

Memorandum

TO: Alameda County Transportation Commission

FROM: Cambridge Systematics, Inc.

DATE: November 28, 2011

RE: Summary of Performance Evaluation and Model Results ,
Draft Countywide Transportation Plan: Baseline, Fully Funded (Tier 1), Partially
Funded (Tier 2) and Vision Scenarios

This memorandum summarizes performance evaluation results for the Draft Alameda Countywide Transportation Plan (CWTP). Evaluation results are reported for three scenarios:

- Baseline (existing plus committed projects and programs),
- Fully funded projects and proposed additional program spending (Tier 1), and
- Partially funded projects (Tier 2)/Vision -all programs and projects. Some projects are recommended for partial funding because they represent a commitment to project development or a specific phase of development.

Fully funded and partially funded projects and programs represent what can be implemented within the approximately \$6.8 billion anticipated revenue for the next 28 years, and assume an extension of the ½ cent local sales tax for transportation. Since an augmented sales tax is being considered for Alameda County, which would increase revenues beyond the \$6.8 billion estimate, a Tier 2/Vision scenario is also evaluated. Appendix A provides tables with more details on the performance evaluation results for the three scenarios. Appendix B identifies assumptions used in the performance evaluation including a list of all projects by funding commitment, program funding levels, land use assumptions and a comparison to previous performance measure results.

The performance evaluation results will be used to inform Chapter 6, Projects and Programs, of the Draft CWTP, which will be reviewed by the Steering Committee and Working Groups in December 2011 and January 2012.

Background

In March 2011, the Steering Committee adopted performance measures for evaluating programs and projects for inclusion in the CWTP and ultimately the Transportation Expenditure Plan (TEP). The first performance evaluation results, which were part of exploratory analysis of draft plan scenarios, were presented in July 2011. The July results were used along with information about commitment to on-going programs and projects, congestion relief, and

maintenance to develop the financially constrained lists of programs and projects released in the Administrative Draft CWTP by the Steering Committee in September 2011. The Administrative Draft CWTP program and project lists were adjusted to reflect comments received in October 2011, and a second round of evaluation was conducted in November 2011. The results for this second evaluation, which are the subject of this memorandum, will be used to inform the Draft CWTP, which will be reviewed by the Steering Committee and Working Groups in December 2011 and January 2012.

Compared to the July evaluation, the November evaluation:

- **Focuses on overall countywide performance.** The November evaluation focuses only on overall countywide and subarea performance results. Individual projects are not reevaluated.
- **Includes three new transportation investment scenarios.** The July evaluation included five exploratory scenarios for the year 2035. The November evaluation includes three comparative scenarios that differ by investment level for year 2035:
 - Future Baseline scenario including committed projects and limited programmatic spending;
 - Tier 1 (fully funded) scenario including Baseline commitments, fully funded projects and proposed additional program spending, and
 - Tier 2/Vision (partially funded) scenario including Tier 1, 2 and Vision projects and assuming full program funding.

Projects included in the Tier 1 scenario were identified through a performance evaluation process and with the input from the CWTP-TEP Advisory Working Groups, Steering Committee, and public input. The draft list of projects and program funding amounts are provided in Appendix B.

- **Reflects financially constrained funding levels.** The July evaluation reflected initial estimates of discretionary funding of about \$12 billion, whereas the combined Fully Funded (Tier 1) and Partially Funded (Tier 2) scenarios represent about \$6.8 billion (consistent with the draft RTP assumption), of which two-thirds is generated from local sources including existing Measure B and Measure F (vehicle registration fee) revenues.
- **Reflects more focused land uses.** The land use assumptions for the November evaluation were changed from the July analysis such that: (1) jobs and employed residents were slightly reduced for the whole Bay Area (2) jobs were increased slightly in Alameda County while employed residents, population and households stayed approximately the same; and (3) population and employment was redistributed among the individual jurisdictions to focus growth in Priority Development Areas (PDAs). Appendix B provides more detail on these changes and explains the process for developing the land use assumptions.
- **Assesses refined performance measures.** The November evaluation includes a new congestion-focused performance measure (percent of congested roadway segments during

peak periods¹). The performance measure for roadway state of good repair was refined to better match information provided by MTC, and is now defined as “additional funding necessary to maintain current pavement conditions.”

Summary

Consistent with ABAG and MTC land use projections released in the Alternative Land Use Scenarios in August 2011, Alameda County’s year 2035 households and employment are projected to increase to about 697,000 and 875,000, respectively (Table 1). These increases equate to 28 percent growth from current levels for households, and 19 percent for employment.

As a result, model forecasts indicate that in the future, approximately 5.7 million trips will be made each day in Alameda County and about 50 million vehicle miles of travel (VMT) will occur. These values correspond to an approximately 24 percent trip growth and 40 percent VMT growth. Alameda County’s future VMT is projected to be split between three components:

- 37 percent are for trips that begin and end in Alameda County;
- 35 percent are for trips between Alameda County and another county; and
- 28 percent are for trips that pass through Alameda County without stopping.

Table 1 -Daily Trips and Vehicle Miles/ Hours of Travel Within Alameda County

	Current Year	Baseline - (July 2011 Analysis)	Baseline - (Nov, 2011 Analysis)	Tier 1	Tier2/Vision
Drive alone	2,393,000	2,943,000	2,880,000	2,859,000	2,831,000
Carpool	1,442,000	1,773,000	1,822,000	1,810,000	1,782,000
Transit	269,000	358,000	413,000	423,000	432,000
Bicycle	78,000	95,000	99,000	98,000	96,000
Walk	442,000	523,000	546,000	578,000	636,000
Total Trips	4,625,000	5,691,000	5,760,000	5,768,000	5,778,000
Daily Vehicle Miles of Travel ^a	35,918,332	52,019,356	50,430,000	50,720,829	50,391,456
Daily Vehicle Hours of Travel ^a	921,614	1,556,572	1,457,000	1,453,629	1,399,936
Households	542,250	693,540		696,834	
Employment	735,460	835,183		874,605	

^a includes drive alone and carpool modes; does not include heavy trucks

¹ Congestion is defined as roadway segments operating at volume to capacity ratios exceeding 0.75 (moderately congested) and 1 (severely congested). These thresholds are consistent with ones used by the Metropolitan Transportation Commission

To accommodate these household, employment and travel increases, a balanced investment in transportation infrastructure and services will be needed. Table 2 summarizes performance results for the entire county for the three scenarios; detailed tables are provided in Appendix A. Highlights of the performance evaluation results are discussed below.

Comparison of Scenario Results

Overall, the Tier 1 scenario shows improved performance compared to the Baseline scenario. Most importantly, drive alone and carpool trips are reduced even though total trip making increases for the Tier 1 and Tier 2/Vision scenarios. The reduced driving is accompanied by increases in transit and non-motorized travel, with the largest increase occurring for walking. This increase in non-motorized travel leads to an increase in physical activity as measured by the time spent walking and bicycling each day.

Accessibility to activity centers and frequent transit improved by the largest margins, resulting primarily from improved transit frequencies serving major activity centers. As a result of plan investments, 76 percent of the lowest income households will have convenient access to employment/activity centers, compared to 67 percent in the Baseline, and 88 percent will have access to frequent transit compared with 80 percent in the Baseline. Under Tier 2/Vision, performance for both measures improve to 81 percent and 88 percent respectively. Accessibility to activity centers improved most in North and South county planning areas (see Table A.3) whereas access to frequent transit improved most in the South and East county planning areas (see Table A.4).

Most other measures also showed positive change. Daily transit boardings in the Tier 1 and Tier 2/Vision scenarios increased by 6 and 12 percent, respectively, over the Baseline (from 613,000 to 648,000 and 689,000), and walking trips increased by 6 and 16 percent, with the greatest improvements in North and Central counties.

The percentage of countywide lanes miles that are moderately or severely congested decreases (see Table 2 and Table A.1). Results in Appendix A, Table A.1 also indicate that congestion levels decrease for all planning areas in either the A.M and/or P.M peak periods, particularly in South and East counties.

Figures 1 and 2 illustrate roadways within Alameda County that experience substantive changes in peak-period congestion levels, as measured by changes in the volume to capacity ratio, for the Tier 1 and Tier 2/Vision scenarios. About 110 lane miles experience reduced peak period congestion in both scenarios, while approximately 25 lane miles experience increased congestion.

Greenhouse gas and particulate matter emissions declined by small margins (less than one percent between Baseline and Tier 1, and almost 2 percent between Baseline and Tier 2/Vision). These estimates reflect emission reductions from major transportation projects and programs, and should be considered quite conservative since other key strategies such as land use policies, low carbon fuel, and vehicle technology are already reflected in the Baseline scenario. Further, these estimates don't reflect land use and transportation strategies that are being considered in adjacent counties or at a regional level, which could lead to a reduction in pass through trips and associated emissions.

