

VTA's BART Silicon Valley Phase II Extension

Downtown-Diridon Community Working Group

December 1, 2015



Agenda



- Follow-up Items and Work Plan
- New Starts Project Development & Schedule Update
- Construction Methods and Approach
 - Meeting objectives
 - Approach to construction for environmental clearance
 - Construction techniques
 - Next steps
- Next Steps

Role of the CWG



- Be project liaisons
- Receive briefings on technical areas
- Receive project updates
- Build an understanding of the project
- Collaborate with VTA
- Contribute to the successful delivery of the project

3

Your Role as a CWG Member



- Attend CWG meetings
 - Bring your own binder (BYOB)
- Be honest
- Provide feedback
- Get informed
- Disseminate accurate information
- Act as conduits for information to community at large

4

Role of the CWG Team



| CWG Team Member | Role |
|------------------|-------------------------------------|
| Eileen Goodwin | Facilitator |
| Brent Pearce | Primary Outreach Contact |
| Leyla Hedayat | Phase II Project Manager |
| Kevin Kurimoto | Technical Lead |
| Michael Brilliot | City of San Jose – Planning Liaison |
| Rosalynn Hughey | City of San Jose – Planning Liaison |
| Ray Salvano | City of San Jose – DOT Liaison |
| Jessica Zenk | City of San Jose – DOT Liaison |

5

CWG Meetings



- February 9, 2016
- April 12, 2016
- June 14, 2016
- September 13, 2016
- November 15, 2016
- February 7, 2017

6

Upcoming Meetings



Public BART Phase II Financial Update Workshop

- January 2016

Station Walking Tours

- March 2016

CWG Meetings

- February 9, 2016
- April 12, 2016

VTA Board of Directors

- December 10, 2015

BART Silicon Valley Program Working Committee

- December 7, 2015

Diridon Joint Policy Advisory Board

- December 18, 2015 at 3:00 PM (San Jose City Hall, Wing Room 120)

7

Follow-up Items and Work Plan



- Transfer data for all Phase II stations provided in October's CWG Meeting Notes
- Developer Forum expected to be held in January 2016 – additional info will be provided when available
- Legibility of street names on site plans are being updated
- Estimate assumptions related to RDA parcels are in progress

8



New Starts Project Development and Schedule Update

Leyla Hedayat, Phase II Project
Manager

9



New Starts Program

- New Starts is part of the Federal Transit Administration's primary grant program for funding major transit capital investments. Project Development is the first phase of New Starts.
- VTA is in a strong position to initiate pursuit of New Starts funding due to the following:
 - Momentum of the Phase I project
 - Progress of environmental and Community Working Group activities
 - Financial strategy to close the Phase II funding gap
 - Uncertainty of future federal funding and criteria
 - Project cost increases over time
 - Strong economy and active development

10

Entry into Project Development



- Applicant letter includes:
 - Project description and map
 - Purpose and need
 - Key corridor studies
 - Current levels of transit service
 - Cost estimate
 - Project Development funding commitment
 - Timeline to complete Project Development

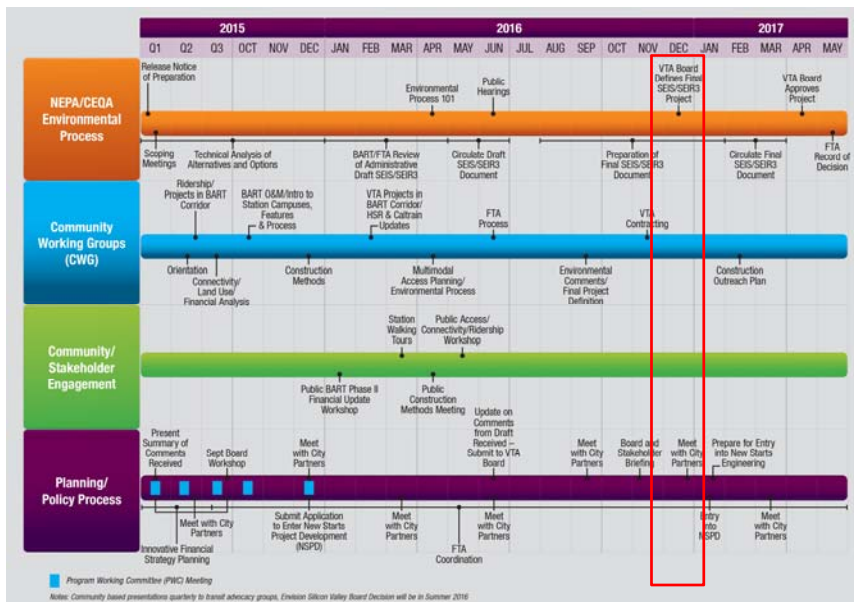
- FTA has 45 days to review and notify Congress and Project Sponsor of Entry into Project Development phase.

- Project Development requires completion of environmental process within two years.

- VTA's application letter will include a **4-station project with Newhall Yard Maintenance facility (Alum Rock, Downtown San Jose, Diridon and Santa Clara).**

11

Environmental Schedule Update





Construction Methods and Approach

Leyla Hedayat, Phase II Project
Manager

13



Overview

- Meeting Objectives
- Approach to Construction for Environmental Clearance
- Construction Techniques (Mike Lehen, Engineering Team)
- Next Steps

14

Meeting Objectives



- Purpose of environmental clearance and the process
- General overview of construction techniques
- Construction techniques that will be evaluated in the environmental document

15

Approach to Construction for Environmental Clearance



- Environmentally clear project leaving flexibility to the contractor to construct
- Review other projects and lessons learned during construction
- Develop a Construction Education & Outreach Plan
 - CWG meeting topic in February 2017
 - City partners will review prior to implementation after the Record of Decision and before major construction
- Prior to construction extensive coordination with VTA operations
 - Bus bridge for Light rail, rerouting of bus services during construction

