Section 6. Corrections and Additions

The following list of corrections and additions to the RTP PEIR includes minor changes and clarifications to the text of the RTP PEIR. New language is underlined, and deleted text is shown with strike through. None of the revisions are significant and therefore recirculation is not warranted.

Global change: The PEIR is revised to refer to the proposed 710 tunnel as SR-710 rather than I-710.

Executive Summary

Page ES-7 is revised as follows:

> At the end of the second paragraph that starts "The No Project Alternative" the following sentence is added:
>
> The No Project Alternative assumes the baseline growth trend would occur and that the growth pattern would not be as compact as under the Policy Forecast.

Page ES-9 the text is revised to read as follows:

> Areas of known controversy…integration with SCAG's Regional Comprehensive Plan, HSRT, water supply reliability…

Page ES-15

> MM–AQ.3: Apply water or "toxic free" dust suppressants to exposed earth surfaces to control emissions.

Page ES-16

> MM-AQ.11: Low sulfur or other alternative fuels or diesel powered vehicles with Tier 3 or better engines or retrofitted/repowered -to meet equivalent emissions standards as Tier 3 engines - shall be used in construction equipment where feasible.

Page ES-16

> MM-AQ.14: Local governments or agencies with jurisdiction should, as practical and feasible revegetate exposed earth surfaces following construction. Application of xeriscape principles, including such techniques and materials as native or low water use plants and low precipitation sprinklers heads, bubblers, drip irrigation systems and timing devices, should also be considered.

Page ES-17

> MM-AQ.15: ~~Project sponsors should, where feasible,~~ Local governments or agencies with jurisdiction should, as practical and feasible, implement policies for sustainable airport development, management and airfield design to reduce air pollution and GHG emissions from operations, including cargo operations, ground support and access to and from airports (see Los Angeles World Airports Sustainability Vision and Principles and the Green LA Action Plan, hereby incorporated by reference).

Page ES-17

MM-AQ.16: ~~Project sponsors should, where feasible,~~ Local governments or agencies with jurisdiction should, as practical and feasible, implement a green construction policy that could include:

- Ensuring that all off-road construction vehicles should be alternative fuel vehicles, or diesel powered vehicles with Tier 3 or better engines or retrofitted/repowered -to meet equivalent emissions standards as Tier 3 engines;
- Using the minimum feasible amount of GHG emitting construction materials;
- Using cement blended with the maximum feasible amount of flyash or other materials that reduce GHG emissions
- Using asphalt with light colored additives and chemical additives that increase reflectivity and therefore reduce contribution to the heat island effect
- Requiring recycling of construction debris to maximum extent feasible
- Incorporating planting of shade trees into construction projects where feasible

Page ES-18

MM-AQ.17: Local governments should set specific limits on idling time for commercial vehicles, including delivery and construction vehicles.

The following new mitigation measure is added:

MM.AQ-18: SCAG shall work with the Ports of Los Angeles and Long Beach as appropriate to facilitate implementation of the Clean Air Action Plan (CAAP).

Page ES-18

MM-BIO.1: Each transportation project ~~shall~~ should assess displacement of habitat due to removal of native vegetation during route planning. Routes ~~shall~~ should be planned in order to avoid and/or minimize removal of native vegetation. Projects located in or adjacent to habitat areas should incorporate buffers to minimize lighting, noise, and other project impacts that can severely disrupt wildlife. Vegetation for buffers should be appropriate to the adjacent vegetation association and protect the genetic integrity of the adjacent habitat.

Page ES-19

MM-BIO.8: Sensitive habitats (native vegetative communities identified as rare and/or sensitive by the CDFG) and special-status plant species (including vernal pools) impacted by projects ~~shall~~ should be restored and augmented, if impacts are temporary, at a 1.1: 1 ratio (compensation acres to impacted acres). Permanent impacts ~~shall~~ should be compensated for by creating or restoring habitats at a 3:1 ratio as close as possible to the site of the impact. The CDFG may recommend mitigation ratios that vary on a project-by-project basis and may exceed those recommended in MM-BIO.8.

Page ES-20

MM-BIO.12: Projects within the range and within suitable habitat for ~~the arroyo toad~~ species listed as threatened or endangered under the California Endangered Species Act (such as the Mohave ground squirrel) or the Federal Endangered Species Act (such as the Arroyo toad) ~~shall~~ should conduct surveys, with CDFG and/or USFWS approval, in accordance with established and approved survey methods appropriate for the species of interest, such as the *1999 USFWS Survey Protocol For The Arroyo Toad* to establish whether or not the species is present. If species is determined present then the following applies:

- A pre-construction survey shall be conducted by a qualified biologist at each site to identify suitable habitat for the species of interest and to determine what avoidance measures, including relocation, fencing installation, and avoidance of breeding season will be required.
- Mitigation for occupied habitat is likely to be compensatory off-site acquisition or protection of similar habitats at a ratio of 3:1 (compensation acres to that impacted) or other similar ratio with the approval of the USFWS and/or CDFG.
- Project applicants must obtain an Incidental Take Permit under Section 2081 of the Fish and Game Code before proceeding with implementation of any project subject to CESA. Additional authorization may be required by the USFWS for take of federal-listed species or their occupied habitat.

Page ES-23

MM- BIO.18: ~~The two-striped garter snake is not formally listed but are considered a special-status species worthy of measures to avoid and minimize impacts to the extent feasible.~~ California species of special concern (CSC), such as the two-striped garter snake and several bat species are considered special-status species that meet the definition of rare, threatened or endangered species for the purposes of CEQA. Projects within the range and within suitable habitat for ~~the two-striped garter snake~~ California species of special concern ~~shall~~ should conduct surveys in accordance with the best professional judgement of a qualified biologist. The following measures should be implemented to further minimize adverse effects to CSC species:

- Preconstruction surveys of project impact areas ~~shall~~ should be required to salvage and relocate individual two-striped garter snakes out of harm. Following removal of individuals, construction areas ~~shall~~ should be fenced with temporary exclusionary silt fencing.
- Disturbances to bat roosts and nursery habitat should be avoided between March 1 and September 15 to avoid the breeding season for bats unless preconstruction surveys are conducted by a qualified biologist and no bat roosts or nurseries are found within the project area. Mitigation for the unavoidable loss of bat roosting and nursery habitat may include creation of habitat within newly constructed or renovated bridge structures, replacing appropriate tree species of adequate-sized trees providing habitat, and the installation of bat boxes to create additional habitat on a project-by-project basis depending on the level of impact.

- Similarly appropriate survey, salvage, and mitigation measures should be taken with regard to other CSC classified species. If avoidance of impacts to species is not feasible, on site and/or off site protection of appropriate mitigation lands in perpetuity should be secured for these species.
- Mitigation for occupied habitat is likely to be compensatory acquisition of mitigation credits or off-site acquisition or protection of similar habitats at a ratio of 3:1 (compensation acres to that impacted) or other similar ratio with the approval of the USFWS and/or CDFG.

Page ES-23 to ES-24

MM-BIO.20: No more than two weeks before construction in any given milepost, a survey for burrows and burrowing owls ~~shall~~ should be conducted by a qualified biologist within 500 feet of the project (assuming available authorized access). The survey will conform to the protocol described by the California Burrowing Owl Consortium's 1993 Burrowing Owl Protocol and Mitigation Guideline ~~(1993)~~ which includes up to four surveys on different dates if there are suitable burrows present as well as the CDFG's 1995 Staff Report on Burrowing Owl Mitigation. Both mitigation guidelines also recommend habitat land acquisition and protection in perpetuity for project-related loss of occupied wintering and breeding habitat for burrowing owls. If occupied burrowing owl dens are found within the survey area, a determination ~~shall~~ should be made by a qualified biologist in consultation with CDFG whether or not project work will impact the occupied burrows or disrupt reproductive behavior.

- If it is determined that construction will not impact occupied burrows or disrupt breeding behavior, construction will proceed without any restriction or mitigation measures.
- If it is determined that construction will impact occupied burrows during August through February, the subject owls will be passively relocated from the occupied burrow(s) using one-way doors. There ~~shall~~ should be at least two unoccupied burrows suitable for burrowing owls within 300 feet of the occupied burrow before one-way doors are installed. Artificial burrows ~~shall~~ should be in place at least one-week before one-way doors are installed on occupied burrows. One-way doors will be in place for a minimum of 48 hours before burrows are excavated.
- If it is determined that construction will physically impact occupied burrows or disrupt reproductive behavior during the nesting season (March through July) then avoidance is the only mitigation available. Construction ~~shall~~ should be delayed within 300 feet of occupied burrows until it is determined that the subject owls are not nesting or until a qualified biologist determines that juvenile owls are self-sufficient or are no longer reliant on the natal burrow as their primary source of shelter and survival.
- Mitigation for occupied habitat is likely to be compensatory acquisition of mitigation credits or off-site acquisition or protection of similar habitats at a ratio of 3:1 (compensation acres to that impacted) or other similar ratio with the approval of the USFWS and/or CDFG.

Page ES-24

MM-BIO.21: When working within 100 feet of salt or brackish marshland presence for the California black rail, California clapper rail, and Yuma clapper rail ~~shall~~ should be assumed for either species during the period February 1-August 31 and construction ~~shall~~ should be scheduled to begin no earlier than September 1 and end no later than January 31 to avoid potential impact on reproduction. The Department of Fish and Game and United States Fish and Wildlife Service should be consulted when projects identify occupied habitat or habitat capable of supporting California clapper rail, light-footed clapper rail, and Yuma clapper rail.

Page ES-26 to ES-27

MM-BIO.25: Suitable nesting sites for migratory nongame native bird species protected under the Federal Migratory Bird Treaty Act and/or trees with unoccupied raptor nests (large stick nests or cavities) ~~shall~~ should only be removed prior to ~~March 1~~ February 1, or following the nesting season. A survey to identify active raptor and other migratory nongame bird nests ~~shall~~ should be conducted by a qualified biologist ~~no more than~~ at least two weeks before the start of construction at project sites from ~~March 1~~ February 1 through ~~July 30~~ August 31. Active raptor nests ~~shall~~ should be re-located within 500 feet of the project to the extent feasible and assuming available authorized access. Suitable nesting habitat for protected native birds should be re-located within 300 feet of the project.

- Beginning thirty days prior to the disturbance of suitable nesting habitat, the project proponent should arrange for weekly bird surveys conducted by a qualified biologist with experience in conducting breeding bird surveys to detect protected native birds occurring in the habitat that is to be removed and any other such habitat within 300 feet of the construction work area (within 500 feet for raptors) as access to adjacent areas allows. The last survey should be conducted no more than 3 days prior to the initiation of clearance/ construction work.
- If an active raptor nest is found within 500 feet of the project or nesting habitat for a protected native bird is found within 300 feet of the project a determination ~~shall~~ should be made by a qualified biologist in consultation with CDFG whether or not project construction work will impact the active nest or disrupt reproductive behavior.
- If it is determined that construction will not impact an active nest or disrupt breeding behavior, construction will proceed without any restriction or mitigation measure.
- If it is determined that construction will impact an active raptor or native bird nest or disrupt reproductive behavior then avoidance is the only mitigation available. Construction ~~shall~~ should be delayed within 300 feet of such a nest (within 500 feet for raptor nests), until August 31 or as determined by CDFG, until the adults and/or young of the year are no longer reliant on the nest site for survival and when there is no evidence of a second attempt at nesting as determined by a qualified biologist. Limits of construction to avoid a nest should be established in the field with flagging and stakes or construction fencing marking the

protected area 300 feet (or 500 feet) from the nest. Construction personnel should be instructed on the sensitivity of the area.

- Documentation to record compliance with applicable State and Federal laws pertaining to the protection of native birds should be recorded.

Page ES-27

MM-BIO.26: Individual transportation projects included in the 2008 RTP ~~shall~~ should conduct site-specific analyses of opportunities to preserve or improve habitat linkages with areas on and off-site. Habitat linkages/ wildlife movement corridors should be analysed on a broader and cumulative impact analysis scale to avoid adverse impacts from linear projects that have potential for impacts on a broader scale or critical narrow choke points that could reduce function of recognized movement corridors on a larger scale. Mitigation banking to preserve habitat linkages and corridors (opportunities to purchase, maintain, an/or restore offsite habitat) is one opportunity that project proponents and jurisdictions may pursue.

MM-BIO.27: Each transportation project ~~shall~~ should provide wildlife crossings/access based on proven standards, such as FHWA's Critter Crossings or Ventura County Mitigation Guidelines and in consultation with wildlife corridor authorities with sufficient knowledge of both regional and local wildlife corridors, at locations useful and appropriate for the species of concern.

MM-BIO.29: Each transportation project included in the plan ~~shall~~ should use wildlife fencing where appropriate to minimize the probability of wildlife injury due to direct interaction between wildlife and roads. Wildlife fencing used should be based on proven designs for impacted species and developed in conjunction with wildlife corridor authorities with sufficient knowledge of both regional and local wildlife corridors. Inclusion of this mitigation measure ~~shall~~ should be considered on a case-by-case basis, as use of wildlife fencing could further increase the effects of habitat fragmentation and isolation for many species.