Table 2 – Summary Performance Results for Selected Measures

Performance Measure	Definition and Corresponding Detailed Appendix Table	Baseline	Tier 1	Tier 2/ Vision
Congestion	% of lane miles moderately or severely congested during AM (PM) peak period (A.1)	29% (33%)	27% (33%)	27% (31%)
Alternative modes	% trips made by non-automobile modes (A.2)	18%	19%	20%
Activity center accessibility	% of low-income (<\$25k annual) households within 20 min. drive or 30 min. transit ride of activity center or 0.5 mi from grade school (A.3)	67%	76%	81%
Public transit accessibility	% of low-income (<\$25k annual) households within 0.25mi of bus route or 0.5mi rail transit stop (A.4)	80%	88%	88%
Public transit usage	Daily public transit ridership (A.5)	613,201	648,062	689,456
Transit efficiency	Transit passengers carried per transit revenue hour of service offered (bus only) (A.6)	54	49	51
Travel time	Average travel time per trip in minutes for selected origin-destination pairs in the AM (PM) 1-hr peak period, drive alone trips (A.7a)	48 (44)	46 (42)	45 (41)
	Same as above for transit trips (A.7d)	74	72	71
Reliability	Average ratio of AM (PM) 1-hr peak period to off-peak period travel times for selected origin-destination pairs, drive alone trips (A.8a)	1.6 (1.5)	1.6 (1.5)	1.6 (1.4)
	Same as above for transit trips (A.8d)	1.1	1.1	1.1
Maintenance	Unmet maintenance needs over 28 years assuming current pavement conditions	Please see Figure A.1		
	Percentage of remaining service life for transit vehicles in 2035 (A.9)	23%	35%	41%
Safety	Annual projected injury and fatality crashes (A.10)	13,045	13,121	13,035
Physical Activity	Total daily hours spent biking or walking (A.11)	231,531	235,366	240,678
Clean Environment	Tons of daily greenhouse gas emissions (A.11)	19,777	19,722 (0.3% reduction)	19,443 (1.7% reduction)
	Tons of daily particulate (PM 2.5) emissions (A.12)	1.61	1.60	1.57

Figure 1 - Roadway Congestion Changes for Tier 1 Scenario

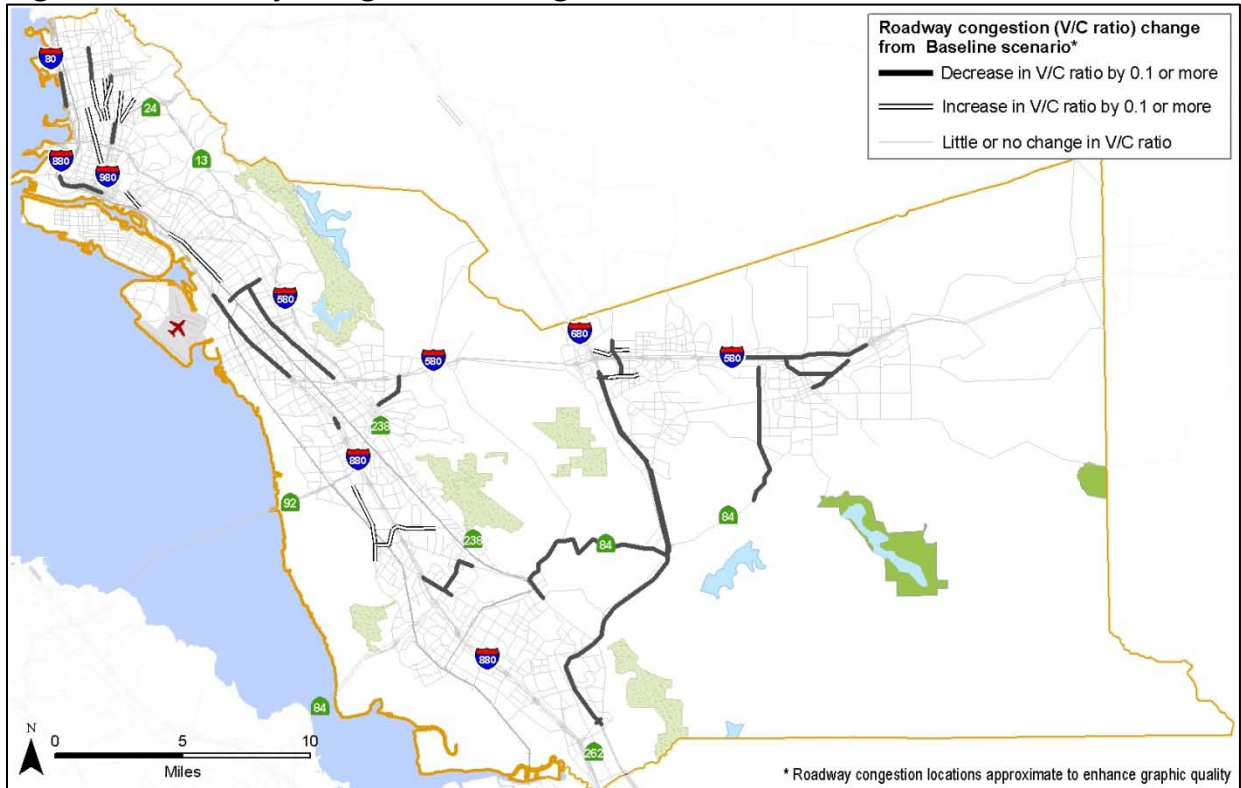
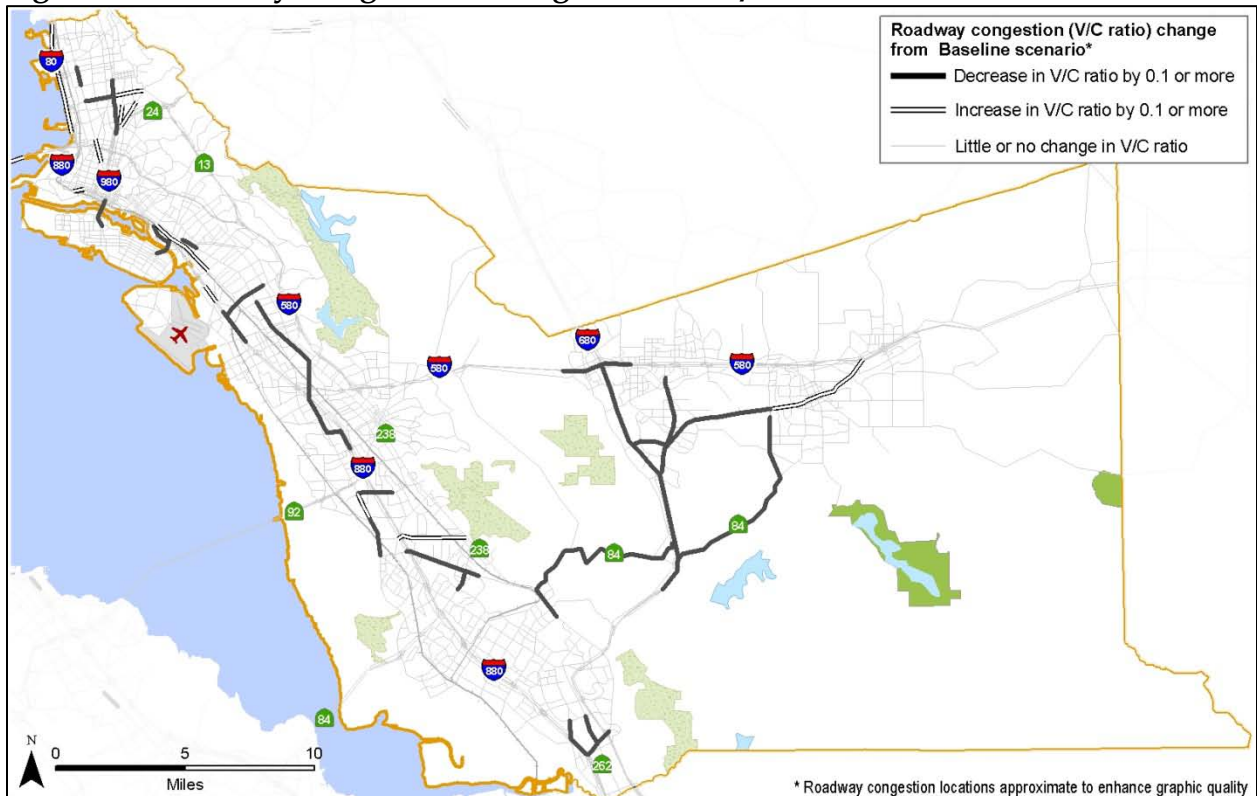


Figure 2 - Roadway Congestion Changes for Tier 2/Vision Scenario



Modest Performance Changes are Observed in Some Cases

Although most measures show improvement, these improvements are small in some cases and decline in a few other cases for two principal reasons. First, the CWTP scenarios include a range of capital and programmatic investments across all travel modes and geographic areas creating a balanced investment portfolio. This portfolio improves performance for some measures (e.g. accessibility and congestion), but leaves others such as mode of travel or travel times minimally changed or unchanged. While a noticeable change in mode split - or any specific performance measure - could potentially occur with an investment portfolio that is heavily concentrated in an individual mode and/or geographic area, such imbalanced investment could have undesirable effects on other performance measures.

Second, inherent limitations with travel demand modeling limit the ability to capture the full extent of performance benefits from program and smaller scale capital investments. For example, the travel model used for the evaluation cannot forecast the benefits of planned investments in travel demand management, roadway maintenance, or smaller intersection improvements, all of which are important components of the proposed draft CWTP.

A few measures exhibit slightly declining performance for the Tier 1 and/or Tier 2/Vision scenarios:

- **Peak to off peak travel times:** Although congestion was reduced for Tier 1, the average ratio of peak to off peak travel times remained essentially the same. However, this result is primarily driven by improved conditions in the off-peak period rather than a degradation in peak period conditions. Also, these countywide results mask the fact that peak travel times improve in many corridors. For example, trips from East County to San Jose showed a reduction in the peak to off peak ratio, indicating that peak period congestion was reduced more significantly than off-peak congestion in this travel corridor.
- **Maintenance:** MTC has released data showing that \$3.4 billion is needed to maintain current roadway pavement conditions across the county², and an additional \$0.9 billion is needed to achieve a PCI rating of 75 (“state of good repair”) in each jurisdiction. Figure A.1 in Appendix A shows committed revenue and shortfall by jurisdiction for both pavement condition scenarios.
- **Safety:** The expected number of fatal and injury collisions is essentially unchanged between the three scenarios, which reflects relatively stable forecasts of vehicle-miles travelled.
- **Transit Efficiency:** Transit service efficiency (riders per revenue hour) for bus transit decreases slightly. Although transit ridership increases, the increase is not proportional to the increase in service hours provided. This ratio improves somewhat in the Tier2/Vision scenario relative to Tier 1 since the percentage increase in ridership is larger than the percentage increase in transit hours of service between the two scenarios. This result suggests that transit service in Tier 2/Vision is somewhat more focused in areas that have a greater potential to generate new ridership.

