SM 101 EXPRESS LANES PROJECT

Express Lanes Financial Projections

SMCELJPA Board Meeting, February 21, 2020

- Overall Project Schedule
- Decision on Single or Dual Opening
- Financial Projections
- Next Steps

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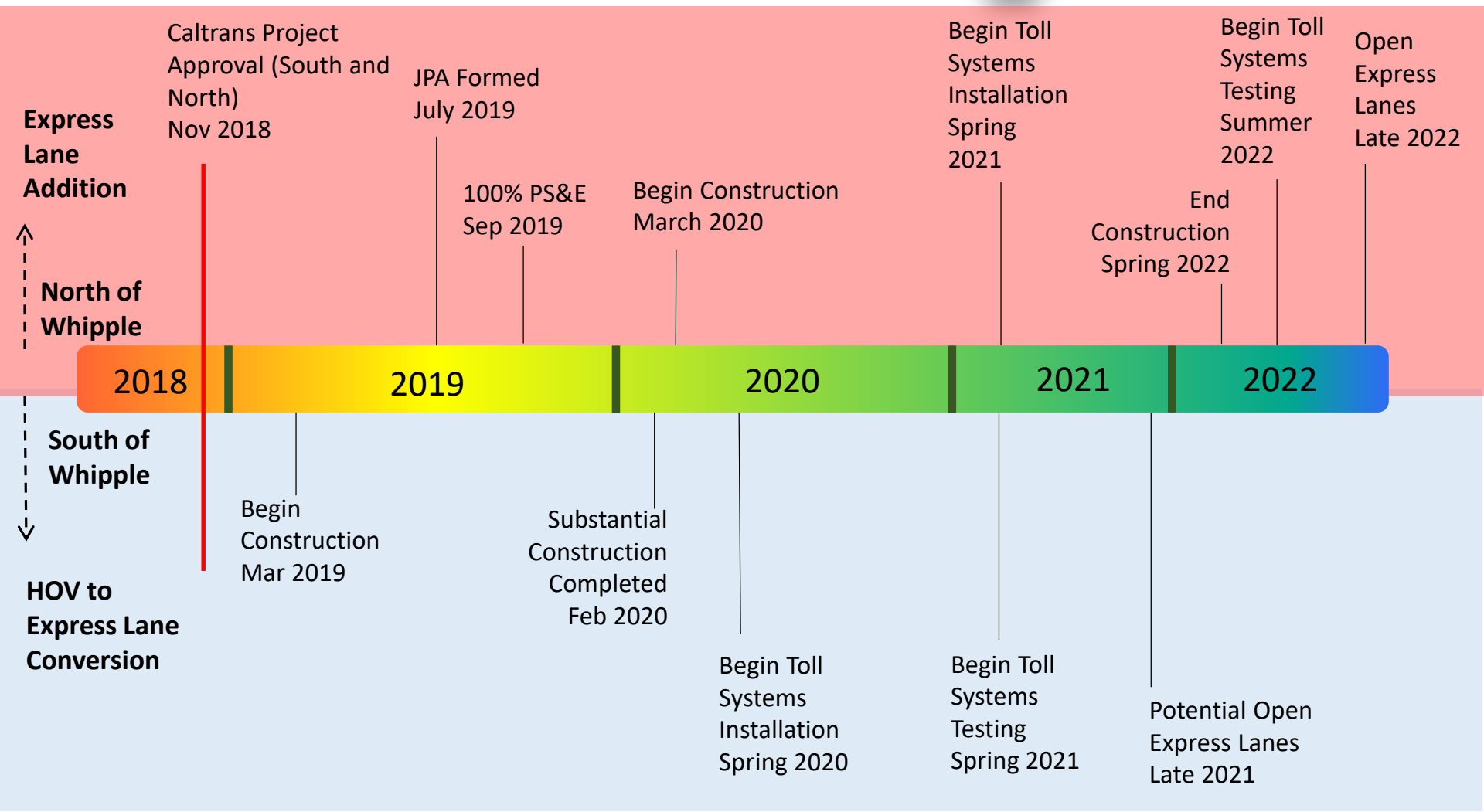
PROJECT UPDATES



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SM 101
EXPRESS LANES PROJECT
PROJECT LIMITS

WHY CONSIDER AN EARLY OPENING?

