

4.0 Screening of Alternatives

How were the alternatives screened?

Evaluation criteria were developed, which are further discussed in Section 4.3, as part of an iterative process of alternatives screening to best identify which alternatives should be evaluated in this Alternatives Analysis (AA) report and the later draft Environmental Impact Statement (DEIS)/Environmental Impact Report (DEIR). This process involves the gradual refinement of project alternative results for the eventual recommendation of the Locally Preferred Alternative (LPA).

The screening of project alternatives for this AA is organized into two tiers:

- **Tier I (Initial) Screening** – This initial analysis evaluates the project alternatives on a qualitative level to determine the alternatives that should be carried forward for further consideration.
- **Tier II (Final) Screening** – The final analysis will evaluate the project alternatives that were carried through from the initial screening process. This stage provides a more detailed quantitative analysis to further refine the project alternatives for community input and Metro Board, and Los Angeles City Council review and approval.

A more detailed discussion of the analysis for Tier I and Tier II screening of Analysis are described in the *Tier I – Initial Screening of Alternative* and *Tier II – Final Screening of Alternatives* reports.

4.1 TIER I SCREENING PROCESS

Measures employed in the Tier I (initial) analysis are qualitative in nature. All build alternatives under consideration were ranked based on a comparative scale developed by the project team, in order to evaluate the alternatives against the goals of the Purpose and Need, and are discussed in Section 4.5 Tier I Evaluation of this report.

The Tier I screening was conducted in a two-stage (Stage I and Stage II) screening process to simplify the analysis. Stage I involved separating out the components of the alternatives into three modal, 12 configurations, and 14 routing options. These options are described within this report in Section 3.0 Preliminary Definition of Alternatives.

Once these categories were screened, the remaining mode, configuration, and route alignment options were combined and screened as part of the Stage II screening effort.



4.2 TIER II SCREEN PROCESS

The Tier II screening follows Tier I and evaluates the No Build Alternative and Transportation System Management (TSM) Alternative, along with six build alternatives that were carried through from the Tier I screening of alternatives.

As part of the Tier II screening, a more detailed quantitative analysis was undertaken to further refine the project alternatives. This phase included the development of operational plans, ridership forecasts, capital costs, and operational and maintenance costs for the No Build, TSM and six build alternatives. Additionally, an evaluation of the environmental benefits and impacts, and economic and land use considerations was conducted.

4.3 EVALUATION CRITERIA

What criteria are used for assessing the preliminary alternatives?

There are seven main evaluation criteria, each having a set of corresponding performance measures that were developed to help screen the alternatives. They are as follows:

- Travel and Mobility Benefits and Impacts
- Regional Connectivity
- Cost-Effectiveness
- Environmental Benefits and Impacts
- Economic and Land Use Considerations
- Community Input
- Financial Capability

Table 4-1 summarizes the evaluation criteria that were used in the screening of project alternatives and their corresponding performance measures.

Table 4-1 – Evaluation Criteria and Performance Measures

Evaluation Criteria	Performance Measures	
Travel and Mobility Benefits and Impacts	Annual Study Area Transit Ridership	Change in estimated study area daily boardings
	Annual Hours of System-wide Transit Users Benefit	Trip time savings multiplied by boardings
	Annual System-wide New Riders	Mode with higher speed, accessibility, and connectivity
	Annual Study Area Vehicle Miles Traveled (VMT) Reduction	Calculated VMT saving, with new trips on proposed alternatives
	Point to Point Travel Times (Journey Time)	Minutes between key destinations or route termini
	Vehicular Traffic Travel Time Impact	Impact in minutes of vehicle travel within the project corridor based on capacity available to traffic after implementation.

Table 4-1 – Evaluation Criteria and Performance Measures (continued)

Evaluation Criteria	Performance Measures	
Regional Connectivity	Intermodal System Connectivity	Ability to transfer from one mode to another, and the number of connections to other services.
	System Compatibility within the Region	Mode compatibility with existing transit vehicle types, ability to interline service with existing infrastructure.
	Comply with Long Range Regional Mobility Goal	Meeting mobility goals of the region's Long Range Transportation Plan (LRTP) and Southern California Association of Governments (SCAG) Regional Transportation Plan(RTP)/Sustainable Community Strategy (SCS)
Cost-Effectiveness	Capital Costs	Cost of construction, initial investment on rolling stock, maintenance facilities.
	Incremental Annual Operations and Maintenance (O&M) Costs	Combined annualized capital cost and annual O&M cost.
	Incremental Cost Per New Transit Trip	Annualized cost per new transit trip.
Environmental Benefits and Impacts	Air Quality	Air quality degradation at hot spots due to increased congestion.
	Noise and Vibration	Noise and vibration increases at adjacent properties based on the approximate number of noise-sensitive receptors adjacent to the alignments.
	Geotechnical	Ground disturbance and significant volumes of excavated soils during construction. Locations in close proximity to or crossing (and thereby exposed) to geotechnical hazards such as liquefaction or Alquist-Priolo fault rupture hazard zones.
	Visual and Aesthetic	Removal of visual resources such as street trees or the creation of visual clutter and obstruction of key views due to new structures.
	Historic and Cultural Resources	Potential to encounter archaeological, paleontological, or historic resources during construction.
	Greenhouse Gases	Potential reductions in VMT and proportional reductions in greenhouse gases (GHGs).
	Parklands	Presence of adjacent parklands and the potential to result in right-of-way (ROW), noise, or visual impacts on these parklands.
	Traffic, Pedestrian, and Bicycle	Level of service (LOS) degradation, pedestrian conflicts, opportunities for bicyclists.
	Community Disruption and Displacement	Acquisition of ROW and residential or business displacements. Diminishing access to local properties or creating barriers to pedestrian or motor vehicle circulation.
	Hazardous Materials	Volume of excavation and potential for encountering contaminated soils and groundwater. Significant ground disturbance in proximity to hazardous materials generators or known contaminated sites.
	Biological Resources	Removal of street trees, affecting nesting birds and sensitive biological habitat.
	Construction	Temporary lane closures and traffic disruption, in addition to noise and vibration, air quality (dust emissions) impacts during construction.
Economic and Land Use Considerations	Accessibility - Transit Dependent Population	Low income households, low vehicle ownership households, and youth and senior populations in proximity to the corridor.
	Construction Employment Generation	The estimated number of construction jobs, indirect jobs from construction expenditures, and induced jobs from construction expenditures.
	Construction-related Takes	Potential loss of jobs, loss of aggregate wages, loss of retail sales, and loss of property tax.
	Economic Development	Net impact on jobs growth, net impact on aggregate wages, net impact on retail sales tax, and net impact on property taxes.
	Transit Supportive Land Use	Job-generating land uses by density, residential land uses by density.

Table 4-1 – Evaluation Criteria and Performance Measures (continued)

Evaluation Criteria		Performance Measures
Community Input	Local and Regional Plan Consistency	The general compliance of each alternative to adopted land use plans.
	Community Integration and Input	Public comments from the community meetings.
	Integrate Backbone Bike Network and Pedestrian Linkages	The potential for integration and accommodation of various alternatives to the City's Backbone Bike Network and pedestrian linkages.
	Impact to On-Street Parking	The potential loss of on-street parking spaces.
	Safety and Security	The degree of safety and security perceived by passengers.
	Physical Environment	The type of environment created , and whether the community will be divided or segregated.
Financial Capability	Feasibility of Construction Within LRTP allocation	Capital construction costs for each alternative, which may include the construction of a guideway, stations, vehicles, and supporting facilities were evaluated to determine the potential fiscal impacts and cost effectiveness of each alternative. The East San Fernando Valley Transit Corridor project only has approximately \$170.1 million allocated as part of the LRTP, any costs in excess of this amount will need to be funded by other sources

4.4 RIDERSHIP MODELING

The ridership data was generated from Metro’s Model which was reviewed with FTA in September 2009 and FTA concurred the model was ready for forecasting.

The study area was divided into four Districts encompassing 97 Traffic Analysis Zones (TAZs.) The South Corridor District from the southern boundary south of Ventura Boulevard to Oxnard Street includes 12 TAZs. The Civic Center District is defined as the area between Oxnard Street and the Ventura County Metrolink Line and has 18 TAZs. The Central Corridor District is north of the Civic Center District, includes 35 TAZs and is defined as the area from the Metrolink Line north to Interstate 5 (I-5). The North Corridor District is the largest in terms of acreage of the four Districts it includes the area from north of I-5 to approximately one-quarter mile north of Foothill Boulevard, in this District the corridor changes to northeast-southwest oriented, and includes 32 TAZs.

In addition to the No Build and TSM alternatives, a total of six build alternatives were modeled as part of the ridership forecasting efforts. In coordination with Metro, an operating plan was developed for each alternative. This plan considered physical constraints and design criteria, including a detailed description of the network of bus routes and fixed guideway lines (included Metro, LADOT, and Metrolink service), route alignment, peak and base headways, type of equipment, operating speeds, station locations, parking availability, and other physical and operational factors. These plans were translated into travel forecasting networks.

Specific ridership forecasting performance measures that were evaluated during the screening of alternatives included the following:

- Study Area Transit Ridership - The daily study area transit trips were calculated by aggregating all the transit trips that were either produced (began) or attracted (ended) in the study area, this also includes those trips that both started and ended



in the study area. This does not include the transit trips that travel through the study area.

- Annual Hours of Transit User Benefit - User benefits are similar to travel time savings, but more comprehensive, as user benefits include the time savings for new riders as well as existing riders. User benefits are estimated from the travel demand forecasting model runs for the various build alternatives, relative to the baseline alternative. User benefits or disbenefits are assumed to arise due to changes in mobility for individual travelers that are caused by a project (or policy) and are measured in hours of travel time and aggregated over all travelers. For example, when an alternative's improvements cause changes in travel behavior that result in a change in mobility, such as shorter travel times (including wait time, in-vehicle time, or access time), or fewer transfers, this change may have benefits to new transit riders and to existing riders.
- New Transit Trips - The new transit trips (or new riders) for each alternative are simply the number of additional trips that the build alternative attracts over the TSM Alternative. These new riders would not be making their trip on transit without the addition of the new (or improved) service.
- Study Area Vehicle Miles Traveled Reduction - Vehicle miles of travel are an indicator of the amount of roadway travel. Generally, the higher the VMT the more roadway trips and the fewer transit trips on the system, as trips move out of autos and onto transit the VMT declines. However, given by 2035 there will be approximately 1.7 million daily person trips in the study area and of those three to four percent use transit, so to affect much of a change in VMT a large change away from single occupancy vehicles would be necessary. The change in VMT from the relative small change in transit service in the study area is minimal and variable depending on the trip changing modes and its associated trip length.
- Vehicular Traffic Travel Time - Vehicle-hours of delay is a common indicator to measure the level of congestion on the roadway network. It is calculated by determining the difference between the congested travel time and the free flow travel time, then multiplying that difference by the link volume for each roadway segment within the study area. As new transit services are added into the corridor providing more options travel patterns change and to a lesser extent trips may shift from auto to transit. Thus, the level of congestion on some roadway segments will be slightly eased.

4.5 TIER I EVALUATION

How was the Tier I screening of alternatives evaluated?

The two-stage Tier I screening analysis involved a general evaluation of the build alternatives based on collected data including demographics, land use patterns, transit ridership, traffic circulation, planning policies, and professional judgment related to the evaluation criteria and performance measures.



The initial alternatives were comparatively rated based upon the evaluation criteria utilizing a scale of high, medium, and low, with high representing 'best', medium representing 'good' and low representing 'less good'. For the Tier I screening, the scores were equally weighted.

4.5.1. Stage I

In Stage I of the Tier I screening process, an evaluation of three modes, 12 configurations, and 14 route alignments for a total of 29 options were evaluated independent of one another to determine the most feasible options for this project. The following tables highlight the performance measures that were evaluated for the presence of potential benefits and impacts related to each evaluation criteria. The primary determination whether or not to recommend an option are indicated by bold text within the table and/or by the community input and financial capability discussion that follows each section.

4.5.1.1. Mode

Three modal options - bus rapid transit (BRT), streetcar, and light rail transit (LRT) - were screened to determine the feasibility of the project. The mode recommendations were evaluated based on the evaluation criteria and performance measures set forth and are described in the following section. Table 4-2 summarizes the general reasoning for determinations associated with each performance measure.




4.5.1.2. Configuration

Twelve configurations were evaluated based on the understanding that a large portion of the study area corridors have a right-of-way (ROW) width of 100 feet. These configurations include curbside, median-running, and side-running options, which have a varying number of travel lanes (one or two), transit lanes (one or two), and may or may not incorporate bike lanes and parking. The configuration option recommendations are detailed in the following section. Table 4-3 summarizes the reason for determinations of each performance measure.

4.5.1.3. Alignment

Several routing alignment/terminus options were determined infeasible prior to the initial screening of the 14 routes described in this section. These options were pre-screened and are described in the *Preliminary Definition of Alternatives* report. The 14 alternatives that were evaluated in the Tier I screening process included alignments on Van Nuys Boulevard, Sepulveda Boulevard, and hybrids of the two corridors. Table 4-4 summarizes the general reasoning for determinations associated with each performance measure.

Table 4-2 – Recommended Mode Options

Mode	Travel & Mobility Benefits & Impacts	Regional Connectivity	Cost-Effectiveness	Environmental Benefits & Impacts	Economic & Land Use Considerations
 <p>Bus Rapid Transit (BRT)</p>	<ul style="list-style-type: none"> • BRT has a lower rider capacity than LRT • Ridership would be moderate compared to LRT and streetcar 	<ul style="list-style-type: none"> • Bus type is consistent with Metro's existing bus fleet and can be interlined with the existing MOL • Can be used in mixed-flow traffic in constrained locations 	<ul style="list-style-type: none"> • Capital, operations, and maintenance costs would be lower than streetcar and LRT 	<ul style="list-style-type: none"> • Visual and aesthetic impacts would be less • Grade separation would not be required • Noise and vibration impacts would be less with BRT 	<ul style="list-style-type: none"> • Construction would be less intensive thus producing fewer jobs • BRT may increase economic development but it largely depends on the level of capital investment *
Recommendation: BRT TO ADVANCE TO STAGE II					
<p>The BRT mode was recommended for further analysis because it would improve end-to-end travel time in the east San Fernando Valley. The mode is compatible with the existing Metro bus fleet, provided that loading occurs on the right side and center platforms are not used, and would require the least amount of capital cost investment and presents lower environmental impacts.</p>					
 <p>Streetcar</p>	<ul style="list-style-type: none"> • Streetcars have lower rider capacity than LRT, which might place a limit on its potential success. They are often slower than buses and might have a lower rider throughput than buses. 	<ul style="list-style-type: none"> • Metro does not operate streetcars and would need to procure all technology and facilities • This mode would not comply with the regional long range mobility goals due to lower travel speeds 	<ul style="list-style-type: none"> • Capital, operations, and maintenance costs would be higher than BRT but lower than LRT • Every additional new trip would likely be more expensive than the BRT and LRT options due to smaller trains 	<ul style="list-style-type: none"> • Visual and aesthetic impacts would be greater due to catenary system • Grade separation may be necessary depending on route • Noise and vibration impacts would be higher with rail 	<ul style="list-style-type: none"> • Construction would be more intensive thus increasing employment • Streetcar would increase economic development as it is similar to LRT and provides an impression of permanence *
Recommendation: STREETCAR ELIMINATED					
<p>The streetcar mode was recommended for elimination due to the limitation on end-to-end travel time savings. Streetcars are generally used as circulators, operate in mixed-flow traffic, and are not as effective in providing mobility for long corridors as compared to BRT and LRT options. Additionally, Metro does not currently operate streetcar as part of their transit system thus not providing any system compatibility. Overall, this mode would have high capital, operations, and maintenance costs.</p>					
 <p>Light Rail Transit (LRT)</p>	<ul style="list-style-type: none"> • LRT would provide higher capacity and improvements in end-to-end travel time • Ridership would be higher than the other two modes 	<ul style="list-style-type: none"> • Metro operates several LRT services • Complies with the long range mobility goals by providing connectivity and improving travel for the region • LRT maintenance facilities do not exist in the Valley 	<ul style="list-style-type: none"> • Capital, operations, and maintenance costs would be the highest of all the mode options 	<ul style="list-style-type: none"> • Visual and aesthetic impacts would be greater due to catenary system • Grade separation may be necessary depending on route • Noise and vibration impacts would be higher with rail 	<ul style="list-style-type: none"> • Construction would be more intensive thus increasing employment • LRT would increase economic development due to the higher capital investment and impression of permanence *
Recommendation: LRT TO ADVANCE TO STAGE II					
<p>This configuration was recommended for further analysis because it would improve end-to-end mobility in the east San Fernando Valley. It has a high level of public support and would provide economic development opportunities for the area while increasing connectivity and mobility to the community.</p>					

* United States General Accounting Office (GAO) reports on BRT (GAO-12-811; GAO-01-984) note that economic development associated with LRT are generally due to the higher capital investments which provides the impression of permanence. Therefore, BRT projects that closely resemble LRT have a higher likelihood of similar economic development.