² Current conditions, as measured by the Pavement Condition Index (PCI), average 69 across Alameda County with a range of 56 to 78 for individual jurisdictions.

Appendix A provides detailed tables for each measure.

Appendix B provides the assumptions for the scenarios in terms of land use and infrastructure investments.

Appendix A – Detailed Tables for Performance Measures Results

This Appendix provides the following detailed tables and figures illustrating performance results:

- Table A.1 – Percent of Lane-Miles Congested During Peak Periods
- Table A.2 – Percentage of Trips by Mode of Travel
- Table A.3 – Activity Center Accessibility
- Table A.4 – Public Transit Accessibility
- Table A.5 – Public Transit Daily Ridership
- Table A.6 – Transit Passengers by Revenue Hour
- Tables A.7a-A.7d – Minutes of Average Travel Time – Drive-Along Mode, Carpool Mode, Heavy Truck Mode, Transit Mode
- Tables A.8a-A.8d – Peak to Off-Peak Travel Time Ratios – Drive-Along Mode, Carpool Mode, Heavy Truck Mode, Transit Mode
- Figure A.1 – Capital Funding Needs to Maintain Current Pavement Conditions over 28 Years.
- Table A.9 – Transit Vehicle Conditions
- Table A.10 – Collisions by Type
- Table A.11 – Daily Hours Spent Bicycling and Walking
- Table A.12 – Greenhouse Gas and Particulate Matter Emissions

Brief observations on key trends and notable results are included for each set of related performance measures.

Table A.1 Congested Lane-Miles During Peak Periods

	Percent of Total Lane-Miles			
	A.M. One-Hour		P.M. One-Hour	
	Moderately Congested (v/c 0.75-1.00)	Severely Congested (v/c >1.00)	Moderately Congested (v/c 0.75-1.00)	Severely Congested (v/c >1.00)
Baseline				
North	20%	9%	23%	10%
Central	23%	8%	29%	9%
South	22%	4%	21%	6%
East	21%	8%	24%	11%
County All	21%	8%	24%	9%
Tier 1				
North	20%	9%	22%	11%
Central	24%	8%	28%	8%
South	21%	3%	20%	5%
East	18%	8%	24%	9%
County All	20%	7%	24%	9%
Tier 2/Vision				
North	19%	10%	22%	10%
Central	22%	8%	28%	8%
South	20%	4%	20%	5%
East	18%	6%	24%	8%
County All	20%	7%	23%	8%

Table A.1 displays congested lane mileage results for the three scenarios at the sub-county and county levels. These peak-hour congestion levels are generally consistent with expectations; they remain stable or slightly decreased for Tier 1 compared to Baseline, and for Tier 2/Vision compared to Tier 1. While congestion reduction between these scenarios is seen throughout the County, the largest reductions occur in the East County (e.g. “severely congested” lane miles decreases from 11% in Baseline to 9% in Tier 1; moderately congested decreases from 21% in Baseline to 18% in Tier 1.) This result reflects planned capital investments in BART and I-580 HOV/HOT lanes.

The mode of travel results in Table A.2 show relatively minor changes for the Tier 1 and Tier 2/Vision scenarios compared to the Baseline. The most noticeable change is in the extent of walking in North County. While the magnitude of transit and non-motorized investments may have created an expectation for a larger mode split away from drive alone, the CWTP scenarios actually include a range of capital and programmatic investments across all modes of travel and geographic areas creating a balanced investment portfolio. This type of balanced portfolio improves performance for some measures (e.g. accessibility and congestion), but leaves others

such as mode of travel minimally changed or unchanged. A noticeable change in mode split would potentially occur with an investment portfolio that is heavily concentrated in an individual mode and/or geographic area, but such imbalanced investment could have undesirable effects on other performance measures.

The accessibility metrics in Tables A.3 and A.4 show strong and consistent improvements throughout the County, especially for access to public transit. The strongest access improvements occur for the lowest income quartile.

For the Tier 1 scenario, activity center accessibility improves in the North, Central and South regions, and remains stable for East County. This sub-regional difference is created by the improved bus service for North, Central and South counties (relative to Baseline), while the BART to Livermore Phase I project under the Tier 1 scenario does not increase access to employment centers (within a 30 minute travel time) due to required transfers between the express bus and rapid rail. The Tier2/Vision scenario extends BART rapid rail through Livermore. The combination of eliminating the rail/bus transfer and directly serving more employment centers with rail results in a large accessibility improvement for East County. It should be noted that BART to Livermore Phases I and II evaluated in this effort were representative of a one-station and bus extension, and a two-station extension to the Greenville Road area. BART is in the process of developing more detailed descriptions of both phases.

Table A.2 Percent of Daily Trips by Mode of Travel

Planning Area	Drive-Alone	Carpool	Transit	Walk	Bicycle
Baseline (5.76 million countywide trips)					
North	46%	30%	11%	12%	2%
Central	53%	33%	6%	8%	1%
South	53%	34%	4%	8%	1%
East	55%	33%	4%	8%	1%
County - All	50%	32%	7%	9%	2%
Tier 1 Scenario (5.77 million countywide trips)					
North	45%	29%	11%	13%	2%
Central	53%	32%	6%	8%	1%
South	52%	34%	4%	8%	1%
East	55%	32%	4%	8%	1%
County - All	50%	31%	7%	10%	2%
Tier 2/Vision Scenario (5.78 million countywide trips)					
North	44%	29%	11%	14%	2%
Central	52%	32%	6%	9%	1%
South	52%	33%	5%	9%	1%
East	54%	32%	4%	9%	1%
County - All	49%	31%	7%	11%	2%

Note: Totals may not equal sums due to rounding.

Table A.3 Activity Center Accessibility

Planning Area	Households within a peak period 30-min transit ride and a 20-min drive of one employment center and a 0.5-mile walk of a grade school by income group			
	< \$45,000	\$45,000-\$81,000	\$81,000-\$135,000	> \$135,000
Baseline				
North	75%	70%	65%	54%
Central	70%	69%	65%	53%
South	28%	29%	28%	21%
East	31%	24%	22%	16%
County - All	67%	58%	49%	36%
Tier 1				
North	85%	80%	73%	58%
Central	75%	73%	69%	55%
South	44%	44%	41%	34%
East	30%	24%	22%	17%
County - All	76%	66%	55%	41%
Tier 2/Vision				
North	90%	86%	78%	64%
Central	79%	78%	75%	64%
South	51%	51%	48%	43%
East	37%	31%	29%	21%
County - All	81%	72%	61%	48%

Note: Household income is shown in year 2010 dollars.

Public transit access (Table A.4) improves in all sub-regions for the Tier 1 and Tier 2/Vision scenarios, and in some cases exhibits patterns that are not consistent with activity center accessibility shown in Table A.3. For example:

- In South County, public transit access improves by over 40 percentage points for Tier 1 and Tier 2/Vision scenarios, while activity center access improves by 10 to 20 percentage points. The changes to public transit access are related to bus service reduction in the Baseline scenario, which results in many local bus routes in the South County not meeting the definition of “frequent bus service”. Bus service restoration and expansion in the Tier 1 and Tier 2/Vision scenarios, plus construction of the Irvington BART station, results in a majority of South County households being located near a rail stop or bus route with frequent service.
- For East County, public transit access improves in the Tier 1 scenario even though activity center access had shown no change. The public transit access improvements for Tier 1 are created by bus service restoration and expansion, as occurred in South County, combined with implementation of the BART to Livermore Phase I (BTL I) project (which adds a rail

station and express bus service to several PDAs). While these Tier 1 features improve transit *access* for many East County residents, they do not improve transit travel times to employment centers in adjacent subregions or counties. It should be noted that BART to Livermore Phases I and II evaluated in this effort were representative of a one-station and bus extension (Phase I), and a two-station extension (Phase II) to the Greenville Road area. BART is in the process of developing more detailed descriptions of both phases.

Daily transit ridership (Table A.5) shows an expected increase for the Tier 1 and Tier 2/Vision scenarios. Some transit options show ridership decreases due to shifts between transit modes as rail service is expanded, bus service is restored, and walk and bicycle access times to some rail stations is improved. For example, East Bay Ferries show decrease for Tier 1 due to increased express bus frequencies in this scenarios (relative to the Baseline scenario). For the Tier 2/Vision scenario, some ferry riders are shifting to BART due to improved walk/bicycle access times in PDAs that are near most BART stations. BART ridership is being affected by the same bus frequency and walk/bicycle access factors.

Table A.4 Public Transit Accessibility

Planning Area	Share of households within 1/4 mile of frequent bus service, or 1/2 mile of a rail transit stop, by household income			
	< \$45,000	\$45,000-\$81,000	\$81,000-\$135,000	> \$135,000
Baseline				
North	94%	92%	86%	74%
Central	87%	84%	78%	66%
South	22%	20%	20%	13%
East	2%	4%	5%	5%
County-all	80%	68%	54%	40%
Tier 1				
North	97%	94%	91%	83%
Central	90%	87%	82%	72%
South	62%	63%	59%	51%
East	25%	22%	21%	17%
County-all	88%	79%	69%	56%
Tier 2/Vision				
North	97%	96%	95%	92%
Central	92%	89%	84%	73%
South	68%	67%	64%	55%
East	13%	13%	13%	11%
County-all	88%	79%	69%	58%

Notes: Household income is shown in year 2010 dollars.

Frequent bus service, for this analysis, is a route with peak-period headways of 14 minutes or less.

