Los Angeles County
Metropolitan Transportation Authority

NORTH SAN FERNANDO VALLEY BUS RAPID TRANSIT CORRIDOR

Alternatives Analysis Report
Executive Summary

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IBI

Metro

Executive Summary

The Los Angeles County Metropolitan Transportation Authority (Metro) has initiated an Alternatives Analysis (AA) to study a Bus Rapid Transit (BRT) project in the North San Fernando Valley (NSFV). The purpose of the Alternatives Analysis is to define, screen, and recommend Proposed Project alternatives to be studied as part of the environmental analysis phase in order to environmentally clear the project pursuant to California Environmental Quality Act (CEQA) guidelines.

Study Background

The NSFV BRT Project is identified and funded by Measure M, a half-cent transportation funding sales tax measure approved by LA County residents in November 2016. The Metro Board of Directors gave approval to initiate a technical study preceding environmental review for this project in March 2017. This technical study was completed in September 2017 with the publication of the NSFV BRT Improvements Environmental Framework Report. The Metro Board of Directors authorized the North San Fernando Valley Bus Rapid Transit Corridor Study in May 2018. Per Measure M, the project is expected to open between Fiscal Years 2023 and 2025.

The intent of the AA is to enable Metro and City stakeholders to evaluate a range of alternatives for a bus rapid transit service that can provide a new mode of travel in the project study area. The goal of the NSFV BRT project is to provide a high-capacity premium east-west transit service that will connect key activity centers and the regional transit system in the North San Fernando Valley. The Alternatives Analysis includes detailed planning, conceptual engineering, ridership forecasting, and consideration of community and stakeholder input, and opportunities to support Transit Oriented Communities and First/Last Mile improvements.

Study Area

The project study area is in the north San Fernando Valley and includes the City of Los Angeles neighborhoods of Chatsworth, Northridge, North Hills, Panorama City, Sun Valley, Pacoima, Sylmar, North Hollywood, and the City of San Fernando. The study area is approximately 18 miles in length and is bounded by Devonshire Street and Polk Street to the north, Strathern Street and Magnolia Boulevard to the south, Glenoaks Boulevard and Tujunga Ave to the east, and Canoga Avenue, Laurel Canyon Boulevard, and SR-170 to the west. Crossing the study area are several interregional freeways including the San Diego Freeway (I-405), the Golden State Freeway (I-5), and the Hollywood Freeway (SR-170).

There are three major transit corridors that serve regional trips in the study area: the Metro Orange Line (MOL), the Metro Red Line, the Metrolink Ventura County Line and Amtrak service, and the Metrolink Antelope Valley Line. Future major transit corridors that transverse and border the study area include the East San Fernando Valley Rail Transit Corridor (ESFVTC) and the Sepulveda Transit Corridor. The project study area is illustrated in Figure ES-1.

Figure ES-1: **Project Study Area**

Purpose and Need

The NSFV BRT project will provide a premium east-west transit service to link key activity centers and improve access to jobs, education, essential services and the regional transit system. The key challenge for the NSFV BRT is to design a premium transit service that offers outstanding trip experiences and improves regional connectivity while operating within existing right-of-way on local streets and roads.

Metro operates a large and varied transit network in the San Fernando Valley, and is advancing the planning and construction of an extensive transit network to provide high-quality mobility options to further enhance communities and lives. This project is part of Metro's network expansion, and will close a significant gap in the frequent transit network in the San Fernando Valley (the Valley).

Projects including the East San Fernando Valley Rail Transit Corridor (ESFV light rail), Metro Orange Line Improvements, North Hollywood to Pasadena BRT, and the Sepulveda Transit Corridor projects, together with this project, will provide a world-class transportation system that meets Metro's Vision 2028 goals. Metro's Valley transit expansion plan is shown in Figure ES-2.

Frequent bus rapid transit service will enable people to spend less time traveling and will work to address equity goals by connecting Valley residents and visitors with education and employment. The project will provide an opportunity for local jurisdictions to partner with Metro to advance first/last mile planning, green/sustainable infrastructure, active transportation, and urban design along the corridor.

Metro Vision 2028 Goals

Figure ES-2: **Measure M Transit Projects in the San Fernando Valley (source: Metro)**

To identify project needs, the technical team performed an analysis of demographic, socioeconomic, and mobility data within the study area, and reviewed policy and planning documents from Metro and local jurisdictions. The needs highlighted in these assessments informed the development of four Project Objectives established to guide the planning process.

Objective 1: Improve transit accessibility and connectivity to major activity centers, employment sites, as well as the existing and planned regional transit system.

Objective 2: Design comfortable, convenient, and reliable rapid transit service that enables people to spend less time traveling.

Objective 3: Provide equitable access opportunities to benefit communities through urban design, transit-oriented communities, and green/sustainable infrastructure.

Objective 4: Design an improved transit service that complements Metro's network and improves accessibility and sustainability.

Definition of Project Alternatives

Preliminary BRT Concepts

In September 2017, the NSFV BRT Environmental Framework Report was completed, which established a study area and identified three preliminary BRT alignment concepts for the purpose of framing the approach to the Alternatives Analysis. These preliminary concepts are shown in Figure ES-3. The options all connect with Chatsworth on the west. One option goes north to Sylmar and the other two options connect to North Hollywood. The report characterized the existing community characteristics and transportation settings. Local streets and existing transit demand were reviewed to identify corridors for the potential implementation of dedicated bus lanes to improve regional connectivity in the North San Fernando Valley. The report advanced all three preliminary concepts to the Alternatives Analysis phase for initial discussion purposes as representative alignments.

AA Study Alternatives

The AA process began in July 2018 with early study activities focused on field reviews, planning assessments, stakeholder engagement, and operational study to reassess the three initial BRT concepts. Initial planning assessments were completed in September 2018 that resulted in development of three families of alignment options as shown in Figure ES-4. These three families of alignment options represent refined and improved versions of the three initial BRT concepts presented in the 2017 NSFV BRT Improvements Environmental Framework Report shown in Figure ES-3.