16

VTA's BART Silicon Valley Phase II Extension

Community Working Group (CWG) Presentation Construction Techniques of Tunnels and Underground Facilities

Michael Lehnen, P.E.
Vice President
Hatch Mott MacDonald



Agenda

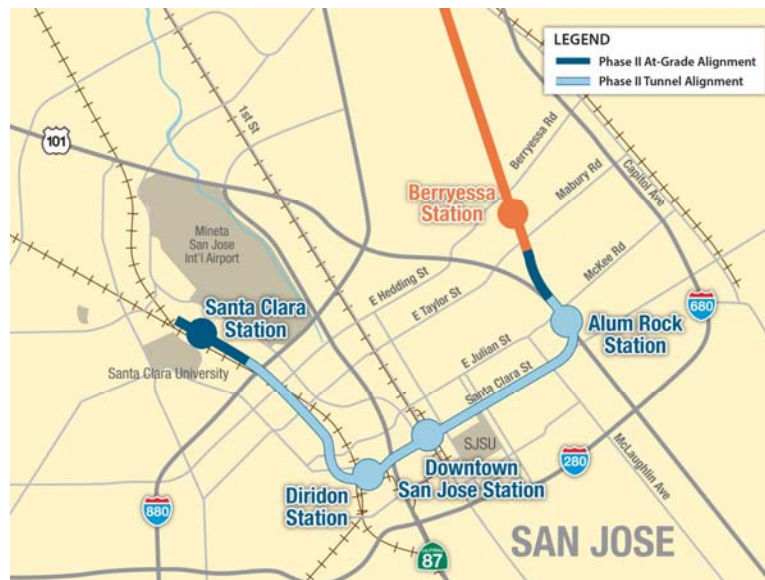
- 1. Overview**
- 2. Construction of Tunnels:**
 - Bored Tunnels
 - Cross Passages
 - Tunnel Portals
- 3. Construction of Typical Cut-and-Cover Stations**
- 4. Station Construction:**
 - Alum Rock Station
 - Downtown San Jose Station
 - Diridon Station
 - Santa Clara At-Grade Station
- 5. Mid-Tunnel Vent Structure Construction:**
 - Santa Clara / 13th Mid-Tunnel Vent Shaft
 - Stockton Ave Mid-Tunnel Vent Shaft
- 6. Newhall Yard Maintenance Facility**

1. Phase II Overview

- Overall length: 5¼ miles
- Three cut-and-cover stations, each 950 ft long:
 - Alum Rock
 - Downtown San Jose (1500 ft long with crossover)
 - Diridon
- One at-grade station:
 - Santa Clara
- Two cut-and-cover mid-tunnel vent structures:
 - Santa Clara / 13th Street
 - Stockton Ave
- Length of twin bored running tunnels:
 - 4¼ miles
- Newhall Yard Maintenance Facility

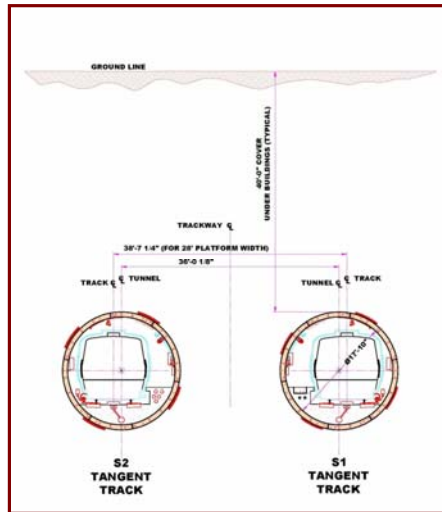
19

Phase II Alignment



20

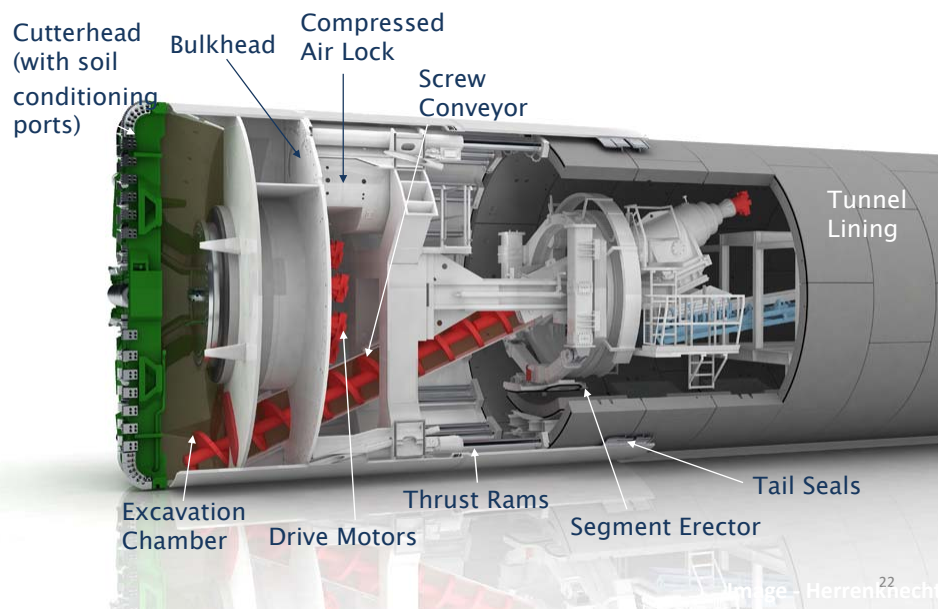
2. Construction of Tunnels



Typical Phase II Bored Tunnel Cross Section



Tunnel Boring Machine – General Layout





Bored Tunnel Cross Passages

- Connect the two bored tunnels at regular intervals along the alignment (33 total)
- Ability to adjust spacing to accommodate site features
- Required by BART and NFPA 130 as means of providing safe refuge in the event of an emergency
- Small but complex structures
- Multiple steps in the construction sequence:
 1. Ground Improvement (if necessary)
 2. Tunnel liner support
 3. Tunnel liner breakout
 4. Excavation
 5. Install waterproofing and concrete liner
 6. Install doors and other finishes
- Also house equipment
 - Standpipe
 - Communications
 - Radio