Table A.5 Public Transit Daily Boardings in Alameda County

Scenario	Baseline	Tier 1	Tier 2/Vision
BART	270,439	270,334	259,582
Conventional Rail ^a	1,948	4,348	4,511
AC - Local	302,606	331,614	383,196
AC - Transbay	18,621	20,043	19,582
LAVTA	6,180	7,767	8,730
Union City	1,759	2,418	2,992
East Bay Ferries	3,722	3,657	3,219
Dumbarton	3,000	4,153	4,138
Other Local Routes ^b	4,926	3,728	3,506
Countywide	613,201	648,062	689,456

^c Conventional rail trips represent total boardings at Alameda County Stations on Amtrak and ACE lines.

^b Other local routes include shuttles in West Berkeley, Emeryville, Broadway Avenue, and Wheels/ACE.

The transit passengers per revenue hour (Table A.6) reduces slightly from the Baseline scenario because although transit ridership increases, the increase is not proportional to the increase in service hours provided. This ratio improves somewhat in the Tier 2/Vision scenario relative to the Tier 1 scenario due to the fact that the percentage increase in ridership is larger than the percentage increase in transit hours of service between the two scenarios. This suggests that transit service in the Tier 2/Vision scenario is focused in areas that have a greater potential to generate new ridership.

The average travel times shown in Table A.7a through A.7d generally decrease for the Tier 1 and Tier2/Vision compared to Baseline. The magnitude of change is heavily influence by the number of type of transportation investments in the roadway or transit corridors that serve each travel market. For example, Central San Jose to East County shows substantial travel time improvements in Tier 1 for drive-alone, carpool and truck modes due to many planned investments on I-680 and I-580. The situation is different between Central San Jose and South County; in this market, travel times do not change between scenarios since substantial investments have been completed in recent years and are included in the Baseline scenario.

Table A.6 Transit Passengers per Revenue Hour (Bus Transportation Only)

	Baseline	Tier 1	Tier 2/Vision
Passengers per Revenue Hour of Service	54	49	51

A comparison of results between Tables A.7a, A.7b and A.7c shows that the pattern of changes is not consistent within individual travel markets. For example, in the North-North market, carpool is slower than drive alone while drive alone is slower than truck. These seeming anomalies actually reflect the average travel time for ALL trips that occur in the market. On average, carpool trips tend to be more common in longer distance markets while drive alone trips are more common in shorter distance markets (due the perceived “hassle” of carpooling for short trips). Since an “average” carpool trip will have a longer distance than an “average” drive alone trip, average carpool travel time will also be longer. The likely reason for truck travel time being shorter than other modes for some O-D pairs is that trucks tend to make more direct , shorter and higher speed trips on freeways connecting pickup and drop off points, whereas other types of trips (e.g. drive alone and carpool) go into residential areas on local roads and tend to be longer.

Table A.7a Minutes of Average Travel Time - Drive-Along Mode

Planning Area Origin	Planning Area Destination	Minutes of Travel Time - A.M. - One Hour Peak Period			Minutes of Travel Time - P.M. - One Hour Peak Period		
		Baseline	Tier 1	Tier 2/ Vision	Baseline	Tier 1	Tier 2/ Vision
North	North	18	19	18	16	16	16
Central	Central	13	13	13	12	12	12
Downtown SF	North	43	44	48	53	51	51
North	Downtown SF	67	67	62	40	40	40
Cen. San Jose	East	59	52	51	75	65	62
East	Central San Jose	96	93	86	67	65	61
Central San Jose	South	35	34	35	34	34	34
South	Central San Jose	34	34	34	35	35	35
North	South	43	43	42	58	56	53
South	North	68	64	64	52	49	49

Table A.7b Minutes of Average Travel Time - Carpool Mode

Planning Area Origin	Planning Area Destination	Minutes of Travel Time - A.M. - One Hour Peak Period			Minutes of Travel Time - P.M. - One Hour Peak Period		
		Baseline	Tier 1	Tier 2/ Vision	Baseline	Tier 1	Tier 2/ Vision
North	North	21	21	20	17	17	17
Central	Central	13	13	13	12	12	12
Downtown SF	North	54	54	57	54	52	52
North	Downtown SF	64	64	56	45	46	44
Cen. San Jose	East	58	49	47	73	48	47
East	Central San Jose	90	83	76	62	59	57
Central San Jose	South	35	34	34	31	30	30
South	Central San Jose	32	32	32	33	33	33
North	South	36	36	35	51	50	48
South	North	72	68	66	39	36	36

Table A.7c Minutes of Average Travel Time - Heavy Truck Mode

Planning Area Origin	Planning Area Destination	Minutes of Travel Time - A.M. - One Hour Peak Period			Minutes of Travel Time - P.M. - One Hour Peak Period		
		Baseline	Tier 1	Tier 2/ Vision	Baseline	Tier 1	Tier 2/ Vision
North	North	16	16	16	15	15	15
Central	Central	11	11	11	11	11	11
Downtown SF	North	31	31	37	49	47	48
North	Downtown SF	62	62	57	37	37	37
Cen. San Jose	East	59	52	51	73	64	62
East	Central San Jose	93	91	84	67	65	61
Central San Jose	South	34	33	33	32	31	31
South	Central San Jose	31	31	31	35	35	34
North	South	45	44	43	61	59	56
South	North	69	64	65	55	52	52

Table A.7d Minutes of Average Travel Time - Transit Mode

Planning Area Origin	Planning Area Destination	Minutes of Travel Time - Overall Average		
		Baseline	Tier 1	Tier 2/Vision
North	North	39	36	36
Central	Central	39	37	36
Downtown SF	North	42	42	50
North	Downtown SF	44	43	46
Cen. San Jose	East	120	119	112
East	Central San Jose	117	115	107
Central San Jose	South	79	77	75
South	Central San Jose	81	79	77
North	South	94	96	93
South	North	82	79	80

Table A.8a Peak to Off-Peak Travel Time Ratio - Drive-Along Mode

Planning Area Origin	Planning Area Destination	Ratio of Peak to Off Peak Travel Time A.M. One Hour Peak			Ratio of Peak to Off Peak Travel Time P.M. One Hour Peak		
		Baseline	Tier 1	Tier 2/ Vision	Baseline	Tier 1	Tier 2/ Vision
North	North	1.3	1.3	1.3	1.1	1.1	1.1
Central	Central	1.2	1.1	1.1	1.1	1.0	1.0
Downtown SF	North	1.8	1.8	2.0	2.2	2.1	2.1
North	Downtown SF	2.7	2.7	2.4	1.6	1.6	1.6
Cen. San Jose	East	1.4	1.2	1.2	1.8	1.6	1.5
East	Central San Jose	2.3	2.2	2.0	1.6	1.5	1.4
Central San Jose	South	1.3	1.2	1.2	1.2	1.2	1.2
South	Central San Jose	1.2	1.2	1.2	1.3	1.3	1.3
North	South	1.3	1.3	1.2	1.7	1.6	1.5
South	North	2.0	1.9	1.9	1.5	1.5	1.4

Table A.8b Peak to Off-Peak Travel Time Ratio - Carpool Mode

Planning Area Origin	Planning Area Destination	Ratio of Peak to Off Peak Travel Time A.M. One Hour Peak			Ratio of Peak to Off Peak Travel Time P.M. One Hour Peak		
		Baseline	Tier 1	Tier 2/ Vision	Baseline	Tier 1	Tier 2/ Vision
North	North	1.4	1.5	1.4	1.2	1.2	1.1
Central	Central	1.2	1.1	1.1	1.0	1.0	1.0
Downtown SF	North	2.1	2.1	2.2	2.1	2.0	2.0
North	Downtown SF	2.4	2.3	2.1	1.7	1.7	1.6
Cen. San Jose	East	1.4	1.2	1.1	1.8	1.2	1.1
East	Central San Jose	2.2	2.0	1.8	1.5	1.4	1.4
Central San Jose	South	1.3	1.2	1.2	1.1	1.1	1.1
South	Central San Jose	1.2	1.2	1.2	1.2	1.2	1.2
North	South	1.2	1.1	1.1	1.7	1.6	1.5
South	North	2.3	2.2	2.1	1.2	1.2	1.2

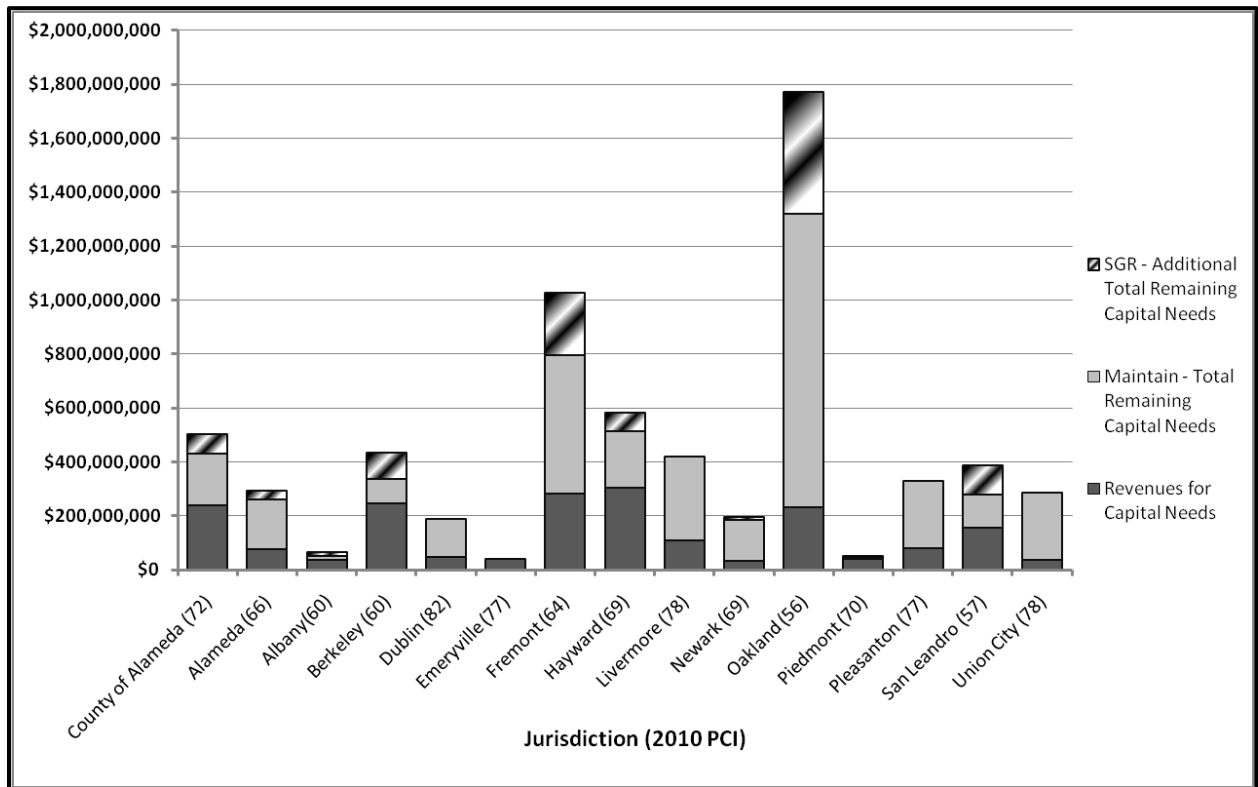
Table A.8c Peak to Off-Peak Travel Time Ratio - Heavy Truck Mode

