Santa Clara Valley Transportation Authority

MEMORANDUM

FROM: Chief Capital Megaprojects Delivery Officer, Tom Maguire

DATE: July 15, 2025

SUBJECT: VTA Staff Summary of December 18, 2024 Value Engineering (VE) Workshop with FTA/PMOC

BACKGROUND:

On December 18, 2024, an all-day Value Engineering (VE) workshop was held with Federal Transit Administration (FTA) and their Project Management Oversight Consultant (PMOC) to review cost saving ideas related to VTA's BART Silicon Valley Phase II Extension Project. This included discussions on environmental, technical and stakeholder considerations to ensure concepts are within established guardrails and can be advanced within an appropriate timeline to achieve a Full Funding Grant Agreement (FFGA). VTA, FTA and the PMOC also conducted a brainstorming session to discuss other ideas that may result in additional savings, however, would require further technical evaluation.

VTA staff prepared the attached meeting notes (Attachment A) after the session, which summarized the various topics discussed, along with key comments and observations made during the meeting. Staff is available to further discuss or respond to any follow-up questions as necessary.

Santa Clara Valley Transportation Authority

AGENDA

VTA's BART Silicon Valley Phase II (BSVII) – Value Engineering (VE) Workshop

DATE AND TIME	ATTENDEES	REPRESENTING
December 18, 2024 9:00am to 5:00pm	Susan Ko (I)	FTA
	Jessica Brown (I)	FTA
	Dee Phan (I)	FTA
	Claudia Russell (V)	FTA
	Muhammad Tahir Khattak(V)	FTA
	Murat Omay (V)	FTA
	Nadeem Tahir (I)	PMOC - AtkinsRéalis
	Emile Jilwan (I)	PMOC - AtkinsRéalis
	Jessica Fulton (V)	PMOC - AtkinsRéalis
	Laurel Espenlaub (V)	PMOC - AtkinsRéalis
	Tom Maguire (I)	VTA
	Monica Born (I)	VTA
	Krishna Davey (I)	VTA
	Kevin Kurimoto (I)	VTA
	Rosemarrie Gonzalez (I)	VTA
	Ronak Naik (I)	VTA
	Charles Morganson (I)	VTA
	Bernice Alaniz (V)	VTA
	Erica Roecks (I)	VTA
	Brent Pearse (I)	VTA
	Adriano Rothschild (V)	VTA
	Samantha Swan McCleary (I)	VTA
	Mark Ramsey (I)	VTA
	Mike Lehnen (I)	VTA
	John Caufield (V)	VTA
	Erik Blum (V)	VTA
	Greg Thiebaut (I)	VTA
	Andrew Fernandez (V)	VTA
	Matt Shipman (V)	VTA
	Gary Kennerley (V)	VTA
	Jorge Martinez (V)	VTA
	Blair Titcomb (V)	VTA
	Derick Penrice (I)	VTA
	Joe Bayat (V)	VTA
	Ken Denmead (V)	VTA
	Catherine Clinch (V)	PMOC - AtkinsRéalis
	Rosalinda Lopez (V)	VTA
	Brett Nuckols (I)	VTA
	Anthony Murphy (I)	VTA
	(I) – In-Person (V) – Virtual	
MEETING PLACE Hybrid Meeting In-Person: VTA Meeting Room Chesbro (FTA, PMOC, VTA) and Salt Pond (Overflow) @ De La Cruz Virtual: MS TEAMS		
MEETING NO 1		
MINUTES BY Jessica Fulton		

Introductions / Establishing framework for the VE Workshop: Funding capacity, Schedule, Contracting Strategy

- The purpose of the workshop is to address the funding gap through creative ideas for reducing project costs.
    - PMOC identified some cost saving ideas for discussion.
    - VTA identified cost savings ideas - categorized into two levels: Level 1 concepts have been advanced sufficiently to get a sense of potential savings. Level 2 concepts are less developed and not advanced enough to have cost estimates – for these, the goal is to confirm the direction in evaluating/advancing concepts further.
- VTA established a schedule for getting to the FFGA. VTA, FTA, and PMOC agreed that while schedule adherence is important, it is more important to develop the FFGA Readiness document for meaningful Risk Assessment. If the schedule needs to be adjusted, it is better to do so than to rush into Risk Assessment prematurely.

