

**MEMO**

To: Regional Equity Working Group  
From: Pedro Galvao (ABAG) and Doug Johnson (MTC)  
Re: Key Issues and Performance Measures for Plan Bay Area 2040 Equity Analysis  
Date: Wednesday, July 1, 2015

**A. Purpose and Need**

The purpose of conducting an equity analysis for Plan Bay Area (Plan) is to assess the relative distribution of benefits and burdens resulting from Plan implementation on disadvantaged communities, when compared to the rest of the region, to review the Plan’s performance based on equity measures, and to review project- and population-based analysis. The equity analysis is conducted at a regional, programmatic level. The analysis is essential to ensuring an equitable Plan that meets the needs of all residents in the Bay Area, irrespective of their ethnicity, income, national origin or physical abilities.

For the Plan Bay Area 2040 Equity Analysis, the Regional Equity Working Group (REWG) will:

- Identify key issues that impact disadvantaged communities (i.e., risk of displacement) – July
- Review Plan performance targets to identify potential gaps to be addressed by equity measures – July
- Identify potential equity measures
- Confirm criteria for disadvantaged communities (Communities of Concern – CoCs<sup>i</sup>)
- Review Plan forecast, scenarios and transportation investment strategies
- Review analysis results for Plan scenarios and Preferred Scenario
- Review population and use-based analysis results
- Review project performance framework and results

**B. Potential Issues for Plan Bay Area 2040 Equity Analysis**

A Performance Working Group has identified 10 performance targets for the 2040 Plan, many of which also address equity issues. See the accompanying memo on Performance Targets. REWG may identify additional issues that are relevant to the 2040 Plan Equity Analysis, but not addressed by the Plan Performance Targets. A potential list of these key issues is listed below for further discussion.

**Table 1: Potential Issues for Plan Bay Area 2040 Equity Analysis**

<i>Key Issues</i>	<i>Relevant Performance Targets<sup>ii</sup></i>
A. Risk of Displacement and Community Stability	Adequate Housing (2)* Equitable Access (6)
B. Suburbanization of Poverty	Adequate Housing (2) Economic Vitality (7)
C. Housing Affordability for Lower-Income Households	Adequate Housing (2) Equitable Access (6)
D. Decline in Real Wages for Lower-Wage Workers	n/a
E. Transportation Costs	Equitable Access (5) Transportation System Effectiveness (8)
F. Access to Jobs, Services and Amenities	Equitable Access (5) Economic Vitality (7)
G. Access to “Opportunity”	Equitable Access (5) Economic Vitality (7)
H. Exposure to Toxic Contamination	Healthy and Safe Communities (3)
I. Lack of Social Mobility in Concentrated Areas of Poverty	n/a
Other . . .	

\* Numbers in parenthesis correspond to Performance Targets (see accompanying memo on Performance Targets)

### **C. Potential Equity Measures for Plan Bay Area 2040 Equity Analysis**

Equity measures for a final list of issues (that are not addressed by performance targets) will be discussed by REWG at a subsequent meeting. Equity measures will be used to assess Plan scenarios and investment strategies. See accompanying memo for Performance Targets recommended for the 2040 Plan.

Criteria for selecting performance targets include (similar criteria may be used to select equity measures):

- Can be measured and forecast
- Can be influenced by Plan Bay Area 2040

### **D. Next Steps**

Over the next 3 months, REWG's anticipated tasks include:

- Identify equity performance measures for key issues (August 2015);
- Identify criteria for defining communities of concern (August 2015);
- Review project performance analysis approach (August 2015);
- Review CoC maps based on confirmed criteria and updated data (September); and
- Review scenario development approach (September 2015).

### **Attachments**

1. Plan Bay 2013 Equity Analysis Executive Summary
2. Plan Bay Area 2040 Timeline

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<sup>i</sup> For the 2013 Equity Analysis, communities with a concentration of low-income or minority populations were generally defined as CoCs. See attachment 1 for more details on criteria for CoCs.

