

NORTH SAN FERNANDO VALLEY BUS RAPID TRANSIT NETWORK IMPROVEMENTS PROJECT

BUSINESS CASE ANALYSIS

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September 2022



ICF. 2022. *North San Fernando Valley Bus Rapid Transit Network Improvements Project Business Case Analysis*. September. (ICF 103784.) Los Angeles, CA. Prepared for Los Angeles County Metropolitan Transportation Authority, Los Angeles, CA.

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Acronyms and Abbreviations

BRT	Bus Rapid Transit
CSUN	California State University, Northridge
GHG	greenhouse gas
IFB	Invitation for Bids
L RTP	Long Range Transportation Plan
MAT	Metro Active Transportation, Transit and First/Last Mile
Metro	Los Angeles County Metropolitan Transportation Authority
MSP	Metro Subregional Program
NSFV	North San Fernando Valley
O&M	operation and maintenance
PRC	California Public Resources Code
Project	North San Fernando Valley Bus Rapid Transit Improvements
RFP	Request for Proposals
SB	Senate Bill
TSP	transit signal priority

1.1 Business Case Overview

The Los Angeles County Metropolitan Transportation Authority (Metro) serves as transportation planner and coordinator, designer, builder, and operator for one of the country's largest, most populous counties. Over the coming decades, Metro intends to greatly expand the fixed guideway rail and bus network throughout Los Angeles County consistent with the core values identified in Measure M, which was approved by the voters in November 2016. The North San Fernando Valley (NSFV) Bus Rapid Transit (BRT) Improvements is a Measure M project with a projected opening date between Fiscal Year 2023 and Fiscal Year 2025 and \$180 million in Measure M funding.

Since Measure M, Metro advanced the analysis of the NSFV BRT Improvements, and ongoing coordination with the NextGen Bus Plan led to the identification of a new project alternative, the NSFV BRT Network Improvements (Project), focused on network improvements in the San Fernando Valley. The Project would increase connectivity and provide high-quality bus service transit infrastructure in NSFV communities from Northridge on the west to North Hollywood on the east (see Figure 1, *Regional Map*). The primary corridors to be improved include Roscoe Boulevard, Nordhoff Street, and Lankershim Boulevard, with additional improvements planned for Reseda Boulevard, Sherman Way, Vanowen Street, and Victory Boulevard (see Figure 2, *Local Vicinity*).

The Project includes a number of capital and operational improvements, such as:

- Peak-hour bus priority lanes on Roscoe Boulevard (7–10 a.m. and 3–7 p.m.), improving bus service along the corridor
- Increased weekday daytime service frequency from 15 to 10 minutes for Roscoe (Line 152) and Nordhoff (Line 166) corridors
- Amenities at key bus stops, including bus bulbs, and approximately 400 new bus shelters
- Enhanced major bus stops with passenger amenities at five major locations
- Transit signal priority on Roscoe Boulevard, Nordhoff Street, Lankershim Boulevard, Reseda Boulevard, Sherman Way, Vanowen Street, and Victory Boulevard
- All-door boarding
- Zero-emission electric buses on major corridor routes

Metro is seeking a statutory exemption under the California Environmental Quality Act through Senate Bill (SB) 288 codified as California Public Resources Code (PRC) 21080.19 (added January 1, 2021). As required under the PRC § 21080.25 SB 288 exemption, all projects over \$100 million must prepare a project business case analysis to set forth a comprehensive analysis and rationale for why investment in the project is justified.

Pursuant to PRC § 21080.25(c)(6)(C)(ii), the Business Case Analysis for the Project:

- Sets forth the rationale for why the Project should be implemented to solve a problem or address an opportunity
- Outlines strategic goals and objectives of the Project
- Evaluates other options to achieve the Project's objectives
- Describes the economic costs and benefits of the Project
- Describes the financial implications of the Project and establish what is required to deliver and operate the Project

1.2 Methodology

The purpose of a Business Case Analysis is to provide justification for undertaking a project. This Business Case Analysis evaluates the Project through four cases, or specific justifications, to understand the Project benefits, feasibility, and costs and impacts of the investment. Specifically, Chapter 3, *Strategic Case*, and Chapter 4, *Economic Case*, lay out the rationale for pursuing the Project, and Chapter 5, *Financial Case*, and Chapter 6, *Delivery and Operations Case*, address how the Project would be implemented. The Metrolinx guidance documents (2017, 2021) were used to structure and inform the Business Case Analysis as recommended by California Governor's Office of Planning and Research (OPR 2021).

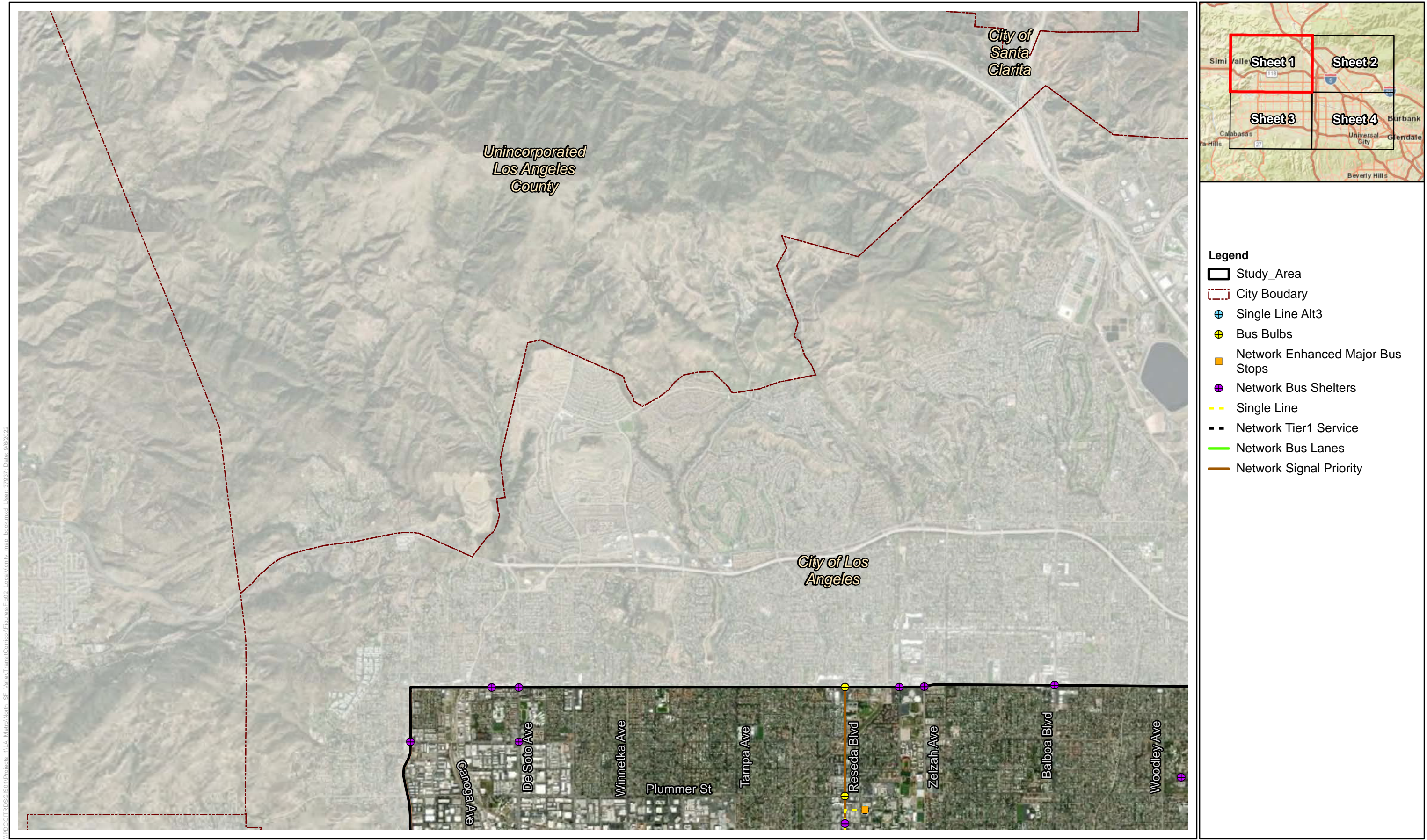
1.3 Project Background

In March 2017, the Metro Board of Directors gave approval to initiate a technical study preceding environmental review for this Project, which was completed in September 2017 with the publication of the NSFV BRT Improvements Environmental Framework Report (Appendix B). This study established a study area and identified three preliminary single-line BRT concepts.

In May 2018, the Metro Board of Directors authorized the NSFV BRT Corridor Project, including an Alternatives Analysis and Environmental Clearance Process. Per Measure M, the Project is expected to open between Fiscal Years 2023 and 2025. The Alternatives Analysis process began in July 2018 with early study activities focused on field reviews, planning assessments, stakeholder engagement, and an operational study to reassess the initial BRT concepts. From July 2018 to June 2019, an Alternatives Analysis was performed to assess the Project goal of providing a high-capacity premium east-west transit service that will connect key activity centers and the regional transit system in the NSFV. The Alternatives Analysis process refined the previously identified alignments in the 2017 Framework Study to enable Metro and City stakeholders to evaluate a range of alternatives for a BRT service in the Project study area.

