# APPENDIX D
# Traffic Diversion Analysis

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# MEMORANDUM

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|---|---|---|
| To: | Scott Hartwell, Project Manager, LA Metro | CC: Martha Butler, Gary Byrne |
| From: | Brent Ogden, Kimley-Horn and Associates, Inc. | |
| Date: | Updated January 7, 2022 | |
| Subject: | Colorado Blvd. (Eagle Rock) and Olive Ave. (Burbank) Lane Reduction and Traffic Diversion Analysis | |

This memorandum provides the results of a traffic diversion analysis conducted to characterize the potential impacts of a reduction of Colorado Boulevard from 4 mixed-flow lanes to 2 mixed-flow lanes in the section from Eagle Rock Boulevard to the SR-134 slip ramps west of Figueroa Street, and from conversion of one travel lane in each direction to a bus-only operation along Olive Avenue in Burbank between Buena Vista Street and Lake Street (also a reduction from 4 mixed-flow lanes to 2 mixed-flow lanes). The analysis was informed by 2042 volumes obtained from the Metro CBM18 travel demand model (to determine the level of diverted traffic) and by a Synchro traffic operations model of Olive Avenue in Burbank to determine the estimated operating speed with lane conversions.

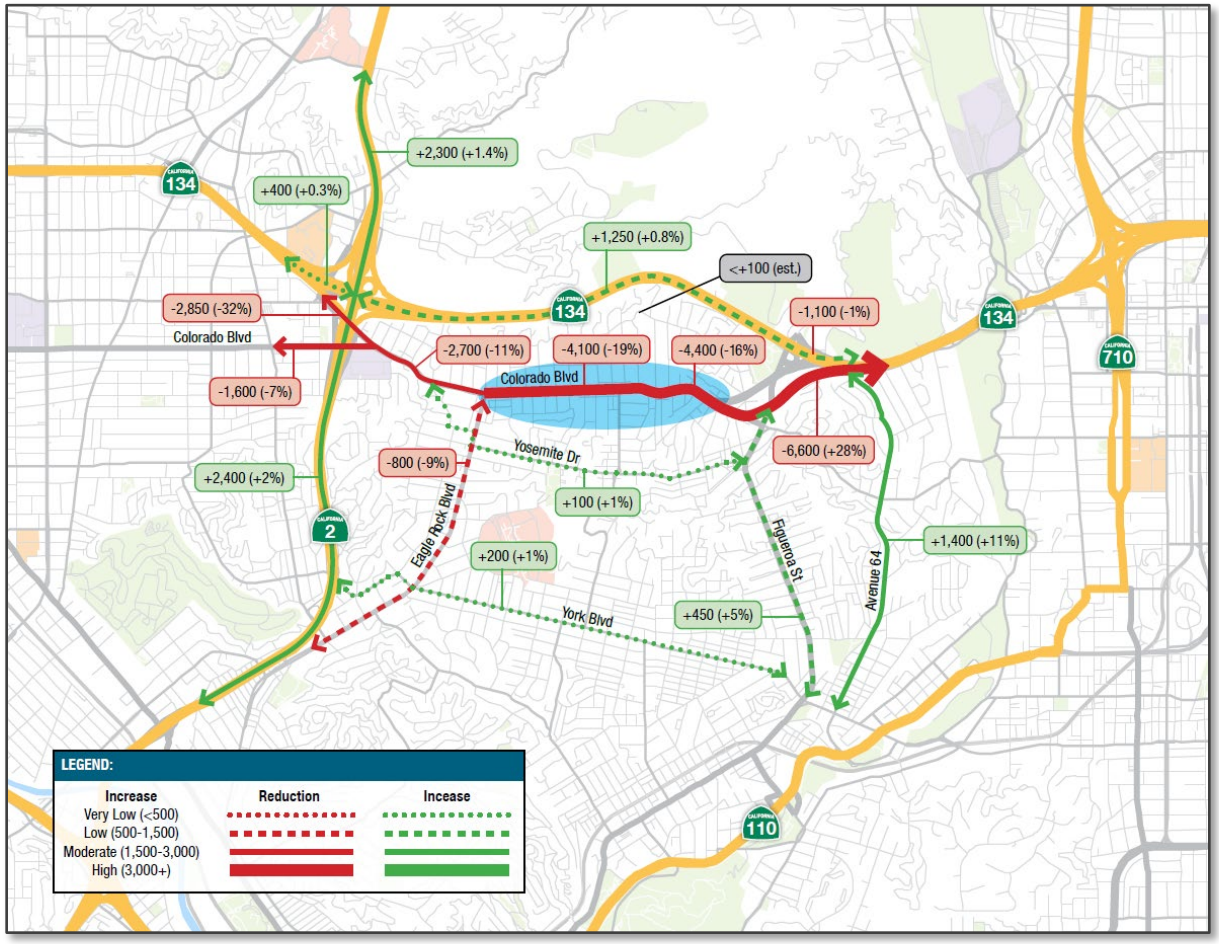
*Colorado Boulevard in Eagle Rock*

The table below summarizes the changes in average daily traffic (ADT) volumes and percentages for the Eagle Rock segment compared to the no-build base case:

| Road Segment | Volume (2042 ADT) | Percent |
|---|---|---|
| SR 2 south of SR 134 | 2,400 | 2% |
| SR 2 north of SR 134 | 2,300 | 1.4% |
| Avenue 64 south of Colorado Blvd. | 1,400 | 11% |
| SR 134 from SR 2 to Figueroa St. | 1,250 | 0.8% |
| Figueroa St. south of Colorado Blvd. | 450 | 5% |
| SR 134 west of SR 2 | 400 | 0.3% |
| York Blvd. (est.) | 200 | 1% |
| Yosemite Dr. (est.) | 100 | 1% |
| Hill Dr. (est.) | < 100 | < 4% |
| Eagle Rock Blvd. south of Colorado Blvd. | (800) | -9% |
| SR 134 east of Figueroa St. | (1,100) | -1% |
| Colorado Blvd. west of Broadway | (1,600) | -7% |
| Colorado Blvd. from Broadway to Eagle Rock Blvd. | (2,700) | -11% |
| Broadway west of Colorado Blvd. | (2,850) | -32% |
| Colorado Blvd. from Eagle Rock Blvd. to Townsend Ave. | (4,100) | -19% |
| Colorado Blvd. from Townsend Ave. to Figueroa St. | (4,400) | -16% |
| Colorado Blvd. east of Figueroa St. | (6,600) | -28% |

Note: Estimated volumes for Hill Drive and Yosemite Drive based upon York Boulevard

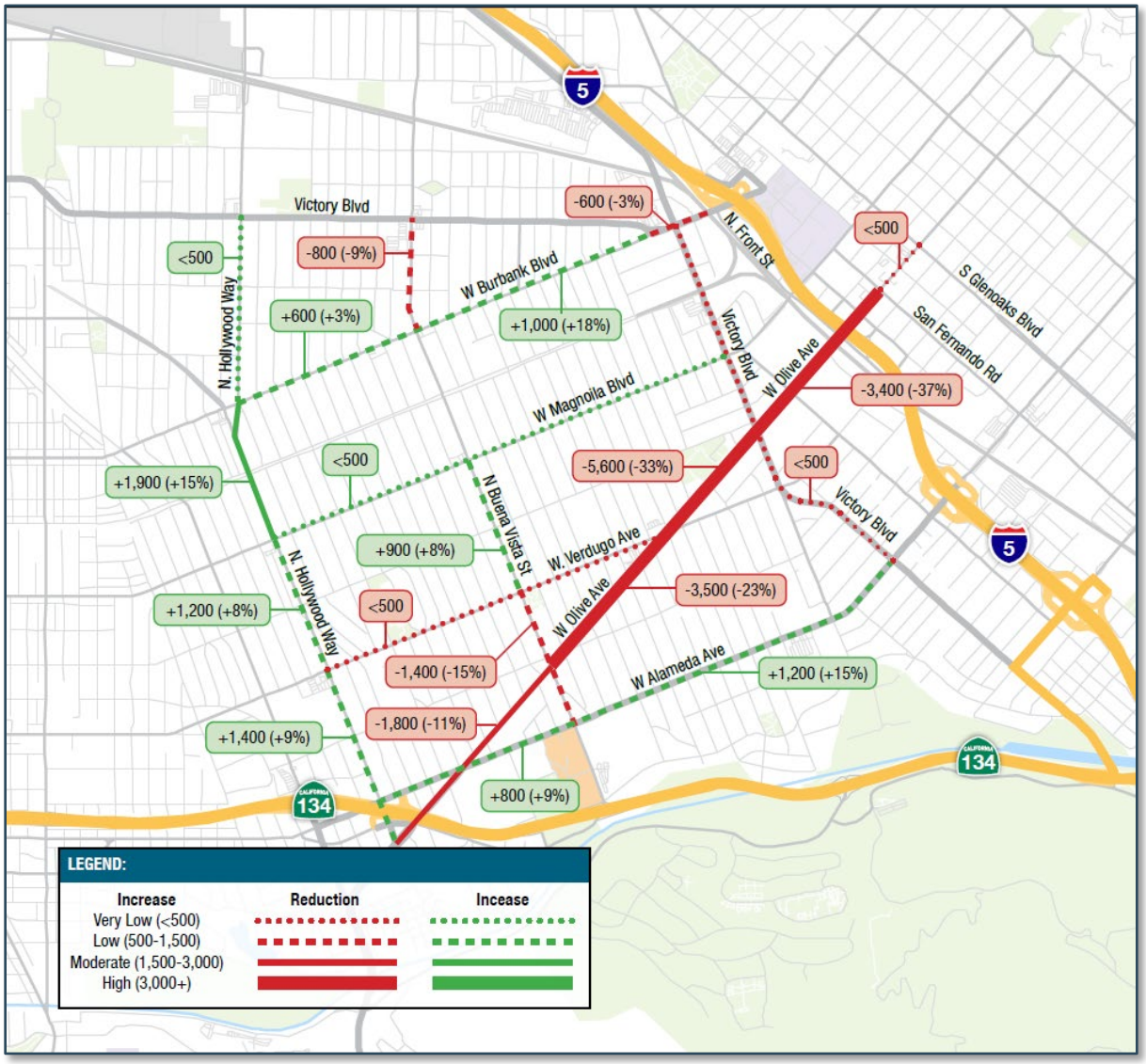
The map shown below graphically depicts the impacts. As shown on the map, a lane reduction between Eagle Rock Boulevard and the SR-134 slip ramps would have the greatest impact along Colorado Boulevard from Glendale (west of SR-2) extending into Pasadena (east of Figueroa Street). The greatest reduction would occur east of Figueroa Street, indicating that there is a substantial amount of through traffic along Colorado Boulevard in Eagle Rock.