Table 4-3 – Recommended Configuration Options

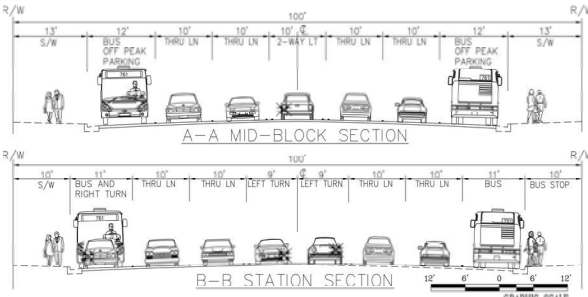
C1 CONFIGURATION	
FEATURES	 <ul style="list-style-type: none"> • Peak-hour curbside operation • Curbside stops • Bike lanes shared with bus • Off-peak on-street parking
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • Modest improvement of end-to-end transit travel time savings are anticipated with this configuration due to exclusive bus lane operations occurring only during peak-times, resulting in a slight increase in overall ridership • Improved journey time would probably be minimal because conflicts would continue to occur with right-turning vehicles, bicyclists, and parking • Additional corridor mobility benefits would be realized by the accommodation of shared bike lanes and vehicle turn-pockets throughout corridor where feasible
Regional Connectivity	<ul style="list-style-type: none"> • Intermodal connectivity would provide transfer points to other regional transit services • Transit mobility, as set forth as a goal, should be enhanced during peak-hour operations • Connections to regional transit service is dependent upon the alignment
Cost-Effectiveness	<ul style="list-style-type: none"> • This configuration would require minimal construction, only signage, re-striping, and signal modifications • Because of the lower overall costs, every additional rider/cost per new trip would be less than any other configuration • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	<ul style="list-style-type: none"> • Minimal, if any, geotechnical, historic and cultural, biological, parkland, hazardous material, and air quality impacts would be expected • No visual and aesthetic and construction impacts would be expected with this alternative • Minimal property displacements would be expected
Economic & Land Use Considerations	<ul style="list-style-type: none"> • Construction-related activities would be less intensive with a curbside configuration; therefore, providing less construction employment generation
RECOMMENDATION: ADVANCE TO STAGE II	
<p>This configuration was recommended for further analysis because it requires the least amount of capital cost investment, presents minimal environmental impacts while providing improved peak-hour transit service.</p>	

Table 4-3 – Recommended Configuration Options (continued)

M1 CONFIGURATION	
FEATURES	<ul style="list-style-type: none"> • Median-running operation • Center platforms • 1 Travel lane/direction • Bike lanes • On-street parking
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • End-to-end transit travel time savings would be expected to improve with the median-running alignment due to reduced vehicle conflicts • Provides only one travel lane per direction for mixed-flow traffic • Vehicles turning right would delay vehicles traveling through the intersection and prohibit/reduce turning movements at some intersections • Additional corridor mobility benefits would be realized by the accommodation of bike lanes and vehicle turn-pockets throughout corridor where feasible
Regional Connectivity	<ul style="list-style-type: none"> • Transit mobility, as set forth as a goal, should be enhanced with the median-running operations; however, for regional mobility this would reduce the mixed-flow lanes to one lane per direction • Connections to regional transit service is dependent upon the alignment
Cost-Effectiveness	<ul style="list-style-type: none"> • The capital cost of this configuration would be higher than the side-running configurations as it requires construction of the median guideway, stations, and other roadway/intersection improvements • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	<ul style="list-style-type: none"> • Minimal geotechnical, historic and cultural, biological, parkland, hazardous material impacts would be expected based on an at-grade analysis • Traffic congestion would increase due to the reduced lane capacity to one-lane per direction
Economic & Land Use	<ul style="list-style-type: none"> • Construction-related activities would likely be more intensive; therefore, providing more construction employment generation
RECOMMENDATION: ELIMINATED	
<p>This configuration was recommended for elimination due to the reduced number of travel lanes (one-lane per direction) that would impact traffic in the study area. Mode specifics include an unconventional BRT operation (contra-flow); LRT would not encounter this problem.</p>	

Table 4-3 – Recommended Configuration Options (continued)

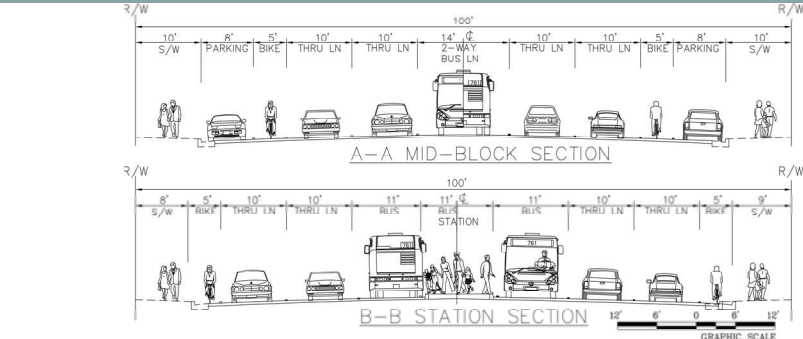
M2 CONFIGURATION	
FEATURES	 <ul style="list-style-type: none"> • Single lane median-running operation • Bike lanes • Center platforms • 2 Travel lanes/direction • On-street parking
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • Ridership increases would be expected to be low due to the decreased travel speeds associated with the single transit lane • Modest improvement to end-to-end transit travel time savings due to single transit lane • Additional corridor mobility benefits would be realized by the accommodation of bike lanes and vehicle turn-pockets throughout corridor where feasible
Regional Connectivity	<ul style="list-style-type: none"> • Intermodal connectivity would provide transfer points to other regional transit services • Transit mobility would be minimal because there would be an increase in head-on transit vehicle conflicts due to single lane operations requiring that transit vehicles wait until the lane is clear • Connections to regional transit service is dependent upon the alignment
Cost-Effectiveness	<ul style="list-style-type: none"> • The capital cost would be higher than the curbside running alternative as it requires construction of median-running guideway, stations, and other roadway intersection improvements • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	<ul style="list-style-type: none"> • Minimal geotechnical, historic and cultural, biological, parkland, hazardous material impacts would be expected based on an at-grade analysis • Visual and aesthetic and construction impacts would be expected
Economic & Land Use Considerations	<ul style="list-style-type: none"> • Construction-related activities would likely be more intensive; therefore, providing more construction employment generation
RECOMMENDATION: ELIMINATED	
<p>This configuration was recommended for elimination due to the unconventional and limited operation, which would not benefit the overall end-to-end bidirectional transit mobility. This type of operation would be inefficient for end-to-end mobility because of the continual wait time.</p>	

Table 4-3 – Recommended Configuration Options (continued)

M3 CONFIGURATION	
FEATURES	
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • Median-running operation • Center platforms • 2 Travel lanes/direction • On-street parking
Regional Connectivity	<ul style="list-style-type: none"> • End-to-end transit travel time savings are expected to improve with the median-running configurations due to reduced vehicle conflicts • Additional corridor mobility benefits would be realized by the accommodation vehicle turn-pockets throughout corridor where feasible
Cost-Effectiveness	<ul style="list-style-type: none"> • Intermodal connectivity would provide transfer points to other regional transit services • Transit mobility, as set forth as a goal, should be enhanced with the median-running operations as there would be a reduction in conflicts • Connections to regional transit service is dependent upon the alignment
Environmental Benefits & Impacts	<ul style="list-style-type: none"> • The capital cost for median-running configurations would be higher than the curbside running alternative as it requires construction of median-running guideway, stations, and other roadway/intersection improvements • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Economic & Land Use Considerations	<ul style="list-style-type: none"> • Minimal geotechnical, historic and cultural, biological, parkland, hazardous material impacts would be expected based on an at-grade analysis. • Visual and aesthetic impacts would be expected with this alternative • Construction-related activities would likely be more intensive; therefore, providing more construction employment generation
RECOMMENDATION: ELIMINATED	
<p>Although this configuration would provide travel and mobility benefits capturing higher annual transit ridership and improving journey times and reducing VMT, it was recommended for elimination due to non-compliance with the City of LA 2010 Bike Plan with the exclusion of bike lanes.</p>	

Table 4-3 – Recommended Configuration Options (continued)

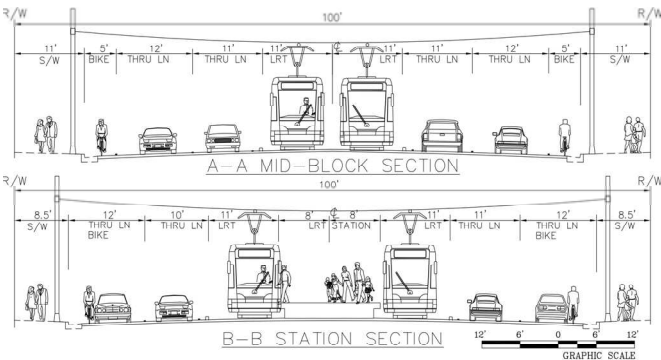
M4 CONFIGURATION	
FEATURES	 <ul style="list-style-type: none"> • Median-running operation • 2 Travel lanes/direction • Center platforms • Bike lanes
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • End-to-end transit travel time savings are expected to improve with the median-running configurations due to reduced vehicle conflicts • Additional corridor mobility benefits would be realized by the accommodation of bike lanes and vehicle turn-pockets throughout corridor where feasible
Regional Connectivity	<ul style="list-style-type: none"> • Intermodal connectivity would provide transfer points to other regional transit services • Transit mobility, as set forth as a goal, should be enhanced with the median-running operations as there would be a reduction in conflicts • Connections to regional transit service is dependent upon the alignment
Cost-Effectiveness	<ul style="list-style-type: none"> • The capital cost for median-running configurations would be higher than the curbside running alternative as it requires construction of median-running guideway, stations, and other roadway intersection improvements • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	<ul style="list-style-type: none"> • Minimal geotechnical, historic and cultural, biological, parkland, hazardous material impacts would be expected based on an at-grade analysis. • Visual and aesthetic impacts would be expected with this alternative
Economic & Land Use Considerations	<ul style="list-style-type: none"> • Construction-related activities would likely be more intensive; therefore, providing more construction employment generation
RECOMMENDATION: ADVANCE TO STAGE II	
<p>This configuration is similar to Configuration M3; however, it was recommended for further analysis because in addition to the possible travel and mobility benefits it would provide bike lanes thus complying with the City of LA 2010 Bike Plan.</p>	

Table 4-3 – Recommended Configuration Options (continued)

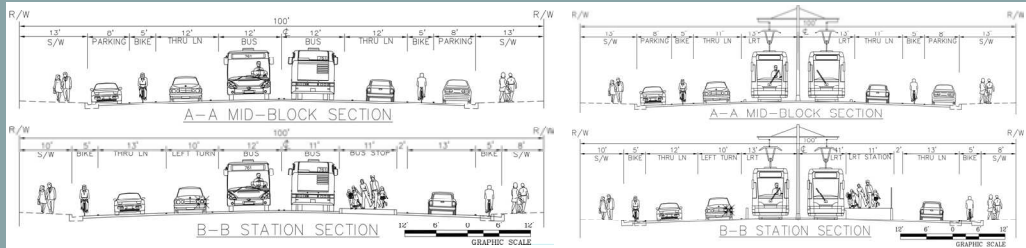
M5 CONFIGURATION	
FEATURES	 <ul style="list-style-type: none"> • Median-running operation • Side platforms • 1 Travel lane/direction • Bike lanes • On-street parking
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • End-to-end transit travel time savings would be expected to improve with the median-running alignment due to reduced vehicle conflicts • Provides only one travel lane per direction for mixed-flow traffic • Additional corridor mobility benefits would be realized by the accommodation of bike lanes and vehicle turn-pockets throughout corridor where feasible
Regional Connectivity	<ul style="list-style-type: none"> • Intermodal connectivity would provide transfer points to other regional transit services • Transit mobility, as set forth as a goal, should be enhanced with the median-running operations; however, for regional mobility this would reduce the mixed-flow lanes to one lane per direction • Connections to regional transit service is dependent upon the alignment
Cost-Effectiveness	<ul style="list-style-type: none"> • The capital cost of this configuration would be higher than the curbside running alternative as it requires construction of median-running guideway, stations, and other roadway/intersection improvements • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	<ul style="list-style-type: none"> • Minimal geotechnical, historic and cultural, biological, parkland, hazardous material, visual and construction impacts would be expected with this configuration based on an at-grade analysis • Traffic congestion would increase due to the reduced lane capacity to one-lane per direction
Economic & Land Use	<ul style="list-style-type: none"> • Construction-related activities would likely be more intensive with this configuration; therefore, providing more construction employment generation
RECOMMENDATION: ELIMINATED	
<p>This configuration was recommended for elimination because it would impact vehicular travel time. This configuration is the similar to Configuration M1 except for the station location (M1 – center platform; M5 – side platform).</p>	

Table 4-3 – Recommended Configuration Options (continued)

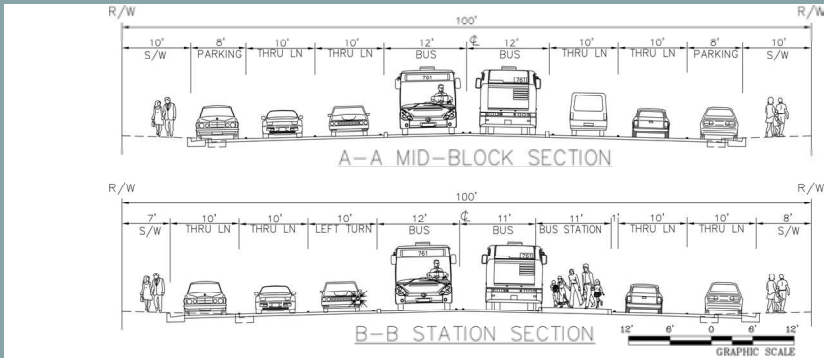
M6 CONFIGURATION	
FEATURES	 <ul style="list-style-type: none"> • Median-running operation • Side platforms • 2 Travel lanes/direction • On-street parking
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • End-to-end transit travel time savings are expected to improve with the median-running configurations due to reduced vehicle conflicts • Additional corridor mobility benefits would be realized by the accommodation of vehicle turn-pockets throughout corridor where feasible
Regional Connectivity	<ul style="list-style-type: none"> • Intermodal connectivity would provide transfer points to other regional transit services • Transit mobility, as set forth as a goal, should be enhanced with the median-running operations as there would be a reduction in conflicts • Connections to regional transit service is dependent upon the alignment
Cost-Effectiveness	<ul style="list-style-type: none"> • The capital cost for median-running configurations would be higher than the curbside running alternative as it requires construction of median-running guideway, stations, and other roadway/intersection improvements • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	<ul style="list-style-type: none"> • Minimal geotechnical, historic and cultural, biological, parkland, hazardous material impacts would be expected based on an at-grade analysis • Visual and aesthetic impacts would be expected with this alternative
Economic & Land Use	<ul style="list-style-type: none"> • Construction-related activities would likely be more intensive; therefore, providing more construction employment generation
RECOMMENDATION: ELIMINATED	
<p>This configuration is the similar to Configuration M3 except for the station location (M3 – center platform; M6 – side platform). Like M3, this configuration was recommended for elimination due to non-compliance with the City of LA 2010 Bike Plan with the exclusion of bike lanes.</p>	