- Proof of concept
- Timed with the opening of VTA's 101 Express Lanes Project
- Early identification of issues

WHY DECIDE NOW?

- Initiate and issue the necessary design and construction contract change orders (Civil and Transcore) to keep project on schedule
- Help to determine when the SM 101 EL Equity Study needs to be completed
- Begin timely public outreach

Benefits From Early Opening

- Potential for first year operating revenues
- Ability to manage the lane more efficiently with increased person throughput
- Encourage travel mode shift earlier
- Test revenue projections with actual operation
- Goodwill with private sector partners
- Early market penetration of FasTrak® in the corridor
- Early issue identification for more cost-effective resolution
- Early mitigation of risks
- Early driver adoption
- Timed with opening with VTA's Express Lanes

Possible Delays that Prevent Early Opening

- Contingent on VTA being able to open late 2021
- TransCore's ability to meet the schedule requirement
- MTC's ability to staff back office operations
- Required O&M agreements with Caltrans & BAIFA/Transcore not executed in time

Risks From Early Opening

- Potential for first year operating loss
- Congestion reduction in the general purpose lanes may not be obvious
- Adverse early reaction to the conversion from 2+ HOV to 3+ HOV
- Potential for extended warranty cost

Summary Findings

- Financial investigations for an early opening (south of Whipple in late 2021) indicate the potential for up to $7.6 M in operating revenues or an operating loss of up to ($4.8 M)
- Strong qualitative benefits support an early opening and the risk of an operating loss is low compared to the opportunity for excess net revenue
  - Proof of concept – early adoption of use
  - Early identification of issues
  - Timed with the opening of VTA's express lanes

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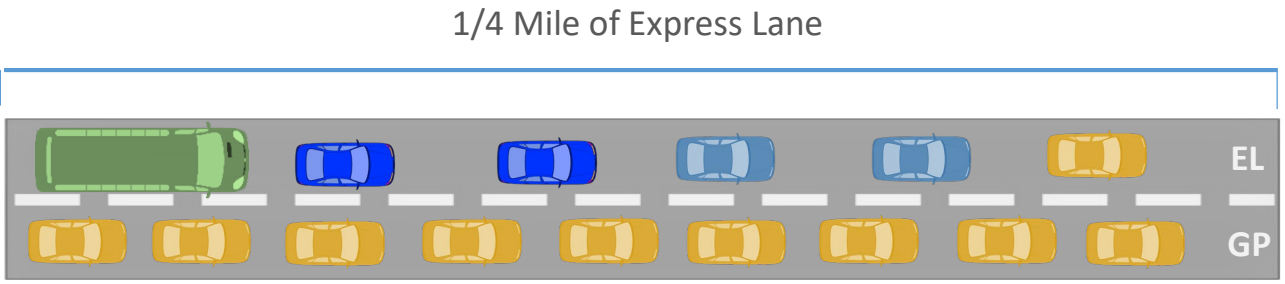
DEFINITIONS

Gross Revenue	Projected total revenue from the express lanes
Post-Processing Adjustments	Adjustments to the gross revenue projections that reflect violators using the lane, unknown toll policies, and other factors
Operation and Maintenance (O&M) Costs	Estimate of costs to operate and maintain an express lane
Excess Net Revenue	Amount of money remaining after accounting for post-processing adjustments, debt service, O&M costs, and rehabilitation
Shear Speed	The speed differentials that exist between the express lanes and the adjacent general purpose lane

Shear Speed Considerations



- Shear Speed = Speed differential between the two lanes

Why Shear Speed is a consideration:

- A lower speed differential between the EL and GP lanes may factor into a motorists unwillingness to utilize the express lane which could impact the forecasted annual gross revenue
- The toll algorithm will adjust toll rates to account for volumes, density, and speed in between the EL and GP Lanes, but the motorists behavior is a factor that cannot be explicitly determined
- Revenue for a 10, 20, and 30 MPH shear speed constraint were investigated to better understand the range of potential revenue