Cost Saving Candidates: Session 1 – 1.0 hour

Overview of Concepts Developed to Date

- VTA noted several Cost Savings Candidates have moved through the approval process such as Requests for Variances (RFVs) from BART. Concepts for which design advanced sufficiently (~30% design) have been or are being cost estimated.
    - Level 1 Cost Savings Candidates have been vetted enough to have confidence in advancing design.
    - RFVs approved or in process are uploaded to SharePoint site for PMOC.
- VTA noted that Level 1 Cost Savings Candidates stay within the guardrails of the project's environmental documents and would not require a Supplemental Environmental Impact Statement (SEIS).
    - FTA noted the desire to address environmental clearance for all concepts through a single re-evaluation. FTA recommended not pursuing revisions that would require a SEIS.
- PMOC noted the need to see original costs, new cost estimates, and total savings. Comparing apples-to-apples estimates allows PMOC to identify if cost savings are real.

BART Criteria/Requirements Assessment

- Potential for significant cost savings. Savings estimated at $187 million.
- The majority of RFVs identified for this item have already been signed by BART.
- Reduction in equipment needs impacts capital cost but also reduces long-term O&M costs.
    - PMOC noted that batteries are not easily eliminated/replaced and would like to see approval from BART & Fire Departments.
    - PMOC warned that reducing conduits can result in additional long-term costs. Long-term cable capacity needs should be provided for in the design to avoid larger cost of future retrofitting.
    - VTA confirmed that equipment reductions are being worked through with BART and consider future proofing capacity needs. VTA is not reducing features of functionality.

28th Street/Little Portugal Station Parking

- Station parking requirements would be met through the use of surface parking, eliminating the need for an 800-space parking garage. Savings estimated at $77 million.
    - FTA noted that NEPA/CEQA clearance of the revised parking configuration is not a major concern as it can be done through NEPA re-evaluation process.
    - FTA noted that additional savings may be realized if additional parking reduction can be pursued – noting that a project in Phoenix was able to reduce parking by 50%.

Station Design Refinement (28th Street/Little Portugal, Downtown San José, and Diridon)

- Refinements include the use of more cost-effective materials and optimizing use of space for Station Infrastructure Facilities (SIF) and SIF elements in vent shafts while maintaining opportunity for future TOD. Savings estimated at $68 million.

Owner-Supplied Materials

- VTA to supply rail. Savings estimated at $20 Million.
- PMOC noted owner-supplied materials could pose additional risk associated with schedule and need to account for contractor wastage.
- PMOC suggested coordinating with BART to see if materials can be acquired by the agency and replaced by VTA – this was done for Phase I where rail was used from BART's Hayward yard as needed and replaced later.

Brainstorming Session – 3.0 hours

- PMOC provided potential cost savings concepts for VTA consideration, noting that VTA should not try to do anything that sets schedule back multiple years, or has the potential to kill the project.
- The goal should be to reduce the schedule by 1 to 3 years and identify design revisions that could provide $1 billion to $3 billion in savings.
    - Cost estimates for concepts discussed during the brainstorming session have not been developed.
- VTA noted that even if concepts have been previously evaluated, the goal is to keep an open mind and see if there is an opportunity by revisiting these.

