APPENDIX E
Traffic Delay Analysis

Kimley»Horn

MEMORANDUM

To:	Scott Hartwell, Project Manager, LA Metro	CC: Martha Butler, Gary Byrne
From:	Brent Ogden and Greg Kyle, Kimley-Horn and Associates, Inc.	
Date:	February 9, 2022	
Subject:	Colorado Boulevard (Eagle Rock) Traffic Delay Analysis	

This memorandum documents the results of the traffic delay analysis that applied a VISSIM model to visualize and understand the potential effects of adding a dedicated Bus Rapid Transit (BRT) lane along Colorado Boulevard in Eagle Rock. Dedicated BRT lanes facilitate improved bus speeds, travel times, and service reliability while also enhancing safety by reducing conflicts among buses and other modes of travel. The study area for this traffic analysis is along Colorado Boulevard from Broadway to the Ventura Freeway (SR-134) Access Ramps. **Figure 1** shows the location of the study area for this traffic analysis within the overall project area for the proposed North Hollywood to Pasadena BRT Transit Corridor.

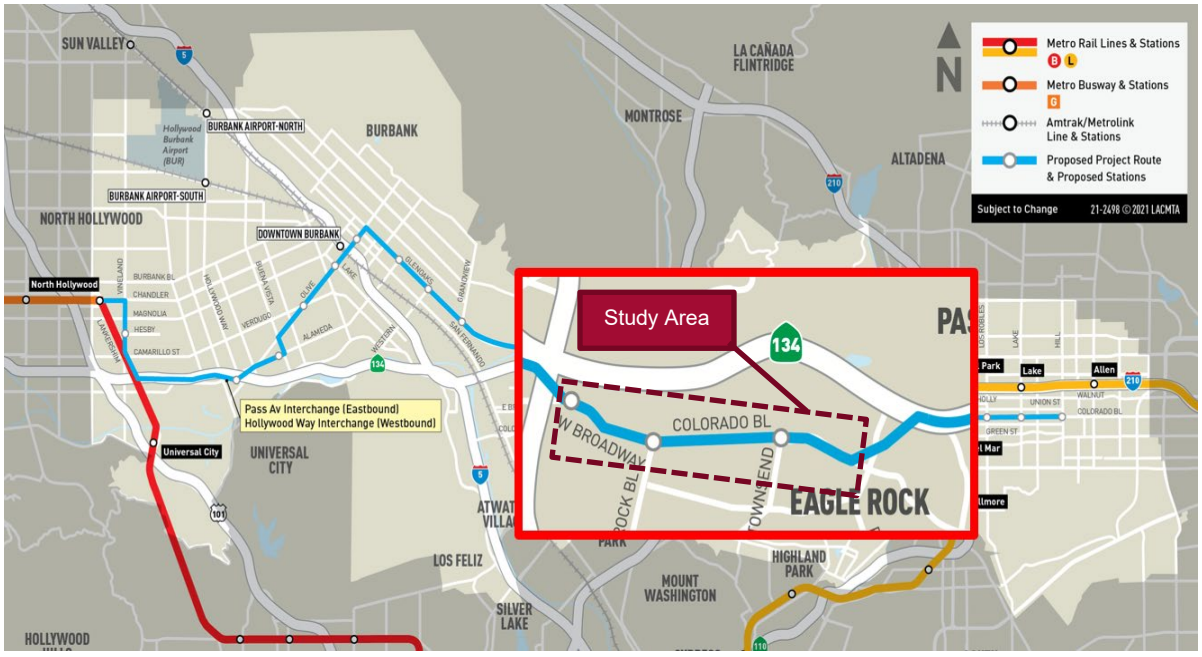


Figure 1: Study Area for Traffic Delay Analysis

The Proposed Project would operate in center-running dedicated bus lanes on Colorado Boulevard between El Rio Avenue and the SR-134 Access Ramps with either one or two mixed-flow travel lanes in each direction. Between Broadway and Ellenwood Drive (to the west of El Rio Avenue), the BRT would operate in side-running dedicated bus lanes adjacent to on-street parking or bike lanes.

This analysis includes the following scenarios for both the AM and PM peak periods:

- No-Build Conditions (Year 2024)
- Build Conditions – Design Option with Single Travel Lane per Direction (Year 2024)
- Build Conditions – Design Option with Two Travel Lanes per Direction (Year 2024)

No-Build Conditions (Year 2024)

Traffic counts on Colorado Boulevard were collected in 2019 before impacts due to COVID-19. These traffic volumes were forecast to Year 2024 volumes using growth factors appropriate for the area.

Build Conditions - Design Options (2024)

For the design option with a single travel lane per direction, traffic modeling performed with the Metro CBM18 travel demand model indicated that approximately 20 percent of the traffic would divert from Colorado Boulevard to alternate routes, including SR-134 and SR-2. This diversion of traffic was applied in the forecast of 2024 traffic volumes for the single travel lane per direction design option.

Both of the two design options include additional operational and safety improvements along Colorado Boulevard as listed below:

- Safety improvements associated with the construction of new medians west of Eagle Rock Boulevard with dedicated left-turn pockets.
- Safety improvements associated with adding dedicated left-turn pockets east of Eagle Rock Boulevard and closing existing median breaks without left-turn pockets.
- Dedicated left-turn pockets are provided for all left turns from Colorado Boulevard; nearly all left turns are performed at signalized intersections during a protected signal phase (under control of a left-turn arrow).
- Left-turn pockets along Colorado Boulevard are lengthened, where feasible, to provide additional storage capacity.
- Upgrades to High-Intensity Activated CrossWalK Beacon (HAWK) traffic signals for pedestrian crosswalks at El Rio Avenue, Glen Iris Avenue, La Roda Avenue, and Vincent Avenue.
- New signalized intersections with protected crosswalks at Hermosa Avenue and Dahlia Drive.
- Dedicated bike lanes separated with buffers from adjacent traffic lanes. Where on-street parking is provided, the bike lanes are located between the sidewalk and the on-street parking.
- Curb extensions are provided at many intersections to reduce pedestrian crossing distances.