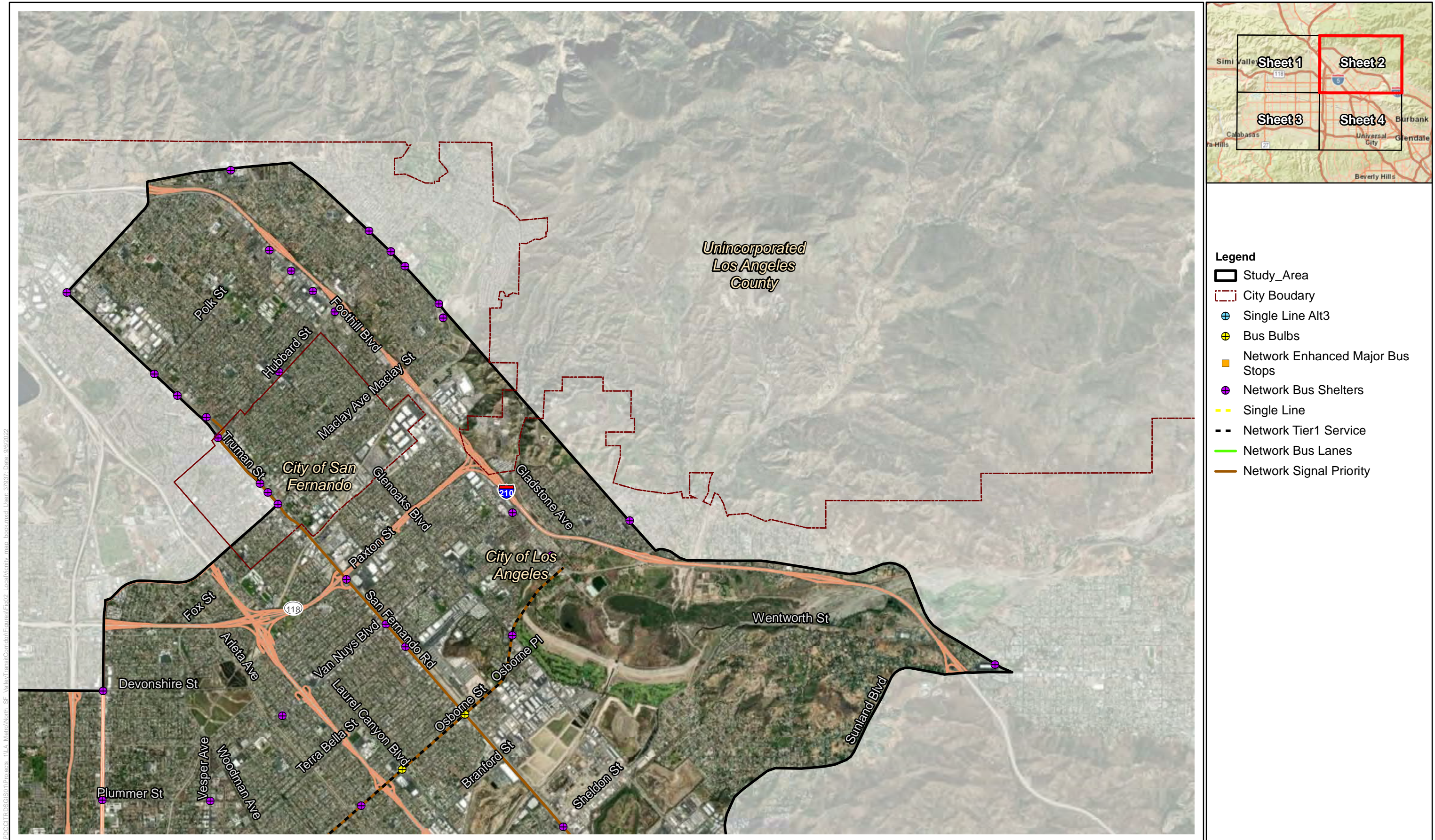
In October 2019, the Metro Board received the results of the Alternatives Analysis and the community outreach performed during summer 2019 on the Project to be evaluated in the environmental review phase. The Board authorized Metro staff to continue studying the Project while considering community input and the NextGen Bus Study.

As a result of additional technical analysis and public outreach and input (see Appendix C), Metro introduced a new option for the NSFV Transit Corridor project, the BRT Network Improvements,



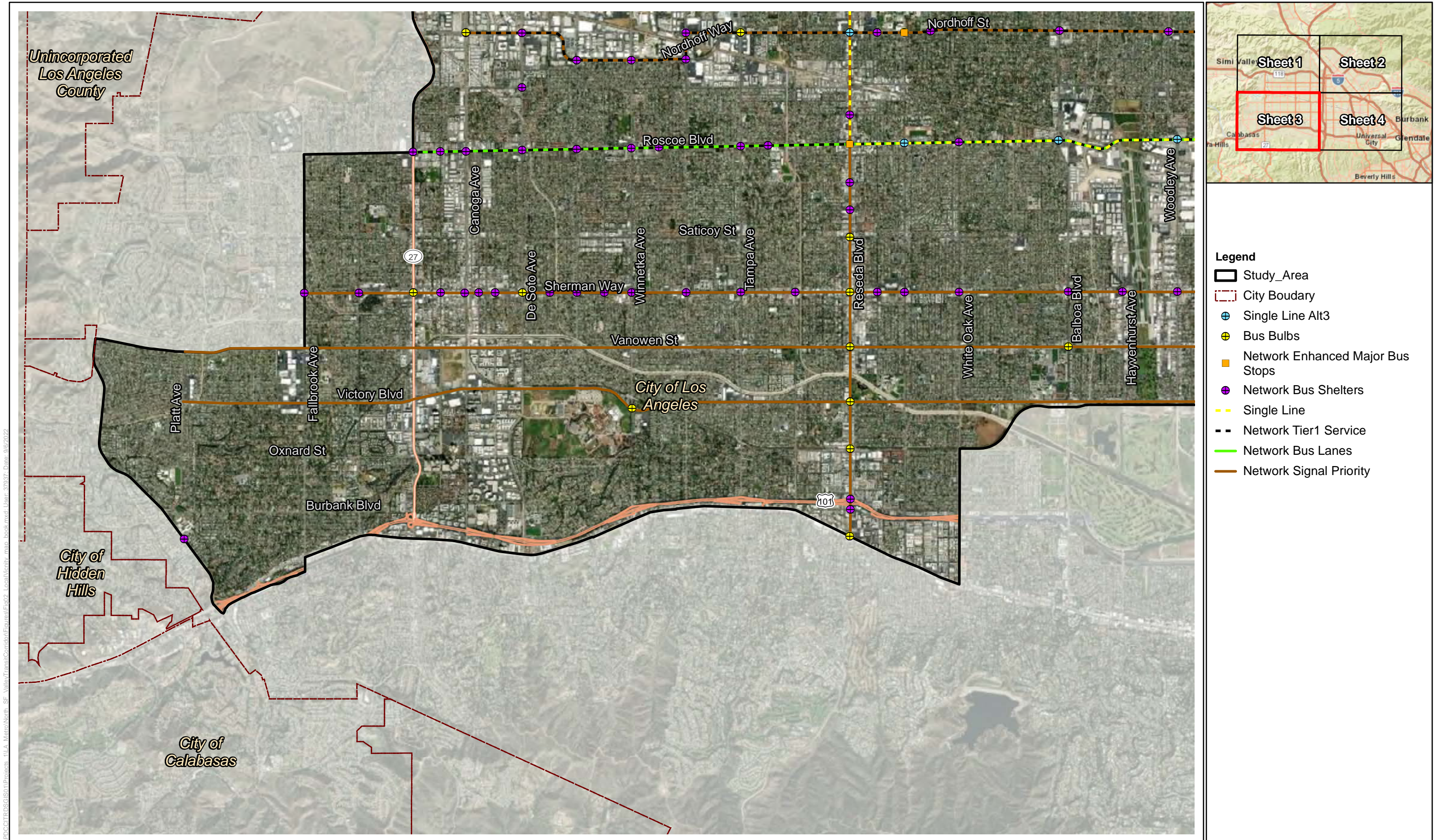
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**Figure 2, Sheet 1 of 4
Local Vicinity**



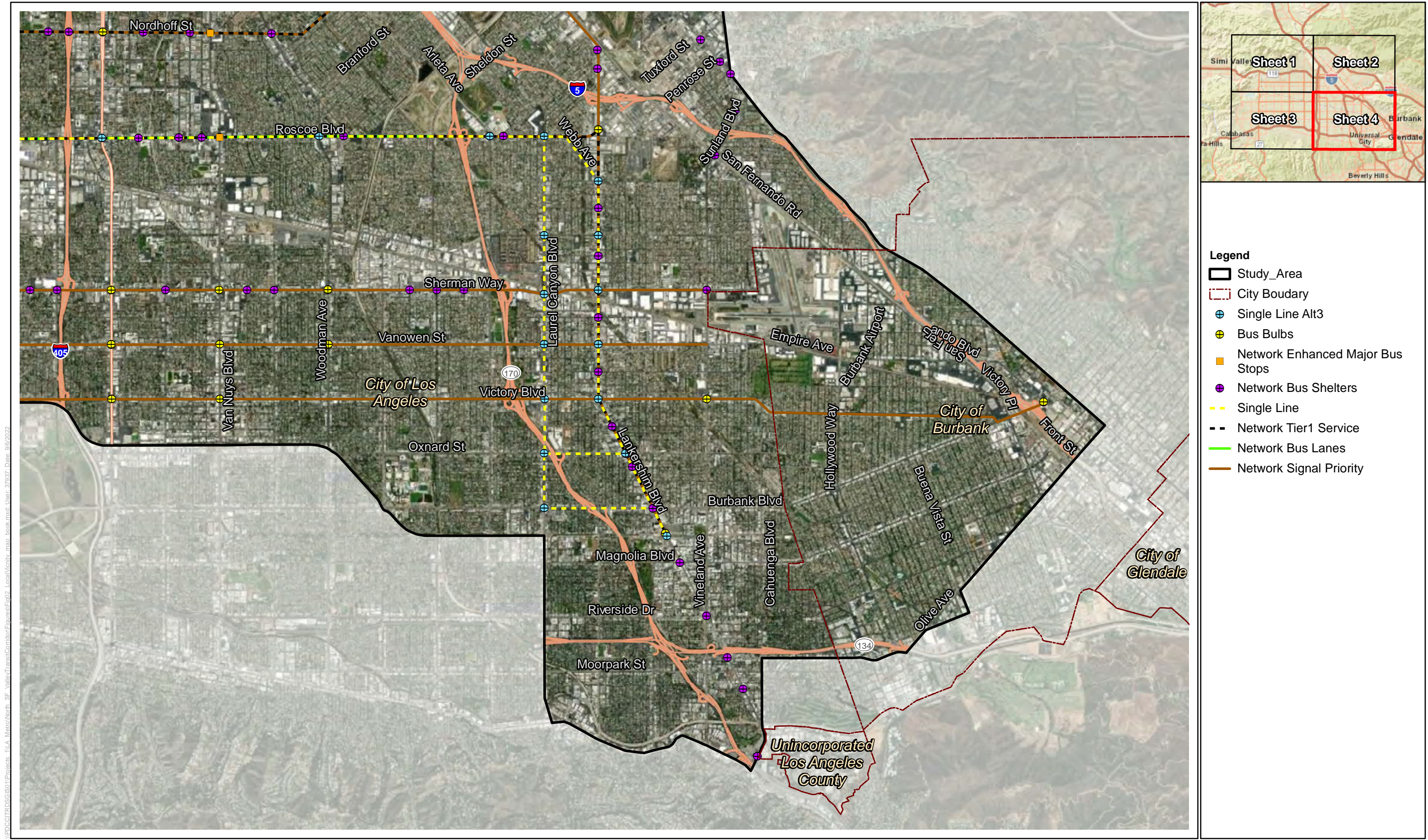
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Local Vicinity**



