Chapter 6 COST AND PERFORMANCE CONSIDERATIONS AND SUMMARY COMPARISON OF ALTERNATIVES

6.1 Introduction

This chapter summarizes the capital and operating and maintenance (O&M) costs and proposed sources of funding for the Regional Connector alternatives presented in Appendix HH, Financial Analysis Report.

Following the selection of a Locally Preferred Alternative (LPA), a detailed financial plan will be prepared. The detailed financial plan will document Metro's financial capacity to construct and operate the LPA within Federal Transit Administration (FTA) requirements for grants awarded under the Section 5309 New Starts Program. This initial analysis and the more detailed financial document will assist FTA, Metro, City officials, and the general public in understanding and evaluating Metro's financial capacity to construct the Regional Connector and to operate and maintain the existing transit system.

Costs and revenues presented in this chapter are in 2009 base year dollars and in Year of Expenditure (YOE) dollars. YOE dollars reflect the financial impact of funds that would need to be expended in the actual year of expenditure and the relative effects of inflation on costs and revenues. Annual and compounded inflation rates and the project implementation schedule are used to project from base year dollars to YOE dollars. For example, in YOE dollars, $1.00 in 2010 is equivalent to $1.03 in 2011, using an inflation rate of 3.0 percent. Costs and revenues are presented consistent with Metro's fiscal year, beginning July 1 and running through June 30.

The other chapters of this Draft Environmental Impact Statement/Draft Environmental Impact Report (DEIS/DEIR) present an analysis of the build alternatives that emerged from the Alternatives Analysis (AA) process: the At-Grade Emphasis LRT and Underground Emphasis LRT Alternatives. After project scoping and considerable community involvement, the Fully Underground LRT Alternative was developed to address the concerns of the public, public agencies, and the Little Tokyo community.

6.2 Capital Costs and Revenues

This section presents the capital costs of the alternatives and the federal, state, and local revenue sources proposed for funding.

6.2.1 Capital Costs

Capital cost estimates for the alternatives were developed based on concept drawings reflecting an approximate ten percent level of engineering completion. Detail about capital cost estimation is provided in the Financial Analysis Report, Appendix HH.

As shown in Table 6-1, capital costs are presented in 2009 constant dollars and in YOE dollars inclusive of inflation. The capital costs of the alternatives range from $67.3 million ($80.0 million in YOE dollars) for the TSM Alternative to $1,245.2 million ($1,442.0 million in YOE

dollars) for the Fully Underground LRT Alternative. The YOE cost for the Transportation System Management (TSM) and Build Alternatives reflect the implementation plan assumed in Metro's 2009 Long Range Transportation Plan (LRTP). As the Regional Connector project moves through the FTA's major capital project development process the costs and implementation schedule will be further refined.

Table 6-1. Capital Costs Estimates in 2009 Dollars and YOE Dollars ($ in Millions)

Alternative	2009 Dollars	YOE Dollars
TSM	$67.3	$80.0
At Grade Emphasis LRT Alternative	$899.2	$1,042.2
Underground Emphasis LRT Alternative	$1,120.1	$1,297.0
Fully Underground LRT Alternative	$1,245.2	$1,442.0

Table 6-2 presents the capital costs of the alternatives using the FTA's Standard Cost Categories (SCC). FTA requires submission of capital costs in the SCC format at key milestones in the major capital project development process, including the application to enter Preliminary Engineering, which would follow selection of the LPA.

For the YOE cost analysis, capital costs were escalated from 2009 dollars using annual growth rates and a preliminary implementation plan proposed for the project. The annual and compound growth rates used to escalate costs are shown in Table 6-3, and reflect the growth rate assumptions included in Metro's LRTP. In addition to these escalation rates, the percent of project completion by year (cost curve) shown in Table 6-4 was used to estimate the annual cost estimates for the TSM and Build Alternatives.

Figure 6-1 and Table 6-5 provide a comparison of the alternatives with respect to costs incurred per year in YOE dollars. As shown in the table and figure, the major expenditures for the Build Alternatives (80 percent) are assumed to occur in years four through seven of the nine year project implementation period, while the costs of the TSM Alternative are focused in year seven. Costs in these years reflect construction of the major components of the Build Alternatives.

Table 6-2. Capital Cost Estimates by Alternative, by FTA Standard Cost Category (2009 $ in Millions)

FTA Standard Cost Categories	TSM Alternative	At Grade Emphasis LRT Alternative	Underground Emphasis LRT Alternative	Fully Underground LRT Alternative
10 Guideway and Track Elements	$0.0	$117.2	$160.3	$208.5
20 Stations, Stops, Terminals, Etc.	$0.0	$173.6	$301.2	$363.7
30 Support Facilities	$21.0	$29.7	$12.5	$6.3
40 Site work and Special Conditions	$0.0	$157.2	$186.6	$163.3
50 Systems	$3.1	$34.9	$39.6	$48.3
60 ROW, Land, Existing Improvements	$0.0	$52.4	$51.9	$63.6
70 Vehicles	$29.1	$83.4	$35.1	$17.6
80 Professional Services	$8.0	$169.1	$231.1	$260.7
90 Unallocated Contingency	$6.1	$81.7	$101.8	$113.2
100 Finance Charges	$0.0	$0.0	$0.0	$0.0
Total	**$67.3**	**$899.2**	**$1,120.1**	**$1,245.2**

Table 6-3. Year of Expenditure Dollar Escalation Rates[1]

Fiscal Year	Growth Rate	Compound Annual Growth Rate
2010	1.01	1.010
2011	1.02	1.030
2012	1.03	1.061
2013	1.03	1.093
2014	1.03	1.126
2015	1.03	1.159
2016	1.03	1.194

Table 6-3. Year of Expenditure Dollar Escalation Rates[1] (continued)

Fiscal Year	Growth Rate	Compound Annual Growth Rate
2017	1.03	1.230
2018	1.03	1.267
2019	1.03	1.305

[1] *It should be noted that a 3 percent escalation rate for the next 10 years does not reflect the previous 10 year period, and some fluctuation may occur.*

Table 6-4. Cost Curve Assumptions

FTA SCC Category	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17	FY 18	FY 19	Total
10 Guideways			5.6%	37.9%	32.0%	11.6%	12.9%			100.0%
20 Yards and Shops						13.0%	87.0%			100.0%
30 Systems					1.0%	30.0%	55.0%	13.9%		100.0%
40 Stations			6.1%	19.7%	24.9%	21.4%	26.2%	1.7%		100.0%
50 Vehicles			4.2%	19.8%	22.9%	27.1%	26.0%			100.0%
60 Special Conditions	1.4%	5.4%	21.7%	22.0%	27.0%	14.7%	6.2%	1.6%		100.0%
70 Right-of-Way	2.0%	12.9%	35.0%	50.0%						100.0%
80 Professional Services	8.5%	24.4%	4.5%	9.0%	12.0%	19.0%	16.5%	5.8%	0.3%	100.0%
90 Project Contingency	2.0%	8.0%	11.0%	23.0%	19.0%	16.0%	18.0%	2.9%	0.1%	100.0%

Figure 6-1. Annual Capital Costs by Alternative (YOE $ in Millions)

