Plan BayArea 2040

PERFORMANCE WORKING GROUP
Agenda
July 10, 2015 – 1:00 PM to 3:30 PM

1   *1:00 PM*   Introductions (5 minutes)

Attachment A: Meeting Schedule and Topics
Attachment B: Schedule for Other Committees' Feedback

2   *1:05 PM*   Discussion: Project Performance Assessment Framework (55 minutes)

Attachment C: Project Performance Assessment Framework

3   *2:00 PM*   Discussion: Targets Criteria (80 minutes)

Attachment D: Draft Plan Bay Area 2040 Targets Criteria
Attachment E: Plan Bay Area Targets Criteria

4   *3:20 PM*   Next Meeting

Date/Time: August 6, 2015 – 9:30 AM to 12:00 PM
Topic: Project Performance Assessment

PERFORMANCE WORKING GROUP
Meeting Schedule and Topics *(subject to change)*

Plan BayArea 2040

1	April 29, 2015 9:30 AM to 12:00 PM	• Overview & Performance Framework • Targets – Climate Protection, Healthy & Safe Communities, Open Space & Agricultural Preservation, Equitable Access
2	May 22, 2015 9:30 AM to 12:00 PM	• Targets – Equitable Access, Adequate Housing, Economic Vitality, Transportation System Effectiveness
3	June 18, 2015 9:30 AM to 12:00 PM	• Targets & Project Performance – State of Good Repair • Draft Targets Proposal to RAWG • Project Performance – Overview
4	**July 10, 2015** *1:00 PM to 3:30 PM*	• **Project Performance – Framework** • **Project Performance – Targets Assessment Methodology**
5	August 6, 2015 9:30 AM to 12:00 PM	• Project Performance – Benefit-Cost Assessment Methodology • Project Performance – Equity Assessment Methodology • Project Performance – Supplemental Elements of Project Assessment Process
6	Meeting TBD – Late 2015	• Draft Results of Project Performance Assessment

Plan
BayArea
2040

PERFORMANCE WORKING GROUP
Schedule for Other Committees' Feedback *(subject to change)*

Goals & Performance Targets:
Initial Recommendation

- April & May – First Round of Public Workshops[1]
- June – Policy Advisory Council
- July – Regional Advisory Working Group
- July – Joint MTC Planning / ABAG Administrative Committee

Goals & Performance Targets:
Approval

- **September – Joint MTC Planning / ABAG Administrative Committee**
- **September – MTC Commission**

Project Performance Assessment:
Conceptual Framework

- July – Transit Finance Working Group
- July – Regional Advisory Working Group
- July – Equity Working Group
- July – Policy Advisory Council
- July – Local Streets & Roads Working Group

Project Performance Assessment:
Draft Results

- December – Regional Advisory Working Group
- December – Policy Advisory Council
- December – Planning Committee
- December – Local Streets & Roads Working Group
- December – Transit Asset Management Working Group

Project Performance Assessment:
Final Results, High-Performers, and
Low-Performers

- January – Regional Advisory Working Group
- January – Policy Advisory Council
- January – Planning Committee

Project Performance Assessment:
Compelling Case Process

- March – Regional Advisory Working Group
- March – Policy Advisory Council
- March – Planning Committee

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[1] For more information, refer to: http://content.govdelivery.com/accounts/CAMTC/bulletins/ff32b4

The project performance assessment evaluates which projects are the most cost-effective and have the strongest support for the Plan targets. This attachment describes the project performance assessment from Plan Bay Area and some of the proposed updates for Plan Bay Area 2040. This is a continuation of the overview of the project performance assessment provided by staff at the June 18 Performance Working Group Meeting.

Objective of Plan Bay Area 2040 Project Performance Assessment

The project performance assessment is intended 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 is intended to 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.

Refresher on Plan Bay Area Project Performance Assessment

The project performance assessment in Plan Bay Area assessed all uncommitted projects and programs submitted through the Call for Projects in 2011. Plan Bay Area leveraged two assessments to determine a projects' effectiveness in achieving the Plan's objectives. First, each project was evaluated qualitatively on its support of the targets. Second, a select group of major capacity-increasing projects was evaluated using the travel demand model to determine a benefit-cost ratio. Counties and transit agencies submitted almost 1,000 uncommitted projects for potential inclusion in Plan Bay Area, however, the majority of the funding request was for the select group of capacity-increasing projects. These were the projects that received a target score <u>and</u> a benefit-cost ratio. These were also the only projects that were involved in the policy decision to fund or further scrutinize the project.

