CalMod Local Policy Maker Group (LPMG)

Thursday, November 20, 2014
6:00 PM – 7:30 PM
SamTrans Offices - Bacciocco Auditorium 2nd Floor
1250 San Carlos Ave., San Carlos

Agenda

1. JPB Staff Report

2. Information/Discussion
    a. CalMod Cost and Schedule Update – (Attachment A)

3. Public Comments

4. LMPG Member Comments/Requests

5. Next Meeting In-person: December 11, 2014 at 6:00pm*
   *potential date change to be discussed at the meeting

Memorandum

Date: November 20, 2014

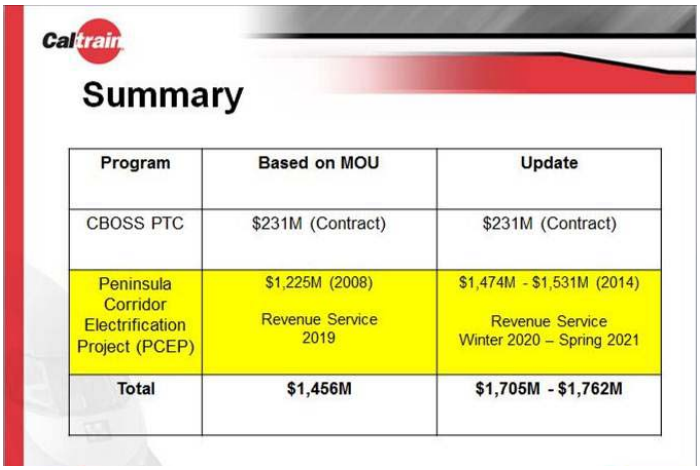
To: CalMod Local Policy Maker Group (LPMG)

From: Marian Lee, CalMod Executive Officer

Re: **Peninsula Corridor Electrification Project Cost/Schedule Update**

At the November JPB meeting, CalMod staff provided an update on the projected cost and schedule for the Peninsula Corridor Electrification Project (PCEP), which includes Caltrain electrification and the purchase of new electric vehicles. The LPMG will receive the same presentation.

In 2008 (based on 35% design), the PCEP estimated cost was $1.23B. The cost update shows the PCEP estimated cost at $1.47 billion to $1.53 billion. The updated revenue service schedule is estimated to be winter 2020 to spring 2021. The original projection for the electrified service was winter 2019.



Summary

Program	Based on MOU	Update
CBOSS PTC	$231M (Contract)	$231M (Contract)
Peninsula Corridor Electrification Project (PCEP)	$1,225M (2008) Revenue Service 2019	$1,474M - $1,531M (2014) Revenue Service Winter 2020 – Spring 2021
Total	**$1,456M**	**$1,705M - $1,762M**

With the updated PCEP cost and unchanged CBOSS PTC at $231M, the total Caltrain Modernization (CalMod) Program is estimated at $1.71 billion to $1.76 billion compared to ($1.46 billion).

Attachment A

The increased PCEP cost is a result of inflation, updated industry information, additional engineering and an analysis of the challenges associated with constructing the project while also maintaining train service that continues to see dramatic increases in ridership demand. The range in cost and schedule reflects scope reductions and deferments under consideration.

In 2012, nine local, state and regional entities agreed to fund the Caltrain Modernization Program, which at that time was estimated to be ~$1.5 billion. Caltrain is now working with its regional, state and federal funding partners to explore opportunities to secure additional investments needed to complete the program. Additional funding opportunities include California's cap-and-trade program, FTA's Vehicle Replacement and Core Capacity programs, regional bridge toll program and Caltrain fare. Caltrain financing and/or TIFIA loan would also help address the funding gap and meet cash flow needs.

While the funding plan is being updated with additional commitments, the program continues to advance. The CBOSS PTC is being installed, tested and targeted for revenue service by the end of 2015. The Final Environmental Impact Report for the Peninsula Corridor Project is targeted for certification in January 2015. The Request for Proposals (RFPs) for electrification and vehicles are being prepared for release in 2015.