Table 4-3 – Recommended Configuration Options (continued)

M7 CONFIGURATION	
FEATURES	<ul style="list-style-type: none"> • Median-running operation • Side platforms • 2 Travel lanes/direction • Bike lanes
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • End-to-end transit travel time savings are expected to improve with the median-running configurations due to reduced vehicle conflicts • Additional corridor mobility benefits would be realized by the accommodation of bike lanes and vehicle turn-pockets throughout
Regional Connectivity	<ul style="list-style-type: none"> • Intermodal connectivity would provide transfer points to other regional transit services • Transit mobility, as set forth as a goal, should be enhanced with the median-running operations as there would be a reduction in conflicts • Connections to regional transit service is dependent upon the alignment
Cost-Effectiveness	<ul style="list-style-type: none"> • The capital cost for median-running configurations would be higher than the curbside running alternative as it requires construction of median-running guideway, stations, and other roadway/intersection improvements • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	<ul style="list-style-type: none"> • Minimal geotechnical, historic and cultural, biological, parkland, hazardous material impacts would be expected based on an at-grade analysis • Visual and aesthetic impacts would be expected with this alternative
Economic & Land Use	<ul style="list-style-type: none"> • Construction-related activities would likely be more intensive; therefore, providing more construction employment generation
RECOMMENDATION: ADVANCE TO STAGE II	
<p>This configuration was recommended for further analysis because it was determined that even though the capital cost would be higher than other configurations, it would provide travel and mobility benefits capturing higher annual transit ridership and improving journey times and reducing VMT within the study area along with providing bike lanes thus complying with the City of LA 2010 Bike Plan. This configuration is the similar to Configuration M4 except for the station location (M4 – center platform; M7 – side platform).</p>	



Table 4-3 – Recommended Configuration Options (continued)

S1 CONFIGURATION	
FEATURES	<ul style="list-style-type: none"> • Side-running operation • Curbside stops • 1 Travel lane/direction • Bike lanes • On-street parking
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • Improved transit mobility would be minimal because conflicts would continue to occur with right-turning vehicles, bicyclists, and parking vehicles • Provides one-travel lane per direction • Additional corridor mobility benefits would be realized by the accommodation of bike lanes and vehicle turn-pockets throughout corridor where feasible
Regional Connectivity	<ul style="list-style-type: none"> • Intermodal connectivity would provide transfer points to other regional transit services • Connections to regional transit service is dependent upon the alignment
Cost-Effectiveness	<ul style="list-style-type: none"> • Capital cost would be lower than median running configurations • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	<ul style="list-style-type: none"> • Minimal geotechnical, historic and cultural, biological, parkland, hazardous material impacts would be expected • Traffic congestion would increase due to reduced lane capacity of one travel lane per direction
Economic & Land Use Considerations	<ul style="list-style-type: none"> • Construction-related activities would likely be less intensive than median-running configurations; therefore, providing less construction employment generation
RECOMMENDATION: ELIMINATED	
<p>This configuration was recommended for elimination due to the higher capital cost investment and reduced mixed-flow travel lanes (one-lane per direction) generating limited improvement to transit mobility as compared to Configuration C1.</p>	

Table 4-3 – Recommended Configuration Options (continued)

S3 CONFIGURATION	
FEATURES	<ul style="list-style-type: none"> • Side-running operation • 2 Travel lanes/direction • Curbside stops • On-street parking
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • Improved transit mobility would probably be minimal with this configuration because it would still encounter some conflicts with other turning vehicles, bicycles and parked vehicles • Additional corridor mobility benefits would be realized by the accommodation vehicle turn-pockets throughout corridor where feasible
Regional Connectivity	<ul style="list-style-type: none"> • Intermodal connectivity would provide transfer points to other regional transit services • Connections to regional transit service is dependent upon the alignment
Cost-Effectiveness	<ul style="list-style-type: none"> • Capital cost for side-running configurations would be less than median-running configurations • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	<ul style="list-style-type: none"> • Minimal geotechnical, historic and cultural, biological, parkland, hazardous material impacts would be expected with this configuration, based on an at-grade analysis
Economic & Land Use Considerations	<ul style="list-style-type: none"> • Construction-related activities would likely be less intensive with side-running configurations; therefore, providing less construction employment generation
RECOMMENDATION: ELIMINATED	
<p>This configuration was recommended for elimination due to the higher capital cost investment and marginal annual VMT reduction and limited improvement to transit mobility as compared to Configuration C1. Additionally, this configuration does not support multi-modal mobility by not providing bike lanes thus not complying with the City of LA 2010 Bike Plan.</p>	

Table 4-3 – Recommended Configuration Options (continued)

S4 CONFIGURATION	
FEATURES	<ul style="list-style-type: none"> • Side-running operation in mixed-flow traffic • Curbside stops • 2 Travel lanes/direction shared with transit • Bike lanes • On-street parking
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • No improvement of end-to-end transit travel time savings are anticipated with this configuration since it would be operating in mixed-flow lanes and would encounter conflicts with other vehicles, bicycles and parked vehicles • Additional corridor mobility benefits would be realized by the accommodation of bike lanes and vehicle turn-pockets throughout corridor where feasible
Regional Connectivity	<ul style="list-style-type: none"> • Intermodal connectivity would provide transfer points to other regional transit services • This configuration would not comply with the transit mobility goal in providing better service than what is currently available • Connections to regional transit service is dependent upon the alignment
Cost-Effectiveness	<ul style="list-style-type: none"> • Capital cost for side-running configurations would be less than median-running configurations • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits &	<ul style="list-style-type: none"> • Minimal, if any, geotechnical, historic and cultural, biological, parkland, hazardous material impacts would be expected with this configuration
RECOMMENDATION: ELIMINATED	
<p>This configuration was recommended for elimination since there would be no improvement to travel mobility due to continued conflicts with vehicles, bicyclists, and parking vehicles.</p>	

Table 4-4 – Recommended Route Alignment Options


ROUTE 1	
FEATURES	 <p>Van Nuys Blvd./Ventura Blvd. - Van Nuys Blvd. - Van Nuys Blvd./Foothill Blvd.</p> <p><i>NOTE:</i> The minimum ROW width of 100 feet through the entire corridor allows for a consistent cross-section from end to end. The Metrolink grade crossing and the potential California High Speed Rail corridor would force streetcar and LRT operations onto a grade separation, either aerial or underground, at San Fernando Road</p>
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • End-to-end transit travel time savings would be expected to improve as straighter routes would have faster journey times • Vehicular traffic travel time is expected to be impacted around the Van Nuys Civic Center and in the City of San Fernando
Regional Connectivity	<ul style="list-style-type: none"> • This route provides intermodal connectivity with regional transit services that includes Van Nuys Metrolink/Amtrak Station, and MOL • Connection with the future Sepulveda Pass Corridor project
Cost-Effectiveness	<ul style="list-style-type: none"> • The capital costs for this route would be lower than other routes given that the length of the alignment is shorter than the other routes • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	<ul style="list-style-type: none"> • Minimal geotechnical, biological, hazardous material, visual and aesthetic impacts, and property displacements would be expected but are dependent on mode and configuration
Economic & Land Use Considerations	<ul style="list-style-type: none"> • This route lies along various transit dependent communities along Van Nuys Boulevard • This route is expected to have a significant effect on economic development as this route connects more commercial, civic and recreational land uses than other alignments
RECOMMENDATION: ADVANCE TO STAGE II	
<p>This route alignment was recommended for further review based on the high ridership potential, faster journey times, access for transit dependent populations, public interest in the corridor, and potential for economic development. It would provide key connections to several major hubs which include the Van Nuys Amtrak/Metrolink Station, the MOL, and the future Sepulveda Pass Corridor project.</p>	

Table 4-4 – Recommended Route Alignment Options (continued)


ROUTE 2	
FEATURES	 <p>Sepulveda Blvd./Ventura Blvd. - Ventura Blvd. - Van Nuys Blvd. - San Fernando Rd. - Truman St. - Sylmar/San Fernando Metrolink Station</p> <p><i>NOTE:</i> This alignment traverses constrained ROW along San Fernando Road where the width is insufficient for rail operations without extensive ROW acquisition. BRT buses would need to operate in mixed-flow lanes in that portion of the corridor.</p>
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • End-to-end transit travel time savings would be expected to improve as straighter routes would have faster journey times • Vehicular traffic travel time is expected to be impacted around the Van Nuys Civic Center and in the City of San Fernando
Regional Connectivity	<ul style="list-style-type: none"> • Provides intermodal connectivity regional transit services that includes Van Nuys Metrolink/Amtrak Station, MOL, and Sylmar/San Fernando Metrolink Station • Connection with the future Sepulveda Pass Corridor project
Cost-Effectiveness	<ul style="list-style-type: none"> • The capital costs for this route would be among the lowest compared to others given the length of the alignment • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	<ul style="list-style-type: none"> • Minimal geotechnical, biological, hazardous material, visual and aesthetic impacts, and property displacements would be expected but are dependent on mode and configuration
Economic & Land Use Considerations	<ul style="list-style-type: none"> • This route lies along various transit dependent communities along Van Nuys Boulevard • This route is expected to have a significant effect on economic development as this route connects more commercial, civic and recreational land uses than other alignments
RECOMMENDATION: ADVANCE TO STAGE II	
<p>This route alignment was recommended for further review based on the high ridership potential, intermodal connectivity to key transit hubs (Sylmar/San Fernando Metrolink Station, Van Nuys Amtrak/Metrolink Station, the MOL, and the future Sepulveda Pass Corridor project), access for transit dependent populations, public interest in the corridor, and the potential for economic development.</p>	



Table 4-4 – Recommended Route Alignment Options (continued)


ROUTE 3	
FEATURES	 <p>Van Nuys Blvd./Ventura Blvd. - Van Nuys Blvd. - Parthenia St. - Sepulveda Blvd. - Brand Blvd. - Truman St. - Sylmar/San Fernando Metrolink Station</p> <p><i>NOTE:</i> This alignment is suitable for all modal operations, although the Truman Street segment is narrow and may require a reduction of the roadway to one traffic lane in each direction to accommodate BRT, streetcar, or LRT. BRT has the option of running in mixed-flow operations.</p>
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • Journey times are expected to be acceptable as the turns on this alignment would affect speeds and the overall operations • Vehicular traffic travel time is expected to be impacted around the Van Nuys Civic Center and the City of San Fernando
Regional Connectivity	<ul style="list-style-type: none"> • Provides intermodal connectivity to regional transit services that includes Van Nuys Metrolink/Amtrak Station, MOL, and Sylmar/San Fernando Metrolink Station • Connection with the future Sepulveda Pass Corridor project
Cost-Effectiveness	<ul style="list-style-type: none"> • Given the total length of this route, the capital costs would be expected to be more moderate compared to the other routes • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	<ul style="list-style-type: none"> • Geotechnical and biological impacts could occur along Parthenia Street and over the Pacoima Wash which may need to be covered for median-running configurations • Minimal property displacements would be expected but are dependent on the mode and configuration
Economic & Land Use Considerations	<ul style="list-style-type: none"> • Connects the communities along Van Nuys Boulevard on the southern portion of the corridor with highly transit dependent populations around Parthenia Street and along Sepulveda Boulevard • This route is expected to have a moderate effect on economic development as it has less commercial land uses than other alignments
RECOMMENDATION: ELIMINATED	
<p>This route alignment was recommended for elimination as it is expected to have a lower effect on economic development (it has less commercial land use opportunities compared to similar alignments that could generate more development), travel times will be moderate, and a Brand Boulevard alignment has public opposition.</p>	

Table 4-4 – Recommended Route Alignment Options (continued)


ROUTE 3S	
FEATURES	 <p>Van Nuys Blvd./Ventura Blvd. - Van Nuys Blvd. - Parthenia St. - Sepulveda Blvd. - split couplet on Brand Blvd. & San Fernando Mission Rd. - Sylmar/San Fernando Metrolink Station</p> <p><i>NOTE:</i> This alignment is suitable for all mode operations, although the Truman Street segment is narrow and may require reduction of the roadway to one traffic lane in each direction to accommodate BRT, streetcar, or LRT. BRT has the option of running in mixed-flow operations.</p>
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • Journey times are expected to be moderate as the turns on this alignment would affect speeds and the overall operation of the system • Vehicular traffic travel time impacts are expected around the Van Nuys Civic Center and the City of San Fernando
Regional Connectivity	<ul style="list-style-type: none"> • This route provides intermodal connectivity to regional transit services that includes Van Nuys Metrolink/Amtrak Station, MOL, and Sylmar/San Fernando Metrolink Station • Connection with the future Sepulveda Pass Corridor project
Cost-Effectiveness	<ul style="list-style-type: none"> • Due to the length of this alignment with the addition of the couplet, this route is expected to have higher capital costs than other routes • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	<ul style="list-style-type: none"> • Geotechnical and biological impacts could occur along Parthenia Street. This alignment will travel on Parthenia Street, over the Pacoima Wash which may need to be covered for median-running configurations • Minimal property displacements would be expected but are dependent on the mode and configuration • Minimal historic and cultural impact is anticipated as the corridor is proposed to run adjacent to the San Fernando Mission. Vibration during construction could be an issue • Parklands would likely be impacted as Brand Park lies between Brand Boulevard and San Fernando Mission Boulevard; however, this also depends on the mode and configuration
Economic & Land Use Considerations	<ul style="list-style-type: none"> • Connects the communities along Van Nuys Boulevard on the southern portion of the corridor with highly transit dependent populations around Parthenia Street and along Sepulveda Boulevard • This route is expected to have a moderate effect on economic development as it has less commercial land uses than other alignments
RECOMMENDATION: ELIMINATED	
<p>This route alignment was recommended for elimination for reasons similar to Route 3. This alignment would be expected to have a moderate effect on economic development, would have more traffic impacts due to the inclusion of San Fernando Mission Boulevard as part of a one-way couplet alignment, and travel times would be moderate.</p>	

Table 4-4 – Recommended Route Alignment Options (continued)


ROUTE 4	
FEATURES	 <p>Sepulveda Blvd./Ventura Blvd. - Sepulveda Blvd. - MOL - Van Nuys Blvd. - Van Nuys Blvd./Foothill Blvd.</p> <p><i>NOTE:</i> The existing Metrolink and Union Pacific tracks as well as the potential California High Speed Rail would force streetcar and LRT into a grade separation over or under San Fernando Road.</p>
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • Journey times are expected to be moderate • Vehicular traffic travel time is expected to be impacted in some areas – southern portion of Sepulveda Boulevard and Van Nuys Boulevard around the Civic Center
Regional Connectivity	<ul style="list-style-type: none"> • Intermodal connectivity to regional transit services includes Sepulveda and Van Nuys MOL Stations, and Van Nuys Metrolink/Amtrak Station • Connection with the future Sepulveda Pass Corridor project
Cost-Effectiveness	<ul style="list-style-type: none"> • The capital costs for this route would be among the lowest compared to other routes given the length of the alignment • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	<ul style="list-style-type: none"> • Minimal geotechnical, biological, hazardous material, visual and aesthetic impacts, and property displacements would be expected but are dependent on mode and configuration
Economic & Land Use Considerations	<ul style="list-style-type: none"> • This route lies along various transit dependent communities along Van Nuys Boulevard • This route is expected to have a significant effect on economic development as it connects numerous commercial, civic and recreational land uses
RECOMMENDATION: ADVANCE TO STAGE II	
<p>This route was recommended for further review as ridership would be high along this alignment. The route would also connects to several transit services at the Van Nuys Metrolink/Amtrak Station, Sepulveda and Van Nuys MOL Station, and the future Sepulveda Pass Corridor project.</p>	