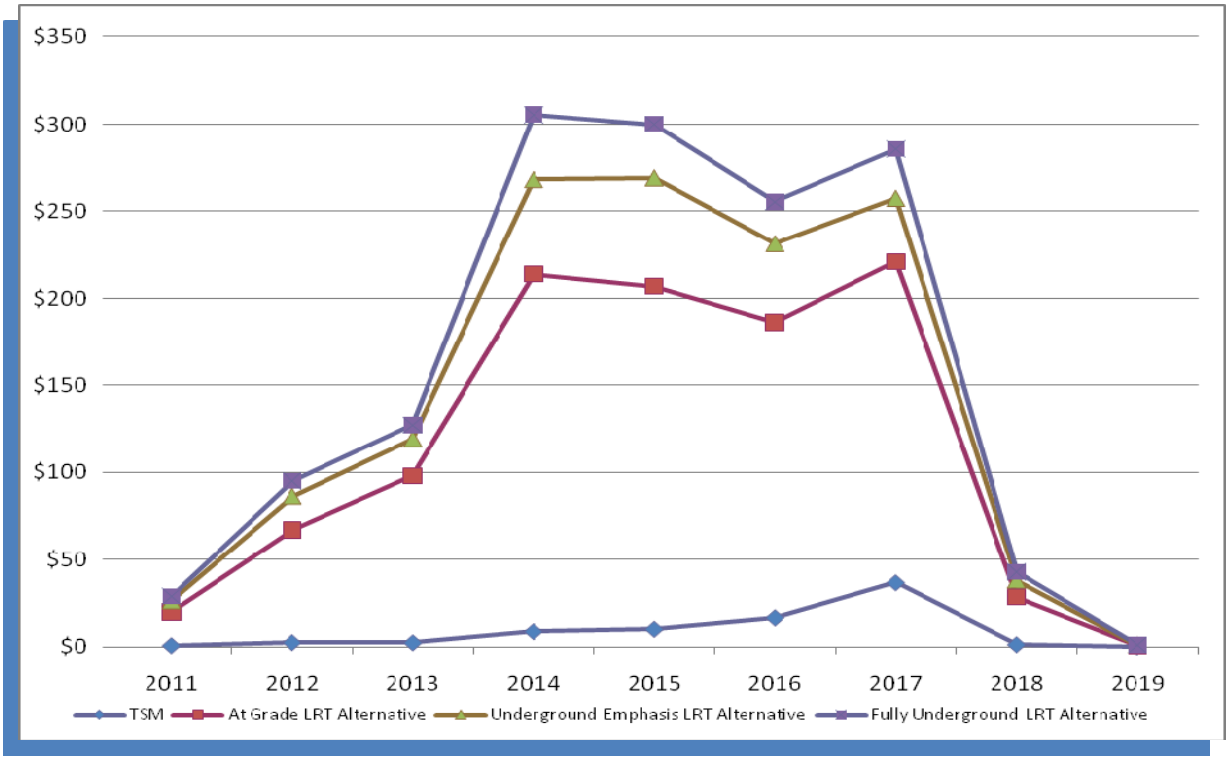


Table 6-5. Capital Costs by Alternative by Year (YOE $ in Millions)

Fiscal Year	Implementation Year	TSM Alternative	At Grade Emphasis LRT Alternative	Underground Emphasis LRT Alternative	Fully Underground LRT Alternative
2011	1	$0.8	$19.9	$26.1	$28.9
2012	2	$2.6	$66.9	$86.3	$95.2
2013	3	$2.5	$98.0	$119.2	$127.3
2014	4	$8.9	$213.8	$268.2	$305.5
2015	5	$10.2	$206.9	$269.2	$299.9
2016	6	$16.8	$186.3	$231.4	$255.4
2017	7	$36.9	$221.0	$257.6	$285.7
2018	8	$1.4	$28.4	$37.9	$42.9
2019	9	$0.0	$0.8	$1.0	$1.2
Total		**$80.0**	**$1,042.2**	**$1,297.0**	**$1,442.0**

6.2.2 Capital Revenue Sources

Metro's LRTP proposes the following combination of federal, state, and local revenue sources for the Regional Connector:

- Federal Sources
  - FTA Section 5309 New Starts
  - Congestion Mitigation and Air Quality (CMAQ)
- State Sources
  - California High Speed Rail Bonds
  - State Transportation Improvement Program (STIP) Regional Improvement Program (RIP) Funds
- Local Sources
  - Measure R Sales Tax
  - Lease Revenue
  - Letter of No Prejudice (LONP) Reimbursement Fund
  - Local Agency Funds
- Additional Local, State, and Federal Funding Levels

Table 6-6 and Figure 6-2 summarize the composition of funding proposed from each source. In order of contribution, FTA Section 5309 New Starts funding is the largest source and is proposed to fund 50 percent of the cost of each alternative. LONP Reimbursement funds are the second largest source, followed by Measure R, High Speed Rail bond proceeds, Local Agency Funds, and CMAQ, with minor contributions from lease revenues and STIP RIP funds.

As shown in the table and figure, additional revenues will need to be identified to fully fund the capital costs of the build alternatives. The required revenues range from $105.3 million for the Underground Emphasis LRT Alternative to $173.4 million for the Fully Underground LRT Alternative. A brief description of each source is provided in the following sections. The possibility of eliminating one station (5th and Flower) from the staff recommended LPA (Fully Underground LRT Alternative) is being explored as a possible way to reduce capital costs.

6.2.2.1 Federal Sources

FTA Section 5309 New Starts Program

The major funding source for the Build Alternatives is the FTA New Starts program. The New Starts program is the federal government's primary financial resource for supporting locally-planned, implemented, and operated transit fixed guideway capital investments, such as the build alternatives identified for the Regional Connector. Since the TSM Alternative does not include a fixed guideway element, it would not be eligible for New Starts funds.

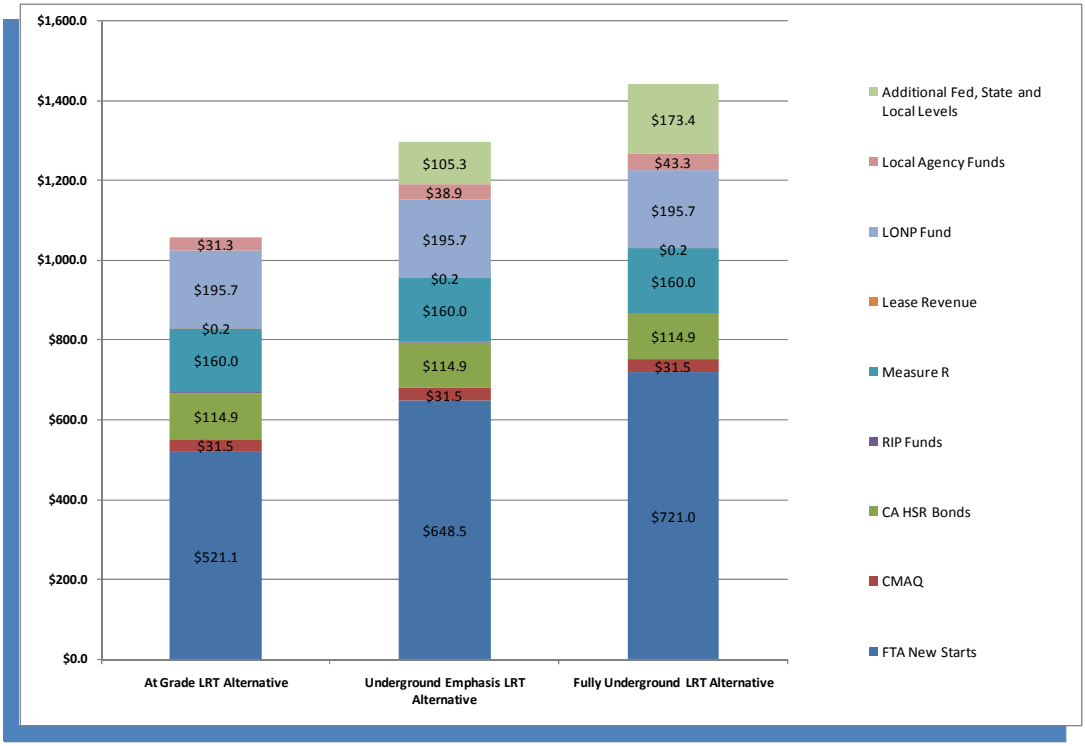
Table 6-6. Proposed Sources of Capital Funding (YOE $ in Millions)