Traffic Analysis

The traffic delay analysis was conducted using an industry standard microscopic multi-modal traffic flow simulation software – VISSIM, which provides both a visual simulation of traffic conditions and performance measures. VISSIM facilitates analyses with actual traffic signal controller data and traffic volumes to evaluate study scenarios. The VISSIM model was initially calibrated for the No-Build conditions based on observed travel times and vehicle queues. The Project Team subsequently modeled the changes in roadway lane geometry for the two design options (two travel lanes per direction and one travel lane per direction). The VISSIM model evaluated the operations of the Proposed Project's BRT, as well as the interactions among pedestrians, bikes, transit (buses), and vehicles. The results obtained from the VISSIM model include performance measures such as travel times and average speeds along the study corridor in 2024 for the No-Build conditions and the two design options (two travel lanes per direction and one travel lane per direction).

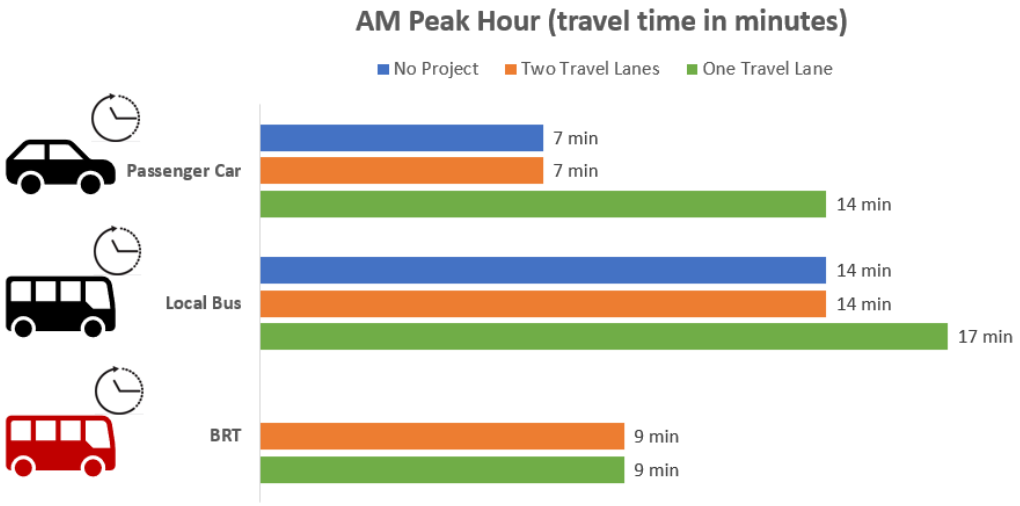
Results of the traffic analysis indicate that travel times for passenger cars and local buses are generally consistent between the No-Build (No Project) scenario and the design option with two travel lanes per direction. Travel times for passenger cars and local buses increase with the one travel lane per direction design option. The travel times for the Proposed Project's BRT are generally consistent between the design options with two travel lanes per direction and one travel lane per direction.

Similarly, the average speeds for passenger cars and local buses are generally consistent between the No-Build (No Project) scenario and the design option with two travel lanes per direction. Speeds for passenger cars and local buses decrease with the one travel lane per direction design option. Speeds for the Proposed Project's BRT are consistent generally consistent between the design options with two travel lanes per direction and one travel lane per direction.

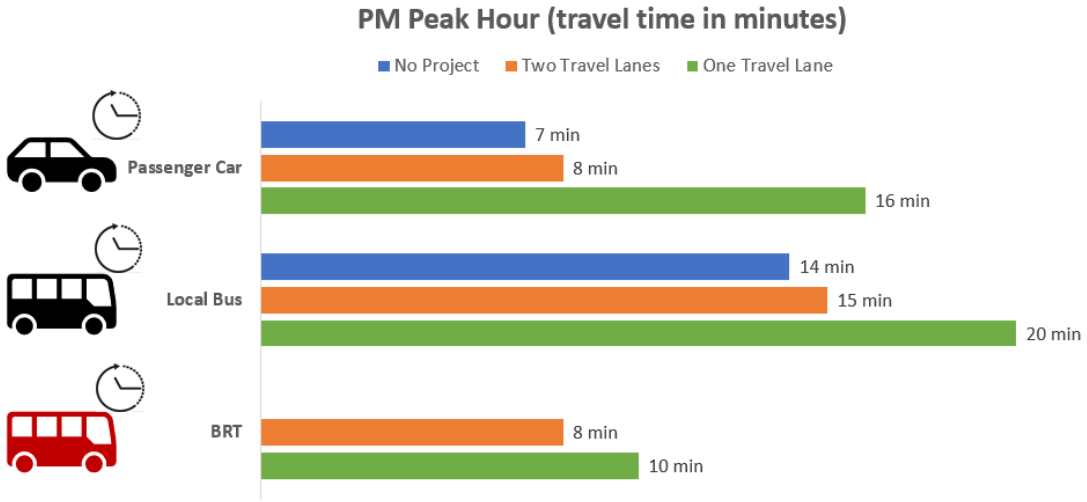
The results of the traffic analysis are presented in the graphs on the following pages.

Travel Time
Broadway to SR-134

Amount of time needed to complete a trip (2024)



- *BRT is 36-47% faster than local bus*



- *BRT is 47-50% faster than local bus*

Average Speed
Broadway to SR-134

Average of all vehicle speeds along the corridor (2024)

