

REGIONAL EQUITY WORKING GROUP (REWG)  
September 9, 2015 – 11:30 AM to 1:00 PM  
Claremont Conference Room, Metropolitan Transportation Commission  
101 8<sup>th</sup> Street Oakland CA 94607

Conference Call Number  
Dial 1-888-273-3658  
Password 9427202

## AGENDA

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| 11:30 a.m. | <b>1. Introductions and Agenda Overview</b> |
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| 11:35 | <b>2. August 2015 REWG Meeting Notes (page 3)</b> |
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| 11:40 | <b>3. Update on Equity Assessment for Project Performance (page 5)</b><br>- Kristen Carnarius, MTC |
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| 12:00 p.m. | <b>4. Confirm Equity Measures for Scenario Analysis (page 17)</b><br>- Pedro Galvao, ABAG, and Vikrant Sood, MTC |
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| 12:45 | <b>5. Introduction to 2013 Communities of Concern (page 24)</b><br>- Doug Johnson, MTC |
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| 12:55 | <b>6. Summary and Next Steps</b> |
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| 1:00 p.m. to<br>1:30 p.m. | <b>7. Optional</b> – Staff will be available to answer any questions related to the September 11, 2015, Joint Committee memo on displacement and 2013 Communities of Concern definition. |
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- Next REWG meeting is scheduled for Wednesday, October 14, 2015
  - **NOTE: new meeting time for all future REWG meetings: 11:15am to 1:15pm (starting with the October 14 REWG meeting)**
  - Staff has posted a series of regional maps online. See link to access the maps:  
<http://arcg.is/1L5wTzH>
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## Schedule of Upcoming Meetings

*Note: meetings and agenda items are subject to change*

All meetings are scheduled from **11:15am to 1:15pm** in the Claremont Conference Room at MTC, 101 8<sup>th</sup> Street Oakland CA 94607

### 2015

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| September 11       | Workshop on Displacement Definition, Measures and Policy<br>12:00pm to 2:00pm, <b>Fishbowl Conference Room</b> , MTC |
| October 14         | Communities of Concern Definition<br>Introduction to Scenario Concepts   |
| <b>November 4*</b> | Scenario Concepts (land use and transportation)  |
| <b>December 8*</b> | Preliminary Project Performance Results<br>Draft Scenarios (land use and transportation)                             |

### 2016

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| <del>January 13</del> | <del>Meeting Canceled</del>  |
| February 10           | Preliminary Scenarios Analysis Results<br>Preliminary Results from Additional Research |
| March 9               | Draft Scenarios Analysis Results   |
| April                 | TBD  |
| May                   | Proposed Preferred Alternative   |
| June                  | Preferred Alternative  |
| July-December         | Title VI and Environmental Justice Analysis  |

### 2017

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| January-June | TBD |
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\* Note that these meetings are not scheduled on the regular recurring day.

**REWG Meeting Notes  
8/12/15**

**Agenda Topics**

- Staff discussed the process for funding projects and opportunities for input
- REWG members wanted to know what “land use policies” were in the context of Plan Bay Area scenarios
- Members also wanted more clarity about the process for scenario development and opportunities for input. Staff clarified that the process for scenario development would begin this fall (2015) and run through spring of 2016. REWG will receive copies of policies being considered for each scenario before they are adopted.

**Equity Measures (General Discussion)**

- Consider calculating declining real wages.
- Consider analyzing educational trends for low income communities
- Consider expanding the area for consideration for exposure to toxic contaminants from a ¼ mile
- Consider explicitly focusing on access of low income households to middle wage jobs
- Members wanted more clarity about how equity measures relate to communities of concern. Staff clarified that communities of concern were a geography through which to analyze the equity measures.
- Members were concerned about the subjectivity of the term “innovation economy” wanted greater clarity in its definition.
- Members also wanted greater clarity about the definition of opportunity. Staff clarified that it was based on the Kirwan Institute’s definition of Opportunity based on 18 indicators focused on health, education, and housing.

**Comments about Table 2 from staff memo (Performance Measures for Priority Equity Themes):**

- Members were concerned about removing “lack of social mobility” as a potential performance measure. Staff clarified that the focus on concentrated areas of poverty was based on research that indicated that there is general lack of social mobility in areas of concentrated poverty.
- Consider breaking up Priority Equity Theme 2 (Lack of Access to Jobs, Services, Amenities) into different equity themes as the time it takes to get to different amenities (i.e. job vs. a park) vary greatly and should not be considered under the same metric. There needs to be disaggregation of the different amenities being measured.
- For Priority Equity Theme 2, consider using the term “regional parks” as opposed to just parks
- Consider creating a clearer priority equity theme for workers that takes into account their unique needs such as job training sites.
- Consider relating Kirwan Opportunity measures to the various equity performance measures.
- For Priority Equity Theme 3 (Suburbanization of Poverty) consider using a fixed poverty number, not a comparison to the regional average.

- Consider making a list of amenities for consideration under Priority Equity Theme 2 including childcare facilities, full service grocery stores, medical centers, libraries and community and education centers.
- Consider analyzing the loss of low income households
- Members wanted more clarity about how targets relate to the suburbanization of poverty (with a clearer definition of the term) and more clarity about displacement
- Members wanted to see a walkability map created for the last Equity Analysis. Staff will share walkability map.

**Comments about Table 3 from staff memo (Performance Measures for Additional Trends Analysis):**

- Staff is collecting member responses through a survey sent to the REWG on 8/21 and again on 8/26.

**Equity Targets Performance Assessment**

- Members were concerned that the scale of investments under consideration (projects over \$100M) would exclude many bike and pedestrian projects.
- Members also expressed a general concern about how all the pieces relate. Staff clarified that the project performance analysis would be used to help funders decide funding for projects at the regional level and that smaller scale – more localized – projects would receive full consideration at that level.
- Consider presenting performance targets informed by stakeholder feedback in addition to the ones already presented
- Consider analyzing projects for how they benefit communities of concern as opposed to just serving CoCs.
- Consider incorporating access to opportunity in the target performance assessment
- For target 2, housing production should not be total housing production but at all affordability levels

**Next Steps**

- Staff sent out a survey on 8/21 asking for feedback on the equity targets performance assessment as well as on the equity measures.

**September 9<sup>th</sup> meeting of REWG:**

- Staff will present findings at the next REWG meeting scheduled for September 9<sup>th</sup>
- Staff will present draft final equity performance targets, the final methodology for equity targets, and discuss Communities of Concern (CoCs)



# Memo

TO: Regional Equity Working Group

DATE: September 9, 2015

FR: Kristen Carnarius, MTC

RE: Update on Equity Assessment for Project Performance

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At the August REWG meeting, staff sought feedback from the REWG on the overall framework for project-level equity assessment as well as specific targets assessment criteria with an equity nexus. In response to questions about the process and content of the assessment, staff developed this memo, which describes the process for developing the project performance methodology and concludes with staff responses to comments received at the meeting and via email.

## BACKGROUND

The purpose of the Plan Bay Area 2040 project performance assessment is to inform the Commission's investment tradeoffs discussion (i.e., how should the region prioritize discretionary transportation funds). Building upon the robust process developed for Plan Bay Area, MTC is proposing to perform a detailed assessment of proposed projects. The project performance assessment has two primary components, the targets assessment and the benefit-cost assessment. The targets assessment qualitatively compares the expected outcome of each project with the goals and targets defined by the Commission for Plan Bay Area 2040. The benefit-cost assessment uses the MTC travel model to quantify project benefits, which are then compared to project costs to calculate cost-effectiveness.

## PROJECT PERFORMANCE DEVELOPMENT PROCESS

MTC has a history of conducting performance assessments of major projects, starting with Transportation 2035 (adopted in 2009). Leading up to Plan Bay Area's adoption in 2013, MTC staff spent over a year refining the project performance methodology through several working groups, including the Performance Working Group and the Regional Equity Working Group. The framework developed by these working groups led to the assessment of hundreds of projects, both qualitatively and quantitatively.

As Plan Bay Area 2040 is a limited and focused update of Plan Bay Area, staff proposes to conduct a project performance assessment with a similar framework as was used in Plan Bay Area. Improvements to the methodology are focused on framework implementation. For example, the targets analysis must relate to the targets of the new Plan, some of which have changed since Plan Bay Area. There have also been methodology updates to benefit estimation that will be reflected in the project performance assessment of this Plan.

Similar to Plan Bay Area, staff has worked with stakeholder groups to update performance targets and refine the project assessment methodology. Since April, staff has convened a similar Performance Working Group (PWG) as in Plan Bay Area with a new set of stakeholders, ranging from city staff to CMAs to advocacy groups. The PWG has discussed performance targets for scenarios, the benefit-cost methodology, project-level targets criteria, and the project-level equity assessment, meeting monthly for the past five months.