It is important to know that Caltrain has been asked by several stakeholders to explore different vehicle options that would support shared platforms with HSR trains in the future. Before the vehicle RFP is issued, Caltrain/HSR staff will conduct technical analysis to identify alternative Caltrain vehicle options to inform the vehicle RFP.

An update on the technical analysis will be included in the staff presentation.

Here is a link to the Caltrain press release about the cost/schedule update:
http://www.caltrain.com/Assets/Caltrain+Modernization+Program/Electrification/Caltrain+Updates+Cost+and+Schedule+for+Electrification+Project.pdf

Peninsula Corridor Electrification Project

Cost / Schedule Update

LPMG Meeting
November 20, 2014

Context

- Caltrain/high-speed rail blended system
  - Primarily 2 track system
  - Minimize impacts
  - Shared system
- HSR early investment strategy
  - Advanced Signal System (CBOSS PTC)
  - Peninsula Corridor Electrification Project
- Blended System (additional improvements)
  - Downtown SF extension
  - Core Capacity Improvements

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Funding Partners

- 9-party Regional Funding MOU (2012)
- $1.5 billion
- Partners
  - CA High Speed Rail Agency
  - Metropolitan Transportation Commission
  - Peninsula Corridor Joint Powers Board
  - San Francisco
  - San Francisco County Transportation Authority
  - San Jose
  - Santa Clara Valley Transportation Authority
  - San Mateo County Transportation Authority
  - Transbay Joint Powers Authority

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Partner Discussions

- State Support / MTC Leadership
- Funding Ideas
  - JPB Financing / TIFIA Loan
  - JPB Fare
  - Regional Measure 2
  - State Cap & Trade
  - FTA Core Capacity
  - FTA Vehicle Replacement

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Electrification Project

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Key Elements

- 51+ miles corridor electrification
- ~75% diesel vehicle to EMUs (96)
- 2040 ridership forecast: 100,000 (weekday)
- More service / improved performance
  - Restore service
  - Increase peak and non-peak service
  - More station stops/reduced travel time

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Process / Method

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Update Approach

- Detailed analysis of project affect on customers
- Consideration of reliability of service with aging fleet
- Efficient cost-effective construction process
- Changes in cost factors since 2008 cost estimate

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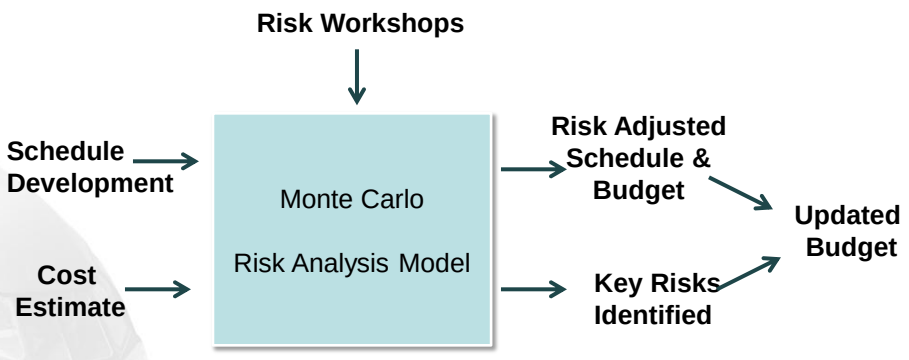
Reexamination Process



