3.0 PROJECT DESCRIPTION

3.1 INTRODUCTION

The Canoga Transportation Corridor will be an extension of the existing Metro Orange Line (MOL) between the Canoga Station in Woodland Hills and the Chatsworth Metrolink Station in the northwestern San Fernando Valley (SFV). The main goal of this extension is to capitalize on the success of the MOL and other transit services to improve mobility for residents and workers in the western San Fernando Valley.

The San Fernando Valley North-South Transit Corridor Regionally Significant Transportation Investment Study (RSTIS), completed in April, 2003 evaluated north-south transit improvements throughout the San Fernando Valley. It considered transit enhancements on five major corridors extending from Vineland Avenue in the East Valley to Topanga Canyon Boulevard in the West Valley. The RSTIS, which was approved by the Metro Board in May, 2003, recommended transit improvements on five north-south corridors; (1)Reseda Boulevard, (2) Van Nuys Boulevard, (3) Sepulveda Boulevard, (4) Lankershim Boulevard-San Fernando Road, and (5) Canoga Avenue. Metro Rapid Bus service has been implemented on the first three corridors and Metro is currently working with the City of Los Angeles Department of Transportation (LADOT) to identify additional bus speed enhancements on those four corridors, such as peak period bus lanes, queue jumps at signals and other operational and physical improvements to enhance transit service. Subsequently, Metro completed the Canoga Transportation Corridor Alternatives Screening Report, focusing only on alternatives in the Canoga Corridor which could serve to implement the remaining RSTIS recommendations for improved north-south service in the western San Fernando Valley. The Canoga Transportation Corridor Alternatives Screening Report, which was the first step in this environmental clearance process, was submitted to the Metro Board as an information item in September, 2007 and proposed retaining four of the initial seven alternatives for environmental evaluation:

- No Project
- Transportation System Management (TSM)
- Canoga On-street Dedicated Bus Lanes
- Canoga Busway

3.2 PROJECT OBJECTIVES

The goals and objectives for the project have been developed from the transportation and land use goals and objectives of the participating government agencies and are consistent with the other transit improvements currently planned for Los Angeles County. **Table 3-1** lists the goals and objectives for the Canoga Transportation Corridor.

Table 3-1 Goals and Objectives

Goal	Objective
1. Enhance regional transit connections to/from the western San Fernando Valley	a. Connect with other regional transportation facilities, including the MOL, Ventura Metro Rapid Bus and Metrolink b. Capitalize on the success of the MOL by providing an operational and physical interface with a north-south transit service c. Complete a "Transit Loop" in the San Fernando Valley, comprising Metrolink and the MOL, and covering both east-west and north-south corridors d. Provide an alternative to the congested San Diego (I-405), Golden State (I-5), Ronald Reagan (SR-118) and Hollywood (SR- 170-US-101) freeways

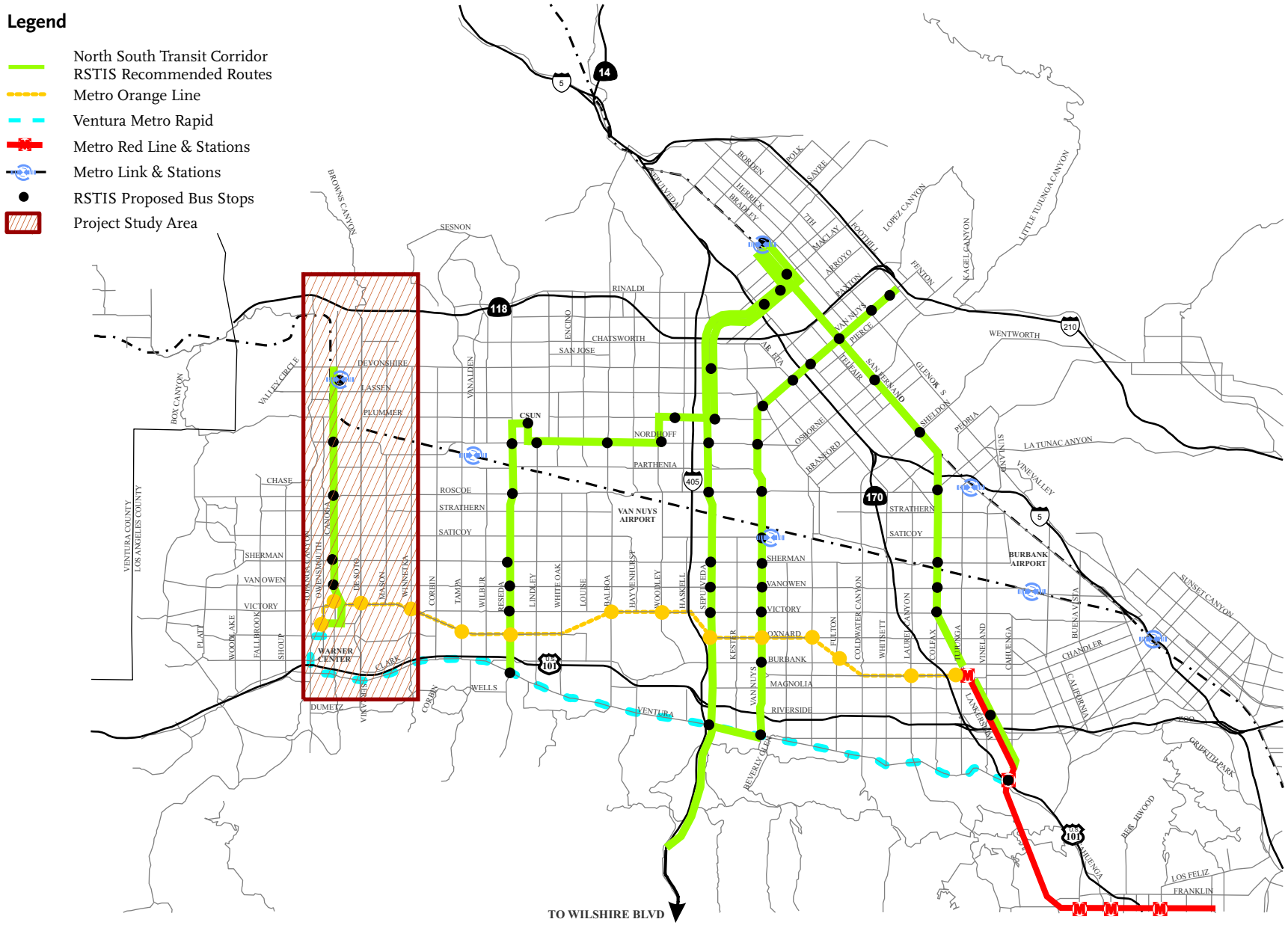
Table 3-1 Goals and Objectives	
Goal	**Objective**
	e. Promote intra-modal and inter-modal integration and connectivity to improve system-wide transportation efficiency f. Relieve congestion through the Cahuenga (U.S. 101) and Sepulveda (I-405), and Santa Susana (SR-118) passes by providing connections to the Los Angeles Basin through the Metro Red Line and to the Wilshire Metro Rapid Bus.
2. Improve north-south mobility in the western San Fernando Valley.	a. Connect important activity centers, including educational, medical, cultural, commercial and business b. Enhance transit accessibility to residential land uses c. Support sustainable transportation development by increasing transit ridership d. Provide efficient, convenient and affordable transit alternatives to both choice riders and riders without easy access to other modes of transportation e. Minimize north-south travel times f. Provide enhanced bi-directional north-south transit service g. Provide opportunities to intercept traffic passing through the Valley h. Provide park-and-ride lots at transit stops where compatible with surrounding land uses i. Relieve congestion on North-South arterials
3. Support land use and development goals	a. Provide high-capacity transit linkages between major activity centers b. Support the objectives/strategies of SCAG's Compass Growth Vision for focusing growth in existing and emerging centers and along major transportation corridors c. Achieve City of Los Angeles General Plan Framework Plan goals for increased transit use and concentration of growth in designated Targeted Growth Areas d. Coordinate with City of Los Angeles' Transportation Element policies for Transit Priority Arterial Streets e. Enhance joint development opportunities f. Support and be compatible with the goals of the Los Angeles River Revitalization Master Plan for ensuring safe access to and compatibility between the river and other activity centers g. Support the objective of the Warner Center Specific Plan to coordinate future land use development in Warner Center with the public transit and transportation system h. Support the Canoga Park- Winnetka – Woodland Hills – West Hills Community Plan policies for the development of a public transit system that improves mobility with convenient alternatives to automobile travel and the provision of safe, attractive and clearly identifiable transit stops with user friendly design amenities i. Support the Chatsworth-Porter Ranch Community Plan policy for the increase in bus routes and bus frequency as the potential ridership increases in the Community with population growth
4. Maximize community input, i.e., define the project in a manner that it is responsive to community and policy makers	a. Provide opportunities for community input to the planning and environmental review process b. Seek new ways to share information and incorporate community views into planning (i.e. ensure a collaborative and interactive participation process) c. Provide alternative and multi-lingual methods for community input, including in-person, telephone, and web-based opportunities for information and feedback
5. Provide a transportation project that is compatible with and enhances the physical environment wherever possible	a. Identify cost-effective improvements that minimize adverse effects on the environment b. Avoid impacts on parklands c. Minimize noise impacts d. Minimize impacts on cultural resources e. Minimize air pollution

Table 3-1 Goals and Objectives	
Goal	**Objective**
	f. Reduce conflicts with trucks, autos and pedestrians to ensure safety g. Incorporate streetscape improvements in the transit improvements h. Incorporate improvements at transit stops that enhances the physical environment for waiting passengers i. Incorporate improvements that enhance bicycle and pedestrian accessibility to transit stops j. Incorporate improvements along the transit corridor that provide enhanced bicycle and pedestrian mobility to the surrounding neighborhoods k. Provide connections to planned landscaping and trail improvements along the Los Angeles River
6. Provide a transportation improvement project that minimizes impacts on the community	a. Minimize business and residential dislocations, community disruption, and property damage b. Avoid creating physical barriers, destroying neighborhood cohesiveness, or in other ways lessening the quality of the human environment c. Minimize traffic and parking impacts d. Minimize impacts during construction
7. Provide a transportation project that is cost-effective and within the ability of Metro to fund, including capital and operating costs	a. Identify cost-saving measures to reduce project costs b. Leverage existing transportation resources and explore new innovative financing opportunities c. Prioritize alternatives eligible for State Traffic Congestion Relief Program funding earmarked for the San Fernando Valley d. Maximize the benefits associated with the use of existing public rights-of-way. e. Ensure fiscal consistency with the Metro Long Range Transportation Plan f. Ensure integration with Metro Local services g. Identify, if appropriate, a phased implementation plan for alternatives to be implemented as funds are identified

3.3 DESCRIPTION OF PROJECT AREA AND SURROUNDINGS

The Canoga Transportation Corridor (the Corridor) is located in the west San Fernando Valley area within the City of Los Angeles, generally 30 miles northwest of the Los Angeles Central Business District (CBD). **Figure 3-1** illustrates the corridor in the regional context. As shown in **Figure 3-1**, the corridor begins at the existing Warner Center Transit Hub located on Owensmouth Avenue between Erwin and Oxnard Streets. This is the western terminus of the existing MOL, completed in 2005, which connects Warner Center to the Metro Rail system at the North Hollywood Metro Red Line station. The Corridor extends to the north along Canoga Avenue and the parallel Metro-owned railroad ROW. The Corridor's northern terminus is the Chatsworth Metrolink Station with its regional rail connections to Amtrak and Metrolink as well as to several local bus lines. The Corridor is approximately four miles long and connects major activity areas in the western San Fernando Valley, including Warner Center, downtown Canoga Park, and the Chatsworth industrial area.

The Southern California Region is home to 18 million people. Each City or community in Southern California is inexorably linked to the rest of the region by economic ties (i.e. employment). According to Metro's 2004 Congestion Management Plan, over 45% of the San Fernando Valley's home-to-work trips are made to destinations outside of the San Fernando Valley. Therefore, transit connections to regional transit facilities are important in supplying the demand for regional travel in the Study Area, as well as in the San Fernando Valley.


Legend
North South Transit Corridor
RSTIS Recommended Routes
Metro Orange Line
Ventura Metro Rapid
Metro Red Line & Stations
Metro Link & Stations
RSTIS Proposed Bus Stops
Project Study Area
TO WILSHIRE BLVD
CSUN
VAN NUYS AIRPORT
BURBANK AIRPORT
WARNER CENTER
CHATSWORTH
SAN JOSE
NORDHOFF
PARTHENIA
RINALDI
SESNON
DEVONSHIRE
LASSEN
PLUMMER
ROSCOE
STRATHERN
SATICOY
SHERMAN
VANOWEN
VICTORY
OXNARD
BURBANK
MAGNOLIA
RIVERSIDE
VENTURA
WELLS
DUMETZ
CLARK
CHASE
WENTWORTH
LA TUNAC ANYON
VINEVALLEY
SUNSET CANYON
CHANDLER
CALIFORNIA
LOS FELIZ
FRANKLIN
GRIFFITH PARK
BEVERLY HILLWOOD
LANKERSHIM
VINELAND
COLDWATER CANYON
LAUREL CANYON
WHITSETT
COLFAX
TUJUNGA
CAHUENGA
FULTON
KESTER
VANNUYS
SEPULVEDA
HASKELL
WOODLEY
HAYVENHURST
LOUISE
BALBOA
WHITE OAK
LINDLEY
RESEDA
WILBUR
TAMPA
CORBIN
WINNETKA
MASON
DE SOTO
CANOGA
OWENSMOUTH
SHOUP
FALLBROOK
WOODLAKE
PLATT
VALLEY CIRCLE
BOX CANYON
BROWNS CANYON
VENTURA COUNTY
LOS ANGELES COUNTY
VANALDEN
ENCINO
SHELDON
GLENOAKS
SAN FERNANDO
BRANFORD
OSBORNE
PEORIA
AIRPORT
BRADLEY
HERRICK
BORDEN
POLK
SAYRE
7TH
MACLAY
ARROYO
PAXTON
FENTON
FOOTHILL
LOPEZ CANYON
KAGEL CANYON
LITTLE TUJUNGA CANYON
14
5
118
405
170
210
101
Source: ITERIS
NOT TO SCALE

The western San Fernando Valley has experienced significant employment growth during the past 20 years, and levels of traffic congestion during the morning and evening commute periods have also increased significantly. Every north-south arterial street becomes very congested during peak periods, and transit service in mixed-flow travel lanes degrades as traffic congestion increases. Enhanced transit service would provide an alternative to vehicle travel on these congested roadways. The Corridor presents an opportunity to provide improved and reliable transit service as a viable alternative to congested north-south vehicular travel.

3.4 ALTERNATIVES EVALUATED IN THE EIR

This section provides detailed descriptions of the alternatives analyzed in this EIR. In addition to the two baseline comparative alternatives (No Project and TSM), this document includes two Bus Rapid Transit (BRT) alternatives, screened for further analysis by the Canoga Transportation Corridor Alternatives Screening Report (2007). BRT systems are found today in cities throughout the world. BRT can be defined as a flexible, rubber-tired rapid-transit mode that combines stations, vehicles, services, running ways and Intelligent Transportation Systems (ITS) elements into an integrated system with a strong positive identity that evokes a unique image[1]. The BRT is an integrated system of facilities, services, and amenities that collectively improves speed, reliability, and identity of bus transit. In Los Angeles, the MOL represents the best example of BRT service. Although BRT can be implemented on mixed-traffic lanes, one of the features of the most successful BRT systems is the use of exclusive right-of-way (ROW), either a bus-only lane or a busway. Both BRT alternatives considered in this EIR utilize an exclusive ROW. Conceptual engineering drawings of the two BRT alternatives are provided in **Appendix H**.

3.4.1 No Project

The No Project Alternative reflects the condition anticipated for the year 2030, based on SCAG's growth forecast, if no major transit improvement investments are made in the western SFV. This scenario would mean that the Metro-owned ROW or Canoga Avenue would not be used for a transit project. This alternative is used as a baseline for comparison to the TSM, On-Street Dedicated Bus Lanes, and Busway Alternatives.

The transit network would include the existing routes and rail-bus interfaces, as applicable. Services are improved on the most crowded bus lines. The urban rail network would include:

- The Exposition Line (Phase I only)
- The Eastside Gold Line Extension
- The current Metrolink system, plus
- Any funded improvements in local, regional, or state transportation plans

3.4.2 Transportation Systems Management (TSM)

A Transportation Systems Management (TSM) Alternative is designed to identify low-cost, easily implementable improvements as an alternative to the construction of more-expensive alternatives. The TSM Alternative entails frequency improvements on existing Metro transit routes as well as providing a new local transit line for Canoga Avenue, though not including any transit priority measures (signal priority or dedicated lanes) for this corridor.

1 Transportation Research Board (2003). TCRP Report 90 Bus Rapid Transit

Headway Improvements

Table 3-2 details the reductions in transit headways that would be implemented by the TSM Alternative in comparison to the No Project Alternative. It indicates the percentage reduction in headways and the absolute change in headways proposed. For example, a change in bus headway from 15 minutes to 10 minutes is a 33% reduction in headway. The TSM Alternative improvements would be applied for the full length of each route. If all suggested improvements were made, estimated increased fleet requirements would be up to 23 vehicles (excluding spares). These improvements would need to be prioritized and could be included with any selected alternative.

Table 3-2 TSM Service Improvements

Metro Route		AM Peak		Midday		PM Peak	
Local		% Headway Reduction	Headways (Before/After)	% Headway Reduction	Headways (Before/After)	% Headway Reduction	Headways (Before/After)
152 Fallbrook - Roscoe - Glenoaks - Vineland	WB	0%	(9 to 9)	25%	(20 to 15)	0%	(15 to 15)
	EB	0%	(15 to 15)	25%	(20 to 15)	0%	(9 to 9)
158 Devonshire St.	WB	23%	(26 to 20)	49%	(59 to 30)	35%	(46 to 30)
	EB	20%	(25 to 20)	48%	(58 to 30)	23%	(39 to 30)
163 Sherman Way	WB	0%	(10 to 10)	0%	(15 to 15)	0%	(10 to 10)
	EB	0%	(10 to 10)	0%	(15 to 15)	0%	(10 to 10)
166 Devonshire/Nordhoff	WB	17%	(12 to 10)	38%	(24 to 15)	17%	(12 to 10)
	EB	17%	(12 to 10)	25%	(20 to 15)	0%	(10 to 10)
167 Plummer St.	WB	0%	(7.5 to 7.5)	33%	(45 to 30)	29%	(42 to 30)
	EB	6%	(32 to 30)	29%	(42 to 30)	6%	(32 to 30)
244 De Soto	SB	17%	(12 to 10)	27%	(41 to 30)	0%	(20 to 20)
	NB	0%	(7.5 to 7.5)	29%	(42 to 30)	38%	(32 to 20)
245 Topanga Canyon	SB	9%	(22 to 20)	35%	(46 to 30)	38%	(32 to 20)
	NB	35%	(31 to 20)	32%	(44 to 30)	9%	(22 to 20)
Limited							
353 Roscoe Bl.	WB	50%	(30 to 15)	begin service	(-- to 15)	50%	(30 to 15)
	EB	53%	(32 to 15)	begin service	(-- to 15)	52%	(31 to 15)
363 Sherman Way	WB	52%	(31 to 15)	begin service	(-- to 15)	50%	(30 to 15)
	EB	52%	(31 to 15)	begin service	(-- to 15)	50%	(30 to 15)
364 Nordhoff St.	WB	0%	(10 to 10)	begin service	(-- to 15)	begin service	(-- to 15)
	EB	begin service	(-- to 15)	begin service	(-- to 15)	0%	(10 to 10)

Source: TMD, 2007

New Local Bus Routing Plan

In addition to the headway improvements summarized in **Table 3-2**, the TSM Alternative includes the addition of a new Metro Local route along Canoga Avenue. The new Local route (246) would extend from the Warner Center Transit Hub to the Chatsworth Metrolink Station, utilizing Owensmouth Street, Oxnard Street, Erwin Street, Canoga Avenue, Marilla Street, Owensmouth Street, and Lassen Street. **Figure 3-2** illustrates the routes that would be improved and/or implemented with the TSM Alternative.

Alternative 2
Transportation System Management

New Local Route 246 Canoga: Warner Center to Chatsworth Transportation Center

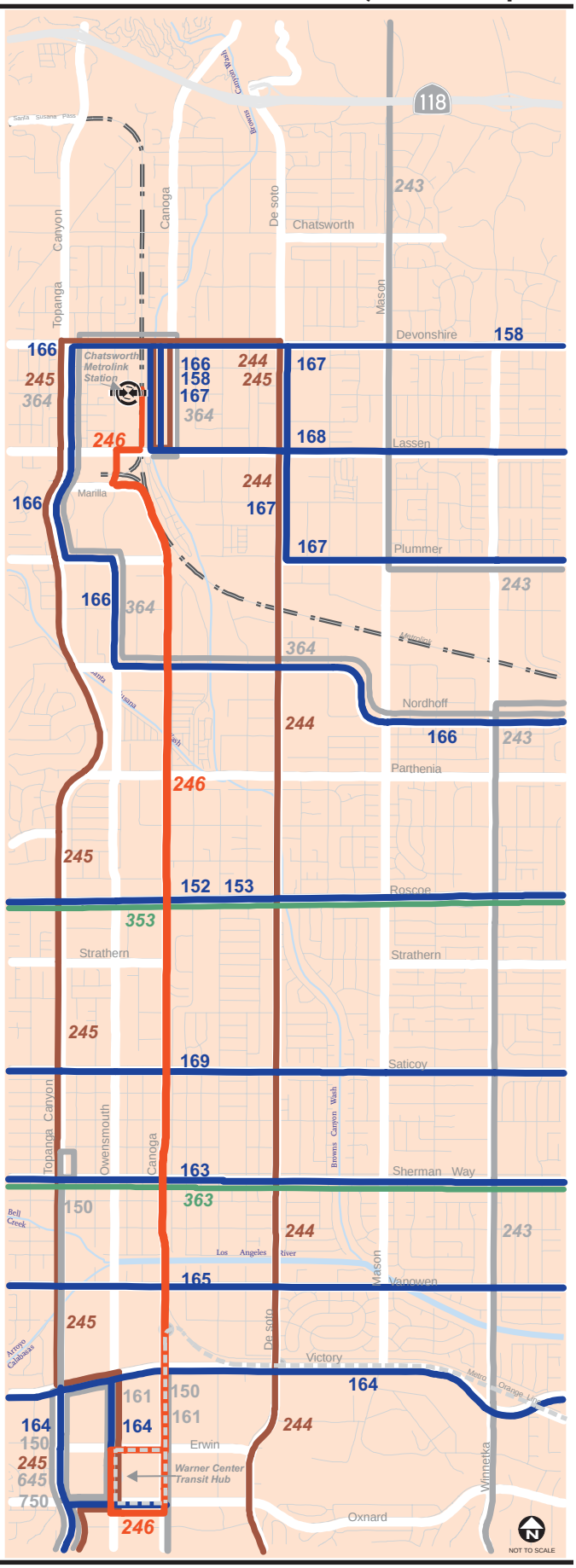
Existing Metro Routes Frequency Improvements of up to half the headway time during the peak hours for the following routes:

N/S Routes

De Soto Avenue: Local 244
Topanga Canyon Boulevard: Local 245

E/W Routes

Devonshire/Nordhoff: Locals 158/166
Lassen/Plummer: Local 167
Roscoe: Local 152/153 and Limited 353
Sherman Way: Local 163 and Limited 363



Legend

- New Local Route 246 (Warner Center - Chatsworth Transportation Center)
- East/West Local Service
- North/South Local Service
- Limited Stop Service
- Metrolink & Metrolink Stations
- Existing Stations (Metro Orange Line)

Source: TMD

3.4.3 Canoga On-Street Dedicated Bus Lanes Alternative

This alternative would operate similar to a Metro Rapid service, but with dedicated lanes. A southbound Bus-Only Lane along Canoga Avenue provided by prohibiting on-street parking; a northbound Bus-Only Lane would be provided by widening the street into the Metro-owned ROW that parallels Canoga Avenue. At intersections with east-west cross streets, Canoga Avenue will be further widened into the Metro ROW to provide right-turn-only lanes on Canoga Avenue, which would allow right-turning vehicles to merge across the bus-only lanes so that through buses are not blocked by right-turning vehicles at the intersections. At the northern end of the route, between Marilla Street and Lassen Avenue, this alternative may include dedicated bus lanes in an exclusive ROW. The ROW north of Marilla Street is only partially owned by Metro; therefore, some private property would have to be purchased. On Canoga Avenue, between the Canoga MOL Station and Plummer Street, a landscaped median island would be provided as part of this alternative. **Figure 3-3** illustrates the Canoga On-Street Dedicated Bus Lanes Alternative.

Metro Right-of-Way

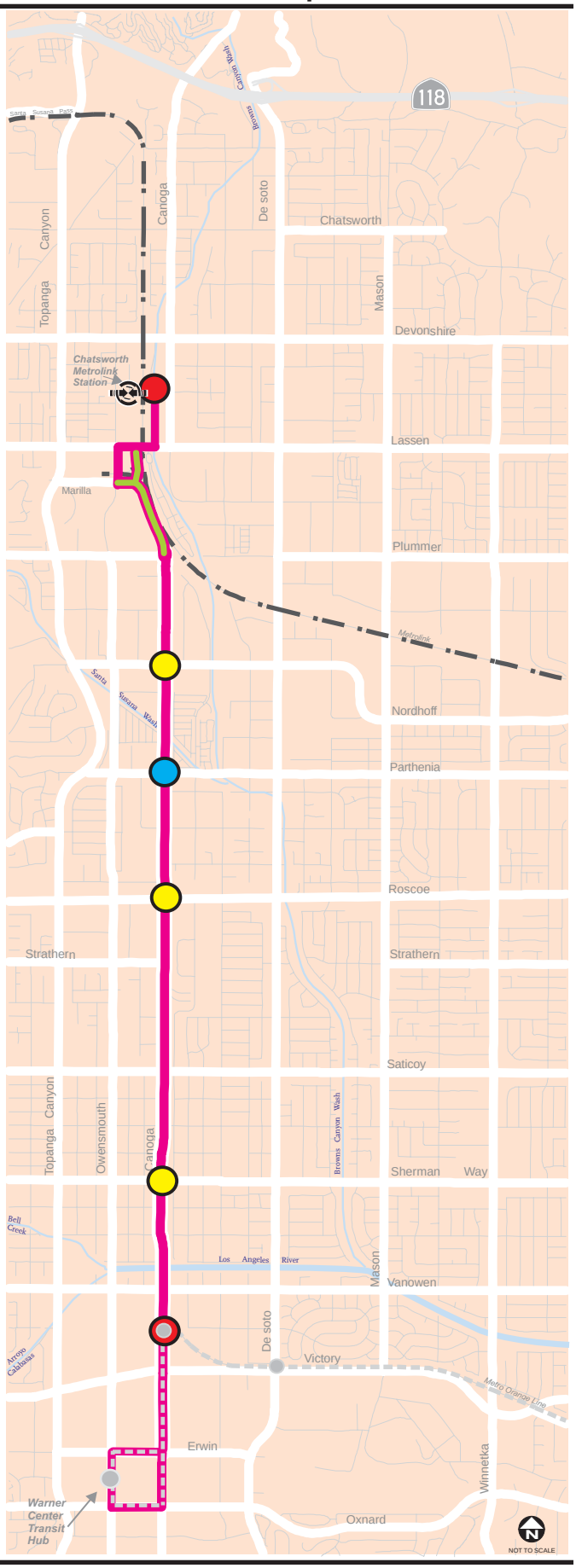
The proposed Canoga On-Street Dedicated Bus Lanes Alternative would be accommodated by widening Canoga Avenue into the Metro ROW. The ROW would provide adequate room for the widening of Canoga Avenue and the addition of landscaping and a bikeway and pedestrian walkway running adjacent to the street. Along Canoga Avenue, the Metro ROW varies from 40 ft to 275 ft with a typical width of 100 ft. The 100 ft ROW and larger ROW sections provide opportunities for landscaping, a bikeway/pedestrian path and the dedicated lanes.

