Appendix B TECHNICAL WORK PLAN FOR ENVIRONMENTAL JUSTICE ANALYSIS FOR I-710 CORRIDOR PROJECT EIR/EIS

B.1 PURPOSE OF ENVIRONMENTAL JUSTICE ANALYSIS

The purpose of environmental justice analysis is to determine whether there are disproportionate adverse impacts on minority or low-income populations as a result of the project, compared to non-minority or non-low-income populations. The analysis will also consider the distribution of project benefits among these groups. Project decision-makers can consider and weigh these costs and benefits. In general, an environmental justice analysis will build on overall analysis of impacts and benefits for all people by further estimating the impacts or benefits by ethnic, income and age group, as well as disability or mobility limitation. In this way, the environmental justice analysis will provide project decision-makers with additional information upon which to base their decisions. It will not substitute for, reduce, or change the overall analyses done for the Environmental Impact Report/Environmental Impact Statement (EIR/EIS), only add to them.

B.2 REQUIREMENTS FOR ENVIRONMENTAL JUSTICE ANALYSIS

Federal Executive Order 12898 (1994) requires Federal agencies, including the United States Department of Transportation (DOT) and the Federal Highway Administration (FHWA), to make environmental justice part of their mission and to develop environmental justice strategies. The DOT issued an order on April 15, 1997, that describes how the DOT will comply with Executive Order 12898. The environmental justice policies of both the DOT and the FHWA require the consideration of environmental justice principles in carrying out all agency programs, policies, and activities. The FHWA policy calls for the prevention of disproportionately high and adverse human health or environmental effects on minority and low-income populations, and calls for the collection of related data to identify any risk of discrimination in the implementation of the National Environmental Policy Act (NEPA), among other Federal statutes. In order to comply with this Federal policy, the I-710 Corridor Project EIR/EIS will include an environmental justice analysis.

As of 2011, there is no California law requiring that environmental justice be considered or analyzed as part of an EIR under the California Environmental Quality Act (CEQA). However, over the past decade, EIRs for transportation and other large-scale projects have included such analyses as a matter of public expectation.

B.3 Scope of Environmental Justice Analysis

The following are the specific areas that will be investigated as part of the environmental justice analysis for the I-710 Corridor Project EIR/EIS.

- Air quality/health risk assessment
- Community aesthetic enhancement
- Cultural resources
- Economic impacts/benefits
- Emergency/community services
- Hazardous materials/hazardous waste
- Noise
- Relocation impacts
- Safety
- Traffic impacts
- Visual impacts
- Water quality/stormwater runoff

Goods movement via railroad and via advanced technologies are being addressed within the EIR/EIS process. The environmental justice impacts of the options analyzed will be considered as an integral part of this analysis.

Impacts during construction will be integrated into the environmental justice analysis to the extent they are analyzed within the EIR/EIS.

The above list includes any topic or issue with the potential for differential impacts between environmental justice populations and others. Environmental justice populations to be analyzed include:

- Minority (i.e., non-White as defined in Federal policy)
- Low-income

- Elderly (over 65)
- Transit-dependent due to age or to mobility limitation.

Data identifying these populations has been provided for 2008 and 2035 by the Southern California Association of Governments (SCAG). The data correspond to Transportation Analysis Zones (TAZ) used by SCAG and others in travel demand modeling. TAZ are similar to but not the same as census tracts. A total of 2,243 TAZ cover Los Angeles County, while 281 TAZ fall partially or completely within the I-710 study area.[1]

Income levels of households will be represented in two ways: income level relative to the Federal poverty threshold, and income quintiles. To assess income levels relative to the Federal poverty threshold, estimates of the incremental percentage of households below 100 percent, 150 percent, and 200 percent of the Federal poverty threshold as provided by SCAG will be used. These three percentages can be added together to get a total estimate of the percentage of households below 200 percent of the Federal poverty threshold. Quintiles, or fifths, of the population will be used to reflect the full distribution of household income from lowest to highest. The quintile boundaries are determined based on the distribution of household income at the SCAG regional level.[2] At a local level (county or corridor), the percentage of households in each quintile may vary.

