SM 101 MANAGED LANES PROJECT

San Mateo County Transportation Authority Board Meeting
November 2, 2017
Item #10

- Brief recap from October
- Traffic Analysis Findings
- Draft Environmental Document Summarized Outcomes

  Questions and Answers
- Toll System Roles Assessment

  Discussion

THE PROBLEM

Jobs, housing and population growth continues

From 2011 – 2015, the Bay Area added 500,000 new jobs and 65,000 housing units

By 2040, San Mateo County will see an additional 128,700 new jobs and 60,200 new households

Vehicle trips to grow 4-7% by 2020

No incentive to share a ride

Cars avoid the freeway

The congestion on 101 has been bad and will continue to get worse.

The problem is greater than one project can solve.

- The *Caltrain Electrification Project* will not fully address projected demand
- SAMTRANS is studying regional express bus service on the 101 corridor
- VTA is in final design to create an Express Lane from south of 85 to the San Mateo County line
- SFCTA is coordinating with San Mateo to study an extension of the 101 managed lanes into SF
- MTC is planning to improve and increase park-and-ride lots
- Municipalities implementing TDM measures

SM 101 MANAGED LANES PROJECT

THE PROJECT LIMITS

- **Alternative 1:** No project
- **Alternative 2:** Modify existing auxiliary lanes to make a new through lane from Whipple Avenue to I-380; convert median lane to an HOV lane for HOV 2+
- **Alternative 3:** Convert the existing median lane to an HOV 3+ Express Lane – *includes public express bus service in analysis*
- **Alternative 4:** Modify existing auxiliary lanes to make a new through lane from Whipple Avenue to I-380; convert median lane to an HOV 3+ Express Lane

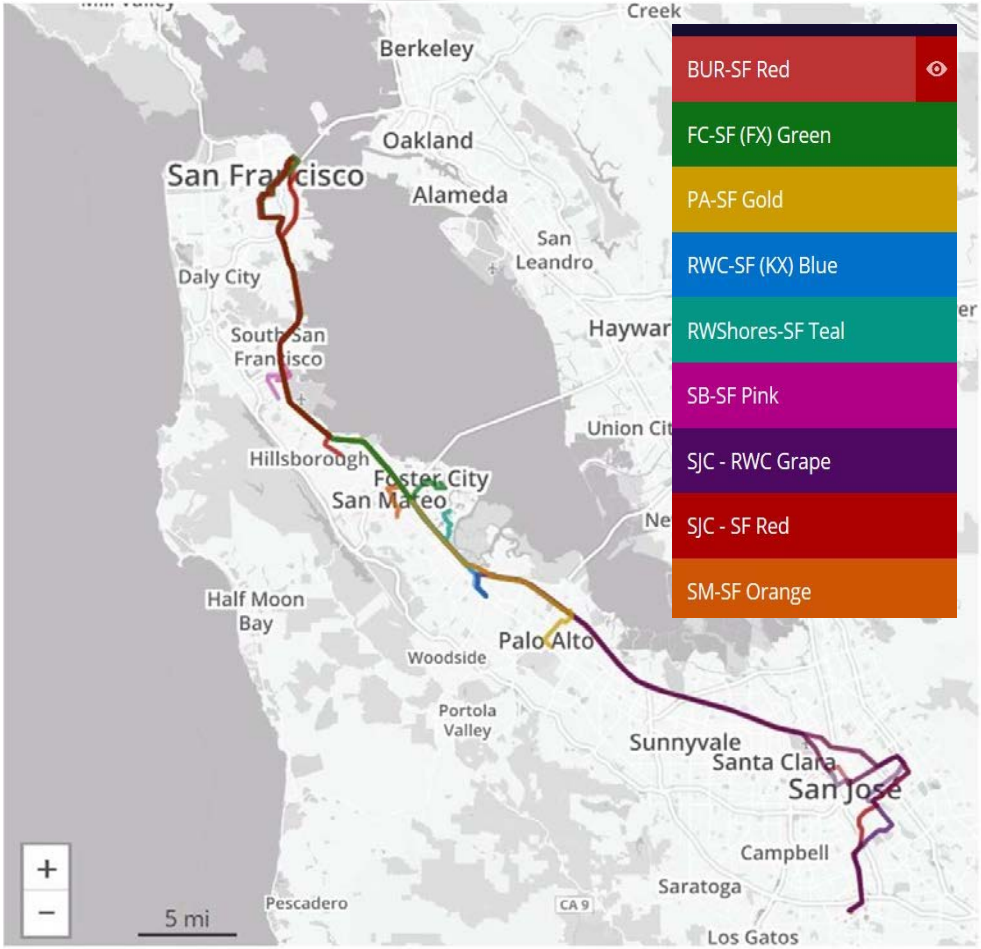
Routes Studied

Both NB and SB directions during AM Peak Period (6am to 10am)