MTC and ABAG also jointly convened the Regional Equity Working Group to support the development of the Equity Analysis for Plan Bay Area 2040 scenarios. This group contributed to the scenario-level equity analysis in Plan Bay Area as well as helped to develop the project-level equity assessment. During Plan Bay Area, MTC staff worked with REWG members over the course of several months, testing different options for addressing equity considerations in the project assessment. Several options were considered and vetted before reaching the final scope of the assessment.

Regional Equity Working Group  
Memo - Update on Equity Assessment for Project Performance  
Page 2

Staff proposes to leverage the project-level equity framework from Plan Bay Area for use in Plan Bay Area 2040, updating the framework to reflect the latest proposal for Plan Bay Area 2040 performance targets under Equitable Access:

1. Evaluate an equity targets score, which is the sum of the targets score for the targets under the Equitable Access goal: housing affordability, transportation affordability, and a potential target related to displacement<sup>1</sup>.
2. Evaluate if a project serves<sup>2</sup> a Community of Concern through project mapping.

For Plan Bay Area 2040, staff will conduct the equity assessment in tandem with the benefit-cost and targets assessments. MTC staff is responsible for conducting the project performance assessment, which has been reviewed and vetted by several stakeholder groups, as well as ABAG staff. MTC staff plans to present the draft results to the Performance Working Group, Congestion Management Agencies, the Regional Equity Working Group, the Regional Advisory Working Group, and the Policy Advisory Council before presenting the results to the Joint MTC/ABAG Planning and Administrative Committee in this winter. This will give project sponsors time to comment on the draft results before final results are shared with policymakers for deliberation related to Plan Bay Area 2040.

Attached

1. Revised target criteria for equity score
2. Staff responses to project performance comments and questions from REWG members
3. Project performance overview (from August packet)
4. Proposed benefit valuations (from August PWG meeting)

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<sup>1</sup> Staff is proposing to add a third performance target under Equitable Access that will be focused on the issue of displacement and will present final recommendations to the Joint Committees at their November meeting.

<sup>2</sup> Staff is considering the suggestion of determining if a project *benefits* a Community of Concern and not just serves the community. Staff will incorporate the update to the equity assessment if this proves technically feasible.

**DRAFT EQUITY TARGETS CRITERIA**

Outcome/ Goal	Proposed Targets	Project Support	Qualitative Assessment Criteria	Adverse Impact	Application
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**Adequate Housing**      **2**      **Removed from Equity Score**

- Provides low-cost transportation options for low income households; degree of support varies with the operator's current low-income ridership
- Reduces household auto ownership costs/transportation costs for low income households
- Decrease by 10% the share of lower-income residents' household income consumed by transportation and housing
- 5      Rating dependent on transit operator ridership demographics
- Increases transportation-~~or~~ **housing-costs** for low income households
- Reduces transportation choices for low- and middle-income residents
- Bike/ped projects assumed to provide lower cost alternative to auto ownership

- Serves a jurisdiction that permitted at least 15% of its moderate to very low income housing need, based on the 2007-2014 RHNA cycle AND
- Serves a PDA, TPA, or high opportunity area that permitted above average units affordable to very low, low, and moderate income households in 2013 and 2014
- 6      Rating dependent on project location
- Serves a jurisdiction that permitted less than 15% of its moderate to very low income housing need, based on the 2007-2014 RHNA cycle AND
- Serves a PDA, TPA, or high opportunity area that permitted minimal affordable units in 2013 and 2014

- 7      **Displacement target placeholder**      **Criteria will reflect language of the final adopted target**

Text in **bold** indicates a change from the criteria presented to REWG in August.

## STAFF RESPONSES TO COMMENTS AND QUESTIONS

**COMMENT: The equity assessment is missing several important equity issues, namely access to economic opportunity (jobs, education, services, amenities, safe/healthy neighborhoods, etc.)**

The targets assessment already considers several of these topics. Under the Economic Vitality target, projects are scored for their ability to increase access to jobs and freight centers. Under the Open Space and Agricultural Preservation target, projects are scored for their ability to connect people to urban parks and the extent to which the project includes landscaping and urban greening. In the Healthy and Safe Communities target, projects are scored for their ability to reduce collisions, air pollution, and increase active transportation.

The equity assessment focuses specifically on the targets under the goal of Equitable Access. Based upon the performance targets that are currently being considered for adoption, this incorporates issues of affordability for lower-income households, production of affordable housing, and minimization of displacement risk.

**COMMENT: MTC should evaluate if a project benefits a Community of Concern, not just serves one.**

We will evaluate the feasibility of incorporating this criterion.

**QUESTION: Why are there different topics covered in the equity score of Plan Bay Area compared to Plan Bay Area 2040?**

The Plan's performance targets identify the top priorities for the overarching Plan; transportation projects are intended to help "move the needle" on as many performance targets as possible. Since several of the targets have changed since the last Plan, the targets score – and by implication, the equity targets score – is being updated to reflect those changes.

**COMMENT: MTC should adopt a four-step equity score considering if a project (a) fills an important need of a disadvantaged community or population (b) in a way that provides a significant benefit and (c) targets its benefits primarily to low-income people while (d) avoiding substantial burdens on a disadvantaged community.**

Several of these suggestions are already incorporated in the targets score:

1. Projects that primarily benefit low-income residents will receive high targets scores for the following targets: housing + transportation affordability, affordable housing production, and a potential target related to displacement.
2. Projects that burden low-income residents will receive low target scores for the same three targets.
3. A project that provides a "significant benefit" to a disadvantaged community would receive a strong rating for an equity target whereas a project that provides some benefit will receive a moderate or minimal rating. For the transportation affordability target, staff proposes that project size determines the extent to which a project receives a strong rating. For the affordable housing target, staff proposes that the level of affordable housing production in a jurisdiction or area determines if a project receives a strong, moderately strong, or minimal rating.

Additionally, an in-depth assessment of benefits and burdens (and proportion accruing to Communities of Concern) will be assessed at the scenario level. The Plan Bay Area 2040 Equity Analysis will leverage a specific set of equity metrics which will be stratified to examine these issues in more detail.

**COMMENT: Clarify that progress towards Equitable Access target #6 will be assessed on a net basis that accounts for both affordable housing production and loss of affordable units, not merely gross production.**

Jurisdictions do not report when a housing unit loses its deed restriction. On a regional basis, there are currently no available datasets that provide information on the number of affordable housing units that are lost. Collecting such a dataset would require more time than the duration of development of the Plan.

**COMMENT: Rename the analysis to Plan Bay Area 2040 Equity Assessment.**

The equity assessment for project performance will likely be called: Plan Bay Area 2040 Project Equity Assessment.

**COMMENT: For low-performing projects, provide the option for excluding the portion of project costs that already have a secured funding source, to reflect the additional cost requested through the RTP divided by the regional benefits.**

A benefit-cost assessment evaluates a project's total benefits against its total costs. It would be inaccurate to evaluate the full benefits of a project in the travel model and divide by only a portion of its costs. Low-performing projects have the opportunity to appeal the low-performance designation through the compelling case process.

**QUESTION: If low performing projects have either a low benefit-cost ratio or a low targets score, then how do you define “medium-performing”?**

The project performance assessment groups projects into high-, medium-, and low-performing projects. High-performing projects are those that have both a high benefit-cost ratio and a high targets score. Medium-performing projects are those are neither high-performing nor low-performing. The performance thresholds are subject to Commission adoption in 2016.

**COMMENT: Target #5: please provide examples of project types that would have an adverse impact? Bike/ped projects are assumed to have a positive impact, and the degree of benefit for transit projects depends on operator ridership, but what is assumed for freeway widening, bridge replacement, and express lane projects?**

A project would receive an adverse score for this target if it removed a low-cost travel option for medium and low income residents. An adverse impact might be if a highway project required re-routing a bus that serves a Community of Concern. Freeway widenings, bridge replacements, and express lanes do not reduce low-cost travel options and thus received a “minimal” impact score for this target.

**COMMENT: Target #5: Could you provide us with the statistics for ridership by transit operator?**

In Plan Bay Area, transit projects were scored using the data from the Transit Demographics Survey in 2006. For Plan Bay Area 2040, the projects will be scored with the most recent transit demographics data available.

**QUESTION: The Adequate Housing target has nothing to do with equity. Why is it included in the equity target score?**

In Plan Bay Area, the Adequate Housing target criteria included an assessment of affordable housing production. In Plan Bay Area 2040, there is a separate target related to affordable housing, so the affordable housing criteria have been moved under that target. Given that these criteria are now more appropriately housed under Equitable Access, we propose to focus on the three Equitable Access targets in the equity targets score instead.

**COMMENT: The targets criteria should work for all PDAs, including planned or potential PDAs.**

The targets criteria would be applied to planned and potential PDAs. Additionally, at the September RAWG and Committee meetings, MTC/ABAG staff is proposing to expand the geography of the affordable housing target from only PDAs to any area that is either a PDA, a transit-priority area (TPA), or a high-opportunity area. This will significantly increase the areas with an affordable housing goal.