Also see BIO.1 through BIO.10.

Page ES-28

Impact 3.3-3: The 2008 RTP includes new transportation facilities that could increase near-road human disturbances such as litter, trampling, light pollution, and road noise as well as introduce invasive, non native plant species in previously inaccessible and undisturbed natural areas.

MM-BIO.30: Individual transportation projects should avoid siting new RTP transportation facilities within areas not presently exposed to such impacts. If avoidance is infeasible, the project ~~shall~~ should minimize vehicular accessibility to areas beyond the actual transportation surface. This can be accomplished through fencing and signage. Additionally, the area of native habitats to be lost to proximity to a transportation facility should be assessed and habitat at a quality of equal or superior value should be secured and protected in perpetuity.

MM-BIO.31: Each project ~~shall~~ should establish litter control programs in appropriate areas, such as receptacles at road turnouts, rest stops, and view points. All refuse containers should be provided with mechanisms which prevent scavenging animals from gaining access to the contents of such containers.

Page ES-29

MM-BIO.39: Construction through or adjacent to wetlands or riparian areas ~~shall~~ should be avoided where feasible through route-planning. All wetlands and watercourses, whether intermittent, ephemeral, or perennial, should be retained and provided with substantial setbacks which preserve the riparian and aquatic habitat values and maintain their value to on-site and off-site wildlife populations. These setbacks should be a natural buffer a minimum of 100 feet from the outside edge of the riparian zone on each side of a drainage. See also BIO.1 through BIO.10

MM-BIO.40: Each transportation project ~~shall~~ should avoid removal of wetland or riparian vegetation. Specific vegetation that is not removed ~~shall~~ should be so marked during construction. Wetland and riparian vegetation removal ~~shall~~ should be minimized as much as possible.

MM-BIO.41: Each transportation project ~~shall~~ should replace any disturbed wetland, riparian, or aquatic habitat, either on-site or at a suitable off-site location at ratios to ensure no net loss. See BIO.8; BIO.1 through BIO.7; and BIO.9.

MM-BIO.42: When individual projects include unavoidable losses of riparian or aquatic habitat, adjacent or nearby riparian or aquatic habitat ~~shall~~ should be enhanced (e.g. through removal of non-native invasive wetland species and replacement with more ecologically valuable native species). See BIO.8; BIO.1 through BIO.7; and BIO.9.

Page ES-31

MM-CUL.3: The project implementation agencies ~~shall~~ should comply with Section 106 of the NHPA including, but not limited to, projects for which ~~if~~ federal funding or approval is required for the individual project. This law requires federal agencies to evaluate the impact of their actions on resources included in or eligible for listing in the National Register. Federal agencies must coordinate with the State Historic Preservation Officer in evaluating impacts and developing mitigation. This mitigation measure may include, but are not limited to the following:

- The project implementation agencies ~~shall~~ should carry out the maintenance, repair, stabilization, rehabilitation, restoration, preservation, conservation or reconstruction of any impacted historic resource, which ~~shall~~ should be conducted in a manner consistent with the Secretary of the Interior's Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings.
- ~~MM-CUL.3:~~ Where feasible, the project implementation agencies ~~shall~~ should employ design measures to avoid historical resource areas.

- ~~MM-CUL.3:~~ Where feasible, noise buffers/walls and/or visual buffers/landscaping or some other material ~~shall~~ should be constructed to preserve the contextual setting of significant built resources.

Page ES-35

MM-EN.2 State and federal lawmakers and regulatory agencies should pursue the design of programs to either require or incentivize the expanded availability including the expansion of alternative fuel filling stations and use of alternative-fuel vehicles to reduce the impact of shifts in petroleum fuel supply and price.

Page ES-38

MM-EN.15: Local ~~agencies~~ governments or agencies with purview over utilities should, as practical and feasible, streamline permitting and provide public information to facilitate accelerated construction of geothermal, solar and wind power generation facilities and transmission line improvements.

Page ES-38

MM-EN.16: Local ~~agencies~~ governments and utilities should ~~adopt~~ develop a "Green Building Program" to promote green building standards. ~~Green buildings can reduce local environmental impacts, regional air pollutant emissions and global greenhouse gas emissions. Green building standards involve everything from energy efficiency, usage of renewable resources and reduced waste generation and water usage. For example, water-related energy use consumes 19 percent of the state's electricity. The residential sector accounts for 48 percent of both the electricity and natural gas consumption associated with urban water use. While interest in green buildings has been growing for some time, cost has been a main consideration as it may cost more up front to provide energy-efficient building components and systems. Initial costs can be a hurdle even when the installed systems will save money over the life of the building. Energy efficiency measures can reduce initial costs, for example, by reducing the need for over-sized air conditioners to keep buildings comfortable. Undertaking a more comprehensive design approach to building sustainability can also save initial costs through reuse of building materials and other means.~~

Page ES-39

MM-EN.17: Local governments should ~~alter zoning to improve~~ consider jobs/housing balance, to the extent practical and feasible, and encourage the development of ~~creating~~ communities where people live closer to work, bike, walk, and take transit as a substitute for personal auto travel. ~~Creating walkable, transit oriented nodes would generally reduce energy use and greenhouse gas emissions. Residential energy use (electricity and natural gas) accounts for 14 percent of California's greenhouse gas emissions. It is estimated that households in transit-oriented developments drive 45 percent less than residents in auto-dependent neighborhoods. In addition, mixed land uses (i.e., residential developments near work places, restaurants, and shopping centers) with access to public transportation have been shown to save consumers up to 512 gallons of gasoline per year. Furthermore, studies have shown that the type of housing (such as multi-family) and the size of a house have strong relationships to residential energy use. Residents of single family detached housing consume~~

~~over 20 percent more primary energy than those of multifamily housing and 9 percent more than those of single-family attached housing.~~

Page ES-39 MM-EN.23 is deleted, and subsequent measures renumbered.

Page ES-39

MM-EN.~~24~~23: Project sponsors should ~~ensure that~~ encourage, to the extent practical and feasible, new buildings incorporate solar panels in roofing and ~~tap~~ utilize other renewable energy sources to offset new demand on conventional power sources. For example, transit providers should, as feasible, assure that designers of new transit stations incorporate solar panels in roofing.

Page ES-39

MM-EN.~~25~~24: Project sponsors should ~~require~~ encourage energy efficient design for buildings, potentially including strengthening local building codes for new construction and renovation to achieve a higher level of energy efficiency. This may include strengthening local building codes for new construction and renovation to require a higher level of energy efficiency.

Page ES-39

MM-EN.~~26~~25: ~~Project sponsors~~ Local governments should seek funding through utility-sponsored programs to conduct ~~fund and schedule~~ energy efficiency "tune-ups" of existing buildings, as practical and feasible, by checking, repairing, and readjusting heating, ventilation, air conditioning, lighting, hot water equipment, insulation and weatherization. ~~(Facilitating or funding the improvement of energy efficiency in existing buildings could offset in part the global warming impacts of new development.)~~

Page ES-40 mitigation measure MM-EN.27 is deleted, and subsequent measures renumbered.

Page ES-40

MM-EN.~~28~~26: ~~Project sponsors~~ Local governments and developers should ~~require~~ encourage the use of energy efficient appliances and office equipment.

Page ES-40

MM-EN.~~32~~30: ~~Project sponsors~~ Local governments and developers should incorporate, where practical and feasible, on-site renewable energy production ~~(through, e.g., participation in the California Energy Commission's New Solar Homes Partnership)~~. ~~Require project proponents to~~ such as the installation of solar panels, water reuse systems, and/or other systems to capture energy sources that would otherwise be wasted.

Page ES-40

MM-EN.~~34~~32: ~~Project sponsors~~ Local governments should provide public education and publicity about energy efficiency programs and incentives in cooperation with local utility providers.

Pages ES-40

MM-EN.~~35~~33: ~~In some instances, a project sponsor may find that measures that will directly reduce a project's greenhouse gas emissions are insufficient.~~ If a carbon trading system is established, a ~~A~~ lead agency may consider whether carbon offsets would be an appropriate means of project mitigation. The project proponent could, for example, fund off-site projects (e.g., alternative energy projects) that will reduce carbon emissions, or could purchase "credits" from another entity that will fund such projects. The lead agency should ensure that any mitigation taking the form of carbon offsets is specifically identified and that such mitigation will in fact occur. The lead agency should ensure that any mitigation taking the form of carbon offsets is specifically identified and that such mitigation will in fact occur.

Page ES-40

MM-EN ~~36~~ 34.: ~~Project sponsors should and l~~ Local governments should ~~include~~ consider the following land use principles that use resources efficiently, and to the extent practical and feasible, ~~eliminate~~ minimize pollution and ~~significantly~~ reduce waste ~~into their projects, zoning codes and other implementation mechanisms:~~

• Mixed-use residential and commercial development that is connected with public transportation and utilizes existing infrastructure
• Land use and planning strategies ~~to~~ that increase biking and walking trips

Page ES-41

MM-EN.~~37~~35: ~~Project sponsors and l~~ Local governments should ~~integrate~~ encourage the integration of green building measures into project design ~~and zoning~~ such as those identified in the U.S. Green Building Council's Leadership in Energy and Environmental Design, Energy Star Homes, Green Point Rated Homes and the California Green Builder Program. Energy saving measures ~~that should be explored~~ for new and remodeled buildings include….

Page ES-45

MM-HM.6: Where contaminated sites are identified, the project implementation agency should ~~shall~~ develop appropriate mitigation measures to assure that worker and public exposure is minimized to an acceptable level and to prevent any further environmental contamination as a result of construction.

Page ES-47 MM-LU.11 This measure is a duplicate of MM-LU.10 and is deleted. Subsequent measures are renumbered.

Page ES-47

MM-LU.13 Local governments and subregional organizations should ~~develop ordinances and other programs which will enable and assist in~~ encourage the cleanup and redevelopment of brownfield sites.

Page ES-47

MM-LU.14: Where practical and feasible, local governments ~~and subregional organizations~~ should develop ~~adaptive reuse ordinances and other~~ programs ~~that will~~ to enable the reuse of ~~conversion of vacant or aging~~ underutilized commercial, office and/or industrial properties for ~~to~~ housing ~~and~~ or mixed-use housing.

Page ES-49

MM-NO.2: Project implementing agencies shall limit the hours of construction to those specified by local agencies, or if no rules are identified to the following hours within 3,000 feet of residential and hotel uses: between 6:00 a.m. and 8:00 p.m. on Monday through Friday and between 7:00 a.m. and 8:00 p.m. on Saturdays. Construction should not occur on Sundays or Holidays within 3,000 feet of sensitive receptors without specific overriding need being documented.

Page ES-51. Add the following mitigation measure:

MM-NO.24: Local governments or agencies with jurisdiction should, as practical and feasible, adhere to published local, state, and federal guidelines concerning groundborne vibration impacts.

Page ES-53

MM-OS.13 Project implementation agencies ~~shall~~ should consider corridor realignment, buffer zones and setbacks, and berms and fencing where feasible, to avoid open space, recreation land and wildlife corridors to reduce conflicts between transportation uses and open space.

Page ES-54

MM-OS.23 Project sponsors should ensure that at least one acre of unprotected open space is permanently conserved for each acre of open space developed as a result of ~~growth that accompanies~~ transportation projects/improvements.

Page ES-55

MM-OS.29 SCAG ~~shall~~ should encourage member jurisdictions to work as partners to address regional outdoor recreation needs and to acquire the necessary funding for the implementation of their plans and programs. This should be done, in part, by consulting with agencies and organizations that have active open space work plans.

Page ES-56

~~The mitigation measures listed above for impacts 3.10-1 through 3.10-3 shall be applied to Tier 2 projects (General and Specific Plans and individual development projects) in the region. In addition to these measures, the following mitigation measures would be applied to Tier 2 and 3 projects (General and Specific plans and individual development projects) in the SCAG region.~~

Page ES-56

MM-OS.34 Project level mitigation for significant cumulative and growth inducing impacts on open space resources ~~will~~ should include ~~but not be limited to~~ the conservation of natural lands, community open space and important farmland

through existing projects in the region ~~or through multi-party conservation compacts facilitated by SCAG~~.

Page ES-56

MM-OS.35 Local governments should establish programs to ~~transfer of development right (TDR) programs to~~ direct growth to less agriculturally valuable lands ~~(while considering the potential effects at the sites receiving the transfer)~~ and ensure, where possible, the continued protection of the most agriculturally valuable land within each county ~~through the purchase of the development rights for these lands. Local governments should also consider the~~ The following are offered as examples of programs:

- The development or participation in transfer of development rights programs to encourage the preservation of agricultural lands.
- Tools for the preservation of agricultural lands such as eliminating estates and ranchettes and clustering to retain productive agricultural lands.
- Easing restrictions on farmer's markets and encourage cooperative farming initiatives to increase the availability of locally grown food.
- Considering partnering with school districts to develop farm-to-school programs.

Pages 56-57. Delete MM-OS.37; it duplicates MM-OS.28. Renumber subsequent measures.

