

APPENDIX R

Methodology

The methodology for carrying out the analysis of Federal and State public transportation funding requires defining minority populations to be analyzed, identifying data sources to understand the region's minority population in the aggregate and how minority populations utilize the region's public transportation system, and an analytical process to evaluate the relative distribution of Federal and State funds for public transportation purposes between minority and non-minority populations for any disparate impact.

a) *Definition of Minority Populations*

Minority populations include persons who identify as any of the following groups defined by the Census Bureau¹ in accordance with guidelines provided by the U.S. Office of Management and Budget (OMB):

- American Indian or Pacific Islander alone
- Asian alone
- Black or African-American alone
- Hispanic or Latino of any race
- Native Hawaiian or Pacific Islander alone

For the purposes of this analysis, all Hispanic and Latino residents of all races are included in the Hispanic and Latino definition, and only non-Hispanic or Latino persons are included in other minority groups. In addition, this analysis includes with the minority population those persons whose responses identify Some Other Race or Two or More Races, as these groups together constitute 4% of the region's population, as shown in Table 1, and to provide consistency with minority definitions used in MTC's Environmental Justice analyses, which have long included these populations based on stakeholder input from affected groups. Given the large share of responses of "Two or More Races" in particular, this approach is also broadly consistent with the Office of Management and Budget's *Guidance on Aggregation and Allocation of Multiple Race Responses for Use in Civil Rights Monitoring and Enforcement*.²

¹ For details on race and ethnicity definitions as of the 2010 Census, see <http://www.census.gov/prod/cen2010/doc/sf1.pdf>.

² See http://www.whitehouse.gov/omb/bulletins_b00-02.

Accordingly, the “non-minority” population consists of all other persons not included in any of the above-named groups, namely those identifying as non-Hispanic white alone. Because the Bay Area is a “majority minority” region, the designation of non-Hispanic white persons as “non-minority” is not intended to be misleading, as this population still represents a relative majority (a plurality) in the region but not an absolute majority. Nevertheless, the term “non-minority” is used here to provide consistency and clarity with regard to federal guidance.

b) Data Sources

This section describes the various data sources used to conduct the analysis in this report. They range from large, multi-purpose public data products such as those provided nationally by the Census Bureau, to smaller, more specialized regional data sources collected and maintained by MTC for regional planning purposes.

1. **2010 Decennial Census:** The decennial Census was most recently completed in 2010 and is a 100% count of all persons in the United States as mandated in the U.S. Constitution. The decennial Census includes complete data on all persons’ race and ethnicity as well as age and certain household and family characteristics. Although the Census is only conducted every ten years, because it is not based on household sampling or estimates, it may be considered a very reliable source of detailed demographic characteristics for the region’s population.
2. **Bay Area Transit Passenger Demographic Survey:** The Transit Passenger Demographic Survey also informs the Title VI Analysis of Plan Bay Area and the Transportation Improvement Program by establishing a consistent demographic profile of the region’s overall transit ridership across all systems by minority and non-minority status as described above in the discussion of regional survey products under **“Identifying the Mobility Needs of Minority Populations”** (Section V.B.1.d).
3. **RTP and TIP Project Databases:** MTC maintains various databases of projects included in both the Regional Transportation Plan and the Transportation Improvement Program. These databases contain various project cost and funding data that enable investments to be analyzed by funding source based on minority usage of the system to which they belong.

MTC also maintains separate Geographic Information System (GIS) databases with geospatial information that enable many (but not all) RTP and TIP projects to be mapped

against minority communities. MTC's GIS project databases have project cost data but do not currently have funding source data associated with individual projects.

c) *Analysis Methodology*

To identify and address any potential disparate impact in transportation system investments in Plan Bay Area (the 2013 RTP) and the 2013 TIP, MTC carried a Transportation Investment Analysis of both the Draft RTP and Draft TIP's overall transportation investment strategy to illustrate the distribution of the proposed investments relative to minority and non-minority populations in the region. In an ongoing effort to ensure equity in the metropolitan transportation planning process, MTC has previously carried out similar analyses of the 2009 RTP (*Transportation 2035*), the 2011 TIP, and the 2013 TIP, using methodologies developed and continually refined over time in consultation with MTC advisors and stakeholders.

To carry out these functions, the Transportation Investment Analysis relies on three different methodologies described in this section to determine whether there is any disparate impact at the regional level of the programmatic investment strategy on the basis of race, color, or national origin. FTA's new Title VI requirements for MPOs do not provide any specific guidelines or benchmarks for MPO Title VI analyses, and because these requirements are new as of October 2012, there were not yet established best practices or approved comparative analyses against which MTC could measure its findings at the time the analyses were conducted on the Draft RTP and Draft TIP prior to their adoption. Therefore, for this analysis MTC built on its prior work undertaken in the Transportation 2035 investment analysis and the 2011 TIP Investment Analysis, with enhancements based on feedback from stakeholders on these prior analyses and from the Regional Equity Working Group during development of Plan Bay Area, and MTC's Policy Advisory Council Equity & Access Subcommittee during development of the 2013 TIP. MTC will continue research best practices and seek stakeholder feedback and on these methodologies and future enhancements to the methodologies, each of which is described further below.