Planning Area Origin	Planning Area Destination	Ratio of Peak to Off Peak Travel Time A.M. One Hour Peak			Ratio of Peak to Off Peak Travel Time P.M. One Hour Peak		
		Baseline	Tier 1	Tier 2/ Vision	Baseline	Tier 1	Tier 2/ Vision
North	North	1.2	1.2	1.2	1.2	1.2	1.1
Central	Central	1.1	1.1	1.1	1.1	1.1	1.1
Downtown SF	North	1.4	1.4	1.6	2.2	2.1	2.1
North	Downtown SF	2.6	2.6	2.3	1.5	1.5	1.5
Cen. San Jose	East	1.4	1.3	1.2	1.8	1.5	1.5
East	Central San Jose	2.2	2.2	2.0	1.6	1.5	1.5
Central San Jose	South	1.3	1.2	1.2	1.2	1.2	1.2
South	Central San Jose	1.2	1.2	1.1	1.3	1.3	1.3
North	South	1.3	1.3	1.2	1.7	1.7	1.6
South	North	2.0	1.8	1.8	1.6	1.5	1.5

Table A.8d Peak to Off-Peak Travel Time Ratio - Transit Mode

Planning Area Origin	Planning Area Destination	Ratio of Peak to Off Peak Travel Time - Overall		
		Baseline	Tier 1	Tier 2/ Vision
North	North	1.1	1.1	1.1
Central	Central	1.0	1.0	1.0
Downtown SF	North	1.0	1.0	1.1
North	Downtown SF	1.0	1.0	1.0
Cen. San Jose	East	1.2	1.2	1.1
East	Central San Jose	1.2	1.2	1.1
Central San Jose	South	1.1	1.1	1.1
South	Central San Jose	1.3	1.2	1.2
North	South	1.3	1.4	1.3
South	North	1.2	1.2	1.3

Figure A.1 28-Year Capital LSR Needs/Revenues for the *Maintain PCI* and *State of Good Repair* Scenarios



Source: Metropolitan Transportation Commission. The *State of Good Repair* scenario maintains a PCI of 75 for all jurisdictions. The *Maintain* scenario holds the PCI at the level indicated in parentheses after each jurisdiction name in the chart.

Table A.9 Transit Vehicle Conditions

	Percentage of Remaining Service Life		
	Baseline	Tier 1	Tier 2/ Vision
Cars	28%	28%	28%
Vans and 25-Foot Buses	50%	63%	63%
Buses 25 to 30 Feet	15%	23%	23%
Buses Greater Than 30 Feet	0% ^a	27%	48%
Average Percent RSL	23%	35%	41%

^a The financial allocation methodology for remaining vehicle life was designed to allocate funds in ascending order by vehicle size. Therefore, if there are limited funds, the larger vehicles will be left with no vehicle replacement in that year. For 2035, there were not enough funds to purchase the last category of vehicles - large buses - and all vehicles by that year were greater than 12 years old (suggesting that there were a number of years when large buses were not purchased). This is a simplified methodology that does not take into account transit agencies' individual capital project prioritization processes or rules regarding maximum service life.

Table A.10 Safety - Collisions by Type (Injury, Fatality, and Property Damage)

Mode	Baseline		Tier 1		Tier 2/Vision	
	Region	Alameda County	Region	Alameda County	Region	Alameda County
Motor Vehicle Fatal	674	151	677	151	674	150
Motor Vehicle Injury	53,478	11,952	53,698	12,021	53,455	11,943
Motor Vehicle Property Damage Only (PDO)	95,726	21,394	96,119	21,518	95,685	21,378
Walk Fatal	168	38	169	38	168	38
Walk Injury	4,424	989	4,443	995	4,423	988
Bicycle Fatal	30	7	30	7	30	7
Bicycle Injury	4,019	898	4,035	903	4,017	898
Total Annualized (Less Property Damage Only)	58,369	13,045	58,608	13,121	58,344	13,035
Average Weekday	160	36	161	36	160	36

Table A.11 Daily Hours of Time Spent Walking / Biking

Trip Origin Planning Area	Total Daily Time Spent Walking / Biking (hours)					
	Baseline		Tier 1		Tier 2/Vision	
	Bicycle	Walk	Bicycle	Walk	Bicycle	Walk
North	14,772	109,828	14,518	112,599	14,019	114,422
Central	5,784	35,482	5,674	36,285	5,519	37,941
South	5,345	33,976	5,178	34,467	5,001	35,797
East	2,175	24,168	2,157	24,488	2,093	25,885
Countywide	28,076	203,455	27,528	207,839	26,633	214,045

Table A.12 GHG and Fine Particulate Matter Emissions

Scenario	Tons of Daily Emissions	
	CO ₂ (GHG)	PM _{2.5}
Baseline	19,777	1.61
Tier 1	19,722	1.60
Tier 2/Vision	19,443	1.57

Note: Baseline figures include the effects of emissions reductions from Pavely I and the Low Carbon Fuel Standard.

Appendix B. Land Use and Investment Assumptions

Appendix B provides supplementary information on land use assumptions used in this (November 2011) and the previous (July 2011) performance evaluation and provides the project and program funding assumptions for the Baseline (e.g. Existing plus Committed Projects), Tier 1, and Tier 2/Vision scenarios.

The following detailed tables and figures related to land use data are included:

- Table B.1 – 2035 Alameda County Socioeconomic Data
- Table B.2 – Bay Area County Socioeconomic Data
- Table B.3 – Comparison of Performance Results from the July 2011 and Current Nov 2011 Baseline 2035 Forecasts

The following tables detail the project and program assumptions included in the modeling analysis:

- Table B.4 –Committed Projects - included in all Baseline, Tier 1, and Tier 2/Vision scenarios
- Table B.5 - Projects Fully Funded by the Countywide Plan - included in the Tier 1 and Tier2/Vision Scenarios
- Table B.6 – Projects Partially Funded by the Countywide Plan – included in the Tier 2/Vision Scenario
- Table B.7 – Other Tier 2/Vision Projects – included in the Tier 2/Vision Scenario
- Table B.8 - Program Funding Levels by Scenario

Land Use Assumptions

During the summer and early fall of 2011, the Alameda CTC and the CWTP consultant team worked with the local jurisdictions (cities and the county) to review the Sustainable Communities Strategy (SCS) land use concepts being developed by ABAG and MTC and obtain their input.

A range of Alameda County land use alternatives were developed that focused household and employment growth into the Priority Development Areas and Growth Areas and maintained consistency with data being developed by ABAG and MTC for the constrained Alternative Land Use Scenarios. As the ABAG and MTC regional land use scenarios were reviewed, additional growth opportunities were identified with a particular focus on employment growth locations that could be better served by transit, which could benefit from an aggressive set of TDM measures. Total household and jobs growth were kept within the range of the alternative SCS scenarios that had been released by ABAG and MTC in August 2011.

Table B.1 2035 Alameda County Socioeconomic Data

Jurisdiction	Households	Population	Employment	Employed Residents
Alameda	35,055	86,023	33,980	43,680
Alameda County	1,375	4,140	225	2,074
Albany	8,549	21,523	7,598	10,955
Ashland	8,785	26,591	4,086	11,009
Berkeley	55,299	133,463	86,684	69,613
Castro Valley	23,382	62,756	14,784	31,181
Cherryland	5,187	15,925	2,551	6,372
Dublin	29,204	85,074	33,328	30,717
Emeryville	10,368	18,377	24,581	5,451
Fremont	96,411	292,373	113,824	148,630
Hayward	60,028	192,011	81,242	86,876
Livermore	40,059	111,822	57,024	53,650
Newark	19,741	65,063	23,039	30,635
Oakland	195,732	492,362	241,078	215,855
Piedmont	3,828	10,728	2,143	5,177
Pleasanton	32,207	89,750	64,709	48,035
San Leandro	38,584	107,130	52,409	48,509
San Lorenzo	9,676	30,553	3,834	13,250
Union City	23,363	79,724	27,484	37,022
Alameda Co. Total	696,834	1,925,387	874,605	898,691

Table B.2 2035 Bay Area County Socioeconomic Data

County	Households	Population	Employment	Employed Residents
Alameda*	696,834	1,925,387	874,605	898,691
Contra Costa	474,276	1,323,937	440,259	559,896
Marin	112,596	275,079	143,721	98,286
Napa	54,403	151,575	74,763	66,398
San Francisco	419,362	972,647	699,670	444,899
San Mateo	318,413	887,527	418,866	363,905
Santa Clara	817,241	2,400,569	1,026,403	977,656
Solano	167,942	487,741	218,458	202,692
Sonoma	214,326	558,687	218,641	244,929
Region Total	3,275,597	8,971,076	4,111,982	3,854,828

*Note: Alameda County value represents the county specific adjustments. All other values reflect ABAG's Focused Growth alternative land use scenario developed for the Bay Area RTP/SCS.

