



September 7, 2018

To: State Route 91 Advisory Committee

From: Jennifer Crosson, Toll Operations Manager, Riverside County Transportation Commission

Subject: Riverside County Transportation Commission 91 Express Lanes Toll Policy

Overview

Riverside County Transportation Commission is proposing to adopt an amended and restated Riverside County Transportation Commission 91 Express Lanes Toll Policy.

Recommendation

Receive and file the amended Riverside County Transportation Commission 91 Express Lanes Toll Policy.

Background

Riverside County Transportation Commission (RCTC) adopted the current 91 Express Lanes Toll Policy in June 2012. After 16 months of operation, RCTC is proposing to make changes to the toll policy to better reflect the actual Express Lane operations and customer response to toll rates.

Discussion

The current toll policy was modeled after the Orange County Transportation Authority's (OCTA) toll policy assuming that the OCTA and RCTC portions of the 91 Express Lanes would operate similarly and, therefore, demand could be stimulated or managed under identical policies.

The Express Lanes opened in March 2017 with demand far surpassing original projections. This has required frequent toll rate adjustments over the first

16 months to accomplish free-flow operations. The RCTC 91 Express Lanes are intended to provide free-flow travel throughout the two-lane section of the facility. However, at the eastern end of the project, where the two lanes diverge into single lanes in the eastbound direction, the facility can experience significant delays during some afternoon peak periods.

A similar pattern can be observed in the morning where two single lanes merge into two lanes in the westbound direction, and traffic delays occur during the peak morning rush hours. Physical improvements and toll rate changes have been made to reduce delays at the eastern end resulting in some improvement, but backups continue to occur westbound in the morning and eastbound in the afternoon on certain key days and times of the week.

**Eastern End
Single-lane**



The adopted toll policy provides for the use of time-of-day variable pricing and sets forth the methodology for adjusting toll rates. The policy established toll rates for each level of service (A through E) according to the Highway Capacity Manual using the same toll rate per mile used in the OCTA toll policy. The individual levels of service provide a range of traffic volumes per hour based on the capacity for a two-lane facility. As express lane congestion increases (i.e., level of service decreases), the associated toll rate per mile increases to manage demand and seeks to maintain free-flow travel.

Through regular monitoring, staff and its traffic consultant, Stantec, have determined that each of the single lanes have different traffic capacities. Additionally, the demand for the McKinley Street destination is currently greater than the Interstate 15 (I-15) south destination. After extensive review and analysis of the Express Lanes performance, the pricing methodology has been

changed to accomplish free-flow travel for each destination point served by the overall facility. In short, if travel demand to or from McKinley Street is greater than it is for I-15, the toll should be correspondingly higher to ensure free-flow travel. The current policy, which allows for toll rate adjustments based on traffic volumes in the two-lane portion of the facility, does not allow for adjustments to address the available capacity of each of the single-lane segments of the facility. The unanticipated need to manage traffic for each single lane segment of the facility is the primary reason modifications to the toll policy are being sought.

The adopted toll policy also provided staff with greater flexibility in making toll adjustments more swiftly during the facility's ramp up period. The ramp up period was intended to address operational concerns in cases of limited or uncertain demand, not the higher-than-expected demand that has been realized by the success of the facility. The adopted policy allows for toll rate adjustments every 12 weeks. With only 16 months of historical data for RCTC's portion of the 91 Express Lanes traffic volumes and demand have yet to provide a stable environment during peak periods. This unstable environment and excess demand during peak periods are requiring more frequent monitoring of traffic and toll rate adjustments to effectively manage RCTC's portion of the 91 Express Lanes.

Amendments to the toll rate policy are being recommended to address the need to manage traffic at the single-lane portions of the facility and to provide the ability to make more frequent toll rate adjustments when needed.

There are four main components of the toll policy for which changes are being sought: 1) level of service hourly volumes, 2) super-peak volume triggers, 3) super-peak toll adjustment amounts, and 4) annual inflation adjustment. A change to each of the four components is being recommended to allow the 91 Express Lanes to meet the goals established in the toll policy.

Level of Service Hourly Volumes

The level of service hourly volumes is used to establish the hourly toll rate based on traffic volumes. Level of service refers to the quality of traffic operations for a specific traffic volume, with level of service A being relatively congestion-free and level of service E becoming congested. The current policy includes two-lane vehicle per hour volumes for each level of service and associated toll rates per mile.

The RCTC 91 Express Lanes have single lane volume per hour constraints at the eastern and end of the facility. After 16 months of observation, it is theorized

that the volume for each single lane of the facility is constrained and differs because of a shortened sight distance when entering the single lane, the switching of lanes and cutting into the queue prior to the merge or diverge by users, and the merging of traffic from the left at the westbound merge. During congested periods, motorists are slowing at the merge and diverge, and once they enter the single-lane portion of the facility, they do not regain speed at the rate expected. In the eastbound direction, customers retain a larger than standard headway, or distance between their vehicle and the vehicle in front of them, reducing the vehicle capacity of the eastbound single lanes. It is theorized that after sitting in a slowed condition, customers are not confident that the increased speeds will be retained and react cautiously, leaving a larger than standard distance between cars. In the westbound direction, it takes motorists approximately ½ mile to regain speed after the merge point, although the two-lane portion of the facility ahead of them is free-flowing.