Capital Cost Revenues	At Grade Emphasis LRT Alternative	Underground Emphasis LRT Alternative	Fully Underground LRT Alternative
Federal			
Section 5309 - New Starts (50% of Costs)	$521.1	$648.5	$721.0
CMAQ – Transit	$31.5	$31.5	$31.5
State			
High Speed Rail Bonds	$114.9	$114.9	$114.9
Regional Improvements Funds–Transit	$2.0	$2.0	$2.0
Local			
Measure R Sales Tax ($160)	$160.0	$160.0	$160.0
Lease Revenue	$0.2	$0.2	$0.2
LONP Reimbursement Fund 3562	$195.7	$195.7	$195.7
Local Agency Funds (3% of Costs)	$31.3	$38.9	$43.3
Additional Federal, State, and Local Levels	$0.0	$105.3	$173.4
Total Revenues	**$1,056.7**	**$1,297.0**	**$1,442.0**
Total Cost	**$1,042.2**	**$1,297.0**	**$1,442.0**

Note: With the exception of Section 5309, Local Agency Funds, and Additional Federal, State and Local Levels, all other sources match the funding amount included for the Regional Connector in Metro's LRTP.

Projects applying for New Starts funding must undergo evaluation by the FTA throughout the entire project development process. Projects are evaluated according to a variety of criteria such as mobility improvements, environmental benefits, cost-effectiveness, operating efficiencies, transit supportive land use, economic development, and local financial commitment.

Reflecting the assumption in Metro's LRTP, the agency plans to request FTA Section 5309 New Starts funding for 50 percent of the project's cost, ranging from approximately $521.1 million for the At-Grade Emphasis LRT Alternative to $721.0 million for the Fully Underground LRT Alternative. Annual funding levels range from $24.3 million to $162.6 million. Table 6-7 provides a summary comparison of the annual and total New Starts levels among the alternatives.



Note: With the exception of Section 5309, Local Agency Funds, and Additional Federal, State and Local Levels, all other sources match the funding amount included for the Regional Connector in Metro's LRTP.

Figure 6-2. Proposed Sources of Capital Funding (YOE $ in Millions)

Projects must apply for New Starts Program funding through a competitive process. Funding decisions are made after projects complete the NEPA process, are evaluated and rated, and it has been determined that they meet all of the requirements of the Safe, Accountable, Flexible, Efficient, Transportation Equity Act, A Legacy for Users (SAFETEA-LU) Section 5309. These steps must be completed before a project can receive New Starts funding.

Congestion Mitigation and Air Quality Program (CMAQ)

The CMAQ program is a federal formula grant program for use on projects that contribute to attainment of national ambient air quality standards. Within the 2009 LRTP, Metro has programmed CMAQ funds as a source of capital funding for new rail and bus transit lines including the Metro Expo Line (Phase 1), Crenshaw Line, Regional Connector, rail system improvements, rail fleet procurement, and for Metro Bus and Metro Rapid Bus projects. CMAQ is also programmed for rail and bus operations and can be used for the first three years of operation of individual new rail and bus projects.

The Regional Connector is programmed to receive $31.5 million in CMAQ funds. These funds are projected to be received over three years, with $28.9 million proposed in FY 2017, $2.6 million in FY 2018, and $0.1 million in FY 2019.

Table 6-7. Projected Annual New Starts Funding for the Regional Connector LRT Alternatives: FY 2012 to FY 2018 (YOE $ in Millions)

Fiscal Year	At Grade Emphasis LRT Alternative	Underground Emphasis LRT Alternative	Fully Underground LRT Alternative
2012	$54.2	$67.5	$75.0
2013	$53.4	$66.5	$73.9
2014	$117.5	$146.2	$162.6
2015	$107.8	$134.2	$149.2
2016	$79.7	$99.2	$110.3
2017	$84.2	$104.8	$116.5
2018	$24.3	$30.2	$33.6
Total	$521.1	$648.5	$721.0

6.2.2.2 State Funding Sources

Safe, Reliable High Speed Rail Passenger Train Bond for the 21st Century (AB 3034)

As approved by California voters in November 2008, the high-speed rail bond allows for $9.95 billion of general obligation bonds to be issued for the California high speed rail project. Of the $9.95 billion, $9.0 billion dollars is designated to provide a portion of the local share of funding for the first segment of the high speed rail network which would extend from Los Angeles Union Station to San Francisco's Transbay Terminal. The remaining $950.0 million has been designated for capital projects to connect existing passenger rail lines to the high-speed rail system as well as to enhance capacity and improve safety.

Of the $950.0 million, Metro's Long Range Plan assumes Metro will receive $240.9 million in High Speed Rail Bond proceeds. Of this total, $114.9 million is proposed to be available for the Regional Connector, with $102.2 million in funding proposed in FY 2014 and $12.7 million in FY 2015. The remaining $126.0 million is proposed for improvements to the Metrolink commuter rail system.

Regional Improvement Program (RIP)

The state's funding for transportation is programmed in the STIP. Within the STIP, 75 percent of the funding is allocated and programmed by the regional transportation planning agencies such as Metro under the RIP. The remaining 25 percent is programmed by the state under the Interregional Improvement Program. The primary source of RIP funding is the federal Surface Transportation Program (STP).

According to Metro's LRTP, the Regional Connector received $2.0 million in RIP funding in FY 2008 to support project related activities.

6.2.2.3 Local Sources

Measure R Sales Tax

The Regional Connector is programmed to receive $160.0 million in Measure R funds. Based on Metro's LRTP, these revenues are programmed over FY 2015 to FY 2017, with $95.9 million in FY 2015, $48.9 million in FY 2016, and $15.2 million in FY 2017.

Measure R is a 30-year ½-cent local sales tax approved by Los Angeles County voters in 2008 for rail expansion, local street improvements, traffic reduction, better public transportation, and quality of life. The tax went into effect on July 1, 2009. Metro is responsible for administering the funds. The voter-approved ordinance specifies the following apportionments:

- 35 Percent Transit Capital Specific Projects
- 20 Percent Highway Projects
- 20 Percent Bus Operations
- 15 Percent Local Return
- 5 Percent Rail Operations
- 3 Percent Metrolink
- 2 Percent Rail Capital General Improvements

The Regional Connector is a named project within the 35 Percent Transit Capital Specific Projects and will receive $160 million from the Measure R sales tax.

