is available about internal capture rates that traffic impact studies for mixed-use developments become little more than exercises in speculation. In an attempt to advance basic knowledge of the subject and move toward better prediction methods, 20 mixed-use communities in south Florida were studied to determine the effect of land use mix on internal capture rates. The sample of communities studied had internal capture rates ranging from 0 to 57% of all trip ends generated. When modeled in terms of land use and accessibility variables, both the scale of a development and regional accessibility proved significant, with the former directly related to internal capture and the latter inversely related to internal capture. The best-fit model explained just under half of the variance in internal capture rates. Controlling for scale and regional accessibility, land use mix and density did not have independent predictive powers. Whether because of limitations of the data set, model specification, or method of analysis, the benefits of mixed-use development were not borne out.

Ewing, R., Haliyur, P., & Page, G.W. (1994) Getting Around a Traditional City, a Suburban PUD, & Everything In-Between. *Transportation Research Record, 1466*, 53-62.

Beyond some studies relating density to mode choice, vehicle miles of travel, or gasoline consumption, little is known about the relationship of location and land use to household travel patterns. Against this backdrop a 16,000-record travel survey for Palm Beach County, Florida, was analyzed. Six communities were culled from the larger data base, and household travel data were then tested for statistically significant differences in trip frequency, mode choice, trip chaining, trip length, and overall vehicle hours of travel. Households in a sprawling suburb generate almost two-thirds more vehicle hours of travel per person than comparable households in a traditional city. Although travel differences are significant, they are smaller than one might expect given the more than 10-fold difference in accessibility among the communities. Sprawl dwellers compensate for poor accessibility by linking trips of household members in multipurpose tours. Implications for land planning are more complex than simply pedestrianizing or transitizing the suburbs. Communities

should internalize as many facilities and services as possible. This is true even where the automobile reigns supreme. Communities should concentrate facilities and services in centers and corridors. This will facilitate efficient automobile trips and tours. The more sprawling the area, the more important this becomes, for through activity centers, linked accessibility to activities can be maintained even as direct accessibility falls off.

Ewing, R., Pendall, R., & Chen, D. (2003). *Measuring Sprawl and Its Transportation Impacts*. Washington, DC: Transportation Research Board.

Across the United States, urban sprawl, its impacts, and appropriate containment policies have become the most hotly debated issues in urban planning. Today's debates have no anchoring definition of sprawl, which has contributed to their unfocused, dogmatic quality. Efforts to measure sprawl and test for relationships between sprawl and transportation outcomes are described. This is the first use of the newly minted Rutgers-Cornell sprawl indicators. Sprawl is operationalized by combining many variables into a few factors representing density, land use mix, degree of centering, and street accessibility. This consolidation of variables is accomplished with principal component analysis. These factors are then related to vehicle ownership, commute mode choice, commute time, vehicle miles traveled per capita, traffic delay per capita, traffic fatalities per capita, and 8-h ozone level. These associations are made with multiple regression analysis. For most travel and transportation outcomes, sprawling regions perform less well than compact ones. The exceptions are average commute time and annual traffic delay per capita, which do not clearly favor compactness over sprawl. The main limitation of this study has to do with the data it uses. By necessity, the study uses highly aggregate data from a variety of sources that are not always consistent as to the area under study and time period. They are simply the best data available from national sources with sufficient breadth to provide a panoramic view of sprawl in the United States. Results will have to be validated through follow-up work of a more focused nature.

Ewing, R., Handy, S. L., Brownson, R., & Clemente, O. (2006). *Identifying and Measuring Urban Design Qualities Related to Walkability*. Washington, DC: Transportation Research Board.

A growing body of research provides evidence of a link between the built environment and active living. However, to date, the measures used to characterize the built environment have been mostly gross qualities such as neighborhood density and street connectivity (see reviews by Ewing and Cervero 2001; Handy 2004; and Ewing 2005). The urban design literature points to subtler qualities that may influence choices about active travel and active leisure time. These qualities will be referred to as perceptual qualities of the urban environment or, alternately, just as urban design qualities. The urban design literature presumes that these qualities are important for walkability, without much empirical evidence. Until urban design qualities can be measured, this presumption will remain untested.

Fontaine, M D. *Factors Affecting Traveler Mode Choice: A Synthesis of the Literature*. Virginia Transportation Research Council; Virginia Department of Transportation, 2003.

The purpose of this study was to review the literature related to how travelers make mode choice decisions in order to identify factors that influence mode choice and determine possible ways that the Virginia Department of Transportation (VDOT) could alter the mode split. This report does not deal with prediction or modeling of mode splits but rather provides information on what qualities are important to travelers when making mode choice decisions. The literature review revealed several factors that influence the mode choice of a specific traveler: practical availability of mode; connectivity; monetary cost; travel time; trip reliability; trip distance; trip purpose; income; age; and safety. The literature review also revealed several methods that VDOT or other agencies could use to create changes in mode split in the near term: High Occupancy Vehicle (HOV) facilities; park and ride lots; transit fare changes; increased transit frequency; increased transit coverage; and changes in parking price.

Frank, L., Chapman, J., & Bradley, M., & Lawton, T. K. (2005). *Travel Behavior, Emissions & Land Use Correlation Analysis in the Central Puget Sound*. Washington State Department of Transportation.

A growing body of research documents that land use relates with travel mode choice, distances and time spent traveling, and household level vehicle emissions. However, to date little work has been done at a sufficiently disaggregate scale to gain an understanding of how local governments should

alter their land use policies and plans to reduce vehicle use and encourage transit and non-motorized forms of travel. This study of the four county Central Puget Sound region links parcel level land use data with travel data collected from the Puget Sound Household Travel Survey (PSHTS). The primary aim of the study is to describe how measures of land use mix, density, and street connectivity where people live and work influences their trip making patterns including trip chaining and mode choice for home based work trips, home based non-work trips, and mid day trips from work. Land use measures are developed within one km of the household and employment trip ends in the survey. Tour based models are developed to estimate the relative utility of travel across available modes when controlling for level of service, regional accessibility to employment, and socio-demographic factors. A secondary aim of the project is to estimate the linkages between land use and household generations of Oxides of Nitrogen and Volatile Organic Compounds that are precursors to the formation of harmful ozone. Emissions are estimated based on modeled speeds for AM, PM, and off peak travel at the trip link level and then aggregated to the household level. Household emissions are then correlated with land use patterns where people live when controlling for socio-demographic factors. An exploratory analysis was also conducted as part of this work to estimate how land use patterns where people work influences their modal choice and engagement in travel demand management (TDM) programs offered by employers. The project relied on the Commute Trip Reduction Database from Washington State Department of Transportation (WSDOT). However, it was found that additional development of these data is necessary before this type of analysis can be done. Results are presented that document how much of an increase in the utilization of specific modes of travel for work and non-work travel would likely accrue from specific types of land use changes, and from changes to travel cost and travel time.

Gorham, R. *Comparative Neighborhood Travel Analysis: An Approach to Understanding the Relationship between Planning and Travel Behavior. In: In Perpetual Motion: Travel Behavior Research Opportunities and Application Challenges*. Elsevier, 2002.

Within the overall research framework of the relationship between planning and travel behavior, this report attempts to determine the nature of the interaction between the form of human spatial settlements and the travel behavior of people who live in these various settlements. It is the human element that creates the connection; people react to the built environment, take their cues from it, and engage in a number of behaviors (of which travel is only one) that make them comfortable. The challenge then, is for researchers to represent and interpret what it is that people do perceive in the urban environment that influences their travel decisions. This study applied a typological approach to 2 regions—the San Francisco Bay Area and the Stockholm Metropolitan Region—as a way of examining the interaction between urban form and travel behavior in a comparative context.

Giuliano, Genevieve and Hu, His-Hwa and Lee, Kyoung. *Travel Patterns of the Elderly: The Role of Land Use*. METRANS Transportation Center; University of Southern California. School of Policy, Planning, and Development; California Department of Transportation; Dept. of Transportation Research and Special Programs Administration, 2003.

This report presents an examination of the relationships between residential location and travel patterns of the elderly. Using the 1995 Nationwide Personal Transportation Survey, the authors describe travel patterns of the elderly and estimate models of trip making daily travel and transit use. They find that land use and travel relationships are primarily the same for the elderly as for the non-elderly, although it is evident that the oldest elderly may be more sensitive to local accessibility. The authors consider the potential effectiveness of various land use strategies. Promoting more transit-friendly, mixed-use communities may increase local accessibility, but current preference for automobile travel, low-density living environments, and the benefits of aging in place indicate that these types of strategies will have a limited effect in addressing mobility problems of the elderly. Safer vehicles and transportation facilities behavioral adjustments, and development of paratransit options more competitive with the private vehicle may be strategies suitable for addressing mobility of the elderly.

Greenwald, Michael. *Relationship Between Land Use and Trip Internalization Behaviors: Evidence and Implications.* Transportation Research Board, 2006.

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This paper addresses the relationship between land use and destination selection, and the question of destination selection on travel mode choice. Specifically, this work focuses on internalized trips, a sub-category of trip making where both trip origin and trip destination are contained in the same geographic unit of analysis. This investigation uses data from the 1994 Household Activity and Travel Diary Survey conducted by Portland Metro. Using multinomial logit and binary logistic models to measure travel mode choice and decision to internalize trips, the evidence here supports three conclusions: 1.) urban design elements do more to alter travel mode choice than alter trip destination; 2.) there is a threshold effect in the ability of mixed use to alter travel behavior; and 3.) greater emphasis to destinations within the area where the home is located needs to be given in trip distribution models.

Greenwald, M. J. (2003). The Road Less Traveled: New Urbanist Inducements to Travel Mode Substitution for Nonwork Trips. *Journal of Planning Education and Research*, 23, (39-57).
This article tests the New Urbanist ideas about travel mode substitution, based on the argument that urban design is deliberately planned to automatically get travelers to substitute walking and transit for personal car use. The article uses data from a 1994 Household Activity and Travel Behavior Survey conducted in Portland, Oregon, to suggest that New Urbanist concepts serve to increase walking substitution, but public transit is not affected. This seems true even when travelers self-select into a specific residential environment.

Greenwald, M. J. (2006). *The Relationship between Land Use and Intrazonal Trip Making Behaviors: Evidence and Implications.* Washington, DC: Transportation Research Board.
Abstract: This paper addresses the relationship between land use, destination selection, and travel mode choice. Specifically, it focuses on intrazonal trips, a sub-category of trip making where both trip origin and trip destination are contained in the same geographic unit of analysis, using data from the 1994 Household Activity and Travel Diary Survey conducted by Portland Metro in Oregon. Using multinomial logit and binary logistic models to measure travel mode choice and decision to internalize trips, the evidence supports the conclusions that (1) intrazonal trips characteristics suggest mode choice for these trips might be influenced by urban form, which in turn affects regional trip distribution; (2) there is a threshold effect in the ability of economic diversity/mixed use to alter travel behavior; and (3) greater emphasis to destinations within the area where an individual?s home is located needs to be given in trip distribution models.

Greenwald, M. J & Boarnet, M. G. (2001). *Built Environment as Determinant of Walking Behavior: Analyzing Nonwork Pedestrian Travel in Portland, Oregon.* Washington, DC: Transportation Research Board.
Much has been written about the connection between land use/urban form and transportation from the perspective of affecting automobile trip generation. This addresses only half the issue. The theoretical advances in land use-transportation relationships embodied in paradigms such as the jobs-housing balance, neotraditional design standards, and transit-oriented development rely very heavily on the generation of pedestrian traffic to realize their proposed benefits. The present analysis uses models and data sets similar to those used in previous work for the Portland, Oregon, area but applies them toward analysis of nonwork walking travel. The results suggest that regardless of the effects that land use has on individual nonwork walking trip generation, the impacts take place at the neighborhood level.

Handy, S. L. (1993). Regional Versus Local Accessibility: Implications for Non-Work Travel. *Transportation Research Record 1400*, 58-66.
The question of how alternative forms of development affect travel patterns has recently been the focus of a heated debate, much of which centers on the effects of suburbanization in particular. The concept of accessibility provides an important tool for resolving this question. By measuring both the accessibility to activity within the community, or "local" accessibility, and the accessibility to regional centers of activity from that community, or "regional" accessibility, the structure of a community is more fully characterized. The research summarized uses the concepts of local and regional accessibility to test the implications for shopping travel of alternative forms of development in a case study of the San Francisco Bay Area. The results show that higher levels of both local and regional accessibility are associated with lower average shopping distances but are not associated with

differences in shopping frequency. As a result, higher levels of both local and regional accessibility are associated with less total shopping travel. However, the effect of high levels of local accessibility is greatest when regional accessibility is low and vice versa. These findings suggest that policies should be directed toward enhancing both types of accessibility, but that the effects may work against each other to some degree.

Handy, S. L. (1996). Methodologies for Exploring the Link between Urban Form and Travel Behavior. *Transportation Research D*, *1*(2), 151-165.
Communities are increasingly looking to urban design and the concept of the New Urbanism as an effective strategy for reducing automobile dependence in suburban areas. This paper reviews alternative approaches for exploring the link between urban form and travel behavior, outlines issues and complexities that this research must address, and, finally, suggests that the focus of this research should shift from the search for strategies to change behavior to a search for strategies to provide choices.

Handy, S. L. (1996). Urban Form and Pedestrian Choices: Study of Austin Neighborhoods. *Transportation Research Record 1552*, 135-144.
Supporters of the New Urbanism suggest that the right design will encourage walking, thereby encouraging interaction and a greater sense of community and discouraging automobile dependence. Existing research provides insufficient evidence to support this belief, however, largely because of limitations in the data and methodologies that researchers have used. The research described moves beyond a simple test of correlations to an exploration of how urban form fits into a more comprehensive model of choices about pedestrian trips. First, a model for individual choices about pedestrian trips is proposed. Second, the results of a study of six neighborhoods in Austin, Texas, are presented. Data from a survey of residents in these neighborhoods support the proposed model and suggest that certain aspects of urban form can play an important role in encouraging walks to a destination but that the savings in travel from the substitution of walking for driving is likely to be small.

Handy, S L. *Travel Behaviour--Land Use Interactions: An Overview and Assessment of the Research. In: In Perpetual Motion: Travel Behavior Research Opportunities and Application Challenges*. Elsevier, 2002.
This report looks at the research to date on the nature of the relationship between travel behavior and land use. The types of research approaches that have been used previously are reviewed, and a long list of issues relevant to this topic that have yet to be adequately addressed are discussed.

Handy, S. L., Cao, X., & Mokhtarian, P. L. (2006). Self-selection in the relationship between the built environment and walking. *Journal of the American Planning Association*, *72*, 55-74.
Previous studies have established correlations, but not a causal relationship, between the built environment and walking. This has led researchers to debate whether "self-section" explains the observed correlations; i.e., if residents who prefer to walk choose to live in more walkable neighborhoods. Using data from a survey of residents of eight neighborhoods in Northern California, this paper presents new evidence on the possibility of a causal relationship between the built environment and walking behavior. The current study improves on previous research by incorporating travel attitudes and neighborhood preferences into the analysis of walking behavior, and by using a quasi-longitudinal design to test the relationship between changes in the built environment and changes in walking. Both analyses show that the built environment has an impact on walking behavior, even after accounting for attitudes and preferences. The implications of these findings for planning and policy are discussed, and directions for future research are suggested.

Handy, S. L., & Mokhtarian, P. L, & Kwong, K. (2006). *The Role of Attitudes and Neighborhood Characteristics in Explaining Transit Use: A Study of Eight Northern California Neighborhoods*. Washington, DC: Transportation Research Board.
This paper describes how transit ridership has been declining since its peak during World War II, and automobile use has been increasing. Efforts to lessen automobile dependence by improving transit service have seen limited success: outside of major urban centers, most individuals who have the option to drive choose to drive. Nevertheless, some do choose transit, and understanding the factors that influence this choice may be helpful in developing strategies to promote increased transit

ridership. The role of attitudes and neighborhood design are of particular interest. Using data from a 2003 survey on travel behavior, this paper explores the factors associated with transit use in eight Northern California neighborhoods. Multivariate analyses for transit use and frequent transit use showed that attitudes play a more significant role than neighborhood design. A case study of the Mountain View neighborhood illustrated the importance of direct transit service to work in explaining commute mode choice. If planners hope to increase transit ridership, then they must consider the attitudes of travelers about transit in addition to neighborhood design and the quality of transit service.

Handy, S. L., Mokhtarian, P. L & Cao, X. (2006).*Does the Built Environment Influence Vehicle Type Choice? Evidence from Northern California*. Washington, DC: Transportation Research Board.

It is evident that compact development can lower auto ownership, reduce trip lengths, and increase the uses of alternative modes. Recently, several studies found that suburban development is associated with the unbalanced choice of light duty trucks (LDTs). These studies have not shed much light, however, on the underlying direction of causality- whether neighborhood designs as opposed to attitudes towards vehicle choice more strongly influence individuals' decisions on vehicle type choice. The available evidence thus leaves unanswered questions: if policies require more compact, mixed-use development, will more people choose to drive passenger automobiles? And if so, what are the implications for air quality? Using a survey of 1682 respondents in Northern California, this study applied correlational analyses and multinomial logit model (MNL) to investigate the causal link from the built environment to vehicle type choice. The results from correlational analyses showed that the built environment has a strong association with vehicle type choice. Specifically, traditional designs (exhibiting mixed land uses and/or high accessibility) are correlated with the choice of passenger automobiles, while suburban designs (including large yards and off-street parking) are associated with the choice of LDTs- especially minivans and pickup trucks. The MNL model suggests that attitudinal factors play an important role, and that the built environment impacts vehicle type choice after controlling for attitudinal and demographic variables. Therefore, this study provides supportive evidence for the argument that smart growth strategies have the potential to reduce the choice of LDTs, thereby reducing emissions. However, the mediating effects of attitudinal factors suggest that ignoring the role of attitudes will lead to an overestimation of the influences of smart growth strategies on vehicle type choice and thus emissions.

Handy, S., Cao, X., & Mokhtarian, P. L. (2005). Correlation or Causality between the Built Environment and Travel Behavior? Evidence from Northern California. *Transportation Research Part D, 10,* 427–444.

Previous studies have shown that, all else being equal, residents of neighborhoods with higher levels of density, land-use mix, transit accessibility, and pedestrian friendliness drive less than residents of neighborhoods with lower levels of these characteristics. However, these studies have not established the underlying direction of causality--in particular, whether neighborhood design influences travel behavior or whether travel preferences influence the choice of neighborhood. This leaves a key question largely unanswered: if cities use land use policies to bring residents closer to destinations and provide viable alternatives to driving, will people drive less and thereby reduce emissions? The present study uses quasi-longitudinal design to investigate the relationship between neighborhood characteristics and travel behavior while taking into account the role of travel preferences and neighborhood preferences in explaining this relationship. A multivariate analysis of cross-sectional data shows that differences in travel behavior between suburban and traditional neighborhoods are largely explained by attitudes and that the effect of the built environment mostly disappears when attitudes and sociodemographic factors are accounted for. However, a quasi-longitudinal analysis of changes in travel behavior and changes in the built environment shows significant associations, even when attitudes have been accounted for, providing support for a causal relationship. Although these results provide some evidence that land-use policies designed to put residents closer to destinations and provide them with alternatives to driving will actually lead to less driving, the analyses presented here are not definitive, nor do they clarify the nature of the causal relationship. Directions for future research are discussed.

Handy, S.L. & Clifton, K.J. (2001). Local Shopping as a Strategy for Reducing Automobile Travel, *Transportation 28*, 317-346.

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Suburban development in the United States is widely criticized for its contribution to automobile dependence and its consequences. This paper explores how residents in existing neighborhoods make use of the local shopping opportunities currently available to them and, based on that, evaluates the possibility that providing local shopping opportunities could help reduce automobile dependence. Two sets of questions were addressed, using both quantitative and qualitative evidence for six neighborhoods in Austin, Texas. The questions were: 1) To what degree do residents choose local shopping over more distant opportunities, and why?; and 2) To what degree do residents choose to walk rather than drive to the local shopping center and why? The results and conclusions are provided.

Hendricks, Sara, J., et. Al., (2005) *Impacts of Transit Oriented Development on Public Transportation Ridership*. Center for Urban Transportation Research, University of South Florida, Tampa, FL.
The purpose of Phase I of this study was to develop a research design to better establish the relationship between transit oriented development (TOD) and travel mode share. The initial hypothesis that good quality transit combined with good quality TOD would succeed in shifting travelers from single-occupant vehicle travel to transit was found to be an oversimplification. Good quality transit service is necessary and good quality TOD is likely helpful and important to shifting mode share but not sufficient. Other necessary factors include supporting elements of the larger urban spatial structure, disincentives to driving alone, favorable marketability of TOD for non-transportation reasons, and incentives to use transit. Research literature suggests that elements of urban form are perhaps not the most important determinants of travel behavior, specifically mode choice, number of trips taken and length of trips. However, urban form does appear to exert some kind of influence, and for that reason, it is worthwhile to further specify the relationship to ascertain how policy initiatives relating to TOD can support the goal to balance mode share in the direction of greater transit use. To better define the elements of TOD that shape travel behavior, this study describes a research design for the development of a panel survey, using recently developed cell phone technology, to track the same individuals and households over time. Using a pre-test post-test design, the survey data collected for a region in Florida would be a sound investment for improved travel forecasting, modeling and other uses.

Hensher D A (ed.) Travel Behaviour Research. The Leading Edge. Elsevier, 2001.
Abstract for Chapter entitled "Interfaces between Location, Land Use and Travel Decisions": This paper focuses on some current trends and new research issues. Connection between land use and various traffic measures, the effects of urban development on mode shares, the connection between location choice and choice of car ownership and total vehicle miles traveled, and the influence of accessibility on residential location, modelling the joint choice of location and travel pattern represent some of the areas discussed.

Hess, P M and Moudon, A V and Logsdon, M G. Measuring Land Use Patterns for Transportation Research. *Transportation Research Board, 2001.*
Density and land use mix are focused on as the two primary variables for characterization of land use in transportation research. As commonly constructed, these variables do not capture well actual development patterns on the ground, thus obscuring a potentially strong relationship between land use and transportation behavior. To overcome these limitations, parcel-level data and geographic information system software were used to identify and measure attributes of land use. These data are at a level of resolution that closely corresponds to the spatial distribution of development patterns. A method for location of concentrations of medium- to high-density housing and commercial development in suburban areas identified in previous research is described. The method includes the use of metrics derived from landscape ecology to model these development patterns and, specifically, their shapes and their functional and spatial mixes.

Jin, X and Beimborn, E and Greenwald, M. *Impacts Of Accessibility, Connectivity and Mode Captivity on Transit Choice.* University of Wisconsin, Milwaukee; Federal Transit Administration, 2004.
It is the objective of this report to examine the way that transit service factors such as accessibility and connectivity can be used to define mode captivity, and seek to incorporate these factors in mode split models to see whether segmentation between the captivity groups can lead to better methods of forecasting. The data for this study come from the Portland, Oregon 1994 Household Activity and

Travel Diary Survey, the Regional Land Information System for the Portland Area, the U.S. Environmental Protection Agency Fuel Economy Database, and the U.S. Department of Energy. Individual trip data were segmented into transit captive, auto captive and choice users based on information about private vehicle availability, transit connectivity and distance from a transit stop. Traditional transit mode split models are compared to models that segment users into choice and captive groups. The results suggest that traditional models underestimate the variation in mode choice for captive users, while overestimating the attractiveness of transit for choice users. Incorporating mode captivity factors can improve the accuracy of the logit model, either by segmenting the market or by employing the factors as independent variables. The explanatory power of the models will largely increase when captivity conditions are used in the equation to predict transit use. Multinomial regression model was developed to predict captivity. Transit captives could be predicted by auto ownership patterns. Auto captivity is dependent on trip origin-destination locations and transit service frequency and coverage besides the factor of auto ownership. Additionally, among choice transit users, differences in travel times between automobile and transit modes does little to influence mode selection; while automobile ownership, and out-of-vehicle time are the most important factors in terms of influencing mode choice.

Johansson, Maria. *Childhood Influences on Adult Travel Mode Choice.* International Conference of Traffic and Transport Psychology, Elsevier, 2005.
A large number of European children are today chauffeured by car to school and leisure activities. This increased car use for children's trips affects the local and global environment negatively. Parents have a crucial role in the decision of travel mode choice. In a study of 357 Swedish children ages 8-11 years, the parents had decided upon travel mode for 73% of the children's trips. Research in the related fields of driving behavior shows that the parents' attitudes and behavior may transfer to young drivers, partly through modeling of parental life style and driving style. This paper discusses the impact of parental attitudes and mode choice in childhood on adult choice of travel mode. Travel mode choice is based on a large number of factors, including more psychological variables such as values and norms, attitudes, and habits, but also physical environment, more practical matters such as time and weather conditions, and health aspect play a role in individual travel patterns.

Kain, J F. *A Tale of Two Cities: Relationships between Urban Form, Car Ownership and Use and Implications for Public Policy. In: Recent Developments in Transport Economics.* Edward Elgar Publishing Incorporated, 2003.
This paper is concerned with the interrelationships among household incomes, urban development patterns, car ownership, trip-making and modal choice and with appropriate policy responses to what are still perceived as growing problems associated with rapid increases in car ownership and use. In this research two separate papers were used as references, the paper also reviews research on car ownership and use by other authors.

Khattak, A. J. et. al. (2005, February). *Traditional Neighborhood Development Trip Generation Study.* North Carolina Department of Transportation.
Since the beginning of the new urbanist movement, alternately referred to as Traditional Neighborhood Developments (TNDs), planners and architects have touted their neighborhood and community designs for reducing residents' reliance on the automobile by creating compact, mixed use, and pedestrian friendly developments. However, researchers have not explicitly examined how travel behavior and traffic impacts differ in a tightly controlled comparison of conventional and traditional developments. Additionally, current forecasting models and trip generation procedures need to be tested for their applicability to these new developments. This report aims to fill that void by studying a matched-pair of neighborhoods: One conventional and one traditional. The neighborhoods are located in the Chapel Hill/Carrboro area of North Carolina. Traffic counts were taken at all entrances and exits to the developments, and a detailed behavioral survey of the residents was conducted in the two neighborhoods during 2003. The results show that households in Southern Village, the TND, make about the same amount of total trips, but significantly fewer automobile trips, fewer external trips and they travel fewer miles, when compared to households in the conventional neighborhoods. However, this reduction of trips in a suburban environment does little to decrease delay at "over-designed" intersections along major highways. Finally, ITE trip generation methods and

rates are acceptable for predicting the trip generation of the study neighborhoods. The implications of these results are discussed in the report.

Kim, Tae-Gyu and Goulias, Konstadinos G and Burbidge M.A., Shaunna K.. *Travel Behavior Comparisons of Active Living and Inactive Living Lifestyles*. Transportation Research Board, 2006.
The past century?s radical change and innovation in transportation technology and concomitant increase in options for our travel modes moves us away from walking to an almost total extinction of modes that require physical exercise. This is accompanied by a modern American city design that requires the use of an automobile with urban sprawl creating distant destinations that alter older methods of travel and make active forms of transportation almost impossible. However, many more reasons exist that motivate people to choose physically inactive modes as our research shows here. Using a two-day activity diary collected in Centre County, Pennsylvania, we identify which factors influence active versus inactive mode choice. In this analysis, the paper examines the correlations between trip purpose and travel mode and between age and travel mode, and perform an analysis of travel distances to determine what the distance threshold is for active modes. In addition, a latent class cluster analysis establishes a profile for both physically active as well as inactive travelers and their correlation with person and household characteristics. Key findings include that trips made using active modes are significantly different than trips made by inactive modes and persons with active transportation lifestyles are significantly different than persons with inactive lifestyles. This raises the following issue: policies designed for and motivated by persons with active lifestyles risk to fail if they do not succeed in meeting the needs for everyday life of those with inactive lifestyles.

Kitamura, R., Akiyama, T., Tamamoto, T., & Golob, T. F. (2001). *Accessibility in a Metropolis: Toward A Better Understanding of Land Use and Travel*. Washington, DC: Transportation Research Board, TRR 1780, 64-75.
An attempt was made to determine how accessibility affects aspects of long-term and short-term travel behavior. The accessibility indices that were used represent the ease with which opportunities for engagement in activities can be reached from a geographical zone in an urban area. The behavioral aspects examined include engagement in activities, automobile ownership and use, and travel patterns as represented by the number of trips, number of trip chains, and total travel time expenditure. Data from the Kyoto-Osaka-Kobe metropolitan area of Japan and the southern California coast are used to examine the following conjectures: time availability is more closely associated with engagement in activities than accessibility; accessibility no longer affects automobile ownership or use in the metropolises of industrialized countries where motorization has matured; and given automobile ownership and use, travel patterns are conditionally independent of accessibility.

Knapp, G. & Song, Y. (2005). The Transportation – Land Use Policy Connection. Chapter 5 In D. Levinson and K. Krizek (Eds.), *Access to Destinations*. London: Elsevier.
The paper explores the transportation-land use policy connection. More specifically, it considers the question, can land use policy be used to alter transportation behavior? The answer is of some importance. If the answer is yes, then there is hope that land use policies can be designed and implemented that will bring some relief to the congestion and complex transportation problems that are facing US metropolitan areas. This is the underlying assumption behind most smart growth policy reforms. If the answer is no, then land use policy may still be important, but is not likely to play an important role in resolving transportation issues. The paper then offers a schematic that identifies necessary conditions for land use policy to play a role in addressing transportation issues. Specifically, the paper argues that for land use policy to play an effective role, three conditions must hold. First, land use must be able to alter transportation behavior; secondly, transportation infrastructure must not fully determine land use; and thirdly, the condition on which the authors consider most extensively, land use policy must significantly and constructively affect land use. After presenting the schematic, the paper considers the evidence on each of these conditions. Based on the review of the evidence, the paper concludes that land use policy can play an effective role in transportation issues, but that the role is likely to be small, often counter productive, and most effective at the neighborhood scale.

Krizek, K. J. (2000). A Pre-test/Post-test Strategy for Researching Neighborhood-scale Urban Form and Travel Behavior. *Transportation Research Record, 1722*, 48-55.

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Communities are increasingly looking to land use planning strategies based on a less auto-dependent urban form to reduce the need for travel, especially drive-alone travel. In recent years, several studies have attempted to test the impact urban form has on travel behavior to determine if such designs are warranted. The results of these studies are mixed because of several shortcomings. Some shortcomings can be attributed to data availability; others are a product of the techniques used to characterize urban form or travel. Still other shortcomings are embedded in the strategies employed, using cross-sectional travel data and correlating travel outcomes with urban form. The line of research is being extended, aimed at isolating the influence of urban form on travel behavior; a new research strategy is presented using longitudinal travel data in concert with detailed measures of travel behavior and urban form. Data sources from the Puget Sound are described and a research strategy is presented that permits a pretest-posttest analysis of households' travel behavior before and after they changed residential location. Early results show few changes in household travel behavior after a move, suggesting that attitudes toward travel are firmly entrenched and postmove travel provides little insight into how changes in urban form affect travel. Although a pretest-posttest makes valiant strides in shedding new light on the matter, the complex phenomenon being addressed requires myriad approaches. More comprehensive research techniques and even research approaches based on different traditions are much needed to better understand how urban form and travel interact.

Krizek, K. J. (2003). Planning, Household Travel, & Household Lifestyles. In K.G. Goulias (Ed.) *Transportation Systems Planning: Methods and Applications*. Boca Raton, FL: CRC Press, 6.1-6.42.
Concerns about urban sprawl, growth, and traffic are now among the most important issues facing the U.S. Consequently, transport planners are looking to a variety of solutions. One prescription that has recently received increased scrutiny is the joining of transportation planning with land use planning as a means of influencing travel. This chapter aims to provide an overview of past and current research on this subject and describes the relevance of related land use--transportation policy.

Krizek, K. J. (2003). Neighborhood Services, Trip Purpose, & Tour-Based Travel. *Transportation*, 30, 387-410.
This paper investigates the relationship between accessible land use patterns and household travel behavior. A framework is described that provides a more behavior-based understanding of household travel than traditional trip-based travel analysis, which often does not consider the linked nature of most travel. The framework highlights travel tours, the sequence of trips that begin and end at home, as the basic unit of analysis. A typology of travel tours is offered to account for different travel purpose. This typology helps in the understanding of tours relative to the range of services typically offered in accessible neighborhoods. The relationship between tour type and neighborhood access is empirically analyzed using detailed travel data from the Central Puget Sound region of Seattle, Washington. Findings indicate that households living in areas with higher levels of neighborhood access tend to leave home more often, but make fewer stops per tour. These households make more simple tours for work and maintenance (i.e., personal, appointment and shopping) trip purposes, but there is no difference in the frequency of other types of tours. While they travel shorter distances for maintenance-type errands, a large portion of their maintenance travel is still pursued outside the neighborhood. These results suggest that living close to services has a surprisingly small savings effect on vehicle miles of travel.

Krizek, K. J. (2003). Operationalizing Neighborhood Accessibility for Land Use-Travel Behavior Research and Regional Modeling. *Journal of Planning Education and Research*, *22*(3), 270-287.
Many land use–transportation planning proposals aim to create neighborhoods with higher levels of neighborhood accessibility (NA). This article focuses on how such features are operationalized for purposes of research and/or regional modeling. The first section reviews specific variables classified by three basic tenets of NA: density, land use framework, and streets/design. The second section describes challenges in measuring NA to provide a better understanding of how such challenges shape research efforts and applications. The final section creates an NA index that is applied to the Central Puget Sound metropolitan area. The index uses detailed measures of density, land use mix, and street patterns and makes at least five contributions for urban form research.

Krizek, K. J. (2003, Spring). Residential Relocation and Changes in Urban Travel: Does Neighborhood-Scale Urban Form Matter? *Journal of the American Planning Association*, *69*(3), 265-281.
This paper presents an empirical study of the relationship between neighborhood-scale urban form and travel behavior. The focus is on households that relocate within the Central Puget Sound region (Washington) to determine if they change their travel behavior when they move from a given neighborhood type to a different one. Regression models are used to predict change in travel behavior as a function of change in neighborhood accessibility, controlling for changes in life cycle, regional accessibility, and workplace accessibility. A special feature of the study is that it analyzes the travel behavior of the same households in a longitudinal manner in concert with detailed urban form measures. Findings suggest that households change travel behaviors when exposed to differing urban forms. In particular, relocating to areas with higher neighborhood accessibility decreases vehicle miles traveled.

Krizek, K. J. (2005). *Household Lifestyles and Their Relationship to Land-Use and Transportation Planning*. Minneapolis: Humphrey Institute of Public Affairs.
This article examines the links between different dimensions of household decision making, including the types of ravel residents engage in, the types of activities they tend to pursue, and factors affecting their choice of neighborhood. The author analyzes these and other factors in a synergistic manner to come up with a concept called household lifestyles. The author compiled a large data set from a variety of sources, including the Travel Behavior Inventory Home Interview Survey (conducted in the seven county Twin Cities, Minnesota area). The author discusses the implications of the household lifestyles concept for urban planning initiatives, many of which are focusing on making walking in cities easier, more attractive, and more available. The author contends that recognizing how household decisions form together into different groups helps one better understand how relevant decisions related to one another, the market segments of different populations, and subsequently the merits of various policy scenarios.

Krizek, K. J. (2005). Perspectives on Accessibility and Travel. In D. Levinson and K. J. Krizek (Eds.), *Access to Destinations* (pp. 109-130). London: Elsevier.
This paper describes how urban form, whether it is compact, multi-nodal, or sprawling, impacts they type and cost of transportation systems needed to serve residents of a metropolitan area. On the other hand, the type and location of major transportation facilities greatly influences urban form. Almost a half of century's worth of study on the link between the two provides a solid foundation to understand some inherent interactions between land use and transportation. These interactions manifest themselves in two forms: (1) the influence of urban form on transportation systems, travel demand, and urban travel behavior; and (2) the influence of transportation systems and transportation investments on metropolitan urban form. The two phenomena share a common heritage; however each asks different questions, and they often relate to different scales of analysis. This paper attempts to describe the issues that emanate from the former question—that is, what do we know abut the manner in which land use patterns affect household travel. In doing so, the paper discusses how the relationship between urban form and transportation has historically been conceptualized and also summarizes some of the existing research. The paper then turns to describing how the history relates to new and pressing research questions that provide the impetus for studying more in depth matters related to accessibility.

Krizek, K. J. (2006). *Lifestyles, Residential Location Decisions, & Pedestrian and Transit Activity*. Washington, DC: Transportation Research Board, TRR 1981, 171-178.
The idea of using land use patterns to influence people's behavior is popular in urban planning circles these days. Activity-based travel modeling has begun to make significant progress toward a more behavioral framework for simulating household travel behavior and understanding, in particular, pedestrian activity. A significant challenge remains in the need to address the interaction of pedestrian use with longer-term household choices of neighborhood choice, other activities, and overall travel. The choices often depend on one another and jointly define the lifestyle of an individual. This paper refines a framework to analyze household choices relating to three dimensions of lifestyle: travel patterns (including pedestrian activity), activity participation, and neighborhood characteristics. Cluster analysis on data from the Twin Cities metropolitan region in Minnesota

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uncovers seven classifications of lifestyle. These clusters demonstrate empirically how decisions about residential location reinforce and affect daily decisions related to travel patterns, pedestrian and transit use, and activity participation. The final section comments on the applicability of these lifestyle clusters for land use–transportation planning.

Krizek, K. J. (2006, Summer). Two Approaches to Valuing Some of Bicycle Facilities' Presumed Benefits. *Journal of the American Planning Association*, *72*(3), 309-320.
This study uses two different approaches to value the benefits of bicycle lanes and trails. In the first approach, an adaptive stated preference survey is used to measure how much travel time individuals are willing to spend to obtain particular features of on- and off-street bicycle facilities. These findings indicate that bicycle commuters in Minneapolis and St. Paul prefer bicycle lanes on existing streets over off-street bicycle trails, and also prefer them over streets that have no on-street parking but lack designated bicycle lanes. In the second approach, home sales data was used to investigate the effect of bicycle trail proximity on home value. Findings indicate that the three types of bicycle facilities (lanes on existing streets, facilities separated from roadways by curbs or landscaping, and facilities within open spaces) were valued differently. Results also show that bicycle facilities have different values in the city than they do in the suburbs and that bicycle facilities are not always considered an amenity. Although proximity to most bicycle facilities did not significantly affect home values in city neighborhoods, bicycle facilities significantly reduced home value in suburban locations. Home values in both city and suburban neighborhoods were most reduced by proximity to roadside trails.

Krizek, K. J, & P. J. Johnson (2006, Winter). Proximity to Trails and Retail: Effects on Urban Cycling and Walking, *Journal of the American Planning Association*, *72*(1), 33-42.
In this study, multivariate modeling techniques are used to estimate the effect of household proximity to retail and bicycle facilities on the odds of walking and cycling. The authors analyzed these relationships employing detailed geographic information systems data and individual-level travel diary data from Minneapolis and St. Paul, Minnesota. Findings indicate that distances to retail and bicycle facilities are statistically significant predictors of choosing active modes of transport and close distances. However, the relationships do not appear to be linear. One needs to live very close for such facilities to have a statistically significant effect on cycling or walking. The results also underscore that walking and bicycling are fringe modes and represent rare travel behaviors. The overall findings cast doubt on the potential of community design to induce physical activity.

Krizek, K. J & Roland, R. (2005). What is at the End of the Road? Understanding Discontinuities of On-Street Bicycle Lanes in Urban Settings. *Transportation Research Part D*, *10*(1), 55-68.
Although demarcating on-street bicycle facilities is an important strategy in encouraging bicycle safety and bicycle travel, few studies have focused on instances where separate on-street bicycle facilities end. This paper seeks to determine bicyclists' comfort levels when encountering discontinuities and examines the strength of explanatory factors affecting their severity. The authors identify 30 discontinuities of on-street bicycle lanes in Minneapolis, Minnesota, and collect primary data measuring their physical attributes and cyclists' perceptions of the level of comfort while cycling through each. Using multivariate analysis, the findings suggest that discontinuities ending on the left side of the street, with increased distance of crossing intersections, having parking after the discontinuities, and wider width of the curb lanes are statistical elements that contribute to higher levels of discomfort. The findings from this study draw attention to the worst discontinuities. The study also offers a taxonomy for transportation planners to better understand

Krizek, K. J & Waddell, P. (2002). Analysis of Lifestyles Choices: Neighborhood Type, Travel Patterns, & Activity Participation. *Transportation Research Record*, *1807*, 119-128.
Activity-based travel modeling has begun to make significant progress toward a more behavioral framework for simulating household travel behavior. A significant challenge remains in the need to address the interaction of daily activity and travel patterns with longer-term household choices of vehicle ownership, residential location, and employment location. The choices often depend on one another and jointly define the lifestyle of the household. These choices are likely to evolve over the course of the life cycle as households are formed; as children are born, raised, and ultimately depart to form their own households; and as retirement and old age change patterns of residence, work, and travel. A framework is developed for analyzing household choices relating to three dimensions of

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lifestyle: travel patterns (including vehicle ownership), activity participation, and residential location (neighborhood type). With cluster analysis on data from the Puget Sound Transportation Panel, nine classifications of lifestyle are uncovered. These clusters demonstrate empirically how decisions of residential location reinforce and affect daily decisions related to travel patterns and activity participation. The applicability of these lifestyle clusters for land use transportation planning is discussed.

Krizek, K. J., El-Geneidy, A., & Thompson, K. (2007). A Detailed Analysis of How an Urban Trail System Affects Cyclists' Travel. Transportation Research Board 86th Annual Meeting.
Transportation specialists, urban planners, and public health officials are steadfast in encouraging active modes of transportation over the past few decades. Conventional thinking, however, suggests that providing infrastructure for cycling and walking in the form of off-street trails is critically important. An outstanding question in the literature, however, is how such facilities relate to larger issues of travel behavior. This research describes a highly detailed analysis of use along a primarily off-street trail in Minneapolis, Minnesota, USA. The core questions addressed in this investigation aim to understand relationships between: (1) the propensity of trail use and distance from residence, and (2) how far out of their way do trail users appear to travel for the benefit of using the trail. The data source used in the analysis for this research was collected as a human intercept survey along a section of an off-street facility. Trail users seem to travel significantly out of their way (14.6 percent longer) in order to include a trail facility on their route. The effect is heightened on weekends and on longer trips. The results and analysis in this study may be used to guide planning, maintenance, and programming of Hennepin County's trail system in upcoming years. The distance decay and shortest path versus taken path analysis offer insight into how far bicyclists are willing to travel in order to use a trail facility. This information can be used to guide the spacing of new trails to maximize levels of use.

Lin, J & Long, L. *What Neighborhood Are You In? Empirical Findings on Relationships Between Residential Location, Lifestyle, & Travel.* Washington, DC: Transportation Research Board, 2006.
This paper describes how neighborhood type and lifestyle are important factors influencing household and individual travel behavior. This paper presents a statistical clustering approach coupled with Geographic Information System (GIS) spatial analysis to characterize neighborhood lifestyles using sixty-four features extracted from the Census Transportation Planning Package (CTPP) 2000 data. The resulting ten clusters reveal different neighborhood lifestyles in terms of individual or household socio-economics, demographics, and land use. Travel characteristics of each cluster using the 2001 National Household Travel Survey (NHTS) travel data suggest five factors influencing household travel, socio-economic status, residential location and land use, household life cycle, activity type, and ethnics. This study has important implications to the travel demand modeling and transportation planning community. Statistical classification coupled with GIS spatial tools provides a means to associate a household with its neighborhood environment. Each neighborhood type is distinctively defined and reasonably homogenous in terms of socio-economic and travel characteristics. This not only improves travel demand prediction capability but is also more desirable when transferring travel information between geographic zones. The empirical findings from NHTS also shed lights to transportation decisions that involve the transportation-land use relationship, increasing mobility and accessibility for city low incomes, and coping with changes of travel due to demographic change.

Lund, H. M., & Cervero, R., & Wilson, R. W. (2004). *Travel Characteristics of Transit-Oriented-Development in California.* Pomona, CA: California State University.
This study presents a 2003 measurement of travel behavior in transit- oriented developments (TODs) in California. It builds upon previous studies conducted in the early 1990 by adding new residential, office and hotel sites to address new questions, and includes TODs built ore recently. It examines a range of potential rail users, such as residents, office workers, hotel employees and patrons, and retail patrons. It presents results of surveys conducted along each of California's major urban rail systems. The study also collects detailed data on site and neighborhood factors that potentially affect the likelihood of using transit and models those factors as they relate to individual and project-level travel behaviors. The study is intended to assess the success of TODs in enhancing transit ridership and to identify TOD design and policy features that contribute to success.

Lund, H. (2006). Reasons for Living in a Transit-Oriented Development and Associated Transit Use. *Journal of the American Planning Association*, *72*(3), 357-366.
Transit-oriented development (TOD) near rail stations offers the hope of increasing both transit use and the number and range of housing opportunities. This paper reports the results of a survey of households who moved to TODs in the San Francisco Bay Area, Los Angeles, or San Diego within the last five years. Findings showed a wide range of motivations, with type or quality of housing, cost of housing and quality of neighborhood being the most frequently cited factors. Only about one-third of respondents reported access to transit as one of their top three reasons for choosing to live in a TOD. Those who reported that their choice of residence location was motivated in part by access to transit were 13 to 40 times more likely to use transit than those who did not. TOD residents do appear to use transit at a relatively high rate compared to the general population.

Maat, Kees and Timmermans, Harry J P. *Influence of Land Use on Tour Complexity: A Dutch Case.* Transportation Research Board, 2006.
It is assumed that in new urban designs and compact cities, average travel distances tend to be shorter and more activities are linked in chains. As there is relatively little empirical evidence about the relationship between chain behavior and land use, especially from Europe, a study was done to obtain a better understanding of the influence of chains (referred to as tours) to test the hypothesis that compact urban forms reduce travel. The results indicate that higher densities lead not only to greater activity and greater tour demand but also to more complex tours. Although greater tour frequencies reduce mean tour distance, daily distance traveled increases. Moreover, complex tours have an encouraging effect on both tour distance and daily distance traveled. This confirms the hypothesis and previous evidence that more frequent tours and more stops per tour in high-density areas lead to more travel.

Matsumura, H and Kawata, H. *Socio-Economic Characteristics, Land Use and Travel Patterns.* American Society of Civil Engineers, 2000.
Osaka City is located in the central part of Japan. The city is bordered to the west by Osaka Bay and to the south and north by the Yamato and Kanzaki Rivers, respectively. The city serves as a business center for the western portion of the country, as well as Osaka metropolitan area, which includes Kyoto, Kobe, and Nara, covering an area within a radius of 50 km from the city. Osaka encompasses an area of approximately 220 square km, including newly reclaimed off shore land. This paper discusses the effects of socioeconomic aspects, land use factors, and locations of major facilities on travel patterns in Osaka City, and also provides an overview of its transportation network and infrastructure and public transit systems.

McCormack, E., Rutherford, G. S., & Wilkinson, M. G. (2001). *Travel Impacts of Mixed Land Use Neighborhoods in Seattle, Washington.* Washington, DC: Transportation Research Board.
In response to suburban transportation problems, developers and planners have suggested that mixing land uses can reduce automobile dependency by making more goods and services available within walking, biking, and short driving distances. This view has resulted in a neotraditional planning movement that promotes neighborhoods designed with traditional characteristics including a mix of land uses. However, few studies have empirically explored the transportation implications for these neighborhoods. This issue is addressed by using a travel diary collected in three greater Seattle area neighborhoods characterized by neotraditional neighborhood elements including mixed land use. These data were compared with those collected in an identical diary from individuals throughout the region. It was found that residents of the mixed land use study neighborhoods in Seattle traveled 28% fewer kilometers (miles) than residents in adjacent areas and up to 120% fewer kilometers than residents in suburban areas. This trend of lower travel distances held across different socioeconomic characteristics. However, the differences in travel distances among the areas were not seen when travel time was considered. The daily travel time was about 90 min/person (including walking), regardless of where that person lived and that person's socioeconomic status. One implication of this finding is that if a neotraditional neighborhood development does make shopping and other chores less time-consuming, there may simply be more time in the travel budget for additional regional travel. This suggests that travel from the neotraditional neighborhoods needs to be examined in a regional context.

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Mesa, J L and Baron, F F. *Socioeconomic Characteristics, Land Use And Travel Patterns: A Profile Of Miami-Dade County*. American Society of Civil Engineers, 2000.
Miami-Dade County is a large metropolitan area located near the tip of the Florida peninsula along its southeast coast. This area has experienced significant growth in recent years. This paper provides an overview of the historical development, land use and urban form, transportation networks, urban transit networks, airport and sea port, and population and demographics of the greater Miami-Dade County metropolitan area. The paper concludes with remarks on the current and future transportation preferences of County residents, which continue to show a fondness for auto travel as the primary transportation mode.

Newman, P. and Kenworthy, J. (2006). Urban Design to Reduce Automobile Dependence, *Opolis: An International Journal of Suburban and Metropolitan Studies*, 2(1), Article 3.
A major goal of urban design, especially in centers, is to reduce automobile dependence in order to address issues of viability and sustainability. Long-term data from cities around the world appear to show that there is a fundamental threshold of urban intensity (residents and jobs) of around 35 per hectare1 where automobile dependence is significantly reduced. This article seeks to determine a theoretical base for what the data show. It suggests that below the threshold intensity of urban activity, the physical constraints of distance and time enforce car use as the norm. The basis of these physical constraints is outlined and the link between density and access to services that provide amenity is established, including the service levels of public transport. A design technique for viability of centers is suggested as well as how a city can restructure itself to overcome automobile dependence.

Noreen C. McDonald, Travel and the social environment: Evidence from Alameda County, California. Transportation Research Part D: Transport and Environment. Volume 12, Issue 1, January 2007, Pages 53-63
The relationship between travel and the environment has been the subject of much study but the focus has mainly been on the physical and built environment. This ignores a large body of research in sociology showing that social processes are spatially embedded and affect individual behavior. This analysis asks whether the neighborhood social environment – in addition to the built environment – influences children's decision to walk to school in Alameda County, California. The results show that social factors, particularly neighborhood cohesion, do influence the decision to walk particularly when children face trips of less than 1.6 km. These findings provide initial evidence for transportation analysts to broaden their definition of the environment to include social factors.

Nunes da Silva, F. & de Abreu e Silva, J. (2003). To What Extent Does Urban Density Influence the Modal Split? The Lisbon Metropolitan Area Case Study. In L.J. Sucharov and C.A. Brebbia (Eds.) *Urban Transport IX*. Ashurt, UK: WIT Press.
The relationship between urban density and car use appears to have a growing importance as urban areas experience sprawl and tend to be more diffuse. With this in mind, this paper examines a recent mobility survey conducted in the Lisbon Metropolitan Area (LMA). The main aim was to determine the extent to which density influences the modal split in identical situations of public transport supply and population demographics. Vehicle weight was considered the dependent variable, with 2 approaches developed: 1) one that considers the urban density, for each specific socioeconomic level, as the only explicative variable; and 2) one that uses a multivariate regression analysis using density, availability, family income, public transport supply, and public transit comfort levels as explicative variables of car use. Results obtained from both methods are compared and discussed in order to identify the real weight of density as an explicative variable of car use in LMA.