**COMMENT: The targets criteria for housing affordability should reflect planned affordable units and not rely on past production. The target should be tied to a city’s willingness/ability to add to the stock of affordable housing.**

The most recently adopted land use from Plan Bay Area does not include a forecast of affordable housing by jurisdiction. The only indication of affordable housing production is the current 8-year RHNA cycle (2007-2014), which is the best tool the regional agencies currently possess to indicate a jurisdiction’s willingness to add to its stock of affordable housing.

In order to inform policy decisions related to project and program selection for Plan Bay Area 2040, MTC will conduct a performance assessment of major, uncommitted projects submitted through the Call for Projects. The assessment will build upon the existing framework. This memorandum provides an overview of the project performance assessment process and highlights some key changes proposed as part of this Plan update.

### What is Project Performance Assessment?

The objective of the project performance assessment is to inform key policy questions related to a simple but critical question: which projects should be included in the Regional Transportation Plan? By adopting the Plan Bay Area 2040 committed projects policy, the Commission took the first step towards establishing the projects and project types that the region will fund and implement. The project performance assessment will inform the next step of the process by evaluating remaining uncommitted projects. Project performance assessment is one venue for examining the efficiency and effectiveness of projects for inclusion in the regional plan.

### Approach to Project Performance Assessment

Staff proposes to conduct the assessment using quantitative and qualitative methodologies similar to the assessment in Plan Bay Area. Based on feedback received over the next few months, staff will update the methodology with feedback from partner agencies, local government, policymakers and other key stakeholders. The two main components of the assessment are:

1. Targets Assessment (qualitative) – Staff will evaluate the extent to which each major, uncommitted project supports the region's ability to meet the targets in Plan Bay Area 2040, which the MTC Commission will officially adopt in September 2015. As with the last Plan, staff will qualitatively evaluate the project's support for each of the targets on a 5-point scale, ranging from 1 to -1, in increments of 0.5. A project receives a "1" for a particular target if it strongly supports the target and a "-1" if it has a strong adverse impact on the region's ability to meet the target. The final target score is a sum across targets with the maximum possible score of a 10 and the lowest possible score of a -10.
2. Benefit-Cost Assessment (quantitative) – For the same set of projects, staff will evaluate the cost-effectiveness of each project using a benefit-cost assessment. As with Plan Bay Area, MTC will use the regional travel demand model to estimate the future impacts of projects; project benefits will be estimated for year 2040 for this Plan cycle. The benefits will include the full suite of potential measures, not just those identified by the targets. Benefits include travel time, travel time reliability, travel cost, air pollution, collisions, noise, and health. Costs include both capital and operating costs.

As with Plan Bay Area, the benefit-cost ratio and the targets score will together define the performance for each project. Relative to other projects seeking regional discretionary funding, high-performing projects will have a high benefit-cost ratio **and** a high targets score. Low-performing projects will have **either** a low benefit-cost ratio **or** a low targets score.

Staff proposes to retain the low-performer process developed for Plan Bay Area. Project sponsors would have three choices on how to proceed if their project is as a low-performer:

- A. Project sponsors could drop their low-performing project and instead fund other projects identifying as high- or medium-performing.
- B. Project sponsors could re-scope their project to exclude the construction phase or could agree to fund the project using 100% local dollars (exempting their project from the compelling case process).
- C. Project sponsors could submit a compelling case for consideration by the MTC Planning Committee under a set of eligible compelling case criteria. In addition, low-performing projects seeking approval for inclusion in the Plan needed to have a full funding plan (i.e. project needed to be financially feasible).

For the compelling case process, a project could be eligible for inclusion in the Plan if the sponsor documents that the travel model does not adequately capture project benefits; that the project meets federal requirements for reducing air pollution of GHG emissions; or that the project serves one or more Communities of Concern.

### Supplemental Assessments

During Plan Bay Area, stakeholders suggested an evaluation of the limitations in the performance methodology. Given that all evaluation methods have limitations, it is important to document known shortcomings of the approach, acknowledgement of which better informs policymakers of the strengths and weaknesses of the performance outcomes. Staff proposes to retain the supplemental assessment developed during Plan Bay Area. These include the benefit-cost confidence assessment and benefit-cost sensitivity testing.

Confidence assessment – this analysis identifies the primary shortcomings of the quantitative assessment approach, including limitations in travel model specificity or calibration, completeness of benefit estimation, and the horizon-year approach.

Sensitivity testing – this analysis documents the impact of benefit valuations on the estimate of cost-effectiveness by varying the valuations of key benefits and evaluating the effects on project ranking.

### Project-Level Equity Considerations

Staff proposes to preserve the existing approach for considering equity issues related to individual transportation projects. Similar to Plan Bay Area, all projects subject to performance assessment will be overlaid on Communities of Concern (COC) boundaries. Staff will use a qualitative approach to identify the project's level of support for these communities and will confirm that the project provides access to residents of the affected community. Staff will conduct this analysis in tandem with the benefit-cost and targets assessments, ensuring that equity considerations inform the final performance outcomes.

### Evaluation of State-of-Good Repair

The major difference between Plan Bay Area and Plan Bay Area 2040 will be the inclusion of a state-of-good repair performance assessment. Plan Bay Area evaluated the performance of state-of-good repair using a sketch-level methodology that monetized different benefits than what was included in the benefit-cost evaluation for the other projects. Given that state-of-good repair projects comprise the majority of funds in Plan Bay Area, MTC has established a Plan priority to better understand the cost-effectiveness of these investments, especially compared to the performance of expansion projects.

Since adoption of the last Plan, staff have developed methodologies for evaluating the benefits of local streets and roads and transit state-of-good repair using the same metrics as for expansion projects. For the first time, staff will evaluate state-of-good repair and expansion projects with the same metrics, utilizing a truly apples-to-apples comparison. A brief description of the new methodology is as follows:

Local Streets and Roads – The methodology involves the connection between pavement condition and vehicle operating costs. Staff forecasts pavement conditions for cities and counties based on funding levels and facility prioritizations using MTC's asset-management software, StreetSaver. A separate model translates pavement condition into vehicle operating costs by type of vehicle, based on the findings in NCHRP Report 720.<sup>1</sup> The vehicle operating cost is the primary input to the travel demand model, which effectively makes trips more expensive if drivers are traveling on roadways in poor condition. This affects auto mode choice and travel costs.

Transit – The methodology involves the connection between asset age and the travel time delay associated with failing infrastructure. Staff forecasts transit asset conditions for transit operators using FTA's TERM-Lite software. A separate model estimates transit delay as a function of failure frequencies based on TCRP Report 157.<sup>2</sup> Delay varies by transit operator and mode. For example, the impact of a BART failure leaves a rider with fewer options than if the break down occurred on a Muni bus with available parallel routes. Delay is the primary input to the travel demand model, which effectively increases the travel time on transit modes in poor condition. This affects transit mode choice and travel times.

With both methodologies, staff could evaluate several different levers: variations in funding levels, funding priorities, and geographic priorities. Staff are continuing to refine the packages of state-of-good repair concepts to evaluate during the project performance assessment.

<sup>1</sup> National Cooperative Highway Research Program (NCHRP) Report 720: Estimating the Effects of Pavement Condition on Vehicle Operating Costs

<sup>2</sup> Transit Cooperative Research Program (TCRP) Report 157: State of Good Repair – Prioritizing the Rehabilitation and Replacement of Existing Capital Assets and Evaluating the Implications for Transit

**Projects Subject to Performance Assessment**

Committed projects and programs, as defined by MTC Resolution No. 4182 in April 2015, are not subject to project performance assessment. Of the uncommitted projects submitted in the Call for Projects by the September 2015 deadline, MTC staff will evaluate projects that meet the following criteria:

1. The project impacts can be captured in the regional travel demand model (i.e., capacity-increasing, and model-able).
  - a. Highway and transit expansion projects
  - b. Highway operations/efficiency projects
  - c. Transit service increases
  - d. Highway tolling/pricing
  - e. State-of-good repair for transit, highways, and local roads
2. The total project costs are at least \$100 million (as measured in 2017 dollars).

**Schedule for Project Performance Assessment**

- Call for Projects submittal deadline – September 30, 2015
- Run travel model to evaluate projects – Fall 2015
- Release results – Winter 2016
- Compelling case process – Winter 2016
- Scenario and investment trade-off discussion – Spring 2016

## ATTACHMENT

### DRAFT BENEFIT VALUATIONS

This attachment summarizes recommended benefit valuations for the benefit-cost assessment for Plan Bay Area 2040, based on a review of recent research and best practices for monetizing benefits from transportation projects. Table 1 presents the recommended valuations for each benefit category, including a comparison to the Plan Bay Area valuation and a description of the basis of the valuation.

There are three types of valuation updates:

- **Major Update:** Valuation update involved an adjustment to the methodology or a significant change in the source material used to determine the valuation.
- **Minor Update:** Valuation update retained the methodology and sources used in Plan Bay Area, but used an updated source.
- **Inflation Only:** Valuation updated directly from the Plan Bay Area values, to \$2014 using the San Francisco-Oakland-San Jose Consumer Price Index (CPI) from the Bureau of Labor Statistics and to \$2017 using a 2.2% expansion rate.