Table 4-4 – Recommended Route Alignment Options (continued)


ROUTE 5	
FEATURES	 <p>Sepulveda Blvd./Ventura Blvd. - Sepulveda Blvd. - Brand Blvd. - Truman St. - Sylmar/San Fernando Metrolink Station</p> <p><i>NOTE:</i> This alignment is suitable for BRT and rail operations, although the Truman Street segment may result in a reduced number of traffic lanes.</p>
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • Journey times are expected to be moderate • Vehicular traffic travel time is expected to be affected on the southern section of the route on Sepulveda Boulevard and in the City of San Fernando
Regional Connectivity	<ul style="list-style-type: none"> • This route provides intermodal connectivity to regional transit services that includes Sepulveda MOL Station and Sylmar/San Fernando Metrolink Station • Connection with the future Sepulveda Pass Corridor project
Cost-Effectiveness	<ul style="list-style-type: none"> • The capital costs for this route would be lower than other routes given the length of the alignment • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	<ul style="list-style-type: none"> • Minimal geotechnical, biological, hazardous material impacts, and property displacements would be expected but are dependent on mode and configuration
Economic & Land Use Considerations	<ul style="list-style-type: none"> • Offers less accessibility to the transit dependent population compared to other routes • The route would not have as significant of an effect on economic development compared to other alignments
RECOMMENDATION: ELIMINATED	
<p>This alternative was recommended for elimination based on the fact that there would not be substantial improvements to mobility and connectivity. The route would not include key areas along Van Nuys Boulevard that have higher transit dependent populations and transit ridership. There is also high public opposition to a project on Brand Boulevard.</p>	

Table 4-4 – Recommended Route Alignment Options (continued)


ROUTE 5S	
FEATURES	 <p>Sepulveda Blvd./Ventura Blvd. - Sepulveda Blvd. - split couplet on Brand Blvd. & San Fernando Mission Blvd. - Truman St. - Sylmar/San Fernando Metrolink Station</p> <p><i>NOTE:</i> This alignment is suitable for BRT and rail operations, although the Truman Street segment may result in a reduced number of traffic lanes.</p>
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • Journey times are expected to be moderate • Vehicular traffic travel time is expected to be affected on the southern section of the route on Sepulveda Boulevard, and in the City of San Fernando
Regional Connectivity	<ul style="list-style-type: none"> • Route provides intermodal connectivity to regional transit services that includes Sepulveda MOL Station and Sylmar/San Fernando Metrolink Station • Connection with the future Sepulveda Pass Corridor project
Cost-Effectiveness	<ul style="list-style-type: none"> • Due to the length of this alignment with the addition of the couplet, this route is expected to have higher capital costs than other routes • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	<ul style="list-style-type: none"> • Minimal property displacements would be expected but are dependent on the mode and configuration • Minimal historic and cultural impact is anticipated as the corridor is proposed to run near the San Fernando Mission. Vibration during construction could be an issue • Parklands may be impacted as Brand Park lies between Brand Boulevard and San Fernando Mission Boulevard
Economic & Land Use Considerations	<ul style="list-style-type: none"> • The route offers less accessibility to the transit dependent population compared to other routes • The route would not have as significant of an effect on economic development compared to other alignments
RECOMMENDATION: ELIMINATED	
<p>This alternative was recommended for elimination based on the similar findings from Route 5 and would likely have more impacts and capital costs due to the inclusion of San Fernando Mission Boulevard as part of a one-way couplet alignment.</p>	

Table 4-4 – Recommended Route Alignment Options (continued)


ROUTE 6	
FEATURES	 <p>Sepulveda Blvd./Ventura Blvd. - Sepulveda Blvd. - MOL - Van Nuys Blvd. - San Fernando Rd. - Truman St. - Sylmar/San Fernando Metrolink Station</p> <p><i>NOTE:</i> Similar to Route 2, this alignment may be unsuited for streetcar and LRT, due to the narrowness of the ROW along San Fernando Road; ROW acquisition would be necessary. BRT buses might have to operate in mixed-flow on that segment.</p>
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • Journey times are expected to be moderate • Vehicular traffic travel time is expected to be impacted in some areas – southern portion of Sepulveda Boulevard, Van Nuys Boulevard around the Civic Center, and San Fernando Road
Regional Connectivity	<ul style="list-style-type: none"> • Intermodal connectivity to regional transit services that includes Sepulveda and Van Nuys MOL Stations, Van Nuys Metrolink/Amtrak Station, and Sylmar/San Fernando Metrolink Station • Connection with the future Sepulveda Pass Corridor project
Cost-Effectiveness	<ul style="list-style-type: none"> • The capital costs for this route would be among the lowest compared to other routes • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Economic & Land Use Considerations	<ul style="list-style-type: none"> • Minimal geotechnical, biological, hazardous material, property displacement, and visual impacts would be expected but are dependent on mode and configuration • This route lies along various transit dependent communities along Van Nuys Boulevard • This route is expected to have a significant effect on economic development as this alignment connects numerous commercial, civic and recreational land uses
RECOMMENDATION: ADVANCE TO STAGE II	
<p>This route was recommended for further review as it would connect to several transit services which include the Sylmar/San Fernando Metrolink Station, Van Nuys Metrolink/Amtrak Station, Sepulveda and Van Nuys MOL Stations, and to the future Sepulveda Pass Corridor project. High ridership and public support are expected along this alignment. Economic development opportunities would be available along portions of Sepulveda Boulevard and Van Nuys Boulevard.</p>	



Table 4-4 – Recommended Route Alignment Options (continued)


ROUTE 7	
FEATURES	 <p>Sepulveda Blvd./Ventura Blvd. - Sepulveda Blvd. - MOL - Van Nuys Blvd. - Parthenia St. - Sepulveda Blvd. - Brand Blvd. - Truman St. - Sylmar/San Fernando Metrolink Station</p> <p><i>NOTE:</i> This alignment is suitable for BRT, streetcar, and LRT median-running operations, although the northern segment on Truman Street might result in reduced traffic lanes.</p>
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • Journey times are expected to be moderate as the turns on this alignment would affect speeds and the overall operation of the system. However, portions of the route would operate along roadways with good LOS • Vehicular traffic travel time is expected to be impacted in some areas – southern portion of Sepulveda Boulevard, Van Nuys Boulevard around the Civic Center, and around the City of San Fernando
Regional Connectivity	<ul style="list-style-type: none"> • Intermodal connectivity to regional transit services that includes Sepulveda and Van Nuys MOL Stations, Van Nuys Metrolink/Amtrak Station, Sylmar/San Fernando Metrolink Station • Connection with the future Sepulveda Pass Corridor project
Cost-Effectiveness	<ul style="list-style-type: none"> • The capital costs of this route would be expected to be higher than shorter routes • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	<ul style="list-style-type: none"> • Geotechnical and biological impacts could occur along Parthenia Street as the route will travel over the Pacoima Wash, which may need to be covered for median-running configurations • Minimal property displacements would be expected but are dependent on the mode and configuration
Economic & Land Use Considerations	<ul style="list-style-type: none"> • Compared to other routes, this alignment offers moderate accessibility to the transit dependent population • This route would be expected to increase economic development as it connects numerous commercial, civic and recreational land uses, although not as high as other routes that traverse Pacoima
RECOMMENDATION: ADVANCE TO STAGE II	
<p>This route was recommended for further review, the despite pubic opposition along Brand Boulevard, as it would connect to several transit services which include the Sylmar/San Fernando Metrolink Station, Van Nuys Metrolink/Amtrak Station, Sepulveda and Van Nuys MOL Stations, and to the future Sepulveda Pass Corridor project. High ridership is expected along this alignment as it would operate along major activity centers along Sepulveda and Van Nuys Boulevard while providing improved journey time.</p>	

Table 4-4 – Recommended Route Alignment Options (continued)


ROUTE 7S	
FEATURES	 <p>Sepulveda Blvd./Ventura Blvd. - Sepulveda Blvd. - MOL - Van Nuys Blvd. - Parthenia St. - Sepulveda Blvd. - split couplet on Brand Blvd. & San Fernando Mission Blvd. - Truman St. - Sylmar/San Fernando Metrolink Station</p> <p><i>NOTE:</i> This alignment is suitable for BRT, streetcar, and LRT median-running operations, although the northern segment on Truman Street might result in reduced traffic lanes.</p>
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • Journey times are expected to be acceptable as the turns on this alignment would affect speeds and the overall operation of the system, however, portions of the route would operate in good LOS roadways • Vehicular traffic travel time is expected to be impacted in some areas – southern portion of Sepulveda Boulevard, Van Nuys Boulevard around the Civic Center, and around the City of San Fernando
Regional Connectivity	<ul style="list-style-type: none"> • Intermodal connectivity to regional transit services that includes Sepulveda and Van Nuys MOL Stations, Van Nuys Metrolink/Amtrak Station, Sylmar/San Fernando Metrolink Station • Connection with the future Sepulveda Pass Corridor project
Cost-Effectiveness	<ul style="list-style-type: none"> • Due to the length of this alignment with the addition of the couplet, this route is expected to have higher capital costs than other routes • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	<ul style="list-style-type: none"> • Geotechnical and biological impacts could occur along Parthenia Street. This alignment will travel on Parthenia Street, over the Pacoima Wash which may need to be covered for median-running configurations • Minimal property displacements would be expected • Minimal historic and cultural impact is anticipated as the corridor is proposed to run adjacent to the San Fernando Mission. Vibration during construction could be an issue • Parklands would likely be impacted as Brand Park lies between Brand Boulevard and San Fernando Mission Boulevard; however, this also depends on the mode and configuration
Economic & Land Use Considerations	<ul style="list-style-type: none"> • Connects the communities along Van Nuys Boulevard on the southern portion of the corridor with highly transit dependent populations around Parthenia Street and along Sepulveda Boulevard • This route would be expected to increase economic development as this alignment connects numerous commercial, civic and recreational land uses although not as high as other routes
RECOMMENDATION: ELIMINATED	
<p>This route alignment was recommended for elimination. This route is similar to Route 7; however, with the addition of San Fernando Mission Boulevard as part of a couplet, the environmental impacts and project costs would be higher.</p>	

Table 4-4 – Recommended Route Alignment Options (continued)


ROUTE 8	
FEATURES	 <p>Sepulveda Blvd./Ventura Blvd. - Sepulveda Blvd. - Rinaldi St. - Laurel Canyon Blvd. - Hubbard St. - Truman St. - Sylmar/San Fernando Metrolink Station</p> <p><i>NOTE:</i> The sharp turns in the northern portion of the alignment would result in property acquisition and slow transit speeds for a median-running BRT, streetcar, or LRT configuration.</p>
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • Journey times are expected to be moderate; however, the northern portion of the route has several turns that impact travel times • Vehicular traffic travel time is expected to be affected on the southern section of Sepulveda Boulevard
Regional Connectivity	<ul style="list-style-type: none"> • This route provides intermodal connectivity to regional transit services - Sepulveda MOL Station and Sylmar/San Fernando Metrolink Station • Connection with the future Sepulveda Pass Corridor project
Cost-Effectiveness	<ul style="list-style-type: none"> • The capital costs for this route would be lower than other routes given its length • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	<ul style="list-style-type: none"> • Minimal geotechnical, biological, hazardous material and visual impacts would be expected but are dependent on mode and configuration • Minimal property displacements would be expected but are dependent on the mode and configuration
Economic & Land Use Considerations	<ul style="list-style-type: none"> • This route offers less accessibility to the transit dependent population compared to other routes • The route would probably not have as significant of an effect on economic development compared to other routes
RECOMMENDATION: ELIMINATED	
<p>This alternative was recommended for elimination based on the fact that the region would not see substantial improvements to mobility and connectivity as it would not include key areas along Van Nuys Boulevard which has higher transit dependent populations and transit ridership.</p>	

Table 4-4 – Recommended Route Alignment Options (continued)


ROUTE 9	
FEATURES	 <p>Sepulveda Blvd./Ventura Blvd. - Sepulveda Blvd. - MOL - Van Nuys Blvd. - Parthenia St. - Sepulveda Blvd. - Rinaldi St. - Laurel Canyon Blvd. - Hubbard St. - Truman St. to Sylmar/San Fernando Metrolink Station</p> <p><i>NOTE:</i> The sharp turns in the northern portion of the alignment would result in property acquisition and slow transit speeds for a median-running BRT, streetcar, or LRT configuration.</p>
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • Journey times are expected to be slower than other alignments as the turns in the northern section would affect speeds • Vehicular traffic travel time is expected to be affected on the southern section of the route - Sepulveda Boulevard and the Civic Center
Regional Connectivity	<ul style="list-style-type: none"> • Route provides intermodal connectivity to regional transit services that includes Sepulveda and Van Nuys MOL Stations, Van Nuys Metrolink/Amtrak Station, Sylmar/San Fernando Metrolink Station • Connection with the future Sepulveda Pass Corridor project
Cost-Effectiveness	<ul style="list-style-type: none"> • Given the total length of this route, the capital costs are expected to be higher than shorter routes • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	<ul style="list-style-type: none"> • Geotechnical and biological impacts could occur along Parthenia Street. This route will travel on Parthenia Street, over the Pacoima Wash which may need to be covered for median-running configurations • Visual and aesthetic impacts may occur with median-running configurations. • Property displacements would be expected but are dependent on the mode and configuration
Economic & Land Use Considerations	<ul style="list-style-type: none"> • This route offers moderate accessibility to the transit dependent population compared to other routes • This route would have a moderate effect on economic development as this alignment connects numerous commercial, civic and recreational land uses
RECOMMENDATION: ELIMINATED	
<p>This route was recommendation for elimination as mobility would not be improved with this route alignment and due to the sharp turns particularly in the northern portion of the alignment.</p>	

Table 4-4 – Recommended Route Alignment Options (continued)



ROUTE 10	
FEATURES	 <p>Van Nuys Blvd./Ventura Blvd. - Van Nuys Blvd. Glenoaks Blvd. - N. Hubbard Ave. - Sylmar/San Fernando Metrolink Station</p> <p><i>NOTE:</i> The existing Metrolink and Union Pacific tracks as well as the potential California High Speed Rail would force streetcar and LRT into a grade separation over or under San Fernando Road.</p>
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • Acceptable journey times are expected, but not as high as other routes. The route is not as direct, as it travels north and then south to the Sylmar/San Fernando Metrolink Station • Vehicular traffic travel time impacts are expected around the Civic Center, Glenoaks Boulevard, and Hubbard Avenue
Regional Connectivity	<ul style="list-style-type: none"> • This route provides intermodal connectivity to regional transit services - Van Nuys Metrolink/Amtrak Station, MOL, and Sylmar/San Fernando Metrolink Station • Connection with the future Sepulveda Pass Corridor project
Cost-Effectiveness	<ul style="list-style-type: none"> • The capital costs of this route is expected to be higher than other routes due to its length • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	<ul style="list-style-type: none"> • Visual and aesthetic impacts would be expected in the northern portion of the route, along Glenoaks Boulevard as this is more residential in nature • Minimal property displacements would be expected but are dependent on the mode and configuration
Economic & Land Use Considerations	<ul style="list-style-type: none"> • In general, this route serves transit dependent communities along Van Nuys Boulevard. However, the northern portion serves less transit dependent populations than other routes • This route is expected to have a moderate effect on economic development although not as much as other alignments
RECOMMENDATION: ELIMINATED	
<p>This route alignment was recommended for elimination as this route would not provide as direct a route, as it would travel north and then south to connect to the Sylmar/San Fernando Metrolink Station. This would create increase journey times and increased capital costs.</p>	

Table 4-4 – Recommended Route Alignment Options (continued)