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**Figure 2, Sheet 3 of 4
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**Figure 2, Sheet 4 of 4
Local Vicinity**

which differs from the single-line BRT option originally proposed and studied during the Alternatives Analysis phase. This is known as the BRT Network Improvements Alternative and is the alternative analyzed in this Business Case Analysis.

The BRT Network Improvements Project builds off the NextGen Bus Plan Project and better aligns with community input as well as ongoing developments with other Metro projects and programs. Notably, for Measure M funding eligibility purposes, the Network Approach alternative, which is the subject of this analysis, is consistent with the project identified in the Measure M ordinance. Additionally, the BRT Network Improvements Alternative, which provides improvements on multiple corridors and spreads the benefit of the Measure M funds more widely throughout the NSFV, performs well at achieving project goals and serving transit equity areas.

1.4 Project Goals

The Project would improve bus service and transit infrastructure in NSFV to meet the growing mobility needs of the region. Metro has identified the following goals for the Project:

- Improve the speed, frequency, and reliability of bus service.
- Improve connectivity to the regional transit network.
- Link key activity centers across the region.
- Meet the growing demand for transit.
- Increase ridership by enhancing the customer experience at local bus stops.

1.5 Project Description

The Project consists of the following elements: more frequent bus service, transit signal priority (TSP), enhanced bus stops, new battery electric buses with all-door boarding, peak-hour bus lanes, and bus bulbs. Each Project element is discussed in more detail below. See Appendix A, *Network Improvements*, for a map of the Project.

1.5.1 More Frequent Service

The Project would improve the bus service frequency in the daytime on weekdays for two existing Metro transit lines, the Roscoe Line 152 and Nordhoff Line 166, from every 15 minutes to every 10 minutes. This would reduce average passenger wait times, reducing overall passenger travel times.

1.5.2 Transit Signal Priority

The Project would add TSP for up to seven bus lines: 152 (Roscoe Boulevard), 162 (Sherman Way), 164 (Victory Boulevard), 165 (Vanowen Street), 166 (Nordhoff Street), 224 (Lankershim Boulevard), and 240 (Reseda Boulevard/Ventura Boulevard). TSP allows buses to receive either an earlier start or later end to a green traffic signal phase, reducing the time buses need to wait at traffic signals. TSP utilizes existing vehicle location and wireless communications to advance or extend the green cycle of a traffic signal to allow a bus to continue through an intersection, helping to reduce travel times and ensure more reliable service.

1.5.3 Enhanced Stops with Branding

New bus shelters are proposed at nearly 400 locations. Key bus transfer stops at five major locations would include larger shelters, more seating, new real-time and wayfinding information, new landscaping features, and better lighting.

1.5.4 Electric Buses with All-Door Boarding

New zero-emission battery electric buses are proposed for Lines 152 (Roscoe Boulevard), 162 (Sherman Way), 166 (Nordhoff Street), and 240 (Reseda Boulevard/Ventura Boulevard). All-door boarding would also be added to all bus lines in the San Fernando Valley. All-door boarding allows customers to board a bus at any door with their TAP cards, allowing for reduced boarding time at stops, reducing rider travel times and increasing reliability.

1.5.5 Peak-Hour Bus Lanes

The Project would add new peak-hour-only bus lanes on up to 11 miles of Roscoe Boulevard between State Route 170 and Topanga Canyon Boulevard. Bus priority lanes convert one lane in each direction into a bus priority and right-turn-only lane on weekdays during peak hours of 7–10 a.m. and 3–7 p.m. These lanes would improve bus speeds by 15 percent or more, increasing service reliability while reducing rider travel times. This improvement would be achieved with striping and signage, without adding more infrastructure, and without major construction.

1.5.6 Bus Bulbs

Bus bulbs are proposed at up to 82 locations including Reseda Boulevard, Nordhoff Street, and Lankershim Boulevard. Bus bulbs extend the sidewalk across the first road lane at the busiest bus stops, which improves accessibility, makes boarding easier for passengers, and reduces delays for buses entering and exiting bus stops, reducing rider travel times.

2.1 Overview

As part of Metro’s network expansion, the Project proposes an enhanced bus network for NSJV communities to receive high-quality bus service and upgraded transit infrastructure to meet the needs of the communities from Northridge on the west to North Hollywood in the east. The area’s existing transit service includes the Metrolink Ventura County Line, Amtrak service, and the Metrolink Antelope Valley Line, with regional connections throughout Southern California. Metro’s Local and Rapid bus system makes up most of the transit service within the Project limits. However, buses operate at slower speeds compared to automobiles and there is a lack of frequent east-west bus service within the study area, which signifies the need for a high-quality transit service that can provide faster, more frequent, and more reliable transit service in order to make transit a viable and attractive alternative to driving. In addition, access to essential services, jobs, and education within the area is limited, making daily trips within the community difficult.

The Project area includes the communities of North Hollywood, Valley Glen, Sun Valley, Panorama City, Arleta, Pacoima, North Hills, Van Nuys, Lake Balboa, Northridge, Reseda, Winnetka, Canoga Park, and Chatsworth including California State University, Northridge (CSUN). The Project would help advance the implementation of Metro’s Equity Platform, which addresses the growing need for better access to public transit for Equity Focus Communities and groups such as students, seniors, zero-car households, low-income communities, single mothers, and people with disabilities.

2.2 Problem Statement

Through previous studies and extensive community engagement beginning in 2018 and ongoing, Metro was able to identify the needs of the community and encourage residents to voice their concerns on current and future transit needs within the study area.

The study area is predominantly low density, which is reflective of the existing development patterns and single-family land use. Higher levels of population density can be found in the area bounded by Plummer Street, Interstate 405, the Metrolink corridor, and Van Nuys Boulevard, as well as along Lankershim Boulevard.

Existing transit service includes only six bus routes within the study area that operate with a frequency of 15 minutes or better daytime weekdays. Traffic volumes are expected to grow between 2016 and 2040.

Approximately 146,518 people within the study area were under the age of 18 or 65 years of age or older, age groups that tend to be more transit dependent. This number represents approximately 22 percent of the study area population.

Metro’s 2019 Customer Survey identified the local community transit rider as majority Latinx (58 percent) with four of five residents identifying as Black, Indigenous, or people of color. Many of the transit riders included lower-income households with over 50 percent living below the poverty line

and one in four households earning less than \$5,000 annually (Appendix E). According to the survey results, 84 percent of residents do not own a car and 66 percent rely on Metro bus services 5 days per week. In addition, Metro's 2022 Bus Rider Survey identified that 108 out of 304 riders often experience delays due to traffic congestion while riding the bus compared to only two riders who had never experienced delays (Appendix E). The survey also identified riders' top five priorities for future transit improvements:

- Increased frequency of service
- More reliable on-time buses
- Shorter travel times from bus lanes and TSP
- Enhanced bus stops with shelters
- New zero-emission electric buses

Solutions to these issues and concerns were identified and the Project improvements proposed focus on faster, more frequent, and more reliable bus services, thereby improving access to jobs, education, and essential services for communities while enhancing connection to regional transit services.

3.1 Project Goals and Objectives

This section covers the Strategic Case, which summarizes the performance of the Project against Metro’s goals for the Project and the goals set in the 2020 Long Range Transportation Plan (LRTP) (Appendix D) to indicate if the investment addresses the Problem Statement (refer to Chapter 2).

As identified in Chapter 1, Metro has identified the following goals for the Project:

- Improve the speed, frequency, and reliability of bus service.
- Improve connectivity to the regional transit network.
- Link key activity centers across the region.
- Meet the growing demand for transit.
- Increase ridership by enhancing the customer experience at local bus stops.

Metro’s 2020 LRTP includes the following applicable strategies under its Better Transit priority area:

- Strategy 1.2: Improve the frequency, speed and reliability of the bus and rail transit networks.
- Strategy 1.4: Enhance station areas.
- Strategy 1.6: Enhance customer service.

