

I-680 Southbound Express Lane



Optimizing Corridor Performance Through Technology



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Message from the Chair

September 20, 2012 marked the two-year anniversary of the opening of the first express lane in Northern California. The 14 mile I-680 Southbound Express Lane over the Sunol Grade was created to give drivers more reliability in their travel time by helping to manage congestion — and improve throughput within the corridor. Already we have seen significant success.

Ongoing monitoring shows the average travel speed in the express lane is observed as 10-15 mph faster than in the general purpose lanes during peak commute, and a more than 20 mph speed differential has been observed in the most congested segment, in the vicinity of Washington Boulevard. Hundreds of additional solo drivers have switched to the express lane to take advantage of this time savings.

I am proud that together with our partners, the Alameda County Transportation Commission and the Santa Clara Valley Transportation Authority, we are employing the latest technology to expand choices for the residents, commuters and



businesses of the East Bay. This first operational express lane facility is part of a larger express lane network envisioned throughout the Bay Area. The success of the I-680 southbound express lane provides evidence that increasing the efficiency of our existing infrastructure improves travel reliability and travel times.

Bill Harrison, Chair
Sunol Smart Carpool Lane Joint Powers Authority

“Providing options in this busy corridor offers commuters dependable travel times. These types of mobility improvements reduce delays and support a better quality of life by reducing the amount of time people are stuck in traffic. High-tech travel choices on I-680 are a model for the future.”

— Scott Haggerty,
JPA Chair, 2010-2012

“As our economy recovers and traffic congestion increases, the benefits of the express lanes will be even more significant.”

— Jerry Thorne,
JPA Vice Chair

The I-680 Southbound Express Lane

Since it opened to traffic in September 2010 as Northern California’s first high occupancy toll (HOT) or express lane facility, the I-680 Southbound Express Lane located between State Route 84 and State Route 237 has been a success by providing travel options to commuters and increasing road capacity. It was designed to manage growing traffic congestion on I-680 and provide people with a new commute choice between the East Bay and Silicon Valley. It is governed by the Sunol Smart Carpool Lane Joint Powers Authority — and was funded with state, federal and local funds, including Alameda County’s voter-approved local sales tax, Measure B.

Since opening, more than 900,000 solo drivers have chosen to get to their destination faster by using the Express Lane.

The I-680 Southbound Express Lane launched a new era of congestion relief for drivers in Northern California, giving solo drivers the choice to pay a toll for access into the HOV lane, when there is excess capacity. Carpool lane users continue to enjoy the benefits of sharing rides at no cost — and can enjoy the benefits of the express lane since access to the lane is regulated to ensure reliable travel times. Usage of the toll lane has increased steadily since its inception. During fiscal year 2011-2012 (July 1, 2011 – June 30, 2012), the express lane was used by more than 520,000 toll payers, with an average peak hour (5 a.m. to 11 a.m.) toll of \$3.09 per trip and non-peak hour (11 a.m. to 8 p.m.) toll of \$0.47.

I-680 Express Lane Key Milestones

- **1990s**
Sunol Grade becomes one of the top three most congested commute corridors in the Bay Area.
- **1998**
Solutions on Sunol Coalition forms to address congestion issues.
- **2001**
New I-680 Southbound auxiliary lane opens.
- **2002**
New 14-mile I-680 Southbound HOV lane opens.
- **2004**
State Legislature authorizes two pilot express lanes in Northern California; I-680 Southbound was the first to open.
- **2008**
I-680 Southbound Express Lane construction begins.
- **2009**
Pre-implementation traffic study is completed.
- **2010**
I-680 Southbound Express Lane opens.
- **2012**
I-680 Southbound Express Lane celebrates two-years of operation.
- **2013**
Post-implementation traffic study submitted to state legislature.

From 2010-2012 more than 900,000 solo drivers used the express lane to reach their destinations faster.



History

The I-680 Corridor between Pleasanton and Milpitas in eastern Alameda County, known as the Sunol Grade, is a major commute route connecting the Tri-Valley Area (Dublin, Livermore and Pleasanton) in Alameda County with South Bay cities in Santa Clara County and Silicon Valley businesses. In 1998, a group of elected officials, agencies and businesses formed the Solutions on Sunol (SOS) Coalition to address congestion within the corridor, which was recorded as one of the top three most-congested corridors in the Bay Area. A transportation systems management report identified the need for operational improvements in both directions of I-680 along the Sunol Grade. By the end of 2002, a 14-mile southbound HOV lane opened between Route 84 and Route 237 as a first step to manage congestion.