The 40-foot portion is at the north end of the corridor along the railroad tracks. The Canoga On-Street Dedicated Bus Lanes Alternative will utilize City of Los Angeles ROW in addition to the Metro ROW in this area. The 65-foot portion, a short segment directly north of Sherman Way, is directly behind a recently built strip shopping center with parking facing Canoga Avenue. The Canoga On-Street Dedicated Bus Lanes Alternative would displace this shopping center to accommodate the median, dedicated bus lanes, station platforms, and the bikeway/pedestrian path. The property would have to be purchased and the building torn down. This alternative also requires the termination of the Canoga Self-Storage lease. Other Metro leases adjacent to Canoga Avenue would not be renewed.

The 275 ft portion of the Metro ROW, located south of Sherman Way and north of Vanowen Street provides the opportunity for the typical sections of the Canoga On-street Dedicated Bus Lanes Alternative. The additional ROW width also provides opportunities for landscaping, the potential preservation of existing Metro leases, and the integration of the project with the Los Angeles River.

North of Plummer Street, the Canoga Avenue ROW is limited and the Amtrak/Metrolink/UP tracks are still in operation. Canoga Avenue narrows from two lanes in each direction to one lane in each direction. Several sub-options are under consideration for this area and will be described below.

Where feasible, a Class I bikeway and parallel pedestrian path would run from the Canoga MOL Station to the Chatsworth Metrolink Station and would occupy 10-17 ft of the ROW. Where ROW allows, the facility would include a 10-foot bikeway and adjacent 7-foot pedestrian pathway. In narrower areas, a 10-foot multi-use path is provided and will be shared by bicycles and pedestrians.



Legend

- Main Route
- Metrolink Chatsworth Station Access Options
- Metrolink & Metrolink Stations
- Proposed Stations
- Optional Station
- Reconfigured Station
- Existing Stations (Metro Orange Line)

Source: ITERIS

Figure 3-3
Alternative 3. Canoga On-Street Dedicated Bus Lanes

G:\USERS\2007\07-1643 Northern Canoga Extension - Orangeline\gra

Buses would be the only vehicles allowed within the dedicated lanes, except at intersections and driveways, where vehicles would be able to cross the dedicated lanes in order to turn right. Left turn pockets into driveways are not anticipated. Furthermore, a right-turn pocket would be provided at the approaches to all intersections along Canoga Avenue where the dedicated lanes are implemented, allowing buses to cross the intersections unimpeded by right-turning vehicles.

Signage would be posted listing restrictions on autos, trucks, motorcycles, bicycles and pedestrians within the dedicated lanes. **Figure 3-4** illustrates typical cross-sections for the Canoga On-Street Dedicated Bus Lanes Alternative.

Route Alignment

This route would be located primarily on Canoga Avenue, extending the existing MOL from the Canoga Station to the Chatsworth Metrolink Station. Departing the Warner Center Transit Hub, buses would utilize mixed-flow lanes on Owensmouth Avenue, Erwin Street, and the dedicated lanes on Canoga Avenue. The buses would cross all east-west streets between the MOL Canoga Station and the Chatsworth Metrolink Station (except for Lassen Street on Northern Segment Option 1 discussed below), as well as the Los Angeles River and the Santa Susana Wash. Three options are considered for the final northern segment to connect to the Chatsworth Metrolink Station:

Option 1 Dedicated Bus Lanes End at Marilla Street - The dedicated lanes would end at Marilla Street and buses would use Marilla Street, Owensmouth Avenue, Lassen Street and Old Depot Plaza Road. With this option, the intersection of Lassen Street and Old Depot Plaza Road would be signalized. The multi-use path for this option would either terminate at Plummer Street or continue up the railroad ROW to Lassen Street. This option is illustrated in **Figure 3-5**.

Option 2 At-Grade "T" Intersection on Lassen Street Approx. 200 ft. West of Tracks - The dedicated lanes would continue north of Marilla Street through two parcels (one is Metro-owned and the other one is privately-owned) to connect to Lassen Street at a new signalized intersection approximately 200 ft west of the tracks; the buses would then turn right onto Lassen Street, cross the tracks, and left onto Old Depot Plaza Road. Lassen Street at Old Depot Plaza Road will be signalized. The multi-use path for this option would terminate at Lassen Street. This option is illustrated in **Figure 3-6**.

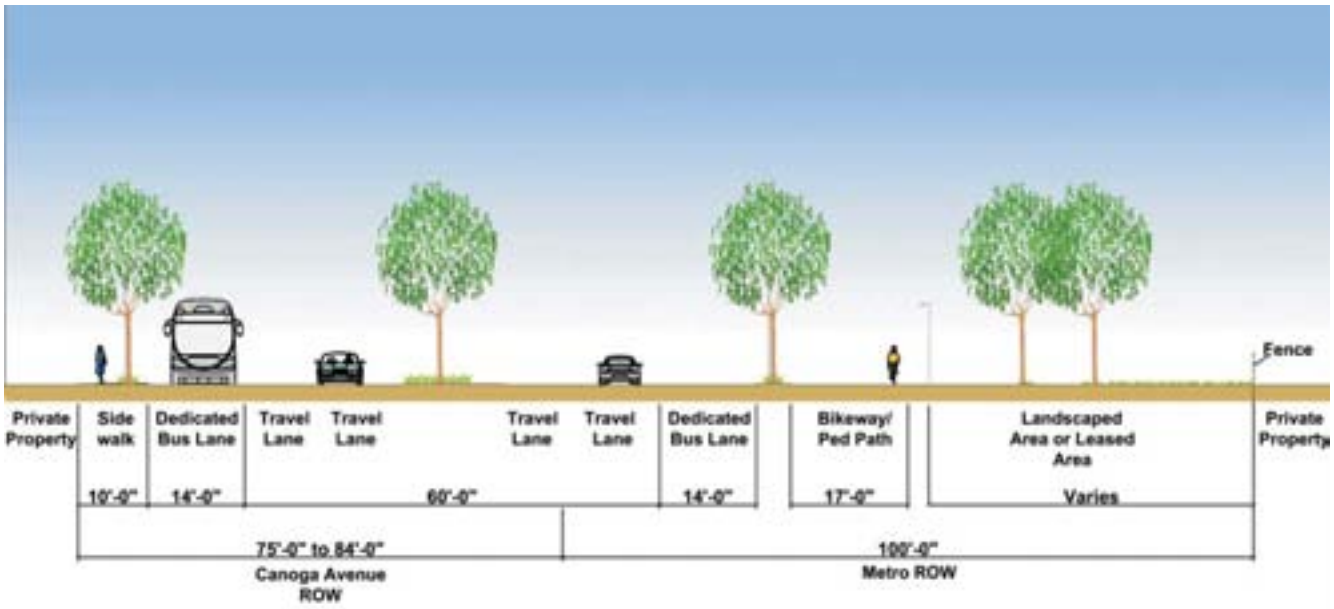
Option 3 At-Grade Parallel Crossing of Lassen West of Tracks - The dedicated lanes would continue north of Marilla Street through two parcels (one is Metro-owned and the other one is privately-owned) and then cross Lassen Street at a new signalized intersection to access a new terminus bus station located on the west side of the train tracks, on a property that is currently privately-owned. A grade-separated pedestrian access to the new bus station from the Chatsworth Metrolink Station parking lot would be provided. The multi-use path for this option would terminate at Lassen Street. This option is illustrated in **Figure 3-7**.

Although not shown on **Figures 3-5** through **3-7**, landscaping would be provided along the side of the bus lane and multi-use path for each option.

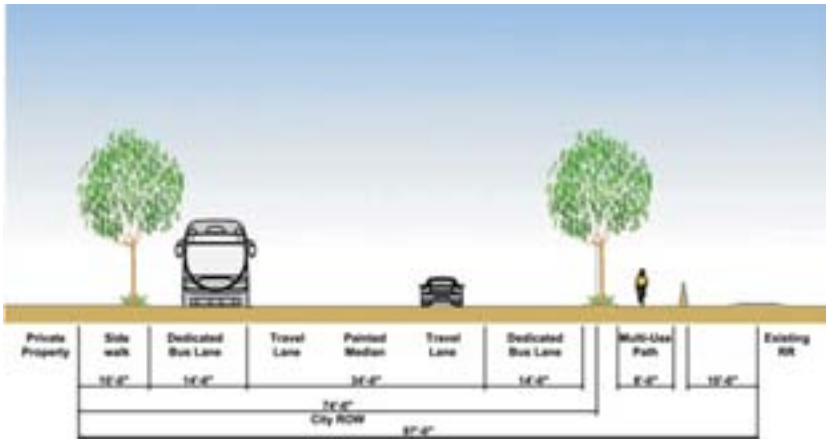
Concept Design

Dedicated Lanes

The Canoga On-street Dedicated Bus Lanes Alternative would be a "modified" version of the MOL concept of a "multi-modal transportation facility within a greenway." Canoga Avenue would be widened to create dedicated lanes for the BRT adjacent to the curbs. The Metro ROW would include street trees



from Vanowen Street to Nordhoff Street



from Nordhoff Street to Marilla Street

Source: GRUENASSOCIATES

NOT TO SCALE

Figure 3-4
Alternative 3 - Typical Cross-Sections

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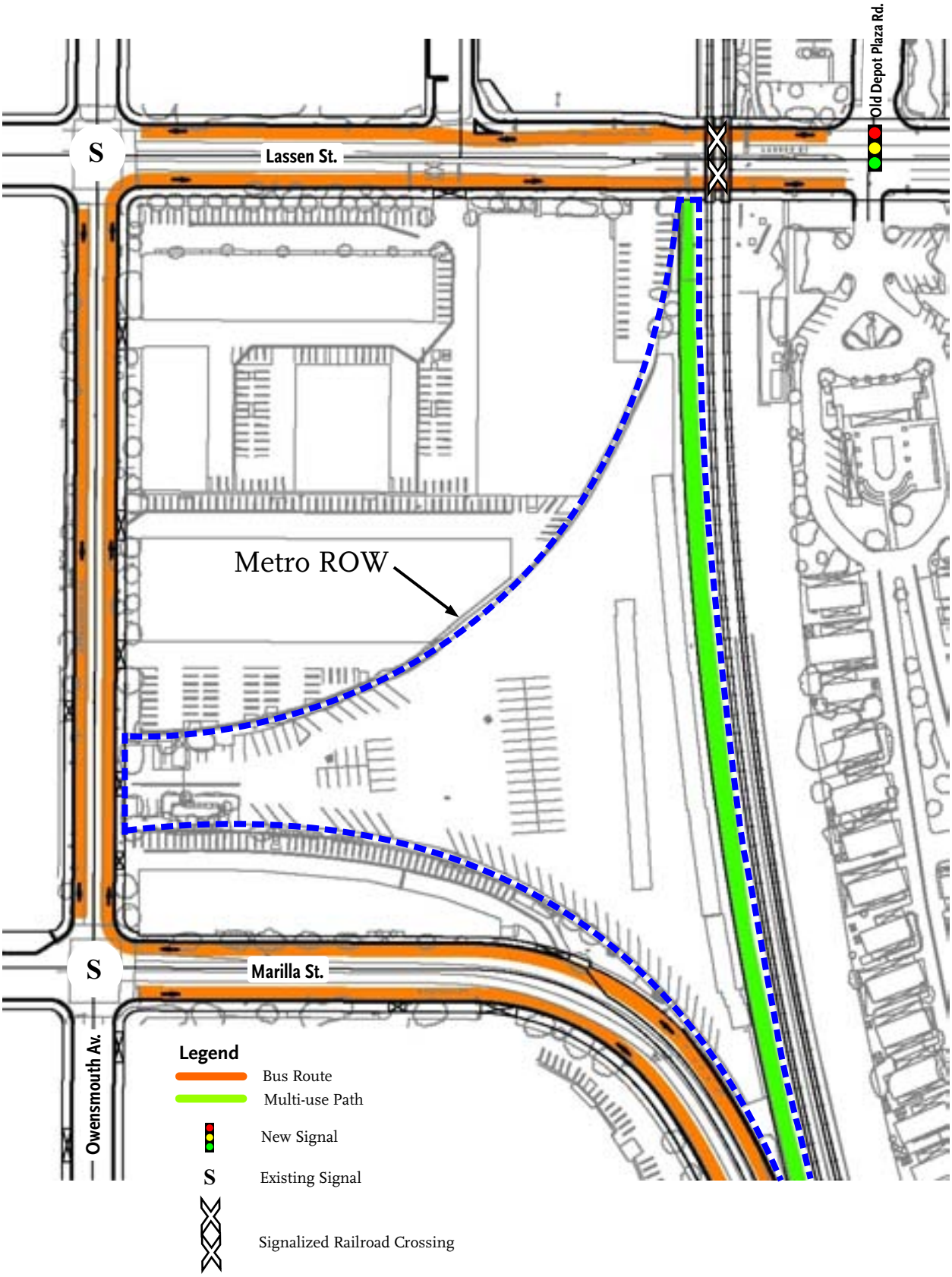

Source: ITERIS

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Figure 3-5
Alternative 3 - Northern Segment Option 1

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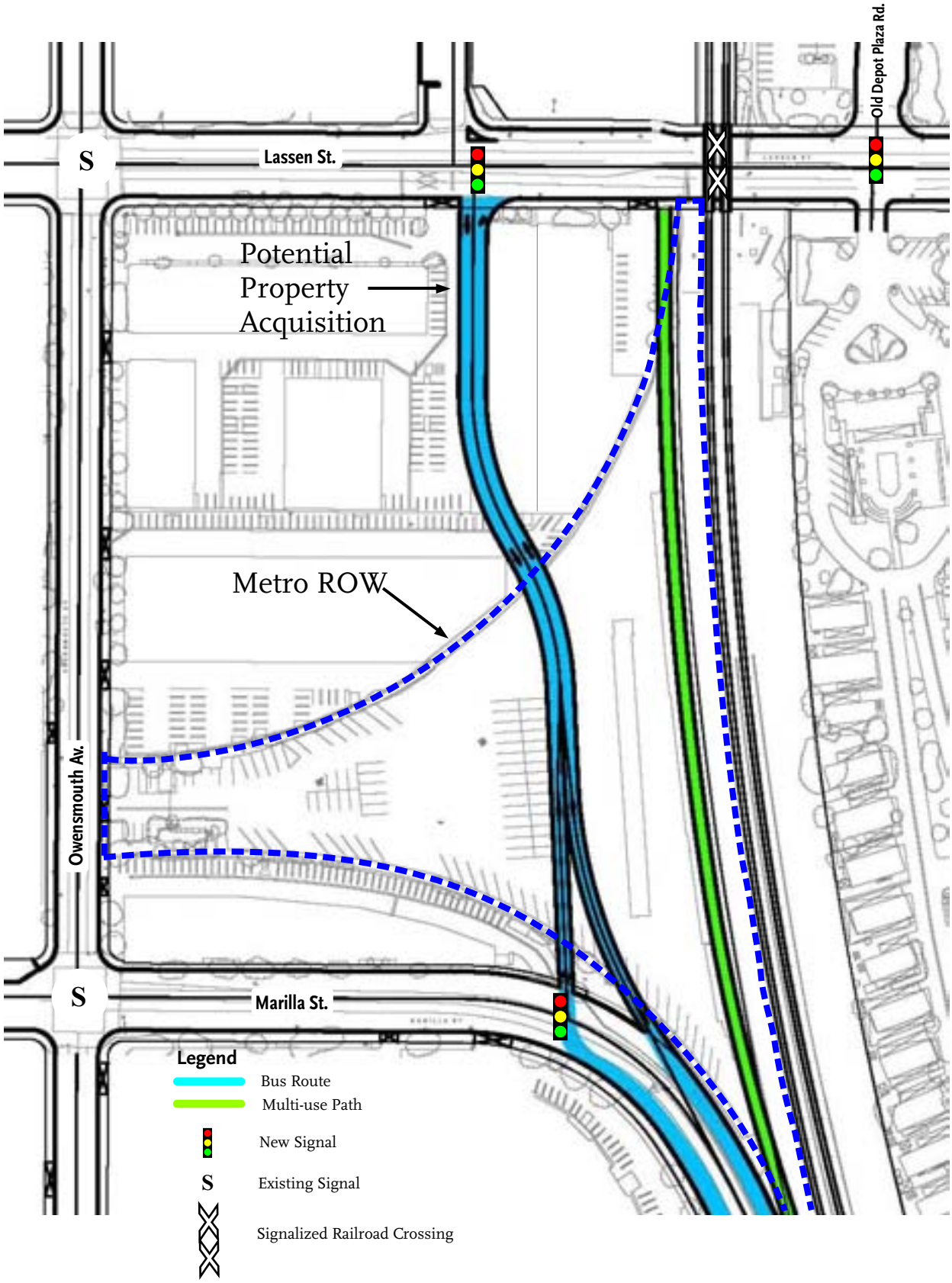

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Figure 3-6
Alternative 3 - Northern Segment Option 2

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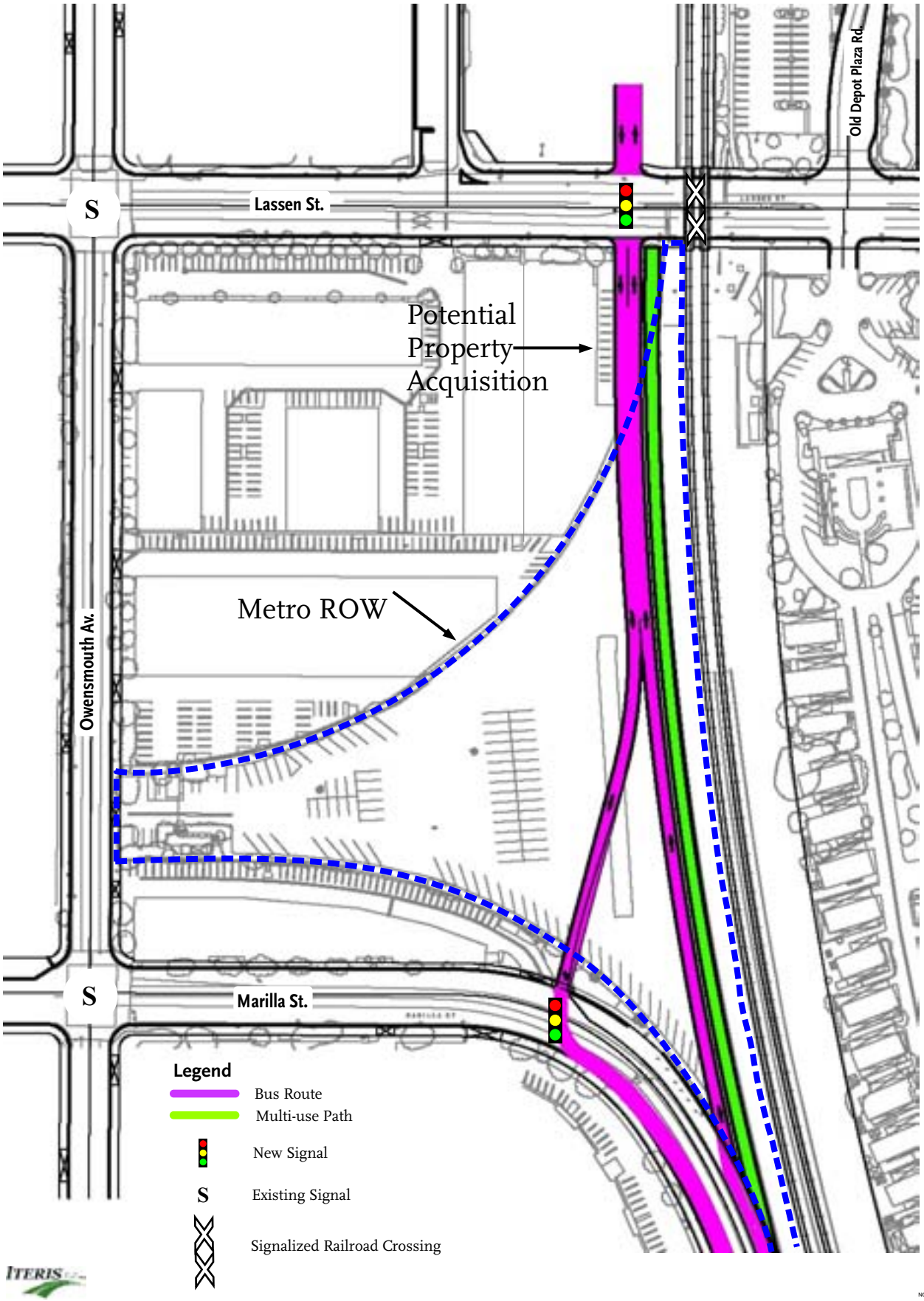
Old Depot Plaza Rd.
S
Lassen St.
Potential
Property
Acquisition
Metro ROW
Owensmouth Av.
S
Marilla St.
Legend
Bus Route
Multi-use Path
New Signal
S
Existing Signal
Signalized Railroad Crossing
Source:
ITERIS
NOT TO SCALE

adjacent to the east curb, a bikeway/pedestrian path and landscaping in the Metro ROW, where leases are not preserved. A landscaped median island would also be provided on Canoga Avenue, between the Canoga MOL Station and Plummer Street, to enhance this corridor and provide additional landscaping. The median would also enhance transit service by eliminating most left turns across the bus lanes. The dedicated lanes would be paved in concrete at the stations and extend approximately 150 ft north and south of the stations in each direction.

A fiber optic cable line will be installed along the Metro-owned ROW that will connect to existing fiber optic lines running along the Metrolink tracks adjacent to the Chatsworth Metrolink Station and to the existing fiber optic line along the MOL. Connections to this north-south fiber optic line will also be provided to the Division 8 service facility and the SFV Sector office on Marilla Street, thereby facilitating communication between the two facilities and Metro's Headquarters at the Gateway Center.

Bikeway/Pedestrian Path

Where feasible, a 10-17 ft wide bikeway/pedestrian path would be located on the Metro ROW approximately 5 ft to 15 ft from the east side dedicated lane next to the curb. Street trees, the east side station, and relocated street lighting, would be located in this 5-15 ft parkway area adjacent to the curb. Pedestrian lighting of the bikeway/pedestrian path, bike lockers, bike racks, and other amenities along the ROW would be provided, similar to the MOL. The bikeway/pedestrian path would cross at street intersections in the reconfigured crosswalks.

Transit Priority

The Canoga On-Street Dedicated Bus Lanes Alternative would operate similar to Metro Rapid service with Transit Priority Systems for the entire length. LADOT has made significant progress in developing the software to allow transit priority treatment at signalized intersections. The use of loop detectors embedded in the pavement in advance of traffic signals will now allow the traffic signal controllers to detect a bus as a distinct object separate from a car or truck. The following levels of transit priority are possible:

- Preemption - grants the right of way to a mass transit vehicle by interrupting the normal signal cycle sequence. (This strategy is not expected to be used in the Canoga On-Street Dedicated Bus Lanes Alternative)

- Full Priority - may extend or shorten the traffic signal green indication of the transit phase. The transit phase may be a parallel vehicle phase or an independent phase. Full priority also allows the skipping of a traffic phase, if needed, to advance the required transit and/or compatible vehicle phase. Typically, the phase skipped is a low volume phase during that period of time, which results in improved operations for the transit service with minimal impact to the traffic pattern. (This strategy may be considered for low volume smaller street crossings.)

- Partial Priority allows the traffic signal controller to advance the start (early green), or retard the yellow (extend green) of the transit phase and any compatible vehicle phase. Partial priority does not skip any vehicle phase to extend or bring up early transit phase. (This strategy would be used for most of the transit lane crossings.)

- Queue Jumps consist of an additional, transit-only, travel lane on the approach to a signalized intersection. The intent of the lane is to allow the higher-capacity vehicles to cut to the front of the queue, reducing the delay caused by the signal and improving the operational efficiency of the transit system. A queue jump lane is generally accompanied by a signal which provides a

phase specifically for vehicles within the queue jump lane. Such a signal reduces the need for a designated receiving lane, as vehicles in the queue jump lane get a "head-start" over other queued vehicles and can therefore merge into the regular travel lanes immediately beyond the signal. (A queue jump would be provided for this alternative on the southbound approach of the Canoga Avenue & Vanowen Street intersection).

The concept for the bus priority treatment along Canoga Avenue will be to locate the bus detectors far enough in advance of each signalized cross street so that the traffic signal system will have sufficient warning to adjust the signal phases on the cross street so that the bus will have the greatest chance to receive a green indication when it reaches the cross street. In some cases, this will occur by lengthening the green phase (green extend) for Canoga Avenue by borrowing time from the cross street signal phase, and in other cases, it may occur by shortening the green phase on the east-west cross street (early green). In subsequent phases, the cross street may be compensated with additional green time. The proper location of the advance loop detectors will avoid abrupt changes in a signal cycle (e.g., a green phase will not be truncated prior to a specified minimum amount of time) by placing the detectors far enough in advance of the cross street so that the bus traveling at the planned speed will arrive at the cross street and have a green signal indication.

It may not be feasible to provide this same level of priority treatment for buses traveling in both directions, if headways become too short. In that case, the peak direction of passenger demand would be given the higher level of priority treatment. LADOT will also have to consider the traffic demand on east-west streets in determining the level of priority for buses.

The transit stop locations help determine, to some extent, the type of priority that is most appropriate. A street crossing where the transit stop is on the far side would most likely utilize the extended feature to assure the bus makes it through the crossing and to the station. While a street crossing that has the station on the near side would utilize the early green feature to get the bus moving more readily. Far-side stations are planned on this alternative.

Bus Operations Plan

The new MOL section between Canoga and Chatsworth is assumed to operate at an average 20 miles per hour, comparable to existing MOL speeds between Canoga and North Hollywood, with an estimated run time of about 14 minutes between the Canoga MOL station and the Chatsworth Metrolink Station. Two key service operating patterns are considered for the Canoga On-Street Dedicated Bus Lanes Alternative. Buses from Chatsworth in this alternative would alternate between continuing east to North Hollywood, joining the existing MOL at the Canoga station, or proceeding to the Warner Center Transit Hub via the existing MOL operating alignment. At the same time, the existing Warner Center – North Hollywood service pattern would also continue to operate.

Station Locations and Site Plans

Architectural Amenities, Artwork, and Amenities at Stations

Branding of the BRT system is a critical component to identify the premium service in the community. The MOL has a unified contemporary design for the station and the Metro liner bus. The stations for this alternative would have a similar character and color to the MOL, but include:

- A redesigned and smaller MOL canopy or shelter in order to fit the canopy along the sidewalk and avoid draining the canopy into adjoining private property. The stations in the Warner Center Transit Hub may serve as a prototype.

- Instead of a platform with a paid and pre-paid area, passengers would wait on a widened sidewalk similar to the MOL Station at Warner Center and the general public could walk through the stations on a sidewalk.

- Due to driveways into adjoining businesses, the station waiting area may need to be interrupted in some locations and appropriate pedestrian safety devices would be installed.

Artwork could occur in the station environment at locations identified later. During preliminary engineering, the design of artwork would be explored in more detail. Paving patterns and materials as well as canopy details and lighting would be refined during the preliminary engineering stage of the project to reflect lessons learned on the MOL.