3.2 Comparison of Alternatives

Prior to the introduction of the Project in May 2022, Metro evaluated three alternatives for a single-line BRT system. The three single-line BRT alternatives consisted of different routes that the BRT system would follow. However, only two sets of alternatives have been evaluated as part of the Project, as the other two alternatives were not carried forward. The first alternative evaluated a proposed new single-line BRT service primarily along Roscoe Boulevard, which is summarized in the “BRT Single-Line Improvements” column in the table below. The second alternative includes the BRT Network Improvements. Table 1 states the improvements that each category of alternatives provides above the existing bus service that Metro offers in the NSFV service area.

Table 1. Proposed Improvements by Alternatives

Improvement	BRT Single-Line Improvements	BRT Network Improvements
Frequency	10 minutes for the BRT single line	10 minutes for two bus lines 152 (Roscoe) and 166 (Nordhoff)
Bus Lanes	Lankershim, Roscoe, Reseda (5 a.m.–10 p.m.)	Roscoe (7 a.m.–10 a.m. & 3 p.m.–7 p.m.)
Stop Spacing	0.5–1.0 mile	0.25–0.30 mile

Improvement	BRT Single-Line Improvements	BRT Network Improvements
Bus Bulbs	BRT Stations on Lankershim, Roscoe, Reseda (part)	Up to 82 locations, including Lankershim, Nordhoff, and Reseda
Passenger Amenities	17 new BRT stations	400 new shelters with enhanced stops and major stop amenities at key locations
Transit Signal Priority	Lankershim, Roscoe, Reseda (part)	Lankershim, Roscoe, Reseda, Nordhoff, Sherman Way, Vanowen, Victory
All Door Boarding	BRT Line only	San Fernando Valley-wide
Zero-Emission Electric Buses	BRT Line only	Roscoe, Reseda, Ventura, Nordhoff, Sherman Way lines
Demographic Reach	44,363 bus riders	163,287 bus riders

Table 2 identifies which alternative would provide a greater benefit for each improvement area identified. Comparing the improvements made possible for each option establishes whether a single-line BRT or network improvements are the most effective approach for achieving Metro's LRTP goals.

Table 2. Comparison of Alternatives

Improvement	Discussion
Frequency	Both alternatives are anticipated to have buses running every 10 minutes; however, the BRT Network Improvements Alternative would improve frequency on two existing bus lines compared to the BRT Single-Line Improvements Alternative, which would only improve frequency on a single new bus line.
Bus Lanes	The BRT Single-Line Improvements Alternative would add all-day dedicated bus lanes on a single alignment compared to the BRT Network Improvements Alternative, which only proposes to add bus lanes on the Roscoe line during AM and PM peak periods.
Stop Spacing	The BRT Network Improvements Alternative would maintain existing local bus stops that are closer together compared to the Single-Line BRT Alternative.
Bus Bulbs	The BRT Network Improvements Alternative would add more bus bulbs throughout the NSFV service area than the BRT Single-Line Improvements Alternative.
Passenger Amenities	The BRT Network Improvements Alternative would improve passenger amenities throughout the NSFV service area, including enhancing approximately 400 bus stops, whereas the BRT Single-Line Improvements Alternative would add only 17 new BRT stations.
Transit Signal Priority	The BRT Network Improvements Alternative would add TSP at up to four more lines compared to the BRT Single-Line Improvements Alternative.
All-Door Boarding	The BRT Network Improvements Alternative would add all-door boarding throughout the NSFV service area, whereas the BRT Single-Line Improvements Alternative would add all-door boarding on only a single BRT line.
Zero-Emission Electric Buses	The BRT Network Improvements Alternative would add zero-emission battery electric buses on four bus lines, whereas the BRT Single-Line Improvements Alternative would add zero-emission buses on only a single new BRT line.

Improvement	Discussion
Demographic Reach	The BRT Network Improvements Alternative is anticipated to reach an estimated 118,924 additional bus riders compared to the BRT Single-Line Improvements Alternative.

4.1 Introduction

This chapter presents the Economic Case, which considers the society-wide impacts of the Project. It examines the Project as an investment in the overall value of society and assesses the economic costs and benefits associated with it. The Project as proposed is intended to address existing inefficient transit system operations within the Project limits.

4.2 Economic Benefits

Project investments are expected to deliver long-term, tangible public health benefits—in the form of increased safety, improved air quality, and better access to goods and services, including healthcare—that are especially important for disadvantaged residents and the economic vitality of the region. In addition, the Project is expected to provide the following economic benefits:

- New zero-emission electric buses for Lines 152, 162, 166, and 240 are anticipated to offset the short-term impacts from the preliminary construction phase such as dust, noise, and emissions from machinery and construction vehicles primarily involved in construction of bus bulbs. The long-term social costs of travel related to zero-emission vehicle fleets can result in lowering greenhouse gas (GHG) emissions. GHGs contribute to a changing climate that can be associated with health, environmental, and economic risk factors, creating impacts on overall society.
- 10-minute frequency improvements on Lines 152 and 166 daytime weekdays by utilizing peak-hour bus lanes (Line 152), TSP, bus bulbs (Line 166), and all-door boarding compared to the current frequency of 15 minutes on both these lines. The investment in improved frequency and bus service speeds would result in rider travel time savings.
- Improvements to transit service and amenities would benefit users' experience based on comfort, convenience, and reliability.
- Increasing connectivity and ridership is expected to contribute to overall economic growth (local and regional) by improving productivity and creating easier access to jobs and education.
- Reduced travel time for riders is expected to lead to further direct travel cost savings for local and regional businesses and households.
- Improved transit operations are expected to contribute to growth in local and regional economies through business operating cost savings in terms of worker reliability that can be related to reduced travel times.
- Travel and vehicle cost savings for individuals choosing transit over single-occupancy vehicles could lead to shifts in consumer spending.
- The electric buses would contribute to Metro's equity goals to help reduce disparities in access to opportunity, including health outcomes, in key communities along the bus corridors (see Appendix F, *Transit Equity Areas*).

- The addition of bus bulbs at up to 82 locations is expected to improve safety, convenience, and comfort for riders; avoid buses needing to merge in and out of traffic; and reduce pedestrian crossing distances. This can reduce the overall cost of travel by limiting the chances of vehicle and pedestrian accidents, which can result in property loss, injury, or death.

The BRT Network Improvements Alternative would stretch available Measure M funds by providing improvements to multiple corridors throughout the NSFV. In addition, the BRT Network Improvements Alternative would reach a larger demographic than the single-line BRT alternatives.

4.3 Economic Costs

The Project may potentially cause traffic impacts on communities of color within the Project area, particularly along Roscoe Boulevard where the Project proposes peak-hour bus lanes, which requires repurposing during peak hours weekdays of current travel and parking lanes used by residents and businesses for their daily travel needs. These vulnerable communities may be especially affected by potential peak-hour traffic impacts from new bus lanes. However, the network improvements would benefit the public, including these vulnerable communities, by providing increased transit service to them.

During construction, the Project area may experience loss of parking and additional traffic and noise. Installation of bus bulbs and new shelters would likely disrupt traffic flows.

For operation, local businesses along Roscoe Boulevard may also be burdened by the potential increase of vehicular traffic and any restrictions on parking due to the bus lane repurposing portions of available parking and traffic lanes. The removal of one lane during peak hours in certain areas may increase vehicular traffic.

Lastly, high-quality public investments like the Project must consider the possibility of gentrification and displacement, although it is not anticipated that the Project will cause gentrification and displacement. Nevertheless, Metro has a suite of policies and programs that can mitigate gentrification and displacement impacts. The Metro Affordable Transit Connected Housing program uses funds from Metro, lenders, and foundations to protect and produce affordable housing in low-income communities near high-service transit stops. Metro's Joint Development Program is focused on using Metro-owned land to build quality and affordable housing near transit. Metro's Transit Oriented Communities Policy encourages partnerships with cities, community-based organizations, and affordable housing stakeholders to support stabilizing communities surrounding transit.

5.1 Introduction

This chapter covers the Financial Case, which assesses the overall financial impact of proposed investment options. This includes a review of expenditures (capital, operating and maintenance) and total revenue (fares) gained, required over the lifecycle of the investment incremental to the base case scenario.

5.2 Costs

5.2.1 Single-Line BRT Alternatives

Prior to the introduction of the Project in May 2022, Metro evaluated three alternatives for a single-line BRT system. The three single-line BRT alternatives consisted of different routes that the BRT system would follow. A summary of each single-line BRT alternative and the expected capital costs are summarized in Table 3. See Appendix G, *Single-Line BRT Alternatives*, for maps of the proposed routes.

Table 3. Single-Line BRT Alternatives

Alternative Route	Project Distance (miles)	New Stations/ Platforms	New Electric Buses	Capital Costs
Alternative 1: NoHo to Chatsworth via Parthenia/Woodley	16.8	23	16	\$294,900,000
Alternative 2: NoHo to Chatsworth via Sepulveda	16.9	22	16	\$294,400,000
Alternative 3: NoHo to CSUN via Roscoe/Reseda	13.8	18	14	\$242,600,00

Dollar values are given in Year of Expenditure (YOES). The estimate was prepared with a 2020 base year and escalated using 4.5% annual inflation.

5.2.2 BRT Network Improvements Alternative (Project)

The Project would utilize approximately \$175 million of the \$180 million in funding from Measure M in capital costs. Yearly operations and maintenance (O&M) costs have not yet been provided for the Project. Capital costs would include facility improvements, installation of stations and stops, and implementation of new buses and associated infrastructure. The budget would be allocated as follows:

- \$53,055,000 for bus stop amenities (including shelter and bus pad)
- \$1,000,000 for bus station amenities
- \$11,350,000 for transit priority signal system intersections

- \$12,300,000 for bus bulbs
- \$3,750,000 for bus lane bi-directional miles
- \$75,000,000 for new battery electric buses
- \$15,000,000 for new battery electric bus charging stations
- \$3,060,000 for all-door boarding validators
- Total: \$175,000,000

5.3 Revenue Impacts

By making the line more safe, accessible, reliable, and frequent, the NSFV network improvements are anticipated to increase ridership. As such, revenue is anticipated to increase as a result of these improvements.