Project Performance Assessment: Results by Project Type
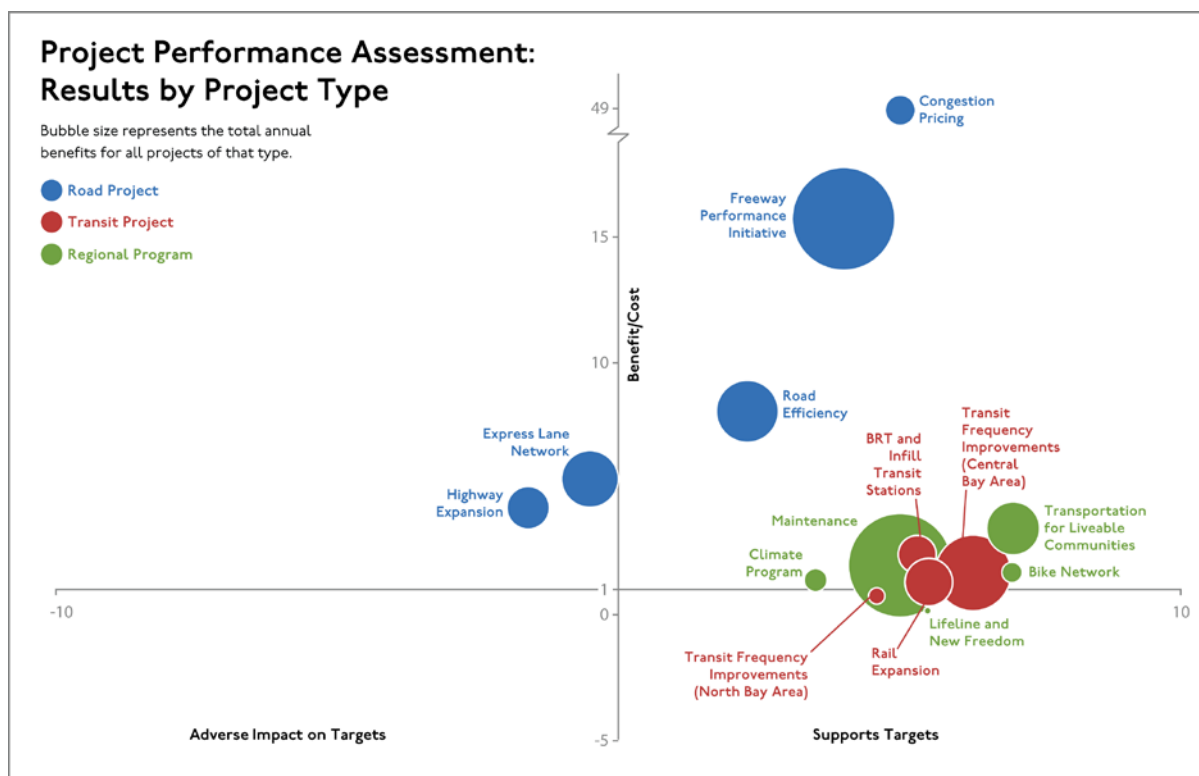
Project performance results highlighted differences among modes, project types, and geographies. Road efficiency projects, such as ramp metering in MTC's Freeway Performance Initiative program and new HOV/auxiliary lanes, were highly cost-effective and exhibited moderate support for the performance targets. Road expansion projects, such as the proposed SR-239 Expressway and the MTC Express Lanes Network, were somewhat cost-effective but demonstrated adverse impact on key performance targets (e.g. CO_2 and emissions reduction). Transit projects were generally only marginally cost-effective but performed the strongest in terms of supporting the Plan's performance targets.

Proposed Approach for Plan Bay Area 2040 Project Performance Assessment

MTC staff proposes to retain and build upon the project performance framework from Plan Bay Area, which in turn built upon the performance framework of the 2009 RTP, Transportation 2035. **Table C.1** displays the evolution of project performance across the two previous RTPs and the update currently underway. Compared to Transportation 2035, Plan Bay Area relied upon a robust project performance methodology using the travel demand model. All uncommitted projects and programs were assessed. For Plan Bay Area 2040, staff is proposing a focused update, focusing specifically on the major capacity-increasing investments that have a direct policy nexus to the Plan while at the same time significantly expanding the scope to include the performance of **state of good repair** investments.

It is important to note that, although the number of projects will be smaller, the projects remaining are the most computationally and technically challenging projects to assess. These are also generally the most expensive projects, requesting well over half of regional discretionary dollars. The projects proposed to remove from the project performance assessment include regional programs evaluated using sketch-models, small non-capacity increasing projects evaluated only qualitatively using targets, and bundles of programmatic categories evaluated only qualitatively using targets. The latter two categories comprise the majority of projects but only about 15% of the funding request.

For Plan Bay Area 2040, staff proposes to evaluate all large, uncommitted and capacity-increasing projects and to preserve the framework based on a targets score and a benefit-cost ratio. To forecast benefits for the benefit-cost assessment, the travel demand model will be used to simulate the impacts of each project individually. Due to the reliance on the travel model, only projects that are "modelable" will receive a benefit-cost ratio. **Attachment C.1** describes the types of projects likely to be evaluated (which is the same criteria used in Plan Bay Area, except for the addition of state of good repair investments).

Targets Assessment
Staff proposes to update the targets assessment framework from Plan Bay Area, relying upon the Plan Bay Area 2040 targets when adopted *(note: final adoption expected in September)*. Under this approach, each project subject to assessment would receive a targets score based on a qualitative evaluation process relying on application of target-specific criteria. The criteria for each target is the subject of the second agenda item for today's meeting and is included in **Attachment D** of the meeting packet. The criteria are comprised of rules of thumb for support or impact to a target, based on project type, geography, and description.