**Table 1. Recommended Benefit Valuations**

Benefit	Plan Bay Area Valuation (\$2013)	Plan Bay Area 2040 Valuation (\$2017)	Type of update	What does this valuation include?
In-Vehicle Travel Time per Person Hour of Travel	\$16.03	\$12.66	Minor Update	<p>In-vehicle travel time for auto and transit users is set at 50% of the <b>median</b> regional wage rate (\$25.32). The valuation represents:</p> <ul style="list-style-type: none"> <li>• The discomfort to travelers of enduring transportation-related delay</li> <li>• The loss in regional productivity for on-the-clock travelers and commuters.</li> </ul> <p>Sources: US Department of Transportation; Bureau of Labor Statistics Occupational Employment and Wage, 2014</p>
Transit Out-of-Vehicle Travel Time per Person Hour of Travel	\$35.27	\$27.85	Minor Update	<p>This value is equal to 2.2 times the valuation of in-vehicle travel time. The valuation represents the additional discomfort to travelers of experiencing uncertainty of transit arrival time, exposure to inclement weather conditions, and exposure to safety risks.</p> <p>Source: FHWA Surface Transportation Economic Analysis Model (STEAM)</p>
Freight/Truck In-Vehicle Travel Time per Vehicle Hour of Travel	\$26.24	\$31.10	Minor Update	<p>The valuation is the total hourly compensation paid to truck drivers. This valuation represents the labor cost of transporting goods on the roadway network.</p> <p>Source: FHWA Highway Economic Requirements System; Bureau of Labor Statistics Occupational Employment and Wage, 2014</p>

Benefit	Plan Bay Area Valuation (\$2013)	Plan Bay Area 2040 Valuation (\$2017)	Type of update	What does this valuation include?
Auto Travel Time Reliability per Person Hour of Non-recurring Delay	\$16.03	\$12.66	Minor Update	The value is set equal to the value of in-vehicle travel time for autos. The valuation represents the additional traveler frustration of experiencing non-expected incident related travel delays. <i>Source: SHRP2 L05 Project – “Incorporating Reliability Performance Measures into the Transportation Planning and Programming Processes”</i>
Freight/Truck Travel Time Reliability per Vehicle Hour of Non-recurring Delay	\$26.24	\$31.10	Minor Update	The value is set equal to the value of in-vehicle travel time for trucks. The valuation represents the additional loss of regional productivity due to experiencing non-expected incident related travel delays. <i>Source: SHRP2 L05 Project – “Incorporating Reliability Performance Measures into the Transportation Planning and Programming Processes”</i>
Fatality Collisions (per fatality)	\$4.59 million	\$10.8 million	Major Update	The valuation includes the internal costs to a fatality collision victim (and their family) resulting from the loss of life, as well as the external societal costs. The valuation represents: <ul style="list-style-type: none"> <li>• Loss of life for the victims.</li> <li>• Medical costs incurred in attempts to revive victims.</li> <li>• Loss of enjoyment of family member to other members of the family.</li> <li>• Loss of productivity to the family unit (e.g., loss of earnings).</li> <li>• Loss of productivity to society.</li> <li>• Loss of societal investment in the victim (e.g., educational costs).</li> </ul> <i>Source: National Highway Traffic Safety Administration, 2015</i>
Injury Collisions (per injury)	\$64,000	\$125,000	Major Update	The valuation includes the internal costs to an individual (and their family) resulting from the injury, as well as the external societal costs. The valuation represents: <ul style="list-style-type: none"> <li>• Pain and inconvenience for the individuals.</li> <li>• Pain and inconvenience for the other family members.</li> <li>• Medical costs for injury treatment.</li> <li>• Loss of productivity to the family unit (e.g., loss of earnings).</li> <li>• Loss of productivity to society.</li> </ul> <i>Source: National Highway Traffic Safety Administration, 2015</i>

Benefit	Plan Bay Area Valuation (\$2013)	Plan Bay Area 2040 Valuation (\$2017)	Type of update	What does this valuation include?
Property Damage Only Collision (per incident)	\$2,455	\$4,590	Value Update	<p>The valuation includes the internal costs to a property damage collision victim (and their family) resulting from the time required to deal with the collision, as well as the external societal costs from this loss of time. The valuation represents:</p> <ul style="list-style-type: none"> <li>• Inconvenience to the individual and to other members of the family.</li> <li>• Loss of productivity to the family unit.</li> <li>• Loss of productivity to society.</li> </ul> <p>Source: National Highway Traffic Safety Administration, 2015</p>
CO <sub>2</sub> per Metric Ton	\$55.35	\$100	Major Update	<p>This valuation represents the full global social cost of an incremental unit (metric ton) of CO<sub>2</sub> emission from the time of production to the damage it imposes over the whole of its time in the atmosphere.</p> <p>Source: Federal Interagency Working Group on the Social Cost of Carbon, Revised 2015</p>
Diesel PM <sub>2.5</sub> (Fine Particulate Matter) per Ton	\$490,300	\$665,400	Value Update	<p>These valuations represent the negative health effects of increased emissions including:</p> <ul style="list-style-type: none"> <li>• Loss of productive time (work &amp; school)</li> <li>• Direct medical costs from avoiding or responding to adverse health effects (illness or death).</li> <li>• Pain, inconvenience, and anxiety that results from adverse effects (illness or death), or efforts to avoid or treat these effects</li> <li>• Loss of enjoyment and leisure time</li> <li>• Adverse effects on others resulting from their own adverse health effects</li> </ul> <p>Source: BAAQMD, 2015</p>
Direct PM <sub>2.5</sub> (Fine Particulate Matter) per Ton	\$487,200	\$658,800	Value Update	
NO <sub>x</sub> per Ton	\$7,800	\$6,000	Value Update	
Acetaldehyde (ROG) per Ton	\$5,700	\$5,100	Value Update	
Benzene (ROG) per Ton	\$12,800	\$15,200	Value Update	
1,3-Butadiene (ROG) per Ton	\$32,200	\$42,600	Value Update	
Formaldehyde (ROG) per Ton	\$6,400	\$5,900	Value Update	
All Other ROG per Ton	\$5,100	\$4,300	Value Update	
SO <sub>2</sub> per Ton	\$40,500	\$22,200	Value Update	

Benefit	Plan Bay Area Valuation (\$2013)	Plan Bay Area 2040 Valuation (\$2017)	Type of update	What does this valuation include?
Auto Operating Costs per Auto Mile Traveled	\$0.2518	\$0.3072	Major Update	This valuation represents the variable costs (per mile) of operating a vehicle, including fuel, maintenance, depreciation (mileage), and tires. <b>Fuel costs and efficiencies reflect 2040 forecasts.</b>  <i>Source: 2014 High-Speed Rail Benefit-Cost Analysis</i>
Truck Operating Costs per Truck Mile Traveled	\$0.3700	\$0.8679	Major Update	
Costs of Physical Inactivity	\$1,220	\$1,310	Inflation only	This valuation represents the savings achieved by influencing an insufficiently active adult to engage in moderate physical activity five or more days per week for at least 30 minutes. It reflects annual Bay Area health care cost savings of \$326 (2006 dollars), as well as productivity savings of \$717 (2006 dollars). <i>Source: California Center for Public Health Advocacy/Chenoweth &amp; Associates 2006, "The Economic Costs of Overweight, Obesity, and Physical Inactivity Among California Adults"</i>
Parking Costs per Auto Trip	Varies by county	Model Output	Major Update	This valuation is consistent with parking cost estimation in Travel Model One.
Auto Ownership Costs per Vehicle (change in the number of autos)	\$6,290	\$6,940	Inflation only	This valuation represents the annual ownership costs of vehicles, beyond the per mile operating costs. This valuation includes purchase/lease costs, maintenance, and finance charges. <i>Source: Travel Model One</i>
Noise per Auto Mile Traveled	\$0.0012	\$0.0013	Inflation only	This valuation represents the property value decreases and societal cost of noise abatement. <i>Source: FHWA Federal Cost Allocation Report</i>
Noise per Truck Mile Traveled	\$0.0150	\$0.0170	Inflation only	

**MEMO**

To: Regional Equity Working Group  
 From: Pedro Galvao (ABAG) and Vikrant Sood (MTC)  
 Re: Equity Measures for Plan Bay Area 2040 Scenario Analysis  
 Date: Wednesday, September 2, 2015

**Overview**

At its August 12<sup>th</sup> meeting the Regional Equity Working Group (REWG) confirmed key equity issues impacting disadvantaged communities for consideration in the Plan Bay Area 2040 Equity Analysis. REWG also provided preliminary feedback on equity measures. Based on this feedback, staff has updated the issues and measures tables below for confirmation by REWG. Feedback from REWG today will be presented at the October 9 Joint MTC Planning and ABAG Administrative Committee meeting.

