VTA'S BART SILICON VALLEY AD HOC COMMITTEE

Monday, March 13, 2017
10:00 AM
VTA Conference Room B-106
3331 North First Street
San Jose, CA

AGENDA

CALL TO ORDER

1. ROLL CALL

2. PUBLIC PRESENTATIONS:

   This portion of the agenda is reserved for persons desiring to address the Committee on any matter not on the agenda. Speakers are limited to 2 minutes. The law does not permit Committee action or extended discussion on any item not on the agenda except under special circumstances. If Committee action is requested, the matter can be placed on a subsequent agenda. All statements that require a response will be referred to staff for reply in writing.

3. ACTION ITEM - Conduct voting to determine the Committee’s chairperson and vice chairperson for 2017.

4. ACTION ITEM - Approve the 2017 VTA's BART Silicon Valley Ad Hoc Committee Meeting Schedule.

5. INFORMATION ITEM - Receive a presentation on VTA’s BART Silicon Valley Phase II Single Bore Technical Studies. (Verbal Report) (Gonot)

6. INFORMATION ITEM - Receive an update on VTA’s BART Silicon Valley Phase II Tunneling Risk Assessment. (Verbal Report) (Gonot)

7. INFORMATION ITEM - Receive an update on VTA’s BART Silicon Valley Phase II Supplemental Environmental Impact Statement/Subsequent Environmental Impact Report (SEIS/SEIR). (Verbal Report) (Hedayat)
8. INFORMATION ITEM - Receive an update on VTA’s BART Silicon Valley Berryessa Extension Project and VTA’s BART Silicon Valley Extension Program. (Verbal Report) (Ratcliffe)

9. Open/Pending issues (Verbal Report)

10. ANNOUNCEMENTS

11. ADJOURN

In accordance with the Americans with Disabilities Act (ADA) and Title VI of the Civil Rights Act of 1964, VTA will make reasonable arrangements to ensure meaningful access to its meetings for persons who have disabilities and for persons with limited English proficiency who need translation and interpretation services. Individuals requiring ADA accommodations should notify the Board Secretary’s Office at least 48-hours prior to the meeting. Individuals requiring language assistance should notify the Board Secretary’s Office at least 72-hours prior to the meeting. The Board Secretary may be contacted at ☎ (408) 321-5680 or ✉ board.secretary@vta.org or 📧 (408) 321-2330 (TTY only). VTA’s home page is www.vta.org or visit us on www.facebook.com/scvta. ☎ (408) 321-2300: 中文 / Español / 日本語 / 한국어 / tiếng Việt / Tagalog.

All reports for items on the open meeting agenda are available for review in the Board Secretary’s Office, 3331 North First Street, San Jose, California, (408) 321-5680, 72 hours prior to the meeting. This information is available on VTA’s website at http://www.vta.org and also at the meeting.

3331 N. First St., San Jose, California is served by bus lines *58 and Light Rail. (*58 no midday service) For trip planning information, contact our Customer Service Department at (408) 321-2300 between the hours of 6:00 a.m. to 7:00 p.m. Monday through Friday and 7:30 a.m. to 4:00 p.m. on Saturday. Schedule information is also available on our website, www.vta.org.
BOARD MEMORANDUM

TO:       Santa Clara Valley Transportation Authority
          VTA’s BART Silicon Valley Ad Hoc Committee

THROUGH:  General Manager, Nuria I. Fernandez

FROM:     Board Secretary, Elaine Baltao

SUBJECT:  2017 VTA’s BART Silicon Valley Ad Hoc Committee Meeting Schedule

Policy-Related Action: No  Government Code Section 84308 Applies: No

ACTION ITEM

RECOMMENDATION:

Approve the 2017 VTA’s BART Silicon Valley Ad Hoc Committee Meeting Schedule.

BACKGROUND:

The following meeting dates are proposed for 2017. VTA’s BART Silicon Valley Ad Hoc Committee generally meets at VTA’s River Oaks Campus, 3331 North First Street, San Jose, in Conference Room B-106, or as otherwise posted.

- Monday, March 13, 2017  10:00 a.m.
- Monday, May 15, 2017    10:00 a.m.
- Monday, August 14, 2017 10:00 a.m. - Workshop Meeting
- Monday, September 18, 2017 10:00 a.m.
- Monday November 13, 2017  10:00 a.m.

FISCAL IMPACT:

There is no Fiscal Impact.