Targets *(subject to change)*	
1. Climate Protection	6. Affordable Housing/Displacement
2. Adequate Housing	7. Access to Jobs
3. Healthy and Safe Communities	8. Non-Auto Mode Share
4. Open Space and Agricultural Preservation	9. Road State of Good Repair
5. Housing and Transportation Affordability	10. Transit State of Good Repair

Benefit-Cost Assessment
Benefit-cost assessment evaluates the change in social welfare associated with a transportation project. It is based on evaluating transportation metrics "with" and "without" a project. For planning purposes in the RTP, a baseline network is the "without" assessment. The baseline is the existing transportation network (2015) plus projects under construction this year (e.g. BART to Berryessa) and feeder bus routes planned for the new rail expansion projects. The baseline transportation network is modeled with 2040 land use from Plan Bay Area. The "with" project assessment is the baseline network plus the transportation project in question. Regional metrics are summarized across both networks, relying upon differences between these two model runs to identify project-specific impacts (benefits and disbenefits). Staff will lead a methodology discussion on the benefit-cost assessment as part of the August meeting of the Performance Working Group.

Benefits	Costs
Travel time (including recurring & non-recurring delay)	Capital costs
Travel cost (auto operating/ownership, parking)	Net operating and maintenance (O&M) costs
Emissions (CO_2, $PM_{2.5}$, ROG, NO_x)	
Collisions (fatalities, injuries, property damage)	
Health impacts due to active transport	
Noise	

High-Performers and Low-Performers
As introduced in the June 18 Performance Working Group meeting, performance results are used to identify outliers in performance. Identifying outliers acknowledges the planning-level assessment required for a long-range plan (e.g. focus on forecast accuracy and not precision) and thus emphasizes both the highest-performing and lowest-performing projects. Thresholds for high- or low-performance were identified as part of Plan Bay Area, considering both the target score and the benefit-cost ratio, and may be updated by the MTC Planning Committee later in the planning process.

Discussion
1. Rather than having a single score for a given project, staff is proposing to continue relying on a combination of benefit-cost and targets assessments to identify outliers in project performance. Benefit-cost ratios and targets scores are reported separately but considered in tandem. Are there any concerns about this overall evaluation framework?
2. In Plan Bay Area, the project performance assessment placed projects into high, medium, and low performing categories. The high-performers were prioritized for regional funding and the low-performers were further scrutinized through a compelling case process. Might there be different ways of using these performance results in Plan Bay Area 2040?
3. Benefit-cost assessment is based on **quantifiable** benefits and heavily relies on the travel demand model. Are there benefits that are missing and, if so, how would you quantify them?

Attachment C.1 – 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 proposes to evaluate projects that meet the following criteria:

1. The project impacts can be captured in the regional travel demand model (i.e., capacity-increasing).
2. The total project costs are at least $100 million (as measured in 2017 dollars).

Examples of projects that will be evaluated:
- New/enhanced transit service, including transit priority measures
- Freeway-to-freeway interchanges
- Freeway widenings, including HOV lanes & auxiliary lanes generally more than 5 miles
- State highway widenings and major arterial connectors/reliever route improvements more than 5 miles
- Local streets and roads state of good repair
- Transit operator state of good repair

Examples of projects that likely will not be evaluated even if meet the cost threshold:
- Arterial or intersection improvements
- Freeway-to freeway interchanges that do not include mainline widening
- Local interchanges
- Transit center improvements & parking expansion
- Transit projects that increase capacity within trains and on platforms but that do not result in increased frequency
- Grade separations

Table C.1 – Project Performance for Long-Range Plans

	Transportation 2035	Plan Bay Area	Plan Bay Area 2040
Subject to Assessment	All uncommitted projects and regional programs	All uncommitted projects and regional programs	~~All uncommitted projects and regional programs~~ Major capacity-increasing uncommitted projects and state of good repair (SGR) investments

Large Projects
 	
Assessed individually
	Qualitative Goals Assessment
	• Based on project type (see below)
	
	Benefit/Cost Assessment
	• MTC model analysis, with off model analysis for regional programs
	
	B/C Ratio in 2035 including:
	   • Delay
	   • Emissions
	   • Collisions
	   • Auto operating and ownership costs
	
	Cost per reduction in CO2
	Cost per reduction in VMT
	Costs per low-income household served by new transit
		Targets Assessment
		• Criteria-based assessment of support for adopted targets
		
		Benefit/Cost Assessment
		• MTC model analysis, with off model analysis for regional programs *(only for capacity-increasing projects)*
		
		B/C Ratio in 2035 including:
		   • Travel time
		   • Emissions & Health Costs
		   • Auto operating and ownership costs
		   • Collisions & Noise
		Confidence test – degree to which major benefits are captured; timeframe of benefits
		Sensitivity test – degree to which valuation of travel time influences project ranking
		
		Equity Assessment
		• Projects mapped against Communities of Concern
		
		State of Good Repair
		• Off-model assessment of regional need
			Targets Assessment
			• Criteria-based assessment of support for adopted targets
			
			Benefit/Cost Assessment
			• MTC model analysis, ~~with off model analysis for regional programs~~
			
			B/C Ratio in 2040 including:
			   • Travel time
			   • Emissions & Health Costs
			   • Auto operating and ownership costs
			   • Collisions & Noise
			Confidence test – degree to which major benefits are captured; timeframe of benefits
			Sensitivity test – degree to which valuation of travel time influences project ranking
			
			Equity Assessment
			• Projects mapped against Communities of Concern
			
			State of Good Repair
			• Robust benefit-cost assessment of SGR investments, varying funding and investment types
			
			Regional Planning Efforts
			• Core Capacity Transit Study
			• Managed Lanes Implementation Plan
			• Goods Movement

Small Projects Assessed by project types	Qualitative Goals Assessment • Projects grouped into 13 categories by types • Evaluate support for T-2035 goals by type	Targets Assessment • Projects grouped into 9 categories by type • Evaluate support for adopted targets by project type	*Targets Assessment* • *Projects grouped into 9 categories by type* • *Evaluate support for adopted targets by project type*

PERFORMANCE WORKING GROUP
Project Performance Assessment – Targets Criteria
July 10, 2015

The targets assessment considers the extent to which projects support the Plan Bay Area 2040 targets, which will be adopted by the MTC Commission in September 2015. This attachment describes the proposed targets criteria and scoring procedure.