<sup>ii</sup> See accompanying memo on 2040 Plan Performance Targets

# Executive Summary

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## **INTRODUCTION AND BACKGROUND**

This report documents the Equity Analysis results for Plan Bay Area, which includes both federally required nondiscrimination (Title VI) and environmental justice analyses, as well as analysis of the overall performance of the Draft Plan related to regional equity policy priorities identified by the Metropolitan Transportation Commission (MTC), the Association of Bay Area Governments (ABAG), and regional stakeholders. The ultimate goals of this report are to demonstrate MTC's compliance as a metropolitan planning organization (MPO) with federal requirements related to Title VI and environmental justice in the Regional Transportation Plan (RTP) development process, and to help regional policymakers, local partners, and the general public understand the regional equity implications of implementing Plan Bay Area for the region's disadvantaged communities of concern (as they are defined in this report), by examining the distribution of benefits and burdens between communities of concern and the rest of the region under the Plan.

This report is one of several activities supporting regional equity objectives that MTC and ABAG carry out in their regional planning efforts, ranging from public outreach to technical analysis, policy and program development, and implementation and monitoring activities.

## **METHODOLOGY**

This report includes a combination of modeled technical performance measures and off-model analysis to carry out three distinct but related analyses of the draft Plan Bay Area. The methodologies used were designed with extensive input from the Regional Equity

Working Group and other interested stakeholders. These analyses, all of which are carried out at a regional, programmatic level, include:

- A **Title VI analysis** of the Plan’s investments in public transportation using federal and state funding sources, to determine whether there are any disparate impacts of the distribution of these funds on the basis of race, color, or national origin;
- An **environmental justice analysis** that uses both an off-model investment analysis and modeled performance measures to determine whether the draft Plan has disproportionately high and adverse effects on low-income and minority populations and/or communities of concern; and
- An **equity analysis** examining the distribution of benefits and burdens of the Draft Plan between communities of concern and the remainder of the region, with special emphasis on comparing the distribution of impacts between the Draft Plan and the No Project (business-as-usual) alternatives of the Plan Bay Area Draft Environmental Impact Report to characterize the specific impacts of adopting the Plan versus what is forecast to occur in the future if the Plan is not adopted.

## Defining Communities of Concern

Based on input from the Regional Equity Working Group, this report defines “communities of concern” as **census tracts having either 1) significant concentrations of both low-income and minority residents, or 2) significant concentrations of any four or more of the following**: minority persons, low-income persons below 200% of the federal poverty level (about \$44,000 per year for a family of four), persons with Limited English Proficiency, zero-vehicle households, seniors aged 75 and over, persons with a disability, single-parent families, and housing units occupied by renters paying more than 50% of household income on rent. Based on this definition, 20% of the region’s population is characterized as living in communities of concern, and 80% live in the remainder of the region.

## Transportation Investment Analysis

To inform MTC’s Title VI and environmental justice requirements and policies, this report includes an analysis of the distribution of the proposed RTP investments relative to the region’s low-income and minority populations and communities of concern. These include:

- A **population/use-based analysis**, which compares the estimated share of regional investments benefiting low-income and minority populations to these populations’ respective shares of the region’s population as a whole, and these

populations' relative usage of the regional transportation system (both roadways and transit).

- A **project mapping analysis**, which overlays mappable RTP projects against communities of concern as well as census tracts with concentrations of minority populations that are above the regional average.

## Technical Performance Measures

To compare potential outcomes across the various planning scenarios analyzed in this report, a set of five technical performance measures were recommended by Regional Equity Working Group members for inclusion in the equity analysis, based on their relevance to priority equity concerns identified by Working Group members. These measures are:

- Housing and Transportation Affordability
- Potential for Displacement
- Density of Vehicle Travel (VMT Density)
- Average Commute Time
- Average Non-Commute Time

The basic methodology for assessing the equity impacts of Plan Bay Area in terms of outcomes is:

1. Identify each of the region's 1,454 traffic analysis zones as either being in a community of concern or the remainder of the region.
2. Extract indicator variables for both communities of concern and the remainder of the region for each alternative analyzed (this report focuses on analyzing the alternatives studied in the Plan Bay Area Draft Environmental Impact Report).
3. Evaluate results to assess (among other questions):
  - whether the Project has a beneficial impact on communities of concern; and
  - whether communities of concern receive similar or greater benefit compared to the remainder of the region under the proposed Plan (the Project), relative to the No Project alternative.