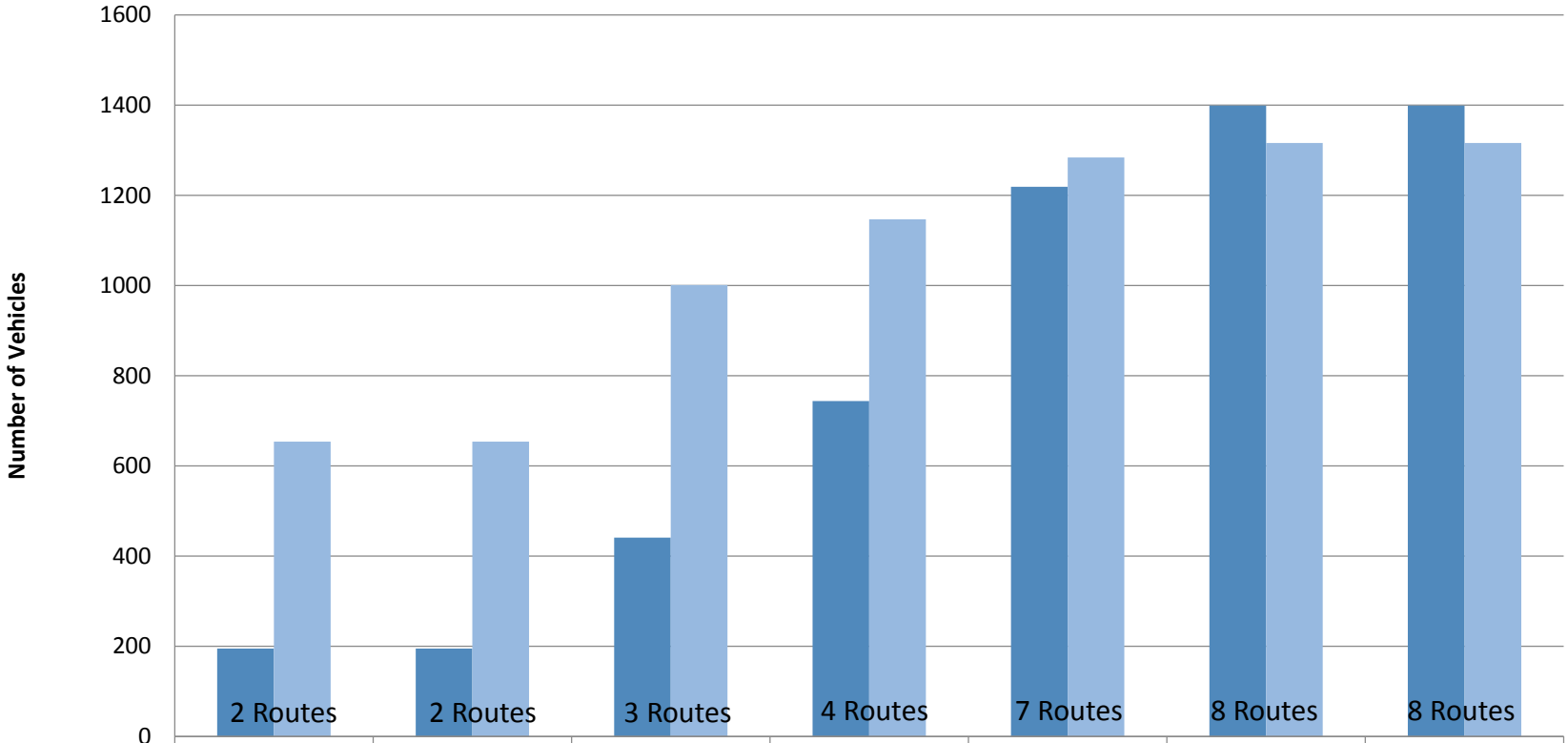
- San Francisco <-> San Bruno
- San Francisco <-> Burlingame
- San Francisco <-> San Mateo
- San Francisco <-> Foster City
- San Francisco <-> Redwood City
- San Francisco <-> Redwood Shores
- San Francisco <-> Palo Alto
- San Francisco <-> San Jose
- San Jose <-> Redwood City