Target Score
The targets assessment in Plan Bay Area developed a five-point rating system for each target:
- Strong support (1)
- Moderate support (0.5)
- Minimal impact (0)
- Moderate adverse impact (-0.5)
- Strong adverse impact (-1)

The target score is the combination of the 10 target scores into a single score rating from +10 to -10. The Commission did not adopt weighting for Plan Bay Area targets, so each target was treated equally when calculating the combined score.

Criteria
To perform the assessment, staff developed qualitative criteria for assigning target scores. The criteria reflect "rules of thumb" for likely changes in transportation metrics that support or adversely impact the region's ability to meet the Plan's performance targets. Attachment E provides a detailed description of each target along with example projects from Plan Bay Area. **Table D.1** (in this attachment) updates the Plan Bay Area target criteria to the current version of the Plan Bay Area 2040 targets. Since these targets are still under deliberation, the criteria are subject to change until final adoption in September 2015.

General Application Rules from Plan Bay Area
- Efforts were made to account for project scale so that transit projects likely to attract more riders received more credit for reducing VMT, collisions, emissions, etc.
- Roadway projects that include transit & ridesharing improvements were given credit in the rating.
- Due to their smaller scale, highway auxiliary lanes and other operations projects were considered less adverse than highway expansion for targets assessed base on changes in VMT.

Discussion
1. Target scores based on scale from 1 to -1. Are there compelling reasons to change the target scale?
2. Level of support for targets varied depending on how many issue areas the project addressed and the scale of the project. Another option might be to assess a project's ability to support the target per dollar spent on the project. Is it feasible to qualitatively consider a cost-effectiveness criterion?
3. Targets were not weighted in Plan Bay Area. Are there compelling reasons to add a weighting component?

Table D.1 – Draft Targets Criteria

Outcome/ Goal	Proposed Targets *(all targets are for year 2040 compared to year 2005 base)*	Qualitative Assessment Criteria			
		Project Support	Adverse Impact	Application	
Climate Protection	1 Reduce per-capita CO_2 emissions from cars and light duty trucks by 15%	• Provides an alternative to driving alone • Likely to cause VMT reduction • Advances clean fuels and/or vehicles beyond CARB targets • Project outside of sea level rise inundation area or includes mitigation	• Likely to increase VMT or more drive-alone auto trips • Project inside of sea level rise inundation area and does not include mitigation	• Highway projects receive adverse impact • Transit, bike, ped projects receive moderate to strong support	PBA + Sea Level Rise
Adequate Housing	2 House 100% of the region's projected growth by income level with no increase in in-commuters over the Plan baseline year [MTC Proposal]	• Increases accessibility to and from areas with planned housing growth more than 1,500 units (moderate support) or more than 10,000 units (strong support) • Project does not add capacity near regional gateways	• Increases accessibility in areas with minimal planned housing growth • Project adds capacity near regional gateways	• Rating dependent on project location, irrespective of mode	PBA + in-commute
Healthy and Safe Communities	3 Reduce adverse health impacts associated with air quality, road safety, and physical inactivity by 10%	• Likely to reduce VMT (support for PM2.5, collisions, active transportation) • Has safety component (support for collisions) • Includes infrastructure for walking and biking (support for active transportation) If project supports multiple areas, it will receive a higher target score.	• Likely results in increased VMT and auto trips • Increases speed of driving • Increases driving within areas of poor air quality	• Highway widening projects receive adverse impact • Highway operational projects receive minimal support • Transit, bike, ped projects receive minimal to strong support	Combined PBA criteria
Open Space and Agricultural Preservation	4 Direct all non-agricultural development within the urban footprint (existing urban development and urban growth boundaries)	• Project itself would not consume areas of open space • Project itself would not consume areas of agricultural land • Improves freeway, arterial or rail access to agricultural land	• Project itself would consume areas of open space or agricultural land	• Rating dependent on project location	Same as PBA

Outcome/ Goal		Proposed Targets *(all targets are for year 2040 compared to year 2005 base)*	Qualitative Assessment Criteria		
			Project Support	Adverse Impact	Application
Equitable Access	5	Decrease by 10% the share of lower-income residents' household income consumed by transportation and housing	• 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	• Increases transportation or housing costs for low income households • Reduces transportation choices for low- and middle-income residents	• Rating dependent on transit operator ridership demographics • Bike/ped projects assumed to provide lower cost alternative to auto ownership	Same as PBA
	6	Increase the share of affordable housing in PDAs by [TBD]%	• Serves a PDA with above average production of affordable housing units, based on RHNA values	• Serves an area with minimal affordable housing permitted	• Rating dependent on project location	Part of Adequate Housing criteria in PBA
Economic Vitality	7	Increase the share of jobs accessible within 30 minutes by auto or within 45 minutes by transit by [TBD]% in congested conditions	• Decreases auto, freight or transit travel times during AM and PM commute hours (strong support for high travel time reduction) **AND** • Serves major job centers	• Does not reduce travel times during commute hours • Has no connection to job centers • Reduces transit service or roadway capacity	• Rating dependent on project location and level of travel time improvement • Minimal impact for bike/ped projects • Transit capacity projects assumed to support accessibility, if connected to jobs centers	NEW
Transportation System Effectiveness	8	Increase non-auto mode share by 10%	• Provides alternatives to the single occupant auto • Reduces household vehicle ownership • Creates more direct active transportation routes • Improves transit service and connections to transit	• Increases the demand for driving • Reduces transit frequency • Creates barriers to using transit • Worsens active transportation routes	• Highway projects without active transportation component receive adverse impact • Most transit and active transportation projects receive moderate to strong support	Same as PBA