## REGIONAL TRENDS

To provide more in-depth context for analyzing long-range outcomes for minority and low-income populations and communities of concern, this report also summarizes key regional demographic and socioeconomic trends, with particular emphasis on commuting and travel habits of these populations, and recent trends in housing and transportation affordability.

Key findings include:

- **Communities of concern have distinct demographic and socioeconomic characteristics compared to the rest of the region.** In particular, low-income persons, Limited English Proficiency persons, and zero-vehicle households are twice as likely to live in communities of concern compared to the population in general.
- **The region's demographics continue to diversify.** In 2010, 58% of the region's population was a member of one or more minority groups, a share that is forecast to rise to 66% by 2040. Demographics also vary substantially across age groups. Bay Area residents 65 and over are twice as likely to be white and non-Hispanic than those under 18, while a Bay Area resident under 18 is more than three times more likely than a resident 65 or over to be of Hispanic or Latino origin.
- **The region's low-income population continues to grow and decentralize; income trends differ across age groups.** Between 2000 and 2010, the region's low-income population (below 200% of the poverty level) grew by more than 430,000, an increase of 32%. During this same period, the region's non-low-income population (above 200% of poverty) fell in absolute terms by nearly 30,000 residents. Suburbanization of the region's low-income population also continues: in 2011, 36% of the region's low-income population lived in the region's three largest cities of San Jose, San Francisco, and Oakland, down from 43% in 1990. Across various age groups, youth under 18 were most likely to be low-income (31% compared to the regional average of 26%).
- **Low-income workers are more likely to commute by transit and work within their county of residence, but auto trips still dominate mode share.** Despite variations in non-automobile commute modes such as transit, walking, and biking between different demographic and socioeconomic groups, more than two thirds of workers across all populations and community types commute by car. Low-income workers are also more likely than higher-income workers to commute within their county of residence, and less likely to have Transbay commutes.
- **Housing and transportation costs are rising faster than incomes.** The share of households paying more than 30% of income on housing costs has risen from 34% in 2000 to 43% in 2011. For renters, the share is slightly greater; in 2011, nearly half of the region's renters (49%) paid more than 30% of their income on rent. At the same time, day-to-day transportation costs have risen relative to incomes since 2000. After adjusting for inflation between 2000 and 2010, the average transit fare paid in the region rose 34%, the average retail price of a gallon of gas rose 30%, while per-capita income in the region fell by 12%.

## ANALYSIS RESULTS

### Transportation Investment Analysis: Key Findings

The population/use-based analysis of the overall RTP investment strategy found that in most cases, low-income and minority populations are receiving a similar or greater share of Plan investments relative to their overall share of the region’s population and trips, as shown in Table ES-1.

*Table ES-1. Plan Bay Area Transportation Investment Analysis Results by Population Subgroup, All Modes*

	Subgroup	Total Plan Bay Area Funding (Millions of YOY \$)	% of Total Funding	% of Average Daily Regional Trips	% of Total Regional Population
<b>Minority Status</b>	Minority	\$149,119	54%	43%	58%
	Non-minority	\$128,580	46%	57%	42%
	Total	\$277,699	100%	100%	100%
<b>Low-Income Status</b>	Low-Income	\$109,445	39%	18%	31%
	Not Low-Income	\$168,254	61%	82%	69%
	Total	\$277,699	100%	100%	100%

Source: MTC analysis of Plan Bay Area investments, 2000 Bay Area Travel Survey, 2010 Census SF1, 2010 American Community Survey Public Use Microdata Sample 1-Year Estimates.

Only in the case of the region’s minority population as a whole does a target group receive a slightly smaller share of regional funding (54%) relative to population as a whole (58%). This result appears to be due mainly to differences in overall regional demographics captured between the 2000 Bay Area Travel Survey (which was weighted according to the region’s 2000 Census population, which was then 50% minority) used to allocate funding on the basis of usage, and the 2010 Census (58% minority) used for the overall regional population comparison.