Studies were then conducted to see whether the southbound HOV lane could be converted to a high-occupancy toll (HOT) or express lane facility. Express lanes offer the option to better utilize the existing HOV lane capacity, giving solo drivers the option to pay a toll to use the express lane and avoid congestion, which reduces congestion in general-purpose lanes thus improving overall corridor performance. After the successful implementation of express lanes in Southern California, the state legislature passed Assembly Bill 2032 (AB 2032) in 2004 that authorized the agency to conduct, operate and administer a value-pricing program (express lane) within two corridors in Alameda County, including the Sunol Grade Corridor.

Conversion of the I-680 southbound HOV lane into an express lane began in 2008. Construction included widening the roadway to accommodate a new two-foot buffer — separating the express lane from the general purpose lanes, installing electronic toll-collection equipment, repaving the entire roadway and adding soundwalls in locations as identified through noise studies.

The I-680 Southbound Express Lane sparked the initiation of a regionwide express lane network that will include 550 miles of express lanes in the San Francisco Bay Area in coming years.

This \$41 million express lane project was funded with federal, state and local funds, including \$19.7 million from Measure B, Alameda County's local transportation sales tax measure approved by 81.5% of voters in 2000.





Carpools, vanpools, motorcycles, buses and permitted low-emission vehicles use the express lane for free.

How the Lane Works

Dynamic Pricing and Tolls

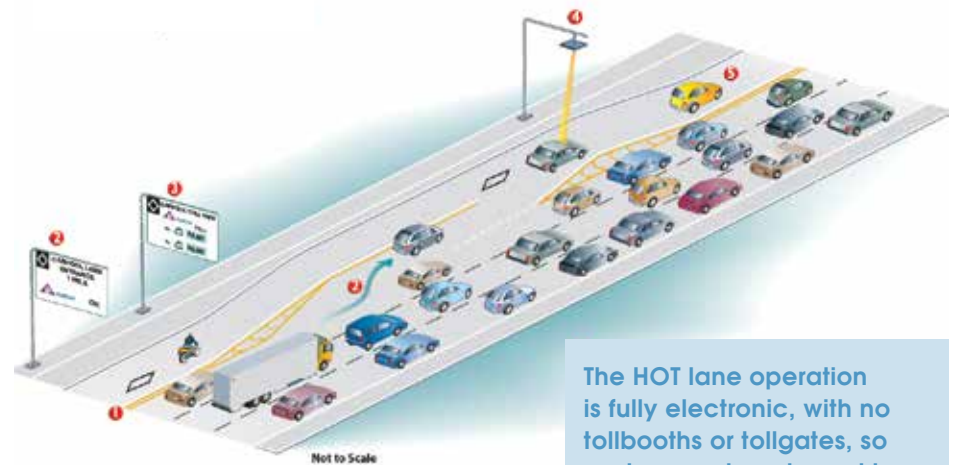
The I-680 Southbound Express Lane is one of the first in the nation to deploy a full, dynamic pricing system, which ensures a consistent and reliable travel time in the express lane. Dynamic pricing means that tolls vary based on real-time traffic conditions in the corridor — increasing when congestion is heavier and decreasing when traffic is lighter. The goal is to keep the express lane operating at a reliable level of service, which requires a minimum speed of 45 mph.

Tolls on the I-680 Southbound Express Lane have ranged from \$0.30 during off-peak hours to a maximum of \$7.50 during peak hours on the most-congested commute days.

The express lane operates Monday through Friday from 5 a.m. to 8 p.m. Solo drivers who want to use the lane need a FasTrak[®] transponder. Each time drivers choose to use the express lane, the toll amount is deducted from their FasTrak account balance. The operation is fully electronic, with no tollbooths or tollgates, so customers do not need to slow down or stop to pay.

There are three entry points and three exit points. One half-mile before each entry point, an overhead electronic sign displays the toll being assessed. Solo drivers have a choice to pay the current toll to use the express lane. The amount drivers pay is based on the price displayed at their entry point, even if toll rates change while they are in the express lane. Carpools with two or more people, vanpools, motorcycles and buses always use the lane for free. To avoid being charged a toll, carpool drivers need to place their FasTrak[®] transponders in a mylar bag provided by FasTrak.