Outcome/ Goal		Proposed Targets *(all targets are for year 2040 compared to year 2005 base)*	Qualitative Assessment Criteria			
			Project Support	Adverse Impact	Application	
	9	Reduce vehicle operating and maintenance costs due to pavement conditions by 100%	• Improves roadway surface condition	*No project would be anticipated to generate an adverse impact by worsening pavement quality.*	• Projects received moderate to strong support if they included specific roadway or transit replacement or rehabilitation. • Minimal impact assumed for projects that add inventory.	Same as PBA
	10	Reduce per-rider transit delay due to aged infrastructure by 100%	• Project replaces of extends the life of bus, rail or ferry assets	*No project would be anticipated to generate an adverse impact by worsening transit asset condition.*		Same as PBA

APPENDIX E: Project Performance Assessment Detailed Targets Assessment Criteria

This appendix documents the explicit methodology used to assign project performance assessment target scores. Example projects were selected for each project category to illustrate typical projects that received a range of target ratings, as well as common reasons for rating projects in a given way.

Adopted Target #1: Reduce per-capita CO_2 emissions from cars and light-duty trucks by 15%.

Projects supported the target if they resulted in a VMT reduction; provide an alternative to driving alone; or advance clean fuel vehicles. Projects were likely to result in increased VMT are assumed to have an adverse impact on the target.

<u>Guidelines for Applying Criteria</u>

Transit, bicycle and pedestrian projects were expected to reduce VMT and were rated as supportive of the target. Larger projects, those likely to serve a large number of trips or serve longer trips, were rated as strongly supportive. Smaller projects, those likely to serve fewer trips or shorter trips, were rated as moderately supportive.

Projects that increased roadway capacity or were expected to increase VMT were generally rated as having a strong adverse impact on the target. Operational roadway projects, such as highway interchange projects, were not expected to increase VMT significantly since they did not add capacity and were generally rated as having minimal impact. Roadway projects that include transit, bicycle and pedestrian elements were scored to minimal or moderate support to recognize the impacts of these multi-modal elements.

<u>Examples</u>

Transbay Transit Center - Phase 2B (Caltrain Downtown Extension) received **strong support** due to the potential to reduce long car trips by attracting riders from the San Mateo peninsula to San Francisco.

Irvington BART Station received **moderate support** since it provided additional access to BART by the development of a new BART station with multi-modal access to the station. The vehicle trips that BART is expected to replace are shorter than the Caltrain trips.

US-101 Broadway Interchange Improvements was awarded **minimal impact** since the project is a road efficiency project that is not expected to increase VMT significantly.

US-101 Widening (Monterey Street to SR-129) received **strong adverse impact** for the target since it is a roadway expansion project that would make driving more attractive and increase VMT.

Adopted Target #2: House 100% of the region's projected growth by income level (very-low, low, moderate, above-moderate) without displacing current low-income residents.

The assessment of a project's impact on housing was dependent upon two criteria: potential for housing growth in the jurisdictions affected and those jurisdictions' past track record on affordable housing. The strongest support were for projects that were located in jurisdictions that had above average production for low and very low income housing and a high amount of housing planed in the future (10,000 units or greater).

Guidelines for Applying Criteria

To determine a project's potential support for adequate housing, the level of planned housing growth in the Focused Growth scenario was examined. Projects affecting cities with less than 1,500 units of housing production were given no points, while projects affecting cities with more than 1,500 units of housing production received 0.5 points.

After this initial step, planned affordable housing production was examined – looking at jurisdictions' track records in achieving production of very-low and low income housing units compared to prior Regional Housing Needs Allocation (RHNA) cycles. Using data compiled from ABAG's housing report in 2007 "A Place to Call Home – Housing in the San Francisco Bay Area," the number of permitted units as a share of each jurisdiction's RHNA target was calculated by income level for years 1999 through 2006. Overall, 23 cities were identified that performed better than the regional averages for both very low (above 44%) and low (above 75%) income housing and 53 that were below the regional averages. Refer to Tables 1 & 2 in Appendix K for the city-specific data for this target.

Projects that were multi-county projects were given a score for both housing production and RHNA based on the individual cities and unincorporated areas. The overall county RHNA score was determined by the majority of projects in one category (above average, neither above or below, and below average). If 2/3 of the cities in a county had below average production, then the county would receive a -0.5. If there was not a clear majority of cities in one category, then the county would be scored minimal or 0 points. Some projects that were multi-county such as BART, Capital Corridor, or ACE were scored based upon the cities served by the projects in the same manner as described above.