Polzin, S. (2004). The Relationship between Land Use, Urban Form and Vehicle Miles of Travel. Tampa: Center for Urban Transportation Research, University of South Florida.
This white paper provides a review of the literature and a synthesis of findings regarding the relationship between land use and urban form and the vehicle miles of travel by persons. The paper begins with a conceptual outline of the transportation-land use relationship. It synthesizes a broad review of the literature and explores various aspects of the state of knowledge regarding the transportation-land use relationship. Various perspectives and motivations, analytical methods, variables for measurement, and urban scale focuses are discussed in the paper. An overview of

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research findings categorized by geographic scale ranging from site level, to neighborhood level, to urban area level is provided. Policy Implications are provided and a concluding section offers observations on how the available knowledge can be used in decision-making.

Racca, D. P & Ratledge, E. (2003). *Factors that Affect and/or Can Alter Mode Choice.* Prepared for Delaware Transportation Institute and Delaware Department of Transportation.
This project uses data about individuals, their characteristics, the trips they make, and the costs and benefits of travel modes, to identify factors that can be used in models for travel mode choice. In Delaware, for the past eight years, the Delaware Department of Transportation (DelDOT) has sponsored the DelDOT Household Survey. Approximately 200 people of the age of 16 or older are called on the telephone and asked to describe the trips they have taken in the previous day. Trip origins and destinations are geo-coded to a small geographic unit (modified grid), and information is obtained for trip time, purpose, incidental stops, travel preferences, demographic data, vehicle occupancy, travel mode, and other information. This is a wealth of information very suited to the modeling goals of this project. The modeling of transit use was a focus in this project. Automobiles offer large advantages over transit in convenience, flexibility, and travel time. A particular level of service of transit is necessary to have people choose to use transit over a car when they have the choice. Factors that reflect the transit level of service are necessary in any model, and level of service factors certainly significantly influence mode choice. A review of the literature indicates many types of service factors that have been used in mode choice models. Level of service is often very difficult to quantify. This project employed road network models and optimum routing algorithms as available in geographical information systems to estimate travel times and service factors for trips taken by individuals. This project is the first part in a two part modeling effort. Once mode choice is modeled at the individual and trip level, a study will be done on how travel mode split can be modeled at the smaller levels of geography like traffic zones for use in route planning and travel demand forecasting.

Rodriguez, D A and Joo, J. *The Relationship between Non-Motorized Mode Choice and the Local Physical Environment*. Transportation Research Part D, 9, 2: 151-173, Elsevier, 2004.
This study uses multinomial choice models to examine the relationship between travel mode choice and attributes of the local physical environment such as residential density, walking and cycling paths, topography, and sidewalk availability. The relationship between mode choice and the objectively measured environmental attributes are illustrated using data for student and staff commuters at the University of North Carolina in Chapel Hill. The modeling approach is used in conjunction with traditional modal measures such as travel time, access time, and cost. Results suggest that the four attributes of the local physical environment jointly make significant marginal contributions in explaining travel mode choice. In particular, the estimates reveal that local topography and sidewalk availability are significantly associated with the attractiveness of bicycling and walking modes, respectively. Point elasticities are provided. The findings highlight the importance of considering non-motorized options in travel mode choice studies and incorporating measures of the local physical environment to refine calculations of generalized costs.

Salon, Deborah. *Cars and the City? A Model of the Determinants of Auto Ownership and Use For Commuting in New York City with Endogenous Choice of Residential Location.* Transportation Research Board, 2006.
Cities around the world are trying out a multitude of transportation policy and investment alternatives with the aim of reducing car-induced externalities. However, without a solid understanding of how people make their transportation and residential location choices, it is hard to tell which of these policies and investments are really doing the job and which are wasting precious city resources. The focus of this paper is on the determinants of the choice of car ownership within the context of the related decisions of residential neighborhood and commute mode. Treating all three of these choices as endogenous, I estimate a discrete choice model using survey data from 1997-98 collected in the New York metropolitan area. New York City is unique within the United States in that it has unusually low auto ownership rates. Identifying both the relative contributions of and the potential synergies between the factors that cause New Yorkers to be content to live without cars is important, and could lead to policy solutions for cities aiming to reduce their car dependence. Results indicate that in New York City, the most effective way to reduce car use for commuting is to decrease commute time for

non-car modes. To reduce car ownership, the most important policy-sensitive variable appears to be population density. But effectiveness is not necessarily the same as cost-effectiveness. To use these results to inform policy, they must be combined with cost information about competing policy alternatives to identify the most cost-effective options.

Scheiner, Joachim. *Housing Mobility and Travel Behaviour: A Process-Oriented Approach to Spatial Mobility: Evidence from a New Research Field in Germany*. Elsevier, 2006.
In recent years, some effort has been made to understand the location changes in the life course underlying travel demand in Germany. Such studies have presented travel behavior and long-term housing mobility as intertwined decision flows within the life course. This perspective calls for new methods, such as comparisons of travel behavior before and after relocation, or comparisons between different ?relocation types?. A number of studies have been conducted on this new perspective. Although there are certain methodological problems arising, notable progress has already been made towards a more precise understanding of travel demand. This includes the investigation of the use of transport modes as well as traveled distances and activity spaces. This paper provides an overview of these studies. Theoretical groundwork, empirically validated aspects, and deficits and blind spots of research are discussed.

Schneider, Robert James and Rodriguez, Daniel A. and Young, Hannah M.. *Easy-to-Compute Index for Identifying Built Environments That Support Walking*. Transportation Research Board, 2006.
The variety and spatial co-variation of built environment attributes associated with non-automobile travel have resulted in the estimation of composite scores or indices summarizing these attributes. This paper builds on prior practical and research applications of these environmental scores or indices by proposing and testing a built environment index (BEI) calculated at the traffic analysis zone and that relies predominantly on widely available data. By computing the BEI using three different analytical methods used in prior research (principal components analysis, cluster analysis and an ANOVA method), we examine whether the indices created are comparable. Results suggest a high correlation between the BEI calculated with these methods, with principal components analysis appearing slightly superior to the two other methods. We also compare the BEI with Portland's Pedestrian Environment Factor (PEF) and find a high degree of consistency between the two. Because the BEI can be readily calculated, does not rely on field survey data and has high validity, we recommend it as an overview tool to classify built environments in their ability to support walking. When appropriate, additional disaggregate data can be used to examine the urban neighborhood with higher spatial resolution.

Schwanen, T. & Mokhtarian, P. L. (2005). *What Affects Commute Mode Choice: Neighborhood Physical Structure or Preferences toward Neighborhoods?* London: Elsevier.
The academic literature on the impact of urban form on travel behavior has increasingly recognized that residential location choice and travel choices may be interconnected. We contribute to the understanding of this interrelation by studying to what extent commute mode choice differs by residential neighborhood and by neighborhood type dissonance—the mismatch between a commuter s current neighborhood type and her preferences regarding physical attributes of the residential neighborhood. Using data from the San Francisco Bay Area, we find that neighborhood type dissonance is statistically significantly associated with commute mode choice: dissonant urban residents are more likely to commute by private vehicle than consonant urbanites but not quite as likely as true suburbanites. However, differences between neighborhoods tend to be larger than between consonant and dissonant residents within a neighborhood. Physical neighborhood structure thus appears to have an autonomous impact on commute mode choice. The analysis also shows that the impact of neighborhood type dissonance interacts with that of commuters' beliefs about automobile use, suggesting that these are to be reckoned with when studying the joint choices of residential location and commute mode..

Shay, E. & Khattak, A. J. (2005). *Automobile Ownership and Use in Neotraditional and Conventional Neighborhoods*. Washington, DC: Transportation Research Board. TRR 1902, 18-25.
Although the commonly accepted link between automobile ownership and automobile use has inspired some municipalities to experiment with neighborhood design in an attempt to influence both automobile ownership and travel behavior, the underlying relationship between neighborhood design

and automobile ownership is still unclear. Evidence suggests that automobile ownership is tightly linked to income and household size and is less responsive to urban design. This research uses data from a matched pair of neighborhoods, one conventional and one neotraditional, to consider the relationship between neighborhood design and automobile ownership and the relationship between these factors and automobile use. Statistically significant differences were found for automobile ownership in the two neighborhoods. In addition, there were clear differences in automobile use: residents of neotraditional developments made fewer automobile trips, traveled fewer miles in their vehicles, and spent less time driving. This has implications for planning strategies that may help reduce automobile trips and miles separately from changes in automobile ownership.

Shay, E., Fan, Y., Rodriguez, D. A., & Khattak, A. J. (2006). *Drive or Walk? Utilitarian Trips Within a Neotraditional Neighborhood*. Washington, DC: Transportation Research Board. TRR 1985, 1-15.

An extensive body of literature has developed on the relationship between the physical environment and travel behavior. Although many studies have found that neotraditional neighborhood development supports nonautomobile travel by providing good street connectivity, pedestrian and cycling facilities, and internal destinations, questions remain about the travel behavior of individuals within such neighborhoods. This study uses travel diaries to examine utilitarian trip-making behavior within a neotraditional neighborhood and compares total trips with mode-specific (i.e., walk and drive) trips. Negative binomial regression is used to examine the effect of a set of independent variables, including personal and household characteristics, select attitudinal factors, and distance from residences to the commercial center. It is found that within the neotraditional neighborhood, walk trips drop off quickly with increasing distance to destinations, whereas drive trips increase. The analysis demonstrates the importance of short distances for within-neighborhood travel and the merit in considering trips separately for walk and drive modes to avoid obscuring important factors associated with trip making.

Soltani, A. & Allan, A. (2006, September). Analyzing the Impacts of Microscale Urban Attributes on Travel: Evidence from Suburban Adelaide, Australia. *Journal of Urban Planning and Development*, *132*(3), 132-137.

Metropolitan Adelaide in Australia is dominated by low-density suburbs with an extensive and large road supply, which brings with it car-dependent lifestyles that are ultimately unsustainable in the longer term. Changes are needed to make a city such as Adelaide less car-dependent toward a city that relies on more sustainable transport modes for its day to day urban travel needs. This paper presents the results from a comparative study of travel patterns among residents of four suburban residential areas in metropolitan Adelaide. Using existing datasets together with inventory data of urban environment characteristics from original fieldwork, this paper examines to what extent there are associations between various attributes of a particular urban location as they relate to travel behavior and household socio-economics. The findings derived from multinomial logit models show that suburban development pattern and design attributes can potentially create shifts in transport modal split suggesting that microscale urban features should be given more attention in transport policy making.

Srinivasan, S. (2001). *Quantifying Spatial Characteristics for Travel Behavior Models*. Washington, DC: Transportation Research Board.

Land use initiatives represent a potentially effective tool for coping with the kinds of mobility patterns that North American cities face in the 1990s and in the coming century. As fine-grained data about land use and travel activity become available, they provide the opportunity to improve the understanding of the linkage between land use and transportation. The neighborhood characteristics that could affect travel behavior on the nonwork tour are examined in detail. Neighborhood characteristics include land use, network, and accessibility-related characteristics quantified through the use of a geographic information system. Ultimately, such measures could be used in conjunction with detailed surveys of travel behavior to specify, calibrate, and use models of modal choice and trip type that are more sensitive to the fine-grained spatial structure of neighborhoods and transportation corridors in metropolitan areas. Microlevel data for the Boston metropolitan area, together with a 1991 activity survey of approximately 10,000 residents, provide a rich empirical basis for experimenting with relevant neighborhood measures and for simulating their effects on travel behavior. Spatial

characteristics affect travel behavior even on the relatively (spatially) restricted nonwork tour and could be potentially useful for transportation planning.

Srinivasan, S. (2005). *Influence of Residential Location on Travel Behavior of Women in Chennai, India.* Washington, DC: Transportation Research Board.

The visible impact of urban transportation is in access to employment. However, transportation also affects access to other services such as shopping and social service facilities. Past research in Chennai, a large city in India, indicates that the relocation of the very poor in peripheral informal settlements severely affects their accessibility to jobs and services because of the commuting distances involved when employment opportunities continue to remain highly centralized. In this study an attempt was made to understand the influence of relative location within the city on travel behavior by using a sample of 116 low-income households from a variety of locations in Chennai. In particular, the travel behavior of women as affected by location was assessed. Models estimated to determine the influence of location characteristics on household travel behavior indicate that availability of transportation choices did affect the travel behavior of women even after differences in their life-cycle stage are accounted for. Recently, Chennai has been investing heavily in rail for public transportation without estimating current travel demand by spatial location within the city. The implications of this policy for integrated land use and transportation planning are especially pertinent in this context.

Steiner, R. L., Wright, S. A., & Paul, J. B. (2000). *Travel in New Urbanist and Traditional Communities: A Case Study of Downtown Orlando, Volume I: Final Report and Appendix A.* Tallahassee: Florida Department of Transportation.

The claim that traditional urban forms reduce the level of automobile dependence, especially for trips to and from work and during the peak travel time, is examined in this research. While it would be ideal to consider New Urbanist communities, it is widely accepted that they have not reached the maturity necessary to allow them to be considered. Thus, this research considers the travel of residents who choose to live in traditional neighborhoods that afford the use of a range of transportation options. Downtown Orlando, including its adjacent neighborhoods, has been chosen as the location of this research because it appears to have the characteristics that encourage non-automobile travel. The downtown is built on a grid street network. Transit service is widely available. Many jobs are available in downtown Orlando. The city of Orlando's policies support a high quality of life in neighborhoods and encourage traditional neighborhood development in existing neighborhoods and the new development within the Naval Training Center Plan and Southeast Sector Plan. Many people who live in downtown Orlando have an income high enough to allow them the full options of transportation services, including automobile ownership. Thus, this research characterizes the travel of medium to high-income residents of the neighborhoods of downtown Orlando. The results of this research will begin to clarify whether the Florida Department of Transportation, as a matter of policy, should support such development, and, if so, what other policies should be in place to make it more effective.

TRB, Transit Cooperative Research Program (TCRP) Report 95: Chapter 15 – Land Use and Site Design, 2003

While transportation is a long-acknowledged factor in shaping cities and determining land development potential, as the result of enhanced accessibility, the reciprocal impact of land use decisions on transportation outcomes has only gradually achieved recognition. It is these reciprocal impacts, of interest in treating land use or site design options as "transportation" strategies that provide the impetus for this chapter. Presented here is information on the relationships between land use/site design and travel behavior, drawn primarily from research studies that have attempted to measure and explain the effects. TCRP Report 95: Chapter 15, Land Use and Site Design will be of interest to transit, transportation, and land use planning practitioners; educators and researchers; and professionals across a broad spectrum of transportation and planning agencies, MPOs, and local, state, and federal government agencies.

Waling, H. *Socio-Economic Land Use and Travel Patterns in Amsterdam*. American Society of Civil Engineers, 2000.

The number of inhabitants in Amsterdam is influenced by various developments such as the transition of population to the suburbs and the effects of foreign immigration on growth and prosperity. Many demographic factors, such as the age and number of inhabitants, play a part in the social and

economic structure of the city. This paper deals with land use and the various social and economic characteristics of the occupants of Amsterdam and their travel patterns, and how these factors impact on public transportation.

WEINER, E and Gorham, R. *LAND USE--TRANSPORTATION INTERACTIONS: WORKSHOP REPORT. IN: IN PERPETUAL MOTION: TRAVEL BEHAVIOR RESEARCH OPPORTUNITIES AND APPLICATION CHALLENGES*. Elsevier, 2002.
This report describes a workshop that focused on methodologies and needs of researchers looking into whether a causal link exists between human settlement patterns in urbanized regions and travel behavior. Workshop participants generally agreed that the interactions between these phenomena are quite complicated, and that land-use policy alone will be insufficient in reducing car dependency. The central issue then becomes, how can researchers isolate the effects of land-use if it is apparent that land-use alone is not sufficient to influence travel behavior. This problem is discussed in detail.

Zegras, P.C. (2004). The influence of land use on travel behavior: Empirical evidence from Santiago de Chile. *83rd Annual Meeting of the Transportation Research Board*, Washington, DC.

Zegras, P.C. (2006). *The Built Environment and Motor Vehicle Ownership and Use: Evidence from Santiago de Chile*. Paper #07-3034. Washington, DC: Transportation Research Board.
This paper examines the role that the built environment – both micro-scale "neighborhood" design characteristics and meso-scale relative location – play in influencing motor vehicle ownership and use in a rapidly motorizing, developing city context: Santiago de Chile. The paper first answers the question: what role, if any, do factors such as dwelling unit density, land use mix, street design, and proximity to public transportation stations play in determining household motor vehicle ownership? The question is answered by specification and estimation of a multinomial logit model of vehicle choice. The paper then turns to a second-stage question: what role does the built environment play on household automobile use? This question will be answered by specification and estimation of an ordinary least squares regression model, predicting the amount of total household automobile use (measured by distances traveled on a given day). The two models are explicitly linked via the use of the "selectivity bias correction factor." The implications of the findings for planning and design are discussed.

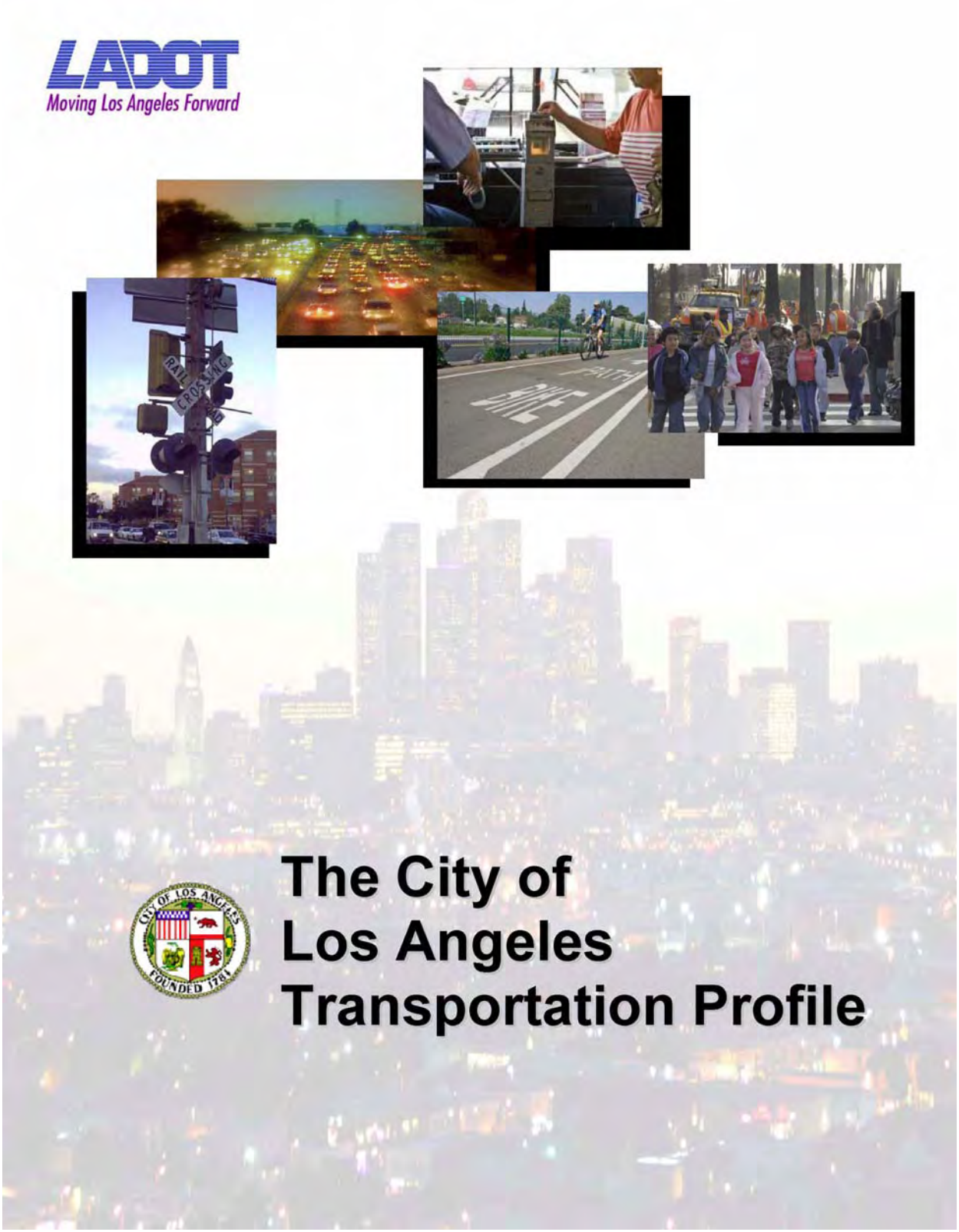
Zhang, M. (2005). *Intercity Variations in the Relationship Between Urban Form and Automobile Dependence: Disaggregate Analyses of Boston, Massachusetts; Portland, Oregon; and Houston, Texas*. TRR 1902. Washington, DC: Transportation Research Board.
This study was motivated by the need for more empirical research on the urban form-travel connection. A two-tiered travel effect is expected from strengthening the urban form-travel connection: the enhancement of access to choices and a shift in travel mode choice from driving to nondriving. Existing studies have focused primarily on the second-tier effect but have largely omitted the first. This study attempted to fill that gap. Through joint-logit modeling of choice set formation and travel mode choice in three cities: Boston, Massachusetts; Portland, Oregon; and Houston, Texas; the study measured the degree of automobile dependence in the three cities. It also estimated elasticities of automobile dependence and of driving probabilities with respect to land use densification, transit access improvement, and control of motorization. There were large variations in the levels of automobile dependence and their elasticity estimates among the three cities. Public policies aimed at reducing automobile dependence should be formulated and evaluated based not just on the final outcome of modal split but also on the provision of travel options to travelers. As cities differ in their existing urban forms, currently available transportation services, and prevailing preferences of travel, it is important to recognize that the same set of policy strategies implemented in different cities is unlikely to generate the same level of effects in reducing automobile dependence.

Response to Comment No. 11-38

The Resource Paper entitled "The Effect of Housing Near Transit Stations on Vehicle Trip Rates and Transit Trip Generation" presented above is outside the scope of the RPDEIR. Please refer to Section 1.2 of this Final RPEIR for a discussion of the scope of the RPDEIR, the City's obligation to respond to comments outside the scope of the RPDEIR, and the standards for recirculation of a Draft EIR due to "significant new information." The commentor offers no "significant new information" with respect to cumulative impacts within the meaning of CEQA Section 21092.1 and CEQA Guidelines Section 15088.5. As noted in Section 4.6.5 of the Draft EIR, the transportation analysis methodology and scope was determined at the on-set by the Lead Agency. In addition, the trip generation rates used to forecast Project traffic levels are consistent with general industry standards. (See DEIR Volume I, Section 4.6.3.2.)

Comment Letter No. 11 (continued)

Comment No. 11-39



The City of Los Angeles Transportation Profile 2009

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Mayor Antonio R. Villaraigosa

Mayor Villaraigosa has dedicated himself to developing viable and convenient alternatives to driving, managing our existing road system, making our transportation system safer and increasing street and freeway capacity. His transportation initiatives are to increase convenience, reliability, safety, and speed of Los Angeles' transportation system and change how Los Angeles looks and how people move throughout the City.

To do this, Mayor Villaraigosa has relentlessly pursued state and federal transit funds, and continues to fight for Los Angeles' fair share, so that we can have a first-class bus system and a true regional rail transit network.

In order to reduce our reliance and dependence on driving, Mayor Villaraigosa is working to transform Los Angeles into a city with 60 new transit-oriented development areas alongside subway lines. These developments combine dense housing, walkable streets and mixed-used developments near transit options. It is the Mayor's hope that addition of these new developments will reduce our reliance and dependence on the single passenger vehicles and will help Los Angeles become a cleaner and greener city.

After all, Los Angeles is on track to become the cleanest and greenest big city in America. More than half of all city vehicles are hybrid vehicles or run on alternative fuels. The Los Angeles River is being restored and air pollution for the Port of Los Angeles is being reduced by 45%.

The mission of the City of Los Angeles Department of Transportation (LADOT) is to provide for safe and optimal mobility of people and goods throughout the City of Los Angeles in support of economic activity and a desirable quality of life. The City of Los Angeles is a dynamic city of the 21st Century and Mayor Villaraigosa is working with Rita L. Robinson and the Department of Transportation to ensure that it is a vibrant city with enhanced mobility.

Commissions

The Los Angeles Department of Transportation works with two Commissions: the Transportation Commission and Taxicab Commission. Members of the Commissions serve as advisors to the General Manager of the Department of Transportation and are appointed by the Mayor. LADOT asks the Commissions to gather inputs on transportation-related issues. The Commissions' findings help the Department of Transportation connect with key transportation stakeholders in the City.

The Board of Transportation Commissioners establishes regulations that govern the operation of utilities, makes recommendations regarding the public utility franchises and permits granted by the City and is responsible for managing the Special Parking Revenue Fund. The Board also must approve all Department-initiated amendments to the Municipal Code. The Board generally serves in an advisory capacity to the General Manager.

The Board of Taxicab Commissioners has the authority to determine the proper services to be furnished and the rates to be charged; to prescribe rules/regulations and to investigate complaints regarding the services provided and rates charged; to verify compliance with franchise terms and conditions, ordinances and laws; to establish quality of service standards; to provide performance evaluations; and to make recommendations to the City Council on the granting of taxicab franchise applications and the setting of taxi meter rates of fare.

3

Rita L. Robinson, General Manager

Rita L. Robinson, General Manager

The City of Los Angeles is the international gateway for people and goods moving between and to North America, the Asian Pacific Rim and Europe. It provides the entry for the land bridge between Asia and Europe and the free trade zones between the United States and Canada and the United States and Mexico. It is an acknowledged critical linchpin for the global logistics for movements within the global economy. Los Angeles would be considered the 7th largest nation in the world based on Gross Domestic Product and one of two projected mega cities in North America in the 21st Century. The small mission outpost of the 19th Century is today, a worldwide powerhouse.

In the 21st century, the City of Los Angeles continues to experience rapid growth in jobs, population, economic activity, business travel and tourism. This growth in population brings economic benefits to the City but also expands demands for moving people and goods. The City is part of a complex, multi-participant transportation system and transportation-related decisions made and implemented here affect not only City residents, employers, employees and visitors, but also have national and international implications.

The Los Angeles Department of Transportation

The Department of Transportation (LADOT) is comprised of nearly 2,200 employees (engineers, planners, parking enforcement and traffic control officers, school crossing guards and support staff) organized into four Offices, which oversee 14 Bureaus and 25 field locations.

LADOT operates three public transit systems—Commuter Express, DASH and City Ride.

We are also responsible for all traffic operations in the City, including:

- 4,300 signalized intersections
- 6,499.5 miles of streets
- Tens of thousands of traffic control devices
- Operation of the most advanced city-based traffic control center: ATSAC
- Striping all streets and painting all curbs
- Installation and maintenance of a transit priority system for regional transit operator
- Regulation of the taxi, medical transport and pipeline industries
- Preparation and administration of federal and state grants and funds
- Ownership and operation of City parking lots and garages
- Handling of parking enforcement
- Providing traffic control for daily travel and special events
- Designing and promoting bicycle facilities and bicycle safety
- Improving public safety with the regional traffic safety education campaign known as "Watch the Road"
- Planning for the City's transportation system by reviewing proposed developments
- Preparing neighborhood-based traffic and transportation plans
- Providing technical resources for the City's representatives on regional transportation activities

LADOT delivers safe, reliable and accessible surface transportation services. These services enhance the quality of life and the movement of people, vehicles, bicyclists and goods in the City of Los Angeles.

We are a recognized leader in the delivery of exceptional transportation services to our customers through continuous improvement, innovation and teamwork. As we move into the future, that innovation and teamwork will help us continue to improve the quality of life in our City of Los Angeles.

4

Transportation Infrastructure

Funding

Adopted 2006-07 DOT Budget: $143,713,078
Actual 2007-08 DOT Budget: $140,913,546

Sources of Funds, City of L.A., Office of the Mayor FY Budget 07-08

Source	Total
General Fund:	$110,798,583
Traffic Safety Fund (Sch. 4):	$7,478,290
Special Gas Tax Street Improvement Fund (Sch. 5):	$4,473,539
Mobile Source Air Poll. Reduction Fund (Sch. 10):	$507,601
Special Parking Revenue Fund (Sch. 11):	
Sewer Capital (Sch. 14):	$90,033
Prop. A Local Transit Fund: (Sch. 26):	$5,998,346
Prop. C Anti-Gridlock Transit Fund (Sch. 27):	$10,327,637
Coastal Transportation Corridor Fund (Sch. 29):	$294,225
West L.A. Transportation Improvement and Mitigation (Sch. 29):	$87,778
Ventura/Cahuenga Corridor Plan (Sch. 29):	$749,956
Warner Center Transportation Develop. (Sch. 29):	$90,529
Local Transportation Fund (Sch. 34):	$17,426

5

Background: The City and County of Los Angeles

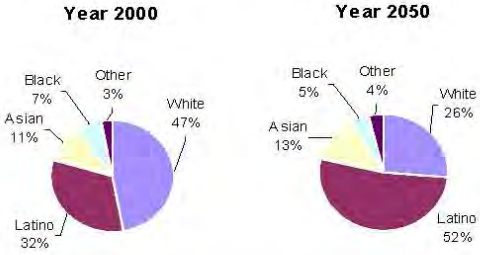
The County of Los Angeles covers 4,079 square miles and includes 88 incorporated cities. The central city is Los Angeles. According to the U.S. Census Bureau, the estimated 2005 population of Los Angeles County is 9,758,886.

The City of Los Angeles covers 470 square miles and has a population of approximately 3.7 million. It is the second largest city in the United States by population and the city with the fifth largest population growth in 2000. The 3.7 million residents living in the City of Los Angeles have created a mosaic of diverse communities where numerous languages are commonly spoken. The City's topography is just as diverse, with hillside, valley and beach neighborhoods as well as highly urbanized and quasi-rural neighborhoods.

The faces of California's changing future

The Changing Face of California

New projections from the State Department of Finance show that Latinos will be the majority in California by the year 2050.



Population Increases

County	In millions 2000	2050	%
Riverside	1.6	4.7	203
Imperial	0.14	0.39	170
San Bernadino	1.8	3.7	113
Ventura	0.76	1.2	62
San Diego	2.8	4.6	59
Orange	2.9	4	39
Los Angeles	9.6	13.1	36
California	34.1	59.5	74

Note: Ranked by percent of rate growth. Percents based on unrounded numbers

Source: California Dept. of Finance

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[Page 7 of original attachment missing.]

Los Angeles World Airports (LAWA)

Photo: Courtesy of LAWA

Los Angeles owns and operates Los Angeles World Airports, a system of four different airports: Los Angeles International (LAX), Ontario (ONT), Van Nuys (VNY) and Palmdale Regional (PMD).

Los Angeles International (LAX)

Los Angeles International is ranked fifth in the world for the number of passengers and seventh for the tonnage of cargo handled. In 2003, 55 million passengers used LAX (14.6 million international; 40.3 million domestic) and there were 622,378 operations (takeoffs and landings).

There are approximately 1,000 cargo flights daily at LAX, handled in the 98-acre Century Cargo Complex, the 57.4-acre Imperial Complex, the Imperial Cargo Center and a number of terminals on the south side of the airport. In 2003, there were more than 2 million tons of freight and mail shipped.

Ontario International (ONT)

Ontario International is a medium-hub, full-service airport located 35 miles east of Downtown Los Angeles and less than 50 miles from both Los Angeles and Long Beach Harbors. Seven million passengers used the airport and 602,326 tons of air freight was shipped in 2006.

Van Nuys (VNY)

Van Nuys is located in the San Fernando Valley and is the world's busiest general aviation airport, with nearly 500,000 non-commercial takeoffs and landings annually.

Van Nuys reduces congestion and delays at the other airports by providing a place for general aviation, which encompasses all flying other than scheduled air carrier service or the military.

Palmdale Regional (PMD)

Palmdale is located in the Antelope Valley, 60 miles away from Downtown Los Angeles. It shares an airfield with the United States Air Force.

In June of 2007, Palmdale opened up to commercial flights for the first time. Palmdale's terminal is capable of handling up to 300,000 passengers annually. The United Airlines flights operating there go to and from San Francisco.

Palmdale Terminal Remodel
Photo: Jay Berkowitz, LAWA.

8

The Port of Los Angeles

The Port of Los Angeles is located 20 miles south of Downtown Los Angeles in San Pedro Bay.

The Port is a department of the City of Los Angeles, often referred to as the Los Angeles Harbor Department. It is a proprietary Department, meaning the Port is not supported by taxes. Revenue is derived from fees for shipping services such as dockage, wharfage, pilotage, property royalties and other port services.

The Port consists of 7,500 acres, 43 miles of waterfront and features 27 cargo terminals, including dry and liquid bulk, container, breakbulk, automobile and omni facilities. These terminals handle almost 190 million metric revenue tons of cargo annually.

The Port is also home to the nation's most secure cruise passenger complex, the World Cruise Center.

The Port of Los Angeles receives more than 42% of total U.S. waterborne containerized imports, and 70% of imports come from Asia. Since 1999, container cargo passing through the Port of Los Angeles has doubled, and since 1995, it has tripled.

Photo: Courtesy of LAHD

Photo: Courtesy of LAHD

9

Goods Movement: Existing Conditions and Constraints

Los Angeles is the primary goods movement gateway for the country. The Los Angeles Customs District includes the ports of Los Angeles, Long Beach, Port Hueneme and Los Angeles International Airports.

Manufacturing Activity and the Retail Market

L.A. County has the country's largest manufacturing base, with nearly 500,000 manufacturing workers employed in 2005. It also has one of the country's largest retail markets, with $140 billion in taxable retail sales in 2002.

Many of the manufacturing districts are located in or near Downtown Los Angeles. According to the U.S. Census American Community Survey for 2005, the City of Los Angeles employs approximately 183,443 manufacturing workers.

LADOT's Goods Movement Improvement Program

In the last 12 years, LADOT has used innovative technology and practices to identify and correct truck movement problems on the City's surface streets. This program has produced three citywide studies that identified over 75 truck movement problem locations and played a vital role in securing funding and implementing internal measures to address truck movement problems.

Waterborne and Airborne Cargo: The Port of Los Angeles and Los Angeles World Airports

The Port of Los Angeles in San Pedro Bay handles approximately 40,000 container units daily and is home to the highest-volume container ports complex in the nation and the fifth largest in the world.

In 2005, it handled 14.2 million container units, a full one-third of all U.S. waterborne container traffic. Most of these container units are still drayed by truck to off-port intermodal facilities and regional distribution centers.

Los Angeles International Airport handles most of Southern California's air cargo. In 2003, there were more than 2 million tons of freight and mail shipped. The LAX Master Plan projects an increase of up to 3.1 million annual tons of air cargo by 2015.

Ontario International Airport (ONT) is part of a rapidly developing freight movement system including the airport, two railroads, four major freeways (the 10, the 15, the 60 and the 210 freeways), and an expanding network of freight forwarders. Some of the major U.S. air freight carriers that service ONT include Airborne Express, Ameriflight, Arrow Air, Centurian Airlines, DHL, Empire Airways, Evergreen Aviation, Express Net, Federal Express, Gulf and Caribbean Cargo, IFL Group, Kalitta Air, United Parcel Service and West Air.

This air cargo eventually moves onto tractor-trailer or short-haul delivery trucks for transport on streets and freeways.

Rail

Los Angeles County operates as a major rail hub. The region is linked to the national rail network by main lines operated by Union Pacific (UP) and Burlington Northern Santa Fe (BNSF). UP has four terminals, with one located near the ports and the other located in Los Angeles. BNSF operates three terminals, with one located in the City of Los Angeles.

In 2002, the Alameda Corridor opened, providing a 20-mile, grade-separated freight rail link between rail yards near Downtown Los Angeles and inland, and the San Pedro Bay ports. However, waterborne cargo destined for markets within a 500-mile radius of the ports still moves largely by truck, although the ports have extensive on-dock rail facilities.

Trucks

Trucks move in a time-sensitive environment between ports, airports, intermodal rail yards, truck terminals, distribution centers, warehouses, factories, businesses and stores. Trucks travel on surface streets for some of their journey—surface streets that fall under LADOT jurisdiction.

The Goods Movement Improvement Program's three studies identified some of the heaviest traveled truck routes within the City of Los Angeles. The three study areas were:

Phase I Study Area (October 1999):	Central City East and the Port of Los Angeles, linked by the Alameda Corridor
Phase II Study Area (February 2002):	Northeast Los Angeles and the San Fernando Valley
Phase III Study Area (January 2006):	Hollywood, Mid-City, South Los Angeles, West Los Angeles, LAX, and the Port of Los Angeles

The study considered any route with more than 3% trucks during peak hours as a truck route. Within Central City East, some streets carried as much as 15% trucks during peak hours.

Phase I: Central City East Study Area	
Street	**Percentage of Trucks During Peak Hours**
Santa Fe (Between Washington and 7th)	15%
Olympic (Between Soto and Santa Fe)	13%
Central (Between Washington and Olympic)	9%

In northeast Los Angeles and the San Fernando Valley, there was significantly less truck activity, barring a slight increase near the Van Nuys Airport.

Phase II: West Fernando Valley Study Area	
Street	**Percentage of Trucks During Peak Hours**
Nordhoff (Between Balboa and Reseda)	3%
De Soto (Between Roscoe and the 118 Freeway)	4%
Sepulveda (Between Roscoe and Sherman)	4%

Phase III focused on an area around Los Angeles International Airport.

Phase III: LAX Study Area	
Street	**Percentage of Trucks During Peak Hours**
Century (Between Jefferson and Airport)	11%
Imperial (Between Aviation and La Cienega)	7%
La Cienega (Between Imperial and Century)	8%

11

Streets Inventory and Freeway System

How many miles of street are there in the City of Los Angeles?

There are approximately 6,499.5 miles of dedicated public streets in an area of approximately 470 square miles. There are 181 miles of freeway.

Los Angeles County has approximately 527 miles of freeway. There are just over 470 HOV lane miles in Los Angeles County, more than 1/3 of the total number in the State of California.

How many traffic signals are there in the City of Los Angeles?

There are 4,300 signalized intersections and 1,800 signalized approaches with left-turn arrows.

How many intersections are there in the City of Los Angeles?

There are 40,000 intersections in the City of Los Angeles.

How many crosswalks are there in the City of Los Angeles?

There are 22,000 marked crosswalks in the City of Los Angeles.

Los Angeles County Freeway System

Freeway Number	Freeway Name	Freeway Number	Freeway Name
2	Glendale	5	Golden State/Santa Ana
10	Santa Monica/San Bernardino	14	Antelope Valley
22	Garden Grove	30	Foothill
57	Orange	60	Pomona
71	Corona Expwy	90	Marina
91	Riverside/Artesia	101	Ventura/Hollywood
105	Glen Anderson	110	Pasadena/Harbor
118	Simi Valley/San Fernando Valley	134	Ventura
170	Hollywood	210	Foothill
405	San Diego	605	San Gabriel River
710	Long Beach		

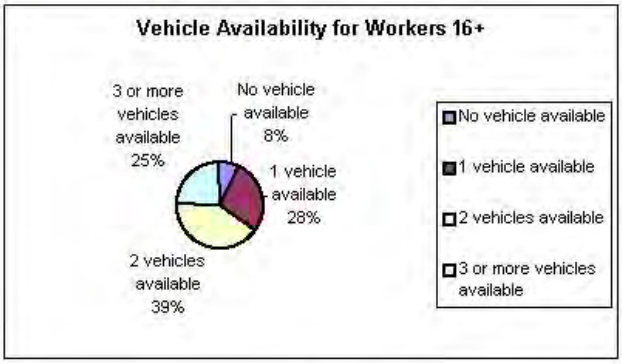
How many miles of curb marking are there in the City of Los Angeles?

There are 1,200 miles of red, yellow, white, green and blue curb markings in the City of Los Angeles. Most of that is red curb marking.

12

Automobile Availability and Mode Share in the City of Los Angeles

According to 2005 U.S. Census data, there are approximately 1,662,238 workers over the age of 16 in the City of Los Angeles. Of these 1,662,238 workers, all but 7.8% live in households where at least one car is available. 25.2% live in households where there are 3 or more cars available.



*U.S. Census, American Community Survey 2005
*Total Workers Age 16+ = 1,662,238, +/-28,414

How many cars are there in Los Angeles?

According to the California Department of Motor Vehicles (DMV), there were 6,675,888 automobiles, commercial vehicles and motorcycles registered in the County of Los Angeles as of January 1, 2007. There were 5,484,606 automobiles, 123,669 motorcycles and 1,068,213 commercial vehicles.

In the City of Los Angeles, there are a total number of 2,499,764 registered vehicles. Of that, 1,977,803 are automobiles.

13

Commuting

According to the 2005 U.S. Census data for the City of Los Angeles, 52% of workers over 16 who work outside of the home spend less than half an hour commuting to work; 12% of workers over 16 who work outside the home spend an hour or more commuting to work. The average commute time was 29.6 minutes.

Subject	Total	Male	Female
Workers 16 years and over	1,662,238	954,410	707,828
MEANS OF TRANSPORTATION TO WORK			
Car, truck, or van	79.50%	81.00%	77.50%
Drove alone	67.80%	68.90%	66.40%
Carpooled	11.70%	12.10%	11.10%
In 2-person carpool	9.00%	9.20%	8.70%
In 3-person carpool	1.70%	1.90%	1.50%
In 4-or-more person carpool	0.90%	1.00%	0.90%
Workers per car, truck, or van	1.37	1.34	1.4
Public transportation (excluding taxicab)	10.30%	9.30%	11.70%
Walked	3.20%	2.90%	3.50%
Bicycle	0.60%	0.90%	0.20%
Taxicab, motorcycle, or other means	1.70%	1.80%	1.50%
Worked at home	4.70%	4.00%	5.70%

*U.S. Census, American Community Survey 2005
*Total Workers Age 16+ = 1,662,238

Subject	Total	Male	Female
Workers 16 years and over who did not work at home	1,583,856	916,115	667,741
TRAVEL TIME TO WORK			
Less than 10 minutes	7.80%	7.00%	8.90%
10 to 14 minutes	10.40%	10.30%	10.50%
15 to 19 minutes	13.60%	13.30%	14.10%
20 to 24 minutes	14.20%	13.60%	15.20%
25 to 29 minutes	6.10%	5.90%	6.20%
30 to 34 minutes	19.30%	20.70%	17.30%
35 to 44 minutes	7.80%	7.90%	7.70%
45 to 59 minutes	9.20%	9.00%	9.40%
60 or more minutes	11.60%	12.30%	10.70%
Mean travel time to work (minutes)	29.6	30.3	28.6

*U.S. Census, American Community Survey 2005
*Total Workers Age 16+ and who did not work at home = 1,583,856

14

Traffic Congestion and Neighborhood Traffic Management Plans

What is the per capita delay due to traffic congestion?

According to the Texas Transportation Institute, in 2003, people traveling on the roadways in Los Angeles/Orange counties experienced a total of 93 hours of delay per person, the highest among the metropolitan areas in the nation.

Signals and red light cameras are part of traffic management.

Neighborhood Traffic Management Plans

A Neighborhood Traffic Management (NTM) Plan may be developed when a problem of excessive bypass traffic or speeding is documented on a network of local, residential streets. In developing an NTM Plan, a package of traffic management and calming measures are considered so that bypass routes are less attractive to commuters, speeding is reduced and the quality of life is enhanced.

LADOT has implemented 23 Neighborhood Traffic Management plans in Los Angeles neighborhoods from Silver Lake to Encino to Baldwin Hills.

There are currently five projects being implemented, with approved plans, in neighborhoods reaching from Carthay Square to Western Heights.

There are also several other projects, both big and small, in various stages of completion throughout the City.

The variety of projects ranges from the installation of speed humps and stop signs to the construction of landscaped median islands and the timing of signals.

A majority of these projects are funded from LADOT's general fund.

15

Traffic Collisions

How many resulted in property damage only as compared to fatalities?

According to Traffic Collision Data reported by the Los Angeles Department of Transportation for the City of Los Angeles, in the year 2002, 45% of all traffic collisions resulted in property damage only, compared to 55% that resulted in some kind of injury.

In 2002, throughout the City of Los Angeles, there were 50,317 collisions reported, with a total of 166 fatal injuries resulting from a traffic collision.

How does that compare to property damage/fatality collision rates across the nation?

Data from the National Highway Traffic Safety Administration for the year 2000 shows the cost of traffic collisions in both the State of California, as well as the country as a whole.

Traffic Collisions in U.S. and California — Annual Deaths/Injuries/PDO/Cost

	Deaths	Injuries	P.D.O.**	Cost
U.S.	43,443	2,699,000	13,487,355	$231 Billion
California	4,329	292,798	984,577	$21 Billion

Source:
•The Economic Impact of Motor Vehicle Crashes, 2000. NHTSA (Numbers for California for Injuries and PDO have been interpolated)
**PDO – Property Damage Only

16

Parking

Citywide inventory of On-and-Off-street parking controls:

- On-street parking meters.....37,709
- Off-street parking meters.....2,703
- Operated parking garage spaces.....5,395
- Operated Off-street lot spaces.....1,723
- Free non-metered off-street spaces.....1,276

Parking Classifications: Residential Parking Zones, Preferential Parking Districts and Park and Pay Stations and Meters

- LADOT manages 112 established Preferential Parking Districts (PPDs), with the majority concentrated in Central Los Angeles
- LADOT recently established 15 Overnight Parking Districts
- There are 38 requests for expansions and/or establishments of new Districts

Clean Air Vehicle Parking

On October 1, 2004, participation in this free metered parking program was extended to four hybrid vehicle models: the Honda Insight, Honda Civic Hybrid, Toyota Prius, and the Ford Escape Hybrid. On June 21, 2006, the Los Angeles City Council voted to extend the program providing free parking at City parking meters for hybrid vehicles.

The Council also directed the City Attorney to prepare an ordinance limiting participation in the free parking program to only those vehicles that have Clean Air Vehicle Decals issued by the California Department of Motor Vehicles. (Free Parking for Zero Emission Vehicles (ZEVs), Super Ultra Low Emission Vehicles (SULEVs) and certain Hybrid Vehicles - Pilot Program)

A parking enforcement officer also guides traffic.

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LADOT Transit Facilities and Services

LADOT's transit fleet consists of nearly 400 vehicles that operate over 800,000 revenue hours and serve over 30 million passenger boardings per year. Transit ridership by clients of the Cityride program amounted to approximately 1.5 million trips in FY 05-06, including an estimated 14 million trips utilizing the Metro bus passes, 800,000 utilizing City-franchised taxis and 170,000 utilizing the City-operated Dial-A-Ride services.

DASH buses cost a quarter to ride.

DASH: DASH, originally an acronym for Downtown Area Short Hop, started out as a small circulation bus to provide access to the various activity sites in Downtown. DASH buses travel meandering fixed routes and provide access to various activity centers, such as parks, recreation centers, cultural sites, medical facilities and retail areas. The DASH concept has since been expanded to 27 routes that serve various communities throughout the City, including six in Downtown.

Commuter Express: LADOT provides 16 fixed Commuter Express Routes, 11 of which provide service between Downtown and various communities using the freeway. The buses operate during peak commuting hours. In the Downtown area or the major activity center, bus stops are frequent. In the community end, the stops are approximately one-half mile apart.

City Ride: Cityride is a special dial-a-ride and taxicab service for seniors 65 years and older and persons with disabilities. This program enables clients to gain access to senior centers, medical facilities, supermarkets and other sites.

Metrolink Shuttle Bus: Direct service for Metrolink passengers is available to Bunker Hill in the morning and back to Union Station in the afternoon via this special Metrolink shuttle route.

City of Los Angeles Charter Bus Program: LADOT contracts with charter bus operators to provide free bus service to qualified seniors, youth and disabled groups, allowing them to have recreational and educational opportunities at various activity centers.

There are 16 Commuter Express routes.

LADOT-Operated Transit Centers/Park & Ride

Development of transit centers or hubs is also a primary responsibility of LADOT. These hubs offer enhanced on-street facilities and will increase transit service over the entire region.

LADOT also develops park and ride lots. We currently utilize the Encino Park and Ride in the San Fernando Valley. This facility supports much of LADOT's Commuter Express service, providing parking spaces, bicycle lockers and electric vehicle-recharging stations. LADOT facilities and Metrolink stations are located at:

Metrolink Stations: Chatsworth, Cal State University Northridge, Van Nuys, Sylmar/San Fernando, Sun Valley.

Transit Centers: El Sereno, Highland Park, and Warner Center

Park and Ride Lots: Encino

18

LADOT inspects the taxicabs.

Taxis

Currently, there are 2,300 authorized taxicabs operated by nine companies and regulated in the City. They are:

- Bell Cab;
- Beverly Hills Cab;
- City Cab;
- Independent Taxi Owner's Association (ITO);
- LA Checker;
- United Checker;
- United Independent Taxi Drivers (UITD);
- United Taxi of San Fernando Valley (UTSV); and
- Yellow Cab

The Los Angeles Department of Transportation mandates that all taxicabs use meters to determine a ride's cost. The City establishes meter rates, including a flat rate between the Los Angeles International Airport and Downtown.

19

Other Transit Services: Metro and Municipal Bus Services

Local Transit Service and Facilities: Bus, Transitways

Bus: The regional public transit service in Los Angeles County is the Metropolitan Transit Authority, more commonly known as Metro. On an average weekday, Metro operates 2,000 peak-hour buses throughout Los Angeles County. Metro also funds 16 municipal bus operators.

Foothill Transit is a municipal bus operator that also serves Downtown Los Angeles.

Metro Rapid Buses are intended to speed up the commute by limiting stops.

FlyAway: FlyAway is a shuttle bus that runs between Union Station and LAX, Westwood and LAX, and Van Nuys and LAX. Shuttles run non-stop every half-hour.

Regional High Capacity Transit Service: Light Rail, Regional Express Bus, and Metrolink

Light Rail (Metro Rail): Metro operates 73.1 miles of Metro Rail service.

The Metro Rail system is made up of the Metro Red and Purple Line subway system, the Metro Blue Line, the Metro Green Line, and the Metro Gold Line. It serves 62 rail stations from Long Beach to Downtown Los Angeles to Hollywood, Universal City and North Hollywood in the San Fernando Valley, from Downtown Los Angeles to Pasadena and from Norwalk to El Segundo.