Figure ES-3: **Environmental Framework Report BRT Concepts**

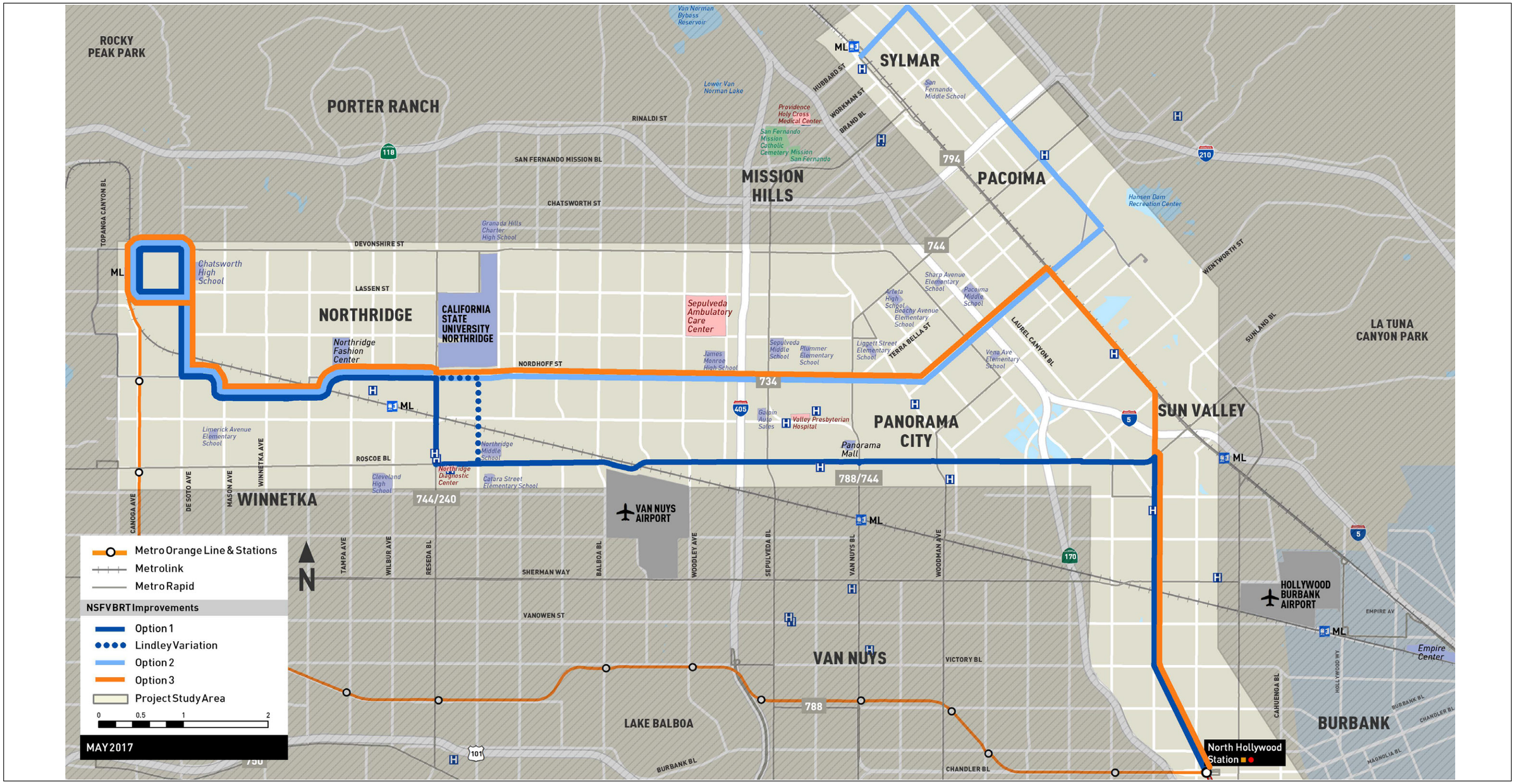
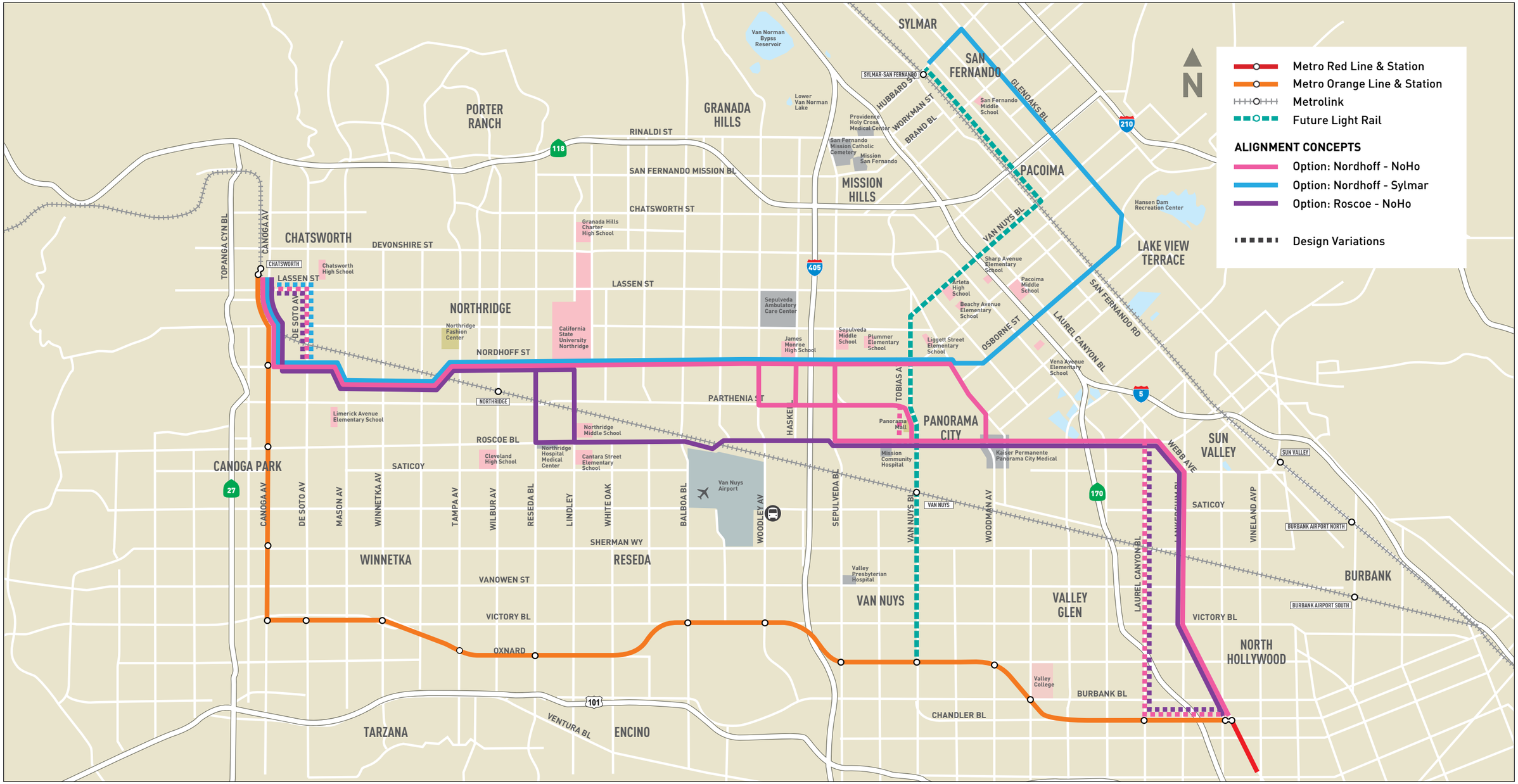


Figure ES-4: **Refined Project Alternatives**



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From the three families of alignment options, the technical team was able to formulate seven distinct alignment options to test the relative performance of the alignments.

All of the alignment options begin on the west side of the study area at the Chatsworth Metro Orange Line/Metrolink station, and propose following the Metro Orange Line BRT guideway south before turning east onto Nordhoff Street. The first deviation begins as the alignments approach California State University, Northridge (CSUN), in the vicinity of Reseda Boulevard and Lindley Avenue.

Two of the alignment options travel south on either Reseda Boulevard or Lindley Avenue to Roscoe Boulevard, then follow Roscoe Boulevard and Lankershim Boulevard to the North Hollywood Station to connect with the Metro Red Line.