The affordable housing RHNA scores shown below were added to the initial total housing production forecast cited earlier:

- above the regional average for very low and low income housing (0.5 points)
- neither above nor below the regional average (0 points)
- below the regional average for very low and low income housing (-0.5 points)

Examples

Hercules Intermodal Station scored ½ point for expected growth (4,653) and got an additional ½ point for above average RHNA production, resulting in a target score of **strong support**.

BART Service Frequency Improvements received ½ point for housing production, since the counties that BART services have expected growth above 1,500 units. It did not receive any points for RHNA production, since the Bay Area as a whole scores 0 (there is not a clear majority of cities above or below the average). Therefore, it resulted in a score of **moderate support**.

BART to Livermore got strong support for housing units over 1,500 (½ point). The RHNA housing production for Pleasanton, Livermore, Dublin, and the unincorporated county is below average deducting a ½ point, resulting in an overall **minimal impact** score.

SR-1 Safety and Operational Improvements (Pacifica to Half Moon Bay) impacted communities with housing growth under 1,500 units and received 0 points from this. The RHNA past production is below average (-½ point), resulting in an overall **moderate adverse impact** score.

Adopted Target #3: Reduce premature deaths from exposure to particulate emissions.
   a) Reduce premature deaths from exposure to fine particulates (PM2.5) by 10%.
   b) Reduce coarse particulate emissions (PM10) by 30%.
   c) Achieve greater reductions in highly impacted areas.

Projects support the target if they have the potential to reduce particulate (PM) emissions from vehicles by reducing VMT or providing an alternative to driving alone. Projects likely to increase VMT are assumed to have an adverse impact on the target.

Guidelines for Applying Criteria

Because the criteria for target 3 are nearly identical to those for the CO_2 reduction target and because the particulate targets were focused largely on tailpipe emissions which correlate with CO_2 emissions, projects generally received the same rating for these targets as they did for CO_2 reduction.

Examples

MTC Regional Bikeway Network was expected to reduce PM emissions due to the increase of bicyclists in the region utilizing new bike facilities. The development of a regional network would close gaps between county lines and provide connections to transit and downtown areas. Therefore, the project received a score of **strong support** for the target.

BAAQMD Electric Vehicle Solar Installation Program got a score of strong support to reduce CO_2 emissions by providing an incentive to increase the use of emission free vehicles, but it has **minimal impact** for PM reduction, since electric vehicles still generate PM through tire wear and brake dust.

Adopted Target #4: Reduce by 50% the number of injuries and fatalities from all collisions (including bike and pedestrian).

There is a positive correlation between increased VMT and collisions for all modes of transportation. Despite advances in safety countermeasures on roadways and safety technology in vehicles, vehicle collisions remain one of the leading causes of death for children. An estimate of 30,000 people a year dies in vehicle collisions. In recent years, this number has declined slightly; decreases in VMT have correlated with decreases in collisions. Projects that reduced VMT or explicitly provided a safety benefit by building infrastructure that reduced vehicle-to-vehicle collisions or bicycle/pedestrian collisions are rated as supportive of the target.

Guidelines for Applying Criteria

Similar to the criteria used for CO_2 reductions, projects that increased vehicle use through increased capacity were deemed to be detrimental to safety. Projects that provided alternatives to the auto received support for collision reduction. A project would be supportive of the target if it included an explicit countermeasure for reducing crashes. Operational improvements such as braided ramps, auxiliary lanes that reduced vehicle conflicts received positive support for the target. Transit projects that were specific to reducing train crashes such as Caltrain's Positive Train Control System (PTS) and at-grade improvements such as improved vehicle crossings received strong support. For the analysis, any infrastructure that removed vehicles from the roadway were expected to decrease collisions. No attention was given to certain types of localized infrastructure (such as off-street bicycle paths or median islands) for which such detailed information was not available.

Examples

BART to San Jose/Santa Clara (Phase 2: Berryessa to Santa Clara) represented a major expansion of the heavy rail BART system and was therefore expected to reduce

driving. With the reductions in VMT and more vehicles removed from the roadway, the project received a **strong support** rating for collision reduction.

Capitol Expressway Light Rail Extension (Phase 2: to Eastridge Transit Center) was expected to attract more riders to transit and reduce the number of vehicles on the roadway. As it is smaller in scale than the major BART expansion to Santa Clara County, it only received a **moderate support** rating.

SR-12 Jameson Canyon Project (Phase 3: New SR-12/SR-29 Interchange) included a significant roadway expansion components; therefore, it received a moderate adverse impact score for CO_2 reduction but scores a **moderate support** rating for collision reduction. As part of the project interchange improvements, it included operational improvements that are expected to result in reduced vehicle-to-vehicle crashes.

SR-4 Upgrade to Full Freeway (Phase 2: Cummings Skyway to I-80) provided capacity increases that are expected to increase total driving. As a result, it scores a **strong adverse impact** rating for encouraging driving, as well as for increasing vehicle speeds.

Adopted Target #5: Increase the average daily time walking or biking per person for transportation by 70% (for an average of 15 minutes per person per day).

Projects that provide infrastructure for bicycles and pedestrians, such as on- and off-street bicycle facilities, bike parking, and sidewalks are supportive of this target. Projects that are expected to increase auto trips have an adverse impact.

Guidelines for Applying Criteria

Projects that would increase auto trips would not be supportive of the target and would adversely affect conditions for cycling or walking trips by making driving easier – similar to the evaluation of projects for the CO_2 target. The additional car trips would put more vehicles on the road and would increase conflicts between vulnerable users. Investments in capacity-increasing projects, such as highway widening, would not promote land uses that would be conducive to compact development that would foster walking, cycling and transit use.