Similarly, the project mapping analysis did not reveal any systematic exclusion of communities of concern or minority communities or imbalance in the spatial distribution of projects throughout the region.

Finally, the Title VI disparate-impact analysis revealed that on a per-capita population basis, minority persons in the region are receiving 120% of the benefit of Plan Bay Area’s investments in public transportation from Federal and State sources compared to non-minority persons. On a ridership basis, minority riders are receiving 99% of the benefit of Federal- and State-funded transit investments in Plan Bay Area compared to non-minority

riders. This 1% difference between minority and non-minority per-rider benefits is not considered statistically significant, and therefore this analysis found no disparate impact in the distribution of Federal and State funding for public transportation purposes between minority and non-minority populations or riders in the draft Plan investment strategy.

## Technical Performance Measures: Key Findings

Results of the analysis of five technical performance measures were intended to compare outcomes under different planning scenarios, including the Draft Plan, for communities of concern (or low-income households) compared to the rest of the region. A comparison of the distribution of impacts between the Draft Plan and the No Project (business-as-usual) alternatives characterize the specific impacts of adopting the Plan versus what is forecast to occur in the future if the Plan is not adopted.

Table ES-2 summarizes the results of the five technical performance measures for the EIR alternatives studied, with key findings from each noted below.

*Table ES-2. Summary of Equity Analysis Technical Performance Measures: EIR Scenarios*

Measure	Target Population	2010	1	2	3	4	5	% Change	
		Base Year	No Project	Draft Plan (Project)	Transit Priority Focus	Network of Comm.	Env., Equity & Jobs	Base Year to Project	No Project to Project
Housing + Transportation Affordability	Households <\$38,000/yr	72 %	80 %	74 %	77 %	74 %	73 %	3 %	-7 %
	Households >\$38,000/yr	41 %	44 %	43 %	43 %	42 %	43 %	4 %	-4 %
Potential for Displacement	Communities of Concern	n/a	21%	36%	25%	31%	21%	n/a	68%
	Remainder of Region	n/a	5%	8%	7%	9%	6%	n/a	67%
VMT Density	Communities of Concern	9,737	11,447	11,693	11,536	12,123	11,259	20%	2%
	Remainder of Region	9,861	11,717	11,895	11,804	12,261	11,626	21%	2%
Average Commute Time	Communities of Concern	25	26	26	25	26	25	5%	-1%
	Remainder of Region	27	29	27	26	27	27	2%	-6%
Average Non-Commute Time	Communities of Concern	12	13	13	13	13	13	5%	0%
	Remainder of Region	13	13	13	13	13	13	1%	0%

Source: MTC and ABAG estimates.

### ***Housing and Transportation Affordability***

This measure estimates current and future combined housing and transportation costs as a share of household income for the region’s low-income households (earning less than \$38,000 a year in 2010 dollars) compared to non-low-income households (earning more than \$38,000 a year). These costs vary by alternative depending on future locations of households and employment, and availability of transportation options by location. All future-year scenarios forecast an increase in the combined share of income spent by

households on housing and transportation relative to the base year, due especially to assumptions about increases in the cost of fuel in the future, since housing costs as a share of income are assumed to remain similar to today based on a variety of policy and planning assumptions included in the analysis.

In comparison to the No Project alternative, low-income households see a proportionally greater improvement in affordability under the Project (a 7% reduction in housing and transportation costs as a share of income) than non-low-income households (a 4% reduction in percent of income spent on housing and transportation).

### ***Potential for Displacement***

The Potential for Displacement measure estimates what percentage of today's overburdened renters (those households spending more than half their incomes on rent) currently live in communities where more intensive planned housing growth is forecast by 2040 (defined as an 30% or greater increase in housing units relative to today, or slightly above the regional average of 27% growth). It is intended to capture, at a neighborhood level, where clusters of vulnerable renters live today in relation to neighborhoods that may face upward market pressures in the future based on planned growth patterns. However, it is not a prediction that displacement will actually occur.