The five remaining alignment options continue along Nordhoff Street past CSUN. Option 3: Nordhoff-Sylmar/San Fernando, continues along Nordhoff Street past Van Nuys Boulevard, travels northeast along Osborne Street, northwest along Glenoaks Boulevard, and west along Hubbard Street, to connect to the Sylmar/San Fernando Metrolink station. The remaining Nordhoff-NoHo alignment options follow Nordhoff Street with different options to connect south to Roscoe Boulevard in the Panorama City neighborhood before continuing along Roscoe Boulevard to Lankershim Boulevard to the North Hollywood station and the Metro Red Line. The alignment options considered for screening are listed below and shown in Figures ES-5 through ES-11.

- Option 1: Roscoe-NoHo via Reseda
- Option 2: Roscoe-NoHo via Lindley
- Option 3: Nordhoff-Sylmar/San Fernando
- Option 4: Nordhoff-NoHo via Woodley
- Option 5: Nordhoff-NoHo via Haskell
- Option 6: Nordhoff-NoHo via Sepulveda
- Option 7: Nordhoff-NoHo via Woodman

Figure ES-5: **Alignment Option 1: Roscoe - NoHo via Reseda**

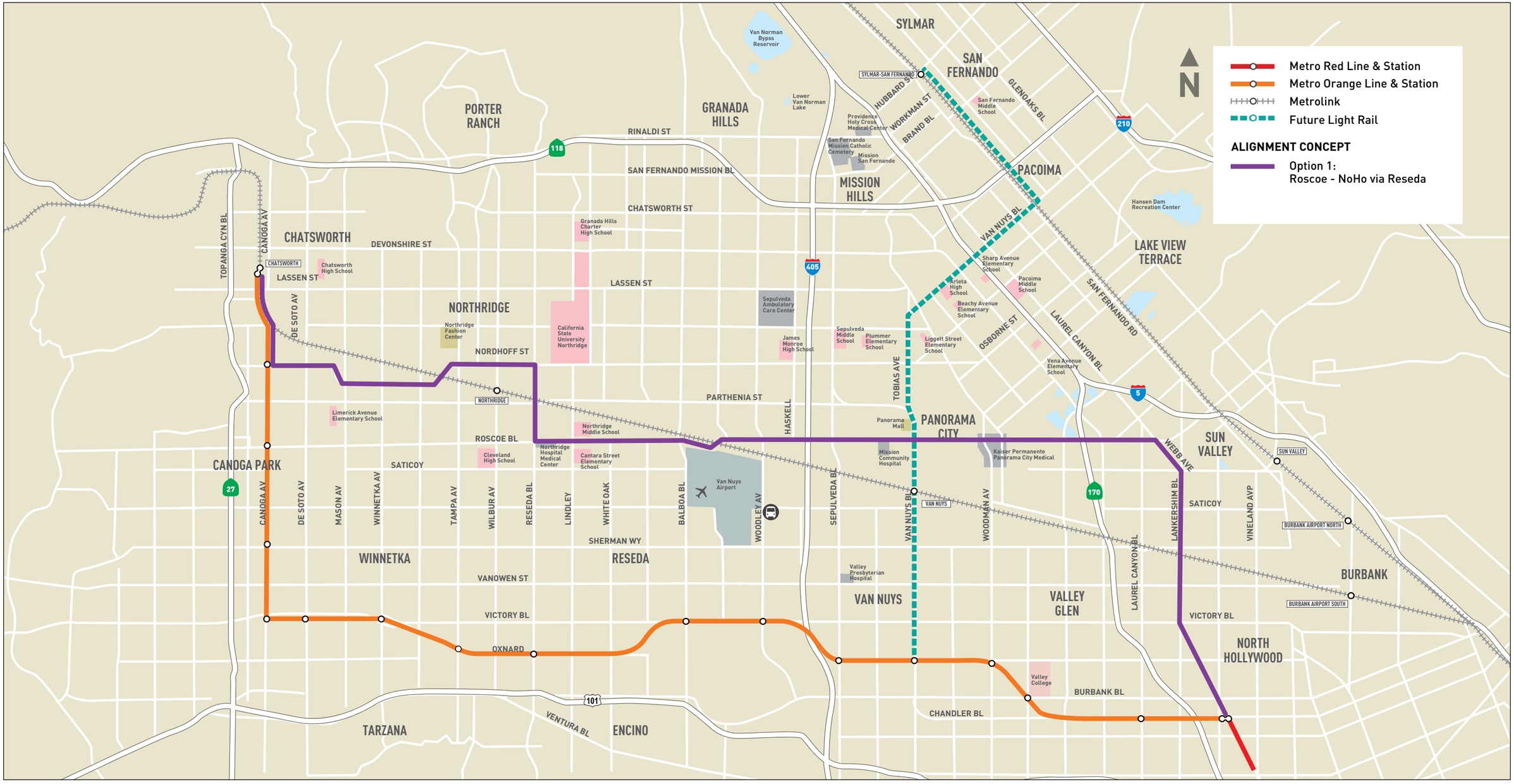