B.4 Identification of Disproportionate Impact

The principle at the heart of the Federal Executive Order and the DOT and FHWA Orders that implement the Federal Executive Order is the identification and prevention of disproportionate adverse impacts of programs or projects on minority and low-income populations. The 1997 DOT Order defines disproportionate impacts as follows:

> "Disproportionately high and adverse effect on minority and low-income populations means an adverse effect that:
>
> (1) is predominately [sic] borne by a minority population and/or a low-income population, or

[1] As of SCAG's 2008 Regional Transportation Plan.

[2] The regional household income categories are as follows: Quintile 1: ≤$19,360; Quintile 2: $19,361-$36,340; Quintile 3: $36,341-$57,323; Quintile 4: $57,324-$91,402; Quintile 5: ≥$91,403. All figures are in 1999 dollars (incomes reported in the 2000 Census).

(2) will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or non-low-income population."

An example comes from the SCAG Regional Transportation Plan (RTP), which found that while the region as a whole was projected to be 69 percent non-White, in areas affected by aviation noise, the population was projected to be 88 percent non-White,[1] a disproportionate impact in that the areas affected have a higher minority population than the region as a whole.

Within the I-710 Corridor, both existing and projected populations are predominantly minority – approximately 90 percent in 2008, and projected to be near 95 percent in 2035. Also, the area is and will remain predominantly low-income: over 50 percent of corridor households are in the two lowest income quintiles and only 10-12 percent are in the highest quintile. Thus no matter what impacts (or benefits) are identified in the I-710 Corridor study area, they are likely to affect people who are largely minority and low-income.

One way to approach the environmental justice analysis is to use a larger geographic unit for comparison with the study corridor (in a similar way as the SCAG region was used in the RTP).[2] For the I-710 Corridor Project a logical geographic unit would be Los Angeles County. Thus, the County's demographic profile would provide a guide as to the shares of impact that would be expected from this project if these populations were distributed evenly throughout the County (see Table A).

Environmental Protection Agency (EPA) comments on environmental justice analyses for other California Department of Transportation (Caltrans) projects have recommended that the reference community be defined to include the population that will benefit from the proposed project.[3] The County of Los Angeles (County), the reference community defined above, includes a portion of the population that could benefit from the proposed project. Los Angeles County residents within and beyond the study area could benefit from reduced roadway congestion,

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1 Results from 2001 Regional Transportation Plan.

2 The study area boundaries were determined in the earlier Major Corridor Study phase of the project and were designed to encompass the corridor communities, not just the freeway itself.

3 U.S. Environmental Protection Agency, Region IX, correspondence to Caltrans District 7, Mr. Ron Kosinski, dated October 12, 2007, regarding Draft Environmental Impact Statement (FEIS) for the Schuyler Heim Bridge Replacement and State Route 47 Expressway Project (CEQ #20070361), p. 10 of attached detailed comments.

Table A: Demographic Characteristics of Los Angeles County and Study Area

	LA County (2008)	I-710 Corridor Study Area* (2008)	LA County (2035)	I-710 Corridor Study Area* (2035)
Total population	10,446,821	1,318,940	12,331,013	1,463,850
Total households	3,298,196	340,893	4,001,687	385,138
Population (%):				
Minority (non-White)	71.7%	89.8%	80.5%	93.9%
African-American	8.7	9.5	6.2	5.8
Asian/Pacific Islander	12.4	5.6	13.8	5.7
Latino (Hispanic)	47.5	72.8	57.0	80.4
Native American	0.3	0.3	0.3	0.3
Non-Hispanic White	28.3	10.2	19.5	6.1
Other	2.8	1.6	3.2	1.6
65 and over	9.9	7.1	15.3	11.0
Under 18	26.3	32.6	24.3	30.4
Under 5	7.5	9.6	7.0	9.2
Disabled/mobility-limited	9.6	10.7	10.6	12.1
Households (%):				
Below Federal poverty**	15.8%	18.4%	16.5%	19.6%
Below 1.5x Federal poverty**	9.4	12.0	9.7	12.5
Below 2x Federal poverty**	8.7	11.3	8.8	11.4
Income quintile 1 (lowest)***	22.4	27.0	21.4	26.3
Income quintile 2	20.6	26.0	19.5	25.3
Income quintile 3	19.4	20.9	18.9	20.4
Income quintile 4	18.6	15.9	18.9	16.0
Income quintile 5 (highest)	19.0	10.2	21.3	12.0