Roadway projects that included significant bicycle and pedestrian elements, such as highway on/off ramps that reduced vehicle-to-bicycle conflicts and overcrossings that included bicycle lanes, were supportive of the target. Transit projects were among the projects that were the most supportive of increasing active transportation since many people access transit services by walking and biking. Additionally, transit users are more likely to walk or bike once they reach their destination, as they do not have an automobile with them.

<u>Examples</u>

Marin Countywide Bus Service Frequency Improvements would make bus service throughout the county more frequent and increase ridership by making the bus a more attractive option. More people would walk to the bus and leave their vehicles at home, resulting in **strong support** for this target.

US-101 Broadway Interchange Improvements would expend most of its funds on US-101 where bicycles and pedestrians are prohibited; it did not include an overcrossing that improves access for active modes. With new bike lanes and sidewalks over the highway, the project provided **moderate support** towards the target.

SR-1 Safety & Operational Improvements (Pacifica to Half Moon Bay) only improved conditions for vehicles on highway 1 and did not include specific bike and pedestrian improvements. As a result, it received a **minimal impact** score for the target, in contrast to the project above.

US-101 Widening (Monterey Street to SR-129) added additional vehicle capacity to US-101 from Gilroy to the Santa Cruz County line. As a result of the exclusive focus on cars and resulting VMT increases, this project scored a **strong adverse impact** score.

Adopted Target #6: Direct all non-agricultural development within the urban footprint (existing urban development and urban growth boundaries).

Projects that do not consume open space or agricultural lands support the target. Projects that improve access to agricultural lands support the target because they maintain economic viability of those lands; this is consistent with requirements in SB 375. Plan Bay Area must show how farmland is preserved from urban development and issues like access for farm to market are considered. Projects that directly consume open space or agricultural land have an adverse impact.

<u>Guidelines for Applying Criteria</u>

Projects that helped to promote infill development are given a supportive rating for this target, as developing or redeveloping existing urban areas reduced the demand for sprawling developments at the fringe of the region; reduced fringe development decreases the pressure on agricultural lands to convert to residential use. Supportive projects could include investments in transit that provide connections to city centers and foster development in these areas. Transit projects that served large populations tended to show the best support of the target.

Support for the target was also given for improved access to agricultural lands. Highway projects that connected agricultural lands to urban areas were supportive of the target since these projects could foster improved goods movement by trucks to their

destination. A project would be considered adverse to the target if it would require new right-of-way in previously undeveloped open space or agricultural land. Projects that resulted in a road widening but would use existing developed right-of-way did not have an effect on the target. This target did not consider the adverse impacts of development pressure from conversion of agricultural land to housing, as this was in indirect effect. Only the direct effects of the projects were considered for adverse impacts, such as the amount of open space or agricultural land being consumed by the project.

Examples

BART Metro improved the services within the BART's system urban core, attracting more riders and decreasing regional VMT. As more people use the system, development in and around the stations will continue to reduce the need to develop in open space and agricultural land; as a result, this project was in **strong support** of the target.

MTC Freeway Performance Initiative made the highway network more efficient by reducing delay and improving travel times through Intelligent Transportation System (ITS) improvements. Goods movement by trucks delivering agricultural goods from farm to market would be improved, provided **moderate support** of the target.

SR-113 Relocation out of Dixon expanded an existing state route by diverting it through an area surrounded by agricultural land. However, the project would use existing right-of-way from a local road, rather than consuming undeveloped land. Therefore, the project received a **minimal impact** rating.

New SR-152 Alignment constructed a new highway alignment through open space and agricultural lands; as such, the project is rated as having a **strong adverse impact** for the target.

Adopted Target #7: Decrease by 10% the share of low-income and lower-middle income residents' household income consumed by transportation and housing.

Projects supported the target if they included transit enhancements that provided a lower-cost transportation alternative to driving. The degree of support varied based on the operator's current low-income ridership.

Guidelines for Applying Criteria

Transit projects were determined to provide a lower-cost alternative to auto ownership and were supportive of this target. Transit projects were assessed based on the percentage of the region's total low-income riders and the proportion of low income riders served by the operator. The percentages of low-income riders were based on the Transit Demographics Survey and the 2011 Statistical Summary of Bay Area Transit Operators; refer to Table 3 in Appendix K.

Transit operators' projects received a strong support rating if low-income riders constitute over 40% of system ridership or if the operator serves more than 10% of the region's low-income transit riders. Transit operators' projects received a moderate support rating if serves more than 0.5% of the region's low-income transit riders; transit projects for operators with less than this threshold received a minimal impact rating.

By awarding strong support to operators that have a high share (over 40%) of low-income riders, this acknowledges that many small operators provided service to low-income groups but carried a smaller share of the region's total low-income ridership. It also rewarded the larger operators that carried a high number of the region's low-income population. No adverse rating was given for highway projects that did not provide low-cost options, since these projects did not take away choices for low- and middle-income residents.

By their nature, bicycle and pedestrian projects provided a lower cost alternative to auto ownership since the operations and maintenance of a bicycle is substantially less than a car. Projects that encouraged these modes of travel were supportive of this target.