Figure ES-6: **Alignment Option 2: Roscoe - NoHo via Lindley**

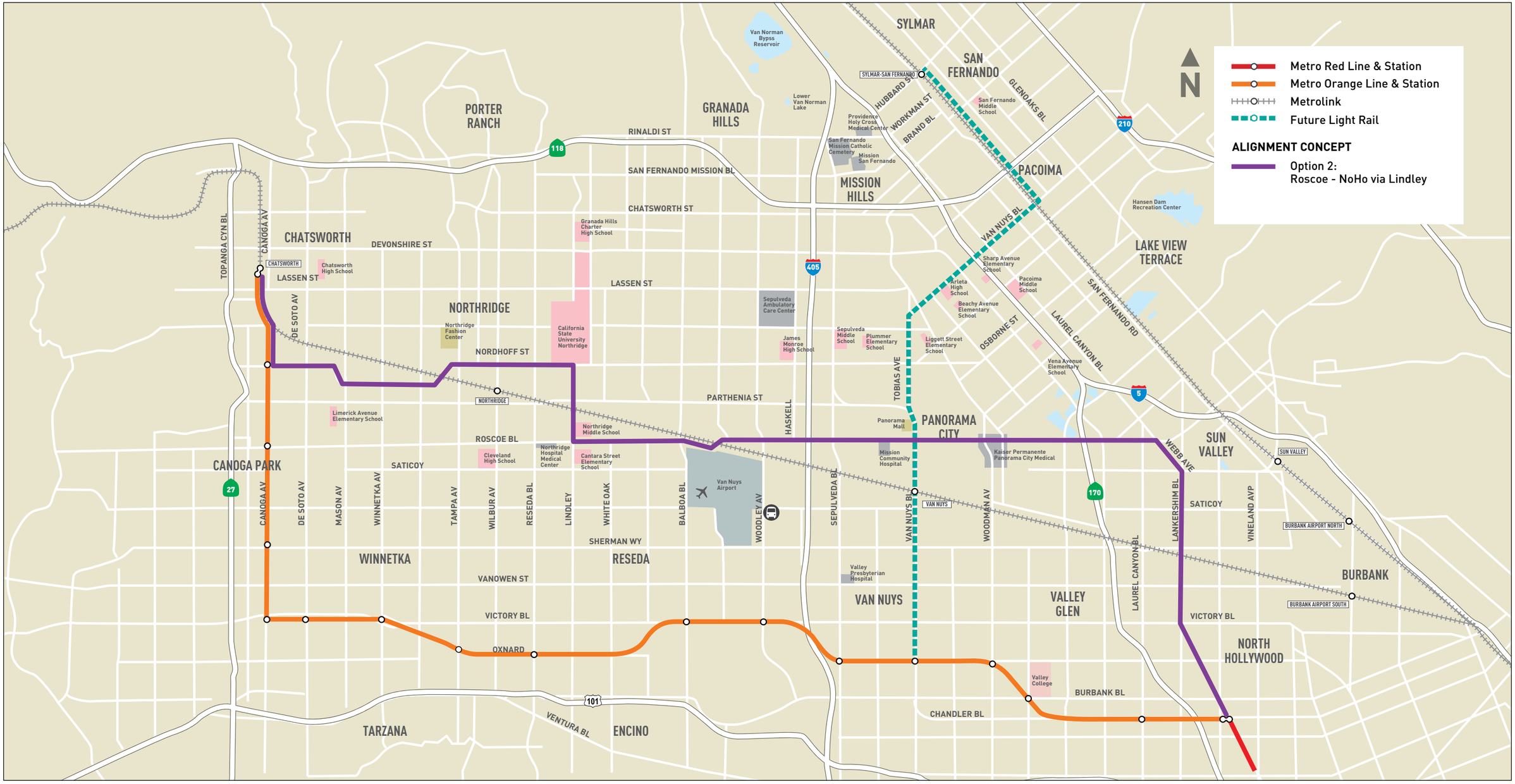


Figure ES-7: **Alignment Option 3: Nordhoff - Sylmar/San Fernando**

Figure ES-8: **Alignment Option 4: Nordhoff - NoHo via Woodley**

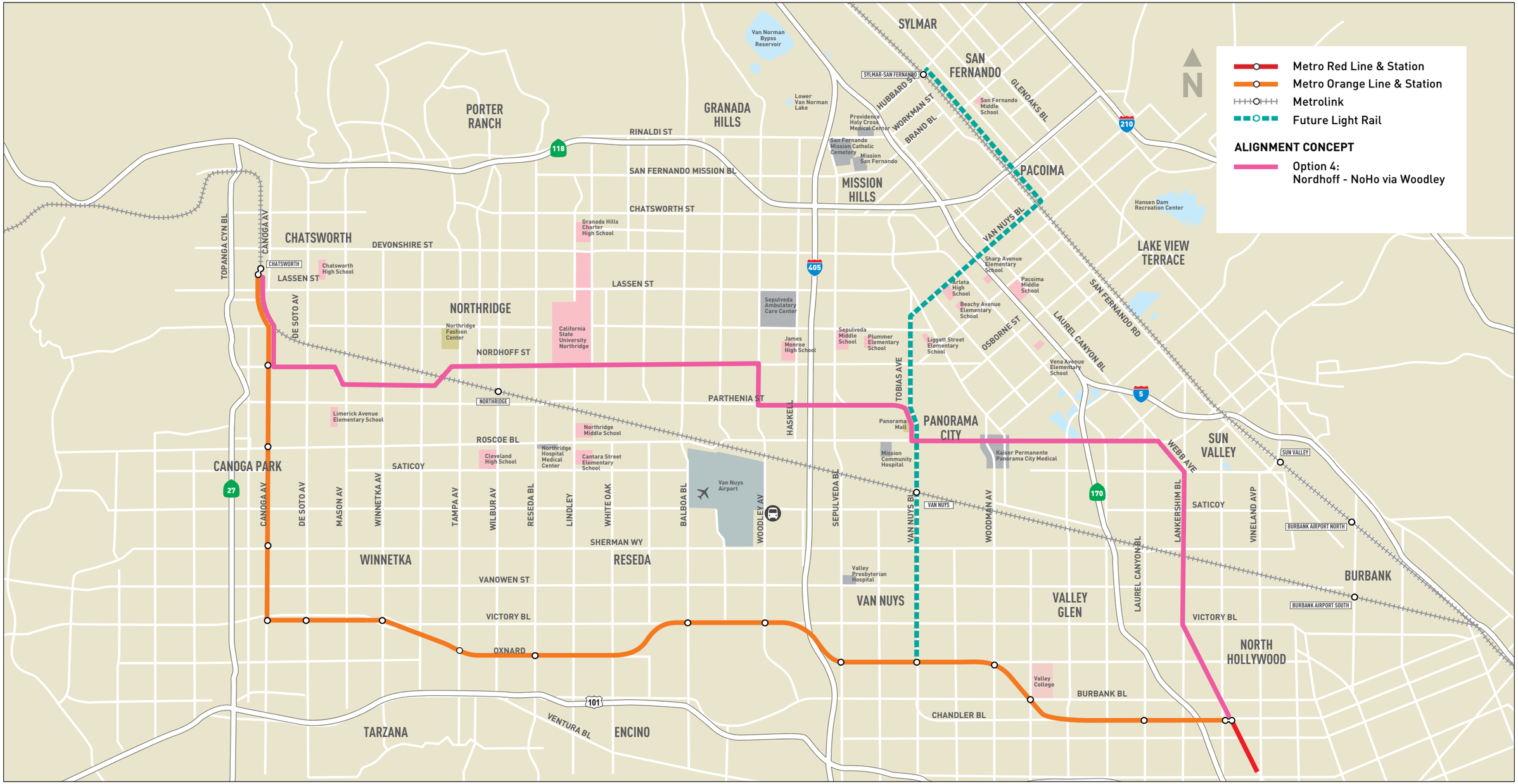


Figure ES-9: **Alignment Option 5: Nordhoff - NoHo via Haskell**

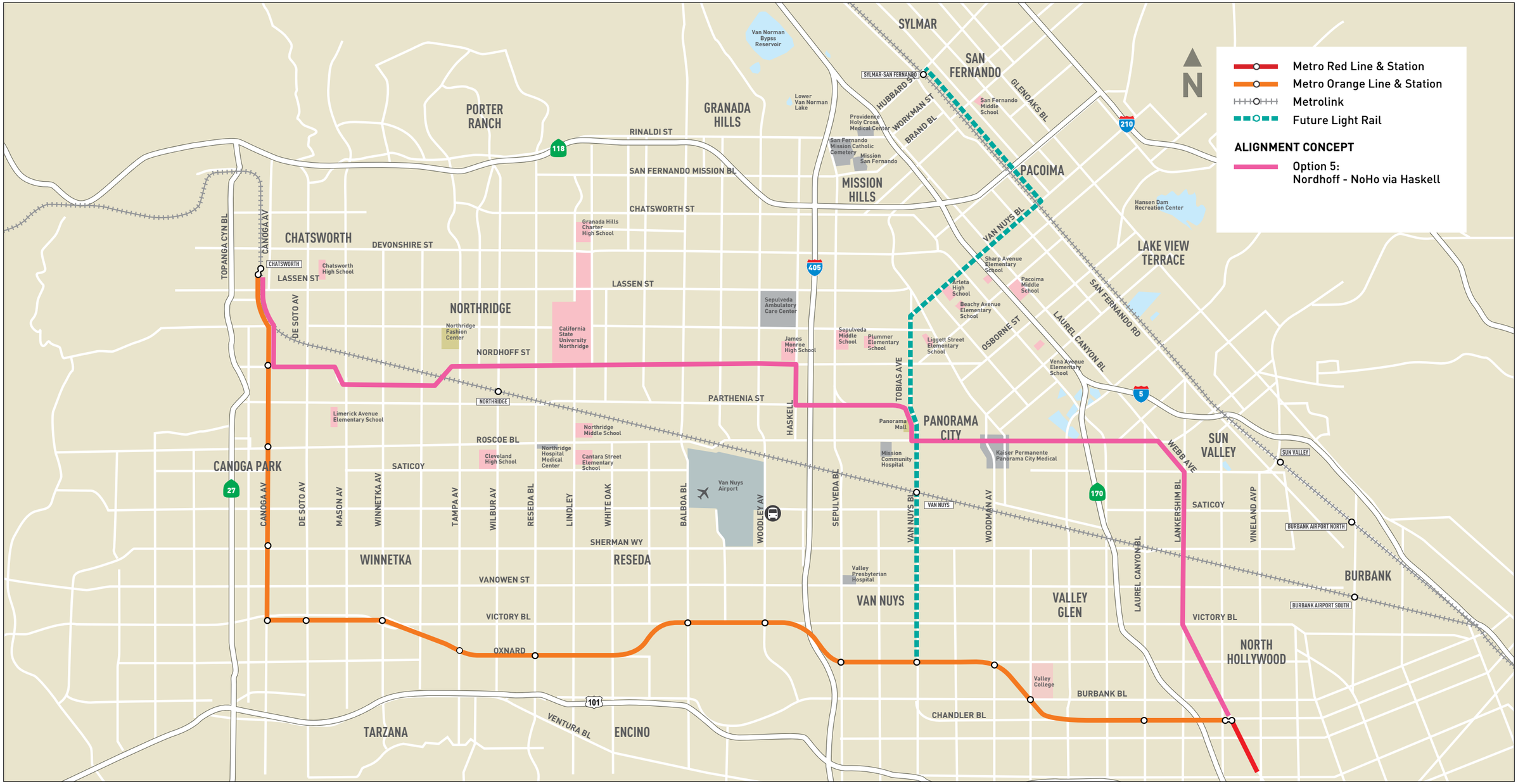


Figure ES-10: **Alignment Option 6: Nordhoff - NoHo via Sepulveda**

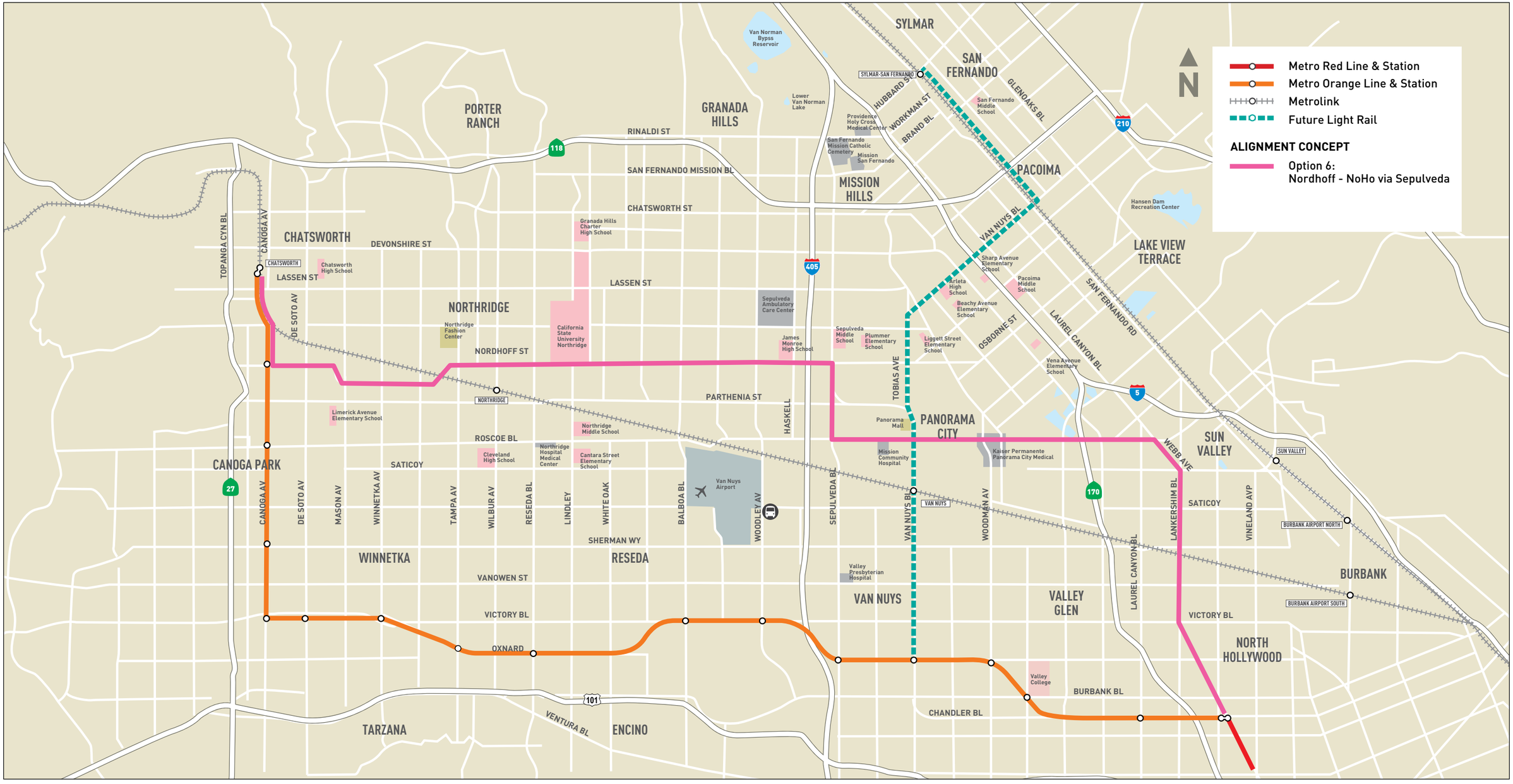
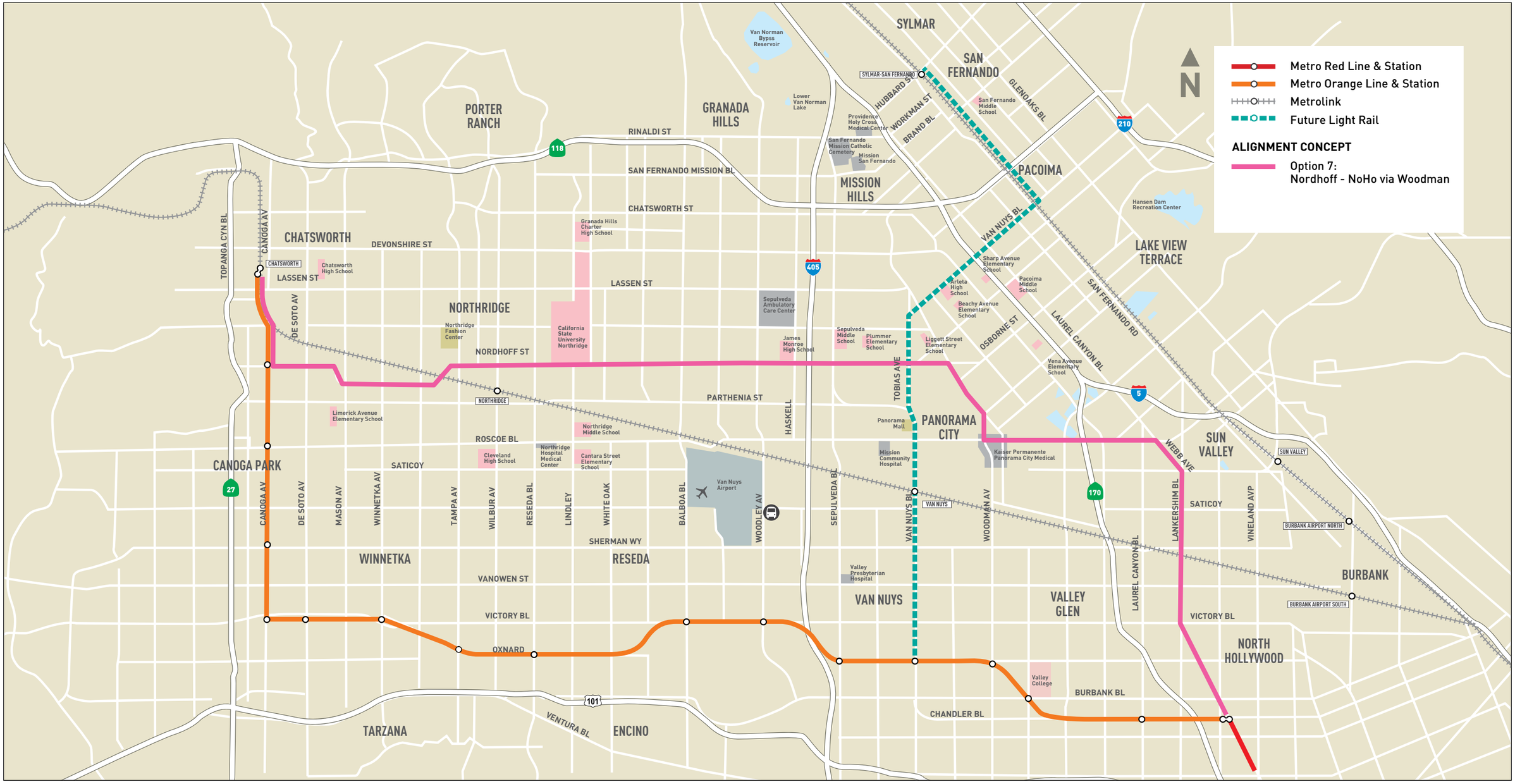