For communities of concern, the No Project and the Environment, Equity, and Jobs Scenarios have the least overlap between planned high-growth tracts and existing concentrations of overburdened renters. The Enhanced Network of Communities alternative and the Project have the greatest share of today's overburdened renters included in tracts where these characteristics overlap. This measure's calculation relies on a measure of future growth and there is no relevant comparison measure for the base year.

Comparing the Project to the No Project alternative, the focused-growth approach of the Project increases the displacement potential by approximately two-thirds, however this effect, while adverse, is not disproportionately high for communities of concern (68%) when compared to the remainder of the region (67%).

### ***VMT and Emissions Density***

The VMT Density measure is intended to quantify the effects of vehicle-miles of travel (VMT) in and near communities. It is a measure of the total VMT on major roadways located in or near residential and commercial areas; the result is expressed as an average VMT per square kilometer of developed land within 1,000 feet of major roadways. As a related measure, vehicle emissions were also estimated and analyzed.

Generally, all future-year scenarios have higher VMT Density compared to the base year, mainly owing to the increased population in 2040.

The Draft Plan has slightly greater VMT Density results than the No Project, both in communities of concern as well as the remainder of the region. This result may be due to the more focused growth pattern of the Plan putting more travel demand on already heavily used roadways that are near populated areas, whereas the No Project scenario would shift more of this demand to more dispersed parts of the region.

Comparing the distribution of impacts of the Draft Plan between communities of concern and the remainder of the region, relative to the No Project scenario the Plan has a similar impact on both communities of concern and the remainder of the region. VMT Density increases by 2% for all communities of concern as well as for the remainder of the region.

### ***Average Commute Time***

This measure provides average travel time in minutes per commute trip for all modes, based primarily on the locations of a worker's residence and place of work and choice of travel mode. Generally, comparing travel time between home and work provides an indication of the proximity of jobs and housing and transportation options available for different groups under the various alternatives studied.

Generally, there is not much variation between scenarios overall, and all future-year scenarios have increased travel times relative to the base year. Most of the variations in commute time are likely related to two factors: (1) increased population overall increases congestion overall in the future (especially in the urban core), slowing travel speeds and hence increasing travel times for most modes; and (2) some automobile trips shift to non-auto modes that are generally slower on average than auto travel.

Comparing the Draft Plan to the No Project, communities of concern see a slightly smaller reduction in commute time relative to the remainder of the region, mainly due to the overall focused-growth emphasis of the Plan impacting both travel speeds and mode choice as described above. However, to the extent that under the Draft Plan more trips shift from autos to less-expensive transit, walking, and biking modes, the cost-savings benefits of those mode shifts may outweigh the otherwise negligible increase in travel time for residents of communities of concern.

### ***Average Non-Commute Time***

The measure of average travel time in minutes for non-commute trips is intended to be a measure of overall equitable mobility. Although commute trips are generally longer in time and length, more trips taken overall are non-commute trips, and include activities such as

shopping, going to medical appointments, social and recreational trips, and other kinds of personal business that does not start or end at one's place of work or school, such as leaving one's house, going to the grocery store, and returning home.

Across the scenarios, there is even less variation than was seen in the Commute Time results. Although a slight increase is noted in average travel times for communities of concern relative to the base year, there is a negligible difference between communities of concern and the remainder of the region in comparing the Draft Plan to the No Project.

## **SUMMARY AND CONCLUSIONS**

As described in the Methodology section, this report includes three distinct but related analyses: a Title VI analysis, an environmental justice analysis, and an overall equity analysis. Results and conclusions of each analysis are summarized below.

### **Title VI Analysis Results**

Following FTA guidance, MTC's disparate impact analysis of the Plan Bay Area draft investment strategy revealed that on a per-capita population basis, minority persons in the region are receiving 120% of the benefit of the Draft Plan's investments in public transportation from Federal and State sources compared to non-minority persons. On a transit-ridership basis, minority transit riders receive 99% of the benefit of Federal- and State-funded transit investments compared to non-minority transit riders. This 1% difference between minority and non-minority per-rider benefits is not considered statistically significant, and therefore this analysis found no disparate impact in the distribution of Federal and State funding for public transportation purposes between minority and non-minority populations or riders in the draft Plan's investment strategy.