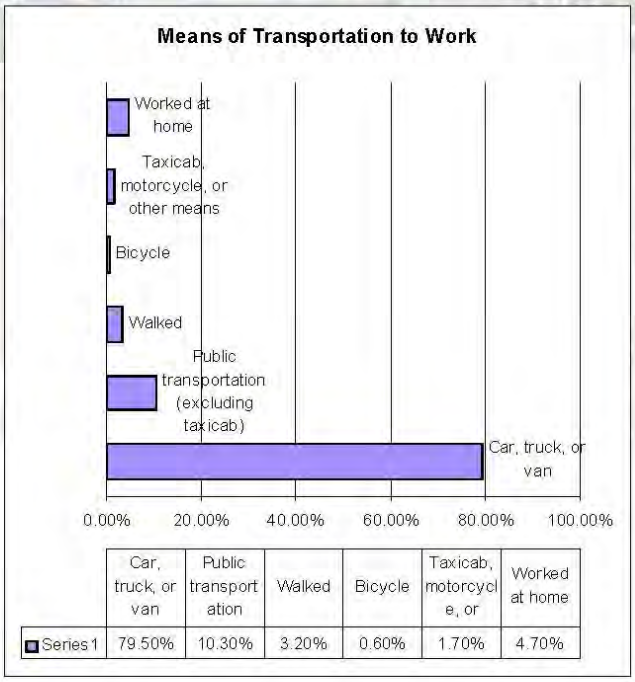
Regional Express Bus (Metro Rapid): Metro Rapid is a limited-stop express bus. Red Metro Rapid buses are tied to the ATSAC system; buses are equipped with transponders that communicate with traffic signals, causing them to be favored by lights.

Metrolink: Metrolink is a commuter rail service that connects the Southern California Region, including Los Angeles, Orange, Ventura, San Bernardino and Riverside Counties. Metrolink has seven lines, 54 stations and services 40,000 passengers annually, on average.

Union Station is the center of much of the rail activity in the City of Los Angeles.

20

Pedestrians and Bicyclists



	Car, truck, or van	Public transportation	Walked	Bicycle	Taxicab, motorcycle, or	Worked at home
Series1	79.50%	10.30%	3.20%	0.60%	1.70%	4.70%

*U.S. Census, American Community Survey 2005
*Total Workers Age 16+ = 1,662,238, +/-28,414

How many people ride their bicycles to work?

According to the 2005 U.S. Census data, there are approximately 1,662,238 workers over the age of 16 in the City of Los Angeles. Out of these workers, 7.8% live in households where there are no cars.

3.2% of these 1,662,238 workers commute to work by walking and .6% commute by bicycle.

There are more than 130 miles of bike lanes in the City of Los Angeles.

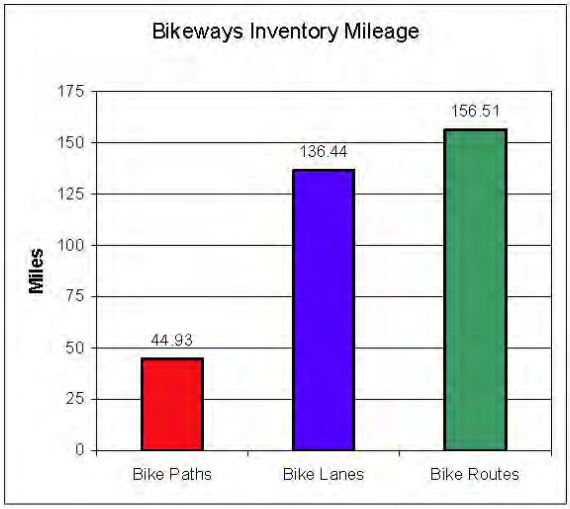
How many miles of bikeways are there?

Bikeways include bicycle paths, bicycle lanes and bicycle routes. Bicycle lanes are installed in Los Angeles along feasible street locations to serve commuters, students and bicycle enthusiasts.

Los Angeles bikeway examples include those along Venice Boulevard, Hoover Street, Westwood Boulevard, De Soto Avenue, and Rinaldi Street. To date, there are more than 130 miles of bicycle lanes in the network.

Bicycle pathways are built specifically for bicyclists and do not allow automobile traffic. Bicycle pathways can be found along Venice Beach, Sepulveda Basin, Culver Boulevard and the Los Angeles River.

Over 2,900 bicycle racks have been installed along City streets and at transit stations throughout Los Angeles.



Work on Santa Monica Boulevard was recently completed and plans are underway to extend the Los Angeles River Bike Path and to construct a new path in conjunction with the North Hollywood-to-Warner Center Busway Project.

21

Development Review

What is "development review?"

Consistent with adopted City policy and environmental laws, the Los Angeles Department of Transportation reviews land development projects. These projects are reviewed in the context of:

- Economic development
- Balanced growth
- Current levels of traffic congestion
- Preservation of neighborhood livability

All projects are reviewed with respect to project size, location and safety of proposed driveways and conditions for approval. Conditions for approval may include off-site traffic improvements, such as new traffic signals or street widening along the project frontage.

How many development reviews are there per year?

On average, there are approximately 100 traffic study reviews, 500 building permit sign-offs and 300 driveway permit sign-offs per year.

22

Next Steps

Los Angeles continues to experience substantial growth in jobs, population, economic activity, business travel and tourism. While its rise as the international gateway for the movement of people and goods has many benefits, it also renders the task of efficiently moving people and goods far more challenging. Los Angeles is a part of a complex, multiple component transportation system; there is no single solution to our mobility challenges. As a recognized leader in the delivery of exceptional transportation services through continuous improvement, innovation and teamwork, LADOT looks forward to meeting these challenges, given adequate resources.

LADOT will continue to provide innovation and teamwork to support the growth of our City by working with our partners at Metro and Caltrans. In addition, we are forming strong alliances with the Planning Department and other members of the City family to leverage our resources, solutions and public outreach. Finally, following the leadership of our Mayor and City Council, we must include the community in the discussion of any solutions and proposals.

The Department will be reviewing capital improvement projects and existing programs to ensure that they reflect the citywide transportation vision articulated in the City's General Plan Transportation Element, while also developing a Transportation Strategic Plan: a functional action plan to strategically implement, manage and monitor the City's transportation projects and programs aimed at the achievement of that vision during the period 2009 to 2030.

The Strategic Plan, to be released in May 2009, will identify innovative transportation strategies for the City, sustainable funding streams, a prioritized list of transportation projects and programs, and specific steps necessary to achieve the goals and objectives set forth in the Plan's mission statement. The mission statement commits us to improve accessibility and mobility in Los Angeles, to protect the quality of life in the City's neighborhoods through sensible land use planning and thoughtful management of the City's streets, to ensure that the City's transportation systems are safe and reliable, to promote the City's long-term competitiveness as a center for world trade by facilitating the movement of goods, and to develop sufficient and stable funding to maintain and rehabilitate our existing transportation infrastructure.

The Department continues to strive to improve the quality of life for those who live and work in Los Angeles by enhancing mobility and accessibility while helping Los Angeles become cleaner and greener.

23

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Moving Los Angeles Forward

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As a covered entity under Title II of the Americans with Disabilities Act, the City of Los Angeles does not discriminate on the basis of disability and upon request will provide reasonable accommodation to ensure equal access to its programs, services and activities.

Response to Comment No. 11-39

The City of Los Angeles Transportation Profile presented above is outside the scope of the RPDEIR. Please refer to Section 1.2 of this Final RPEIR for a discussion of the scope of the RPDEIR, the City's obligation to respond to comments outside the scope of the RPDEIR, and the standards for recirculation of a Draft EIR due to "significant new information." The commentor offers no "significant new information" with respect to cumulative impacts within the meaning of CEQA Section 21092.1 and CEQA Guidelines Section 15088.5. The regional and local transportation setting as it relates to the Project Site is provided in DEIR Sections 4.6.3.1 and 4.6.3.2.

Comment Letter No. 11 (continued)

Comment No. 11-40

The New Economy and Jobs/Housing Balance in Southern California

SOUTHERN CALIFORNIA
ASSOCIATION of GOVERNMENTS

Southern California Association of Governments
818 West 7th Street, 12th Floor
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April 2001

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ABSTRACT

The information and recommendations in this paper are designed to spur debates on how to better balance jobs with housing in the region. It is also intended to assist subregions and individual jurisdictions in the Southern California Association of Governments' (SCAG) region in their respective planning efforts to address the issue of jobs/housing balance. Of particular interest is the opportunity to seek planning funds under new appropriations from the California Department of Housing and Community Development (HCD). Assembly Bill 2864 (Torlakson) establishes the Jobs-Housing Balance Improvement Program that provides state funding ($110 million) to local governments for projects that will mitigate the imbalance of jobs and housing in communities throughout the state.

The paper's major findings include:

- A geographic balance between housing and jobs in a region confers many benefits, including reduced driving and congestion, fewer air emissions, lower costs to businesses and commuters, lower public expenditures on facilities and services, greater family stability, and higher quality of life.
- Jobs-rich areas are located primarily along the coast, in Los Angeles and Orange Counties.
- Housing-rich areas are located primarily in the Inland Empire and North Los Angeles County, which house many commuters working in jobs-rich areas.
- Jobs/housing ratios are forecast to increase in the western portion of the Inland Empire by 2025, but much of the Inland Empire and all of North Los Angeles County are forecast to remain housing rich.
- Based on current densities, Los Angeles and Orange Counties do not have enough raw, developable land to satisfy their forecast housing needs in 2025.
- There is an excess amount of vacant land in Los Angeles County that is zoned for commercial and industrial purposes relative to forecast housing needs in 2025.
- High-tech "New Economy" jobs and venture capital investments that have a strong tendency to cluster at culturally- and amenity-rich urban locations are powering the job growth in coastal areas.
- California taxation laws and fiscal policies act as disincentives to housing production by creating a bias among many financially strapped cities and counties toward sales tax-generating land uses. In addition, the State returns very little property tax revenues back to the cities.

The major recommendations include:

- Promote infill housing in Los Angeles County and Orange County. This would help house the forecast population, give employees the opportunity to live closer to work, and potentially reduce inter-county commutes.
- Promote wealth-generating, high paying, "New Economy" jobs in the Inland Empire. This would enable Inland Empire residents to find comparable work to the western regions and would shorten commutes of Inland Empire residents.

Proposed housing strategies include:

- Infill housing development
- Transit-oriented development and Location Efficient Mortgage
- Brownfields redevelopment into housing
- State and local finance reform
- Zoning revisions

Proposed jobs-creation strategies include:

- Investments in public education
- Development of high technology business parks and incubation centers
- Fiber optic cable investments
- Airport investment and promotion

EXECUTIVE SUMMARY

The continuing economic recovery of the SCAG Region has brought problems and challenges along with its economic benefits. Jobs are now plentiful, but housing is scarce and housing prices and rents have soared. Highway congestion has increased substantially and commute times have lengthened. Meeting strict air quality standards in the face of increased driving and congestion has become even more challenging. These problems largely result from a lack of new housing construction, especially near major job centers, and the inability of many workers to purchase the housing being produced.

Problems associated with inadequate and unaffordable housing in job-rich areas have become so pronounced throughout the state that they have galvanized the State Legislature to try to solve them. Assembly Bill 2864 (Torlakson) establishes the Jobs-Housing Balance Improvement Program that provides state funding to local governments for projects that will mitigate the imbalance of jobs and housing in local communities. This bill provides $110 million for projects and programs in housing-rich communities that will attract new businesses and jobs, and projects in jobs-rich communities that will increase the supply of housing. **A primary objective of this paper is to guide and assist local governments in the SCAG Region in applying for funds offered through AB 2864 by describing the relationship of employment to household growth in the region.**

An analysis of the current jobs/housing ratios in the SCAG region finds that jobs-rich areas are located primarily in Los Angeles and Orange Counties. Housing-rich areas are located on the periphery, primarily in the Inland Empire and northern Los Angeles County. Jobs/housing ratios are forecast to increase over the next 25 years in the western portion of the Inland Empire. Still, much of the Inland Empire and all of northern Los Angeles County are forecast to remain housing-rich in 2025.

Housing-rich areas, particularly in the Inland Empire, have seen substantial job growth over the last decade. This job growth is forecast to continue, which will result in increasing jobs/housing ratios for areas in the western portion of the Inland Empire. In fact, the Regional Statistical Area (RSA) around Ontario Airport is forecast to become very jobs-rich by the year 2025. Nevertheless, much of the job growth of the Inland Empire has been in relatively low-paying blue-collar sectors of the economy, and the gap in per capita income between it and the rest of the region has been increasing. The average wage of the job base of some areas in the Inland Empire is insufficient to purchase the average local house, and many local workers are forced to commute in from outlying areas where housing is less expensive.

The job growth of North Los Angeles County, another housing-rich area, has not been as robust as that of the Inland Empire. The new jobs created though have in general been higher paying, with the migration of white-collar professional jobs to Santa Clarita Valley and with the consolidation of the aerospace industry in the Antelope Valley. North Los Angeles County is forecast to remain housing rich in 2025. In fact, the Santa Clarita RSA is forecast to change from a balanced status to being housing-rich in 2025.

An analysis of land development needs for accommodating forecast housing shows that there is an insufficient amount of raw, developable land in Orange and Los Angeles counties to

accommodate their forecast housing needs at current densities. Development strategies involving infill of currently vacant and underutilized lots, and developing at higher densities are necessary for these counties to meet their forecast housing needs and achieve the benefits of jobs/housing balance.

An analysis of the development capacity of 1993/1994 general plans and zoning shows that most counties have excess vacant land zoned for commercial and industrial uses, relative to existing land use ratios. From a jobs/housing standpoint, this could be justified in housing rich areas. However, this is contrary to achieving jobs/housing balance in jobs-rich counties like Los Angeles County where low-and moderate-income workers are having an increasingly difficult time finding affordable housing.

Historically, the geographic imbalance between jobs and housing in the SCAG Region has been a problem that has been largely self-correcting. Jobs have moved from their original centers to housing-rich suburbs to take advantage of lower land and labor costs and provide shorter commute trips for their employees. The end result is the multi-centered urban fabric that characterizes the region today. This phenomenon also explains why average home-to-work commute times in the region have remained relatively constant over the last several decades.

However, there are several emerging trends that threaten to exacerbate problems associated with jobs/housing imbalance. The high-tech and knowledge-based New Economy has been extremely important to the economic resurgence of the region. New Economy firms, particularly those dealing with Internet content, tend to be collaborative in nature and tend to concentrate in urban core locations. They are relatively insensitive to traditional land and labor cost factors and locate in areas with a wide variety of cultural amenities so that they can compete for the young, highly educated information workers that are keys to their success. When housing is limited around high-tech nodes, these affluent knowledge workers displace low and moderate-income groups in a process of gentrification. It is very difficult to disperse New Economy companies to housing-rich areas because of their tendency to coalesce and their high priority placed on locating in culturally rich urban environments. In the SCAG Region, high-tech clusters are located predominantly in coastal locations.

The other trend that runs counter to achieving jobs/housing balance is the "fiscalization of land use." State tax law has created competition among cities for sales tax-generating commercial uses of land. Because of limitations on property tax revenues, cities place lower priority on accommodating residential development, and higher priority on sales tax generating uses. This has greatly contributed to a trend of housing production lagging job growth and population increases. In combination with community apprehension over multifamily housing, a shortage of vacant land for housing in urban areas, and construction defect litigation problems, the fiscalization of land use makes it very difficult to implement strategies for promoting infill housing that is affordable to low and moderate-income workers. Many service and blue-collar workers, along with moderate-income white-collar workers employed in and around high-tech nodes, are consequently forced to commute long distances from areas where they can find affordable homes.

To help alleviate problems associated with jobs/housing imbalance, policy makers can look to both conventional and New Economy mechanisms to spur housing development in job-rich areas, and well-paying job creation in housing-rich areas. To encourage housing production, this paper presents the following strategies for policy makers:

- Alleviate roadblocks in building infill housing and in converting brownfield sites to housing
- Encourage transit-oriented development
- Reevaluate zoning policies and rewrite zoning ordinances to make more land available for housing construction
- Institute appropriate state and local finance reform that will help increase incentives for housing production by returning property taxes to local governments and reducing competition among jurisdictions for sales tax generating land uses.

New Economy jobs in the high-tech fields pay high salaries. To encourage the development and growth of these companies in housing-rich areas, this paper offers the following strategies to policy makers

- Target education and research toward new economy jobs through research parks
- Institute community–based job training programs to train and retrain workers for new economy jobs
- Promote and cultivate venture capital investment
- Sponsor business incubation programs
- Invest in telecommunications, specifically fiber optic investments
- Promote airport construction and development

High technology companies demand educated employees. This may require colleges and universities to redirect their training efforts, and primary and secondary schooling to better prepare their students before they get to college. High technology companies also need access to venture capital investments and a place to grow. University-affiliated research parks and other incubation centers offer places to develop new high-tech businesses. Public investments in fiber optic cable can make areas more attractive to New Economy firms. High technology firms require reliable air travel, both commercial and air cargo, to move their employees and their products quickly throughout the world. Developing and expanding airports in outlying areas can help spread New Economy companies across the region.

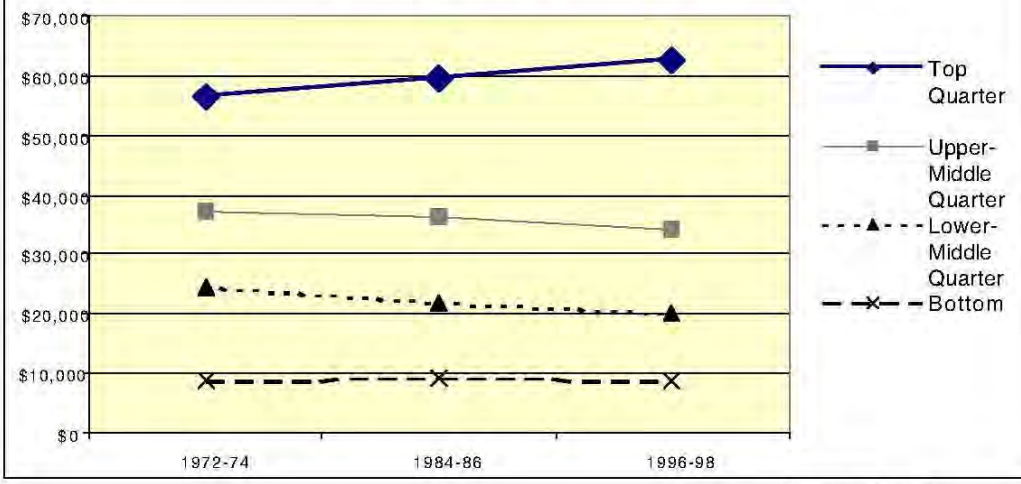
Old economy jobs are expanding into the Inland Empire. Whether or not people living there will work in these jobs or continue to commute to jobs closer to the coast remains to be seen. New Economy jobs are beginning to move inland, but this change will take time to have a substantial impact. Meanwhile, the housing crisis is worsening.

There needs to be a two-pronged approach to addressing regional jobs/housing imbalance. Affordable housing is in desperate demand in northern Orange County and southern Los Angeles County. High paying jobs are needed particularly in the Inland Empire and other outlying areas where higher incomes are needed for workers to purchase the housing that is being constructed. Using a variety of conventional and innovative new strategies, policy makers can begin to address problems associated with regional jobs/housing imbalance.

I. INTRODUCTION

The issue of the geographic balance between the location of jobs and housing in a region has attracted considerable attention in California. Since 1972, the median annual earnings of the top quartile in the SCAG region have surged upward, while the median annual earnings of the two middle quartile groups decreased with the expanding economy and population (Figure 1). Housing prices in the jobs-rich coastal areas have soared, forcing many of the bottom 75% of the region's earners to search for affordable housing in outlying areas such as northern Los Angeles County and the Inland Empire. Residents of the region not only have to contend with mounting traffic congestion and commute times, but they find it increasingly difficult to find affordable housing in proximity to their employment. This problem has become particularly acute in the San Francisco Bay Area, but afflicts the SCAG Region as well.

Figure 1: Estimated Median Annual Earnings by Quartile Groups (1998 Dollars)



Source: Ong 2000.

The purpose of this paper is to provide a brief overview of the causes and impacts of the job/housing balance problem, and to document the extent of the problem in the SCAG Region. It also recommends potential strategies that can be applied on both regional and local levels to help bring the future production of jobs and housing into greater balance among all subregions. Further research is needed to determine which of the recommended strategies may be most appropriate for different cities and subregions within the SCAG region.

A distinct focus of the paper is an examination of the high-tech New Economy and its impacts on jobs/housing patterns in the region, and strategies that can spread the benefits of the New Economy to areas in the region with high housing availability but relatively little high-tech employment. Subregions may use this paper as a guide as they apply for funds from HCD to address the jobs/housing imbalance in their subregion.

The data used in the analyses in this report are from SCAG's Draft 2001 Regional Transportation Plan (RTP). These numbers are displayed in Table 1. Two of these analyses use Regional Statistical Areas (RSAs) as the unit of measurement for the analysis. Table 2 lists the RSAs located within each subregion. The federal government devised the RSAs for the 1960 census to reflect economic development areas. Counties influenced their configuration as the RSAs were based on countywide planning areas. The boundaries were drawn coterminous with census tract boundaries without splitting them. The RSAs are used in report summary preparation and have become a common statistical reporting configuration. The boundaries have remained the same because there has been a strong desire to have continuity in the geographic frame of reference. The consistent boundaries allow planners to keep comparisons with historic data.

Table 1

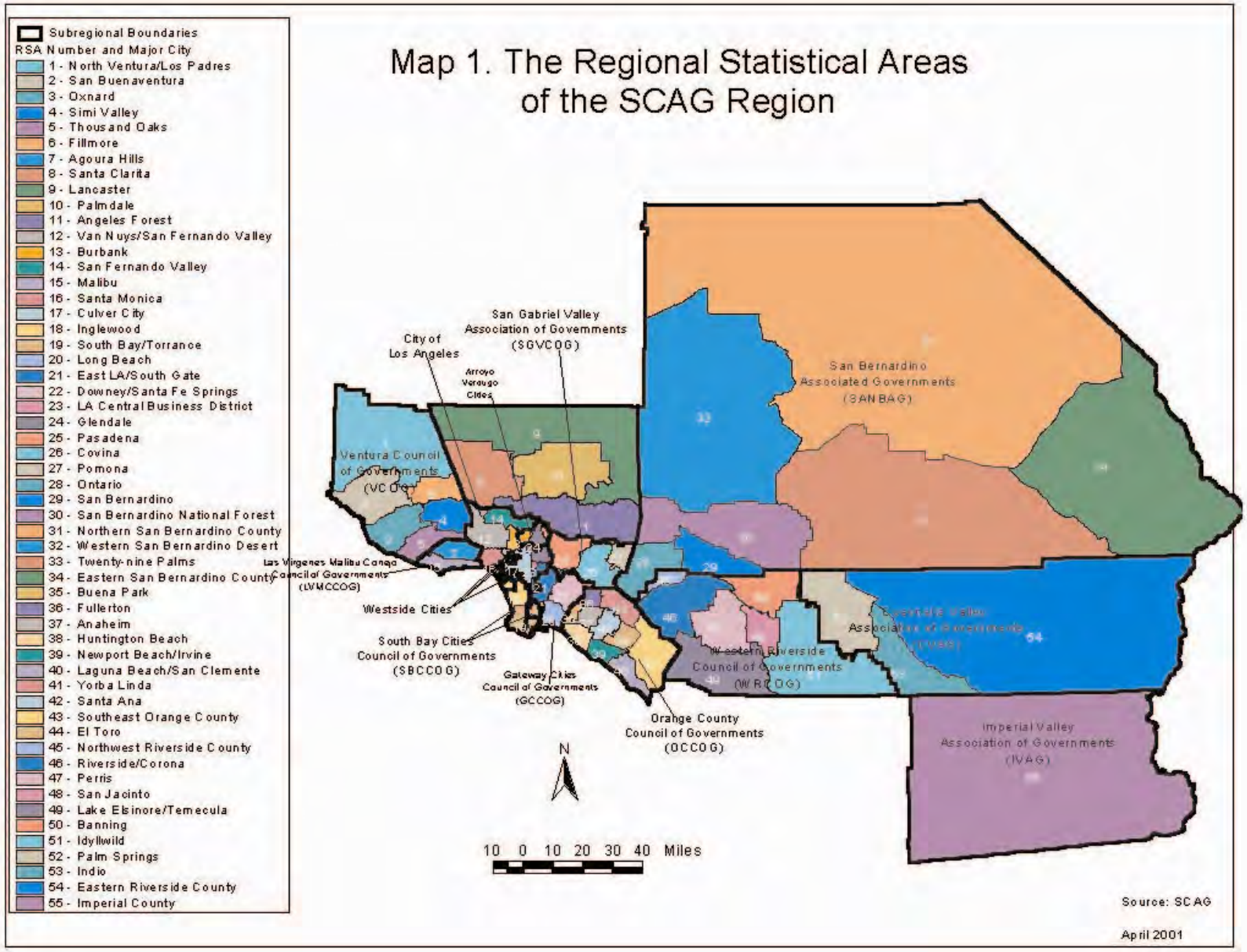
Population, Households, and Employment for the SCAG Region, 1997 Base Year and 2025 Projections, as Used in the Draft 2001 RTP

Subregion	Population 1997	Population 2025	Households 1997	Households 2025	Employment 1997	Employment 2025
Imperial Valley Association of Governments	141,596	317,733	38,384	97,883	55,572	94,064
Arroyo Verdugo Cities	391,556	480,849	142,004	180,071	180,717	268,172
Gateway Cities Council of Governments	1,982,922	2,308,667	570,714	641,168	784,127	987,956
Las Virgenes Malibu Conejo Council of Governmer	77,244	98,123	27,127	36,855	39,524	45,150
City of Los Angeles	3,733,427	4,876,537	1,251,722	1,769,462	1,700,941	2,060,085
North Los Angeles County	502,409	1,268,768	153,943	444,731	136,472	304,163
San Gabriel Valley Council of Governments	1,763,554	2,141,654	519,104	606,177	689,846	845,524
South Bay Cities Council of Governments	852,829	915,002	294,034	319,219	404,512	510,526
Westside Cities	233,170	248,865	112,064	121,088	222,536	269,335
Orange County Council of Governments	2,699,911	3,416,034	887,888	1,068,049	1,341,203	2,043,665
Coachella Valley Association of Governments	329,134	600,708	113,749	212,470	119,194	205,741
Western Riverside Council of Governments	1,090,132	2,232,981	349,078	721,423	311,622	800,676
San Bernardino Associated Governments	1,613,419	2,786,936	508,551	880,965	510,695	1,085,706
Ventura Council of Governments	725,914	951,080	232,831	309,209	290,779	431,501
Subregion	**16,137,217**	**22,643,937**	**5,201,193**	**7,408,770**	**6,787,740**	**9,952,264**
Source: SCAG Draft 2001 RTP						

Table 2

Regional Statistical Areas within Each Subregion

Subregion	RSAs within Each Subregion
Imperial Valley Association of Governments	55
Arroyo Verdugo Cities	13, 24, 25
Gateway Cities Council of Governments	19, 20, 21, 22
Las Virgenes Malibu Conejo Council of Governments	7, 15
City of Los Angeles	12, 13, 14, 16, 17, 18, 19, 21, 23
North Los Angeles County	8, 9, 10, 11
San Gabriel Valley Council of Governments	11, 21, 25, 26, 27
South Bay Cities Council of Governments	18, 19, 21
Westside Cities	16, 17
Orange County Council of Governments	35, 36, 37, 38, 39, 40, 41, 42, 43, 44
Coachella Valley Association of Governments	52, 53, 54
Western Riverside Council of Governments	45, 46, 47, 48, 49, 50, 51
San Bernardino Associated Governments	28, 29, 30, 31, 32, 33, 34
Ventura Council of Governments	1, 2, 3, 4, 5, 6
Source: SCAG	


Map 1. The Regional Statistical Areas of the SCAG Region
Subregional Boundaries
RSA Number and Major City
1 - North Ventura/Los Padres
2 - San Buenaventura
3 - Oxnard
4 - Simi Valley
5 - Thousand Oaks
6 - Fillmore
7 - Agoura Hills
8 - Santa Clarita
9 - Lancaster
10 - Palmdale
11 - Angeles Forest
12 - Van Nuys/San Fernando Valley
13 - Burbank
14 - San Fernando Valley
15 - Malibu
16 - Santa Monica
17 - Culver City
18 - Inglewood
19 - South Bay/Torrance
20 - Long Beach
21 - East LA/South Gate
22 - Downey/Santa Fe Springs
23 - LA Central Business District
24 - Glendale
25 - Pasadena
26 - Covina
27 - Pomona
28 - Ontario
29 - San Bernardino
30 - San Bernardino National Forest
31 - Northern San Bernardino County
32 - Western San Bernardino Desert
33 - Twenty-nine Palms
34 - Eastern San Bernardino County
35 - Buena Park
36 - Fullerton
37 - Anaheim
38 - Huntington Beach
39 - Newport Beach/Irvine
40 - Laguna Beach/San Clemente
41 - Yorba Linda
42 - Santa Ana
43 - Southeast Orange County
44 - El Toro
45 - Northwest Riverside County
46 - Riverside/Corona
47 - Perris
48 - San Jacinto
49 - Lake Elsinore/Temecula
50 - Banning
51 - Idyllwild
52 - Palm Springs
53 - Indio
54 - Eastern Riverside County
55 - Imperial County
San Gabriel Valley Association of Governments (SGVCOG)
City of Los Angeles
Arroyo Verdugo Cities
San Bernardino Associated Governments (SANBAG)
Ventura Council of Governments (VCOG)
Las Virgenes Malibu Conejo Council of Governments (LVMCCOG)
Westside Cities
South Bay Cities Council of Governments (SBCCOG)
Gateway Cities Council of Governments (GCCOG)
Orange County Council of Governments (OCCOG)
Western Riverside Council of Governments (WRCOG)
Coachella Valley Association of Governments (CVAG)
Imperial Valley Association of Governments (IVAG)
N
10 0 10 20 30 40 Miles
Source: SCAG
April 2001

In this report, we are using these geographies because they help paint a clearer picture of future trends while keeping the historical perspective of past analyses. Table 2 displays the RSAs located within each subregion. Table 3, located in the appendix, lists the cities within each RSA. Map 1 portrays the location of each RSA. Recognizing that the RSA boundaries include jobs-rich cities with housing-rich cities, a summary of current (1997 base year) population, employment, and households is included in the Appendix as Table 4.

II. DEFINITION OF JOBS/HOUSING BALANCE

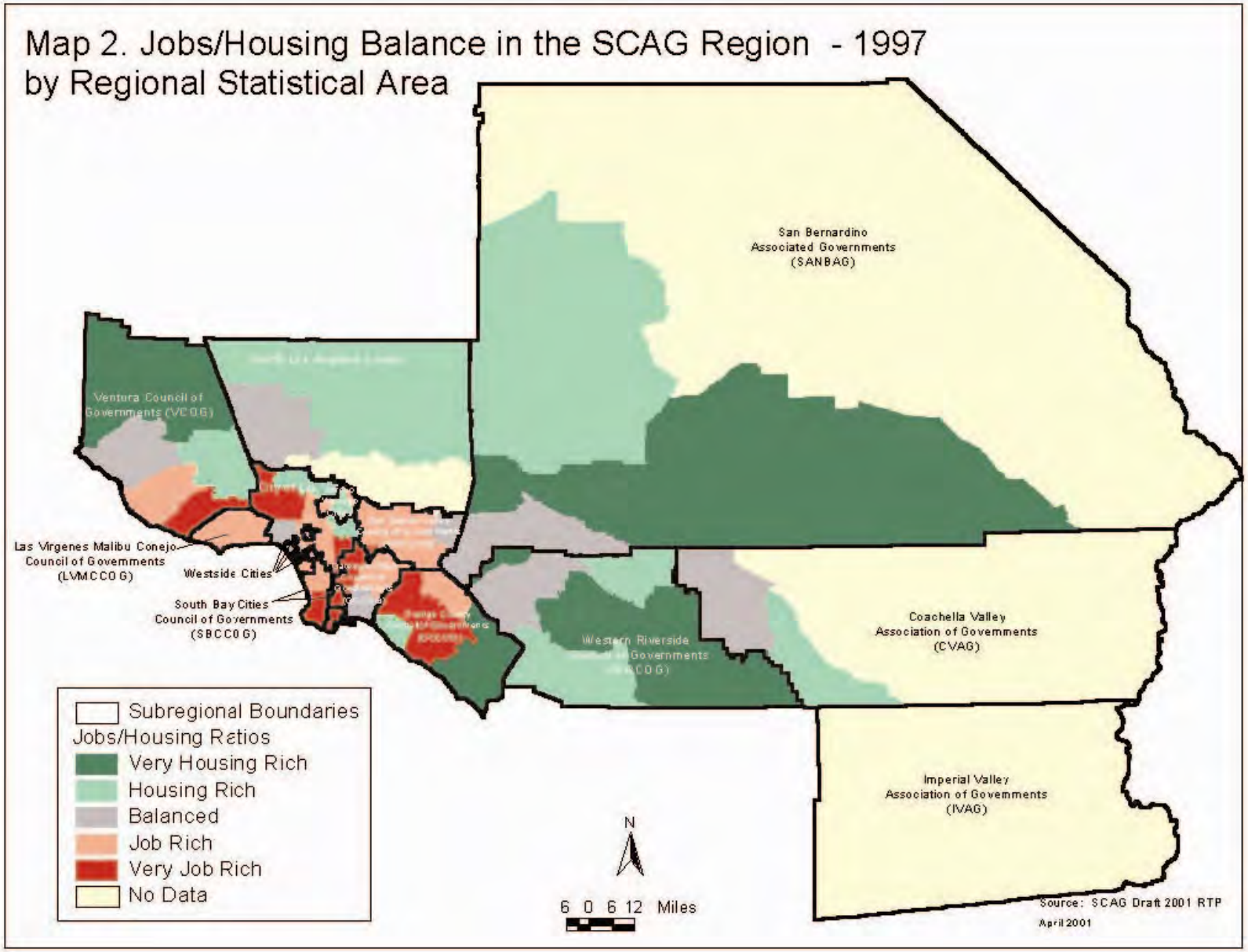
Defining what constitutes a balance between jobs and housing is not an easy task. Assuming a simple ratio of to one job to one household is inappropriate to modern economies that have many households with more than one person in the workforce. Another definition states "balance occurs when both the quality and the quantity of housing opportunities match the job opportunities within an area" (California Planning Roundtable 1988, 16).

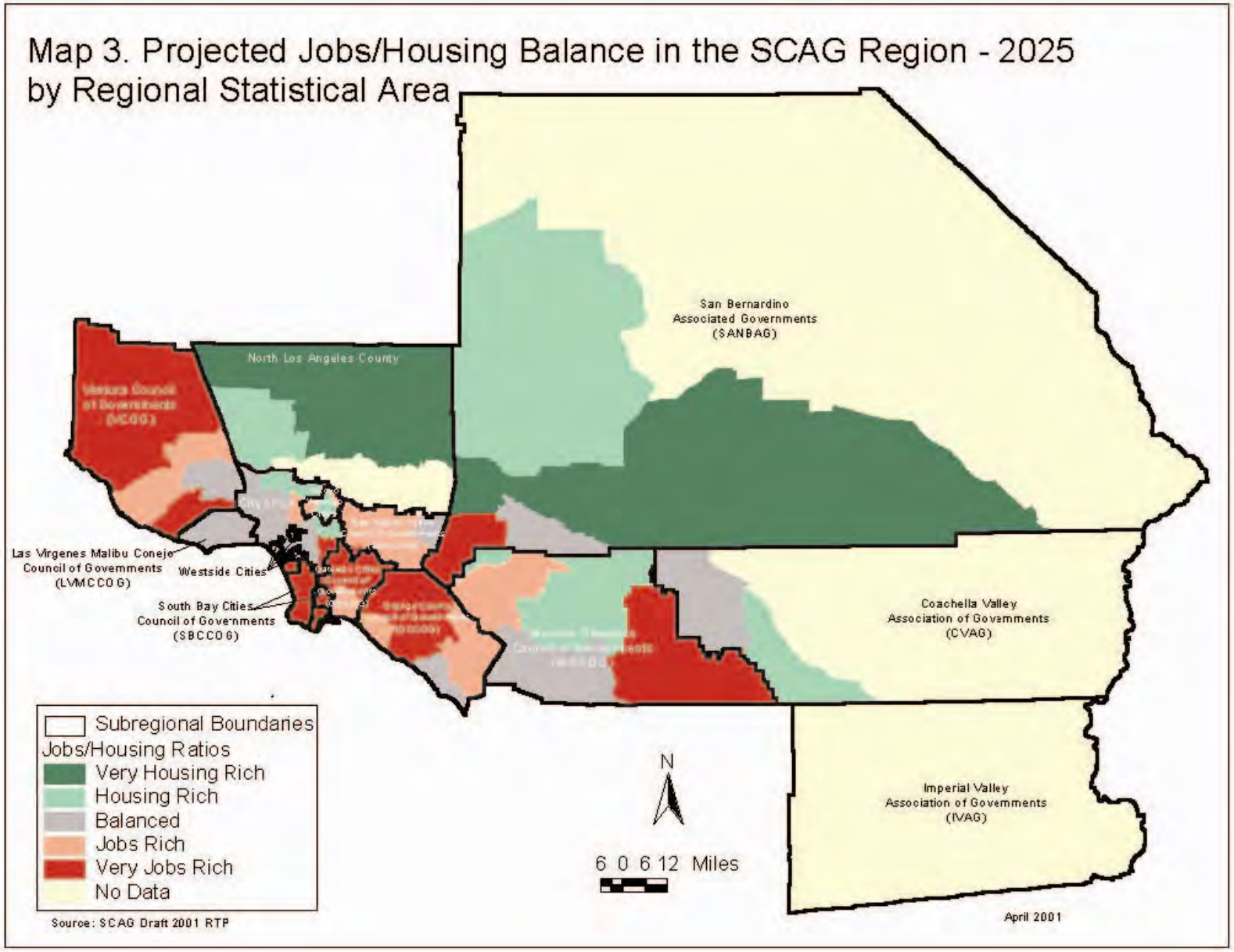
In this paper, a balance between jobs and housing in a metropolitan region can be defined as a provision of an adequate supply of housing to house workers employed in a defined area (i.e., community or subregion). Alternatively, a jobs/housing balance can be defined as an adequate provision of employment in a defined area that generates enough local workers to fill the housing supply. The definition of an area can be stated in terms of an optimal "commute shed" around employment centers that conforms to expressed commuter preferences about home-to-work commute distances. According to a 1990 survey of public opinions about jobs/housing balance and urban form, the expressed ideal commute time (one way) for workers in the region is 14 minutes (Southern California Association of Governments (SCAG) 1990). The average time people said it actually took them to travel from home to work in 1990, at the beginning of a major recession, was 24 minutes. There was very little support for commute times over 30 minutes. According to data collected in 1999, the average commute speed in the region was 28.4 mph (SCAG 1999). For a maximum commute of 30 minutes, this translates to commute sheds having radii of about 14 miles around employment centers.

The current (1997) regional average ratio of jobs to households is 1.25 jobs per household (a household is defined as an occupied housing unit). Therefore, jobs/housing balance for this region can be defined as an area extending about 14 miles around an employment center with a ratio between jobs and household on the order of 1.0-1.29 jobs per household. This ratio is the current (1997) range of jobs/housing ratios for the middle 20% of the SCAG region. Job centers vary by size and are not evenly dispersed throughout the region, and congestion and average commute times also vary by location (and will change in the future). However the area or "commute shed" is defined, if it has a jobs to household ratio that significantly differs from the 1.0 to 1.29 standard, than it can be considered out of balance.

Maps 2 and 3 display current and forecast jobs/housing ratios by the 55 regional statistical areas (RSAs) in the region. They show that in general, jobs-rich areas currently (1997) are located in the highly urbanized areas in the western portion of the region, primarily in southern and western Los Angeles County, and in central and northern Orange County. Housing-rich areas are in the suburban eastern and northern portions of the region. By 2025, it is forecast that both job and housing growth will spread outwardly, tilting some housing-rich or balanced areas around jobs-rich areas towards being more jobs-rich, and tilting areas on the very northern and eastern peripheries of the region towards being even more housing-rich. A more detailed discussion of this analysis can be found in Section IV.

The impacts on commuting resulting from these regional imbalances between jobs and housing are shown in Tables 5 and 6. Table 5 displays the percentage of workers from each county in the


Map 2. Jobs/Housing Balance in the SCAG Region - 1997
by Regional Statistical Area
San Bernardino
Associated Governments
(SANBAG)
Ventura Council of
Governments (VCOG)
Las Virgenes Malibu Conejo
Council of Governments
(LVMCCOG)
Westside Cities
South Bay Cities
Council of Governments
(SBCCOG)
Western Riverside
Coachella Valley
Association of Governments
(CVAG)
Imperial Valley
Association of Governments
(IVAG)
Subregional Boundaries
Jobs/Housing Ratios
Very Housing Rich
Housing Rich
Balanced
Job Rich
Very Job Rich
No Data
N
6 0 6 12 Miles
Source: SCAG Draft 2001 RTP
April 2001


Map 3. Projected Jobs/Housing Balance in the SCAG Region - 2025
by Regional Statistical Area
San Bernardino
Associated Governments
(SANBAG)
North Los Angeles County
Ventura Council
of Governments
(VCOG)
Las Virgenes Malibu Conejo
Council of Governments
(LVMCCOG)
Westside Cities
South Bay Cities
Council of Governments
(SBCCOG)
Coachella Valley
Association of Governments
(CVAG)
Imperial Valley
Association of Governments
(IVAG)
Subregional Boundaries
Jobs/Housing Ratios
Very Housing Rich
Housing Rich
Balanced
Jobs Rich
Very Jobs Rich
No Data
N
6 0 6 12 Miles
Source: SCAG Draft 2001 RTP
April 2001

region who work in counties that are different from the county in which they live. It shows that the most housing-rich counties, San Bernardino and Riverside, have the lowest percentage of workers who both live and work in the county – 68%. Table 6 shows home-to-work commute distances by county of trip origination as of 1999. Again, the most housing-rich counties house workers that have the longest commute distances – over twenty-one miles. Given an average current commute speed of 28.4 miles per hour, this translates to an average one-way commute time of about forty-five minutes.

Table 5

Home Based Work Person Trip Distribution

From/To	Los Angeles	Orange	Riverside	San Bernardino	Ventura	Total Productions
Los Angeles	4,576,759	219,753	4,432	42,001	37,474	4,880,419
	93.78%	4.50%	0.09%	0.86%	0.77%	100.00%
Orange	389,168	1,308,649	10,345	12,064	8	1,720,234
	22.63%	76.07%	0.60%	0.70%	0.00%	100.00%
Riverside	51,283	68,904	436,945	99,607	32	656,771
	7.81%	10.49%	66.53%	15.17%	0.00%	100.00%
San Bernardino	154,214	44,685	76,664	519,774	175	795,512
	19.39%	5.62%	9.64%	65.34%	0.02%	100.00%
Ventura	109,597	245	0	90	317,391	427,323
	25.66%	0.06%	0.00%	0.02%	74.26%	100.00%
Total Attractions	5,281,221	1,645,236	528,389	673,536	354,880	8,480,259
	62.28%	19.37%	6.23%	7.94%	4.18%	100.00%

Table 6

Average Home to Work Commute Distance (By County), 1999

County	Miles
Riverside	21.6
San Bernardino	21.3
Ventura	16.3
Orange	16.1
Los Angeles	14.9
Imperial	14.5

Source: SCAG State of the Commute Report, 1999.

The New Economy and Jobs/Housing Balance in Southern California 18

III. BENEFITS OF JOBS/HOUSING BALANCE

Achieving an ideal geographic relationship between the provision of jobs and housing in local communities can produce a myriad of measurable and perceived benefits for the region as a whole. These would include:

A. Reduced Congestion and Commute Times

The opportunity to live close to the workplace afforded by providing housing close to well paying jobs translates to lower congestion and commute times by eliminating the necessity for long-distance commutes. It also provides increase opportunities to use transit, bike, or walk to work in lieu of driving. Of course, placing housing in close proximity to employment is no guarantee that those who live in the housing will work at the nearby jobs, or vice versa. This would be particularly true for two income households who split the difference between the locations of their two employment destinations in choosing where to live. It does, however, eliminate barriers for those who wish to live close to work, and reduce the need for long-distance commuting and the congestion it contributes to the regional highway system. In SCAG's 1990 survey of attitudes about job/housing balance, 44% of respondents wished that their home and their workplace were closer together.

B. Air Quality Benefits

As the need for driving long distances is reduced by greater jobs/housing balance, so are the emissions associated with driving that impairs the attainment of clean air. SCAG's 1989 *Regional Growth Management Plan* evaluated a regional jobs/housing strategy that assumed the redistribution of 9% of the region's forecast employment growth to the year 2010 from jobs-rich to job-poor areas, and 5% of the forecast housing growth from housing-rich to housing-poor areas. This strategy was estimated to reduce regional vehicle-miles-traveled (VMT) by 33.4 million miles (8.5%), vehicle-hours-traveled (VHT) by 7.2 million hours (37%) and reactive organic gases (ROG) by 45.5 tons. This jobs/housing strategy alone achieved 33% of all ROG reductions targeted to be accomplished by all transportation, land use and energy conservation measures.

C. Economic and Fiscal Benefits

Since the successful implementation of job/housing balance strategies result in less need for long-distance commuting and associated congestion, fewer public resources would be required for congestion mitigation improvements to the regional transportation system. Also, the reduced hours spent in long-distance travel by commuters translates to lower fuel costs and other automobile-related expenses, lower costs to employers in terms of reduced employee tardiness and higher productivity, and lower business trip costs. Further, since jobs/housing balance implies a more compact urban form with less suburban sprawl, the cost to local government of providing new facilities and services to new development is less since those facilities and services can be provided more efficiently.

D. Quality of Life Benefits

All of the benefits of achieving greater jobs/housing balance cited above will confer a higher quality of life for residents in the region. Quality of life benefits include cleaner air, reduced stress in commuting, and more leisure time. Families can be negatively impacted when its members are under the stress and strain of long commutes. The family in which both parents work is becoming the norm; longer commutes take time away from home and family members, result in higher child care expenses and reduce leisure and recreation time. The added financial and emotional pressures on the family can cause tension between family members. Increased job/housing balance can therefore contribute to greater family stability and cohesion.

A good geographic balance between jobs and housing also implies a more diverse, compact, and convenient urban form, without the strict segregation of land uses found in many suburban areas. Quality of life is maximized for all population groups where available housing types are well matched with the wage stratification of local employment. In general, people associate diverse urban settings that are affordable and accessible to a broad range of people with cultural richness. They have increasingly negative attitudes about working and living in environments that are uniformly homogenous and lack opportunities for a variety of experiences. As discussed in section V of this report, employees of high-tech New Economy firms are particularly attracted to culturally diverse urban environments. Paradoxically, however, the dominating impact of New Economy firms on cities that they favor can diminish the cultural diversity of those cities, and create severe problems associated with jobs/housing balance.

Response to Comment No. 11-40

The SCAG document entitled "The New Economy and Jobs/Housing Balance in Southern California" presented above is outside the scope of the RPDEIR. Please refer to Section 1.2 of this Final RPEIR for a discussion of the scope of the RPDEIR, the City's obligation to respond to comments outside the scope of the RPDEIR, and the standards for recirculation of a Draft EIR due to "significant new information." The commentor offers no "significant new information" with respect to cumulative impacts within the meaning of CEQA Section 21092.1 and CEQA Guidelines Section 15088.5.

However, this attachment was specifically referenced in DEIR Section 4.2.3.2 under the subheading "Jobs-Housing Balance." Issues regarding jobs-housing balance as it relates to the Project were fully addressed in the DEIR. (See DEIR Volume I, Sections 4.1.2.2, 4.1.3.1, 4.1.5.2, 4.2.2.4, 4.2.3.1, 4.2.5.2, 4.2.5.3, 4.6.3.1, and 4.7.5.2.)

Comment Letter No. 11 (continued)

Comment No. 11-41

Transit Mode Share Trends Looking Steady; Rail Appears to Encourage N... file:///S:/Active Projects/Lytle Creek/_Final RPE

Transit Mode Share Trends Looking Steady; Rail Appears to Encourage Non-Automobile Commutes

Yonah Freemark
October 13th, 2010 | 44 Comments

» Results of the 2009 American Community Survey show major declines in carpooling, significant increases in biking.

Just how effective have new investments in transit been in promoting a shift of Americans towards public transportation? Has the recent livable communities movement resulted in increased commuting by bike or by foot?

The Census' **American Community Survey**, released at the end of last month with the most recent 2009 data, provides a glimpse of what can change over nine years. These data are approximations in advance of the much bigger (and more accurate) sample set that is Census 2010, whose results will be released next year. The information detailed here applies to commutes *only*, not all trips.

By looking at America's 30 largest cities — from New York to Portland — we can get some idea of how people are choosing to get to work, and how patterns are changing based on the availability of alternative transportation modes. I have chosen *not* to analyze metropolitan regions as a whole because I want to focus on the effects of improvements to transit systems and increasing walkability, two characteristics common to center cities but not necessarily to their suburbs. This biases the information, especially for places like Washington or Boston, where the central city represents a relatively small percentage of the overall regional population.

Nevertheless, the data demonstrate a number of interesting trends. Most notable are the huge declines in carpooling and large increases in biking noted over the largest cities. As the chart below shows, over the past nine years, carpooling's mode share decreased *on average* by 25.9% and biking's share increased by 58.5% (note that these are percent changes, not point changes, which are documented in a chart at the bottom of this article). The declines in carpooling were matched with a slight uptick in single-person driving, a 1.5% increase, and a decrease in transit share of 6.4%. These mode shares are not the same as total modal use; it is possible for transit ridership to increase even as modal share goes down (for instance, if city population increases), and vice-verse.

% Change in Mode Share, 2000-2009, Averaged Across America's Biggest Cities

	Total Auto	Total Non-Auto	Driving Alone	Carpooling	Transit	Biking	Walking
All Cities	-3.4	-2.0	1.5	-25.9	-6.4	58.5	1.8
Cities with no rail	-1.4	-6.3	2.9	-23.9	-8.0	40.3	-2.7
Cities with rail, but no major new rail investment	-5.0	1.1	1.5	-29.0	-2.6	156.3	1.7
Cities with major new rail investments	-4.9	1.5	0.2	-26.7	-4.3	56.7	4.2
Non-Texas Cities with major new rail investments	-5.9	5.4	-0.1	-26.1	0.0	66.9	4.5

Overall, the percentage of people commuting by automobile declined by 3.4%, and the mode share of those using

non-automobile modes decreased by 2.0%. It was possible for both to decline because of an increase in people not *traveling* to work at all but telecommuting.

Though these numbers show little change in use for automobile and transit overall, they do provide some clue as to the effects of rail investments. When comparing cities that have no rail lines with those that have existing lines or have invested in new ones, a correlation between rail and transit use is apparent. Cities with no rail saw far smaller declines in automobile mode shares than their rail counterparts; they also saw declining non-automobile mode shares, compared to increases in the rail cities. These differences were especially considerable when considering rail cities outside of Texas; excluding them, transit saw no mode share change, whereas single-person commuting by car decreased (albeit by a minuscule amount).