Figure ES-11: **Alignment Option 7: Nordhoff - NoHo via Woodman**



Public Outreach

Metro has initiated an outreach and public engagement strategy that is intended to engage and inform stakeholders through traditional and non-traditional outreach approaches that encourages them to provide input on the project. This process includes a wide range of opportunities for feedback that is designed to be transparent and inclusive. The outreach effort has also been guided by the Metro Equity Platform Framework adopted by the Metro Board in February 2018, ensuring outreach includes meaningful engagement with historically underserved communities. Since June 2018, the Metro team has met regularly with the local cities, key stakeholders, and the public within the project study area. By the conclusion of the pre-scoping meetings in November 2018, Metro held a total of 18 stakeholder meetings and five community meetings, with the goal of informing the public about the proposed project, gathering input, and hearing community issues, concerns and suggestions.

Northridge Community Meeting (September, 2018)

The following key takeaways were received from the public outreach process:

- **General Support for the Proposed Project:** Stakeholders and agencies generally agreed the project is needed to improve mobility in the North San Fernando Valley area and to enhance the regional transit network. There was near universal agreement that the Metro Orange Line is a great transit project. CSUN students and teachers reiterated a need for enhanced transit in north San Fernando Valley. Some attendees expressed a preference for light rail over buses and there was some opposition to bus-only lanes on the Lankershim Boulevard portion of the alternatives. The San Fernando Valley Council of Governments (SFV COG) unanimously passed an amendment to add the NSFV BRT Project to its 2019 Transportation Priorities list. CSUN is the largest stakeholder and travel generator in the study area, so the formal comment letter from CSUN President Diane Harrison expressing support for the project and the planning process was another demonstration of the greater San Fernando Valley community's support for the project.

- **Alignment Preferences:** More stakeholders supported the eastern terminus being the Metro North Hollywood Station rather than the Sylmar/San Fernando Metrolink Station. This was due to two reasons; (1) they liked the connection to the regional transit system and access to Downtown LA provided by the transfer opportunity to the Red Line, and (2) they felt that the ESFVTC provided a better connection to the Sylmar/San Fernando Metrolink station and a BRT alternative would be duplicative and competitive with the LRT route. The Parthenia option received support because it avoided the congested I-405 ramp intersections, is bordered by multi-family residential land uses, and has no existing

bus service. Several commenters suggested that a route further to the north be considered, citing Lassen, Plummer and Devonshire as potential alternatives. A number of commenters liked both the Roscoe and Nordhoff to North Hollywood alternatives.

- **Station Preferences:** There was a strong consensus that a station at CSUN should be located at Nordhoff and Lindley, in addition to a station at Nordhoff and Reseda, since it was closer to the center of campus. Other popular station locations included the Kaiser Permanente Medical Center on Roscoe, the Northridge Fashion Center, and the interface with the planned ESFVTC project on Van Nuys Boulevard.

Screening and Evaluation Summary

In order to determine which alternatives would be taken into environmental review, the technical team and Metro developed a three-step screening process that began with more qualitative information and became more quantitative through each step. Each step gradually applied more focused considerations to filter the alignment options down to the higher performing options and to identify the project corridor that is expected to perform at the highest levels according to the screening criteria. Figure ES-12 illustrates the way in which more quantitative and specific levels of analysis are applied during the screening process.

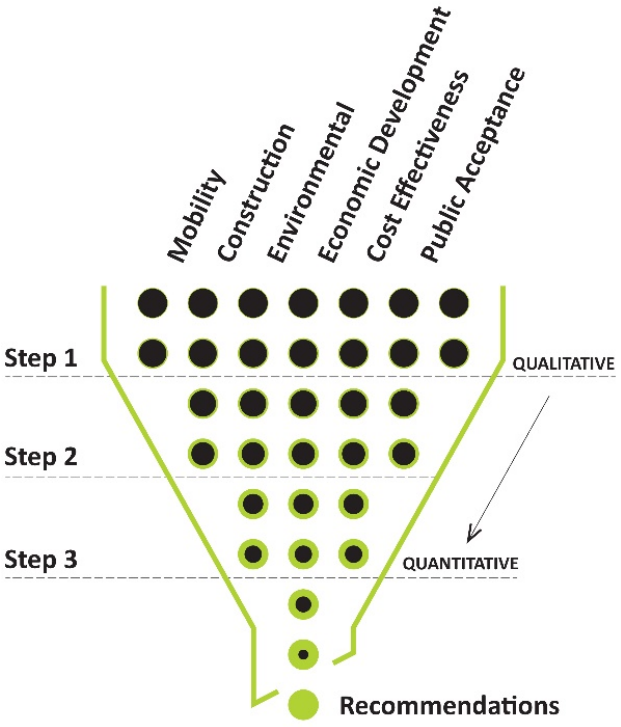


Figure ES-12: Screening Process

Quantification of performance is possible at this level of conceptual planning but it is important to note that the numbers are only for relative comparison purposes between the alternatives. At this high level, values such as ridership and costs lack precision which can only be generated as more detailed planning and engineering is performed.