Additionally, the number of vehicles per hour that each of the single lanes can process is not equal. To manage congestion in each single lane, it is necessary to set the toll rate according to the number of vehicles per hour for each single lane. Staff has analyzed the vehicle per hour capacity for each single lane of the facility and proposes revising the vehicles per hour for each level of service as follows:

Level of Service	Vehicles per Hour	McKinley St.	15 South
		Toll*	Toll*
A	0 - 400	\$1.50	\$1.90
B	401 - 800	\$2.20	\$2.85
C	801 - 1,000	\$4.05	\$5.15
D	1,001 - 1,200	\$5.15	\$6.65
E (EB McKinley)	1,201 – 1,300	\$6.70	n/a
E (EB 15 South)	1,201 - 1,400	n/a	\$8.55
E (WB McKinley)	1,201 - 1,350	\$6.70	n/a
E (WB 15 South)	1,201 – 1,400	n/a	\$8.55

*Toll rates represent amounts as of July 1, 2018.

Super-Peak Volume Triggers

During super-peak periods, demand exceeds the highest volume in the level of service table. In order to manage demand during these periods of high volume, the current toll policy provides for incremental toll increases when more than 3,200 vehicles per hour in the two-lane portion of the facility occur. In order to enact super-peak toll increases for the individual single-lane portions of the

facility, it is being proposed that the volumes, which trigger a toll increase, be adjusted to match the single-lane volume capacity for each of the four single-lanes of the facility as follows:

		McKinley St.	15 South
Eastbound	1 st trigger	1,300 to 1,350	1,400 to 1,450
	2 nd trigger	>1,350	>1,450
Westbound	1 st trigger	1,350 to 1,400	1,400 to 1,450
	2 nd trigger	>1,400	>1,450

The proposed volumes correspond with the capacity of each single-lane as determined through 16 months of analyzing the operation of each of the single lanes. When an average hourly traffic volume reaches the volume shown in the table above, a toll rate increase is enacted. A lower volume level (e.g. 1,300 - 1,350) will trigger a lower toll rate increase than a higher volume level (e.g. > 1,350) as specified in the super-peak toll adjustment amounts.

If after a super-peak toll increase has been enacted, traffic drops below 1,200 vehicles per hour in the eastbound direction or 1,250 in the westbound direction, a super-peak toll decrease would be enacted. These volumes represent the free-flow vehicle per hour condition for each direction of travel in the single-lane portion of the facility.

Super-Peak Toll Adjustment Amounts

The current toll policy allows for a super-peak toll increase in increments of \$.75 or \$1.00, depending on the average hourly daily traffic volume. The \$.75 and \$1.00 were established in 2003 by OCTA and have not been adjusted for inflation. Inflation has diminished the impact of current allowable adjustments. Staff recommends the current \$.75 be increased to \$1.00 and the current \$1.00 be increased to \$1.30 to match the approximate 30 percent inflation increase between 2003 and 2018.

There is currently a super-peak toll decrease of \$.50 when the super-peak volumes decline. Like the super-peak toll increase, staff recommends the \$.50 be increased to \$.65 for the 30 percent inflation impact. This change will be sufficient to stimulate growth in traffic when needed.

Annual Inflation Adjustment

The current policy provides for an annual inflation adjustment equal to the annual increase in the toll service provider lump sum contract for tolls each year on

July 1st. The current toll service provider contract provides for a two percent annual increase, which is not relevant to the value of money to a 91 Express Lanes user. Staff recommends tolls be adjusted annually on July 1st by an inflation adjustment tied to the Consumer Price Index for the region.

The annual inflation amount will apply to the level of service toll rates, the super-peak toll rates, and the super-peak toll increase amount.

Staff Recommendation

The attached amended and restated toll policy recommends improvements to the methodology for adjusting toll rates to address characteristics unique to the RCTC 91 Express Lanes and the much higher than expected demand. In order to meet the toll policy goals of optimizing throughput at free flow speeds and balancing capacity and demand to serve customers who pay tolls, as well as carpoolers who are offered discounted tolls, amendments to the toll policy are required.

The chart on the following page summarizes the current and recommended toll policy.

	Component	Current Policy	Recommended Policy
1.	Level of Service hourly volumes	Two-lane vehicle per hour volumes and toll rates for both directions	Single lane vehicle per hour volumes for each eastbound and westbound direction
2.	Super-peak volume triggers	Two-lane vehicle per hour: Toll increase (1 st trigger, 2 nd trigger) 3,200 - 3,299, >3,300 Toll decrease 2,720	Single-lane vehicle per hour: Toll increase (1 st trigger, 2 nd trigger) <i>Eastbound</i> McKinley 1,300 - 1,350, >1,350 15 South 1,400 – 1,450, >1,450 <i>Westbound</i> McKinley 1,350 – 1,400, >1,400 15 South 1,400 – 1,450, >1,450 Toll decrease Eastbound 1,200 Westbound 1,250
3.	Super-peak toll adjustment amounts	Increase \$.75 and \$1.00 Decrease \$.50	Increase \$1.00 and \$1.30 Decrease \$.65
4.	Annual inflation adjustment	Equal to Toll Service Provider contract increase	Inflation adjustment tied to the region's Consumer Price Index

The changes outlined above and incorporated in the revised and restated toll policy provide a more accurate representation of the RCTC 91 Express Lanes operational constraints and corresponding toll setting needs.

Summary

The amended and restated RCTC 91 Express Lanes toll policy is attached for review. This toll policy was approved at the RCTC's Toll Policy and Operations Committee on August 23, 2018, and will be presented for final approval to the full Riverside County Transportation Commission at its October 10, 2018 meeting.

Attachment

- A. RCTC 91 Express Lanes Toll Policy