This may indicate that rail lines can play an important role in encouraging the population to try modes other than the automobile. The non-automobile mode share, which includes transit, biking, and walking, is particularly interesting from this perspective because it may reflect the number of people choosing to live in areas where it is acceptable to use transportation other than the private car. Is this conclusive evidence that rail works better than bus service to encourage people out of their cars? Not necessarily, but it's certainly a part of the overall equation.

Looking city-by-city, modal share changes reflect some overall trends. Automobile usage continues to decrease in the nation's older, densely developed cities: The places recording the largest declines in overall car share were, in order, Washington, New York, Boston, San Francisco, Seattle, Portland, and Chicago. Those with the largest declines in non-automobile share were largely sprawling cities, including, in order, Columbus, Houston, Dallas, Fort Worth, Las Vegas, and Nashville.

% Change in Mode Share, 2000-2009 in America's Biggest Cities

	Total Auto	Total Non-Auto	Driving alone	Carpooling	Transit	Biking	Walking
Austin	-5.1	4.5	-1.2	-25.2	12.0	11.9	-11.4
Baltimore	0.5	-6.6	11.0	-37.1	12.7	200.6	0.7
Boston	11.9	9.7	-10.9	16.4	6.9	117.7	8.4
Charlotte	-4.7	24.8	-1.6	-16.2	8.5	3.6	59.4
Chicago	-6.0	4.1	1.4	-31.5	1.6	129.2	4.7
Columbus	0.3	-24.0	4.3	-29.1	-39.7	107.3	-19.6
Dallas	0.6	-20.8	10.8	-40.0	-28.1	9.3	-2.3
Denver	-2.4	-3.3	1.7	-23.3	-7.5	69.6	-15.5
Detroit	-3.3	7.8	4.1	-33.1	-12.0	192.4	58.4
El Paso	-2.4	14.4	8.9	-35.0	2.5	47.8	26.5
Fort Worth	-1.5	-16.4	4.7	-29.9	1.5	-16.2	-31.5
Houston	0.7	-23.5	5.3	-19.8	-32.0	-17.9	-0.4
Indianapolis	-0.3	-2.6	3.0	-21.8	-17.1	129.1	1.1
Jacksonville	1.1	-11.3	0.4	10.4	-16.5	-4.1	-4.7
Las Vegas	-0.1	-13.7	5.5	-27.5	-28.5	-10.7	18.7
Los Angeles	3.6	9.2	2.0	-38.7	10.7	63.8	-4.2
Memphis	-1.5	-7.9	2.7	-22.2	-7.6	-78.7	-4.6
Milwaukee	0.9	-10.1	2.4	-7.2	18.1	90.3	9.4
Nashville	-1.3	-13.4	2.8	-34.9	21.7	-23.3	-39.5
New York	12.6	3.3	-5.6	-34.3	4.0	24.6	-1.1
Philadelphia	-3.5	1.2	4.3	-33.5	-2.1	150.7	-4.0
Phoenix	1.2	-3.5	3.9	-22.3	1.4	4.6	-9.8
Portland	-7.2	18.6	-3.3	-29.1	-6.4	230.0	6.3
San Antonio	-0.6	-9.0	4.7	-24.6	-13.0	-11.7	-6.2
San Diego	-1.5	-10.2	3.5	-31.4	-12.4	14.6	-19.6
San Francisco	-9.6	6.2	-3.9	-31.0	2.0	50.7	10.5
San Jose	-2.1	-2.1	0.0	-13.3	-21.3	43.1	32.8
Seattle	-7.7	12.5	-6.5	-14.1	10.9	59.0	4.4
Washington	-12.7	9.3	-5.1	-39.3	12.0	86.2	-5.9

The places recording the largest increases in transit modal share were Nashville, Washington, Austin, Seattle, Los Angeles, Charlotte, and Boston. All but Austin, Boston, and Nashville have spent hundreds of millions of dollars investing in expanded rail

transit systems; Boston already has a large one. Portland, unsurprisingly because of its municipal investment decisions, had the largest modal increase in bike usage, but other cities less known for biking like Baltimore, Detroit, Philadelphia, and Chicago also saw significant increases as well.

How can we explain the significant public transportation mode share declines in Houston and Dallas, two cities that invested considerably in their respective rail transit systems? Both saw increases in ridership of their transit systems between **2000** and **2008**: Houston saw a 1.05% increase, Dallas a 11.7% jump. Those increases, however, were **entirely lost by 2010**, which has been a terrible year for transit in the two cities. At the same time, their city populations increased by 15.7% and 9.3%, respectively; transit improvements couldn't keep up. This may be because of poor choices in public transportation investments or de-densification in the urban cores of these cities (or annexation, spreading the population out), but either way these are not model cities for transit investments.

I'll conclude with the below table, which documents mode share in 2009 in the biggest cities of the United States. As the chart shows, automobiles have a majority share in all cities except New York, Boston, Washington, and San Francisco. Unsurprisingly, these are dense cities and the places in the United States with the most complete transit systems.

2009 Mode Share in America's Biggest Cities

	Total workers	Total Auto	Total Non-Auto	Driving Alone	Carpooling	Transit	Biking	Walking
Austin	428979	83.1	8.3	72.7	10.4	5.0	1.0	2.3
Baltimore	267185	70.3	25.2	60.7	9.6	17.0	1.0	7.2
Boston	338393	44.7	50.8	37.0	7.7	34.5	2.1	14.1
Charlotte	348999	87.8	6.0	76.6	11.2	3.5	0.2	2.4
Chicago	1271744	60.7	33.6	50.8	9.9	28.5	1.1	5.9
Columbus	379681	90.0	5.7	82.4	7.6	2.4	0.7	2.6
Dallas	599034	89.1	6.0	78.5	10.7	3.9	0.1	1.9
Denver	307556	79.0	13.3	69.4	10.4	7.0	1.0	3.7
Detroit	262217	82.8	12.5	71.4	11.4	7.0	0.5	4.5
El Paso	255675	90.1	6.0	79.8	10.3	2.4	0.2	3.5
Fort Worth	331894	92.3	2.8	80.6	11.7	1.5	0.1	1.2
Houston	1059450	88.4	6.6	75.6	12.8	3.9	0.4	2.3
Indianapolis	364749	92.0	4.5	82.4	9.6	2.0	0.5	2.0
Jacksonville	378090	91.6	3.8	79.6	12.0	1.7	0.4	1.7
Las Vegas	345685	88.8	6.3	77.9	10.9	3.4	0.4	2.6
Los Angeles	1746419	77.6	15.7	67.1	10.5	11.3	1.0	3.4
Louisville	256222	89.1	8.8	79.2	9.9	4.1	0.5	2.1
Memphis	271801	90.9	4.6	78.7	12.2	2.8	0.0	1.9
Milwaukee	264010	83.1	13.6	70.4	12.6	9.4	0.6	4.7
Nashville	298121	90.8	3.7	80.6	10.1	2.2	0.1	1.4
New York	3731917	28.7	65.8	23.5	5.3	54.9	0.6	10.3
Philadelphia	616150	59.8	35.8	51.3	8.5	24.9	2.2	8.7
Phoenix	588643	88.0	6.1	74.5	13.5	3.2	0.9	2.0
Portland	289700	70.1	22.9	61.6	8.5	11.5	5.8	5.6
San Antonio	606446	90.2	5.5	78.0	11.5	3.3	0.1	2.0
San Diego	626126	84.9	7.4	76.5	8.4	3.7	0.8	2.9
San Francisco	437073	46.4	45.1	38.9	7.4	31.8	3.0	10.3
San Jose	442980	88.5	8.0	76.4	12.2	3.2	0.9	1.9
Seattle	354740	62.5	30.2	52.9	9.6	19.5	3.0	7.7
Washington	291083	43.1	50.4	36.5	6.7	37.1	2.2	11.1

Louisville, the nation's 29th-largest city, is not included here because it merged with the surrounding county, significantly changing demographics, in 2003. I have calculated "averages" not in terms of total trips, but city-by-city; thus modal share in Portland is considered just as important as that in New York, despite the latter being much bigger. Note city classification in

the first table based on changes during the 2000-2009 period:

- ***No Rail**: Austin, Columbus, Detroit, El Paso, Fort Worth, Indianapolis, Jacksonville, Las Vegas, Memphis*, Milwaukee, Nashville*, San Antonio.*
- ***No new significant rail investments**: Baltimore, Boston, Philadelphia*.*
- ***New significant rail investments**: Charlotte, Chicago, Dallas, Denver, Houston, Los Angeles, New York, Phoenix, Portland, San Diego, San Francisco, San Jose, Seattle, Washington.*

* The minimal nature of Nashville's Music City Star means I won't include it as a "significant" rail investment here. Nor will I include streetcar projects in such cities as Memphis and Philadelphia.

Update: Mode Share Changes 2000-2009 by Point Change
(One Point = 1% of All Commuting Trips)

	Total Auto	Total Non Auto	Driving alone	Carpooling	Transit	Biking	Walking
Austin	-4.42	0.35	-0.91	-3.51	0.54	0.11	-0.29
Baltimore	0.38	-1.78	0.03	-5.65	-2.49	0.66	0.05
Boston	-6.03	-4.46	-4.52	-1.52	2.24	1.14	1.09
Charlotte	3.38	1.18	-1.21	-2.18	0.27	0.01	0.90
Chicago	-3.88	1.33	0.88	-4.56	0.42	0.85	0.27
Columbus	0.38	-1.79	3.42	-3.13	-1.50	0.36	-0.59
Dallas	0.56	-1.57	7.66	-7.11	-1.53	0.01	-0.04
Denver	1.90	-0.45	1.16	-3.16	-0.63	0.85	-0.67
Detroit	-2.63	0.91	2.82	-5.65	-1.04	0.31	1.64
El Paso	-2.24	0.62	3.29	-5.53	0.06	0.06	0.52
Fort Worth	-1.38	-0.54	3.60	-4.98	0.02	-0.02	-0.54
Houston	0.84	-2.03	3.80	-3.16	1.94	-0.08	-0.01
Indianapolis	-0.28	-0.12	2.40	-2.69	-0.41	0.27	0.02
Jacksonville	-1.05	-0.48	0.34	-1.39	-0.38	-0.02	-0.08
Las Vegas	-0.07	-1.00	4.07	-4.14	-1.36	-0.04	0.40
Los Angeles	-2.92	1.32	1.31	-4.23	1.09	0.39	-0.15
Memphis	-1.42	-0.40	2.06	-3.49	-0.23	-0.09	-0.08
Milwaukee	0.70	-1.54	1.63	-0.97	-1.86	0.30	0.02
Nashville	1.17	-0.59	2.18	-3.35	0.39	-0.03	-0.94
New York	-4.13	2.11	-1.39	-2.74	2.09	0.14	-0.12
Philadelphia	-2.20	0.41	2.10	-4.30	-0.52	1.30	-0.38
Phoenix	-1.07	-0.27	3.81	-3.88	-0.05	0.04	-0.21
Portland	-5.43	3.59	-2.09	-3.34	-0.79	4.05	0.33
San Antonio	-0.54	-0.61	3.19	-3.74	-0.46	-0.02	-0.13
San Diego	-1.27	-1.13	2.86	-3.83	-0.62	0.11	-0.72
San Francisco	-4.91	2.62	-1.57	-3.34	0.64	1.00	0.98
San Jose	-1.90	0.13	0.04	-1.87	0.07	0.27	0.47
Seattle	-5.24	3.34	-3.66	-1.58	1.91	1.11	0.32
Washington	-6.35	4.27	1.94	-4.31	3.96	1.00	-0.69

Mode Share in Nation's Largest Metropolitan Areas – 2009

Metro Area (MSA)	Total Workers	Driving Alone	Carpooling	Transit	Biking	Walking
Atlanta	2520867	77.21	10.55	3.66	0.20	1.41
Baltimore	1322360	76.76	9.16	6.21	0.33	2.85
Boston	2316315	68.52	8.03	12.24	1.03	5.12
Chicago	4411503	70.92	8.79	11.48	0.57	3.17
Cincinnati	1016920	81.11	9.64	2.42	0.18	2.16

Metro Area (MSA)	Total Workers	Driving Alone	Carpooling	Transit	Biking	Walking
Cleveland	935744	81.50	8.16	3.79	0.22	2.25
Dallas	3042460	81.24	10.32	1.53	0.13	1.40
Denver	1277368	75.60	9.46	4.64	0.72	2.15
Detroit	1786498	84.02	8.56	1.62	0.32	1.65
Houston	2708967	78.78	12.06	2.24	0.27	1.55
Kansas City	1003553	82.47	8.88	1.23	0.21	1.48
Las Vegas	874449	79.47	10.33	3.18	0.34	1.78
Los Angeles	5806655	73.62	10.80	6.20	0.86	2.63
Miami	2446844	77.71	10.43	3.51	0.61	1.77
Minneapolis	1688996	78.12	8.80	4.67	0.86	2.26
New York	8765356	50.39	7.02	30.50	0.40	6.28
Orlando	938873	80.75	9.03	1.85	0.45	0.97
Philadelphia	2769040	73.65	7.92	9.28	0.73	3.75
Phoenix	1893856	76.17	11.98	2.26	0.91	1.80
Pittsburgh	1090107	77.05	9.37	5.77	0.24	3.71
Portland	1050429	71.63	9.89	6.08	2.13	3.17
Riverside	1627806	74.53	15.56	1.78	0.27	2.03
Sacramento	916946	75.78	11.55	2.69	1.62	1.84
St. Louis	1328691	82.25	8.95	2.55	0.30	1.64
San Antonio	919348	79.35	11.40	2.32	0.18	2.02
San Diego	1406411	75.80	9.87	3.08	0.62	2.80
San Francisco	2083775	61.86	10.19	14.59	1.54	4.40
Seattle	1702972	69.54	11.05	8.69	0.92	3.57
Tampa	1191969	80.84	8.98	1.40	0.70	1.43
Washington	2861983	66.10	10.61	14.15	0.57	3.21

Image at top: San Francisco's Market Street, by Yonah Freemark

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Patrick M
13 October 2010 at 23:31 · Reply

The final table, sorted by Non-Auto mode, shows how in terms of work travel, the Northeast Corridor is more or less a different country compared to most of the rest of the USA.

Throw in San Fran and it hammers home the point that while there is a lot at the policy level one can do to influence travel behavior, there's really nothing like being an old coastal city that flourished well before 1900 to maintain a strong non-auto travel structure in 2010.

Keith H
19 April 2011 at 21:07 · Reply

Patrick M is right on point. It's not the age of the city that's important, it's when it grew. Portland does so well because it grew early (as did many coastal cities); much of the current city was already in place at the end of the streetcar era. Compare newer cities where 80-90% of the growth took place after 1950, and you'll see the results in (auto) mode share. Even today, those neighborhoods developed before 1940 continue to have high transit mode share, regardless of income (often high) and even in the most car-dominant cities. It's all about well-connected street networks in neighborhoods with at least a modest density and some notion of mixed land uses in the general vicinity.

Brent
13 October 2010 at 23:44 · Reply

The overall premise is interesting, but I can't help but wonder if it would be more meaningful to show the percentile change instead. A 8.5% increase in the transit modal share for Charlotte sounds impressive, for example, until you get to the second table and see that all this has done is increase the transit modal share to 3.5%. A similar concept in reverse for transit-heavy cities.

(I find a similar problem exists in transportation policies, for example, to increase bike commuting by 50%, which sounds impressive until you realize that it means increasing the modal share from 2% to 3%, making little dent in auto travel.)

One other benefit of this approach is that the total net change should be zero, so it's easier to see where the trips went if a sizable decline in auto share occurs (e.g., if the auto share declined by 5 percentile points, while transit increased by 4 and walking/cycling increased by 1).

Yonah Freemark
14 October 2010 at 00:21 · Reply

For your viewing pleasure, I've added that information to a new table at the bottom of the post.

Alon Levy
14 October 2010 at 01:43 · Reply

Could you add a table on the metro area level, and not just central cities? In many American regions, transit looks good until you realize that it's rarely used outside the core cities, people who commute to the core CBD excepted.

Yonah Freemark
14 October 2010 at 02:14 · Reply

I've added the table (the last I'm going to add!) but I should point out that the reason I focused on the cities themselves, rather than the whole metro region, is that they are the places where investments in transit and other sustainable transportation infrastructure can really pay off. Though metro areas represent a larger percentage of the overall population than just the central cities, they are slower to respond to changes in transportation options and do not have the walkable environment in place for people to be able to adapt easily to alternatives.

Jonah
13 December 2010 at 12:11 · Reply

While that may be true in some places, it doesn't necessarily hold true in others. Many transit agencies operate at the county, or multi-county level.

Further, some cities (Los Angeles, for example) are much better represented by their metro area, as it's just as important if someone is taking the bus in Hollywood (city of LA) as it is if they're in West Hollywood (separate city, same metro)

J
14 October 2010 at 01:56 · Reply

"No new significant rail investments: Baltimore, Boston, Philadelphia."

Why exclude major BRT? At around 25,000 riders a day, Bostons Silver Line (including 3 underground stations) is certainly a major investment.

And Detroit, Jacksonville and Vegas all have rail lines via people movers or monorails. While ridership is tiny, compared to, say, NYC, it's still a decent amount when looking at a bus line in Oklahoma city as a comparison point.

At about 20,000 riders a day, Id say the Vegas monorail counts as a major rail investment, and it opened in 2004.

Yonah Freemark

14 October 2010 at 02:16 · Reply

I made a subjective choice not to include people movers or BRT; feel free to disagree with that decision.

J
14 October 2010 at 16:09 · Reply

But that ignores the monorail. Of course, it seems like all official ridership collections exclude the monorail....

IMO, theres no difference between the vegas monorail and elevated heavy rail like the miami system. Both have similar pros and cons.

Ken
14 October 2010 at 07:56 · Reply

Because BRT isn't rail, by definition.

Patrick M
14 October 2010 at 15:26 · Reply

Ask residents if they think the MBTA Silver Line is an improvement over the Washington St Elevated that was torn down decades ago.

Or, look up the Sierra Club's 20 page report on the Silver line and look at the picture on the back cover of the report, which as always, is worth 1000 words.

J
14 October 2010 at 16:08 · Reply

The waterfront branch is a huge improvement over what was there before.

Nathanael
14 October 2010 at 20:20 · Reply

What was there before was nothing at all. But the industrial area at the waterfront didn't really need expensive mass transit improvements....

The airport branch, while being a bit more functional, is hardly worth it, given the Blue Line-Red Line service.

k
14 October 2010 at 10:11 · Reply

i think the author's strict rail criteria works fine in this case.

alternatively, one could group exclusive and partially exclusive ROW systems and thereby include light & heavy rail, BRT, & ferry, while excluding shared ROW systems (bus, streetcar). along those lines, the modes share similar rider catchment areas (approx. 1/2 mi and 1/4 mi, respectively)

simple
14 October 2010 at 10:56 · Reply

Yonah, do you know how the ACS asks respondents to specify their mode? It's my understanding that it requires respondents to pick one and only one mode that represents their commute. This troubles me because it prevents us from understanding those commuters for whom mode choice varies on a daily/weekly/seasonally basis (as it does for me personally – transit/walk, and for many colleagues – often auto/transit/bike). Maybe this would all be a wash in terms of the overall stats, but maybe not — especially since "auto" is such a large share, if a relatively small part of those people actually sometimes use transit it could significantly boost the "actual" transit share.

Perhaps more importantly, the real value of transit and the other non-auto modes is that they are available to be used when needed. If these stats only indicate those who mostly use non-auto, they undercount the percentage of mostly auto commuters for whom non-auto modes are still "relevant" — which is an important point to make politically. For instance, if a person drives most days because their main office is in the suburbs, but takes the train 1 or 2 days a week when they need to work downtown (or bikes only when the weather is nice, etc.), they show up as auto-only and the fact that transit (or bicycling) is relevant for them is lost in the data.

Is this correct?

mulad
14 October 2010 at 13:57 · Reply

Yeah, I agree that this is a problem with the ACS data. Many more people occasionally use a non-auto mode, and there's seasonality to commuting as well—people are much more likely to bike in the summer, for instance. There is also a lot of noise in ACS information for biking since the share is so small. With only 0.5 percent, that translates to just a few dozen respondents in most large cities.

A major thing that strikes me with ACS commuting information is that walking is somewhere around 6× as popular as biking in most areas, so even a 150% increase barely makes a dent in most places. Biking can be very effective for getting people around since it's usually faster than transit, but it has its drawbacks too (lockable storage on a bike is rare, for instance).

Other things that make me think: For metro areas, the highest mode share for transit, biking, and walking are many multiples of the lowest mode shares, but the highest carpool mode share is about 15%, while the lowest is about 7%—only a 2× difference. However, in most places, carpooling is the most common option other than driving alone.

From the first table, we should probably be really disappointed that carpooling has declined so much. It does seem like a lot of trips have simply disappeared, though. A combination of telecommuting and a poor job market in 2009, I suspect.

Brent
14 October 2010 at 21:24 · Reply

A major transportation survey in the Toronto area (the Transportation Tomorrow Survey) asks respondents about the trips they made on a specific date. In theory, that is supposed to balance out respondents that occasionally take a different mode — if five different respondents take transit one day a week, it's likely that (on average) one will take transit on that particular day.

Alon Levy
15 October 2010 at 22:09 · Reply

The ACS asks people to name the mode they used primarily in the previous week. It doesn't have the granularity of asking about a specific day, but it's probably the most consistent thing there is in a mailed survey, as opposed to a phone survey. Asking about a day may produce bias because people may not remember so far back, and asking about the day before the survey may produce bias because people may answer the survey only on specific days (say, weekends).

Danny
14 October 2010 at 10:58 · Reply

Part of the problem with any sort of broad based analysis here is that many cities have increased service levels with some investments and then cut service elsewhere. Maybe the proper analysis would be to measure transit VMT rather than "rail investment".

Ken
14 October 2010 at 11:48 · Reply

Wonder what Jarrett Walker of Human Transit would say about this? He seems to have a distinct anti-rail, pro-bus bias.

David Keddie
14 October 2010 at 11:54 · Reply

I think that he would say that the densities of almost all American cities support bus more effectively than rail. I was struck in light of the arc tunnel cancellation by the discovery that the one bus lane through the Lincoln tunnel takes more commuters into Manhattan than NJTransit rail does into Penn Station. Many of those buses moreover are run by profitable private companies. Apart from a hope to improve rail so as to enable major densification in New Jersey (where I live) and provide fossil fuel free transit, it would seem that expansion of bus infrastructure might more effectively get commuters into Manhattan.

Alon Levy
14 October 2010 at 15:53 · Reply

David, the reason the Lincoln Tunnel is so productive is that the buses get to hog two full blocks of prime real estate. Building more capacity for that is going to be even more expensive than the ARC cavern.

Adirondacker12800
14 October 2010 at 18:14 · Reply

Many NJTransit train riders use PATH or the ferries to get into Manhattan. More buses was one of the alternatives examined before the decision was made to build a rail tunnel. More buses means more highway all over the state. Means another road tunnel into Manhattan. Once the buses get to Manhattan there would have to be a new bus terminal. The cheapest option is more rail.

Ted King
14 October 2010 at 14:50 · Reply

It would be more accurate to say that Jarrett's bias is in favor of **effective** transit without regard to technology. I've been reading his blog for quite a while and attended one of his talks. He would be in favor of motorized skateboards if that were cost (dollars, time, and space) effective and got the job done.

Realist
15 October 2010 at 18:13 · Reply

I think you're right Ted, that's exactly what he would say. But, I wonder, does he rank his restaurants based on calories per hour and ignore flavor / experience?

Alon Levy
15 October 2010 at 22:10 · Reply

No, but as a food service industry consultant, he might just rank restaurants based on profit.

David Keddie
14 October 2010 at 11:49 · Reply

I don't find these statistics particularly encouraging. If you can forgive the characterization it seems like on the margin (work commutes as opposed to all travel) of the margin (city limits as opposed to metro area) of the margin (non-Texas cities) they show that transit market share was kept flat instead of falling. This reminds me of the grim statistics for Portland that show no significant modal shift away from driving alone despite decades of investment. It is encouraging to see the revival of some urban living and the increases in walking and bike commuting. These however seem to be serving a niche audience.

Michael Farrell
22 October 2010 at 13:00 · Reply

Did you look at the numbers for Portland? Here they are:

* The City of Portland had a non-auto share of 22.9% in 2009, which puts it in ninth place out of the thirty cities. Not just a "niche audience".
* Between 2000 and 2009, Portland achieved a 3.59 percentage point (not percent) growth in non-auto mode share – the third highest growth rate of the thirty cities.
* Over the same period, Portland achieved a 2.09 percentage point decrease in drive alone mode share – once again, the third largest such decrease among the thirty.
* Car pooling fell in every city; Portland's decline of 3.34 percentage points was in the middle.
* The greater Portland MSA had a drive alone rate of 71.63%, the seventh lowest rate of the thirty Metro areas.

Portland definitely outperforms other cities of its size and age.

David Keddie
24 October 2010 at 00:03 · Reply

I was referencing this:

http://www.humantransit.org/2010/01/portland-another-challenging-chart.html

It's true that Portland outperforms some similar cities, though notably not Seattle, but the truth remains that despite major investments in light rail, an urban growth boundary and major support for densification Portland is a fundamentally car-dependent city with transit little used and only moderate densification in the core. These statistics moreover cover only work trips. When one looks at all travel the mode share for autos rises to 90% even in New York, 80% in Paris. I find my transit idealism suffering in the face of statistics.

Yonah Freemark
24 October 2010 at 00:14 · Reply

I don't know where you're getting your statistics, but **at least in Paris**, the mode share in terms of **all trips** (not km of travel) is:

For the city itself:
- 16.3% cars/motorcycles
- 33.9% transit
- 49.9% walk/bike

For the whole region:
- 45.3% cars/motorcycles
- 20.5% transit
- 34.2% walk/bike

The majority of trips in the region, as these statistics show, are done in modes outside of the private automobile.

David Keddie
25 October 2010 at 08:56 · Reply

Thanks Yonah. I believe I got that number from an analysis of kms travelled which certainly masks the greater opportunities to take trips on foot and by bike in most of the Paris region.

There still seems to be a significant barrier in the US to development of new transit-oriented neighborhoods. Where I live in Princeton, NJ the developers are suing to try to build at greater densities (or any density as it's now mostly open parking) next to the Junction train station, but it

seems that it's harder to encourage TOD in cities such as Portland that mostly developed around the automobile. At a minimum I hope that New Urbanist design catches on as the one such new neighborhood we have in central Jersey is wildly popular, but that's still not really designed as TOD except insofar as it allows local walking and biking.

mulad
14 October 2010 at 14:27 · Reply

Some X-Y plots of different data columns and some statistical correlation probably needs to be put into effect here. Staring at these numbers, I'm becoming very concerned about how much the carpool share has declined. In most places, the most popular mode shares are ranked as:

1. driving alone
2. carpooling
3. transit
4. walking
5. biking

That's basically the opposite of what's desirable from a carbon footprint perspective:

1. walking
2. biking
3. transit
4. carpooling
5. driving alone

Well, biking is more efficient than walking, but ideally you want to be close enough so you don't have to bike. They also take up a fair amount of space, so truly constrained locations may put transit up higher. But hell, I think we should plaster that second list to the door of every planning office in the country. However, to get there, every mode other than driving alone has to be encouraged. We want to see carpooling decline someday, but probably not right now.

Dan
14 October 2010 at 14:49 · Reply

Fort Worth Texas has a commuter rail line with frequent service, so I don't know if it should be included in the No Rail cities. See http://www.subways.net/usa/dfw/dfwrail.htm

Keith H
19 April 2011 at 21:13 · Reply

The Ft Worth commuter rail line tends to carry people away from the city in the morning peak and back in the afternoon (most are going to Dallas). There are commuters to downtown Ft Worth, but it's not the dominant pattern. For the most part, Ft Worth is like any suburban (bedroom) community on a commuter rail line.

wanderer
14 October 2010 at 15:49 · Reply

First, I wouldn't overinterpret any of this data. ACS data have had significant quality control problems. For example, in Oakland, they showed several thousand housing units disappearing between one year and the next! The data simply aren't as good as in the "real" decennial Census, which isn't perfect but is better.

With that caveat, there were some interesting distinctions between the cities and their metros. In metro Los Angeles, for example, the drive alone share is 74%, it drops to 67% in the city of Los Angeles. That's hardly the target, but it does mean 800,000 people primarily commuting by means other than driving in the city where "everybody drives." In Portland, the gap is even wider 72% driving alone in the metro but only 62% in the city. If you calculated a "Metro outside city" drive alone share the difference with the city would be even wider.

To me, it speaks to the ongoing importance of a smart growth as well as a transit agenda.

In the most sprawling cities, like San Antonio, there wasn't much of a difference.

John Bailo
14 October 2010 at 16:06 · Reply

None of these changes would have anything to do with decreases in urban jobs and rises in office vacancies during 2007-2010, would it?

wanderer
14 October 2010 at 16:32 · Reply

It's hard to see how. You'd think if anything that the recession would lead to more carpooling. Presumably the recession would have affected the baseline number the most, and lead to overall falls in both drive alone and other commuters.

Andrew
16 October 2010 at 09:03 · Reply

It is surprising no one has noted how it seems that most new bike users switched from transit.

Also surprising that the impact of fare increases is not considered. Base fares approaching $3.00 are not trivial to most

people. Sure, the cost of driving also rose, but if you have a car with gas in it, hopping in and heading out feels as cost-free as ever.

Howard Bingham
16 October 2010 at 22:57 · Reply

Why no figures on Houston..?According to statistics published in Metro-Magazine (A transit industry publication), on the 100 largest transit systems, Houston has increased from 14 to 12.

I am a frequent user of METRO during off-peak and during peak travel periods, it would appear ridership as in many other cities of Houston's size, does leave plenty of room for improvement along lines of equipment utilization, primarily in the need for smaller buses to run middle of day, NON-peak travel times. Metro revamped bus schedules February 14, 2010 on many routes, and has made changes on other routes since early summer 2010.. Light-Rail ridership during peak travel times often runs at crush loads 220+ per LRV unit, with multiple units of up to 450 capacity. There is need for new cars to supplement this fleet, as they near heave overhaul dates, the big problem, Metro ran afoul of FTW Buy America requirements and permitting the contractor to modify it's contract after bids were opened..!

Metro will need a re-authorization election before 2014 (Sooner than later as delivery date of NEW LRV's will take 2+ years from date contract is awarded..!).

Amber
17 October 2010 at 13:18 · Reply

It depends on how he defines "effective". For stimulating growth, it's hard to beat rail with a bus.

Amber
17 October 2010 at 13:19 · Reply

Oops! That's meant to be in reference to Jarrett Walker.

Alexander Quinn
29 November 2010 at 20:00 · Reply

It's difficult to use 2000 as the start date. For many metropolitan areas, 2000 was a highwater mark for employment, and therefore congestion was at peak levels. The 2000 Census came will before the demise of the Dot Com boom and unemployment in San Francisco, LA, New York, and Atlanta was less than 5%. In this inflated job market, commute congestion was significant. As a result, people looked to alternative means of transportation to get to their place of work. One only needs to remember the crowded BART trains from the East Bay to San Francisco to understand the impact of the economy on ridership. Conversely, 2009 represents a low employment level with peak hour congestion down significantly. The fact that cities have made any progress during these very different economic periods implies a lasting trend towards reduced personal vehicle commutes.

An Extensive New Addition to Dallas' Light Rail Network Makes it America's Longest | DFW REimagined – The future of real estate
10 December 2010 at 12:48 · Reply

[...] riders a day — a pittance in the context of the city's 1.3 million inhabitants. The most recent U.S. Census data show that the city's transit mode share stands at less than 4%; the metropolitan region's share is just 1.5%. Both are down from [...]

Response to Comment No. 11-41

The article entitled "Transit Mode Share Trends Looking Steady; Rail Appears to Encourage Non-Automobile Commutes" presented above is outside the scope of the RPDEIR. Please refer to Section 1.2 of this Final RPEIR for a discussion of the scope of the RPDEIR, the City's obligation to respond to comments outside the scope of the RPDEIR, and the standards for recirculation of a Draft EIR due to "significant new information." The commentor offers no "significant new information" with respect to cumulative impacts within the meaning of CEQA Section 21092.1 and CEQA Guidelines Section 15088.5.

However, as described in DEIR Sections 4.6.3.1 and 4.6.5.2, in accordance with the San Bernardino Associated Governments' Non-Motorized Transportation Plan, the Project would implement, to the extent feasible, measures promoting alternative transportation methods such as the use of transit, bicycles, and walking.

Comment Letter No. 11 (continued)

Comment No. 11-42

3.12 TRANSPORTATION, TRAFFIC & SECURITY

This section describes the current transportation system in the SCAG region, discusses the potential impacts of the 2012-2035 Regional Transportation Plan/Sustainable Communities Strategies (2012-2035 RTP/SCS or Plan) on transportation, identifies mitigation measures for the impacts, and evaluates the residual impacts.

REGULATORY FRAMEWORK

Federal

U.S. Department of Homeland Security (DHS). The DHS is charged with the responsibility of protecting the territory of the United States from terrorist attacks and responding to natural disasters. The department was established on November 25, 2002, by the Homeland Security Act of 2002. The primary mission of the Department is to (a) prevent terrorist attacks within the United States; (b) reduce the vulnerability of the United States to terrorism; and (c) minimize the damage, and assist in the recovery, from terrorist attacks that do occur within the United States.

Federal Emergency Management Agency (FEMA). In March 2003, FEMA became a department of the DHS. The primary mission of FEMA is to reduce the loss of life and property and protect the nation from all hazards, including natural disasters, acts of terrorism, and other human-made disasters, by leading and supporting the nation in a risk-based, comprehensive emergency management system of preparedness, protection, response, recovery, and mitigation.

National Response Framework (NRF). The NRF presents the guiding principles that enable all response partners to prepare for and provide a unified national response to disasters and emergencies. It establishes a comprehensive, national, all-hazards approach to domestic incident response. The National Response Plan was replaced by the NRF effective March 22, 2008.

The NRF defines the principles, roles, and structures that organize how we respond as a nation. The NRF:

- Describes how communities, tribes, states, the federal government, private-sectors, and nongovernmental partners work together to coordinate national response;
- Describes specific authorities and best practices for managing incidents; and
- Builds upon the National Incident Management System (NIMS), which provides a consistent template for managing incidents.

United States Department of Defense (DOD). The DOD has several installations within the SCAG region. In the case of a large-scale emergency, the DOD is authorized to provide resources when response and recovery requirements are beyond the capabilities of civilian authorities, and these efforts do not interfere with the DOD's core mission or ability to respond to operational contingencies.

Requests for Defense Support to Civilian Authorities (DSCA) are made through the local, county and state authorities as a request for assistance to the federal coordinating official in the appropriate lead federal agency and is normally accompanied by, or submitted after a request from the Governor for a disaster declaration from the President. The Defense Coordinating Officer coordinates the DOD resources to be provided. The California National Guard may be activated as part of the DSCA and can provide law enforcement support, crisis management and consequence management services. Activation of the National Guard for local support during emergencies is done by the Governor via the California Office of Emergency Services.

The NIMS employs two levels of incident management, depending upon the type of incident:

- The **Incident Command System (ICS)** is a standard, on scene, all-hazard incident management system. ICS allows users to adopt an integrated organizational structure to match the needs of single or multiple incidents; and
- **Multi-Agency Coordination Systems** are a combination of facilities, equipment, personnel, procedures and communications integrated into a common framework for coordinating and supporting incident management.

ICS has been in use for over 30 years and is used for planned events, fires, earthquakes, hurricanes and acts of terrorism; ICS helps all responders communicate and coordinate logistics.

NIMS requires all emergency plans and standard operating procedures to incorporate NIMS components, principles and policies, including emergency planning, training, response, exercises, equipment, evaluation, and corrective actions. Chief elected and appointed officials in a community need to be directly involved in these NIMS preparedness elements, especially the elements that deal with exercising community emergency management policies, plans, procedures and resources.

State

California Department of Transportation (Caltrans). Caltrans, in conjunction with the California Highway Patrol (CHP), has created Transportation Management Centers (TMCs) to rapidly detect and respond to incidents while managing the resulting congestion. With the help of intelligent transportation system technologies, such as electronic sensors in the pavement, freeway call boxes, video cameras, ramp meter sensors, earthquake monitors, motorist cellular calls, and commercial traffic reports; as well as Caltrans highway crews, 911 calls and officers on patrol, the TMC provides coordinated transportation management for general commutes, special events and incidents affecting traffic. The TMCs are operated within each Caltrans district. For the SCAG region, Districts 7, 8, 11 and 12 all have TMCs.

California Emergency Management Agency (EMA). The EMA was established as part of the Governor's Office in 1950 as the State Office of Civil Defense. Then called the Governor's Office of Emergency Services, it coordinated overall State agency response to major disasters in support of local government. The EMA is responsible for assuring the State's readiness to respond to and recover from natural, human-made, and war-caused emergencies, and for assisting local governments in their emergency preparedness, response and recovery efforts.

The EMA serves as the central contact point in the State for any emergency or imminent disaster. It coordinates the notification of appropriate State administering agencies that may be required to respond, as well as the emergency activities of all State agencies in the event of an emergency. In doing so, the EMA does not focus on security specifically, but rather more broadly on addressing all potential incidents that could impact the State, such as earthquakes, fires, floods, and terrorist attacks. Furthermore, EMA coordinates with federal agencies, such as the DHS and FEMA, as well as other State and local agencies such as the CHP.

California's vision, mission, and principles for emergency management, as well as goals and objectives are located in its publication "Strategic Plan 2010-2015 – Keeping California Safe."[1]

Multi-Hazard Mitigation Plans. The goal of hazard mitigation plans is to guide implementation activities to achieve the greatest reduction of vulnerability, which will result in saved lives, reduced injuries, reduced property damages, and greater protection of the environment.

[1]California Emergency Management Agency, *Strategic Plan 2010-2015 – Keeping California Safe*, 2010.

Transportation Security Administration (TSA). The TSA is a component of the DHS and is responsible for security of the nation's transportation systems. With state, local and regional partners, the TSA oversees security for highways, railroads, buses, mass transit systems, and ports. A vast majority of its resources are dedicated to aviation security and is primarily tasked with screening passengers and baggage.

Maritime Transportation Security Act of 2002. The Maritime Transportation Security Act of 2002, signed on November 25, 2002, is designed to protect the nation's ports and waterways from a terrorist attack. This law is the U.S. equivalent of the International Ship and Port Facility Security Code (ISPS), and was fully implemented on July 1, 2004. It requires vessels and port facilities to conduct vulnerability assessments and develop security plans that may include passenger, vehicle and baggage screening procedures; security patrols; establishing restricted areas; personnel identification procedures; access control measures; and/or installation of surveillance equipment.

The Disaster Mitigation Act of 2000 (DMA 2000). The DMA 2000 provides an opportunity for states, Tribes, and local governments to take a new and revitalized approach to mitigation planning. DMA 2000 amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988 by adding Section 322 – Mitigation Planning. Section 322 placed new emphasis on mitigation planning requiring governments to develop and submit mitigation plans as a condition of receiving any funding from the Hazard Mitigation Grant Program (HMGP) project grants. This Act reinforces the importance of pre-disaster infrastructure mitigation planning to reduce disaster losses nationwide, and is aimed primarily at the control and streamlining of the administration of federal disaster relief and programs to promote mitigation activities.

National Incident Management System/Standardized Emergency Management System (NIMS). The NIMS is a tool for states, counties and local jurisdictions to respond to catastrophic events through better communication and coordination. NIMS provides a consistent nationwide template to enable Federal, state, local, and tribal governments and private sector and non-governmental organizations to work together effectively and efficiently to prepare for, prevent, respond to, and recover from domestic incidents, regardless of cause, size, or complexity, including acts of catastrophic terrorism.

California has a similar management system called the Standard Emergency Management System (SEMS) which is mandated under California Government Code Section §8607(a). State of California Executive Order S205 requires the State to integrate, to the extent appropriate, the NIMS, into the State's SEMS.

The NIMS Integration Center strongly recommends that all elected officials who will be interacting with multiple jurisdictions and agencies during an emergency incident to take several NIMS courses, at a minimum:

- FEMA IS700: NIMS, an Introduction
- ICS100: Introduction to Incident Command System (ICS) or equivalent

All federal, state, local, tribal, private sector and nongovernmental personnel with a direct role in emergency management and response must be NIMS and ICS trained. This includes all emergency service related disciplines such as Emergency Medical Technicians, hospitals, public health, fire service, law enforcement, public works/utilities, skilled support personnel, and other emergency management response, support and volunteer personnel.

FEMA now requires state and local governments to develop hazard mitigation plans. The DMA 2000, Section 322 (ad) requires that local governments, as a condition of receiving federal disaster mitigation funds, have a mitigation plan that describes the process for identifying hazards, risks and vulnerabilities; identifies and prioritizes mitigation actions; encourage the development of local mitigation; and provides technical support for those efforts. "Local Governments" are defined in the DMA 2000 to typically include counties, local municipalities, and tribal governments, but can also include other local agencies and organizations, including Councils of Governments, schools and other special districts.

California approved its State of California Multi-Hazard Mitigation Plan in 2010. The State is required to adopt a federally-approved State Multi-Hazard Mitigation Plan to be eligible for certain disaster assistance and mitigation funding. The Plan is an evaluation the hazards California faces and the strategies, goals, and activities the State will pursue to address these hazards. The Plan:[2]

- Documents Statewide hazard mitigation planning in California;
- Describes strategies and priorities for future mitigation activities;
- Facilitates the integration of local and tribal hazard mitigation planning activities into Statewide efforts;
- Meets State and federal statutory and regulatory requirements; and
- Is an annex to the State Emergency Plan.

All six SCAG counties and a number of cities within the SCAG region have completed Hazard Mitigation Plans. EMA dictates that these plans must be updated every three years.

County Offices of Emergency Services. Counties and cities are generally the first responders to any security or emergency situation. These responders include fire departments, police and sheriff department, hospitals, ambulance services and transportation agencies. Coordination among public and private agencies within various cities and counties make the most use of all available resources in the event of any emergency.

While each city and county has their own security procedures, the policies are generally similar. Mutual Aid agreements between cities, counties and private organizations help to maximize resources and reduce the human suffering associated with disaster situations. Each SCAG county has a department in charge of security and emergency response see **Table 3.12-1**.

TABLE 3.12-1: COUNTY OFFICES OF EMERGENCY SERVICES

County	Office Information	County	Office Information
Imperial	Office of Emergency Services 1078 Dogwood Road Heber, CA 92249 (760) 482-2400	Riverside	Office of Emergency Services 4080 Lemon Street, Suite 8 P.O. Box 1412 Riverside, CA 925021412 (951) 955-4700
Los Angeles	Office of Emergency Management 1275 N. Eastern Avenue Los Angeles, CA 90063 (323) 980-2261	San Bernardino	Office of Emergency Services 1743 W. Miro Way Rialto, CA 92376 (909) 356-3998
Orange	Office of Emergency Services 2644 Santiago Canyon Road Silverado, CA 92676 (714) 628-7055	Ventura	Office of Emergency Services Ventura County 800 South Victoria Avenue Ventura, CA 93009 (805) 654-2551

SOURCE: TAHA, 2011.

[2]California Emergency Management Agency, *Multi Hazard Mitigation Plan*, 2010.

Mutual Aid Agreements (MAA). Immediately following the 1994 Northridge earthquake, city and county emergency managers in the coastal, southern, and inland regions developed a coordinated emergency management concept called the Emergency Managers Mutual Aid (EMMA) system. EMMA provided a valuable service in the emergency response and recovery efforts at the Southern Regional Emergency Operations Center (REOC), local Emergency Operations Centers (EOCs), the Disaster Field Office (DFO), and community service centers.

The purpose of EMMA is to support disaster operations in affected jurisdictions by providing professional emergency management personnel. In accordance with the Master Mutual Aid Agreement, local and State emergency managers have responded in support of each other under a variety of plans and procedures.

The objectives of the EMMA Plan include:[3]

- Providing emergency management personnel from unaffected areas to support local jurisdictions, Operational Areas, and regional emergency operations during proclaimed emergencies;
- Providing a system, including an organization, information, and forms necessary to coordinate the formal request, reception, assignment, and training of assigned personnel;
- Establishing a structure to maintain this document (the Emergency Managers Mutual Aid Plan) and its procedures;
- Providing for the coordination of training for emergency managers, including Standardized Emergency Management System (SEMS/NIMS) training, emergency management course work, exercises, and disaster response procedures; and
- Promoting professionalism in emergency management.

METRANS Transportation Center. The METRANS Transportation Center, which is a joint partnership between the University of Southern California and California State University, Long Beach, is a U.S. Department of Transportation University Transportation Center that was established in 1998 under the Transportation Equity Act for the 21st Century. The mission of METRANS is to 'solve transportation problems of large metropolitan regions through interdisciplinary research, education and outreach'. In doing so, METRANS conducts research in several areas relating to transportation, including safety, security, and vulnerability. Specifically, this study attempts to analyze safety and security issues, such as pedestrian and transit safety, vulnerability of major infrastructure, and safety and risk mitigation.

Intelligent Transportation System (ITS). One way to incorporate safety and security into transportation planning is through greater collaboration between transportation planning and operations. Collaboration is particularly critical in metropolitan regions and congested corridors where numerous jurisdictions, agencies, and service providers are responsible for the safety, security, and efficient operation of various aspects of the transportation system. Not only are the roadway and transit system operators themselves dependent on the transportation system, but so are police, fire, and medical services, emergency response and domestic security systems, and port authorities.

Collaboration enables regional strategic development of projects and policies that have regional effects on users, including activities, such as incident management, advanced traveler information services, public safety/EMS/security, special events, electronic payment services, and performance measures.

ITS are one method of establishing a collaborative relationship. ITS projects were originally designed to increase transportation efficiency. It was recognized early on that ITS investments may also serve to enhance the safety, security and emergency response capabilities of the region. Such systems may be of assistance in the detection, response and recovery to human-made and natural disasters.

[3]California Emergency Management Agency, *Emergency Managers Mutual Aid Plan*, November 1997.

Because the successful operation of ITS projects usually depend on coordination and communication between different agencies and the systems they operate, it is essential that there be a region-wide framework for cooperation to help achieve that coordination and communication in the most cost-effective manner. This framework is referred to as the Southern California Regional ITS Architecture.

Southern California Regional ITS Architecture. The Southern California ITS Regional Architecture includes all six counties in the SCAG region. The goal of the project is to document the ITS Architecture covering the region. An ITS Architecture is a framework for ensuring institutional agreement and technical integration of technologies for the implementation of projects or groups of projects under an ITS strategy. Local components to the ITS Architecture exist for Los Angeles County, Orange County, Inland Empire, Ventura County, and Imperial County.

California Critical Needs Assessments. There have also been several assessments of the critical State transportation infrastructure, which include identification of the key transportation facilities. Assessments have been conducted by the following bodies:

- The Governor's Office of Emergency Services
- The California Attorney General's Office

CHP conducted a vulnerability assessment of the State's highway system and has issued a confidential report to the State Legislature

The results of these assessments have been shared with the transportation system operators and incorporated into their security planning. However, security considerations have precluded the inclusion or discussion of these critical system elements in public documents.

Strategic Highway Network (STRAHNET). The STRAHNET routes within the SCAG region are essential to readily accommodate the movement of military supplies and personnel in times of national emergency. STRAHNET routes were selected by the federal government, and include the National Interstate system, as well as key "non-interstate" routes and connectors to ports and military installations.

Within the SCAG region, all interstates are part of the STRAHNET. SR-14, SR-101 and Route 395 are part of the non-interstate STRAHNET routes. Various connectors between the ports, as well as various military installations and STRAHNET are also included. A visual representation of the STRAHNET within the SCAG region is displayed in **Map 2.0-1** located in Chapter 8.0 (Maps).

Local

Congestion Management Programs (CMPs). In order to meet federal certification requirements, SCAG and the county Congestion Management Agencies (CMAs) have worked together to develop a congestion management process for the region. In the SCAG region, the Congestion Management System (CMS) is comprised of the combined activities of the RTP/SCS, the CMP and the Regional Transportation Improvement Program (RTIP).

Under California law, CMPs are prepared and maintained by the CMAs. The Los Angeles County Metropolitan Transportation Authority (Metro), Orange County Transportation Authority (OCTA), Riverside County Transportation Commission (RCTC), San Bernardino Associated Governments (SANBAG), and Ventura County Transportation Commission (VCTC) are the designated CMAs of each county and are subject to State requirements. While Imperial County is not subject to State CMP requirements, CMP-related activities there are accomplished through the development of the RTP/SCS and the RTIP by the Imperial County Transportation Commission (ICTC).

In addition to SCAG's RTP/SCS and RTIP, the key elements of the federal Congestion Management Process are addressed through the counties CMPs. Because the magnitude of congestion and degree of urbanization differ among the counties, each CMP differs in form and local procedure. By State law, all CMPs perform the monitoring and management functions shown below which also fulfill the federal CMP requirements.

- Highway Performance – Each CMA monitors the performance of an identified highway system. This monitoring allows each county to track how their system, and its individual components, is performing against established standards, and how performance changes over time.
- Multi-Modal Performance – In addition to highway performance, each CMP contains an element to evaluate the performance of other transportation modes including transit.
- Transportation Demand Management (TDM) – Each CMP contains a TDM component geared at reducing travel demand and promoting alternative transportation methods.
- Land Use Programs and Analysis – Each CMP incorporates a program for analyzing the effects of local land use decisions on the regional transportation system.
- Capital Improvement Program (CIP) – Using data and performance measures developed through the activities identified above, each CMP develops a CIP. This becomes the first step in developing the County Transportation Improvement Program (TIP). Under State law, projects funded through the RTIP must first be contained in the county CIP.
- Deficiency Planning – The CMP contains provisions for "deficiency plans" to address unacceptable levels of congestion. Deficiency plans can be developed for specific problem areas or on a system-wide basis. Projects implemented through the deficiency plans must, by statute, have both mobility and air quality benefits. In many cases, the deficiency plans capture the benefits of transportation improvements that occur outside the county TIPs and RTIP such as non-traditional strategies and/or non-regionally significant projects.

The regional transportation planning process and the county congestion management process should be compatible with one another. To ensure consistency, SCAG and the CMAs have developed the Regional Consistency and Compatibility Criteria for CMPs. Information on the CMP activities and resulting data is updated on a biennial basis by each CMA and supplied to SCAG and air quality management districts.

EXISTING SETTING

The Southern California transportation system is a complex intermodal network designed to carry both people and goods. It consists of roads and highways, public transit, paratransit, bus, rail, airports, seaports and intermodal terminals. The regional highway system consists of an interconnected network of local streets, arterial streets, freeways, carpool lanes and toll roads. This highway network allows for the operation of private autos, carpools, private and public buses, and trucks. Active transportation modes, such as bicycles and pedestrians share many of these facilities. The regional public transit system includes local shuttles, municipal and area-wide public bus operations, rail transit operations, regional commuter rail services, and inter-regional passenger rail service. The freight railroad network includes an extensive system of private railroads and several publicly owned freight rail lines serving industrial cargo and goods. The airport system consists of commercial, general, and military aviation facilities serving passenger, freight, business, recreational, and defense needs. The region's seaports support substantial international and interregional freight movement and tourist travel. Intermodal terminals consisting of freight processing facilities, which transfer, store, and distribute goods. The transportation system supports the region's economic needs, as well as the demand for personal travel.

