ROAD REPAIR AND ACCOUNTABILITY ACT OF 2017
PROJECT BASELINE AGREEMENT
Metro Orange Line Bus Rapid Transit Improvements

Resolution LPP-P-1920-01B
(will be completed by CTC)

1. FUNDING PROGRAM

- ☐ Active Transportation Program
- ☒ Local Partnership Program (Competitive)
- ☐ Solutions for Congested Corridors Program
- ☐ State Highway Operation and Protection Program
- ☐ Trade Corridor Enhancement Program

2. PARTIES AND DATE

2.1 This Project Baseline Agreement (Agreement) for the *Metro Orange Line Bus Rapid Transit Improvements*, effective on, _____ (will be completed by CTC), is made by and between the California Transportation Commission (Commission), the California Department of Transportation (Caltrans), the Project Applicant, *Los Angeles County Metropolitan Transportation Authority* , and the Implementing Agency, *Los Angeles County Metropolitan Transportation Authority* , sometimes collectively referred to as the "Parties".

3. RECITAL

3.2 Whereas at its May 16, 2018 meeting the Commission approved the Local Partnership Program (Competitive), and included in this program of projects the *Metro Orange Line Bus Rapid Transit Improvements*, the parties are entering into this Project Baseline Agreement to document the project cost, schedule, scope and benefits, as detailed on the Project Programming Request Form attached hereto as Exhibit A and the Project Report attached hereto as Exhibit B, as the baseline for project monitoring by the Commission.

3.3 The undersigned Project Applicant certifies that the funding sources cited are committed and expected to be available; the estimated costs represent full project funding; and the scope and description of benefits is the best estimate possible.

4. GENERAL PROVISIONS

The Project Applicant, Implementing Agency, and Caltrans agree to abide by the following provisions:

4.1 To meet the requirements of the Road Repair and Accountability Act of 2017 (Senate Bill [SB] 1, Chapter 5, Statutes of 2017) which provides the first significant, stable, and on-going increase in state transportation funding in more than two decades.

4.2 To adhere, as applicable, to the provisions of the Commission:

- ☐ Resolution *Insert Number* , "Adoption of Program of Projects for the Active Transportation Program", dated
- ☒ Resolution LPP-P-1718-01, "Adoption of Program of Projects for the Local Partnership Program", dated May 16, 2018
- ☐ Resolution *Insert Number* , "Adoption of Program of Projects for the Solutions for Congested Corridors Program", dated
- ☐ Resolution *Insert Number* , "Adoption of Program of Projects for the State Highway Operation and Protection Program", dated
- ☐ Resolution *Insert Number* , "Adoption of Program of Projects for the Trade Corridor Enhancement Program", dated

4.3 All signatories agree to adhere to the Commission's Local Partnership Program (Competitive), Guidelines. Any conflict between the programs will be resolved at the discretion of the Commission.

4.4 All signatories agree to adhere to the Commission's SB 1 Accountability and Transparency Guidelines and policies, and program and project amendment processes.

4.5 The Los Angeles County Metropolitan Transportation Authority agrees to secure funds for any additional costs of the project.

4.6 The Los Angeles County Metropolitan Transportation Authority agrees to report to Caltrans on a quarterly basis; after July 2019, reports will be on a semi-annual basis on the progress made toward the implementation of the project, including scope, cost, schedule, outcomes, and anticipated benefits.

4.7 Caltrans agrees to prepare program progress reports on a quarterly basis; after July 2019, reports will be on a semi-annual basis and include information appropriate to assess the current state of the overall program and the current status of each project identified in the program report.

4.8 The Los Angeles County Metropolitan Transportation Authority agrees to submit a timely Completion Report and Final Delivery Report as specified in the Commission's SB 1 Accountability and Transparency Guidelines.

4.9 All signatories agree to maintain and make available to the Commission and/or its designated representative, all work related documents, including without limitation engineering, financial and other data, and methodologies and assumptions used in the determination of project benefits during the course of the project, and retain those records for four years from the date of the final closeout of the project. Financial records will be maintained in accordance with Generally Accepted Accounting Principles.

4.10 The Transportation Inspector General of the Independent Office of Audits and Investigations has the right to audit the project records, including technical and financial data, of the Department of Transportation, the Project Applicant, the Implementing Agency, and any consultant or sub-consultants at any time during the course of the project and for four years from the date of the final closeout of the project, therefore all project records shall be maintained and made available at the time of request. Audits will be conducted in accordance with Generally Accepted Government Auditing Standards.

5. SPECIFIC PROVISIONS AND CONDITIONS

5.1 Project Schedule and Cost
See Project Programming Request Form, attached as Exhibit A.

5.2 Project Scope
See Project Report or equivalent, attached as Exhibit B. At a minimum, the attachment shall include the cover page, evidence of approval, executive summary, and a link to or electronic copy of the full document.

5.3 Other Project Specific Provisions and Conditions

Attachments:

Exhibit A: Project Programming Request Form
Exhibit B: Project Report

SIGNATURE PAGE
TO
PROJECT BASELINE AGREEMENT

Metro Orange Line Bus Rapid Transit Improvements

Resolution LPP-P-1920-01B

for

Phillip A. Washington
Chief Executive Officer
Los Angeles County Metropolitan Transportation Authority (LA Metro)
Project Sponsor / Implementing Agency

5/21/2019
Date

John Bulinski
District Director,
California Department of Transportation, District 7

9/26/19
Date

TOKS OMISHAKIN ~~Bob Franzoia, Acting Director~~
California Department of Transportation

Date

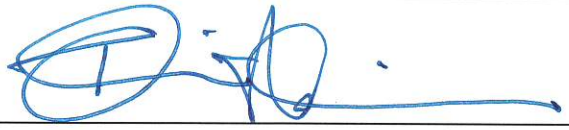
Susan Bransen
Executive Director
California Transportation Commission

Date

SIGNATURE PAGE TO
PROJECT BASELINE AGREEMENT

Metro Orange Line Bus Rapid
Transit Improvement Project

Resolution: LPP-P-1920-01B



11-13-19

Toks Omishakin
Director
California Department of Transportation

Date

ROAD REPAIR & ACCOUNTBILITY ACT OF 2017
LOCAL PARTNERSHIP COMPETITIVE PROGRAM
PROJECT BASELINE AGREEMENT
METRO ORANGE LINE BUS RAPID TRANSIT IMPROVEMENTS

Exhibit A
Project Programming Request

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST

DTP-0001 (Revised Mar, 1 2018 v7.08)

General Instructions

Amendment (Existing Project) Yes					Date: 01/07/19	
District	**EA**	**Project ID**	**PPNO**	**MPO ID**	**Alt Proj. ID / prg.**	
07			5504			

County	**Route/Corridor**	**PM Bk**	**PM Ahd**	**Project Sponsor/Lead Agency**	
LA				Los Angeles County Metropolitan Transportation Authority	
				MPO	**Element**
				SCAG	MT

Project Manager/Contact	**Phone**	**E-mail Address**
Fulgene Asuncion	(213)922-3025	asuncionf@metro.net

Project Title

Metro Orange Line Bus Rapid Transit Improvements

Location (Project Limits), Description (Scope of Work)

Amended - Grade Separations: In Los Angeles County on the Metro Orange Line (MOL) between the North Hollywood Station & Chatsworth Station, BRT improvements will be constructed. The scope includes construction of aerial grade separated structures that elevate the busway and associated BRT stations at Van Nuys & Sepulveda Blvds. The aerial structure at Sepulveda spans over the City of Los Angeles' Bureau of Street Services Private Crossing, east of the Sepulveda grade separation, & returns to an at-grade alignment at Kester Blvd. The aerial structure at Van Nuys Blvd. also spans over Vesper Ave. & requires closure of Tyrone Avenue, east of Van Nuys Blvd. An adjacent grade separated bike/ped overcrossing that runs parallel to the Sepulveda & Van Nuys grade separations will also be constructed. The Project includes installation of railroad-type gate systems at 35 crossings along the MOL.

Component	**Implementing Agency**
PA&ED	Los Angeles County Metropolitan Transportation Authority
PS&E	Los Angeles County Metropolitan Transportation Authority
Right of Way	Los Angeles County Metropolitan Transportation Authority
Construction	Los Angeles County Metropolitan Transportation Authority

Legislative Districts

Assembly:	45,46	**Senate:**	18,27	**Congressional:**	29,30

Project Benefits

The MOL is operating near capacity with standing passenger loads and very tight headways. To continue to meet demands, the project will provide gating and grade separation of the busway as an innovative, safe and cost-effective way to increase speed and thereby maximize roadway capacity. It will improve traffic flow, reduce traffic congestion in the community, improve transit operations and transit options for the community, which should reduce traffic collisions and vehicle greenhouse gas emissions.

Purpose and Need

The project will expand transit services, increase transit ridership, improve transit safety, enhance the access and convenience of the traveling public, and provide or facilitate a viable alternative to driving. Since the MOL is now at capacity with riders currently delayed by cross-traffic intrusions into the MOL busway, it is needed to improve operating speeds, ridership, capacity, schedule reliability and safety, while benefitting the surrounding community and ensuring cost effectiveness.

Category	**Outputs/Outcomes**	**Unit**	**Total**
Intercity Rail/Mass Trans	At-grade crossings eliminated	each	4
Local streets and roads	Pedestrian/Bicycle facilities miles constructed	Miles	1
Intercity Rail/Mass Trans	New bridges	each	2

ADA Improvements No	Bike/Ped Improvements Yes	Reversible Lane analysis N
Inc. Sustainable Communities Strategy Goals Y	Reduces Greenhouse Gas Emissions Y	

Project Milestone	**Existing**	**Proposed**
Project Study Report Approved		
Begin Environmental (PA&ED) Phase	06/15/2018	
Circulate Draft Environmental Document **Document Type**		07/26/18
Draft Project Report		
End Environmental Phase (PA&ED Milestone)	07/31/2018	08/27/18
Begin Design (PS&E) Phase		11/01/18
End Design Phase (Ready to List for Advertisement Milestone)		08/30/20
Begin Right of Way Phase	10/31/2018	11/01/18
End Right of Way Phase (Right of Way Certification Milestone)	03/31/2020	06/30/21
Begin Construction Phase (Contract Award Milestone)	03/31/2020	08/01/21
End Construction Phase (Construction Contract Acceptance Milestone)	08/31/2023	02/28/25
Begin Closeout Phase	10/31/2023	03/01/25
End Closeout Phase (Closeout Report)	12/31/2024	12/31/25

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(Grade Separations) 07-LA-Metro_Orange Line BRT_PPR - REVISED 08-09-2019 (002).xls

District	County	Route	EA	Project ID	PPNO	Alt. ID
07	LA, ,	, ,			5504	
Project Title:	Metro Orange Line Bus Rapid Transit Improvements					

Existing Total Project Cost ($1,000s)									
Component	Prior	18-19	19-20	20-21	21-22	22-23	23-24+	Total	Implementing Agency
E&P (PA&ED)	14,000							14,000	Los Angeles County Metropolitan
PS&E									Los Angeles County Metropolitan
R/W SUP (CT)									Los Angeles County Metropolitan
CON SUP (CT)									Los Angeles County Metropolitan
R/W		6,000						6,000	Los Angeles County Metropolitan
CON			295,300					295,300	Los Angeles County Metropolitan
TOTAL	14,000	6,000	295,300					315,300	
Proposed Total Project Cost ($1,000s)									**Notes**
E&P (PA&ED)	1,216	350						1,566	The original PPR has $320.3M as the total cost.
PS&E		2,500	33,500					36,000	
R/W SUP (CT)									
CON SUP (CT)									
R/W			2,000					2,000	
CON			200,734					200,734	
TOTAL	1,216	2,850	236,234					240,300	

Fund No. 1:	State SB1 LPP - Local Partnership Program - Competitive program (LPP-C)								Program Code
Existing Funding ($1,000s)									30.10.724.100
Component	Prior	18-19	19-20	20-21	21-22	22-23	23-24+	Total	Funding Agency
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON			75,000					75,000	
TOTAL			75,000					75,000	
Proposed Funding ($1,000s)									**Notes**
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON			75,000					75,000	
TOTAL			75,000					75,000	

Fund No. 2:	Local Funds - Local Transportation Funds (LTF)								Program Code
Existing Funding ($1,000s)									20.10.400.100
Component	Prior	18-19	19-20	20-21	21-22	22-23	23-24+	Total	Funding Agency
E&P (PA&ED)	14,000							14,000	
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W		6,000						6,000	
CON			220,300					220,300	
TOTAL	14,000	6,000	220,300					240,300	
Proposed Funding ($1,000s)									**Notes**
E&P (PA&ED)	1,216	350						1,566	
PS&E		2,500	33,500					36,000	
R/W SUP (CT)									
CON SUP (CT)									
R/W			2,000					2,000	
CON			125,734					125,734	
TOTAL	1,216	2,850	161,234					165,300	

Additional Information

Emissions Reduction Savings from Caltrans Life-Cycle Benefit-Cost Analysis Model v6.2
(Tons over 20 years / Millions of dollars over 20 years)

CO - 800 / $0.1
CO2 - 238,371 / $6.8
NO x - 65 / $2.6
PM10 - 2 / $0.5
PM2.5 - 2
SO x - 2 / $0.3
VOC - 42 / $0.1

The latest operations and traffic analysis for the proposed scope change did not result in a change to the assumptions used to calculate the original emissions reduction figures. The emissions reductions are a result of ridership increases/mode shifts and VMT reduction produced by creating more free-flowing conditions on the Orange Line. The proposed scope change does not change the ability of the project to create more free-flowing conditions on the Orange Line. Therefore, GHG emissions reduction is not expected to change from the original project.

Environmental Document Type: Statutory Exemption: PRC 21080(b)(11)/CEQA Guidelines 15275(a) -8/27/18

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST

DTP-0001 (Revised Mar, 1 2018 v7.08)

Complete this page for amendments only

Date: 01/07/19

District	County	Route	EA	Project ID	PPNO	Alt. ID
07	LA				5504	

SECTION 1 - All Projects

Project Background

Programming Change Requested

Reason for Proposed Change

Previously, a single aerial grade separation spanning Van Nuys Boulevard to Sepulveda Boulevard was proposed, but based on conceptual design, a more cost-effective and efficient design will include separate aerial structures at each of these two arterial street crossings.

If proposed change will delay one or more components, clearly explain 1) reason the delay, 2) cost increase related to the delay, and 3) how cost increase will be funded

Design of the Van Nuys grade separation will start once the East San Fernando Valley Transit Corridor Project environmentally clears the scope for the terminal station connection at the Orange Line Van Nuys station. Also, the completion of real estate acquisitions will take longer than the initial anticipated completion date.

Other Significant Information

SECTION 2 - For SB1 Projects Only

Project Amendment Request (Please follow the individual SB1 program guidelines for specific criteria)

SECTION 3 - All Projects

Approvals

I hereby certify that the above information is complete and accurate and all approvals have been obtained for the processing of this amendment request.*

Name (Print or Type)	Signature	Title	Date
Cosette P. Stark	Cosette P. Stark	DEO, Grants Management & Oversight	8/8/2019

Attachments

1) Concurrence from Implementing Agency and/or Regional Transportation Planning Agency
2) Project Location Map

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST

DTP-0001 (Revised Mar, 1 2018 v7.08)

General Instructions

Amendment (Existing Project) Yes					Date: 01/07/19	
District	**EA**	**Project ID**	**PPNO**	**MPO ID**	**Alt Proj. ID / prg.**	
07			5504			

County	**Route/Corridor**	**PM Bk**	**PM Ahd**	**Project Sponsor/Lead Agency**	
LA				Los Angeles County Metropolitan Transportation Authority	
				MPO	**Element**
				SCAG	MT

Project Manager/Contact	**Phone**	**E-mail Address**
Fulgene Asuncion	(213)922-3025	asuncionf@metro.net

Project Title

Metro Orange Line Bus Rapid Transit Improvements

Location (Project Limits), Description (Scope of Work)

Amended - Gates: In Los Angeles County on the Metro Orange Line (MOL) between the North Hollywood Station & Chatsworth Station, BRT improvements will be constructed. The scope includes construction of aerial grade separated structures that elevate the busway and associated BRT stations at Van Nuys & Sepulveda Blvds. The aerial structure at Sepulveda spans over the City of Los Angeles' Bureau of Street Services Private Crossing, east of the Sepulveda grade separation, & returns to an at-grade alignment at Kester Blvd. The aerial structure at Van Nuys Blvd. also spans over Vesper Ave. & requires closure of Tyrone Avenue, east of Van Nuys Blvd. An adjacent grade separated bike/ped overcrossing that runs parallel to the Sepulveda & Van Nuys grade separations will also be constructed. The Project includes installation of railroad-type gate systems at 35 crossings along the MOL.

Component	**Implementing Agency**
PA&ED	Los Angeles County Metropolitan Transportation Authority
PS&E	Los Angeles County Metropolitan Transportation Authority
Right of Way	Los Angeles County Metropolitan Transportation Authority
Construction	Los Angeles County Metropolitan Transportation Authority

Legislative Districts

Assembly:	45,46	**Senate:**	18,27	**Congressional:**	29,30

Project Benefits

The MOL is operating near capacity with standing passenger loads & very tight headways. To continue to meet demand, the project will provide gating & grade separation of the busway as an innovative, safe & cost-effective way to increase speed & thereby maximize roadway capacity. It will improve traffic flow, reduce traffic congestion in the community, improve transit operations & transit options for the community, which should reduce traffic collisions & greenhouse gas emissions. Ped/Bicycle Facilities miles constructed up to 1 mile.

Purpose and Need

The project will expand transit services, increase transit ridership, improve transit safety, enhance the access and convenience of the traveling public, and provide or facilitate a viable alternative to driving. Since the MOL is now at capacity with riders currently delayed by cross-traffic intrusions into the MOL busway, it is needed to improve operating speeds, ridership, capacity, schedule reliability and safety, while benefitting the surrounding community and ensuring cost effectiveness.

