



**February 5, 2018**

**To:** Regional Planning and Highways Committee  
**From:** Darrell Johnson, Chief Executive Officer  
**Subject:** 2018 Long-Range Transportation Plan Update

### **Overview**

The Long-Range Transportation Plan develops Orange County's program of projects for the multi-county Regional Transportation Plan, prepared by the Southern California Association of Governments. The plan also serves as a policy framework for future transportation investments in Orange County. Scenarios are being developed and evaluated to measure how transportation investments and policies may influence future travel conditions. A summary of initial model results for the proposed financially constrained project list is presented for discussion below.

### **Recommendation**

Receive and file as an information item.

### **Background**

The Orange County Transportation Authority (OCTA) is preparing the 2018 Long-Range Transportation Plan (LRTP) as input into the Southern California Association of Governments (SCAG) 2020 Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS). The 2018 LRTP will analyze travel conditions based on a 2040 horizon year, which assumes ten percent growth in population and 17 percent growth in employment in Orange County. These assumptions are based on projections from the Center for Demographic Research at California State University, Fullerton.

In October 2017, an approach to analyzing projects, policies, and other factors influencing transportation was presented to the Board of Directors (Board). Staff was then directed to model 2040 scenarios and recommend a financially constrained program of projects, as well as a conceptual (financially unconstrained) listing that identifies projects requiring further study.

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**Discussion**

Recent efforts have focused on defining a program of projects that addresses the 2018 LRTP goals within the reasonably anticipated revenue forecast of approximately \$43 billion (between fiscal years 2019 and 2040). Priority was given to committed projects such as Measure M2 projects and programs, projects listed in the Federal Transportation Improvement Program that are progressing in a timely manner, and maintaining existing programs and transit service levels. The committed projects account for about 84 percent of available revenues. The remaining funds are proposed for implementing projects emerging from the Transit Master Plan, planned bikeways, and commuter rail improvements (\$6 billion). Finally, several improvements are also proposed for freeways and roadways (\$1 billion) that carry over from the 2014 LRTP. Freeway capacity expansion projects proposed as discretionary improvements only occur in areas where right-of-way is available, and these include:

- Interstate 5 (I-5) – add managed-lane capacity from Avenida Pico to the San Diego County line;
- I-5 – add managed-lane capacity from State Route 57 to State Route 91;
- State Route 73 – add managed-lane capacity from Interstate 405 to MacArthur Boulevard.

These financially constrained projects are proposed to comprise the Trend 2040 scenario. This scenario is intended to serve as the primary input for SCAG's 2020 RTP/SCS. A more detailed listing of these projects is provided in Attachment A. These projects must complete all required analyses, public review, and approvals prior to implementation. Therefore, the modeled representations of the projects are subject to change.

A proposed conceptual project list identifies projects and services that go beyond the financially constrained scenario, but require more research, development, funding, and/or public input (Attachment B). These projects have typically been vetted through high-level planning efforts, such as major investment studies, and potentially support the goals and objectives of the LRTP. As these concepts become defined through additional stakeholder input and environmental analyses, OCTA may consider adding them to the financially constrained scenario, subject to completion of supporting studies and funding availability. The conceptual projects are not included in any of the modeled LRTP scenarios.

Initial model results for the Trend 2040 scenario show improvements over the No Build 2040 scenario. Additionally, it performs nearly as well as the 2015 base year, even though population and employment continue growing. It also shows improvements in transit ridership (Table 1).

Table 1: Initial 2018 LRTP Performance Metrics

| Metrics (daily)                                    | 2015 Base Year | 2040 No Build | Trend 2040 |
|--|----------------|---------------|------------|
| Vehicle passenger delay per capita (minutes)       | 8.3            | 12.5          | 8.5        |
| Vehicle passenger travel time per capita (minutes) | 54.5           | 58.5          | 55.7       |
| Delay as a percent of travel time                  | 15.2%          | 21.4%         | 15.3%      |
| Transit trips                                      | 149,000        | 165,000       | 177,000    |
| Mainline freeway - AM peak average speed (mph)     | 36             | 32            | 35         |
| Managed-lanes - AM peak average speed (mph)        | 48             | 41            | 49         |
| Arterials - AM peak average speed (mph)            | 26             | 24            | 26         |

mph – miles per hour

The model results summarized in Table 1 include the assumption that high-occupancy vehicle (HOV) lanes will continue to require two passengers. However, compliance with federal managed-lane performance standards (45 mph during peak periods) must still be addressed. The 2014 LRTP assumed HOV occupancy requirements at three passengers (HOV 3+) to achieve 45+ mph on Orange County managed-lanes. This was not a policy recommendation within the 2014 LRTP, but it was a cost-effective assumption that addressed the degradation issue.

At that time, the California Department of Transportation (Caltrans) District 12 stated that converting the managed-lane system to HOV 3+ would not be considered by Caltrans as a standalone solution. Since then, Caltrans has conducted a series of studies regarding conversion of managed-lanes to priced managed-lanes. These studies have indicated that managed-lanes operating as HOV 3+, along with tolled access for other vehicles (high-occupancy toll {HOT 3+}), would likely meet federal performance standards while potentially improving overall corridor performance. As a result, Caltrans is moving forward with project initiation documents to begin developing a HOT 3+ network in Orange County.