Prepared by: Menominee McCarter
Memo No. 6048
VTA’s BART Silicon Valley
Phase II Single Bore Technical Studies Update

March 13, 2017
1. Opening Remarks
2. Background
3. Tunnel Cross Sections
4. Station Configuration and Passenger Circulation
5. Ventilation Concept
6. Emergency Egress
7. Open Discussion
Single Bore Tunnel Alignment

LEGEND
- **STATION**
- **STACKED**
- **SIDE-BY-SIDE**
- **CROSSOVER**
- **TRANSITION**
Tunnel Typical Sections

Side-By-Side Configuration

Tunnel Inner Diameter: 41 ft.
Tunnel Outer Diameter: 45 ft.
Stacked Configuration approaching/ exiting Stations
Stacked Configuration at Stations
Crossover configuration
Station Configuration

Station Section

• Unobstructed 15’-6” platform
• Exceeds BFS requirements:
  – 8-foot minimum unobstructed platform
  – 7 square feet/person min. (LOS C)
Station Configuration

West Entrance 3-D View
Station Configuration

East Entrance Section

Santa Clara Street
Station Configuration

East Entrance 3-D View

Santa Clara Street Access
Station Interior

West Entrance Rendering-Concept
Tunnel and Station Ventilation

Technical Tasks:

1. Conceptual Ventilation Design
   - Normal Ventilation
   - Emergency Ventilation

2. Assessment of Ventilation System Key Elements
   - Evaluation of Track Crossovers and Mid-Point Ventilation Shafts
   - Mid-Tunnel Ventilation Structures Assessment

3. Computational Fluid Dynamics (CFD) Assessment of Station Ventilation (Prototype and Site Adapted Station)

4. Conceptual Layouts of Ventilation Facilities and Systems: DTSJ Station West
   - Satisfies Tunnel Ventilation Requirements
   - Satisfies Station Ventilation Requirements
   - Space requirements
   - Operating pressures
   - Maintenance access

5. Ventilation System Noise Impacts and Mitigation
Ventilation Analysis

• **Purpose**
  - Confirm viable ventilation concept
    • Emergency ventilation determines ventilation capacity requirements
    • Develop fire hazard analysis demonstrating patrons can safely self evacuate and first responders can gain access

• **Criteria**
  - Smoke visibility
  - Temperature control
  - Limit build up of carbon monoxide
Ventilation Summary

✓ System ventilation configuration defined
  ▪ Meets industry standards and BFS requirements
  ▪ Opportunities to eliminate intermediate ventilation facilities

✓ Downtown station ventilation defined
  ▪ Tunnel ventilation requirements satisfied
  ▪ Station Ventilation Requirements satisfied
  ▪ Space requirements assigned
  ▪ Fan operating pressures confirmed
  ▪ Maintenance access addressed
Point of Safety

FORCED EXHAUST AIR VENTILATION PROVIDES

• TENABLE ENVIRONMENT IN PATH OF EGRESS VIA INDUCED MAKE UP FRESH AIR FLOW
• LIMITS THE SPREAD OF FIRE HAZARDS WITHIN PLATFORM AND STATION AREAS
Within Station:

- **Key Criteria: NFPA 130 (also reflected in BFS)**
  - Clear platforms in 4 minutes or less
  - Reach a “Point of Safety” in 6 minutes or less

- **Key Assumptions**
  - One peak load train with 2,500 passengers
  - Off-peak ¼ load in opposite direction, 625 passengers
  - Platform loads include delay equal to one headway
Emergency Egress

Within Running Tunnel:

• BART Facility Standards modification to NFPA 130
  Prescriptive Provisions
    – BFS cross-passage spacing 300 feet
    – NFPA 130 cross-passage spacing <800 feet

• Special Flow Conditions Identified along Emergency Walkway
    – 25 cross-passages include stairwell (in stacked section)
    – 51 cross-passages do not include stairwell (in side-by-side section)

• Use of Rescue Train in Emergency
Cross-passages at Transitions
Deeper Transit Stations and Point of Safety