ROUTE 11	
FEATURES	 <p>Sepulveda Blvd./Ventura Blvd. - Sepulveda Blvd. - MOL - Van Nuys Blvd. - Glenoaks Blvd. - Hubbard Ave. - Sylmar/San Fernando Metrolink Station</p> <p><i>NOTE:</i> The existing Metrolink and Union Pacific tracks as well as the potential California High Speed Rail would force streetcar and LRT into a grade separation over or under San Fernando Road.</p>
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • Acceptable journey times are expected, but not as high as other routes. The route is not as direct, as it travels north and then south to the Sylmar/San Fernando Metrolink Station • Vehicular travel time impacts are expected on Sepulveda Boulevard, the Civic Center, Glenoaks Boulevard, and Hubbard Avenue
Regional Connectivity	<ul style="list-style-type: none"> • Route provides intermodal connectivity to regional transit services - Sepulveda and Van Nuys MOL Stations, Van Nuys Metrolink/Amtrak Station, and Sylmar/San Fernando Metrolink Station • Connection with the future Sepulveda Pass Corridor project
Cost-Effectiveness	<ul style="list-style-type: none"> • The capital costs of this route is expected to be higher than other routes due to its length • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	<ul style="list-style-type: none"> • Visual and aesthetic impacts would be expected in the northern portion of the route, along Glenoaks Boulevard as this is more residential in nature • Minimal property displacements would be expected but are dependent on the mode and configuration
Economic & Land Use Considerations	<ul style="list-style-type: none"> • In general, this route serves transit dependent communities along Van Nuys Boulevard. However, the northern portion serves less transit dependent populations than other routes • This route is expected to have a moderate effect on economic development although not as much as other routes
RECOMMENDATION: ELIMINATED	
<p>This route was recommended for elimination based on similar findings from Route 10 - indirect route that would travel north and then south to connect to the Sylmar/San Fernando Metrolink Station and higher capital costs.</p>	

Additional evaluation criteria that were evaluated for each mode, configuration, and alignment also included community input and financial capability. The general evaluation for these criteria is as follows:

Community Input

Seven community meetings were held prior to the evaluation of the community input performance measures that were applied for the Tier I screening (Stage I and II). Based on the general public input received during the meeting comment periods, the mode, configuration, and alignment options were assessed. The general comments included support and concerns for the project, and are as follows:

- Van Nuys Boulevard received high support as a project corridor, more so than Sepulveda Boulevard.
- Connecting to the Sylmar/San Fernando Metrolink Station and the future Sepulveda Pass Corridor project would be integral for improved mobility and regional connectivity.
- High public opposition for a project on Brand Boulevard due to the historic characteristic.
- Public support for the modes included high support for LRT, followed by BRT, and lastly minor support for streetcar.
- The community supported having bike lanes as part of the project.
- The community voiced strong support for improved mobility in the study area. Therefore, fewer conflicts with vehicles and bicycles would be of benefit.

Financial Capability

The financial capability considers the estimated capital costs in relation to the \$170.1 million LRTP identified funds. The evaluation of the mode, configuration, and alignment options were dependent on these general principles:

- Mode – The cost of an LRT, followed by streetcar, would cost significantly more in terms of procuring trains, major infrastructure construction, and a new maintenance facility when compared to a BRT alternative.
- Configuration – Median-running configurations would be the most costly of the configurations due to the higher cost of the dedicated guideway that includes station platforms and pavement upgrades.
- Alignment – The costs are generally related to the length of the alignment. Therefore, the longer the route, the higher the cost.

4.5.2. Stage I Screening Results

The Stage I screening of modes, configurations, and route alignments are described in this section.



For the modal options, the top two modes which included BRT and LRT were recommended for further study as part of the Stage II analysis. Streetcar was eliminated due to the limitation on end-to-end travel time savings as this mode is not as effective in providing mobility for long corridors as compared to BRT and LRT options. Additionally, Metro does not currently operate streetcar as part of their transit system. Therefore, there would not be system compatibility.

Of the 12 configurations, the top three were selected to move forward into Stage II of the Tier I screening. In general, configurations that had a reduced number of travel lanes or were single-lane median-running were eliminated from further analysis. Additionally, side-running configurations were removed from consideration due to the relatively high capital costs for limited mobility improvements. The configurations that were recommended included two median-running options and one peak-hour curbside option.

The top five route alignments that were chosen for a Stage II evaluation included Routes 1, 2, 4, 6 and 7. These routes include alignments on Van Nuys Boulevard and several hybrid Van Nuys Boulevard and Sepulveda Boulevard/Brand Boulevard combinations. These routes show the most potential when considering the objective of the project in relation to connectivity and accessibility.

4.5.3. Stage II

The Stage II Tier I screening analysis combined the two modes with three configurations and five routing alignments for a total of 15 alternatives. These alternatives were screened to determine which would be recommended for further review in the Tier II (final) screening.

4.5.3.1 Alternatives

Table 4-5 summarizes the 15 alternatives that were evaluated in Stage II of the Tier I screening. The primary determination whether or not to recommend an alternative are indicated by bold text.

Table 4-5 – Recommended Project Alternatives


ALTERNATIVE 1C	
	 <p>ROUTE - Van Nuys Blvd./Ventura Blvd. - Van Nuys Blvd. - Van Nuys Blvd./Foothill Blvd.</p> <p>MODE - BRT</p>
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • Improved journey time would be minimal as conflicts would continue to occur because even though an exclusive lane would be provided, it would still encounter conflicts with right-turning vehicles, bicyclists, and illegally parked vehicles • Vehicular traffic travel time is expected to be impacted around the Van Nuys Civic Center • There is high ridership in the Van Nuys corridor
Regional Connectivity	<ul style="list-style-type: none"> • This alternative provides moderate intermodal connectivity to other regional transit services - Van Nuys Metrolink/Amtrak Station, MOL, and future Sepulveda Pass Transit Corridor project • Does not connect to the Sylmar/San Fernando Metrolink Station • Curbside bus service does not comply with long range mobility goals as it would only improve peak-hour mobility along the route
Cost-Effectiveness	<ul style="list-style-type: none"> • This alternative would require no construction, only signage and re-striping • The O&M costs would be similar to existing Rapid Bus operations, but will depend on vehicle headways
Environmental Benefits & Impacts	<ul style="list-style-type: none"> • In general, the environmental impacts associated with this alternative would be minimal, if any
Economic & Land Use Considerations	<ul style="list-style-type: none"> • This route lies along various transit dependent communities along Van Nuys Boulevard
ELIMINATED	
<p>This alternative was recommended for elimination due to the peak-period bus only lane. The route would not provide substantial improvements to mobility because of the limited operation of the transit lane. Additionally, conflicts with right-turning vehicles and the potential for illegally parked vehicles could affect service efficiency. It also does not connect to the Sylmar/San Fernando Metrolink Station</p>	

Table 4-5 – Recommended Project Alternatives (continued)


ALTERNATIVE 1B	
	 <p>ROUTE - Van Nuys Blvd./Ventura Blvd. - Van Nuys Blvd. - Van Nuys Blvd./Foothill Blvd.</p> <p>MODE - BRT</p>
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • End-to-end transit travel time savings are expected to improve with a linear route and median-running alignment due to reduced vehicle conflicts • Vehicular traffic travel time is expected to be impacted around the Van Nuys Civic Center • There is high ridership in the Van Nuys corridor
Regional Connectivity	<ul style="list-style-type: none"> • This alternative provides moderate intermodal connectivity to other regional transit services - Van Nuys Metrolink/Amtrak Station, MOL, and future Sepulveda Pass Transit Corridor project • Does not connect to the Sylmar/San Fernando Metrolink Station • A BRT option would comply with the long range mobility goals for the region by providing connectivity and improving travel for the region
Cost-Effectiveness	<ul style="list-style-type: none"> • The capital costs for BRT would be high as it would require major roadway reconstruction for dedicated guideway segments • The O&M costs for a BRT median-running guideway would be similar to existing Rapid Bus operations, but will depend on vehicle headways • Would require an expansion of existing bus maintenance facility
Environmental Benefits & Impacts	<ul style="list-style-type: none"> • Visual and aesthetic construction impacts would be expected with this alternative • Community disruption and potential property displacement may occur
Economic & Land Use Considerations	<ul style="list-style-type: none"> • This route is expected to have a significant effect on economic development as it connects more commercial, civic and recreational land uses than other alignments • This route lies along various transit dependent communities along Van Nuys Boulevard • South of the MOL, there is a higher density of zero vehicle households, transit dependent populations, and poverty
ELIMINATED	
<p>This alternative was recommended for elimination due to limited intermodal system connectivity, especially at the northern terminus location.</p>	

Table 4-5 – Recommended Project Alternatives (continued)


ALTERNATIVE 1L	
	 <p>ROUTE - Van Nuys Blvd./Ventura Blvd. - Van Nuys Blvd. - Van Nuys Blvd./Foothill Blvd.</p> <p>MODE - LRT</p>
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • End-to-end transit travel time savings are expected to improve with a linear route and median-running alignment due to reduced vehicle conflicts • Vehicular traffic travel time is expected to be impacted around the Van Nuys Civic Center • There is high ridership in the Van Nuys corridor
Regional Connectivity	<ul style="list-style-type: none"> • This alternative provides moderate intermodal connectivity to other regional transit services - Van Nuys Metrolink/Amtrak Station, MOL, and future Sepulveda Pass Transit Corridor project • Does not connect to the Sylmar/San Fernando Metrolink Station • An LRT option would comply with the long range mobility goals for the region by providing connectivity and improving travel for the region
Cost-Effectiveness	<ul style="list-style-type: none"> • The capital costs for LRT would be expensive as it would require major roadway reconstruction • The O&M costs for an LRT median-running guideway would be high and is dependent on the operating headways and number of cars per train • Grade-separation would be necessary at San Fernando Road because the LRT cannot cross the Metrolink Antelope Valley Line/Union Pacific tracks at grade • Would require land acquisition and construction of a maintenance facility
Environmental Benefits & Impacts	<ul style="list-style-type: none"> • The visual and aesthetic impacts would be high due to the catenary system • Grade-separation would be necessary at San Fernando Road because the LRT cannot cross the Metrolink Antelope Valley Line/Union Pacific tracks at grade
Economic & Land Use Considerations	<ul style="list-style-type: none"> • This route is expected to have a significant effect on economic development as it connects more commercial, civic and recreational land uses than other alignments • This route lies along various transit dependent communities along Van Nuys Boulevard • South of the MOL, there is a higher density of zero vehicle households, transit dependent populations, and poverty
ELIMINATED	
<p>This alternative was recommended for elimination due to the LRT’s environmental impacts which outweigh the ridership and mobility benefits of the alternative. Ridership, mobility, and connectivity would improve in the east San Fernando Valley with a median-running LRT alternative, but there would be significant impacts including geotechnical, hazardous materials, biological, construction, visual and aesthetic. This is mainly attributed to the need to provide a grade-separation at San Fernando Road due to the Metrolink Antelope Valley Line/Union Pacific tracks. Additionally, this mode is capital intensive and would increase in costs with the need to grade-separate.</p>	

Table 4-5 – Recommended Project Alternatives (continued)


ALTERNATIVE 2C	
	 <p>ROUTE - Sepulveda Blvd./Ventura Blvd. - Ventura Blvd. - Van Nuys Blvd. - San Fernando Rd. - Truman St. - Sylmar/San Fernando Metrolink Station</p> <p>MODE - BRT</p>
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • Improved journey time would be minimal as conflicts would continue to occur because even though an exclusive lane would be provided, it would still encounter conflicts with right-turning vehicles, bicyclists, and illegally parked vehicles • Vehicular traffic travel time is expected to be impacted around the Van Nuys Civic Center • There is high ridership in the Van Nuys corridor
Regional Connectivity	<ul style="list-style-type: none"> • This alternative provides high intermodal connectivity to regional transit services - Van Nuys Metrolink/Amtrak Station, MOL, Sylmar/San Fernando Metrolink Station, and future Sepulveda Pass Transit Corridor project • Curbside bus service does not comply with long range mobility goals as it would only improve peak-hour mobility along the route
Cost-Effectiveness	<ul style="list-style-type: none"> • This alternative would require no construction, only signage and re-striping • The O&M costs would be similar to existing Rapid Bus operations, but will depend on vehicle headways
Environmental Benefits & Impacts	<ul style="list-style-type: none"> • In general, the environmental impacts associated with this alternative would be minimal, if any
Economic & Land Use Considerations	<ul style="list-style-type: none"> • This route lies along various transit dependent communities along Van Nuys Boulevard
ELIMINATED	
<p>This alternative was recommended for elimination due to the peak-period bus only lane. The route would not see substantial improvements to mobility because of the limited operation of the lane, conflicts with right-turning vehicles, and the potential for illegally parked vehicles impeding efficient service.</p>	

Table 4-5 – Recommended Project Alternatives (continued)


ALTERNATIVE 2B	
	 <p>ROUTE - Sepulveda Blvd./Ventura Blvd. - Ventura Blvd. - Van Nuys Blvd. - San Fernando Rd. - Truman St. - Sylmar/San Fernando Metrolink Station</p> <p>MODE - BRT</p>
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • Vehicular traffic travel time is expected to be impacted around the Van Nuys Civic Center. Compared to similar routes, it would encounter a smaller number of congested segments • Journey times are expected to improve moderately with this median-running BRT alignment as it operates in a dedicated guideway and mixed-flow traffic • There is high ridership in the Van Nuys corridor
Regional Connectivity	<ul style="list-style-type: none"> • This alternative provides high intermodal connectivity to regional transit services - Van Nuys Metrolink/Amtrak Station, MOL, Sylmar/San Fernando Metrolink Station, and future Sepulveda Pass Transit Corridor project • A BRT option would comply with the long range mobility goals for the region by providing connectivity and improving travel for the region
Cost-Effectiveness	<ul style="list-style-type: none"> • The capital costs for BRT would be expensive as it would require major roadway reconstruction for dedicated guideway segments • The O&M costs for a BRT median-running guideway would be similar to existing Rapid Bus operations, but will depend on vehicle headways • Would require an expansion of existing bus maintenance facility
Environmental Benefits & Impacts	<ul style="list-style-type: none"> • Visual and aesthetic construction impacts would be expected with this alternative • Community disruption and potential property displacement may occur
Economic & Land Use Considerations	<ul style="list-style-type: none"> • This alternative is expected to have a significant effect on economic development as it connects more commercial, civic and recreational land uses than other alignments • This route lies along various transit dependent communities along Van Nuys Boulevard • South of the MOL, there is a higher density of zero vehicle households, transit dependent populations, and poverty
RECOMMENDED FOR FURTHER STUDY	
<p>This alternative was recommended for further study because it would improve end-to-end travel time in the east San Fernando Valley and would connect and traverse several connecting transit services such as Sepulveda and Van Nuys MOL Stations, and Van Nuys Metrolink/Amtrak Station, Sylmar/San Fernando Metrolink Station, and future Sepulveda Pass Corridor project. The mode is compatible with the existing Metro bus fleet and would require less capital cost investment compared to a LRT, and presents minimal environmental impacts while providing improved mobility and connectivity to the study area.</p>	



Table 4-5 – Recommended Project Alternatives (continued)