Single-Bore Tunnel Configuration

- PMOC noted that previous tunnel configuration had 48-foot external diameter, with a total of 37-feet of platform width between the two stacked platforms. The current design, which has 53-foot external diameter, provides 22-foot-wide platform. PMOC noted that they would not advise going below 30-foot width for center platforms.
- VTA confirmed that the current design was developed in coordination with BART and meets all applicable criteria, including National Fire Protection Association (NFPA) evacuation requirements.
- FTA asked how VTA's Tunnel and Trackwork contractor Kiewit Shea Traylor's (KST) tunnel optimization resulted in an increased tunnel diameter with a center platform, and how this larger tunnel diameter was expected to provide cost savings.
    - VTA noted that KST's optimization was to go with a larger tunnel that provided more consistent cross-section and offered the opportunity for much of the tunnel's track and supporting structures to be constructed using pre-cast concrete rather than relying on specialized cast-in-place segments that would be required for track transitions. As a result, this configuration also provided schedule savings. The larger diameter tunnel also provided optimizations to the ventilation system, allowing for the elimination of the mid-tunnel facilities.
    - VTA noted that the elimination of the mid-tunnel facilities provided cost savings in the hundreds of millions of dollars.
- PMOC suggested that if VTA wants to keep the current larger diameter, there should be consideration for keeping tracks at the lowest level within the tunnel. Tracks can be brought up to a higher level approaching the platforms, which can be accommodated within the maximum 4% slope. This could save costs by reducing structural support needed for the tracks within the tunnel.
    - PMOC asked whether it would be feasible to maintain stacked tracks/platforms at the Downtown San José Station, and transition to side-by-side tracks (with side platforms) at the Diridon Station.
    - VTA noted that there is not enough space between the Downtown and Diridon stations to transition between stacked and side-by-side configurations in this section.
- VTA will develop a cost comparison of 53- and 48-foot diameter tunnels.

30-foot Diameter Tunnel with cut-and-cover and/or SEM

- PMOC presented concept for a 30- to 35-foot diameter tunnel with a revised alignment that would facilitate cut-and-cover construction of the 28th Street/Little Portugal and Diridon stations. At the Downtown Station, side platforms could be provided through Sequential Excavation Method (SEM).
- PMOC noted that a smaller tunnel diameter requires less excavation and less muck. It could also be more shallow, reducing the depth of each of the station shaft excavations by as much as 60 feet.
- PMOC further noted that adopting a side platform/center track configuration provides the opportunity to further reduce tunnel diameter as there is no longer a dynamic or construction envelope. This configuration makes for a more efficient alignment with reduced length of crossovers, and straighter track alignment that also reduces operations and maintenance (O&M) costs typically associated with 'S' curves.
    - VTA noted that changes to the tunnel configuration and station construction may require going back to the VTA Board of Directors for approval.

    a. PMOC noted that the tunnel alignment at Diridon Station could be adjusted to pass south of Santa Clara Street, rather than under it, which would enable cut-and-cover construction of the Diridon Station.

    b. PMOC noted that adjusting the tunnel alignment at Diridon would be within the parameters of what was previously environmentally evaluated in 2018, which included a southern alignment option, and that such a change in alignment could be conducted through a NEPA re-evaluation.
        - VTA noted that changing the alignment would require acquisition of new easements. Development on these parcels would be significantly impacted by a tunnel that eliminates the ability for deep foundations.
- VTA further noted that there are political pressures for development at Diridon – the City of San José is trying to get Google headquarters to move to that area – those are the properties that would be impacted.
- PMOC suggested that cut-and-cover within the public right of way could be limited to the 800-feet where the Downtown San José Station will be constructed.
    - VTA noted that cut-and-cover in Downtown would necessitate significant utility relocation, which includes gravity lines that extend up to ½ mile north and south of Santa Clara Street.
- PMOC suggested that SEM construction could be used at the Downtown Station to eliminate/reduce cut-and-cover.
- VTA noted due to soil conditions, the use of SEM to construct the station platforms would require jet grouting (or other soil stabilization) around and under the tunnel – resulting in significant surface-level disruption and ultimately negating potential savings. The cost to jet grout around the tunnel for 700-foot platform length could cost between $50 million and $100 million.
- VTA noted the current design only requires soil stabilization at two locations where the adits are to be constructed.