On March 25, 2010, the Metro Board approved the Long Range Transportation Plan Near-Term Strategies, Priority Setting Criteria, and 2011 Los Angeles County Transportation Improvement Program. The purpose of this document is to define near-term strategies and priority-setting criteria for developing the fiscal year FY 2011 Los Angeles County Transportation Improvement Program (TIP) and to address current and projected revenue shortfalls.

The Regional Connector project has been included in the fourth priority category - projects seeking funds to begin or continue development phases. Projects in this category are the highest priority after:

- Projects currently under construction
- Projects with construction bids advertised as of February 25, 2010
- Projects requiring right-of-way acquisition to continue with the project development process

Projects in this category will be funded for construction completion in the first decade (through FY 2019) of the 2009 LRTP. The Regional Connector is included in this category to complete the environmental clearance phase of project development.

The Regional Connector is also included in the fifth priority category which reflects criteria for selecting projects to advance to construction. The top criteria in this category are safety and likelihood of successfully competing for discretionary federal funds.

Lease Revenue

Metro receives approximately $12.0 million annually in revenue from leases of property and assets. Lease revenues are assumed to be available to fund administration, rail and bus capital, and bus operations. Metro's LRTP reflects $0.2 million in lease revenue expended on the Regional Connector in FY 2007.

Letter of No Prejudice (LONP) Reimbursement Fund

The FY 2010 Metro budget includes a "Special Revenue Other" fund balance of $297.0 million in AB 3090 and Traffic Congestion Relief Program (TCRP) LONP reimbursements from the State of California. These capital reimbursements are for advances made by Metro to the state in lieu of capital project funding that could not be provided by the state on the originally programmed schedule. In the LRTP Metro assumed that these funds must be used for capital purposes only. As they are reimbursements for prior capital expenses, the funds are flexible for many transportation capital purposes, including subway uses now prohibited by Proposition A and Proposition C. The LRTP takes advantage of the flexibility by assuming the use of the funds, in part, for leveraging federal New Starts funds for planned subway construction projects, including the Regional Connector.

Metro's Long Range Plan assumes $195.7 million in LONP Reimbursement Fund revenue will be available for the Regional Connector. These funds are programmed for receipt over FY 2009 through FY 2019.

Local Agency Funds

To assist in funding the Measure R program of projects, Metro has proposed for consideration that local jurisdictions provide a three percent local match for projects. Metro is working with cities, the County of Los Angeles, the Technical Advisory Committee, and subregional entities on an appropriate policy to support this. Issues currently being addressed include timing, clarification as to what constitutes a local match, definition of how to determine proportional share, and discussion of whether the three percent match changes if there is an increase or decrease in total project cost.

Metro's Long Range Plan assumes 3 percent of total project costs of the Regional Connector will be provided from Local Agency Funds. This would result in $31.3 to $43.3 million for the Regional Connector, depending on the build alternative recommended.

6.2.2.4 Additional Local, State, and Federal Funding Levels

Based on a comparison of the sources and funding levels for the Regional Connector identified in the LRTP compared to the updated capital cost estimates in the environmental document, two of the alternatives (Underground Emphasis LRT Alternative and Fully Underground LRT Alternative) would require additional funding ranging from $105.3 million to $173.4 million. Prior to selection of the LPA for the Regional Connector, Metro staff will refine the long range financial plan to reflect the prioritization criteria adopted by the Board on March 25, 2010, as

well as other policy actions associated with accelerating the Measure R program. It is anticipated that the results of this refinement will identify local, state, and federal revenue levels to fully fund the Regional Connector as well as other LRTP projects identified as priorities for construction. Supplementary funding could potentially be secured from use of Proposition C 25 percent funds for eligible project elements, additional LONP Reimbursement Funds, STIP RIP funds, CMAQ, and other sources to be defined.

6.3 Operating and Maintenance Costs and Revenues

This subsection describes the O&M costs of the alternatives and the revenue sources proposed to fund them.

6.3.1 O&M Costs

System-wide O&M cost estimates were developed for the heavy rail, light rail, and bus components of the alternatives. O&M costs reflect the FY 2035 operating plans of Metro and other transit agencies within the study area. The resource build-up methodology for estimating O&M costs was designed to meet FTA guidance. Detailed information regarding O&M costs is provided in the *Regional Connector Transit Corridor: Operating and Maintenance Cost Estimate Report* dated January 26, 2010.

For this report, O&M costs are shown in 2009 dollars. In the next iteration of the financial analysis, O&M costs would be shown in YOE dollars and would be included in a detailed cash flow reflecting costs and revenues from opening year to the horizon year of FY 2035.

Table 6-8 summarizes Metro's FY 2035 heavy rail, light rail, and bus O&M costs by mode for each alternative. As shown in the table, total FY 2035 O&M cost for these modes in the build alternatives ranges from $1,634.8 million for the Underground Emphasis LRT Alternative to $1,644.0 million for the TSM Alternative. Table 6-9 compares the change in annual O&M costs relative to the No Build Alternative, while Table 6-10 compares the change in O&M costs relative to the TSM Alternative. Key findings from these comparisons are summarized below.

- In comparison to the No Build Alternative:
  - All of the alternatives increase O&M costs relative to the No Build Alternative. The Underground Emphasis LRT Alternative has the lowest annual increase in O&M cost ($5.1 million), followed by the Fully Underground LRT Alternative ($6.1 million) and At-Grade Emphasis LRT Alternative ($11.9 million). The TSM Alternative has the largest increase in annual O&M costs ($14.3 million) due to the significant increase in bus service and relatively small savings in heavy rail and light rail costs (approximately $0.2 million).
- In comparison to the TSM Alternative:

  All of the Build Alternatives reduce O&M costs relative to the TSM Alternative. The Underground Emphasis LRT Alternative provides the largest annual savings (approximately $9.2 million in savings), followed by the Fully Underground LRT Alternative (approximately $8.2 million in savings) and the At-Grade Emphasis LRT Alternative (approximately $2.4 million in savings).

The heavy rail O&M costs vary among alternatives because the casualty and liability cost component varies with changes in boardings. Heavy rail boardings vary among the alternatives and as a result, the casualty and liability cost component is different for each alternative.

Table 6-8. FY 2035 System-wide Heavy Rail, Light Rail, and Bus O&M Costs by Alternative (2009 $ in Millions)

Mode	No Build Alternative	TSM Alternative	At - Grade Emphasis LRT Alternative	Underground Emphasis LRT Alternative	Fully Underground LRT Alternative
Heavy Rail	$189.1	$188.9	$188.2	$188.2	$188.2
Light Rail	$483.5	$483.5	$496.3	$489.5	$490.6
Bus	$921.9	$936.4	$921.9	$921.9	$921.9
Contracted Bus	$35.1	$35.1	$35.1	$35.1	$35.1
System-wide Total	**$1,629.7**	**$1,644.0**	**$1,641.6**	**$1,634.8**	**$1,635.8**

Table 6-9. Comparison of FY 2035 System-wide O&M Costs to the No Build Alternative (2009 $ in Millions)

Mode	No Build Alternative	TSM Alternative	At - Grade Emphasis LRT Alternative	Underground Emphasis LRT Alternative	Fully Underground LRT Alternative
Heavy Rail	-	-$0.2	-$0.9	-$0.9	-$1.0
Light Rail	-	$0.0	$12.8	$6.0	$7.0
Bus	-	$14.5	$0.0	$0.0	$0.0
Contracted Bus	-	$0.0	$0.0	$0.0	$0.0
System-wide Total	**-**	**$14.3**	**$11.9**	**$5.1**	**$6.1**