Comparative Analyses

<table>
<thead>
<tr>
<th>POINT OF SAFETY</th>
<th>Entrance Shaft Adit</th>
<th>Concourse</th>
<th>Street level</th>
<th>Mezzanine</th>
<th>Mezzanine Egress Corridor</th>
<th>Platform Level Holding Area</th>
<th>Mezzanine &amp; Concourse</th>
<th>Mezzanine</th>
<th>Station Pedestal</th>
<th>Non-Affected Platform</th>
<th>Pressurized Emergency Stairwell</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLATFORM DEPTH</td>
<td>Upper: 66 - 6'</td>
<td>155' - 0'</td>
<td>103' - 0'</td>
<td>116' - 0'</td>
<td>89' - 0' &amp; 94' - 0'</td>
<td>42' - 3'</td>
<td>155' - 0'</td>
<td>92' - 0' (Both)</td>
<td>96' - 0'</td>
<td>60' - 0' &amp; 58' - 0'</td>
<td>196' - 0'</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STREET LEVEL</th>
<th>18 FT</th>
<th>36 FT</th>
<th>48 FT</th>
<th>60 FT</th>
<th>72 FT</th>
<th>84 FT</th>
<th>96 FT</th>
<th>108 FT</th>
<th>120 FT</th>
<th>132 FT</th>
<th>144 FT</th>
<th>156 FT</th>
<th>168 FT</th>
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</thead>
</table>
| STATION DEPTH | Graph

Solutions that move you
Examples of Deeper Transit Stations in the US

East Side Access, New York

City:
New York, New York

Owner:
Metropolitan Transportation Authority

Estimated Year of Completion:
2022

Platform Depth:
155’ - 0”

Point of Safety:
LIRR Concourse Level

Image Courtesy of AECOM
Examples of Deeper Transit Stations in the US

Second Avenue Subway 72nd Street Station, New York

City:
New York, New York

Owner:
Metropolitan Transportation Authority, New York City Transit

Year Completed:
2017

Platform Depth:
89' - 0"

Point of Safety:
The concept includes back of the house egress corridor at Mezzanine Level

Image Courtesy of AECOM
Examples of Deeper Transit Stations in the US

Central Subway - Chinatown Station, San Francisco
VTA’s BART Silicon Valley

Tunneling Risk Assessment

March 13, 2017
Tunneling Methodology
Independent Risk Assessment

- Independent risk assessment of tunneling alternatives under consideration
- Assessment to evaluate risks (cost, schedule, performance) associated with tunneling alternatives
- Scope of work includes:
  - Interviews with technical experts and stakeholders
  - Qualitative & quantitative assessment
  - Development of risk profiles and report
- Proposals received in early January, evaluated by a joint VTA/BART review panel
- Contract awarded to Aldea Services LLC, Maryland
- Study anticipated to be completed in Summer 2017
VTA’s BART Silicon Valley

Phase II Supplemental Environmental Impact Statement/ Subsequent Environmental Impact Report Update

March 13, 2017
Summary of Draft SEIS/SEIR
Public Comments

- 110 commenters
- 800 comments received
- Comments were generally in these topical areas:
  - alternatives
  - station locations
  - noise and vibration impacts during construction and operation
  - support for the project or various options
  - ventilation structures
  - impacts to historic structures
  - traffic impacts during construction
  - Diridon area parking loss during and after construction
VTA’s BART Silicon Valley
Phase I Project Update

March 13, 2017
BSV Phase I Update - Schedule

<table>
<thead>
<tr>
<th>2017</th>
<th>2018</th>
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<tbody>
<tr>
<td></td>
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<tr>
<td>C700 LTSS Design/Build</td>
<td></td>
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<tr>
<td>Radio System</td>
<td>Buffer Float</td>
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<tr>
<td>Communications Network</td>
<td></td>
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<tr>
<td>Traction Power</td>
<td></td>
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<tr>
<td>Train Control Static Testing</td>
<td></td>
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<tr>
<td>Train Control Dynamic Testing</td>
<td></td>
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<tr>
<td>Stations Construct / Test</td>
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<tr>
<td>BART</td>
<td></td>
</tr>
<tr>
<td>WSX to Revenue Operations</td>
<td></td>
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<tr>
<td>WSX Conversion to Pass-Thru</td>
<td>Forecast Revenue Operations</td>
</tr>
<tr>
<td>OCC and Pre-Revenue Operations Testing</td>
<td>FFGA Revenue Operations</td>
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</tbody>
</table>

