How Smartphones and Autonomous Vehicles will Pay Your Tolls

Managed and Tolled Lanes Feed Specification

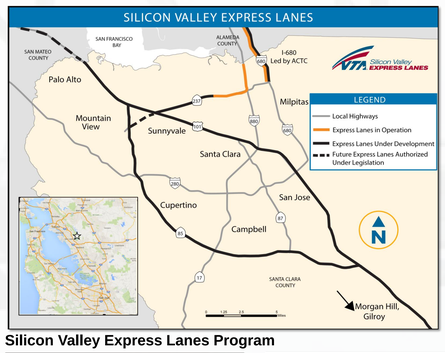
About Santa Clara Valley Transportation Authority (VTA)
VTA is the congestion management agency, transit provider, a sales tax authority, and a deliverer of capital projects in Santa Clara County, California.

About Silicon Valley Express Lanes (SVEL)
The Silicon Valley Express Lanes are located in Santa Clara County, California, the most populated county in the San Francisco Bay Area and home to 72 of the largest 100 companies that comprise Silicon Valley. The VTA Silicon Valley Express Lanes Program is a network that includes the SR 237 and SR 85 / US 101 freeways. The program is authorized for 2 corridors.

About Bay Area Express Lanes
Bay Area transportation agencies are developing a 550-mile network of Bay Area Express Lanes that will be completed in 2035. Lanes already are open on I-580 in Dublin, Pleasanton and Livermore, I-680 southbound from Pleasanton to Milpitas, and on State Route 237 between Milpitas and San Jose.

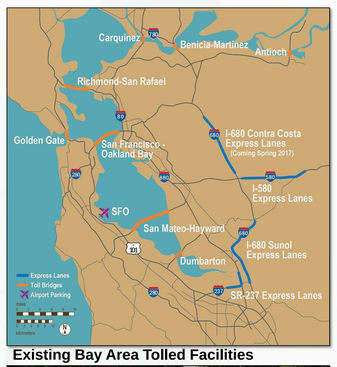
About The Managed and Tolled Lanes Feed Specification
Private sector and public agencies are coming together to establish a managed and tolled lanes specification focusing on the Bay Area Tolled and Express Lanes facilities. The goal of the effort is to the implement something that can be simple and useful to public that can be eventually used across the nation.

SF Bay Area Express Lanes



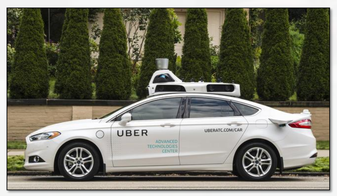
Silicon Valley Express Lanes Program


SR 237 I-880 Express Lanes



Existing Bay Area Tolled Facilities


Bay Bridge Toll Plaza



Please visit the VTA Express Lanes Website: http://www.vta.org/expresslanes

Purpose

For the success of a connected tolling network; there exists a need for a data standard.

- Navigation Apps and Maps
- Toll Payments
- Autonomous Vehicle Use
- Create a standard data feed for all managed lanes operators to assist in development and operation
- One Common Managed Lanes Data feed for all Managed Lanes

Inspired by GTFS

(General Transit Feed Specification – Transit Schedules)

Open Source file structure, csv, - text format
Easily consumable by application developers
Used worldwide by Transit Agencies

Design with Contemporary technology in mind
- Json file structure
- Real time data access

github SOCIAL CODING

Existing

Open Source Development Repository
https://github.com/vta/Managed-and-Tolled-Lanes-Feed-Specification
Live Toll Rates - http://www.vta.org/getting-around/using-express-lanes
VTA Express Lanes API -
https://github.com/vta/expresslanes-api
ID, Name, Time, Pricing, Message, User, Algorithm Mode
API -http://ec2-54-218-16-105.us-west-2.compute.amazonaws.com/

METROPOLITAN TRANSPORTATION COMMISSION
ALAMEDA County Transportation Commission
Santa Clara Valley Transportation Authority
SIDEWALK LABS
Google
GitHub
Washington State Department of Transportation
GOLDEN GATE BRIDGE

Table Ideas

Future Needs

- Create a standard data feed for all managed and tolled facilities. Express Lanes, Carpool Lanes, Ramp Meters, Thruways, Bridges, Tunnels, etc.
- Variable Speed Limits, Switchable Lanes, Cordon Pricing
- The data spec hosts to the next step in transportation funding
- Vehicle Miles traveled.
- Interoperability with other modes of transportation.
- Mobile apps - Navigation apps, TollSmart

- **Agency**
- **Hours of Operation**
- **Toll Rates**
- **Location**
- **Vehicle Type**
- **Facility Type**
- **Facility Lane Type**
- **Access**
- **Facility Corridor Shape**
- **Tolling Method**
- **Calendar**

Under Development

Focus on the San Francisco Bay Area Facilities
Express Lanes – Static and dynamic data
Bridges – Static data, vehicle type, All electronic vs. toll booth
Developer Needs – Validation Tools, Historical tolling and speed data
Geographic Geometries for data
Points and Polylines
Basemap Agnostic

Santa Clara Valley Transportation Authority