Table 6-10. Comparison of FY 2035 System-wide O&M Costs to the TSM Alternative (2009 $ in Millions)

Mode	No Build Alternative	TSM Alternative	At - Grade Emphasis LRT Alternative	Underground Emphasis LRT Alternative	Fully Underground LRT Alternative
Heavy Rail	N/A	-	-$0.7	-$0.7	-$0.8
Light Rail	N/A	-	$12.8	$6.0	$7.1
Bus	N/A	-	-$14.5	-$14.5	-$14.5
Contracted Bus	N/A	-	$0.0	$0.0	$0.0
System-wide Total	**N/A**	**-**	**-$2.4**	**-$9.2**	**-$8.2**

6.3.2 O&M Revenue Sources

The sections below describe the estimated fare revenue, farebox recovery rates, and levels of annual system-wide operating support associated with the alternatives.

6.3.2.1 Farebox Revenues and Farebox Recovery

Table 6-11 summarizes the annual system-wide farebox revenues and farebox recovery rates for the heavy rail, light rail, and bus components of the alternatives for the FY 2035 horizon year. To compare the differences among alternatives, annual estimates of FY 2035 farebox revenues were developed based on the travel forecasting model projections of 2035 total daily boardings and linked trips by alternative and an average fare revenue per linked trip calculation discussed in detail in the Financial Analysis Report (Appendix HH). Total daily linked trips were annualized using an annualization factor of 317.80, consistent with the factor used in the calculation of user benefits.

As shown in Table 6-11, annual system-wide farebox revenues for the 2035 horizon year are projected to range from $566.5 million for the No Build Alternative to $572.4 million for the Fully Underground LRT Alternative. Relative to the annual system-wide O&M costs projected for the 2035 horizon year shown previously in Table 6-8, farebox recovery is estimated to range from 34.7 percent for the TSM Alternative to approximately 35.0 percent for the Underground Emphasis LRT Alternative and the Fully Underground LRT Alternative.

6.3.2.2 Level of Operating Support from Metro

The combined effect of lower annual system-wide O&M costs and higher farebox revenues is projected to reduce the level of annual operating support that Metro would be required to fund. Table 6-12 summarizes the reduction in annual operating support associated with the build alternatives relative to the TSM Alternative. As shown in the table, the Underground Emphasis LRT Alternative is projected to reduce the level of annual system-wide operating support required from Metro by $9.8 million while the Fully Underground LRT Alternative is projected to reduce Metro's system-wide operating subsidy by $9.5 million.

Table 6-11. FY 2035 System-wide Annual Fare Revenues and Farebox Recovery by Alternative (2009 $ in Millions)

Alternative	No Build Alternative	TSM Alternative	At-Grade Emphasis LRT Alternative	Underground Emphasis LRT Alternative	Fully Underground LRT Alternative
Annual Boardings (millions)	694.0	704.9	691.0	692.1	693.0
Annual Linked Trips (millions)	364.9	366.6	369,6	370.4	370.8
Fare Revenue	$566.5	$571.1	$570.6	$571.8	$572.4
Farebox Recovery	34.8%	34.7%	34.8%	35.0%	35.0%

Table 6-12. FY 2035 System-wide Reduction in Annual Operating Support Relative to the TSM Alternative (2009 $, Millions)

	TSM Alternative	At Grade Emphasis LRT Alternative	Underground Emphasis LRT Alternative	Fully Underground LRT Alternative
Increase in Farebox Revenues	-	-$0.5	$0.6	$1.3
O&M Cost Savings	-	$2.4	$9.2	$8.2
Reduction in Operating Support	**-**	**$1.9**	**$9.8**	**$9.5**

6.3.2.3 Sources of O&M Funding Support

The Regional Connector would be funded as an incremental component of Metro's existing and planned rail program. In addition to fare revenue, the following summarizes the local, state, and federal revenue sources that are projected to provide approximately $8.1 billion in operating support for the Metro rail system based on the LRTP Financial Plan. For each source, the projected level of funding is provided for Metro rail operations over the FY 2019 to FY 2035 period.

Table 6-13. Funding Support for Metro's Rail Operations, by Source FY 2019 – FY 2035 (YOE $ in Millions)

Source	Total, FY 2019-2035
Local Funds	
Proposition A Rail Development Program	$1,834.3
Proposition C Security Program	$316.6
Proposition C Discretionary Program	$1,326.9
Measure R Rail Operations Program	$1,158.3
Transportation Development Act	$1,213.0
Other Metro Funds	$37.7
State Funds	
State Transportation Assistance	$1,060.6
Federal Funds	
Section 5309 Fixed Guideway Modernization Program	$778.5
Section 5340 Growing States and High Density Program	$138.9
CMAQ	$276.1
TOTAL	**$8,140.9**

6.4 Cost Risks and Uncertainties

Chapter 6 summarizes the proposed costs and revenues that would provide Metro sufficient funding to support the construction and operation and maintenance of the Regional Connector and at the same time allow for operation, maintenance, and expansion of the existing transit system.

The LPA selected for the Regional Connector is proposed to receive 50 percent federal participation through the FTA New Starts program. The magnitude of this investment demands that Metro have complete assurance that at the time of construction, federal funding will follow the distribution schedule detailed in a New Starts Full Funding Grant Agreement (FFGA). Conversely, the FTA must have assurance that limited federal funds will be fully and productively utilized and leveraged to the greatest extent possible. If the Regional Connector project is carried forward, these mutual assurances will be negotiated and described in an FFGA between FTA and Metro, which would occur during the project's final design stage.

Although Metro has proposed a most likely scenario based on the funding and cost assumptions presented above, there are a number of capital and operating risks and uncertainties that could influence the financial plan in future phases of project development. These risks and uncertainties include the following:

Availability of Federal Funds

- The guaranteed transit funding levels that were included in SAFETEA-LU provided greater certainty about the annual flow of federal transit monies. However FTA funds are appropriated on a yearly basis. As a result, annually, there continues to be a level of uncertainty regarding the amount and timing of the discretionary and formula funds that would be available to transit agencies.

- Although SAFETEA-LU was to expire in 2009, the next surface transportation authorization legislation has not been approved and SAFETEA-LU has been extended until December 31, 2010. At this time, there is considerable uncertainty regarding when Congress will pass new transportation authorization legislation, if the annual appropriation process will remain unchanged, and the level of funding that will be provided for the New Starts program.

Revenue Risk

- Capital Funding Availability - The availability of capital funds from various sources (e.g., federal level and match of Section 5309 and Section 5307, and local sources) affects the timing and overall cost of the project. Insufficient annual allocations require an extension of the construction schedule so that costs do not exceed available resources.

- Tax Revenues: Variations in tax revenues affect the availability of resources to fund capital and operating needs.