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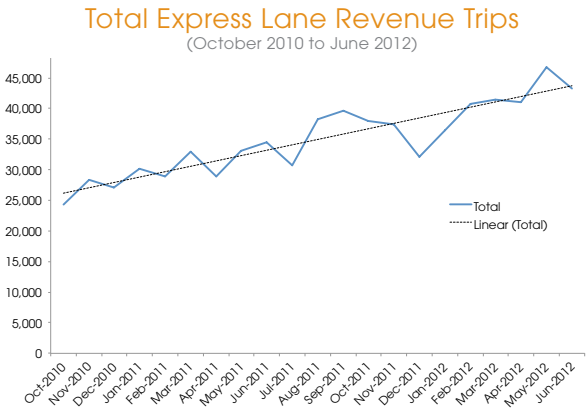
The HOT lane operation is fully electronic, with no tollbooths or tollgates, so customers do not need to slow down or stop to pay.

Corridor Use and Investments

The I-680 Southbound Express Lane has seen a 78% increase in the number of monthly users from 2010 to 2012.

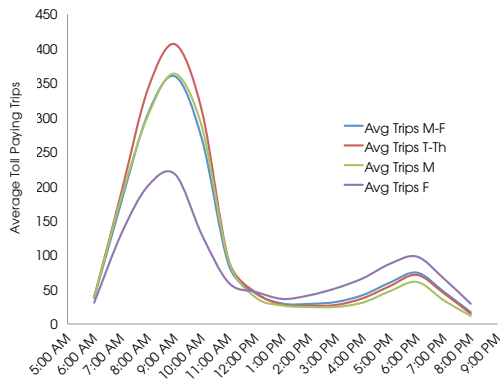
When the Sunol Smart Carpool Lane JPA was formed, the Authority agreed to reinvest all net revenues derived from the express lanes directly back into the project corridor to fund other transportation projects or programs, and to use toll revenues first to pay for operating and maintaining the I-680 Express Lane.

Use of the I-680 Southbound Express Lane has risen steadily since its inception, with the exception of brief declines during holiday periods.

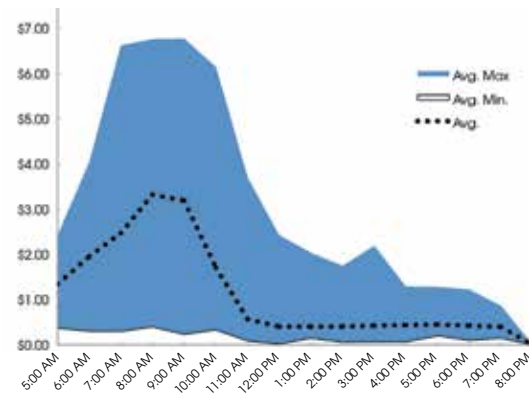


The express lane operates from 5 a.m. to 8 p.m., Monday through Friday. The lane is used most frequently Tuesday through Thursday, with the highest use between the hours of 8 a.m. and 10 a.m. Tolls range from \$0.30 to a maximum of \$7.50, and the highest toll rates correspond with the highest use period (8 a.m. and 10 a.m.). Dynamic pricing increases tolls during highest-use hours to ensure a steady flow of traffic in the express lane.

Average Daily Express Lane Toll Paying Trips by Hour
(October 2010 to June 2012)



Average Daily Toll Rate 5 a.m. – 8 p.m.
(October 2010 to June 2012)



Dynamic Pricing:

The I-680 Express Lane is managed with a dynamic pricing mechanism that changes the cost for solo drivers to use the lanes as congestion changes in the corridor. The I-680 Express Lane is priced to ensure lane capacity for carpool, vanpool and transit users, so that the average speed in the express lane does not go below 45 mph.



Toll Enforcement

Express lane tolls are collected via FasTrak® transponders, which are required for any solo driver to use the lane. The California Highway Patrol (CHP) provides toll enforcement on the I-680 Southbound Express Lane, employing both the normal patrols provided on other Bay Area freeways as well as additional officers contracted for increased enforcement to deter toll violations. The I-680 Southbound Express Lane has FasTrak readers at five locations: three at each toll zone, and two at stand-alone enforcement zones. The enforcement zone readers are used only as an aid to the CHP enforcement, by determining if a vehicle has a valid FasTrak transponder.