Individual Stations Concepts

Stations would be located at the Chatsworth Metrolink Station, Nordhoff Street, Roscoe Boulevard, Sherman Way, and the existing Canoga MOL station. An optional station may be developed in the future at Parthenia Street. Other than the terminus stations, the Chatsworth station and the MOL Canoga Station, stations would be located on the farside of each intersection, if feasible.

- **Canoga Station** - The existing Canoga MOL Station would be used as the station and park and ride for this alternative with only minor modifications including widening Canoga Avenue for the dedicated lanes, inclusion of a bikeway/pedestrian path in the Metro ROW and reconfiguring the parking to accommodate these improvements. Station platforms would also be added on the sidewalk on Canoga Avenue adjacent to the existing MOL entrance for buses on the Warner Center to Chatsworth route.

- **Nordhoff, Parthenia (Optional), Roscoe, and Sherman Way -** Stations at Nordhoff Street, Roscoe Boulevard, and Sherman Way would be on street at widened sidewalks. The Nordhoff and optional Parthenia Street Stations would be similar. During preliminary engineering, the canopy will be modified to adapt to the site. **Figure 3-8** illustrates the Sherman Way station and its park-and-ride spaces.

- **Chatsworth Metrolink Station** – The Chatsworth Metrolink Station would be the northern terminus of this alternative. There are two tracks and two platforms at the station. For 28 out of the 30 current trains per day, patrons board/alight via the eastern platform. For two trains per day, they cross the tracks via an at-grade pedestrian crossing to reach the western platform. This pattern is expected to continue with the MOL extension. Several options are under consideration for the reconfiguration of this station:

  Option A Non-Revenue Turn-Around - Buses would unload and pick-up passengers at new canopies or shelters and platforms adjacent to the Old Depot Plaza Road near the rail station north of the current local bus stops. A non-revenue turn-around, and additional landscaped park-and-ride spaces, if required, would be provided in the vacant area near Devonshire Street. This option is illustrated in **Figure 3-9** and would be combined with either Northern Segment Option 1 - dedicated lanes end at Marilla Street, or Option 2 – At-Grade "T" Intersection on Lassen Street approximately 200 ft. West of Tracks (shown in **Figure 3-5** and **Figure 3-6** respectively).

  Option B Turn-Around south of Metrolink Station Platforms - Similar to the North Hollywood terminus station of the MOL, a bus turn-around with layover bus spaces, and a combined boarding and drop-off platform would be provided. The turn-around would be located south of the Chatsworth

Metrolink Station and would displace some existing parking. Parking displaced as well as additional parking, if required, would be provided in the vacant area north of the Chatsworth Metrolink Station. This option is illustrated in **Figure 3-10** and would be combined with either Northern Segment Option 1 - Dedicated Bus Lanes End at Marilla Street or, Option 2 – At-Grade "T" Intersection on Lassen Street approx. 200 ft. West of Tracks (shown in **Figure 3-5** and **Figure 3-6** respectively).

Option C Turn-Around on Vacant Lot West of Tracks - A bus turn-around and layover space on vacant land west of the railroad tracks with a grade-separated pedestrian crossing of the tracks and tree-lined pedestrian linkages. This option requires purchase of the existing vacant private property. This option is illustrated in **Figure 3-11** and would be combined with Northern Segment Option 3 - At-Grade Parallel Crossing of Lassen West of Tracks, shown in **Figure 3-7**.

Treatments Adjacent to Sensitive Land Uses

In this alternative, the east side of the dedicated lane would be approximately 75 ft or more from the mobile homes and residential uses along the Metro ROW, so walls/fences may not be necessary for noise mitigation, but are likely to be provided for privacy. On the west side, the only nearby residential area along Canoga Avenue, is a mobile home park north of Parthenia Street. The design of the walls/fences would be similar to the MOL, however, these walls/fences may be modified to reflect community input.

Los Angeles River Treatment and Connections to Bikeway

The Canoga Transportation Corridor and a bikeway/pedestrian path would pass the Los Angeles River over a widened Canoga Avenue Bridge in the Metro ROW. The County and the City have plans for a bikeway/pedestrian path on both sides of the Los Angeles River as well as green spaces for recreation and water recharge adjacent to the River. In the future, the Los Angeles River Bikeway could be connected to the Canoga Transportation Corridor bikeway.

Landscaping

For the Canoga On-Street Dedicated to Bus Lanes alternative, a row of street trees would be located along both sides of Canoga Avenue in the sidewalk or a landscaped parkway forming an urban edge, providing shade for the bikeway/pedestrian path and buffering pedestrians from the vehicular traffic on the street. Along Canoga Avenue a landscaped median with trees and groundcover would be provided to improve traffic flow and enhance aesthetics. Street trees, median species and patterns would be coordinated with the City of Los Angeles. The landscaping for the Metro ROW would have an informal naturalistic character, similar to the MOL and would include a mix of appropriate natural and adapted exotic plants throughout the project to insure visual continuity, respond to local design context conditions, and resource conservation/sustainability goals.

Treatment of Edge Conditions on ROW

Along portions of the ROW that are adjacent to commercial or industrial development, fence/walls or the visual buffer of landscaping are generally unnecessary. However, a fence would be required and landscaping would be desirable especially to screen views of existing long-term leases such as the concrete plant which contains unattractive outdoor storage of materials and equipment.

Source: GRUENASSOCIATES

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Figure 3-8
Alternative 3 -Sherman Way Station Plan

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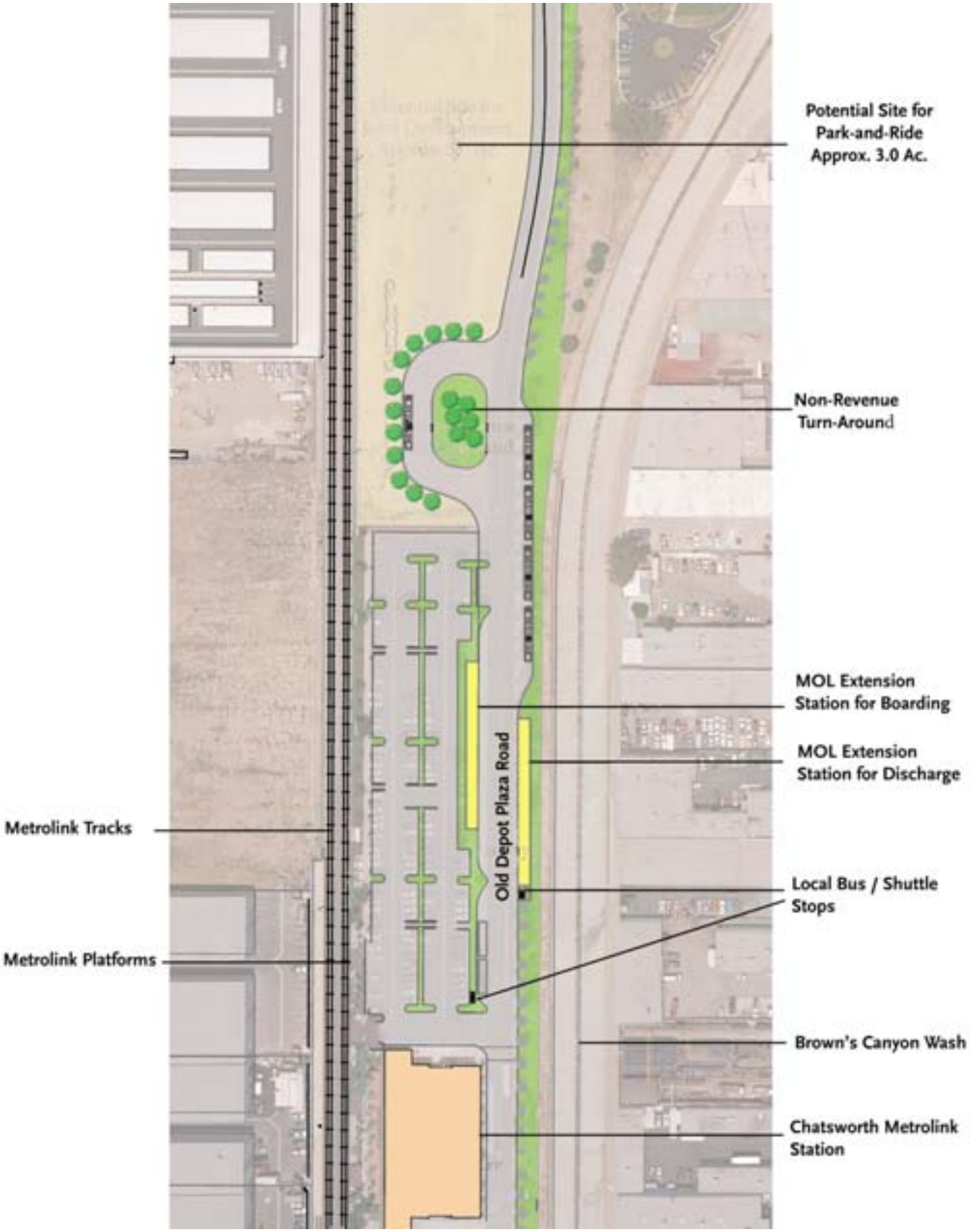

Source: GRUENASSOCIATES

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Figure 3-9
Alternative 3 - Chatsworth Station Option A

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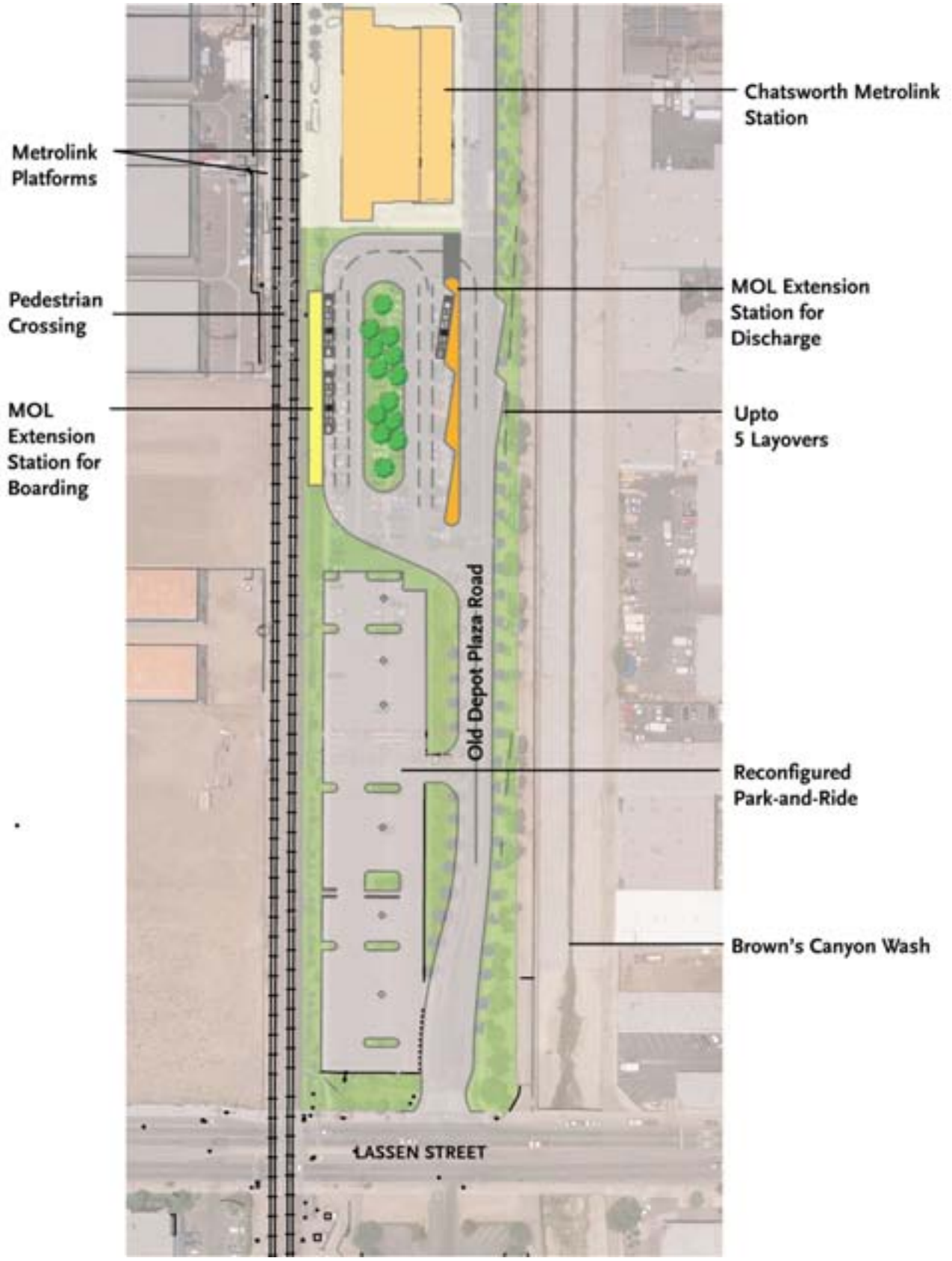

Source: GRUENASSOCIATES

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Figure 3-10
Alternative 3 - Chatsworth Station Option B

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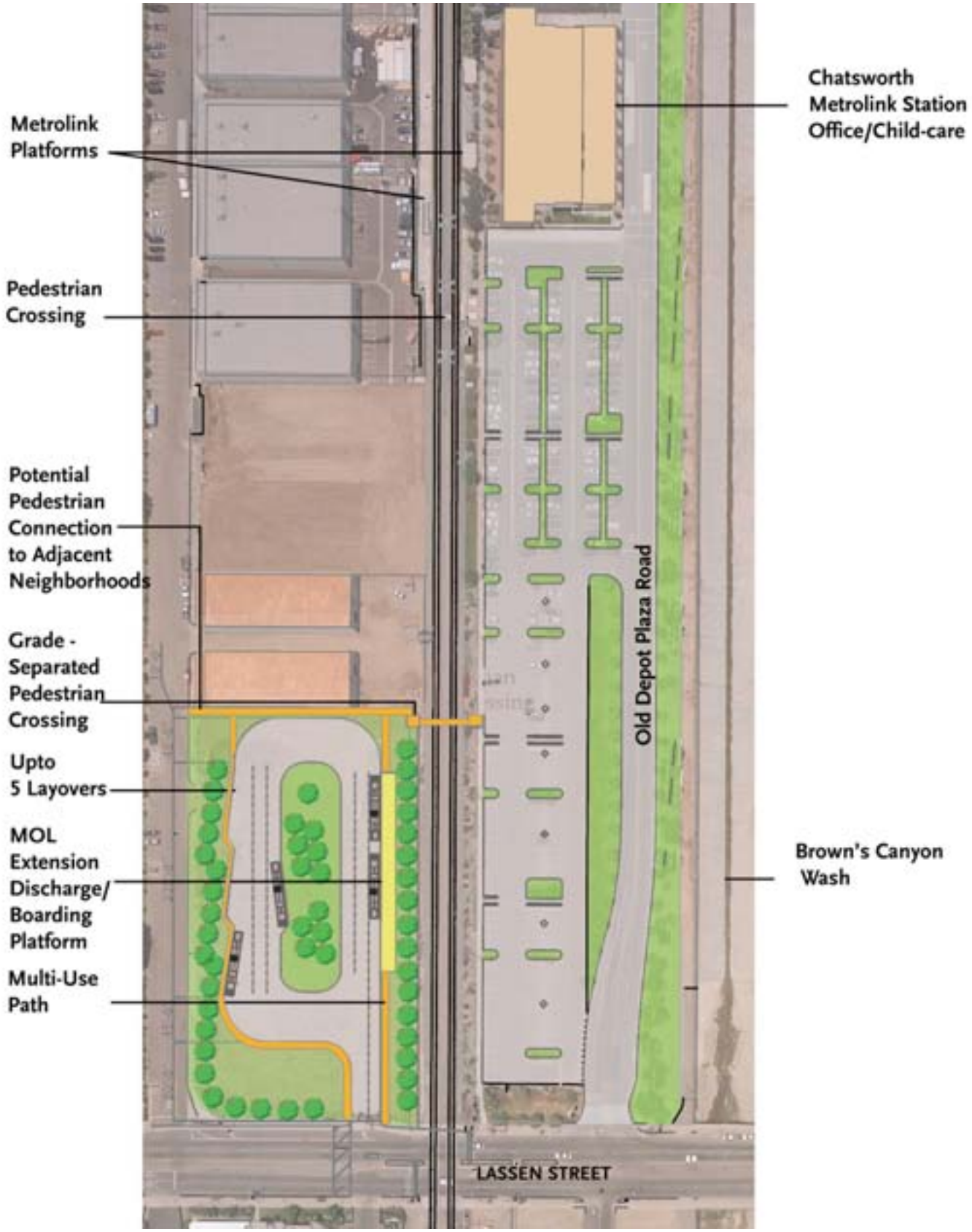

Source: GRUENASSOCIATES

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Figure 3-11
Alternative 3 - Chatsworth Station Option C

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3.4.4 Canoga Busway

The Canoga Busway Alternative consists of a fixed busway extending north from the existing MOL Canoga Station along the Metro-owned railroad ROW paralleling Canoga Avenue, to the Chatsworth Metrolink Station. **Figure 3-12** illustrates the Canoga Busway Alternative.

Metro Right-of-Way

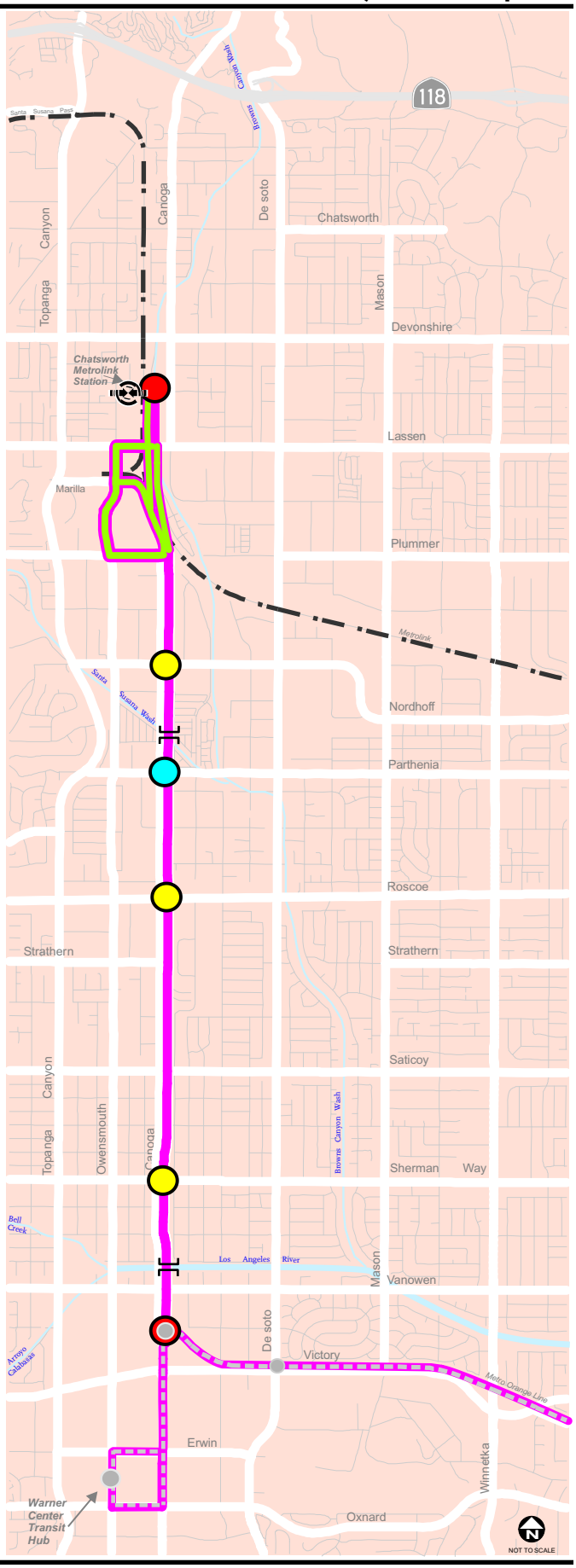
Along most of the alignment, the ROW would provide adequate room for landscaping and space for a bikeway/pedestrian path adjacent to the busway. Along Canoga Avenue, the Metro ROW varies from 40 ft to 275 ft with a typical width of 100 ft. The 100 ft ROW and larger ROW sections provide opportunities for landscaping, bikeway/pedestrian paths and the busway. The 40-ft portion is adjacent to the railroad tracks at the north end of the corridor. In this segment, the busway and multi-use path will be between the tracks and a narrowed Canoga Avenue, with room for only minimal landscaping. The 65-ft portion, a short segment directly north of Sherman Way, is directly behind a recently built strip shopping center with parking facing Canoga Avenue. The busway and a multi-use path will be located behind the shopping center, but the narrow 65 ft ROW in this segment reduces the potential for landscaping and a bio-swale (swaled drainage course with gently sloped sides and filled with vegetation and compost). The 275 ft portion of the Metro ROW, located south of Sherman Way and north of Vanowen Street provides the opportunity for the typical sections for the Canoga Busway Alternative. The additional ROW width (approximately 175 ft) also provides the opportunity for additional landscaping, the potential preservation of existing long-term leases, and the integration of the project with the Los Angeles River Revitalization Master Plan. The ROW narrows significantly north of Plummer Street, adjacent to the Metrolink tracks. At this point, Canoga Avenue would be 32 ft wide. Due to the curving nature of the railroad tracks and Canoga Avenue (moving away from each other), the narrow segment is limited in length and the roadway (Canoga Avenue) will widen back to 62 ft as quickly as possible. Several options are considered for the northern segment to connect to the Chatsworth Metrolink Station and they are discussed in detail below.

Where feasible, a Class I bikeway and pedestrian path would run from the Canoga MOL Station to the Chatsworth Metrolink Station and would occupy 10-17 ft of the ROW. Buses and Metro-authorized vehicles would be the only vehicles allowed within the busway. Signage would be posted listing restrictions on autos, trucks, motorcycles, bicycles and pedestrian within the busway lanes. Metro-authorized emergency vehicles would only use the busway when responding to emergencies within or immediately adjacent to the ROW.

Route Alignment

This new route would extend the existing MOL from the Canoga Station to the Chatsworth Metrolink Station. Departing the Warner Center Transit Hub, buses would utilize mixed-flow lanes on Owensmouth Avenue, Erwin Street, Canoga Avenue, and other streets if required, before entering the Canoga MOL Station. The buses would then enter the busway and travel north, crossing all east-west streets between the MOL Canoga Station and the Chatsworth Metrolink Station (except for Lassen Street on Northern Segment Option 1 discussed below), as well as the Los Angeles River and the Santa Susana Wash. Several options are considered for the northern segment to connect to the Chatsworth Metrolink Station:

Option 1 Busway Ends At Plummer – Buses would exit the Busway at Plummer Street and travel on Plummer Street, Owensmouth Avenue, Lassen Street and Old Depot Plaza Road. With this option, the intersection of Canoga Avenue and Plummer Street and the intersection of Lassen Street and Old Depot



Legend

- Main Route
- Metrolink Chatsworth Station Access Options
- Metrolink & Metrolink Stations
- Proposed Stations
- Optional Station
- Reconfigured Station
- Existing Stations (Metro Orange Line)
- New Bridge

Source: ITERIS

Plaza Road will be signalized. The multi-use path for this option would terminate at Plummer Street. This option is illustrated in **Figure 3-13**.

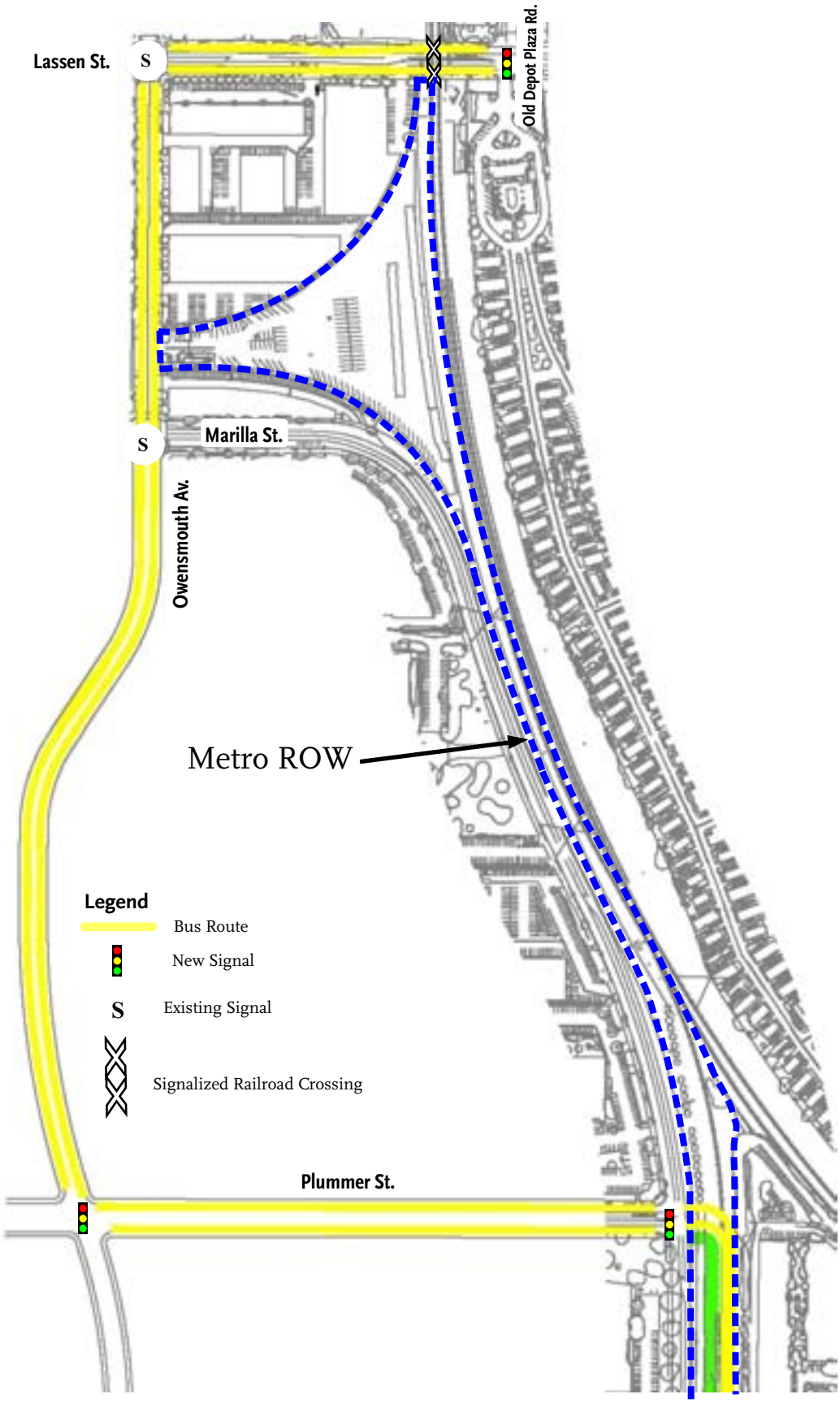
Option 2 At-Grade "T" Intersection on Lassen Approx. 200 Ft West of Tracks – The busway and the multi-use path would extend north to Lassen Street on the west side of the railroad tracks, intersecting Lassen Street at a new signalized intersection approximately 200 ft west of the tracks. Buses would travel in mixed flow on Lassen Street and cross the tracks to reach the Chatsworth Metrolink Station. This alternative requires property acquisition south of Lassen Street; it also requires converting the southbound approach of a private roadway intersecting Lassen Street west of the tracks into a right-turn only. This option is illustrated in **Figure 3-14**. An optional plan could be required where only northbound buses and the multi-use path would travel on the busway all the way north to Lassen Street. This would occur if the two-way busway and multi-use path could not be accommodated in the narrow ROW area adjacent to the Metrolink tracks. Southbound buses would return via Lassen Street, Owensmouth Avenue, and Plummer Street, re-entering the busway at a new signalized intersection at the intersection of Canoga Avenue and Plummer Street. This sub-option is illustrated in **Figure 3-15**.