Construction Cost Risk

- Construction Costs: The Regional Connector requires underground construction through a densely developed area. Differences in construction costs may occur because of:
  - Unforeseen conditions not evaluated at the current conceptual level of engineering, such as soil conditions or utility relocation
  - Variations in construction unit costs, bid quantities, and other contingencies
  - Changes in design elements
- Real Growth: The rate of real growth (i.e., the difference between the rate of inflation for a specific commodity or service and the baseline rate of inflation, as measured by the local Consumer Price Index or Construction Cost Index) may vary. These variations in the real rate of cost growth are particularly important for certain commodities or services which constitute a significant element of the capital and O&M cost structure of the transit system (e.g., labor, electricity, fuel, parts and construction).

- Schedule: A number of issues could result in construction delay including, but not limited to, unforeseen construction challenges or the local decision-making process. At this early stage in the project development process, the exact timing of the construction phases is not finalized. This uncertainty could impact the availability and timing of local and federal

funds. However, both of Metro's federal rail projects, Red Line and Eastside Gold Line, were delivered on the FFGA schedule and budget.

Operating Risk

- Fares, Fare Policy and Cost Recovery: Changes in fare level and structure affect ridership, fare revenue, and cost recovery. Changes in ridership affect the level of service required which, in turn, affects capital and operating costs and revenue.

- Service Levels: The frequency of service and hours of operation affect ridership, fare revenue, and capital and operating costs.

Metro, with support from the City of Los Angeles and a coalition of local civic leaders and organizations, is seeking to accelerate delivery of the Measure R program through public-private partnerships and a "30/10" initiative. This initiative calls for Metro to leverage Measure R sales tax through a program involving advanced federal infrastructure funding and federally-backed debt.

As the Regional Connector project is implemented, there are several strategies that Metro could utilize to address risks, if one or more should occur. These strategies include: redefining project schedules; short term financing strategies such as grant anticipation notes and revenue anticipation notes, or federal loans which can be used to close gaps between needed and available revenues. These types of strategies will be considered in subsequent iterations of the financial plan.

6.5 FTA New Starts Evaluation – Performance Considerations

6.5.1 Introduction

This section summarizes and compares the key FTA New Starts project performance measures for each build alternative to the No Build and TSM alternatives. This evaluation and comparison supports the staff recommended LPA, the Fully Underground LRT Alternative, as being the highest performing of the build alternatives being considered. Table 6-14 summarizes the categories and measures included in this section.

6.5.2 Effectiveness in Improving Mobility

Various elements serve as indicators of improved mobility including responsiveness to goals and objectives and the transportation problems and deficiencies identified in Chapter 1, Purpose and Need. Ridership describes the number of people using the proposed transit alternatives in 2035, as estimated through the Metro travel forecasting model. Travel time savings assess the daily and annual value of time saved for transit users as a result of the proposed transit alternatives. Table 6-15 summarizes the key mobility measures.

Table 6-14. Evaluation Categories and Measures

Comparative Analysis of Alternatives	
Effectiveness in Improving Mobility	Study Goals and Objectives
	Ridership – New Daily Transit Trips
	Ridership – Daily Project Trips
	Travel Time Savings
	Daily Project Passenger Miles
Cost - Effectiveness	Incremental Cost per Hour of Transit System User Benefits
Operating Efficiencies	Operating Cost per Passenger Mile

Table 6-15. Mobility Effectiveness Measures

Measure	No Build Alternative	TSM Alternative	At - Grade Emphasis LRT Alternative	Underground Emphasis LRT Alternative	Fully Underground LRT Alternative
Daily New Transit Trips compared to No Build	N/A	5,300	12,300	14,900	17,300
Daily New Transit Trips compared to TSM	N/A	N/A	7,000	9,600	12,000
Daily Project Transit Trips	N/A	N/A	67,400	70,700	89,900
Daily Hours of Transit Users Time Saved compared to No Build	N/A	6,400	15,200	18,300	20,400
Annual Hours of Transit Users Time Saved compared to No Build	N/A	2,023,000	4,836,000	5,826,000	6,477,000
Daily Hours of Transit Users Time Saved compared to TSM	N/A	N/A	8,800	11,900	13,900
Annual Hours of Transit Users Time Saved compared to TSM	N/A	N/A	2,792,000	3,781,000	4,432,000
Daily Project Passenger Miles	N/A	N/A	80,300	108,200	113,900

6.5.2.1 Ridership

For all proposed alternatives, transit ridership is a function of travel time and cost. All else being equal, the faster travel times attract more riders. Speed is usually a function of both the technology (bus, LRT, etc.) and the physical conditions in which it has to operate.

The major measures of effectiveness of transit ridership for comparison between alternatives is the number of new "transit" trips compared to the No Build and TSM Alternatives and the "project" transit trips (actual transit trips using the Regional Connector segment). As shown in Table 6-15, the Fully Underground LRT Alternative performs the best compared to the No Build, TSM, and other build alternatives for both new transit trips and project transit trips.

6.5.2.2 Travel Time Savings

Travel time savings is defined as the total travel time savings for "transit" riders that would be expected to result from the build alternatives and the TSM Alternative in the forecast year (2035) compared to the No Build Alternative. Savings are represented as both daily and annual hours of travel time saved for transit users. As shown in Table 6-15, compared to the No Build Alternative, the TSM Alternative would save transit riders over two million hours per year; the At-Grade Emphasis LRT Alternative would save 4.8 million hours per year; the Underground Emphasis LRT Alternative would save 5.8 million hours per year; and the Fully Underground LRT Alternative would save 6.5 million hours per year. Compared to the TSM Alternative, the Fully Underground LRT Alternative would save transit riders over 4.4 million hours per year.

6.5.2.3 Daily Project Passenger Miles

Project passenger miles is a measure that shows usage on the project segment in terms of the number of transit users and the length of the project as defined by the alternative. It is related to the project transit trips and shows that the Fully Underground LRT Alternative performs 42 percent and five percent better, respectively, than the At-Grade Emphasis LRT Alternative and the Underground Emphasis LRT Alternative (Table 6-15).

6.5.3 Cost-Effectiveness (Efficiency)

Cost-effectiveness is a measure used to evaluate how the costs of a transit project alternative (for both construction and operation) compare to expected benefits. Over the years, FTA has revised the cost-effectiveness measure and changed the measure of benefits from "new transit trips" to "transit system user benefits or transit travel time benefits in annual hours." Cost effectiveness for the proposed alternatives is shown in Table 6-15.

FTA's cost-effectiveness criterion is measured by the incremental cost per hour of transit system user benefits in the forecast year for the alternatives compared to the No Build and TSM Alternatives. To calculate the change in project capital costs discussed in Section 6.2.1, capital costs were aggregated according to their assumed useful life and annualized accordingly(using a seven percent discount factor mandated by FTA), and using standard FTA annualization factors. Annual operating and maintenance costs were calculated using the approach described and reported in Section 6.3.1.

Table 6-16 presents the 2035 annualized cost and benefit values and the resulting cost-effectiveness for the build alternatives compared to the No Build and TSM alternatives. Of the

build alternatives, the Fully Underground LRT Alternative is the most cost-effective and would be at the upper end of the Medium Cost-Effectiveness Rating (the Medium rating is between $16.00 and $24.99).