Transit use is growing in the SCAG region. As of 2009, transit agencies in the SCAG Region reported 747.3 million boardings. This represents growth of nearly 20 percent in the ten years between 2000 and

2010, but only 4 percent growth in per capita trips due to population growth. Metrolink and Metro Rail (Los Angeles County) have seen ridership growth of 6 to 8 percent a year.

Transportation Planning in the SCAG Region

Numerous agencies are responsible for transportation planning and investment decisions within the SCAG region. SCAG helps integrate the transportation-planning activities in the region to ensure a balanced, multi-modal plan that meets regional as well as county, subregional, and local goals.

Table 3.12-2 identifies local, state and federal governmental agencies that participated in the development of the 2012-2035 RTP/SCS. Seven major entities and agencies are involved including SCAG as the designated Metropolitan Planning Organization (MPO), the County Transportation Commissions (CTCs), Sub-regional Councils of Governments (COG), local and county governments, transit and transportation owners, operators and implementing agencies, resource/regulating agencies and other private non-profit organizations, interest groups and tribal nations.

TABLE 3.12-2: STAKEHOLDERS IN THE DEVELOPMENT OF THE PLAN	
COUNTY TRANSPORTATION COMMISSIONS	
Imperial County Transportation Commission (ICTC)	Riverside County Transportation Commission (RCTC)
Los Angeles County Metropolitan Transportation Authority (Metro)	San Bernardino Associated Governments (SANBAG)
Orange County Transportation Authority (OCTA)	Ventura County Transportation Commission (VCTC)
SUBREGIONAL COUNCILS OF GOVERNMENTS	
Arroyo Verdugo Cities	SANBAG
Coachella Valley Association of Governments	San Fernando Valley COG
Gateway Cities Council of Governments (COG)	San Gabriel Valley COG
ICTC	South Bay Cities COG
Las Virgenes-Malibu-Conejo COG	Ventura County COG
City of Los Angeles	Western Riverside County COG
North Los Angeles County	Westside Cities COG
Orange County COG	
LOCAL, COUNTY, AND TRIBAL GOVERNMENTS	
OTHER OPERATORS AND IMPLEMENTING AGENCIES	
Caltrans	Transportation Corridor Agencies (TCA)
Airport Authorities	Transit / Rail Operators
Port Authorities	
RESOURCE/REGULATING AGENCIES	
US Department of Transportation • Federal Highway Administration (FHWA) • Federal Transit Administration (FTA) • Federal Aviation Administration (FAA) • Federal Railroad Administration (FRA)	U.S. Environmental Protection Agency (USEPA) California Air Resources Board (ARB) California Environmental Protection Agency (Cal/EPA) Air Districts
SOURCE: SCAG, 2012-2035 RTP/SCS Page 33, Table 8, 2011	

Each of the six counties in the SCAG region has a Transportation Commission or Authority. These agencies are charged with countywide transportation planning activities, allocation of locally generated transportation revenues and, in some cases, operation of transit services. In addition, there are 14 subregional COGs within the SCAG region which are groups of cities and communities geographically clustered (sometimes comprising an entire county), which work together to identify, prioritize, and seek transportation funding for needed investments in their respective areas.

Circulation System

Commute Patterns and Travel Characteristics

The existing transportation network serving the SCAG region supports the movement of people and goods. On a typical weekday in the six-county region, the transportation network supports a total of approximately 448 million vehicle miles of travel (VMT) and 13 million vehicle hours of travel (VHT). Of this total, over half occur in Los Angeles County and less in Orange County, San Bernardino County, Riverside County, Ventura County and Imperial County, respectively. A detailed summary of existing VMT and VHT for the region and six counties is presented in **Table 3.12-3**.

Much of the existing travel in the SCAG region takes place during periods of congestion, particularly during the morning (6:00 a.m. to 9:00 a.m.) and evening peak periods (3:00 p.m. to 7:00 p.m.). Congestion can be quantified as the amount of travel that takes place in delay (vehicle hours of delay or VHD) and, alternately, as the percentage of all travel time that occurs in delay (defined as the travel time spent on the highway due to congestion, which is the difference between VHT at free-flow speeds and VHT at congested speeds). **Table 3.12-4** presents the existing travel delays and percent of regional VHT in delay by County on freeways and arterials. As shown in **Table 3.12-4**, regional travel time in delay represents approximately 25 percent of all daily, 30 percent of all AM peak period, and 38 percent of all PM peak period travel times.

The average vehicle home-to-work trip duration in each county is generally similar while a greater range of average work distances is found in the different counties of the region (from a low of ten miles in Imperial County to a high of 18 miles in San Bernardino and Riverside Counties). Home-to-work trip duration and distance are both greater for the inland counties of Riverside and San Bernardino, reflecting regional housing and employment distribution patterns.

Map 3.12-1 located in Chapter 8.0 (Maps), shows AM peak period congestion delay on the regional freeway system. Major portions of the system are extremely congested during the AM peak period, particularly in Los Angeles and Orange Counties and the areas immediately to the east and west. A substantial portion of AM peak period travel in each county takes place in delay, ranging from a low of three percent in Imperial County to a high of 33 percent in Los Angeles County, as indicated in **Table 3.12-4**.

Map 3.12-2 located in Chapter 8.0 (Maps), shows PM peak period congestion delay on the regional freeway system. Major portions of the system are extremely congested during the PM peak period, particularly in Los Angeles and Orange Counties and the areas immediately to the east and west. A substantial portion of PM peak period travel in each county takes place in delay, ranging from a low of four percent in Imperial County to a high of 43 percent in Los Angeles County, as indicated in **Table 3.12-4**.

TABLE 3.12-3: SUMMARY OF EXISTING DAILY VEHICLE MILES & PERCENT VEHICLE HOURS OF TRAVEL

	Vehicle Miles of Travel (VMT)						Vehicle Hours of Travel (VHT)					
	AM Peak Period		PM Peak Period		Daily		AM Peak Period		PM Peak Period		Daily	
County	Miles	% of Region	Miles	% of Region	Miles	% of Region	Hours	% of Region	Hours	% of Region	Hours	% of Region
Imperial	1,087,000	1%	1,643,000	1%	6,136,000	1%	22,000	1%	34,000	1%	123,000	1%
Los Angeles	46,321,000	51%	74,635,000	51%	224,312,000	50%	1,627,000	57%	3,181,000	59%	7,428,000	56%
Orange	15,589,000	17%	24,793,000	17%	75,224,000	17%	474,000	16%	879,000	16%	2,171,000	17%
Riverside	12,099,000	13%	18,817,000	13%	60,494,000	14%	320,000	11%	542,000	10%	1,469,000	11%
San Bernardino	12,242,000	13%	18,944,000	13%	61,010,000	14%	307,000	11%	512,000	10%	1,416,000	11%
Ventura	4,340,000	5%	6,929,000	5%	20,722,000	5%	121,000	4%	217,000	4%	548,000	4%
Total	**91,678,000**	**100%**	**145,761,000**	**100%**	**447,898,000**	**100%**	**2,871,000**	**100%**	**5,365,000**	**100%**	**13,155,000**	**100%**

SOURCE: SCAG 2012-2035 RTP/SCS, Highways and Arterials Appendix, Page 52, Table A12, 2011.

TABLE 3.12-4: SUMMARY OF EXISTING DELAY AND WORK TRIP LENGTH

	Vehicle Hours of Delay			% of Travel in Delay			Average Home-to-Work Trip Distance (miles)	Average Home-to-Work Trip Duration (minutes)	
County	AM Peak Period	PM Peak Period	Daily	AM Peak Period	PM Peak Period	Daily	Vehicle Trips (AM Only)	Vehicle Trips (AM Only)	Transit Trips (AM only)
Imperial	1,000	1,000	5,000	3%	4%	4%	10	13	66
Los Angeles	554,000	1,387,000	2,204,000	34%	44%	30%	14	26	69
Orange	128,000	313,000	493,000	27%	36%	23%	13	21	78
Riverside	78,000	158,000	263,000	24%	29%	18%	18	29	95
San Bernardino	64,000	125,000	205,000	21%	24%	14%	18	29	116
Ventura	29,000	68,000	107,000	24%	32%	19%	16	27	109
Total	**854,000**	**2,052,000**	**3,277,000**	**30%**	**38%**	**25%**	**15**	**26**	**73**

SOURCE: SCAG, 2012-2035 RTP/SCS, Highways and Arterials Appendix, Page 52, Table A12, 2011.

Based on average accident rates provided by Caltrans, transportation-related fatalities occur at an overall rate of 0.83 fatalities per 100 million vehicle miles traveled, taking into account the varying accident rates on different facility types (freeway, arterials) and travel modes (bus transit, rail transit). These specific accident rates and the resulting estimate of region-wide accidents are detailed in **Table 3.12-5**.

TABLE 3.12-5: TOTAL VEHICLE FATALITIES

County	Fatalities (2009)	Fatalities per 100 million Vehicle Miles Traveled	Annual Vehicle Miles Traveled per100 million
Imperial	37	1.76	21
Los Angeles	589	0.76	778
Orange	154	0.59	261
Riverside	219	1.04	210
San Bernardino	236	1.11	212
Ventura	62	0.86	72
Total	**1,297**	**0.83**	**1,554**

SOURCE: SCAG, 2011.

A summary of home-to-work trip characteristics by county is also presented in **Table 3.12-6**. Public transit in all forms (including school buses) carries approximately 2.4 percent of all trips in the SCAG region. Of these, the greatest number of travelers is carried by buses, with lesser patronage on Metro Rail, paratransit, commuter rail and other forms of public transit services. Work trips made via public transit account for 6.1 percent of all home-to-work trips in the region, as detailed in **Table 3.12-6**.

TABLE 3.12-6: EXISTING TRAVEL MODE SPLIT (% OF COUNTY TOTAL)

County	Person Trip Type	Drive Alone	2 Person Carpool	3 Person Carpool	Auto Passenger Trip	Transit	Non-Motorized	Total
Imperial	Home-Work/Univ	75%	3.9%	1.5%	7.6%	1.4%	10%	100%
	All Daily Trips	41%	7.4%	5.4%	20%	0.54%	25%	100%
Los Angeles	Home-Work/Univ	76%	3.4%	1.5%	7.1%	9.1%	3.0%	100%
	All Daily Trips	43%	8.0%	6.5%	24%	3.5%	14%	100%
Orange	Home-Work/Univ	81%	3.7%	1.5%	7.4%	3.4%	3.0%	100%
	All Daily Trips	46%	8.3%	6.8%	26%	1.4%	12%	100%
Riverside	Home-Work/Univ	82%	3.7%	1.8%	8.0%	1.5%	3.1%	100%
	All Daily Trips	42%	8.3%	7.3%	27%	0.72%	15%	100%
San Bernardino	Home-Work/Univ	82%	3.8%	1.8%	8.3%	1.4%	3.0%	100%
	All Daily Trips	43%	8.4%	7.3%	27%	0.58%	14%	100%
Ventura	Home-Work/Univ	82%	3.2%	1.4%	6.6%	2.7%	3.7%	100%
	All Daily Trips	43%	7.5%	6.3%	23%	1.1%	19%	100%
Total	**Home-Work/Univ**	**78%**	**3.5%**	**1.6%**	**7.3%**	**6.1%**	**3.1%**	**100%**
	All Daily Trips	**43%**	**8.1%**	**6.7%**	**25%**	**2.4%**	**14%**	**100%**

SOURCE: SCAG Transportation Modeling 2011.

Regional Freeway, Highway, and Arterial System

The regional freeway and highway system shown in **Map 3.12-3** located in Chapter 8.0 (Maps), is the primary means of person and freight movement for the region. This system provides for direct auto, bus and truck access to employment, services and goods. The network of freeways and State highways serves as the backbone of the system offering very high capacity limited-access travel and serving as the primary heavy-duty truck route system. The components of the regional highway and freeway system are included in **Table 3.12-7**.

TABLE 3.12-7: EXISTING REGIONAL FREEWAY ROUTE MILES AND LANE MILES BY COUNTY		
County	**Freeway Route Miles**	**Freeway Lane Miles**
Imperial	95	379
Los Angeles	637	4,583
Orange	167	1,294
Riverside	309	1,722
San Bernardino	471	2,512
Ventura	93	532
Total	**1,772**	**9,424**
SOURCE: SCAG Transportation Modeling 2011.		

Regional High Occupancy-Vehicle (HOV) System and Park & Ride System

The regional HOV system consists of exclusive lanes on freeways and arterials, as well as busways and exclusive rights-of-way dedicated to the use of high-occupant vehicles (HOVs). It includes lanes on freeways, ramps and freeway-to-freeway connectors. The regional HOV system is designed to maximize the person-carrying capacity of the freeway system through the encouragement of shared-ride travel modes. HOV lanes operate at a minimum occupancy threshold of either two or three persons. Many include on-line and off-line park and ride facilities, and several HOV lanes are full "transitways" including on-line and off-line stations for buses to board passengers. The current system is described in **Table 3.12-8**.

TABLE 3.12-8: EXISTING REGIONAL HIGH OCCUPANCY VEHICLE LANE MILES BY COUNTY	
County	**HOV Total Lane Miles**
Imperial	0
Los Angeles	479
Orange	241
Riverside	83
San Bernardino	105
Ventura	0
Total	**908**
SOURCE: SCAG Transportation Modeling 2011.	

Park and ride facilities are generally located at the urban fringe along heavily-traveled freeway and transit corridors and support shared-ride trips, either by transit, by carpool or vanpool. Most rail transit stations have park and ride lots nearby. There are currently 189 park and ride lots in the SCAG region, including Metrolink station parking lots. These facilities include: 106 in Los Angeles County, 20 park and ride facilities in Orange County, 25 in Riverside County, 17 in San Bernardino County and 21 in Ventura County.[4]

Arterial Street System

The local street system provides access for local businesses and residents. Arterials account for over 80 percent of the total road network and carry a high percentage of total traffic. In many cases arterials serve as alternate parallel routes to congested freeway corridors. Peak period congestion on the arterial street system occurs generally in the vicinity of activity centers, at bottleneck intersections and near many freeway interchanges. The region's arterial street system is described in terms of number of miles in **Table 3.12-9**.

[4]Riverside County Transportation Commission and the San Bernardino Associated Governments, IE511.org, 2011.

TABLE 3.12-9: EXISTING REGIONAL ARTERIAL ROUTE MILES AND LANE MILES BY COUNTY

County	Arterials	Lane Miles
Imperial	Principal	433
	Minor	697
Los Angeles	Principal	8,848
	Minor	9,076
Orange	Principal	3,242
	Minor	3,147
Riverside	Principal	1,181
	Minor	3,235
San Bernardino	Principal	1,934
	Minor	4,365
Ventura	Principal	908
	Minor	986
SCAG Total	**Principal**	**16,547**
	Minor	**21,506**

SOURCE: SCAG Transportation Modeling 2011.

Goods Movement

Wholesale and retail trade, transportation, and manufacturing support over 3.3 million jobs in the region according to statistics provided by the State's Employment Development Department. Goods movement includes trucking, rail freight, air cargo, marine cargo, and both domestic and international freight, the latter entering the country via the seaports, airports, and the international border with Mexico. Additionally, many cargo movements are intermodal, e.g. sea to truck, sea to rail, air to truck, or truck to rail. The goods movement system includes not only highways, railroads, sea lanes, and airways, but also intermodal terminals, truck terminals, railyards, warehousing, freight consolidation/de-consolidation terminals, freight forwarding, package express, customs inspection stations, truck stops, and truck queuing areas.

Railroads

The SCAG region is served by two main line commercial freight railroads - the Burlington Northern/Santa Fe Railway Co. (BNSF) and the Union Pacific Railroad (UP). These railroads link Southern California with other United States regions, Mexico and Canada either directly or via their connections with other railroads. They also provide freight rail service within California. In 2011, railroads moved approximately 150 million tons of cargo throughout California.

The SCAG region is also served by three short line or switching railroads:

- The Pacific Harbor Line (formerly the Harbor Belt Railroad), which handles all rail coordination involving the Ports of Los Angeles and Long Beach, including dispatching and local switching in the harbor area
- Los Angeles Junction Railway Company, owned by BNSF, which provides switching service in the Vernon area for both the BNSF and UP
- The Ventura County Railroad, owned by Rail America, Inc., which serves the Port of Hueneme and connects with the UP in Oxnard

These railroads perform specific local functions and serve as feeder lines to the trunk line railroads for moving goods to and from Southern California.

The two main line railroads also maintain and serve major facilities in the SCAG region. Intermodal facilities in Commerce (BNSF-Hobart), East Los Angeles (UP), San Bernardino (BNSF), and Carson near the San Pedro Bay Ports (UP-ICTF), the Los Angeles Transportation Center (UP-LATC), and the UP-City of Industry yards serve on-dock rail capacity at the Ports of Los Angeles (UP/BNSF) and Long Beach (UP/BNSF).

All of the major rail freight corridors in the region have some degree of grade separation, but most still have a substantial number of at-grade crossings on major streets with high volumes of vehicular traffic. These crossings cause both safety and reliability problems for the railroads and for those in motor vehicles at the affected crossings. Trespassing on railroad rights of way by pedestrians is another safety issue affecting both freight and commuter railroads.

As an example, the Colton Crossing, is an at-grade railroad crossing located south of I-10 between Rancho Avenue and Mount Vernon Avenue in the City of Colton, where BNSF's San Bernardino Line crosses UP's Alhambra/Yuma Lines. In 2008, the Colton Crossing saw on average 110 freight trains per day.[5]

Another key component of the regional rail network is the Alameda Corridor, a 20-mile, four-lane freight rail expressway that began operations in April 2002. In 2010, approximately 14,177 intermodal trains transited the Alameda Corridor, an approximate increase of 8.6 percent since 2009.[6]

Heavy-Duty Trucks

One of the key components of the region's goods movement system is the fleet of heavy-duty trucks, defined as cargo-carrying vehicles with a gross weight rating in excess of 8,500 pounds. Trucks provide a vital link in the distribution of all types of goods between the region's ports (sea and air), railroads, warehouses, factories, farms, construction sites and stores. The size and weight of heavy-duty trucks gives them unique operating characteristics; i.e., they accelerate and decelerate more slowly than lighter vehicles and require more road space to maneuver. Dedicated truck lanes currently exist at two major freeway interchanges: the junction of I-5 with the I-210 and the SR-14 and at the junction of the I-405 with the I-110. In addition, truck climbing lanes are located on northbound I-5 in northern Los Angeles County.

The trucking industry, including common carrier, private carrier, contract carrier, drayage and owner-operator services, handles both line-haul and pick-up and delivery. The industry uses the public highway system for over-the-road and local service. However, it is also served by a considerable infrastructure of its own. This infrastructure includes truck terminals, warehousing, consolidation and trans-loading facilities, freight forwarders, truck stops and maintenance facilities. These various facilities are especially prevalent in the case in the South Bay and Gateway Cities areas, including Wilmington and Carson and extending generally between LAX and the San Pedro Bay Ports, along the I-710 Corridor north to Vernon, Commerce, and downtown Los Angeles, east through the San Gabriel Valley to Industry, Pomona, and Ontario and then to the Inland Empire in Fontana and Rialto as well as in Glendale, Burbank and Bakersfield. Specialized facilities for trucking that provide air cargo ground transport are located around regional airport facilities, notably LAX and LA/Ontario International Airport.

Maritime Ports

Southern California is served by three major deep-water seaports. These ports—Hueneme, Long Beach and Los Angeles—handle Asia – North America trade, and are served by the two major railroads and numerous trucking companies in Southern California. The Port of Hueneme, with its recent expansion, ranks as one of

[5]SANBAG, 2011. Colton Crossing Project. http://www.coltoncrossing.com/EnvironmentalAndEngineeringDocuments/Colton%20Crossing_Final%20EA%20and%20FONSI_2011-05.pdf, accessed September 2011.

[6]Alameda Corridor Transportation Authority, Number of Trains Running on the Alameda Corridor (http://www.acta.org/pdf/CorridorTrainCounts.pdf), 2011.

the premier automobile and agricultural product-handling facilities in California. The Ports of Long Beach and Los Angeles are full-service ports with facilities for containers, autos and various bulk cargoes. With an extensive landside transportation network, the three ports moved more than 310 million metric tons of cargo in 2010.[7]

In particular, the San Pedro Bay Ports (Long Beach and Los Angeles) dominate the container trade in the Americas by shipping and receiving more than 11.8 million twenty-foot Equivalent Units (TEUs) of containers in 2009.[8] Together these two ports rank third in the world, behind Rotterdam and Hong Kong, as the busiest maritime ports.

Regional Aviation System

The SCAG region contains 56 public use airports, including six active commercial service airports, 44 general aviation, two active limited-commercial service (commuter) airports, two former military airfields (now public-use airports) and two joint-use facilities. The existing active commercial service airports (shown on **Map 3.12-4** located in Chapter 8.0 (Maps)) handle the majority of passenger air traffic. They are:

- Los Angeles International Airport
- LA/Ontario International Airport
- John Wayne/Orange County Airport
- Bob Hope Airport
- Imperial County Airport (limited commercial service)
- Long Beach Airport
- Palm Springs International Airport
- Oxnard (limited commercial service)

In all, some 81 million annual passengers (MAP) were served in the region in 2010, more than double the number served in 1980. The level of air passenger demand is forecast to be approximately 146 MAP by 2035. While none of the individual airports is the largest in the U.S., the region's airports collectively are the busiest of any region in the country. The existing level of activity reflecting air passenger demand (MAP), operations (take-offs and landings or TOAL) and air cargo demand at each of the six existing airports is shown in **Table 3.12-10**. A brief discussion of the location, major access routes and facilities at each of these airports follows. In addition, the six other regional airports at which major improvements and/or conversion to civilian uses are contemplated are also described below.

TABLE 3.12-10: EXISTING (2010) ACTIVITY AT MAJOR COMMERCIAL AIRPORTS IN THE SCAG REGION

	Burbank	John Wayne	Long Beach	Los Angeles	LA/ Ontario	Palm Springs	Regional Total
Passenger Volume (1,000)	4,461	8,663	2,978	59,069	4,808	1,420	81,399
Percent of Regional Total	5.5%	10.6%	3.7%	72.6%	5.9%	1.7%	100%
Cargo Volume (tons)	48,084	14,920	28,690	1,926,825	392,427	<100	2,410,946
Percent of Regional Total	2.0%	0.6%	1.2%	79.9%	16.3%	0.0%	100%
Annual Operations	112,658	200,278	315,340	575,835	98,332*	64,490	1,366,933
Average Daily Operations	309	549	864	1,578	269*	177	3,745
Percent of Regional Total	8.2%	14.7%	23.1%	42.1%	7.2%	4.7%	100%

Note: Ontario data is from 2009 statistics.
SOURCE: SCAG, 2011

[7]Port of Los Angeles 2010 Financial Statement; Port of Los Angeles 2010 Tonnage Statistics; and Port of Long Beach December 2010 Monthly Tonnage Summary Report.

[8]SCAG. *Port Activity and Competitiveness Tracker (PACT)*, 2011.

Los Angeles International Airport

Los Angeles International Airport (LAX), as shown in **Map 3.12-4** located in Chapter 8.0 (Maps), is located in the southwestern portion of the City of Los Angeles, bordered by Arbor Vitae / Westchester Parkway to the north, I-405 to the east, I-105 / Imperial Highway to the south, and the Pacific Ocean to the west. It is surrounded by the communities of Westchester and Playa del Rey to the north; the City of El Segundo to the south; and the City of Inglewood and unincorporated areas of Los Angeles County (Lennox and Del Aire) to the east. Major access routes include I-405 and I-105 and a complex network of surface streets extending throughout the surrounding area, including Sepulveda Boulevard, Lincoln Boulevard, La Cienega Boulevard, Aviation Boulevard, Century Boulevard, Arbor Vitae / Westchester Parkway and Imperial Highway.

LA/Ontario International Airport

LA/Ontario International Airport (ONT) is located in the southwest section of San Bernardino County within the city of Ontario, approximately two miles east of Ontario's Central Business District between Holt and Mission Boulevards, and between Haven and Grove Avenues, as shown in **Map 3.12-4** located in Chapter 8.0 (Maps). Major access routes include I-10 and SR-60 and the major surface streets in the surrounding area, including Holt Boulevard, Archibald and Vineyard Avenues.

John Wayne Airport

John Wayne Airport (SNA) is located in the western portion of Orange County, directly south of I-405, one mile east of SR-55, and one mile north of SR-73, as shown in **Map 3.12-4** located in Chapter 8.0 (Maps). Major access routes include these freeways and the major surface streets in the surrounding area, including MacArthur Boulevard and Michelson Drive. The majority of the land surrounding the Airport is within the cities of Newport Beach, Costa Mesa, and Irvine. In addition, the unincorporated community of Santa Ana Heights is located southeast of the Airport.

Bob Hope Airport

Bob Hope Airport (BUR) is located in the western portion of Los Angeles County, on the west side of the City of Burbank, one mile south of I-5, three miles east of SR-170, and three miles north of SR-134, as shown in **Map 3.12-4** located in Chapter 8.0 (Maps). Major access routes include these freeways and the major surface streets in the surrounding area, including Hollywood Way and San Fernando Road.

Long Beach Airport

Long Beach Airport (LGB) is located in the southern portion of Los Angeles County, in the center of the City of Long Beach, directly north of I-405, and three miles west of I-605, and three miles east of I-710, as shown in **Map 3.12-4** located in Chapter 8.0 (Maps). Major access routes include these freeways and the major surface streets in the surrounding area, including Lakewood Boulevard (SR 19).

Palm Springs International Airport

Palm Springs International Airport (PSP) is located in the central portion of Riverside County, in the City of Palm Springs, two miles southwest of I-10 and one mile northeast of Gene Autry Trail (SR-111), as shown in **Map 3.12-4** located in Chapter 8.0 (Maps). Major access routes include these highways and the major surface streets in the surrounding area, including Ramon Road.

Palmdale Regional Airport

Palmdale Regional Airport (PMD) is located in northern Los Angeles County, within the north central portion of the City of Palmdale in United States Air Force Plant 42 (AFP 42), one mile north of SR-138, and

three miles east of SR-14, as shown in **Map 3.12-4** located in Chapter 8.0 (Maps). Major access routes include these highways and the major surface streets in the surrounding area, including 20th Street and Avenue P.

San Bernardino International Airport

San Bernardino Airport (SBD), formerly Norton Air Force Base, is within the City of San Bernardino and is surrounded by unincorporated areas of San Bernardino County and the cities of Redlands, Loma Linda, Highland, and Colton. The Airport is approximately three miles east of I-215, two miles north of I-10, and one mile west and two miles south of SR 30, as shown in **Map 3.12-4** located in Chapter 8.0 (Maps). Major access routes include these highways and the major surface streets in the surrounding area, including Tippecanoe Avenue, Mill Street and 3rd Street.

Southern California Logistics Airport

Southern California Logistics Airport (VCV), formerly George Air Force Base, is within the City of Victorville, surrounded by unincorporated areas of San Bernardino County and the cities of Victorville and Adelanto. It is approximately two miles east of Route 395, and three miles northwest of I-15, as shown in **Map 3.12-4** located in Chapter 8.0 (Maps). Major access routes include these highways and the major surface streets in the surrounding area, including Adelanto Road and Air Base Road.

March Air Reserve Base/March Inland Port

March Air Reserve Base / March Inland Port (March), formerly March Air Force Base, is located in the western portion of Riverside County east of and adjacent to I-215 and two miles south of SR-60, as shown in **Map 3.12-4** located in Chapter 8.0 (Maps). The joint-use facility is bordered by the cities of Moreno Valley to the north and east, Riverside to the northwest, and Perris to the south. Major access routes include these freeways and the major surface streets in the surrounding area, including Van Buren Boulevard and Perris Boulevard.

Security and Emergency Access

Southern California is home to significant natural disasters; including earthquakes, wildfires, flooding and mudslides (discussed in Section 3.5 Geology and Soils, of this PEIR). Although natural disasters, such as earthquakes and hurricanes, have produced significant regional casualties and property damage, none had the serious disruption to national travel and the national economy as the September 11th, 2001 terrorist attacks. The September 11th attacks created a new awareness of the vulnerabilities of transportation fleets and facilities. As concern about the threat of terrorism and consequences of natural disasters has grown, government (at all levels) has taken new measures to secure the welfare of its citizens. Transportation and transit agencies throughout the United States are taking increasing steps to protect their facilities against the threats of crime, terrorist activity, and natural disasters.

A large scale evacuation would be difficult in the SCAG region. The region already has severe traffic congestion and mobility issues. The region encompasses 38,000 square miles with a diverse geography, ranging from dense urban areas, to mountain ranges, to vast deserts. The interdependency of the jurisdictions and organizations makes regional cooperation and coordination essential to security and emergency preparedness. Typically, no single agency is responsible for transportation security. At the local level, especially within transit agencies, safety may be handled within one office. However, it is far less likely that the security of a surface transportation mode is managed by one entity and that this entity is even controlled by the transportation organization. For example, highways and transit networks traverse multiple police jurisdictions, local fire departments generally fill the incident command role after terrorist events, regional

command and control centers respond to both natural and intentional disasters, and federal agencies intervene as needed and based on specific guidelines such as the crossing of state boundaries.[9]

The complexity of the SCAG region, with a range of potential terrorism targets, presents significant challenges in coordinating and implementing effective homeland security programs. The unexpected and complex nature of these natural and human-caused incidents require extensive coordination, collaboration and flexibility among all of the agencies and organizations involved in planning, mitigation, response and recovery.

Safety is defined as the protection of persons and property from unintentional damage or destruction caused by accidental or natural events.

Security is defined as the protection of persons or property from intentional damage or destruction caused by vandalism, criminal activity or terrorist attacks. The Transportation Research Board has classified emergency events that affect transportation agencies into several categories, which are illustrated below in **Table 3.12-11**.[10]

TABLE 3.12-11: TRANSPORTATION SECURITY VULNERABILITIES

ROADWAYS AND FREEWAY	
Freeway Lanes Miles (excluding carpool)	9,424 miles
Carpool Lane Miles	1,033 miles
Road Lane Miles	38,871 miles
PUBLIC TRANSIT	
Buses	5,443 vehicles
Metro Rail	73 miles and 65 stations
Metrolink	512 miles and 55 stations
AVIATION/PORTS	
Commercial/General Aviation Airports	57
LAX rank among world's airports	6 in passengers and
	11 in air cargo tonnage
Long Beach/Los Angeles rank among world container ports	5th
Share of United States Maritime Trade	41 percent

SOURCE: SCAG 2012-2035 RTP/SCS, Transportation Security Appendix, Page 3, 2011.

International Border Crossings. Within the SCAG region, there are three international ports of entry along the Mexico-Imperial County border: two at Calexico (Calexico and Calexico-East); and, one at Andrade (near Yuma, Arizona). Traffic from these ports enters California on the I-8 corridor. U.S. Customs and the Border Protection Agency within the DHS are charged with the management and control of the official ports of entry. Security planning includes local emergency services, as well as the CHP.

Caltrans District 11 has developed the California-Baja California Border Master Plan, which establishes a process to institutionalize dialogue among local, State and federal stakeholders in the United States and Mexico. A key objective was to develop criteria that can be used in future studies to coordinate and prioritize projects related to existing and new Ports of Entry (POEs), as well as roads leading to the California Mexico POEs. Security was a major consideration in the development of the Border Master Plan.

[9] National Cooperative Highway Research Project 525 Volume 3 Transportation Planning Process, page 16.
[10] National Cooperative Highway Research Program Report 525 Volume 9 "Guidelines for Transportation Emergency Training Exercises" McCormick Taylor Inc. 2006.

Seaports. The DHS has designated the seaports of Long Beach, Los Angeles, and Port Hueneme as at risk for potential terrorist actions.[11] Security at the ports is the joint responsibility of the U.S. Coast Guard, the U.S. Customs and Border Protection Agency, federal and State Homeland Security offices, Port police agencies, Harbor Patrols and emergency service agencies. The U.S. Coast Guard leads the local Area Maritime Security Commission, which coordinates activities and resources for all port stakeholders.

The Port of Los Angeles has a dedicated police force, the Los Angeles Port Police, to patrol the area within the jurisdiction of the Port of Los Angeles. The Port Police enforce federal, State and local public safety statutes, as well as environmental and maritime safety regulations in order to maintain the free flow of commerce and produce a safe, secure environment that promotes uninterrupted Port operations. In addition, the Port Police partner with other law enforcement agencies, such as the Los Angeles Police Department, CHP, and Customs and Border Protection in the Cargo Theft Interdiction Program (CTIP), which investigates cargo theft, and the High Intensity Drug Trafficking Area, which targets drug trafficking at the Ports of Los Angeles and Long Beach. Furthermore, per the Maritime Transportation Security Act of 2002, the Port of Los Angeles works with the Coast Guard to develop security plans for facilities at the port.

Similar to the Port of Los Angeles, security at the Port of Long Beach entails physical security enhancements, police patrols, coordination with federal, State, and local agencies to develop security plans for the port area and investigate suspicious incidents, and obtaining federal funding to pay for these enhancements. As with the Port of Los Angeles, the Port of Long Beach works with the Coast Guard to develop security plans for facilities at the port.

In contrast to the Port of Los Angeles, however, the Port of Long Beach does not have its own dedicated police force. Instead, the Long Beach Police Department is responsible for patrolling the port area. In doing so, the Port reimburses the Long Beach Police and Fire Departments for their port related activities and expenses. The Port also funds its own Harbor Patrol to supplement law enforcement work conducted by other agencies such as the Coast Guard.

In addition to the above, several programs are in place to effectively monitor and screen seaport cargo. They include:

Investigations: The federal Container Security Initiative (CSI) directs Customs agents, working with host governments, to inspect and examine all cargo containers deemed high-risk before they are loaded on U.S.-bound vessels. The CSI contains four core elements: identifying high-risk containers, pre-screening containers before they reach U.S. ports of entry, using technology to prescreen high-risk containers and developing and using smart and secure containers.

Inspections: The 24-hour rule requires manifest information on cargo containers to be delivered to U.S. Customs 24 hours before the container is loaded onto a vessel in a foreign port. Customs has the right to stop any container from being loaded, for any reason, while the container is still overseas.

Partnerships: Most of the largest U.S. importers and their trading partners participate in the Customs-Trade Partnership Against Terrorism (C-TPAT), a public-private partnership designed to improve security standards throughout the cargo supply chain.

Technology: U.S. Customs uses X-ray, gamma ray and radiation-detection devices to screen incoming cargo at U.S. ports.

Airports. The SCAG region supports the nation's largest regional airport system in terms of number of airports and aircraft operations, operating in a very complex airspace environment. The system has six established air carrier airports including Los Angeles International (LAX), Bob Hope (formerly Burbank), John Wayne, Long Beach, LA/Ontario International and Palm Springs. There are also three emerging air

[11] Fiscal Year 2006 Infrastructure Protection Program. U.S. Department of Homeland Security, September 25, 2006.

carrier airports in the Inland Empire and North Los Angeles County. These include San Bernardino International Airport (formerly Norton Air Force Base), March Inland Port (joint use with March Air Reserve Base) and Southern California Logistics Airport (formerly George Air Force Base). Palmdale Airport (joint use with Air Force Plant 42) was once thought to be a potential regional airport; however, it is currently a general aviation facility. The only commercial airline - United Airlines - that serviced the Airport with flights to/from San Francisco ceased operations in December 2008. There is no indication presently of any commercial air service, and Los Angeles World Airport has surrendered its federal certification to operate Palmdale Regional as a commercial facility. The airport features a modern 9,000-square-foot terminal capable of handling up to 300,000 passengers annually. The regional system includes 45 general aviation airports and two commuter airports, for a total of 57 public use airports.

Airport security planning is the joint responsibility of the federal Transportation Security Administration (TSA), the airlines, and the individual airports. Airports in the SCAG region have upgraded their security systems since 9/11 using a variety of strategies in conjunction with local, State and federal law enforcement. However, a number of aviation vulnerabilities continue to persist. These included effective screening of passengers and baggage for threat objects and explosives, adequate controls for limiting access to secure areas at airports, and adequate security for air traffic control computer systems and facilities.

Rail and Mass Transit. The dispersed nature and the daily volume of passengers using public transportation services, which include intercity passenger rail, commuter rail, subway systems, and bus transportation, make it an attractive target for terrorists and criminals. Today, regional transit in the SCAG region is comprised of:

- Approximately 640 bus routes
- Approximately 67 local bus (demand response and paratransit) operators
- 13 commuter express bus services[12]
- Two subway lines and 3 light rail lines situated within Los Angeles County

The numbers of customers using public transportation each and every day creates ongoing challenges for enhancing security within transit environments. A number of plans have been implemented to provide for basic protection. In the early 1990s, the California Public Utilities Commission required that transit agencies operating rail systems prepare a comprehensive System Safety Program Plan (SSPP) that also included a security component. Since 2004, all transit agencies are required to include a security and emergency management plan, which details how the agency would coordinate with first responder (law enforcement and fire) agencies, their respective County Office of Emergency Services and the Statewide Standardized Emergency Management System (SEMS).

Public Transit, Bicycle, or Pedestrian Facilities

Public Transit. In Southern California public transit service is comprised of local and express buses, transitways, Rapid Bus, urban rail, including subway and light rail principally centered in the core of Los Angeles County, commuter rail that spans five counties and shuttles/circulators that feed all transportation modes and activity centers. Transit service is provided by approximately 67 separate public agencies. 12 of these agencies provide 91 percent of the existing public bus transit service. Local service is supplemented by municipal lines and shuttle services. Private bus companies provide additional regional service.

Many people depend on reliable transit service to participate in the economic, cultural and social benefits of Southern California. Transit ridership was approximately 708 million in 2010.[13] The largest provider of public transit service in Imperial County is Imperial Valley Transit which serves the cities and communities

[12]Santa Clarita, Antelope Valley, LADOT and VISTA operate Commuter Express bus services. Santa Monica, Foothill, Montebello, Torrance, Gardena and Orange County operate local limited bus service into downtown Los Angeles.

[13]SCAG Transit Data Collection, 2011.

of Brawley, Bombay Beach, Calexico, Calipatria, El Centro, Heber, Hotville, Imperial, Niland, Ocotillo, Salton Sea, Seeley, Westmorland, and Winterhaven. There are approximately 28 routes with multiple trips daily Monday through Friday and a reduced schedule on Saturdays. In 2010, the system experienced approximately 49,000 average monthly boardings, and approximately 15 percent of the system's operating expenses were recovered through passenger fares.[14]

The largest provider of public transit service in Los Angeles County is the Los Angeles County Metropolitan Transportation Authority (Metro). Metro operates a comprehensive network of fixed-route bus routes and an urban light rail system (Metro Rail) and subway. Among the fixed-route bus services operated by the Metro is Metro Rapid Bus, which consists of a simple route layout, frequent service, less frequent stops, low-level buses for fast boarding and exiting, color-coded buses and stop, and bus priority at intersections. In 2010, the system experienced approximately 41.9-million average monthly boardings, and approximately 24 percent of the system's bus operating expenses were recovered through passenger fares.[15]

The largest provider of public transit service in Orange County is the Orange County Transportation Authority (OCTA), which operates 77 bus local and express routes and approximately 62,000 bus stops located throughout the urbanized portions of Orange County. In 2010, the system experienced approximately 4.8 million average monthly boardings, and approximately 25 percent of the system's operating expenses were recovered through passenger fares.[16]

The largest provider of public transit service in Riverside County is the Riverside Transit Agency (RTA), which is the primary provider of fixed-route and paratransit services throughout a 2,500 square mile service area in the western portion of the county. It operates 231 buses on approximately 43 local and express routes. In 2010, the system experienced approximately 950,000 average monthly boardings, and approximately 15 percent of the system's operating expenses were recovered through passenger fares.[17]

The largest provider of public transit service in San Bernardino County is Omnitrans, which provides bus and paratransit services in a 480 square mile area in Southwestern San Bernardino County, which includes the cities and communities of Chino, Colton, Fontana, Loma Linda, Montclair, Ontario, Redlands, Rialto, San Bernardino, Upland, Chino Hills, Grand Terrace, Highland, Rancho Cucamonga, Yucaipa, Bloomington, Mentone and Muscoy. It operates a fleet of more than 277 buses over approximately 27 routes. In 2010, the system experienced approximately 1.3 million average monthly boardings, and approximately 23 percent of the system's operating expenses were recovered through passenger fares.[18]

The largest provider of public transit service in Ventura County is Gold Coast Transit, which provides bus and paratransit services over 91 square miles in the western portion of the county. Service is provided to the cities of Ojai, Oxnard, Port Hueneme, Ventura and the unincorporated areas in between the cities. It operates a fleet of 78 buses over approximately 18 routes. In the fiscal year 2010, the system experienced approximately 407,000 average monthly boardings, and approximately 20 percent of the system's operating expenses were recovered through passenger fares.[19]

Rail transit ridership has been steadily increasing as new routes have been added. Commuter rail service has continued to grow steadily since its introduction in 1992, both in service and patronage. A summary of the current service and patronage for the largest transit operators in each county is presented in **Table 3.12-12**.

[14] National Transit Database, 2011.
[15] *Ibid.*
[16] *Ibid.*
[17] *Ibid.*
[18] *Ibid.*
[19] *Ibid.*

TABLE 3.12-12: STATISTICS FOR MAJOR TRANSIT OPERATORS (2010)

County	Largest Transit Operator	Average Weekday Boardings	Annual Boardings	Annual Vehicle Revenue Miles(VRM)	Passenger Fares as a % of Operation Expenses*
FIXED ROUTE BUS SERVICE					
Imperial	IVT	2,000	593,000	666,000	15.2%
Los Angeles	Metro	1,579,000	503,071,000	139,274,000	24.4%
Orange	OCTA	182,000	58,104,000	21,666,000	25.1%
Riverside	RTA	36,000	11,368,000	10,163,000	15.2%
San Bernardino	Omnitrans	49,000	15,685,000	10,035,000	22.9%
Ventura	Gold Coast Transit	15,000	4,880,000	3,853,000	19.6%
METRO RAIL – HEAVY RAIL					
Los Angeles	Metro	150,000	47,906,000	5,885,000	38.7%
METRO RAIL – LIGHT RAIL					
Los Angeles	Metro	146,000	46,409,000	9,646,000	18.3%
REGIONAL COMMUTER RAIL					
Various	SCRRA (Metrolink)	38,000	12,006,000	10,479,000	42.4%

SOURCE: National Transit Database, 2011.

Metro Rail System

Existing urban rail lines (Metro Rail) are located in Los Angeles County and are operated by Metro. They include the Metro Blue Line from Long Beach to Downtown Los Angeles, the Metro Green Line from Redondo Beach to Norwalk, the Metro Red Line subway, from Union Station to North Hollywood. The Metro Purple Line subway follows the Red Line from Union Station to Wilshire and Vermont but branches off to Western Avenue as shown in **Map 3.12-5** located in Chapter 8.0 (Maps), and the Metro Gold Line which runs from East Los Angeles (Atlantic station) to Pasadena via Union Station. The Metro Rail system is operated seven days a week. A system total of 79 route miles serves a total of 73 stations. Ridership on the Metro Rail system is approximately 303,000 boardings every day.[20]

Regional Commuter Rail

Commuter rail service is operated by the Southern California Regional Rail Authority (SCRRA). In October of 1992, the SCRRA began initial operation of the Metrolink commuter rail system on three lines. Service on the initial system was greatly expanded after the 1994 Northridge earthquake. Currently SCRRA operates seven routes including five from downtown Los Angeles to Ventura, Lancaster, San Bernardino, Riverside, and Oceanside, from San Bernardino to Oceanside, and from Riverside via Fullerton or City of Industry to downtown Los Angeles. As of September 2010, the system operated 144 trains on weekdays, 40 on Saturdays and 26 on Sundays to 55 stations on 512 route miles. Average weekday ridership is approximately 40,544 passengers.[21]

Amtrak provides significant regional and inter-regional service on the LOSSAN—San Diego to San Luis Obispo corridor (also known as Amtrak's Pacific Surfliner corridor) operating twelve daily round-trip services, which stop at the Los Angeles Union Station. Additionally, Amtrak operates four interstate routes

[20] Los Angeles Metropolitan Transportation Authority. Facts at a Glance – October 2011, 2011.
[21] Southern California Regional Rail Authority. (2010). http://www.metrolinktrains.com/about/?id=6, accessed September 2011.

within the region (Coast Starlight, Sunset Limited, Southwest Chief and Texas Eagle) that on average have one daily trip.[22] These regional commuter rail lines are shown in **Map 3.12-5** located in Chapter 8.0 (Maps).

Shuttles and Demand-Responsive Services

One component of the region's public transit system consists of publicly operated or funded demand-response taxis and dial-a-ride services; some open to the general public, others limited to elderly and disabled use. It also includes locally operated or funded shuttle buses (e.g., Los Angeles DASH, Pasadena ARTS, Glendale Beeline, Cerritos on Wheels, El Monte Transit, Riverside Orange Blossom, etc.). Access Paratransit, the largest provider of transportation services for the disabled in the region, operates in the vicinity of fixed-route bus and rail lines in Los Angeles County and extends into portions of the surrounding counties of San Bernardino, Orange and Ventura. These systems serve as local shuttles, internal circulators, connectors to other public transit, or as shoppers' shuttles. Service on these systems is usually limited to a prescribed geographic area.[23]

Bicycle and Pedestrian Facilities (Non-motorized Transportation)

Biking and walking primarily constitutes non-motorized transportation. Non-motorized transportation plays a bigger role in the densely-populated, mixed-land-use areas of the region. In 2009 biking and walking accounts for approximately 20.9 percent of total trips and 3.2 percent of trips to work or university from home.[24]

The region's bikeways encourage non-motorized travel, serve as recreational facility, and provide inexpensive, environmentally-friendly transportation opportunities. Class I bikeways are separate shared-use paths also used by pedestrians, Class II bikeways are striped lanes in streets, and Class III bikeways are signed routes. Nearly 4,615 miles of Class I and II bikeways exist through the region, as well as mountain bike trails, some of which are also designated for hiking and horseback riding.[25] The City of Los Angeles alone has more than 216 miles of Class I and II bikeways. Bike rack, locker and station programs are ongoing in a number of cities and transit operators. In addition, transit operators are integrating bicycle transportation with transit via bus bike racks, bike-on-train programs and bicycle lockers at transit centers. **Map 3.12-6** located in Chapter 8.0 (Maps) shows the regional bicycle.

Pedestrian access at and near public transit, in most major commercial areas and many residential areas is facilitated by sidewalks, a number of pedestrian malls, and in some cases local jogging and pedestrian trails or paths.

THRESHOLDS OF SIGNIFICANCE

The 2012-2035 RTP/SCS would have a significant impact related to transportation, traffic and security if it would:

- Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit;

[22] Amtrak. (2011) Routes. http://www.amtrak.com/servlet/ContentServer?c=Page&pagename=am%2FLayout&p=1237405732511&cid=1237608331430, accessed September 2011.
[23] Access Services, About Us. http://www.asila.org/about_us/overview.html, accessed September 2011
[24] City of Los Angeles, *Bicycle Master Plan*, 2011.
[25] SCAG, *Draft 2012 Regional Transportation Plan*, 2011.

- Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways;
- Result in inadequate emergency access; and/or
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

The following specific thresholds were developed by SCAG based on precedence as appropriate thresholds by which to determine significant impacts on transportation, traffic and security:

- Generate substantially more total daily Vehicle Miles of Travel (VMT) than the current daily VMT;
- Result in a substantially higher average Vehicle Hours of Delay (VHD) in delay for all trips compared to the current VHD delay;
- Result in substantially greater average delay and percent of total VHD in delay for heavy-duty truck trips than the current condition;
- Result in substantial decrease in the percent of work opportunities within 45 minutes travel time by personal vehicle or by transit, relative to the existing condition;
- Result in a substantially higher system-wide fatality accident rate for all travel modes compared to the existing condition;
- Result in a substantially higher system-wide injury accident rate for all travel modes compared to the existing condition; or
- Cause a cumulatively considerable adverse effect on regional transportation and associated environmental effects.

Methodology

Transportation data was obtained from the SCAG's Regional Travel Demand Model (RTDM, see a detailed description of that model in appendices to the RTP). This regional tool for characterizing the transportation environment divides the region into 11,267 Transportation Analysis Zones. Model inputs include: Socioeconomic Data by Census Block Group; Highway Networks; Land Use and Accessibility for Auto Ownership Model; Land Use, parking, pricing TDM, Walk and Bike for Mode Choice Model; Transit Networks; External Trips (inter-regional trips); Airport Trips and Employment, Commodity Flow, Ports and Warehouse Activities. The model includes modules that address Household Classification (size, number of workers, income, single-family or multi-family unit); Auto Ownership; Trip Generation; Trip Distribution; Mode Choice; Heavy Duty Trucks; Network Assignment; Model Convergence; and Highway Performance Monitoring System (HPMS) VMT-based Post processing.

A detailed description of the RTDM is provided in the Conformity Report, an appendix to the 2012-2035 RTP/SCS. A detailed description of the methodology used to identify growth is provided in the growth and SCS appendices of the RTP.

While the RTP has the ability to influence where growth occurs and therefore traffic in the region, it has no control over the forecasted increase in population growth. The anticipated increase in births over deaths as well as in-migration to the region is the reason that population growth and resulting traffic impacts occur. [26]

Cumulative Analysis

The 2012-2035 RTP/SCS addresses transportation projects and land use distribution patterns, including land use scenarios. These land use distribution patterns identify growth distribution and anticipated land use

[26] The Environmental Justice section of the Plan and associated appendix contains substantial analysis of accessibility and other transportation impacts to low income, minority and other protected groups. See Environmental Justice Appendix of the 2012-2035 RTP/SCS. However, the PEIR does not rely on this analysis as it addresses transportation impacts to the community as a whole.

development to accommodate growth projections. The Regional Travel Demand Model (RTDM) used for this analysis captures pass-through traffic that does not have an origin or destination in the region, but does impact the region, so that too is included in the project analysis. Although the similar level of development is anticipated even without the 2012-2035 RTP/SCS, this Plan would influence growth, including distribution patterns, throughout the region. To address this, the analysis in the PEIR covers overall impacts of all transportation projects and land development described in the 2012-2035 RTP/SCS. In addition, this PEIR considers cumulative impacts from other regional plans (e.g., the South Coast Air Quality Management Plan), which could result in additional impacts inside and outside the region.

Comparison with the No Project Alternative

The analysis of transportation resources includes a comparison between the expected future conditions with the Plan and the expected future conditions if no Plan were adopted (No Project Alternative). This evaluation is not included in the determination of the significance of impacts (which is based on a comparison of future conditions with the Plan to today); however it provides a meaningful perspective on the effects of the Plan.