The facility has a two-foot buffer stripe separating the general-purpose and express lanes; crossing the double lines to enter the express lanes is a moving violation. Additional violations include avoiding the toll readers, straddling double white lines, and traveling in the toll lane without a valid FasTrak transponder. Additional information about violation rates within the corridor will be available in a post-implementation After Study Report that will be complete in summer 2013. Alameda CTC is working closely with the California Toll Operators Committee and other regional agencies to evaluate additional emerging technologies that could provide automated toll violation enforcement options to reduce violation rates.



Roadway cameras monitor the I-680 HOT Lanes

The Future: A Regional Express Lane Network

The I-680 Southbound Express Lane is part of the 550-mile Bay Area Express Lane Network that is envisioned to provide increased travel reliability and efficiency, and to improve connectivity in the HOV network within the Bay Area, benefiting drivers and transit users alike. The goals of the network are to promote carpooling and express bus use, and reduce congestion and emissions — ensuring that all users, not just those who choose to pay the toll, benefit from the express lane network.

The next express lanes in Alameda County will be the eastbound and westbound I-580 HOV/Express Lanes, within a 24-mile freeway corridor in the vicinity of the cities of Dublin, Pleasanton and Livermore. They are slated for construction in late 2014. This is the second corridor legislatively approved for express lane implementation in Alameda County by AB 2032. The I-680 Northbound Express Lane, which will complement the existing I-680 Southbound Express Lane, is currently in the environmental clearance phase.

Reporting Results:

California Assembly Bill 2032, the legislation that authorized the I-680 Express Lanes, requires a post-implementation traffic study to evaluate the operational benefits of the express lane, and to compare the study results with the pre-implementation traffic study (completed in April 2009) using a set of performance metrics.

In September 2012, Alameda CTC selected a firm to perform the post-implementation study as required by AB 2032. The study will be complete in summer 2013.

Chair:

Bill Harrison, *Mayor*,
City of Fremont,
Alameda CTC

Vice Chair:

Jerry Thorne, *Mayor*,
City of Pleasanton,
Alameda CTC

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Alameda CTC

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Alameda CTC

Staff Liaison:

Stewart D. Ng,
*Deputy Director of
Projects and Programming*,
Alameda CTC

Clerk of the Commission:

Vanessa Lee

www.alamedaexpress.org

Sunol Smart Carpool Lane JPA

The Sunol Smart Carpool Lane Joint Powers Authority is an independent joint powers authority created to operate the I-680 Express Lane. Its Board of Directors consists of five elected officials, four voting members from Alameda County, and one voting member from Santa Clara County. Voting rights were determined based on each county's share of road miles within the corridor.

The Authority holds monthly meetings that are open to the public. Meeting agendas and minutes are posted on the Alameda CTC website at www.alamedactc.org. The Alameda County Transportation Commission, Caltrans and the California Highway Patrol provide services to the Authority contractually. The Authority also has an agreement with the Bay Area Toll Authority to use its FasTrak® electronic toll-collection system.

Financial Information, Fiscal Year 2011-2012

Toll revenues received on the express lane are utilized to pay for operations and maintenance of the express lane. Currently, revenues do not exceed operating costs, and the express lane is subsidized by grant funding for the I-680 Southbound HOT Lane Project. When the express lane becomes sustainable and revenues exceed operations and maintenance costs, the Sunol Smart Carpool Lane JPA Board will determine how to reinvest these funds into the project corridor. An Expenditure Plan will be adopted biennially and may include funding for the construction of HOV facilities including the I-680 Northbound Sunol Smart Carpool Lane project or transit capital and operations that directly serve the Sunol Smart Carpool Lane Corridor.

FY2011-12 tollpaying trips totaled 521,315. The average peak time toll was \$3.09, reaching a high of \$7.50, and the average non-peak time toll was \$0.47.

Highlights from the FY2011-12 Audited Financial Report:

- Total net assets increased by \$844,000 or 24.3% from \$3.5 million to \$4.3 million as of June 30, 2012, as compared to June 30, 2011. Capital assets comprised \$2.6 million or 60.4% of the total net assets as of June 30, 2012.
- As of June 30, 2012, cash and cash equivalents increased by \$1.1 million or 207.2% over June 30, 2011.
- Toll revenue was \$1.1 million during fiscal year 2012, an increase of \$453,000 or 72.1% over the period of September 20, 2010 through June 30, 2011.
- The Authority's total operating expenses were \$349,000 during fiscal year 2012, an increase of \$110,000 or 46.0% over the period of September 20, 2010 through June 30, 2011. Operating expenses for fiscal year 2012 were primarily comprised of \$239,000 of depreciation expense on capital assets.



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