Table B.3 Comparison of Performance Results from the July 2011 and Current Nov 2011 Baseline 2035 Forecasts

Performance Measure	Definition	July 2011	Nov, 2011
Congestion	% of lane miles moderately and severely congested during AM (PM) peak period	NA	29%(33%)
Alternative modes	% trips made by non-automobile modes	17%	18%
Activity center accessibility	% of low-income (<\$25k annual) households within 20 min. drive or 30 min. transit ride of activity center or 0.5 mi from grade school	70%	67%
Public transit accessibility	% of low-income (<\$25k annual) households within 0.25mi of bus route or 0.5mi rail transit stop	81%	80%
Public transit usage	Daily public transit ridership	567,357	613,201
Transit efficiency	Transit passengers carried per transit revenue hour of service offered (bus only)	45	54
Travel time	Average travel time per trip in minutes for selected origin-destination pairs in the AM (PM) 1-hr peak period, drive alone trips. See Table A.7a for detail	58(53)	48 (44)
	Same as above for transit trips. See Table A.7d for detail	75	74
Reliability	Average ratio of AM (PM) 1-hr peak period to off-peak period travel times for selected origin-destination pairs, drive alone trips	1.9 (1.8)	1.6 (1.5)
	Same as above for transit trips	1.1	1.1
Maintenance	Unmet maintenance needs over 28 years assuming current pavement conditions	N/A	
	Percentage of remaining service life for transit vehicles in 2035	38%	23%
Safety	Annual projected injury and fatality crashes	13,456	13,045
Biking and Walking	Average duration of a bicycling trip	18	N/A
	Average duration of a walking trip	23	N/A
Clean Environment	Tons of daily greenhouse gas emissions	21,630	19,777
	Tons of daily particulate (PM 2.5) emissions	1.8	1.61

Source: Differences in the two baseline outcomes are due to several factors, including land use assumptions (the July run used the adjusted SCS Alternative Future Scenario whereas the November run used the adjusted Focused Growth Scenario); small changes to the list of committed projects; and a 15% reduction to peak period transit frequency in the November to reflect programmatic spending changes.

Table B.4 Committed Projects Included in the 2035 Future Baseline

Project Name	Planning Area	Cost
Countywide Local Projects		
I-880 Widening for SB HOV Lane in Oakland and San Leandro	Central	\$109.40
I-880 NB and SB Auxiliary Lanes	Central	\$15.40
I-880 Auxiliary Lanes in Hayward	Central	\$9.50
Rte 92/Clawiter Road Whitesell Interchange Improvement, Phase 1 (Hayward)	Central	\$27.50
Route 238 Corridor Improvements in Hayward	Central	\$118.70
Clawiter-Whitesell Interchange Improvements in Hayward	Central	\$52.00
I-880 Industrial Parkway Interchange in Hayward	Central	\$43.00
SR 92 Industrial Interchange in Hayward	Central	\$6.00
East 14th Street/Hesperian Boulevard/150 th Street channelization improvements in San Leandro	Central	\$6.60
I-880 Davis Street Interchange in San Leandro	Central	\$10.20
I-880 Marina Boulevard Interchange in San Leandro	Central	\$31.80
SR 262 Widening and Interchange Improvements in Fremont	South	\$58.10
Union City Intermodal, Phase 1	South	\$57.00
I-580 Widening for HOV and Aux Lanes in Pleasanton and Livermore	East	\$291.30
I-580 EB Express (HOT) Lane in Pleasanton and Livermore	East	\$19.00
I-580 EB Auxiliary Lane Project (Isabel to Livermore Ave; Livermore Ave to First)	East	\$40.00
Alamo Canal Trail under I-580 in Dublin	East	\$2.70
Construct a 4-lane Major Arterial in Livermore connecting Dublin Blvd. and North Canyons Parkway	East	\$12.00
Las Positas Road Connection, Phase 2, in Livermore	East	\$3.50
I-680 Bernal Interchange Improvements in Pleasanton	East	\$4.00
Stoneridge Drive Extension in Pleasanton	East	\$16.20
I-880 Integrated Corridor Mobility (580/80/880 to SR-237)	Regional	\$45.70
I-80 Integrated Corridor Mobility	Regional	\$69.10
Subtotal		\$1,048.70
Regional and Multijurisdictional Projects		
BART-Oakland International Airport Connector	North	\$484.10
BART Warm Springs extension	South	\$890.00
I-580 Corridor ROW Preservation	East	\$120.70
I-580 Eastbound Truck Climbing Lane	East	\$64.20
Subtotal		\$1,559.00
TOTAL		\$2,607.70

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Table B.5 - Projects Fully Funded by Countywide Plan - Included in Tier 1 and Vision Scenarios (revised Oct 2011)

RTPID	Project Name	Project Sponsor	Planning Area	Other Planning Process	Composite Value (July 2011 analysis)	Transportation Type**	Total Cost Estimate	Funds Already Identified	Discretionary Funding Request	Proposed Funding
Alameda County Projects										
240324	Fruitvale Avenue (Miller Sweeney) Lifeline Bridge Project (bike/pedestrian elements)	Alameda County/City of Alameda	North			B/P	\$41			\$41
240207	Bay Trail Extension - Berkeley Marina	City of Berkeley	North			B/P	\$31			\$31
240003	I-80 Bike Ped Bridge (65th Street)	City of Emeryville	North			B/P	\$22			\$22
240227	Tennyson Road Pedestrian/bike bridge (from Nuestro Parquecito to South Hayward BART station – Included in Bicycle Master Plan)	City of Hayward	Central			B/P	\$2			\$2
240347	Bike/ped bridge over Lake Merritt Channel	City of Oakland	North			B/P	\$77			\$32
240347	Gap Closure and Development of Three Major Trails in Alameda County (Iron Horse, Bay Trail, East Bay Greenway Project / UPRR Corridor Improvements Project)	City of Oakland	North			B/P	\$114			\$114
240347	Gap Closure and Development of Three Major Trails in Alameda County (Iron Horse, Bay Trail, East Bay Greenway Project / UPRR Corridor Improvements Project)	City of San Leandro	Central			B/P	\$115			\$115
22769	I-880 at 23rd/29th Avenue interchange safety and access improvements	ACTC	North	Measure B	L	H	\$102	\$99	\$4	\$4
240047	I-880 West A Street Interchange	ACTC	Central	LATIP	M	H	\$43	\$0	\$43	\$43
22776	SR 84 Expressway Widening (Pigeon Pass to Jack London)	ACTC	East		L	H	\$137	\$127	\$10	\$10
21144	I-80 Gilman Street Interchange Improvements	ACTC /City of Berkeley	North		L	H	\$25	\$1	\$24	\$24
21126	SR 84 WB HOV on ramp from Newark Blvd	Caltrans	South	LATIP	M	H	\$13	\$0	\$13	\$13
22002	I-880 NB HOV lane extension from HOV terminus at Bay Bridge approach to Maritime	Caltrans	North		H	H	\$19	\$0	\$19	\$19
98207	I-880 Broadway/Jackson Interchange, ramp and circulation improvements; and Alameda Point, Downtown Oakland, and Jack London Square Transit Access	City of Alameda/City of Oakland	North	Measure B	H	H	\$81	\$8	\$75	\$75
22779	Route 262/I-880 interchange improvements, Ph 2 -Construct grade separation at Warren Avenue/Union Pacific RR	City of Fremont	South	Measure B (Partial), LATIP	M	H	\$78	\$0	\$78	\$78
240037	I-880 Winton Avenue interchange improvements	City of Hayward	Central	LATIP	L	H	\$25	\$0	\$25	\$25
240562	Rte 92/Clawiter Road Whitesell interchange improvement, Ph 2	City of Hayward	Central	Measure B, LATIP	L	H	\$52	\$52	\$0	\$0
230132	I-580/Isabel Avenue Intechange, Phase 2	City of Livermore	East	Measure B		H	\$30	\$25	\$5	\$5
21477	I-580 Greenville interchange	City of Livermore	East		H	H	\$46	\$37	\$9	\$9
21100	I-580 Vasco interchange	City of Livermore	East		M	H	\$60	\$52	\$8	\$8
21475	I-580 First St. interchange	City of Livermore	East		M	H	\$40	\$35	\$5	\$5
230170	I-880: 42nd/High Street Access Improvements	City of Oakland	North	I-880 Study	L	H	\$17	\$6	\$11	\$11
230171	Route 24 /Caldecott Tunnel Enhancements -Settlement Agreement projects	City of Oakland	North			H	\$15			\$7
21489	I-580 /Foothill/San Ramon Interchange improvements	City of Pleasanton	East		M	H	\$4	\$3	\$1	\$1
240052	I-880 / Whipple Road Interchange Improvement	City of Union City	South	LATIP	L	H	\$60	\$0	\$60	\$60
240261	Scarlett Drive Extension from Dougherty Road to Dublin Boulevard	City of Dublin	East	Measure B	H	R	\$13	\$0	\$13	\$13
94506	East-West Connector Project in North Fremont and Union City	ACTC	South	Measure B (1986), LATIP	H	R	\$190	\$107	\$83	\$83
230110	Route 262 Mission Boulevard Cross Connector Improvements between I-680 and Warm Springs Boulevard SR 262 Mission Blvd Improvements	ACTC/ City of Fremont	South	Measure B, LATIP	M	R	\$20	\$0	\$20	\$20

Table B.5 - Projects Fully Funded by Countywide Plan - Included in Tier 1 and Vision Scenarios (revised Oct 2011)