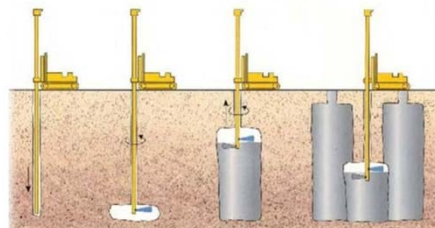
Cross Passages



25

Ground Improvement

- Excavation Stability
 - Groundwater control
 - Improved soil strength due to poor ground conditions
- Common Methods
 - Permeation Grouting
 - Jet Grouting
 - Dewatering
- Used at:
 - Bored tunnel / structure interfaces
 - Cross passages
- Installed from:
 - Ground surface
 - Inside bored tunnels



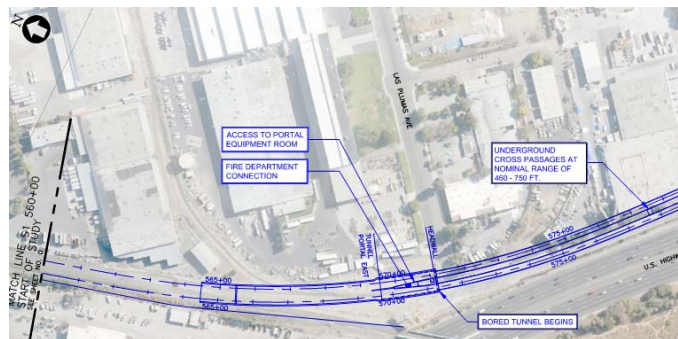
26

Tunnel Portals



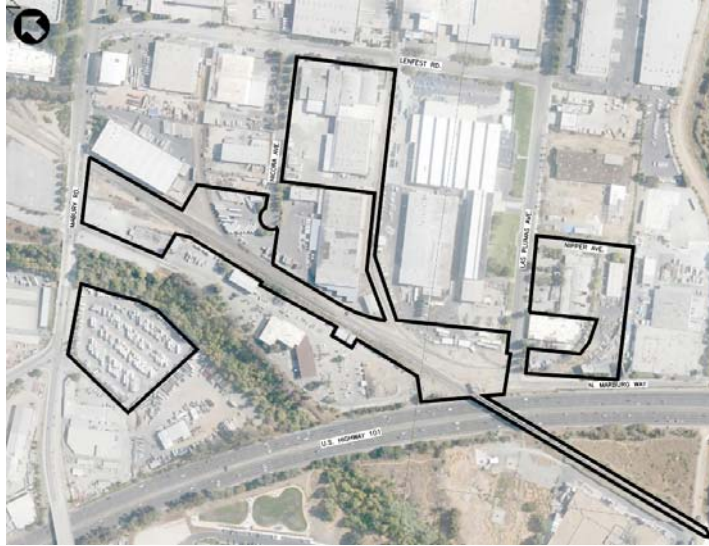
27

East Portal



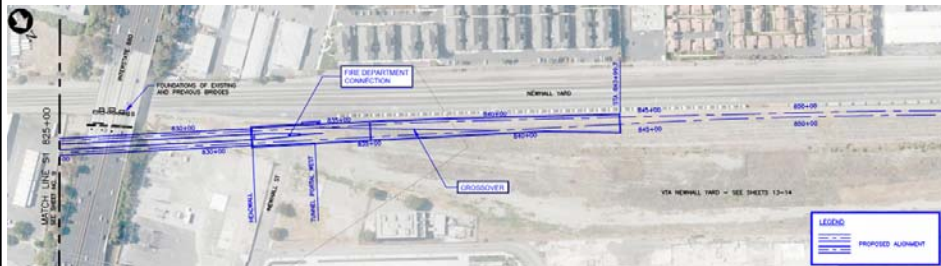
28

East Portal – Construction Staging Area (CSA)