Assumptions

- 4 buses per hour for each route (15-minute headways); or
- 16 buses per peak 4-hour period; or
- 32 buses in both directions for each route

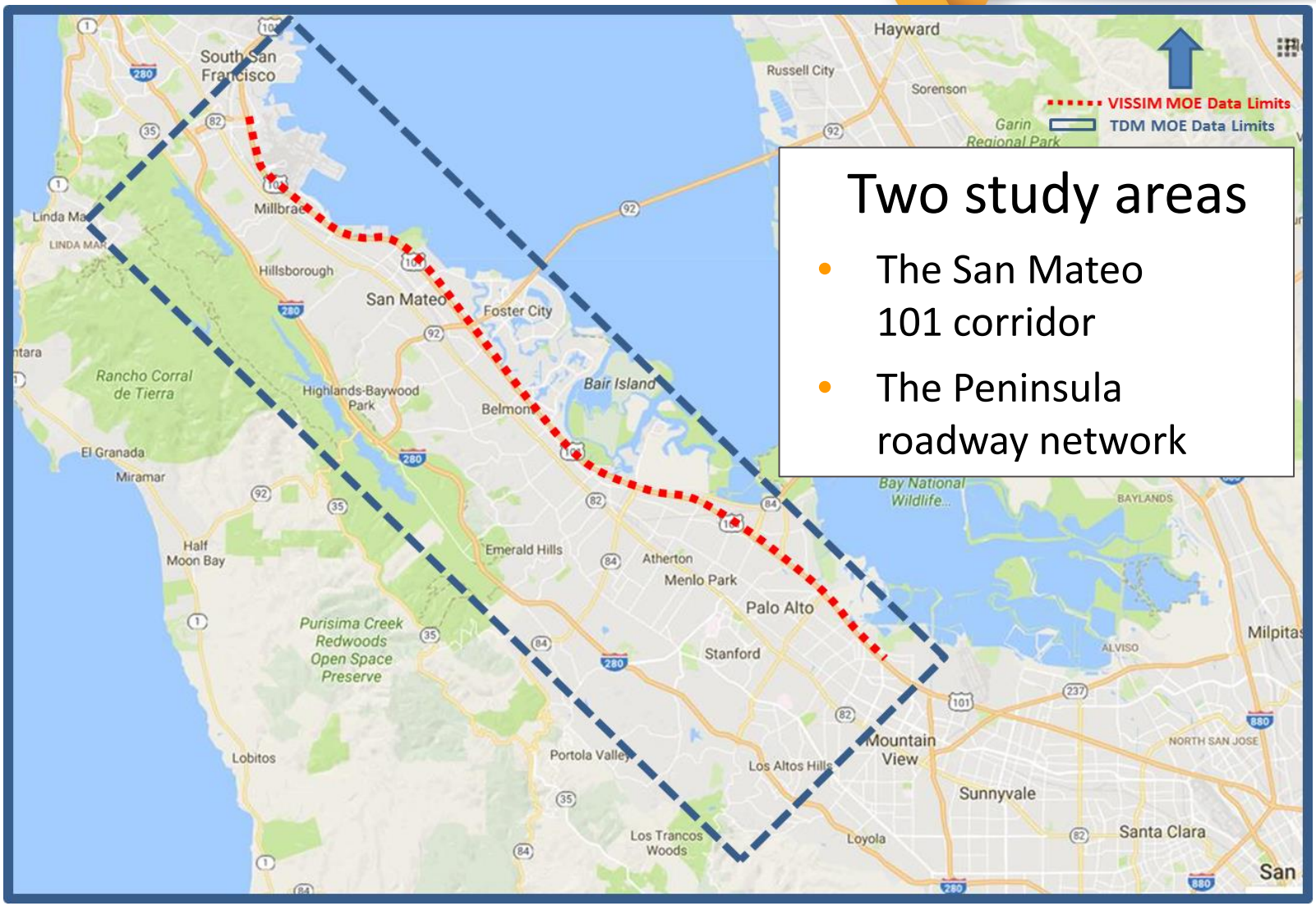


Net Peak Period US 101 Vehicle Reduction by Segment Across All Routes During AM Peak Period (6am to 10am)