Notes:

- The shear speeds are applied as a post-processing adjustment to the revenue projections

ANNUAL GROSS REVENUE ESTIMATE – RECAP
Full Corridor (costs presented at Nov. 2018 Board Meeting)

	Total (Nov. 2018)*	Total (without SCL Segment)*
Estimate of gross revenue with maximum throughput (Makes optimum use of the lane)	$41.2 M	$38.1 M
Estimate of gross revenue with revenue maximization (Emphasizes the value of time in the pricing choices)	$49.2 M	$45.5 M
Assumed gross revenue = average of high and low values	$45.2 M	$41.8 M

Revenue Assumptions

- HOV 3+ vehicles will use the lane for free.
- HOV 2 and Clean Air Vehicles (CAVs) will be half-priced.
- The facility will operate from 5am to 8pm.
- The maximum toll rate will be set at $3/mile.
- Includes an operating segment located within Santa Clara (SCL) County

*Assumed 10 mph shear speed differential (post-processed)

Post-Processing Adjustments

The Toll Optimization Model (TOM) cannot model all driver behavior, so the gross revenue is adjusted to account for the following:

Post-Processing Adjustments	Gross Revenue Adjustments	
	Low end	High end
Anticipated cheaters of the system	-5%	-10%
Revenue loss due to HOV-only mode time periods	-5%	-20%
Toll zone based tolling inefficiencies*	-15%	-20%

* Post-processing adjustments for toll zone based tolling inefficiencies presented at the Nov. 2018 Board meeting varied from -3% to -5%.

ANNUAL EXCESS NET REVENUE ESTIMATES RECAP
Full Corridor (costs presented at Nov. 2018 Board Meeting)

	Low Level Loss (In $M)	High Level Loss (In $M)
Average Gross Revenue of TOM runs	$45.2	$45.2
Post-processing adjustment range		
Anticipated cheaters of the system	($2.3)	($4.5)
Revenue loss due to HOV-only mode time periods	($2.3)	($9.0)
Toll zone based tolling inefficiencies	($1.2)	($2.3)
Subtotal	**$39.4**	**$29.4**
Operations and Maintenance Costs	($18.7)	($19.8)
Approximate Annual Excess Net Revenue	**$20.4**	**$9.6**

Note: The shear speed is treated as a post-processing adjustment to the average gross revenue projections.

Basis for Early Opening Forecast

What has been done to evaluate the forecasted annual toll revenue for an early opening?

- No new demand estimates and no new run of the model
- TOM results split into respective south and north contract limits
- No explicit treatment of access/egress constraints for start and finish at Whipple
- Updated speed differentials and post processing adjustments
- Refinements made to the assumed tolling segments in the model

Shear Speed Influence on Revenue

Further evaluation of the forecasted annual gross revenue considering shear speed constraints

- Post-processing adjustments were applied to the TOM results to further evaluate shear speed impacts.
- Two distinct shear speeds were evaluated: 10 mph and 20 mph

	10 mph Shear Speed Constraint	20 mph Shear Speed Constraint
Second Opening (North of Whipple)		
Estimate of gross revenue with maximum throughput	**$38.1 M**	**$53.4 M**
Estimate of gross revenue with revenue maximization	**$45.5 M**	**$71.1 M**
Early Opening (South of Whipple)		
Estimate of gross revenue with maximum throughput	**$14.9 M**	**$22.1 M**
Estimate of gross revenue with revenue maximization	**$18.3 M**	**$28.9 M**

Early Opening Gross Revenue Estimate

	10 mph Shear Speed Constraint	20 mph Shear Speed Constraint
Estimate of gross revenue with maximum throughput (Makes optimum use of the lane)	$14.9 M	$22.1 M
Estimate of gross revenue with revenue maximization (Emphasizes the value of time in the pricing choices)	$18.3 M	$28.9 M
Assumed gross revenue = average of high and low values	$16.6 M	$25.5 M