29

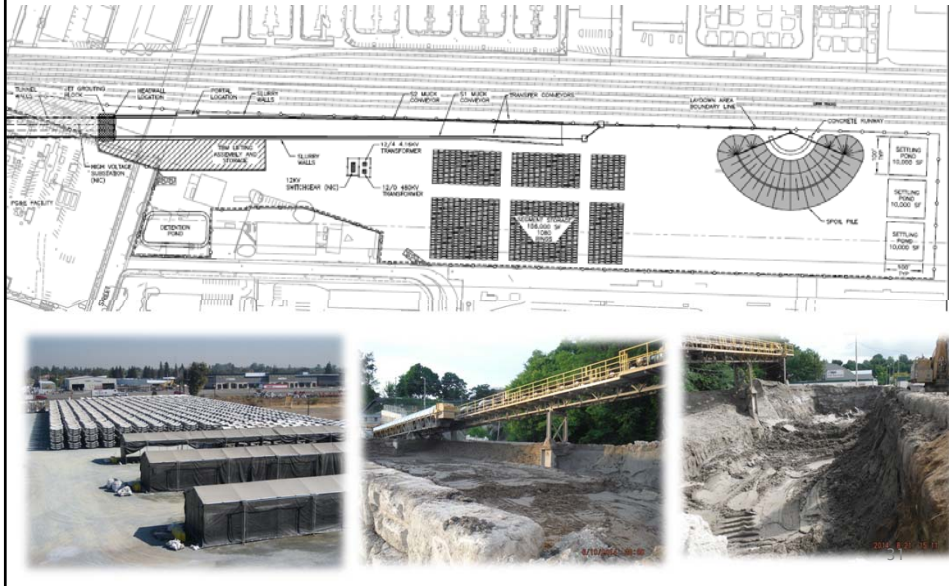
West Portal



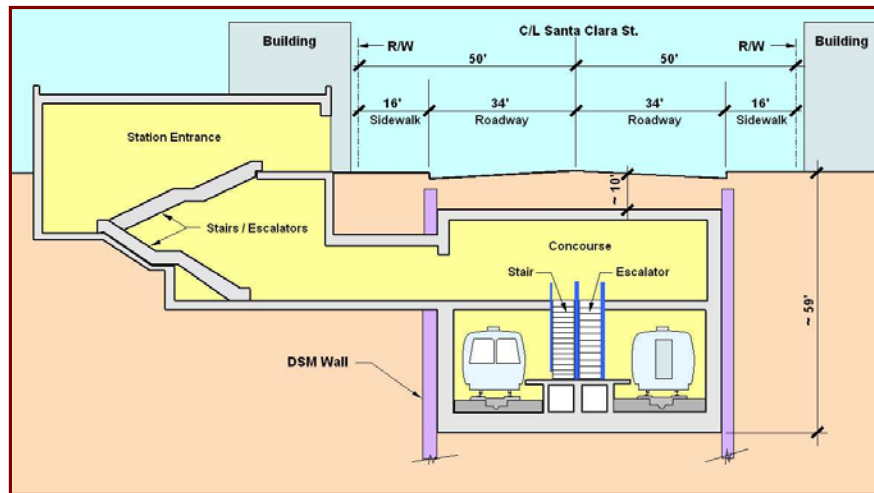
- Work at the West Portal will be staged within the overall Newhall Yard site

30

West Portal – Typical Contractor’s Worksite

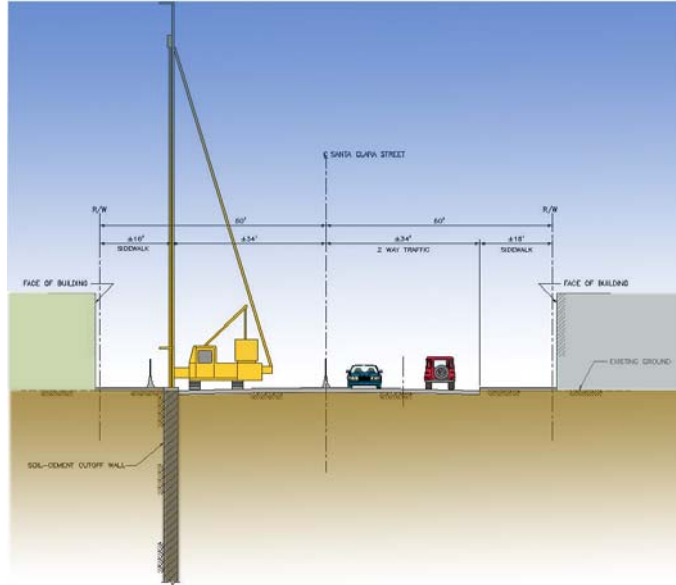


3. Construction of Typical Cut & Cover Stations



32

Step 1: Support of Excavation (SOE) Wall Installation



33

Reinforced Concrete Slurry Walls

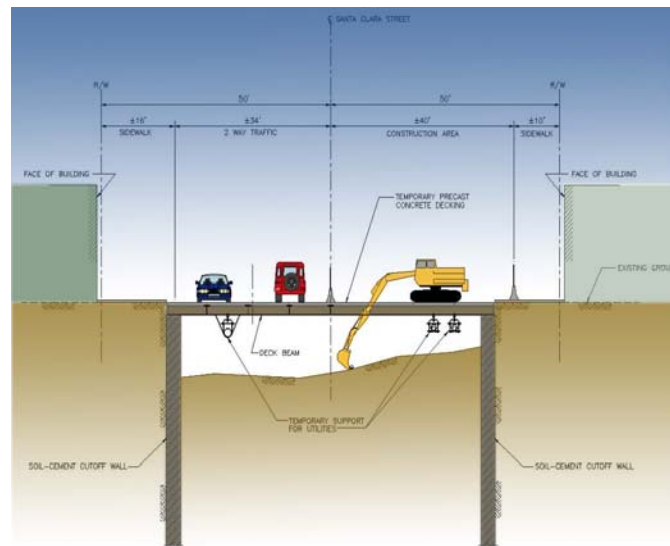


34

Deep Soil Mix (DSM) Wall



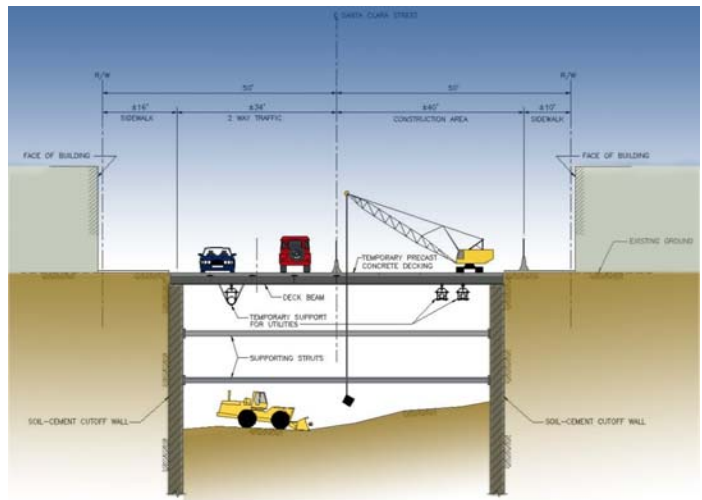
Step 2: Excavation, Decking & Temp Utility Support