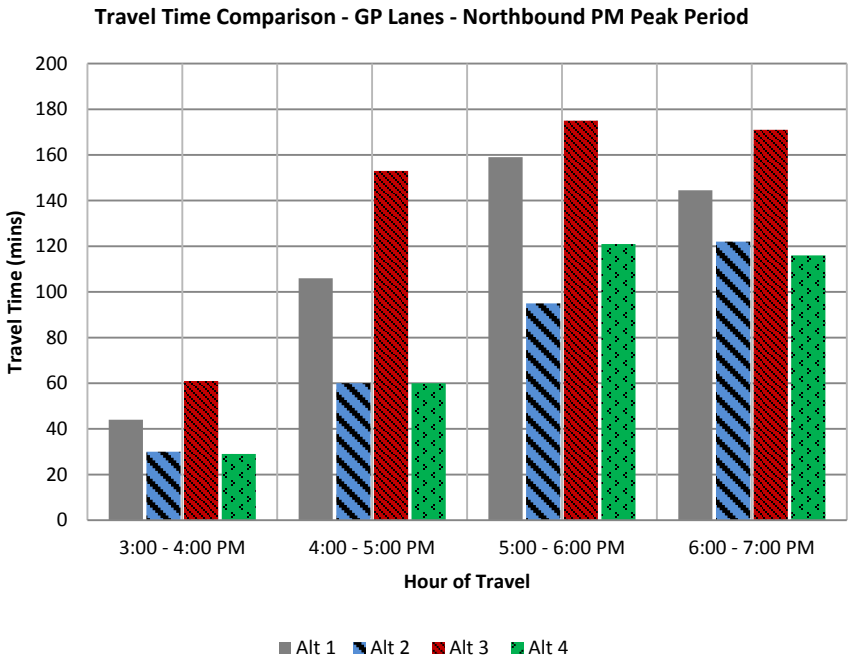


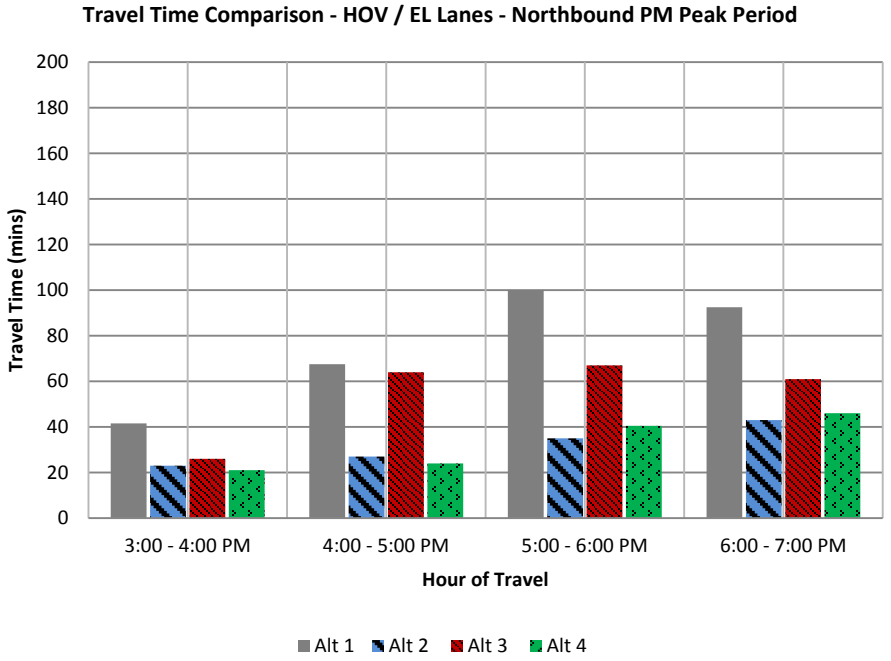
	Rengstorff Ave - Shoreline Blvd	University Ave - Rengstorff Ave	Whipple Ave - University Ave	Hillsdale Blvd - Whipple Ave	Broadway - Hillsdale Blvd	Millbrae Ave - Broadway	I-380 - Millbrae Ave
Northbound	195	195	441	744	1219	1399	1399
Southbound	654	654	1001	1147	1284	1316	1316