Option 3 At-Grade Parallel Crossing of Lassen West of Tracks - The busway and the multi-use path would extend north to Lassen Street directly to the west of the railroad tracks and cross Lassen Street at a signalized intersection to access the Busway terminus station on the west side of the tracks. A pedestrian grade-separation to cross the tracks would be provided. Sidewalks along the north side of Lassen Street would be widened between the railroad tracks and Old Depot Plaza Road to provide a connection of the multi-use path to the station. This option requires property acquisition or reconfiguration of one property south of Lassen Street, directly west of the railroad tracks, as well as several lots north of Lassen Street for the terminus station. This option is illustrated in **Figure 3-16**. An optional plan could be required where only northbound buses and the multi-use path would travel on the busway all the way north to Lassen Street. This would occur if the two-way busway could not be provided in the narrow ROW area adjacent to the Metrolink tracks. Southbound buses would return via Lassen Street, Owensmouth Avenue, and Plummer Street, re-entering the busway at a new signalized intersection at the intersection of Canoga Avenue and Plummer Street. This option is illustrated in **Figure 3-17**.

Option 4 Underpass of Tracks with Crossing of Lassen East of Tracks - The busway would pass under the railroad tracks in a grade separation and cross Lassen Street at-grade. Two potential intersections of the busway on Lassen Street are being considered in this EIR. One would be located at the existing Old Depot Plaza Road intersection on Lassen Street. This would require purchase of part of the mobile home park's property, south of Lassen Street, and reconfiguration of the parking and access road to the mobile home park. The mobile home park egress would likely be right-turn only. This option is illustrated in **Figure 3-18**. The second option would include an intersection adjacent to the east side of the railroad tracks, with buses crossing Lassen Street parallel to the tracks at a signalized intersection into a redesigned Chatsworth Metrolink Station. The multi-use path would remain at-grade adjacent to the west side of the tracks and end at Lassen Street. This option is illustrated in **Figure 3-19**.

Option 5 Elevated/Underground Grade Separation of Railroad Tracks and Lassen Street - The busway extends along the west side of the railroad tracks and is either elevated over or depressed under the railroad tracks and Lassen Street on a grade separation, then descending or ascending into the parking lot of the Chatsworth Metrolink Station. The multi-use path would remain at-grade adjacent to the west side of the grade-separated busway and end at Lassen Street. This option is illustrated in **Figure 3-20** and **Figure 3-21**.

Landscaping would be provided along each side of the busway and the multi-use path for all the options discussed above.



Source: DMJM HARRIS

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Figure 3-13
Alternative 4 - Northern Segment Option 1

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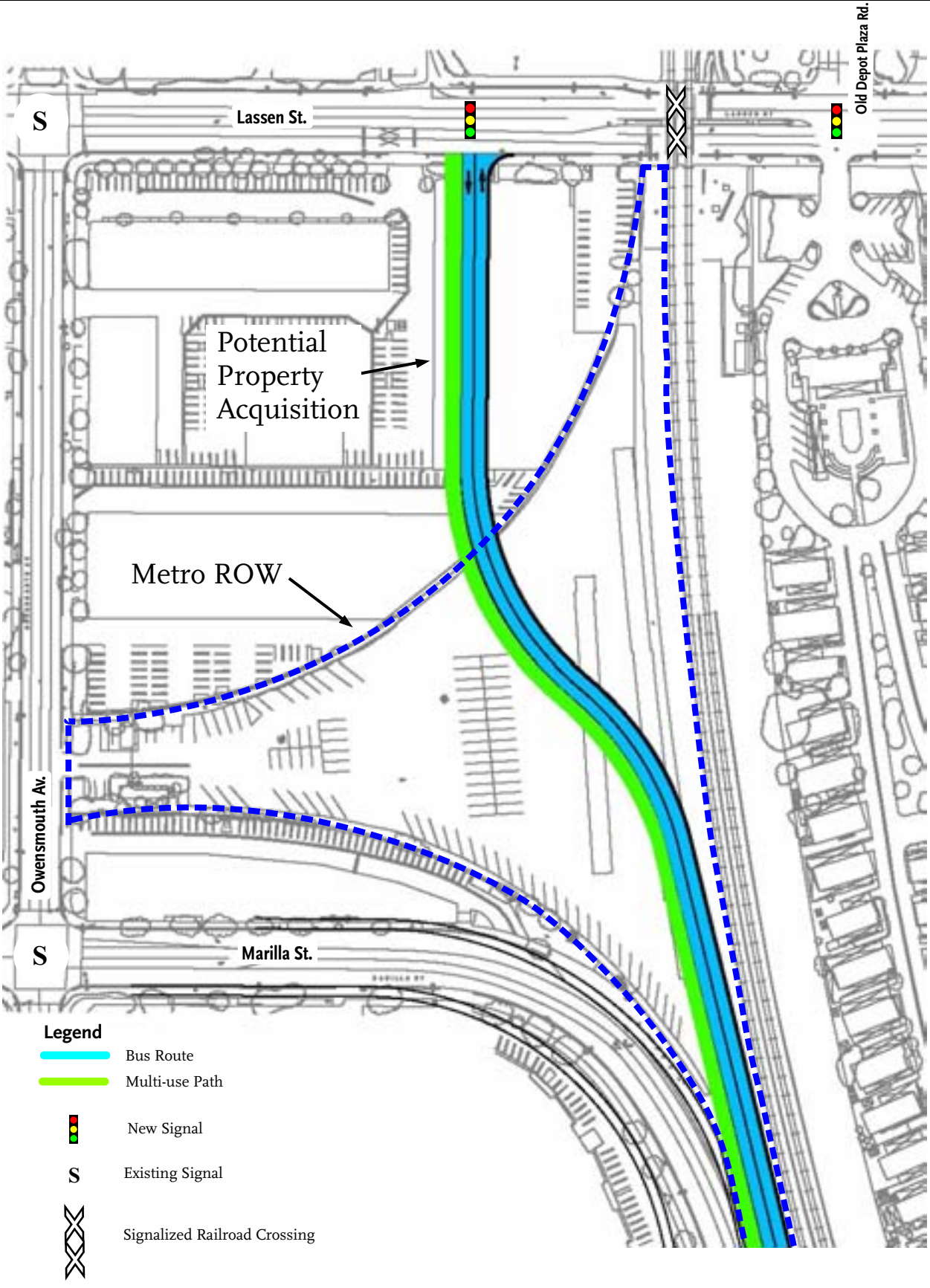

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Figure 3-14
Alternative 4 - Northern Segment Option 2

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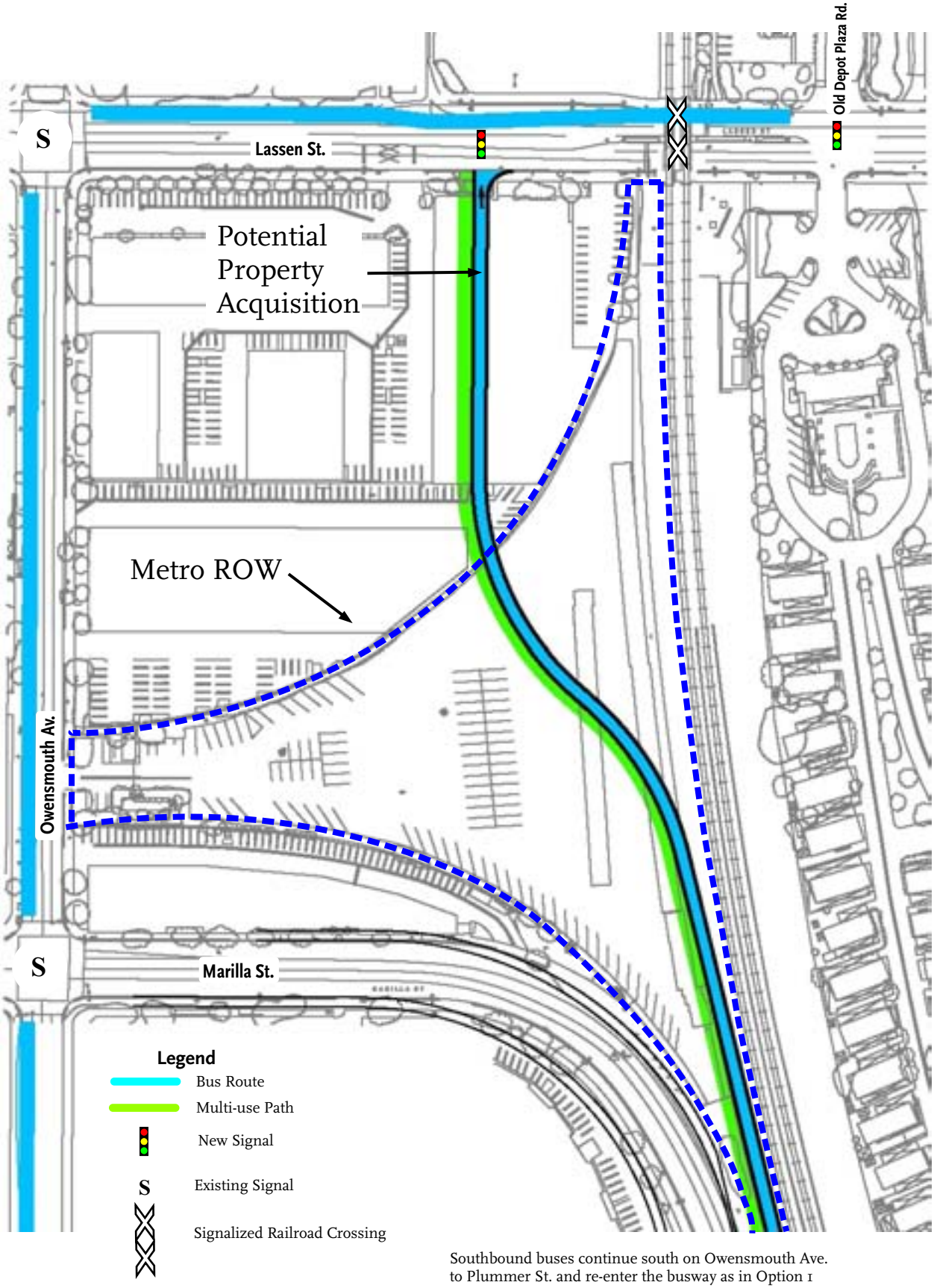

Southbound buses continue south on Owensmouth Ave. to Plummer St. and re-enter the busway as in Option 1

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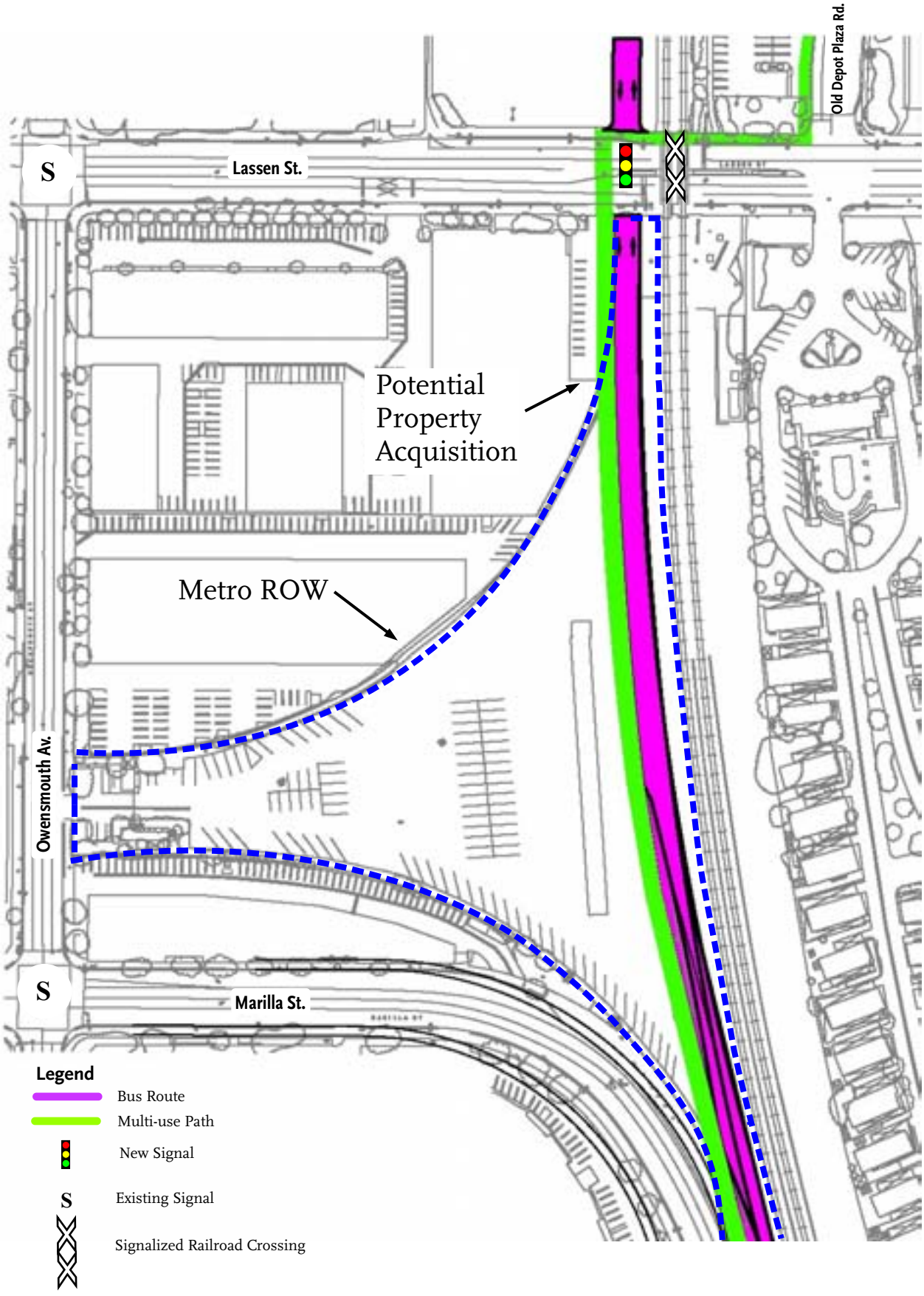

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Figure 3-16
Alternative 4 - Northern Segment Option 3

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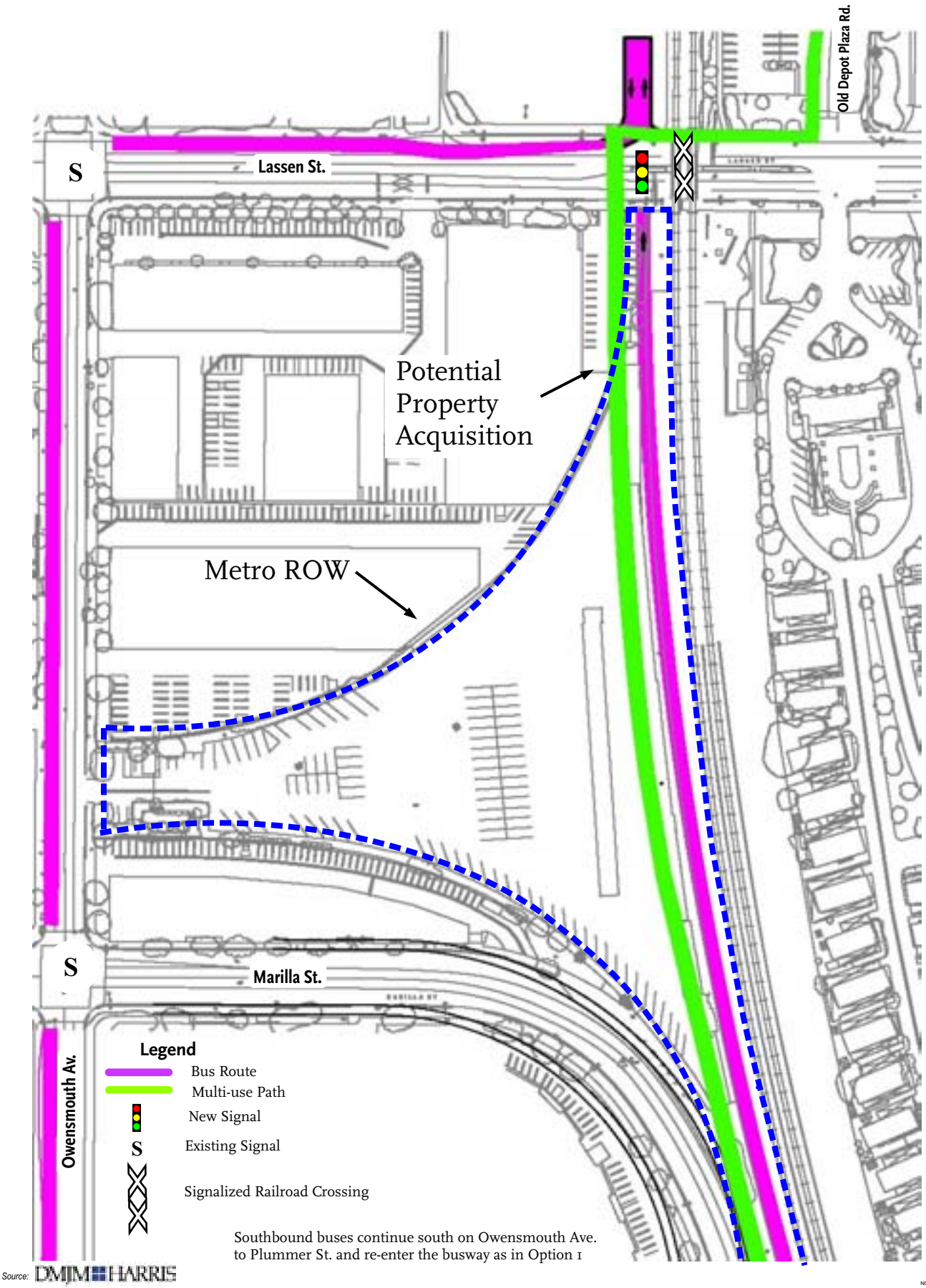
Old Depot Plaza Rd.
S
Lassen St.
Potential
Property
Acquisition
Metro ROW
S
Marilla St.
Owensmouth Av.
Legend
Bus Route
Multi-use Path
New Signal
S
Existing Signal
Signalized Railroad Crossing
Southbound buses continue south on Owensmouth Ave.
to Plummer St. and re-enter the busway as in Option 1
Source: DMJM HARRIS
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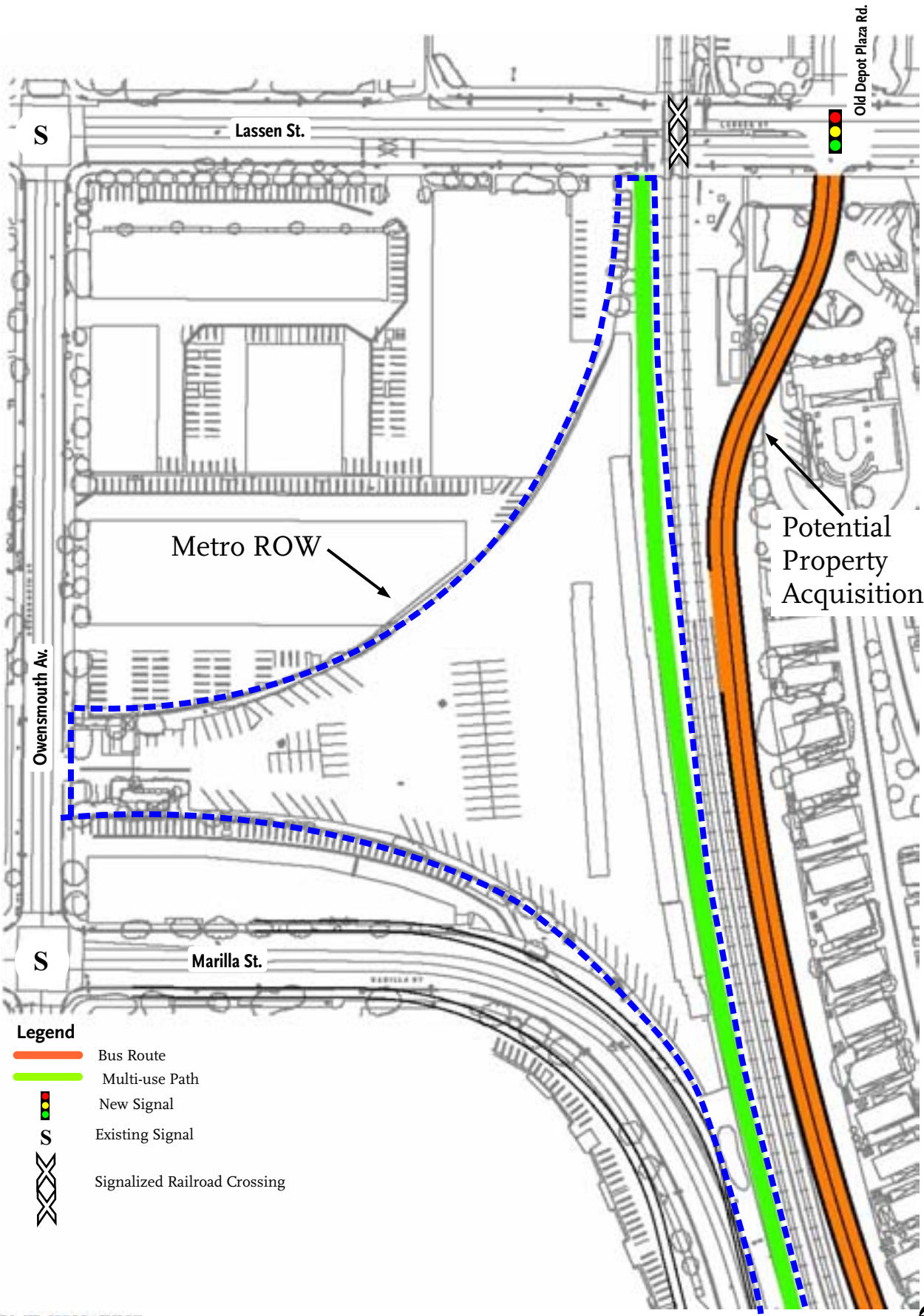

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Figure 3-18
Alternative 4 - Northern Segment Option 4

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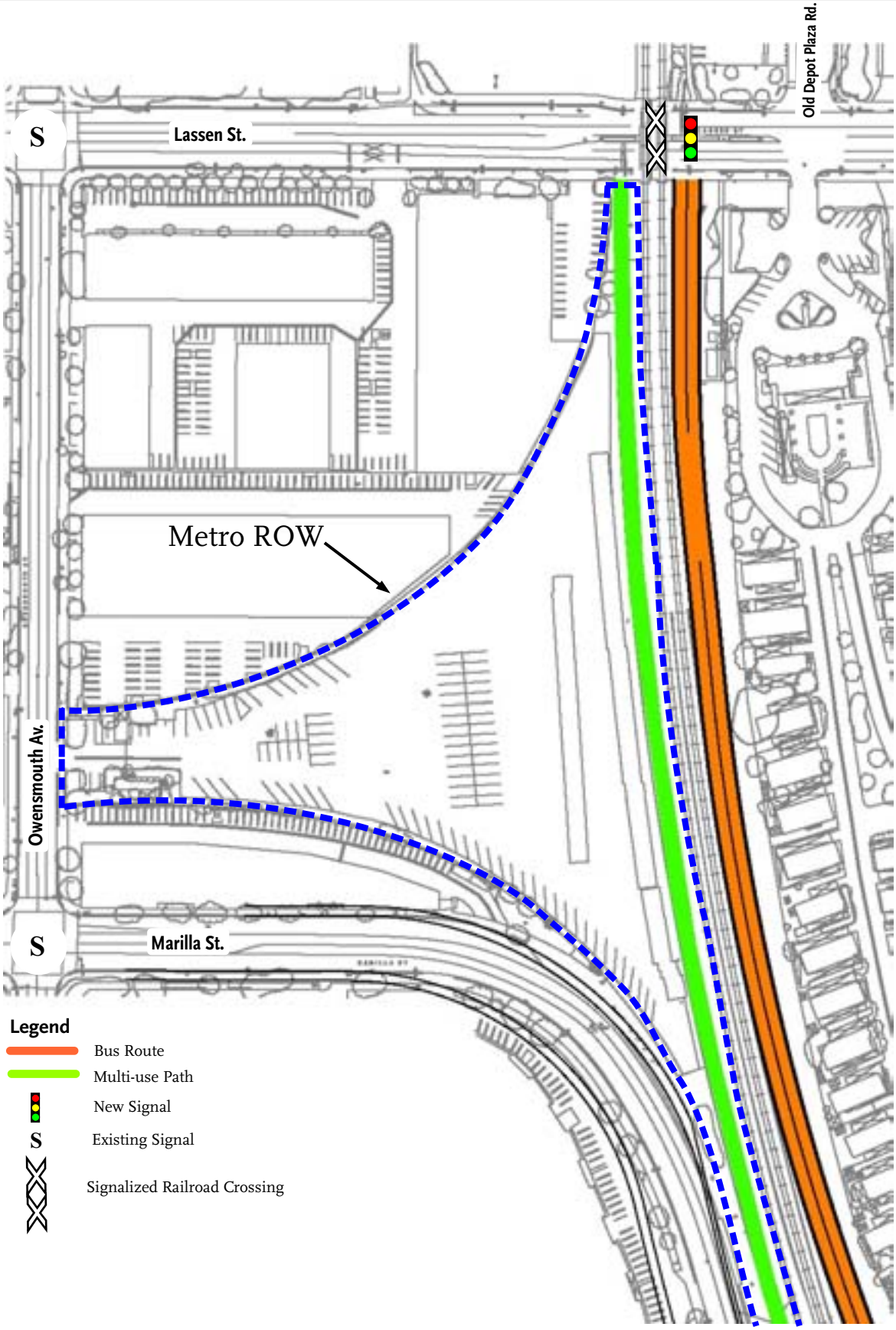

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Figure 3-19
Alternative 4 - Northern Segment Option 4a