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Integrated Program Schedule

Schedule Scenarios

Scenarios	Schedule Assumption	Non-peak Headways	Revenue Service Date	Variance
A	**Worst Case** - OCS installation performed in geographical sequence - Most restrictive work windows with restriction on long zones, 54-hour weekend single track - Initial Design Durations	60-minute Headways	December 2024	+$340M
B	**Changes to establish base line schedule** - Split into 4 work areas for OCS installation with restriction on 8 long zones, 54-hour weekend single track with extensive blackout periods - Revised Design Durations by 12 months	60-minute Headways	February 2023	+$232M
C	**Refinements to base line schedule** - Concurrent work areas, 54-hour weekend single track with less stringent blackouts limited to pre- through post-event times, restricted 8 long zones - Revised workflow sequence to get to Segment 4 testing sooner breakout of testing by segment	60-minute Headways	July 2022	+$230M
D	**Refinements to Scenario C** - Segment boundaries modified to balance OCS workflow - Remove restriction on 8 zones with 90-minute headway - Further refinements to testing - Revision to OCS procurement duration by 6 months	90-minute Headways	April 2021	Baseline

Electrification Work Segments

- Segment Boundaries
  - Segment 1 (MP 0.2 to MP 8.0)
  - Segment 2 (MP 8.0 to MP 29.1)
  - Segment 3 (MP 29.1 to MP 44.5)
  - Segment 4 (MP 44.5 to MP 51.1)
- Work Direction
  - Two concurrent, not adjacent work areas
  - Working south to north starting with segments 4 and 2

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Schedule: Scenario D

ACT	DESCRIPTIOINS	Y	2014			2015				2016				2017				2018				2019				2020				2021			
		Q	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
PCEP with EMU																																			
1	Environmental Planning																																		
2	Permit and Approvals																																		
3	DB Procurements and Award																																		
4	Design/Engineering																																		
5	Material and Equipment Delivery																																		
6	Vehicle Manufacturing and Delivery																																		
7	Construction/Installation																																		
8	Testing and Start Up																																		
9	Operational Readiness Phase																																		
10	Revenue in Service																																		

Start OCS Construction	**March 2016**
EMU Pilot Train Set Delivered	**September 2018**
Last EMU Delivered	**July 2020**
Revenue Service Date	**April 2021**

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Contingency Analysis

Contingency Analysis: Method 1

Top 10 risks of 205 identified in Monte Carlo analysis shown below with a total of $70M within a calculated risk contingency of $168M.

Risk	Expected Value
TASI support and coordination (track access)	$21.8M
FTA requires ADA compliance at all stations	$10.5M
Risk associated with start-up and testing with operating system	$9.38M
Impact of electrical load flow study on traction power system	$4.95M
General impact of UPRR agreements	$4.95M
Increased tunnel modification costs	$3.75M
Delay of CBOSS / PTC Revenue in Service of 12-31-15	$3.75M
Inefficient sequencing of OCS construction due to access constraints	$3.75M
Insufficient time for integrated testing	$3.75M
Complex Agency internal review and decision making processes	$3.75M

Contingency Analysis: Method 2

Contingency calculated on individual program components with a total of $152M with $106M for Electrification and $46M for vehicles.

Element	Contingency
OCS/TPS (15%)	$53M
Vehicle cost (10%)	$46M
Signals (20%)	$22M
Communications (15%)	$1M
Utilities (15%)	$1M
Environmental (15%)	$4M
Real Estate (20%)	$6M
TASI Support (20%)	$12M
Owner's PM/CM (10%)	$8M

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Electrification Component Cost Update

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Electrification Estimate Basis

- Total re-evaluation of 2008 cost estimate
- Quotes from manufacturers
- Productivity rates from like projects in the North East Corridor
- Labor adjustments for night work/active railroad/type of work
- Local labor rates
- Industry standards
- Revenue service date April 2021
- 3% annual escalation

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Electrification Project Elements

Program Element	$ Estimate
Contractors includes DB Incentive	$628M
Utilities, Real Estate, TASI	$103M
Owner's Management Oversight	$100M
Contingency	$106M
Previous Electrification Project Phase Actuals	$21M
Total	**$958M**

Note: $785 million (2008)

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Electrification Cost Drivers

Description	$ Change
Wayside Signal (Escalation and Scope)	+$85M
TPS (Escalation)	+$45M
OCS (Escalation)	+$75M
Environmental Mitigation & Real Estate (Scope)	+$40M
Communication (Scope decrease)	-$15M
Contingency, Escalation, Owner's Costs (Reallocation)	-$87M
Power Control Center, CEMOF, Incentives	+$30M
Net Variance	**+$173M**