Page ES-57

MM-OS.4~~1~~0: Where practical and feasible, project sponsors and local governments should consider ~~and local governments should~~ increase ing the accessibility to natural areas and lands for outdoor recreation. Such measures should be coordinated with local and regional open space planning or management agencies.

Page ES-57

MM-OS.4~~2~~1 Project sponsors and local governments should promote infill development and redevelopment to ~~revitalize existing communities.~~ encourage the efficient use of land and minimize the development of agricultural and open space lands.

Page ES- 57

MM-OS.4~~3~~2 ~~Project sponsors should incorporate and l~~Local governments should ~~include~~ consider the following land use principles~~, such as green building,~~ that use resources efficiently, and to the extent practical and feasible ~~eliminate~~ minimize pollution and ~~significantly~~ reduce waste generation ~~into their projects, zoning codes and other implementation mechanisms.~~

- Mixed-use residential and commercial development that is connected with public transportation and utilizes existing infrastructure
- Land use and planning strategies to increase biking and walking trips.

Page ES-57

MM-OS.454 ~~Project sponsors and l~~Local governments should encourage multiple use spaces and encourage redevelopment in areas where it will provide more opportunities for recreational uses and access to natural areas close to the urban core.

ES-60

MM-PS.5: The construction contractor ~~shall~~ should work with the respective ~~County's~~ local government's Recycling Coordinator to ensure that source reduction techniques and recycling measures are incorporated into project construction.

Page ES-60 to ES-61

MM-PS.7: Project implementation agencies ~~shall~~ should integrate green building measures into project design such as those identified in the U.S. Green Building Council's Leadership in Energy and Environmental Design, energy Star Homes, Green Point Rated Homes, and the California Green Builder Program. These measures ~~shall~~ could include the following:

- Reuse and minimization of construction and demolition (C&D) debris and diversion of C&D waste from landfills to recycling facilities.
- The inclusion of a waste management plan that promotes maximum C&D diversion.
- Source reduction through (1) use of materials that are more durable and easier to repair and maintain, (2) design to generate less scrap material through dimensional planning, (3) increased recycled content, (4) use of reclaimed materials, and (5) use of structural materials in a dual role as finish material (e.g. stained concrete flooring, unfinished ceilings, etc.).
- Reuse of existing structure and shell in renovation projects.
- Design for deconstruction without compromising safety.
- Design for flexibility through the use of moveable walls, raised floors, modular furniture, moveable task lighting and other reusable building components.
- Development of indoor recycling program and space.

Page ES-61

MM-PS.8: ~~Project implementation agencies~~ Local governments and waste management agencies ~~shall~~ should discourage the siting of new landfills unless all other waste reduction and prevention actions have been fully explored. If landfill siting or expansion is necessary, landfills should be sited with an adequate landfill-owned, undeveloped land buffer to minimize the potential adverse impacts of the landfill in neighboring communities.

Page ES-61

MM-PS.9: Project implementation agencies ~~shall~~ should discourage exporting of locally generated waste outside of the SCAG region during the construction and implementation of a project. Disposal within the county where the waste

originates ~~shall~~ should be encouraged as much as possible. Green technologies for long-distance transport of waste (e.g., clean engines and clean locomotives or electric rail for waste-by-rail disposal systems) and consistency with SCAQMP and RTP policies should be required.

Page ES-61

MM-PS.10: Project implementation agencies ~~shall adopt~~ should encourage ~~Zero Waste~~ waste reduction goals and practices and look for opportunities for voluntary actions to exceed the 50% waste diversion target.

MM-PS.11: Project implementation agencies ~~shall~~ should encourage the development of local markets for waste prevention, reduction, and recycling practices by supporting recycled content and green procurement policies, as well as other waste prevention, reduction, and recycling practices.

MM-PS.12: ~~Project implementation agencies~~ Local governments ~~shall~~ should develop ordinances that promote waste prevention and recycling activities such as: requiring waste prevention and recycling efforts at all large events and venues; implementing recycled content procurement programs; and developing opportunities to divert food waste away from landfills toward food banks and composting facilities.

MM-PS.13: ~~Project implementation agencies~~ Developers, local governments, and waste management agencies ~~shall~~ should develop environmentally friendly alternative waste management strategies such as composting, recycling, and conversion technologies.

Page ES-62:

MM-PS.14: ~~Project implementation agencies~~ Local governments and waste management agencies, where practical and feasible, ~~shall~~ should develop and site composting, recycling, and conversion technology facilities that are environmentally friendly and have minimum environmental and health impacts.

Page ES-63:

MM-PS.~~21~~ 20: ~~Project implementation agencies~~ Local governments, waste management agencies and SCAG ~~shall~~ should coordinate regional approaches and strategic siting of waste management facilities.

MM-PS.~~22~~ 21: ~~Project implementation agencies~~ Local governments and waste management agencies ~~shall~~ should encourage and, where practical and feasible, facilitate the creation of synergistic linkages between community businesses and the development of eco-industrial parks and materials exchange centers where one entity's waste stream becomes another entity's raw material.

Page ES-63

MM-PS.~~23~~ 22: ~~Project implementation agencies~~ Local governments and waste management agencies ~~shall~~ should prioritize siting of new solid waste management facilities including recycling, composting, and conversion technology facilities in conjunction with existing waste management or material recovery facilities.

Page ES-63

MM-PS.~~24~~ 23: ~~Project implementation agencies~~ Local governments and waste management agencies ~~shall~~ should increase programs to educate the public and increase awareness of reuse, recycling, composting, and green building benefits and raise consumer education issues at the county and city level, as well as at local school districts and education facilities.

Page ES-72

MM-W.12 Treatment and control features such as detention basins, infiltration strips, porous paving, and other features to control surface runoff and facilitate groundwater recharge ~~shall~~ should be incorporated into the design of new transportation projects early on in the process to ensure that adequate acerage and elevation contours are provided during the right-of-way acquisition process.

Page ES-73

MM-W.20 Local governments should encourage Low Impact Development and incorporation of natural spaces that reduce, treat, infiltrate and manage stormwater runoff flows in all new developments, where practical and feasible.

Page ES-73

MM-W.21 Local governments should implement, where practical and feasible, green infrastructure and water-related green building practices through incentives and ordinances. Green building resources include the U.S. Green Building Council's Leadership in Energy and Environmental Design, Green Point Rated Homes, and the California Green Builder Program."

Page ES-74

MM-W.23 Developers, local governments, and water agencies should maximize, where practical and feasible, permeable surface area in existing urbanized areas to protect water quality, reduce flooding, allow for groundwater recharge, and preserve wildlife habitat. New impervious surfaces should be minimized to the greatest extent possible, including the use of in-lieu fees and off-site mitigation.

Page ES-74

MM-W.24 SCAG ~~shall~~ should continue to work with local jurisdictions and water quality agencies, through its Water Policy Task Force and other means, to encourage regional-scale planning for improved water quality management and pollution prevention. Future impacts to water quality ~~shall~~ should be avoided to the extent practical and feasible through cooperative planning, information sharing, and comprehensive pollution control measure development within the SCAG region. This cooperative planning ~~shall~~ should occur ~~during~~ as part of current and existing coordination, an integral part of SCAG's ongoing regional planning efforts.

Page ES-74

MM-W.25 SCAG ~~shall~~ should continue to work with local jurisdictions and water agencies, to encourage regional-scale planning for improved stormwater

management and groundwater recharge, including consideration of alternative recharge technologies and practices. Future adverse impacts ~~shall~~ should be avoided through cooperative planning, information sharing, and comprehensive implementation efforts within the SCAG region. Meetings of SCAG's Water Policy Task Force and Regional Council offer an opportunity for local jurisdictions and water agencies to share information and strategies for improving regional performance in these efforts.

Page ES-76

MM-W.30 ~~Project developers and~~ Regional water agencies should consider, to the greatest extent feasible, potential climate change hydrology and attendant impacts on available water supplies and reliability in the process of creating or modifying systems to manage water resources for both year-round use and ecosystem health. As the methodology and base data for such decisions is still developing, agencies should use the best currently available science in decision making. Local governments and water agencies should rely on current regional analyses when making local decisions regarding future water supply and reliability.

Page ES-76

MM-W.33 SCAG, in coordination with regional water agencies and other stakeholders, ~~shall~~ should encourage the kind of regional coordination throughout California and the Colorado River Basin that develops and supports sustainable policies in accommodating growth.

Page ES-76

MM-W.34 SCAG, in coordination with regional water agencies and other stakeholders, ~~shall~~ should facilitate information sharing about the management and status of the Sacramento River Delta, the Colorado River Basin, and other water supply source areas of importance to local water supply.

Page ES-76

MM-W.35 Developers and local governments should reduce exterior uses of water in public areas, and should promote reductions in private homes and businesses, by shifting to drought tolerant native landscapes plantings (xeriscaping), using weather-based irrigation systems, educating other public agencies about water use, and installing related water pricing incentives. Local governments should also work with local retailers and vendors to promote the availability of drought resistant landscaping options and provide information on where these can be purchased. Use of reclaimed water especially in median landscaping and hillside landscaping should be implemented where feasible.

Page ES-76

MM-W.36 Future impacts to water supply ~~shall~~ should be minimized through cooperation, information sharing, and program development as part of SCAG's ongoing regional planning efforts, in coordination with regional water agencies and other stakeholders. SCAG's Water Policy Task Force presents an opportunity for local jurisdictions and water agencies to share information and strategies (such as those listed above) about their on-going water supply planning efforts, including the following types of actions:

- Minimize impacts to water supply by developing incentives, education and policies to further encourage water conservation and thereby reduce demand.
- Involve the region's water supply agencies in planning efforts in order to make water resource information, such as water supply and water quality, location of recharge areas and groundwater, and other useful information available to local jurisdictions for use in their land use planning and decisions.
- Provide, as appropriate, legislative support and advocacy of regional water conservation, supply and water quality projects.
- Promote water-efficient land use and development.
- The Water Policy Task Force and other ongoing regional planning efforts present an opportunity for SCAG to partner with the region's water agencies in outreaching to local governments, special water districts, and the California Department of Water Resources on important water supply issues. SCAG provides a unique opportunity to increase two-way communication between land use and water planners. The goals of the Task Force would not be to duplicate existing efforts of the water agencies."

Chapter 1 Introduction

Page 1-3. At the end of the third full paragraph the following is inserted:

> The No Project Alternative assumes the baseline growth trend would occur and that the growth pattern would not be as compact as under the Policy Forecast.

Chapter 2 Project Description

P. 2-17. The following is inserted after the fourth paragraph of page 2-17:

> The decentralized aviation system, as reflected in the 2035 forecast, is based on an overall strategy of providing high-speed regional transit to underutilized suburban airports including Ontario and San Bernardino International, as well as providing market incentives and ground access improvements to those and other airports including Palmdale Regional Airport. This strategy is reflected in the RADAM aviation demand modeling that produced the 2035 forecasts. Strategies to finance and implement the high-speed regional transit system, needed ground access improvements and market incentives that underlie the regional aviation decentralization strategy will be the focus of future SCAG studies and plans including the Regional Airport Management Action Plan.

Chapter 3.2 Air Quality

Page 3.2-21 The following text is added at the top of the page, under the subheading Toxic Air Contaminants:

A substance is considered toxic if it has the potential to cause adverse health effects in humans. Toxic air contaminants (TACs) are those pollutants released to the air that are known to or suspected of causing cancer or other serious health problems. Health concerns may be associated with both short and long term exposures to these pollutants. Many are known to have respiratory, neurological, immune or reproductive effects, particularly for more susceptible sensitive populations, such as children. The cancer-causing potential of TACs is a particular public health concern because many scientists believe that there is no "safe" level of exposure to carcinogens. Any exposure to a carcinogen can pose some cancer risk. "Cancer risk" refers to the increased chance of contracting cancer as a result of an exposure. This is generally expressed as a probability: chances-in-a-million. For the analysis, SCAG utilized the SCAQMD's cancer risk thresholds of 1 in 1,000,000.A risk level of 1 in 1,000,000 implies a likelihood that up to one person, out of one million equally exposed people would contract cancer if exposed continuously (24 hours per day) to the specific concentration over 70 years (an assumed lifetime). The values expressed for cancer risk do not predict actual cases of cancer that will result from exposure to toxic air contaminant.

Page 3.2-31 The following text is added to the first paragraph under Impact 3.2-2:

However, mobile sources are responsible for approximately half of the total lifetime cancer risk attributed to air toxics. For the analysis, SCAG utilized the SCAQMD's cancer risk thresholds of 1 in 1,000,000.A risk level of 1 in 1,000,000 implies a likelihood that up to one person, out of one million equally exposed people would contract cancer if exposed continuously (24 hours per day) to the specific concentration over 70 years (an assumed lifetime). The values expressed for cancer risk do not predict actual cases of cancer that will result from exposure to toxic air contaminant.