Where appropriate, the report presents numbers but also uses a “high,” “medium,” and “low” rating system to help identify performance at each step. The use of a “high,” “medium,” and “low” rating system allows for a comparative analysis of the trade-offs between each alignment option’s ability to best meet the project purpose and need. Table ES.1 describes how the ratings were used.

Rating		Description
●	HIGH	A high rating indicates the alternative highly supports and satisfies the criterion, or has a low potential for negative impacts.
◐	MEDIUM	A medium rating indicates the alternative moderately supports the criterion, or has a moderate potential for negative impacts.
○	LOW	A low rating indicates that an alternative does not support or conflicts with the crite-rion, or has a high potential for negative impacts.

Table ES.1: Screening Rating Descriptions

There are six categories for evaluation, each having corresponding evaluation criteria that were developed to help screen the alternatives. The categories and evaluation criteria are reflective of the project objectives, and are listed below.

Mobility: This category evaluates how the alternative affects the ability of the BRT to move easily, reliably and quickly, as well as opportunities for bicycle and pedestrian connections, and potential changes to existing traffic.

Construction Impacts: This category primarily evaluates the extent of potential conflicts with existing infrastructure, right of way, and utilities.

Environmental Impacts: This category is a high level qualitative environmental assessment of the degree to which an alignment concept would introduce a potentially significant adverse environmental impact to the study area. The detailed environmental assessment will be addressed during the environmental analysis phase. This category also included CalEnviroScreen's metric of environmental equity.

Economic Development Impacts: This category evaluates how the alternatives impact or benefit the economic well-being of the community, particularly as it relates to the overall connection to existing employment centers and key activity centers and the potential for transit oriented communities to thrive.

Cost Effectiveness: This category evaluates the costs associated with each alternative and comparison to other similar Metro transit projects.

Public Acceptance: This category considers the public and key stakeholder input as well as compatibility with local and regional plans.

Within these categories, high-level quantitative analysis in the categories of ridership modeling, operating scenarios, and cost estimates informed the screening process.

Ridership Modeling

Future NSFV BRT alignment concepts were modeled using the 2042 horizon year and the future-year baseline network that includes other corridor improvements within the regional transit network. The project team used the Metro Ridership Model to conduct the analysis presented in the AA Report and found that all of the BRT alignment options would increase overall transit ridership (as measured by total daily boardings), but Nordhoff-NoHo Options 4-7 performed the best in terms of ridership.

Potential Operating Plans and Service Characteristics

The potential operational characteristics for the alignment concepts were determined based on the passenger load patterns that were found in the ridership estimates. The conceptual BRT service plan assumed peak headways of:

- 5 minutes during the AM and PM peak
- 10 to 15 minutes during midday and early evening
- 20 minutes during the evening and night
- 30 minutes in the early morning on weekends

Operating hours were based on the Metro Red Line, with 21 hours per day (4 AM to 1 AM) Sunday through Thursday and longer hours (4 AM to 3 AM) on Fridays and Saturdays.

Regardless of alignment option, the peak hour load analysis consistently showed that by far the heaviest passenger loads occur between Reseda Boulevard and Van Nuys Boulevard. The next heaviest passenger loads are on Roscoe Boulevard in the segment east of Van Nuys Boulevard, followed by the Chatsworth to Reseda Blvd segment on Nordhoff Street. The alternatives generally demonstrated a similar peak hour passenger load profile.

Preliminary Operating and Maintenance Cost Estimates

The operating statistics and ridership estimates were used to help develop operating and maintenance (O&M) cost estimates for the NSFV BRT project. The O&M costs were developed using operating statistics which included annual revenue hours, annual revenue miles, peak vehicles, total vehicles, station platforms, directional lane miles, and maintenance facility needs. Using these statistics, O&M cost models were developed to estimate the annual cost to operate, maintain and administer the NSFV BRT. O&M costs for BRT service for all alignment options is estimated at $22 to $23 million annually.

Preliminary Capital Cost Estimates

The NSFV BRT project is in conceptual planning and important decisions on project features have not yet been finalized to develop fully refined cost estimates. At this early stage of design, the conceptual cost estimate takes a parametric approach, and incorporates additional unit cost details as available. The cost estimates produced during this phase are intended to inform initial decision-making and the alternatives screening process. Capital costs ranged from $265 million to $280 million in 2019$, and $396 million to $418 million in year of expenditure dollars (YOE$), with contingencies included to cover specific cost items that have yet to be fully developed.

The Nordhoff-NoHo and Roscoe-NoHo alignment options are similar in alignment length (17.7 to 18.0 miles) and potential station numbers (20 to 21 stations), therefore both have similar costs.

While similar in route length (17.6 miles) to the other options, the Nordhoff-Sylmar/San Fernando alignment option has the fewest number of station locations (17 stations) and therefore has the lowest projected capital cost.

The results of the Step 1 screening process are presented in Table ES.2. During the first step in the screening process, Option 3: Nordhoff-Sylmar/San Fernando was eliminated due to low scores in the mobility and economic development category, and a medium score in public acceptance.

Step 1 Screening Results

Evaluation Category	Rating						
	STEP 1 SCREENING						
Alignment Option	1	2	3	4	5	6	7
Mobility	◑	◑	○	●	●	●	●
Environmental Impacts	●	●	●	●	●	●	●
Economic Development Impacts	◑	◑	○	●	●	●	◑
Cost Effectiveness	●	●	●	●	●	●	●
Public Acceptance	◑	●	◑	●	●	●	◑
Recommended for further evaluation	Y	Y	N	Y	Y	Y	Y

Table ES.2: Step 1 Screening Results Summary

The greatest difference between Option 3 and the other alignment options is its lower system connectivity due to a lack of connection to North Hollywood. The poor scores can also be attributed to low ridership potential, a duplication of service with the future ESFVTC, and a public preference for the North Hollywood terminus over the Sylmar/San Fernando terminus.

In the second screening step, Options 1 and 2 (those which operate primarily along Roscoe Boulevard) were eliminated for their low scores in mobility. They underperformed in this category because of lower ridership, slower bus speeds, increased travel time, and reduced travel time savings due to ramps at Interstate 405. Both Options 1 and 2 incurred an additional travel time penalty due to an at-grade railroad crossing on Roscoe Boulevard, and Option 2 would encounter an additional at-grade railroad crossing on Lindley Avenue. Option 1 in particular received a lower score in the public acceptance category because it would not directly service the CSUN campus. The results of the Step 2 screening are summarized in Table ES.3.