1. Project Mapping Analysis

To fulfill FTA's requirement for "demographic maps that show the impacts of the distribution of State and Federal funds in the aggregate for public transportation projects," MTC mapped all the RTP and TIP projects that are mappable and overlaid them against census tracts with concentrations of minority populations that are above the regional average.

The project mapping analysis has some limitations. First, not all significant regional investments are mappable. For example, a substantial share of total funding in the RTP is dedicated to transit operators for ongoing operations and maintenance of their entire system, which cannot be represented as a simple point or line on a map in relation to a specific community. Second, despite previous attempts by MTC to quantify the spatial distribution of regional investments in response to stakeholder requests (as in the 2011 TIP Investment Analysis), stakeholders have not agreed on how and whether investments can be appropriately accounted for in terms of whether a specific project or investment truly benefits a specific community and to what degree.

Given these limitations, the Regional Equity Working Group, which reviewed and provided input on the Transportation Investment Analysis methodology for Plan Bay Area, recommended a more straightforward qualitative, rather than quantitative assessment of the spatial distribution of mappable projects included in the Plan. This qualitative assessment mainly involves examining the distribution of projects for any apparent systematic exclusion of minority communities in the spatial distribution of benefits, or any apparent systematic imbalances between the distribution of projects between minority and non-minority communities. This approach was validated with MTC's Policy Advisory Council Equity and Access Subcommittee for use in the 2013 TIP Investment Analysis.

Because MTC does not currently have the ability to map only Plan Bay Area public transportation projects using State and Federal funds, the disparate impact analysis incorporates only the quantitative results produced by the population/use-based analysis described in the following section to make a determination of any disparate impact. The mapping analysis therefore shows all transit investments overlaid against minority tracts, regardless of fund source, and is a qualitative analysis only. Similarly, MTC currently lacks the ability to represent only public transit projects funded by Federal and State sources in the regional travel model, making any kind of technical analysis using performance measures to forecast potential future-year outcomes between different groups or communities based on these investments specific impossible. MTC will investigate the feasibility of updating future RTP project databases and/or travel model parameters to include more specific fund source information in the future in light of these new FTA requirements.³

³ Because development of the Regional Transportation Plan is a multi-year process, the Plan Bay Area project database was developed in early 2011, whereas FTA's new Title VI requirements were finalized in October 2012. Similarly, development of MTC's current travel model, Travel Model One, began in 2005, and was initially deployed for use in development of the long-range transportation plan in early 2011.

2. Population/Use-Based Analysis

MTC does have the ability to specify public transportation investments using State and Federal funds in the population/use-based analysis described in this section. The State and Federal fund sources therefore included in the Title VI analysis of Plan Bay Area and the 2013 Transportation Improvement Program are:

Operating: State Transit Assistance (revenue- and population-based), FTA 5307 Urbanized Area, Anticipated unspecified⁴

Capital: STP/CMAQ, Proposition 1B (revenue- and population-based), FTA 5307 Urbanized Area + 5309 Fixed Guideway, FTA 5311 Non-urbanized, Anticipated unspecified.

The population/use-based investment analysis is based on how different populations within the region use the regional transportation system. It compares the estimated percent of investment for minority populations to their share of use of the public transportation system, and also to minority populations' share of the regional population as a whole. Generally, if RTP or TIP investments are greater in a mode or system used more by one population group, a greater share of benefit will accrue to that group in the analysis, and likewise if financial investments are less in a particular mode or system used disproportionately by one population group, a smaller share of benefit will accrue to that group.

Transit trips are allocated to subgroups using data from MTC's 2006 Transit Passenger Demographic Survey. Consistent with the available data sources, the analysis uses definitions for minority populations as described above under Definitions.

The population/use-based analysis proceeds as follows:

1. First, the region's **total population and total transit ridership are divided** into minority/non-minority subgroups.

⁴ "Anticipated unspecified" funding sources for transit purposes in Plan Bay Area are included with other State and Federal sources, since the State and Federal governments have historically been the sources of such funds if and when they are made available to the region. Recent examples of situations where previously unanticipated funds have become available to MTC for programming for transit purposes include State Proposition 1B Transit funds in 2007 and Federal American Recovery and Reinvestment Act (ARRA) funds in 2009.

2. Plan investments are then **assigned by transit operator to population subgroups** — either minority or non-minority riders — by multiplying the share of each subgroup’s use of each transit operator by the total investment in that particular operator.
3. Finally, Plan investments by transit operator are **summed** for minority populations and non-minority populations based on each subgroup’s usage share of each system. **The percent of investment for systems supporting each population subgroup is compared to the percent of usage** of the system by each population subgroup **as well as each subgroup’s share of the region’s population** as a whole.

With respect to assigning investment benefit from expansion projects to certain population subgroups, this analysis is also limited to assuming that existing usage demographics apply, since current demographic and travel surveys do not include future riders or drivers who will be attracted to the areas served by these expansions as either origins or destinations.⁵

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⁵ In cases where current demographic data did not exist for a future transit operator (for example, Sonoma-Marín Area Rail Transit), basic assumptions were applied based on demographics of current systems of the same mode, or in cases where no specific demographics by mode or operator could be assumed (for example, Lifeline Transportation Program funds), regional averages were assumed to apply.