### **Environmental Justice Analysis Results**

Under Executive Order 12898 and the associated DOT Order on Environmental Justice, MTC's responsibility is to assist DOT, FHWA, and FTA in their mission "to avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects," on EJ populations.

To summarize the environmental justice analysis, therefore, Table ES-3 presents the results of each of the performance measures analyzed in relation to whether the Draft Plan (a) poses adverse effects to EJ populations relative to the No Project scenario and (b) if so, whether the effect is disproportionately high.

Table ES-3. Summary of Environmental Justice Analysis Results for Plan Bay Area.

Performance Measure	Does the Project Have an Adverse Effect on EJ Populations?	Is Any Adverse Effect on EJ Populations Disproportionately High?	Complementary Policies or Actions
Transportation Investment Analysis	No	No	None
Housing and Transportation Affordability	No	No	None
Potential for Displacement	Yes	No	See Section 4.3
VMT Density	Yes	No	See Section 4.4
PM10 Density	Yes	No	"
PM2.5 Density	No	No	"
Diesel PM Density	No	No	"
Commute Time	No	No	None
Non-commute Time	No	No	None

Although none of the measures analyzed found a disproportionately high and adverse effect on EJ populations, in cases where the analysis found there was an adverse effect (even if not a disproportionately high one), mitigation measures or regional policies are nevertheless identified in this report as proposed actions to address two measures in particular where EJ populations already bear high burdens, notably the Potential for Displacement Measure (see Chapter 4, Section 4.3) and the VMT and Emissions Density measures (see Chapter 4, Section 4.4).

## Overall Equity Analysis Results

Beyond federal nondiscrimination and environmental-justice requirements discussed in the previous sections, Regional Equity Working Group members and other stakeholders felt strongly that Plan Bay Area should aim to *reduce any existing disparities* between communities of concern and the remainder of the region.

In order to summarize the analysis results in these terms, Table ES-4 lists each performance measure that was analyzed for all EIR alternatives and determines:

1. Whether a disparity currently exists at the regional level between communities of concern and the remainder of the region;
2. Whether the Draft Plan reduces any existing disparity; and

3. Whether the Draft Plan performs better than the other alternatives studied.

Table ES-4. Equity Analysis Results Summary for Plan Bay Area and EIR Alternatives

Performance Measure	Is There an Existing Regional Disparity Between Communities of Concern and the Remainder of the Region?	Does the Draft Plan Reduce Any Existing Regional Disparity?	Does the Draft Plan Perform Better Than Other Alternatives?
Housing and Transportation Affordability	Yes*	Yes	No
Potential for Displacement	Yes**	No	No
VMT Density	No	No	No
Commute Time	No	No	No
Non-commute Time	No	No	No

\* Low-income vs. non-low-income households analyzed rather than communities of concern for this measure.

\*\* The existing disparity is characterized here as communities of concern currently having a higher share of overburdened-renter households than the remainder of the region.

## Stakeholder Feedback

The Regional Equity Working Group, along with other stakeholder groups, noted that the Environment, Equity, and Jobs scenario appeared to outperform the other scenarios, including the Draft Plan, across the Equity Analysis measures. Still, the Equity Working Group’s feedback also focused on overarching concerns about challenges to the provision of affordable housing in the region and displacement pressures that were found to be present to some degree in all scenarios analyzed.