*Olive Avenue in Burbank*

The table below lists the segments where there would be a shift of more than 500 ADT volume as a result of conversion of a travel lane along Olive Avenue in Burbank (from Buena Vista Street to Lake Street). A graphic representation is shown in the map on the following page. A lane conversion along Olive Avenue was found to reduce volumes along Olive Avenue as well as tributaries such as Verdugo Avenue and Victory Boulevard and to increase volumes along alternative routes such as Hollywood Way, Burbank Boulevard, and Alameda Avenue, with minor increases along other segments.

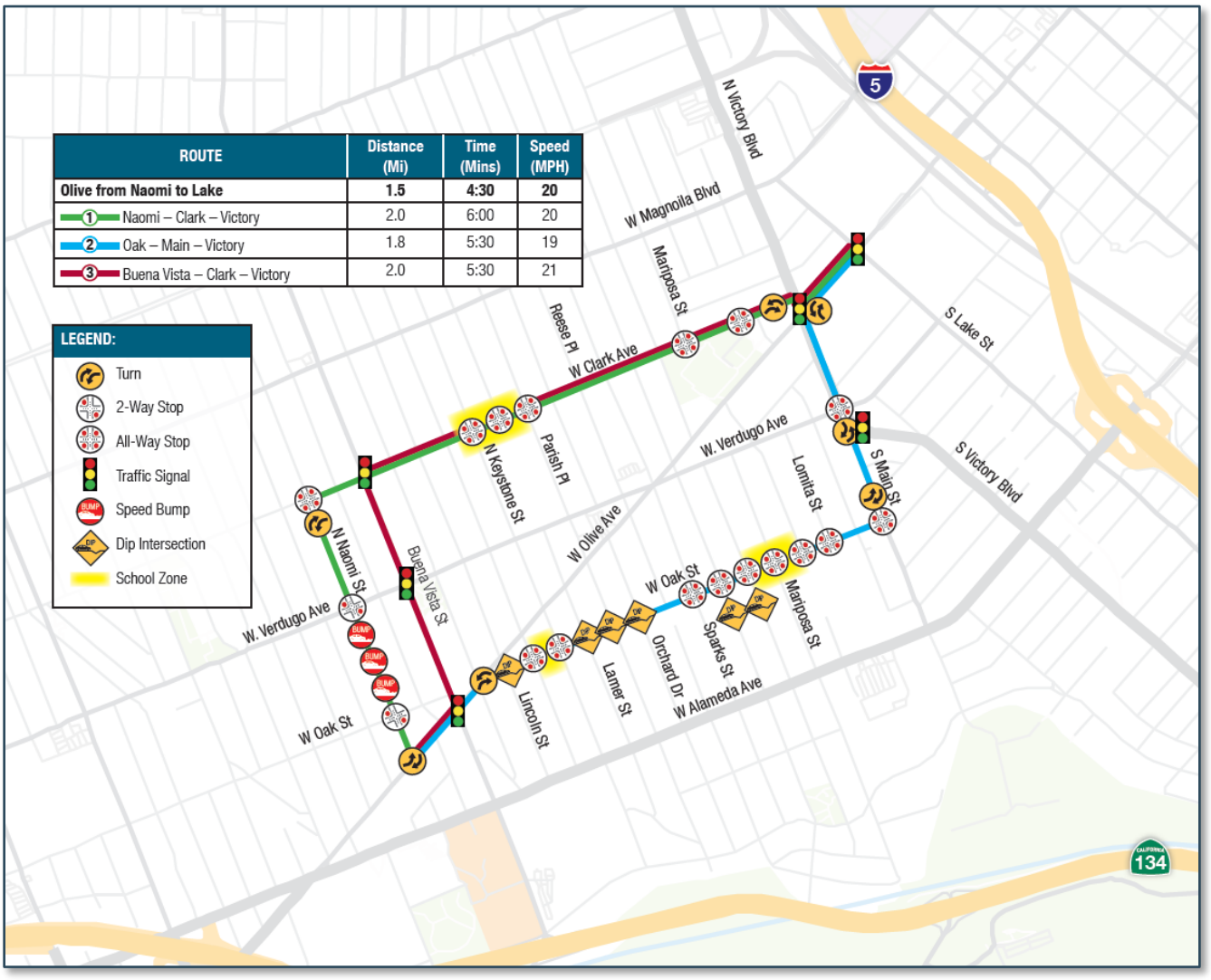
| Segment | Volume (2042 ADT) | Percent |
|---|---|---|
| Hollywood Wy. from Burbank Blvd. to Magnolia St. | 1,900 | 15% |
| Hollywood Wy. from Verdugo Ave. to Alameda Ave. | 1,400 | 9% |
| Alameda Ave. east of Buena Vista St. | 1,200 | 15% |
| Hollywood Wy. from Magnolia St. to Verdugo Ave. | 1,200 | 8% |
| Burbank Blvd. from Buena Vista St. to Victory Blvd. | 1,000 | 18% |
| Buena Vista St. from Magnolia St. to Verdugo Ave. | 900 | 8% |
| Alameda Ave. near Sparks St. | 800 | 9% |
| Burbank Blvd. from Victory Blvd. to Front St. | (600) | -3% |
| Buena Vista St. from Victory Blvd. to Burbank Blvd. | (800) | -9% |
| Buena Vista St. from Verdugo Ave. to Alameda Ave. | (1,400) | -15% |