Examples

BART Station Access Improvements would improve the bicycle, pedestrian, transit, and car access to various BART stations making it easier to get to the station and use the system. While low-income riders only constitute 14.5% of BART's total ridership, as an operator BART carries 10.7% of the region's total low income transit users. Therefore, BART projects received a **strong support** rating for this target.

Golden Gate Bus Service Frequency Improvements would boost bus service in Sonoma, Marin, and San Francisco counties. Golden Gate Transit's low income riders make up 23.8% of the total ridership, that lead to a **moderate support** rating for the target; the project is ineligible for the strong support rating because, as a smaller operator, it only carries 1.6% of the region's total low income transit riders.

Petaluma Cross-Town Connector/Interchange added an additional arterial segment improving connectivity for autos from the town to the freeway. This project did not include a bicycle, pedestrian, or transit component; as a result, it received a **minimal impact** score as it does not degrade or improve service on any of those modes.

Adopted Target #8: Increase gross regional product (GRP) by an average annual growth rate of approximately 2% (in current dollars) [+90% target for year 2035; +110% target for year 2040].

Currently congested corridors are detrimental to economic vitality; economic studies show projects that provide congestion relief and improve access to employment centers

have the strongest long-term impact on productivity, and thus are rated as supportive of the target. Improved access to ports or truck corridors is also supportive of the target.

<u>Guidelines for Applying Criteria</u>

Highway projects expected to provide relief by either providing expansion or operational improvements received strong or moderate support depending upon the level of current congestion. Transit projects that would be expected to remove vehicles from the congested corridor were also supportive of the target. No project was in opposition of the target, since a project would be unlikely would be make traffic conditions worse.

<u>Examples</u>

SR-4 Bypass Completion (SR-160 to Walnut Avenue) would construct a new bypass would help to relieve traffic congestion in one of the most congested corridors in the Bay Area. As such, the project had **strong support** for economic vitality.

I-580/I-680 Interchange Improvements (Phase 1) would improve the interchange between two major Bay Area freeways, primarily through operational improvements. Interstate 580 is one of the most chronically congested corridors in Alameda County. This project received only **moderate support** for the target since the interchange improvements were not expected to relive large amounts of congestion without capacity increases.

SR-1 Widening (Fassler Avenue to Westport Drive) added capacity to State Route 1, but it did not relieve a congested segment. Therefore, the project had **minimal impact** on this target.

Adopted Target #9: Increase non-auto mode share by 10% and decrease automobile vehicle miles traveled per capita by 10%.

Criteria for this target are similar to those for the CO_2 and PM targets. Projects that provide alternatives to the single occupant vehicle such as public transit or bicycling/walking were determined to be supportive. Projects that increase the use of single occupancy vehicles were determined to have an adverse impact.

<u>Guidelines for Applying Criteria</u>

See discussion under CO_2 target for guidelines used to assess whether a project was likely to increase VMT. Transit projects received support for this target if they provided frequency or operational improvements that would make transit service more convenient and appealing. Projects that provided bicycle and pedestrian infrastructure and encourage a decrease in the auto were also supportive.

Examples

Geary Boulevard BRT would run bus rapid transit service along a major east-west corridor in San Francisco, improving the travel time of the bus service and attracting riders from auto modes. As such, it provided **strong support** for the target.

Vasona Light Rail Extension (Phase 2) is an extension of the existing light rail service to the town of Los Gatos. Given its shorter length and service of a town with a much smaller number of residents, it would not serve as many people as Geary BRT project; therefore it only received a **moderate support** rating for the target.

I-80/I-680/SR-12 Widening & Interchange Improvements (Phase 1) focused on operational improvements for drivers, but some minor improvements would benefit a limited number of bicyclists and pedestrians. Therefore, it received a rating of **minimal impact**.

SR-84/I-680 Interchange Improvements + SR-84 Widening (Jack London to I-680) included vehicle operational improvements to the interchange, in combination with many miles of capacity increases along SR-84 and therefore it has a **moderate adverse impact** for this target.

Pacheco Boulevard Widening (Blum Road to Arthur Road) is a road expansion that would only benefit autos. It had a negative effect on bicyclists, pedestrian, and transit since the expansion of the auto network results in increased auto use; as such, the project had a **strong adverse impact** on the target.

Adopted Target #10: Maintain the transportation system in a state of good repair:
  a) Increase local road pavement condition index (PCI) to 75 or better.
  b) Decrease distressed lane-miles of state highways to less than 10% of total lane-miles.
  c) Reduce share of transit assets past their useful life to 0%.

Projects that specifically improve the roadway condition or replace transit assets were shown as supportive of this target.

Guidelines for Applying Criteria

Most projects received a minimal rating for this target. Only projects that were specific maintenance projects such as road rehabilitation or transit maintenance facilities were supportive of the target. The increased burden of additional maintenance from expanded transit service or additional lane miles of roadways resulting from highway expansion was not considered.

Examples

Local Streets and Roads Capital Maintenance Needs would provide maintenance and rehabilitation of roads throughout the Bay Area. As it would significantly increase the local roadway pavement condition index, it had **strong support** for the target.

Rio Vista Bridge Reconstruction & Realignment rehabilitated an existing local bridge; as such, it scored a **moderate** ranking for the target.

I-80 Yerba Buena Island Interchange Improvements improved an interchange near the new San Francisco-Oakland Bay Bridge east span. Despite the number of roadway improvements included in this project, the project did not specifically rehabilitate current infrastructure and received a rating of **minimal impact**.