VEHICLE TECHNOLOGY APPENDIX

REGIONAL TRANSPORTATION PLAN
2012–2035
SUSTAINABLE COMMUNITIES STRATEGY
Towards a Sustainable Future
RTP

Southern California Association of Governments

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THE ROLE OF VEHICLE TECHNOLOGY IN MEETING LONG-TERM AIR QUALITY AND ENERGY CHALLENGES

The SCAG region has a long history of addressing the need for significant regional emission reductions in order to attain the federal air quality standards. Of particular concern for air agencies and stakeholders is the significant amount of emission reductions necessary to meet the standards, and that a substantial portion are included in long term measures that are not yet clearly defined. More recently, concerns related to GHG emissions and future energy costs/sustainability have entered the discussion.

From the related air quality and energy discussions, stakeholders have focused on the role that technology will play for transportation sources and which concepts or strategies may possibly be incorporated into SCAG's 2012–2035 RTP/SCS to that end.

It is important to note that SCAG has consistently promoted or otherwise put forth concepts, performed necessary planning, or set forth policies that have helped move the region to a more efficient and cleaner transportation system. To name a few:

- Facilitating the linkage of a regional HOV system
- Initial planning for Metrolink
- Conceptualization of the Alameda Corridor
- Telecommuting
- Planning for a comprehensive, clean technology goods movement system
- System efficiency through improved urban form
- Administering the Southern California Clean Cities Coalition

SCAG will continue to champion such strategies and to seek ways, within the constraints set forth by regulation and jurisdictional authority, to set the framework for the strategies within the 2012–2035 RTP/SCS or otherwise facilitate moving such concepts forward.

SCAG's Collaborative Efforts Relative to Clean Vehicle Technology

The Air Quality / Energy Connection

To stimulate more active dialogue and begin to comprehensively addressing the related issues of air quality and energy costs and sustainability, ARB, South Coast AQMD, and SCAG have released a joint brochure entitled: Powering the Future: A Vision for Clean Energy, Clear Skies, and a Growing Economy in Southern California. This brochure discusses the economic, mobility, energy security and climate benefits of transitioning from traditional combustion of fossil fuels in cars, trucks and factories, to broad use of clean energy such as electricity. It includes "10 Steps for Governments" and "10 Steps for Business and Individuals" for "powering clean growth."

SCAG's policy with regard to alternative fuels is technology neutral and does not favor any one technology over any other. SCAG's alternative fuel goals are to promote emissions reduction and improved mobility in ways that are effective and cost-effective. Alternative fuels for transportation include, but are not limited to, the following commercially available and emerging fuels[1]:

Commercially Available Alternative Fuels

- Biodiesel
- Electricity
- Ethanol
- Hydrogen
- Natural Gas
- Propane

Emerging Alternative Fuels

- Biobutanol
- Biogas

[1] U.S. Department of Energy, Alternative Fuels and Advanced Vehicles Data Center, http://www.afdc.energy.gov/afdc/fuels/index.html

- Hydrogenation-Derived Renewable Diesel (HDRD)
- Methanol
- P-Series
- xTL Fuels (Fischer-Tropsch)

COMPREHENSIVE GOODS MOVEMENT PLANNING

The 2012–2035 RTP/SCS delineates a path forward—a series of steps and decision points to move the region to a near-zero and zero emission freight system. Broad deployment of near-zero and zero emission transportation technologies in the 2023 to 2035 timeframe is a critical undertaking, but with significant technological, cost and operational challenges. To achieve this objective requires industry stakeholder participation, as well as the efforts of numerous state and federal resources agencies, transportation agencies, along with commercial technology developers/manufacturers and logistics experts. The 2012–2035 RTP/SCS developed in coordination with many of these stakeholders reiterates this as a priority and establishes the regional path forward to such a system. Please refer to Goods Movement Technical Appendix to review the 2012–2035 RTP/SCS Goods Movement Environmental Strategy and Action Plan for Technology Advancement.

ELECTRIC VEHICLE PLANNING GRANTS

SCAG and regional partner agencies have successfully collaborated on submission of federal and state grant applications to the specific end of planning for accelerated penetration of electric vehicles into the market. The objective of the U.S. Department of Energy (DOE) grant is to develop a comprehensive, statewide PEV readiness project. To advance the state of readiness in California, the Bay Area AQMD, Plug-In Electric Vehicle Collaborative, South Coast AQMD, and Clean Cities Coalitions in California will form the California PEV Coordinating Council (CalPEVCC). The CalPEVCC will oversee the creation of a PEV Readiness Guidelines document, six Regional Infrastructure Plans, and a compiled Statewide Infrastructure Plan. The objective is to create a unified statewide approach to planning critical PEV charging infrastructure activities with regional implementation plans in order to support and expand the market for PEVs in California. DOE awarded this coalition $1,000,000 in September 2011, with allocations of $200,000 for SCAG and $100,000 for SCAG's Clean Cities partners.