Page 3.2-32, Table 3.2-9 is revised as follows:

TABLE 3.2-9
INCREMENTAL CANCER RISK AT MAXIMUM EXPOSED RESIDENCE FROM VEHICLE OPERATION BY PLANNING SCENARIO AND FREEWAY CORRIDOR

	Increased Cancer Risk over 70-Year Exposure (per million)					
Planning Scenario	**I-405 (Orange)**	**I-710 (Los Angeles)**	**I-8 (Imperial)**	**SR 60 (San Bernardino)**	**SR 91 (Riverside)**	**US 101 (Ventura)**
2008 Existing	~~915~~1,080	~~563~~943	~~85~~111	~~174~~294	~~479~~731	~~160~~235
2035 No Project	~~225~~270	~~206~~310	2737	~~57~~92	~~120~~198	~~55~~79
2035 Plan	~~222~~269	~~174~~264	2434	~~51~~80	~~108~~203	5476

SOURCE: Southern California Association of Governments, 2007

Page 3.2-34 see changes to MM-AQ.3 in the executive summary.

Page 3.2-35 see changes to MM-AQ.11 in the executive summary.

Page 3.2-35 see changes to MM-AQ.14 in the executive summary.

Page 3.2-42 see changes to MM-AQ.15 through MM-AQ.16 in the executive summary.

Page 3.2-43 see changes to MM-AQ.17 in the executive summary.

Page 3.2-43 see new Mitigation Measure MM.AQ-18 in the executive summary.

Page 3.2-43, the following is added to the list of references:

Southern California Association of Governments. January 2008. *Screening Assessment of Sample Selected Projects Included in the Southern California Association of Governments' Draft 2008 Regional Transportation Plan.*

Chapter 3.3 Biological Resources

Page 3.3-10 The following correction to table 3.3-1 is made:

The Los Cerritos Wetlands currently has 41.5 acres of protected land area with an additional 24.5 acres of fee title underneath the San Gabriel River.

Page 3.3-23 Added under Impact 3.3-1 in the third paragraph after the third sentence:

In addition, the increase of nitrogen oxide (NOx) pollutants derived from significant increase of motor vehicles and other growth inducing NOx sources contributed by the implementation of the 2008 RTP can result in detrimental effects to native vegetative communities. The cumulative deposition of atmospheric NOx pollutants is a contributor to increased levels of nitrogen-based nutrients in soils and induces the growth of invasive, exotic vegetation into areas which normally support low nutrient levels such as serpentine grasslands. Increases of exotic annual vegetation resulting from increased soil fertility may increase the risk and intensity of wildfires into vegetative communities which are

not fire adapted. Increased deposition of atmospheric NOx into drainages may also contribute to eutrophication of aquatic ecosystems resulting in reduction of biodiversity and function.

Page 3.3-39 see changes to MM-BIO.1 in the executive summary

Page 3.3-39 see changes to MM-BIO.8 in the executive summary

Page 3.3-40 see changes to MM-BIO.12 in the executive summary

Page 3.3-43 see changes to MM-BIO.18 in the executive summary

Pages 3.3-43 to 3.3-44 see change to MM-BIO.20 in the executive summary

Page 3.3-44 see change to MM-BIO.21 in the executive summary

Page 3.3-46 see change to MM-BIO.25 in the executive summary

Page 3.3-48 see change to MM-BIO.26 through MM-BIO.27 in the executive summary

Page 3.3-48 see change to MM-BIO.29 in the executive summary

Page 3.3-48 see change to Impact 3.3-3 in the executive summary

Page 3.3-49 see change to MM-BIO.30 in the executive summary

Page 3.3-49 see change to MM-BIO.31 in the executive summary

Page 3.3-52 see change to MM-BIO.39 through MM-BIO.42 in the executive summary

Chapter 3.4 Cultural Resources

Page 3.4-19 to 3.4-20 see change to MM-CUL.3 in the executive summary

Chapter 3.5 Energy

Page 3.5-17, the following sentence is added to the end of the last paragraph on this page:

The Ports of Los Angeles and Long Beach have implemented a Pier pas Program designed to improve operations and air quality in and around the ports.

Page 3.5-22 Insert the following after the first full paragraph:

Green buildings have also been shown to reduce energy consumption and save money. A comprehensive study of the value of green building savings is the 2003 report to California's Sustainable Building Task Force. In the words of the report: "While the environmental and human health benefits of green building have been widely recognized, this comprehensive report confirms that minimal increases in upfront costs of about 2% to support green design would, on average, result in life cycle savings of 20% of total construction costs -- more than ten times the

initial investment. For example, an initial upfront investment of up to $100,000 to incorporate green building features into a $5 million project would result in a savings of $1 million in today's dollars over the life of the building." (Source: Greg Kats, Capital E, The Costs and Financial Benefits of Green Buildings, A Report to California's Sustainable Building Task Force, October 2003, http://ciwmb.ca.gov/greenbuilding/design/costbenefit/report.pdf, last accessed February 28, 2008)

Page 3.5-35 see change to MM-EN.2 in executive summary

Page 3.5-37 see change to MM-EN.15 through MM-EN.17 in executive summary

Page 3.5-38 see change to MM-EN.23 through MM-EN.25 in executive summary

Page 3.5-39 see change to MM-EN.26 through MM-EN.28 in executive summary

Page 3.5-39 see change to MM-EN.32 in executive summary

Page 3.5-39 see change to MM-EN.34 through MM-EN.36 in executive summary

Page 3.5.40 see change to MM-EN.37 in executive summary

Chapter 3.6 Geology, Soils and Seismicity

Chapter 3.7 Hazardous Materials

Page 3.7-15 see change to MM-HM.6 in the executive summary

Chapter 3.8 Land Use

Page 3.8-12 see change to MM.LU-11 in the executive summary

Page 3.8-12 see change to MM.LU-13 through MM.LU-14 in the executive summary

Chapter 3.9 Noise

Page 3.9-14 see changes to MM-NO.2 and in the Executive Summary.

Page 3.9-30 see addition of new mitigation measure MM-NO.24.

Chapter 3.10 Open Space

Page 3.10-24 see change to MM-OS.13 in the executive summary. The following paragraph is added after the second full paragraph:

RTP projects are linear in nature and have the potential to cut off access to certain parks and recreational areas from nearby neighborhoods.

Page 3.10-25 see change to MM-OS.23 in the executive summary

Page 3.10-27 see change to MM-OS.29 in the executive summary

Page 3.10-29 see change to first paragraph under the subheading Mitigation Measures in the executive summary

Page 3.10-30 see change to MM-OS.34 through MM-OS.35 in the executive summary

Page 3.10-31 see change to MM-OS.41 through MM-OS.43 in the executive summary

Page 3.10-31 see change to MM-OS.45 in the executive summary

Chapter 3.11 Population, Housing and Employment

Page 3.11-8 the last sentence of the fourth paragraph is deleted.

Chapter 3.12 Public Services and Utilities

Page 3.12-19 see change to MM-PS.5 in the executive summary

Page 3.12-19 see change to MM-PS.7 through MM-PS.9 in the executive summary

Page 3.12-20 see change to MM-PS.10 through MM-PS.14 in the executive summary

Page 3.12-23 see change to MM-PS.21 through MM-PS.23 in the executive summary

Page 3.12-24 see change to MM-PS.24 in the executive summary

Page 3.12-23 The following is added to the end of the first full paragraph on the page:

In addition, possible changes to current waste management strategies, such as proposals to ban green waste for use as alternative daily cover (ADC) could have implications for transportation. Green waste would be transported to appropriate waste facilities while material for use as daily cover (such as soil) would continue to be transported to landfills.

Chapter 3.14 Transportation

Page 3.14-5, Table 3.14-2, Riverside County % of VMT in the AM Peak Period is revised to be 12% (not 1%), and the % of Daily VHT for Orange County is revised to be 17% (not 1%). Table 3.14-3 Orange County's existing daily vehicle hours of delay is revised to be 609,970 (not 752,942).

Page 3.14-15. The last sentence of the first partial paragraph is revised as follows:
Together these two ports rank fifth ~~third~~ in the world, behind Singapore (24.8 million TEU) ~~Rotterdam~~ and Hong Kong (23.2 million TEU), Shanghai (21.7 million TEU) and Shenzhen (18.5 million TEU), as the busiest maritime ports.

Page 3.4-23 Impact 3.14-2 is revised as follows:

Impact 3.14-2: In 2035 there would be substantially higher average Vehicle Hours ~~Traveled (VHT)~~ in Delay (VHD) than the current condition. Implementation of the 2008 RTP would contribute to this increase.

As detailed in **Table 3.14-12**, total daily ~~VHT in delay~~ VHD are expected to grow from ~~14.1~~ 4.3 million ~~person~~ vehicle hours in 2008 to ~~19~~ 6.23 million ~~person~~ vehicle hours in 2035. This constitutes a ~~35%~~ 45% increase from conditions in 2008 and includes light, medium and heavy ~~VHT~~ trucks as well as passenger vehicles in all six counties.[14] The increase in ~~daily VHT~~ time vehicles spend~~t~~ in delay would be a significant impact.

Vehicle Hours in delay for heavy-duty trucks also show an increase when compared to 2008; ~~a 168% increase with the No Project Alternative and a 111% increase with the Plan.~~ An 89% increase with the No Project Alternative and a 48% increase with the Plan.

Page 3.14-23 the last sentence of the paragraph following the subheading Mitigation Measures, change "VHT in delay" to "VHD."

Page 3.14-24, Table 3.14-12 is revised as shown below:

TABLE 3.14-12
DAILY VEHICLE HOURS OF DELAY ~~VHT~~ (VHD) IN 2008 AND 2035 (IN MILLIONS)

	2008 Base Year	2035 No Project	2035 Plan
All Vehicles and Trucks VHD (in millions) ~~VHT in delay (person hours)~~			
Imperial	0.01	~~0.3~~0.04	~~0.3~~0.04
Los Angeles	~~7.9~~ 2.67	~~10.2~~ 3.9	~~9.7~~ 3.51
Orange	~~2.4~~ 0.75	~~3.1~~ 1.13	~~3.1~~ 1.03
Riverside	~~1.4~~ 0.39	~~3.4~~ 1.6	~~2.7~~ 0.91
San Bernardino	~~1.6~~ 0.35	~~3.2~~ 1.18	~~2.6~~ 0.66
Ventura	~~0.6~~ 0.13	~~0.8~~ 0.25	~~0.7~~ 0.24
Regional	~~14.1~~ 4.30	~~21~~ 8.14	~~19~~ 6.37
Heavy Duty Trucks ~~VHT~~ VHD (~~vehicle hours~~ in Millions)			
Imperial	0.001	~~0.003~~ 0.002	0.002
Los Angeles	0.122	0.224	~~0.217~~ 0.199
Orange	0.034	~~0.061~~ 0.061	~~0.057~~ 0.053
Riverside	0.024	~~0.117~~ 0.117	~~0.078~~ 0.067
San Bernardino	0.032	~~0.154~~ 0.154	~~0.098~~ 0.079
Ventura	0.007	~~0.015~~ 0.015	~~0.014~~ 0.013
Regional	0.221	~~0.593~~ 0.594	~~0.467~~ 0.413

SOURCE: SCAG. (2007). *Regional Travel Demand Model Results*. Los Angeles, CA.

Page 3.14-25, Impact statement 3.14-4 change "VHT in delay" to "VHD" and the first and second paragraphs following the impact statement the following changes are made:

As detailed in **Table 3.14-12**, total daily heavy-duty truck trip ~~VHT in delay~~ VHD are expected to increase from 221,000 average daily heavy-duty truck vehicle hours of delay in 2008 to ~~467,000~~ 413,000 hours in 2035. This constitutes a

~~113%~~ 86% increase from conditions in 2008.[15] The increase in daily heavy-duty truck trip ~~VHT spent in delay~~ VHD would be a significant impact.

For the region and each county, the relationship between the daily heavy-duty truck trip daily ~~VHT in delay~~ VHD with implementation of the 2008 RTP and without implementation of the RTP (the No Project alternative) are shown in Table 3.14-12. Implementation of the 2008 RTP would reduce daily heavy duty truck hours of delay in 2035 from 594,000 hours (without implementation of the 2008 RTP) to ~~467,000~~ 413,000 hours.[16] However, for the purpose of determining the significance of this impact per CEQA, conditions with the Plan must be compared to the existing setting.

Page 3.14-25 at the end of the paragraph under the sub-heading Mitigation Measures, "VHT in delay" is replaced with "VHD."

Page 3.4-25: The paragraph following significance after mitigation is revised as follows:

Implementation of measures beyond those institutionally and economically feasible measures identified in the 2008 RTP would be expected to reduce ~~VHT spent in delay~~ VHD for all vehicles, however even with this mitigation, the 2035 total ~~vehicle VHT in delay~~ VHD would be substantially greater than the existing ~~VHT~~ in delay. Therefore, the increase in total ~~vehicle VHT in delay~~ VHD would remain a **significant impact.**

Chapter 3.15 Water Resources

Page 3.15-8:

The San Jacinto Watershed is in Riverside County, ~~and is centered roughly on the City of Hemet~~. ; it covers over 700 square miles, starting in the San Jacinto Mountains, running westerly through Canyon Lake and ending in Lake Elsinore. This watershed provides drinking water and recreational opportunities to much of Riverside County. ~~It includes Lake Elsinore, as well as Sun City~~.