Category	**Outputs/Outcomes**	**Unit**	**Total**
Local streets and roads	Local road operational improvements	each	35

ADA Improvements No	Bike/Ped Improvements Yes	Reversible Lane analysis N
Inc. Sustainable Communities Strategy Goals Y	Reduces Greenhouse Gas Emissions Y	

Project Milestone	**Existing**	**Proposed**
Project Study Report Approved		
Begin Environmental (PA&ED) Phase	06/15/2018	
Circulate Draft Environmental Document **Document Type**		07/26/18
Draft Project Report		
End Environmental Phase (PA&ED Milestone)	07/31/2018	08/27/18
Begin Design (PS&E) Phase		11/01/18
End Design Phase (Ready to List for Advertisement Milestone)		02/28/21
Begin Right of Way Phase	10/31/2018	06/01/19
End Right of Way Phase (Right of Way Certification Milestone)	03/31/2020	06/30/21
Begin Construction Phase (Contract Award Milestone)	03/31/2020	03/01/22
End Construction Phase (Construction Contract Acceptance Milestone)	08/31/2023	02/28/25
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(Gates) 07-LA-Metro_Orange Line BRT_PPR - REVISED 08-09-2019 (002).xls

District	County	Route	EA	Project ID	PPNO	Alt. ID
07	LA, ,	, ,			5504	
Project Title:	Metro Orange Line Bus Rapid Transit Improvements					

Existing Total Project Cost ($1,000s)									
Component	Prior	18-19	19-20	20-21	21-22	22-23	23-24+	Total	Implementing Agency
E&P (PA&ED)	14,000							14,000	Los Angeles County Metropolitan
PS&E									Los Angeles County Metropolitan
R/W SUP (CT)									Los Angeles County Metropolitan
CON SUP (CT)									Los Angeles County Metropolitan
R/W		6,000						6,000	Los Angeles County Metropolitan
CON			295,300					295,300	Los Angeles County Metropolitan
TOTAL	14,000	6,000	295,300					315,300	
Proposed Total Project Cost ($1,000s)									**Notes**
E&P (PA&ED)	1,215	350						1,565	The original PPR has $320.3M as the total cost.
PS&E		2,500	9,500					12,000	
R/W SUP (CT)									
CON SUP (CT)									
R/W			1,000					1,000	
CON			65,435					65,435	
TOTAL	1,215	2,850	75,935					80,000	

Fund No. 1:	State SB1 LPP - Local Partnership Program - Competitive program (LPP-C)								Program Code
Existing Funding ($1,000s)									30.10.724.100
Component	Prior	18-19	19-20	20-21	21-22	22-23	23-24+	Total	Funding Agency
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON			75,000					75,000	
TOTAL			75,000					75,000	
Proposed Funding ($1,000s)									**Notes**
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL									

Fund No. 2:	Local Funds - Local Transportation Funds (LTF)								Program Code
Existing Funding ($1,000s)									20.10.400.100
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E&P (PA&ED)	14,000							14,000	
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W		6,000						6,000	
CON			220,300					220,300	
TOTAL	14,000	6,000	220,300					240,300	
Proposed Funding ($1,000s)									**Notes**
E&P (PA&ED)	1,215	350						1,565	
PS&E		2,500	9,500					12,000	
R/W SUP (CT)									
CON SUP (CT)									
R/W			1,000					1,000	
CON			65,435					65,435	
TOTAL	1,215	2,850	75,935					80,000	

Additional Information

Emissions Reduction Savings from Caltrans Life-Cycle Benefit-Cost Analysis Model v6.2
(Tons over 20 years / Millions of dollars over 20 years)

CO - 800 / $0.1
CO2 - 238,371 / $6.8
NO x - 65 / $2.6
PM10 - 2 / $0.5
PM2.5 - 2
SO x - 2 / $0.3
VOC - 42 / $0.1

The latest operations and traffic analysis for the proposed scope change did not result in a change to the assumptions used to calculate the original emissions reduction figures. The emissions reductions are a result of ridership increases/mode shifts and VMT reduction produced by creating more free-flowing conditions on the Orange Line. The proposed scope change does not change the ability of the project to create more free-flowing conditions on the Orange Line. Therefore, GHG emissions reduction is not expected to change from the original project.

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STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST

DTP-0001 (Revised Mar, 1 2018 v7.08)

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Date: 01/07/19

District	County	Route	EA	Project ID	PPNO	Alt. ID
07	LA				5504	

SECTION 1 - All Projects

Project Background

Programming Change Requested

Reason for Proposed Change

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Design of the Van Nuys grade separation will start once the East San Fernando Valley Transit Corridor Project environmentally clears the scope for the terminal station connection at the Orange Line Van Nuys station. Also, the completion of real estate acquisitions will take longer than the initial anticipated completion date.

Other Significant Information

SECTION 2 - For SB1 Projects Only

Project Amendment Request (Please follow the individual SB1 program guidelines for specific criteria)

SECTION 3 - All Projects

Approvals

I hereby certify that the above information is complete and accurate and all approvals have been obtained for the processing of this amendment request.*

Name (Print or Type)	Signature	Title	Date
Cosette P. Stark	Cosette P. Stark	DEO, Grants Management & Oversight	8/8/2019

Attachments

1) Concurrence from Implementing Agency and/or Regional Transportation Planning Agency
2) Project Location Map

ROAD REPAIR & ACCOUNTBILITY ACT OF 2017
LOCAL PARTNERSHIP COMPETITIVE PROGRAM
PROJECT BASELINE AGREEMENT
METRO ORANGE LINE BUS RAPID TRANSIT IMPROVEMENTS

Exhibit B
Project Report

METRO ORANGE LINE (MOL)
BUS RAPID TRANSIT (BRT) IMPROVEMENTS

PROJECT REPORT

Project Report

APPROVAL RECOMMENDED:

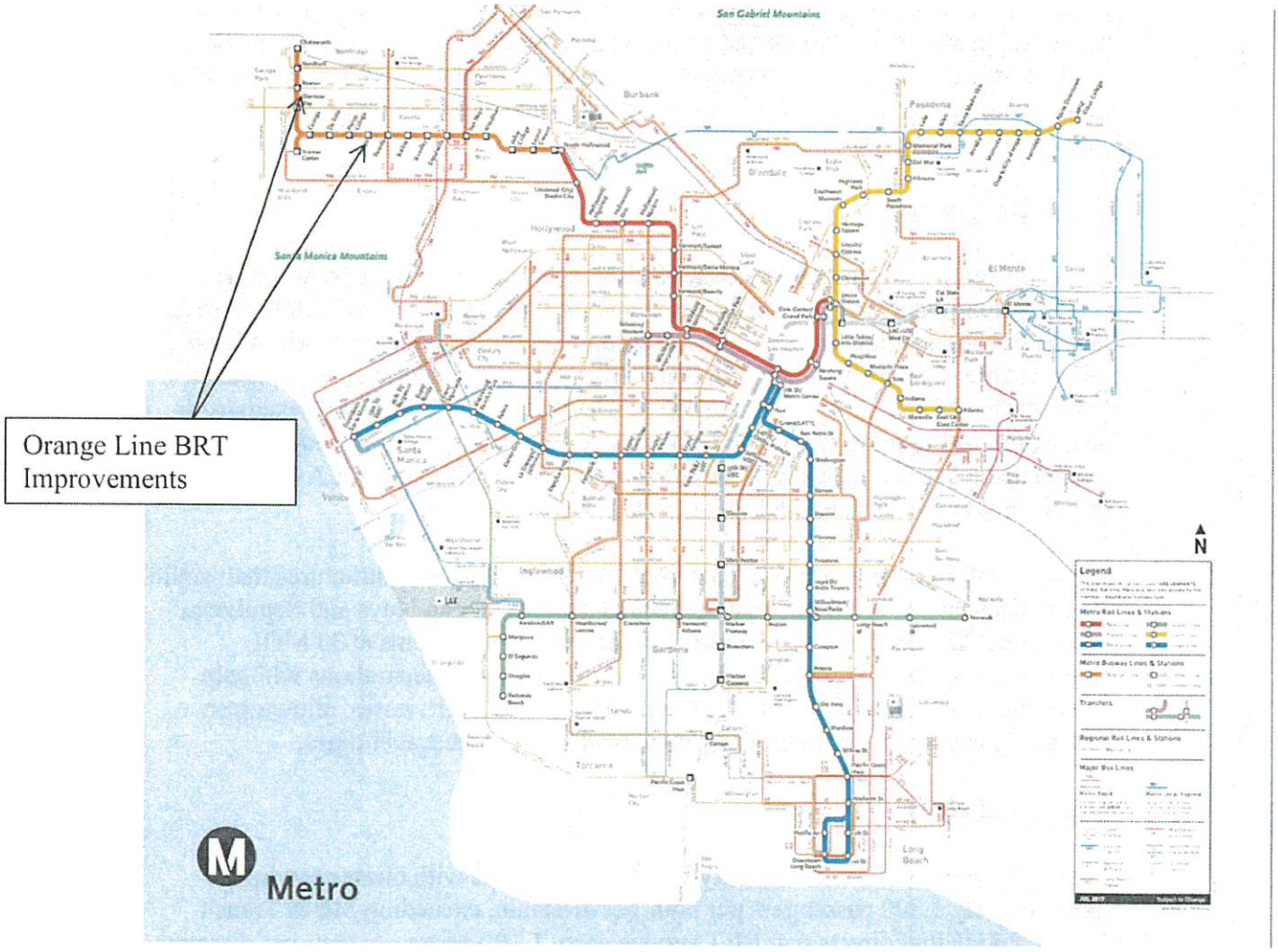
Hitesh Patel, Project Manager

PROJECT APPROVED:

David Mieger, Executive Officer

May 21, 2019
Date

Vicinity Map



1. INTRODUCTION:

Project Location:

The project is located in the City of Los Angeles, in the central part of Los Angeles County, approximately 20 miles northwest of downton Los Angeles in CALTRANS District 7. The corridor connects major activity areas through the heart of the San Fernando Valley, including Warner Center, Pierce College, the Sepulveda Basin Recreation Area, the Valley Government Center in Van Nuys, Valley College, and the North Hollywood Arts District.

The nearly 18-mile Metro Orange Line Bus Rapid Transit (MOL BRT) runs north-south along a two-lane, dedicated busway from the Metrolink Chatsworth Sation to Canoga Station for four miles and runs east-west for approximately 14 miles from the

Canoga Station to the Metro Red Line North Hollywood Station. The MOL encompasses 17 stations and runs parallel to Chandler Boulevard, Oxnard Street and Victory Boulevard and Canoga Avenue. There is also a bikeway running adjacent to the MOL busway that is comprised of two segments: Class II bike lanes from the North Hollywood Station to Coldwater Canyon Avenue, and a Class I dedicated bicycle path adjacent to the MOL busway from Coldwater Canyon on the east/west segment to Prairie on the north/south segment.

Project Description:

The MOL route is one of the most successful transit services in the Metro transit system, providing a vital, high-capacity transit link for an estimated 23,000 weekday daily riders and serving as a viable transportation alternative for those who would otherwise travel on the parallel U.S. Route 101, one of the top ten most congested highways in California. The line opened on October 29, 2005, and was extended to Chatsworth on June 30, 2012. The MOL runs from the North Hollywood Station, which connects to Metro's Red Line Subway system terminating at LA Union Station, and to the Chatsworth Station on the west.

The MOL BRT Improvements project includes grade separated structures that would elevate the busway, bike path, and associated stations at Van Nuys and Sepulveda Boulevards. The Project also includes railroad-type gate systems at 35 MOL crossings along the line (Attachment A). Gating and grade separations will help reduce the incidents of collisions between vehicles and MOL buses, allowing an increase in the speeds of buses along the corridor to reduce travel times.

Purpose and Need:

Passenger volumes are near capacity in certain segments with buses carrying approximately 1,300 passengers per hour per direction, exceeding Metro Transit Service Policy that directs that BRT service carry 1,100 riders per hour per direction. As the MOL serves a dense and growing corridor, ridership demand is expected to continue to grow over the next 10 years.

Metro currently operates three-door, 60-foot articulated buses on the MOL, with a seating capacity of 57 passengers, providing a total of 411 weekday bus trips (206 eastbound and 205 westbound). The MOL has 43 at-grade crossings, five pedestrian crossings, and is complemented by an 8.2-mile bikeway located adjacent to the busway.

Red lights at intersection crossings result in overall delays of six to ten minutes. In addition, serious safety concerns exist along the Project corridor due to excessive traffic violations and collisions at intersections. The Project corridor has nineteen red light photo enforcement cameras, which recorded, on average, 5,000 to 6,000 traffic violations of cars illegally entering the busway each month during 2018. The proposed four-quadrant gating-system will prevent cars from entering the busway,

drastically reducing opportunities for collisions. Therefore, the purpose and need for the Project is to improve operating speeds, ridership, capacity, and safety on the MOL, while benefitting the surrounding community and ensuring cost effectiveness.

2. PREFERRED ALTERNATIVE:

The Metro Orange Line 2017 Technical Study evaluated the feasibility of grade separation improvements at key intersections and other improvements that would enhance existing bus service, performance, and ridership. Other improvements considered included minor street closures, better transit signal priority technology, improved bus signal communication, and a four quadrant gating system. At the conclusion of the feasibility study, several packages of improvements were identified and among the packages of improvements, a single recommended option was developed. This alternative would address the operational needs of Orange Line buses and passengers, and improve safety at all the intersections.

The preferred alternative would provide the maximum potential improvement for the entire MOL corridor, as it allows for additional features that restrict and limit potential conflicting vehicular, pedestrian, and bicycle movements across the busway at the highest number of crossings. The combination of grade separations and gate systems would significantly impede the ability of cross-street traffic and pedestrians to illegally cross the busway while a bus is approaching or within the crossing, which would result in a significant reduction of bus-involved collisions.

This alternative is recommended because:

- It achieves superior and significant travel time savings for MOL of up to 16 minutes/29 percent each direction;
- Ridership could be increased by approximately 39 percent;
- It readies the transportation corridor for LRT conversion;
- Safety is markedly improved by nearly eliminating vehicular intrusions into the busway;

Moreover, this alternative provides commensurate improvements to the adjacent regionallysignificant active transportation facility, in furtherance of first-last mile connectivity to transit. It also accommodates two other planned, intersecting transit: East San Fernando Valley and Sepulveda Pass Transit Corridors.

3. SCOPE:

<u>Railroad Type Gates at 35 intersections along the OL:</u>
Metro has performed a detailed traffic analysis in close coordination with the Los Angeles Department of Transportation (LADOT) and is currently working with LADOT to address traffic impacts and additional delays due to gates. Metro will

explore operating buses less frequently with longer headways with two-vehicle platoons to increase passenger capacity while minimizing the frequency of gate activation and resulting delays to cross traffic. Coordination with the City of Los Angeles is also underway in implementing a pilot installation of railroad gates at a non-public, traffic signal-controlled intersection on the MOL to test and verify the reliable activation and proper operation of gates for BRT application.

Van Nuys BRT Grade Separation (GS):
The MOL GS structure would elevate the busway and the associated station at Van Nuys Blvd. The MOL developed and coordinated six concepts for connecting the MOL Aerial Station with the ESFV Light Rail Transit (LRT) project. The preliminary engineering for the Van Nuys Grade Separation is planned to commence after the ESFV Light Rail Transit (LRT) project has analyzed the connectivity options and incorporated the selected option in the ESFV Final Environmental Impact Statement/Environmental Impact Report (EIS/EIR).

Sepulveda BRT Separation:
The MOL GS structure would elevate the busway and the associated station at Sepulveda Blvd. Preliminary engineering is currently underway for the Sepulveda Grade Separation and will be coordinated with the Sepulveda Transit Corridor feasibility study.

Bike Path Grade Separations at Van Nuys and Sepulveda Blvds.
The Bike Path GS structure would elevate the bike path at Van Nuys and Sepulveda Blvds. The at-grade bike path will be maintained. The design of Bike Path GS will be developed in coordination and in parallel with the Van Nuys GS and Sepulveda GS.

3. PROJECT COST AND FUNDING

A preliminary rough order of magnitude (ROM) cost estimate of the recommended Project, based on conceptual designs, currently ranges from $320 to $393 million. A refined cost estimate will be determined after completion of the preliminary engineering of the gated intersections and the GS. The Project is currently funded with $245.3 million in Measure M and $75 million in SB-1 Local Partnership Program (LPP) Grant funds. Metro is committed to fund any cost increases to the Project above current programmed revenues.

4. PROJECT SCHEDULE:

GRADE SEPARATIONS:

Project Milestone	Existing	Proposed
Project Study Report Approved		
Begin Environmental (PA&ED) Phase	06/15/2018	
Circulate Draft Environmental Document (Document Type)		07/26/18
Draft Project Report		
End Environmental Phase (PA&ED Milestone)	07/31/2018	08/27/18
Begin Design (PS&E) Phase		11/01/18
End Design Phase (Ready to List for Advertisement Milestone)		08/30/20
Begin Right of Way Phase	10/31/2018	11/01/18
End Right of Way Phase (Right of Way Certification Milestone)	03/31/2020	06/30/21
Begin Construction Phase (Contract Award Milestone)	03/31/2020	08/01/21
End Construction Phase (Construction Contract Acceptance Milestone)	08/31/2023	02/28/25
Begin Closeout Phase	10/31/2023	03/01/25
End Closeout Phase (Closeout Report)	12/31/2024	12/31/25

GATES:

Project Milestone	Existing	Proposed
Project Study Report Approved		
Begin Environmental (PA&ED) Phase	06/15/2018	
Circulate Draft Environmental Document (Document Type)		07/26/18
Draft Project Report		
End Environmental Phase (PA&ED Milestone)	07/31/2018	08/27/18
Begin Design (PS&E) Phase		11/01/18
End Design Phase (Ready to List for Advertisement Milestone)		02/28/21
Begin Right of Way Phase	10/31/2018	06/01/19
End Right of Way Phase (Right of Way Certification Milestone)	03/31/2020	06/30/21
Begin Construction Phase (Contract Award Milestone)	03/31/2020	03/01/22
End Construction Phase (Construction Contract Acceptance Milestone)	08/31/2023	02/28/25
Begin Closeout Phase	10/31/2023	03/01/25
End Closeout Phase (Closeout Report)	12/31/2024	12/31/25

5. POTENTIAL RISK AREAS

A number of potential risk areas identified will require further attention and analysis during subsequent project phases. The issues include:

Risk Area 1: Unacceptable traffic impacts from adding gates at some locations could cause delay in approval by the City.