Table 6-16. Cost-Effectiveness - Incremental Cost per Hour of Transit System User Benefits

Measure	No Build Alternative	TSM Alternative	At - Grade Emphasis LRT Alternative	Underground Emphasis LRT Alternative	Fully Underground LRT Alternative
Total Systemwide Annual O&M Cost (million $)	$1,690.871	$1,705.162	$1,702.747	$1,696.008	$1,696.948
Total Annualized Cost in Forecast Year (2035) (million $)	$1,690.87	$1,711.85	$1,768.91	$1,776.60	$1,786.17
Incremental Annualized "Cost" Compared to No Build (million $)	N/A	$20.98	$78.04	$85.73	$95.30
Incremental Annualized "Cost" Compared to TSM (million $)	N/A	N/A	$57.06	$64.75	$74.32
Annual Hours of Transit Users Time Saved compared to No Build (million)	N/A	2.023	4.836	5.826	6.477
Annual Hours of Transit Users Time Saved compared to TSM (million)	N/A	N/A	2.792	3.781	4.432
Cost-Effectiveness to No Build ($)	N/A	$10.37	$16.14	$14.71	$14.71
Cost-Effectiveness to TSM ($)	N/A	N/A	$20.44	$17.12	$16.77

6.5.4 Operating Efficiency

The FTA uses a single measure of the operating efficiencies criterion, which is the change in operating cost per passenger mile for the entire transit system. The basic calculation involves dividing the system annual operating and maintenance cost for transit services by the system annual passenger miles projected for the year 2035. Calculation of O&M costs is discussed in Section 6.3.1. System annual passenger miles are produced by the Metro travel forecasting model for each alternative for the forecast year of 2035. The TSM Alternative has an operating cost per passenger mile of approximately $0.266. All of the alternatives have approximately the

same operating cost per passenger mile with the Fully Underground LRT Alternative being slightly lower at $0.260.

6.6 Comparison of Alternatives

This chapter summarizes the information from the other chapters of this Draft EIS/EIR and highlights important trade-offs between the proposed alternatives. As stated in Chapter 2, Alternatives Considered, Metro has designated the Fully Underground LRT Alternative as the staff-recommended Locally Preferred Alternative. Section 6.6.1 contains a summary of the evaluation methodology used to determine this staff-recommended LPA. Further information on the cost and ridership estimates used in this analysis is provided in previous sections of Chapter 6. Detailed discussions of environmental considerations are provided in Chapter 4.

6.6.1 Evaluation Methodology

Metro applied the following goals and objectives for evaluating potential alternatives for the Regional Connector Transit Corridor project. These goals and objectives reflect Metro's mission to meet public transportation and mobility needs for transit infrastructure while also being a responsible steward of the environment and being considerate of affected agencies and community members when planning a fiscally sound project.

Transportation goals:

- Improve regional system functionality by maximizing ridership and increasing transit accessibility and connectivity
- Reduce the number of transfers occurring systemwide, particularly at 7th Street/Metro Center Station and Union Station
- Minimize the trip time between the Gold, Blue and future Expo Lines between 7th Street/Metro Center Station and Union Station
- Expand rail transit coverage of downtown Los Angeles
- Improve mobility and accessibility both locally and regionally – Develop an efficient and sustainable level of mobility within Los Angeles County to accommodate planned growth and a livable environment
- Leverage investments previously made in the regional rail system to improve system reliability

Environmental goal:

- Support efforts to improve environmental quality – Develop a project that minimizes adverse environmental impacts while providing environmental benefits, including providing air quality benefits and helps the region meet greenhouse gas reduction goals

Land use goals:

- Support community planning efforts – Support the progression of the regional center area as an integrated destination and a dynamic livable area accommodating project growth in a sustainable manner
- Support adopted land use and transportation plans
- Increase livability through the integration of transit into communities

Implementation goals:

- Provide a safe and secure alternative transportation system – Develop a project that is safe for riders, pedestrians, and drivers while meeting region's need for security
- Support public involvement and community preservation – Incorporate the public in the planning process and balance the benefits and impacts while preserving communities in the area, such as Little Tokyo, the Arts District, Bunker Hill, Civic Center, and the Historic District
- Recognize and value the unique and diverse communities in the project area

Financial goals:

- Create jobs and support a sustainable economy
- Provide a cost effective transportation system – Develop a project that provides sufficient regional benefits to justify the investment
- Achieve a financially feasible project – Develop a project that maximizes opportunity for funding and financing that is financially sustainable

These goals draw upon the ones presented in the Alternatives Analysis study completed in 2009. For the purposes of this Draft EIS/EIR, they have been updated and refined based on public involvement and further analysis of the proposed alternatives, the project area, and the background transportation system. These goals capture, to a degree, the Federal Transit Administration's (FTA) criteria used to rate projects under consideration for the discretionary Section 5309 New Starts program.

FTA's current rating system considers projects from two perspectives: project justification and local financial commitment. Projects must receive at least a "medium" rating in both categories to be recommended for funding. It should be noted that FTA has recently commenced a rulemaking process which may significantly change the measures used to make New Starts funding recommendations, and FTA has directed that consideration be given to economic and job benefits, environmental sustainability, and livable communities in weighing alternatives for transit projects.

6.6.2 Evaluation Results

This section examines the proposed Transportation System Management (TSM) Alternative with the three build alternatives (At-Grade Emphasis LRT Alternative, Underground Emphasis LRT Alternative, and Fully Underground LRT Alternative) based on the criteria discussed in Section 6.6.1. These criteria are used to compare the alternatives to each other, and to the No Build Alternative, which represents year 2035 conditions without the proposed Regional Connector project. Detailed descriptions of the potential alternatives are provided in Chapter 2, Alternatives Considered. Measures were developed for each of the goals listed in Section 6.6.1, and the results are presented in Table 6-17. Further discussion of the evaluation result is provided in the following subsections.

Table 6-17. Alternative Evaluation Results

Criteria	No Build	TSM	At-Grade Emphasis	Underground Emphasis	Fully Underground
Transportation Goal					
New Daily Systemwide Linked Trips in 2035	N/A	5,300	12,300	14,900	17,400
Number of Transfers Needed to Reach:					
Long Beach from Pasadena	2	2	0	0	0
East Los Angeles from Culver City	2	2	0	0	0
East Los Angeles from Long Beach	2	2	1	1	1
Culver City from Pasadena	2	2	1	1	1
Little Tokyo/Arts District from Long Beach	2	1[1]	1	0	0
Little Tokyo/Arts District from Culver City	2	1[1]	0	1	0
Little Tokyo/Arts District from Pasadena	0	0	1	0	0
Little Tokyo/Arts District from East Los Angeles	0	0	0	1	0
Travel Times in Minutes from:[2]					
Chinatown Station to Pico Station	20	25[1]	17	15	13
Pico/Aliso Station to Pico Station	23	30[1]	15	10	11
New Rail Stations	0	0	3	3	4
Improve Local and Regional Access/Mobility?	No	No	Yes	Yes	Yes
Leverage Prior Rail System Investments to Improve Reliability?	Low	Low	Med	High	High

Table 6-17. Alternative Evaluation Results (continued)