37

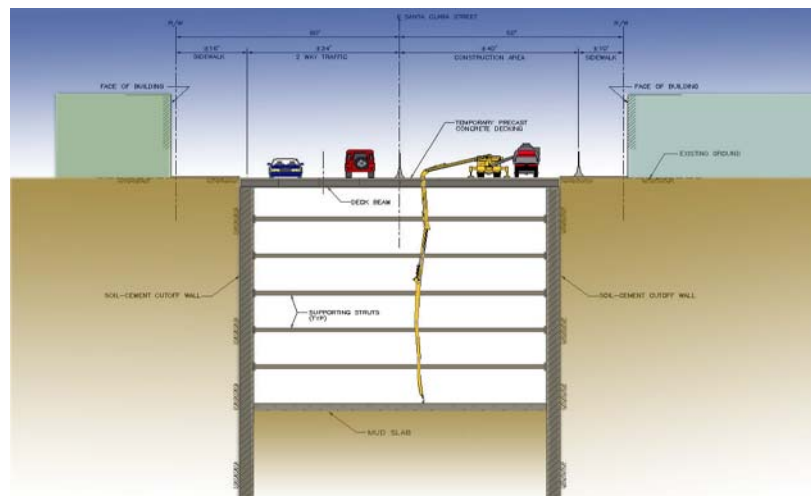
Step 3: Continue Excavation & Add Internal Bracing



38

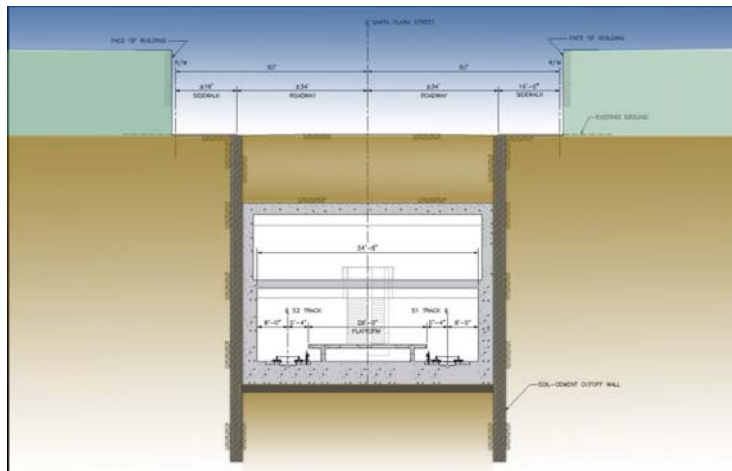


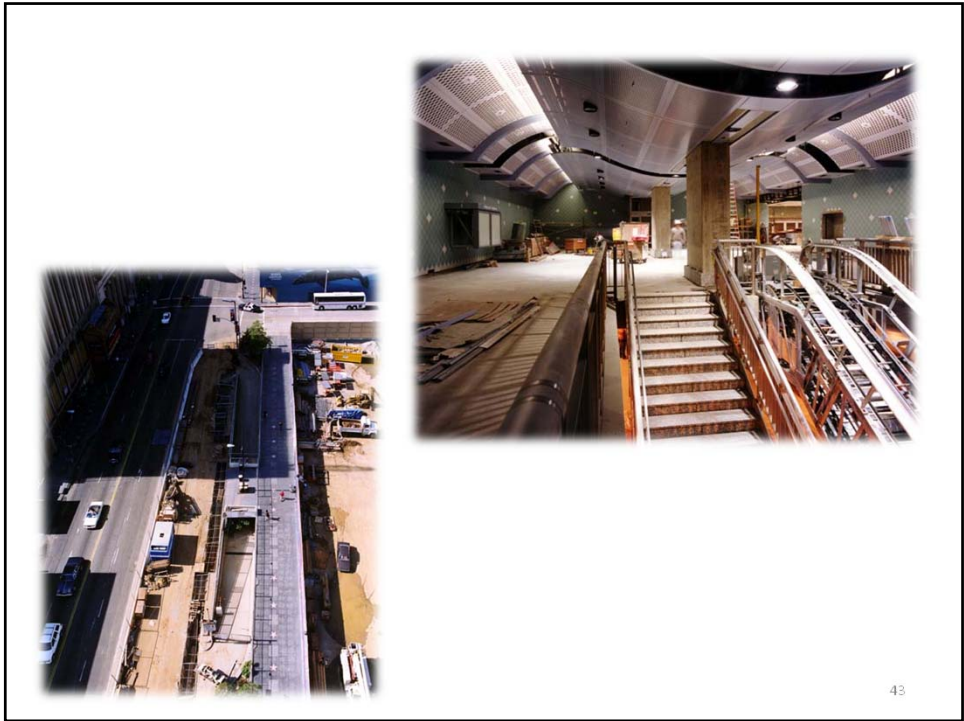
Step 4: Excavation & Decking Complete, Traffic Reinstated, Tunneling into Excavation





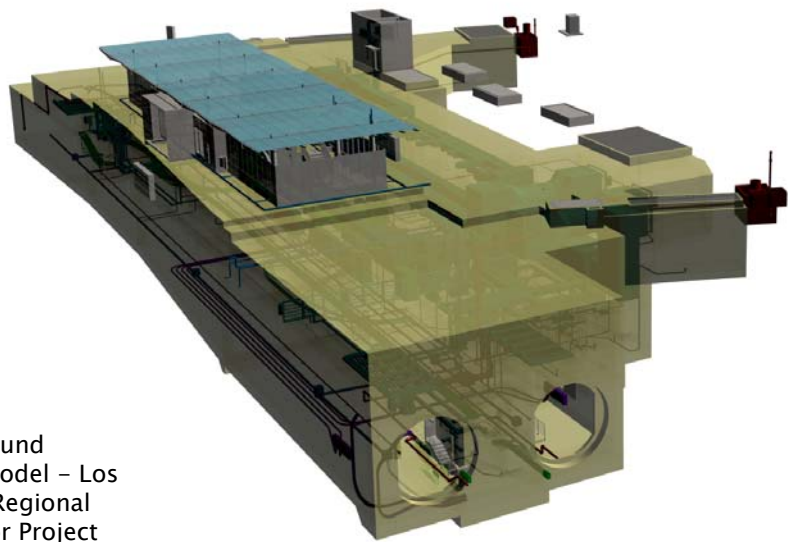
Step 5: Construct Structure & Restore Street