Determination of Significance

The significance of impacts was determined by applying the significance criteria above to compare current regional transportation conditions to expected future conditions with the Plan. The RTDM provides performance data for future Plan conditions. The performance measure output for year 2035 with the Plan was compared to the existing regional conditions for each significance criterion to determine the significance of impacts. The 2035 transportation model output provides a regional and cumulative level of analysis for the impacts of the Plan on transportation resources.

IMPACTS

Impact 3.12-1: Potential to increase total daily Vehicle Miles of Travel (VMT) in 2035 compared to current daily VMT. The Plan would result in a significant impact related to VMT.

Regional VMT is related to growth and land use. The expansion of highways and local arterials has slowed down over the last decade. This has occurred in part due to roadway improvements not keeping pace with the growing population, this is at least in part because of increasing costs and environmental concerns. However, there are still critical gaps in the network that hinder access to certain parts of the region and/or hinder efficient regional operations. Locally-developed county transportation plans have identified projects to close these gaps and complete the system, and they are included in the Plan. These projects include the Limited Access Expressway SR-115 in Imperial County, the SR-710 Gap Closure in Los Angeles County, the High Desert Corridor in Los Angeles and San Bernardino Counties, the SR-241 Improvements in Orange County, the CETAP Inter-county Corridor A in Orange and Riverside Counties, and the U.S. 101 and SR-118 Improvements in Ventura County.

Heavy investment in HOV lanes has given the region one of the nation's most comprehensive HOV networks and highest rideshare rates. The Plan proposes strategic HOV gap closures and freeway-to-freeway direct HOV connectors to complete the system. Another key HOV strategy in the Plan is the conversion of certain HOV lanes in the region to allow for continuous access. Orange County has taken a leadership role on this over the past few years, and their recent studies have concluded that continuous-access HOV lanes do not perform any worse than limited-access HOV lanes. At the same time, they provide carpoolers with greater freedom of movement in and out of HOV lanes

Local streets and roads account for over 80 percent of the total road network and carry almost 50 percent of total traffic. They serve different purposes in different parts of the region, or even in different parts of the same city. Many streets serve as major thoroughfares or even alternate parallel routes to congested freeways. At the same time, street right-of-ways often support different modes of transportation besides the automobile,

including bicycles, pedestrians, and transit. The Plan contains a host of arterial projects and improvements to achieve different purposes in different areas. In all parts of the region, it includes operational and technological improvements to maximize system productivity in a more cost-effective way than simply adding capacity. Such strategic improvements include spot widening, signal prioritization, driveway consolidation and relocation, and grade separations at high-volume intersections.

While the Plan's multimodal strategy aims to reduce per capita VMT over the next 25 years, total demand to move people and goods will continue to grow due to the region's population increase. A strategic expansion of the transportation system is needed in order to provide the region with the mobility it needs. The Plan targets this expansion around transportation systems that have room to grow, including transit, high-speed rail, active transportation, express lanes, and goods movement. Some of these systems, such as transit, active transportation, and express lanes, have proven over the years to be a reliable and convenient form of transportation for those who are able to easily access it.

The Plan calls for an impressive expansion of transit facilities and service over the next 25 years. While these capital projects will provide the SCAG region with a much more mature public transportation system, operational improvements and new transit pro-grams and policies will also contribute greatly to attracting more trips to transit and away from single-occupant vehicle travel. First, the expanding HOV and express lane networks calls for the development of an extensive express bus point-to-point network. Second, transit oriented and land use developments call for increasing the frequency and quality of fixed-route bus service by virtue of adding new bus rapid transit service, limited-stop service, increased frequencies along targeted corridors, and the introduction of local community circulators to provide residents of smart growth developments with the option of taking transit over using a car to make short, local trips.

The Plan proposes three passenger rail strategies that will provide additional travel options for long-distance travel within the region and to neighboring regions. These are improvements to the Los Angeles to San Diego Corridor (LOSSAN), improvements to the existing Metrolink system, and the implementation of Phase I of the California High-Speed Train (HST) project.

The recent release of the draft CA HST Business Plan confirmed the funding and implementation challenges of the project. The draft Business Plan now estimates a Phase I cost of $98.5 billion (in year of expenditure dollars) with service extended to the region in 2033. Within the draft Business Plan, there are a variety of strategies to connect Northern and Southern California to the State network. This plan assumes that Southern California will be connected to the network in 2033, but that incremental improvements can be made in advance of and in preparation for that connection. Therefore, stakeholders throughout Southern California are seeking to implement a phased and blended implementation strategy for high-speed rail by employing State and federal high-speed rail funds to improve existing services, eventually meeting the Federal Rail Administration's 110 miles per hour definition of high-speed service. These speed and service improvements to the existing LOSSAN and Metrolink corridors will deliver the California High-Speed Rail Authority's new blended approach, and at the same time permanently improve the region's commuter and intercity rail services.

Another emphasis on transit network improvements includes transit priority facilities, such as bus lanes and traffic signal priority. The region has virtually no bus lanes, especially compared to other major metropolitan areas. The Los Angeles County Metro Rapid Bus network employs bus signal priority that gives buses up to ten percent more green light time from the normal green light phase. This should be expanded to other counties in the region. Additional enhancements to the region's transit services include expanding bike-carrying capacity on transit vehicles, implementing regional and inter-county fare agreements and media, such as LA County's EZ Pass, and expanding and improving real-time passenger information systems.

Active transportation refers to transportation such as walking or using a bicycle, tricycle, velomobile, wheelchair, scooter, skates, skateboard, push scooter, trailer, hand cart, shopping car, or similar electrical devices. In the Plan, active transportation generally refers to bicycling and walking, the two most common

methods. Walking and bicycling are essential parts of the SCAG transportation system and can help reduce roadway congestion. As the region works towards reducing congestion, walking and bicycling will become more essential to meet the future needs of Californians.

Substantial growth and development is anticipated to occur within the region between 2011 and 2035. Despite the regional planning efforts to reduce per capita VMT, predicted growth will increase total VMT. As shown in **Table 3.12-13**, average daily VMT is expected to grow from 448 million miles in 2011 to 517 million miles per day in 2035. This change constitutes a 13.3 percent increase over this period and includes light, medium and heavy-duty vehicle VMT in all six counties.[27] The greatest percentage increase in VMT will occur in Riverside County San followed by Bernardino County. Implementation of Mitigation Measures Mitigation Measures **MM-TR1** through **MM-TR98** would reduce VMT, however, impacts would remain significant.

TABLE 3.12-13: DAILY VEHICLE MILES TRAVELED IN 2012 AND 2035

	In Thousands		
County	**2012**	**2035 No Project**	**2035 Plan**
Imperial	6,000	10,000	10,000
Los Angeles	224,000	252,000	234,000
Orange	75,000	84,000	79,000
Riverside	60,000	89,000	89,000
San Bernardino	61,000	89,000	84,000
Ventura	21,000	23,000	22,000
SCAG Region	448,000	547,000	517,000

SOURCE: SCAG Transportation Modeling 2011, SCSG 2012-2035 RTP/SCS, Highways & Arterials Appendix, Tables A16, page 56, 2011

Impact 3.12-2: The Plan would reduce average Vehicle Hours of Delay (VHD) in 2035 compared to current condition. The Plan would result in less than significant impact related to VHD.

As shown in **Table 3.12-14**, total daily VHD in delay are expected to shrink from 3,277,000 vehicle-hours in 2011 to 3,115,000 vehicle-hours in 2035. This constitutes a decrease from existing conditions and includes light, medium and heavy-duty vehicles VHD in all six counties.[28] Delay would decrease in Los Angeles, Orange, and Ventura Counties and increase in Imperial, Riverside, and San Bernardino Counties. This result is considered to be a regional benefit. Therefore, the Plan would result in a less-than-significant impact related to VHD.

TABLE 3.12-14: TOTAL DAILY HOURS OF DELAY IN 2012 AND 2035

	In Thousands of Vehicle-Hours		
County	**2012**	**2035 No Project**	**2035 Plan**
Imperial	5	25	12
Los Angeles	2,204	3,031	1,895
Orange	493	688	437
Riverside	263	1,244	395
San Bernardino	205	846	279
Ventura	107	181	97
Regional	3,277	6,015	3,115

SOURCE: SCAG Transportation Modeling 2011, SCSG 2012-2035 RTP/SCS, Highways & Arterials Appendix, Tables A16, page 56, 2011

[27] SCAG, Regional Travel Demand Model Results, 2011.
[28] *Ibid.*

Impact 3.12-3: Potential to create substantially greater average daily VHD for heavy-duty truck trips in 2035 compared to current condition. The Plan would result in a significant impact related to truck VHD.

The transportation system is heavily influenced by goods movement, especially by heavy-duty trucks on the roadway network. Recent regional efforts have focused on strategies to develop a coherent, refined, and fully integrated regional goods movement system. In past RTPs, SCAG has envisioned a system of truck-only lanes extending from the San Pedro Bay Ports to downtown Los Angeles along the I-710, connecting to an east-west segment, and finally reaching the I-15 in San Bernardino County. Such a system would address the growing truck traffic on core highways through the region and serve key goods movement industries. Truck-only freight corridors are effective as they add capacity in congested corridors and improve truck operations and safety by separating trucks and autos.

Significant progress towards a regional freight corridor system has continued as evidenced by recent work on an environmental impact report (expected to be completed in 2012) for the I-710 segment. The Plan includes a refined concept for the east-west corridor component of the system and connections to an initial segment of I-15. The East-West Freight Corridor would carry between 58,000 and 70,000 trucks per day - trucks that would be removed from adjacent general-purpose lanes and local arterial roads.

Despite the regional planning efforts to improve the efficiency of goods movement, increased demand for goods will lead to substantial increased in total heavy-duty trucks on the roadway network under the Plan. As shown in **Table 3.12-15**, total daily heavy-duty truck trip VHD in delay are expected to increase from 117,000 average daily heavy-duty truck vehicle hours of delay in 2012 to 158,000 hours in 2035. This constitutes a 35 percent increase from conditions in 2012.[29] Implementation of Mitigation Measures Mitigation Measures **MM-TR1** through **MM-TR98** would reduce criteria pollutant impacts, however, impacts would remain significant.

TABLE 3.12-15: TOTAL DAILY HEAVY-DUTY TRUCKS TRIPS HOURS OF DELAY IN 2012 AND 2035

	In Thousands of Hours		
County	**2012 Base Year**	**2035 No Project**	**2035 Plan**
Imperial	0	2	1
Los Angeles	72	154	81
Orange	15	29	18
Riverside	14	73	30
San Bernardino	13	91	24
Ventura	3	6	4
Regional	117	354	158

SOURCE: SCAG Transportation Modeling 2011, SCSG 2012-2035 RTP/SCS, Highways & Arterials Appendix, Tables A16, page 56, 2011

Impact 3.12-4: Potential to increase the percent of work opportunities within 45 minutes travel time by personal vehicle or by transit in 2035 relative to the current condition. This result is considered to be a regional benefit. The Plan would result in a less-than-significant impact related to work commute.

PM peak period work trips were used to assess impacts to work commute as the evening is this is the portion of the day prone to the most vehicle delay. It was determined that 45 minutes represents a reasonable benchmark to account for commute lengths for both the auto and transit modes.

As shown in **Table 3.12-16**, 79 percent of the Existing PM peak period work trips take 45 minutes or less by single occupancy vehicle, 73 percent of the Existing PM peak period work trips take 45 minutes or less by high occupancy vehicle, and 22 percent occur within 45 minutes by transit.

[29] *Ibid.*

TABLE 3.12-16: PERCENTAGE OF PM PEAK PERIOD WORK TRIPS COMPLETED WITHIN 45 MINUTES			
County	**2012**	**2035 No Project**	**2035 Plan**
AUTOS –SINGLE OCCUPANCY VEHICLES			
Imperial	97%	96%	96%
Los Angeles	76%	76%	80%
Orange	87%	87%	88%
Riverside	77%	75%	81%
San Bernardino	78%	79%	80%
Ventura	80%	81%	82%
Region	79%	79%	82%
AUTOS – HIGH OCCUPANCY VEHICLES			
Imperial	90%	89%	87%
Los Angeles	73%	65%	77%
Orange	83%	83%	85%
Riverside	67%	64%	74%
San Bernardino	64%	61%	68%
Ventura	73%	70%	73%
Region	73%	68%	77%
TRANSIT			
Imperial	4%	4%	5%
Los Angeles	25%	22%	24%
Orange	12%	12%	12%
Riverside	9%	7%	9%
San Bernardino	4%	5%	6%
Ventura	9%	8%	9%
Region	22%	20%	21%
SOURCE: SCAG Transportation Modeling 2011.			

In 2035, with the implementation of the Plan, 82 percent of the PM peak period work trips take 45 minutes or less by single occupancy vehicle, 77 percent of the PM peak period work trips take 45 minutes or less by high occupancy vehicle, and 21 percent occur within 45 minutes by transit.

There would be an increase in the percent of work opportunities within 45 minutes travel time by personal vehicle as compared to the current condition. The transit percentage would remain approximately the same. This result is considered to be a regional benefit. Therefore, the Plan would result in a less-than-significant impact related to work commute.

Impact 3.12-5: Potential to lower system-wide fatality accident rate for all travel modes in 2035 relative to the current condition. The Plan would result in a less-than-significant impact related to transportation fatality rates.

The Plan includes Transportation System Management strategies that improve safety through reducing the concentration of weaving and merging and that clear existing incidents and accidents more quickly. It was assumed that SCAG goals and the goals/actions outlined in the California Strategic Highway Safety Plan would reduce fatalities and injuries by 25 percent based on recent trends. As shown in **Table 3.12-17**, implementation of the Plan would result in a system-wide daily fatality rate of 0.17 fatalities per million persons for all travel modes, a decrease of 0.03 daily fatalities per million persons when compared to the existing rate of 0.20. Therefore, the Plan would result in a less-than-significant impact related to transportation fatality rates.

TABLE 3.12-17: EXISTING AND 2035 REGIONAL TRANSPORTATION SYSTEM ACCIDENT RATES			
Daily Per Million Persons	**2012**	**2035 No Project**	**2035 Plan**
Fatalities	0.20	0.18	0.17
Injuries	18.27	13.67	12.93
SOURCE: SCAG Transportation Modeling 2011.			

Impact 3.14-6: Potential to lower system-wide injury rate for all travel modes in 2035 relative to the current condition. Therefore, the Plan would result in a less-than-significant impact related to transportation injury rates.

The Plan includes Transportation System Management strategies that improve safety through reducing the concentration of weaving and merging, and that clear existing incidents and accidents more quickly, among other measures. As shown in **Table 3.12-17**, implementation of the Plan would result in a system-wide daily injury rate of 12.93 injuries per million persons for all travel modes, a decrease of 5.34 daily injuries per million persons when compared to the existing rate of 18.27. Therefore, the Plan would result in a less-than-significant impact related to transportation injury rates.

Cumulative Impact 3.12-7: Potential to contribute to a cumulatively considerable amount of transportation impacts, such as VMT and all-vehicle VHD, in areas outside of the SCAG region.

The RTDM analyzes the population, households, and employment projected for 2035, which is anticipated to be the year with the largest demand on the transportation system expected during the lifetime of the Plan. In accounting for the effects of regional growth, the model output provides a long-term and cumulative level of analysis for the impacts of the Plan on transportation resources. Forecast urban development and growth that would be accommodated by the transportation investments in the Plan, together with the increased mobility provided by the Plan would contribute to the significant impacts described in Impacts 3.12-1, 3.12-2, and 3.12-3 above. The regional growth, and thus cumulative impacts, is captured in the VMT, VHD, and heavy-duty truck VHD data reported for the above impacts.

As the population increases through 2035, the number of trips originating and ending in Santa Barbara, San Diego, and Kern counties to and from the SCAG region is anticipated to increase. The transportation demand from growth, in combination with the accommodating projects within the Plan would contribute to a cumulatively considerable transportation impact in these areas and potentially beyond.

MITIGATION MEASURES

Mitigation Measures **MM-TR1** through **MM-TR16** shall be implemented by SCAG over the lifetime of the 2012-2035 RTP/SCS. Mitigation Measures **MM-TR17** through **MM-TR21** shall be implemented by SCAG and can and should be implemented by project sponsors (for both development and transportation projects) as applicable. Mitigation Measures **MM-TR21** through **MM-TR98** can and should be implemented by project sponsors (for both development and transportation projects) as applicable. Project specific environmental documents may adjust these mitigation measures as necessary to respond to site-specific conditions. Projects taking advantage of CEQA Streamlining provisions of SB 375 can and should apply mitigation measures as appropriate to site-specific conditions.

MM-TR1: SCAG shall establish a forum where policy-makers can be educated and can develop consensus on regional transportation safety and security policies

MM-TR2: SCAG shall work with local officials to assist with implementation of regional transportation safety and security policies.

MM-TR3: SCAG shall conduct workshops focused on Smart Growth strategies. Project-specific workshops should be held by local agencies.

MM-TR4: SCAG shall help ensure the rapid repair of transportation infrastructure in the event of an emergency. This will be accomplished by SCAG, in cooperation with local and State agencies, identifying critical infrastructure needs necessary for: a) emergency responders to enter the region, b) evacuation of affected facilities, and c) restoration of utilities. In addition, SCAG shall establish transportation infrastructure practices that promote and enhance security.

MM-TR5: SCAG shall continue to promote the use of intelligent transportation system (ITS) technologies that enhance transportation security. SCAG should work to expand the use of ITS to improve surveillance, monitoring and distress notification systems and to assist in the rapid evacuation of disaster areas. SCAG shall facilitate the incorporation of security into the Regional ITS Architecture. Transit operators should incorporate ITS technologies as part of their security and emergency preparedness and share that information with other operators. Aside from deploying ITS technologies for advanced customer information, transit agencies should work intensely with ethnic, local and disenfranchised communities through public information / outreach sessions ensuring public participation is utilized to its fullest. In case of evacuation, these transit dependent persons may need additional assistance to evacuate to safety.

MM-TR6: SCAG shall establish transportation infrastructure practices that promote and enhance security. SCAG shall work with transportation operators to plan and coordinate transportation projects, as appropriate, with DHS grant projects, to enhance the regional transit security strategy (RTSS). SCAG shall establish transportation infrastructure practices that identify and prioritize the design, retrofit, hardening, and stabilization of critical transportation infrastructure to prevent failure, to minimize loss of life and property, injuries, and avoid long term economic disruption. SCAG shall establish a Transportation Security Working Group (TSWG) with goals of 2012-2035 RTP/SCS consistency with RTSS, and to find ways SCAG programs can enhance RTSS.

MM-TR7: SCAG shall help to enhance the region's ability to deter and respond to acts of terrorism, human-caused or natural disasters through regionally cooperative and collaborative strategies. SCAG shall work with local officials to develop regional consensus on regional transportation safety, security, and safety security policies.

MM-TR8: SCAG shall help to enhance the region's ability to deter and respond to terrorist incidents, human-caused or natural disasters by strengthening relationship and coordination with transportation. This will be accomplished by the following:

- SCAG shall work with local officials to develop regional consensus on regional transportation safety, security, and safety security policies.
- SCAG shall encourage all SCAG elected officials are educated in NIMS.
- SCAG shall work with partner agencies, federal, State and local jurisdictions to improve communications and interoperability and to find opportunities to leverage and effectively utilize transportation and public safety/security resources in support of this effort.

MM-TR9: SCAG shall work to enhance emergency preparedness awareness among public agencies and with the public at large.

MM TR10: SCAG shall work with local officials to develop regional consensus on regional transportation safety, security, and safety security policies.

MM-TR11: SCAG shall work to improve the effectiveness of regional plans by maximizing the sharing and coordination of resources that would allow for proper response by public agencies.

MM-TR12: SCAG shall encourage and provide a forum for local jurisdictions to develop mutual aid agreements for essential government services during any incident recovery

MM-TR13: SCAG shall help to enhance the capabilities of local and regional organizations, including first responders, through provision and sharing of information. This will be accomplished by:

- SCAG shall work with local agencies to collect regional GeoData in a common format, and provide access to the GeoData for emergency planning, training and response.
- SCAG shall establish a forum for cooperation and coordination of these plans and programs among the regional partners including first responders and operations agencies
- SCAG shall develop and establish a regional information sharing strategy, linking SCAG and its member jurisdictions for ongoing sharing and provision of information pertaining to the region's transportation system and other critical infrastructure.

MM-TR14: SCAG shall provide the means for collaboration in planning, communication, and information sharing before, during, or after a regional emergency. This will be accomplished by the following:

- SCAG shall develop and incorporate strategies and actions pertaining to response and prevention of security incidents and events as part of the on-going regional planning activities.
- SCAG shall offer a regional repository of GIS data for use by local agencies in emergency planning, and response, in a standardized format.
- SCAG shall enter into mutual aid agreements with other MPOs to provide this data, in coordination with the California OES in the event that an event disrupts SCAG's ability to function.

MM-TR15: Congestion Pricing: SCAG shall advocate for a regional, market-based system to price or charge for auto trips during peak hours.

MM-TR16: Beyond the currently financially and institutionally feasible measures included in the 2012-2035 RTP/SCS, SCAG shall identify further reduction in VMT, and fuel consumption that could be obtained through land-use strategies, additional car-sharing programs, additional vanpools, additional bicycle programs, and implementation of a universal employee transit access pass (TAP) program.

MM-TR17: SCAG shall (for its employees) and local jurisdictions can and should institute teleconferencing, telecommute and/or flexible work hour programs to reduce unnecessary employee transportation.

MM-TR18: Local jurisdictions can and should create a ride-sharing program. Promote existing ride sharing programs e.g., by designating a certain percentage of parking spaces for ride sharing vehicles, designating adequate passenger loading and unloading for ride sharing vehicles, and providing a web site or message board for coordinating rides.

MM-TR19: SCAG shall and local jurisdictions can and should create or accommodate car sharing programs, e.g., provide parking spaces for car share vehicles at convenient locations accessible by public transportation.

MM-TR20: SCAG shall and local jurisdictions can and should provide a vanpool for employees.

MM-TR21: Transportation Planning: SCAG shall and local jurisdictions can and should ensure that new developments incorporate both local and regional transit measures into the project design that promote the use of alternative modes of transportation.

MM-TR22: As may be appropriate, project sponsors can and should submit fair share traffic payments to the local agency for funding capital improvement projects to accommodate future traffic demand in the area.

MM-TR23: Local jurisdictions can and should coordinate controlled intersections so that traffic passes more efficiently through congested areas. Where traffic signals or streetlights are installed, require the use of Light Emitting Diode (LED) technology.

MM-TR24: Local jurisdictions can and should promote ride sharing programs e.g., by designating a certain percentage of parking spaces for high-occupancy vehicles, providing larger parking spaces to accommodate vans used for ride-sharing, and designating adequate passenger loading and unloading and waiting areas.

MM-TR25: Local jurisdictions can and should encourage the use of car-sharing programs such as ZipCar. Accommodations for such programs include providing parking spaces for the car-share vehicles at convenient locations accessible by public transportation.

MM-TR26: The Plan includes measures intended to reduce vehicle hours of delay. These include: system management, increasing rideshare and work-at-home opportunities to reduce demand on the transportation system, investments in non-motorized transportation, maximizing the benefits of the land use-transportation connection and key transportation investments targeted to reduce delay. SCAG shall encourage local agencies to fully implement these policies and projects.

MM-TR27: The Plan includes measures intended to reduce daily heavy-duty truck vehicle hours of delay. These include: goods movement capacity enhancements, system management, increasing rideshare and work-at-home opportunities to reduce demand on the transportation system, investments in non-motorized transportation, maximizing the benefits of the land use-transportation connection and key transportation investments targeted to reduce heavy-duty truck delay. SCAG shall encourage local agencies to fully implement these policies and projects.

MM-TR28: Project sponsors of a commercial use can and should submit to the Lead Agency (or other appropriate government agency) a Transportation Demand Management (TDM) plan containing strategies to reduce on-site parking demand and single occupancy vehicle travel. The sponsor should implement the approved TDM plan. The TDM should include strategies to increase bicycle, pedestrian, transit, and carpools/vanpool use. All four modes of travel should be considered. Strategies to consider include the following:

- Inclusion of additional bicycle parking, shower, and locker facilities that exceed the requirement

- Construction of bike lanes per the prevailing Bicycle Master Plan (or other similar document)
- Signage and striping onsite to encourage bike safety
- Installation of pedestrian safety elements (such as cross walk striping, curb ramps, countdown signals, bulb outs, etc.) to encourage convenient crossing at arterials
- Installation of amenities such as lighting, street trees, trash and any applicable streetscape plan.
- Direct transit sales or subsidized transit passes
- Guaranteed ride home program
- Pre-tax commuter benefits (checks)
- On-site car-sharing program (such as City Car Share, Zip Car, etc.)
- On-site carpooling program
- Distribution of information concerning alternative transportation options
- Parking spaces sold/leased separately
- Parking management strategies; including attendant/valet parking and shared parking spaces

MM-TR29: Project sponsors and construction contractors can and should meet with the appropriate Lead Agency (or other government agency) to determine traffic management strategies to reduce, to the maximum extent feasible, traffic congestion and the effects of parking demand by construction workers during construction of this project and other nearby projects that could be simultaneously under construction. The project sponsor should develop a construction management plan for review and approval by the Lead Agency (or other government agency as appropriate). The plan should include at least the following items and requirements:

- A set of comprehensive traffic control measures, including scheduling of major truck trips and deliveries to avoid peak traffic hours, detour signs if required, lane closure procedures, signs, cones for drivers, and designated construction access routes.
- Notification procedures for adjacent property owners and public safety personnel regarding when major deliveries, detours, and lane closures will occur.
- Location of construction staging areas for materials, equipment, and vehicles at an approved location.
- A process for responding to, and tracking, complaints pertaining to construction activity, including identification of an onsite complaint manager. The manager should determine the cause of the complaints and should take prompt action to correct the problem. The Lead Agency should be informed who the Manager is prior to the issuance of the first permit.
- Provision for accommodation of pedestrian flow.
- As necessary, provision for parking management and spaces for all construction workers to ensure that construction workers do not park in on street spaces.
- Any damage to the street caused by heavy equipment, or as a result of this construction, should be repaired, at the project sponsor's expense, within one week of the occurrence of the damage (or excessive wear), unless further damage/excessive wear may continue; in such case, repair should occur prior to issuance of a final inspection of the building permit. All damage that is a threat to public health or safety should be repaired immediately. The street should be restored to its condition prior to the new construction as established by the Lead Agency (or other appropriate government agency) and/or photo documentation, at the sponsor's expense, before the issuance of a Certificate of Occupancy.
- Any heavy equipment brought to the construction site should be transported by truck, where feasible.

- No materials or equipment should be stored on the traveled roadway at any time.
- Prior to construction, a portable toilet facility and a debris box should be installed on the site, and properly maintained through project completion.
- All equipment should be equipped with mufflers.
- Prior to the end of each work-day during construction, the contractor or contractors should pick up and properly dispose of all litter resulting from or related to the project, whether located on the property, within the public rights-of-way, or properties of adjacent or nearby neighbors.

MM-TR30: Local jurisdictions can and should encourage the use of public transit systems by enhancing safety and cleanliness on vehicles and in and around stations, providing shuttle service to public transit, offering public transit incentives and providing public education and publicity about public transportation services.

MM-TR31: Local jurisdictions can and should encourage bicycling and walking by incorporating bicycle lanes into street systems in regional transportation plans, new subdivisions, and large developments, creating bicycle lanes and walking paths directed to the location of schools and other logical points of destination and provide adequate bicycle parking, and encouraging commercial projects to include facilities on-site to encourage employees to bicycle or walk to work.

MM-TR32: Transit agencies can and should encourage bicycling to transit facilities by providing additional bicycle parking, locker facilities, and bike lane access to transit facilities when feasible.

MM-TR33: Project sponsors can and should ensure that prior to construction all necessary local and State road and railroad encroachment permits are obtained. As deemed necessary by the governing jurisdiction, the road encroachment permits may require the contractor to prepare a traffic control plan in accordance with professional engineering standards prior to construction. Traffic control plans should include the following requirements:

- Identification of all roadway locations where special construction techniques (e.g., directional drilling or night construction) would be used to minimize impacts to traffic flow.
- Development of circulation and detour plans to minimize impacts to local street circulation. This may include the use of signing and flagging to guide vehicles through and/or around the construction zone.
- Scheduling of truck trips outside of peak morning and evening commute hours.
- Limiting of lane closures during peak hours to the extent possible.
- Usage of haul routes minimizing truck traffic on local roadways to the extent possible.
- Inclusion of detours for bicycles and pedestrians in all areas potentially affected by project construction.
- Installation of traffic control devices as specified in the California Department of Transportation Manual of Traffic Controls for Construction and Maintenance Work Zones.
- Development and implementation of access plans for highly sensitive land uses such as police and fire stations, transit stations, hospitals, and schools. The access plans would be developed with the facility owner or administrator. To minimize disruption of emergency vehicle access, affected jurisdictions should be asked to identify detours for emergency vehicles, which will then be posted by the contractor. Notify in advance the facility owner or operator of the timing, location, and duration of construction activities and the locations of detours and lane closures.

- Storage of construction materials only in designated areas
- Coordination with local transit agencies for temporary relocation of routes or bus stops in work zones, as necessary.

MM-TR34: Local jurisdictions can and should meet an identified transportation-related benchmark.

MM-TR35: Local jurisdictions can and should adopt a comprehensive parking policy that discourages private vehicle use and encourages the use of alternative transportation.

MM-TR36: Project sponsors can and should build or fund a major transit stop within or near the development.

MM-TR37: Local jurisdictions and transit agencies can and should provide public transit incentives such as free or low-cost monthly transit passes to employees, or free ride areas to residents and customers.

MM-TR38: Local jurisdictions and project sponsors can and should promote "least polluting" ways to connect people and goods to their destinations.

MM-TR39: Local jurisdictions and project sponsors can and should incorporate bicycle lanes, routes and facilities into street systems, new subdivisions, and large developments.

MM-TR40: Local jurisdictions can and should require amenities for non-motorized transportation, such as secure and convenient bicycle parking.

MM-TR41: Local jurisdictions can and should ensure that the project enhances, and does not disrupt or create barriers to, non-motorized transportation.

MM-TR42: Local jurisdictions can and should connect parks and open space through shared pedestrian/bike paths and trails to encourage walking and bicycling.

MM-TR43: Local jurisdictions can and should create bicycle lanes and walking paths directed to the location of schools, parks and other destination points.

MM-TR44: Local jurisdictions can and should work with the school districts to improve pedestrian and bike access to schools and to restore or expand school bus service using lower-emitting vehicles.

MM-TR45: Local jurisdictions and transit agencies can and should provide information on alternative transportation options for consumers, residents, tenants and employees to reduce transportation-related emissions.

MM-TR46: Local jurisdictions can and should educate consumers, residents, tenants and the public about options for reducing motor vehicle-related greenhouse gas emissions. Include information on trip reduction; trip linking; vehicle performance and efficiency (e.g., keeping tires inflated); and low or zero-emission vehicles.

MM-TR47: Local jurisdictions can and should purchase, or create incentives for purchasing, low or zero-emission vehicles.

MM-TR48: Local jurisdictions can and should create local "light vehicle" networks, such as neighborhood electric vehicle systems.

MM-TR49: Local jurisdictions can and should enforce and follow limits idling time for commercial vehicles, including delivery and construction vehicles.

MM-TR50: Local jurisdictions can and should provide the necessary facilities and infrastructure to encourage the use of low or zero-emission vehicles.

MM-TR51: Local jurisdictions can and should reduce GHG emissions by reducing vehicle miles traveled and by increasing or encouraging the use of alternative fuels and transportation technologies.

MM-TR52: Local jurisdictions can and should reduce VMT-related emissions by encouraging the use of public transit through adoption of new development standards that would require improvements to the transit system and infrastructure, increase safety and accessibility, and provide other incentives.

MM-TR53: Project Selection: Local jurisdictions can and should give priority to transportation projects that would contribute to a reduction in vehicle miles traveled per capita, while maintaining economic vitality and sustainability.

MM-TR54: Equal Pedestrian Access Local jurisdictions can and should include separated sidewalks whenever possible, on both sides of all new street improvement projects, except where there are severe topographic or natural resource constraints.

MM-TR55: Public Involvement: Local jurisdictions can and should carry out a comprehensive public involvement and input process that provides information about transportation issues, projects, and processes to community members and other stakeholders, especially to those traditionally underserved by transportation services.

MM-TR56: System Interconnectivity: Local jurisdictions can and should create an interconnected transportation system that allows a shift in travel from private passenger vehicles to alternative modes, including public transit, ride sharing, car sharing, bicycling and walking, by incorporating the following:

- Ensure transportation centers are multi-modal to allow transportation modes to intersect;
- Provide adequate and affordable public transportation choices, including expanded bus routes and service, as well as other transit choices such as shuttles, light rail, and rail;
- To the extent feasible, extend service and hours of operation to underserved arterials and population centers or destinations such as colleges;
- Focus transit resources on high-volume corridors and high-boarding destinations such as colleges, employment centers and regional destinations;
- Coordinate schedules and routes across service lines with neighboring transit authorities;
- Support programs to provide "station cars" for short trips to and from transit nodes (e.g., neighborhood electric vehicles);
- Study the feasibility of providing free transit to areas with residential densities of 15 dwelling units per acre or more, including options such as removing service from less dense, underutilized areas to do so;
- Employ transit-preferential measures, such as signal priority and bypass lanes. Where compatible with adjacent land use designations, right-of-way acquisition or parking removal may occur to accommodate transit-preferential measures or improve access to

transit. The use of access management should be considered where needed to reduce conflicts between transit vehicles and other vehicles;

- Provide safe and convenient access for pedestrians and bicyclists to, across, and along major transit priority streets;
- Use park-and-ride facilities to access transit stations only at ends of regional transitways or where adequate feeder bus service is not feasible.

MM-TR57: Transit System Infrastructure: Local jurisdictions can and should upgrade and maintain transit system infrastructure to enhance public use, including:

- Ensure transit stops and bus lanes are safe, convenient, clean and efficient;
- Ensure transit stops have clearly marked street-level designation, and are accessible;
- Ensure transit stops are safe, sheltered, benches are clean, and lighting is adequate;
- Place transit stations along transit corridors within mixed-use or transit-oriented development areas at intervals of three to four blocks, or no less than one-half mile.

MM-TR58: Customer Service: Transit agencies can and should enhance customer service and system ease-of-use, including:

- Develop a Regional Pass system to reduce the number of different passes and tickets required of system users;
- Implement "Smart Bus" technology, using GPS and electronic displays at transit stops to provide customers with "real-time" arrival and departure time information (and to allow the system operator to respond more quickly and effectively to disruptions in service);
- Investigate the feasibility of an on-line trip-planning program.

MM-TR59: Transit Funding: Local jurisdictions can and should prioritize transportation funding to support a shift from private passenger vehicles to transit and other modes of transportation, including:

- Give funding preference to improvements in public transit over other new infrastructure for private automobile traffic;
- Before funding transportation improvements that increase roadway capacity and VMT, evaluate the feasibility and effectiveness of funding projects that support alternative modes of transportation and reduce VMT, including transit, and bicycle and pedestrian access.

MM-TR60: Transit and Multimodal Impact Fees: Local jurisdictions can and should assess transit and multimodal impact fees on new developments to fund public transportation infrastructure, bicycle infrastructure, pedestrian infrastructure and other multimodal accommodations.

MM-TR61: Local jurisdictions can and should implement traffic and roadway management strategies to improve mobility and efficiency, and reduce associated emissions.

MM-TR62: System Monitoring: Local jurisdictions can and should monitor traffic and congestion to determine when and where new transportation facilities are needed in order to increase access and efficiency.

MM-TR63: Arterial Traffic Management: Local jurisdictions can and should modify arterial roadways to allow more efficient bus operation, including bus lanes and signal priority/preemption where necessary.

MM-TR64: Signal Synchronization: Local jurisdictions can and should expand signal timing programs where emissions reduction benefits can be demonstrated, including maintenance of the synchronization system, and will coordinate with adjoining jurisdictions as needed to optimize transit operation while maintaining a free flow of traffic.

MM-TR65: HOV Lanes: Local jurisdictions can and should encourage the construction of high-occupancy vehicle (HOV) lanes or similar mechanisms whenever necessary to relieve congestion and reduce emissions.

MM-TR66: Delivery Schedules: Local jurisdictions can and should establish ordinances or land use permit conditions limiting the hours when deliveries can be made to off-peak hours in high traffic areas.

MM-TR67: Local jurisdictions can and should reduce VMT related-emissions by implementing and supporting trip reduction programs.

MM-TR68: Ride-Share Programs: Local jurisdictions can and should promote ride sharing programs, including:

- Designate a certain percentage of parking spaces for ride-sharing vehicles;
- Designate adequate passenger loading, unloading, and waiting areas for ride-sharing vehicles;
- Provide a web site or message board for coordinating shared rides;
- Encourage private, for-profit community car-sharing, including parking spaces for car share vehicles at convenient locations accessible by public transit;
- Hire or designate a rideshare coordinator to develop and implement ridesharing programs.

MM-TR69: Employer-based Trip Reduction: Local jurisdictions can and should support voluntary, employer-based trip reduction programs, including:

- Provide assistance to regional and local ridesharing organizations;
- Advocate for legislation to maintain and expand incentives for employer ridesharing programs;
- Require the development of Transportation Management Associations for large employers and commercial/ industrial complexes;
- Provide public recognition of effective programs through awards, top ten lists, and other mechanisms.

MM-TR70: Ride Home Programs: Local jurisdictions can and should implement a "guaranteed ride home" program for those who commute by public transit, ride-sharing, or other modes of transportation, and encourage employers to subscribe to or support the program.

MM-TR71: Local Area Shuttles: Transit agencies can and should encourage and utilize shuttles to serve neighborhoods, employment centers and major destinations.

MM-TR72: Local jurisdictions and transit agencies can and should create a free or low-cost local area shuttle system that includes a fixed route to popular tourist destinations or shopping and business centers.

MM-TR73: Local jurisdictions can and should work with existing shuttle service providers to coordinate their services.

MM-TR74: Low- and No-Travel Employment Opportunities: Local jurisdictions can and should facilitate employment opportunities that minimize the need for private vehicle trips, including:

- Amend zoning ordinances and the Development Code to include live/work sites and satellite work centers in appropriate locations;
- Encourage telecommuting options with new and existing employers, through project review and incentives, as appropriate.

MM-TR75: Local jurisdictions can and should support bicycle use as a mode of transportation by enhancing infrastructure to accommodate bicycles and riders, and providing incentives.

MM-TR76: Development Standards for Bicycles: Local jurisdictions can and should establish standards for new development and redevelopment projects to support bicycle use, including:

- Amending the Development Code to include standards for safe pedestrian and bicyclist accommodations, by incorporating the following:
  - "Complete Streets" policies that foster equal access by all users in the roadway design;
  - Bicycle and pedestrian access internally and in connection to other areas through easements;
  - Safe access to public transportation and other non-motorized uses through construction of dedicated paths;
  - Safe road crossings at major intersections, especially for school children and seniors;
  - Adequate, convenient and secure bike parking at public and private facilities and destinations in all urban areas;
  - Street standards will include provisions for bicycle parking within the public right of way.

MM-TR77: Local jurisdictions can and should require new development and redevelopment projects to include bicycle facilities, as appropriate with the new land use, including:

- Construction of weatherproof bicycle facilities where feasible, and at a minimum, bicycle racks or covered, secure parking near the building entrances;
- Provision and maintenance of changing rooms, lockers, and showers at large employers or employment centers.
- Prohibit projects that impede bicycle and pedestrian access, such as large parking areas that cannot be safely crossed by non-motorized vehicles, and developments that block through access on existing or potential bicycle and pedestrian routes;
- Encourage the development of bicycle stations at intermodal hubs, with attended or "valet" bicycle parking, and other amenities such as bicycle rental and repair, and changing areas with lockers and showers;
- Conduct a connectivity analysis of the existing bikeway network to identify gaps, and prioritize bikeway development where gaps exist.

MM-TR78: Bicycle and Pedestrian Trails: Local jurisdictions can and should establish a network of multi-use trails to facilitate safe and direct off-street bicycle and pedestrian travel, and will provide bike racks along these trails at secure, lighted locations.

MM-TR79: Bicycle Safety Program: Local jurisdictions can and should develop and implement a bicycle safety educational program to teach drivers and riders the laws, riding protocols, routes, safety tips, and emergency maneuvers.

MM-TR80: Bicycle and Pedestrian Project Funding: Local jurisdictions can and should pursue and provide enhanced funding for bicycle and pedestrian facilities and access projects, including, as appropriate:

- Apply for regional, State, and federal grants for bicycle and pedestrian infrastructure projects;
- Establish development exactions and impact fees to fund bicycle and pedestrian facilities;
- Use existing revenues, such as State gas tax subventions, sales tax funds, and general fund monies for projects to enhance bicycle use and walking for transportation.

MM-TR81: Bicycle Parking: Local jurisdictions can and should adopt bicycle parking standards that ensure bicycle parking sufficient to accommodate 5 to 10 percent of projected use at all public and commercial facilities, and at a rate of at least one per residential unit in multiple-family developments (suggestion: check language with League of American Bicyclists).

MM-TR82: Local jurisdictions can and should establish parking policies and requirements that capture the true cost of private vehicle use and support alternative modes of transportation.

MM-TR83: Parking Policy: Local jurisdictions can and should adopt a comprehensive parking policy to discourage private vehicle use and encourage the use of alternative transportation by incorporating the following:

- Reduce the available parking spaces for private vehicles while increasing parking spaces for shared vehicles, bicycles, and other alternative modes of transportation;
- Eliminate or reduce minimum parking requirements for new buildings;
- "Unbundle" parking (require that parking is paid for separately and is not included in the base rent for residential and commercial space);
- Use parking pricing to discourage private vehicle use, especially at peak times;
- Create parking benefit districts, which invest meter revenues in pedestrian infrastructure and other public amenities;
- Establish performance pricing of street parking, so that it is expensive enough to promote frequent turnover and keep 15 percent of spaces empty at all times;
- Encourage shared parking programs in mixed-use and transit-oriented development areas.

MM-TR84: Event Parking Policies: Local jurisdictions can and should establish policies and programs to reduce onsite parking demand and promote ride-sharing and public transit at large events, including:

- Promote the use of peripheral parking by increasing on-site parking rates and offering reduced rates for peripheral parking;
- Encourage special event center operators to advertise and offer discounted transit passes with event tickets;
- Encourage special event center operators to advertise and offer discount parking incentives to carpooling patrons, with four or more persons per vehicle for on-site parking;
- Promote the use of bicycles by providing space for the operation of valet bicycle parking service.

MM-TR85: Parking "Cash-out" Program: Local jurisdictions can and should require new office developments with more than 50 employees to offer a Parking "Cash-out" Program to discourage private vehicle use.

MM-TR86: Electric/Alternative Fuel Vehicle Parking: Local jurisdictions can and should require new commercial and retail developments to provide prioritized parking for electric vehicles and vehicles using alternative fuels.

MM-TR87: Local jurisdictions can and should support and promote the use of low- and zero-emission vehicles, and alternative fuels, and other measures to directly reduce emissions from motor vehicles.

MM-TR88: Low and Zero Emission Vehicles: Local jurisdictions can and should support and promote the use of low- and zero-emission vehicles, by doing the following:

- Develop the necessary infrastructure to encourage the use of zero emission vehicles and clean alternative fuels, such as development of electric vehicle charging facilities and conveniently located alternative fueling stations;
- Encourage new construction to include vehicle access to properly wired outdoor receptacles to accommodate ZEV and/or plug in electric hybrids (PHEV);
- Encourage transportation fleet standards to achieve the lowest emissions possible, using a mix of alternate fuels, PZEV or better fleet mixes;
- Establish incentives, as appropriate, to taxicab owners to use alternative fuel or gas-electric hybrid vehicles.

MM-TR89: Vehicle Idling: Local jurisdictions can and should enforce State idling laws for commercial vehicles, including delivery and construction vehicles.

MM-TR90: Pedestrian and Bicycle Promotion: Local jurisdictions can and should work with local community groups and downtown business associations to organize and publicize walking tours and bicycle events, and to encourage pedestrian and bicycle modes of transportation.

MM-TR91: Local jurisdictions can and should organize events and workshops to promote GHG-reducing activities.

MM-TR92: Fleet Replacement: Local jurisdictions and agencies can and should establish a replacement policy and schedule to replace fleet vehicles and equipment with the most fuel efficient vehicles practical, including gasoline hybrid and alternative fuel or electric models.

MM-TR93: Local jurisdictions can and should implement measures to reduce employee vehicle trips and to mitigate emissions impacts from municipal travel.

MM-TR94: Trip Reduction Program: Local jurisdictions can and should implement a program to reduce vehicle trips by employees, including:

- Providing incentives and infrastructure for vanpooling and carpooling, such as pool vehicles, preferred parking, and a website or bulletin board to facilitate ride-sharing;
- Providing subsidized passes for mass transit;
- Offering compressed work hours, off-peak work hours, and telecommuting, where appropriate;
- Offer a guaranteed ride home for employees who use alternative modes of transportation to commute.

MM-TR95: Bicycle Transportation Support: Local jurisdictions can and should promote and support the use of bicycles as transportation, including:

- Providing bicycle stations with secure, covered parking, changing areas with storage lockers and showers, as well as a central facility where minor repairs can be made;
- Providing bicycles, including electric bikes, for employees to use for short trips during business hours;
- Implementing a police-on-bicycles program;
- Providing a bicycle safety program, and information about safe routes to work.

MM-TR96: Municipal Parking Management: Local jurisdictions can and should implement a Parking Management Program to discourage private vehicle use, including:

- Encouraging carpools and vanpools with preferential parking and a reduced parking fee;
- Institute a parking cash-out program;
- Renegotiate employee contracts, where possible, to eliminate parking subsidies;
- Install on-street parking meters with fee structures designed to discourage private vehicle use;
- Establish a parking fee for all single-occupant vehicles.

MM-TR97: Travel Mitigation: Local jurisdictions can and should mitigate business-related travel, especially air travel, through the annual purchase of verified carbon offsets.

MM-TR98: Transit Access to Municipal Facilities: Local jurisdiction and agency facilities can and should be located on major transit corridors, unless their use is plainly incompatible with other uses located along major transit corridors.

SIGNIFICANCE OF IMPACTS AFTER MITIGATION

Vehicle Miles Traveled

Implementation of Mitigation Measures **MM-TR1** through **MM-TR98** would to reduce VMT. However, 2035 VMT would still be substantially greater than existing VMT. Therefore, the Plan would result in a significant impact related to VMT.

Vehicle Hours Traveled in Delay for All Vehicles

Impacts related to VHD were determined to be less than significant without mitigation because vehicle hours in delay would improve under the Plan.

Vehicle Hours Traveled for Heavy-Duty Trucks

Implementation of Mitigation Measures **MM-TR1** through **MM-TR98** would reduce VHD for heavy trucks. However, the 2035 heavy-duty truck VHD would still be substantially greater than the existing VHD. Therefore, the Plan would result in a significant and unavoidable impact related to heavy-duty truck VHD.

Worker Commute

Impacts related to worker commute were determined to be less than significant without mitigation as the percentage of trips occurring within 45 minutes would increase under the Plan compared to today.

Transportation System Fatality Rate

Impacts related transportation system fatality rates were determined to be less than significant without mitigation because fatality rates are anticipated to decrease.

Transportation System Injury Rate

Impacts related to transportation system injury rates were determined to be less than significant without mitigation because injury rates are anticipated to decrease.

Cumulative Effects

Implementation of Mitigation Measures **MM-TR1** through **MM-TR98** identified in the Plan would be expected to reduce VMT and VHD. However, as the population increases through 2035, the number of trips originating and ending in Santa Barbara, San Diego and Kern counties to and from the SCAG region would increase. The transportation demand from growth, in combination with the accommodating projects in the Plan would contribute to a cumulatively considerable transportation impact in these other counties.

COMPARISION WITH THE NO PROJECT ALTERNATIVE

Direct Impacts

Vehicle Miles Traveled. The relationship between the VMT in 2035 with implementation of the Plan and without implementation of the Plan (the No Project Alternative) is shown in **Table 3.12-13**. The No Project Alternative would not include transportation and land use strategies that focus growth along existing corridors and in urbanized areas. As a result, population would be more scattered thought the region when compared to the Plan, and per capita VMT would not be reduced and other transportation metrics would not be improved. Implementation of the Plan would reduce vehicle miles of travel in 2035 from 547 million miles to 517 million miles. This constitutes a seven percent decrease from the No Project Alternative. **The Plan impact would be less than the No Project impacts for Impact 3.12-1.**

Vehicle Hours Traveled for All Vehicles in Delay. The relationship between the VHD in delay 2035 with implementation of the Plan and without implementation of the Plan (the No Project Alternative) is shown in **Table 3.12-4.** Implementation of the Plan would reduce VHD in 2035 from 6,015 thousand vehicle-hours to 3,115 thousand vehicle-hours. This constitutes a 48 percent decrease from the No Project Alternative and includes light, medium and heavy-duty truck VHD in all six counties. **The Plan impact would be less than the No Project impact for Impact 3.12-2.**

Vehicle Hours Traveled in Delay for Heavy-Duty Trucks. The relationship between the heavy-duty truck VHD in 2035 with implementation of the Plan and without implementation of the Plan (the No Project Alternative) is shown in **Table 3.12-15**. Implementation of the Plan would reduce heavy-duty truck VHD in 2035 from 354,000 hours to 158,000 thousand hours. This constitutes a 55 percent decrease from the No Project Alternative. **The Plan impact would be less than the No Project impacts for Impact 3.12-3.**

Worker Commute. The relationships between the percent of work opportunities within 45 minutes travel time with implementation of the Plan and without implementation of the Plan (the No Project alternative) are shown in **Table 3.12-16**. Implementation of the No Project Alternative would decrease the work opportunities within 45 minutes travel time by single occupancy vehicle in 2035 as compared to the Plan from 82 percent to 79 percent, would decrease the work opportunities within 45 minutes travel time by high occupancy vehicle from 77 to 68 percent, and would decrease the work opportunities within 45 minutes travel time by transit from 21 to 20 percent. The No Project Alternative would not improve the percent of

work opportunities within 45 minutes travel time. **The Plan impact would be less than the No Project impacts for Impact 3.12-4.**

Transportation System Fatality Rate. The relationship between the transportation fatality rates in 2035 with implementation of the Plan and without implementation of the 2012-2035 RTP/SCS (the No Project Alternative) is shown in **Table 3.12-17**. Implementation of the Plan would result in a system-wide daily fatality rate of 0.17 fatalities per million persons for all travel modes, a decrease of 0.01 daily fatalities per million persons when compared to the No Project Alternative rate of 0.18. **The Plan impact would be less than the No Project impact for Impact 3.12-5.**

Transportation System Injury Rate. The relationship between the transportation injury rates in 2035 with implementation of the Plan and without implementation of the 2012-2035 RTP/SCS (the No Project Alternative) is shown in **Table 3.12-17**. Implementation of the Plan would result in a system-wide daily injury rate of 12.93 injuries per million persons for all travel modes, a decrease of 5.34 daily injuries per million persons when compared to the No Project Alternative rate of 13.67. **The Plan impact would be less than the No Project impact for Impact 3.12-6.**

Indirect Impacts

The Plan includes transportation and land use strategies that focus growth along existing corridors and in urbanized areas, rather than allowing development of vacant, open space/recreation and agricultural lands. This compact development pattern included in the Plan would concentrate population in urban areas and encourage alternative modes of travel other than automobiles. Without the planned development patterns, vehicles miles travels, vehicle hours of delay, worker commute trips, and accident rates would be higher than under the Plan. **The Plan impacts would be less than the No Project impacts for Impact 3.12-7.**

Response to Comment No. 11-42

The excerpt from the Draft PEIR regarding SCAG's 2012–2035 Regional Transportation Plan/Sustainable Communities Strategy presented above is outside the scope of the RPDEIR. Please refer to Section 1.2 of this Final RPEIR for a discussion of the scope of the RPDEIR, the City's obligation to respond to comments outside the scope of the RPDEIR, and the standards for recirculation of a Draft EIR due to "significant new information." The commentor offers no "significant new information" with respect to cumulative impacts within the meaning of CEQA Section 21092.1 and CEQA Guidelines Section 15088.5.