Criteria	No Build	TSM	At-Grade Emphasis	Underground Emphasis	Fully Underground
Environmental Goal[3]					
Annual Greenhouse Gas Reduction (metric tons CO2e)	Base	59,600	65,900	67,500	69,000-69,100
Annual Regional Vehicle Miles Travelled Reduction (millions)	Base	100M	110M	114M	117M
Land Use Goal					
Support Community Planning Efforts, Dynamic/Sustainable?	No	No	Yes	Yes	Yes
Support Adopted Land Use and Transportation Plans?	No	No	Yes	Yes	Yes
Increase Livability by Integrating Transit into Communities?	No	No	Yes	Yes	Yes
Implementation Goal					
Safe and Secure for Riders, Pedestrians, and Drivers?	Yes	Yes	Yes	Yes	Yes
Incorporate Public Involvement, Preserve Communities?	Low	Low	Low	Low	High
Recognize and Value Diverse Project Area Communities?	Med	Med	Low	Low	High
Financial Goal					
Number of New Jobs Created by Project	N/A	N/A	13,800	20,800	23,500
FTA New Starts Cost Effectiveness Index (CEI) versus TSM	N/A	Base	$20.44	$17.22	$16.77
Capital Costs (millions, 2009$)	None	$67.3	$899.2	$1,120.1	$1,245.2
Year 2035 Operating and Maintenance Costs (millions, 2009$)	Base	$14.3	$11.9	$5.1	$6.1
Financially Feasible Project?	N/A	Yes	Yes	Yes	Yes

[1] *Assumes use of TSM shuttles instead of Red/Purple Lines*
[2] *Assumes five minutes for each transfer. Actual transfer times vary.*
[3] *Refer to Executive Summary Table ES-2 for additional environmental impacts comparison*

6.6.2.1 Transportation

To assess how well each alternative would improve the transportation goals outlined in Section 6.6.1, the following metrics were used to measure regional system functionality, reduction of transfers, minimization of trip time, and expansion of rail coverage of the downtown area:

- New systemwide linked trips in year 2035
- Number of transfers required to reach selected origin-destination pairs on the rail system
- Travel time improvement between stations that would be linked by the Regional Connector
- Number of new rail stations in downtown Los Angeles
- Qualitative assessment of whether each alternative would improve local and regional mobility (Yes/No)
- Qualitative assessment of how effectively each alternative would leverage prior rail system investments to improve reliability (Low/Medium/High)

All of the build alternatives would improve local and regional access and mobility, but the Fully Underground LRT Alternative outperformed the other alternatives in the majority of the comparisons. It would attract 17,400 new linked trips to the transit system, about 2,500 more than the Underground Emphasis LRT Alternative. The Fully Underground LRT Alternative would also eliminate the most transfers from the light rail network, and add the most new stations to the downtown area. In doing so, it would shave approximately seven minutes off of north-south cross-county trips, and approximately 12 minutes off of east-west trips. It should be noted that a conservative assumption of five minutes was used for each transfer, but transfers may take much longer during off-peak hours.

The No Build and TSM Alternatives would not improve the operation of the rail system. As such, they would not effectively enhance Los Angeles County's prior investments in rail transit to improve system reliability and have been assigned ratings of "low" for this criterion. The build alternatives would all achieve this goal, but public concerns have been raised about the reliability of the At-Grade Emphasis LRT Alternative as it would operate in a mixed traffic street environment. Approximately half of the alternative's alignment would be street-running, and many stakeholders have expressed concern that a single traffic accident near the light rail alignment could halt service on the entire light rail network. The Underground Emphasis LRT and Fully Underground LRT Alternatives would have little to no street running track and would not encounter these potential reliability issues. The At-Grade Emphasis LRT Alternative has accordingly been rated "medium," and the other two build alternatives have been given ratings of "high."

6.6.2.2 Environmental

A primary environmental goal of the project is to reduce traffic congestion and associated greenhouse gas emissions. The Fully Underground LRT Alternative would reduce annual VMT by 117 million miles and reduce greenhouse gas emissions by about 69,000 metric tons of CO_2e

each year compared to No Build conditions. The other build alternatives would reduce VMT by 100 million to 114 million miles and reduce CO_2e by 65,900 to 67,500 metric tons.

Metro intends to minimize all environmental impacts associated with the project, and a comparison of each alternative's environmental impacts is provided in the Executive Summary, Table ES-2. More detail on each impact is provided in Chapter 4. In addition to providing the greatest environmental benefits in terms of VMT and greenhouse gas reductions, the Fully Underground LRT Alternative would also result in the fewest adverse environmental impacts after mitigation measures have been applied.

6.6.2.3 Land Use

Qualitative analysis of each alternative and relevant community feedback was applied to gauge compatibility of the alternatives with community planning efforts, adopted land use and transportation plans, and integration of transit into communities. All of the build alternatives for this less-than two mile link in the rail system are located in the same downtown vicinity. Therefore the build alternatives would all be equally responsive to the growth of the downtown area as a livable and sustainable area by improving the quality and comprehensiveness of non-automobile transportation options. The No Build and TSM alternatives would do little to enhance the existing transportation network. Several land use plans, including the City of Los Angeles General Plan's Transportation Element and Central City Community Plan, call for a light rail connector from 7th Street/Metro Center Station to Union Station, emphasizing that local planning for the downtown area is being performed with the Regional Connector in mind. As such, the No Build and TSM Alternatives would be directly incompatible with these plans.

6.6.2.4 Implementation

All of the build alternatives and the TSM Alternative follow roughly similar alignments, and would affect the same communities. To measure how effectively and equitably each alternative can be woven into the project area with maximum community compatibility, the following qualitative measures were used:

- Safety and security
- Incorporation of public involvement and community preservation efforts
- Recognition of the unique and diverse communities in the area

All of the alternatives would include design measures to ensure the safety and security of riders, pedestrians, and drivers. As such, they would all equally meet the safety and security goal.

The public involvement process revealed overwhelming community support for the Fully Underground LRT Alternative and this is the only alternative that can be implemented without causing inconsistencies with community input regarding impacts on the Little Tokyo community and its unique culture and history. The Little Tokyo community has indicated that features of the other two build alternatives, such as the proposed Alameda Street underpass, the potential Alameda Street pedestrian bridge, and permanent conversion of the commercial block southwest of 1st and Alameda Streets to transit use, would disrupt community cohesion and identity. Many Little Tokyo stakeholders have accordingly identified the Fully Underground LRT

Alternative, which omits these features, as the only alternative that would preserve their community while still providing the Regional Connector project's desired mobility benefits. The No Build and TSM Alternatives would avoid the unwanted features of the At-Grade Emphasis LRT and Underground Emphasis LRT Alternatives, but they would not meaningfully enhance the transportation network serving the community.

6.6.2.5 Financial

The financial goals of the Regional Connector project include job creation, economic sustainability, transportation system cost effectiveness, and project financial feasibility. The following quantitative metrics were developed to measure these factors (as shown in Table 6-17):

- Number of new jobs created by each alternative
- FTA New Starts Cost Effectiveness Index (CEI) compared to the TSM Alternative
- Capital costs
- Year 2035 operating and maintenance costs

The Fully Underground LRT Alternative would be the most expensive to construct ($1,245.2 million in 2009 dollars), but it would create the most new jobs and attract the most riders, thus making it the most cost effective build alternative per FTA's New Starts CEI. It would also be the second least expensive project alternative to be operated, after the Underground Emphasis LRT Alternative.

A qualitative metric of financial feasibility was also used to compare the proposed alternatives. Per Metro's current financial outlook, additional revenues will need to be identified to fully fund the capital costs of the build alternatives. Possible ways to reduce costs are being explored, and the possibility of eliminating one station (5th and Flower) from the Fully Underground LRT Alternative is being explored as a way to reduce capital costs. Despite the need for additional revenues, none of the alternatives would present a great enough revenue gap to render themselves financially infeasible.