5.4 Funding Sources

Currently, \$180 million in voter-approved Measure M funds are allocated for this Project, which would fund BRT network improvements for improved transit reliability and connectivity along with numerous capital improvements in the San Fernando Valley. Measure M is also known as the no sunset half-cent sales tax measure, which is used to fund projects to alleviate traffic, expand public transportation systems, repair and rehabilitate sidewalks and streets, and offer subsidies for transit fares for students, seniors, and others in need. As described on Metro's website, Measure M partially funds many Metro projects, as well as making funding available to local jurisdictions via the Metro Subregional Program; Metro Active Transportation, Transit and First/Last Mile Program; and Local Return (Metro n.d.) The Measure M funds are considered a secure, reliable source of funding. The BRT Network Improvements Alternative would stretch available Measure M funds by providing improvements to multiple corridors and a larger demographic throughout the NSFV.

6.1 Introduction

This chapter covers the Delivery and Operations Case, which is an analysis of investment delivery, O&M, and service plans for NSFV network improvements, as well as any issues that should be considered during the continued development of the Project. This includes delivering the Project from original concept through to planning, design, environmental assessment, stakeholder engagement, procurement, construction, and operations.

6.2 Project Delivery

The Measure M ordinance identifies this transit capital Project as “North San Fernando Valley BRT Improvements.” The Roscoe Boulevard bus priority lanes, 10-minute weekday service updates on Roscoe Boulevard and Nordhoff Street, and new bus shelter installation would begin in summer or fall of 2023. Completion of new bus shelter installation, bus bulb implementation, incorporation of zero-emission battery electric buses, and TSP would be completed between winter 2023 and winter 2025. The Project would include a large range of network improvements in a variety of locations and neighborhoods throughout approximately 25 miles of bus service. As such, line enhancements would be implemented over an approximately 2.5-year period. Currently, public outreach activities are underway.

The Project is not considered to pose the potential for organizational risks for Metro. All required regulatory permits and approvals would be obtained prior to the commencement of construction activities and most Project elements are quick-build in nature with limited heavy construction involved. The Project is anticipated to make public transit more safe, accessible, and reliable for a demographic of approximately 163,287 bus riders and is anticipated to increase public support for Metro in the NSFV region. New peak-hour bus lanes would improve bus speeds by 15 percent or more, increasing service speed and reliability, as well as enhancing mobility by moving more people without adding more infrastructure. Bus bulbs would extend the sidewalk across the first road lane at busy bus stops, which improves accessibility and reduces delays for buses and passengers. They also improve safety by making shorter crosswalks for pedestrians and reducing the chances of accidents with vehicles. All-door boarding allows customers to board a bus at any door with their TAP cards and allows for faster boarding, shorter stops, and increased reliability.

6.3 Requirements for Delivering and Operating the Investment

6.3.1 Procurement

Metro is expecting to partner with experienced engineering and construction consultants and contractors to deliver the proposed improvements. Metro publishes Open Solicitations for engineering and consulting services on its Vendor Portal website and accepts proposals for Invitations for Bids (IFB) and Requests for Proposals (RFP) that are submitted electronically to bids@metro.net. Metro considers a formal solicitation to be any procurement over \$150,000 in contract value and considers an informal solicitation as any procurement under \$150,000 in contract value. Per California Public Utilities Code §130051.23 and Ordinance #4-05 of Metro's Administrative Code, firms must be pre-qualified to do business with Metro. To begin the Project, Metro will likely send an IFB or an RFP for consulting services (e.g., design, engineering, construction, permitting) to trusted, pre-qualified firms that have previously collaborated with Metro.

6.3.2 Delivery and Operation

Metro is responsible for the delivery of the proposed network improvements but would partner with engineering and construction contractors that hold relevant expertise for Project design and construction. Responsibility for engineering and construction are expected to fall on Metro's consultants, with Metro being accountable for the development of the Project as a whole, as well as community engagement, Project approval and permitting, and O&M.

6.4 Evidence of Viability

A substantial amount of planning and collaboration among separate public and private entities would be required to execute the proposed improvements. However, Metro has decades of experience with development, implementation, and O&M of public transportation projects in Los Angeles County and frequently partners with private firms to execute projects. The Project would consist of improvements to an existing transit corridor and would operate within existing transit routes, rather than proposing to overhaul an existing system to implement a new one. The Project was explicitly identified in the Measure M ordinance as a transit project that will receive funds from the revenue generated by the new 0.25-cent sales tax. \$180 million in voter-approved Measure M funds have been allocated to the Project, so it has a secure, reliable source of public funding. Overall, the NSFV improvements are considered a viable project and reliable investment.

7.1 Summary of Findings

The purpose of this Business Case Analysis is to demonstrate that the Project is superior to other proposed alternatives by presenting a strategic case, an economic case, a financial case, and a case for the viability of Project delivery and operations. The Summary of Findings provides a high-level summary of the evaluation of the alternatives based on the information analyzed in the previous chapters.

Table 4. Summary of Findings

Case	Discussion	Preferred Alternative
Strategic	For each improvement that was identified to achieve higher-quality, safer, and more comfortable transit in the NSFV (frequency, bus lanes, bus bulbs, passenger amenities, TSP, all-door boarding, zero-emission battery electric buses, and demographic reach), the Project delivers those improvements on more bus lines and therefore has a substantially greater demographic reach. While the single-line BRT alternative would have the benefit of more consistent access to designated bus lanes, the ability to deliver significant system upgrades to a much broader service area achieves more of Metro’s strategic goals.	Network Improvements
Economic	The economic benefits outweigh the costs. While most economic costs are related to potential impacts on car traffic and parking and short-term construction disruptions, the Project provides a high-quality alternative to car travel and creates a societal benefit by reducing GHG emissions and improving roadway safety in communities that depend on transit for day-to-day life. The potential economic costs can continue to be addressed through Metro’s ongoing community engagement, and the Project could incentivize drivers to get out of their cars and take public transit.	Network Improvements
Financial	\$180 million in Measure M funds have been allocated for work in the NSFV to improve transit. Implementation of the Project is projected to cost \$175 million, whereas the least expensive single-line BRT alternative is projected to have capital costs of \$242,600,000.	Network Improvements
Delivery and Operations	The Project has a secure funding source and is projected to have capital costs within the budget. Metro would deliver the Project through established processes and procedures for procurement, permitting, community engagement, construction, and O&M.	Network Improvements

Network Improvements = Project

7.2 Recommendations for Future Investment Development

The analysis provided in this document demonstrates that the Project (BRT Network Improvements Alternative) is the best option for future investment out of the evaluated alternatives. The Project would achieve more of Metro's strategic goals for a larger demographic in a shorter timeframe. Additionally, the Project is the only evaluated alternative projected to stay within the allocated Measure M funds while delivering benefits to a larger population in a service area that has a high proportion of transit-dependent customers. Metro community outreach efforts have demonstrated that the public in the NSFV service area supports the Project. Therefore, the strategic, economic, financial, and delivery and operations cases indicate that the Project is the superior future investment, and is recommended as the Project that Metro moves forward with.

Chapter 8 References

- California Governor's Office of Planning and Research (OPR). 2021. *Technical Advisory: CEQA Review of Sustainable Transportation Projects*. Available: [https://opr.ca.gov/docs/20210709-Sustainable Transportation TA.pdf](https://opr.ca.gov/docs/20210709-Sustainable_Transportation_TA.pdf).
- Los Angeles County Metropolitan Transportation Authority (Metro). No date. "Measure M." Available: <https://www.metro.net/about/measure-m/>. Accessed: September 7, 2022.
- . 2017. *North San Fernando Valley BRT Improvements Project Environmental Framework Report*. September 19.
- . 2019. *North San Fernando Bus Rapid Transit Improvements Planning and Environmental Study*. October 24.
- . 2020. *2020 Long Range Transportation Plan*. Available: <https://www.metro.net/about/plans/long-range-transportation-plan/>. Accessed: September 15, 2022.
- . 2022. BRT Network Improvements Community Meeting Presentation.
- Metrolinx. 2017. *Business Case Manual Volume 1: Overview*. Available: <https://www.metrolinx.com/en/regionalplanning/projectevaluation/benefitscases/Metrolinx%20Business%20Case%20Overview%20Volume%201.pdf>.
- . 2021. *Business Case Manual Volume 2: Guidance*. Available: <https://www.metrolinx.com/en/regionalplanning/projectevaluation/benefitscases/Metrolinx-Business-Case-Guidance-Volume-2.pdf>.