As the gate systems require additional advance warning time, the project assumes changes to busway operations to minimize cross-traffic delays. The preferred alternative assumes that during peak periods, buses would operate in two-vehicle platoons at six-minute headways. This operation would allow the busway to carry the same amount of peak period riders at increased headways, thereby reducing the frequency of gate activation and reducing associated potential cross traffic delays.

Mitigations: Continue dialogue with City staff and continue to analyze traffic impacts.

Risk Area 2: New technology for bus platooning does not meet Metro requirements.

The current design of the traffic control systems for the four-quadrant gate systems and pedestrian gate systems assumes buses will be manually platooned with 2 buses per platoon with a 10 second gap between buses at 6 minute headways. New technology for bus platooning is being explored as part of the pilot gate testing to improve bus operation and potentially reduce traffic impacts.

Mitigations: Complete pilot gate testing as early as practical

Risk Area 3: Gates and platooning for bus transit does not exist in US; new technology to be developed.

Railroad Type Gates are common for railroad crossings, but none currently exist for stopping cross street traffic when buses approach the intersections. Metro is conducting a pilot gate to utilize loop detection for controlling gates for busway operation. Metro will also test other technologies for gate detection/control.

Mitigations: Develop technical solution in concert with current scope and design; Review alternate options in case pilot gate testing and bus platooning technology are not feasible.

Risk Area 4: Sepulveda and East San Fernando Valley Transit Corridor Projects may affect MOL Grade Separations at Sepulveda and Van Nuys.

The Sepulveda Transit Corridor (STC) is completing a feasibility study that is evaluating a range of rail transit alternatives to serve the San Fernando Valley and the Westside Los Angeles, including the Los Angeles Internationa Airport (LAX) area. The feasibility study is expected to be completed in Fall 2019 and is looking at alternatives that connect to the MOL at Sepulveda or Van Nuys, the two locations that are recommended for grade separations as part of the MOL improvements project. The STC environmental review of selected alternatives is expected to begin in early 2020. East San Fernando Valley (ESFV) Light Rail Transit is currently preparing a Final EIS/EIR based on the Locally Preferred Alternative (LPA) recently selected by the Metro Board. In conjunction with the Final EIS/EIR, the ESFV team is modifying the LPA alignment to enable it to better connect with an elevated MOL

station at Van Nuys. Preliminary Engineering (PE) for the MOL grade separation at Sepulveda Boulevard is currently underway, with anticipated completion in August 2019, before any information on STC connectivity/selected alternative is available. MOL construction may need to be modified for a future connection to STC. Grade separations may conflict with some STC alternatives or even become part of the STC project.

Mitigations: Early and ongoing coordination with Sepulveda and ESFV project teams.

Risk Area 5: MOL Van Nuys grade separation on hold until scope of connectivity with ESFV project is approved.

Mitigations: Continue close coordination with ESFV project team to reconcile station foot print.

Risk Area 6: Right-of-Way (ROW) impacts and design issues related to aerial bike path at Sepulveda and Van Nuys may exceed current forecasted budget.

Issues related to the aerial bike path at Sepulveda include:

- Property acquisitions required at Sepulveda with the re-routing of the existing at-grade pedestrian/bike path to the north of the station and an elevated bike path is also routed to the north of the station over Sepulveda Blvd.

- Sepulveda parking lot access road require relocationg through an adjacent property to fit additional escalators.

- Existing City of Los Angeles Depaprtment of Water and Power (LADWP) transformer serving LA Fitness is affected by the overhead proximity of the aerial bikeway.

- ROW is required in the north-east corner of Sepulveda Blvd. and includes driveway access which may result in a complicated and costly ROW take.

- Metro's existing parking easement would need to be terminated which will result in eliminating approximately 50 parking spaces at the north-east corner of Sepulveda Blvd.

Mitigations: Real Estate team to review and prepare ROM estimate for property acquisitions. Design team to review design of aerial bike path at Sepulveda and Van Nuys and develop alternate designs and finalize escalator location.

Risk Area 7: LADWP is requiring relocation of conflicting overhead power lines to underground. The cost of undergrounding power lines and the communication lines are significantly higher and may affect overall project cost.

Mitigations: Support utility design and finalize utility relocation matrix to develop a detailed schedule.

Risk Area 8: City agency review and approval time for drawing submittals, traffic management plans, traffic control plans and permits may delay project schedule.

Mitigations: Continue ongoing collaboration with City staff to streamline and prioritize design submittals and traffic control plans.

Risk Area 9: City of Los Angeles Department of Transportation (LADOT) Bikeway Project on Chandler.

LADOT recently informed us of the City's plan to implement a 3-mile bikeway project on Chandler Blvd., from Leghorn Ave. to Vineland Ave., that will be completed in 2020. It appears that these modifications would affect 8 intersections/crossings, reducing the east & west Chandler Ave approaches by 1 thru lane. The biggest impacts would likely occur at the Laurel Canyon and Coldwater Canyon intersections (where delays are already high). If traffic volumes remained as-is (no diversion to other routes), then this bike lane would result in worse delay/LOS at all of these locations or potentially eliminate gates at affected crossings along Chandler.

Mitigations: Continue coordination with LADOT on this project.

6. PROJECT BENEFITS

Based on the Caltrans' Life-Cycle Benefit-Cost Analysis Model 6.2 (Cal-B/C v.6.2), provided in Attachment B, the Project would save commuters approximately $220.4 million in travel time savings, $121 million in vehicle operating cost savings, and $10.3 million in emission cost savings over a 20-year period.

With a benefit-cost ratio (BCR) of 1.7, the Project is likely to generate economic benefits that justify its costs.

Summary Results of Revised Benefit/Cost Analysis for Scope Change:

③

INVESTMENT ANALYSIS
SUMMARY RESULTS

Life-Cycle Costs (mil. $)	$238.2
Life-Cycle Benefits (mil. $)	$404.3
Net Present Value (mil. $)	$166.1
Benefit / Cost Ratio:	1.7
Rate of Return on Investment:	9.3%
Payback Period:	8 years

ITEMIZED BENEFITS (mil. $)	Passenger Benefits	Freight Benefits	Total Over 20 Years	Average Annual
Travel Time Savings	$220.4	$0.0	$220.4	$11.0
Veh. Op. Cost Savings	$121.0	$0.0	$121.0	$6.1
Accident Cost Savings	$52.5	$0.0	$52.5	$2.6
Emission Cost Savings	$10.3	$0.0	$10.3	$0.5
TOTAL BENEFITS	$404.3	$0.0	$404.3	$20.2
Person-Hours of Time Saved			39,263,878	1,963,194

Should benefit-cost results include:

1) Induced Travel? (y/n)	Y (Default = Y)
2) Vehicle Operating Costs? (y/	Y (Default = Y)
3) Accident Costs? (y/n)	Y (Default = Y)
4) Vehicle Emissions? (y/n) includes value for CO_2e	Y (Default = Y)

	Tons		Value (mil. $)	
EMISSIONS REDUCTION	Total Over 20 Years	Average Annual	Total Over 20 Years	Average Annual
CO Emissions Saved	800	40	$0.1	$0.0
CO_2 Emissions Saved	238,371	11,919	$6.8	$0.3
NO_X Emissions Saved	65	3	$2.6	$0.1
PM_{10} Emissions Saved	2	0	$0.5	$0.0
$PM_{2.5}$ Emissions Saved	2	0		
SO_X Emissions Saved	2	0	$0.3	$0.0
VOC Emissions Saved	42	2	$0.1	$0.0

The Project will provide optimal improvements to address five specific goals and needs: improve operations; improve ridership, address growth; support efficient land use; address safety concerns; and ensure cost effectiveness.

Improve Operating Speeds and Reliability

The number of times buses stop at traffic signals along the route significantly affects the overall MOL operating speeds and service. The Technical Study found that the west/northbound travel time from North Hollywood to Canoga station averaged 41.3 minutes. The east/southbound travel time from Canoga to North Hollywood station averaged approximately 38.5 minutes. Average time to travel the 17 miles end-to-end on the MOL from the Chatsworth to North Hollywood Stations during the weekday PM peak was as high as 50 to 55 minutes. Red lights result in delays to buses of approximately 10 minutes in the westbound and six minutes in the eastbound direction.

By providing grade separated busway and 35 gating intersections, bus speeds can be increased and current riders' complaints of excessive cross-Valley travel times and delays at intersections may be addressed. With the Project, MOL bus travel times are anticipated to be reduced by an average (peak and off-peak) of 12.6 minutes in the west/northbound direction and 3.4 minutes in the east/southbound direction, for a total average reduction in travel times of 16 minutes each way, a 39 percent reduction from current travel times. In addition, after Project completion, two-vehicle bus platoons will be used during peak periods to minimize the frequency of gate activation and delays to cross-traffic.

Improve Transit Ridership

In 2017, average daily ridership for the MOL was around 23,760 on a typical weekday, 13,768 on Saturdays, and 10,551 on Sundays (see Figure4). The Technical Study predicted that, without the Project, ridership is likely to increase to just 25,900 daily boardings by 2025.

Current operating speeds on the MOL corridor are approximately 20 to 21 mph, including delay/ dwell times for boardings/alighting at stations on all service days. The Project is expected to increase operating speeds to an average of 30 mph, a 50 percent increase over current levels. The Technical Study found that a 20 to 30 percent speed increase and travel time reliability may result in a ridership increase of approximately 39 percent. With the expected 50 percent speed improvement, ridership is likely to increase even more than the projections in the Technical Study.

Address Growth

The MOL is operating near capacity, with standing passenger loads and very frequent headways, up to every four minutes, during peak hours. To continue to meet demands, the Project will provide gating and grade separation of the busway as an innovative, safe, and cost-effective way to reduce BRT end-to-end travel time, thereby, allowing for more buses to operate in the corridor. By enhancing operational capacity through increased speeds, the Project will address ridership increases likely to result from population and employment growth. Population densities are concentrated north of the MOL corridor between the North Hollywood and Sepulveda Stations (see Figure 5). Employment densities are relatively consistent throughout the MOL service area with a concentration of jobs at and near the Warner Center and near major intersections on Van Nuys, Sepulveda, and Reseda Boulevards (see Figure 6). A total of 20 percent growth in population and 26 percent growth in employment from 2012 to 2040 are projected for the MOL service area1. The Project will address ridership increases resulting from this population and employment growth.

Support Efficient Land Use

By enhancing operational capacity with increased speeds and service availability and convenience on the MOL, the Project will address potential ridership increases.

Address Safety Concerns

Based on incident data from 2018, there were 24 collisions and an average of 5,000 to 6,000 red light violations (through movements by vehicles crossing the MOL corridor) recorded along the MOL corridor from North Hollywood to Canoga. Along the MOL corridor, red light photo enforcement cameras have been installed at 19 locations between Tujunga and Nordhoff.

Key locations on the MOL corridor will benefit from improvements that reduce conflicts between MOL buses, vehicles, bicyclists, and pedestrians. In particular, grade separations at key intersections can minimize conflicts and prevent incidents by physically separating the MOL corridor from perpendicular roadways. Railroad-style quadrant gates will address safety concerns by managing and monitoring vehicle and

bicycle/pedestrian interactions with MOL operations. By blocking cars, pedestrians, and bicyclists from entering the busway when they do not have the right-of-way, the Project will improve safety for all as the number of collisions following Project completion is expected to drop significantly.

Ensure Cost Effectiveness

The MOL is a successful BRT system with 23,000 average weekday riders in 2018. As detailed in Attachment B, the Project has a benefit-cost ratio of 1.5, ensuring that costs are commensurate with benefits to continue the overall cost-effectiveness of the system.

7. ATTACHMENTS (Number of Pages)

A. Project Map
B. Updated Benefit Cost Analysis

ATTACHMENT A: PROJECT MAP

Attachment B

Comprehensive Benefit/Cost Analysis for Metro Orange Line BRT Improvements Scope Change

The following tables present the assumptions and results for the original and proposed scope of the Metro Orange Line BRT Improvements project using the Caltrans Benefit/Cost Analysis Model (BCA). Overall, the new assumptions and BCA Results for the proposed scope change reflect not only the scope change, but also improved understanding of and data for the entire project.

Summary of Tables:

- **Table 1. Comparison of Benefit/Cost Analysis Assumptions**

  Table 1 shows the original and new values used for the Caltrans Benefit/Cost Analysis Model (BCA).

  There is no change to most variables between the original and proposed scope change. This is because the proposed scope change does not cause changes to the model from which those values originate (i.e. the study area is the same). At the time of application for the original scope, the 2017 analysis focused on the 12.7-mile segment from North Hollywood to Canoga. The variables for which there are new values (i.e. variables related to travel time/delay) originate from a different model (Traffic Analysis Model). The 2018 analysis in Table 1 below shows the performance metrics for all segments of the Orange Line corridor. To facilitate understanding of the changed values, the line numbers in Table 1 correspond with the line numbers in Table 2, which provides explanation for changed values by comparing the methodology, assumptions, and approaches used for the original and new values.

- **Table 2. Comparison of Methodology/Assumptions/Approach**

  Table 2 compares the methodology, assumptions, and approaches to the analyses used to develop the values for the BCA.

- **Table 3. Original Benefit/Cost Analysis**

  As noted, the original BCA was conducted using values from analyses based on conceptual design and covering only a segment of the Orange Line for travel time/delay.

- **Table 4. Revised Benefit/Cost Analysis for Scope Change**

  Using the new assumptions, the BC ratio for the proposed scope change is higher than the original scope. There is no change to emissions reduction

Table 1. Comparison of Benefit/Cost Analysis Assumptions

Line #	Variable	Unit	Original Value* (from 2017 Analysis)	New Value (estimated from 2018 Analysis)
	Ridership Increase (also decrease in auto trips)	New MOL trips per day	10,100	No change
		New MOL trips per year	3,191,600	No change
1	**MOL In-Vehicle Travel Time Change**	Minutes per trip	North Hollywood to Canoga (12.7 miles) - 12.6	North Hollywood to Chatsworth (18 miles) - 16
	MOL Out-of-Vehicle Travel Time Change	Minutes per trip (Peak)	2	No change
		Minutes per trip (Off-Peak)	0	No change
1	**Parallel Roadway Travel Time**	Minutes per trip (bidirectional average)	North Hollywood to Canoga (12.7 miles) 42	North Hollywood to Chatsworth (18 miles) 54
	Trips during Peak Period	Percent	70%	No change
	Bus Vehicle Miles	Average weekday miles	6183.1	No change
		Average Saturday miles	3725.6	No change
		Average Sunday miles	3487.4	No change
		Annual total estimate	1,982,682	No change
	Change in Automobile VMT	Daily VMT change	- 81,756	No change
		Annual VMT change	- 25,834,896	No change
	Average automobile speed	Miles per hour	20	No change
3	**Vehicles crossing gate quadrant streets**	Number of daily vehicles	305,000	307,000 (with Kester)
		Number of annual vehicles	96,380,000	97,012,000
3	**Vehicles crossing grade separation streets**	Number of daily vehicles	45,000	43,000
		Number of annual vehicles	14,220,000	13,588,000
1-12	**Change in average cross traffic delay for gate quadrants**	Seconds of delay	7	12
	Change in average cross traffic delay for grade separations	Seconds of delay	- 5	No change

*Values shown in 2017 analysis represent the 12.7-mile E-W corridor (North Hollywood to Canoga).