As part of the LRTP development, staff has taken the following into consideration: the above-mentioned Caltrans initiatives, federal managed-lane performance standards, and the discussions held by the OCTA Board at the August 28, 2017 Managed-lanes Workshop. As a result, network-level analyses are being conducted by OCTA to examine the performance of the system under various managed-lane conditions. Initial model results are shown in Table 2 comparing HOV 2+ to HOV 3+ using the proposed Trend 2040 network.

Table 2: Trend 2040 - HOV 2+ vs HOV 3+

| Metrics (daily)                                    | Trend 2040<br>HOV 2+ | Trend 2040<br>HOV 3+ |
|--|----------------------|----------------------|
| Vehicle passenger delay per capita (minutes)       | 8.5                  | 8.9                  |
| Vehicle passenger travel time per capita (minutes) | 55.7                 | 55.9                 |
| Delay as a percent of travel time                  | 15.3%                | 15.9%                |
| Transit trips                                      | 177,000              | 178,000              |
| Mainline freeway - AM peak average speed (mph)     | 35                   | 34                   |
| Managed-lanes - AM peak average speed (mph)        | 49                   | 63                   |
| Arterials - AM peak average speed (mph)            | 26                   | 26                   |

Under the HOV 3+ scenario, speeds significantly improve on managed-lane facilities compared to the HOV 2+ scenario, but the mainline lanes become slightly more congested. This is reflected in the increased “delay as a percent of travel time” and an overall decrease in average mainline freeway speeds during the AM peak period. Because of the increase in congestion, there is also a slight mode shift to transit.

However, it is estimated that less than one-third of the managed-lane capacity is being used in the HOV 3+ scenario during peak periods. Therefore, it is likely that converting to priced managed-lanes would help to relieve mainline congestion and increase overall corridor throughput.

### Next Steps

Analysis of a HOT 3+ scenario is underway. Once completed, the model results will be shared with the Regional Planning and Highways Committee and Board. Additionally, assumptions for the innovation and policy scenarios are being refined. These scenarios will use the same network defined by the Trend 2040 financially constrained project list, but they will overlay assumptions intended to account for private-sector innovations, as well as potential policies being discussed primarily by regional and state agencies. These assumptions will target model inputs that influence travel behavior, such as cost of driving and improved access to telecommuting, ridesharing, and active transportation options. These scenarios will also analyze the potential impact of autonomous and connected vehicles by assuming increased lane capacities.

The intent of the innovation and policy scenarios is to supplement the Trend 2040 analysis by providing a concept of how external factors may impact transportation. This information can then be used as a reference for determining what types of strategies OCTA may want to pursue as part of the 2018 LRTP.

Community input is another key factor for developing the proposed strategies within the LRTP. The primary goals of the LRTP outreach activities are to inform target audiences about transportation options, key issues and challenges, and gather input. Outreach activities completed to date include the development of informational and educational materials, and numerous presentations. LRTP items were presented at roundtables with elected officials and local agency planning directors, as well as shared with OCTA's public committees, including Citizens Advisory and Special Needs Advisory committee members and diversity leaders.

A qualitative online survey has also been developed with questions related to congestion relief within various modes of travel, ranking transportation improvements, and identifying the most influential emerging technologies and innovations. More than 11,000 surveys have been collected and are currently being tabulated and analyzed. An overview of outreach efforts and results will be shared with the Regional Planning and Highways Committee and Board in spring 2018.

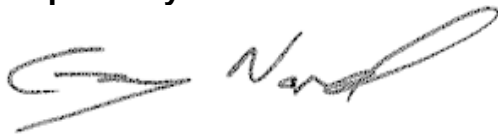
**Summary**

A proposed financially constrained project list has been developed for the 2018 LRTP. Initial model results indicate that, although Orange County's population and employment are projected to grow significantly, planned investments can nearly maintain 2015 travel conditions. These investments were selected consistent with the previously identified goals of delivering on commitments, improving system performance, expanding system choices, and supporting sustainability.

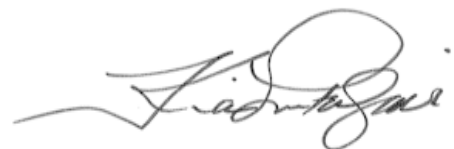
Additional analysis was completed to compare how occupancy requirements for managed-lanes impact the transportation system. Initial results indicate that increasing requirements to three passengers has a slight impact on overall system performance; however, it appears that the managed-lanes become underutilized. Staff will return to the Board in spring 2018 with an analysis of how implementation of priced managed-lanes affects the performance of the system. At that time, staff will also present results from the innovation and policy scenarios and a summary of outreach efforts that have been completed.

**Attachments**

- A. 2018 Long-Range Transportation Plan - Trend 2040, Proposed Project List
- B. 2018 Long-Range Transportation Plan - Conceptual Plan, Proposed Project List

**Prepared by:**

Greg Nord  
Principal Transportation Analyst  
(714) 560-5885

**Approved by:**

Kia Mortazavi  
Executive Director, Planning  
(714) 560-5741