Appendix A

Network Improvements

BRT Network Improvements: Project Elements



More Frequent Service



Transit Signal Priority



Enhanced Stops with Branding



Electric Buses with All Door Boarding

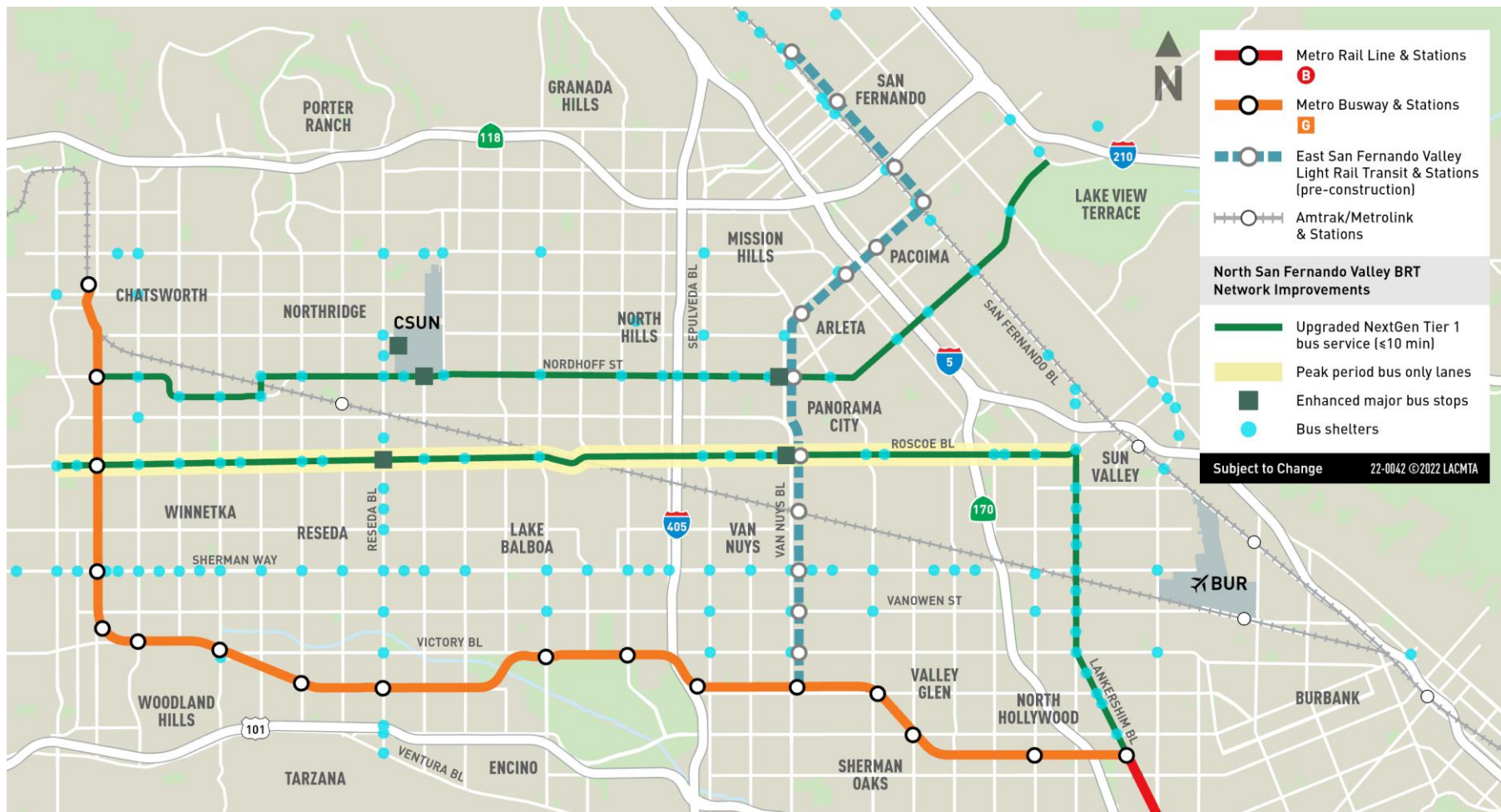


Peak-Hour Bus Lanes



Bus Bulbs

BRT Network Improvements Service & Customer Experience



Enhanced Major Bus Stops: Roscoe & Reseda



Current



Proposed

Enhanced Major Bus Stops: Nordhoff & Lindley



Current



Proposed

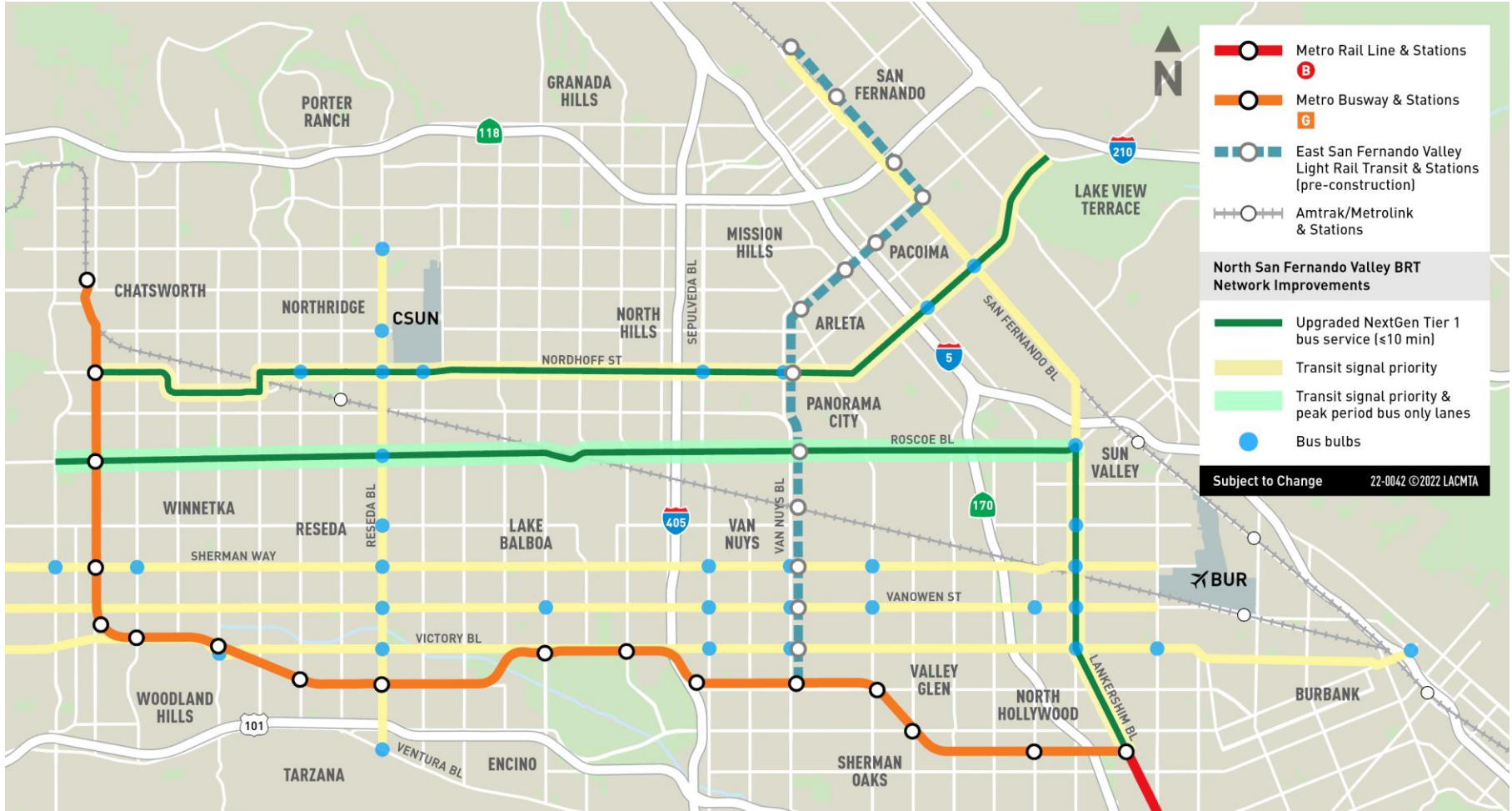
Frequency & Travel Time Improvements

- > **10 minute frequency improvements on Lines 152 (Roscoe Bl) and 166 (Nordhoff St)**
 - > **Compared to current frequency of 15 minutes**

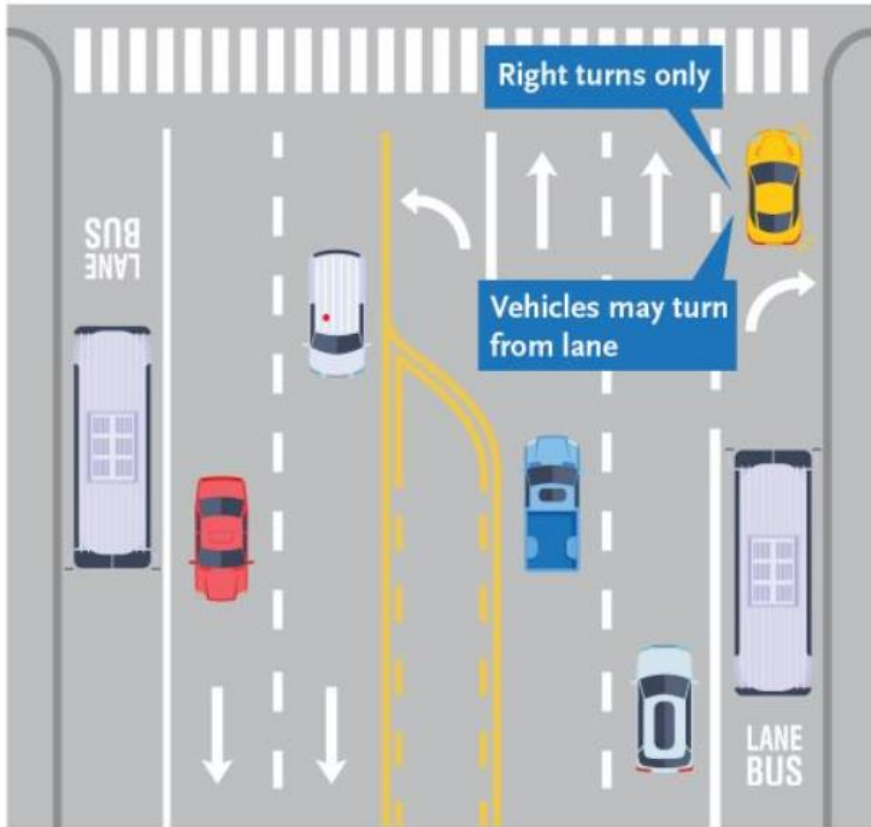
BRT Network Peak Travel	Line 152 Roscoe Bl	Line 152 Roscoe Bl	Line 166 Nordhoff St	Line 166 Nordhoff St
	WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND
Time Period	Time Saving Estimated Minutes	Time Saving Estimated Minutes	Time Saving Estimated Minutes	Time Saving Estimated Minutes
Morning Peak 6–8:59am	22	22	11	10
Midday 9am–2:59pm	13	13	10	11
Afternoon Peak 3–6:59pm	22	22	11	11