Table 2. Comparison of Methodology/Assumptions/Approach

Line #		2017 Analysis	2018 Analysis
Overall Model (at all locations)			
1	Study Area	North Hollywood to Canoga (E-W segment, 12.7 miles)* * Although the 2017 analysis focused on the 12.7-mile segment of the Orange Line, the Project was extended to the entire 18-mile corridor (North Hollywood to Chatsworth) with the installation of gate systems at all crossings to provide the maximum potential improvement for the entire Orange Line corridor.	North Hollywood to Chatsworth (entire Orange Line, 18 miles)
2	Analysis Output	N-S crossing delay only	LOS analysis, all approaches included
3	Counts	2015 counts	December 2017 counts; project conditions were grown using calculated SCAG growth rates
4	Geometrics	• Existing condition geometries for both existing and project conditions; no design elements included • "Hybrid" project included one full grade separation from Sepulveda to Van Nuys (including Kester), and road crossing closures at Corteen, Tyrone, and Densmore	• Project conditions include conceptual design, including proposed median and gate locations • Two grade separations (one between Sepulveda and City of LA driveway and one between Vesper and Van Nuys; gates at Kester) • Road crossing closure at Tyrone
5	Signal Timing	No changes to intersection signal timings from existing conditions to project conditions	Based on proposed geometric design changes, lead/lag phasing and new protected left-turn phasing added per consultation with LADOT

Table 2. Comparison of Methodology/Assumptions/Approach

Line #		2017 Analysis	2018 Analysis
6	Preemption under Project Conditions	**Basic** at-grade rail crossing preemption that stops traffic only for affected movements (i.e. existing signal timing runs as-is independent of preemption). No advanced preemption or exit phasing assumed.	LADOT Railroad Preemption Form used at each gate crossing (i.e. **hard** preemption). Form includes advanced preemption (i.e. **pedestrian clearance** & busway/track clearance time), gates lowering, gates down, and exit phasing prior to resumption of normal operations.
7	Bus Operations	One 40-foot bus per 6 minutes	Two 60-foot electric buses per 6 minutes, spaced 10 seconds apart as a platoon
8	Pedestrian Activity	No pedestrian crosswalks or counts included	Pedestrian crosswalks, counts, and activity included
Additional Specific Intersection Notes			
9	Chandler Boulevard/ Laurel Canyon Boulevard/MOL Busway	Existing conditions operations maintained in project conditions with exception of overlaid basic preemption	• NB/SB lead-lag left-turn phasing for project conditions • EB/WB lead-lag left-turn phasing for project conditions
10	Chandler Boulevard/ Coldwater Canyon Boulevard/MOL Busway	Existing conditions operations maintained in project conditions with exception of overlaid basic preemption	NB/SB lead-lag left-turn phasing for project conditions
11	Burbank Boulevard/ Fulton Avenue/MOL Busway	Project conditions show the busway does not initiate preemption here or halt any phase operations. This suggests a proposed grade separation in the modeling.	• EB/WB protected left-turn phasing for project conditions • All movements stop when bus platoon crosses intersection

Table 2. Comparison of Methodology/Assumptions/Approach

Line #		2017 Analysis	2018 Analysis
12	Tampa Avenue/ Topham Street/MOL Busway	Existing conditions operations maintained in project conditions with exception of overlaid basic preemption	SBR eliminated under project conditions

Table 3. Original Benefit/Cost Analysis

(3)

INVESTMENT ANALYSIS
SUMMARY RESULTS

Life-Cycle Costs (mil. $)	$238.2
Life-Cycle Benefits (mil. $)	$357.5
Net Present Value (mil. $)	$119.4
Benefit / Cost Ratio:	1.50
Rate of Return on Investment:	8.0%
Payback Period:	9 years

ITEMIZED BENEFITS (mil. $)	Passenger Benefits	Freight Benefits	Total Over 20 Years	Average Annual
Travel Time Savings	$173.7	$0.0	$173.7	$8.7
Veh. Op. Cost Savings	$121.0	$0.0	$121.0	$6.1
Accident Cost Savings	$52.5	$0.0	$52.5	$2.6
Emission Cost Savings	$10.3	$0.0	$10.3	$0.5
TOTAL BENEFITS	$357.5	$0.0	$357.5	$17.9
Person-Hours of Time Saved			32,888,986	1,644,449

Should benefit-cost results include:

1) Induced Travel? (y/n)	Y	Default = Y
2) Vehicle Operating Costs? (y/	Y	Default = Y
3) Accident Costs? (y/n)	Y	Default = Y
4) Vehicle Emissions? (y/n) includes value for CO_2e	Y	Default = Y

	Tons		Value (mil. $)	
EMISSIONS REDUCTION	Total Over 20 Years	Average Annual	Total Over 20 Years	Average Annual
CO Emissions Saved	800	40	$0.1	$0.0
CO_2 Emissions Saved	238,371	11,919	$6.8	$0.3
NO_X Emissions Saved	65	3	$2.6	$0.1
PM_{10} Emissions Saved	2	0	$0.5	$0.0
$PM_{2.5}$ Emissions Saved	2	0		
SO_X Emissions Saved	2	0	$0.3	$0.0
VOC Emissions Saved	42	2	$0.1	$0.0

Table 4. Revised Benefit/Cost Analysis for Scope Change

(3)

INVESTMENT ANALYSIS
SUMMARY RESULTS

Life-Cycle Costs (mil. $)	$238.2
Life-Cycle Benefits (mil. $)	$404.3
Net Present Value (mil. $)	$166.1
Benefit / Cost Ratio:	1.7
Rate of Return on Investment:	9.3%
Payback Period:	8 years

ITEMIZED BENEFITS (mil. $)	Passenger Benefits	Freight Benefits	Total Over 20 Years	Average Annual
Travel Time Savings	$220.4	$0.0	$220.4	$11.0
Veh. Op. Cost Savings	$121.0	$0.0	$121.0	$6.1
Accident Cost Savings	$52.5	$0.0	$52.5	$2.6
Emission Cost Savings	$10.3	$0.0	$10.3	$0.5
TOTAL BENEFITS	$404.3	$0.0	$404.3	$20.2
Person-Hours of Time Saved			39,263,878	1,963,194

Should benefit-cost results include:

1) Induced Travel? (y/n)	Y	Default = Y
2) Vehicle Operating Costs? (y/	Y	Default = Y
3) Accident Costs? (y/n)	Y	Default = Y
4) Vehicle Emissions? (y/n) includes value for CO_2e	Y	Default = Y

	Tons		Value (mil. $)	
EMISSIONS REDUCTION	Total Over 20 Years	Average Annual	Total Over 20 Years	Average Annual
CO Emissions Saved	800	40	$0.1	$0.0
CO_2 Emissions Saved	238,371	11,919	$6.8	$0.3
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SO_X Emissions Saved	2	0	$0.3	$0.0
VOC Emissions Saved	42	2	$0.1	$0.0

ROAD REPAIR & ACCOUNTBILITY ACT OF 2017
LOCAL PARTNERSHIP COMPETITIVE PROGRAM
PROJECT BASELINE AGREEMENT
METRO ORANGE LINE BUS RAPID TRANSIT IMPROVEMENTS

Exhibit C
Environmental Document

2018 185159

FILED
Jul 26 2018

Dean C. Logan, Registrar – Recorder/County Clerk

Electronically signed by TODD TRAN

Los Angeles County
Metropolitan Transportation Authority

THIS NOTICE WAS POSTED

ON July 26 2018

UNTIL August 27 2018

REGISTRAR – RECORDER/COUNTY CLERK

.2000 Tel
et

Notice of Exemption

To:
County Clerk
County of Los Angeles
12400 Imperial Highway
Norwalk, CA 90650

From:
Los Angeles County Metropolitan Transportation Authority
One Gateway Plaza
Los Angeles, CA 90012
Contact: Manjeet Ranu, Senior Executive Officer,
Countywide Planning and Development
213-922-3038

Project Title: Metro Orange Line Bus Rapid Transit (MOL BRT) Improvements Project

Project Applicant: Los Angeles County Metropolitan Transportation Authority (LACMTA)

Public Agency Approving Project LACMTA

Project Location (include county): San Fernando Valley, Los Angeles; Los Angeles County

Description of Nature, Purpose and Beneficiaries of Project:

This project involves improving the existing MOL BRT mass transit facility operating in a dedicated High Occupancy Vehicle (HOV) facility, a voter-approved transportation project (Attachment A). Improvements include these primary features (ancillary features may be included to effectuate these primary features):

- Four-quadrant railroad-type safety gating with audible alarms and visible warning lights at up to 35 at-grade crossings between the North Hollywood and Chatsworth Stations;
- Grade separation and MOL BRT aerial station (elevated structure) at Van Nuys Boulevard, with closure of Tyrone Avenue;
- Grade separation and MOL BRT aerial station at Sepulveda Boulevard; and
- Grade separated Class I bicycle/pedestrian overcrossings at Van Nuys and Sepulveda Boulevards, while maintaining an at-grade, Class I bicycle path facility with signalization across these streets.

Full or partial property acquisitions may be necessary. Cross traffic delay will generally increase because of this project. Notwithstanding this Statutory Exemption, LACMTA is committed to implementing measures, including design standards and best management practices, to reduce or eliminate potential new impacts, at its sole discretion. The addition of grade separations and gate systems would be consistent with the ultimate conversion of the MOL BRT corridor to light rail transit, but does not commit the LACMTA Board to doing so, as this project has independent utility because it improves the operation and capacity of MOL BRT, in accordance with Measure M of November 2016. This project will be designed to allow for potential future connections between MOL BRT and the planned East San Fernando Valley and Sepulveda Transit Corridor projects, but this action on the MOL BRT project does not commit the LACMTA Board to these connections, as the Board will separately decide these projects, each of which has independent utility as standalone Measure M projects. The project improves the operational safety of MOL BRT, allowing buses to travel faster. This also attracts additional riders, further improving this HOV-running mass transit facility. The MOL BRT project may be implemented in one or more phases. More information about the project and the reasoning for the LACMTA Board's July 26, 2018 decision in approving it, following a hearing at the Board's Planning and Programming Committee on July 18, 2018, is on file at LACMTA at the above address and online at https://boardagendas.metro.net/.

2018 185159

FILED
Jul 26 2018

Dean C. Logan, Registrar – Recorder/County Clerk

Electronically signed by TODD TRAN

Exempt Status:

- ☐ Ministerial (Sec. 21080(b)(1); 15268).
- ☐ Declared Emergency (Sec. 21080(b)(3); 15269(a).
- ☐ Emergency Project (Sec. 21080(b)(4); 15269(b)(c).
- ☐ Categorical Exemption: Click here to enter text.
- ☒ Statutory Exemption: PRC §21080 (b)(11)/CEQA Guidelines §15275 (a)

Reasons why project is exempt:

- The existing MOL BRT line is a "passenger or commuter service" because it is a public, passenger bus conveyance;
- The project would increase passenger service because travel times would be improved over the No Build condition and passenger capacity would be enhanced due to substantial user benefits, measured in in terms of "benefit hours," that would be achieved in both the peak and off-peak periods, with the faster travel times resulting in greater ridership;
- Buses are considered high occupancy vehicles (HOVs), are allowed to use HOV lanes and therefore, the MOL BRT is an HOV facility;
- The project improvements would occur within and/or adjacent to the existing MOL BRT facility right-of-way;
- The project would increase passenger service on the MOL by improving BRT operations reducing travel times and improving safety by avoiding vehicle/BRT conflicts;
- The project has independent utility and logical termini because the Technical Study and subsequent study demonstrates that the project improves MOL BRT operational and ridership performance; and
- This project is consistent with the intent of the legislature in establishing this Statutory Exemption to facilitate "passenger and commuter services" improvements to HOV lanes already in use.

If filed by the applicant:

1. Attach certified document of exemption finding
2. Has a Notice of Exemption been filed by the public agency approving the project?
   ☐ Yes ☐ No

Signature (Public Agency): _____ Title: Senior Executive Officer, Countywide Planning and Development

Date: July 26, 2018 Date Received for filing at OPR not applicable

☒ Signed by Lead Agency
☐ Signed by Applicant

Authority cited: Sections 21083, Public Resources Code
Reference Section 21000-21174, Public Resources Code.

ATTACHMENT A: PROJECT MAP

2018 185159

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Jul 26 2018

Dean C. Logan, Registrar – Recorder/County Clerk

Electronically signed by TODD TRAN

ROAD REPAIR & ACCOUNTBILITY ACT OF 2017
LOCAL PARTNERSHIP COMPETITIVE PROGRAM
PROJECT BASELINE AGREEMENT
METRO ORANGE LINE BUS RAPID TRANSIT IMPROVEMENTS

Exhibit D
Transmittal Letter

Los Angeles County
Metropolitan Transportation Authority

One Gateway Plaza
Los Angeles, CA 90012-2952

213.922.2000 Tel
metro.net

Metro

May 21, 2019

Ms. Susan Bransen
Executive Director
California Transportation Commission
1120 N Street, MS 52
Sacramento, CA 95814

Attention: Ms. Angel Pyle

Metro Orange Line Bus Rapid Transit Improvements Project Baseline Agreement

Dear Ms. Bransen:

On behalf of the Los Angeles County Metropolitan Transportation Authority, please accept this transmittal letter as the formal submittal of the Baseline Agreement and its Exhibits for the Metro Orange Line Bus Rapid Transit Improvements (Project), located in the City and County of Los Angeles, California. The Project Baseline Agreement has been signed by Phillip A. Washington, CEO, and is consistent with the approved Project Application submitted on January 30, 2018 (enclosed); the adopted Local Partnership Competitive Program Resolution LPP-P-1718-01 approved by the California Transportation Commission on May 16, 2018 and the California Environmental Quality Act, Statutory Exemption, approved on August 27, 2018. Also, we are enclosing the Benefits Form for the project.

Please contact me at 213-922-2822 or starkco@metro.net or Nela De Castro at 213-922-6166 or decastrom@metro.net with any questions that you may have. Thank you.

Sincerely,

COSETTE STARK
Deputy Executive Officer
Grants Management & Oversight

Enclosures

ROAD REPAIR & ACCOUNTBILITY ACT OF 2017
LOCAL PARTNERSHIP COMPETITIVE PROGRAM
PROJECT BASELINE AGREEMENT
METRO ORANGE LINE BUS RAPID TRANSIT IMPROVEMENTS

Exhibit E
Project Application

SB 1 Program Application Transmittal Sheet

Project Name: Metro Orange Line Bus Rapid Transit Improvements

Nominating Agency/Agencies: Los Angeles County Metropolitan Transportation Authority

Implementing Agency/Agencies: Los Angeles County Metropolitan Transportation Authority

Total Project Cost: $320,300,000

Requesting Cost: $80,000,000

Project Location: Metro Orange Line Bus Rapid Transit Route (LA San Fernando Valley)

City/Cities: City of Los Angeles

County/Counties: Los Angeles County

Post Miles: N/A

Legislative Districts:

Assembly Districts: 45, 46

Senate Districts: 18, 27

Program(s) Applying for:

- [x] **Local Partnership Program (LPP@catc.ca.gov) – application attached**
- [x] **Solutions to Congested Corridors Program (SCCP@catc.ca.gov)**
- [ ] **Trade Corridor Enhancement Program (TCEP@catc.ca.gov)**

For Agencies with Multiple Project Submissions:
Priority # 2 of 4 projects for LPP

METRO ORANGE LINE BUS RAPID TRANSIT IMPROVEMENTS

Submitted by the Los Angeles County Metropolitan Transportation Authority

LOCAL PARTNERSHIP PROGRAM

Metro

January 30, 2018


Exit Winnetka Av
Exit Pierce College
Winnetka Av
Bike Lockers
Parking
Pierce College
West Valley Occupational Center
NORTH HOLLYWOOD STATION


NORTH HOLLYWOOD STATION

TABLE OF CONTENTS

1. COVER LETTER

Los Angeles County
Metropolitan Transportation Authority

One Gateway Plaza
Los Angeles, CA 90012-2952

213.922.2000 Tel
metro.net

Metro

January 30, 2018

Ms. Susan Bransen
Executive Director
California Transportation Commission
1120 N Street, MS-52
Sacramento, CA 95814

RE: 2018 LOCAL PARTNERSHIP PROGRAM (LPP) GRANT APPLICATION FOR THE METRO ORANGE LINE BUS RAPID TRANSIT (BRT) IMPROVEMENTS PROJECT

Dear Ms. Bransen:

I am pleased to submit this grant application for Local Partnership Program (LPP) funding for the Metro Orange Line Bus Rapid Transit (BRT) Improvements Project (Project). The Los Angeles County Metropolitan Transportation Authority (Metro) is seeking LPP funds of $80 million, or 25 percent of the total project cost. The remaining $240 million will be provided solely from committed local funds. LPP funding will complete the funding needed to improve bus travel times as well as safety, by gating and grade separating the dedicated right of way, which is nonetheless criss-crossed by surface streets for the bulk of the alignment, leading to both delays as the bus slows and stops for cross traffic, and traffic incidents as mixed traffic interacts with buses at intersections. The project also represents an opportunity for the State of California to partner with Metro to take part in a larger package of investments in the Metro Orange Line corridor, including the complete conversion of the Orange Line fleet to battery electric buses. This will make it the first fully-electric, full-BRT corridor on a fixed guideway in California.

The Orange Line is one of the busiest BRT lines in the nation, with an average of 23,760 passengers on weekdays. Though it operates within a dedicated right-of-way, the 18-mile Metro Orange Line is at-grade between the North Hollywood Station and Chatsworth Station. Through the Project, Metro Orange Line riders will ride on a corridor that is protected from cross-traffic, smoothing the way for significant time savings, estimated at up to 29 percent. As a result, ridership is projected to increase by at least 39 percent. The Project will also improve safety through a combination of a one-mile grade separation and up to 34 four-quadrant gated crossings that will limit intrusions into the busway. This project's expected mode shift effect, combined with the electric buses, will benefit the low income and disadvantaged communities surrounding several of its stations by improving air quality and providing faster, safer, and more reliable service to education and employment centers throughout the area.

Metro is pleased to sponsor this important and transformative project. This letter serves as confirmation that the Project was considered for reversible lanes pursuant to Streets and Highways Code Section 100.15. I hereby authorize and approve this application, and certify the cost information contained within. Should you have any questions please contact Wil Ridder, Executive Officer at 213-922-2887 or ridderw@metro.net.

Sincerely,

Phillip A. Washington
Chief Executive Officer

2. PROJECT NARRATIVE

2.1. Executive Summary

The Los Angeles County Metropolitan Transportation Authority (Metro), an eligible taxing authority administering four half-cent sales taxes dedicated to transportation infrastructure, is seeking $80 million in Local Partnership Program (LPP) Competitive Grant Program funds for the Metro Orange Line (MOL) Bus Rapid Transit (BRT) Improvements Project (Project) in Los Angeles County's San Fernando Valley. LPP funding would provide the State of California an opportunity to invest in the MOL, one of the busiest BRT lines in the nation that Metro is transforming through significant investments, including a $88 million conversion of the entire 45-bus Orange Line fleet to full zero emission electric vehicles.

The Project will significantly improve safety and travel time for the MOL by constructing an aerial grade-separated structure over five intersections and railroad-type four-quadrant gate systems at 34 intersections along 17 miles of the MOL route (see Figure 1).