| Olive Ave. from Hollywood Wy. to Buena Vista St. | (1,800) | -11% |
| Olive Ave. from Victory Blvd. to San Fernando Rd. | (3,400) | -37% |
| Olive Ave. from Buena Vista St. to Verdugo Ave. | (3,500) | -23% |
| Olive Ave. from Verdugo Ave. to Victory Blvd. | (5,600) | -33% |


5
Victory Blvd
-600 (-3%)
N. Front St
<500
S Glenoaks Blvd
San Fernando Rd
<500
-800 (-9%)
W Burbank Blvd
+600 (+3%)
+1,000 (+18%)
N. Hollywood Way
Victory Blvd
W Olive Ave
-3,400 (-37%)
W Magnolia Blvd
<500
-5,600 (-33%)
<500
+1,900 (+15%)
N Buena Vista St
Victory Blvd
+900 (+8%)
W Verdugo Ave
5
N. Hollywood Way
W Olive Ave
-3,500 (-23%)
+1,200 (+8%)
<500
-1,400 (-15%)
W Alameda Ave
+1,200 (+15%)
-1,800 (-11%)
+1,400 (+9%)
134
+800 (+9%)
134
LEGEND:
Increase
Reduction
Incease
Very Low (<500)
Low (500-1,500)
Moderate (1,500-3,000)
High (3,000+)

*Olive Avenue Diversion to Local Streets*

The previous analysis identifies traffic shifts to and from the Burbank arterial roadway grid associated with a reduction to one through lane in each direction along the central portion of Olive Avenue. In order to assess the likelihood that traffic would divert to local residential roadways as a result of a lane reduction along Olive Avenue, estimates were made of travel times using local roadways to avoid Olive Avenue. As shown in the map below, three potential diversion routes were evaluated:

1. Diversion to the north using Naomi Street, Clark Avenue and Victory Boulevard
2. Diversion to the south using Oak Street, Main Street and Victory Boulevard
3. Diversion to the north using Buena Vista Street, Clark Avenue and Victory Boulevard



The table below summarizes the comparison of travel times for Olive Avenue and the local roadway route alternatives.

| | Distance (Mi) | Time (MM:SS) | Speed (MPH) |
|---|---|---|---|
| **Olive Avenue** | | | |
| Olive Avenue from Naomi Street to Lake Street | 1.5 | 4:30 | 20 |
| **Route Alternatives to Olive Avenue** | | | |
| Divert to North via Naomi Street – Clark Avenue – Victory Boulevard | 2.0 | 6:00 | 20 |
| Divert to South via Oak Street – Main Street – Victory Boulevard | 1.8 | 5:30 | 19 |
| Divert to North via Buena Vista Street – Clark Avenue – Victory Boulevard | 2.0 | 5:30 | 21 |

Notes:
1. Baseline travel time and speed from Synchro traffic operations model of Olive Avenue
2. Diverted traffic assumed to operate at or below the allowable 25 mph local roadway speed limit
3. Speed of diverted vehicles reduced to reflect impact of stop signs, traffic signals, school zones, turns, speed bumps and dip sections

The travel time along Olive Avenue projected by the Synchro traffic operations model, including the segment from Naomi Street to Buena Vista Avenue, would be approximately 4:30 minutes with an average speed of 20 mph. As indicated in the map on the previous page, the example route alternatives would require out-of-direction travel, resulting in longer travel times compared to Olive Avenue, especially taking into consideration the speed impediments which are shown in the map. Therefore, it is unlikely that a significant number of vehicles (e.g., great enough to result in a noticeable increase in traffic) would divert to local roadways.

Refer to the table on the following page for additional details of the diversion analysis to local streets.

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| | Distance | Time | | Speed |
|---|---|---|---|---|
| | Mi | Mins | Secs | MPH |
| Proposed Project Route | | | | |
| Olive Avenue - Buena Vista to Lake w Side-Running Bus Lanes (Conversion) | 1.5 | 4 | 24 | 20 |
| | | | | |
| Diversion to North via Naomi - Clark - Victory | | | | |
| Naomi from Olive to Verdugo (speed bumps) | 0.4 | 1 | 24 | 15 |
| Naomi from Verdugo to Clark | 0.3 | - | 36 | 25 |
| Deduct for permissive LT from Olive | | - | 9 | |
| Deduct for Two 2-Way Stop Signs and One All Way Stop Sign | | - | 18 | |
| Clark from Naomi to Victory | 1.2 | 2 | 46 | 25 |
| Clark to Victory - Victory - Victory to Olive (.05 mi w 2 turns) | 0.1 | - | 9 | 20 |
| Olive from Victory to Lake | 0.2 | - | 36 | 20 |
| Route Total | 2.0 | 5 | 58 | 20 |
| Diversion to South via Oak - Main - Victory | | | | |
| Olive from Naomi to Oak | 0.2 | - | 43 | 20 |
| Oak from Olive to Main - 5x 15 mph "dip" ints, 7 stop signs, 2x 15 mph shool zones | 0.9 | 3 | 11 | 17 |
| Main from Oak to Victory | 0.2 | - | 33 | 25 |
| Victory from Main to Olive | 0.2 | - | 35 | 25 |
| Olive from Victory to Lake | 0.2 | - | 32 | 20 |
| | 1.8 | 5 | 34 | 19 |
| Diversion to Clark via Buena Vista | | | | |
| Olive from Naomi to Buena Vista | 0.2 | - | 27 | 20 |
| Traffic Signal at Olive/Buena Vista | | - | 15 | |
| Buena Vista from Olive to Clark | 0.6 | 1 | 39 | 20 |
| Clark from Buena Vista to Victory | 1.0 | 2 | 25 | 25 |
| Clark to Victory - Victory - Victory to Olive (.05 mi w 2 turns) | 0.1 | - | 9 | 20 |
| Olive from Victory to Lake | 0.2 | - | 36 | 20 |
| | 2.0 | 5 | 31 | 21 |
| Notes | | | | |
| 1. Baseline travel time and speed from Synchro model with lane conversion | | | | |
| 2. it is assumed diverting vehicles will have a maximum speed as the allowable local roadway speed limit of 25 mph where conditions allow | | | | |
| 3. Speed of diverted vehicles reduced to 5 mph below the 25 mph local roadway speed limit where traffic control devices and impediments present | | | | |