43

4. Construction of Underground Stations



Example
Underground
Station Model – Los
Angeles Regional
Connector Project

44

Advance Utility Relocations

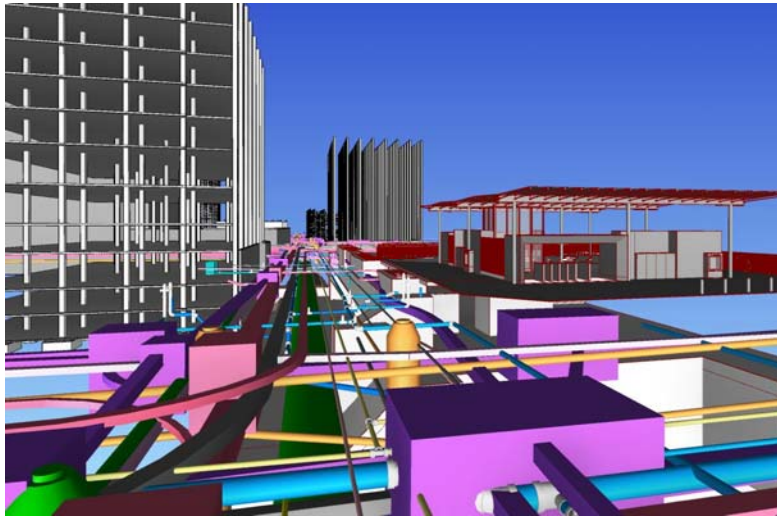
- Old and at-risk utilities, or in conflict with the Support Of Excavation (SOE) walls
- Main trunk lines (services to be addressed by tunnel / station contractor)
- Typically performed with localized traffic control measures

45

Typical Scenario – Advance Utility Relocations

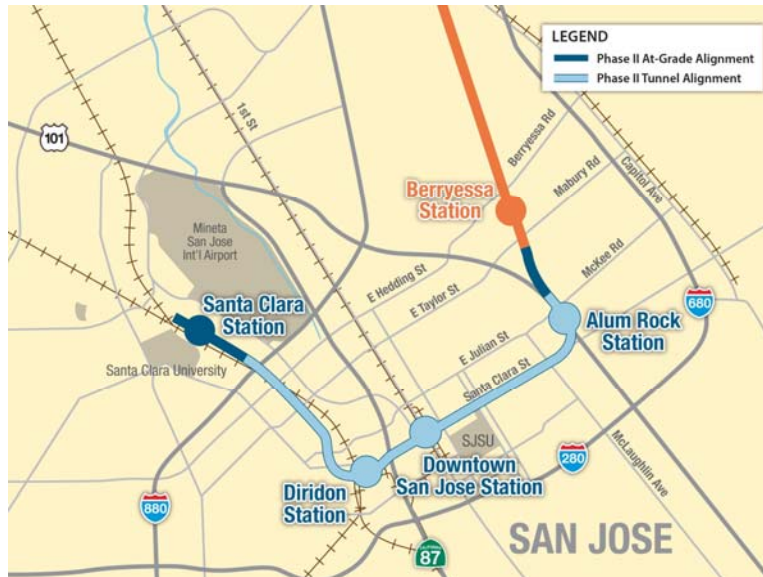


Typical utility arrangement in heavily congested urban environment



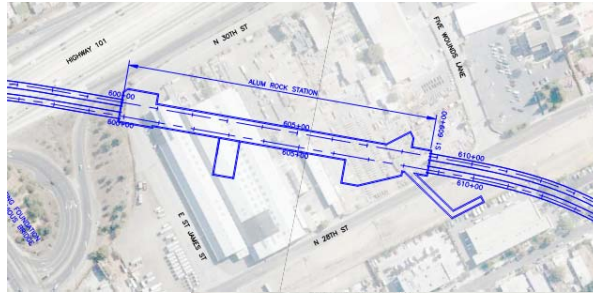
47

Phase II Alignment



48

Alum Rock Station

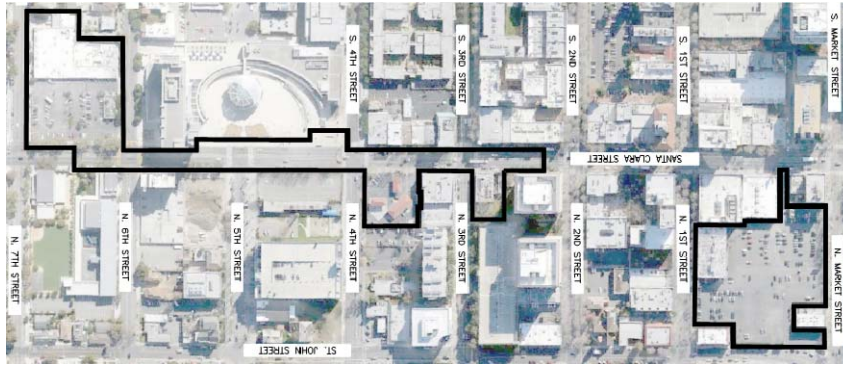
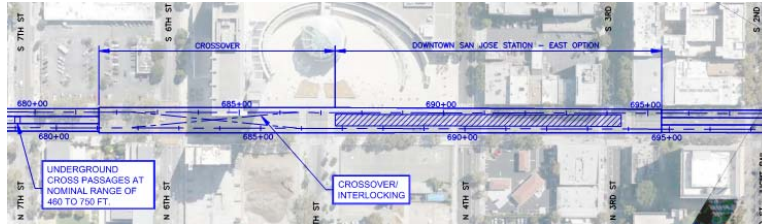