RTPID	Project Name	Project Sponsor	Planning Area	Other Planning Process	Composite Value (July 2011 analysis)	Transportation Type**	Total Cost Estimate	Funds Already Identified	Discretionary Funding Request	Proposed Funding
240094	Crow Canyon Road Safety Improvements Project	Alameda County	Central			R	\$16			\$15
240100	Park Street Bridge Replacement Project	Alameda County	North			R	\$46			\$46
240350	Local Road Safety - Marin Avenue	City of Albany	North		N/A	R	\$3		\$3	\$3
	Solano Avenue pavement resurfacing and beautification	City of Albany	North			R	\$3		\$3	\$3
	San Pablo Avenue medians, rain gardens, and streetscape improvements	City of Albany	North			R	\$3		\$3	\$3
240202	SR 13/Ashby Avenue Corridor Improvements	City of Berkeley	North		N/A	R	\$8		\$8	\$8
240038	Dougherty Road Widening from Sierra Lane to North city Limit	City of Dublin	East		L	R	\$18	\$7	\$11	\$11
240250	Dublin Boulevard Widening from Sierra Court to Dublin Court	City of Dublin	East		L	R	\$4	\$1	\$4	\$4
230114	Auto Mall Parkway Cross Connector Widening between I-680 and I-880	City of Fremont	South	Measure B	M	R	\$24	\$0	\$24	\$24
240264	Widen Fremont Boulevard from I-880 to Grimmer Boulevard	City of Fremont	South		H	R	\$5	\$0	\$5	\$5
21484	Kato Road widening from Warren Ave. to Milmont	City of Fremont	South		M	R	\$12	\$0	\$12	\$12
240263	Upgrade Relinquished Route 84 in Fremont	City of Fremont	South		H	R	\$43		\$43	\$43
240055	Tennyson Road Grade Separation	City of Hayward	Central			R	\$14			\$14
240254	Greenville Widening	City of Livermore	East		M	R	\$10	\$5	\$5	\$5
240272	Thornton Avenue Widening	City of Newark	South		M	R	\$9	\$0	\$9	\$9
240024	Oakland Army Base Transportation Infrastructure Improvements	City of Oakland	North		H	R	\$209	\$94	\$115	\$115
240139	I-680 Stoneridge Drive overcrossing widening	City of Pleasanton	East		H	R	\$5	\$1	\$4	\$4
240175	Bernal Bridge (west) second bridge construction (Non-Capacity Increasing Local Bridge Rehabilitation/Replacement/Retrofit)	City of Pleasanton	East			R	\$5			\$5
230103	Grade Separation in the Decoto neighborhood	City of Union City	South		M	R	\$130	\$0	\$130	\$130
240053	Whipple Road from I-880 to Mission Boulevard Widening and Enhancement	City of Union City	South		M	R	\$100	\$0	\$100	\$100
240051	Union City Boulevard (widen to 3 lanes from Whipple Road in Union City to Industrial Parkway in Hayward)	City of Union City	South		M	R	\$10	\$0	\$10	\$10
22760	Outer Harbor Intermodal Terminal (OHIT)	Port of Oakland	North		H	RF	\$217	\$170	\$46	\$46
22082	7th Street Grade Separation & Roadway Improvement Project	Port of Oakland	North		H	RF	\$221	\$110	\$110	\$110
240208	Safety improvements at UPRR - Fremont Blvd, Maple, Dusterberry, Nursery	City of Fremont	South			RF	\$3			\$3
240372	College/Broadway Corridor Improvements - Transit Priority Measures	AC Transit	North			TB	\$5			\$5
	Foothill TSP - Transit Priority Measures	AC Transit	Central			TB	\$2			\$2
	Grand/MacArthur Corridor Improvements - Transit Priority Measures	AC Transit	North			TB	\$4			\$4
240077	Rapid Bus Service - City of Alameda and Alameda Point PDA (Alameda Naval Station) to Fruitvale BART	City of Alameda	North			TB	\$9			\$9
240217	Downtown Berkeley BART Plaza and Transit Area Enhancements	City of Berkeley	North	TLC	N/A	TB	\$6	\$2	\$4	\$4
240226	Berkeley Ferry Terminal Access Improvements	City of Berkeley	North			TF	\$106			\$106
240014	Construct new Ferry Operations and Maintenance Facility in Alameda.	WETA	North			TF	\$37			\$37

Table B.5 - Projects Fully Funded by Countywide Plan - Included in Tier 1 and Vision Scenarios (revised Oct 2011)

RTPID	Project Name	Project Sponsor	Planning Area	Other Planning Process	Composite Value (July 2011 analysis)	Transportation Type**	Total Cost Estimate	Funds Already Identified	Discretionary Funding Request	Proposed Funding
240304	Platform Extension at Alameda and San Joaquin Co. ACE Stations	ACE	South		M	TR	\$5	\$0	\$5	\$5
240101	Fruitvale Avenue Lifeline Bridge Project (rail)	City of Alameda / Alameda County	North			TR	\$94			\$94
240179	Downtown Berkeley Transit Center	City of Berkeley	North			TR	\$27			\$27
22062	Irvington BART Station	City of Fremont/ BART	South	Res.3434-related	M	TR	\$123	\$0	\$123	\$123
21123	Union City Intermodal Station infrastructure improvements (Phase 2)	City of Union City	South	Measure B	M	TR	\$26	\$19	\$6	\$6
	North County CBTPs - implementation of specific recommendations - including transit, local road, streetscape, bike, pedestrian and TDM elements (CBTPs in: Alameda, West Oakland, Central and East Oakland, and South and West Berkeley.)		North							\$50
	Central County CBTPs - implementation of specific recommendations - including transit, local road, streetscape, bike, pedestrian and TDM elements (Central Alameda County CBTP)		Central							\$50
Regional Projects										
22042	I-680 for NB HOV/HOT lane from SR 237 to SR 84 (includes ramp metering and auxiliary lanes)	ACTC	South	Measure B	H	H	\$81	\$8	\$75	\$75
22664	I-580 WB Express Lane from Greenville Road to Foothill Blvd	ACTC	East		H	H	\$17	\$4	\$0	\$0
240061	I-680 widening for SB HOV/HOT from Alcosta Blvd to Route 84	ACTC	East		H	H	\$136	\$0	\$0	\$0
240059	I-680 widening for NB HOV/HOT Lane from Route 84 to Alcosta Blvd	ACTC	East		H	H	\$136	\$0	\$0	\$0
230088	I-880 NB HOV/HOT Extension from north of Hacienda to Hegenberger Phase 1 and 2: I-880 extend NB HOV lanes	ACTC	Central	LATIP	H	H	\$276	\$0	\$0	\$0
22455	AC Transit East Bay Bus Rapid Transit (BRT)	AC Transit	North	Measure B, Reso 3434	H	TB	\$211	\$173	\$0	\$0
240018	Dumbarton Rail Corridor Phase I	ACTC/ SamTrans	South	Measure B, Reso 3434	M	TR	\$164	\$46	\$0	\$0
240216	Dumbarton Rail Corridor Phase II	ACTC/ SamTrans	South	Measure B, Reso 3434	M	TR	\$716	\$259	\$0	\$0
230101	Union City Passenger Rail Station & Dumbarton Rail Segment G Improvement Union City BART Phase 2 /Passenger Rail Station	City of Union City	South	Resolution 3434 (partial)	M	TR	\$180	\$34	\$147	\$73
							\$4,950	\$1,485	\$1,510	\$2,267

* Transportation Type: H:Highway, R:Roadway, RF: Road/Freight; TB: Transit Bus; TR Transit Rail; TF Transit Ferry; B/P: Bike, Pedestrian

Table B.6 - Projects Partially Funded by the Countywide Plan - included in the Vision Scenario (revised Oct 11)

Alameda County Projects												
Project Sponsor	Planning Area	Other Planning Process	Transportation Type**	Total Cost Estimate	Funds Already Identified	Discretionary Funding Request	Proposed Funding	Vision Funding Request	Regionally Funded	CWTP Tier		
240262 Sullivan Road Overcrossing Ped/Bike Safety and Trail Improvements	South		B/P	\$1.6						2		
240281 Bicycle/Pedestrian Expansion: Pedestrian and Bicycle Access Way from Downtown to Fremont BART	South		B/P	\$0.5						2		
240260 Greenbelt Gateway on Grimmer Boulevard	South			\$9.0						2		
240287 Construct Bicycle/Pedestrian Grade Separation on Blacow Road at Union Pacific railroad tracks and future BART line in Irvington Area PDA	South		B/P	\$5.9			\$2.0			2		
230100 Bicycle/Pedestrian Connector Over UPRR Tracks to Jobs Center@Union City Intermodal Station	South		B/P	\$20.0						2		
240347 Gap Closure and Development of Three Major Trails in Alameda County (Iron Horse, Bay Trail, East Bay Greenway Project / UPRR Corridor Improvements Project)	South		B/P	\$214.0						2		
240291 Rails to Trails Fremont UPRR/BART Corridor Trail	South		B/P	\$44.0			\$44.0			2		
22765 I-580/I-680 HOV Direct Connector - Project Development	East		H	\$1,167.0	\$0.0	\$17.0	\$17.0	\$1,150.0	\$0.0	2		
240106 SR-84/Sunol Improvements	East		H	\$8.0	\$0.0	\$2.0	\$2.0	\$6.0	\$0.0	2		
240657 I-580 Spot Intersection Improvements	Central		H	\$60.0	\$0.0	\$6.0	\$6.0	\$54.0	\$0.0	2		
230604 Contra Flow Lanes on Westbound Lanes of San Francisco-Oakland Bay Bridge	North		H	\$611.0	\$0.0	\$5.0	\$5.0	\$606.0	\$0.0	2		
230086 I-580 Interchange Improvements at Hacienda Drive and Fallon Road – Phase II	East		H	\$38.0	\$22.0	\$16.0	\$1.0	\$0.0	\$0.0	2		
240318 I-80 Ashby Interchange	North		H	\$52.0	\$0.0	\$0.0	\$5.0	\$47.0	\$0.0	2		
240265 Vargas Road Safety Improvement Project			R	\$5.0						2		
21103 Central Avenue Railroad Overpass	South		R	\$15.3			\$3.9			2		
240273 Mowry Avenue Railroad Overpass	South		R	\$9.0	\$0.0	\$9.0				2		
240282 Tidewater District Street Reconstruction	North		R	\$5.0	\$0.0	\$1.0	\$1.0	\$4.0	\$0.0	2		
240278 Harrison St-Oakland Avenue Major Street Improvements	North		R	\$12.0	\$1.0	\$3.0	\$3.0	\$8.0	\$0.0	2		
240280 Woodland - 81st Avenue Industrial Zone street reconstruction	North		R	\$12.0	\$0.0	\$3.0	\$3.0	\$9.0	\$0.0	2		
240270 San Leandro East 14th Streetscape Improvements	Central		R	\$8.3		\$8.3	\$1.0			2		
240302 San Leandro Local Streets and Roads Rehabilitation	Central		R	\$80.0		\$80.0	\$20.0	\$60.0		2		
240306 Lake Chabot Road Stabilization	Central		R	\$10.0		\$10.0	\$1.0			2		
22780 AC Transit Grand-MacArthur BRT	North	Reso 3434	TB	\$37.0	\$0.0	\$4.0	\$4.0	\$33.0	\$0.0	2		