ALTERNATIVE 2L	
	 <p>ROUTE - Sepulveda Blvd./Ventura Blvd. - Ventura Blvd. - Van Nuys Blvd. - San Fernando Rd. - Truman St. - Sylmar/San Fernando Metrolink Station</p> <p>MODE - LRT</p>
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • Vehicular traffic travel time is expected to be impacted around the Van Nuys Civic Center; however, compared to similar routes, it would encounter a smaller number of congested segments • Journey times are expected to improve with this median-running LRT alignment • There is high ridership in the Van Nuys corridor
Regional Connectivity	<ul style="list-style-type: none"> • This alternative provides high intermodal connectivity to regional transit services - Van Nuys Metrolink/Amtrak Station, MOL, Sylmar/San Fernando Metrolink Station, and future Sepulveda Pass Transit Corridor project • Improved transit mobility, as set forth as a goal, should be enhanced with the median-running operations as there would be a reduction in conflicts
Cost-Effectiveness	<ul style="list-style-type: none"> • The capital costs for LRT would be expensive as it would require major roadway reconstruction and land acquisition • The O&M costs for an LRT median-running guideway would be high and is dependent on the operating headways and number of cars per train • Would require land acquisition and construction of a maintenance facility
Environmental Benefits & Impacts	<ul style="list-style-type: none"> • The visual and aesthetic impacts would be high due to the catenary system • Property displacements would be expected as ROW acquisition will be necessary along San Fernando Road • Adequate ROW south of the MOL
Economic & Land Use Considerations	<ul style="list-style-type: none"> • This alternative is expected to have a significant effect on economic development as it connects more commercial, civic and recreational land uses than other alignments • This route lies along various transit dependent communities along Van Nuys Boulevard • South of the MOL, there is a higher density of zero vehicle households, transit dependent populations, and poverty
RECOMMENDED FOR FURTHER STUDY	
<p>This alternative was recommended for further study since the ridership, mobility, and connectivity would improve in the east San Fernando Valley with a median-running LRT alternative. It would improve end-to-end travel time in the east San Fernando Valley and would connect and traverse several connecting transit services like Sepulveda and Van Nuys MOL Stations, and Van Nuys Metrolink/Amtrak Station, Sylmar/San Fernando Metrolink Station, and future Sepulveda Pass Corridor project. Extensive right-of-way acquisition would be necessary along San Fernando Road.</p>	



Table 4-5 – Recommended Project Alternatives (continued)


ALTERNATIVE 4C	
	
	<p>ROUTE - Sepulveda Blvd./Ventura Blvd. - Sepulveda Blvd. - MOL - Van Nuys Blvd. - Van Nuys Blvd./Foothill Blvd.</p> <p>MODE - BRT</p>
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • Improved journey time would be minimal as conflicts would continue to occur because even though an exclusive lane would be provided, it would still encounter conflicts with right-turning vehicles, bicyclists, and illegally parked vehicles • Vehicular traffic travel time is expected to be affected around the Van Nuys Civic Center and the southern portion of Sepulveda corridor • There is high ridership in the Van Nuys corridor
Regional Connectivity	<ul style="list-style-type: none"> • This alternative provides moderate intermodal connectivity to other regional transit services - Van Nuys Metrolink/Amtrak Station, MOL, and future Sepulveda Pass Transit Corridor project • Does not connect to the Sylmar/San Fernando Metrolink Station • Curbside bus service does not comply with long range mobility goals as it would only improve peak-hour mobility along the route
Cost-Effectiveness	<ul style="list-style-type: none"> • This alternative would require no construction, only signage and re-striping • The O&M costs would be similar to existing Rapid Bus operations, but will depend on vehicle headways
Environmental Benefits & Impacts	<ul style="list-style-type: none"> • In general, the environmental impacts associated with this alternative would be minimal, if any
Economic & Land Use Considerations	<ul style="list-style-type: none"> • This route lies along various transit dependent communities along Van Nuys Boulevard
ELIMINATED	
<p>This alternative was recommended for elimination due to the peak-period bus only lane for which the route would not see substantial improvements to mobility because of the limited operation of the lane and because conflicts with right-turning vehicles and the potential for illegally parked vehicles impeding on efficient service.</p>	

Table 4-5 – Recommended Project Alternatives (continued)


ALTERNATIVE 4B	
	 <p>ROUTE - Sepulveda Blvd./Ventura Blvd. - Sepulveda Blvd. - MOL - Van Nuys Blvd. - Van Nuys Blvd./Foothill Blvd.</p> <p>MODE - BRT</p>
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • End-to-end transit travel time savings are expected to improve with a general linear route and median-running alignment due to reduced vehicle conflicts as the entire length of the route would be located in a dedicated guideway • Vehicular traffic travel time is expected to be affected around the Van Nuys Civic Center and the southern portion of Sepulveda corridor • There is high ridership in the Van Nuys corridor
Regional Connectivity	<ul style="list-style-type: none"> • This alternative provides moderate intermodal connectivity to other regional transit services - Van Nuys Metrolink/Amtrak Station, MOL, and future Sepulveda Pass Transit Corridor project • Does not connect to the Sylmar/San Fernando Metrolink Station • A BRT option would comply with the long range mobility goals for the region by providing connectivity and improving travel for the region
Cost-Effectiveness	<ul style="list-style-type: none"> • The capital costs for BRT would be expensive as it would require major roadway reconstruction for dedicated guideway segments • The O&M costs for a BRT median-running guideway would be similar to existing Rapid Bus operations, but will depend on vehicle headways • Would require an expansion of existing bus maintenance facility
Environmental Benefits & Impacts	<ul style="list-style-type: none"> • Visual and aesthetic construction impacts would be expected with this alternative • Community disruption and potential property displacement may occur
Economic & Land Use Considerations	<ul style="list-style-type: none"> • This alternative is expected to have a significant effect on economic development as it connects commercial, civic and recreational land uses; however, not as much alternatives that continue on Van Nuys Boulevard • This route lies along various transit dependent communities along Van Nuys Boulevard • South of the MOL, this segment would not serve as dense a transit dependent population alternatives that continue on Van Nuys Boulevard
RECOMMENDED FOR FURTHER STUDY	
<p>This alternative was recommended for further analysis because it would improve end-to-end travel time in the east San Fernando Valley. The mode is compatible with the existing Metro bus fleet and would require less capital cost investment compared to a LRT and presents minimal environmental impacts while providing improved mobility and connectivity to the study area. Additionally, it would provide bikes lanes which are designated as bike routes within the City of LA Bike Plan.</p>	

Table 4-5 – Recommended Project Alternatives (continued)


ALTERNATIVE 4L	
	
<p>ROUTE - Sepulveda Blvd./Ventura Blvd. - Sepulveda Blvd. - MOL - Van Nuys Blvd. - Van Nuys Blvd./Foothill Blvd.</p> <p>MODE - LRT</p>	
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • End-to-end transit travel time savings are expected to improve with a general linear route and median-running alignment due to reduced vehicle conflicts • Vehicular traffic travel time is expected to be affected around the Van Nuys Civic Center and the southern portion of Sepulveda corridor • There is high ridership in the Van Nuys corridor • There is less ridership along the Sepulveda corridor south of the MOL in comparison to the same portion on the Van Nuys corridor • Proximity to I-405 and US-101 interchange creates more congestion along the southern portion of Sepulveda Boulevard so much so that the intersection of Sepulveda Boulevard/Ventura Boulevard is one of the most congested intersections in the Valley
Regional Connectivity	<ul style="list-style-type: none"> • This alternative provides moderate intermodal connectivity to other regional transit services - Van Nuys Metrolink/Amtrak Station, MOL, and future Sepulveda Pass Transit Corridor project • Does not connect to the Sylmar/San Fernando Metrolink Station • An LRT option would comply with the long range mobility goals for the region by providing connectivity and improving travel for the region
Cost-Effectiveness	<ul style="list-style-type: none"> • The capital costs for LRT would be expensive as it would require major roadway reconstruction and land acquisition • The O&M costs for an LRT median-running guideway would be high and is dependent on the operating headways and number of cars per train • Grade-separation would be necessary at San Fernando Road because the LRT cannot cross the Metrolink Antelope Valley Line/Union Pacific tracks at grade • Would require land acquisition and construction of a maintenance facility
Environmental Benefits & Impacts	<ul style="list-style-type: none"> • The visual and aesthetic impacts would be high due to the catenary system • Grade-separation would be necessary at San Fernando Road because the LRT cannot cross the Metrolink Antelope Valley Line/Union Pacific tracks at grade • Constrained ROW south of the MOL
Economic & Land Use Considerations	<ul style="list-style-type: none"> • This alternative is expected to have a significant effect on economic development as it connects commercial, civic and recreational land uses; however, not as much alternatives that continue on Van Nuys Boulevard • This route lies along various transit dependent communities along Van Nuys Boulevard • South of the MOL, this segment would not serve as dense a transit dependent population alternatives that continue on Van Nuys Boulevard
ELIMINATED	
<p>This alternative was recommended for elimination due to the LRT's environmental impacts which outweigh the ridership and mobility benefits of the alternative. Ridership, mobility, and connectivity would improve in the east San Fernando Valley with a median-running LRT alternative, however, there would be significant impacts including geotechnical, hazardous materials, biological, visual and aesthetic. This is mainly attributed to the need to provide a grade-separation at San Fernando Road due to the Metrolink Antelope Valley Line/Union Pacific tracks. Additionally, this mode is capital intensive and would increase in costs with the need to grade separate.</p>	

Table 4-5 – Recommended Project Alternatives (continued)


ALTERNATIVE 6C	
	 <p>ROUTE - Sepulveda Blvd./Ventura Blvd. - Sepulveda Blvd. - MOL - Van Nuys Blvd. - San Fernando Rd. - Truman St. - Sylmar/San Fernando Metrolink Station</p> <p>MODE - BRT</p>
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • Improved journey time would be minimal as conflicts would continue to occur because even though an exclusive lane would be provided, it would still encounter conflicts with right-turning vehicles, bicyclists, and illegally parked vehicles • Vehicular traffic travel time is expected to be impacted around the Van Nuys Civic Center and the southern portion of Sepulveda corridor • There is high ridership in the Van Nuys corridor
Regional Connectivity	<ul style="list-style-type: none"> • This alternative provides high intermodal connectivity to regional transit services - Van Nuys Metrolink/Amtrak Station, MOL, Sylmar/San Fernando Metrolink Station, and future Sepulveda Pass Transit Corridor project • Curbside bus service does not comply with long range mobility goals as it would only improve peak-hour mobility along the route
Cost-Effectiveness	<ul style="list-style-type: none"> • This alternative would require no construction, only signage and re-striping • The O&M costs would be similar to existing Rapid Bus operations, but will depend on vehicle headways
Environmental Benefits & Impacts	<ul style="list-style-type: none"> • In general, the environmental impacts associated with this alternative would be minimal, if any
Economic & Land Use Considerations	<ul style="list-style-type: none"> • This route lies along various transit dependent communities along Van Nuys Boulevard
ELIMINATED	
<p>This alternative was recommended for elimination due to the peak-period bus only lane for which the route would not see substantial improvements to mobility because of the limited operation of the lane and because conflicts with right-turning vehicles and the potential for illegally parked vehicles impeding on efficient service.</p>	

Table 4-5 – Recommended Project Alternatives (continued)

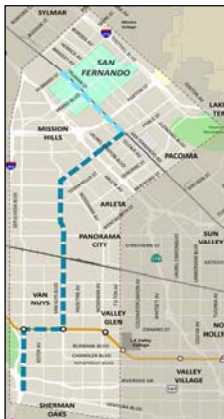
ALTERNATIVE 6B	
	 <p>ROUTE - Sepulveda Blvd./Ventura Blvd. - Sepulveda Blvd. - MOL - Van Nuys Blvd. - San Fernando Rd. - Truman St. - Sylmar/San Fernando Metrolink Station</p> <p>MODE - BRT</p>
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • Vehicular traffic travel time is expected to be impacted around the Van Nuys Civic Center and the southern portion of Sepulveda corridor • Journey times are expected to improve with this median-running BRT alignment • There is high ridership in the Van Nuys corridor • Proximity to the I-405 and US-101 interchange creates more congestion along the southern portion of Sepulveda Boulevard, so much so that Sepulveda Boulevard/Ventura Boulevard is considered one of the most congested intersections in the Valley; therefore, the fact that it would operate in a dedicated guideway assists in improved transit mobility
Regional Connectivity	<ul style="list-style-type: none"> • This alternative provides high intermodal connectivity to regional transit services - Van Nuys Metrolink/Amtrak Station, MOL, Sylmar/San Fernando Metrolink Station, and future Sepulveda Pass Transit Corridor project • Improved transit mobility, as set forth as a goal, should be enhanced with the median-running operations as there would be a reduction in conflicts
Cost-Effectiveness	<ul style="list-style-type: none"> • The capital costs for BRT would be expensive as it would require major roadway reconstruction for dedicated guideway segments • The O&M costs for a BRT median-running guideway would be similar to existing Rapid Bus operations, but will depend on vehicle headways • Would require an expansion of existing bus maintenance facility
Environmental Benefits & Impacts	<ul style="list-style-type: none"> • Visual and aesthetic construction impacts would be expected with this alternative • Community disruption and potential property displacement may occur
Economic & Land Use Considerations	<ul style="list-style-type: none"> • This alternative is expected to have a significant effect on economic development as it connects commercial, civic and recreational land uses; however, not as much alternatives that continue on Van Nuys Boulevard • This route lies along various transit dependent communities along Van Nuys Boulevard • South of the MOL, this segment would not serve as dense a transit dependent population alternatives that continue on Van Nuys Boulevard
RECOMMENDED FOR FURTHER STUDY	
<p>This alternative was recommended for further analysis because it would improve end-to-end travel time in the east San Fernando Valley and would connect and traverse through several connecting transit services like the Sepulveda and Van Nuys MOL Stations, Van Nuys Metrolink/Amtrak Station, Sylmar/San Fernando Metrolink Station, and with the future Sepulveda Pass Corridor project. The mode is compatible with the existing Metro bus fleet and would require less capital cost investment compared to a LRT and presents minimal environmental impacts while providing improved mobility and connectivity to the study area. Additionally, it would provide bikes lanes which are designated as bike routes within the City of LA Bike Plan.</p>	

Table 4-5 – Recommended Project Alternatives (continued)

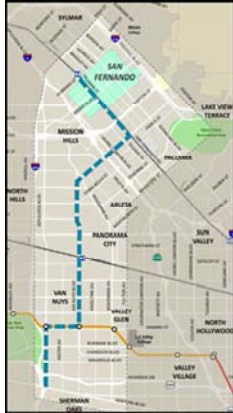
ALTERNATIVE 6L	
	 <p>ROUTE - Sepulveda Blvd./Ventura Blvd. - Sepulveda Blvd. - MOL - Van Nuys Blvd. - San Fernando Rd. - Truman St. - Sylmar/San Fernando Metrolink Station</p> <p>MODE - LRT</p>
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • Vehicular traffic travel time is expected to be impacted around the Van Nuys Civic Center and the southern portion of Sepulveda corridor • Journey times are expected to improve with this median-running LRT alignment; however, are likely to be slower than alternatives that continue down Van Nuys Boulevard due to congestion in the southern portion of the route • There is high ridership in the Van Nuys corridor • There is less ridership along the Sepulveda corridor south of the MOL in comparison to the same portion on the Van Nuys corridor • Proximity to the I-405 and US-101 interchange creates more congestion along the southern portion of Sepulveda Boulevard, so much so that Sepulveda Boulevard/Ventura Boulevard is considered one of the most congested intersections in the Valley
Regional Connectivity	<ul style="list-style-type: none"> • This alternative provides high intermodal connectivity to regional transit services - Van Nuys Metrolink/Amtrak Station, MOL, Sylmar/San Fernando Metrolink Station, and future Sepulveda Pass Transit Corridor project • Improved transit mobility, as set forth as a goal, should be enhanced with the median-running operations as there would be a reduction in conflicts
Cost-Effectiveness	<ul style="list-style-type: none"> • The capital costs for LRT would be expensive as it would require major roadway reconstruction and land acquisition • The O&M costs for an LRT median-running guideway would be high and is dependent on the operating headways and number of cars per train • Would require land acquisition and construction of a maintenance facility
Environmental Benefits & Impacts	<ul style="list-style-type: none"> • The visual and aesthetic impacts would be high due to the catenary system • Property displacements would be expected as ROW acquisition will be necessary along San Fernando Road • Constrained ROW south of the MOL
Economic & Land Use Considerations	<ul style="list-style-type: none"> • This alternative is expected to have a significant effect on economic development as it connects commercial, civic and recreational land uses, but not as much as alternatives that continue on Van Nuys Boulevard • This route lies along various transit dependent communities along Van Nuys Boulevard • South of the MOL, this segment would not serve as dense a transit dependent population alternatives that continue on Van Nuys Boulevard
ELIMINATED	
<p>This alternative was recommended for elimination as it would not serve as large of a transit dependent population compared to the other LRT alternatives. Additionally, journey times may be compromised due to congestion along portions of Van Nuys Boulevard and Sepulveda Boulevard. The capital costs would be higher due to the ROW acquisition along San Fernando Boulevard and potential constraints along Sepulveda Boulevard.</p>	