Revenue Assumptions

- HOV 3+ vehicles will use the lane for free.
- HOV 2 and Clean Air Vehicles (CAVs) will be half-priced.
- The facility will operate from 5am to 8pm.
- The maximum toll rate will be set at $3/mile.
- Does not include an operating segment located within Santa Clara County

Early Opening Annual O&M Cost Estimate

	10 mph Shear Speed Constraint (In $M)	20 mph Shear Speed Constraint (In $M)
Annual Toll Processing and Violation Review Costs*	$1.4 - $2.3	$1.6 - $2.6
Annual Financial Processing Costs	$0.5 - $0.6	$0.5 - $0.6
Annual Toll System Contractor O&M Costs	$2.9 - $3.0	$2.9 - $3.0
Annual Roadway Maintenance Costs	$0.9 - $1.6	$0.9 - $1.6
Annual CHP Enforcement in Field	$0.5	$0.5
Subtotal	**$6.2 - $7.9**	**$6.4 - $8.2**
10% Contingency	$0.6 - $0.8	$0.6 - $0.8
Total Estimated Annual Operating Costs	**$6.8 - $8.7**	**$7.0 - $9.0**

* Transaction and violation costs are based on an estimated number of vehicles in the express lane.

Early Opening Annual Excess Net Revenue Estimates

	10 mph Shear Speed Constraint (In $M)	20 mph Shear Speed Constraint (In $M)
Average Gross Revenue of TOM runs	**$16.6**	**$25.5**
Post-processing adjustment range		
Anticipated cheaters of the system	$0.8 - $1.7	$1.3 - $2.6
Revenue loss due to HOV-only mode time periods	$0.8 - $3.3	$1.3 - $5.1
Toll zone based tolling inefficiencies	$2.5 - $3.3	$3.8 - $5.1
Subtotal	**$4.1 - $8.3**	**$6.4 - $12.8**
Operations and Maintenance Costs	$6.8 - $8.7	$7.0 - $9.0
Revenue ramp-up loss	$0.4 - $0.5	$0.6 - $0.7
Capital Costs For Early Opening Tasks	$3.9	$3.9
Subtotal	**$11.1 - $13.1**	**$11.5 - $13.6**
Approximate Annual Excess Net Revenue	**$1.4 – ($4.8)**	**$7.6 – ($0.9)**

Full Corridor Annual Excess Net Revenue Estimates (in $M)

	10 mph Shear Speed Constraint (Nov. 2018)	20 mph Shear Speed Constraint (Jan. 2020)
Average Gross Revenue of TOM runs	**$45.2**	**$62.3**
Post-processing adjustment range		
Anticipated cheaters of the system	$2.3 - $4.5	$3.1 - $6.2
Revenue loss due to HOV-only mode time periods	$2.3 - $9.0	$3.1 - $12.5
Toll zone based tolling inefficiencies	$1.2 - $2.3	$9.3 - $12.5
Subtotal	**$5.8 / $15.8**	**$15.5 / $31.2**
Operations and Maintenance Costs	$18.7 - $19.8	$9.8 - $13.3
Revenue ramp-up loss	N/A	$1.3 - $1.8
Capital Costs For Opening Tasks	N/A	$1.9
Subtotal	**$18.7 / $19.8**	**$13.0 / $17.0**
Approximate Annual Excess Net Revenue	**$20.4 / $9.6**	**$33.3 / $14.1**

RECAP

- Financial investigations for an early opening (south of Whipple in late 2021) indicate the potential for up to $7.6 M in operating revenues or an operating loss of up to ($4.8 M)
- Strong qualitative benefits support an early opening and the risk of an operating loss is low compared to the opportunity for excess net revenue
  - Proof of concept – early adoption of use
  - Early identification of issues
  - Timed with the opening of VTA's express lanes

NEXT STEPS

- Receive input from Board regarding financial projections at the February 2020 meeting
- Return with any other information needed at the April 2020 meeting so Board can decide whether to proceed with an early opening to make timely adjustments to the capital project schedule to accommodate the decision

Questions?

Stay informed -

sign up to receive construction updates by e-mail.

https://dot.ca.gov/caltrans-near-me/district-4/d4-projects/d4-san-mateo-101-express-lane-project