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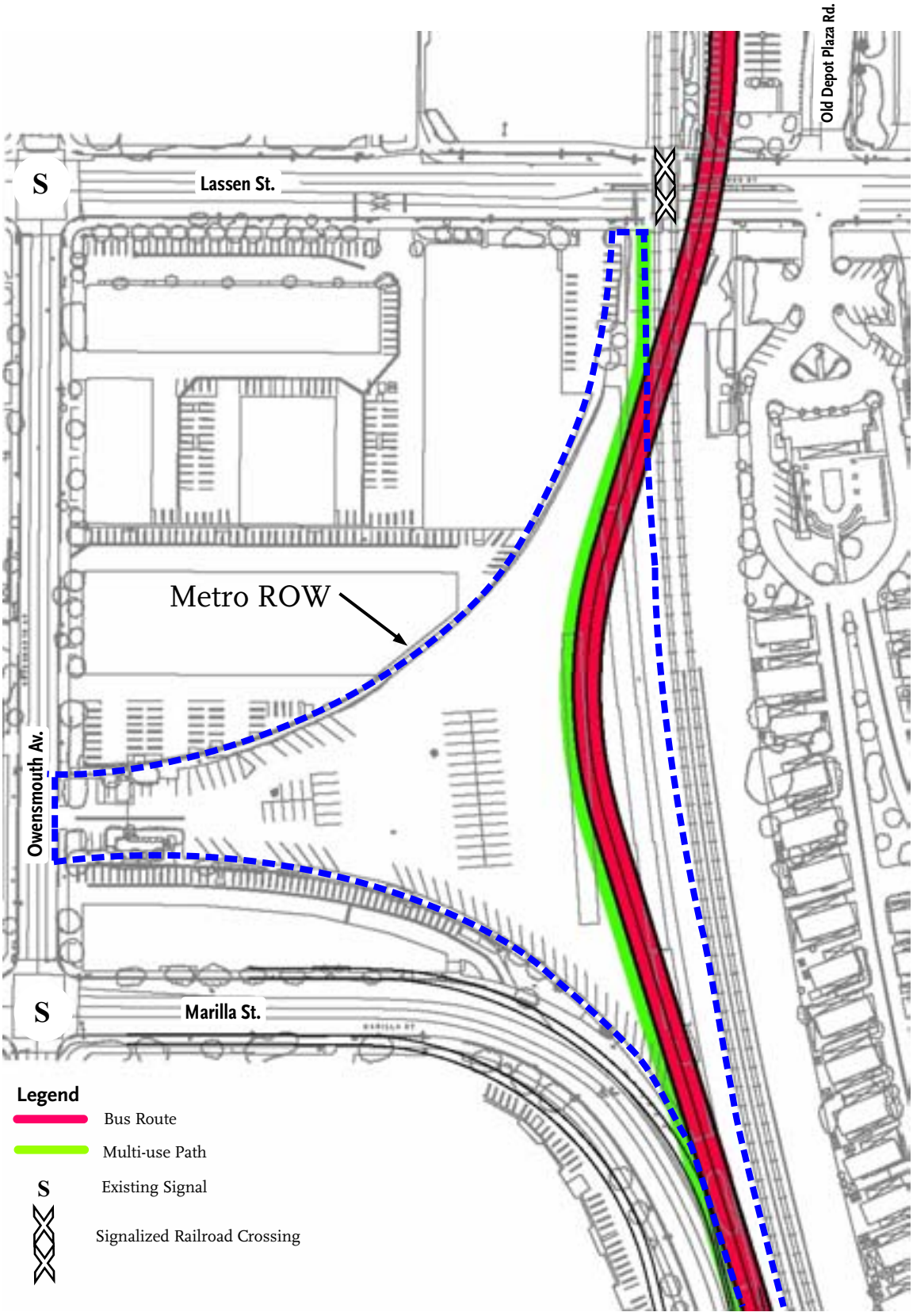

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Figure 3-20
Alternative 4 - Northern Segment Option 5

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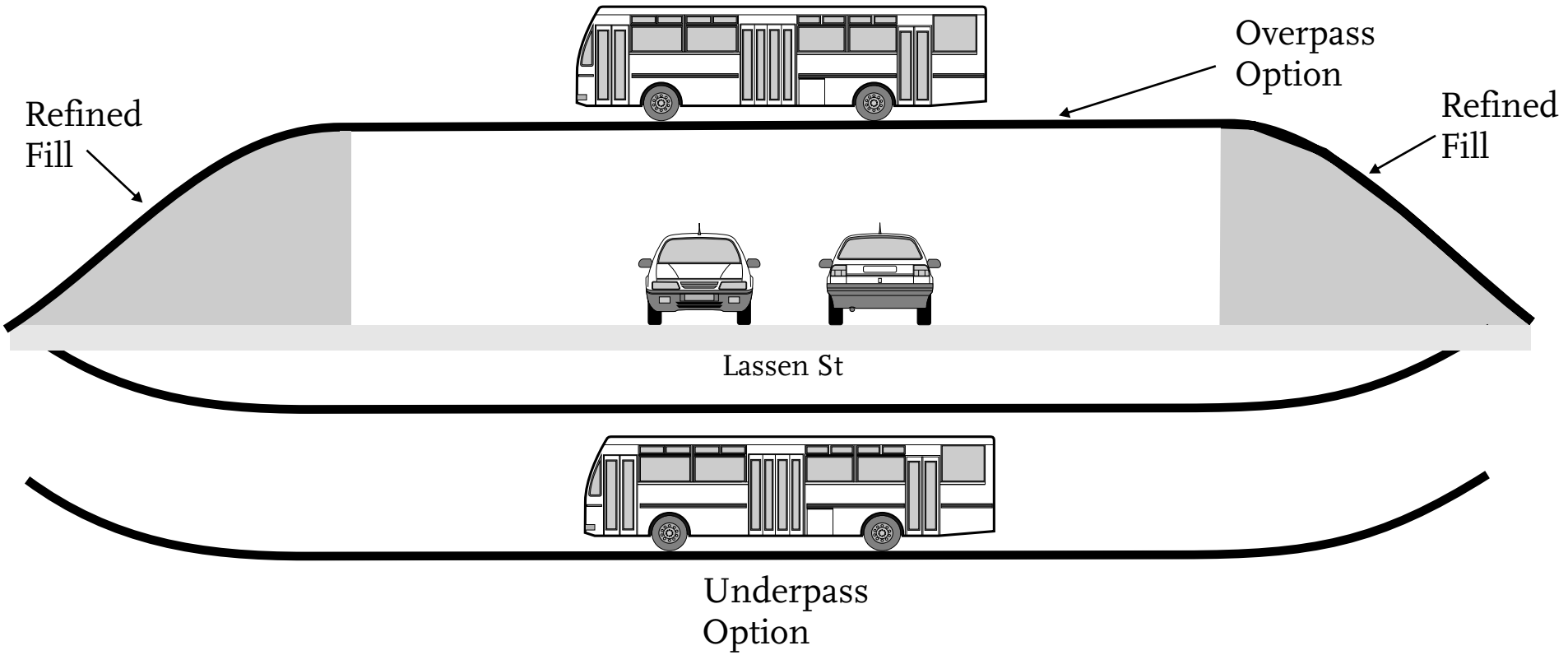

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Source: ITERIS

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Concept Design

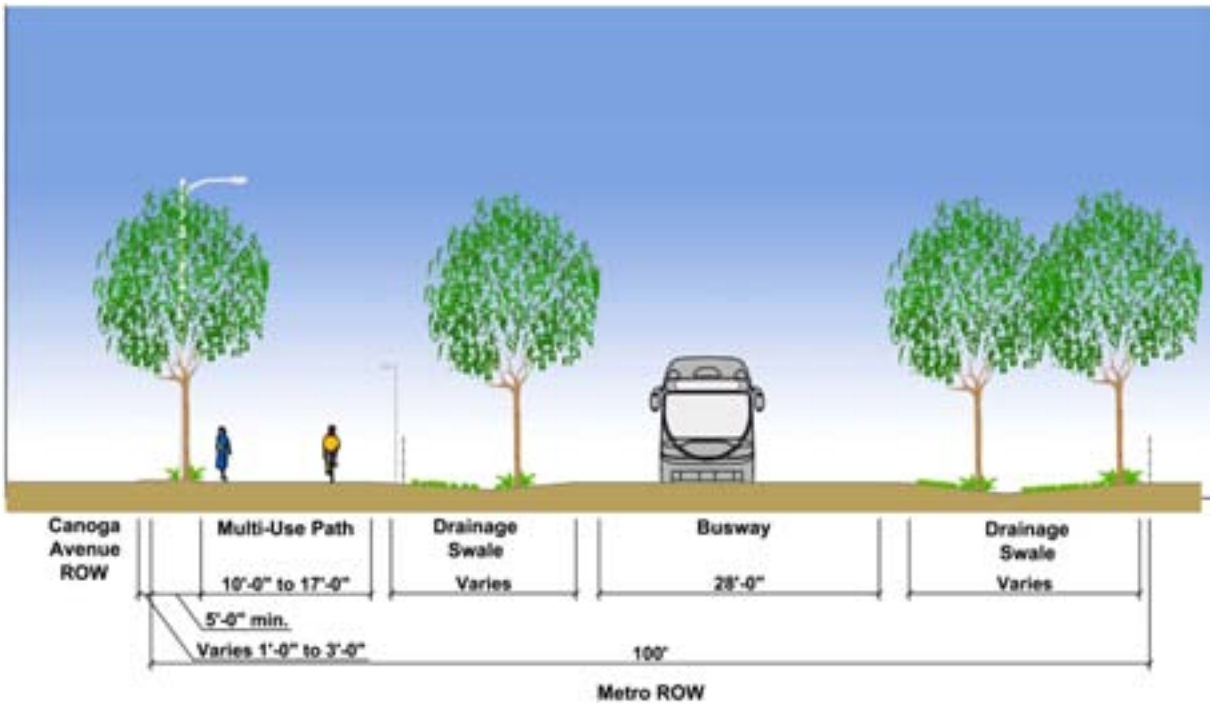
Busway

The urban design concept for the Canoga Transportation Corridor is a "multi-modal transportation facility within a greenway" similar to the concept of the MOL. The busway in the Metro ROW would have two exclusive lanes throughout the alignment, additional passing lanes at the stations and pullouts for maintenance vehicles. Where feasible, a Class I bikeway with a pedestrian path would be constructed along the length of the corridor in the Metro ROW, generally adjacent to Canoga Avenue. In lieu of a standard City sidewalk, street trees would be provided in a landscape parkway between the Canoga Avenue curb and the bikeway/pedestrian path. Portions of the route would be landscaped including trees to visually define the busway and a mix of appropriate native and adapted exotic plants similar to the MOL. A combination of curb and gutter and landscaped drainage swales would be used along the busway. Curb and gutter would be at the stations and approaches to the roadway intersections, and in other narrow areas of the ROW. Several types of fences and walls would be used along the corridor depending on adjacent uses and visibility from adjacent streets. Other than for the bikeway/pedestrian path, lighting would not be provided between cross streets. A fiber optic cable line will be installed along the bus lanes that will connect to existing fiber optic lines running along the Metrolink tracks adjacent to the Chatsworth Metrolink Station and to the existing fiber optic line along the MOL. Connections to this north-south fiber optic line will also be provided to the Division 8 service facility and the SFV Sector office on Marilla Street, thereby facilitating communication between the two facilities and Metro's Headquarters at the Gateway Center. In some locations, existing leases may be maintained, however, it is envisioned that all of the billboards, and much of the signs and auto-oriented uses would be removed. Existing overhead utilities along the east side of Canoga Avenue could potentially be under-grounded by the Los Angeles Department of Water and Power (DWP). However, this would not be a part of the project's budget. If DWP decides to underground these utilities, Metro would coordinate with the department so that the undergrounding would occur in conjunction with the construction of the busway. **Figure 3-22** illustrates the typical sections for 100 ft ROW between stations and the northern portion of the alignment, where the buses would run parallel to the Metrolink tracks.

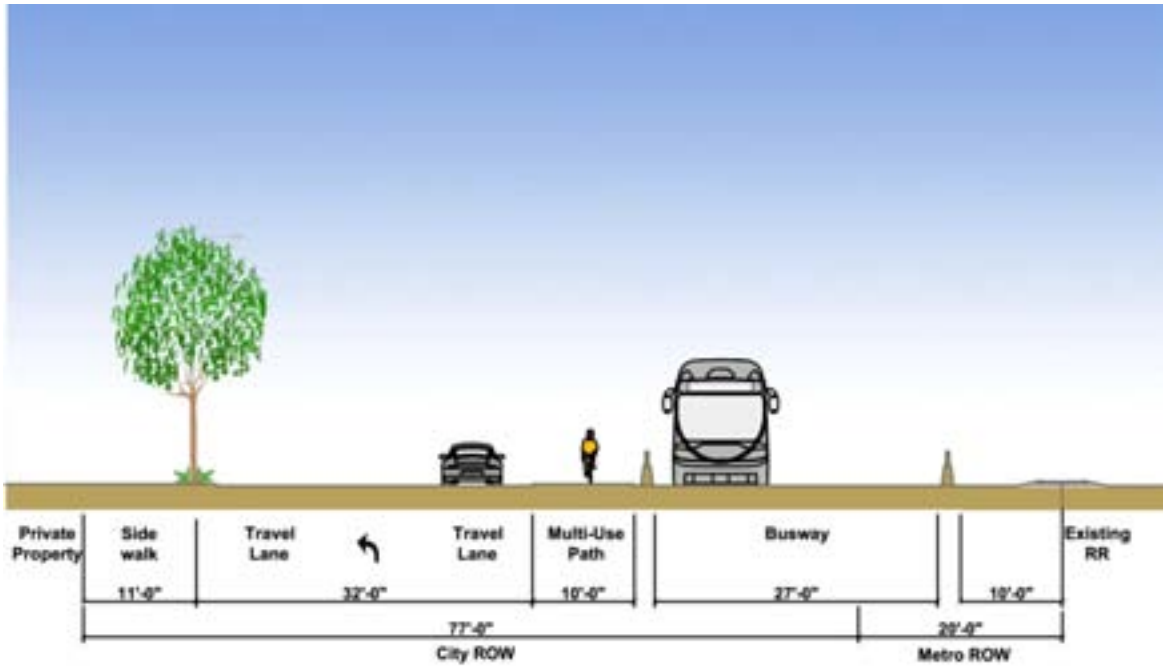
Bikeway

Where feasible, a 10-17 ft wide bikeway/pedestrian path would be located on the Metro ROW approximately 5-15 ft from the east side curb or pavement edge with street trees located between the street and pathway. Pedestrian lighting of the bikeway/pedestrian paths, bike lockers, bike racks, and other amenities along the ROW would be provided, similar to the MOL. The bikeway/pedestrian paths would cross at street intersections in the reconfigured crosswalks and would be lit with lower-scale pedestrian lighting.

The County and the City of Los Angeles have plans for a bikeway/pedestrian path on both sides of the Los Angeles River as well as green spaces for recreation and water recharge adjacent to the River. The urban design concept suggests the use of a portion of the concrete plant leased area near the Los Angeles River for an open space area. The Canoga Busway Alternative and a bikeway/ pedestrian path would pass over a new Los Angeles River bridge in the Metro ROW. In the future, ramps could be provided to connect the County bikeway to the Canoga Busway Alternative. The new bridge over the Los Angeles River would be visible from Canoga Avenue and the Metro ROW and would be consistent with the distinctive design of the MOL.



100 ft. ROW Between Stations



Parallel to Metrolink Tracks

Source: GRUENASSOCIATES

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Figure 3-22
Alternative 4 - Typical Cross-Sections

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Transit Priority/Traffic Signals, Control, Safety

Transit Priority

LADOT has made significant progress in developing the software that has been implemented to allow transit priority treatment at signalized intersections. The use of loop detectors embedded in the pavement in advance of traffic signals will now allow the traffic signal controllers to detect a bus as a distinct object separate from a car or truck. The following levels of transit priority are possible:

- Preemption - grants the right of way to a mass transit vehicle by interrupting the normal signal cycle sequence. (This strategy is not expected to be used in the Canoga Busway Alternative.)

- Full Priority - may extend or shorten the traffic signal green indication of the transit phase. The transit phase may be a parallel vehicle phase or an independent phase. Full priority also allows the skipping of a traffic phase if needed to advance the required transit and/or compatible vehicle phase. Typically the phase skipped is a low volume phase during that period of time, which results in improved operations for the transit service with minimal impact to the traffic pattern. (This strategy may be considered for low volume smaller street crossings.)

- Partial Priority allows the traffic signal controller to advance the start (early green), or retard the yellow (extend green) of the transit phase and any compatible vehicle phase. Partial priority does not skip any vehicle phase to extend or bring up early transit phase. (This strategy will be used for most of the transit lane crossings.)

The concept for the bus priority treatment in the transit lane will be to locate the bus detectors far enough in advance of each signalized cross street so that the traffic signal system will have sufficient warning to adjust the signal phases on the cross street so that the bus will have the greatest chance to receive a green indication when it reaches the cross street. In some cases, this will occur by lengthening the green phase (green extend) for the transit way and the parallel street (borrowing time from the cross street), and in other cases, it may occur by shortening the green phase on the east-west cross street, (early green). Subsequent signal cycles would compensate the cross streets for the shortened cycle. The proper location of the advance loop detectors will avoid abrupt changes in a signal cycle (e.g., a green phase will not be truncated prior to a specified minimum amount of time) by placing the detectors far enough in advance of the cross street so that the bus traveling at the planned speed will arrive at the cross street and have a green signal indication.

It may not be feasible to provide this same level of priority treatment for buses traveling in both directions, if headways become too short. In that case, the peak direction of passenger demand would be given the higher level of priority treatment. At each cross street where there are nearby traffic signals, the busway will also be signalized and the buses will have their own signal indications. LADOT will also have to consider the traffic demand on east-west streets in determining the level of priority for buses.

The transit stop locations help determine, to some extent, the type of priority that is most appropriate. A street crossing where the transit stop is on the far side would most likely utilize the extended feature to assure the bus makes it through the crossing and to the station. While a street crossing that has the station on the near side would utilize the early green feature to get the bus moving more readily. Far-side stops are anticipated at all stations, except at Sherman Way where a near-side stop in the north-bound direction will be used to avoid impacting the shopping center at the northeast corner of Canoga and Sherman Way.

Traffic Signals, Control, and Safety

Bus Rapid Transit (BRT) signals and vehicle signals will be placed at each crossing to control the bus, vehicle, pedestrian, and bicycle traffic at the crossing, the same way they are currently being operated along the MOL. Typically, the BRT crossings will be multi-phased (BRT phase and multiple vehicle phases to control turns across the busway).

Wherever possible, the bus signals and the adjacent existing intersection signals will be integrated to create one signalized intersection controlling both automobiles and buses. Since the busway is adjacent to and parallel to Canoga Avenue, the buses will typically receive a green signal concurrent with adjacent mixed-flow traffic. Because intersection crossings would be controlled with signals, warning devices would not be required. The stop bar for traffic approaching the transit crossing will be located before the transit crossing so that there will not be any traffic stopped between the adjacent traffic signal and the transit crossing. Pedestrian crossing protection will be provided at all locations permitting such crossings, via typical pedestrian signal heads. Pedestrians will be allocated crossing time according to LADOT standards.

A brief clearance interval will be required in the east-west signal phase to insure that no vehicles are stopped on the transit crossing or between the transit crossing and the adjacent Canoga Avenue. Turn movements from the adjacent Canoga Avenue will also require separate signal phases with red arrows when the transit vehicles are crossing the east-west street. In addition, separate northbound right turn lanes will be created to hold the vehicles in queue until the BRT vehicle passes and the right turn lane receives the green arrow. This will be necessary to prevent a left or right turn across the busway crossing when a transit vehicle is moving in conjunction with the through traffic on Canoga Avenue. The signal modifications will also include "active" No-Right-Turn indications and "Bus Coming" signs to prevent right turns across the BRT crossing from Canoga Avenue.

All signals with parallel busway crossings would need to be modified, typically to add the signal phase for the transit vehicles crossing the roadway or intersection (more signals will need to be modified in the northern portion of the alignment depending on which option is chosen). Some of the modifications also entail relocating the stop bars and providing pre-signals and clearance intervals for vehicles crossing the transit corridor. In addition, the signal modifications will include upgrades to signal controllers and software to accommodate the transit priority treatment at the crossings. Pre-signals and queue cutters will be used to prevent traffic from stopping or blocking the busway.

A total of 7-10 (depending on the northern segment option chosen) traffic signals will be installed and interconnected to the adjacent traffic signal. All minor street crossings will be signalized as part of this project. There will not be any non-signalized or stop sign controlled intersections for the busway. More precise signal operations plans and signal programming details at intersections will be developed as part of final design.

Bus Operations Plan

The new MOL section between Canoga and Chatsworth is assumed to operate at an average 21 miles per hour, comparable to existing MOL speeds between Canoga and North Hollywood, with an estimated run time of about 13 minutes between Canoga MOL station and Chatsworth Metrolink Station. Two key service operating patterns are considered for the Busway.

Option 1-Full Integration: Integration with the existing MOL service, allowing both direct trips Chatsworth – North Hollywood and Chatsworth – Warner Center.

Option 2: Stand alone new service between Chatsworth and Warner Center, which would require a transfer at the Canoga Station to make the Chatsworth – North Hollywood trip.

Option 3 - Partial Integration: This would integrate with the existing MOL service, allowing direct trips Chatsworth – North Hollywood and Warner Center – North Hollywood, but would omit a direct link between Chatsworth and Warner Center (transfer at Canoga MOL station).

In each case the existing MOL operating pattern would also be retained, though with half the existing frequency in Options 1 and 3. For Option 1, buses from Chatsworth would alternate between continuing east to North Hollywood and exiting the busway at Canoga Station and connecting to the Warner Center Transit Hub via the existing MOL operating alignment. At the same time, existing Warner Center – North Hollywood service pattern would also continue to operate. For Option 2, a new route would operate from Chatsworth Metrolink Station along the new MOL extension to Canoga Station, with connections available there to the Warner Center Transit Hub via a transfer to the existing MOL. Option 3 is the same as for Option 1 with the omission of the direct Warner Center – Chatsworth link.

The above options assume at least an additional minute travel time saving over the Canoga On-Street Dedicated Bus Lanes Alternative due mostly to the direct link between the Canoga Station and the Chatsworth Metorlink Station and the avoidance of any peak intersection congestion.

Station Locations and Conceptual Design

Architectural Amenities, Artwork and Amenities at Stations

The contemporary architectural character at stations would be almost identical to the MOL with some refinements. During preliminary and final engineering, the design and placement of the artwork would be investigated in more detail.

Station Locations and Site Plans

Each station area would be comprised of two separate side platforms along the busway, one for northbound travel, and the other for southbound travel. Each platform would have a pre-paid zone and a boarding zone. The pre-paid zone would typically be located adjacent to the cross-street. In this zone, patrons would purchase and validate tickets for the busway. Other amenities such as bicycle racks/lockers, and maybe public pay phones would be located in this zone. Stations would be able to accommodate three standard 40-foot buses or two 60-65 ft articulated buses. Canopies would provide shade and shelter over portions of the platform, including the pre-payment zone. The station design would be similar to that of the MOL in order to establish a unifying theme throughout the line, giving the busway a clear visual and functional impression.

Amenities such as seating, lighting (where needed), bicycle racks/lockers, ticket vending machines, and stand-alone validators would be included at each station. Artist-designed elements would also be included in the stations' design. Stations would be equipped with passenger information systems similar to that used on the MOL that would inform travelers of the wait time until the next bus arrival and provide other real-time and pre-recorded busway operating information. Information and identity features would include map cases, and ground pylon station signage.

Stations would be located along the Canoga Corridor at the following locations proceeding from north to south:

- **Chatsworth Metrolink Station** – The Chatsworth Metrolink station would be the northern terminus of this alternative. There are two tracks and two platforms at the station. For 28 out of the 30 current trains per day, patrons board/alight via the eastern platform. For two trains per day, they cross the tracks via an at-grade pedestrian crossing to reach the western platform. This pattern is expected to continue with the MOL extension. Several options are under consideration.

  Option A Non-Revenue Turn-Around - Buses would unload and pick up passengers at new canopies and platforms adjacent to the Old Depot Plaza Road near the rail station north of the current local bus stops. A non-revenue turn-around would be provided in the vacant area near Devonshire Street. Additional landscaped park-and-ride spaces would be provided in the vacant area near Devonshire Street. This option is illustrated in **Figure 3-23** and could be combined with all northern segment options terminating at-grade, on the east side of the tracks (Options 1, 2, 2a, 4, and 4a).

  Option B Turn-Around south of Metrolink Station Platforms - Similar to the North Hollywood terminus station of the MOL, a bus turn-around with layover bus spaces, and a combined boarding and pick – up platform would be provided. The turn-around would be located south of the Chatsworth Metrolink Station and would displace some existing parking. Parking displaced as well as additional parking would be provided in the vacant area north of the Chatsworth Metrolink Station. This option is illustrated in **Figure 3-24** and could be combined with all northern segment options terminating at-grade, on the east side of the tracks (Options 1, 2, 2a, 4, and 4a).

  Option C Turn-Around on Vacant Lot West of Tracks - A bus turn-around and layover spaces on vacant land west of the railroad tracks with a grade-separated pedestrian crossing of the tracks and tree-lined pedestrian linkages. This option requires purchase of the existing vacant private property. This option is illustrated in **Figure 3-25** and could be combined with all northern segment options terminating on the west side of the tracks (Options 3 and 3a).

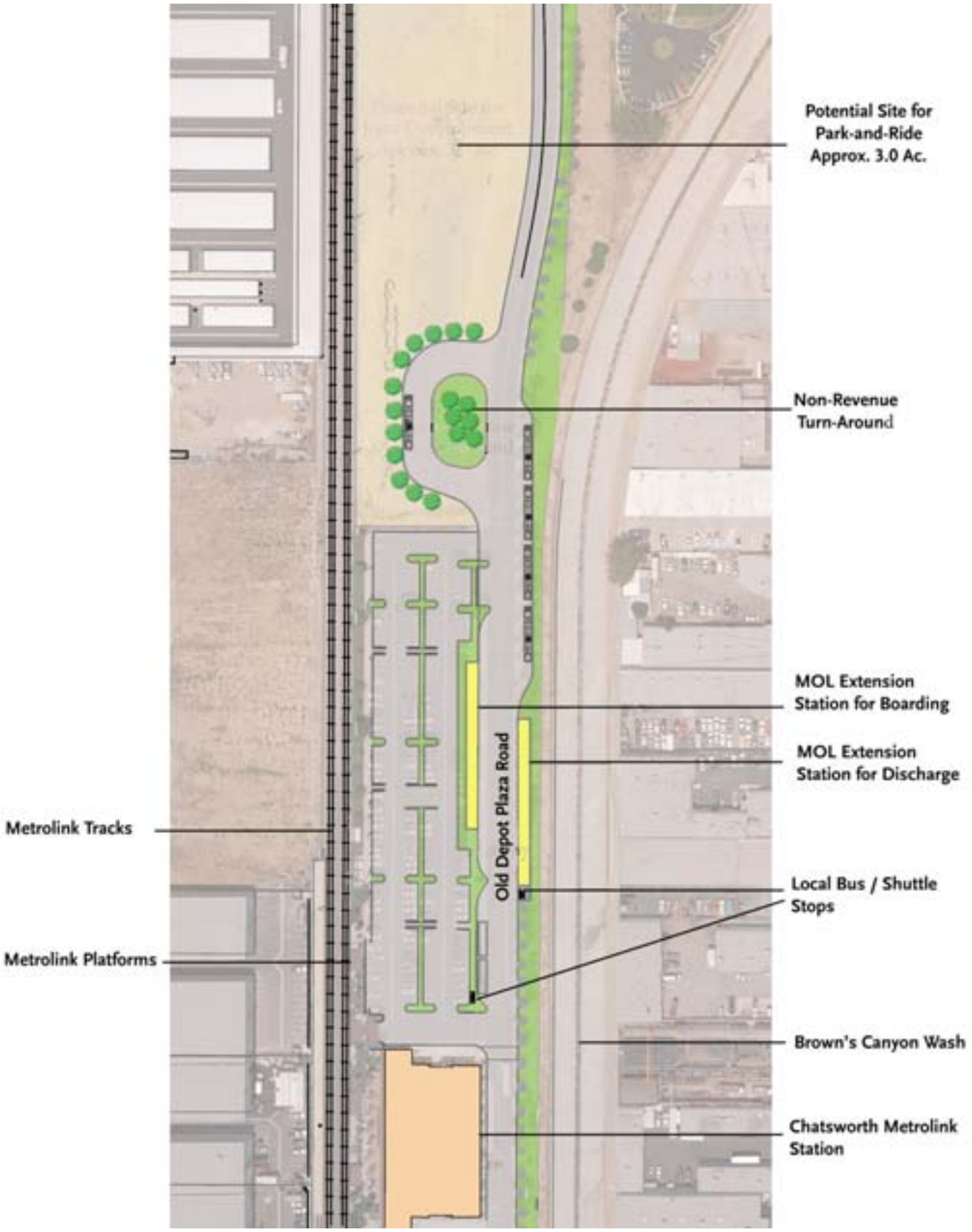
  Option D Elevated or Below-Grade Separation - This option is illustrated in **Figure 3-26** and would be combined with the Grade Separation of Railroad Tracks and Lassen Street option for the northern segment (Option 5).