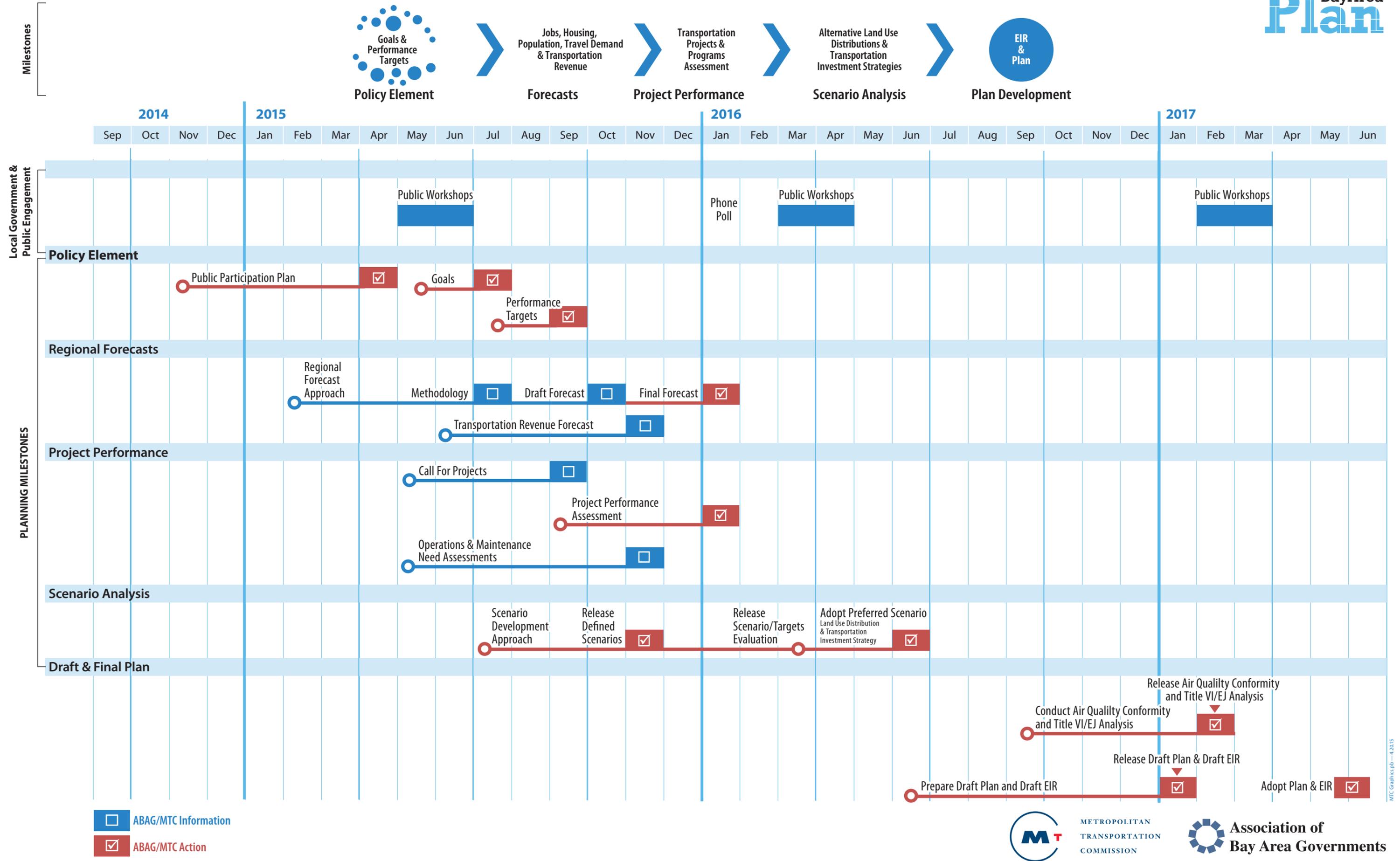
## NEXT STEPS

Some of the next steps that MTC and ABAG may take or consider taking to build upon the findings and conclusions of the Plan Bay Area equity analysis include:

- Complete Bay Area Regional Prosperity Plan to help guide implementation of Plan Bay Area.
- Implement regional programs that invest strategically to enhance mobility for communities of concern and transportation-disadvantaged populations.
- Pursue state and federal advocacy initiatives related to supporting and improving the region’s affordable housing and transportation options.
- Update key regional indicators related to equity to aid in monitoring Plan Bay Area implementation.

- Continue to refine equity analysis methodologies.

# Plan Bay Area Update: Key Milestones 2014–2017



MTC Graphics/pb - 4.2015