Source: SCAG, growth forecast for the 2008 RTP.
* The study area includes data for all TAZ that fall entirely or partially within the study area boundary.
** These three categories can be added to indicate total below 200% of Federal poverty threshold.
*** Quintile 1: ≤$19,360; Quintile 2: $19,361-$36,340; Quintile 3: $36,341-$57,323; Quintile 4: $57,324-$91,402; Quintile 5: ≥$91,403. All figures are in 1999 dollars (incomes reported in the 2000 Census).
Note: Green shaded portions of the table indicate categories that total 100 percent.

improved safety, and reduced emissions, as well as the improved transportation of people, goods, and services to points throughout the County. Other populations may also benefit from improved goods movement from the San Pedro Bay ports, including those in other Southern

California counties and even in other states. However, as the distance to these populations grows, the likelihood they will suffer any impacts of the project decreases. In order to focus on the populations most likely to experience both benefits and impacts from the I-710 Corridor Project, this analysis will use Los Angeles County as the reference population.

As shown in Table A, the I-710 corridor has a higher percentage of minority and low-income residents than Los Angeles County. This means that even if an adverse impact were the same within and outside the corridor, it would be identified as disproportionate because the percentage of low-income or minority people experiencing that impact would be higher than in the reference population. This is likewise the case for positive impacts (project benefits), many of which may be disproportionately realized by residents of the study area. The analysis will also identify differences in impact between various areas within the study corridor, for both positive and adverse impacts.

As mentioned above, benefits of the project may extend far beyond the study area, the County, or even the State, while the impacts will be mainly confined to the corridor itself. The dispersed benefits will be primarily economic in nature, while populations within the corridor may experience both benefits and adverse impacts that are environmental, economic, and of other types. A qualitative discussion of these issues, considering the totality and nature of projected adverse and positive project impacts, will be included in the environmental justice analysis.

A complementary approach to the environmental justice analysis, also proposed in this document, is to tailor the analysis to each topical impact area (e.g., noise, traffic, air quality, and so forth) so as to provide the most possible information about the projected impacts on all populations, including those of interest from an environmental justice perspective. Each analysis is done using the data available, and each is done with the goal of being able to inform decision-makers about the impacts to communities all along the corridor, with explicit consideration of their demographic makeup.

B.5 Proposed Analysis Approach

Listed below is a more detailed description of the proposed analysis methodology for each area to be considered.

B.5.1 Air Quality/Health Risk Assessment

Both the criteria pollutant air quality impacts of the project and the air toxics' health risk results are of intense interest from an environmental justice perspective, particularly given that the study corridor is predominantly minority and low-income and that the communities already suffer from air-quality-related health effects, from a variety of local and regional sources. These two

analyses (criteria pollutants and air toxics), while related, yield somewhat different results and will be addressed separately below.

B.5.1.1 CRITERIA POLLUTANT AIR QUALITY ANALYSIS

The air quality analysis for the EIR/EIS will provide estimated emissions and a set of AERMOD modeling results that estimate incremental concentrations of criteria pollutants (e.g., particulate matter [PM], carbon monoxide [CO], nitrogen oxides [NO_x], sulfur oxides [SO_x], and volatile organic compounds [VOCs]) compared to the 2008 CEQA baseline and the 2035 NEPA baseline (No Build) at each point of the receptor grid. Depending on the alternative being modeled and the atmospheric conditions, concentrations at any given receptor point might increase or decrease compared to baseline conditions. Using geographic information systems (GIS), these concentration estimates will be averaged to the TAZ level (the level at which the demographic data are available).