Page 3.15-9

Major cities include ~~Acton~~, Santa Clarita, Fillmore, Santa Paula, ~~venture,~~ Ventura, and Oxnard.

Page 3.15-30: "Santa Clarita Water Reclamation Plants: Saugus and Valencia"

Page 3.15-42: see changes to MM-W.12 in the executive summary

Page 3.15-46: see changes to MM-W.20 through MM-W.21 in the executive summary

Page 3.15-46: see changes to MM-W.23 through MM-W.24 in the executive summary

Page 3.15-47: see changes to MM-W.25 in the executive summary

Page 3.15-50: see changes to MM-W.30 in the executive summary

Page 3.15-50: see changes to MM-W.33 through MM-W.36 in the executive summary

Chapter 4 Alternatives

Page 4-9, under Transportation, the paragraph is revised as follows:

The No Project Alternative would result in greater than or equal impacts to transportation facilities, compared to the 2008 RTP. The No Project Alternative would generally be expected to result in more miles traveled and more delay. The No Project Alternative would result in 563 million daily VMT, more than the 2008 RTP's ~~552~~ 548 million daily VMT. Daily hours of delay in the No Project Alternative would be 8.1 million ~~person-hours of delay~~ Vehicle Hours of Delay (VHD) for all vehicles and 0.593 million vehicle-hours of delay for heavy-duty trucks. Comparatively, the 2008 RTP would result in ~~6.6~~ 6.4 million ~~person~~ Vehicle hours of delay for all vehicles and ~~0.467~~0.415 million vehicle-hours of delay for heavy-duty trucks. The differences between No Project Alternative and 2008 RTP impacts to transportation are detailed in **Tables 3.14-11 and 3.14-14**.

Page 4-27 under Transportation, the paragraph is revised as follows:

The Envision Alternative would result in less transportation impacts than the 2008 RTP. The Envision Alternative would result in 543 million daily VMT, less than the 2008 RTP's ~~552~~ 548 million daily VMT, and the VMT in the base year, making it a beneficial impact. Daily hours of delay under the Envision Alternative would be ~~2.9~~ 6.2 million ~~person~~ Vehicle hours for all vehicles and 0.404 million vehicle-hours for heavy-duty trucks. Comparatively, the 2008 RTP would produce ~~6.6~~ 6.4 million ~~person~~Vehicle-hours of delay for all vehicles and ~~0.467~~ 0.415 million vehicle-hours of delay for heavy-duty trucks.

Chapter 5 Long Term Effects

Page 5-7, the following is added after the second paragraph:

The Department of Conservation, California Geological Survey prepares information regarding aggregate resources in the state of California. The most recent report (2006) indicates the following information with respect to permitted aggregate resources and 50-year demand in the SCAG region. The 50-year demand is based on a per capita consumption forecast, developed from historic data. This method has been shown to be reasonably accurate in forecasting demand, it tends to smooth out spikes in demand that occur as a result of large-scale projects in a particular area. (It should be noted that although there are aggregate mines in Imperial County, the Geological Survey does not provide permit and demand data for Imperial County.)

Table 5-1
Permitted Aggregate Resources and 50 year Demand in the SCAG Region (million tons)

Aggregate Study Area	Permitted Resources	50 Year Demand as of Jan 2006
Palm Springs	176	295
San Bernardino	262	1,074
Barstow-Victorville	133	179
Temescal Valley – Orange County	355	1,122
San Gabriel Valley	370	1,148
San Fernando Valley – Saugus Newhall	88	457
Palmdale	181	665
Claremont - Upland	147	300
Ventura County	106	309
Total	**1,818**	**5,549**

Table 5-1 shows that just under one third of the projected 50 year demand is currently permitted in the SCAG region (not counting mines in Imperial County). In the state of California in general an estimated 4.3 billion tons of aggregate reserves currently are within permitted mines and the projected 50 year demand for the state is for 13.5 billion tons. The Geological Survey estimates that state-wide there are up to 74 billion tons of non-permitted resources. Non-permitted aggregate resources are deposits that may meet specifications for construction aggregate, are recoverable with existing technology, have no land overlying them that is incompatible with mining, and currently are not permitted for mining. While the estimated amount of non-permitted resources is large, it is unlikely that all of these resources will ever be mined because of social, environmental, or economic factors. Aggregate resources located too close to urban or environmentally sensitive areas can limit or stop their development. These resources may also be located too far from a potential market to be economically viable. In spite of such possible constraints, non-permitted aggregate resources are the most likely future sources of construction aggregate potentially available to meet California's continuing demand.

MAPS

The following note is added to Map 3.10-1: See Map 3.15-2 for water bodies in Imperial County; see Map 3.10-5 for Agricultural land use in Imperial County.

The following footnote is added to Map 3.15-7: The area in Imperial County that covers the open channel network and shows the area as an impaired water body refers to the drains, not the canals.

APPENDICES

B Air Quality – Screening Risk Assessment of Sample Selected Projects

Several revisions were made to the emission factor calculations and dispersion modeling analysis contained in the screening analysis. The revisions are discussed below and the revised Screening Assessment (presented in its entirety) follows.

- Freeway Width/Receptor Proximity – The modeling in the Draft PEIR assumed that freeway expansion (when lanes are added under future Plan scenarios) always occurred inward toward the median. Three of the six modeled corridors included expansion under the Plan. (No expansions were planned along the other three corridors.) Further review of the specific projects underlying these expansions revealed that the added lanes were programmed for the outside (i.e., shoulder). Thus, draft analysis incorrectly modeled the source-to-receptor distances for these three corridors. These affected corridors were I-405 (Orange), SR60 (San Bernardino) and SR91 (Riverside). Correction the source-receptor distances resulted in roughly a 10% increase in maximum modeled risks, although the amount varied from site to site due to differences in meteorology.

- Unit Risk Value (URV) Updates – The URVs in the Draft PEIR were based on values used for a similar risk assessment performed four years ago for SCAG's 2004 RTP EIR. They were updated based on the latest data published by the California Office of Environmental Health Hazard Assessment (OEHHA). OEHHA publishes risk values based on several types of derived or averaging methods. For this updated analysis, "Derived OEHHA" unit risks were used. Of all the unit risks, the Derived OEHHA values tend to be the most conservative (i.e. are the highest). Application of these updated unit risks resulted in roughly a 40% increase in maximum modeled risks compared to those values contained in the Draft EIR. This revision affected all corridors and analysis scenarios.

- Emission Factor Units Conversion – An inadvertent emission factor units conversion error was discovered in the Draft PEIR analysis. This error affected all corridors and analysis scenarios. The corrected values were roughly 10% lower than those in the Draft PEIR.

- Dispersion Model Input Entry Error- An data entry error was discovered in the Draft PEIR analysis for the emission source strengths input to the dispersion modeling for two of the four modeling links used to simulate the SR91 freeway corridor for the 2008 Existing Analysis scenario. (No other corridor links or analysis scenarios were affected.) The result of correcting this entry error increased the modeled risks for SR91 under the 2008 Existing scenario by just under 50%.

- Emission Factors and Time-of-Day Adjustments – The Draft analysis attempted to account for corridor-specific diurnal variations in heavy-duty

Diesel vehicle travel by applying time-of-day adjustment factors to the daily average emission inputs in the dispersion modeling. Based on a subsequent comment (Comment 6-5) and a more thorough examination of performing the modeling both with and without these time-of-day adjustment, the revised analysis was conducted without time-of-day vehicle volume adjustments. This revision affected all corridors and analysis scenarios and generally resulted in a 10-15% increase in modeled risks.

- Revised Dispersion Model Processing Options - Options in the ISCST dispersion model to process meteorological data (MISSING and WINDCATS) were disabled under this updated analysis to be consistent with SCAQMD modeling practices. This revision applied to all corridors and planning scenarios. It is difficult to simply quantify the magnitude of this correction. When applied to one freeway corridor (I-405), no change in maximum risks was seen in the modeling outputs. Parallel runs were not performed for the other freeway corridors, but it is believed that the effect of disabling these modeling options on maximum concentrations is minor.

Revised Health Risk Assessment of Sample Selected Projects Included in the Southern California Association of Governments' 2008 Regional Transportation Plan

Executive Summary

To assist the Southern California Association of Governments (SCAG) in the analysis of environmental impacts resulting from construction and operation of freeway links proposed in the 2008 Regional Transportation Plan (RTP), Sierra Research conducted an exploratory probe of changes in cancer risk impacts[1] designed to help facilitate SCAG's regional analysis. In this study, we evaluated emissions and cancer risks from six operating freeway segments, one located in each of the counties in SCAG's planning jurisdiction. Impacts were determined for the five RTP planning scenarios listed below:

1. 2008 Existing Conditions;
2. 2035 Baseline (No Plan);
3. 2035 Preferred Plan;
4. 2035 With 2004 Modified RTP; and
5. 2035 Envision.

Because current emission forecasting models do not assume any improvement in motor vehicle emission control beyond 2018, the emission estimates and the resulting cancer risk estimates reported in this study are conservatively higher than those that would actually occur in the 2035 scenarios.

The findings of our analyses indicate that cancer risks resulting from vehicle operation on freeways will decline in future years.

Introduction

The 2008 Regional Transportation Plan (RTP) developed by the Southern California Association of Governments (SCAG) is a multimodal plan for expanding and enhancing transportation facilities in the SCAG region through 2035. Many of the facilities to be constructed are freeway widenings and extensions. Motor vehicles using streets and freeways are sources of carcinogenic toxic air contaminants (TACs). To assist SCAG in evaluating the environmental impacts of the RTP, Sierra Research conducted an exploratory assessment designed to help facilitate SCAG's regional analysis of changes in cancer risk in areas near projects included in the 2008 RTP. Because the forecasting of TAC emission rates in 2035 is speculative in that improvements in emission control will

[1] Only cancer risks were quantitatively analyzed under this analysis. Other potential health risks were not considered.

occur by this planning year but the magnitude of these improvements cannot be accurately predicted, the results presented in this analysis contain significant uncertainties and are intended to be conservatively high.

Several simplifying assumptions were made under this assessment. First, the analysis focused only on quantifying increased cancer risks; non-cancer acute and chronic health hazards and mortality were not considered. Second, the analysis was restricted to inhalation-based risk only. Cancer risk from other pathways (e.g., ingestion, adsorption, etc.) was not addressed. Finally, risk values calculated for each calendar year considered (2008 and 2035) were assumed to represent the increased chance of contracting cancer over an exposure period[2] from that year forward. These risk values were computed from on-road vehicle emission factors and vehicle activity estimated in that calendar year (2008 or 2035). Thus, the same emission factors and travel activity computed for the analysis year were assumed to remain constant into the future. This is likely to be a conservative (i.e., over-predictive) assumption because historical trends in declining per-vehicle emission factors over time have exceeded trends in increased travel over time.

Selected Freeway Corridor Sample

Selected Corridors – Because of time constraints, the analysis of cancer risks was limited to a sample of freeway corridors selected by SCAG staff for which operational traffic levels will vary under alternative planning scenarios in the RTP. One freeway corridor was selected for each of the six counties contained in the SCAG planning area. The following freeway corridors were selected by SCAG for analysis of operational emissions under different RTP alternatives:

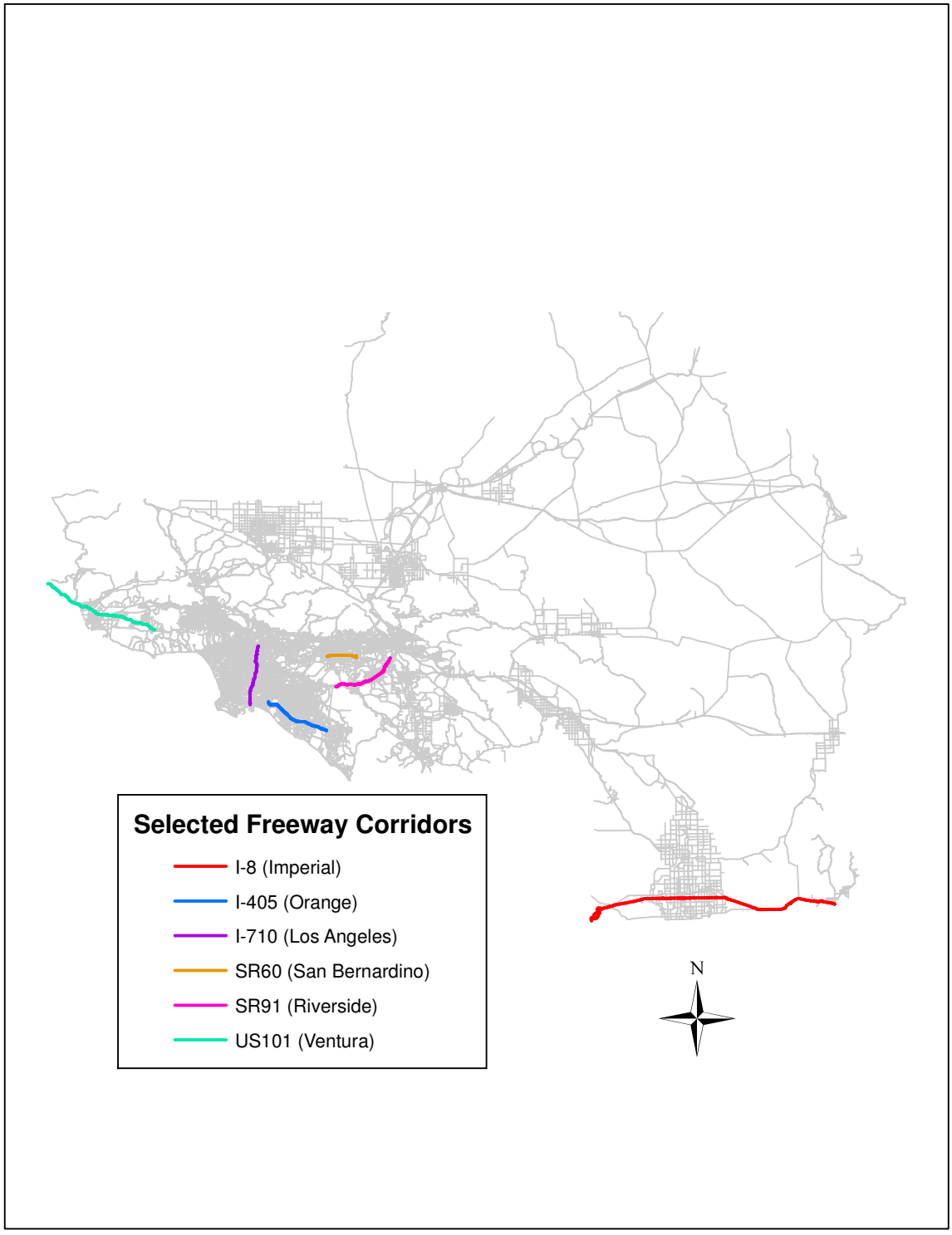
- I-405 in Orange County (Caltrans District 12);
- I-710 in Los Angeles County (Caltrans District 7);
- I-8 in Imperial County (Caltrans District 11);
- SR 60 in San Bernardino County (Caltrans District 8);
- SR 91 in Riverside County (Caltrans District 8); and
- US 101 in Ventura County (Caltrans District 7).

Figure 1 shows the location of each selected freeway corridor within the SCAG planning domain. These selected freeways generally represent major transportation corridors in each county and specifically include roadways with high total traffic (I-405) and heavy-duty Diesel truck traffic (I-710) in the planning area. (As discussed in greater detail later, on-road vehicle cancer risk is strongly dependent on the number of heavy-duty Diesel vehicles on the roadway.)

Modeling of "Highest Volume" Segments – Quantitative modeling of the entire length of each freeway corridor (which extends over 90 miles) was impractical and beyond the

[2] Residential exposure considered a 70-year period and workplace exposure assumed a 40-year exposure per California Office of Environmental Health Hazard Assessment guidance.

Figure 1
Location of Selected Freeway Corridors



scope of the assessment. To focus on the "probable worst case" risks, the segment within each corridor that exhibited the highest daily total traffic volume (combined in both directions and including HOV lane traffic where appropriate) was identified from travel model link outputs supplied by SCAG. The highest volume segments on each corridor were then quantitatively modeled for increased cancer risk. It was assumed that the location of the highest volume segment along each corridor would not significantly change from one planning scenario to the next. The model outputs for the 2035 Baseline scenario were used to identify the "highest volume" segments along each selected corridor for all scenarios.

The segments of each selected freeway corridor that were modeled based on this "maximum volume" approach are listed below:

- I-405 – in Seal Beach, east of the I-605 interchange (Orange County);
- I-710 – in Compton, north of the intersection with SR 91 (Los Angeles County);
- I-8 – in El Centro (Imperial County);
- SR 60 – in Ontario, west of the I-15 interchange (San Bernardino County);
- SR 91 – in Corona, east of the intersection with SR 71 (Riverside County); and
- US 101 – in Thousand Oaks, east of SR 23 (Ventura County).

Emission Analysis

Diesel- and gasoline-powered vehicle emissions contain many TACs that have been determined to be carcinogenic. Only a few TACs, however, are highly toxic and emitted in sufficient quantities to contribute to significant cumulative cancer risks in areas immediately downwind of roadway segments affected by the 2008 RTP.[3] Foremost among these TACs is Diesel exhaust particulate matter smaller than 10 microns in diameter (PM_{10}), which is used in health risk assessments as a surrogate for all of the carcinogenic constituents in Diesel exhaust emissions. For gasoline-powered vehicles, the TACs that significantly contribute to cancer risk are as follows:

- Benzene;
- 1,3 butadiene;
- Formaldehyde; and
- Acetaldehyde.

Emission factors for these TACs from operation of on-road vehicles were developed using the most recent emission factor model developed by the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB). On-road emission factors for Diesel exhaust particulate matter (DPM) and total organic emissions (TOG) were generated through the use of the CARB EMFAC2007 model. A special toxics module[4] of EPA's MOBILE6 model was used to determine the fractions of

[3] "An Air Toxics Control Plan for the Next Ten Years, Final Draft," South Coast Air Quality Management District, March 2000, *http://www.aqmd.gov/aqmp/atcp.html*.
[4] "Technical Description of the Toxics Module for MOBILE6.2 and Guidance on Its Use for Inventory Preparation," U.S. Environmental Protection Agency, Report No. EPA420-R-02-029, November 2002.

individual cancer-causing toxic compounds listed above in TOG emissions, a capability not possessed by the EMFAC2007 model. Table 1 lists these calculated toxic fractions by EMFAC vehicle class for each compound.

Table 1
Toxic Fractions by Vehicle Class and Compound

Vehicle Class	Benzene		Formaldehyde	Acetaldehyde	1,3 Butadiene	Diesel PM
	Exhaust	Evap-Run				
LDA-NCAT	0.0257	0.0046	0.0237	0.0099	0.0098	na
LDA-CAT	0.0257	0.0046	0.0180	0.0104	0.0051	na
LDA-DSL	0.0200	0.0046	0.0386	0.0123	0.0090	1.0000
LDT1-NCAT	0.0257	0.0046	0.0237	0.0099	0.0098	na
LDT1-CAT	0.0257	0.0046	0.0180	0.0104	0.0051	na
LDT1-DSL	0.0200	0.0046	0.0386	0.0123	0.0090	1.0000
LDT2-NCAT	0.0257	0.0046	0.0237	0.0099	0.0098	na
LDT2-CAT	0.0257	0.0046	0.0180	0.0104	0.0051	na
LDT2-DSL	0.0200	0.0046	0.0386	0.0123	0.0090	1.0000
MDV-NCAT	0.0257	0.0046	0.0237	0.0099	0.0098	na
MDV-CAT	0.0257	0.0046	0.0180	0.0104	0.0051	na
MDV-DSL	0.0200	0.0046	0.0386	0.0123	0.0090	1.0000
LHDT1-NCAT	0.0257	0.0046	0.0368	0.0111	0.0079	na
LHDT1-CAT	0.0408	0.0046	0.0180	0.0104	0.0031	na
LHDT1-DSL	0.0105	0.0046	0.0782	0.0288	0.0061	1.0000
LHDT2-NCAT	0.0257	0.0046	0.0368	0.0111	0.0079	na
LHDT2-CAT	0.0408	0.0046	0.0180	0.0104	0.0031	na
LHDT2-DSL	0.0105	0.0046	0.0782	0.0288	0.0061	1.0000
MHDT-NCAT	0.0257	0.0046	0.0368	0.0111	0.0079	na
MHDT-CAT	0.0408	0.0046	0.0180	0.0104	0.0031	na
MHDT-DSL	0.0105	0.0046	0.0782	0.0288	0.0061	1.0000
HHDT-NCAT	0.0257	0.0046	0.0368	0.0111	0.0079	na
HHDT-CAT	0.0408	0.0046	0.0180	0.0104	0.0031	na
HHDT-DSL	0.0105	0.0046	0.0782	0.0288	0.0061	1.0000
LHV-NCAT	0.0257	0.0046	0.0368	0.0111	0.0079	na
LHV-CAT	0.0408	0.0046	0.0180	0.0104	0.0031	na
LHV-DSL	0.0105	0.0046	0.0782	0.0288	0.0061	1.0000
SBUS-NCAT	0.0257	0.0046	0.0368	0.0111	0.0079	na
SBUS-CAT	0.0408	0.0046	0.0180	0.0104	0.0031	na
SBUS-DSL	0.0105	0.0046	0.0782	0.0288	0.0061	1.0000
UB-NCAT	0.0257	0.0046	0.0368	0.0111	0.0079	na
UB-CAT	0.0408	0.0046	0.0180	0.0104	0.0031	na
UB-DSL	0.0105	0.0046	0.0782	0.0288	0.0061	1.0000
MH-NCAT	0.0257	0.0046	0.0368	0.0111	0.0079	na
MH-CAT	0.0408	0.0046	0.0180	0.0104	0.0031	na
MH-DSL	0.0105	0.0046	0.0782	0.0288	0.0061	1.0000
MCY-NCAT	0.0257	0.0046	0.0237	0.0099	0.0098	na
MCY-CAT	0.0257	0.0046	0.0237	0.0099	0.0098	na
MCY-DSL	0.0200	0.0046	0.0386	0.0123	0.0090	1.0000

The results contained in Table 1 were calculated assuming California RFG III fuel[5] for the gasoline-powered vehicle types. These fractions were applied to the EMFAC2007 TOG estimates to quantify gasoline-based toxic emissions for each individual compound.

These models are limited in forecasting vehicle emission factors into the future because regulations mandating future emissions reductions do not call for any new restrictions beyond 2018[6]; therefore, the actual emissions generated by vehicle use in 2035 will probably be significantly less than the conservative values used in this analysis.

On-road TOG and DPM emission factors for the evaluation of freeway link operations emissions were generated by running the EMFAC2007 emission factor model for the following three areas in both calendar years 2008 and 2035:

- South Coast AQMD (covering Los Angeles, Orange, Riverside and San Bernardino counties);
- Imperial County APCD; and
- Ventura County APCD.

The model was configured to report annual average daily emissions and total vehicle miles traveled (VMT) for each on-road vehicle class and fuel type (gasoline and Diesel) in each of these three areas. Separate TOG gasoline and DPM Diesel emission factors (in grams per mile of vehicle travel) were then computed for each calendar year and area by dividing emissions by VMT (for the appropriate vehicle/fuel categories). Since these emission factors were intended to be representative of travel on freeways that usually occurs after a vehicle is fully warmed-up, only "running" emission factors were computed (starting and initial idling emissions were ignored since they do not occur on freeways). Furthermore, evaporative emissions that occur while a vehicle is parked with its engine off (hot soak, diurnal breathing and resting losses) were also excluded in representing freeway-specific emission factors. (Evaporative running losses that occur while the engine is on were included in the analysis.)

SCAG's travel demand modeling system now produces separate estimates of roadway link volumes from light/medium-duty vehicles (e.g., passenger cars and trucks and light/medium commercial vehicles) and heavy-duty vehicles. Since 90-95% of the TOG toxic emissions come from light/medium-duty vehicles and similar percentages of DPM emanate from heavy-duty vehicles, emission factors from the EMFAC runs (and MOBILE6 toxic fraction breakdowns) were compiled separately for light/medium duty vehicles (LMD) and heavy-duty vehicles (HD) for each county/area. This approach accounted for variations in the mix of heavy-duty vehicles across roadway links contained in SCAG's travel model outputs and the relative impacts of each compound on overall cancer risk.

[5] Fuel properties assumed are as follows: 2% EtOH, 2% Oxygenates (both by weight), 0.8% Benzene, 25% Aromatics (both by volume) and 10 psi annual average Reid Vapor Pressure (RVP).
[6] Under CARB's current LEV-II regulations, new vehicle emission standards remain constant in 2018 and later years.

Table 2 shows the resulting LHD, HD, and fleet composite daily average DPM emission factors (in grams/mile) calculated for the modeling links at the highest volume segments of each selected freeway corridor for the 2035 Baseline analysis scenario. As noted in the second column in Table 2, the links of these selected freeway corridor segments include both mixed-use and HOV lanes for certain corridors. The source strength or emission rate of each link per unit time (in grams/sec) is shown in the rightmost (shaded) column in Table 2. It was calculated as the product of the fleet composite emission factor (grams/mile) and the daily vehicle miles traveled (VMT/day) on each link. (Daily VMT was computed simply as the product of the daily vehicle volume and the link length.) As shown in Table 2, the resulting fleet composite DPM source strengths vary by roughly a factor of ten across the mixed use lanes of the selected corridor links.