SCAG, along with key regional partners, was awarded $200,000 from the California Energy Commission grant solicitation, Regional Plans to Support Plug-In Electric Vehicle Readiness. Core partners include South Coast AQMD, Southern California Edison (SCE), South Bay Cities Council of Governments (SBCCOG), and Western Riverside Council of Governments (WRCOG), and also includes many cities and stakeholders working together to develop the first-ever regional plug-in electric vehicle (PEV) strategic plan. The purpose of the project is to develop two subregional PEV Readiness Plans; establish best practices for "PEV-ready" building and public works guidelines; and streamline PEV electric vehicle supply equipment permitting, installation, and inspection processes. This Plan will also become part of a larger effort to provide support the forecasted growth in PEVs throughout California while promoting economic development within the green technology sector. The project will complement the proposed work outlined for the creation of a California PEV Readiness Plan outlined in the U.S. DOE proposal. Two complementary subregional Charge Port Infrastructure Plans will also be developed as part of this CEC project. Two subregions were selected based on their differing land use characteristics, allowing other subregions to relate to one of the models. This will facilitate the gradual development of PEV Readiness Plans at the subregional scale throughout Southern California.

NEIGHBORHOOD ELECTRIC VEHICLES

Neighborhood Electric Vehicles (NEV) provide a low speed, zero emission transportation option that can assist communities and regions in improving mobility while reducing carbon-based vehicle emissions and related pollution. Existing law authorizes certain local agencies to establish a NEV transportation plan subject to certain requirements.

NEVs have the following key benefits:

- Reduce reliance upon fossil fuels;
- Improve utilization of existing Class I and Class II bicycle lanes through shared use where appropriate;
- Provide safe and efficient transportation alternatives for short trips;
- Offer sustainable/livable community planning tool; and
- Enabling broad use of zero emission vehicles aids in attainment of GHG emission reductions outlined in SB 375 and AB 32;

With funding in part from the SCAG Blueprint Demonstration Project Program, the Western Riverside Council of Governments (WRCOG) conducted a four-city study in 2010 that evaluated how small electric vehicles could fit into the region's road network. The purpose of the WRCOG 4-City NEV Transportation Plan is to further the vision of creating a sustainable development that reduces gasoline demand and vehicle emissions by offering a cleaner, more economical means of local transportation within the plan area.

As a result of this effort, WRCOG sponsored legislation (AB61, Jeffries), signed by Governor Brown into law on August 4, 2011, that authorizes the County of Riverside or any city in the county to establish a NEV transportation plan. NEV transportation plans are needed to overcome connection issues, identify safe routes, and enable clear communication about where residents can go in low speed vehicles. The WRCOG 4-City NEV Transportation Plan presents a multi-jurisdiction transportation planning approach to leverage existing and future public street networks for maximum transportation benefit. This Plan identifies low speed connectors and potential NEV/bike lane backbone facilities within and between the cities of Corona, Norco, Riverside and Moreno Valley. The Plan also benefits unincorporated communities within the study area.

The Plan provides the necessary tools for local jurisdiction Plan adoption and may be used as a template for other communities contemplating similar transportation network enhancements.

The Plan includes Near Term and Long Range (Future) routes. Near Term routes are assumed as an initial implementation phase in the one to three year time frame. Near Term routes rely on existing or planned Class II bike lanes suitable for shared use with NEVs. These routes can be converted for NEV use with little or no capital cost. Not all Class II bike lanes are appropriate for shared use with safety as a primary determining factor. Long Range (Future) routes include select existing and planned Class II bike lanes to complete the backbone NEV network. Long range routes can be implemented over time and concurrent with future road improvements. The Backbone network map also includes low speed connector roads. These low speed connectors also provide easy transition to potential NEV / bike lanes leading to more places and increased mobility.

In another part of the SCAG region, the South Bay Cities Council of Government (SBCCOG) commissioned the report Neighborhood Electric Vehicles in Mature Suburbs (funded by South Coast AQMD) on a demonstration of NEVs in the South Bay sub-region. This effort is part of the Sustainable South Bay Strategy, adopted by the Board of Directors of SBCCOG in October 2010, as the basis for the sub-regions contribution to the regional SCS and as a guide to land use planning and transportation. In a related effort funded by SCAG's Compass Blueprint Program, SBCCOG, in conjunction the South Bay Livable Communities Working Group, developed a presentation to promote the South Bay Smart Suburban Vision to City Councils and Planning Commissions in the South Bay. The vision set forth a strategy that would intensify commercial uses at the corners of major arterials, transition mid-block strip commercial to residential, and encourage street-fronting buildings with parking at the rear. Taken together, these land use changes are intended to address the goals of SB 375 while creating an urban form supportive of NEVs. The study included potential NEV travel networks, mobility case studies, development models supportive of NEVs, land use analyses, and an economic analysis.