Twin-Bore and SEM

- PMOC noted that VTA is already looking at concurrent tunneling from Berryessa using twin-bore and suggested extending twin-bore as far west as possible to maximize potential savings. PMOC noted that VTA previously developed the design of a twin-bore system and asked whether that could be used to provide additional design cost savings.
    - VTA explained that the primary concern around the twin-bore tunneling methodology is the Silver Creek Fault, which was not considered an active fault in the 2000s when the original design was developed but is considered active now. The 2008 design would not be considered 60%.
- PMOC noted that a twin-bore tunnelling methodology could still employ SEM for construction of the Downtown Station while all other stations could be constructed using cut-and-cover off-street.

    - VTA noted that soil conditions would require ground treatment. Jet grouting or ground freezing required for SEM of the entire 700-foot platform would result in a similar level of disruption as cut-and-cover construction.
- PMOC noted that cut-and-cover has the potential to save on schedule because it allows VTA to decouple station and tunnel construction.
- VTA noted that cut-and-cover construction would require environmental clearance that would likely negate any schedule savings.
- PMOC noted that smaller twin-bore tunnel boring machines (TBMs) are cheaper and more readily available. There may be an opportunity for additional schedule savings if a refurbished machine is purchased.
- VTA noted that it would likely need to purchase a new one, which would be in the range of $30 to $50 million. If a refurbished one can be found, it would provide limited schedule savings.

Cost Saving Candidates, Session 2 - 2.5 hours

- VTA provided an overview of the "Level 2" Cost Savings Candidates that are being studied.

Concurrent Tunneling from the East

- VTA is studying the use of a smaller diameter single-bore tunnel from the east connecting with the single-bore tunnel at 13th Street, where VTA has environmental clearance for the construction of a mid-tunnel facility. VTA is evaluating both a twin-bore concept and the use of a smaller single-bore tunnel.
    - VTA noted that connecting the twin-bore and single-bore tunnels requires a transition from single-point ventilation to push-pull ventilation. This transition is considered a challenge and a risk.
    - FTA noted that the use of a smaller single-bore tunnel would be within the bounds of the Record of Decision (ROD). However, use of a twin-bore tunnel for this segment would require amending the ROD and conducting NEPA re-evaluation.
    - PMOC asked whether the east portal location has sufficient space and power for a launch facility.
        - VTA noted that construction staging areas (CSAs) were cleared for tunnelling from the east, but not all the properties cleared are still available. Therefore, tunnelling from the east may require additional property acquisitions.
        - FTA noted that additional CSAs could be cleared if needed.
- The connection between the two tunnelling operations would require cut-and-cover along 50-100 feet of Santa Clara Street at 13th Street. To reduce surface-level impacts, the connection could also be mined using SEM and the TBMs could be gutted from the inside of the tunnel.
        - PMOC suggested that to maximize savings, the connection should occur closer to the Downtown Station.
- VTA explained that the furthest west the connection could occur is near 8th or 9th Street to allow for tracks to converge from the cross-over configuration located east of the Downtown Station into the smaller tunnel.
- VTA noted that cut-and-cover construction is preferable for extracting TBM components, which will require large cranes. Connecting the tunneling segments at 13th Street would have similar surface-level impacts as the originally cleared construction of the mid-tunnel facility.
- Concurrent tunneling would likely require going back to BART as the design of the 28th Street/Little Portugal Station would require significant reprogramming and redesign for cut-and-cover construction.
- VTA noted that the re-introduction of the 13th Street facility may provide the opportunity to move the fans from the south end of 28th Street/Little Portugal Station. This would simplify the station design and reduce the size of the station infrastructure facilities.

- VTA noted that cost savings could be realized by switching to a design-bid-build delivery method for the larger diameter tunnel. This contracting mechanism would likely result in more competitive pricing. Tunneling from the west could commence, while design and package for tunneling from the east is advanced.
    - VTA noted that it is seriously weighing the option of off-ramping KST based on pricing. The intent is to have a decision confirmed by the Risk Assessment in mid-2025.
- PMOC supported VTA in this consideration, noting that the incentive for the existing contractor to sharpen their pencils is very low, and that another contractor could provide some more sizeable savings.
    - FTA noted that the FFGA will require certainty around contracting, scope, costs, schedule, etc.