Black outlines represent Construction Staging Areas (CSA)

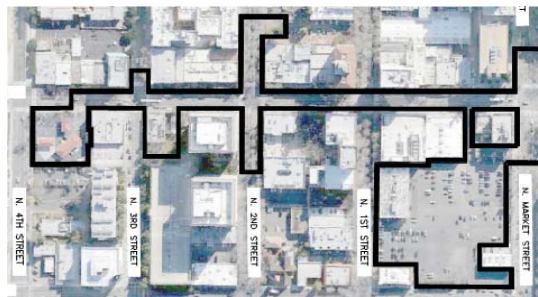
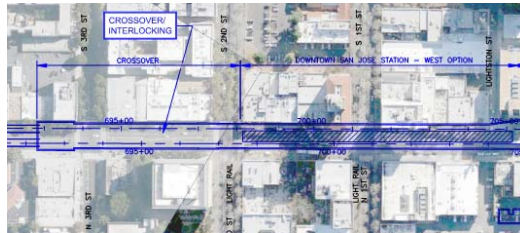


LA Metro – Universal City Station Excavation (similar site constraints as Alum Rock)

Downtown San Jose Station – East Option



Downtown San Jose Station – West Option



CSAs combination of:

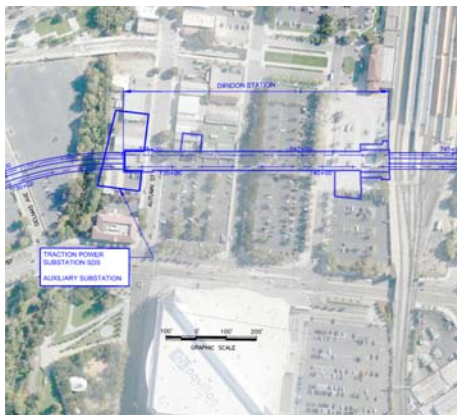
- VTA owned property
- Temporary areas
- Public roadways (as-needed)

Underground Track Crossover



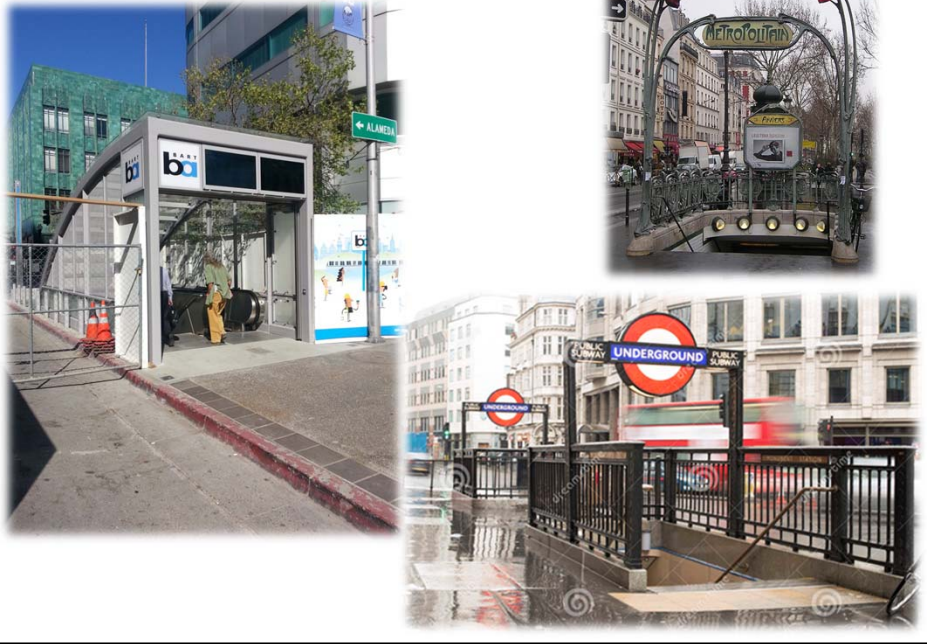
53

Diridon Station

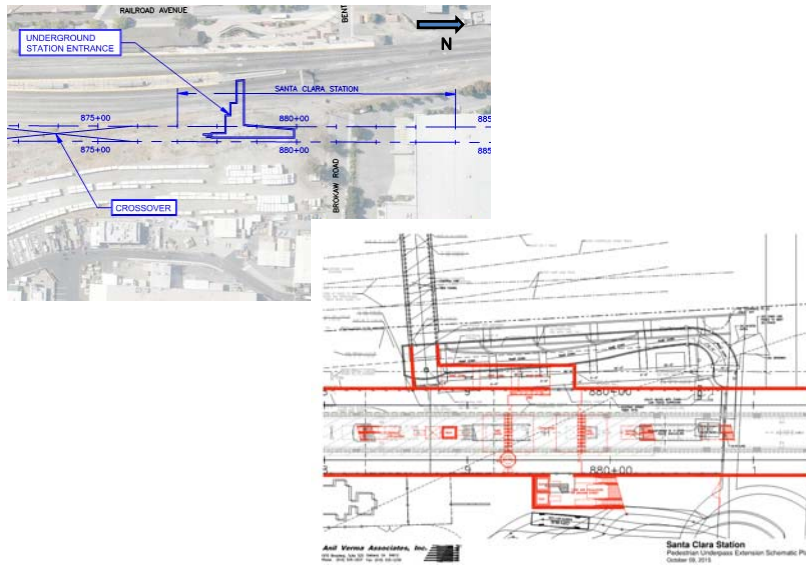


54

Sample Urban Subway Entrances



Santa Clara Station (At-Grade)