Table 4-5 – Recommended Project Alternatives (continued)


ALTERNATIVE 7C	
	 <p>ROUTE - Sepulveda Blvd./Ventura Blvd. - Sepulveda Blvd. - MOL - Van Nuys Blvd. - Parthenia St. - Sepulveda Blvd. - Brand Blvd. - Truman St. - Sylmar/San Fernando Metrolink Station</p> <p>MODE - BRT</p>
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • Improved journey time would be minimal as conflicts would continue to occur because even though an exclusive lane would be provided, it would still encounter conflicts with right-turning vehicles, bicyclists, and illegally parked vehicles • Vehicular traffic travel time is expected to be impacted around the Van Nuys Civic Center and the southern portion of Sepulveda corridor
Regional Connectivity	<ul style="list-style-type: none"> • This alternative provides high intermodal connectivity to regional transit services - Van Nuys Metrolink/Amtrak Station, MOL, Sylmar/San Fernando Metrolink Station, and future Sepulveda Pass Transit Corridor project • Curbside bus service does not comply with long range mobility goals as it would only improve peak-hour mobility along the route
Cost-Effectiveness	<ul style="list-style-type: none"> • This alternative would require no construction, only signage and re-striping • The O&M costs would be similar to existing Rapid Bus operations, but will depend on vehicle headways
Environmental Benefits & Impacts	<ul style="list-style-type: none"> • In general, the environmental impacts associated with this alternative would be minimal, if any
Economic & Land Use Considerations	<ul style="list-style-type: none"> • Traverses transit dependent communities along Van Nuys Boulevard, Parthenia Street, and Sepulveda Boulevard
ELIMINATED	
<p>This alternative was recommended for elimination due to the peak-period bus only lane. The route would not provide substantial improvements to mobility because of the limited operation of the lane, conflicts with right-turning vehicles, and the potential for illegally parked vehicles impeding on efficient service.</p>	

Table 4-5 – Recommended Project Alternatives (continued)



ALTERNATIVE 7B	
	
	<p>ROUTE - Sepulveda Blvd./Ventura Blvd. - Sepulveda Blvd. - MOL - Van Nuys Blvd. - Parthenia St. - Sepulveda Blvd. - Brand Blvd. - Truman St. - Sylmar/San Fernando Metrolink Station</p> <p>MODE - BRT</p>
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • Vehicular traffic travel time is expected to be impacted around the Van Nuys Civic Center and the southern portion of Sepulveda corridor • Proximity to the I-405 and US-101 interchange creates more congestion along the southern portion of Sepulveda Boulevard. Sepulveda Boulevard/Ventura Boulevard is considered one of the most congested intersections in the Valley. Operations in a dedicated guideway would improve transit mobility.
Regional Connectivity	<ul style="list-style-type: none"> • This alternative provides high intermodal connectivity to regional transit services - Van Nuys Metrolink/Amtrak Station, MOL, Sylmar/San Fernando Metrolink Station, and future Sepulveda Pass Transit Corridor project • Improved transit mobility, as set forth as a goal, should be enhanced with the median-running operations as there would be a reduction in conflicts
Cost-Effectiveness	<ul style="list-style-type: none"> • The capital costs for BRT would be expensive as it would require major roadway reconstruction for dedicated guideway segments • The O&M costs for a BRT median-running guideway would be similar to existing Rapid Bus operations, but will depend on vehicle headways • Would require an expansion of existing bus maintenance facility
Environmental Benefits & Impacts	<ul style="list-style-type: none"> • Visual and aesthetic construction impacts would be expected with this alternative • Community disruption and potential property displacement may occur
Economic & Land Use Considerations	<ul style="list-style-type: none"> • This alternative is expected to have a significant effect on economic development as it connects commercial, civic and recreational land uses along Van Nuys Boulevard and Sepulveda Boulevard • Traverses transit dependent communities along Van Nuys Boulevard, Parthenia Street, and Sepulveda Boulevard • South of the MOL, this segment would not serve as dense a transit dependent population alternatives that continue on Van Nuys Boulevard
RECOMMENDED FOR FURTHER STUDY	
<p>This alternative was recommended for further study because it would improve end-to-end travel time in the east San Fernando Valley and would connect and traverse several connecting transit services like the Sepulveda and Van Nuys MOL Stations, Van Nuys Metrolink/Amtrak Station, Sylmar/San Fernando Metrolink Station, and the future Sepulveda Pass Corridor project. The mode is compatible with the existing Metro bus fleet and would require less capital cost investment compared to LRT. This alternative presents minimal environmental impacts while providing improved mobility and connectivity to the study area and support of the LA Bike Plan is more in line with the regional mobility goals.</p>	

Table 4-5 – Recommended Project Alternatives (continued)

ALTERNATIVE 7L	
	
	<p>ROUTE - Sepulveda Blvd./Ventura Blvd. - Sepulveda Blvd. - MOL - Van Nuys Blvd. - Parthenia St. - Sepulveda Blvd. - Brand Blvd. - Truman St. - Sylmar/San Fernando Metrolink Station</p> <p>MODE - LRT</p>
Travel & Mobility Benefits & Impacts	<ul style="list-style-type: none"> • Vehicular traffic travel time is expected to be impacted around the Van Nuys Civic Center and the southern portion of Sepulveda corridor • Journey times are expected to improve with this median-running LRT alignment, even with congestion in the southern portion, since the northern portion is less congested compared to the similar segments on Van Nuys Boulevard • There is high ridership in the central portion of Van Nuys Boulevard (Panorama City and Van Nuys) • There is lower ridership along the Sepulveda corridor south of the MOL in comparison to the same portion on the Van Nuys corridor • Proximity to the I-405 and US-101 interchange creates more congestion along the southern portion of Sepulveda Boulevard. Sepulveda Boulevard/Ventura Boulevard is considered one of the most congested intersections in the Valley.
Regional Connectivity	<ul style="list-style-type: none"> • This alternative provides high intermodal connectivity to regional transit services - Van Nuys Metrolink/Amtrak Station, MOL, Sylmar/San Fernando Metrolink Station, and future Sepulveda Pass Transit Corridor project • Improved transit mobility, as set forth as a goal, should be enhanced with the median-running operations as there would be a reduction in conflicts
Cost-Effectiveness	<ul style="list-style-type: none"> • The capital costs for LRT would be expensive as it would require major roadway reconstruction and land acquisition • The O&M costs for an LRT median-running guideway would be high and is dependent on the operating headways and number of cars per train • Would require land acquisition and construction of a maintenance facility
Environmental Benefits & Impacts	<ul style="list-style-type: none"> • The visual and aesthetic impacts would be high due to the catenary system and along portions of Sepulveda Boulevard and Brand Boulevard • Constrained ROW south of the MOL
Economic & Land Use Considerations	<ul style="list-style-type: none"> • This alternative is expected to have a significant effect on economic development as it connects commercial, civic and recreational land uses along Van Nuys Boulevard and Sepulveda Boulevard • Traverses transit dependent communities along Van Nuys Boulevard, Parthenia Street, and Sepulveda Boulevard • South of the MOL, this segment would not serve as dense a transit dependent population as alternatives that continue on Van Nuys Boulevard
RECOMMENDED FOR FURTHER STUDY	
<p>This alternative was recommended for further study for consideration as an LRT alternative. Ridership, mobility, and connectivity would improve in the east San Fernando Valley with a median-running LRT alternative. This alternative would serve both the Van Nuys Boulevard and Sepulveda Boulevard corridors. The LRT alternative also garnered strong public support.</p>	

Similar to Stage I, the community input and financial capability evaluation criteria were analyzed for the 15 alternatives as part of the Stage II, Tier I screening of alternatives. In general, these followed the same determinations as Stage I that are discussed in Section 4.5.1. More specifically, as part of Stage II, the information pertaining to community input and financial capability were evaluated based on the totality of the alternative, which consists of the mode, configuration, and alignment option.

4.5.4. Stage II Screening Results

Based on the Tier I screening process, six build alternatives with the highest rankings (four BRT and two LRT) were recommended for further analysis as part of the Tier II screening analysis.

4.6 TIER II EVALUATION

How was the Tier II screening of alternatives evaluated?

The Tier II screening included an evaluation of the build alternatives relative to the evaluation criteria and their corresponding performance measures. This consisted of a primarily quantitative analysis that evaluated each performance measure in relation to the alternatives. The scores were based on a scale from one, representing the most potential impact/least beneficial, to five, representing the least potential impacts/most beneficial. Similar to the Tier I screening, the alternative scores were equally weighted.

4.6.1. Alternatives Being Evaluated

The six build alternatives that were recommended for further analysis in the Tier II screening process are summarized in Table 4-6.

Table 4-6 – Recommended Alternatives

ALTERNATIVE	2B	2L	4B	6B	7B	7L
Route Mode Configuration	2 BRT M7	2 LRT M4	4 BRT M7	6 BRT M7	7 BRT M7	7 LRT M4
<i>Alignment</i>	Sepulveda/Ventura - Van Nuys/Ventura - Van Nuys Blvd. - San Fernando Rd. - Truman St. - Sylmar/San Fernando Metrolink Station	Van Nuys/Ventura - Van Nuys Blvd. - San Fernando Rd. - Truman St. - Sylmar/San Fernando Metrolink Station	Sepulveda/Ventura - Sepulveda - Metro Orange Line - Van Nuys Blvd. - Van Nuys/Foothill	Sepulveda/Ventura - Sepulveda - Metro Orange Line - Van Nuys Blvd. - San Fernando Rd. - Truman St. - Sylmar/San Fernando Metrolink Station	Sepulveda/Ventura - Sepulveda Blvd. - Metro Orange Line - Van Nuys Blvd. - Parthenia St. - Sepulveda Blvd. - Brand Blvd. - Truman St. - Sylmar/San Fernando Metrolink Station	
<i>Route Length (miles)</i>	12.2	11.2	11.0	12.0	12.9	12.9
	Dedicated: 6.5 miles Mixed-flow: 5.7 miles	Dedicated Guideway	Dedicated Guideway	Dedicated: 9.4 miles Mixed-flow: 2.6 miles	Dedicated: 11.9 miles Mixed-flow: 1 mile	Dedicated Guideway
<i>Lanes/Direction</i>	2/3	2	2	2	2	2
<i>Number of Dedicated Transit Lanes</i>	2	2	2	2	2	2
<i>Guideway Location</i>	Median Running	Median Running	Median Running	Median Running	Median Running	Median Running
<i>Station Location</i>	Side Platform	Center Platform	Side Platform	Side Platform	Side Platform	Center Platform
<i>Estimated Number of Stations</i>	14	13	14	14	13	13
<i>Peak/Off-Peak Headway (minutes)</i>	6/12	6/12	6/12	6/12	6/12	6/12

- **Alternative 2B** – This generally median-running BRT would operate from the Sylmar/San Fernando Metrolink Station in the north to Sepulveda Boulevard/Ventura Boulevard in the south serving the City of San Fernando and Los Angeles communities of Pacoima, Arleta, Panorama City, Van Nuys, and Sherman Oaks with approximately 14 stations. Approximately 6.5 miles of the route would operate in a median-running configuration. The remaining 5.7 miles would operate in mixed-flow traffic between the Sylmar/San Fernando Metrolink Station and San Fernando Road/Van Nuys Boulevard, and south of the Metro Orange Line (MOL). The buses would continue south to serve Westwood.
- **Alternative 2L** – This median-running LRT alternative serves the same communities as Alternative 2B with approximately 13 stations; however, service terminates at Van Nuys Boulevard/Ventura Boulevard. The entire 11.2 mile route would operate in a dedicated guideway. A transfer would be required onto Rapid Line 761 to continue to Westwood. Right-of-way acquisition will be required along several segments.
- **Alternative 4B** – This median-running BRT would operate from Foothill Boulevard/Van Nuys Boulevard in the north to Sepulveda Boulevard/Ventura Boulevard in the south with a connection via the MOL. This route serves the Los Angeles communities of Pacoima, Lakeview Terrace, Arleta, Panorama City, Van Nuys, and Sherman Oaks with approximately 14 stations. The entire 11 mile route would operate in a dedicated guideway. The buses would continue south to serve Westwood. For access to the commercial corridor on Ventura Boulevard, between Sepulveda Boulevard and Van Nuys Boulevard, a transfer would be required.
- **Alternative 6B** – This generally median-running BRT would operate from the Sylmar/San Fernando Metrolink Station in the north to Sepulveda Boulevard/Ventura Boulevard in the south via the MOL. It would serve the City of San Fernando and Los Angeles communities of Pacoima, Arleta, Panorama City, Van Nuys, and Sherman Oaks with approximately 14 stations. Approximately 9.4 miles of the route operates in a median-running configuration. The remaining 2.6 miles would operate in mixed-flow traffic between the Sylmar/San Fernando Metrolink Station and San Fernando Road/Van Nuys Boulevard. The buses would continue south to serve Westwood. Access to the commercial corridor on Ventura Boulevard would require a transfer.
- **Alternative 7B** – This alternative is mainly a median-running BRT that would operate from the Sylmar/San Fernando Metrolink Station in the north to Sepulveda Boulevard/Ventura Boulevard in the south transitioning via Parthenia Street and the MOL. It would serve the City of San Fernando and Los Angeles communities of Mission Hills, Panorama City, Van Nuys, and Sherman Oaks with approximately 13 stations. Approximately 11.9 miles of the route operates in a median-running configuration. The remaining one mile would operate in mixed-flow traffic between the Sylmar/San Fernando Metrolink Station and San Fernando Road/Brand Boulevard. The buses would continue south to serve Westwood. Access to the commercial corridor on Ventura Boulevard would require a transfer.
- **Alternative 7L** – This median-running LRT alternative provides service to the same communities as Alternative 7B via approximately 13 stations. The entire 12.9 mile route would operate in a dedicated guideway. Unlike Alternative 7B, a transfer would be required onto Rapid Line 761, to continue to Westwood. Access to the commercial



corridor on Ventura Boulevard would require a transfer. Right-of-way acquisition will be required along several segments of this alternative.

4.6.2 Comparative Analysis of Alternatives

Evaluation criteria and the corresponding performance measures were developed as part of the screening process to determine which alternatives should be carried into the DEIS/DEIR. This section summarizes the analysis of the six build alternatives in relation to the criteria and incorporates public input from community meetings held in October 2011 and April/May/October 2012.




4.6.2.1. Travel and Mobility Benefits and Impacts

The travel and mobility benefits and impacts for the alternatives are compared in Table 4-7. The considerations include factors related to transit ridership, user benefits, new riders, vehicle miles traveled (VMT) reduction, journey times, and vehicular travel time impacts. The detailed description of how these measures are calculated are described in Section 4.4 Ridership Modeling, this section describes the results and the underpinnings.

Based on the comparison of alternatives, the primary findings of the analysis are as follows:




- Alternative 7B would have the highest ridership for the BRT alternatives, with a total of 34,695 daily/10,998,315 annual boardings by 2035.
- Of the LRT alternatives, Alternative 7L would have the highest ridership by 2035 with a total of 39,800 daily/12,616,600 annual boardings as it is projected to operate at a higher average speed than Alternative 2L since it would be traveling along less congested roadway segments.
- Although the LRT alternatives are projected to have the highest ridership totals, they would potentially have fewer user benefits and new riders than the BRT alternatives. This is a direct result of the transit markets the LRT alternatives are serving. For this project there are two main transit markets, one is for trips that begin and end in the corridor, and the other are those that only have one end in the corridor or travel through the corridor. Since the LRT alternatives only travel within the corridor, they only capture the benefits for one market. For example, for Alternative 7L, when only considering the user benefits within the study area, it creates about 3,500 hours of positive user benefits against the baseline. However, since the operating plan for Alternative 7L stops at Ventura Boulevard/Sepulveda Boulevard this creates disbenefits (negative user benefits) for existing and new riders when compared to the baseline alternative. There are two operating issues that contribute to the disbenefits: 1) for riders traveling through the study area to Westwood, the transfer required at Sepulveda Boulevard/Ventura Boulevard to Metro Rapid Line 761 makes the trip more onerous than in the baseline therefore creates negative user benefits; 2) Rapid Line 761 runs at six to 10 minute peak/off-peak headways in the baseline and 10/17.5 minute headways in the alternative. This means for travel outside of the corridor, from Ventura Boulevard to Westwood, there would be less frequent transit service for the customer than in the baseline. This would cause negative user benefits as well.