The Project will expand transit services, increase transit ridership, improve transit safety, enhance the access and convenience of the traveling public, and otherwise provide or facilitate a viable alternative to driving on U.S. Route 101, one of the top ten most congested highways in California. The Project should become a State priority for LPP funding because:

- It capitalizes on Metro's vision for the MOL corridor as the first electrified fixed guideway BRT system in California;
- Leverages significant local funding with 75 percent of the project's cost ($240 million) committed from local funds;
- Increases MOL ridership by at least 39 percent due to travel time savings (see Section 2.4 for further detail) and reduces VMT as more trips are made on transit;
- Addresses public concerns regarding delays at intersections by increasing crossing speeds;
- Enhances safety by reducing conflicts between MOL buses, autos, bicyclists, and pedestrians that resulted in 23 bus-involved collisions between 2015 and 2016, as well as reducing vehicle intrusions into the busway;
- Is cost-effective with a benefit-cost ratio of 1.5;
- Improves air quality by reducing pollutants and emissions associated with acceleration and deceleration at the 39 crossings to be addressed; and
- Contributes to the economic growth and productivity of the region and state by decreasing MOL travel times and promoting transit-oriented development/communities (TOD/TOC), creating safer pedestrian conditions, and enhancing access to transit corridor.

Metro is scheduled to start construction on the $320 million Project by June 2019.

2.2. Project Priority

Metro is nominating a total of four projects as part of the 2018 LPP Competitive Program. The Project is Metro's second priority out of the four projects being nominated for LPP funding.

Figure 1. MOL BRT Improvements Project Scope

2.3. Project Background, Purpose, and Need

The MOL route is one of the most successful transit services in the Metro transit system, providing a vital, high-capacity transit link for an estimated 23,760 weekday daily riders and serving as a viable transportation alternative for those who would otherwise travel on the parallel U.S. Route 101, one of the top ten most congested highways in California. The line opened on October 29, 2005, and was extended to Chatsworth on June 30, 2012. The 17-mile MOL segment that is the subject of this grant application runs from the North Hollywood Station, which connects to Metro's Red Line Subway system terminating at LA Union Station, and to the Chatsworth Station on the west. Passenger volumes are near capacity in certain segments with buses carrying approximately 1,300 passengers per hour per direction, exceeding Metro Transit Service Policy that directs that BRT service carry 1,100 riders per hour per direction.As the MOL serves a dense and growing corridor, ridership demand is expected to continue to grow over the next 10 years.

Metro currently operates three-door, 60-foot articulated buses on the MOL, with a seating capacity of 57 passengers, providing a total of 411 weekday bus trips (206 eastbound and 205 westbound). The MOL has 43 at-grade crossings, five pedestrian crossings, and is complemented by an 8.2-mile bikeway located adjacent to the busway. The bikeway is comprised of two segments: Class II bicycle lanes from North Hollywood Station to Coldwater Canyon Avenue; and a Class I dedicated bicycle path and pedestrian trail from Coldwater Canyon Avenue to Canoga Boulevard.

Red lights at intersection crossings result in overall delays of six to ten minutes. In addition, serious safety concerns exist along the Project corridor due to excessive traffic violations and collisions at intersections. The Project corridor has nineteen red light photo enforcement cameras, which recorded, on average, 4,000 to 5,000 traffic violations of cars illegally entering the busway each month during 2015 and 2016. The proposed four-quadrant gating-system will prevent cars from entering the busway, drastically reducing opportunities for collisions. Therefore, the purpose and need for the Project is to improve operating speeds, ridership, capacity, and safety on the MOL, while benefitting the surrounding community and ensuring cost effectiveness.

In January 2016, the Metro Board authorized and in October 2017, Metro released the Metro Orange Line Grade Separation Analysis and Operational Improvements Technical Study (Technical Study). The goal of the Technical Study was to recommend improvements that will enhance operating speeds and reduce bus travel times to move riders more efficiently and safely. At the conclusion of the Technical Study, a single recommended option, which includes a combination of grade separation and gating, was developed for the Metro Board's consideration. The Board approved it at its October 26, 2017 meeting. The approved alternative forms the basis of this Project.

In November 2016, Los Angeles County voters approved Measure M, which authorized the "Los Angeles County Traffic Improvement Plan," an Ordinance and Expenditure Plan that defined specific projects and types of transportation infrastructure improvements that the anticipated sales tax revenues will support. In November 2017, Los Angeles Mayor and Metro Board Chair Eric Garcetti announced the "Twenty-Eight by '28 Initiative" to highlight projects for completion by the 2028 Olympic and Paralympic Games. The Project is one of those 28 projects with a target completion date of 2025 due to the fact that the Sepulveda Basin Sports Complex, one of the Olympic venues, is within the MOL vicinity. The MOL will, therefore, have a role in providing Olympic-related trips to these events.

The Project is part of a larger program of significant investments in the MOL corridor. This includes investment in complete electrification of the MOL by 2020. While the Project will improve travel times, safety, and ride quality from less stops and starts, this groundbreaking investment will be a significant step forward in Metro's continual process of reducing emissions and providing clean transit and a healthy environment. In July 2017, Metro took a big step toward conversion of the entire 45-bus MOL

fleet from Compressed Natural Gas to full zero emission vehicles with a contract for 35 zero emission buses and related charging facilities. This is an investment of $88 million. Additional steps toward a zero-emission fleet will be studied under the Zero Emission Bus Master Plan.

Metro is currently exploring future connections between the Project and two other planned Measure M projects, the East San Fernando Valley and the Sepulveda Transit Corridors. Planning for the MOL corridor will also include first/last mile access to the two new grade-separated stations.

2.4. Detailed Project Description, Scope, and Anticipated Benefits

Description and Scope

The Project addresses all modes in the MOL corridor in a manner that improves efficiency and enhances safety. The Project scope consists of the following package of capital improvements along the MOL segment:

- A new single-grade separation structure spanning Van Nuys and Sepulveda Boulevards (and the three intersecting streets in between) with two existing BRT stations (Van Nuys and Sepulveda Stations) relocated vertically to the new structure with side-loading station platforms (see Figure 2);
- Closure of one minor street, Tyrone Avenue, to accommodate the busway grade separation structure;
- Four-quadrant safety gates (of the type used for Light Rail Transit [LRT]) at 34 other intersections along the busway between the North Hollywood and Chatsworth Stations (see Figure 3);
- A new elevated Class I bicycle path spanning Van Nuys to Sepulveda Boulevards;
- Improvement of existing at-grade Class I bicycle path adjacent to the span of the busway grade separation structure to improve safety for bicyclists and pedestrians;
- Retainage of signalization at all existing at-grade Class I bicycle path intersections with roadways, including at Van Nuys and Sepulveda Boulevards to maintain local access; and
- Stations and improvements that will accommodate the long-term plan to convert MOL to LRT.

Metro is considering two design options for the new elevated bike path between Sepulveda and Van Nuys Boulevards on the north side of the MOL busway: either a continuous bikeway structure adjacent to the proposed elevated busway structure; or a limited elevated bike path structure only at Sepulveda and Van Nuys Boulevards.

To minimize the frequency of gate activation and associated potential delays to cross-traffic once the Project is completed and in operation, Metro will operate two-vehicle bus platoons during peak periods. With the increased crossing protection provided by the gating and grade separation, MOL buses will operate at the maximum speed allowed within the busway.

Anticipated Benefits

The Technical Study's recommended alternative will provide optimal improvements to address five specific goals and needs: improve operations; improve ridership, address growth; support efficient land use; address safety concerns; and ensure cost effectiveness.

Improve Operating Speeds and Reliability

The number of times buses stop at traffic signals along the route significantly affects the overall MOL operating speeds and service. The Technical Study found that the west/northbound travel time from North Hollywood to Canoga station averaged 41.3 minutes. The east/southbound travel time from Canoga to North Hollywood station averaged approximately 38.5 minutes. Average time to travel the 17 miles end-to-end on the MOL from the Chatsworth to North Hollywood Stations during the weekday PM peak was as high as 50 to 55 minutes. Red lights result in delays to buses of approximately 10 minutes in the westbound and six minutes in the eastbound direction.

By providing a one-mile long grade separated busway and 34 gating intersections, bus speeds can be increased and current riders' complaints of excessive cross-Valley travel times and delays at intersections may be addressed. With the Project, MOL bus travel times are anticipated to be reduced by an average (peak and off-peak) of 12.6 minutes in the west/northbound direction and 3.4 minutes in the east/southbound direction, for a total average reduction in travel times of 16

minutes each way, a 39 percent reduction from current travel times. In addition, after Project completion, two-vehicle bus platoons will be used during peak periods to minimize the frequency of gate activation and delays to cross-traffic.

Improve Transit Ridership

In 2017, average daily ridership for the MOL was around 23,760 on a typical weekday, 13,768 on Saturdays, and 10,551 on Sundays (see Figure4). The Technical Study predicted that, without the Project, ridership is likely to increase to just 25,900 daily boardings by 2025.

Current operating speeds on the MOL corridor are approximately 20 to 21 mph, including delay/dwell times for boardings/alighting at stations on all service days. The Project is expected to increase operating speeds to an average of 30 mph, a 50 percent increase over current levels. The Technical Study found that a 20 to 30 percent speed increase and travel time reliability may result in a ridership increase of approximately 39 percent. With the expected 50 percent speed improvement, ridership is likely to increase even more than the projections in the Technical Study.

Address Growth

The MOL is operating near capacity, with standing passenger loads and very frequent headways, up to every four minutes, during peak hours. To continue to meet demands, the

Figure 2. Grade Separation Rendering – Orange Line at Sepulveda Blvd. Crossing

Figure 3. Gating Rendering – Orange Line at De Soto Ave. Crossing

Figure 4. Current MOL Ridership

Day Type	Average Daily Ridership	Average Daily Passenger Miles	Day Count	Annual Ridership	Annual Passenger Miles
Weekday	23,760	157,181	254	6,034,995	39,923,998
Saturday	13,768	91,035	52	715,950	4,733,835
Sunday	10,551	68,980	59	622,505	4,069,816
Total	**N/A**	**N/A**	**365**	**7,373,450**	**48,727,649**

Project will provide gating and grade separation of the busway as an innovative, safe, and cost-effective way to reduce BRT end-to-end travel time, thereby, allowing for more buses to operate in the corridor. By enhancing operational capacity through increased speeds, the Project will address ridership increases likely to result from population and employment growth. Population densities are concentrated north of the MOL corridor between the North Hollywood and Sepulveda Stations (see Figure 5). Employment densities are relatively consistent throughout the MOL service area with a concentration of jobs at and near the Warner Center and near major intersections on Van Nuys, Sepulveda, and Reseda Boulevards (see Figure 6). A total of 20 percent growth in population and 26 percent growth in employment from 2012 to 2040 are projected for the MOL service area[1]. The Project will address ridership increases resulting from this population and employment growth.

Support Efficient Land Use

By enhancing operational capacity with increased speeds and service availability and convenience on the MOL, the Project will address potential ridership increases likely to result from the following:

- **Land Uses & Activity Centers:** Land uses within 0.5 miles of the MOL corridor are just over half residential (55.6 percent of the Project area). Commercial and educational uses (14.9 and 9.3 percent of the Project area, respectively) are concentrated near station locations (see Figure 7). Open space (8.7 percent of the Project area) between the Sepulveda and Balboa Stations encompasses a large portion of the area known as the Sepulveda Dam Recreational Area through the Lake Balboa Community. The MOL also provides direct connection to community colleges (Los Angeles Valley College and Pierce College) and several elementary and high schools. Significantly, the MOL serves the Warner Center, a large 1,100-acre business and employment center in the San Fernando Valley featuring retail, industrial and residential uses with projected growth due to the Warner Center 2035 Plan. Consistent with the Plan, the Uptown at Warner Center TOD will feature 47 acres of dense residential and commercial uses. Improvements in service reliability provided through the Project will allow Metro to adequately meet the needs of new transit riders living, working, and playing at the Warner Center.
- **Future Infrastructure:** In addition to the recently completed pedestrian tunnel under Lankershim Boulevard that provides direct access for riders transferring between MOL and the Metro Red Line at the North Hollywood Station, Metro has several Measure M-funded planned infrastructure improvement projects on the horizon including the East San Fernando Valley Transit Corridor, North Hollywood to Pasadena BRT Corridor Study, North San Fernando Valley BRT Study, and Sepulveda Transit Corridor (San Fernando Valley to LAX Airport) Study (see Figure 8). Furthermore, Metro is embarking on other planning initiatives to improve first/last-mile station access, implement transit-oriented communities, increase and expand active transportation facilities, and improve transit rider access to parking throughout Los Angeles County. It has committed $88 million towards conversion of the 45-bus MOL fleet to full zero-emission vehicles. These improvements will support Metro's efforts to reduce emissions and provide clean transit and a healthy environment.

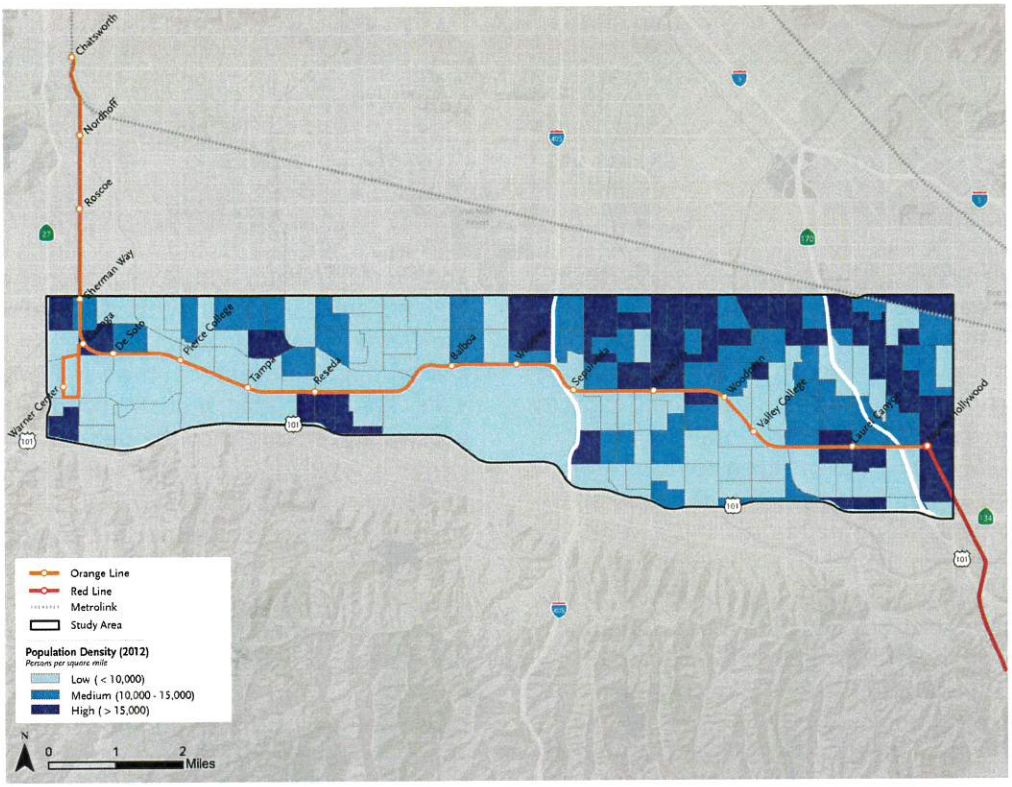
Address Safety Concerns

Based on incident data from 2005 to 2015, there were 116 Metro bus-involved collisions recorded

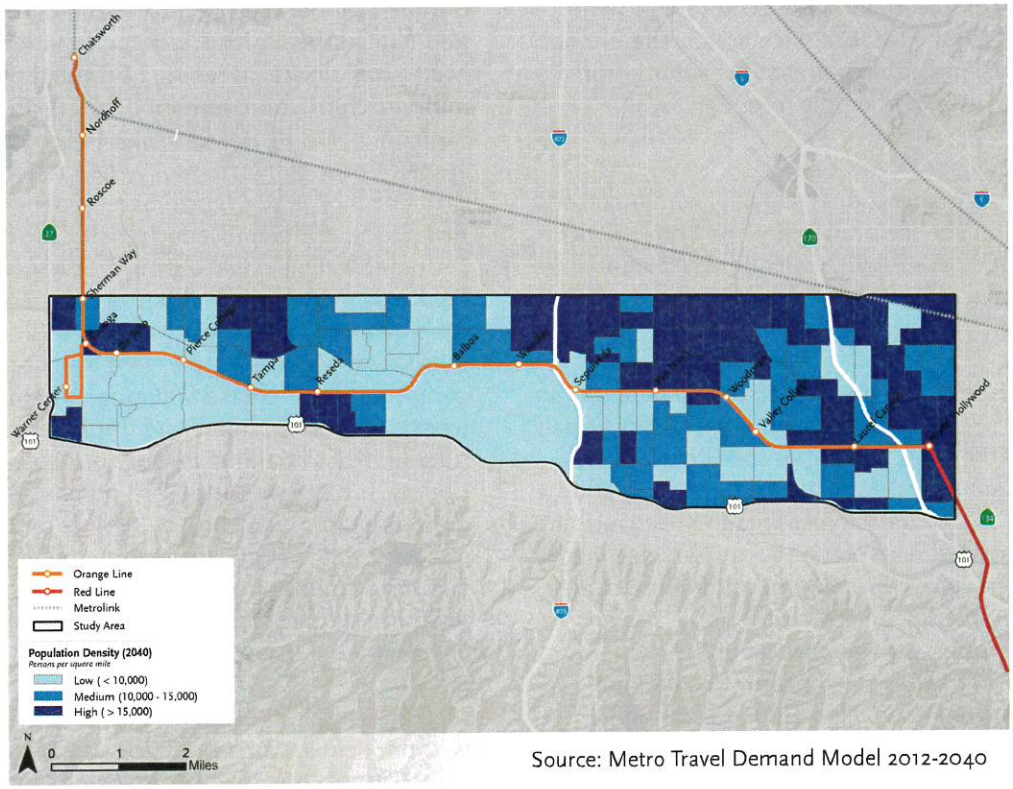
[1] The Southern California Association of Governments (SCAG), 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS)