Typical Contractor CSA Uses and Activities

- Secured, fenced areas
- Site offices / construction trailers
- Employee parking
- Temporary site power and utilities
- Material and equipment storage
- Muck (excavated material) stockpiling prior removal
- Storage sheds for miscellaneous tools and equipment
- Temporary CSA roads to accommodate truck and other vehicle access

57

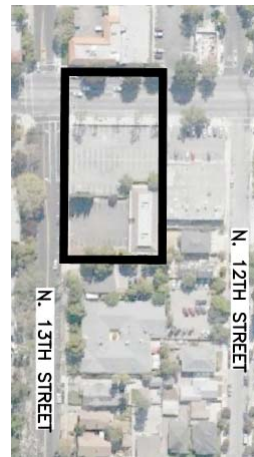
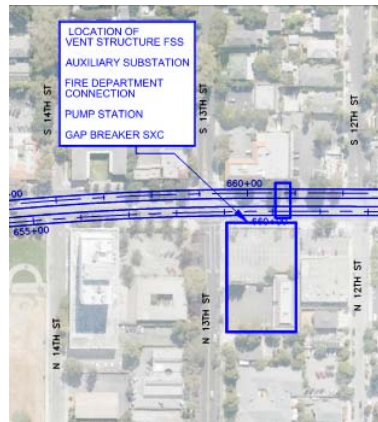
Typical Contractor CSA Layout



58

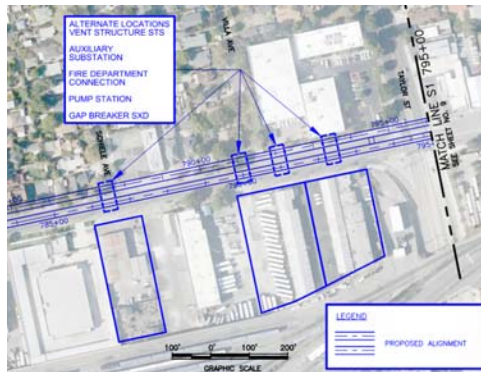
4. Construction of Mid-Tunnel Vent Structures

- Mid-Tunnel Vent Shaft – Santa Clara/13th

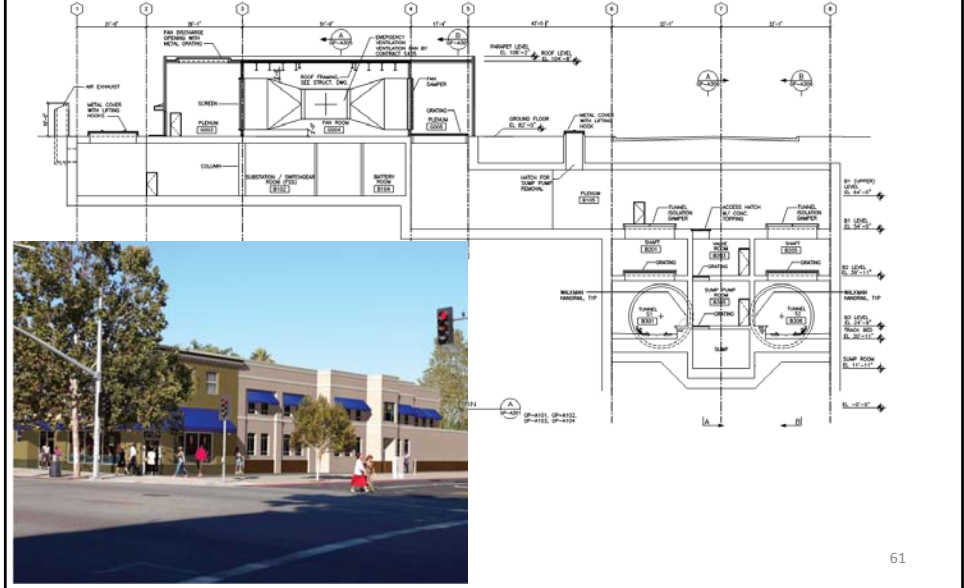


59

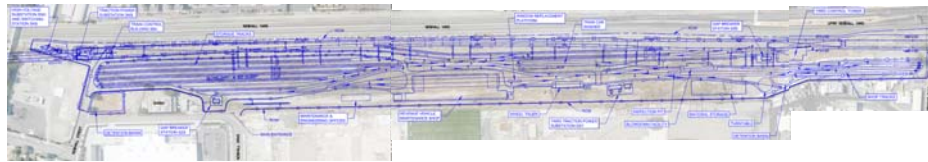
- Mid-Tunnel Vent Shaft Options – Stockton



• Mid-Tunnel Vent Shaft Cross Section



5. Newhall Yard Maintenance Facility



Primary Maintenance Facility Construction Activities (after tunnel construction):

- Excavation and removal of contaminated material
- Excavations for building foundations and subsurface recesses
- Installation of site drainage systems
- Utility relocations and new utility installation
- Construction of industrial type buildings
- Construction of electrical substations and electrical systems facilities
- Track construction
- Site grading and roadway construction
- Final site finishing, fencing, and restoration activities

Questions & Answers

63

Next Steps



- Review/refine construction methodology and approach
- Research projects and their approach to community engagement during construction
- Determine project delivery strategy
 - Need to know project delivery method to enter New Starts Engineering phase (Fall 2017)

64



Discussion

Eileen Goodwin, Facilitator

65



Next Steps

- Next meeting: Tuesday, February 9, 2016 ~ 4:00-6:00 PM,
San Jose/SV Chamber of Commerce ~ BYOB
 - Caltrain Electrification (Caltrain Staff)
 - High Speed Rail project update (HSR Staff)
 - Airport People Mover/Automated Transit Network update (City Staff)
 - Economic Analysis Surrounding BART stations (City Staff)
 - VTA related projects within the BART corridor (VTA Staff)
 - Financial Update of BART Phase II (VTA Staff)
 - Construction Mitigation Best Practice Research (VTA Staff)
- Parking Validation
- Action Items

66