Step 2 Screening Results

Evaluation Category	Rating						
	STEP 2 SCREENING						
Alignment Option	1	2		4	5	6	7
Mobility	○	○		●	●	◑	◑
Construction Impacts	●	●		●	●	●	●
Environmental Impacts	●	●		●	●	●	●
Economic Development Impacts	●	●		●	●	●	◑
Cost Effectiveness	●	●		●	●	●	●
Public Acceptance	◑	●		●	●	●	◑
Recommended for further evaluation	N	N		Y	Y	Y	Y

Table ES.3: Step 2 Screening Results Summary

Step 3 Screening Results

Evaluation Category	Rating						
				STEP 3 SCREENING			
Alignment Option				4	5	6	7
Mobility				●	●	◑	◑
Construction Impacts				◑	◑	◑	◑
Environmental Impacts				●	●	●	●
Economic Development Impacts				●	●	●	◑
Cost Effectiveness				●	●	●	●
Public Acceptance				◑	●	●	◑
Recommended for further evaluation				Y	Y	Y	N

Table ES.4: Step 3 Screening Results Summary

In the third and final screening step, which is illustrated in Table ES.4, Option 7: Nordhoff-NoHo via Woodman was eliminated. All of the Nordhoff-NoHo alternatives ranked similarly in several categories such as construction impacts, environmental impacts, and cost effectiveness, but Option 7 received lower scores in the greatest number of categories.

Option 7 does not directly serve the more densely-developed areas of Panorama City as was indicated through the community outreach process. This option also has the potential to need more extensive physical infrastructure reconstruction on segments of Nordhoff Street and Woodman Avenue.

Proposed Project

Based on the three step screening process, Option 4: Nordhoff-NoHo via Woodley, Option 5: Nordhoff-NoHo via Haskell, and Option 6: Nordhoff- NoHo via Sepulveda are the three alignment options that best meet the project objectives and are recommended for advancement into environmental review.

The Nordhoff-NoHo via Woodley alignment (Option 4) has higher ridership projections, avoids potential peak hour congestion from freeway on/off ramps and railroad crossings, provides multiple regional rail and BRT transfer opportunities, and serves multiple employment and key activity centers within the study area.

The Nordhoff-NoHo via Haskell alignment (Option 5) has higher ridership projections, avoids potential peak hour congestion from freeway on/off ramps and railroad crossings, provides multiple regional rail and BRT transfer opportunities, and serves multiple employment and key activity centers within the study area.

The Nordhoff-NoHo via Sepulveda alignment (Option 6) also benefits from higher ridership projections, avoids railroad crossings, provides multiple regional rail and BRT transfer opportunities, and serves multiple employment and key activity centers within the study area. While this option does cross the I-405 freeway ramps, the end-to-end travel times are reasonably comparable to the Nordhoff-NoHo via Woodley & Haskell options that avoid the freeway ramps.

High-level ridership and cost projections for these options are summarized in Table ES.5. Forecast boarding data refers to Year 2042 average weekday boardings for the NSFV BRT service.

ALIGNMENT OPTIONS	TOTAL DAILY BOARDINGS (2042)	NEW TRANSIT TRIPS (2042)	CAPITAL COSTS ($YOE)	ANNUAL OPERATING COST
Option 4: Nordhoff-NoHo via Woodley	28,652	13,566	$298M - $413M	$22M - $23M
Option 5: Nordhoff-NoHo via Haskell	28,120	12,709	$297M - $413M	$22M - $23M
Option 6: Nordhoff-NoHo via Sepulveda	27,461	11,717	$300M - $417M	$22M - $23M

Table ES.5: Recommended Options Ridership and Cost Projections

It is important to note that further conceptual engineering will be developed during the environmental assessment. These efforts will result in refinements to the project alternatives that are carried forward. As such, the characteristics of the alternatives will evolve with respect to ridership potential, and cost estimates. Revised estimates will be provided in future technical materials as the engineering designs are advanced.

Design Variations

Following technical study and community input, several specific design variations were developed for further consideration and evaluation in the environmental analysis phase, as illustrated in Figure ES-13. The design variations are highlighted as potential route modifications that could be considered during the environmental phase of the project to improve bus operations or offer an alternative route to constrained corridors that might not easily accommodate some of the desired features of a BRT service. The design variations generally offer similar project benefits, but may allow reduced capital costs, operating costs, and/or environmental impacts. Studying the variations also preserves flexibility to respond to community feedback during the environmental phase or to overcome potential engineering constraints. The design variations considered were:

- **De Soto-Lassen**: This design variation is included should the project require an alternative to running on the Orange Line busway on the western end of the project study area adjacent to the Chatsworth Station. The variation would run east-west along Lassen Street and north-south along De Soto Avenue to reach Nordhoff Street.

- **Tobias Avenue**: This design variation is between Parthenia Street and Roscoe Boulevard and offers an alternative route to staying on Parthenia Street/Van Nuys Boulevard. The future ESFVTC will operate at-grade on Van Nuys Boulevard, limiting available right-of-way for dedicated BRT lanes and likely resulting in the need for mixed-flow BRT operations on this portion of the corridor. In addition, as Van Nuys Boulevard is a heavily traveled corridor, there could be potential operational constraints for the BRT. Therefore, Tobias Avenue (located approximately 870 feet west of Van Nuys Boulevard) is highlighted as a potential design variation to be considered during the environmental phase of work when detailed engineering and operational analysis take place. This variation would also give the project more direct access to new mixed-use development planned on Tobias Avenue.

- **Laurel Canyon-MOL/Chandler**: This design variation runs parallel to and west of Lankershim Boulevard from Roscoe Boulevard to Chandler Boulevard, where the BRT could then join the Metro Orange Line BRT guideway or a parallel local road to access the Metro North Hollywood Station. This potential design variation was identified as a viable alternative route to Lankershim Boulevard as it offers a similar roadway configuration and lane widths. Due to its length, a preliminary look at the Laurel Canyon corridor was conducted during the AA process. The analysis supported the recommendation of Laurel Canyon for further study during the environmental phase and can be found in the Supplemental Analysis Technical Memorandum.

Within each alignment option, additional variations with regard to horizontal configuration (center-running, side-running, combination center-/side-running, or mixed-flow), design variations to improve operations, and other design intricacies, will be studied further as the NSFV BRT project moves into environmental assessment.

Next Steps

Based on all the parameters examined in the Alternatives Analysis, the three highest-performing alignment options under consideration were combined into the Proposed Project map shown in Figure ES-13. The Proposed Project map illustrates the path of the project and each of the potential design variations traveling between the Chatsworth Metro Orange Line/Metrolink Station and the Metro North Hollywood Station. Potential station locations are also identified on the map to highlight locations under consideration for further analysis. These locations will be assessed in detail in the environmental analysis phase to test their performance and impact on accessibility, operations and costs.

Design variations are labeled "A" through "K," and include the Metro Orange Line Busway (adjacent to Chatsworth), De Soto/Lassen, Woodley/Parthenia, Haskell/Parthenia, Sepulveda/Roscoe, Tobias, Van Nuys, Laurel Canyon, Lankershim, Chandler, and the Metro Orange Line Busway (adjacent to North Hollywood). The design variations will be considered in further detail in subsequent phases to identify the strongest performers.

Following conclusion of the Alternatives Analysis phase, a Notice of Preparation (NOP) is issued signifying the start of the Public Scoping period for the CEQA environmental review process. The Environmental Analysis will examine the potential benefits and impacts associated with each route under consideration and identify the preferred BRT alignment for engineering design. Construction is currently planned to begin in 2022 to meet an opening date in 2025.

Project Timeline

Figure ES-13: **North San Fernando Valley BRT Corridor Proposed Project**