Figure 5. Population Density in the MOL Corridor (2012 and 2040)

2012



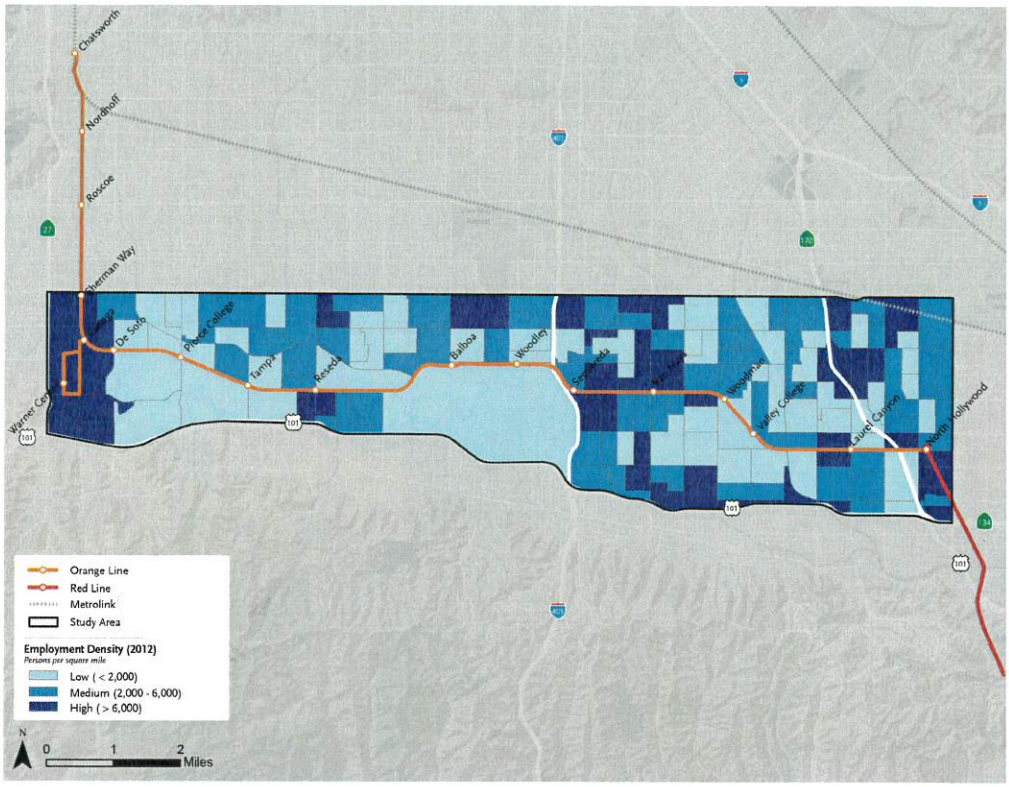
2040



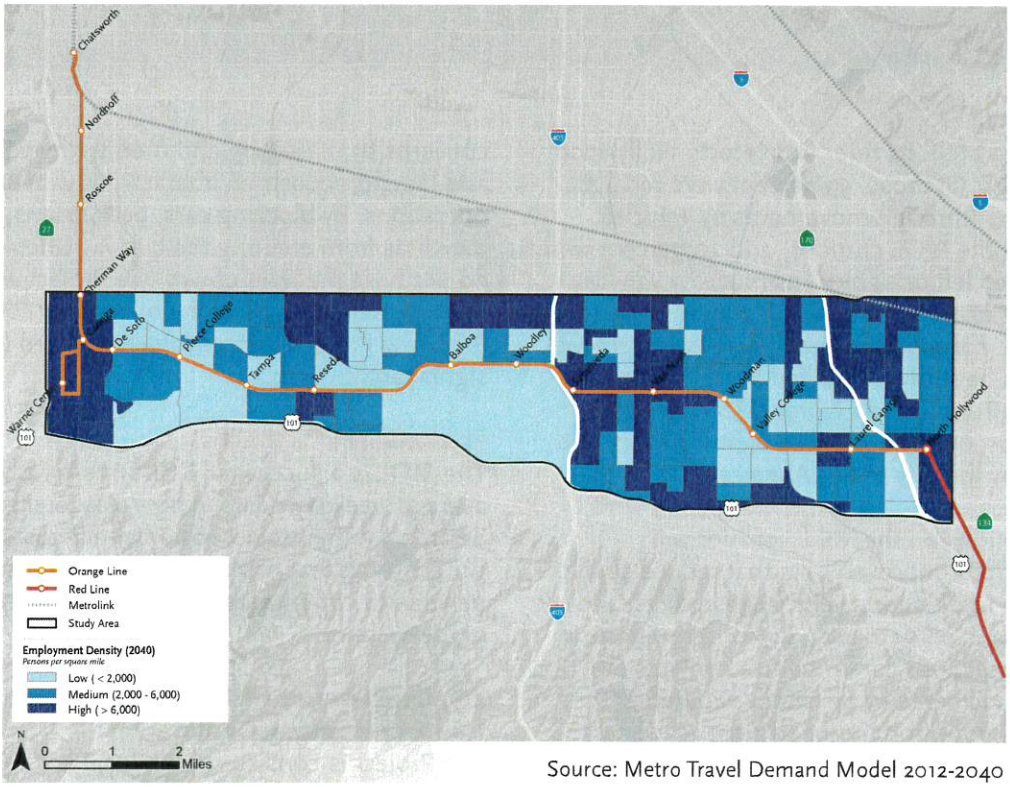
Source: Metro Travel Demand Model 2012-2040

Figure 6. Employment Density in the MOL Corridor (2012 and 2040)

2012

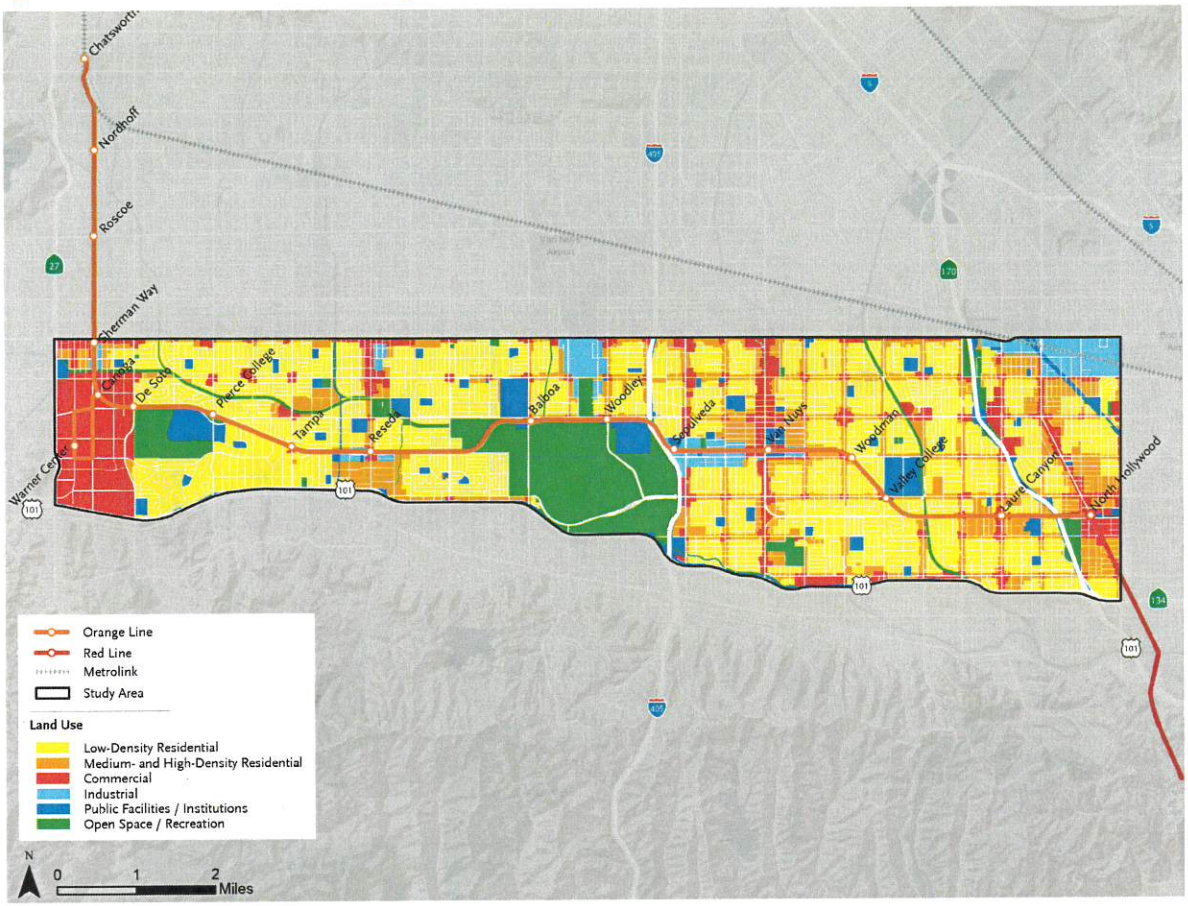


2040



Source: Metro Travel Demand Model 2012-2040

Figure 7. Land Uses in the MOL BRT Improvements Project Corridor



Source: City of LA GeoHub

along the MOL corridor from North Hollywood to Canoga. Of those, 59 percent were red light violations (through movements by vehicles crossing the MOL corridor) and 20 percent were prohibited left or right turns made by vehicles crossing or entering the MOL right-of-way. Along the MOL corridor, red light photo enforcement cameras have been installed at 19 locations between Tujunga and Nordhoff. On average, 4,000 to 5,000 monthly red light violations are issued by the City of Los Angeles.

Key locations on the MOL corridor will benefit from improvements that reduce conflicts between MOL buses, vehicles, bicyclists, and pedestrians. In particular, grade separations at key intersections can minimize conflicts and prevent incidents by physically separating the MOL corridor from perpendicular roadways. Railroad-style quadrant gates will address safety concerns by managing and monitoring vehicle and bicycle/pedestrian interactions with MOL operations. By blocking cars, pedestrians, and bicyclists from entering the busway when they do not have the right-of-way, the Project will improve safety for all as the number of collisions following Project completion is expected to drop significantly.

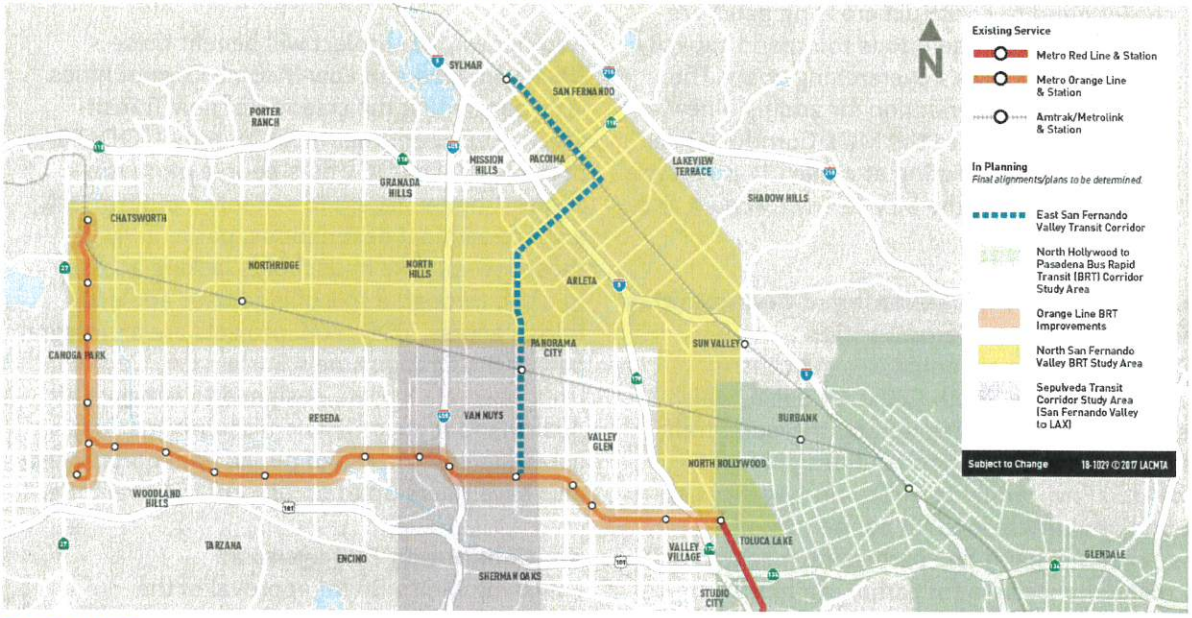
Ensure Cost Effectiveness

The MOL is a successful BRT system with 23,760 average weekday riders in 2017. As detailed in Section 5.1, the Project has a benefit-cost ratio of 1.5, ensuring that costs are commensurate with benefits to continue the overall cost-effectiveness of the system.

2.5. Consistency with Transportation, Land Use and Housing Goals

The Project is consistent with local and regional

Figure 8. Measure M Transit Projects in LA's San Fernando Valley



Source: Metro

plans, including the following:

- The Southern California Association of Governments (SCAG) Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS) Plan (2016): The Project is included in SCAG's RTP/SCS, listed in Final Amendment #2[2]. See Section 5.6 for information on how the Project is consistent with and supports implementation of SCAG's RTP/SCS. The RTP/SCS Plan's overarching strategy is to integrate land use planning and transportation to promote compact and connected communities in a sustainable way, focusing on safe and reliable transportation systems that encourage economic growth and enhanced accessibility for the region.
- Transit Neighborhood Plans for the Orange Line (In Process): The Los Angeles Department of City Planning, in partnership with Metro, is undertaking a multi-year effort to create Transit Neighborhood Plans for the areas surrounding five MOL stations (Sherman Way, Reseda, Sepulveda, Van Nuys, and North Hollywood) in order to establish new regulations and standards that support transit ridership. The anticipated improvements in service reliability from the Project will more adequately meet the needs of new transit riders generated by the Plans.
- Zero Emission Bus Master Plan (In Process): In July 2017, the Metro Board unanimously adopted a motion endorsing a comprehensive plan to transition the agency to a 100 percent zero emission bus fleet by 2030. Metro is the largest American transportation agency to endorse such a goal. Metro's ongoing conversion of the MOL fleet to zero-emission vehicles is a part of this initiative. Currently, Metro staff is studying the additional steps needed to achieve a zero-emission fleet as part of the Zero Emission Bus Master Plan.
- Warner Center 2035 Plan (2013): In October 2013, the Los Angeles City Council adopted the Warner Center 2035 Plan that was crafted as a unique blueprint intended to spur job growth and economic development. The plan looks to development as fundamental to supporting regional transportation investments in the MOL and creating a vibrant TOD. The plan's TOD approach is intended to help the SCAG region attain its adopted RTP/SCS goals and targets to reduce GHG emissions.
- Orange Line Bus Rapid Transit Sustainable Corridor Implementation Plan (2012): In 2011, Metro was awarded grant funding from SCAG to create a plan that focused on improvements to the Orange Line and its stations to increase transit use, reduce GHG emissions, and promote Metro's sustainable development principles. The Project's scope to build grade

[2] Metro, Final Amendment #2 Including the 2017 Federal Transportation Improvement Program Consistency Amendment #17-017, 2017, p. 13.

separations at selected locations along the corridor and to construct crossing gates are recommended as solutions to expand capacity to achieve the Plan's overarching goals. The Project's recommendation for adding a new elevated bike path to the MOL Corridor while maintaining the existing at-grade Class I bicycle path will enhance the bicycle environment and access.[3]

2.6. Benefits to Disadvantaged Communities and Low-Income Communities

The Project area encompasses 118 census tracts within the South Coast Air Basin, which is recognized as having among the worst traffic congestion in the nation, and designated by the U.S. Environmental Protection Agency as a non-attainment area for ozone (classified as "extreme") and fine particulate matter and a maintenance area for carbon monoxide. The majority of the Project is located within a disadvantaged and/or low-income community (see Figure 9). According to the Office of Environmental Health Hazard Assessment's (OEHHA) California Communities Environmental Health Screening Tool, CalEnviroScreen 3.0, **53 percent of the census tracts in the Project area are Disadvantaged Communities** (census tracts in the top 25 percent of CalEnviroScreen 3.0 scores). According to the AB 1550 definition, **74 percent of census tracts in the Project area are considered Low-Income Communities**. These communities comprise the majority of the Project corridor; thus, the Project improvements will benefit a large number of Disadvantaged and Low-Income Communities.

This Project is part of a package of investments to bring these populations better air quality and environmental benefits, as well as increased economic opportunities through better transit access and mobility. The Project will provide direct positive benefits to the many Disadvantaged Community residents along the Project corridor through the complete electrification of the 45-bus MOL fleet by 2020. While the Project will improve travel times, safety, and ride quality from less stops and starts, it is also part of a groundbreaking set of investments in the MOL corridor that will reduce the emissions burden to zero and improve air quality for neighboring communities, providing clean transit and a healthy environment.

Another way the Project will benefit these Disadvantaged and Low-Income Communities is by supporting the creation of new Transit-Oriented-Development/Community (TOD/TOC) projects. TOD/TOC offers people more trip choices, better access to schools, employment, and recreational destinations, particularly for those low-income households lacking access to a car, through a mix of land uses and easy transit access. TOD/TOC projects are an integral part of the Orange Line's Sustainable Corridor Implementation Plan, designed to enhance air quality and reduce GHG emissions, maximize access to and the use of public transportation to also save riders up to 29 percent in travel time.