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Electrification Scope Reduction

Schedule: From April 2021 to December 2020

Considerations	
Eliminate Electrification of UP MT-1 and Controlled Siding, from Santa Clara to south of Tamien	$13.0M
Eliminate Electrification beyond Michael Yard south of Tamien	$5.3M
Revise Design Concept to shared pole foundations for Guy-Wires	$5.5M
Reduce Owner's Oversight resulting from above reductions	$3.8M

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Electrification Scope Change

Considerations	
Defer Electrification of Michael Yard south of Tamien	$ 5.0M
Defer Electrification - San Francisco Yard – all storage tracks	$ 1.8M
Reduced Owner's Oversight based on deferral of above	$1.2M

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Funding Partner Considerations

- Increase escalation from 3% to 3.5% to 4%:
  - Recommend no change
  - Local escalation has been less that 3% for past 5 years
- Add management reserve:
  - Change made and included in cost estimate
  - Add 3% ($28M)
- Increase weekend shutdowns from 3 to 30
  - Recommend no change
  - Change would result in reduction in schedule by less than one week with negligible change in cost

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Summary

Schedule	April 2021	December 2020
Program Elements	**Base**	**Adjusted**
Contractors includes DB Incentive	$628M	$597M
Utilities, Real Estate, TASI	$103M	$103M
Owner's Management Oversight	$100M	$95M
Contingency	$106M	$106M
Previous Electrification Project Phase Actuals	$21M	$21M
Management Reserve	$0M	$28M
Total	**$958M**	**$950M**

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Vehicles (EMUs)

Based on in-service bi-level EMU with 25" floor threshold

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Vehicle Elements

Program Element	$ Estimate
Vehicle Manufacturer 96 vehicles	$458M
TASI	$4M
Owner's Management Oversight	$65M
Contingency	$46M
Total	**$573M**

Note: $440 million (2008)

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Vehicle Cost Drivers

Description	$ Change
Vehicle Cost	+$118M
Test Equipment and Spare Parts	+$12M
Mock up	+$1M
CBOSS PTC	+$3M
Contingency, Escalation, Owner's Costs	-$5M
TASI and Commissioning facility	+$4M
Net Variance	**+$133M**

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Vehicle Scope Reduction

Considerations	
Defer purchase of one 6-car (EMU protect) train set for North Terminal / Off set need by purchase of 3 used electric locos	$20M
Reduce amount of spare parts plus test equipment from 10% to 5% (Incorporate balance of spare parts into separate maintenance contract)	$21M
Reduce staff support costs associated with EMUs	$ 8M
TOTAL EMU CONSIDERATIONS	**$49M**

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Vehicle Program

Program Element	Base	Adjusted
Vehicle Manufacturer	$458M	$415M
TASI	$4M	$4M
Owner's Management Oversight	$65M	$57M
Contingency	$46M	$46M
Total	**$573M**	**$524M**

Note: Funding partner consideration to add management reserve – not recommended given current vehicle pricing

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Next Steps

Key Tasks

- Certify FEIR
- Complete analysis of cost reduction measures
- Conduct shared platform analysis/conclude decision on future boarding height
- Update funding plan
- Recommendation to JPB
- Issue Electrification DB RFP and Vehicle RFP

Shared Platform Analysis

- Current approach
  - HSR at 50” / Caltrain at 25” boarding height
  - Dedicated platforms at 3 – 5 stations
- Consider alternative vehicles to achieve same boarding height
- Key Considerations
  - Trade offs (ex. capacity, performance, operations)
  - Compatibility with current 8” platform
  - Compatibility with existing diesel fleet (interim period)
  - Compatibility with existing tenants and freight
  - Regulatory CPUC and ADA requirements
  - Station modifications with 50” versus 25” platforms

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Q/A

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