**Draft Equity Measures**

REWG members had an opportunity to provide further feedback on all the items discussed at its meeting on August 12<sup>th</sup> through a three question survey. The survey received 11 responses. This feedback has been incorporated into this memo and is discussed in more detail in Attachment A. Equity issues not fully addressed by the performance targets may be studied in more detail in the Equity Analysis either as an equity measure or through additional research and analysis of current trends.

*Fully Addressed in Targets* – corresponding Targets for this category already have an equity focus and a sub-analysis based on income, race/ethnicity or geography are not likely to yield additional insights for the purposes of a comparative analysis of Plan Scenarios. Issues corresponding to these Targets will be addressed in both the scenario analysis and the final equity report. See Table 1 for more details.

**Table 1: Key Equity Issues, Additional Measures and Research Topics**

<i>Key Issues Identified by REWG</i>	<i>Relevant Performance Targets</i>	<i>Fully Addressed in Targets</i>	<i>Additional Equity Measures</i>	<i>Additional Research Topics</i>
Risk of Displacement and Community Stability	Adequate Housing Equitable Access	Yes*		
Housing Affordability for Low-Income Households (LIHs)	Adequate Housing Equitable Access	Yes		
Access to Jobs, Services and Amenities for LIHs	Equitable Access Economic Vitality		Access for LIHs	LMI Jobs, Services and Amenities
Access to Opportunity for LIHs	Equitable Access Economic Vitality			Yes
Lack of Mobility in Concentrated Areas of Poverty	N/A		Yes	
Declining Real Wages for Lower Wage Workers (LWW)	N/A			Yes
Exposure to Toxic Contamination	Healthy and Safe Communities		Yes	
Suburbanization of Poverty	Adequate Housing Economic Vitality		Yes	

Transportation Costs for LIHs	Equitable Access	Yes		
Lack of Access to Innovation Economy for LWW	N/A			Industries of Opportunity

*Additional Equity Measures* – corresponding Targets for this category may not fully address equity concerns, or a dis-aggregated analysis based on income, race/ethnicity or geography may yield additional insights. These issues will be addressed in both the scenario analysis and the final equity report.

**Table 2: Additional Equity Measures**

<i>Measures</i>	<i>Proposed Analysis Methodology</i>
1. Lack of Access to Jobs for Lower-Income Households	Share of all jobs accessible to LIHs within a 30-minute trip by auto or 45-minute trip by transit.
2. Suburbanization of Poverty	Share of LIHs who reside in suburban jurisdictions as defined in Plan Bay Area
3. Areas with Concentrated Poverty	Share of LIHs who reside in census tracts that have a concentration <sup>1</sup> of 40% households at the federal poverty <sup>2</sup> level.
4. Exposure to Toxic Contaminants	Share of LIHs who reside in census tracts that have high exposure <sup>3</sup> to PM2.5 or within ½ a mile from brownfield sites.

*Additional Research Topics* – corresponding Targets for this category may not fully address equity concerns, or may not currently exist. A topic may also not lend itself to long-term projection for the purposes of a comparative analysis of Plan Scenarios. Topics in this category will be included in the final equity report as an analysis of current trends. See Table 3 below for more details.

**Table 3: Additional Research Topics**

<i>Topics</i>	<i>Notes</i>
1. Access to Low- and Moderate-Wage Jobs, Services and Amenities	Current trends on share of low- or moderate-wage jobs that are accessible to LIHs within a 30-minute trip by auto or 45-minute trip by transit during peak and off-peak-hours. Current trends on share of LIHs that live in neighborhoods with >X walk score <sup>4</sup> .
2. Access to Opportunity	Current trends on share of LIHs who reside in high-opportunity areas <sup>5</sup> .
3. Growth in Real Wages	Current trends on share of middle-wage jobs in the region (that pay more than 80% of median metropolitan area wages <sup>6</sup> ).
4. Access to Jobs in "industries of opportunity"	Current trends on share of low- and moderate-wage jobs in high opportunity sectors and occupations <sup>7</sup> .

<sup>1</sup> More than 40% of households in the census tract are in poverty, The Effects of Exposure to Better Neighborhoods on Children: New Evidence from the Moving to Opportunity Experiment, Raj Chetty, Nathaniel Hendren, and Lawrence F. Katz, Harvard University and NBER, May 2015

<sup>2</sup> Households in poverty is defined as <200% federal poverty rate in PBA

<sup>3</sup> As defined by CalEnviro Screen (<http://oehha.ca.gov/ej/pdf/CES20FinalReportUpdateOct2014.pdf>)

<sup>4</sup> Based on an updated walkscore analysis, based on access to following amenities: religious institutions, educational institutions, libraries, health services, parks, retail, dining, and entertainment venues

<sup>5</sup> Within the top quartile of opportunity scores based on definition of high-opportunity areas from the Fair Housing and Equity Assessment report, ABAG, 2015

<sup>6</sup> Wages ranging from \$18 to \$35 per hour, as defined in the Economic Prosperity Strategy, 2015

<sup>7</sup> As defined in the Economic Prosperity Strategy, 2015

**Attachment A: Summary of Feedback from REWG to August 2015 Online Survey and Staff Responses**

**Feedback about Equity Issues and Performance Targets**

The majority of respondents reported that the existing performance targets did not “fully address” the equity issues of importance to the REWG. The question could likely benefit from reframing as its intent was to better understand whether or not the existing performance targets address equity issues directly and adequately given the feasibility of measurement even if they don’t *fully* address them. Table 1 below provides responses from the perspective of whether or not performance targets directly address the equity issues at hand

**Table 1. Equity Issues and Performance Targets Feedback and Response**

Equity Issues	Fully Addressed in Targets?	Staff Response
1. Risk of Displacement and Community Stability	82% (no)/18% (yes)	The issue of displacement is now explicitly addressed by two performance targets including a standalone displacement target. See agenda packet for the September RAWG meeting.
2. Housing Affordability for Low Income Households	55% (no)/45% (yes)	This issue is explicitly addressed by three targets: the adequate housing target (#2) which aims to house 100% of the region’s population by income level, the equitable access target (#6) which seeks to expand the share of housing affordable to lower income households, and the housing and transportation cost target (#5) which seeks to decrease the region’s overall housing and transportation costs.
3. Access to Jobs, Services and Amenities for Low Income Households	90% (no)/10% (yes)	See staff response in Table 2 below.
4. Lack of Mobility in Concentrated Areas of Poverty	90% (no)/10% (yes)	See staff response in Table 2 below.
5. Declining Real Wages for Low Wage Workers	100% (no)	See staff response in Table 3 below.
6. Exposure to toxic contamination	67%(no)/33%(yes)	See staff response in Table 2 below.

<b>7. Suburbanization of Poverty</b>	100% (no)	See staff response in Table 2 below.
<b>8. Transportation Costs for Low Income Households</b>	60%(no)/40%(yes)	This issue is explicitly addressed by Performance Target #5
<b>9. Lack of Access to the Innovation Economy for Low Wage Workers</b>	100% (no)	See staff response in Table 3 below.

**Table 2. Feedback on Equity Measures for Equity Issues**

<b>Equity Themes</b>	<b>Feedback</b>	<b>Staff Response</b>
1. Risk of Displacement	Respondents agreed with proposed equity measure.	No change to equity measure
2. Lack of Access to Jobs, Services, and Amenities	Respondents indicated that measures should be disaggregated between access to different services or amenities (i.e. local parks should be within walking distance while jobs should be within a certain commute time).	Staff is proposing to limit this measure to jobs since MTC/ABAG do not have any tools to forecast the location of most amenities and services in future years. For amenities and services, staff is proposing to analyze current trends to document current level of access using the walk score methodology (if data can be assembled). Walk score is based on access to religious institutions, educational institutions, libraries, health services, parks, retail, dining, and entertainment venues, and was last updated in 2006.
3. Suburbanization of Poverty	Consider clearer definition of “suburban” and more nuance about particular suburbs receiving more low-income households (better resourced suburbs or under-resourced?)	Staff recommends using definitions consistent with PBA 2040.
4. Areas with concentrated poverty	Consider cross-referencing with other indicators such as crime, quality of schools. Consider a firm poverty threshold.	Staff recommends using a poverty threshold of 40% based on research from Moving to Opportunity Experiment <sup>1</sup> . This threshold reflects other factors suggested for cross-referencing. MTC/ABAG do not have tools to forecast crime and school quality in future years.

<sup>1</sup> “The Effects of Exposure to Better Neighborhoods on Children: New Evidence from the Moving to Opportunity Experiment, Raj Chetty, Nathaniel Hendren, and Lawrence F. Katz.