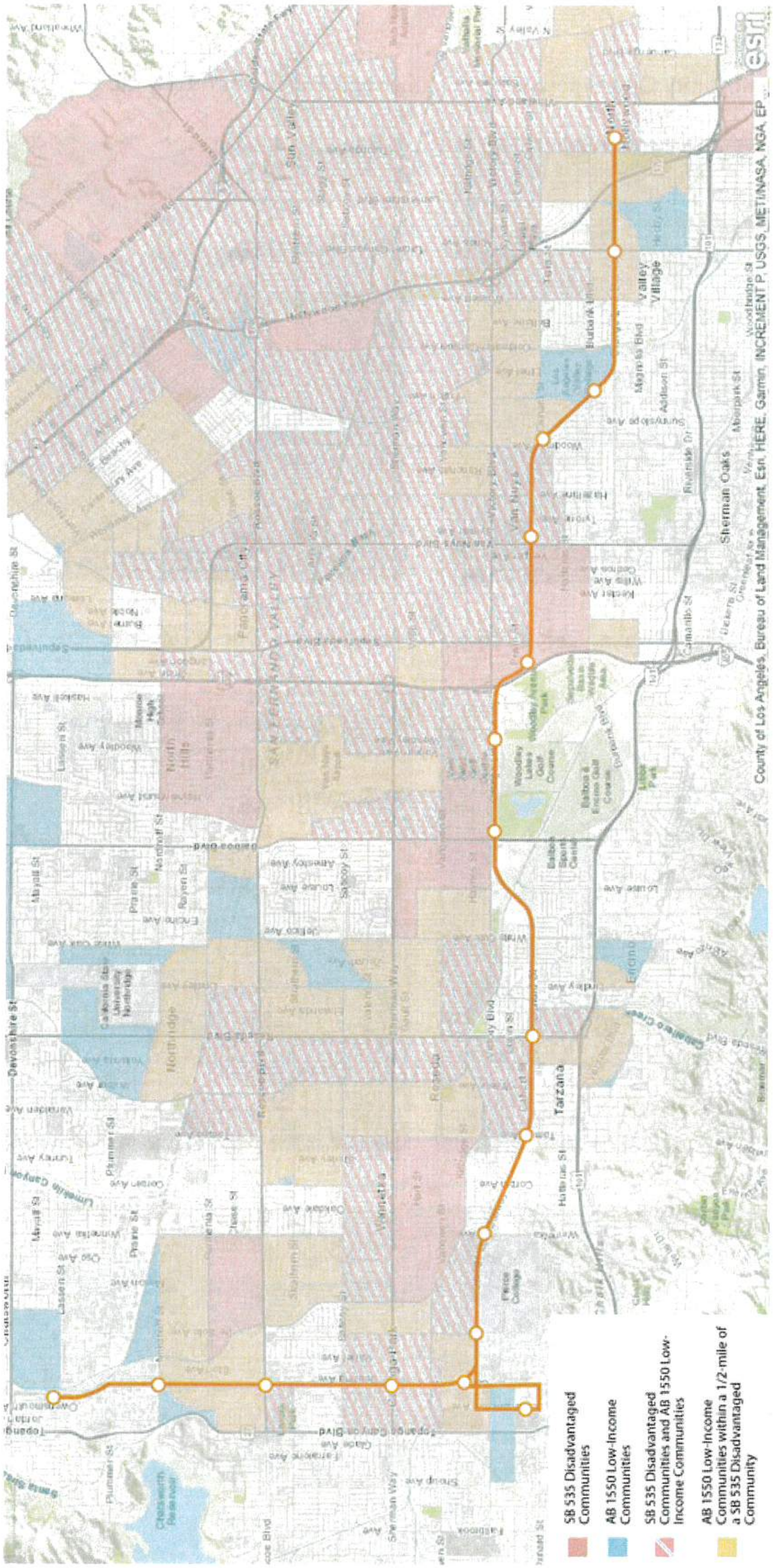
2.7. Community Engagement

Following Metro Board approval of the Technical Study, Metro conducted an initial round of community outreach for the Project to share information and gather input from key stakeholders in November/ December 2017. More than 100 people attended at least one of these meetings. See Figure 10 for photos from these four events. Metro also received valuable input from more than 600 current riders though in-person surveys at the MOL stations.

Metro will continue to build awareness and understanding of the proposed project with key stakeholders by making, facilitating tours of the gating system along the Metro Expo Line in the first half of 2018, engaging current riders through outreach at stops and stations, and attending and participating in large community events with a continued focus on reaching Spanish-speaking Valley residents. Following completion of the next phases of technical work, Metro expects to hold another round of community meetings in Summer/Fall 2018.

[3] Metro and SCAG, Orange Line Bus Rapid Transit Sustainable Corridor Implementation Plan. May 2012.

Figure 9. Disadvantaged and Low-Income Communities



Source: CARB, https://www.arb.ca.gov/cc/capandtrade/auctionproceeds/communityinvestments.htm

Figure 10. Public Outreach

North Hollywood Community Open House, Nov. 9, 2017

Canoga Park Community Open House, Nov. 30, 2017

Van Nuys Community Open House, Dec. 2, 2017

Live Webinar, Dec. 7, 2017

3. PROJECT GRANT FUNDS/ SOURCES AND PROJECT USES

Metro welcomes State support of larger investments being made to improve the MOL corridor, including groundbreaking work to convert the MOL bus fleet to the first fully-electric fixed-guideway BRT system in California. Accordingly, Metro is requesting $80 million – or 25 percent – of the Project's total cost. The remaining $240 million – or 75 percent – is currently planned from local funds. Of this, Metro is providing $220.3 million in matching funds from local sources that will be expended concurrently and proportionally to the $80 million in requested LPP funds on construction for a 73.4 percent match of local funds to LPP funds.

3.1. Fund Sources and Uses

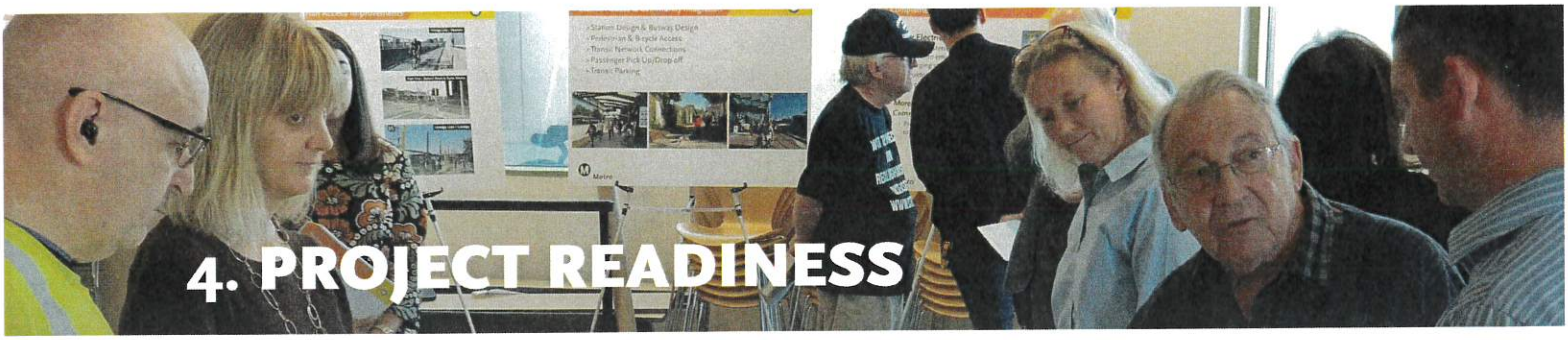
The majority of funding for the Project comes from local sources within Metro's administrative control. In fact, the majority of Metro funding is provided from such local sources, such as our four voter-approved half-cent sales taxes: Propositions A and C and Measures R and M. The $320 million in local and state (LPP) funds for Project delivery components by fiscal year are shown in Table 3-1. The project costs have been escalated to year of expenditure.

3.2. Ability to Absorb Cost Overruns

Metro has a long history of successful delivery of State-funded projects. We have a breadth of experience in handling major infrastructure projects of this scale, and larger. We have the resources and expertise to deliver this Project using the awarded state resources. We are committed to using our own resources if necessary to address any cost overruns in accordance with LPP Guidelines.

Table 3-1. Funding for All Phases by Funding Source (in YOE, $s in 1,000s)

Source	Component	Prior	FY 18/19	FY 19/20	TOTAL
SB 1 (LPP) (requested)	E&P (PA&ED)	-	-	-	-
	PS&E (PE & final design)	-	-	-	-
	R/W SUP (CT)	-	-	-	-
	CON SUP (CT)	-	-	-	-
	R/W	-	-	-	-
	CON	-	-	80,000	80,000
	SUBTOTAL	-	-	80,000	80,000
Local (committed)	E&P (PA&ED)	14,000	-	-	14,000
	PS&E (PE & final design)	-	-	-	-
	R/W SUP (CT)	-	-	-	-
	CON SUP (CT)	-	-	-	-
	R/W	-	6,000	-	6,000
	CON	-	-	220,300	220,300
	SUBTOTAL	14,000	6,000	220,300	240,300
Total	E&P (PA&ED)	14,000	-	-	14,000
	PS&E (PE &final design)	-	-	-	-
	R/W SUP (CT)	-	-	-	-
	CON SUP (CT)	-	-	-	-
	R/W	-	6,000	-	6,000
	CON	-	-	300,300	300,300
	TOTAL	**14,000**	**6,000**	**300,300**	**320,300**



4. PROJECT READINESS

The Measure M Expenditure Plan provides that "Critical grade separation(s) will be implemented early through "Operation Shovel Ready." The Operation Shovel Ready Initiative aims to aggressively bring projects to a "Shovel-Ready" state that enables Metro to take advantage of potential grant opportunities, including LPP, private sector participation and local community support that can help fund major infrastructure improvements already identified for Los Angeles County. Operation Shovel Ready specifies that any projects slated to move forward do so only with work that will be necessary even if the projects do not immediately receive funding for design and construction. Thus, projects are moved through planning before complete funding commitments are received. Because of its delivery under Operation Shovel Ready, Metro has already started environmental and design work to allow the Project to be developed on schedule.

In addition, the Project's aerial grade-separated structure is expected to be delivered under the Design-Build method or other innovative project delivery method. Design-Build reduces the overall duration of the project development process by eliminating a second procurement process for the construction contract, reducing the potential for design errors and omissions, and allowing for concurrent processing of design and construction activities for different portions of the same project[4]. Accordingly, Metro anticipates an abbreviated delivery schedule and higher quality design for the aerial grade-separated structure component of the Project.

4.1. Project Status

Metro is simultaneously undertaking the public and stakeholder engagement process,

Table 4-1. Metro Orange Line BRT Improvements Project Schedule

Key Project Milestone	Anticipated Timeline
Environmental Review*	Board Receives and Files Report: February 2018 Complete Environmental Clearance: July 2018
Preliminary Engineering/Design**	Aerial Grade Separation: January 2018 to Spring 2019 Four-Quadrant Gates: Summer 2018 to Spring 2020
ROW Acquisition / Certification	Fall 2018 to Spring 2020
RFP Release	Advanced Utility Construction: Fall 2018 Design-Build for Aerial Grade Separation: Summer 2019 Four-Quadrant Gate Construction: Spring 2020
Select Contractor	Spring 2019 to late 2020
Start Construction	Ground Breaking (Advanced Utility Construction): June 2019 Aerial Grade Separation / Road Construction: Spring 2020 Four-Quadrant Gate Construction: Early 2021
Utility Relocation	June 2019 through August 2023
Construction Completion	Fall 2023

* Staff is currently evaluating the applicable environmental determination on the Project for a Statutory Exemption to an Environmental Impact Report (EIR).

** Design level will be determined based on contracting method. For Design-Build method (if selected), Metro will complete design to an overall 30 percent level of design for Preliminary Engineering only while the Design-Builder will complete final design.

[4] See https://www.fhwa.dot.gov/reports/designbuild/designbuild.htm.

environmental review, and preliminary engineering phase to advance the future project and remain on schedule. Staff is currently evaluating the applicable environmental determination on the Project for a Statutory Exemption to an Environmental Impact Report (EIR).

4.2. Project Schedule

As displayed in Table 4-1, if awarded, the Project will be ready to allocate LPP funding in Summer 2019. Major construction activity will be ready to begin by Spring 2020. Metro has the financial and technical capability to execute the Project on schedule and within budget as evidenced by its other recently-completed large-scale capital projects, including the Expo Line Phase II and Gold Line Extension to Azusa projects.

4.3. Assessment of Project Risks and Mitigation Strategies

Metro understands that all major transportation capital projects include a level of risk and takes pride in fully assessing and addressing any potential risks associated with its projects before it begins construction. Metro also understands the reporting requirements and financial best practices associated with state grant funding. Furthermore, Metro has its own significant financial stake in the Project, and has taken necessary precautions to ensure that it is completed on-time and within budget.

There are no known risks at this time. Generally, transportation projects may encounter obstacles or potential delay associated with issues identified during design, right-of-way acquisition, and construction bids. We will respond to any issues in a manner that mitigates impact to project delivery.

5. LPP COMPETITIVE PROGRAM EVALUATION CRITERIA

5.1. Projects that are more cost-effective

An economic benefit-cost analysis (BCA) was conducted for the Project using Caltrans' Life-Cycle Benefit-Cost Analysis Model 6.2 (Cal-B/C v.6.2). Table 5-1 outlines the results. The analysis shows that the Project will generate an estimated $358 million in present-value benefits (2016$), exceeding the expected Project costs of $238 million (2017$). With a benefit-cost ratio (BCR) of 1.5, the Project is likely to generate economic benefits that exceed its costs. Supporting documentation for the BCA is provided in Appendix B. Additional detail will be provided upon request.

As described in Section 2.4, the Project is intended to improve operations, reliability, ridership, capacity, and safety in a way that provides benefits to the surrounding community and ensures cost effectiveness. This will generate travel-related benefits across the region in two primary ways. First, by facilitating more free-flow conditions on the MOL, the Project will reduce MOL travel times by 16 minutes end-to-end; increase daily transit ridership by 10,100, adding to the share of people choosing transit over auto as a mode of transportation; and reduce daily VMT by 81,756 (the equivalent of 26 million VMT annually[5]). The Technical Study found that the greater the travel time savings of the improvements provided by the Project, the greater the transit ridership, including more benefits to existing riders and more new riders attracted to transit. Second, the Project is anticipated to reduce bus-involved crashes to nearly zero by ameliorating conflicts between buses, autos, bicyclists, and pedestrians at intersections along the MOL BRT route.

These improvements will generate economic benefits related to travel time savings, collision reductions, emissions reductions, and vehicle operating cost savings. The estimates of increased ridership, time savings, reduced safety incidents, and reduced VMT are based on high-level analysis prepared for the Technical Study. This data reflects modeling for Year 1 (2025), and does not vary over time. This is a conservative assumption; in all likelihood, ridership and replaced automobile VMT are expected to increase in subsequent years of operation. Project assumptions used in the BCA are described in Appendix B. All other parameters and assumptions used in the analysis were the defaults provided within Cal-B/C v.6.2.

Table 5-1. BCA Summary Results

INVESTMENT ANALYSIS
SUMMARY RESULTS

Life-Cycle Costs (mil. $)	$238.2
Life-Cycle Benefits (mil. $)	$357.5
Net Present Value (mil. $)	$119.4
Benefit / Cost Ratio:	1.50
Rate of Return on Investment:	8.0%
Payback Period:	9 years

ITEMIZED BENEFITS (mil. $)	Passenger Benefits	Freight Benefits	Total Over 20 Years	Average Annual
Travel Time Savings	$173.7	$0.0	$173.7	$8.7
Veh. Op. Cost Savings	$121.0	$0.0	$121.0	$6.1
Accident Cost Savings	$52.5	$0.0	$52.5	$2.6
Emission Cost Savings	$10.3	$0.0	$10.3	$0.5
TOTAL BENEFITS	$357.5	$0.0	$357.5	$17.9
Person-Hours of Time Saved			32,888,986	1,644,449

Should benefit-cost results include:		
1) Induced Travel? (y/n)	Y	Default = Y
2) Vehicle Operating Costs? (y/n)	Y	Default = Y
3) Accident Costs? (y/n)	Y	Default = Y
4) Vehicle Emissions? (y/n) includes value for CO_2e	Y	Default = Y

	Tons		Value (mil. $)	
EMISSIONS REDUCTION	Total Over 20 Years	Average Annual	Total Over 20 Years	Average Annual
CO Emissions Saved	800	40	$0.1	$0.0
CO_2 Emissions Saved	238,371	11,919	$6.8	$0.3
NO_X Emissions Saved	65	3	$2.6	$0.1
PM_{10} Emissions Saved	2	0	$0.5	$0.0
$PM_{2.5}$ Emissions Saved	2	0		
SO_X Emissions Saved	2	0	$0.3	$0.0
VOC Emissions Saved	42	2	$0.1	$0.0

[5] Using a 316 day annualization factor.

Travel time savings for bus riders are expected to result in present-value benefits of $198 million at a 4 percent discount rate. Though there is a marginal negative benefit for some drivers in cross-traffic, equal to $25 million over 20 years of project operation, the total time savings benefits equate to $174 million in discounted 2016 dollars. This represents 33 million in total person-hours of time saved.

The Project's elimination of virtually 100 percent of bus-involved crashes along the MOL corridor will result in crash cost savings of $21 million in discounted 2016 dollars. In addition, the safety benefits from the reduction in VMT due to automobile users shifting to riding the MOL equates to a present-value of $31 million over the life of the project. The VMT reduction is also associated with $121 million in vehicle operating cost savings and $10 million in emissions cost saving over 20 years.

The Project is expected to save Metro money on annual O&M costs for the MOL. However, because the amount of savings is yet to be determined, this value is not incorporated into the BCA. Thus, the total project cost reflects only the capital costs of $238 million in 2016 dollars, discounted at 4 percent.

5.2. Projects that can commence construction or implementation earlier

As described in Section 4.1, Metro is simultaneously undertaking the public and stakeholder engagement process, environmental review, and engineering design to advance the future project and remain on schedule. Groundbreaking will be ready by June 2019.