Further, these receptor data will be used to identify TAZ where exposure to air pollution is expected to decrease under the project alternatives, as well as those where exposure could increase. These TAZ will be identified along with their demographic characteristics for groups of concern, allowing comparison of the impacts and benefits of the project alternatives.

The air pollution metric used in the environmental justice analysis will be particulate matter less than 2.5 microns in diameter ($PM_{2.5}$) annual average concentrations. $PM_{2.5}$ emissions are calculated for all links in the SCAG network in the local area.[1] Modeled $PM_{2.5}$ concentrations from the I-710 will also be calculated and mapped along with the following indicators of environmental justice populations:

- Minority (non-White)
- Total below 200 percent of Federal poverty level

The following sample table (Table B) show the comparison that will be made on the basis of income. The top portion (in light red) represents project <u>impacts</u> (TAZ where concentrations are projected to increase). The bottom portion (in light blue) represents project <u>benefits</u> (TAZ where emissions or concentrations are projected to decrease). If there were no disproportion, the aggregate percent of households in the two lowest income quintiles would be expected to be the

[1] The traffic modeling area for the I-710 Corridor Project is between I-110 and I-605, and between Ocean Boulevard in Long Beach and SR-60.

Metro

Table B: Criteria Pollutant Air Quality – Change from 2008 (based on I-710 Project AERMOD results)

Area	Aggregate Percent in 2 Lowest Income Quintiles	Aggregate Percent in 3 Highest Income Quintiles
All TAZ with increases AND 10 TAZ with greatest incremental increases in **concentrations** under Alt 1 (No Build)	Annual average $PM_{2.5}$	Annual average $PM_{2.5}$
All TAZ with increases AND 10 TAZ with greatest incremental increases in concentrations under Alt 5A, etc. for remaining Alts (Build)	Annual average $PM_{2.5}$	Annual average $PM_{2.5}$
All TAZ with decreases AND 10 TAZ with greatest incremental decreases in concentrations under Alt 1 (No Build)	Annual average $PM_{2.5}$	Annual average $PM_{2.5}$
All TAZ with decreases AND 10 TAZ with greatest incremental decreases in concentrations under Alt 5A, etc. for remaining Alts (Build)	Annual average $PM_{2.5}$	Annual average $PM_{2.5}$

Source: Network Public Affairs, LLC (2011).
Alt/Alts = Alternative/Alternatives
NO_2 = nitrogen dioxide
$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter
TAZ = transportation analysis zones

same as that in Los Angeles County, the reference population. A disproportionate impact would be indicated by a percentage that is higher than the County percentage.

For ethnicity, the comparison will be drawn between non-White and White (non-Hispanic) populations, with the benchmark being the projected 2035 County proportion of 80.5 percent non-White and 19.5 percent White. A similar comparison will be made for residents under five years of age based on County percentages. A similar set of tables will be produced comparing the Build Alternatives with the 2035 No Build condition (the NEPA baseline).

B.5.1.2 HEALTH RISK ASSESSMENT

The health risk assessment will focus on the effects of several toxic air contaminants associated with mobile source emissions. The risk assessment will result in estimates of incremental changes in cancer and other health (non-cancer) risk for the Project Alternatives compared to the 2008 CEQA Baseline and the 2035 No Build NEPA Baseline. (Results from the AERMOD

modeling, in this case for air toxics rather than criteria pollutants, are used in the health risk assessment.) For the environmental justice analysis, incremental lifetime excess cancer risk (all Alternatives, including No-Build) will be used as the analysis metric. This estimated risk will be mapped along with the following indicators of environmental justice populations:

- Minority (non-White)
- Total below 200 percent of Federal poverty level

Environmental justice impacts of chronic and acute hazard indices for air toxics will also be assessed.