- **Nordhoff Street** – Platforms for the Nordhoff Street station would be located on the farside of the intersection. Canoga Avenue would be reconfigured to accommodate a right turn lane to Nordhoff Street. The conceptual design would be similar to that shown for Roscoe Boulevard (**Figure 3-27**).

- **Parthenia Street** – An optional station at Parthenia would be located on the farside of the intersection. Canoga Avenue would be reconfigured to accommodate a right turn lane to Parthenia Street. The conceptual design would be similar to that shown for Roscoe Boulevard below.

- **Roscoe Boulevard** – Platforms for Roscoe Boulevard would be located on the farside of the intersection. Canoga Avenue would be reconfigured to accommodate a right turn lane to Roscoe Boulevard. The conceptual design would be similar to that shown in **Figure 3-27.** Cross-sections for the Busway at the northbound and southbound stations are illustrated in **Figure 3-28**.

- **Sherman Way** – Both station platforms would be located in the wide (approximately 275 ft) ROW south of Sherman Way as the ROW north of Sherman Way is only 65 ft wide. The wide ROW would accommodate park-and-ride spaces near the intersection of Sherman Way and as well as a portion of the concrete plants that may be difficult to relocate. The concrete plant's access driveway on Canoga



Source: GRUENASSOCIATES

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Figure 3-23
Alternative 4- Chatsworth Station Option A

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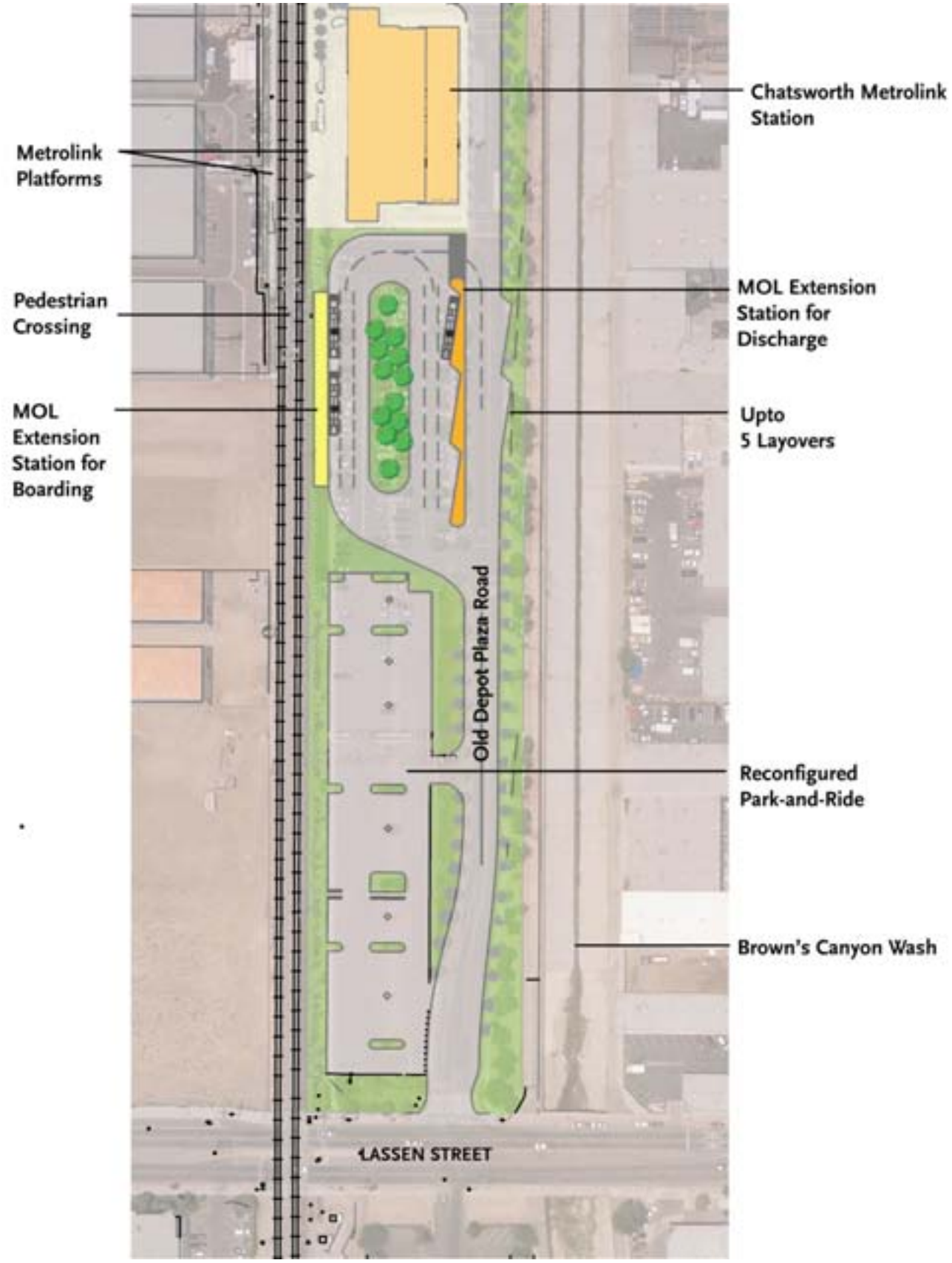

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Figure 3-24
Alternative 4- Chatsworth Station Option B

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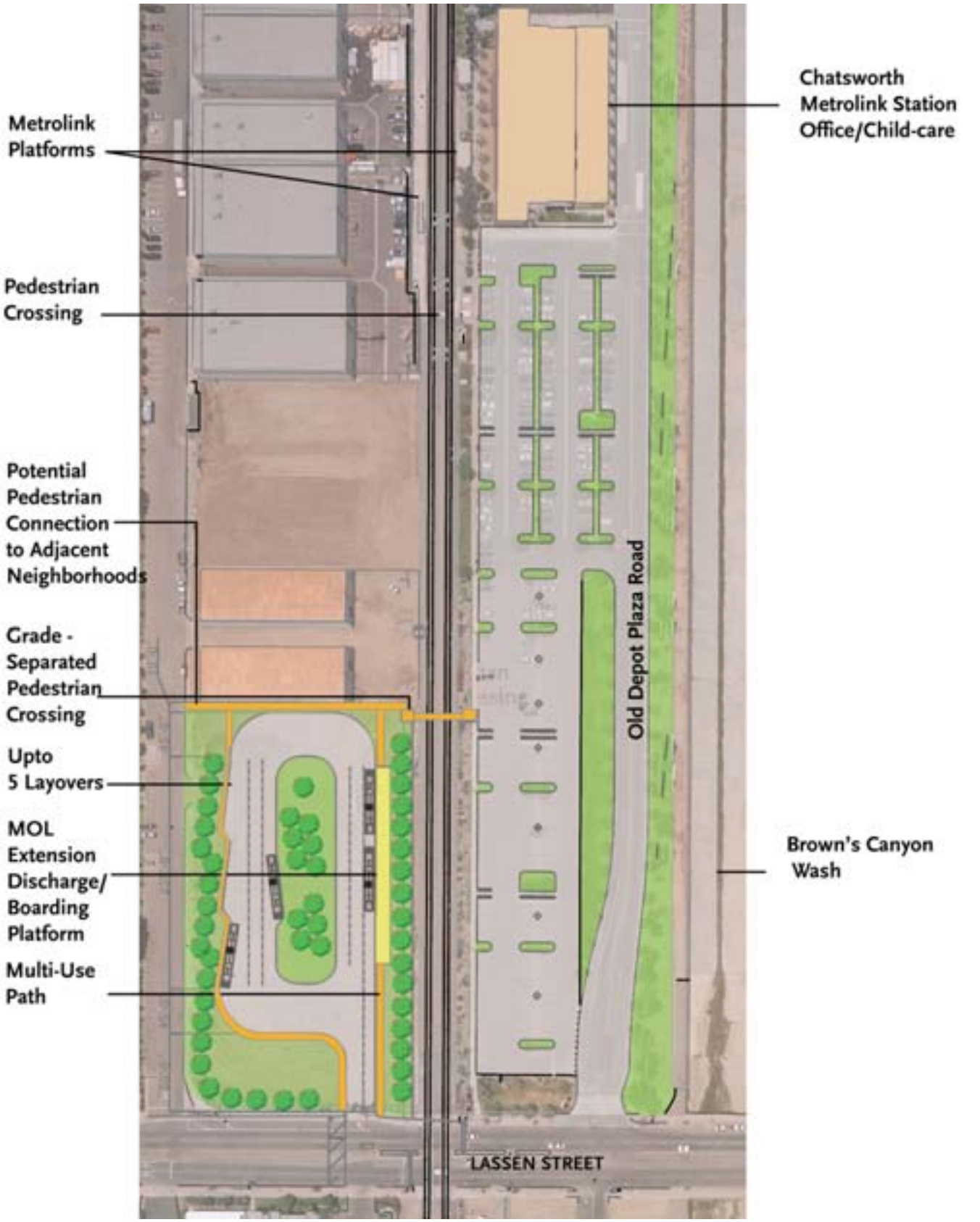

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Figure 3-25
Alternative 4- Chatsworth Station Option C

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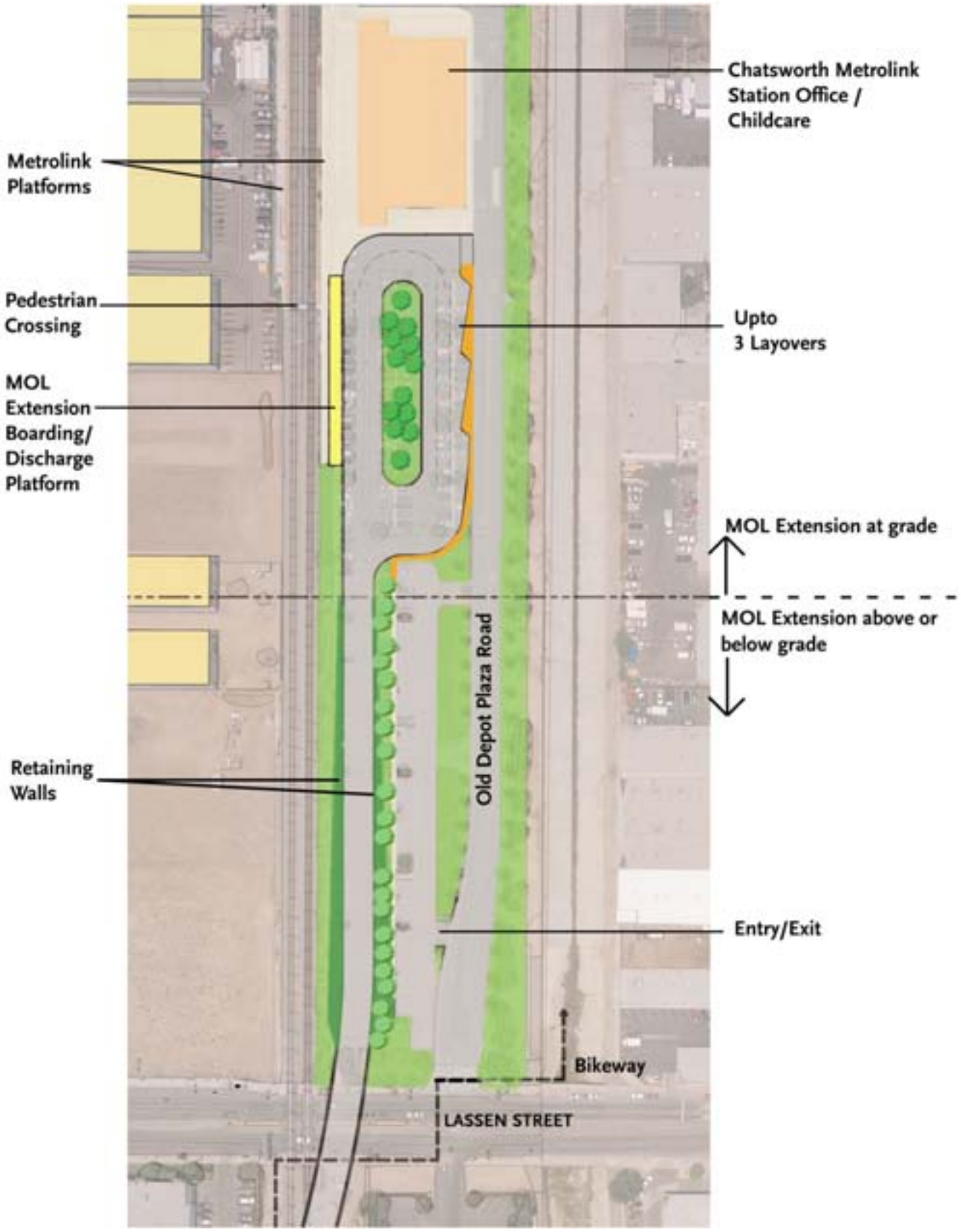

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Figure 3-26
Alternative 4- Chatsworth Station Option D

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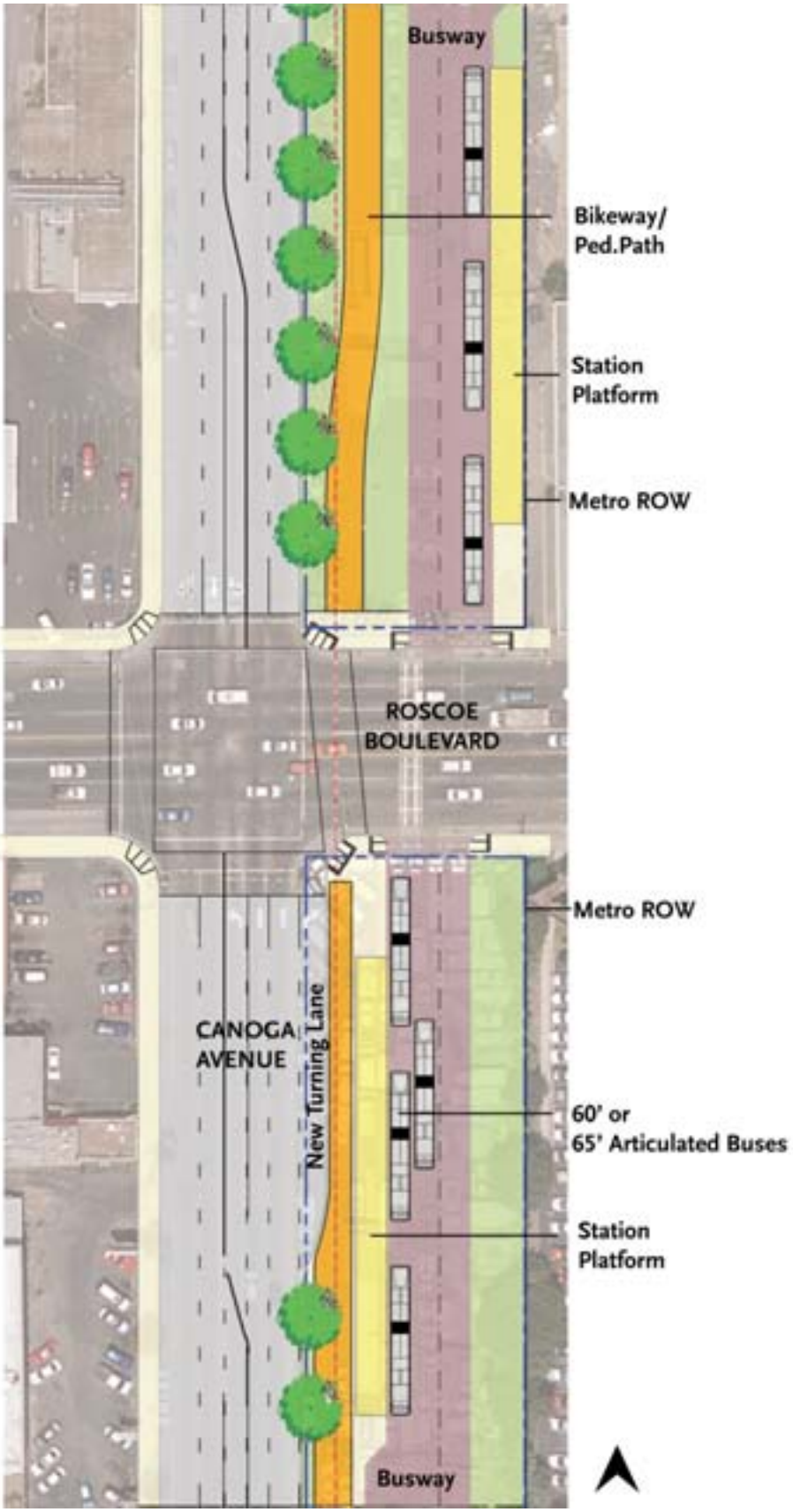

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Figure 3-27
Alternative 4- Roscoe Blvd. Station Plan

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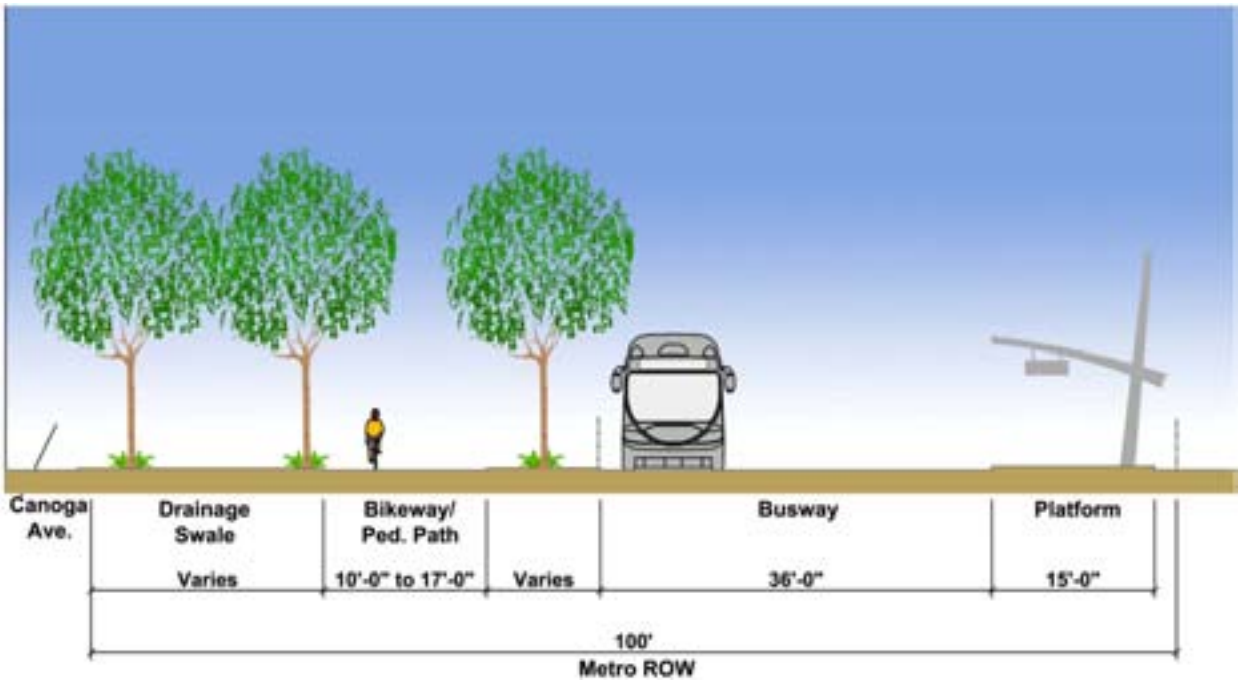
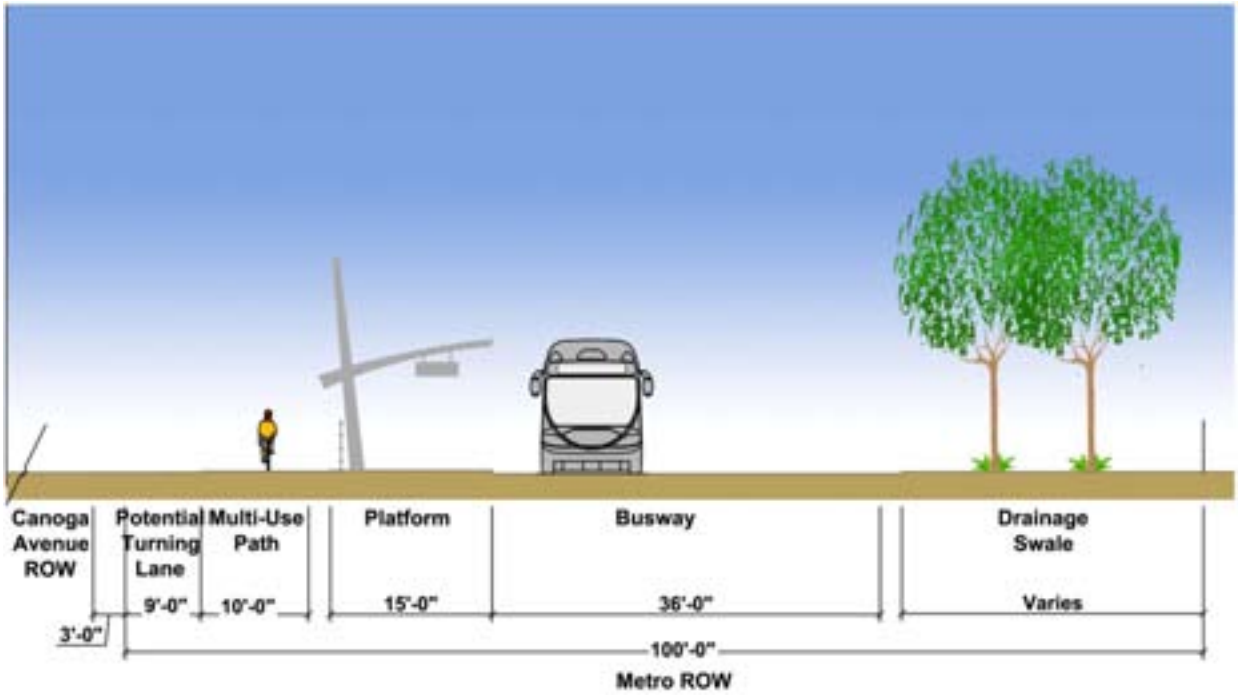


Northbound



Southbound

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Figure 3-28
Alternative 4- Roscoe Blvd. Station Typical Cross-Sections

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Avenue would be closed. Canoga Avenue would be reconfigured to accommodate a right turn lane to Sherman Way. **Figure 3-29** illustrates the urban design concept for the Sherman Way station, potential park-and-ride spaces and potential retention of the concrete plant. **Figure 3-30** illustrates the cross section in the 65 ft narrow ROW north of Sherman Way.

- **Canoga Station** - The existing MOL Canoga Station and park-and-ride facility would be modified to accommodate the Canoga Busway. New platforms would be added to serve the new north-south busway alignment, with pedestrian crosswalks for those requiring transfers. Buses running from North Hollywood to Warner Center and Warner Center to North Hollywood would continue to use the existing station platforms. The number of park-and-ride spaces would be reduced to approximately 235-290 spaces from 600 spaces to accommodate the new station platforms, the busway and a continuous bikeway/pedestrian path along Canoga Avenue. This station concept is illustrated in **Figure 3-31**.

- **Warner Center Transit Hub** – The Warner Center Transit Hub is served by the MOL, the Ventura Metro Rapid, several LADOT Commuter Express bus routes, as well as Metro local bus routes. The Canoga Busway Alternative would serve this major transfer point as well. Additional improvements at the Warner Center Transit Hub are not anticipated as part of this project.

Treatments Adjacent to Sensitive Land Uses

Where needed in the vicinity of residential areas, walls/fences would be constructed either at the property line or setback from the property line in order that landscaping can screen the walls/fences from adjoining uses. **Figure 3-32** shows the Metro ROW adjacent to single-family residential along east Canoga Avenue south of Parthenia Street. Currently, a two lane roadway is located in the center of the 60 ft City ROW. As there is ample room for landscaping on City property to screen the view of the wall or fence, the wall/fence would be placed near the east Metro property line providing more space for a landscaped swale within the Metro ROW.

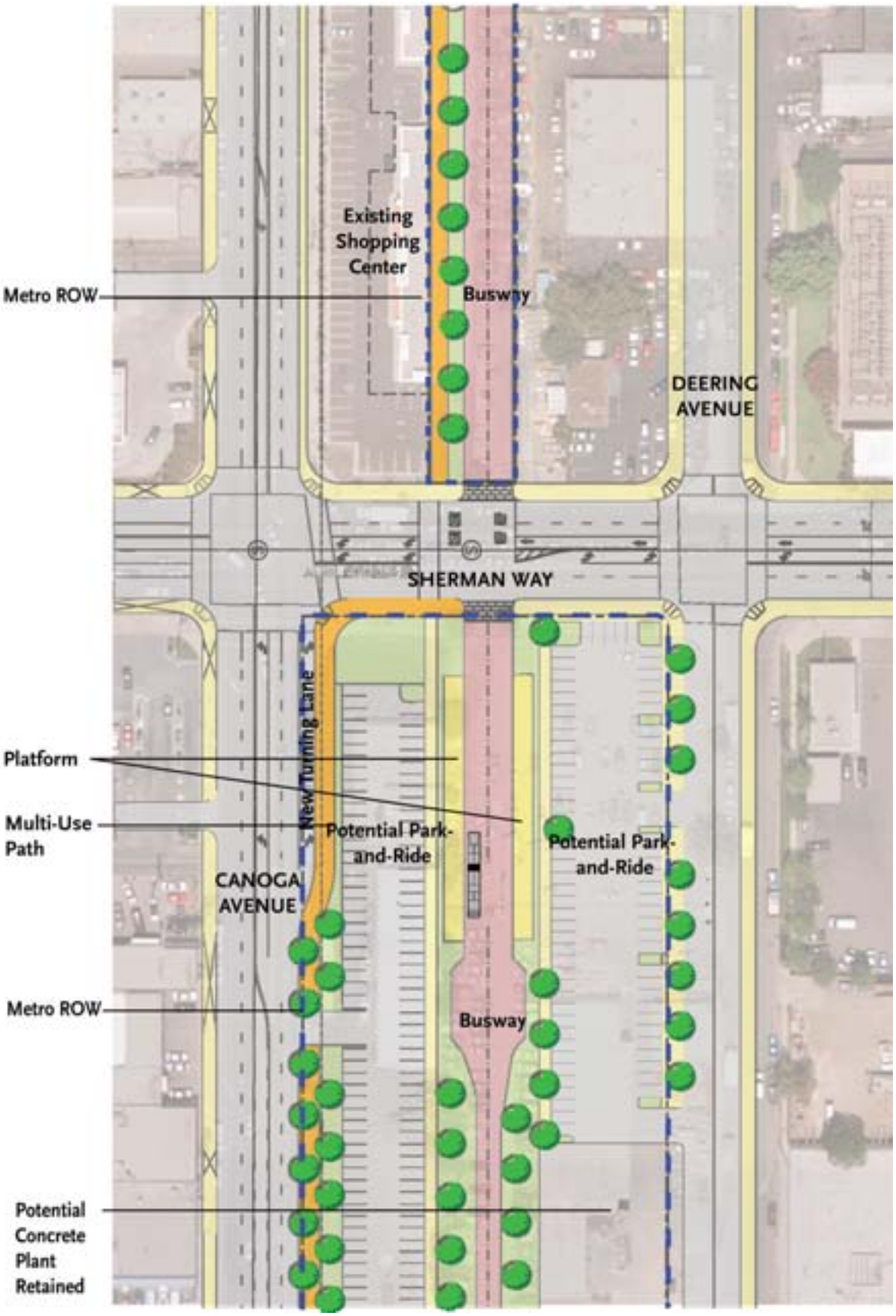
Figure 3-32 shows the Metro ROW adjacent to a mobile home park adjacent to the ROW. As the mobile homes are very close to the Metro ROW, the wall/fence could be set back to provide a landscaped buffer, similar to the MOL. In some cases, the wall/fence may be located close to the edge of the Metro ROW to address drainage issues. Vines will likely be planted on the wall to help deter graffiti on Metro's side only.