The Project will be delivered aggressively as part of the Operation Shovel Ready and Twenty Eight by '28 Initiatives. The Project scope was selected, in part, because it allows for a faster build and is less intense to construct overall. It also allows for the fastest ride and greatest travel time improvements of all the alternatives studied. In addition, the aerial grade-separated structure component of the Project is expected to be delivered under the Design-Build or another innovative project delivery method. Accordingly, Metro anticipates an abbreviated delivery schedule for this component of the Project.

5.3. Projects that leverage more committed funds per program dollar

As detailed in Section 3.1, Metro's LPP request for $80 million – or 25 percent – of the Project's total cost will leverage $240 million – or 75 percent – entirely from local funds. This means that every LPP Competitive Program dollar will leverage 3 local dollars for construction of the Project. LPP funds will also leverage Metro's larger investment in the MOL corridor, including the full conversion of the Orange Line fleet to battery electric buses, making it the first electric fixed guideway BRT in California.

5.4. Projects that can demonstrate quantifiable air quality improvements, including a significant reduction in vehicle miles traveled

Air quality and GHG analysis performed for this

Table 5-2. Cal B/C Input for VMT

Average Daily Vehicle Miles Traveled (VMT)			
	No Build	Build	Difference
Daily	505,675,408	505,593,652	(81,756)
Annual	159,793,428,928	159,767,594,032	(25,834,896)

Table 5-3. MOL BRT Improvements Project GHG & Air Quality Benefits

Benefit	CO	CO2	NOx	PM10	SOx	VOC	PM2.5
Metric Tons Emissions	800	238,371	65	2	2	42	2
Dollars ($) Emissions	$0.1	$6.8	$2.6	$0.5	$0.3	$0.1	-

grant application includes a quantification of the effects of the project on diesel particulate (PM10 and PM2.5), nitrogen oxides, GHG and other pollutant emissions using Cal-B/C v.6.2.

The Project will reduce GHG and other air pollutant emissions by replacing auto trips with transit trips for an increase in ridership and reduction in auto VMT, as well as relieving congestion on local streets in the vicinity of the proposed grade-separated intersections. Air quality benefits are quantified by estimating emissions based on VMT forecasts and speed changes due to the Project.

The Technical Study found that VMT will decrease as a result of the Project. The changes in VMT were estimated based on an increase in transit trips due to the Project. Daily VMT was converted to annual VMT for use in Cal B/C, and input directly into calculation tabs. See Table 5-2 for VMT data. Average speed for displaced VMT was assumed to be 20 mph. All other defaults were used to determine the emissions benefit.

Using the VMT inputs, the Cal B/C tool provides an estimate of emission reductions in tons per year and dollars per year. The results are provided in Table 5-3. The values shown represent the total benefit for 20 years of project operation. The populated Excel-based tool is also provided in Appendix B. The increased transit ridership and decreased VMT due to the Project will result in the reduction of emissions of GHG and criteria pollutants, and no mitigation is required. Further emissions reductions will be experienced as a result of Metro's current $88 million conversion of the entire 45-bus Orange Line fleet from Compressed Natural Gas to full zero emission vehicles.

5.5. Projects that can demonstrate regional and community project support

The wide range of support from elected officials and community partners is evident in the letters of support for the Project, which are provided in Appendix C. The major project supporters include:

- The San Fernando Valley Council of Governments; and
- The Valley Industry & Commerce Association.

5.6. Within a Metropolitan Planning Organization, projects that further the implementation of the sustainable communities strategy

The Project is included in the constrained element of the 2016 SCAG RTP/SCS and incorporated through Amendment #2 and the 2017 Federal Transportation Improvement Program (FTIP). In addition, the Project aligns with the RTP/SCS Plan's guiding plans and polices, and specifically, is consistent with the following goals:

- Maximize the productivity of our transportation system. The RTP/SCS is committed to improving the existing transportation system in the region, while looking towards opportunities to increase capacity. In the short-term, the Project's grade separation and gate crossings will increase bus speeds at intersection crossings from 15/25 mph to 25/35 mph, which will result in a 28 percent time savings for a MOL rider. These operational efficiencies will promote the use of transit and encourage a ridership increase of 39 percent. The grade separation structures are being designed to not to preclude future conversion of MOL from BRT to LRT, increasing transit capacity.
- Protect the environment and health of our residents by improving air quality and encouraging active transportation. The RTP/SCS focuses on strategies to improve air quality, which the Project is anticipated to achieve. As provided in Section 5.4, the increased transit ridership and decreased VMT due to the Project will result in a reduction of 239,283 metric tons of GHG emissions and criteria pollutants. The RTP/SCS also prioritizes strategies to integrate active transportation with transit by enhancing access for pedestrians and bicyclists around transit stops. This includes expanding and improving upon the existing regional and local bikeway networks. The Project will add a new elevated bicycle path parallel to the span of the grade-separated busway structure , while maintaining and improving access to the existing at-grade Class 1 bikeway.
- Ensure travel safety and reliability for all people and goods in the region. The RTP/SCS is designed to improve the safety of the region's roadways, transit, and active transportation systems for all users. The new grade separated crossings and quadrant safety gates will significantly decrease the potential for accidents

by prohibiting vehicle access to the busway, and will protect pedestrians and bicyclists from automotive traffic at gated intersections.

This Project supports the RTP/SCS Major Initiative to "Focus New Growth Around Transit" by supporting TOD projects in the MOL corridor designed to support the creation of Transit-oriented Communities (TOC). As mentioned in Section 2.4, the Warner Center 2035 Plan and the Uptown at Warner Center development will provide for TOD in the western portion of the MOL. The North Hollywood Joint Development Site will provide another TOD on the eastern end of the MOL, leveraging 15.6 acres of Metro-owned property surrounding the North Hollywood Station at the intersection of the Red and Orange Lines and Metro's third busiest rail station with over 28,000 daily boardings. The proposed development envisions an 800 to 1,000-space transit parking structure, 275 to 425 affordable housing units, 1,000 to 1,200 market rate units, 125,000 to 150,000 square feet of retail, and 300,000 to 400,000 square feet of office.

APPENDIX A: PROJECT PROGRAMMING REQUEST FORM

PROJECT INFO

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION
PROJECT PROGRAMMING REQUEST
DTP-0001 (Revised July 2017)

General Instructions

Amendment (Existing Project) No					Date:	1/29/18
District	**EA**	**Project ID**	**PPNO**	**MPO ID**	**Alt Proj. ID**	
07						

County	**Route/Corridor**	**PM Bk**	**PM Ahd**	**Project Sponsor/Lead Agency**	
LA				Los Angeles County Metropolitan Transportation Authority	
				MPO	**Element**
				SCAG	Mass Transit

Project Manager/Contact	**Phone**	**E-mail Address**
Fulgene Asuncion	213-922-3025	asuncionf@metro.net

Project Title

Metro Orange Line Bus Rapid Transit Improvements

Location (Project Limits), Description (Scope of Work)

The Metro Orange Line (MOL) BRT improvements will be constructed along the MOL route between the North Hollywood Station and Chatsworth Station. The project scope consists of the construction of one aerial grade-separated structure over five intersections (Van Nuys Blvd., Vesper Ave., Kester Ave., City of LA Driveway, Sepulveda Blvd.) from Tyrone Avenue to Sepulveda Boulevard and railroad-type four quadrant gating systems at 34 intersections along a 17-mile segment of the MOL. Also, the existing bike path between Van Nuys and Sepulveda Boulevards will be elevated, as feasible, to further enhance safety for bicyclists and pedestrians.

Component	**Implementing Agency**
PA&ED	Los Angeles County Metropolitan Transportation Authority
PS&E	Los Angeles County Metropolitan Transportation Authority
Right of Way	Los Angeles County Metropolitan Transportation Authority
Construction	Los Angeles County Metropolitan Transportation Authority

Legislative Districts					
Assembly:	45, 46	**Senate:**	18, 27	**Congressional:**	29, 30

Project Benefits

The MOL is operating near capacity with standing passenger loads and very tight headways. To continue to meet demands, the project will provide gating and grade separation of the busway as an innovative, safe and cost-effective way to increase speed and thereby maximize roadway capacity. It will improve traffic flow, reduce traffic congestion in the community, improve transit operations, and transit options for the community, which should reduce roadway accidents and vehicle greenhouse gas emissions.

Purpose and Need

The project purpose is to expand transit services, increase transit ridership, improve transit safety, enhance the access and convenience of the traveling public, and provide or facilitate a viable alternative to driving. Since MOL is now at capacity with riders currently delayed by cross-traffic intrusions into the MOL busway, it is needed to improve operating speeds, ridership, capacity, schedule reliability and safety, while benefitting the surrounding community and ensuring cost effectiveness.

Category	**Outputs/Outcomes**	**Unit**	**Total**
Intercity Rail/Mass Trans	Grade separations/ rail crossing improvements	Miles	17
Intercity Rail/Mass Trans	Pedestrian/Bicycle Facilities miles constructed	Miles	up to 1 mile

ADA Improvements No	Bike/Ped Improvements Yes	Reversible Lane analysis No
Includes Sustainable Communities Strategy Goals Yes	Reduces Greenhouse Gas Emissions Yes	

Project Milestone			**Existing**	**Proposed**
Project Study Report Approved				
Begin Environmental (PA&ED) Phase				10/31/17
Circulate Draft Environmental Document	**Document Type**	N/A		06/15/18
Draft Project Report				
End Environmental Phase (PA&ED Milestone)				07/31/18
Begin Design (PS&E) Phase				
End Design Phase (Ready to List for Advertisement Milestone)				
Begin Right of Way Phase				10/31/18
End Right of Way Phase (Right of Way Certification Milestone)				03/31/20
Begin Construction Phase (Contract Award Milestone)				03/31/20
End Construction Phase (Construction Contract Acceptance Milestone)				08/31/23
Begin Closeout Phase				10/31/23
End Closeout Phase (Closeout Report)				12/31/24

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FUNDING INFO

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST

DTP-0001 (Revised July 2017)

Date: 1/29/18

District	County	Route	EA	Project ID	PPNO	Alt Proj. ID
07	LA					
Project Title:	Metro Orange Line Bus Rapid Transit Improvements					

Existing Total Project Cost ($1,000s)									
Component	Prior	18/19	19/20	20/21	21/22	22/23	23/24+	Total	Implementing Agency
E&P (PA&ED)									Los Angeles County Metropolitan
PS&E									Los Angeles County Metropolitan
R/W SUP (CT)									Los Angeles County Metropolitan
CON SUP (CT)									Los Angeles County Metropolitan
R/W									Los Angeles County Metropolitan
CON									Los Angeles County Metropolitan
TOTAL									
Proposed Total Project Cost ($1,000s)									**Notes**
E&P (PA&ED)	14,000							14,000	Project will be delivered under Design-Build method. Costs for final design are included in construction.
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W		6,000						6,000	
CON			300,300					300,300	
TOTAL	14,000	6,000	300,300					320,300	

Fund No. 1:	Local Partnership Program (LPP)								Program Code
Existing Funding ($1,000s)									
Component	Prior	18/19	19/20	20/21	21/22	22/23	23/24+	Total	Funding Agency
E&P (PA&ED)									California Transportation Commiss
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL									
Proposed Funding ($1,000s)									**Notes**
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON			80,000					80,000	
TOTAL			80,000					80,000	

Fund No. 2:	Local Funds								Program Code
Existing Funding ($1,000s)									
Component	Prior	18/19	19/20	20/21	21/22	22/23	23/24+	Total	Funding Agency
E&P (PA&ED)									Metro
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL									
Proposed Funding ($1,000s)									**Notes**
E&P (PA&ED)	14,000							14,000	
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W		6,000						6,000	
CON			220,300					220,300	
TOTAL	14,000	6,000	220,300					240,300	

APPENDIX B: BENEFIT-COST ANALYSIS SUPPORTING DOCUMENTATION

The Benefit-Cost Analysis was performed using Cal-B/C v. 6.2. The assumptions used to generate Project-based inputs to the model are included in Table B-1. All other assumptions used match the default model parameters.

Table B-1. BCA Assumptions

Variable	Unit	Value
Ridership Increase (also decrease in auto trips)	New MOL trips per day	10,100
	New MOL trips per year	3,191,600
MOL In-Vehicle Travel Time Change (North Hollywood to Canoga)	Minutes per trip	(12.6)
MOL Out-of-Vehicle Travel Time Change	Minutes per trip (Peak)	2
	Minutes per trip (Off-Peak)	0
Parallel Roadway Travel Time (North Hollywood to Canoga)	Minutes per trip (bidirectional average)	42
Trips during Peak Period	Percent	70%
Bus Vehicle Miles	Average weekday miles	6183.1
	Average Saturday miles	3725.6
	Average Sunday miles	3487.4
	Annual total estimate	1,982,682
Change in Automobile VMT	Daily VMT change	(81,756)
	Annual VMT change	(25,834,896)
Average automobile speed	Miles per hour	20
Vehicles crossing gate quadrant streets	Number of daily vehicles	305,000
	Number of annual vehicles	96,380,000
Vehicles crossing grade separation streets	Number of daily vehicles	45,000
	Number of annual vehicles	14,220,000
Change in average cross traffic delay for gate quadrants	Seconds of delay	7
Change in average cross traffic delay for grade separations	Seconds of delay	(5)

APPENDIX C: LETTERS OF SUPPORT

San Fernando Valley Council of Governments

San Fernando Valley Council of Governments

January 30, 2018

Ms. Susan Bransen
Executive Director
California Transportation Commission
1120 N Street, MS-52
Sacramento, CA 95814

RE: Local Partnership Program Grant Application for Metro Orange Line Bus Rapid Transit Improvements Project

Dear Ms. Bransen:

On behalf of San Fernando Valley Council of Governments (SFVCOG), I am pleased to submit this letter of support for the Local Partnership Program (LPP) grant application submitted by the Los Angeles County Metropolitan Transportation Authority (Metro) for the Metro Orange Line Bus Rapid Transit (BRT) Improvements Project. LPP grant funds for the Metro Orange Line BRT Improvements Project would reward Los Angeles County whose voters, by a 71.15 percent majority in 2016, approved Measure M, which dedicates a portion of the County sales tax to transportation infrastructure.

LPP funds would support construction of an aerial grade separation over five Metro Orange Line intersections and railroad-type quadrant gate systems at 34 intersections along a 17-mile segment of the Metro Orange Line route. This investment would capitalize on the success of the Metro Orange Line. It will improve operating speeds with travel time savings of up to 16 minutes (29 percent) in each direction and address safety concerns through the near-elimination of vehicular intrusions into the busway.

Awarding LPP grant funding to the Metro Orange Line BRT Improvements Project aligns with the California Transportation Commission's program evaluation criteria in that it:

- Ensures cost-effectiveness by generating economic benefits that justify its costs;
- Has been implemented through Metro's Operation Shovel Ready Initiative allowing construction to commence earlier;
- Leverages millions in local funds;
- Increases ridership by approximately 39 percent and thereby results in decreases in vehicle miles traveled and emissions of greenhouse gas and criteria pollutants;
- Is supported on regional and community levels, as demonstrated by this letter of support; and

- Furthers the implementation of regional sustainable communities strategies.

In conclusion, the SFVCOG fully supports Metro as it seeks LPP resources for this transformative project that will support regional and statewide connectivity. Thank you for your consideration of the application. Should you have any questions regarding this letter of support, do not hesitate to contact our Executive Director, John Bwarie, at john@sfvcog.org or 818-57-3408.

Sincerely,

Jess A. Talamantes

Jess Talamantes
Chair, Board of Directors

Valley Industry & Commerce Association

January 10, 2018

Ms. Susan Bransen
Executive Director, California Transportation Commission
1120 N Street, MS-52
Sacramento, CA 95814

RE: Local Partnership Program Grant Application for Metro Orange Line Bus Rapid Transit Improvements Project

Dear Ms. Bransen,

We are writing on behalf of the Valley Industry & Commerce Association (VICA), representing more than 400 businesses in the San Fernando Valley and throughout Los Angeles County. VICA strongly supports the Local Partnership Program (LPP) grant application submitted by the Los Angeles County Metropolitan Transportation Authority (Metro) for the Metro Orange Line Bus Rapid Transit (BRT) Improvements Project. LPP grant funds would support Los Angeles County voters, who approved Measure M by a 71 percent majority in 2016, dedicating a stable revenue stream to transportation infrastructure.

LPP funds would support construction of an aerial grade separation over five priority intersections and railroad-type quadrant gate systems at 34 intersections along a 12.7-mile segment of the Metro Orange Line route. This investment would capitalize on the success of the Metro Orange Line, improving operating speeds with travel time savings of up to 16 minutes (29 percent) in each direction and addressing safety concerns through the near-elimination of vehicular intrusions into the busway.

Awarding LPP grant funding to the Metro Orange Line BRT Improvements Project aligns with the California Transportation Commission's program evaluation criteria in that it:

- Ensures cost-effectiveness by generating economic benefits that justify its costs;
- Will be implemented through Metro's Operation Shovel Ready Initiative in order to commence construction earlier;
- Leverages $286 million in local funds;
- Increases ridership by approximately 39% and thereby results in decreases in vehicle miles traveled and emissions of greenhouse gas and criteria pollutants;
- Is supported on regional and community levels, as demonstrated by this letter of support and voter support for Measure M; and
- Furthers the implementation of regional sustainable communities strategies.

We urge the CTC to leverage LPP resources for this transformative project that will support regional and statewide connectivity. Thank you for your consideration of the application.

Sincerely,

Lisa Gritzner, Chair

Stuart Waldman, President

Valley Industry & Commerce Association • 16600 Sherman Way, Suite 170 Van Nuys, CA 91406 • phone: 818.817.0545 • fax: 818.907.7934 • www.vica.com