BRT Network Improvements

Speed & Reliability



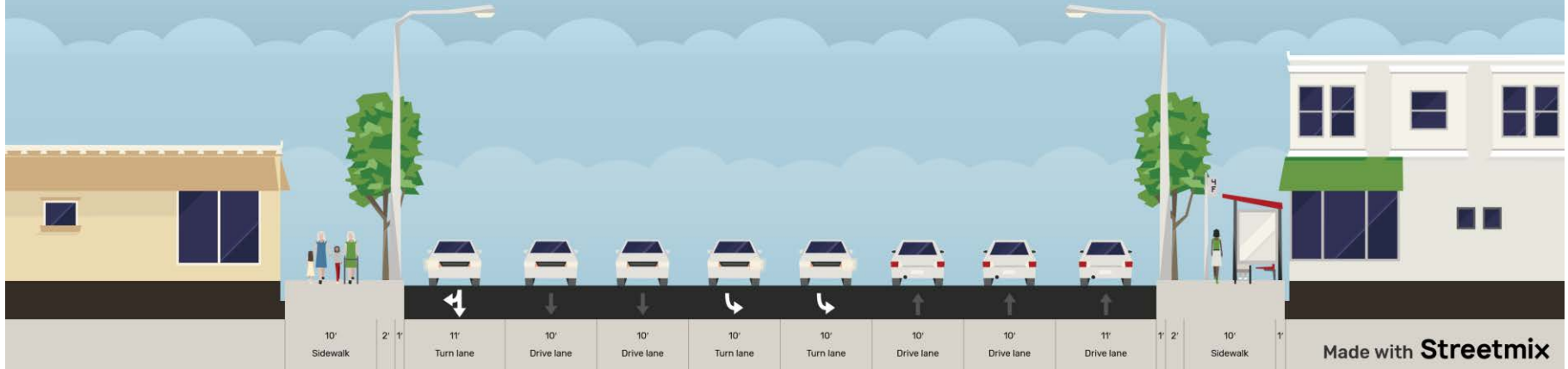
How Peak-Hour Bus Lanes Would Work



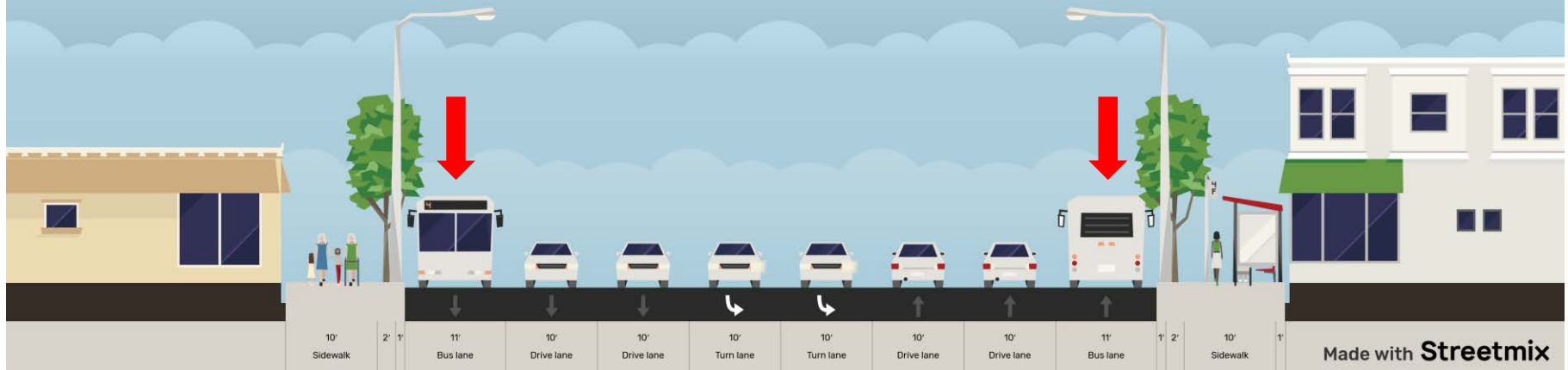
- > **Proposed peak period weekday bus lanes in segments of Roscoe Bl where parking is already restricted between Lankershim Bl and Topanga Canyon Bl**
- > **Buses would run every 10 minutes during peak commute hours**
 - **Improves the current frequency of 15 minutes**
 - **Increases on-time performance**
 - **Expected to achieve 15 MPH or better on Roscoe Bl during peak period bus lanes and transit signal priority**
- > **Adjust parking restrictions:**
 - **From the current 7-9am to 7-10am**
 - **From the current 4-7pm to 3-7pm**
- > **Street parking would remain available:**
 - **During weekday off-peak hours (mid-day)**
 - **Weekday evenings & overnight**
 - **On weekends & observed holidays**

How Peak-Hour Bus Lanes Would Work

Existing: Roscoe/Van Nuys



Proposed: Roscoe/Van Nuys



What is a Bus Bulb?

Bus bulbs extend the sidewalk at bus stops and stations across the first road lane

- Included at up to 82 locations, including Lankershim, Nordhoff and Reseda
- Improves accessibility and makes boarding easier for passengers
- Reduces delays for buses and passengers
- Improves safety
 - Shorter crosswalks for pedestrians
 - Reduces the chances of accidents with vehicles and cyclists
- Lower impact to existing on-street parking spaces



S2 - Aerial - Not to Scale



S2 - Ground Level - Not to Scale

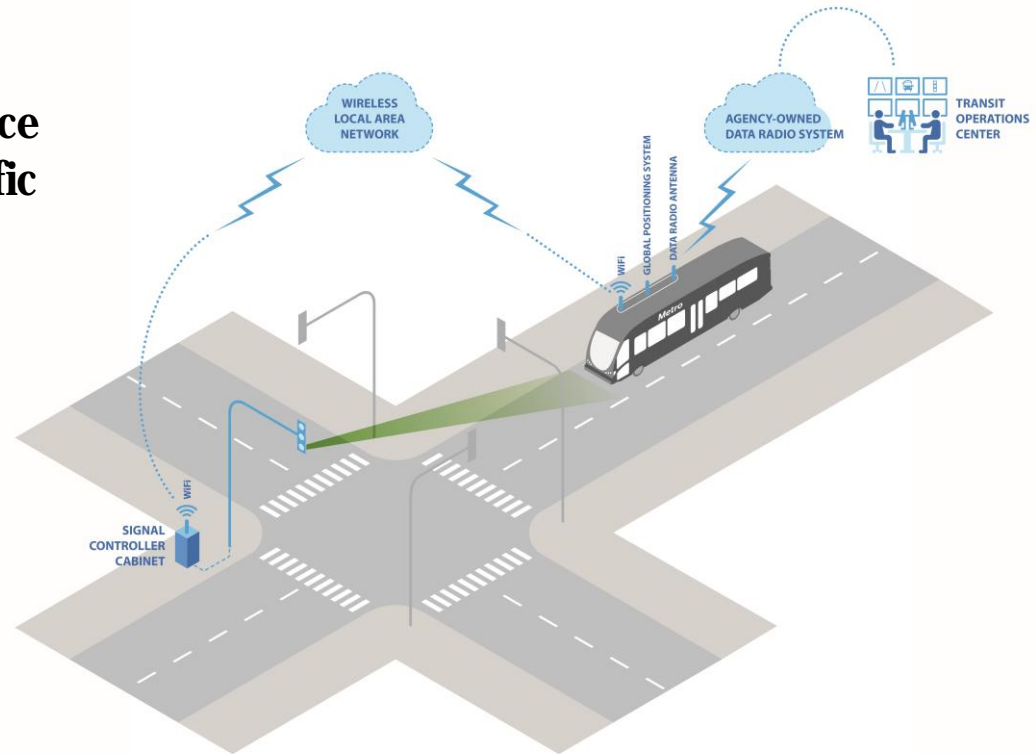


Images are for illustrative purposes only and do not reflect project design.

What is Transit Signal Priority?

Transit signal priority (TSP) allows buses to stop without having to pull in and out of traffic.

- TSP uses the vehicle location and wireless communication to advance or extend the green light of a traffic signal to allow a bus to continue through an intersection.
- Helps to reduce travel times and ensure on-time arrivals.
- Included on Lankershim, Roscoe, Reseda, Nordhoff, Sherman Way, Vanowen, Victory.



Images are for illustrative purposes only and do not reflect project design.