Table B.6 - Projects Partially Funded by the Countywide Plan - included in the Vision Scenario (revised Oct 11)

	Project Sponsor	Planning Area	Other Planning Process	Transportation Type**	Total Cost Estimate	Funds Already Identified	Discretionary Funding Request	Proposed Funding	Vision Funding Request	Regionally Funded	CWTP Tier
22021	AC Transit	Central		TB	\$40.0	\$0.0	\$10.0	\$10.0	\$30.0	\$0.0	2
AC Transit transfer station/park-and-ride facility in Alameda County (1. Central, 2. Northern)											
240196	BART	East	Measure B	TR	\$1,250.0	\$145.0	\$1,105.0	\$400.0	\$805.0	\$0.0	2
BART to Livermore Extension Phase 1											
98139	Countywide/ACE submission	Central		TR	\$200.0	\$5.0	\$195.0	\$67.0	\$128.0	\$0.0	2
Right-of Way Preservation and track improvements in Alameda County											
98139	Countywide/ACE submission	North		TR	\$200.0	\$5.0	\$195.0	\$67.0	\$128.0	\$0.0	2
Right-of Way Preservation and track improvements in Alameda County											
98139	Countywide/ACE submission	South		TR	\$200.0	\$5.0	\$195.0	\$67.0	\$128.0	\$0.0	2
Right-of Way Preservation and track improvements in Alameda County											
230116	City of Berkeley	North		TR	\$108.2			\$11.0			2
Railroad Crossing Improvements @ Gilman											
240268	City of Fremont	South		TR	\$15.0			\$1.0			2
Construct Altamont Commuter Express/Capitol Corridor Station at Auto Mall Parkway											
240347	East	East		TR	\$53.0			\$6.0			2
Gap Closure and Development of Three Major Trails in Alameda County (Iron Horse, Bay Trail, East Bay Greenway Project / UPRR Corridor Improvements Project)											
240099	Alameda County	North			\$40.3			\$17.8			2
High Street Bridge Replacement Project											
Regional Projects											
22009	Capital Corridor	South	Reso 3434	TR	\$511.0	\$16.0	\$45.0	\$0.0	\$450.0	\$45.0	2R
Capitol Corridor intercity rail service expansion (Oakland to San Jose)											
TOTAL					\$5,042.1	\$199.0	\$1,914.3	\$765.7	\$3,646.0	\$45.0	

* Transportation Type: H:Highway, R:Roadway, RF: Road/Freight; TB: Transit Bus; TR Transit Rail; TF Transit Ferry; B/P: Bike, Pedestrian

Table B.7 - Other Vision Projects - included in the Vision Scenario (revised Oct 11)

RTPID	Project Sponsor	Planning Area	Other Planning Process	Transportation Type**	Total Cost Estimate	Funds Already Identified	Discretionary Funding Request	Proposed Funding	Vision Funding Request	Regionally Funded	CWTP Tier
230099	I-580/I-680 Improvements Phase 1	ACTC	East	H	\$528	\$0	\$0	\$0	\$528	\$0	V
240062	SR 84 / I-680 interchange and SR 84 Widening	ACTC	East	H	\$244	\$0	\$0	\$0	\$244	\$0	V
98207	I-880 Broadway/Jackson Interchange, ramp and circulation Improvements; and Alameda Point, Downtown Oakland, City of Alameda/City of Oakland and Jack London Square Transit Access	North	Measure B	H	\$106	\$0	\$0	\$0	\$106	\$0	V
240144	I-580 Santa Rita Interchange improvements	City of Pleasanton	East	H	\$3	\$1	\$2	\$0	\$2	\$0	V
240141	I-680 Sunol Boulevard Interchange (Non-Capacity Increasing Freeway/Expressway Interchange Modifications)	City of Pleasanton	East	H	\$1	\$0	\$1	\$0	\$1	\$0	V
240092	Lewelling Blvd. / Hesperian Blvd. Intersection Improvements Project (I-880 Hesperian/Lewelling Interchange)	Alameda County	Central	R	\$5	\$0	\$0	\$0	\$5	\$0	V
230243	Access Improvements to West End Transit Hub on Mariner Square Drive (MSD)	City of Alameda	North	R	\$4	\$0	\$0	\$0	\$4	\$0	V
240116	Powell Street Bridge Widening at Christie Avenue	City of Emeryville	North	R	\$5	\$0	\$0	\$0	\$5	\$0	V
21482	Extend Fremont Boulevard to connect to I-880/Dixon Landing Road	City of Fremont	South	R	\$48	\$0	\$48	\$0	\$48	\$0	V
240279	Mandela Parkway and 3rd Street Corridor Commercial/Industrial Area Street Reconstruction	City of Oakland	North	R	\$157	\$0	\$12	\$0	\$157	\$0	V
240132	El Charro Road Construction	City of Pleasanton	East	R	\$49	\$0	\$49	\$0	\$49	\$0	V
240249	San Leandro Street Circulation and Capacity Improvements	City of San Leandro	Central	R	\$11	\$0	\$0	\$0	\$11	\$0	V
240180	BayFair Connection (Capacity Improvements)	BART	Central	TB	\$150	\$0	\$0	\$0	\$150	\$0	V
22667	BART to Livermore Extension Phase 2	BART	East	TR	\$2,927	\$145	\$0	\$0	\$2,782	\$0	V
240113	BART Hayward Maintenance Complex	BART	Central	TR	\$585	\$5	\$0	\$0	\$580	\$0	V
22089	Martinez Subdivision	Port of Oakland/MTC	North	TR	\$100	\$0	\$0	\$0	\$100	\$0	V
TOTAL					\$4,923.0	\$151.0	\$112.0	\$0.0	\$4,772.0	\$0.0	

* Transportation Type: H:Highway, R:Roadway, RF: Road/Freight; TB: Transit Bus; TR Transit Rail; TF Transit Ferry; B/P: Bike, Pedestrian

Table B.8 - Program Funding Levels by Scenario

	Category	Description	Baseline Scenario (July 11)	Baseline Scenario (Nov 11)	Tier 1 Scenario (Nov 11)	Vision Scenario (Nov 11)
1	Bicycle & Pedestrian	Infrastructure, support facilities (including operations), and maintenance	\$660	\$80	\$475	\$1,845
2	Transit Enhancements - Expansion & Safety	Capital rehabilitation, capacity expansion, safety, stations, communications, environmental	\$1,500	\$26	\$1,100	\$4,613
3	Transit & Paratransit - Operations & Maintenance	Operations restoration, service expansion, maintenance, transit priority measures (TPM), fare incentives	\$1,320	\$433	\$1,000	\$4,613
4	Community Based Transportation Plan (CBTP) Implementation	Improvements for transit, bike/pedestrian, safety, support services- focus on communities of concern	\$60		\$82	\$277
5	Local Road Improvements	Major Arterial Performance Initiative Program, safety, grade separations, signals, complete streets, signage, coordination with freeways	\$660	\$230	\$475	\$1,845
6	Local Streets & Roads - Operations & Maintenance	Pavement and other maintenance, signal operations, ITS	\$300	\$220	\$220	\$923
7	Highway/Freeway - Safety & Non-Capacity Improvements	Interchange improvements, freeway operations and maintenance, ramp metering, soundwalls	\$660		\$50	\$2,214
8	Bridge Improvements	Operations, replacement, repair, maintenance and expansion	\$120		\$100	\$185
9	Transportation & Land Use (TOD/PDA Program)	Development Areas (PDA) through multimodal improvements and CEQA mitigation	\$180	\$17	\$200	\$738
10	Planning/Studies	Planning studies and implementation	\$60		\$50	\$92
11	TDM, Outreach, Parking Mgmt.	Routes to School (SR2S), Safe Routes to Transit (SR2T), travel training, variable parking pricing	\$60		\$70	\$369
12	Goods Movement	Improvements for goods movement by truck and coordinated with rail (and air) such as truck parking and truck/port/freight operations	\$420		\$200	\$369
13	PDA Support (Non-Transportation)	Non-transportation infrastructure to support PDAs such as sewer, utilities, etc.	\$0		\$25	\$55
14	Environmental Mitigation	Environmental Mitigation for major construction projects	\$0		\$25	\$55
15	Transportation Technology and Revenue Enhancement	Advancing technologies for transportation and revenue efficiency such as charging stations, communications, HOT/Express lanes toll collection, etc	\$0	\$28	\$70	\$258
TOTAL			\$6,000	\$1,034	\$4,142	\$18,450

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