Muck Off-haul Options

- VTA provided an overview of additional concepts for muck off-hauling beyond the use of trucking.
    - VTA noted that environmental clearance for Salt Ponds, or use of rail options is not necessary prior to the FFGA, because BSVII already has an environmentally cleared alternative that uses trucking.
    - FTA noted that cost savings from alternative muck off-hauling options cannot be considered for the FFGA, as they are not environmentally cleared.
        - VTA suggested that the potential savings from muck off-hauling alternatives could be considered as a negative dollar risk in the Risk Register.
- PMOC asked whether some of the muck could be treated and re-used inside the tunnel.
    - VTA responded that the re-use of muck is currently being evaluated as fill inside the tunnel.

Newhall Maintenance and Storage Yard Facility

- VTA provided an overview of cost savings approach to phase various elements and facilities of the Newhall Yard as additional funding is identified in the future. The goal would be to open with minimal storage and to rely on the Hayward Yard for heavy vehicle maintenance. This approach also allows for flexibility since the ultimate fleet size of BART in 2030-2050 is unknown given the agency's current financial situation.
    - FTA noted the importance of considering when the additional storage and maintenance capacity would be necessary. If the need is within a few years of opening day, then it would not make sense to cut these from the BSVII project.
    - VTA noted that the opposite is likely to be the case – the current BSVII design may be providing facilities and storage that may not be needed for decades. The original design for the yard and maintenance facility was based on a 2011 study and re-confirmed in 2018. BART's trajectory has changed in recent years.
- VTA described the proposed approach of only providing facilities necessary for an end-of-line facility, which include storage and cleaning – no maintenance. Depending on the phasing of facilities, this approach could result in savings ranging from $20 million to $250 million, depending on the extent of reduction in facilities.
    - Deferring construction of the Santa Clara Station parking garage by providing surface parking could result in $50 million in savings.
    - Deferring the Revenue Vehicle Maintenance Shop (RVMS) could provide another $100 million in savings, with additional savings realized by the removal of tracks associated with the RVMS.
    - VTA is also looking at efficiencies to combine structures, where feasible.
- VTA proposed this approach to BART, and the agency is evaluating the options.
    - PMOC encouraged VTA to continue working with BART to continue to identify and pursue any possible savings, noting that the yard's current design is over-built and that it makes sense to revisit the needs.

Tunnel Interior Reconfiguration

- VTA provided an overview of various designs for the interior tunnel structure. One consideration is to move tracks lower down. These would need to transition back up to mid-tunnel, approximately 7-feet, at the stations. These transitions could be accomplished within about 200-feet to meet the maximum 4% grade.
- Additional considerations for the tunnel internal structure include using an inverted U configuration, using fill to support tracks, and the use of ballast for tracks.
    - PMOC noted that the use of ballast would further help with noise and vibration during operations but noted that typically ballast maintenance is conducted with a diesel machine, so that may not be preferable within a tunnel.

Additional Structural Concepts

- VTA provided an overview of various concepts being studied for the portal structures and the underground station structures.
- VTA noted that the current design for the launch structure was based on a box concept, estimated at around $140 million. The current design employs a caterpillar shaft, which offers more cost savings. KST has been provided with a limited NTP to prepare for tunneling operations, which would include construction of the west portal.

Wrap-up and Next Steps /Summarize Key Outcomes/Other items for discussion – 0.5 hours

Discussion on Schedule

- VTA is moving forward with plan for FFGA submittal in August 2025 but noted that it is willing to push schedule out if it is necessary to do so to realize significant cost savings.
    - FTA noted that NEPA re-evaluation would need to be completed between the June 2025 Risk Workshop and the August 2025 FFGA submittal. CEQA clearance is not tied to the FFGA and can be addressed separately.
    - FTA noted that much of what is being evaluated would not necessarily result in an increase of significant impacts over the current ROD and could be cleared through NEPA re-evaluation. If VTA pursues options that result in an increase to significant impacts, it will need to complete a SEIS, which is a year-long process that would delay the FFGA.