Table 2
2035 Baseline DPM Emission Factors (grams/mile) by Vehicle Type and Modeling Link and Fleet Composite Source Strength (grams/sec)

Freeway Corridor	Link Type	Length (mi)	Lgt/Med-Duty (LMD)		Heavy-Duty (HD)		Fleet Composite			
			Daily Vol	EF (g/mi)	Daily Vol	EF (g/mi)	Daily Vol	EF (g/mi)	VMT/day	Qs (g/s)
I405	Mixed	1.092	188,542	3.45E-04	21,238	7.08E-02	209,780	7.48E-03	229,082	1.98E-02
I405	Mixed	1.016	178,097	3.45E-04	20,859	7.08E-02	198,956	7.73E-03	202,142	1.81E-02
I405	HOV	1.478	54,600	3.45E-04	0	7.08E-02	54,600	3.45E-04	80,697	3.22E-04
I405	HOV	0.879	48,559	3.45E-04	0	7.08E-02	48,559	3.45E-04	42,682	1.70E-04
I710	Mixed	0.268	113,099	3.45E-04	27,497	7.08E-02	140,596	1.41E-02	37,679	6.16E-03
I710	Mixed	0.442	111,139	3.45E-04	29,945	7.08E-02	141,084	1.53E-02	62,359	1.10E-02
I8	Mixed	0.954	22,708	0.00E+00	3,353	1.08E-01	26,061	1.39E-02	24,861	3.99E-03
I8	Mixed	0.935	21,110	0.00E+00	3,673	1.08E-01	24,783	1.60E-02	23,172	4.28E-03
SR60	Mixed	0.304	123,417	3.45E-04	30,193	7.08E-02	153,610	1.42E-02	46,697	7.67E-03
SR60	Mixed	0.423	102,260	3.45E-04	28,471	7.08E-02	130,731	1.57E-02	55,299	1.00E-02
SR60	HOV	2.647	24,904	3.45E-04	0	7.08E-02	24,904	3.45E-04	65,373	2.61E-04
SR60	HOV	1.947	24,373	3.45E-04	0	7.08E-02	24,373	3.45E-04	47,452	1.89E-04
SR91	Mixed	0.231	150,816	3.45E-04	27,805	7.08E-02	178,621	1.13E-02	41,261	5.40E-03
SR91	Mixed	0.293	28,585	3.45E-04	399	7.08E-02	28,984	1.31E-03	7,072	1.08E-04
SR91	Mixed	0.244	55,631	3.45E-04	589	7.08E-02	56,220	1.08E-03	12,762	1.60E-04
SR91	Mixed	0.227	122,620	3.45E-04	22,793	7.08E-02	145,413	1.14E-02	42,605	5.61E-03
US101	Mixed	0.528	104,364	0.00E+00	16,613	4.60E-02	120,977	6.32E-03	63,876	4.67E-03
US101	Mixed	0.190	88,164	0.00E+00	16,875	4.60E-02	105,039	7.39E-03	19,957	1.71E-03

* EMFAC2007 reports area-wide emissions in tons per day to two decimal digits. For these counties (Imperial and Ventura), DPM emissions from light- and medium-duty Diesel vehicles were reported as zero.

The DPM emission factor (and source strength) is clearly affected by the fraction of heavy-duty Diesel vehicles on each link; the HOV lane links shown exhibit much lower DPM emission factors because of the absence of heavy-duty vehicles in those lanes.

Similar calculations were performed to determine daily fleet composite emission factors and resulting source strengths by modeling link for each of the gasoline toxic compounds. Table 3 presents the fleet composite source strengths for each toxic species (including DPM) for the 2035 Baseline scenario.

Table 3
2035 Baseline Toxic Pollutant Daily Source Strengths (grams/sec) by Modeling Link

Freeway Corridor	Link Type	Daily Average Source Strength (grams/sec)				
		Benzene	Formaldehyde	Acetaldehyde	1,3 Butadiene	DPM
I405	Mixed	3.77E-03	5.22E-03	2.19E-03	9.48E-04	1.98E-02
I405	Mixed	3.33E-03	4.69E-03	1.97E-03	8.42E-04	1.81E-02
I405	HOV	1.23E-03	8.08E-04	4.00E-04	2.73E-04	3.22E-04
I405	HOV	6.51E-04	4.28E-04	2.11E-04	1.45E-04	1.70E-04
I710	Mixed	6.61E-04	1.31E-03	5.23E-04	1.82E-04	6.16E-03
I710	Mixed	1.11E-03	2.29E-03	9.13E-04	3.10E-04	1.10E-02
I8	Mixed	8.82E-04	1.27E-03	5.56E-04	2.16E-04	3.99E-03
I8	Mixed	8.22E-04	1.28E-03	5.53E-04	2.07E-04	4.28E-03
SR60	Mixed	8.20E-04	1.62E-03	6.50E-04	2.26E-04	7.67E-03
SR60	Mixed	9.85E-04	2.07E-03	8.23E-04	2.77E-04	1.00E-02
SR60	HOV	9.97E-04	6.55E-04	3.24E-04	2.21E-04	2.61E-04
SR60	HOV	7.23E-04	4.75E-04	2.35E-04	1.61E-04	1.89E-04
SR91	Mixed	7.05E-04	1.22E-03	4.97E-04	1.88E-04	5.40E-03
SR91	Mixed	1.09E-04	8.31E-05	3.95E-05	2.47E-05	1.08E-04
SR91	Mixed	1.96E-04	1.45E-04	6.93E-05	4.42E-05	1.60E-04
SR91	Mixed	7.28E-04	1.27E-03	5.16E-04	1.94E-04	5.61E-03
US101	Mixed	1.03E-03	1.31E-03	5.47E-04	2.41E-04	4.67E-03
US101	Mixed	3.26E-04	4.46E-04	1.84E-04	7.73E-05	1.71E-03

(Although not shown, emission source strengths were compiled in this form for each of the five analysis scenarios for input to the ensuing dispersion modeling.)

Table 4 contains the daily total vehicle volumes for the modeling links of each selected freeway corridor segment. Although the total volumes for each of the three 2035 plan alternatives tend to be higher than 2035 Baseline volumes, the effect on emission factors is muted by the fact that much of the increase in volumes for these scenarios (over the 2035 Baseline) is from light- and medium-duty vehicles. As shown more clearly later, light- and medium-duty vehicles have much less relative impact on overall cancer risk than heavy-duty Diesel vehicles.

The daily fleet average emission source strengths for modeled freeway links shown earlier in Table 3 were then combined with relative cancer toxicity unit risk values (URV) for each species obtained from tabulated data published by the California Office of Environmental Health Hazard Assessment (OEHHA).[7] URVs represent the increased chance of contracting cancer over a 70-year exposure (assumed to be the average human lifetime) to 1.0 microgram per cubic meter ($\mu g/m^3$) of each species. By combining vehicle fleet emission factors with URVs, a "risk-weighted" source strength, or simply

[7] Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values, Table 1, OEHHA, November 2003, *http://www.arb.ca.gov/toxics/healthval/healthval.htm.*

"risk source strength" (in units of g/s per µg/m^3), was calculated for each individual species by link and analysis scenario.

Table 4
2035 Baseline Daily Vehicle Volumes by Analysis Scenario and Modeling Link

Freeway Corridor	Link Type	Daily Total Vehicle Volumes (vehicles/day)				
		2008 Existing	2035 Baseline	2035 Preferred Plan	2035 with 2004 RTP	2035 Envision
I405	Mixed	205,791	209,782	223,025	225,111	221,812
I405	Mixed	206,905	198,959	221,817	224,144	221,071
I405	HOV	22,549	54,599	44,428	45,766	44,659
I405	HOV	26,873	48,558	50,868	51,962	50,823
I710	Mixed	138,178	140,595	143,495	144,656	143,071
I710	Mixed	139,626	141,084	143,786	146,020	144,373
I8	Mixed	14,858	26,060	24,305	23,525	25,080
I8	Mixed	13,830	24,783	24,758	23,612	24,989
SR60	Mixed	125,014	153,607	146,310	159,416	146,519
SR60	Mixed	104,901	130,731	126,087	136,380	126,570
SR60	HOV	23,622	24,904	25,815	26,942	25,192
SR60	HOV	10,186	24,372	21,018	16,981	21,294
SR91	Mixed	159,260	178,620	183,125	158,459	181,276
SR91	Mixed	158,413	28,984	42,529	64,925	43,252
SR91	Mixed	31,764	56,221	60,303	62,639	60,142
SR91	Mixed	38,623	145,410	191,843	205,330	188,799
US101	Mixed	105,572	120,978	119,431	120,975	119,484
US101	Mixed	96,779	105,039	103,944	105,156	104,177

Table 5 presents the URVs for the TACs considered and the calculation of risk source strengths for one of the links modeled in the analysis, the northbound mixed-use link of I-405 (the first link listed in the preceding tables). The URVs shown are the "Derived OEHHA" values published by OEHHA. As noted, these calculations were performed for the 2035 Baseline analysis scenario. For each species, the risk emission factor is the product of the emission source strength and the unit risk value.

Table 5
Fleet-wide Composite Risk Source Strength for for 2035 Baseline I-405 NB Mixed-Use Link

Pollutant	Source Strength (g/mi)	Unit Risk Value (risk per µg/m^3)	Risk Source Strength (g/s risk per µg/m^3)	Relative Weight (%)
Benzene	3.77×10^{-3}	3.77×10^{-5}	1.42×10^{-7}	1.6%
Formaldehyde	5.22×10^{-3}	7.91×10^{-6}	4.13×10^{-8}	0.5%
Acetaldehyde	2.19×10^{-3}	3.77×10^{-6}	8.27×10^{-9}	0.1%
1,3 Butadiene	9.48×10^{-4}	2.26×10^{-4}	2.14×10^{-7}	2.5%
Diesel PM (DPM)	1.98×10^{-2}	4.15×10^{-4}	8.23×10^{-6}	95.3%
Total			8.63×10^{-6}	100.0%

At the bottom of Table 5, a "composite" fleet-wide risk source strength is calculated as the sum of the risk source strengths for each species. The rightmost column of Table 5 shows the relative weight or contribution of each species to increased cancer risk (on this modeling link). As alluded to earlier, the overall cancer risk is heavily dominated by DPM, comprising roughly 95% of the overall risk as reported in Table 5.

The calculations of composite risk source strengths were performed for each modeled link under each analysis scenario. The use of these composite risk source strengths enabled the air dispersion modeling to be conducted for a single "composite" TAC, rather than having to run the model five times for each freeway segment and analysis scenario (one for each TAC) and combining the risk results from each run. The emission inputs to the dispersion modeling were then simply developed by dividing these risk source strengths by the size of each roadway link, which was a function of the roadway length and the number of lanes.

Cancer Risk Dispersion Modeling

The quantification of changes in cancer risks resulting from vehicle operation in the vicinity of each of the selected freeway corridors in the 2008 RTP was performed using an EPA-approved pollutant dispersion model in conformance with SCAQMD Diesel exhaust risk assessment procedures.[8] Guidance published by OEHHA was used in the design of the scope of analysis.[9]

Based on the OEHHA guidance, the analyses of health impacts were limited to evaluations of changes in cancer risks from the inhalation pathway. The OEHHA procedures state that "the potential cancer risk from inhalation exposure to diesel PM will outweigh the potential noncancer health impacts" and that "potential cancer risk from inhalation exposure to whole diesel exhaust will outweigh the multipathway cancer risk from the speciated compounds." As clarified in this reference, "the surrogate for whole diesel exhaust is diesel PM." On the basis of these statements, and because of time constraints, the assessments of risks associated with Diesel exhaust emissions from operation of freeway segments conducted here were limited to the cancer impacts from the inhalation route only. Because Diesel exhaust PM emissions contribute roughly 90-95% of airborne cancer exposure from on-road vehicle use, as confirmed by Table 5, the evaluation of changes in cancer risk impacts from exposure to the gasoline exhaust toxic pollutants was also limited to the inhalation pathway.

[8] Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis, South Coast Air Quality Management District, March 2003, *http://www.aqmd.gov/ceqa/handbook/mobile_toxic/mobile_toxic.html*.

[9] Appendix D: Risk Assessment Procedures to Evaluate Particulate Emissions from Diesel-Fueled Engines, Air Toxic Hot Spots Program Risk Assessment Guidelines, California Office of Environmental Health Hazard Assessment, October 2003; *http://www.oehha.ca.gov/air/hot_spots/pdf/HRAfinalapps.pdf*.

The SCAQMD Diesel exhaust risk assessment procedures contain recommendations with respect to emission factor sources, dispersion models, meteorological databases, and modeling protocols. The recommended emission factor source is the current version of the CARB EMFAC emission factor model (EMFAC2002), which was used in this analysis as discussed earlier. The air dispersion model recommended is the EPA Industrial Source Complex – Short Term, Version 3 (ISCST3). The current version of this model, as available for download on the EPA website, is version 2035.[10] The meteorological databases recommended for use are those compiled by SCAQMD for calendar year 1981 from 35 stations within the South Coast Air Basin.[11] The emissions characteristics of sources to be modeled, as recommended in the SCAQMD guidance, are specified in a risk assessment document prepared by the California Air Resources Board.[12]

The SCAQMD and the CARB guidance with respect to the dispersion model recommended for use in the assessment of cancer risks from freeway segments are not consistent. The SCAQMD guidance recommends using ISCST3 for all risk assessment modeling, while the CARB guidance recommends using CALINE4 modified to accept a full year of meteorological data. This modified version of the CALINE4 model takes much longer to run than ISCST. (A single run with a year of hourly meteorology data takes in excess of 12 hours.) Because of time limitations in completing the analysis, the ISCST3 model was used to assess downwind cancer risks of operation of the selected freeways. (The comparable ISCST3 run time for the same analysis was only several minutes.)