The following sample table (Table C) indicates the comparison that will be done on the basis of income. The same benchmarks for income, race/ethnicity, and age will be used as described above for the air quality analysis. As above, the red portion of the table indicates project impacts (areas where cancer risk may increase) and the blue portion indicates project benefits (areas where cancer risk may decrease).

Table C: Incremental Excess Cancer Risk – Change from 2008 (based on I-710 Project AERMOD results)

Area	Aggregate Percent in 2 Lowest Income Quintiles	Aggregate Percent in 3 Highest Income Quintiles
All TAZ with increases AND 10 TAZ with greatest incremental increases in **cancer risk** under Alt 1 (No Build)	Cancer Risk	Cancer Risk
All TAZ with increases AND 10 TAZ with greatest incremental increases in cancer risk under Alt 5A, etc. for remaining Alts (Build)	Cancer Risk	Cancer Risk
All TAZ with decreases AND 10 TAZ with greatest incremental decreases in cancer risk under Alt 1 (No Build)	Cancer Risk	Cancer Risk
All TAZ with decreases AND 10 TAZ with greatest incremental decreases in cancer risk under Alt 5A, etc. for remaining Alts (Build)	Cancer Risk	Cancer Risk

Source: Network Public Affairs, LLC (2011).
Alt/Alts = Alternative/Alternatives
TAZ = transportation analysis zones

A similar table will be produced comparing the Build alternatives with the 2035 No Build condition (the NEPA baseline).

B.5.2 Community Aesthetic Enhancement

The goal of the environmental justice analysis in this area will be to verify that there is no disparity in the project-related aesthetic enhancements proposed for communities along the corridor. This will be a qualitative assessment, based on GIS maps of aesthetic enhancement locations for the various project alternatives, if the locations are known.

B.5.3 Cultural Resources

The potential impacts of the I-710 Corridor Project alternatives to cultural resources in the corridor will be assessed in the EIR/EIS. The environmental justice analysis for this issue will be a GIS-based analysis showing the locations of potentially affected cultural resources in relation to the populations of interest. The information will also be reported on a community basis.

B.5.4 Economic Impacts/Benefits

The economic impact assessment will examine several factors, including the effects of the project alternatives on local property and sales tax revenues, and on job opportunities.

The environmental justice analysis will compare the city-level analyses side-by-side with summary demographic data on household incomes at the city level and highlight any disparities (see example in Table D). The goal would be to ensure that, for example, low-income areas are not being disproportionately impacted by the project, or that project benefits are not accruing only to higher-income areas.

Table D: Hypothetical Data

City	Projected Impact on Sales Tax Revenue	Projected Impact on Property Tax Revenue	Projected Impact on Job Opportunities	Percentage Residents in Income Q1 + Q2
A	+10%	+2%	+5%	60%
B	-5%	-1%	0	75%
etc…				

Source: Network Public Affairs, LLC, 2011.

B.5.5 EMERGENCY/COMMUNITY SERVICES

This analysis will be a GIS-based qualitative assessment based on the impacts or benefits to emergency and community services for each project alternative.

B.5.6 HAZARDOUS MATERIALS/WASTES

Hazardous waste or materials may be present on contaminated sites that could be disturbed during the construction of the I-710 Corridor Project. Construction activities could result in the generation of wastes via excavation and disposal of contaminated soils or groundwater at some sites.

The environmental justice analysis for this topic will be a qualitative analysis based on the potential for generation of hazardous wastes as determined in the EIR/EIS analysis of alternatives. If location-specific estimates are generated, these will be mapped in conjunction with the relevant demographic variables.