<p>5. Exposure to toxic contaminants</p>	<p>Consider other particulate matter, illegal dumping, feasibility of assessing. Should be “or” not “and”</p>	<p>Staff recommends using the Cal EnviroScreen definition of disadvantaged communities, which incorporates multiple exposures – including a ½ mile threshold for exposure – and is consistent with the state’s definition.</p>
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**Table 3. Feedback on Additional Trends Analysis**

<i>Equity Themes</i>	<i>Feedback</i>	<i>Response</i>
<p>1. Neighborhood Stability and Displacement</p>	<p>Consider latest research from UC Berkeley, use clear definition of gentrification and displacement, use focus groups</p>	<p>Staff is using findings from the Regional Early Warning System for Displacement (REWS) study, funded through the Regional Prosperity Plan, to develop a definition and measures of analysis for displacement.</p>
<p>2. Access to Low and Moderate Wage Jobs</p>	<p>Consider: off peak transit service, access to all jobs and job training, using job sectors, lower the travel time threshold, number of applicants to federal unemployment benefits</p>	<p>Staff will rely on two previous studies that have analyzed the issue of access to jobs and training for lower-wage workers to highlight this issue. These include: the Economic Prosperity Strategy and the Moving to Work study.</p>
<p>3. Access to Opportunity</p>	<p>Clearly define “high opportunity,” consider suburbanization of poverty, define opportunity by using land cost, transportation cost, and cost of living as proxies, consider using focus groups</p>	<p>Staff is using the measures developed by the Kirwan Institute for the Study of Race and Ethnicity which uses 18 indicators that broadly examine education, economics and mobility, neighborhood and housing quality (see below “additional responses” for a complete definition).</p>
<p>4. Growth in real wages</p>	<p>Consider doing a trends analysis over time, jobs sectors, wealth accumulation</p>	<p>Staff will rely on findings from the Regional Economic Prosperity Strategy to highlight this issue.</p>
<p>5. Access to Jobs in the Innovation Economy</p>	<p>Consider sectors outside of IT, consider industries of opportunity, access to capital access programs</p>	<p>Staff will rely on findings from the Regional Economic Strategy to define industries and occupations of “opportunity.”</p>

**Additional Responses:**

Definition and measures of displacement risk are described in the staff memo to the Regional Advisory Working Group (see packet here: <https://mtc.legistar.com/MeetingDetail.aspx?ID=399534&GUID=37072818-5617-4303-8A74-47559A0083E7&Options=info&Search=>). For more information on equity measures, see Attachment B “Proposed Performance Targets Background Information and Methodologies.”

**Opportunity Mapping:** refers to areas that score highly in a composite score of 18 indicators, developed by the Kirwan Institute of Race and Ethnicity<sup>2</sup>, pertaining to education, economic mobility, and neighborhood and housing quality. Areas of high opportunity are those scoring in the top quartile of those 18 indicators. The table of indicators under consideration is included below:

<b>Education</b>	<b>Economics and Mobility</b>	<b>Neighborhood and Housing Quality</b>
School Reading Proficiency	Proximity to Jobs within 5 miles	Median Home Value
School Math Proficiency	Public Assistance Rate	Residential Vacancy Rate
Student/Teacher Ratio	Unemployment Rate	Neighborhood Poverty Rate
Free and Reduced Lunch Rate	Mean Commute Time	Median Gross Rent
Adult Educational Attainment	Transit Access	Crime Risk Index
		Proximity to Toxic Waste Sites
		Proximity to Toxic Waste Releases
		Proximity to Parks and Open Spaces

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<sup>2</sup> The Kirwan Institute for the Study of Race and Ethnicity is a nationally recognized research center of Ohio State University. It has partnered with regions across the country to craft more equitable regional planning tools, including PolicyLink, the Puget Sound Regional Council (PSRC) in Seattle, and the Capital Area Council of Governments in Texas.

## ATTACHMENT B: REVISED STAFF RECOMMENDATION FOR PLAN BAY AREA 2040 GOALS AND TARGETS

Proposed Goal	#	Proposed Target*	Same Target as PBA?
Climate Protection	1	Reduce per-capita CO <sub>2</sub> emissions from cars and light-duty trucks by <b>15%</b>	✓
Adequate Housing	2	<p><i>ABAG Proposal:</i> House <b>100%</b> of the region's projected growth by income level without displacing current low-income residents <b>using a Regional Housing Control Total with no increase in in-commuters over the Plan baseline year</b></p> <p>-- OR --</p> <p><i>MTC Proposal:</i> House <b>100%</b> of the region's projected growth by income level <b>without displacing current low-income residents and</b> with no increase in in-commuters over the Plan baseline year</p>	
Healthy and Safe Communities	3	Reduce adverse health impacts associated with air quality, road safety, and physical inactivity by <b>10%</b>	
Open Space and Agricultural Preservation	4	Direct <b>all</b> non-agricultural development within the urban footprint (existing urban development and UGBs)	✓
Equitable Access	5	Decrease the share of lower-income residents' household income consumed by transportation and housing by <b>10%</b>	✓
	6	Increase the share of affordable housing in PDAs, <b>TPAs, or high-opportunity areas</b> by <b>15%</b>	
	7	<b>Reduce the share of households at risk of displacement to 0%</b>	
Economic Vitality	8	Increase <b>by 20%</b> the share of jobs accessible within 30 minutes by auto or within 45 minutes by transit in congested conditions	
	9	Increase non-auto mode share by <b>10%</b>	✓
Transportation System Effectiveness	10	Reduce vehicle operating and maintenance costs due to pavement conditions by <b>100%</b>	
	11	Reduce per-rider transit delay due to aged infrastructure by <b>100%</b>	

\* = **text marked in blue** represents target language revision from July draft staff recommendation

## Chapter 2. Methodology

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This chapter summarizes the various methodologies used by MTC and ABAG to define target populations and performance measures for the purposes of analyzing equity for the various Plan Bay Area scenarios studied.

The primary goal of the Plan Bay Area Equity Analysis is **to analyze at a regional, programmatic level the distribution of benefits and burdens of the Draft Plan between communities of concern and the remainder of the region.** To emphasize the impacts of the Draft Plan in particular, special emphasis is placed on comparing the distribution of impacts between the Project and No Project alternatives using a set of five technical performance measures, as described further in this chapter. This comparison between the Project and No Project is intended to characterize the specific impacts of adopting the Plan versus what is forecast to occur in the future if the Plan is not adopted.

The methodology presented in this chapter stems from more than a year's worth of development work by MTC and ABAG staff, including extensive input from the Regional Equity Working Group and other interested stakeholders, on both the identification of target populations (low-income households and communities of concern) as well as the set of performance measures to be analyzed for all scenarios. Because multiple rounds of scenarios were analyzed prior to this final round of Environmental Impact Report (EIR) alternatives analysis, staff was able to incorporate feedback from stakeholders on the methodology iteratively as Plan Bay Area was developed over the past two years. Staff is extremely grateful for the time and efforts put forth by Equity Working Group members and other interested stakeholders to improve the equity analysis methodology.

In addition to the five technical performance measures, this chapter also describes the methodology used for the programmatic financial analysis of the RTP transportation

investments. The Transportation Investment Analysis examines the distribution of Plan benefits to low-income and minority populations based on their respective shares of the region's population and overall transportation system usage.

Additional details on the specific methodology for each performance measure and underlying data and assumptions are provided in Appendix A. Results of the performance measures described here are presented in Chapter 4, Analysis Results.

## 2.1 DEFINITIONS

Conducting an equity analysis requires dividing the regional population as a whole into different groups on some specific demographic or socioeconomic basis, so that comparisons between different groups can be made across the same set of measures (performance measures are described below under Section 2.5, Technical Performance Measures). This report deals specifically with minority and non-minority households, low-income and non-low-income populations and households, and communities of concern and the remainder of the region. The following definitions for these terms and populations are used in this analysis.

### Minority

Minority populations include persons who identify as any of the following groups defined by the Census Bureau<sup>19</sup> 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 report, 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 report includes with the minority population those persons whose responses identify Some Other Race or Two or More Races. Accordingly, the “non-minority” population consists of all other persons not included in any of the above-

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<sup>19</sup> For details on race and ethnicity definitions as of the 2010 Census, see <http://www.census.gov/prod/cen2010/doc/sf1.pdf>.

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.

## Low-Income Persons

A **low income person** is defined by MTC as persons identified by the Census Bureau as below 200% of the federal poverty level. MTC established the 200% of poverty threshold in 2001 to account for the Bay Area’s high cost of living relative to nationally defined poverty thresholds; the Census Bureau does not adjust the poverty level for different parts of the continental U.S. where different costs of living to factor into the varying affordability of basic necessities.<sup>20</sup>

The Census Bureau establishes poverty status for individuals based on a combination of an individual’s household composition, size, and income. As of 2010, the 200% threshold represented a household income of approximately \$23,000 a year for a single person living alone, and approximately \$47,000 a year for a family of four.<sup>21</sup>

The federal poverty level provides a reasonable benchmark to understand trends over time related to many people and what proportion of the population may be considered low-income. However, because the actual income thresholds that define the federal poverty level change from year to year, the poverty population is not forecast. Therefore, for modeling and forecasting applications, a separate definition of low-income households is used as described below.