Traffic Analysis Findings


VISSIM MOE Data Limits
TDM MOE Data Limits
Two study areas
The San Mateo 101 corridor
The Peninsula roadway network
South San Francisco
Hayward
Russell City
Sorenson
Garin Regional Park
Millbrae
Hillsborough
San Mateo
Foster City
Bair Island
Belmont
Highlands-Baywood Park
Rancho Corral de Tierra
El Granada
Miramar
Half Moon Bay
Purisima Creek Redwoods Open Space Preserve
Emerald Hills
Atherton
Menlo Park
Palo Alto
Stanford
Bay National Wildlife...
BAYLANDS
ALVISO
Milpitas
Mountain View
Los Altos Hills
Portola Valley
Lobitos
Los Trancos Woods
Loyola
Sunnyvale
Santa Clara
NORTH SAN JOSE
San

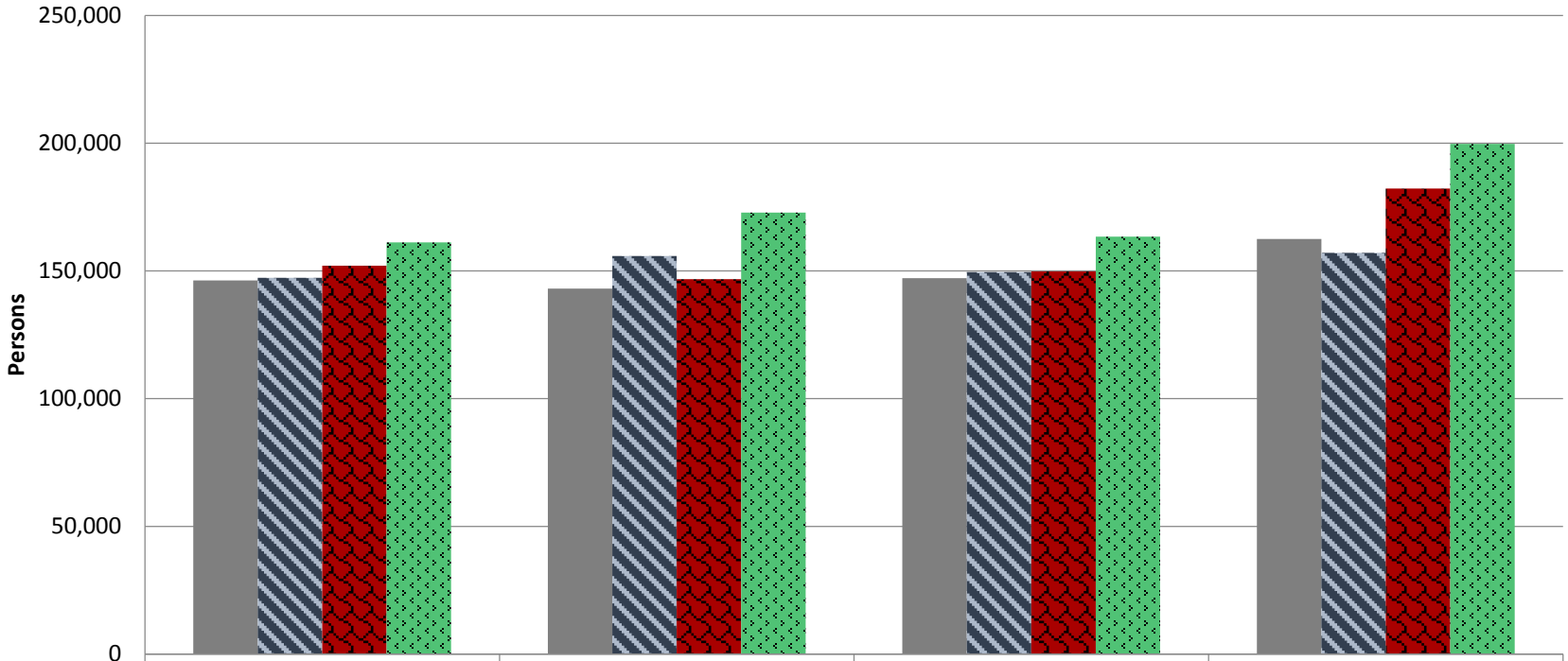
RESULTS: TRAVEL TIMES





RESULTS: PERSON THROUGHPUT

Person Throughput on NB & SB US 101 During AM & PM Peak Periods



	NB AM	NB PM	SB AM	SB PM
No Build	146,261	143,064	147,146	162,509
Alt 2	147,277	155,828	149,560	157,067
* Alt 3	152,015	146,741	149,750	182,211
Alt 4	161,155	172,801	163,361	199,679