This comment is noted for the record and will be forwarded to the decision makers.

Comment Letter No. 11 (continued)

Comment No. 11-43

Draft

Travel Characteristics of Residents of Multi-Family Housing in the Inland Empire

August 31, 2010

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Executive Summary

This study examines the travel patterns of residents of multi-family housing in California's Inland Empire. The results are intended to support local community planning and the vehicle miles traveled reduction goals of SB 375. Using telephone and mail back surveys, the study finds that multi-family housing residents rely primarily on driving alone in private vehicles for their work and non-work trips. Looking at work trips, however, shows that the residents of multi-family housing have higher reported bus/rail transit shares than county averages for all types of housing. Yet the percentage of work trips in single occupant vehicle trips is similar to county-wide data for all residents, indicating that the use of alternative modes, such as carpooling, is lower for these multi-family housing residents.

Comparing the portion of survey respondents that are close to transit services with those that are farther away does not reveal significant differences in transit use, although those close to transit use the carpool mode more frequently. The projects studied near transit showed less transit use than found in mature transit oriented developments (TOD) elsewhere in California, but this is expected since Inland Empire transit service are less extensive. The housing developments near transit are reasonably dense, but they lack the other elements that reduce single occupant trips such as diversity of land uses, pedestrian design features, transit service frequency, and parking pricing.

These results show that multi-family housing does support transit ridership to a degree, but that the full potential of transit-oriented development in the Inland Empire lies with increased transit service and changes in land use patterns. Inland Empire cities such as San Bernardino, Ontario, and Montclair are actively pursuing TOD strategies; transit providers are developing service enhancements and new services. Cities can build on these existing housing clusters by focusing additional housing density at transit stops and introducing mixed use development that encourages walking trips for shopping and other activities. Site planning must support the pedestrian realm, easy access to transit, land use mixing, and revised parking standards and pricing approaches. Many redevelopment opportunities exist around the Metrolink stations, but since Metrolink alone cannot serve the dispersed geography of the Inland Empire, bus innovations are important as well, to act as connecters to the rail backbone and serve travel within the Inland Empire.

The study concludes with suggestions about future research to better understand the travel patterns of Inland Empire residents, employees, and shoppers, to measure results TOD implementation, and ensure that strategies fit the particular community and market conditions in the Inland Empire.

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Chapter 1. Introduction

Policy makers are seeking to coordinate land use, housing, and transportation planning to support environmental and community development goals. California's primary initiative in this regard is the SB 375 Sustainable Communities Strategy mandate that aims to reduce greenhouse gas (GHG) emissions by reducing vehicle miles traveled (VMT). Many regional, county, and local sustainability planning efforts have similar goals; bringing these policy goals to local implementation, however, involves many implementation challenges.

Historically, VMT has grown faster than population and employment, reflecting the impact of rising incomes and the concentration of growth in automobile-oriented suburbs. In past eras, the predominant response to VMT growth was expanding roadways. For the most part, environment and energy issues associated with VMT growth were addressed with regulations affecting pollution controls and vehicle fuel economy. While the state's GHG efforts include vehicle fuel economy and reducing the carbon content of fuels, SB 375's mandate to reduce VMT marks a significant new approach.

Planners face many questions in responding to SB 375. Can local and regional entities reduce per-capita VMT through coordinated land use and transportation planning? Can an automobile-oriented region such as the Inland Empire (IE) do so? Will the effects of growth in an area such as the Inland Empire swamp possible reductions in VMT per capita?

Numerous efforts are underway to develop plans and modeling techniques to answer these questions. The behavioral questions embedded in these policy directions are significant. To what degree will denser, mixed-use development and improved transit induce residents to use transit, walking, or bicycling modes? Will residents own fewer vehicles? To what degree will they choose destinations for work or shopping that are closer to their homes, reducing the distance drive and/or changing the travel mode used?

Answering all of these questions requires a comprehensive research program. Across the state, researchers are addressing many aspects of the issue. This report tackles a focused, fundamental starting point for considering these questions. Using the Inland Empire as an exemplar of a fast growing, automobile-oriented region, this study provides high quality, local information about the travel behavior of those who live in existing multifamily housing in the IE. It establishes a starting point for gauging the potential of VMT reduction strategies and assessing the results of plans designed to reduce VMT. The primary measure use is the mode choice of residents for work and non-work trips. The smaller the percentage of single occupancy trips, the less VMT.[1]

The travel behavior data provided here is derived from telephone and mail-back questionnaire surveys of the residents of a series of multi-family residential buildings in

[1] VMT can also be reduced by lessening the distance between trip destinations, reducing the number of trips, or combining trip purposes.

the urbanized portion of San Bernardino and Riverside County. The information is of use to the Southern California Association of Governments (SCAG) as they consider transit-oriented development (TOD) policy and develop the region's Sustainable Community Plan. The results can also be used by local cities to assess the likelihood and magnitude of changes that are possible with new land use and transportation policies. Furthermore, the data provide a baseline for future assessments of the success of land use/transportation strategies such as Sustainable Community Strategies and support the development of GIS-based modeling tools being developed by Leonard Transportation Center scholars, SCAG, and others.

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Chapter 2. Literature Review

The past three decades have seen a dramatic increase in VMT in the U.S. VMT has tracked increases in gross domestic product (GDP), outpacing growth in population, and even further outpacing the number of lane-miles of roadway (Sorensen et al. 2008). The result of this trend is high levels of greenhouse gas (GHG) emissions from the transportation sector and extensive traffic congestion.

The run-up in VMT per capita is associated with factors such as increased wealth, increased female participation in the labor force, the influence of the baby boom population cohort on travel patterns, and the location of growth in automobile-oriented areas. Recently, VMT increases have moderated, and in the recent period of high gasoline prices, VMT actually decreased by a modest amount. Despite this, personal travel in vehicles is almost one-quarter of GHG emissions in the state.

VMT and Travel Trends

SB 375 challenges land use, housing, and transportation planners to develop strategies that reverse VMT growth, even when accounting for population and employment growth. Among U.S. regions, Southern California exhibits a pattern of high VMT. Vehicle miles traveled (VMT) per day in the Los Angeles MSA is the fifth highest of 14 major U.S. metro areas (Sorensen et al., 2008). Given the urban quality of many parts of the Los Angeles MSA, one would expect a lower VMT, but that is not the case. VMT is higher than the density would predict for transportation reasons (alternative modes are not well used) and land use reasons (the mix of land uses separates origins and destinations and does not support non-automobile modes).

VMT is likely to be lower in compact regions simply because trip origins and destinations are closer together and the greater mix of land uses mean that multiple trip purposes can be accomplished with one vehicle trip. The other important factor is the impact of land use and transportation planning on the travel mode used. Traditional suburban development patterns favor the automobile over other travel modes. By changing mode choice, each trip made using transit, carpool, vanpool, shuttle, walking, or bicycling reduces VMT.

The Lincoln Land Institute estimated U.S. GHG emissions from the transportation sector (Brown et al. 2008) and ranked the Riverside-San Bernardino-Ontario metropolitan area 92nd highest of the 100 U.S. metro areas in terms of GHG emission per capita from transportation (1.89 metric tons per person in the Inland Empire versus 1.30 for the 100 metro average). This total includes emissions from trucks; when they are excluded the ranking is 83, still among the worst (1.29 metric tons per person). In sum, the Inland Empire faces significant challenges in responding to SB 375 in that it lacks a well-developed transit infrastructure and an existing mixed-use land use pattern to build on. Land use and transit system changes occur over many decades.

Reducing VMT

Five dimensions are generally considered in assessing VMT reduction potential: 1) density of population and employment (making places closer together and encouraging alternative travel modes), 2) diversity of land uses (mixed residential and commercial uses and a balance of housing and jobs), 3) pedestrian- and transit-friendly design, 4) destination accessibility (ability to reach trip destinations), and 5) distance from home or work to transit (e.g., bus or rail within ¼ or ½ mile of trip origin) (National Research Council 2009). That study came to the conclusion that if the density of new and redeveloped housing across a metropolitan area was doubled, it "…might lower household VMT by about 4 to 12 percent, or perhaps as much as 25 percent, if coupled with higher employment concentrations, significant public transit improvements, mixed uses and other supportive demand management measures." (National Research Council 2009, pp. 4).

A key example of a VMT reduction strategy is TOD. TOD links denser, mixed-use development with transit in a walkable environment. This concept has gained popularity in urban areas across the U.S. and is of growing interest in suburban areas. For example, the city of San Bernardino is planning a TOD in its core in conjunction with Omnitrans' development of bus rapid transit service.

The State of California defines TOD in terms of proximity to transit services. For example, SB 375 provides CEQA exemptions for "sustainable community projects" if they are within ½ mile of a major transit stop or high quality transit corridor. The minimum transit threshold is either a rail transit station or a "high quality" transit corridor with a service interval no longer than 15 minutes during peak commute hours. (Section 21064.33 and 2155b).

Two previous California studies of the travel behavior of those who live in TOD provide a comparison point with this study (Lund et al., 2004; Lund and Willson, 2005). These studies showed that those who live near transit-oriented development (TOD) have higher levels of transit use than persons in nearby areas, and that they own fewer automobiles. The results of TOD, however, vary widely depending on the maturity of the transit system and local land use conditions. The best results are found in the Bay Area, where BART and other transit services have had time to mature and land use patterns have been focused around transit services. While most previous TOD studies examine housing around light and heavy rail transit, the focus here is bus and commuter rail.

Multi-Family Housing

Multi-family housing saves land as compared to single family housing, producing desirable outcomes in terms of housing cost per unit and reduced environmental impacts. In addition, multi-family housing generates fewer trips per day than single family housing. Residents of multi-family housing also own fewer automobiles per household, resulting in lower per-unit parking demand. Table 1 (next page) provides a comparison of different forms of data about the impacts of multi-family housing using national data

derived from the Institute of Transportation Engineers (2003, 2004). These national sources are often used in local traffic impact and parking studies. The data show a significant difference in trips per weekday and in peak overnight parking occupancy between single family dwellings to multi-family forms of housing. According to these sources, increasing the share of multi-family housing may by itself have positive impacts in terms of SB 375's goals.

Table 1. Trip Generation and Parking Occupancy

Land Use	ITE Code	Trips per day, weekday	Overnight parking occupancy (associated with vehicle ownership)
Single Family dwelling	210	9.57	1.83
Apartment	220	6.72	N/A
Los rise apartment	221	6.59	1.2
High rise apartment	222	4.20	1.37
Condominium/townhouse	230	5.86	1.46

There are many reasons why multi-family housing has lower trips and parking demand. First, the household size is smaller in multi-family housing (families are more likely to live in a single-family dwelling). Second, these units may have a lower percentage of residents who travel by personal vehicle, such as lower income or older residents. Finally, the multi-family housing may be in a location with more walkable trip destinations, better transit services, and other travel options. These multiple factors mean that one cannot assume that a household's travel patterns are transformed simply because of the creation of a transit-friendly environment.

The trip generation of multi-family housing varies with according to the factors mentioned previously. For example, the range of rates used in computing the average trips per weekday for Land Use 220 is between 2.0 and 12.5 trips per weekday; the standard deviation is 3.02. ITE states that higher trip rates are expected from projects that have larger units, are more expensive (indicating an income effect), and farther from the CBD (less land use mixing and fewer alternatives to driving).

The idea behind SB 375 is to alter land use, housing and transportation patterns so new housing units generates fewer vehicle trips per day than the otherwise would. This can be accomplished by arranging job locations and transit services so that transit or carpools are more fully used in the work commute. Trips can also be reduced if walkable non-work destination are provided, allowing for walking or bicycling to shopping, recreation, education trips, etc. Finally, denser, mixed use development makes it economically feasible to offer more frequent and convenient transit services, which in turn attract more transit riders. Since ITE data concerns trips, not VMT, one must also consider that the goals of SB 375 are also met when the distance of trips is shorted by virtue of origins and destinations being closed together in denser, mixed use forms of development.

Literature on the Inland Empire

The Inland Empire is an understudied region, despite its importance in the future of California. This report and others sponsored by the Leonard Transportation Center seek to remedy that lack of study. One notable exception is Johnson et al. (2008), which provides a broad overview of existing and likely future conditions in the IE. They note that the region has grown at twice the rate of the rest of California and see the Inland Empire growing from 3.9 million in 2005 to 4.9 million in 2015. This growth is driven by migration from other parts of Southern California.

In the realm of housing policy, Bluffstone et al. (2008) critique the pattern of sprawl in the Inland Empire in terms of social costs. Further information on the Inland Empire is provided in Chapter 4, Characteristics of Study Area and Multi-Family Housing.

Chapter 3. Research Design

The research design described below involves surveys of residents of newer multi-family housing complexes in the Inland Empire, focusing on questions such as the mode of travel, vehicle ownership, trips patterns, and attitudes.

Research Goals and Questions

When this study was first conceptualized by the principal investigators, there were two major target populations for the study: Inland Empire residents who live in multi-family housing within 1/4 mile of a major transit stop or high quality transit corridor (termed the "study group") and those who live in multi-family housing but who have limited or no bus service or Metrolink service within ¼ mile (termed the "control group"). Initial field work revealed, however, that although the Inland Empire has many promising TOD plans and projects, there are few existing and occupied developments that meet the formal definition of TOD -- high frequency transit, density, and mixed land uses. In general, land use mixing and transit frequency are lacking. As a result, comparisons of study group vs. control group cannot be made with the same expectation as in previous TOD studies. Although those comparisons are provided in the analysis chapter, the main purpose of the study was revised to become a baseline measurement of travel behavior among multi-family housing residents in the Inland Empire, before the establishment of well-defined TODs.

The study's research goals include the following:

1. To provide an understanding of the travel behavior of residents of multi-family housing in the Inland Empire.
2. To provide a baseline measurement of trip making against which future TOD projects can be assessed.
3. To provide practical guidance for forms of development, transit options, and policies that can reduce household VMT from residents of multi-family housing in the IE.

Research questions that flow from these goals include the following:

1. What is the level of vehicle availability among residents?
2. Was access to transit a factor in respondents' residential location choice?
3. What are the respondents' perceptions of the local transportation environment, and do those perceptions differ between respondents from study sites and control sites?
4. What is the level of single-occupant vehicle and transit travel among residents? How do those mode choices vary among work and non-work trips? How do those mode choices vary between study sites and control sites?
5. How do respondents from study sites and control sites differ relative to demographics/socioeconomic characteristics, travel patterns (reason for the trip,

their mode of transportation, length of trip and parking at destination), attitudes toward transportation, and use of public transportation?

5. Are there relationships between various demographic/lifestyle factors and auto dependency (conceptualized as percent of single occupant vehicle trips)?

The study sites have densities of 20 units per acre or more and they are within ¼ mile of transit services, but they lack the required transit frequencies and land use mixing to be considered true TODs. While not meeting the formal definition of TOD, these study sites provide insight into *transit-proximate* development that could become full TOD with transit service improvements and land use intensification.

Survey Instrument

A variety of methods are available to derive information on travel behavior, including intercept surveys, household surveys, measurements of traffic volumes and transit use, and use of existing data sets. Household surveys are often combined with census data in regional modeling efforts. The full behavioral dimensions of travel are often best captured with a form of household survey because the data can be used to associate individual level demographic and attitudinal features with travel behavior.

Forms of household survey vary in their comprehensiveness, ranging from travel diaries in which household members report all trips for a defined time period to simpler survey instruments focusing on particular trips. This study uses a household survey completed by the head of household or partner that concerns the top three (as identified by the respondent) trips taken on the day surveyed.

The "top three trips" approach is a good compromise between expensive household surveys and aggregated data sources. Resources were not available for a full household travel diary. The survey approach does not provide a complete inventory of daily VMT but provides important information on mode choice, travel times and attitudinal factors. The "top three trips" follows the approach taken by Lund et al. (2004) and Lund and Willson (2005) in previous studies of TOD in California, allowing comparisons with those data sets. In other words, once we know the mode choice starting point for the Inland Empire, we can assess the prospects for the region approaching the transit trip shares found in more urbanized portions of the state.

Respondent Selection and Mode of Delivery

Selection of survey respondents began with the CPP research team providing IAR with a listing of multi-family housing complexes in Riverside and San Bernardino counties, some of which were classified as a study sites, and others which were classified as control sites.

Apartment complexes throughout the Inland Empire were screened to select candidate sites for study. Those sites are characterized by being newer, three- to four-story buildings with over 100 units. Field reconnaissance was conduct by windshield surveys

in prospective areas, searching apartment rental websites, and searching on Google Earth, Google Maps, and Bing Maps.[2] Because a complete inventory of potential study sites was not readily available, it is possible that the methods used to find potential sites did not exhaust the list of qualified study sites. The number of housing units within each complex was obtained through telephone calls placed to each of the potential study sites. Using Google Earth and an online tool that measures the area of polygons made in Google Earth,[3] aerial photography of each site was used to calculate the number of acres occupied by each complex. The density of each complex was obtained through the division of the number of housing units and the area of each site. Researcher at IAR conducted further field checks from the list to determine the full list of addresses associated with each project. Appendix A summarizes the characteristics of each study site, organized in order of density measured by the number of units per acre (highest to lowest). A total of 4,062 units were identified in this group, with an average density of 27 units per acre.

The control group study sites are shown in Appendix B. It includes 5,759 units with an average density of 20.9 units per acre.

Although Lund et al (2004) and many other TOD survey used a mailed/mail-back questionnaire, the team decided that this study should be conducted via a phone survey approach. The study team wanted to test the potential of telephone surveys to yield a better level of accuracy and a response rate than mailed surveys.

Since apartment/condo owners and managers would not provide IAR with complete phone lists of apartment/condo dwellers, citing federal laws and corporate policies, IAR employed the following multi-step procedure to select survey respondents:

1) IAR purchased a sampling frame from *Scientific Telephone Sampling* (STS) which included phone numbers (both cell phones and land lines) for all listed phones within ¼ mile of the address. This list contained approximately 2,343 phone numbers, some of which were non-working numbers or business numbers rather than apartment/condo residential numbers. Even with increasing the number of call-backs to working numbers from 5 to 6, it was clear that this sampling frame would fall far short of obtaining the desired sample size.

2) IAR enriched the STS sampling frame by inputting every apartment/condo address (both study and control sites) into the on-line white pages so as to obtain additional working numbers.

3) In order to obtain unlisted numbers IAR employed a variation of a random digit dialing technique in which we added and subtracted constant numbers to the listed numbers, and a screening question was asked to confirm that indeed the respondent lived in multi-family housing within the geographical area of interest.

[2] The sites were identified by Michael Roberts, a graduate student in the Department of Urban and Regional Planning at CPP at part of his masters thesis research.
[3] GeoUtilities can be found at http://www.geo-news.net/index_geof.html

4) The above procedures still did not produce a sampling frame that would yield a sufficient sample size. The IAR Project Coordinator drove to one of the study site apartments and noted that the address provided was only one building of a larger apartment/condo complex. She confirmed that this was also the case for other study sites, thus the decision was made to contact the management office of every study site for a complete map of the complex. This approach yielded additional addresses and IAR staff found listed phone numbers for those addresses in the on-line white pages.

To the extent possible, therefore, each person with a telephone residing in the designated areas had an equal chance of being included in the survey.

A $200 gift card drawing was offered as an incentive for participation in the survey. The above procedures resulted in 306 completed phone surveys conducted between March 24 and April 12, 2010, with significantly more surveys from the control group than study group (not surprising since there were 22 control sites and only 10 study sites). Further, this sample size was still too small for a 95% level of confidence and an accuracy of +/- 5% typically employed for studies of this nature. IAR decided to modify the mode of delivery by sending post cards to 4,008 addresses of study site apartments/condos asking the recipient to call IAR to take the phone survey and receive a guaranteed incentive of a $10 gift card for the first 50 callers plus entrance into the lottery for the $200 drawing as an inducement to participate. This procedure yielded an additional 26 telephone surveys conducted between April 22 and May 6, 2010.

Sample size was still less than desired, so a final delivery approach was undertaken in which full printed surveys were mailed to 2,000 residents in study site apartment/condos. That mailed survey approach yielded an additional 83 surveys, received between June 17, 2010 and July 20, 2010. In all, the total sample size was 415 surveys completed with a mixed-mode survey approach.

Questionnaire Construction and Interview Procedures

To allow for comparisons with other studies, the starting point for the questionnaire was a mailed survey instrument used in Lund et al. (2004) and Lund and Willson (2005). The study team transformed and enhanced this instrument into a telephone survey so as to best meet the research needs of this project. IAR translated the questionnaire into Spanish, pretested the questionnaire, and modified and revised the questionnaire where warranted. The questionnaire was designed to last on average between 10 and 12 minutes. The mail survey was then constructed based on the telephone survey. The telephone and mail survey instruments are provided in Appendices C and D, respectively.

Telephone interviews were conducted by thoroughly trained CSUSB students via telephone from the facilities of CSUSB's Institute of Applied Research and Policy Analysis in San Bernardino, using Computer Assisted Telephone Interviewing (CATI) software. Spanish speaking interviewers were available throughout the interviewing

process and used when considered necessary to improve the chances of the respondents' participation and the clarity of the data gathered.

Calls were made Monday through Friday from 9:00 a.m. to 9:00 p.m. and on the weekends (Saturday 9:00 a.m. to 5:00 p.m., and Sunday 1:00 p.m. to 7:00 p.m.). Institute Staff CATI Shift Supervisors (CSUSB students) will be present for all interviews conducted so as to ensure the quality and reliability of the interviews. To further ensure quality control, supervisory personnel randomly selected ten percent of all completed interviews (at least one completion per interviewer) and made call-backs for verification.

Chapter 4 Characteristics of Study Area and Projects

The study area is the Inland Empire (IE) portion of San Bernardino and Riverside counties lying south of the San Bernardino mountains, contiguous to the Los Angeles metropolitan area. The Inland Empire was selected for study because it represents a fast-growing suburban area that is experiencing a transition toward greater density, mixed-use development, and employment. A transit backbone of commuter rail (Metrolink) and bus is being developed and many cities have plans for denser, mixed-use development. For example, the city of Ontario recently adopted a new general plan that includes higher density, mixed-use land use designations.

As mentioned previously, the IE's population growth outpaces the region and California, fueled by migrants from the greater Los Angeles area seeking lower cost housing. On the economic side, major employment categories include manufacturing, construction, and transportation and distribution. Recently, the area has been hit hard by the housing crisis and recession, with the unemployment rate standing at about 15% in the summer of 2010.

The Inland Empire is represented on Figure 1. Encompassing portions of San Bernardino and Riverside counties, the area does not have an exact geographic definition, but it generally considered to be the core urbanized area the runs east/west along the I-10 and 60 freeways, bordered in the north by the San Bernardino Mountains and in the south by Orange County.

Study Area

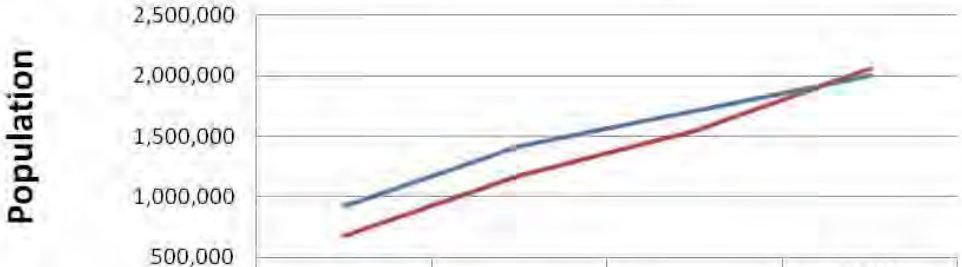
The study area for this study is areas that are likely to have multi-family housing and a reasonable future prospect of TOD and transit development. That general area, shown in Figure 1 includes surveys from the San Bernardino cities of Chino, Chino Hills, Colton, Fontana, Highland, Loma Linda, Montclair, Ontario, Rancho Cucamonga, Redlands, Rialto, San Bernardino, Upland, Yucaipa. In Riverside County, surveys were received from residents in the cities of Moreno Valley and Riverside.

Figure 1: Inland Empire Study Area

Study Area Characteristics

Figure 2 shows that rapid growth that has occurred in the two-county area. The fast growth is associated with available land and lower land costs on the edge of the Los Angeles metropolitan area. Although housing construction has slowed because of a national recession, it is expected to resume in the future. This makes the Inland Empire very important from the perspective of SB 375 because this is the area in which a significant portion of California's growth will occur. This is a place where land use, housing and transportation provision must be well coordinated if automobile dependency is to be reduced. The data that follows in this section is drawn from the U.S. Census and American Community Survey.

Figure 2. Population Growth in San Bernardino and Riverside Counties



	1980	1990	2000	2006-2008 (Estimate)
San Bernardino	919,700	1,418,380	1,709,434	1,999,753
Riverside	680,700	1,170,413	1,545,387	2,055,232

Source: Roberts 2010

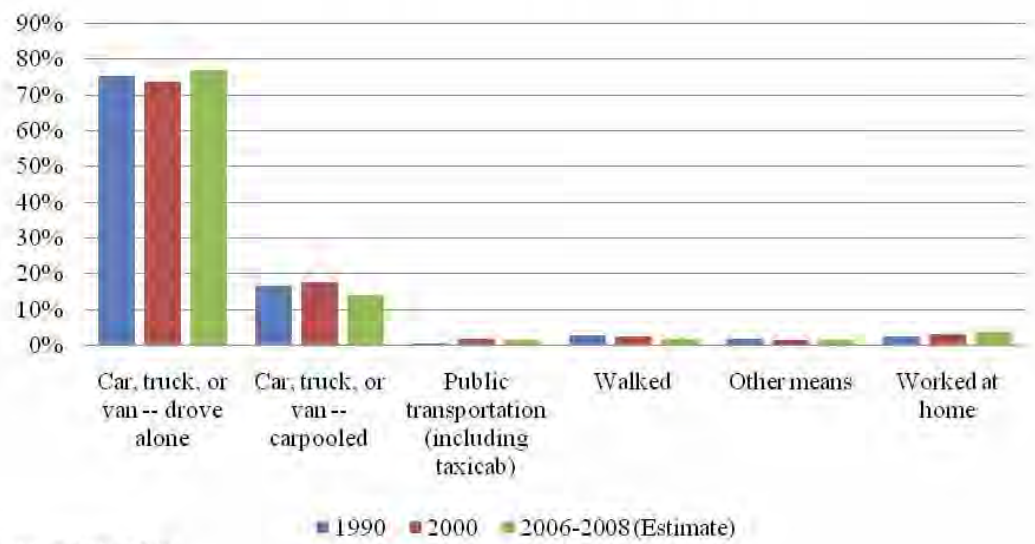
Table 2 (next page) shows the characteristics of the population in the two counties. Compared to California as a whole, the area represents the conditions at the expanding edges of metropolitan areas, with a greater share of owner-occupied housing, larger household size, and a younger population. Given that inland suburban areas are attractive for their lower cost housing, the population has a lower than average median household income. The lack of jobs/housing balance and spread out nature of San Bernardino and Riverside counties is reflected in longer travel time for work commutes; similar factors explain the higher level of single occupant vehicle commuters.

Table 2. Demographics of San Bernardino and Riverside Counties

2006 – 2008 (Estimate)	San Bernardino County	Riverside County	State of California
Population	1,999,753	2,055,232	36,418,499
Occupied housing units	589,058	647,443	12,177,852
% housing units renter occupied	35.2%	31.1%	42.2%
Average household size	3.32	3.13	2.92
Median household income	$56,575	$58,168	$61,154
Median age	30.3	31.6	34.7
Mean travel time to work (minutes)	29.2	31.6	27.0
Single occupant vehicle for the journey to work (%)	77.1%	75.2%	72.9%

Figure 3 provides time series information on the patterns of travel mode choice in the study counties. Consistent with regional trends, modest increases in transit use have been counteracted by decreases in carpooling and vanpooling, leading an *increased* percentage of work commuter driving alone. View simply in terms of past trends, there is no indication that planners should expect reductions in drive alone commuting without new plans and policies.

Figure 3. Trends in Commute Mode Share.



Source: Roberts (2010)

The average journey-to-work travel times for workers of San Bernardino and Riverside Counties are among the longest in the region, as shown on Table 3. This measure reflects

three elements: trip length, travel speed, and mode choice (since transit door-to-door times are generally longer than driving). In the case of the Inland Empire, the major contributors are long travel times and low travel speeds associated with peak period congestion.

Table 3. Comparison of Travel Time to Work, 2006-08

County	Mean journey-to-work travel time (minutes)
Riverside	31.6
Los Angeles	29.2
San Bernardino	29.2
Ventura	26.4
Orange	25.9
Weighted five-county average	28.7

Because there are not sufficient jobs for local residents, there is a high level of commuting to employment outside the Inland Empire. Johnson et al (2008) show that despite strong local job growth, 20 percent of the region's workers commute to jobs outside the region, barely down from 21 percent in 2000. Those commuters tend to be the most highly educated of Inland Empire residents. While the largest job destinations for commuters are Los Angeles or Orange counties, Johnson et al. (2008) show that the greatest increase in commuting outside the region was to San Diego County.

Multi-Family Housing Characteristics

Although there are promising plans to develop TOD and transit in the IE, the concept is in its infancy. Inland Empire residential complexes are generally single-use developments and are designed primarily to accommodate private vehicular transportation. While transit service may be nearby, transit frequencies are low (e.g., 30-60 minutes between buses) and the level of connectivity to dispersed destinations is low. The housing complexes studied here are moderately dense, but most of them lack the transit service and mixed of land uses normally associated with TOD. The travel behavior measured in this study, therefore, represents travel choices under conditions of plentiful parking, unpriced road use, relatively low levels of transit provisions, and disconnected land uses. These are conditions where one would expect to find a high reliance on private vehicle use.

Figure 4 shows a typical project that was surveyed. While attractively landscaped, the project follows typical suburban design standards, including substantial setbacks, landscaped berms, plentiful parking and roadway capacity. In addition, the projects generally do not provide direct pedestrian connections to surrounding land uses.

Figure 4. Typical Project Surveyed

Photo credit: Roberts 2010

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Chapter 5. Analysis of Travel Behavior and Vehicle Availability

This chapter presents the analysis of the survey results in two sections. The first section describes the results from the full set of 415 survey respondents, including rental and ownership multi-family housing. The second section describes the results from the subset of respondents in rental housing, focusing on household vehicle availability and its implications for parking demand (301 respondents).

Analysis of All Multi-Family Respondents

The following describes the analysis of the full set of respondents, including both renters and condominium owners. It provides information on the personal and household characteristics of respondents, length of residency, reasons for residential location, perception of the local transportation environment, travel patterns, attitudes toward transportation, open ended comments, and analysis of factors that explain travel choices. Because the study is interested in determining if respondents in a study area sites (residential complexes within ¼ mile of transit) have different characteristics than those that are not near transit (the control sites), the results for each group are shown in many of the tables that follow.

Personal Characteristics of Respondents

The following section describes the demographic characteristics of the respondents of this study. It should be noted that these are the personal characteristics of the responder (who is the head of household or partner) and should not used to determine the general characteristics of the households.

Age, Gender, Ethnicity and Occupation

The average age of the respondent was 44 years, with a range of 18 to 101 years. More females (65.0%) answered the combined survey than males (34.8%). Most were Caucasian (42%), followed by Hispanic (30.4%) and African American (21.7%). In terms of the occupation of the respondent, the largest category was "professional" (18.2%) which would be even larger if one were to collapse some of the other categories, such as medical, teacher/professor, etc. into the "professional" category.

Household Characteristics

This section addresses household characteristics, such as household type and size, number of available vehicles, parking and length of residency.

Household Income

The respondents were evenly distributed among the income categories, with the greatest single concentration of respondents indicating that their income was in the range of $45,001 to $60,000. A greater percentage of study site respondents, however, reported having a higher income than control site respondents (58.4% reported an annual household income greater than $45,000 compared to 40.9% of control site respondents). The reader will note that for households in which there are several roommates living together as a family unit, it is unclear if the respondent included the roommates' income in their response.

Household Type and Size

Regarding the type of household (apartment vs. condo/townhome) and size of the household (number of bedrooms and the number of people living in the household), there are some marked differences between households within the study site vs. the control site. Residents in the study sites are more likely to live in an apartment (89.4% study sites vs. 64.7% control sites), whereas residents within the control sites are more likely to live in a condo/townhouse (35.3% control sites vs. 10.6% study sites). Moreover, household size is smaller for study site households (66.7% of study site households have one or two residents vs. 50.2% of control households with one or two residents), and these households do not have as many bedrooms as control site households (39.4% of study site respondents live in studio or 1 bedroom apartments, vs. 26.6% of control site respondents). Finally control site respondents report children in the household under the age of 16 (56.5%) in larger numbers than study site respondents (27.6%). These factors may stem from the fact that study site are more likely to be smaller, newer units.

Vehicle Availability and Parking

Up to this point, our analysis suggests that the study sites have many of the same characteristics that one would expect in a fully developed TOD site…smaller household size, fewer children in the household, and fewer bedrooms than households in the control sites. But it was somewhat surprising to find that the study site respondents did not have fewer cars than respondents in control sites. The findings indicate that study site households have ***more*** vehicles than their counterparts in the control group (56.9% of study site households have more than one vehicle vs. 45.2% of control site households). One plausible explanation is found when looking at household income and number of drivers in the household. Specifically, study site households have a higher income when compared with the control group (see demographics above) and also are more likely to have at least one vehicle available for each person of driving age (74.1% vs. 53.1%).

In terms of where residents park their vehicles, overall 69.2% said they park their vehicle(s) in a private garage assigned to their unit (representing 345 vehicles), 47.9% park in a shared garage or outdoor lot in their development (representing 237 vehicles), and 11.7% said they park on the street (representing 63 vehicles). When looking at study vs. control site respondents, Table 4 shows the breakdown of where they park their cars.

Table 4. Where do you park?
(% of people who answered "yes")

	Study	Control	Total
Private garage assigned to unit	72.7% (112 vehicles)	67.4% (233 vehicles)	69.2% (345 vehicles)
Shared garage or outdoor lot in development	57.8% (98 vehicles)	43.0% (139 vehicles)	47.9% (237 vehicles)
On the street	7.8% (12 vehicles)	13.6% (51 vehicles)	11.7% (63 vehicles)

Length of Residency

Regarding length of residency, study site respondents report having lived in their current location for fewer years than control site respondents. Specifically, the mean length of residency for study site respondents is 1.98 years, as compared to control site respondent which is 4.49 years. In fact, almost two-thirds of study site respondents (62.6%) have lived in their current residence for one year or less (compared to only 29.2% of control site respondents). This finding might be expected since there are more respondents living in apartments in the study sites as opposed to control sites. As mentioned previously, this length of residency applies to the respondent, which might be different than the household in the case of unrelated household units.

Residential Location Choices

Respondents were read a list of the reasons for moving to their current residence and asked to identify which were important to them (note: this was a multiple response question where respondents could select more than one response). Overall, the top three factors include "cost of housing" (71.8%), "type or quality of housing" (61.9%) and "quality of neighborhood" (60.0%). They were then asked to identify the MOST important factor, and 32.4% said the "cost of housing", 16.4% said the "quality of the neighborhood" and 11.1% said the "type or quality of housing". Table 5 illustrates the differences between study site respondents and control site respondents as to the most important factor in deciding to move to their current location. Clearly, access to transit is a minor factor, ranked 7th of the list of reasons. This is not surprising because the level of transit service is low.

Table 5. Which was the MOST important factor to you in deciding to move to your current residence?

	Study	Control	Total
Cost of housing	22.7%	36.9%	32.4%
Type or quality of housing	18.2	7.8	11.1
Quality of local schools	0.8	12.8	8.9
Quality of neighborhood	12.9	18.1	16.4
Close to job	11.4	9.2	9.9
Access to shopping and services	1.5	5.0	3.9
Access to transit	0.8	1.4	1.2
Access to highway	1.5	0.4	0.7
Recreational opportunities	0.0	0.4	0.2
Other	3.8	8.2	6.8

Perceptions of Local Transportation Environment

Finally, respondents were asked to rate their neighborhood as a place to walk to destinations and as a place for people to take buses or trains. Overall, 59.9% of respondents rated their neighborhood as a "good" or "excellent" place for people to walk to destinations and 47.9% rated it as a "good" or "excellent" place for people to take buses or trains (see Table 6). Control group respondents generally gave higher ratings than their study site counterparts. These findings suggest that the study sites, despite being the close to transit service, do not provide the pedestrian environment or transit service frequencies that create a favorable environment for transit.

Table 6. Percent of Respondents who Rated their Neighborhood as "Good" or "Excellent"

	Study	Control	Total
A place for people to walk to destinations	48.5	65.2	59.9
A place for people to take buses or trains	46.4	48.5	47.9

Travel Patterns

Respondents were asked a variety of questions regarding the three main trips they took on the business day prior to the day they responded to the survey. Each trip refers to one direction of travel (for example home to work is one trip, work to home is another trip, etc.). Respondents self-identified the three main trips.

The following analysis describes the travel patterns in terms of reason for the trip, their mode of transportation, length of trip, and parking at their destination.

Trip Purpose, Mode of Transportation, Trip Length and Parking at Destination

For purposes of analysis, the reason for the trip was coded as "work" trips, "non-work" trips and trips to go "home". Non-work combines trip purpose such as school, shopping,

meal or snack, errands, recreational, medical, etc. The majority of trips were for non-work (60.5%) and another 22.4% were work related. Study site respondents were more likely to report work trips than control site respondents (27.8% vs. 19.0%).

Table 7 shows the results for all reported trips -- the majority of respondents report that they drove alone (75.1%), while 16.2% carpooled and 5.3% said they used some sort of public transit, either the Metrolink (1.7%) or the bus (3.6%). Walk and bicycle trips consisted 2.2% of trips, a low percentage considering that non work trips are included in this total. This reflects the automobile orientation of the Inland Empire's transportation system and urban form.

Table 7. Trip Destination and Mode of Transportation

	Work	Non-Work	Home	Total
Drove Alone	76.1%	75.1%	73.0%	75.0%
Carpooled	12.6%	17.4%	17.2%	16.2%
Rode rail transit (Metrolink)	2.5%	0.7%	4.1%	1.7%
Rode the bus	6.9%	2.6%	3.3%	3.6%
Bicycled	0.6%	0.2%	0.8%	0.4%
Walked	0.0%	2.8%	0.8%	1.8%
Other	1.2%	1.1%	0.8%	1.1%

Study site respondents were more likely than control site respondents to have carpooled with someone (22.9% vs. 12.1%). There were no differences between the two regarding use of public transit (5.1% of study site respondents reported using the bus or train vs. 5.4% of control site respondents).

Overall, the average length of a trip was 33.29 minutes (34.76 minutes for trips taken by study site respondents and 32.37 for trips taken by control site respondents).

Work Trips: When breaking down commuting patterns by trip purpose, we see that control site respondents whose main purpose of travel was to go to work were more likely to have driven alone (79.8% for control site and 72.0% for study site). In fact, study site respondents were far more likely than control site respondents to have carpooled with someone (16.0% vs. 9.5%), and slightly more likely to have used public transportation (10.7% vs. 8.3%). For context, a survey of resident of TODs along the Metro's Gold line, which serves Pasadena and downtown Los Angeles, found a 15% transit share (Lund and Willson 2005). Approximately 1% of control site respondents report using Metrolink to commute to work (see Table 8).

Table 8. Mode of Transportation for Respondents Traveling to Work

	Study N=75	Control N=84	Total N=159
Drove Alone	72.0%	79.8%	76.1%
Carpooled	16.0%	9.5%	12.6%
Rode Rail Transit (Metrolink)	4.0%	1.2%	2.5%
Rode Bus	6.7%	7.1%	6.9%
Bicycled	1.3%	0.0%	0.6%
Walked	0.0%	0.0%	0.0%
Other	0.0%	1.2%	0.6%

In terms of parking at their workplace, the vast majority of trips for both study site and control site ended in parking that was "free and easy to find" (68.0% for study site respondents and 75.0% for control site respondents).

Average length of trip for study vs. control site respondents differed slightly, with 39.3 minutes of travel recorded for study site respondents compared with 34.9 minutes for control site respondents.

In addition, those who are employed and reported traveling to work on the previous day were asked a series of questions regarding their employer's policies on work schedules and commuting issues. The vast majority of respondents indicate that their employer provides free parking for the employees (85.1%). Almost one-half also said their employer allows them to work flexible hours (45.1%). When looking at study site respondents vs. control site respondents, we see that (with the exception of providing free parking) more study site respondents indicated that their employer offers work schedule flexibility and assistance with commuting than control site respondents (although the differences are relatively small). Table 9 shows the percentage of respondents who answered "yes" to these questions.

Table 9. Employer Policies on Work Schedules and Commuting Issues
(Respondents who said they traveled to work the previous business day)

	Study	Control	Total
Does your employer allow you to work flexible hours?	46.6%	43.5%	45.1%
Does your employer allow you to work from home?	20.5%	10.1%	15.5%
Does your employer provide a car for use during the day?	17.8%	5.7%	11.9%
Does your employer provide free parking?	81.7%	88.6%	85.1%
Does your employer help pay for transit?	17.1%	8.8%	13.0%
Does your employer help pay for tolls, fuel or other commuting costs?	21.9%	12.9%	17.5%

The preceding analysis looked only at people who reported that they traveled to work on the previous business day. The analysis on Table 10 depicts ***all*** people who said they are employed, regardless of whether they report traveling to work on the previous day (this also includes people who work from home).

Table 10. Employer Policies on Work Schedules and Commuting Issues (all workers)
(All respondents who are employed)

	Study	Control	Total
Does your employer allow you to work flexible hours?	50.0%	45.4%	47.5%
Does your employer allow you to work from home?	18.1%	10.2%	13.9%
Does your employer provide a car for use during the day?	12.8%	11.9%	12.3%
Does your employer provide free parking?	83.9%	89.9%	87.1%
Does your employer help pay for transit?	13.2%	11.3%	12.2%
Does your employer help pay for tolls, fuel or other commuting costs?	19.1%	15.7%	17.3%

Finally, respondents were asked how often they use the bus or rail to commute to work or school outside the home (Question 22). The vast majority (80.3%) said they "never" take it and 6.3% said they take it every day (5 or more days a week). Comparing study site and control site respondents use of public transit, more study site respondents report "never" using public transit (83.7%) as compared to control site respondents (77.8%). In addition, more study site respondents said they use it every day (7.7% vs. 5.2%).

Non-Work Trips: About 6 out of every 10 trips (60.5%) reported were for non-work related activities. These include medical appointments, shopping, visiting friends and/or relatives, running errands and going for a meal or a snack. Just about one-half of trips made by study site respondents were non-work trips (50.4%) and 66.7% of trips made by control site respondents were non-work trips. As we saw with work trips, Table 11 shows that control site respondents were more likely to have driven alone than study site respondents (80.3% vs. 64.0%), and study site respondents are more like to carpool with someone (28.7% vs. 12.2%). In addition, very few of them took public transit (2.9% for study site and 3.4% for control site respondents).

Table 11. Mode of Transportation for Respondents Taking Non-Work Trips

	Study N=136	Control N=294	Total N=430
Drove Alone	64.0%	80.3%	75.1%
Carpooled	28.7%	12.2%	17.4%
Rode Rail Transit (Metrolink)	0.0%	1.0%	0.7%
Rode Bus	2.9%	2.4%	2.6%
Bicycled	0.7%	0.0%	0.2%
Walked	3.7%	2.4%	2.8%
Other	0.0%	1.4%	0.9%

Regarding parking at their destination, nearly three-quarters of both study site (72.0%) and control site respondents (73.4%) report that parking was "free and easy to find".

There was a significant difference in length of non-work trip taken by the two groups: 32.2 minutes for trips taken by study site respondents and 29.5 minutes for trips taken by control site respondents.

Trips Home: The third category of trips that respondents reported taking were trips back home (17.2% of all reported trips). More study site respondents reported trips back home than control site respondents (21.9% vs. 14.3%). As opposed to all other trips, Table 12 shows that control site respondents were less likely to report traveling alone (69.8% vs. 76.3% for study site respondents) and study site respondents were more likely to have carpooled with another person (18.6% vs. 15.9% for control site respondents). Further, we see a difference with regard to traveling home using public transit. With work trips, study site respondents were more likely to have used public transit than control site respondents. With non-work trips study site respondents were slightly less likely to have used public transit. However, regarding trips back home more control site respondents reported taking public transit than study site respondents (11.1% for control site respondents and 3.4% for study site respondents).

Table 12. Mode of Transportation for Respondents Returning Home

	Study N=59	Control N=63	Total N=122
Drove Alone	76.3%	69.8%	73.0%
Carpooled	18.6%	15.9%	17.2%
Rode Rail Transit (Metrolink)	3.4%	4.8%	4.1%
Rode Bus	0.0%	6.3%	3.3%
Bicycled	1.7%	0.0%	0.8%
Walked	0.0%	1.6%	0.8%
Other	0.0%	1.6%	0.8%

When asked about parking once they got home, 74.6% of study site and 77.8% of control site respondents said that it was "free and easy to find."

There was a significant difference in length of trips home taken by the two groups: 35.07 minutes for trips taken by study site respondents and 42.67 for trips taken by control site respondents.

Attitudes Toward Transportation

In an effort to measure the respondent's attitudes toward public transportation versus driving in a car, respondents were asked to indicate whether they "strongly agree", "agree", "disagree" or "strongly disagree" with three attitudinal statements. Table 13 shows that just over 40% of respondents said they feel uncomfortable driving under certain conditions (such as long distances, nighttime, or unfamiliar routes), 62.2% think they would benefit greatly from being able to get around without a car, and 44% think that government should spend more transportation money on expanding roads and highways rather than on public transit expenditures. The following table shows the percentage of respondents from the study sites and the control sites who "strongly agree" or "agree" with each statement. The larger percentage of control residents indicating that they are uncomfortable driving a car under certain conditions does not correspond with typical expectations of TOD sites versus control sites, but may relate the older average

age of respondents in the control sites. In addition, few study site respondents picked the location for transit accessibility.

Table 13. Attitudes Toward Transportation

	Study	Control	Total
I feel uncomfortable driving a car under certain conditions, such as long distances, at nighttime, or on routes I don't know well.	35.1%	48.0%	43.9%
I and/or other members of my household would benefit greatly from being able to get around sometimes without a car.	68.1%	59.4%	62.2%
The government should spend more transportation money on expanding roads and highways rather than on public transit.	47.2%	42.5%	44.0%

Summary of Open Ended Comments

At the end of the questionnaire respondents were given an opportunity to provide any additional comments related to transportation in general. While respondents provided a wide range of responses, most of them centered on reasons why people do not use public transportation. Table 14 shows the most-often mentioned responses, provided by 15 study site respondents and 92 control site respondents:

Table 14. Open Ended Comments
General Comments (Number of mentions)

	Study	Control	Total
Improvements and better public transportation	2	25	27
More Metrolink Stops	2	8	10
More frequent stops per bus stop	1	7	8
Metrolink fare is too high, need group rates	2	3	5
Add more bus stops	1	6	7
Not enough buses	0	5	5
Longer hours for public transportation	0	5	5
Need assistance for the elderly and disabled	0	6	6

Analysis of Factors that Explain Transit Use

In this section, we examine relationships among variables that might help explain transit use.

Hypothesis #1: Respondents in the study sites are more likely to use public transportation than those in the control sites.

In order to determine if there is a difference between study site respondents and control site respondents in terms of their use of public transportation, a chi-square test of independence was conducted. The results of the chi-square were: X^2 (1, N=718) = .014, **p=.906,** therefore we cannot reject the null hypothesis that there are no differences between the two groups in terms of use of public transportation. This confirms that the

study sites are not fully developed TOD sites and have not yet realized significantly higher transit shares.

Hypothesis #2: The respondents in the study group are less likely to drive alone than those in the control group.

A chi-square test of independence was conducted to determine if there is a difference between study site respondents and control site respondents in terms of whether or not they drove alone.

The results of the chi-square are as follows: X^2 (1, N=718) = .8.558, **p=.003**, therefore we reject the null hypothesis that there are no differences between the two groups and report that respondents in the study group are indeed less likely to drive alone than respondents in the control group. While this result might be interpreted that the study sites are demonstrating TOD characteristics, which include walking trips, bicycle trips, as well as transit trips, the difference between the study and control groups is mostly attributable to greater carpooling trips in the study sites. Carpooling is an effective transportation mode for automobile-oriented areas and does achieve greenhouse gas reduction and energy consumption goals, but it is not traditionally considered a feature of TOD. This higher rideshare rate in the study sites is an intriguing issue that deserves further study. If multi-family housing in emerging TODs can initially produce more carpooling, that outcome supports the goal of SB 375 and is well suited to accessing the dispersed origins and destination in the Inland Empire.

Hypothesis #3: There are differences in length of travel between control site and study site respondents in terms of overall travel, travel for work, non-work, and travel back home.

In order to determine if there are any differences between control site respondents and study site respondents regarding the average length of the trips they took, an Independent Samples T-test of means was performed. We looked at overall trip length, and we also broke it down by trip type (work, non-work, home). We see from Table 15 (next page) that there are no significant differences between the two groups regarding the length of the trips they reported taking.