Meteorological data for each modeling analysis were obtained from the SCAQMD monitoring site closest to each selected freeway segment. The monitoring sites closest to each segment studied are tabulated in Table 6.

Table 6
SCAQMD Meteorological Data Used for Each Freeway Segment Analysis

Freeway Segment	Meteorological Data Site
I-405 (Orange County)	Los Alamitos
I-710 (Los Angeles County)	Lynwood
I-8 (Imperial County)	Indio
SR 60 (San Bernardino County)	Upland
SR 91 (Riverside County)	Santa Ana Canyon
US 101 (Ventura County)	Malibu

[10] Industrial Source Complex – Short Term, Version 3, U.S. Environmental Protection Agency, February 2003, *http://www.epa.gov/scram001/tt22.htm#rec*.
[11] AQMD Dispersion Model Application Meteorological Data, South Coast Air Quality Management District, *http://www.aqmd.gov/metdata/*.
[12] Appendix VII: Risk Characterization Scenarios, Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles, California Air Resources Board, October 2000, *http://www.arb.ca.gov/diesel/documents/rrpapp7.PDF*.

Each of the freeway segment links was modeled as an area source. Each directional link was modeled as a separate source. (Mixed use and HOV links were also modeled as separate, parallel area sources.) The effective widths of the operational freeway segments were increased by 3.0 meters on each side to account for initial plume dispersion as recommended by the CALINE4 manual.[13] The area source lengths were selected so that the aspect ratios of the sources did not exceed 10, as required by the ISCST3 model. The emission heights were set at 0.5 meters to represent the typical heights of emission release.

Receptor grids surrounding each freeway segment were designed to identify the highest exposed residential and workplace locations near each segment. Initial receptor grids of 100 meter spacing were designed to extend out 0.5 kilometers in all directions from the boundaries of each roadway segment. After the first dispersion modeling analyses were conducted, the results were plotted and compared to images from a topographic mapping program to determine the general locations of nearby residences and workplaces receiving the highest impacts. Aerial photo images generated by Google Earth[14] were then visually inspected to determine the exact locations of residences and workplaces near the sites of the highest forecasted impacts, and these locations were manually plotted on the topographic map program images to determine the map coordinates of these residential and workplace structures. (Nearest workplace receptors were sited at the closest property boundary except on public lands. For public lands, the nearest structure was used.) These map coordinates were then added to the ISCST3 input files as discrete receptor sites, and subsequent modeling runs were conducted to compute the changes in cancer risk impacts at these highest impacted residences and workplaces.

As discussed earlier, carcinogenic pollutant emissions for each modeling analysis were converted to equivalent units of cancer risk and distributed uniformly over each area source. The pre-conversion of pollutant mass emissions to equivalent "risk" emissions was performed to eliminate the processing time consumed by converting downwind pollutant concentrations forecast by the dispersion model into equivalent risk impacts. As a result, the dispersion model output was reported in units of increased cancer risk per 70-year exposure, expressed as the increased risk per million.

Based on OEHHA guidance for workplace vs. residential exposure, the residential exposure-based modeling outputs (assuming 24 hour/day, 7 day/week, 52 week/year, 70-year exposure) were adjusted for the workplace receptors. Workplace exposure was assumed to be 8 hours/day, 5 days/week and 49 weeks/year (accounting for three weeks of vacation/absence) over a 40-year period. Thus a multiplicative adjustment factor of 0.128 [(8 ×5 ×49 ×40) / (24 ×7 ×52 ×70)] was used to translate workplace receptor modeled outputs to reflect assumed workplace exposures.

[13] CALINE4 – A Dispersion Model For Predicting Air Pollutant Concentrations Near Roadways, Report No. FHWA/CA/TL-84-15, California Department of Transportation, November 1984.
[14] *http://earth.google.com/*

Modeling Results

Increased cancer risk estimates were generated by the dispersion modeling runs for the most exposed residences and workplaces located near the sample selected freeway segments. For the analysis of freeway segment operations, the cancer risk values reported by the model represent the incremental chance of contracting cancer from exposure to freeway emissions if a person lived at the same location for a period of 70 years or worked at the same location for 40 years and if freeway emissions did not change over those periods. The risks reported at the maximum exposed residence by model runs for each of the five planning scenarios and each of the six freeway segments studied are presented in Table 7.

Table 7
Incremental Cancer Risk at Maximum Exposed Residence from Vehicle Operation by Planning Scenario and Freeway Corridor

	Incremental Cancer Risk over 70-Year Residential Exposure (per million)					
Planning Scenario	I-405 (Orange)	I-710 (Los Angeles)	I-8 (Imperial)	SR 60 (San Bernardino)	SR 91 (Riverside)	US 101 (Ventura)
2008 Existing	1,080	943	111	294	731	235
2035 Baseline (No Plan)	270	310	37	92	198	79
2035 Preferred Plan	269	264	34	80	203	76
2035 Modified 2004 RTP	275	281	36	94	226	78
2035 Envision	270	264	34	80	207	76

Table 8 presents a similar summary of incremental cancer risks at each maximum exposed workplace along each modeled corridor.

Table 8
Incremental Cancer Risk at Maximum Exposed Workplace from Vehicle Operation by Planning Scenario and Freeway Corridor

	Incremental Cancer Risk over 40-Year Workplace Exposure (per million)					
Planning Scenario	I-405 (Orange)	I-710 (Los Angeles)	I-8 (Imperial)	SR 60 (San Bernardino)	SR 91 (Riverside)	US 101 (Ventura)
2008 Existing	30	79	8.0	116	14	32
2035 Baseline (No Plan)	7.6	26	2.6	36	3.7	10.9
2035 Preferred Plan	7.5	22	2.4	32	3.8	10.5
2035 Modified 2004 RTP	7.6	23	2.6	37	4.3	10.7
2035 Envision	7.5	22	2.4	32	3.9	10.4

As shown in Tables 7 and 8, incremental risks are much higher under existing (2008) conditions; the decline in risks across all future scenarios and freeway segments is the result of continued decreases in per-vehicle fleet emissions projected to occur during that period. As discussed earlier, this decrease occurs from continued emission control technology improvements in new vehicles for which certification standards continue to tighten up to 2018. (The analysis assumed no further tightening of these vehicle

standards beyond 2018 and is thus conservative or over-predictive if standards decline after 2018.)

Comparing the risks across the four future planning scenarios shows the Preferred Plan and Envision alternatives generally exhibit the lowest incremental risk. Of those freeway corridors analyzed, I-405 exhibits the highest incremental residential cancer risk, followed by I-710 as shown in Table 7. Not surprisingly, the segments modeled along these corridors contained the highest total vehicle and heavy-duty truck volumes, respectively. As shown in Table 8, the SR 60 and I-710 corridors exhibited the highest incremental workplace risks.

By comparison, the average total cancer risk level to which residents of the South Coast Air Basin were exposed was approximately 1,200 in one million according to ambient monitoring results collected by the South Coast Air Quality Management District between April 2004 and March 2006 under its on-going Multiple Air Toxics Exposure Study (MATES).[15] This total risk results from inhalation of pollutants emitted by all sources: region-wide mobile, industrial, and commercial product use. The incremental risks modeled under this assessment address the contribution from on-road vehicle emissions on nearby freeways and represent one component of the total cancer risk experienced in the South Coast Air Basin. Spatial distributions of increased cancer risk in areas surrounding each modeled freeway segment under each analysis scenario were plotted and are contained in Attachment 1.

The maximum exposed residences and workplaces identified from the modeling runs were typically those found closest to the boundaries of the freeway segments. Analysis of modeling output data also revealed that cancer risks declined dramatically with increasing distance away from the boundaries of the designated project sites. The distances away from project boundaries at which estimated cancer risks drop by 50% and 90% are presented in Table 9. The distance values were computed along axes that are perpendicular to project centerlines near the midpoint of each freeway corridor.

Table 9
Distances at Which Cancer Risks Drop by 50% and 90%

Freeway Corridor	50% Reduction Distance	90% Reduction Distance
I-405 (Orange County)	330 ft.	1,440 ft.
I-710 (Los Angeles County)	330 ft.	1,080 ft.
I-8 (Imperial County)	280 ft.	1,990 ft.
SR 60 (San Bernardino County)	415 ft.	1,090 ft.
SR 91 (Riverside County)	220 ft.	590 ft.
US 101 (Ventura County)	440 ft.	1,415 ft.

[15] "Draft Report, Multiple Air Toxics Exposure Study in the South Coast Air Basin, MATES-III," South Coast Air Quality Management District, January 2008. *http://www.aqmd.gov/prdas/matesIII/matesIII.html*

Conclusions

The following conclusions can be drawn from this study:

- Incremental cancer risks from living or working near the freeway segments studied will decline dramatically between 2008 and 2035, primarily as a result of improvements in motor vehicle exhaust controls.

- Based on selected freeway corridors that were quantitatively modeled, the Preferred Plan and Envision alternatives exhibit the lowest incremental cancer risk.

- Of the freeway corridors modeled, I-405 in Orange County, along the segment just east of its intersection with I-605 in Seal Beach, and I-710 in Los Angeles County near Compton exhibit the highest incremental cancer risks, ranging from 264 in a million to 310 in a million for the 2035 alternatives considered.

As seen from the modeled freeway segments, significant spatial variations occur in cancer risk values, both from one corridor to the next as well as distance from the freeway. It is beyond the scope of this assessment to quantitatively model cancer risk from on-road vehicle operation on every roadway encompassed in the 2008 RTP. However, a series of explanatory factors can be used to gauge how the specific results from this study can be qualitatively extrapolated across the entire SCAG planning domain.

First, this analysis showed that unit cancer risk from Diesel exhaust particulate matter tends to overwhelm risk from several toxic organic species emitted from gasoline-powered vehicles. Even modest fractions of Diesel-powered vehicles on a given roadway can significantly increase the composite risk of the fleet. There are relatively small fractions of light- and medium-duty Diesel vehicles in today's fleet; over 95% of Diesel exhaust particulate emissions are emitted by heavy-duty vehicles.

Notwithstanding use of the arterial roadway system near points of freight origin and destination, most on-road heavy-duty truck travel occurs on freeways. Freeways also carry the largest volumes of total vehicle traffic. Thus, the risk levels determined under this assessment (which focused exclusively on freeways) are likely to be significantly higher than those occurring on the arterial roadway system.

With respect to the issue of proximity to the roadway, most of the freeway segments studied under this analysis abutted adjacent residential areas or workplaces including I-405 in Seal Beach and I-710 in Compton, the segments with the highest incremental risk value of those modeled.

To the extent that the freeway corridors selected by SCAG for this assessment represent those in each county exhibiting highest vehicle volumes and/or heavy-duty Diesel truck fractions and proximity to areas of long-term exposure (i.e., residences), the quantitative risk levels presented here are worst-case impacts for each county. For other freeways not directly modeled, increased cancer risks will vary from modeled levels primarily as a function of heavy-duty vehicle fraction and total vehicle volume on the roadway and distance to the roadway for which long-term exposures occur. Vehicle speed and time of day (atmospheric dispersion and mixing is more pronounced during daytime hours) also significantly affect on-road vehicle-based cancer risk, but to a lesser extent. Other factors (e.g., the age distribution of the vehicle fleet) are also significant, but are typically not represented or available at the individual roadway level.

Finally, spatial variations in meteorology (primarily wind speeds and directional distributions) must also be considered when extrapolating the modeled results from the freeway corridors evaluated under this assessment to the entire planning region. Areas with generally lighter wind speeds and more pronounced directional orientation than those modeled under this analysis will, generally speaking, exhibit higher incremental risks. (The opposite is true also.) Given the finite number of meteorological sites across the planning region for which detailed hourly measurements of a year or more exist, it is unknown the degree to which the results of this analysis are affected by spatial variations in meteorology.

Recently published results from the SCAQMD's MATES-III Draft Study[15] provide the most robust picture of how total cancer risks vary across the planning region. Figure 2 (re-printed from Figure ES-4 in the MATES-III study) presents a shaded density plot of total 70-year risk across the region, based on a combination of ambient monitoring, emission inventory development and toxic dispersion modeling analysis performed under MATES-III.

As shown in Figure 2, the highest modeled risk exists in southern Los Angles County and the northwestern tip of Orange County. Of note, the two freeway corridors selected for modeling under the RTP risk assessment in these counties are located within the highest risk shaded areas (over 1,200 per million) in Figure 2. Thus, the specific set of selected freeway corridors selected for analysis under the RTP risk assessment presents a reasonable assessment of incremental risk resulting from the RTP throughout the planning region in the absence of exhaustively modeling each individual freeway segment.

Figure 2
MATES-III Model-Estimated Risk (per million)