*Alternative 3 includes Express Bus Service

Measures Of Effectiveness (MOEs) Used To Evaluate Purpose

Encourage Carpooling And Transit Use	• HOV Lanes Travel Time During Peak Period • Travel Time During Peak Period in GP Lanes vs. HOV Lanes
Provided Managed Lanes For Travel Time Reliability	• Travel Time During Peak Period in GP Lanes vs. HOV Lanes
Increase Person Throughput	• Person Throughput During Peak Periods
Apply Technology and/or Design Features To Help Manage Traffic	• Travel Time During Peak Period in GP Lanes vs. HOV Lanes • Person Throughput During Peak Periods
Reduce Congestion In The Corridor	• Vehicle Hours of Delay During Peak Period • Maximum Peak Hour GP Lane Travel Time
Minimize Operational Degradation Of General Purpose Lanes	• Maximum Peak Hour GP Lane Travel Time • GP Lanes Travel Time During Peak Period • Vehicle Hours of Delay

MEASURES OF EFFECTIVENESS (MOE) ALTERNATIVES EVALUATION				
MOEs	ALT 1	ALT 2	ALT 3*	ALT 4
	NO BUILD	HOV 2+ ADD LANE	HOT 3+ CONVERT GP LANE	HOT 3+ ADD LANE
Vehicle Miles Traveled (VMT) on Corridor				
Vehicle Miles Traveled (VMT) in Study Area				
Vehicle Hours of Delay (VHD)				
Person Throughput				
Total GP Lanes Travel Time				
Total HOV/Express Lanes Travel Time				

*Alternative 3 includes Express Bus Service

	Very Good
	Good
	Fair
	Poor

PURPOSE & NEED - ALTERNATIVES MATRIX				
PURPOSE	ALT 1 NO BUILD	ALT 2 HOV 2+ ADD LANE	ALT 3 * HOT 3+ CONVERT GP LANE	ALT 4 HOT 3+ ADD LANE
1. Encouraging carpooling and transit use	Poor	Good	Fair	Very Good
2. Improve travel time reliability for HOV/Express Lane users	Poor	Good	Fair	Very Good
3. Increase person throughput (number of people moved)	Poor	Good	Good	Very Good
4. Apply technology and/or design features to help manage traffic	Poor	Fair	Fair	Very Good
5. Reduce congestion in the corridor	Poor	Fair	Poor	Good
6. Minimize operational degradation of general purpose lanes	Poor	Good	Poor	Very Good
Reduce local road impacts	Poor	Very Good	Poor	Very Good