Table 15. Average Trip Length
Independent Samples Test

		Site		P-Value
		Study	Control	
Overall Trip Length	Mean	34.76	32.37	.398
	N	258	412	
Work Trips	Mean	39.29	34.92	.411
	N	70	77	
Non-Work Trips	Mean	32.15	29.48	.494
	N	130	274	
Trips Home	Mean	35.07	42.67	.256
	N	57	60	

Hypothesis #4: There are relationships between various demographic/lifestyle factors with auto dependency (conceptualized as percent of single occupant vehicle trips). More specifically:

- People with higher incomes have more SOV trips than those with lower incomes
- People with more cars available in their household have more SOV trips than those with fewer cars
- People who rate their neighborhood negatively as a place to walk and take transit have more SOV trips than those who rate their neighborhood more positively.
- People who reported that access to transit was an important factor in their decision to move to their current residence have fewer SOV trips than those for whom access was not mentioned as being important.
- People who live in a condo have more SOV trips than those who live in an apartment

One measure of auto dependency is the percent of SOV (single occupancy vehicle) trips taken. A new variable was created representing the percentage of time the respondent said they drove alone on the previous day (for example, someone who made two trips and said they drove alone on one of those trips was coded as 50%, someone who made three trips and said they drove alone on two of them was coded as 66.67%, someone who made one trip and drove alone is coded as 100%).

Although the prior analyses have used either chi-square or t-tests to examine relationships between variables and differences between means, a non-parametric test of association such as Spearman correlation is more appropriate to look at the relationship between percent of SOV and income and ratings of the neighborhood (which are ordinal variables) and between SOV and number of available vehicles. As seen in Table 16 below, the only factor that is significant in determining auto dependence is the number of available vehicles.

Table 16. Factors that Might Influence Auto Dependency

	N	Spearman's rho	One-tailed P-Value
Income	290	.022	.354
Number of available vehicles	316	.130	.010
Rate of neighborhood in terms of walking	317	.049	.191
Rating of neighborhood in terms of taking the bus or train	302	-.006	.460

The Mann-Whitney U test (a non-parametric test of location) was used to examine the difference between auto dependence of apartment vs. condo dwellers and those who believe access to transit was an important factor in their decision to move to their current residence vs. those who did not. The analysis showed no differences ($p = .780$ for the analysis of apartment vs. condo dwellers and $p = .689$ for the analysis of importance of access to transit).

Hypothesis #5: People in the study sites are more likely to be younger (60 or younger) and working and those in the control sites are more likely to be over age 60 and retired.

This test was conducted to determine if some of the differences in travel are attributable to demographic factors rather than the study/control site distinction. Before we could examine the relationship between these variables, recoding was conducted based on certain assumptions. First, age was recoded into two categories: respondents age 60 and younger, and those over the age of 60. In addition, employment status was cross-tabulated with age and recoded under the assumption that anyone over age 60 that wasn't currently employed was retired. Therefore, our new employment variable included employed (anyone, regardless of age, who said they are employed), unemployed (those age 60 and under who said they were not currently employed), and retired (anyone over age 60 who said they are not currently employed).

As shown on Table 17, a chi-square test of independence was then run on each of these variables to see if there is a relationship between age and control vs. study site respondents, and employment status and control site vs. study site respondents.

Table 17. Chi-Square on Age and Employment Status vs. Site Location

	N	df	Value	P-Value
Age	399	1	11.937	.001
Employment Status	399	2	23.279	.000

As we see from the table above, there is a significant relationship between age and site location and employment status and site location. Specifically, those in the study sites are more likely to be younger and employed and those in the control sites tend to be older and retired.

Vehicle Availability/Parking Demand for Rental Housing

The survey asked respondents to indicate number of vehicles available, which is of interest because it is the basis of parking demand.[4] Local ordinances often use national standards, the requirements of their neighbors, and rule of thumb standards in requiring developers to provide parking for multi-family housing (Willson 2000).

The literature shows that parking demand is positively associated with income, and as a result, is likely to vary between rental and condominium units. This portion of analysis, therefore, concerns the 301 rental housing respondents.

Table 18 shows an implied parking demand of 1.45 spaces per occupied rental dwelling unit. This is somewhat higher than the often-cited Institute of Transportation Handbook rate for low/mid-rise apartments.

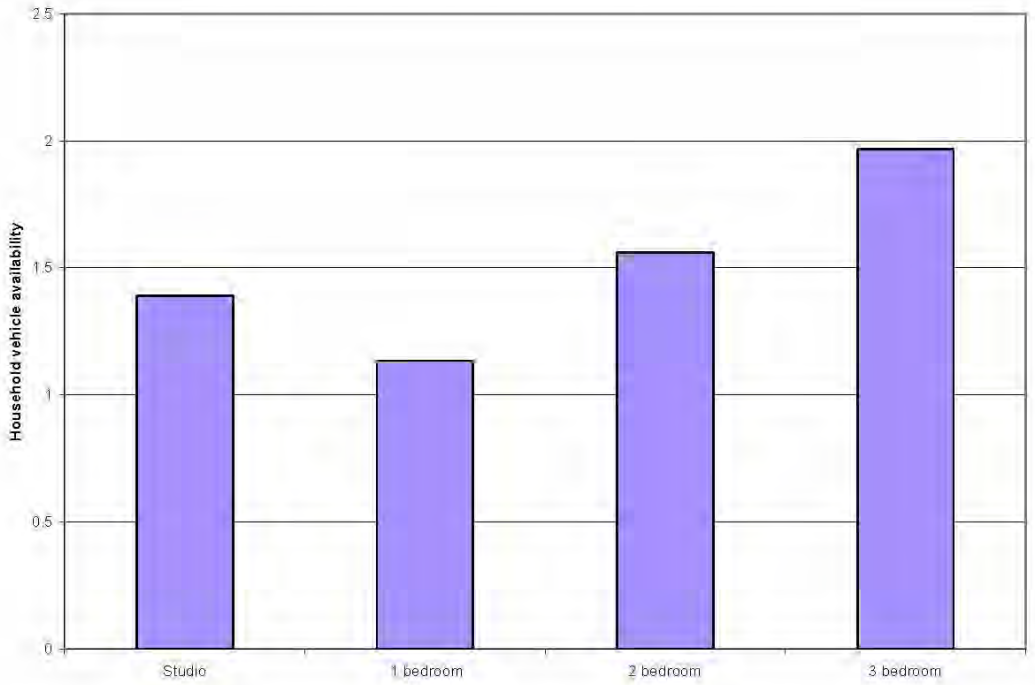
Table 18 Comparison of Parking Demand/Vehicle Availability per Occupied Dwelling

Data source	Unit of analysis	Mean peak demand/vehicle availability per occupied dwelling	Minimum/ maximum	Standard deviation
Vehicle availability, IE household survey, rental units (n=301)	Household	1.45 (1.32 in complex; 0.13 on-street)	0 - 5	0.77
ITE Land use 221 (19 sites across the U.S.)	Residential complex	1.2	0.68 - 1.94	0.32

Most ordinances set parking requirements based on the number of bedrooms, using the logic that larger units will have more people who own vehicles. Figure 5 shows the relationships reported by rental housing respondents.

[4] Household vehicle availability is not identical to per-unit parking occupancy counts. Household vehicle availability represents the greatest possible vehicle accumulation, but without overnight visitor parking. In contrast, occupancy counts present actual accumulation at a specific moment, which is reduced by overnight trips, night work-shifts, and off-site parking. It is likely that household vehicle availability exceeds overnight counts by a small degree because of these factors.

Figure 5. Vehicle Availability by Number of Bedrooms



The patterns shown in Figure 5 are generally consistent with city standards that apply requirements on a per unit basis, albeit at lower levels. Many ordinances use a 0.5 space stepped progression in linking requirements to bedrooms; this analysis support such a practice.

The parking demand levels reported here are generally lower than minimum requirements in Inland Empire cities. Table 19 summarizes the minimum residential parking requirements for the two cities that were well represented in the sample. Over-requiring parking in multi-family housing increases the cost of development and encourages vehicle ownership and use. Willson and Roberts (2010) provide a more detailed analysis of this issue.

Table 19. Parking Requirements in Ontario and Ranch Cucamonga

Requirement	Ontario	Rancho Cucamonga
One bedroom unit	1.75	1.5
Two bedroom unit	2	1.8
Three or more bedroom unit	2.5	2
Visitor Parking	1 space per 4-6 units, depending on size	1 space per 4 units

Chapter 6. Conclusions, Policy Recommendations and Future Research

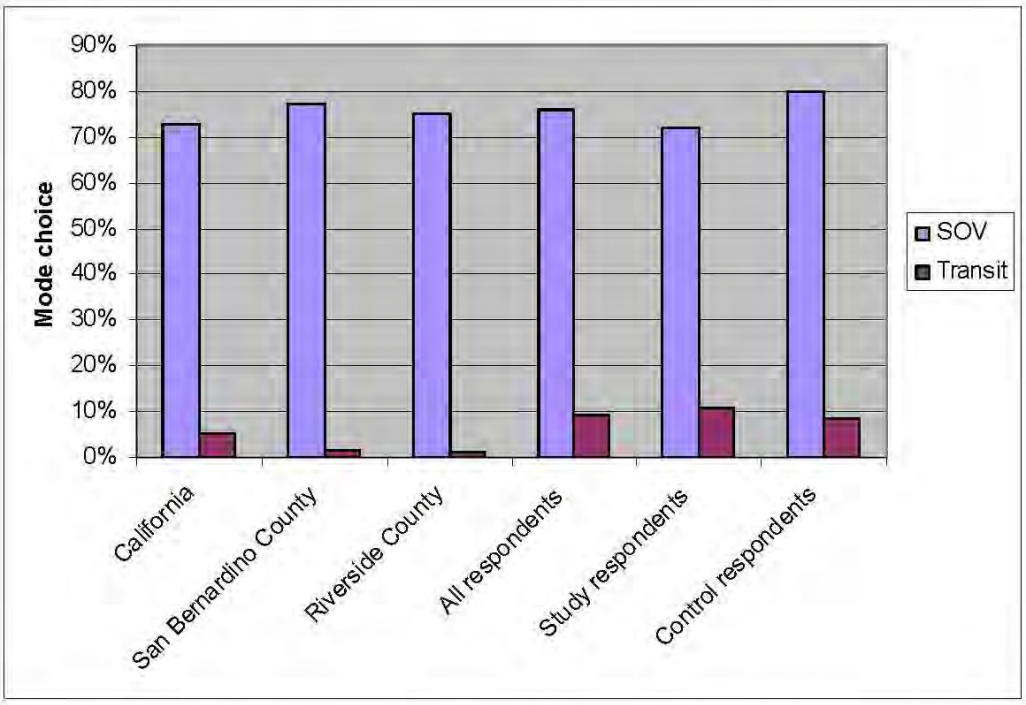
This study provides a benchmark for assessing future efforts to reduce automobile dependency in multi-family housing in the Inland Empire. In many ways, the Inland Empire is a region in transition from a past of single family housing and long automobile commutes to a future in which there are more housing and transportation options. In addition to fulfilling many local community goals, this transition will lessen VMT in support of SB 375.

This section outlines the key findings of the study, policy options that flow from these findings, and suggestions for future research.

Key Findings

Residents of multi-family housing in the Inland Empire are reliant on private vehicles for their work and non-work trips. To provide context, Figure 6 (next page) shows the journey-to-work mode choice results from the survey and compares them to 2006-08 American Community Survey (ACS) data for California and the counties of San Bernardino and Riverside. The tally for % SOV for all survey respondents is similar to ACS county-wide data. Note that this county-wide data is dominated by single family housing, indicating that these multi-family residents are no less dependent on SOV for work commuting. The transit share among all survey respondents is higher that county averages, however, but it appears that the transit ridership has been offset by reduced carpooling in the survey group.

Figure 6. Comparison of Journey-to-Work Mode Shares



The transit market itself appears to be bifurcated between bus riders, who may be more likely to be transit dependent populations making local trips and Metrolink rail riders, (more likely to be higher income and making Los Angeles and Orange County-bound trips).

Although the study group shows the highest transit share in Figure 6, the analysis did not find a statistically significant difference between the study and control groups in terms of transit use. The study group did, however, have a statistically significant lower SOV dependency than the control group. The projects in the study group, which were as close to TOD as could be identified in the Inland Empire, did not show the transit travel characteristics of mature TODs studied elsewhere in California. They do, however, perform better in terms of reduce SOV dependence.

As was noted in previous sections, the housing developments in the study group are reasonably dense, but hey lack the other d's that hold the key to reducing VMT: diversity of land uses (most are single-use developments), pedestrian- and transit-friendly design (arterials are wide, access is focused on the automobile), destination accessibility (trip destinations are dispersed, favoring automobile use), and distance from home or work to transit (in this case, transit service is near most developments but service frequencies and connectivity is lacking). Therefore, these modest results are consistent with theory in that the sites did not meet all the criteria of successful TODs. This may change in the future as mixed-use TODs are built next to augmented transit services.

Another dimension of mode choice is the cost of travel modes. For both work and non-work trips, free parking is the norm. This practice encourages auto ownership and use. In contrast, most of those reporting a work trip indicate that employers *do not* help pay for transit. Accordingly, it is not just the 5 d's mentioned above that affect these results – economic incentives for driving mean that the deck is stacked against transit, walking, and bicycling.

These results do not argue against policies for TOD in the Inland Empire – the region is just beginning a transition toward more diverse land use and transportation choices. Cities such as San Bernardino, Ontario, and Montclair are actively pursuing strategies. Plans for TOD, higher density mixed-use development, and improved transit are in place in many Inland Empire communities. Those projects will reduce SOV trips beyond these results.

The question for those responding to SB 375 mandates is *how much* might these new TODs reduce vehicle travel? And, *how much* will new transit services change travel mode choice among those living in existing developments? An order-of-magnitude check on the potential for reduction is found in the results obtained in a survey of residents along the Los Angeles County's Metro Gold Line, which connects Pasadena and downtown Los Angeles (Lund and Willson 2005). That study area has many factors that favor transit ridership – light rail transit, frequent bus service, dense development, significant transit dependent populations, and walkable communities. In that case, residents within ¼ mile of rail stations had a 14.8% transit share, with an additional 7.5% of trips by walking and bicycling modes. TOD plans in the Inland Empire over the next 25 years include improved Metrolink service, light rail, rapid bus, and local connectors. One could conclude that these improvements, along with planned land use changes, may help the Inland Empire approach levels of transit use found along the Gold Line. While this is possible, but not assured, the Inland Empire is unlikely to exceed the Gold Line's current rates. Therefore, SB 375 planning should be realistic about VMT reductions that are possible in the next few decades in the Inland Empire.

Policy Options

Although the focus of this study is basic research, not a policy analysis, a number of policy options has emerged in the course of analyzing the data.

First, cities can build on existing housing clusters by increasing housing density and introducing mixed use development (walkable trips for shopping, etc.). Some of the large multi-family developments studied here can be the basis for future TODs. The key is to develop a tight, walkable mixed-use cluster around improved transit service. Some cities already have plans in place for this development; they should consider streamlining and incentives to advance this development activity when the economy recovers. Cities that do not have plans should develop them now.

Second, careful site planning is important to making TODs work. This includes attention to the pedestrian realm, the ease with which developments can be served with transit, and

land use mixing. A key element is parking, which when oversupplied often degrades other travel options. Cities should lower their parking requirements if they are beyond demand levels exhibited by TODs and require that developers unbundled the cost of parking from the cost of rent.

Third, there are redevelopment opportunities around the Metrolink stations. Many of these station areas have lower intensity industrial and commercial uses, reflecting their historical roles as rail corridors. Developments in these locations can divert work trips destined for downtown Los Angeles and Orange County to transit. Many redevelopment opportunities exist around those Metrolink stations, but the lack of community features in these areas mean that comprehensive community development is required. In Orange County, there is a plan to provide 30-minute, bi-directional Metrolink service throughout the day. Such a strategy turns Metrolink more into a traditional rail service, like light or heavy rail. This is a potential for the Inland Empire that could attract non-work trips to Metrolink. An example of a mature commuter rail system that is fully integrated into walkable communities can be found on the Caltrain system that connects San Jose with downtown San Francisco.

Finally, since Metrolink or other types of rail service cannot serve the dispersed trip origins and destinations in the large geography of the Inland Empire, bus service enhancements are vital connecters to the rail backbone and for travel within the area. Bus rapid transit systems can take advantage of the large arterial system already in place; they should be supported by local shuttles that connect to individual neighborhoods. The proposed Omnitrans sbX line is an example of such a project, which links key transit generators such as downtown San Bernardino, Cal State University San Bernardino, and Loma Linda University Adventist Health Center.

Future research

A number of future research projects are suggested by this analysis. They include the following:

- The higher carpool rate among study group respondents deserves further investigation. A better understanding of the reasons for carpooling among this group, as derived through supplemental surveys and/or focus groups, can provide insight into whether this positive outcome can be general expected in suburban TOD developments.
- Conduct surveys of Inland Empire workplaces and retail locations concerning travel patterns. Employer surveys would be distributed through employer cooperation, while retail location surveys would be carries out using intercept surveys.
- Replicate multi-family household surveys in a decade to measure changes associated with TOD development, transit development, and SB 375 planning efforts.
- Conduct surveys and focus groups among local planners, housing developers, project lenders and investors, community groups, and property managers to

determine their willingness to consider new models for multi-family development, addressing questions such as density, mixed uses, pedestrian facilities, reduced parking requirements and unbundling. Such research would develop practical strategies for achieving the 5d's of TOD in a manner that is realistic for market conditions in the Inland Empire.

- Conduct trip generation studies of multi-family housing complexes to determine if trip generation rates used in traffic studies are appropriate. This would be accomplished by pneumatic counters at development driveways, and would allow comparison to standard Institute of Engineers rates and other recent studies. If different rates are appropriate, they would included in traffic studies and environmental review documents for new development.
- Conduct focused studies to evaluate areas where dense, clustered development is occurring, such as the city of Ontario's 8,200 acre New Model Colony development and the city of San Bernardino's downtown redevelopment and TOD project. Such studies could track the factors that attract residents to these types of areas.
- Integrate the results provided here into the calibration of regional models and SB-375 modeling tools being developed by other Leonard Center researchers.

Given a twenty-year head start, more extensive transit systems, and supportive market demand, TOD in California's urban areas is well underway and is producing good results. It is TOD in suburban areas such as the Inland Empire that requires the greatest attention in research and planning. With a realistic understanding of travel behavior of these early transit-proximate developments, plans can ensure that the greatest VMT reduction is achieved through supportive land use, site design, and transit policies and programs. Given the large share of the State's growth that will occur in areas such as the Inland Empire, suburban TOD is vital to local visions of sustainability and the State's SB 375 goals. This research, along with other efforts, is intended to support the process of developing land use and transit plans that are tailored to local community preference, market conditions, and transportation patterns.

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Appendix A - Study Sites

Study Sites	Address	City	Zip Code	# of Units	Units/ acre	# of bus Routes	Headway Range	within 1/4 mile of ML	within 1/2 mile of ML
Colony Apts. at Ontario Towne Center	102 North Lemon Ave.	Ontario	91764	160	60.7	Omni - 61, 63, 80, 81, 83	15 - 60 minutes	No	No
AMLI at Empire Lakes	9200 Milliken Ave.	Rancho Cucamonga	91730	521	27.6	Omni - 81	60 minutes	No	Yes
Reserve at Empire Lakes	11210 Fourth Street	Rancho Cucamonga	91730	467	27.2	Omni - 61, 81, 82	15 - 60 minutes	No	No
Kincaid Townhomes	330 East B Street	Ontario	91762	140	23.8	Omni - 61, 63, 80, 81, 83	15 - 60 minutes	No	No
Rancho MonteVista Apartments	2100 West Arrow Route	Upland	91786	240	19.9	Multiple - near transcenter		No	Yes
College Park	250 College Park Drive	Upland	91786	448	17.2	Multiple - near transcenter		Yes	Yes
Verano at Rancho Cucamonga	8200 Haven Avenue	Rancho Cucamonga	91730	414	27.6	Omni - 66, 82	15/30 - 60 minutes	No	No
Waterbrook	10400 Arrow Route	Rancho Cucamonga	91730	624	23.3	Omni - 68, 82	30 - 60 minutes	No	No
Ironwood & Fairway Palms at Empire Lakes	11100 Fourth Street	Rancho Cucamonga	91730	496	22.4	Omni - 81, 82	60 minutes	No	No
Stonegate at Towngate	12640 Memorial Way	Moreno Valley	92553	552	20.5	RTA - 11, 16, 18	40 - 60 minutes	No	No
Total/Average				***4,062***	***27.0***				

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Appendix B – Control Sites

Control Sites	Address	City	Zip Code	# of Units	Units/acre	# of bus Routes	Headway Range	within 1/4 mile of Metrolink	within 1/2 mile of Metrolink
Broadstone Rancho Belago	27625 E. Trail Ridge Way	Rancho Belago	92555	236	34.5	RTA - 35, 210	60 minutes	No	No
Vintage Apartment Homes	955 North Duesenberg Drive	Ontario	91764	300	27.8	Omni - 82	60 minutes	No	No
AMLI at Victoria Arbors	7922 Day Creek Blvd.	Rancho Cucamonga	91739	319	26.9	Omni - 81	60 minutes	No	No
AMLI at Day Creek	7828 Day Creek Blvd.	Rancho Cucamonga	91739	270	26.9	Omni - 81	60 minutes	No	No
Landmark at Ontario Towne Center	950 N. Duesenberg Dr.	Ontario	91764	469	26.3	Omni - 82	60 minutes	No	No
The Heights (2) - across the street	16011 Butterfield Ranch Road	Chino Hills	91709	124	22.5	None		No	No
di Renzo Apartments	5880 Lochmoor Drive	Riverside	92507	158	22.5	RTA - 16	40 minutes	No	No
Village Oaks	15773 High Knoll Dr.	Chino Hills	91709	280	21.6	None		No	No
Galleria at Towngate	12845 Frederick Street	Moreno Valley	92553	268	20.6	RTA - 11, 18	60 minutes	No	No
The Villas at Towngate	13120 Day Street	Moreno Valley	92553	394	20.5	RTA - 16	40 minutes	No	No
The Heights	16675 Slate Drive	Chino Hills	91709	208	20.4	None		No	No

Appendix B – Control Sites (continued)

Control Sites	Address	City	Zip Code	# of Units	Units/acre	# of bus Routes	Headway Range	within 1/4 mile of Metrolink	within 1/2 mile of Metrolink
Vista Springs Apartments	21550 Box Springs Rd	Moreno Valley	92557	212	20.0	RTA - 16	40 minutes	No	No
Highland Meadows	12080 Pigeon Pass Rd	Moreno Valley	92557	360	19.8	RTA - 11, 18	60 minutes	No	No
Windemere at Sycamore Highlands	5925 Sycamore Canyon Blvd	Riverside	92507	240	19.0	RTA - 16	40 minutes	No	No
CastleRock	5700 Lochmoor Drive	Riverside	92507	272	18.5	RTA - 16	40 minutes	No	No
Colonnade at Sycamore Highlands	5880 Fair Isle Drive	Riverside	92507	288	18.0	RTA - 16	40 minutes	No	No
Tuscany Hills	21012 Box Springs Rd	Moreno Valley	92557	144	17.8	RTA - 16	40 minutes	No	No
Mission Grove Park	7450 Northrop Drive	Riverside	92508	432	16.6	RTA - 20	50 minutes	No	No
El Dorado Point	12159 Calle Sombra	Moreno Valley	92557	330	15.4	RTA - 11	60 minutes	No	No
Broadstone River's Edge	2088 Lakeshore Drive	Lake Elsinore	92530	184	15.1	RTA - 7, 8	50-55 minutes	No	No
Broadstone Vesada	3390 Country Village Road	Riverside	92509	261	15.0	RTA - 21, 49	65-70 minutes	No	No
Broadstone Overlook Apartments	12963 Moreno Beach Drive	Moreno Valley	92555	246	13.3	RTA - 35, 210	60 minutes	No	No
Total/Average				***5,759***	***20.9***				

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Appendix C - 2010 TOD Telephone Survey

SHELLO Hello, I am calling from the Institute of Applied Research at Cal State San Bernardino. We're conducting a scientific study of quality of life relative to transportation and traffic, and we need the input of the head of the household or his or her partner. Have I reached [READ PHONE # FROM SCREEN]?

1. CONTINUE
2. DISPOSITION SCREEN

SHELLO2 (used only to complete a survey already started)

Have I reached [READ PHONE NUMBER]? Hello, this is _____, calling from the Institute of Applied Research at CSU San Bernardino. Recently, we started an interview with the [MALE/FEMALE] head of the household and I'm calling back to complete that interview. Is that person available?

SPAN INTERVIEWER: PLEASE CODE WHICH LANGUAGE THE INTERVIEW WILL BE CONDUCTED IN:

1. ENGLISH
2. SPANISH

SHEAD Are you that person?

1. Yes [SKIP TO INTRO]
2. No [CONTINUE]
3. DON'T KNOW/NO RESPONSE
4. REFUSED

SHEAD2 Is the head of the household or his or her partner at home?

1. Yes [SKIP TO INTRO]
2. No [CONTINUE]
3. DON'T KNOW/NO RESPONSE
4. REFUSED

CALLBK Is there a better time I could call back to reach the head of the household?

1. Yes [SKIP TO APPT]
2. No [ENDQUEST]

APART We are targeting residents who live within an apartment or condo, do you live in an apartment or a condo?
{INTERVIEWER: ATTACHED UNITS IS WHAT WE ARE LOOKING FOR 3/25}

1. Apartment
2. Condo/ Town House
3. NEITHER (Ex: single home, mobile home)
9. REFUSED

IF (ANS > 2) ENDQUEST

INTRO This survey takes about 10 minutes to complete, and your answers may be used by transportation officials to better understand travel behavior and to shape transportation policies in the Inland Empire. And to thank you for your participation, you will be entered into a drawing for a gift card of up to $200. Your identity and your responses will remain completely confidential, and of course, you are free to decline to answer any particular survey question. I should also mention that this call may be monitored by my supervisor for quality control purposes only.

Is it alright to ask you these questions now?

1. Yes [CONTINUE]
2. No [SKIP TO APPT]

AGEQAL First, I'd like to verify that you are at least 18 years of age.
1. Yes [SKIP TO BEGIN]
2. No

QSORRY I'm sorry, but currently we are interviewing people 18 years of age and older. Thank you for your time. [ENDQUEST]

APPT Is it possible to make an appointment to ask you the survey questions at a more convenient time?
1. Yes (SPECIFY)_____
2. No [ENDQUEST]

BEGIN I'd like to begin by asking you some general questions.

[INTERVIEWERS: PRESS ANY KEY TO CONTINUE]

Q1. What city do you live in?
1. CHINO HILLS
2. CLAREMONT
3. LAKE ELSINORE
4. MORENO VALLEY
5. ONTARIO
6. RANCHO BELAGO
7. RANCHO CUCAMONGA
8. RIVERSIDE
9. UPLAND
10. OTHER [STAY IN JUST INCASE CONDO ACROSS THE STREET CHANGES CITY] LIKE IN MV ONE SIDE APARTMENT IS MV OTHER IS RIVERSIDE

98. DON'T KNOW/REFUSED [TERMINATE CALL]

Q2. What is your zip code?
ZIP CODE: _____
99998. DON'T KNOW
99999. REFUSED

Q3. Including yourself, how many people live in your household?
NUMBER _____

998. DON'T KNOW
999. REFUSED

Q4. Again including yourself, how many are 16 years *or older*?
NUMBER _____

DON'T KNOW [ENTER 998]
REFUSED [ENTER 999]

Q5. How many motorized vehicle (s) are available for use by members of your household?
[INTERVIEWER: IF RESPONDENT ASKS WHETHER TO INCLUDE "STORED" OR NON-WORKING ONES, SAY "YES"]
ENTER NUMBER _____ IF NUMBER = 0, 98, OR 99 SKIP TO Q7

DON'T KNOW [ENTER 98]
REFUSED [ENTER 99]

Q6INTRO. The next few questions deal with where you typically park your vehicle(s) at your residence. WE NEED TO KNOW WHERE THEY ***TYPICALLY*** PARK

Q6A1 [IF Q5 = 1] Do you park a vehicle in a private garage assigned to your unit?
1. YES SKIP TO Q7
0. NO CONTINUE WITH Q6B1
[IAR USES 1 FOR YES AND 2 FOR NO, AFTER THE FIRST 10 WE ADDED THE 2 FOR NO, WE LEFT THE 0 ALSO]
] 9. REFUSED (ONLY USE THIS IF THEY REFUSE TO TELL YOU WHERE THEY PARK THEIR CARS) ADDED AFTER THE FIRST 10 SURVYES.

Q6A2 [IF Q5 > 1] How many of your vehicles do you park in a private garage assigned to your unit?
NUMBER_____
COUNTER = COUNTER + NUMBER. IF COUNTER = VALUE FROM Q5, SKIP TO Q7

Q6B1. [IF Q5 = 1] Do you park in a shared garage or outdoor lot in your development?
1. YES SKIP TO Q7
0. NO CONTINUE WITH Q6C1

Q6B2 [IF Q5 > 1] How many of your vehicles do you park in an assigned space in a shared parking area?
NUMBER_____
COUNTER = COUNTER + NUMBER. IF COUNTER = VALUE FROM Q5, SKIP TO Q7

Q6C1. [IF Q5 = 1] Do you park on the street?
1. YES
0. NO
9. REFUSED (ONLY USE THIS IF THEY REFUSE TO TELLYOU WHERE THEY PARK THEIR CARS.

Q6C2 [IF Q5 > 1] How many of your vehicles do you park on the street?
NUMBER_____
COUNTER = COUNTER + NUMBER. IF COUNTER = VALUE FROM Q5, SKIP TO Q7

Q7. How many bedrooms do you have in your unit?
1. STUDIO APARTMENT
2. 1 BEDROOM
3. 2 BEDROOMS
4. 3 OR MORE BEDROOMS
9. REFUSED

Q8. Are you currently employed?

1.	YES	CONTINUE
2.	NO	SKIP TO Q11
9.	REFUSED	SKIP TO Q11

Q9. Do you work outside your place of residence?
1. YES
2. NO, I WORK FROM HOME SKIPTO Q11
9. REFUSED

Q10. What is your work zip code?
1.WORK ZIP CODE: _____
2. CITY IF THEY DO NOT KNOW THE ZIP CODE
8. DON'T KNOW
9. REFUSED

Q11. Are you currently enrolled in school?

1.	YES	CONTINUE
2.	NO	SKIPTO Q13
9.	REFUSED	SKIPTO Q13

Q12. Are you enrolled in an on-line program to take courses at home?
1. YES
2. NO
9. REFUSED

Q13. In what year did you move to your current residence?
YEAR: _____

DON'T KNOW [ENTER 9998]
REFUSED [ENTER 9999]

Q14. There are various reasons that people may choose to live in a certain location. I'm going to read you a list of some of these reasons and I'd like you to tell me whether each was important in deciding to move to your current residence. [INTERVIEWER: READ THE RESPONSES AND SELECT IF THEY SAY "YES"] – CHECK ALL THAT APPLY
____ 1. Cost of housing
____ 2. Type or quality of housing
____ 3. Quality of local schools
____ 4. Quality of neighborhood
_____ 5. Close to job
____ 6. Access to shops & services
____ 7. Access to transit
____ 8. Access to highway

____9. Recreational opportunities
____ 10.Other (Specify) _____
____ 11. DON'T KNOW
____ 12 REFUSED

Q15. Of the reasons I just read, which was the MOST important to you in deciding to move to your current residence?

1. COST OF HOUSING
2. TYPE OR QUALITY OF HOUSING
3. QUALITY OF LOCAL SCHOOLS
4. QUALITY OF NEIGHBORHOOD
5. CLOSE TO JOB
6. ACCESS TO SHOPS & SERVICES
7. ACCESS TO TRANSIT
8. ACCESS TO HIGHWAY
9. RECREATIONAL OPPORTUNITIES
10. OTHER (SPECIFY) _____
11. DON'T KNOW
12. REFUSED

Q16. On a scale of 1 to 5 with 1 being poor and 5 being excellent, how would you rate your neighborhood as a place for people to walk to destinations? In answering, think about things such as closeness of destinations, safety, and a nice street environment.

1. POOR
2. 2
3. 3
4. 4
5. EXCELLENT
8. DON'T KNOW
9. REFUSED

Q17. Using the same 1 to 5 scale with 1 being poor and 5 being excellent, how would you rate your neighborhood as a place for people to take buses or trains? In answering, think about things such as access to destinations, frequency of buses or trains, ease of reaching a bus stop or metro station, and safety

1. POOR
2. 2
3. 3
4. 4
5. EXCELLENT
8. DON'T KNOW
9. REFUSED

TRAVELDAY Now I'm going to ask you a series of questions regarding your travel on [INTERVIEWER LOOK AT THE DATE ON THE WHITE BOARD]

[NOTE TO INTERVIEWERS: EACH LEG OF THE TRIP IS CONSIDERED A "TRIP". SO HOME TO WORK IS A TRIP, WORK TO SHOPPING IS A TRIP, SHOPPING TO A FRIENDS HOUSE IS A TRIP…]

Q18a. On that day, how many trips did you make? (RECORD UP TO THREE) _____
[IF Q18A = 0 SKIP TO QXXXXXXXX] EACH DESTINATION IS CONSIDERED ONE TRIP

1. ONE TRIP
2. TWO TRIPS
3. THREE TRIPS
4. NO TRIPS
8. DON'T KNOW
9. REFUSED

Q18a1. [IF Q18A > 1] Think about the first trip you made. What time did you leave?
INTERVIEWER: RECORD IN MILITARY TIME. REFER TO FALLBACK SHEET FOR TIME CONVERSION.

TIME: _____

DON'T KNOW [ENTER 9998]
REFUSED [ENTER 9999]

Q18b1. What time did you arrive at your destination?

INTERVIEWER: RECORD IN MILITARY TIME. REFER TO FALLBACK SHEET FOR TIME CONVERSION.

TIME: _____

DON'T KNOW [ENTER 9998]
REFUSED [ENTER 9999]

Q18c1. What was the main purpose of this trip?

1. GO TO WORK
2. GO TO SCHOOL
3. SHOPPING
4. MEAL OR SNACK
5. PICK UP/DROP OFF FAMILY
6. OTHER ERRANDS
7. VISIT FRIENDS & FAMILY MEMBERS
8. RECREATIONAL
9. MEDICAL APPORINTMENT
10. OTHER
11. GO HOME
98. DON'T KNOW
99. REFUSED

Q18d1. What was your primary means of travel/transportation?

1. DROVE ALONE
2. CARPOOLED
3. RODE RAIL TRANSIT (METROLINK)
4. RODE BUS
5. BICYCLED
6. WALKED
7. OTHER (SPECIFY) _____
8. DON'T KNOW
9. REFUSED

Q18e1. What was the zip code you left from?
1. ZIP CODE: _____
2. ONLY KNOW CITY… SPECIFY
8. DON'T KNOW
9. REFUSED

Q18f1. What was the zip code of your destination?
1. ZIP CODE: _____
2.ONLY KNOW CITY… SPECIFY
8.DON'T KNOW
9.REFUSED

Q18g1. Which of the following best describes the parking at your destination? Would you say it was…..
1. Free and easy to find,
2. Free but limited,
3. Paid hourly or daily, or
4. Paid monthly?
5. Quarterly
6. Annual
7. OTHER (SPECIFY) _____
8. DON'T KNOW
9. REFUSED

IF Q18a = 1, SKIPTO TRANS3

Q19a1. OK, now I have those same questions for the second trip you took that day. What time did you leave?
INTERVIEWER: RECORD IN MILITARY TIME. REFER TO FALLBACK SHEET FOR TIME CONVERSION.

TIME: _____

DON'T KNOW [ENTER 9998]
REFUSED [ENTER 9999]

Q19b1. What time did you arrive?
INTERVIEWER: RECORD IN MILITARY TIME. REFER TO FALLBACK SHEET FOR TIME CONVERSION.

TIME: _____

DON'T KNOW [ENTER 9998]
REFUSED [ENTER 9999]

Q19c1. What was the main purpose of this trip?
1. GO TO WORK
2. GO TO SCHOOL
3. SHOPPING
4. MEAL OR SNACK
5. PICK UP/DROP OFF FAMILY
6. OTHER ERRANDS
7. VISIT FRIENDS OR FAMILY
8. RECREATIONAL
9. MEDICAL REASONS
10. OTHER
11. GO HOME
98. DON'T KNOW
99. REFUSED

Q19d1. What was your primary means of travel/transportation?
1. DROVE ALONE
2. CARPOOLED
3. RODE RAIL TRANSIT (METROLINK)
4. RODE BUS
5. BICYCLED
6. WALKED
7. OTHER (SPECIFY) _____
8. DON'T KNOW
9. REFUSED

Q19e1. What was the zip code you left from?
1. ZIP CODE: _____
2. City (IF THEY ONLY KNOW CITY… SPECIFY
8. DON'T KNOW
9. REFUSED [ENTER 99999]

Q19f1. What was the zip code of your destination?
1. ZIP CODE: _____
2.ONLY KNOW CITY… SPECIFY
8.DON'T KNOW
9.REFUSED

Q19g1. Which of the following best describes the parking at your destination? Would you say it was……
1. Free and easy to find,
2. Free but limited,
3. Paid hourly or daily, or

4. Paid monthly?
5. Quarterly
6. Annual
7. OTHER (SPECIFY) _____
8. DON'T KNOW
9. REFUSED

IF Q18a = 2, SKIPTO TRANS3

Q20a1. And finally I have those same questions for a third trip of that day. If you haven't already told me about a trip for work or school, this would be the time to do it. So for trip #3, What time did you leave?
INTERVIEWER: RECORD IN MILITARY TIME. REFER TO FALLBACK SHEET FOR TIME CONVERSION.

TIME: _____

DON'T KNOW [ENTER 9998]
REFUSED [ENTER 9999]

Q20b1. What time did you arrive?
INTERVIEWER: RECORD IN MILITARY TIME. REFER TO FALLBACK SHEET FOR TIME CONVERSION.

TIME: _____

DON'T KNOW [ENTER 9998]
REFUSED [ENTER 9999]

Q20c1. What was the main purpose of this trip?
1. GO TO WORK
2. GO TO SCHOOL
3. SHOPPING
4. MEAL OR SNACK
5. PICK UP/DROP OFF CHILD(REN)
6. OTHER ERRANDS
7. VISIT FRIENDS/ FAMILY MEMBERS
8. RECREATIONAL
9. MEDICAL REASONS
10. OTHER
98. DON'T KNOW
99. REFUSED

Q20d1. What was your primary means of travel/transportation?
1. DROVE ALONE
2. CARPOOLED
3. RODE RAIL TRANSIT (METROLINK)
4. RODE BUS

5. BICYCLED
6. WALKED
7. OTHER (SPECIFY) _____
8. DON'T KNOW
9. REFUSED

Q20e1. What was the zip code you left from?
1.ZIP CODE: _____
2.ONLY KNOW CITY… SPECIFY
8.DON'T KNOW
9.REFUSED

Q20f1. What was the zip code of your destination?
1.ZIP CODE: _____
2.ONLY KNOW CITY… SPECIFY
8.DON'T KNOW
9.REFUSED

Q20g1. Which of the following best describes the parking at your destination? Would you say it was…..
1. Free and easy to find,
2. Free but limited,
3. Paid hourly or daily, or
4. Paid monthly?
5. Quarterly
6. Annual
7. OTHER (SPECIFY) _____
8. DON'T KNOW
9. REFUSED

ONLY ASK THE FOLLOWING QUESTIONS IF RESPONDENT WORKS OUTSIDE THE HOME (IF Q8 > 1) SKIPTO TRANS4 AND IF (Q9 >1) SKIPTO TRANS4

TRANS3: Thank you… we're done with the hard part. These next few questions focus on your commute to work.
IF (Q8 > 1) SKIPTO TRANS4
IF (Q9 > 1) SKIPTO TRANS4

Q21a. Does your employer allow you to work flexible hours?
1. YES
2. NO
3. AT TIMES
8. DON'T KNOW
9. REFUSED

Q21b. Does your employer allow you to work from home?
1. YES
2. NO
3. AT TIMES
8. DON'T KNOW

9. REFUSED

Q21c. Does your employer provide a car for use during the day?
1. YES
2. NO
3. IF NEED BE
8. DON'T KNOW
9. REFUSED

Q21d. Does your employer provide free parking?
1. YES
2. NO
8. DON'T KNOW
9. REFUSED

Q21e. Do they help pay for transit?
1. YES
2. NO
8. DON'T KNOW
9. REFUSED

Q21f. Do they help pay for tolls, fuel or other commuting costs?
1. YES
2. NO
8. DON'T KNOW
9. REFUSED

Q22. On average, how often do you use bus or rail to commute to work or school? Would you say you use it…..
1. Every day,[5 DAYS A WEEK OR MORE]
2. Two to three times a week,
3. Once a week,
4. Once a month,
5. Rarely, or
6. Never
8. DON'T KNOW
9. REFUSED

TRANS4: I'm going to read you a few statements regarding people's attitudes about transportation. For each of the following statements, please tell me whether you Strongly Agree, Agree, Disagree, or Strongly Disagree.

Q23. Here's the first statement… …I feel uncomfortable driving a car under certain conditions, such as long distances, at nighttime, or on routes I don't know well. [INTERVIEWER PROMPT ONLY IF NECESSARY WITH "DO YOU…]
1. Strongly Agree
2. Agree
3. Disagree
4. Strongly Disagree

7. NEITHER AGREE OR DISAGREE
8. DON'T KNOW
9. REFUSED

Q24. I and/or other members of my household would benefit greatly from being able to get around sometimes without a car. [INTERVIEWER: ONLY IF NECESSARY, PROMPT WITH "DO YOU STRONGLY AGREE, AGREE, DISAGREE, OR STRONGLY DISAGREE?"]

1. Strongly Agree
2. Agree
3. Disagree
4. Strongly Disagree
5. NEITHER AGREE OR DISAGREE
7. DON'T KNOW
8. REFUSED

Q25. The government should spend more transportation money on expanding roads and highways rather than on public transit. [INTERVIEWER: ONLY IF NECESSARY, PROMPT WITH "DO YOU STRONGLY AGREE, AGREE, DISAGREE, OR STRONGLY DISAGREE?"]

1.Strongly Agree
2.Agree
3.Disagree
4.Strongly Disagree
7.NEITHER AGREE OR DISAGREE
8.DON'T KNOW
9. REFUSED

DEMOG: And now I have a few last questions about you and your background, and then we're done.

D1. What was your age at your last birthday?
AGE: _____

DON'T KNOW [ENTER 998]
REFUSED [ENTER 999]

D2. How would you describe your race or ethnicity?
[SELECT ALL THAT APPLY]

___ AFRICAN AMERICAN
___ AMERICAN INDIAN
___ PACIFIC ISLANDER
___ HISPANIC
___ WHITE
___ ASIAN
___ OTHER (SPECIFY) _____
____ DON'T KNOW
___ REFUSED

IF (Q8 >1) SKIPTO D4

D3. [ASK ONLY IF Q8 = 1] What is your current occupation?

1. Accounting/Financial
2. Clerical/Secretarial
3. Manager/Administrator
4. Craftsman
5. Laborer
6. Sales
7. Service
8. Professional
9. Other (Specify) _____
10. Medical Field (Nurse, Doctor, Dentist)
98. DON'T KNOW
99. REFUSED

D4. Which of the following best describes your annual household income, after taxes for 2009?

1. $15,000 or less
2. $15,001 to $30,000
3. $30,001 to $45,000
4. $45,001 to $60,000
5. $60,001 to $75,000
6. $75,001 to $100,000
7. $100,001 to $150,000
8. $150,001 and over
98. DON'T KNOW
99. REFUSED

COMMENTS: Do you have any other comments about transportation that we haven't covered?

1. COMMETNS
2. NO COMMENTS

END Thank you for your time and assistance. If you win one of the gift cards I will be calling you no later than the end of April at this phone number to let you know.

[INTERVIEWER: IF ADDRESS IS FILLED IN USE "TO CONFIRM" IF NO ADDRESS DO NOT READ THOSE WORDS]
With this specialized survey we need (to confirm) your street address
is _____
to determine the distance between your address and a transit stop.

1. CORRECT
2. WHAT IS THE CORRECT ADDRESS
3. WHAT ARE THE CROSS STREETS

9. REFUSED

Well, that's it. Thank you very much for your time - we appreciate it.

INTERVIEWER QUESTIONS

GENDER The respondent was...

1. Male
2. Female
3. Couldn't tell

COOP How cooperative was the respondent?

1. Cooperative
2. Uncooperative
3. Very Uncooperative

UNDSTD How well did the respondent understand the questions?
1. Very easily
2. Easily
3. Some difficulty
4. Great deal of difficulty

LNG In what language was the interview conducted?
1. English
2. Spanish

NAME Interviewer name?

Appendix D – Mail-Back Questionnaire

Information on your Household

Do you live in an apartment or condo/townhouse? ____ Apartment ____ Condo/Townhouse

What city do you live in? _____ Zip code_____

How many bedrooms do you have in your unit? ____ Studio ____ One ____Two ____Three or more

Including yourself, how many people live in your household? _____ How many are age 16 or older? _____

How many motorized vehicles are available for use by members of your household? _____

Information on your Vehicles

For each of the vehicles in your household, please check off where it is ***typically*** parked at your residence

	Vehicle #1	**Vehicle #2**	**Vehicle #3**	**Vehicle #4**	**Vehicle #5**	**Vehicle #6**
A private garage assigned to your unit	_____	_____	_____	_____	_____	_____
A shared garage or outdoor lot in your development	_____	_____	_____	_____	_____	_____
On the street	_____	_____	_____	_____	_____	_____

Information on your Place of Work/School

Are you currently employed? ____ Yes ____ No

Do you work or go to school outside your place of residence? ____ Yes ____ No ___ No, I work from home

What is your work zip code? _____

Are you currently enrolled in school? ____ Yes ____ No

Are you enrolled in an on-line program to take courses at home? ____ Yes ____ No

Information on your Place of Residence

In what year did you move into your current residence? _____

When deciding to move to your current residence, what were the **three (3) most important** factors? (Place a 1 next to the most important, a 2 next to the second most important and a 3 next to the third most important):

___ cost of housing ___ type or quality of housing ___ quality of local schools
___ quality of neighborhood

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___ close to job ___ access to shops, services ___ access to transit
___ access to highway
___ recreational opportunities ___ close to family
___ safety
___ other (specify) _____

Using a scale of 1 to 5 (with 1 being poor and 5 being excellent), how would you rate your neighborhood as a **place for people to walk to destinations?** *In answering, think about things such as closeness of destinations, safety, and a nice street environment.* (circle your answer)

(poor) 1 2 3 4 5 (excellent)

Using the same 1 to 5 scale, how would you rate your neighborhood as a **place for people to take buses or trains?** *In answering, think about things such as access to destinations, frequency of buses or trains, ease of reaching a bus stop or metro station, and safety.* (circle your answer)

(poor) 1 2 3 4 5 (excellent)

Information on Commuting

Does your employer… (check all that apply)
____allow you to work flexible hours ____allow you to work from home ____provide a car for use during the day
____provide free parking ____help pay for transit ____help pay for tolls, fuel or other commuting costs

On average how often do you use transit (bus or rail) to commute to work or school?
____everyday ____2-3 times a week ___once a week ____once a month ____ rarely _____never

Attitudes Toward Transportation Options

Please check the response that best represents your opinion to the following statements

I feel uncomfortable driving a car under certain conditions, such as long distances, at nighttime, or on routes I don't know well.

__strongly agree ___agree ___disagree __strongly disagree ___neither

I and/or other members of my household would benefit greatly from being able to get around sometimes without a car.

__ strongly agree ___agree ___disagree __strongly disagree ___neither

Continue on back

The government should spend more transportation money on expanding roads and highways rather than on public transit.

__strongly agree ___agree ___disagree __strongly disagree ___neither

Information on Travel

Please provide travel information on the **THREE MAIN TRIPS** you made on the **prior business day from today**, the day you are filling out the survey. Note that a trip refers to **one direction** of travel (for instance, from home to work, or home to grocery store or home to drop family off is one trip… to return home is a second trip). If you did not make three main trips, please provide the information for the trips you did make. Please record the **DATE** of travel: _____, 2010

	Trip #1	**Trip #2**	**Trip #3**
Time you left (circle a.m. or p.m.)	_____a.m. / p.m.	_____a.m. / p.m.	_____a.m. / p.m.
Time you arrived (circle a.m. or p.m.)	_____a.m. / p.m.	_____a.m. / p.m.	_____a.m. / p.m.
Primary trip purpose (check one)			
Go to work	❑	❑	❑
Go to school	❑	❑	❑
Shopping	❑	❑	❑
Meal or a snack	❑	❑	❑
Pick up / drop off family	❑	❑	❑
Other errands	❑	❑	❑
Visit friends or family members	❑	❑	❑
Recreational	❑	❑	❑
Medical reasons / appointment	❑	❑	❑
Other (please specify)	_____	_____	_____
Return home	❑	❑	❑
Primary means of travel (check one)			
Drove alone	❑	❑	❑
Carpooled	❑	❑	❑
Rode rail transit (Metrolink)	❑	❑	❑
Rode bus	❑	❑	❑
Bicycled	❑	❑	❑
Walked	❑	❑	❑
Other (please specify)	_____	_____	_____
Origin (where you left from)			
City	_____	_____	_____
Zip Code	_____	_____	_____
Destination (where you went to)			
City	_____	_____	_____
Zip Code	_____	_____	_____
Parking at Destination			

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(check one)			
Free & easy to find	❑	❑	❑
Free but limited	❑	❑	❑
Pay hourly or daily	❑	❑	❑
Pay monthly	❑	❑	❑
Pay Annual	❑	❑	❑
No parking needed	❑	❑	❑
Other (please specify)	_____	_____	_____

Background Information

The following information is valuable to the success of this study. We appreciate any answers you can provide, and assure you that this information will be kept confidential.

Age at your last birthday: _____ **Gender**: ____Male ____Female

Race or Ethnicity:

____African American ____American Indian ___Pacific Islander ___Hispanic
___White ___Asian
____Other (please specify)_____

Current Occupation:

___Accounting/Financial ___Clerical/Secretarial ___Manager/Administrator
___Craftsman
___Laborer ___Sales ___Service ___Professional ___Medical Field
___Education/Teacher
___Legal/Law Enforcement ___ Other (please specify) _____

Approximate Household Income after taxes:

___$15,000 or less ___$15,001 - $30,000 ___$30,001 - $45,000 ___$45,001 - $60,000
___$60,001-$75,000 ___ $75,001 - $100,000 ___ $100,001 - $150,000 ___$150,001 and over

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Response to Comment No. 11-43

The document entitled "Travel Characteristics of Residents of Multi-Family Housing in the Inland Empire" presented above is outside the scope of the RPDEIR. Please refer to Section 1.2 of this Final RPEIR for a discussion of the scope of the RPDEIR, the City's obligation to respond to comments outside the scope of the RPDEIR, and the standards for recirculation of a Draft EIR due to "significant new information." The commentor offers no "significant new information" with respect to cumulative impacts within the meaning of CEQA Section 21092.1 and CEQA Guidelines Section 15088.5.

Refer to Response to Comment No. 11-3. This comment is noted for the record and will be forwarded to the decision makers.