Table 4-7 – Travel and Mobility Benefits and Impacts Comparison

Travel and Mobility Benefits and Impacts						
	Annual Study Area Transit Ridership (Daily/Annual)		Annual Hours of System-wide Transit Users Benefit (Daily/Annual) *		Annual Sytem-wide New Riders (Daily/Annual) *	
Alternative 2B	32,162	10,195,354	2,800	899,000	2,400	763,700
Alternative 2L	37,494	11,885,598	-1,179,900	-3,700	-1,141,200	-3,600
Alternative 4B	28,542	9,042,108	5,600	1,764,600	4,900	1,551,100
Alternative 6B	33,582	10,645,494	6,100	1,918,200	5,300	1,664,900
Alternative 7B	34,695	10,998,315	4,100	1,292,300	3,700	1,172,000
Alternative 7L	39,800	12,616,600	-1,281,400	-4,000	-1,158,000	-3,700

* – These measures are compared to the baseline alternative. The LRT Alternatives on a system-wide basis have negative user benefits (for the reasons described above), which means if there are no benefits over the baseline the alternative does not attract new riders.

Table 4-7 – Travel and Mobility Benefits and Impacts Comparison (continued)

Travel and Mobility Benefits and Impacts						
	Annual Study Area Vehicle Miles Traveled (VMT) Reduction (Daily/Annual)	Point to Point Travel Times (Journey Time in Minutes)				Vehicular Traffic Travel Time Impact (Daily/Annual)
		San Fernando to Sherman Oaks	Panorama City to Westwood	Sylmar/San Fernando Metrolink to North Hollywood	Pacoima to Van Nuys Civic Center	
Alternative 2B	5,763 1,826,800	40.4	85.1	51.0	23.6	99.3 31,500
Alternative 2L	5,780 1,826,480	35.5	68.8	48.6	22.6	101.1 31,700
Alternative 4B	5,758 1,825,200	46.8 *	74.9	68.2 *	23.6	92.2 31,400
Alternative 6B	5,758 1,825,400	41.3	74.9	51.0	23.6	99.0 31,400
Alternative 7B	5,762 1,826,500	40.8	74.9	50.5	27.4 **	98.9 31,400
Alternative 7L	5,772 1,829,700	38.8	72.3	48.9	32.3 **	101.1 31,700

* – Alternative 4B does not provide a BRT connection between San Fernando and Sherman Oaks, as its northern terminus is Foothill Blvd./Van Nuys Blvd.










** – Alternatives 7B and 7L do not directly serve San Fernando Rd./Van Nuys Blvd.

- Alternative 7B would have the highest ridership for a total of 34,695 daily and 10,998,315 annual boardings. This is attributed to the reduced roadway congestion compared to the BRT alternatives. Additionally, of the alternatives that would have portions of the alignment operating in mixed-flow traffic (Alternative 2B and 6B), this alternative would operate for a shorter distance in mixed-flow traffic lanes.
- In general, the constraints associated with LRT alternatives would have the greatest impact to vehicular travel times. However, Alternative 7L would also reduce the study area VMT.

4.6.2.2. Regional Connectivity

Considerations of regional connectivity in relationship to the alternatives are compared in Table 4-8. The performance measures that were evaluated include intermodal system connectivity, system compatibility within the region, and compliance with the Long Range Regional Mobility Goal as outlined in the regional land use plans.

Table 4-8 – Regional Connectivity Comparison

Regional Connectivity	 Intermodal System Connectivity (# of Connections)	 System Compatibility within the Region	 Comply with Long Range Regional Mobility Goal
Alternative 2B	 35	✓	✓
Alternative 2L	 28	✗	✓
Alternative 4B	 31	✓	✓
Alternative 6B	 34	✓	✓
Alternative 7B	 34	✓	✓
Alternative 7L	 32	✗	✓

Based on the comparison of alternatives, the primary findings of the analysis are as follows:



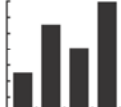
- Alternative 2B would provide the most intermodal connectivity to Metrolink, Amtrak, the MOL, and Metro Rapid and local bus lines. There is also potential future connections with the California High Speed Rail and the Sepulveda Pass Corridor projects. This route has the possibility of connecting to approximately 35 other transit systems in the study area when possible future connections are considered.

- All new LRT infrastructure would be necessary and it would not link to other LRT lines.
- Within the east San Fernando Valley, BRT would be compatible with existing service and the MOL.
- All of the alternatives would comply with the Metro LRTP by improving mobility in the region.

4.6.2.3. Cost Effectiveness

A comparison of the cost effectiveness for the alternatives is summarized in Table 4-9. The evaluation of this criteria considered factors associated with the capital costs, incremental annual operations and maintenance costs, and the incremental cost for each new rider.

Table 4-9 – Cost Effectiveness Comparison

Cost Effectiveness			
	Capital Costs (\$ million, 2018)	Incremental Annual Operations and Maintenance (O&M) Costs (\$ million, 2012)	Incremental Cost Per New Transit Trip
Alternative 2B	\$252-440	\$8.0	\$330-576
Alternative 2L	\$1,800-2,300	\$35.6	*
Alternative 4B	\$296-558	\$7.3	\$191-360
Alternative 6B	\$283-520	\$8.0	\$170-312
Alternative 7B	\$340-619	\$8.8	\$290-528
Alternative 7L	\$1,700-2,300	\$38.4	*

* Alternatives 2L and 7L do not generate a net increase in system wide transit trips over the Baseline. As described in section 4.5.2.1, as an example, Alternative 7L, when only considering the user benefits within the study area creates about 3,500 hours of positive user benefits against the baseline. However, since the operating plan for Alternative 7L stops at Ventura Boulevard/Sepulveda Boulevard this creates disbenefits associated with a transfer for passengers traveling to/from the corridor which is not the case in the BRT Alternatives (or Baseline), and the inconsistency in the frequency of service outside of the corridor.

Based on the comparison of alternatives, the primary findings of the analysis are as follows:

- The incremental annual O&M costs are compared to the No Build Alternative and include the costs of additional vehicles, station, and guideway maintenance for the BRT alternatives.

- The incremental annual O&M costs for the LRT alternatives include power and maintenance of vehicles and guideway maintenance.
- The lowest capital cost is Alternative 2B with a cost ranging from \$252 to \$440 million (2018 \$), while Alternative 4B would have the lowest operations and maintenance cost at approximately \$26.3 million.
- Alternative 6B would provide the most cost effectiveness when considering the incremental cost of each new transit trip at \$360.
- The LRT alternatives incremental cost per new transit trip are not fully analyzed since these alternatives are projected to have net negative ridership due to additional transfers created, lower frequency of connecting transit service, and affects from various markets being served. This concept is discussed in further detail in Section 4.6.2.1 Travel and Mobility Benefits and Impacts.





















































































4.6.2.4. Environmental Benefits and Impacts

Numerous environmental measures which include air quality, noise and vibration, geotechnical, visual and aesthetic, historic and cultural resources, greenhouse gases, parklands, traffic, pedestrian, and bicycles, community disruption and displacement, hazardous materials, biological resources, and construction were evaluated in relation to each project alternative. The comparative evaluation is summarized in Table 4-10.

Based on the comparison of alternatives, the primary findings of the analysis are as follows:

- From an overall environmental perspective, Alternative 4B would have the least amount of potential impacts.
- Air quality impacts considered short- and mid-term emissions since long-term emissions are anticipated to achieve considerable reductions due to improved fuel economy, emissions control technologies, migration to alternative fuels, and retirement of older vehicles. As a result, BRT alternatives would have less potential impacts as they would reduce more VMT and have less vehicle delay.
- LRT alternatives would produce high potential noise and vibration impacts along the proposed routes.
- Potential geotechnical impacts would occur with the LRT alternatives as they are more likely to impact the pavement.
- All the alternatives have the potential to create visual and aesthetic impacts due to the effects of median-running guideways. However, the LRT alternatives would create the most impacts due to their overhead catenary system which supplies electricity through overhead wires. Additionally, alternatives that operate along Brand Boulevard would have a higher visual and aesthetic impacts as this segment is highly residential.
- Historic and cultural resources are located in the vicinity of several of the alternatives. The LRT alternatives have a higher potential for impacting these resources due to their greater presence.
- Alternatives that would operate in dedicated guideways are likely to have fewer impacts to greenhouse gases in the study area.

Table 4-10 – Environmental Benefits and Impacts Comparison

Environmental Benefits and Impacts												
	Air Quality	Noise and Vibration	Geotechnical	Visual and Aesthetic	Historic and Cultural Resources	Greenhouse Gases	Parklands	Traffic, Pedestrian and Bicycle	Community Disruption and Displacement	Hazardous Materials	Biological Resources	Construction
Alternative 2B												
Alternative 2L												
Alternative 4B												
Alternative 6B												
Alternative 7B												
Alternative 7L												




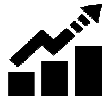



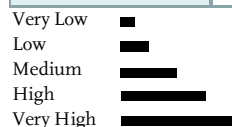
- The alternatives were evaluated based on the number of parklands adjacent to the alignments and the potential impacts. Based on this evaluation, in general, the LRT alternatives would have a greater potential impact to parklands.
- Based on potential impacts to traffic, pedestrian, and bicycles, Alternatives 2B and 4B would cause slightly less impacts as compared to similar alternatives.
- Alternative 7L would not generate as many impacts to planned bicycle facilities compared to the other alternatives.
- Community disruption and displacement would be significant for the LRT alternatives, more so for Alternative 2L due to potential ROW acquisition along a portion of the northern alignment.
- Potential impacts to hazardous materials in the ROW are higher for LRT alternatives due to potential issues related to arsenic, lead, herbicides, and pesticides.
- All of the alternatives would have slight differences with respect to biological resources; however, Alternative 4B would have slightly less potential to affect special-status plants and bat species.
- Construction associated with the building of an LRT alternative would cause the greatest potential impacts during the construction period.

4.6.2.5. Economic and Land Use Considerations

Economic and land use considerations were evaluated for the alternatives to compare performances measures that include transit dependence, construction employment generation, construction-related takes (i.e. ROW acquisition), economic development, and transit supportive land use. Table 4-11 summarizes the alternatives comparison.

Table 4-11 – Economic and Land Use Considerations Comparison

Economic and Land Use Considerations					
	Accessibility - Transit Dependent Population	Construction Employment Generation	Construction-related Takes	Economic Development	Transit Supportive Land Use
Alternative 2B	Low	Low	Low	Low	Low
Alternative 2L	Low	Medium	Medium	Low	Low
Alternative 4B	Low	Low	Low	Low	Low
Alternative 6B	Low	Low	Low	Low	Low
Alternative 7B	Low	Low	Low	Low	Low
Alternative 7L	Low	Medium	Medium	Low	Low



Based on the comparison of alternatives, the primary findings of the analysis are as follows:

- All of the project alternatives would serve transit dependent populations in the project study area. Alternatives that serve the Sylmar/San Fernando Metrolink Station and operate to Van Nuys Boulevard/Ventura Boulevard would serve a greater number of transit dependent populations along Van Nuys Boulevard in comparison to alignments that traverse Sepulveda Boulevard, between the MOL and Ventura Boulevard.
- Construction employment generation would be highest under the LRT alternatives as this mode would have a higher intensity of infrastructure construction.
- Similar to the employment generation, because of the higher infrastructure needs under the LRT alternatives, these would create the most impacts compared to BRT.
- Of the BRT alternatives, Alternatives 6B and 7B would likely spur more economic development due to the community and land uses these alignments would serve.
- Of the LRT alternatives, Alternative 7L would potentially create more economic development.
- The land uses within the study area would be supportive of any of the transit alternatives under consideration.

























4.6.2.6. Community Input

The community input evaluates the alternatives based on public, organization, and agency input as related to local and regional plan consistency, community integration and support, integration into the Backbone Bike Network and pedestrian linkages, impacts to on-street parking, safety and security, and the physical environment. The comparison of alternatives for community input is summarized in Table 4-12.

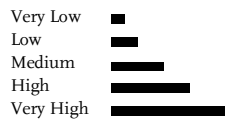
Based on the comparison of alternatives, the primary findings of the analysis are as follows:

- Performance measures related to local and regional plan consistency, impacts to on-street parking, and safety and security received very few or no community comments during the most recent round of community meetings.
- Determination for the community integration and support measure was based on the community survey that was distributed during the meetings. The overall sentiment was in support of the LRT mode, with Alternative 2L being favored over Alternative 7L. Of the four BRT alternatives surveyed, all four were received similar support. Alternatives 6B and 7B were tied, followed by Alternative 2B, and 4B.
- Public comments demonstrated interest in bike lanes, especially the potential to integrate a bicycle network with the LRT alternatives since LRT has a greater capacity for transporting bikes.
- The public noted concern for Alternative 7B and 7L due to the segment that would operate along Brand Boulevard and the potential impacts to the physical environment.

Table 4-12 – Community Input Comparison

						
Community Input	Local and Regional Plan Consistency	Community Integration and Support	Integrate Backbone Bike Network and Pedestrian Linkages	Impact to On-Street Parking	Safety and Security	Physical Environment
Alternative 2B	*			*	*	
Alternative 2L	*			*	*	
Alternative 4B	*			*	*	
Alternative 6B	*			*	*	
Alternative 7B	*			*	*	
Alternative 7L	*			*	*	

* Very few or no public comments were received



4.6.2.7. Financial Capability

The East San Fernando Valley Transit Corridor project only has \$170.1 million allocated as part of the LRTP; any costs in excess of this amount will need to be funded by other sources. Capital construction costs for each alternative, which may include the construction of a guideway, stations, vehicles, and supporting facilities, were evaluated to determine the potential fiscal impacts and cost effectiveness of each alternative. These alternatives have been evaluated on a general level (five-percent engineered), and as the project moves forward, future phases of work, design and costs will be refined.

The comparison of alternatives includes an evaluation of the funding shortfall for each alternative as summarized in Table 4-13.

Based on the comparison of alternatives, the primary findings of the analysis are as follows:

- All six build alternatives would encounter construction funding shortfalls based on the LRTP identified funds of \$170.1 million.
- The funding shortfalls for the BRT alternatives range from \$82 million to \$449 million (2018 \$).
- The LRT alternative funding shortfalls are more or less equal at \$1.6 billion to \$2.1 billion (2018 \$).
- Alternative 2B would be the closest to the currently allocated LRTP identified funds, followed by Alternative 6B and 4B.

- The LRT alternatives cost approximately nine to 13 times more than the allocated L RTP identified funds, thereby far exceeding the funding that is currently available for this project.

Table 4-13 – Financial Capability Comparison

Financial Feasibility	Estimated Project Cost (\$ million, 2018)		
	L RTP Allocation	Shortfall	Total Cost
Alternative 2B	(\$170)	(\$82-270)	\$250-440
Alternative 2L	(\$170)	(\$1,600-2,100)	\$1,800-2,300
Alternative 4B	(\$170)	(\$126-388)	\$300-560
Alternative 6B	(\$170)	(\$113-350)	\$280-520
Alternative 7B	(\$170)	(\$170-449)	\$340-620
Alternative 7L	(\$170)	(\$1,600-2,100)	\$1,700-2,300