SUSTAINABLE COMMUNITIES STRATEGY / LAND USE

As part of the 2012–2035 RTP/SCS development process, SCAG has worked collaboratively with local jurisdictions on comprehensive growth forecasts and land use strategies. This dialogue has coalesced around a series of land use scenarios under consideration for the 2012–2035 RTP/SCS that seek create land use patterns with the following objectives (among others):

- promote and enable shifts to non-auto transportation modes (transit, walk, bike);
- reduce trip lengths by promoting mixed use development and access to daily needs at the neighborhood scale; and
- increase overall energy and resource efficiency by allowing for a greater mix of unit types.

The 2012–2035 RTP/SCS workshops scenarios captured a range of land use strategies that vary in aggressiveness from scenario to scenario. The package of strategies includes increasing densities at priority locations in order to maximize investment in transit, increasing the share of development in more urban typologies in order to promote mixed use and neighborhood oriented development, and shifting the locations of projected jobs and housing to achieve an improved regional balance. Further, all scenarios attempted to improve the region's responsiveness to housing market conditions by addressing a greater share of development to housing types where there is expected to be more demand (e.g. attached, rental, and small lot single family). The resulting land use policy

encourages overall efficiencies in energy consumption and emissions associated with both transportation and building energy use.

Other Related Efforts for Fleet Conversion

Numerous efforts are underway to require and facilitate zero and/or near-zero emission vehicles throughout the State. Foremost, ARB has recently adopted their proposed Advanced Clean Car package of regulations on January 26, 2012. The Advanced Clean Cars program combines the control of soot, smog-causing pollutants and greenhouse gas emissions into a single coordinated package of requirements for model years 2017 through 2025. The new rules will clean up gasoline and diesel powered cars, and deliver increasing numbers of zero-emission technologies, such as full battery electric cars, newly emerging plug-in hybrid electric vehicles and hydrogen fuel cell cars. According to ARB, in 2025, average consumers will see nearly $6,000 in fuel cost savings over the life of the car. Further, an ARB economic analysis indicates that the overall savings generated by the proposed rules will result in an additional 21,000 jobs in California in 2025, rising to 37,000 in 2030. The proposed Advanced Clean Cars package of regulations is further designed to deliver a total of 1.4 million zero-emission and plug-in hybrid vehicles on the road in California by 2025.

The Luskin Center for Innovation, UCLA, recently prepared the study, Realizing the Potential of the Los Angeles Electric Vehicle Market, to estimate the number of electric vehicles that would be purchased by City of Los Angeles residents over the next decade, and examine the effectiveness of policies to increase this number.

The Plug-in Hybrid & Electric Vehicle Research Center, under a grant from the California Energy Commission, prepared a plan to facilitate PEV market growth (TAKING CHARGE: Establishing California Leadership in the Plug-In Electric Vehicle Marketplace). The California Plug-In Electric Vehicle Collaborative, an ad hoc group of high-level stakeholders, played a guiding and consulting role in developing the plan that leverages their ongoing and extensive activities and recommends new actions that require their coordination. This plan aspires to facilitate PEV market growth so that, by the end of the decade, hundreds of thousands of PEVs are sold annually in California and the market contributes significantly to California's ongoing economic, energy, and environmental policy objectives. Its strategic focus intends to solidify California as a technological, manufacturing, economic, and policy leader that benefits from—and shapes—the global PEV market for decades to come.

Southern California Clean Cities Coalition is currently assisting with the marketing and education outreach for three projects funded through U.S. Department of Energy (DOE) Clean Cities ARRA 2009 Petroleum Reduction Technology Projects solicitation. These projects include two initiatives with the South Coast Air Quality Management District (SCAQMD) totaling nearly $16 million: the UPS Ontario–Las Vegas LNG Corridor Expansion Project and the Heavy-Duty Natural Gas Drayage Truck Replacement Initiative. The third project is being implemented in partnership with the San Bernardino Associated Governments (SANBAG) and Ryder Truck Rental, Inc. to implement the largest heavy-duty natural gas truck project in the U.S. SANBAG received $19.2 million from the Department of Energy and the California Energy Commission to deploy 202 heavy-duty natural gas trucks and construct two liquefied natural gas fueling stations.

SCAG will continue to champion and work with our stakeholders on innovative and technology neutral, yet practicable approaches to the air quality and energy challenges facing our Region. As one means of doing so, the efforts of SCAG and other stakeholders, as described above, promises a synergistic impact on accelerating the penetration of zero and/or near-zero emission transportation technologies.

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