All Door Boarding Improvements

- > All door boarding included on all bus lines in the North Valley.
- > Allows riders to board buses through any door, not just the front door, which reduces time at busy stops



Zero Emission Electric Buses

- > New zero emission electric buses for Lines 152 (Roscoe Bl), 162 (Sherman Way), 166 (Nordhoff St) and 240 (Reseda Bl/Ventura Bl)
- > Benefits
 - > No tailpipe emissions
 - > Quieter operation
 - > Electric drive motors
 - > Electric accessories
 - > Better performance
 - > Better ride quality



Appendix B

North San Fernando Valley BRT Improvements Project – Environmental Framework Report (2017)

https://www.dropbox.com/sh/ezsgtxv7dqsknlf/AAAxWM5mmAb74ToP2Rj6rFe-a/Reports?dl=0&preview=north_sfv_brt_improvements_environmental_framework_report_2017-0919.pdf&subfolder_nav_tracking=1

Appendix C

**North San Fernando Valley Bus Rapid Transit
Improvements Planning and Environmental Study
(2019)**

<https://boardagendas.metro.net/board-report/2019-0525/>

Appendix D

2020 Long Range Transportation Plan (2020)

https://www.dropbox.com/s/jjj1k6fv485vmxm/LRTP-2020-Final_with-linked-toc.pdf?dl=0

Appendix E

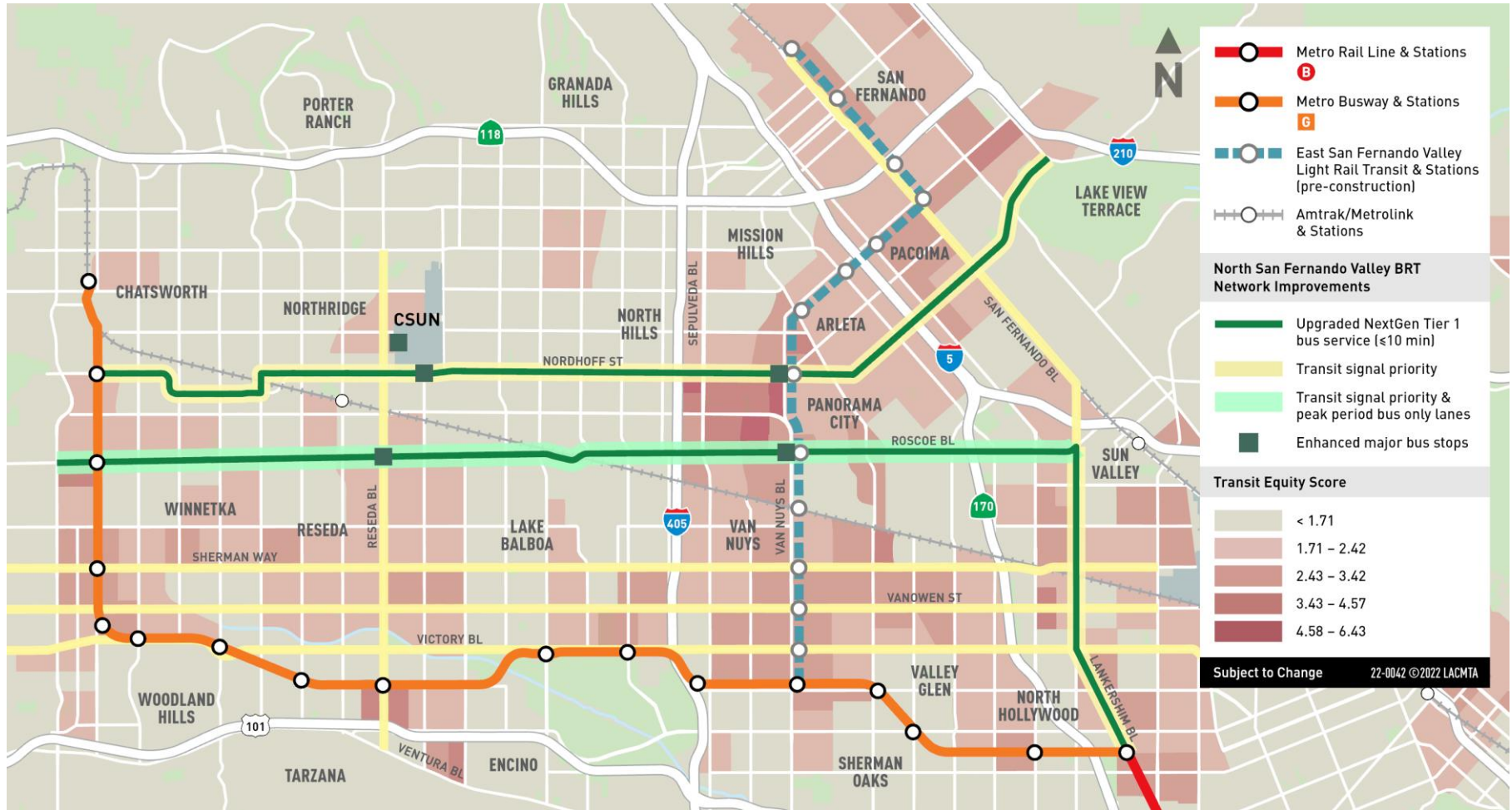
BRT Network Improvements Community Meeting Presentation (2022)

https://www.dropbox.com/sh/ezsgtxv7dqsknlf/AADJ-tsnFBE8pjeE8zQXOYyfa/Presentations%20and%20Meeting%20Materials/June%202022%20Community%20Update%20Meetings/Presentations?dl=0&preview=NSFV_CommunityMeetingPresentation_English.pdf&subfolder_nav_tracking=1

Appendix F

Transit Equity Areas

Transit Equity Areas

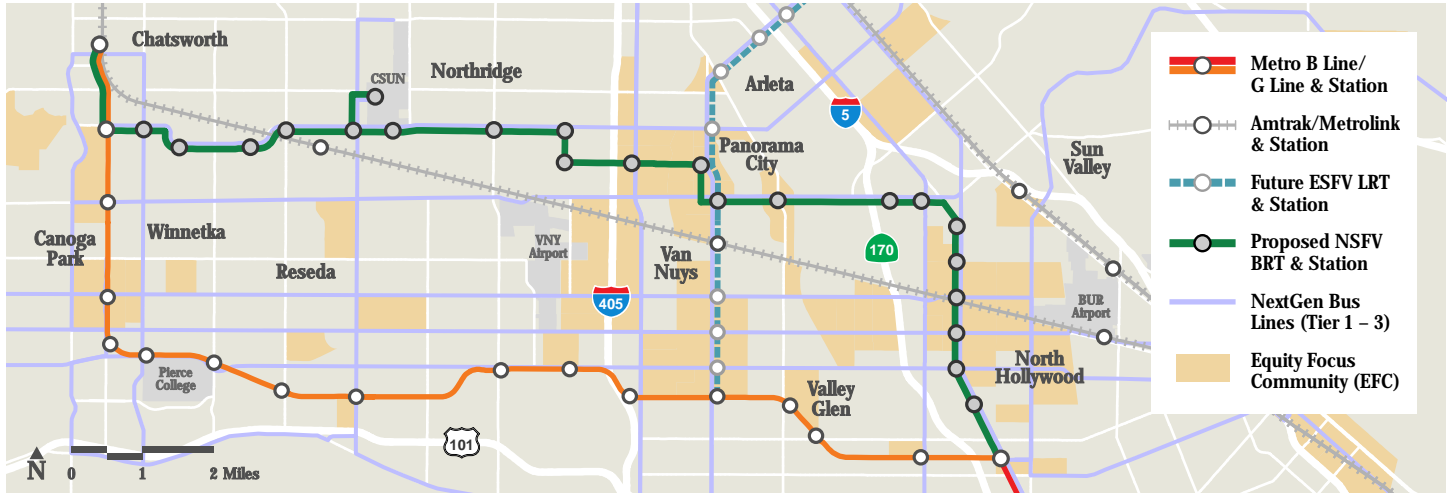


Appendix G

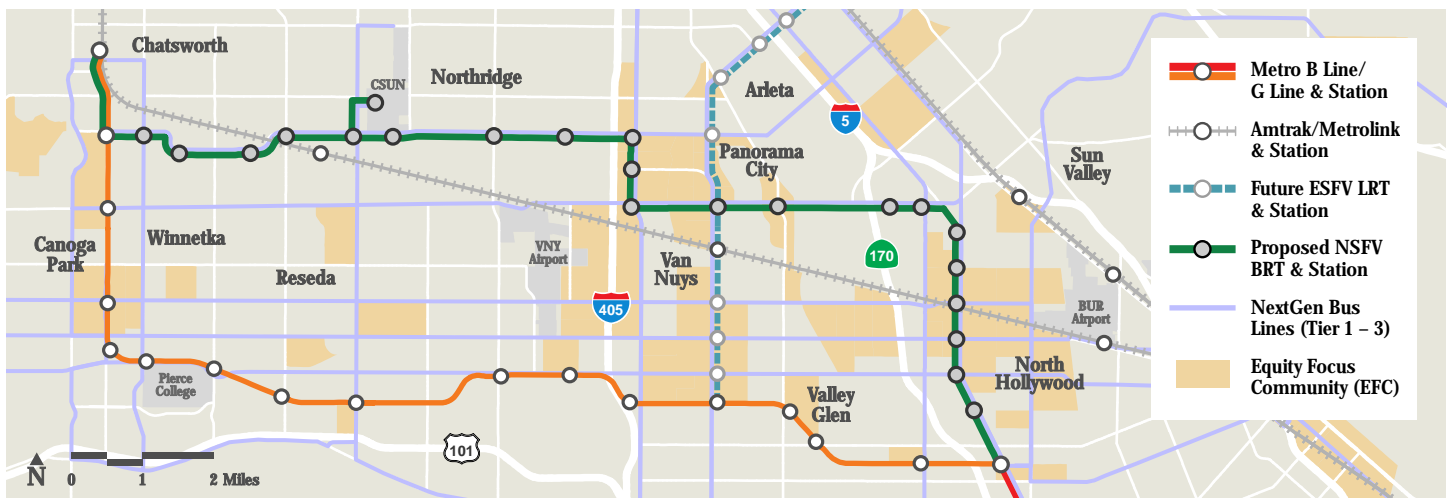
Single-Line BRT Alternatives

PROJECT ALTERNATIVES

Alternative 1



Alternative 2



Alternative 3