*Alternative 3 includes Express Bus Service

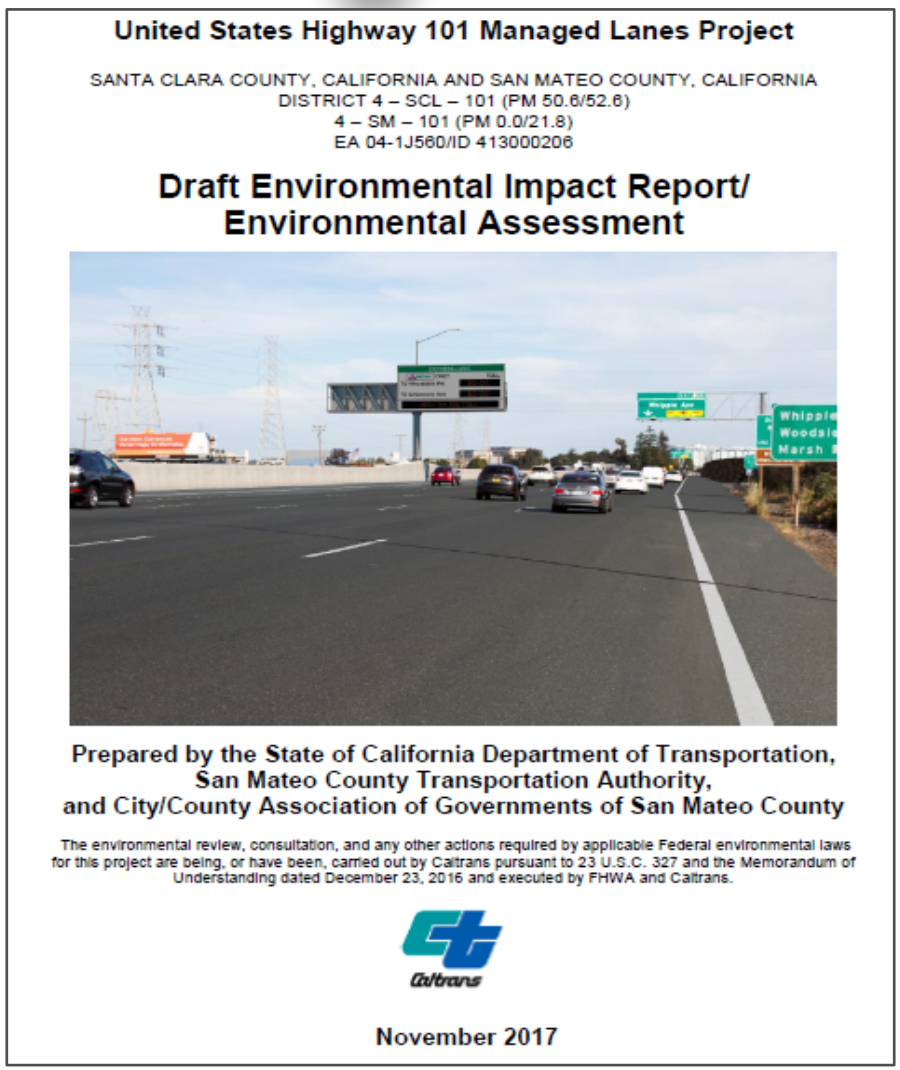
Very Good	
Good	
Fair	
Poor	

TRAFFIC ANALYSIS CONCLUSION

- Alternatives 2 and 3 do not meet the purpose of the project.
- They have been set aside from further analysis.
- The Draft Environmental Document carries only Alternatives 1 and 4 through complete analysis.

Draft Environmental Document

Summarized outcomes



United States Highway 101 Managed Lanes Project

SANTA CLARA COUNTY, CALIFORNIA AND SAN MATEO COUNTY, CALIFORNIA
DISTRICT 4 – SCL – 101 (PM 50.6/52.6)
4 – SM – 101 (PM 0.0/21.8)
EA 04-1J560/ID 413000206

Draft Environmental Impact Report/ Environmental Assessment

Prepared by the State of California Department of Transportation, San Mateo County Transportation Authority, and City/County Association of Governments of San Mateo County

The environmental review, consultation, and any other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 U.S.C. 327 and the Memorandum of Understanding dated December 23, 2016 and executed by FHWA and Caltrans.

November 2017

- **Changes limited primarily to the freeway**
  - Adds new lanes between Whipple Ave. and I-380
  - Achieves widening mostly within existing right-of-way
  - Adds needed width by realigning frontage roads
  - Relocates some soundwalls to accommodate freeway realignment
  - No residential or business acquisitions
  - No additional soundwalls

- No widening is proposed south of Whipple Avenue
- New signage and lighting throughout corridor
- Monte Diablo Avenue Pedestrian/Bicycle Overcrossing will require reconstruction
- Evaluated construction and operation impacts

Realigned northbound soundwalls in San Mateo

- S. Bayshore Blvd. between Kehoe and Third
- S. Bayshore Blvd. between Third and Dore
- S. Bayshore north of Dore

Realigned southbound soundwalls in Burlingame and San Mateo

- Rollins Rd. south of Broadway
- N. Amphlett before E. Poplar
- N. Amphlett south of E. Poplar

Example: relocated wall at Bayshore Blvd. and Newbridge Ave., City of San Mateo

- **Visual Impacts identified**
  - **There will be some ramp realignments that require vegetation removal**
  - **Toll pricing signs will be placed in the median**
  - **Additional highway lighting throughout the corridor**

Example of ramp realignment at southbound off-ramp at Holly Street, San Carlos

OTHER FINDINGS

- **Air Quality:** Not a project of air quality concern for particulate matter emissions - Bay Area Air Quality Conformity Task Force
- **Greenhouse Gas Emissions:** Potential temporary increase during construction. Emissions would improve in the Opening and Design Years when compared to Existing Conditions.
- **Wetlands:** Less than one acre of permanent and temporary impacts to wetlands
- **Species Habitat:** Less than ½ acre of impacts to sensitive biological habitat
- **Water Quality Impacts:** Must capture and filter runoff
- **Community Impacts:** Studies indicate that Express Lanes are used by all income groups

COST ESTIMATE

	in $ millions
Environmental Clearance	**$ 21.0**
Design	**$ 38.0**
Right of Way Support	**$ 2.0**
Right of Way Capital	**$ 17.2**
Construction Management	**$ 41.0**
Capital Construction	**$ 414.8**
	$ 534.0

SM 101 MANAGED LANES PROJECT

SHORT TERM SCHEDULE

- FasTrak® requirement improves enforcement
- Automated for toll evasion: if no toll tag, license plate cameras used to send vehicle owner a violation notice (like at bridges)
- Manual for HOV occupancy: beacons show CHP who is toll-free; web portal for tag look-up
- CHP enforcement contract

Questions?