## Low-Income Households

Many of the measures analyzed using the regional travel model are able to produce results for all low-income households, or persons living in low-income households, throughout the

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<sup>20</sup> The Census Bureau has been working with other Federal agencies toward development of a new Supplemental Poverty Measure (SPM). The SPM extends the information provided by the official poverty measure by including many of the government programs designed to assist low-income families and individuals that are not included in the current official poverty measure, and to account for other identified shortcomings of the current “official” poverty measure. See <https://www.census.gov/hhes/povmeas/methodology/supplemental/overview.html>.

<sup>21</sup> For a complete listing of poverty guidelines used by the Census Bureau, see <http://www.census.gov/hhes/www/poverty/data/threshld/index.html>.

region, regardless of their residential location. **Low-income households** are defined in MTC’s travel model as having incomes of less than \$30,000 a year 2000 dollars (approximately \$38,000 in 2010 dollars), which represent the lowest 28% of households in 2010. Non-low-income households, as a basis for comparison, are defined as having incomes of \$30,000 or more per year in 2000 dollars, and represent the upper 72% of households.

Due to limitations of other regional data sources, the Plan Bay Area Transportation Investment Analysis defines low-income households as those earning \$50,000 per year or less (in 2006 dollars).<sup>22</sup> Because of differences in how household income data was collected across the multiple data sources used in the analysis, this \$50,000 threshold was the only available income breakpoint that could be applied consistently across the multiple data sources that are used in this analysis.

## Communities of Concern

In discussing how to define target populations for equity analysis, Equity Working Group members emphasized the importance of spatial location within the region with respect to the impacts of future development patterns and transportation investments. Thus, staff worked with Working Group members to develop a spatial definition of communities of concern, against which performance measure results could be compared with non-communities of concern (typically referred to in the analysis as the “remainder of region”). Except where noted, data used to define communities of concern is from the Census Bureau’s 2005–09 American Community Survey, the most recent data set available for this analysis that is readily compatible with MTC’s existing travel-analysis-zone definitions used for spatial analysis, which are based on 2000 Census geography.

In response to feedback that the analysis would be more informative with a more focused definition of communities of concern than was used in past RTP Equity Analyses, and a recommendation from MTC’s Policy Advisory Council to consider seniors and persons with disabilities in addition to low-income and minority populations, staff proposed a revised community-of-concern definition which identifies communities with **multiple overlapping potential disadvantage factors** relevant to the Plan Bay Area planning process.

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<sup>22</sup> 2006 dollars are in reference to the year in which income data was collected for the regional Transit Passenger Demographic Survey, which is one several data sets used in the Transportation Investment Analysis and described further below on page 2-10.

Thresholds were proposed to incorporate the most significant concentrations<sup>23</sup> of eight different target populations while minimizing inclusion of non-target population members. The list of factors, reviewed by the Equity Working Group and approved by MTC's Planning Committee in October 2011, are summarized in Table 2-1 and described in further detail in Appendix A.

*Table 2-1. Target Populations and Thresholds Used in Overlapping-Factor Analysis*

Disadvantage Factor	% of Regional Population	Concentration Threshold
1. Minority Population	54%	70%
2. Low Income (<200% of Poverty) Population	23%	30%
3. Limited English Proficiency Population	9%	20%
4. Zero-Vehicle Households	9%	10%
5. Seniors Aged 75 and Over	6%	10%
6. Population with a Disability	18%	25%
7. Single-Parent Families	14%	20%
8. Rent-Burdened Households	10%	15%

Source: 2005–09 American Community Survey and 2000 Census (#6).

Communities of concern were then defined as recommended by Equity Working Group members as **those tracts having concentrations of 4 or more factors listed above, or having concentrations of both low-income and minority populations.**

Based on this definition, a total of 305 out of 1,405 Census tracts in the region were identified as communities of concern. These locations, shown in Figure 2-1 on page 2-6, were then corresponded to 323 out of the region's 1,454 travel analysis zones (TAZs)<sup>24</sup> for the purpose of extracting and tabulating travel model output on a geographic basis in order to summarize regional results for communities of concern and the remainder of the region.

<sup>23</sup> Using the previous community of concern thresholds established by stakeholders of either 70% minority or 30% low-income populations as a starting point, proposed concentration thresholds for other populations generally followed a similar pattern of falling between the regional average (mean) and one standard deviation above the mean.

<sup>24</sup> Most TAZs in the region correspond to census tract boundaries, except for some locations in the region's densest areas where more than one TAZ may "nest" within a single census tract.

Figure 2-1. Location of Communities of Concern within the Region

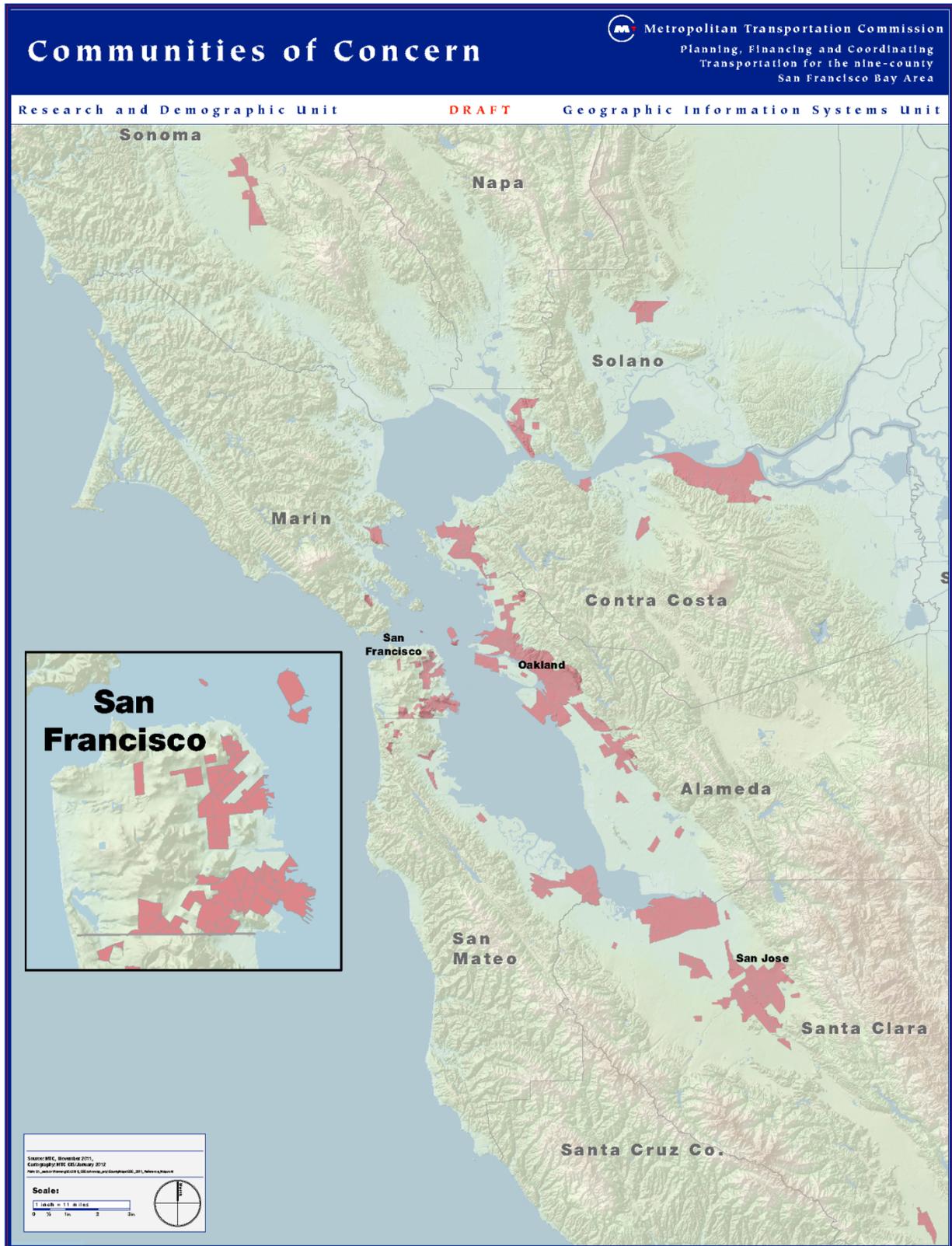


Table 2-2 shows the total populations captured within areas of communities of concern and the remainder of the region in 2010 and forecast in 2040. Approximately 1.4 million residents currently reside in communities of concern, or 20% of the region's total population. Population growth in communities of concern is forecast to outpace growth in the remainder of the region between 2010 and 2040, with the population of communities of concern increasing by 43% compared to 26% in the remainder of the region.