Treatments to Narrow ROW Segments Adjacent to Commercial/Industrial Uses

Along narrow portions of the ROW, or where the busway/multi-use path is designed in a way that preserves existing long-term leases, the typical condition for the 100 ft ROW is not possible. **Figure 3-33** illustrates conditions in these areas.

Treatments to other Commercial/Industrial Uses

Along portions of the ROW that are adjacent to commercial or industrial development a fence or a wall would be required and landscaping would be desirable especially to screen views of existing long-term leases such as the concrete plant which contains unattractive outdoor storage of materials and equipments.



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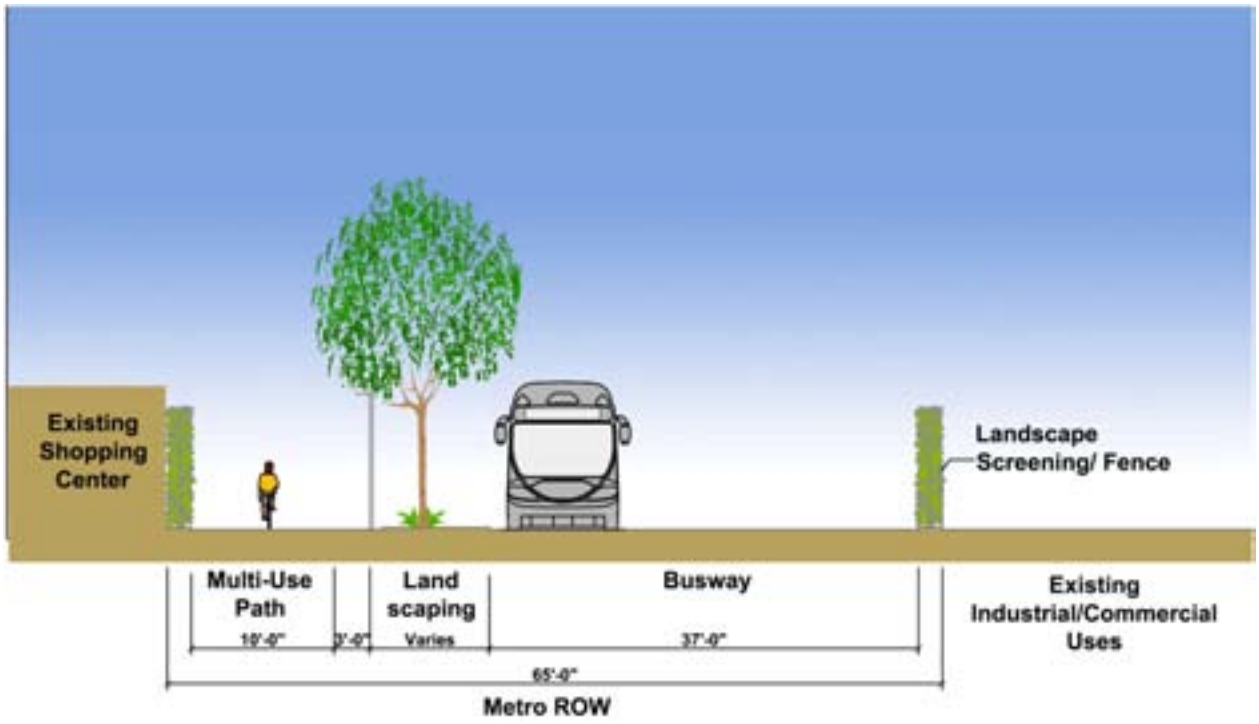

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Figure 3-30
Alternative 4 - Sherman Way Typical Cross-Section

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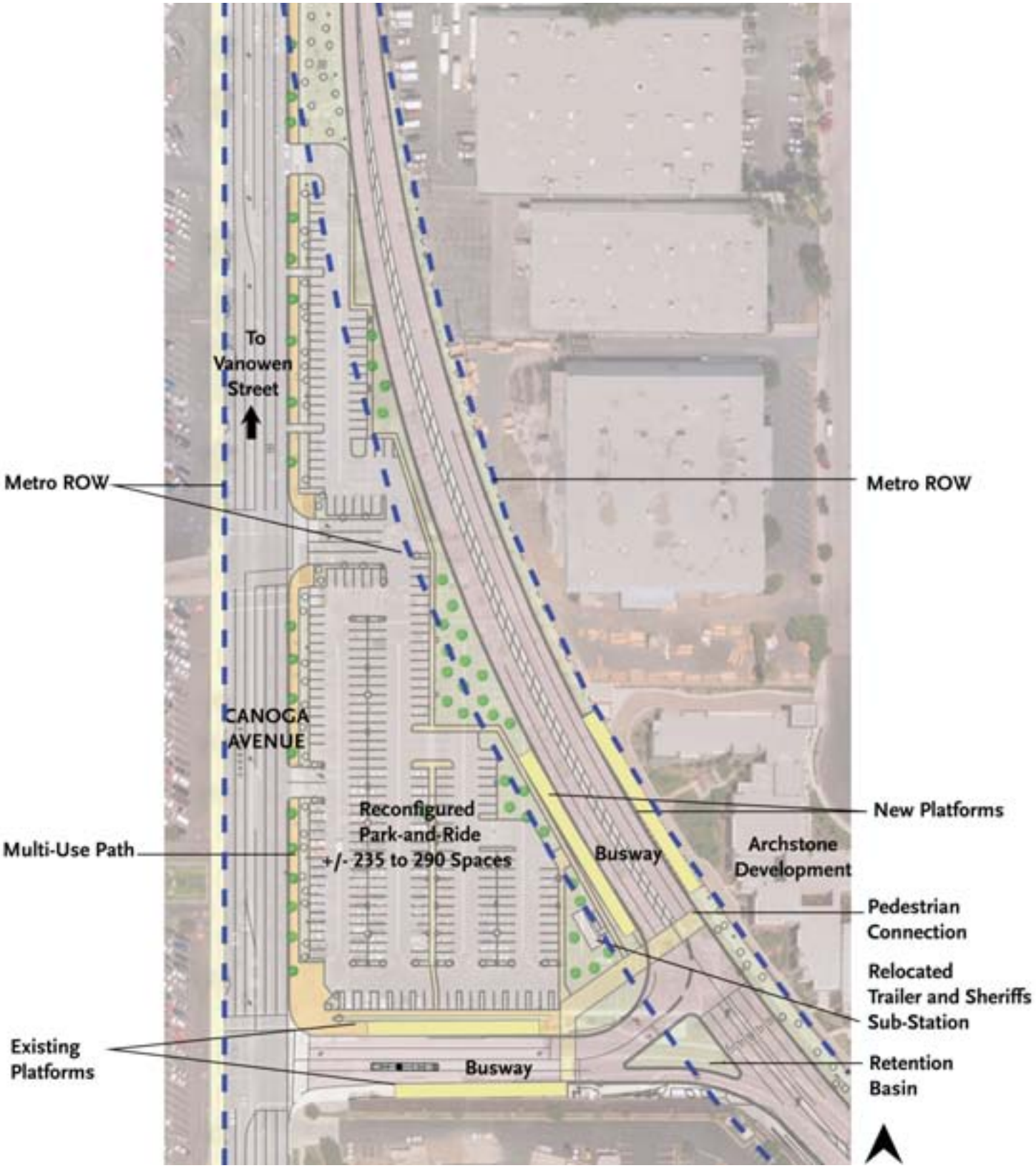

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Figure 3-31
Alternative 4 - Canoga Station Park-and-Ride

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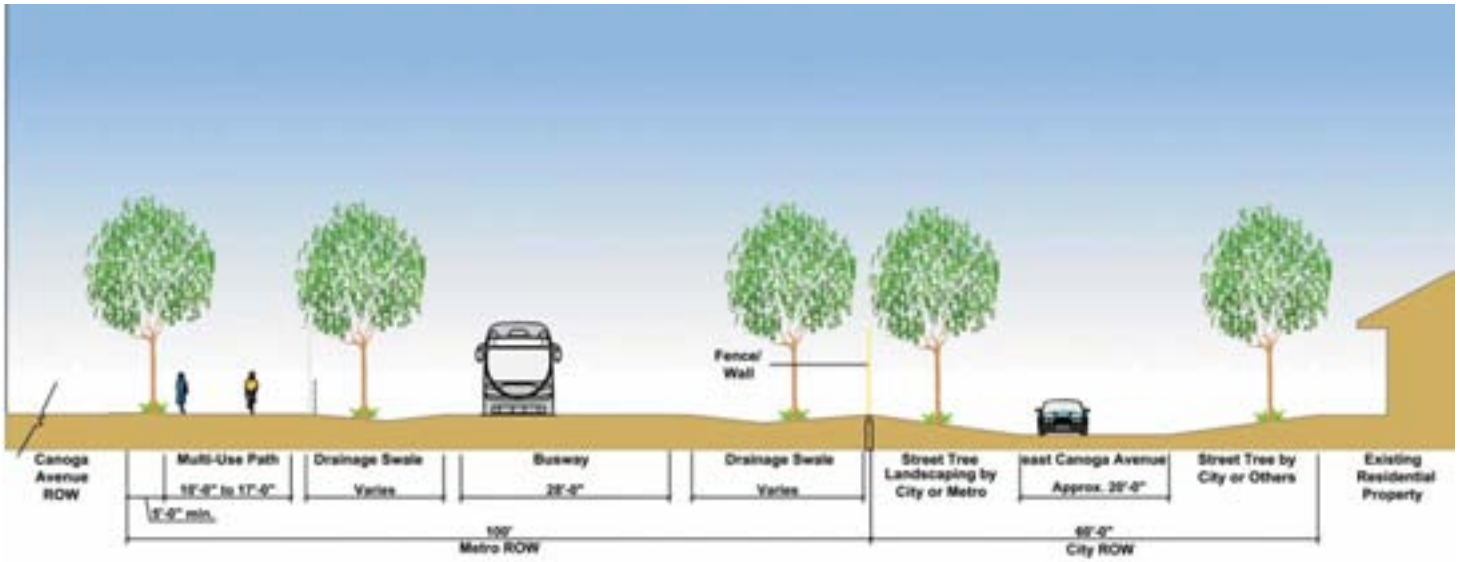
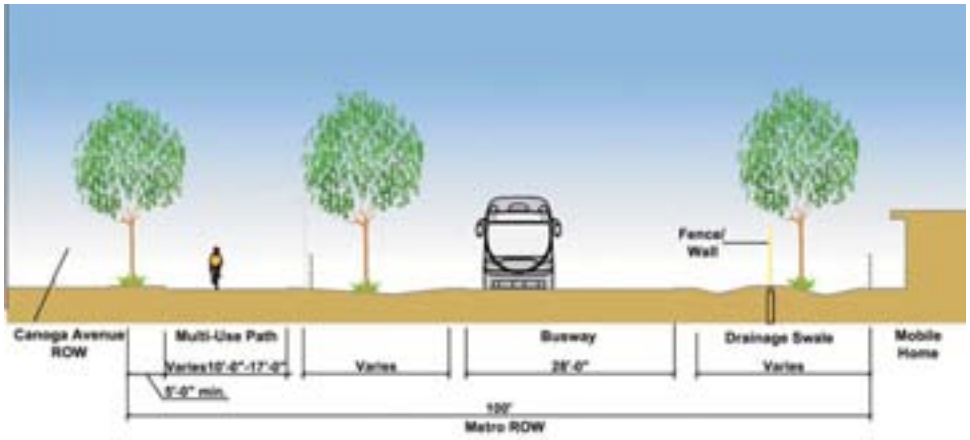
Adjacent to Single Family Residential



Adjacent to Mobile Home Park

Alternative 1



Alternative 2

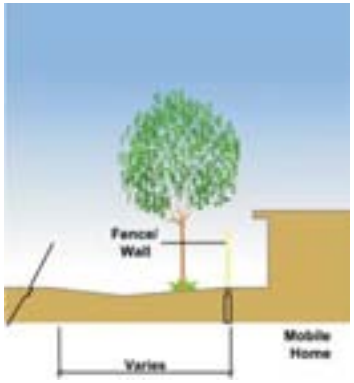


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Figure 3-32
Alternative 4 - Metro ROW Adjacent to Residential Uses

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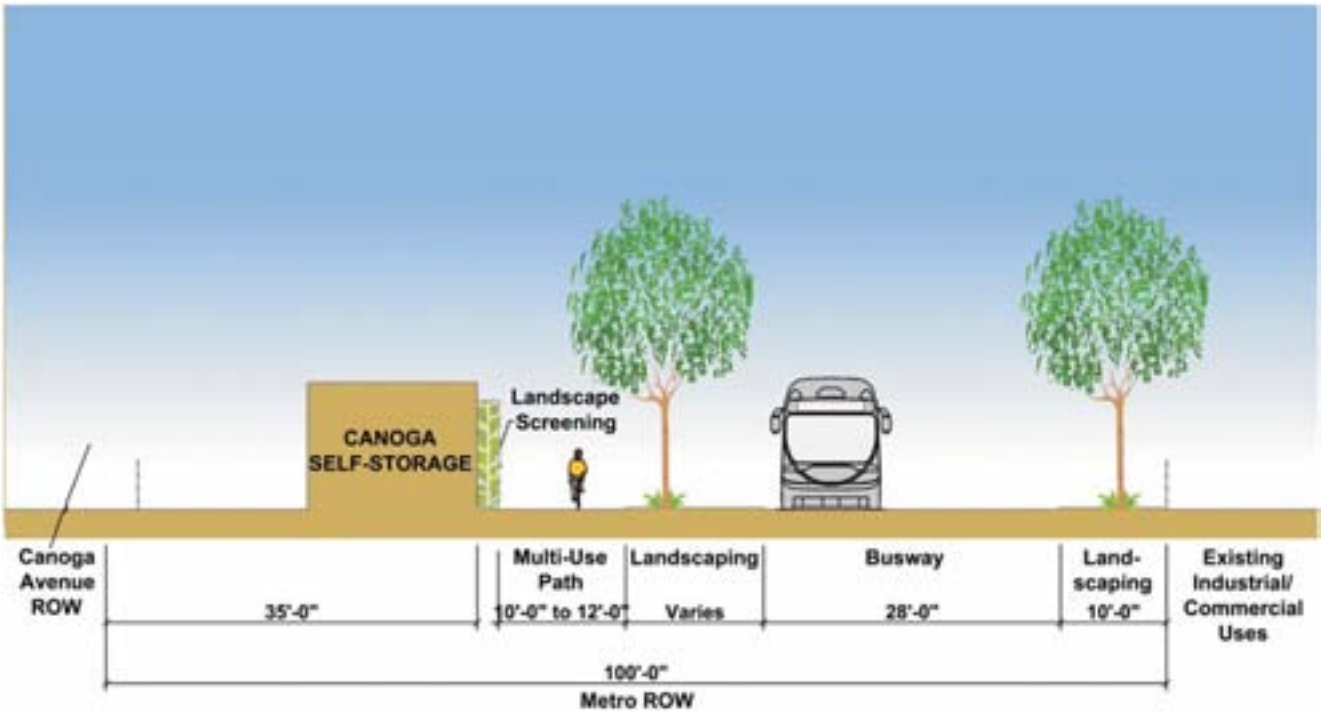

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Figure 3-33
Alternative 4 - Metro ROW Adjacent to Commerical/Industrial Uses

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Los Angeles River Treatment and Connections to Bikeway/Pedestrian Path

The County and the City of Los Angeles have plans for a bikeway/pedestrian path on both sides of the Los Angeles River as well as green spaces for recreation and water recharge adjacent to the River. The urban design concept suggests the use of a portion of the concrete plant leased area near the Los Angeles River for an open space area. The Canoga Busway Alternative and a bikeway/ pedestrian path would pass over a new bridge in the Metro ROW. In the future, ramps could be provided to connect the County bikeway to the Canoga Busway Alternative. The new bridge over the Los Angeles River should have a distinctive design visible from Canoga Avenue and the Metro ROW, in keeping with the distinctive design of the MOL.

Landscaping

Landscaping along the busway would include a mix of appropriate native and adapted exotic plants throughout the project to insure visual continuity, respond to local design context condition, and resource conservation goals. Street tree species and pattern would be coordinated with the City of Los Angeles. Planting design for stations and park-and-ride lots would likely include a mix of deciduous and evergreen, shrubs, and groundcover.

3.4.5 Bus Operating Plan

This section describes the operating characteristics of the three alternatives, including maintenance facility requirements, specifications of buses to be used, and a preliminary operating plan including bus routing and headways.

Bus Maintenance Facilities

Metro Bus Division 8 is the logical location for housing and maintaining the Corridor's buses. Division 8 is located in Chatsworth at the intersection of Nordhoff Street and Canoga Avenue. The need for expansion of bus maintenance facilities is based on the number and size of new buses required by an alternative. **Table 3-3** lists the number of new buses required for each alternative.

Table 3-3 New Bus Fleet Requirements

Alternatives	No Project	TSM Local	On-Street Dedicated Bus Lanes CH–NH WC-NH CH-WC	Busway Ops. Option 1 CH–NH WC–NH CH-WC	Busway Ops. Option 2 CH – WC stand alone	Busway Ops. Option 3 CH–NH WC–NH	TSM – Existing Service Improvement
Fleet Increase	No Change	+8	+21	+21	+7	+14	Up to +23 for options, all upgrades

NH=North Hollywood
CH=Chatsworth
WC=Warner Center

It is assumed that the fleet would be standard 40-foot Metro buses for the TSM Alternative, and possibly for the Chatsworth to Warner Center route of both the Canoga Busway and On-Street Dedicated Bus Lanes Alternatives. Articulated buses would be used for all other routes of the Canoga Busway and On-Street Dedicated Bus Lanes Alternatives. The above increases also do not include 20% spares.

The Division 8 facility currently operates at almost full capacity. The Division's capacity is 229 buses and it is currently assigned 223 buses. The existing facility will need to be modified to accommodate the 7 to 23 buses, plus spares, required by the different project alternatives. In order to accommodate the added buses, Metro would have to provide an off-site overnight bus parking facility, and do the maintenance work at Division 8. The Metro-owned vacant lot at the northwest corner of Owensmouth Avenue and Marilla Street would be paved for bus parking.

Bus Specifications

Sixty or sixty-five-foot articulated buses would likely be used for the Canoga On-Street Dedicated Bus Lanes and Busway Alternatives. These buses can be manufactured with two or three doors and have a seated capacity of 56- 65 passengers. For typical buses, maximum speed ranges between 55 and 65 mph. In calculating run times for the Canoga Busway Alternative, it was assumed that the average dwell at stations would be 20 seconds and average overall speed along the busway would be 21 mph. In calculating run times for the Canoga On-Street Dedicated Bus Lanes Alternative, it was assumed that the average dwell at stations would be 20 seconds and average overall speed along the dedicated bus lanes would be 20 mph.

Operating Patterns

TSM Alternative

Buses for this alternative would have only one operating pattern. The new Local route (246) would travel from the Warner Center Transit Hub to the Chatsworth Metrolink Station, utilizing Owensmouth Street, Oxnard Street, Erwin Street, Canoga Avenue, Marilla Street, Owensmouth Street, and Lassen Street.

Canoga On-Street Dedicated Bus Lanes Alternative

Buses from Chatsworth in this alternative would alternate between continuing east to North Hollywood, joining the existing MOL at the Canoga Station, or proceeding to the Warner Center Transit Hub via the existing MOL operating alignment. At the same time, the existing Warner Center – North Hollywood service pattern would also continue to operate.

Canoga Busway Alternative

The new MOL section between the Canoga Station and Chatsworth Metrolink Station is assumed to operate at 21 miles per hour, comparable to existing MOL speeds between Canoga and North Hollywood, with an estimated run time of 13 minutes between the Canoga MOL station and Chatsworth Metrolink Station. Three service operating patterns are considered for the Busway:

- Busway Operation Option 1: Integration with the existing MOL service, allowing both direct trips Chatsworth – North Hollywood and Chatsworth and Chatsworth – Warner Center.

- Busway Operation Option 2: Stand alone new service between Chatsworth and Warner Center. Transfers at the MOL Canoga Station would be required to make the Chatsworth – North Hollywood trip.

- Busway Operation Option 3: Integration with the existing MOL service, allowing direct trips Chatsworth – North Hollywood and Warner Center – North Hollywood, but omitting a direct link between Chatsworth and Warner Center (transfer at Canoga MOL station).

In each case, the existing MOL operating pattern would also be retained, though with half the existing frequency in Options 1 and 3. For Option 1, buses from Chatsworth would alternate between continuing east to North Hollywood and exiting the busway at the Canoga Station and connecting to the Warner Center Transit Hub via the existing MOL operating alignment. At the same time, existing Warner Center – North Hollywood service pattern would also continue to operate. For Option 2, a new route would operate from the Chatsworth Metrolink Station along the new MOL extension to the Canoga Station, with connections available there to the Warner Center Transit Hub via the existing MOL operating pattern. Option 3 is the same as for Option 1 with the omission of the direct Warner Center – Chatsworth link. The above options assume at least an additional minute travel time saving over the Canoga On-Street Dedicated Bus Lanes Alternative due mostly to the direct link between Canoga Avenue and Chatsworth terminus in this alternative, and avoidance of any peak intersection congestion.

Stopping Patterns

TSM Alternative

The TSM Alternative's new local service on Canoga Avenue would include a stop at the Warner Center Transit Hub, a stop at the existing Canoga MOL station and stops on Canoga Avenue at Sherman Way, Saticoy, Roscoe Boulevard, Parthenia, Nordhoff, Plummer, and Lassen Streets in line with closer stop spacing provided by Local service.

Canoga On-Street Dedicated Bus Lanes Alternative

Utilizing the Metro Rapid service format on Canoga Avenue, stations are proposed at the Canoga MOL Station, Sherman Way, Roscoe Boulevard, Parthenia Street (Optionally), Nordhoff Street and terminating at the Chatsworth Metrolink Station.

Canoga Busway Alternative

The Canoga Busway Alternative would include stops at the existing MOL terminal at Warner Center and a reconfigured Canoga station as well as new MOL stations adjacent to Sherman Way, Roscoe Boulevard, Nordhoff Street, terminating at the existing Chatsworth Metrolink Station.

Service Frequencies

The TSM Alternative and the Canoga Busway Alternative Operating Option 2 would each provide 6 minute peak, 12 minute midday and weekend day base and 20 minute evening service between Chatsworth and Warner Center or the Canoga MOL station. These two alternatives would retain existing MOL service between Warner Center and North Hollywood.

The Canoga On-Street Dedicated Bus Lanes Alterative and the Canoga Busway Alternative (Operating Options 1 and 3) would share MOL service between a new Chatsworth – North Hollywood pattern and the existing MOL service pattern between Warner Center and North Hollywood. Frequencies on the

existing MOL and along the extension to Chatsworth would be 3 minute peak, 6 minute midday/weekend day and 10 minute early/late service. These improved frequencies allow for growth in ridership from both the new extension and further growth on the existing MOL. Direct service between Chatsworth and Warner Center would be included as proposed in the Canoga On-Street Dedicated Bus Lanes Alterative and Canoga Busway Alternative (Operation Options 1 and 2).

Service frequencies for each of the alternatives are summarized in **Table 3-4**. **Table 3-5** sets out assumptions of running times and fleet requirements for these alternatives.

