



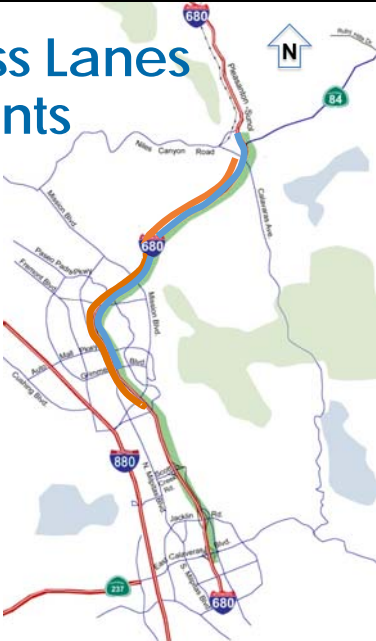
ALAMEDA COUNTY TRANSPORTATION COMMISSION

I-680 Sunol Express Lanes Construction Update



I-680 Sunol Smart Carpool Lane Joint Powers Authority (Sunol JPA)
February 8, 2021

I-680 Sunol Express Lanes Project Components



Southbound Conversion

- ❖ Southbound Conversion of the existing express lane to continuous access from SR262 (Mission) to SR84

Electronic Toll System


- ❖ Deploy a new toll system for both NB and SB express lanes
- ❖ Implement enhanced toll system compliant with adopted toll policies, including violation enforcement

Northbound Phase 1

- ❖ South of Auto Mall to SR 84
- ❖ 8.2 miles of new express lane

Caltrans Rehab

- ❖ Grimmer to Koopman



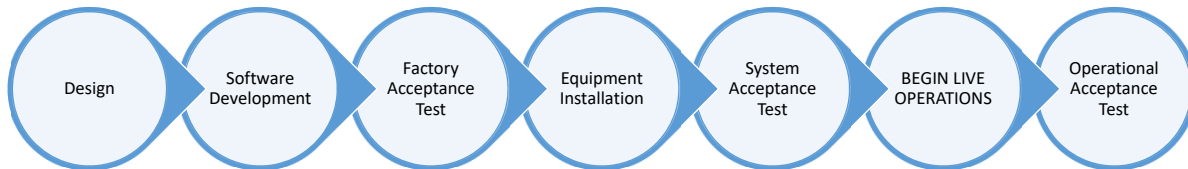
ALAMEDA County Transportation Commission

I-680 SUNOL EXPRESS LANES PROJECT IMPLEMENTATION UPDATE

2

Electronic Toll System Implementation

Seven high-level stages of implementation:

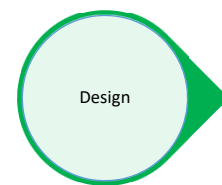


Complex, specialized work performed by a Toll System Integrator (TSI)
Oversight by Alameda CTC staff and a System Manager

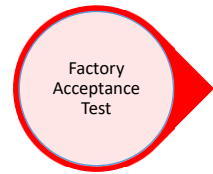


Design and Software Development

- Design and Software Development
 - System Detailed Design Document drafted
 - Specifies all aspects of the toll system
 - Vehicle detection and fare assignment
 - Dynamic Pricing
 - Equipment monitoring and Performance validation
- Software Development – in progress
 - Modifies base product to specific project
 - Over 1200 requirements to code and test



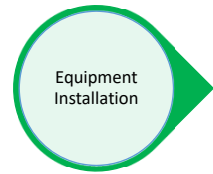
Factory Acceptance Test (FAT)



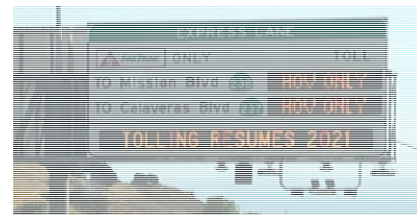
- Proof of concept for the equipment and toll host
- Field test performed at Kapsch test track in Taylor, TX
- All testing observed by System Manager (remote)
- Hundreds of scenarios test all requirements and business rules
- Successful completion → Test actual corridor equipment



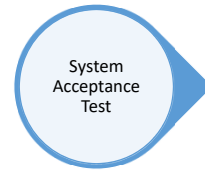
Equipment Installation



- To keep the project moving forward, Kapsch has installed the toll equipment for all 31 sites at risk
 - Message panels
 - Toll tag readers/antennas
 - Scanners
 - License plate cameras
 - Traffic sensors
 - Performance monitoring cameras
 - Occupancy detection beacons for CHP use
 - Roadside cabinet equipment



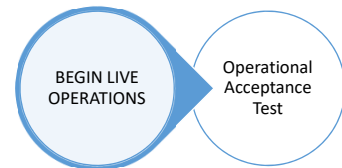
System Acceptance Test (SAT)



- Validation of project toll system
 - Communications network is complete and functional
 - Roadside to Host Systems (San Francisco and Sacramento)
 - Host to BATA customer service center
 - All toll equipment and systems are properly integrated and functional
 - Monitoring capabilities online
 - Vehicle test runs successful
 - High degree of performance and accuracy required
- Successful completion → Begin Live Operations



Operational Acceptance Test (OAT)



- Under live operations
- Validation of all required performance metrics
 - Minimum of 2 months of successful performance
 - Typically takes a new toll system 6 – 9 months to complete
- Successful completion → End of Implementation Phase



Transition: Old to New

- Original southbound EL opened September 2010
- Components of that toll system conflicted with construction
- Original Toll System Decommissioned August 10, 2020



Project Status – NB and SB EL open to HOV

- Lanes operating in HOV ONLY mode
 - Carpools, CAVs, Motorcycles, Transit only
 - Monday – Friday, 5 am – 8 pm
- Signage conveys use restriction
- New NB lane provided immediate congestion relief
- New toll equipment installed
- Civil construction substantially complete
- GO LIVE in Fall 2021



Thank You