B.5.7 NOISE

For noise, a quantitative analysis of projected noise level changes resulting from the project will be combined with GIS mapping to provide projected worst-hour noise changes (decreases or increases) from the project alternatives averaged at the TAZ level (the level at which demographic data is available). These changes will then be analyzed by comparing the aggregate demographics of TAZ, where noise levels are projected to increase with the demographics for the reference population of Los Angeles County. This analysis is analogous to the air quality and health risk assessment environmental justice analyses described above.

B.5.8 RELOCATION

The relocation analysis will be based on GIS mapping of proposed relocation areas under each of the project alternatives. Within each relocation area, the demographic composition can be estimated from SCAG data. However, relocation zones may be small compared with the TAZ level at which the demographic data is available. In such cases the analysis will be based on more detailed data to the extent available.

The analysis will show whether proposed relocations could disproportionately affect minority, low-income, elderly, or transit-dependent populations.

B.5.9 SAFETY

The environmental justice analysis will build on analysis of accident/incident rates for the I-710 Corridor Project alternatives by mapping any estimates that vary by geography (e.g.,

accident/incident rates projected for arterials), along with demographic data, to assess whether safety improvements are equitably distributed.

B.5.10 TRAFFIC IMPACTS

Travel demand modeling conducted for the various project alternatives will yield estimates of congestion levels on the mainline freeway, as well as on adjacent arterial streets. The following environmental justice analyses of impacts and benefits will be conducted based on this modeling:

1. Calculation of time savings

   Based on the travel demand modeling results for the I-710 Corridor Project EIR/EIS, time savings due to congestion reduction (a project benefit) will be estimated and compared between project alternatives.

2. Assessment of transit mobility improvements

   The I-710 Corridor Project may include several enhancements to transit service in the corridor communities. This includes possible additional bus service, rail service, and park-and-ride facilities. To the extent the specific services are known, these proposed enhancements will be mapped using GIS and their locations and services compared with the community demographics to identify impacts and benefits for transit users, including those who are transit-dependent.

3. Intersection analysis

   A traffic operations analysis will be conducted for over 100 selected intersections in the I-710 corridor area. The results of this analysis will be mapped using GIS and compared with the environmental justice demographics in each area to look for disparate impacts to communities where these intersections are located.

4. Access and parking

   The I-710 Corridor Project will evaluate eliminating freeway access ramps at various locations along the corridor, and will also evaluate the use of parking restrictions to alleviate congestion on some arterial roadways in the study area. These locations will be mapped using GIS and evaluated in terms of the demographics of the affected communities to see if there are disparate impacts.

Results of each of these analyses will be presented in graphical form, or, as appropriate, in GIS format along with representations of corridor demographic characteristics.

B.5.11 Visual Impacts

The environmental justice assessment of visual impacts would be a qualitative, GIS-based analysis. Locations of potentially significant visual impacts (or benefits) of the project alternatives will be mapped using GIS, in conjunction with various demographic measures – age, ethnicity, income, and disability. This will provide an indication of the distribution of such impacts in relation to the locations of populations of concern and allow comparison between project alternatives.

B.5.12 Water quality/Stormwater Runoff

Various provisions may be made for the protection of surface and groundwater quality through runoff management, depending on the details of each project component and the differences between project alternatives. These provisions could include dedicated structures, culverts, retention basins, swales, or others.

This analysis will be a GIS-based analysis where the locations of significant structures related to stormwater management, to the extent they are associated with the project alternatives, will be mapped along with relevant demographic variables. This will show the locations of these structures in relation to the locations of populations of interest and could illuminate any disparities in their placement or in the types of structures envisioned.

B.6 Summary of Analysis Content

The following summarizes and compares the elements of the environmental justice analysis:

- Planned Quantitative Analyses
    - Air quality/health risk assessment
    - Economic impacts/benefits
    - Noise
    - Traffic impacts
- Planned Qualitative Analyses (GIS-based)
    - Community aesthetic enhancement

Metro

- Cultural resources
- Emergency/community services
- Hazardous materials/waste
- Relocation impacts
- Safety
- Visual impacts
- Water quality/stormwater runoff