Table 3-4 Service Frequencies for New-Service Alternatives

Alternative	Early AM	AM Peak	Midday	PM Peak	Early Eve	Late Eve	Sat./Sun. Day	Sat./Sun. Early Late
No Project Existing MOL Westbound	15 from 4.30 am 10 from 5.30 am 5 from 6.00 am	4 from 6.30 am 4 from 8.00 am	6 from 9.30 am 10 from 10.00 am 7 from 2.30 pm	4 from 3.30 pm 4 from 4.00 pm	7 from 7.00 pm 10 from 7.30 pm 15 from 800 pm	20 from 9.00 pm	12 from 7.00 am 10 from 11.30 am 12 min from 6.00 pm	15 from 4.30 a.m. 15 from 8.00 p.m. 20 from 9.00 pm
No Project Existing MOL Eastbound	15 from 3.45 am 6 from 4.45 am	4 from 5.15 am 5 from 8.30	10 from 9.00 am 6 from 1.45 pm	4 from 3.00 pm 4 from 4.00 pm 10 from 6.00 pm 12 from 6.30 pm	7 from 7.00 pm 10 from 7.30 pm 15 from 8.00 pm	15 from 7.00 pm 20 from 7.30 pm	12 from 5.30 am 10 from 10.00 am	15 from 3.45 am 15 from 6.30 pm 20 from 8.00 pm
TSM New Local Line (246)- see Table 3-3 for suggested existing line improvements	12 from 4.30 am	6 from 6.30 am to 9.30 am	12 from 9.00 am to 3.00 pm	6 from 3.00 pm to 7.00 pm	12 from 7.00 pm	20 from 9.00 pm	12 from 7.00 am to 6.00 pm	20 from 5.30 am 20 from 6.00 pm
Canoga On-Street Dedicated Lanes Alternate Westbound 3 Patterns NH – WC NH – CH CH – WC	12 from 4.30 am (NH – WC) 6 from 5.30 am (12 each pattern)	3 from 6.00 am (6 each pattern)	6 from 9.00 am (12 each pattern)	3 from 3.00 pm (6 each pattern)	6 from 7.00 pm (12 each pattern)	10 from 9.00 pm (20 each pattern)	6 from 7.00 am to 6.00 pm (12 each pattern)	12 from 4.30 a.m. (NH – WC) 10 from 5.30 am (20 each pattern) 10 from 6.00 p.m. (20 each pattern) pattern)
Canoga On-Street Dedicated Lanes Alternate Eastbound 3 Patterns: WC – NH CH – NH CH – WC	12 from 3.45 am (WC – NH only) 6 from 4.30 am (12 each pattern)	3 from 5.30 am (6 each pattern)	6 from 9.00 am (12 min. each pattern)	3 from 3.00 pm to 7.00 pm (6 min. each pattern)	6 from 7.00 pm (12 min. each pattern) pm	10 from 9.00 pm (20 each pattern)	8 from 7.00 am to 6.00 pm (16 each pattern)	12 from 3.45 am (WC – NH) 10 from 5.30 am (20 each pattern) 10 from 6.00 pm (20 each pattern)

Table 3-4 Service Frequencies for New-Service Alternatives

Alternative	Early AM	AM Peak	Midday	PM Peak	Early Eve	Late Eve	Sat./Sun. Day	Sat./Sun. Early Late
Canoga Busway Ops. Option 1 Alternate Westbound 3 Patterns NH – WC NH – CH CH – WC	12 from 4.30 am (NH – WC) 6 from 5.30 am (12 each pattern)	3 from 6.00 am (6 each pattern)	6 from 9.00 am (12 each pattern)	3 from 3.00 pm (6 each pattern)	6 from 7.00 pm (12 each pattern)	10 from 9.00 pm (20 each pattern)	6 from 7.00 am to 6.00 pm (12 each pattern)	12 from 4.30 a.m. (NH – WC) 10 from 5.30 am (20 each pattern) 10 from 6.00 p.m. (20 each pattern)
Canoga Busway Ops. Option 1 Alternate Eastbound 3 Patterns: WC – NH CH – NH CH – WC	12 from 3.45 am (WC – NH only) 6 from 4.30 am (12 each pattern)	3 from 5.30 am (6 each pattern)	6 from 9.00 am (12 min. each pattern)	3 from 3.00 pm to 7.00 pm (6 min. each pattern)	6 from 7.00 pm (12 min. each pattern) pm	10 from 9.00 pm (20 each pattern)	6 from 7.00 am to 6.00 pm (12 each pattern)	12 from 3.45 am (WC – NH) 10 from 5.30 am (20 each pattern) 10 from 6.00 pm (20 each pattern)
Canoga Busway Ops. Option 2 Chatsworth – WC	12 from 4.30 am 6 from 5.30 am	6 from 6.30 am to 9.00 am	12 from 9.00 am to 3.00 pm	6 from 3.00 pm to 7.00 pm	10 from 7.00 pm	20 from 9.00 pm	12 from 7.00 am to 6.00 pm	20 from 5.30 am 20 from 6.00 pm
Canoga Busway Ops. Option 3 Chatsworth – WC Alternate Eastbound 2 Patterns: WC – NH CH – NH	12 from 3.45 am (WC – NH only) 6 from 4.30 am (12 each pattern)	3 from 5.30 am (6 each pattern)	6 from 9.00 am (12 min. each pattern)	3 from 3.00 pm to 7.00 pm (6 min. each pattern)	6 from 7.00 pm (12 min. each pattern) pm	10 from 9.00 pm (20 each pattern)	6 from 7.00 am to 6.00 pm (12 each pattern)	12 from 3.45 am (WC – NH) 10 from 5.30 am (20 each pattern) 10 from 6.00 pm (20 each pattern)
Canoga Busway Ops. Option 3 Alternate Westbound 2 Patterns: WC – NH CH – NH	12 from 4.30 am (NH-WC only) 6 from 5.30 am (12 each pattern)	3 from 6.30 am to 9.00 am (6 each pattern)	6 from 9.00 am to 3.00 pm (12 each pattern)	3 from 3.00 pm to 7.00 pm (12 each pattern)	6 from 7.00 pm (12 each pattern)	10 from 9.00 pm (20 each pattern)	6 from 7.00 am to 6.00 pm (12 each pattern)	12 from 4.30 am (NH – WC only) 10 from 5.30 am (20 each pattern) 10 from 6.00 pm (20 each pattern)

** - all alternatives might include some or all of the suggested improvements to existing transit services in the western San Fernando Valley.*

NH=North Hollywood
CH=Chatsworth
WC=Warner Center

Table 3-5 Service Running Times and Extra Fleet Requirements (in parenthesis)

Alternative	Early AM	AM Peak	Midday	PM Peak	Early Eve	Late Eve	Sat/Sun Day	Sat/Sun Early Late
No Project NH - WC Existing Westbound	42	47 (27)	46 (12)	50 (27)	46	40	42 (11)	40
No Project WC – NH Existing Eastbound	38	43	44	45	43	40	42	40
TSM Local CH – CAN & CAN – CH	15/15	17/17 (8)	15/15 (4)	17/17 (8)	15/15	15/15	15/15 (4)	15/15
Canoga On-Street Dedicated Lanes Alternate Westbound 3 patterns								
NH – WC	42	47 (18)	46 (9)	50 (19)	46	40	42 (9)	40
NH – CH	51	56 (21)	55 (11)	59 (22)	55	49	51 (10)	49
CH - WC	15	15 (7)	15 (4)	15 (7)	15	15	15 (4)	15
Canoga On-Street Dedicated Lanes Alternate Eastbound 3 Patterns								
WC – NH	38	43	44	45	43	40	42	40
CH – NH	47	52	53	54	52	49	51	49
CH – WC	15	15	15	15	15	15	15	15
Canoga Busway Ops. Option 1 Westbound 3 patterns								
NH – WC	42	47 (18)	46 (9)	50 (19)	46	40	42 (9)	40
NH – CH	51	56 (21)	55 (11)	59 (22)	55	49	51 (10)	49
WC - CH	15	15 (7)	15 (4)	15 (7)	15	15	15 (4)	15
Canoga Busway Ops. Option 1 Eastbound 3 Patterns								
WC – NH	38	43	44	45	43	40	42	40
CH – NH	47	52	53	54	52	49	51	49
CH - WC	15	15	15	15	15	15	15	15
Canoga Busway Ops. Option 2 CH – WC	15/15	15/15 (7)	15/15 (4)	15/15 (7)	15/15	15/15	15/15(4)	15/15
Canoga Busway Ops. Option 3 Alternate Westbound 2 patterns								
NH – WC	42	47 (18)	46 (9)	50 (19)	46	40	42 (9)	40
NH – CH	51	56 (21)	55 (11)	59 (22)	55	49	51 (10)	49
Canoga Busway Ops. Option 3 Alternate Eastbound 2 Patterns								
WC – NH	38	43	44	45	43	40	42	40
CH – NH	47	52	53	54	52	49	51	49

Notes:
NH=North Hollywood
CH=Chatsworth
WC=Warner Center

3.5 RIDERSHIP

Ridership describes the amount of people using the project alternative, as estimated through Metro's transportation demand model. Transit ridership is affected by both internal (e.g. pricing, service quality and quantity) and external (e.g. area's employment and population) factors. Since all project alternatives would operate in the same area, internal factors would determine the differences in ridership between them. For both BRT alternatives, service quantity (headways) would be equal; therefore, service quality (speed) would be the differentiator. The difference in average speed between the two BRT alternatives is driven by the difference in free-flow speed, number of signals each alternative would have to cross, and the level of transit priority that each alternative can assume. As described in Section 3.4.5, the Canoga Busway Alternative would travel at approximately 21 mph, one mph faster than the Canoga On-Street Dedicated Bus Lanes Alternative. This difference in average speed is the result of a faster free-flow speed on the Busway itself, one less signal to cross and less average signal delay. Ridership has been estimated for all project alternatives based on forecast year 2030.

Table 3-6 2030 Ridership Estimates

Station	Daily Transit Boardings for the MOL (fixed guideway stations only)	New Daily Transit Trips	
		Compared to No Project Alternative	Compared to TSM Alternative
Alternative 2. TSM			
		1,245	-
Alternative 3. Canoga On-Street Dedicated Bus Lanes Alternative			
Sherman Way	2,378		
Roscoe	2,883		
Nordhoff	595		
Chatsworth	2,129		
Canoga Extension Total	7,985		
Metro Orange Line	**45,371**	**8,943**	**7,698**
Alternative 4. Busway			
Sherman Way	2,407		
Roscoe	2,933		
Nordhoff	613		
Chatsworth	2,247		
Canoga Extension Total	8,200		
Metro Orange Line	**45,537**	**9,023**	**7,778**

Source: Iteris, 2007

The projected ridership for each alternative is shown in **Table 3-6**. The "boardings" column represents the number of passengers expected to use the system by boarding at a fixed guideway station, that is, board and alight at stations constructed as part of either of the two project alternatives. While boardings give an indication of transit activity, these numbers should not be used in trying to assess how many more riders are attracted to transit since a single rider may need to transfer one or more times, accounting for more than one boarding to complete a single trip. The "new transit riders" column is the appropriate measure for determining the number of additional riders, since this measure deals with linked (end-to-end) trips. New transit riders are reported for each alternative as increments over the No Project and TSM Alternatives.

The results demonstrate that the difference in transit ridership between the Canoga Busway Alternative and the Canoga On-Street Dedicated Lanes Alternative are minimal. The lower ridership of the Canoga On-Street Dedicated Lanes Alternative is related to the slightly slower average speed.

3.6 ESTIMATED CONSTRUCTION SCHEDULE

3.6.1 The Construction Process

A number of activities must occur before construction activities can begin. Once Preliminary Engineering has been completed, a Final Design will occur in which the final details of the corridor improvements will be developed. Depending upon the alternative selected as the Locally Preferred Alternative, the design may happen in one of two ways; (1) it could happen as part of a Design/Build contract, similar to the MOL, where the construction contractor's team prepares the final design as well as builds the project, or (2) the final plans, specifications and estimates (PS&E) could be prepared by a consultant or City of Los Angeles staff and then a construction contract awarded. Once the design details are available in the form of design drawings, precise right-of-way limits will be known and right-of-way acquisition can begin. This will include both the acquisition of privately owned parcels of real property and also the non-renewal of lease agreements with a variety of tenants along the corridor. Section 4-2 provides a detailed description of both types of property affected by the corridor. For the acquisition of privately owned property, appraisals will be conducted and the results communicated to the property owners, followed by negotiations and completion of purchase agreements. For the leasehold properties, tenants will be given sufficient advance notice by Metro of its intent to occupy the corridor for its own use, and any needed agreements will be completed with the affected tenants. Completion of this step will secure the corridor and make it available for construction. The construction contractor(s) will be selected through either a standard procurement process involving the issuing of bid packages, receipt and evaluation of bids, selection of the contractor(s) to perform the work, and award of the contract(s) or Design-Build process, which combines a number of standard steps typically involving design, specifications, bidding, and construction into one.

3.6.2 Construction Scenario

No construction would be associated with the No Project Alternative other than that connected with typical capital improvements projects planned as part of normal municipal program planning. No construction is envisioned in the TSM Alternative either. It involves additional bus operations, but if any physical improvements should be implemented along with the bus operations improvements, they would consist of typical street construction activities (such as site-specific intersection improvements) and upgrades to the traffic signal system (such as integrated signal operation). These activities would be similar to those described in the following subsections, at Steps 6 and 8, and they would occur at a variety of currently undetermined locations.

For the Canoga Busway Alternative, conversion of the existing Metro-owned railroad right-of-way into an at-grade busway is proposed. An overall construction schedule of 20 to 24 months is estimated to complete the busway, with several major construction steps involved. The estimated schedule may be longer for Option 5 of the Canoga Busway Alternative, with railroad grade separation structures due to railroad and street operations. For the Canoga On-Street Dedicated Bus Lanes Alternative, an overall construction period of 24-36 months is anticipated. The Canoga On-Street Dedicated Bus Lanes Alternative has a longer overall construction time period because of the need to maintain traffic flow on Canoga Avenue while it is being reconstructed. It should be understood that the construction scenario described in the following pages is an illustration; the actual construction process will be governed by the provisions and procedures of the construction contract. It is not known at this time if the construction contract will identify construction stages or leave those decisions to the contractor. If it is a Design/Build contract, the contract is likely to include more flexibility in terms of the scheduling of construction activities. For these reasons, it is not possible to know at this time if construction will proceed from north to south on the corridor or occur along the entire length of the corridor at the same time. The Contractor will require temporary laydown and staging area(s) for field trailers, storage of equipment and

construction related activities within Metro ROW and/or in the vicinity of the project. The Contractor may set up temporary rock crushing equipment within Metro ROW and/or in the vicinity of the project in order to recycle concrete and asphalt rubble for use as crushed miscellaneous base to be placed under busway pavement.

Step 1: Utility Relocation and Site Clearing

This first step in the construction process would require an estimated 6-9 months and would clear the corridor and prepare it for construction of the busway. Four steps would be involved, as described below.

Site Clearing: Once the right-of-way acquisition process has been completed, the corridor would be cleared of above ground structures and improvements. In the case of right-of-way that was formerly private property, the construction contractor would remove the improvements. In the case of former lease property, the tenants would be required in most instances to remove their improvements, with some remainder to be removed by the construction contractor. Hazardous Materials within any structures would be removed prior to demolition. Where necessary, construction sites would be fenced at this point for public safety.

Track and Ballast Removal: The remaining vestiges of the railroad would first be removed. Some portions of the removed material would be recycled. Track sections, railroad ties and fasteners, and the underlying ballast material would all be removed and the corridor would be rough-graded.

Bridge Demolition: The Los Angeles River Canoga Avenue bridge would be widened for the Canoga On-Street Dedicated Bus Lanes Alternative. The Los Angeles River railroad bridge would require demolition and reconstruction for the Canoga Busway Alternative. Since the corridor does not currently carry railroad traffic, the bridge can be completely demolished, leaving open construction sites for their later replacement. It is estimated that approximately 6 months would be needed for this step in the construction process, and work would be restricted to the dry season (mid-April to mid-October). Depending upon information to be developed in final design, it may or may not be necessary to construct new foundations for the piers in the Los Angeles River channel. Should this be required, the bridge construction in this vicinity could be extended into a second dry season. For the remaining water crossing at the Santa Susana Wash, the bridge would completely span the crossing, and therefore seasonal construction issues should not be a constraint. Activities included in this step would consist of removing rail and track structures, followed by removal of bridge supports and foundations. Again, where possible, reusable materials would be recycled.

Utility Relocation: Existing utilities that would interfere with construction of the corridor improvements would be removed and relocated for continuing service. Also, utilities crossing the corridor may need to be removed and relocated to either temporary (requiring final relocation at an appropriate point later in the construction process) or permanent locations at the outset, the latter being more desirable. Based upon investigations conducted to date, it is not expected that any major utilities will require relocation. Relocation or reconstruction of existing utilities will need to take into account service required at the station locations and parking lots (i.e. electricity for platform and parking lot lighting, telephone for communications, water for landscape maintenance) and also any additional feeds to reconstructed traffic signals. For the Canoga On-Street Dedicated Bus Lanes Alternative, the above-ground utility poles along the east side of Canoga Avenue will have to be relocated into the Metro right-of-way to make room for the roadway widening. Some minor utility relocation may extend throughout the construction period with final utility relocation near the end of the period.

Step 2: Surface Grading and Structural Section Installation

This second step in the construction process would require an estimated 12-18 months and would prepare the corridor for the busway or roadway paving and subsequent elements. Two activities would be involved, as described below.

Excavation: Shallow excavation (estimated for purposes of this EIS/EIR to a depth of approximately 1.75 ft [0.53 meters]) is anticipated since the busway or roadway widening would be an essentially at-grade facility. In some cases deeper excavation may be required to place and compact subgrade materials under the busway roadbed. In addition, minor amounts of shallow excavation would occur where the busway crosses city streets. It is estimated that over the length of the entire corridor (21,500 ft) an estimated 100,000 cubic yards of excavated material would be required. Excavated material would be collected in haul trucks and carried away from the construction area to either become fill material for berms on this project or for some other project or, if either is not desired, or the soil contains high levels of contaminants, it would be hauled for disposal at an approved disposal site. Haul routes have not been specified at the present time; these will be determined in consultation with the City of Los Angeles Department of Transportation, Bureau of Engineering, and Bureau of Street Services. A minimum of contamination is expected (although some hazardous materials deposited during the period of railroad use may still be present); however, the actual amount will not be determined until pre-testing is conducted prior to the initiation of excavation activities. If contaminated materials are found, then characterization, treatment and disposal will be conducted in accordance with applicable regulations. Some of the non-contaminated excavation may be used to build berms along parts of the route. All of the crossings of the existing street system along the corridor will require reconstruction, as well. This will be timed to coincide with traffic control improvements (see step 8).

Drainage Facilities: It will be necessary to install subsurface drainage facilities, including catch basins, drainage pipe and connections to the local storm drain system, in conjunction with the Canoga On-Street Dedicated Bus Lanes Alternative and some such facilities may be needed in the Canoga Busway Alternative in station areas. There may be sections of the corridor requiring substantial lengths of longitudinal drainage pipe, depending upon the amount of runoff to be expected, the capacity of the local storm drain system and the location of appropriate connection points. The extent of this necessity and such specifications as size, length and connection points, will be determined in preliminary and final design. It will also be necessary to manage drainage during the construction period such that project-related drainage does not overflow onto adjacent properties or public streets. In order to comply with Los Angeles Regional Water Quality Control Board and the United States Environmental Protection Agency for Clean Water Act, the use of biofiltration swales, retention areas, and other natural drainage to encourage runoff percolation will be included.

Compaction of Subgrade: Once the excavation process has been completed, then the corridor can be compacted to appropriate geotechnical standards, thereby providing the subgrade needed for installation of the structural roadway section. It may be necessary to over-excavate and recompact the subgrade to ensure a sufficient base for the Busway or widened roadway facility.

Step 3: Soundwall Construction (Busway Options 4 and 4a)

Only the Canoga Busway Alternative Options 4 and 4a would require soundwalls. Other options would require walls of a lesser magnitude. This step in the construction process would require an estimated 3-5 months and would provide noise attenuation where appropriate along the corridor. It is desirable to install walls/fences as early in the construction process as practicable, thereby providing attenuation for construction noise as well as project operational noise, although in some locations this may not be possible in order to allow for the movement of construction vehicle and equipment within the

construction zone. For purposes of illustration, standard concrete block wall construction is described below. Other methods that could also be used would include poured-in-place walls and fixed panel walls. For standard block walls, activities occurring during this step would be as described below.

Install Footings: Continuous footings would be excavated (either at grade or in conjunction with berm sections), to an appropriate structural depth, along the lengths where soundwalls are proposed. Reinforcing steel would be placed and concrete would be poured to complete the footing.

Construct Walls: Once the foundation is in place, walls would be constructed using masonry blocks, poured-in-place concrete, or some other suitable material.

Depending upon the area in which the soundwall is located, its proximity to residential land uses, and its visual prominence, it may be necessary or desirable to also provide some form of aesthetic treatment. The aesthetic treatment should be in keeping with the distinctive design of the MOL. Landscaping would be used to soften the appearance. Surface treatment of the wall may be used to create visual interest. Whatever approach is used, it will also be necessary to construct the soundwalls such that graffiti is prevented or easily removed (the latter can be done using special anti-graffiti protective coatings on the wall surface).

Step 4 Station and Park and Ride Lot Construction

A total of 3 to 5 new stations are to be constructed along the corridor (depending upon the northern terminus location and the optional Parthenia station), at an approximate spacing of one mile. There would also be modifications to the two existing stations at the Canoga Station and the Chatsworth Metrolink Station. It is estimated that 9-12 months would be required for this construction step. Each of these stations would be constructed in the following steps:

Clearing and Grubbing: Each station location would be cleared of obstructions and rough-graded to permit subsequent activities to occur.

Platform Construction: Once the station areas are cleared, footings would be excavated to a depth necessary for the canopies, lighting, and other above ground elements. It will be necessary at this point to install utility feeds for power, water, ticket vending machines, telephones, etc. as part of the footing and platform construction. The footings would receive reinforcing steel and concrete would be poured. With the footings in place, at-grade platforms would be formed and the concrete platforms poured and finished.

Install Canopy and Other Platform Amenities: With the platforms in place, the above-platform features can be installed. Included among these features would be canopies, stairs and railings.

Parking Lots and Park-and-Ride Areas: These areas would be graded and subsequently paved and striped for a prescribed number of parking spaces. Entrance and exit driveways would be constructed. During the construction period, the parking lot areas could be used as the lay down sites for construction materials and equipment, so the final paving of the parking lots could occur near the end of the construction period.

Step 5: Structures Installation

This fifth step in the construction process would require an estimated 8-12 months and would result in finished above-grade structures, including bridges, to accompany the at-grade portions of the corridor. Construction of the Los Angeles River Bridge could occur over two dry seasons. Several activities would

occur during this step, as described below. The estimated schedule for a railroad grade separation structure in various options in the Canoga Busway Alternative may take longer to construct and Metro and/or its contractor will coordinate with the railroad operators as well as LADOT during design and construction.

Foundation Excavation: If necessary, below-grade foundations would be constructed at bridge locations. Excavation would be conducted to establish the appropriate width, length and depth for each foundation. Excavated material would be used for backfill, which is described below. Any remaining excavated material would be removed and hauled away using the same procedures as for the main excavation.
Pile Setting: Where additional structural support is needed at the LA River bridge or for a potential grade separation at the railroad tracks south of Lassen, piles would be placed. They would either be driven by means of a pile driver or placed in pre-drilled holes using a crane, depending upon the condition of the soils in the immediate vicinity and other factors. Proximity to noise sensitive areas will be a major factor in selecting the method of pile setting.

Pile Cap Installation: With the foundations and piles in place, pile caps would then be constructed to support the remainder of the above-grade structure. Reinforcing steel would be placed in the excavated area, the perimeter would be formed, and concrete would be poured to form the pile cap.

Column Installation: Once the pile caps are in place, vertical columns, to support the bridge superstructures, would be constructed. Cages of reinforcing steel would be brought to the site on trucks, erected using cranes, and connected to the pile caps. Then, the exterior surfaces of the columns would be established with forming, and concrete would be poured to form the columns.

Abutment and Retaining Wall Installation: At this stage in the structures construction process, the balance of the structural support would be installed. In particular, abutment structures, constructed of reinforced concrete, would be built, using reinforcing steel and forming.

Bridge Superstructures: With all the foundations, pile caps, columns and structural retaining walls in place, it would then be possible to construct the superstructures upon which the above-grade roadway surfaces would reside. Falsework would be constructed using steel I-beam girders, which would be brought in on trucks and lifted onto the vertical falsework supports, where they would be attached. With all of the I-beam girders spanning the vertical supports in place, the falsework installation would be completed by installing formwork on top of the girders, forming the entire volume contained between vertical supports, the reinforcement would be placed and concrete poured, thereby completing the superstructure. The formed superstructures would be supported from below with wooden falsework, similar in appearance to above-grade freeway construction.

Bridge Decking: Once the entire bridge superstructure is in place, the decking can then be placed. This would involve another pour of concrete over a shallow formed area with reinforcing steel between the sides of the structures, to become the roadway decking portion of the structure. A space in the deck would be provided for the installation of lighting and communications equipment. All of the work would be done from above at this point.

Backfill: With all of the above-grade structures in place, the open excavated areas would then be backfilled and compacted. With this step completed, falsework would be removed.

Step 6: Paving and Surfacing

This sixth step in the construction process would require an estimated 8-12 months for the Canoga On-Street Dedicated Lanes Alternative or 12-18 months for the Canoga Busway Alternative, and would result

in a finished roadway surface over the entire length of the corridor, including locations where the busway would cross city streets. Activities occurring during this step would be as described below.

Install Base Material: At the completion of Step 2, the at-grade portions of the corridor were made ready for the installation of base material. Following the installation of utilities, including conduits, for communications and lighting, the sub-grade was compacted to a sufficient density and graded appropriately for drainage. At this new step, base material, consisting of aggregate, would be brought to the site in trucks and placed on top of the sub-grade. The material would then be graded and compacted to a prescribed density.

Construct Curbs and Gutters: One of the next steps needed to complete the roadway work would consist of forming and pouring curbs and gutters where needed along the entire length of the corridor. Runoff from the curbs and gutters would be channeled into drainage facilities leading to the existing storm drain system.

Place Portland Cement Concrete or Asphalt: The entire corridor would be paved with Portland cement concrete or asphalt. The process is similar to that used on the freeways. It would likely occur in intermittent paving for several days in a row in various sections of the corridor and would likely occur several times in each segment as multiple layers of pavement are applied.

Step 7: Landscaping and Finish Work

This construction step would require an estimated 6-8 months. The following steps would occur.

Install Irrigation System and Landscaping: Prior to installing planting material, irrigation systems would be installed where required. Planting materials, including ground cover, shrubs and trees, would be brought to each planting location by truck, and planted.

Complete Finish Work: A variety of finish work tasks would need to be completed. At each station, final platform features would be installed, including benches, ticket vending machines, stand-alone validators, map cases, pylons, trash receptacles, artwork, lighting and signage, as determined in preliminary engineering. Also to be completed would be parking lot paving, striping, and landscaping. Along the corridor, installation of electrical equipment, signage (as determined in preliminary engineering) and final clean-up would occur.

Step 8: Traffic Control Systems Installation

This construction step would require an estimated 8-12 months. Construction traffic management would occur throughout the entire project construction period, with a greater level of traffic management required for the Canoga On-Street Dedicated Bus Lanes Alternative than the Canoga Busway Alternative, due to the need to maintain traffic flow and access on Canoga Avenue. The following steps would occur.

Install/Upgrade Traffic Signals: It may be necessary to upgrade the local arterial traffic control system throughout the corridor, to permit the interaction between local traffic and busway movements. New signal controllers will need to be installed at a variety of locations along the corridor. It may also be necessary to upgrade intersection street lighting along the corridor. Reconstruction of street intersections crossing the Busway corridor would be accomplished along with the traffic signalization work. For the Canoga Busway Alternative, nine street crossings would be reconstructed or resurfaced. For the Canoga On-Street Dedicated Bus Lanes Alternative, 10-11 signalized intersections would be reconstructed or modified. It may be necessary, depending upon traffic conditions, to stage the reconstruction of some individual street crossings, and also preclude the simultaneous reconstruction of

adjacent crossings in some areas.

Striping: Where necessary, intersection approaches may require restriping to allow for additional turning lanes, alterations in street lane geometry, and pedestrian crosswalks. The Canoga On-Street Dedicated Bus Lanes Alternative will require the restriping of the entire Canoga Corridor when the expanded roadway is complete.

Signs: New signage will be needed along the corridor, for busway users, motorists, pedestrians and bicyclists.

Step 9: Systems Installation and Testing

Once the entire corridor has been completed, its operation would be tested, including the interactive traffic signal system, communications equipment, and station and park-and-ride facilities and equipment. Completion of this testing would then permit the corridor to be opened for service.

Step 10: Operations and Maintenance Facilities

The existing maintenance facility at Divisions 8 (on Canoga Avenue in Chatsworth) would be used to service buses operating on the corridor. It may be necessary to make some improvements internal to this facility to handle longer 65-foot articulated buses, but the existing service capacity would be sufficient for the number of buses added to the system. The service bays and maintenance buildings may need to be lengthened to accommodate the longer buses.

In addition, additional parking will be required to store the buses at night when not in service. The potential locations for bus parking are on the Metro-owned lots on Marilla Street, at the northwest corner of Owensmouth Street or on the triangular property adjacent to the railroad tracks. The bus parking facilities on these sites would be constructed similar to the station parking facilities described above.

3.7 APPROVALS

The proposed project would need certification of this EIR by Metro's Board of Directors. Final design plans for the Locally Preferred Alternative would require approval by the following agencies:

Metro Construction - Approval of all engineering drawings.

City of Los Angeles Bureau of Engineering – Approval of utility relocation plans, drainage control plans.

City of Los Angeles Department of Transportation – Approval of intersection signal timing, signing and striping plans, and construction traffic management plans.

Los Angeles County Flood Control District – Approval of engineering drawings for any proposed bridge structures over the Santa Susana Wash or the Los Angeles River.

Regional Water Quality Control Board – Approval of Drainage Plans

California Public Utilities Commission – Depending on northern segment option chosen as part of the LPA, a General Order 88B for the Lassen Street rail crossing would be required. Northern segment option 5 of the Canoga Busway Alternative will not necessitate this approval.

California Department of Toxic Substances Control – Approval of plans for handling contaminated soils.

Union Pacific Railroad
Concurrence with the General Order 88B will be required because the railroad is a co-owner of the railroad ROW.

Los Angeles City Council
If the Locally Preferred Alternative for the project is the Canoga On-Street Dedicated Bus Lanes or Canoga Busway, a City of Los Angeles Council resolution would be required to relieve the project from the Secondary Highway street improvement requirements set by the Bureau of Engineering for Canoga Avenue.

Other ancillary approvals and permits as may be required