*Table 2-2. Population in Communities of Concern and Remainder of Region, 2010 and 2040*

	2010 Population		2040 Population		Change 2010–2040	
	#	% of Total	#	% of Total	#	%
Communities of Concern	1,433,148	20%	2,054,137	22%	620,989	43%
Remainder of Region	5,658,097	80%	7,141,432	78%	1,483,335	26%
Bay Area Total	7,091,245	100%	9,195,569	100%	2,104,324	30%

Source: ABAG forecasts

Appendix A provides greater detail on the potential disadvantage factors contributing to the community-of-concern definition. Chapter 3 and Appendix B provide greater detail on the populations currently living in communities of concern.

## 2.2 DATA SOURCES

This section describes the various data sources used to conduct the analyses 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 and ABAG for regional planning purposes.

### Decennial Census and American Community Survey

The Census Bureau provides two key data sets used in this report. One, 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.

The second Census Bureau data product used is the American Community Survey (ACS). The ACS is an ongoing annual sample-based survey of the U.S. population and provides basic demographic information similar to the decennial Census but also provides far greater detail on various socioeconomic characteristics, including such data relevant to this analysis as household income, poverty status, level of proficiency with English, household vehicle

# Chapter 3. Regional Trends

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This chapter provides a regional demographic profile for minority populations, low-income populations, and communities of concern in the nine-county San Francisco Bay Area and also summarizes key demographic and socioeconomic trends relevant to the Plan Bay Area planning process. The chapter is organized around five key findings regarding demographic and socioeconomic characteristics of communities of concern, minority populations, and low-income populations, with particular emphasis on commuting and travel habits of these populations, and recent trends in housing and transportation affordability.

## **3.1 COMMUNITIES OF CONCERN HAVE DISTINCT DEMOGRAPHIC AND SOCIOECONOMIC CHARACTERISTICS COMPARED TO THE REST OF THE REGION**

Because MTC defines communities of concern largely on the basis of having four or more overlapping concentrations of specific populations of concern relative to the metropolitan planning process, or which have concentrations of both minority and low-income residents (as described further in Chapter 2, Methodology, beginning on page 2-4), it follows that as a whole their demographic and socioeconomic profile is distinct from the remainder of the region. Because different populations of concern are distributed differently throughout the region (some, such as zero-vehicle households, concentrate more heavily in relatively fewer areas than others, such as seniors 75 and older), the extent of these differences between communities of concern and the remainder of the region varies by population subgroup, as shown in Table 3-1.

*Table 3-1. Demographic and Socioeconomic Profile of Communities of Concern and the Remainder of the Region, 2005–09*

Population Subgroup	Communities of Concern			Remainder of Region			Regional Totals	
	#	CoC %	% of Regional Total in CoCs	#	Remainder of Region %	% of Regional Total in Remainder of Region	#	%
Minority Population	1,124,851	81%	30%	2,660,518	48%	70%	3,785,369	54%
Low-Income Population	611,176	45%	40%	933,176	17%	60%	1,544,352	23%
Limited English Proficiency Population	269,569	21%	44%	344,137	7%	56%	613,706	9%
Zero-Vehicle Households	94,774	21%	40%	139,300	7%	60%	234,074	9%
Population 75+	71,709	5%	18%	337,516	6%	82%	409,225	6%
Population with a Disability	318,406	24%	29%	788,427	16%	71%	1,106,833	18%
Single-Parent Families	70,095	25%	31%	155,164	12%	69%	225,259	14%
Rent-Burdened Households	84,637	19%	35%	155,826	8%	65%	240,463	10%
All Persons	1,380,393	--	20%	5,570,371	--	80%	6,950,764	100%

Source: MTC analysis of American Community Survey 2005-09 5-Year Sample Tables B03002, C17002, B16004, B25044, B01001, B11004, B25070, and B25003. Data on population with a disability is from Census 2000 SF3 Table P42.

While 20% of the region's total population resides in communities of concern (nearly 1.4 million out of 7 million residents), this definition captures meaningful concentrations and shares of most population subgroups within them, most notably Limited English Proficiency persons (44% of the region's total LEP population resides within communities of concern), zero-vehicle households (40%), and low-income persons (40%). Most population subgroups are around two to three times more likely to live in communities of concern than in the remainder of the region, based on the population averages of each subgroup represented in each part of the region. Only one population subgroup, seniors aged 75 and over, has a slightly greater likelihood of living outside of communities of concern than the population as a whole, since the definition captures only 18% of the region's total population aged 75 and over, which is slightly less than the 20% of the total population captured.

While the definition of communities of concern attempts to identify the most meaningful concentrations of all population subgroups in the locations where they overlap spatially, it is important to keep in mind that most members of each population group live outside of communities of concern, where they are either more dispersed spatially or do not overlap

with as many other population subgroups. More details on the distribution and overlap of population subgroups within the region and the nine counties can be found in Appendix B.

### 3.2 THE REGION'S DEMOGRAPHICS CONTINUE TO DIVERSIFY

The Bay Area officially became a “majority minority” region with the 2000 Census, and, like the rest of California and the United States as a whole, its demographics are becoming increasingly diverse over time. As of the most recent 2010 Census, white, non-Hispanic persons were still the largest single racial/ethnic group (more information on how these groups are defined is provided in Chapter 2, under Section 2.1, Definitions), with 42% of the region’s population, as shown in Table 3-2. The next largest groups are persons of any race who identify as being of Hispanic or Latino origin, followed closely by persons who identify as Asian, each at around 23% of the region’s population. Persons identifying as Black or African American totaled 6% of the region’s population. Together with persons identifying as Native Hawaiian or Pacific Islander (0.6%), American Indian or Alaska Native (0.3%), and some other race or two or more races (4%), all persons identifying as a member of one or more minority groups totaled about 58% of the region’s population in 2010.<sup>34</sup>

*Table 3-2. Bay Area Population by Race/Ethnicity, 2010 and 2040*

	2010		2040	
	Population	% of Total	Population	% of Total
American Indian/Alaska Native	20,691	<1%		<1%
Asian	1,645,872	23%		25%
Black or African-American	460,178	6%		5%
Hispanic/Latino (of any race)	1,681,800	24%		30%
Native Hawaiian or Pacific Islander	41,003	<1%		<1%
Some Other Race/Two or More Races	268,292	4%		5%
Minority Persons Subtotal	4,117,836	58%		66%
White, non-Hispanic (Non-minority)	3,032,903	42%		34%
<b>Total Population</b>	<b>7,150,739</b>	<b>100%</b>		<b>100%</b>

Source: 2010 Census SF1 Table P9; California Dept. of Finance Population Projections Table P-1 (January 2013).

As these demographic trends continue into the future, Table 3-2 shows the population of minority residents is projected to increase from 58% of today’s population to 66% by 2040. Still, by 2040, non-Hispanics white persons are forecast to remain the single largest

<sup>34</sup> Note this share differs from that shown in Table 3-1 due to differences in Census Bureau data products used to analyze populations. Because geographical correspondence with MTC’s travel model requires using Year 2000 Census geographies, data from the 2005-09 American Community Survey was the most recent available to use to define communities of concern, and represents a population sample. Data from the 2010 Census is slightly more recent and represents a 100% population count rather than a sample.

Table 2-1 PBA Equity Analysis (Updated with 2009-2013 ACS Data)

Population	% Regional 2013	Threshold 2013	% Regional	% Alameda	% Contra Costa	% Marin	% Napa	% San Francisco	% San Mateo	% Santa Clara	% Solano	% Sonoma
Minority Population	54%	70%	58%	66%	53%	27%	44%	58%	58%	65%	60%	34%
Low Income (<200% of Poverty) Population	23%	30%	25%	27%	24%	19%	27%	28%	20%	23%	34%	29%
Limited English Proficiency Population	9%	20%	9%	9%	6%	4%	9%	28%	9%	10%	6%	6%
Zero-Vehicle Households	9%	10%	10%	10%	6%	5%	5%	30%	6%	5%	6%	5%
Seniors Aged 75 and Over	6%	10%	6%	5%	6%	8%	7%	7%	6%	5%	5%	7%
Population with a Disability	18%	25%	9%	9%	10%	9%	11%	11%	8%	8%	10%	11%
Single-Parent Families	14%	20%	14%	16%	14%	12%	14%	12%	11%	12%	18%	15%
Rent-Burdened Households	10%	15%	11%	12%	9%	10%	10%	14%	9%	10%	11%	11%

Please refer to Table 2-1 in the PBA Equity Analysis Report on page 2-5. The table above has the updated 2009-2013 ACS data for "% Regional" as well as for each of the nine counties. The "Threshold 2013" column refers to the thresholds of concentration used for the last PBA equity analysis. At its October 2015 meeting, the REWG will discuss the following topics as they relate to the Communities of Concern (CoC) definition for the PBA 2040 equity analysis:

1. Population characteristics that should be included in the CoC definition (see "Population" column in the table above)
2. What combination of these characteristics should define CoCs (see PBA definition below for reference)
3. Thresholds of concentration for characteristics (see "Thresholds 2013" column above)

PBA equity analysis defined CoCs as:

- A. Census tracts that have a concentration of both low-income (30%) and minority (70%) households; or
- B. Census tracts that have a concentration of any 4 of the 8 population characteristics listed in the table above.