Tolling System Roles Assessment

TOLLING SYSTEM TIMING

- **October –** provide information to Board regarding toll operation and roles
- **November –** discuss tradeoffs between owner/operator options
- **December/January –** decide on owner/operator
  - **Early 2018 –** project team determines toll system requirement
  - **Spring 2018 –** anticipated start of final design process; toll system manager in place to ensure system integrator designs toll system as required
- **Late 2018 –** operation policy decisions

TOLLING SYSTEM ROLES

- **Facility Owner (an Agency)**
  - Owns tolling equipment and related highway improvements
  - Sets tolling policy and rates
  - Budgets and pays for the operation, maintenance and liabilities of the facility
  - Distributes revenues
- **Facility Operator (an Agency)**
  - Manages the day-to-day operation of the facility on behalf of owner
  - Ensures that the system is maintained
- **Toll System Manager (a Consultant)**
  - Defines toll system requirements
  - Oversees Toll System Integrator to ensure requirements are met
- **Toll System Integrator (a Contractor)**
  - Designs and implements the Toll System according to the requirements
  - Supports operation of the Toll System for year 1 under warranty

- **Decide on the Owner from:**
  - Santa Clara Valley Transportation Authority [SB 595 enabling legislation]
  - Bay Area Infrastructure Finance Authority [MTC]
  - San Mateo agency to be formed [legislation required]

- **Select the Operator from:**
  - Santa Clara Valley Transportation Authority [SB 595 enabling legislation]
  - Bay Area Infrastructure Finance Authority [MTC]
  - San Mateo agency to be formed [legislation required]

SM 101 MANAGED LANES PROJECT

OWNER/OPERATOR OPTIONS - COMPARISONS

Santa Clara Valley Transportation Agency	Metropolitan Transportation Commission	San Mateo agency to be formed
SB 595: VTA authority as owner/operator for US 101 in San Mateo County in coordination with C/CAG & SMCTA	BAIFA oversees planning, financing, construction & operation of express lanes	C/CAG & TA would need to agree on how to form such an partnership
VTA operates 11 miles of SR 237 since 2012	BAIFA is joint powers authority between MTC & the Bay Area Toll Authority	Secure State sponsor & seek legislation to provide authority to the joint partnership
Express lanes in Santa Clara County expected 2021 - continuity when ML are operational in San Mateo	MTC operates I-680; started in 2017	Process: 1+ years (assuming legislation will pass)
VTA has a system manager (VTA staff) and a system integrator (TransCore)	MTC has contracts in place for system manager & system integrator (TransCore)	Will need to secure contracts for system manager & system integrator

COMPARISON OF THE OPTIONS

	VTA	MTC	San Mateo
Continuity of operations	✓		✓
Experience of the owner/operator	✓	✓	
Financial independence / Bonding capacity	TBD	TBD	✓
Available Now	✓	✓	

25 OPERATING HIGH-OCCUPANCY TOLL FACILITIES

FACILITIES STUDIED

Seattle, WA
20 lane-miles (1 lane each dir.)

Alameda/Santa Clara Co.
14 lane-miles (1 lane SB)

Alameda Co.
36 lane-miles (1 lane WB, 2 lanes EB)

Santa Clara Co.
8 lane-miles (1 lane each dir.)

Los Angeles, CA*
56 lane-miles (2 lanes each dir.)

Los Angeles, CA
44 lane-miles (2 lanes each dir.)

Orange/Riverside Co.
72 lane-miles (2 lane each dir.)

San Diego, CA
80 lane-miles (1 lane each dir. + 2 reversible)

Minneapolis, MN*
36 lane-miles (1 lane each dir.)

Houston, TX*
48 lane-miles (2 lanes each dir.)

Atlanta, GA
32 lane-miles (1 lane each dir.)

Miami, FL*
84 lane-miles (2 lanes each dir.)

*New HOT lanes were created via widening or restriping. All other facilities are converted HOV lanes

Questions?