Forecast Revenue Operations | Date: Jan - 16

Revenue Operations
## BSV Phase I Update – Status of Contracts

<table>
<thead>
<tr>
<th>Contract</th>
<th>Value</th>
<th>NTP</th>
<th>% Comp.</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>C610 – Water, Storm and Sewer Util. Relo. at Piper Drive</td>
<td>$3,130,084</td>
<td>12/22/11</td>
<td>100%</td>
<td>Complete</td>
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<tr>
<td>C750 – SVBX Residential Noise Improvement Program 1</td>
<td>$758,048</td>
<td>07/15/13</td>
<td>100%</td>
<td>Complete</td>
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<tr>
<td>C751 – SVBX Residential Noise Improvement Program 2</td>
<td>$771,752</td>
<td>10/21/13</td>
<td>100%</td>
<td>Complete</td>
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<tr>
<td>C752 – SVBX Residential Noise Improvement Program 3</td>
<td>$715,444</td>
<td>01/20/14</td>
<td>100%</td>
<td>Complete</td>
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<tr>
<td>C753 – SVBX Residential Noise Improvement Program 4</td>
<td>$1,142,214</td>
<td>04/15/14</td>
<td>100%</td>
<td>Complete</td>
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<tr>
<td>C792 – Environmental Mitigation</td>
<td>$179,200</td>
<td>06/10/15</td>
<td>100%</td>
<td>Complete</td>
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<tr>
<td>C700 – SVBX Line, Track, Stations, and Systems</td>
<td>$897,172,959</td>
<td>02/16/12</td>
<td>95%</td>
<td>Construction</td>
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<tr>
<td>C730 – Design/Build Campus Parking Structures</td>
<td>$91,828,542</td>
<td>10/02/14</td>
<td>99%</td>
<td>Construction</td>
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<tr>
<td>C740 – Milpitas Surface Parking &amp; Roadway Improvements</td>
<td>$6,038,627</td>
<td>03/13/15</td>
<td>99%</td>
<td>Complete</td>
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<tr>
<td>C742 – Berryessa Station Campus Area and Roadway</td>
<td>$27,993,153</td>
<td>09/15/15</td>
<td>92%</td>
<td>Construction</td>
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<tr>
<td>C640 – Montague Expy. &amp; S. Milpitas Blvd. Improvements</td>
<td>$20,370,556</td>
<td>01/11/16</td>
<td>51%</td>
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<td>C754 – SVBX Residential Noise Improvement Program 5</td>
<td>$155,242</td>
<td>05/16/16</td>
<td>100%</td>
<td>Complete</td>
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<td>C671 – VTA Communications Backbone Network</td>
<td>$4,546,400</td>
<td>07/08/16</td>
<td>33%</td>
<td>Construction</td>
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<tr>
<td>C741 – Milpitas/Berryessa Campus Landscaping</td>
<td>$5,830,000</td>
<td>04/07/17(^2)</td>
<td>0%</td>
<td>Procurement</td>
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<td>C650 – Completion of SVBX Civil Elements</td>
<td>$4,000,000</td>
<td>07/15/17(^3)</td>
<td>0%</td>
<td>Procurement</td>
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1. As of March 2, 2017
2. VTA Board Approval projected in March 2017
3. Projected to be bid April 2017
## BSV Phase I Update – Program Cost Summary

<table>
<thead>
<tr>
<th>SVRT Program Element</th>
<th>Estimate</th>
<th>Incurred To-Date*</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SVRT Project Development</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Project Development Through 2009</td>
<td>209.2</td>
<td>209.2</td>
<td>Closed</td>
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<tr>
<td>Project Development 2010 and Ongoing</td>
<td>71.2</td>
<td>66.0</td>
<td>Ongoing</td>
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<td><strong>Project Development Total</strong></td>
<td>$ 280.4</td>
<td>$ 275.2</td>
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<tr>
<td><strong>SVRT Corridor Establishment And Maintenance</strong></td>
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<tr>
<td>CEM Program-wide (CEMPW)</td>
<td>3.0</td>
<td>3.0</td>
<td>Closed</td>
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<td>UPRR-Performed Activities (UPRR)</td>
<td>60.6</td>
<td>59.2</td>
<td>Ongoing</td>
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<tr>
<td>Newhall Yard Property (NYH)</td>
<td>42.6</td>
<td>40.7</td>
<td>Ongoing</td>
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<tr>
<td>Mitchell Block Property (MBP)</td>
<td>39.5</td>
<td>34.7</td>
<td>Ongoing</td>
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<td>Kato Grade Separation Project (KGS)</td>
<td>56.0</td>
<td>55.1</td>
<td>Closeout</td>
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<tr>
<td>Mission Warren Truck-Rail (MWT)</td>
<td>160.2</td>
<td>151.4</td>
<td>Closeout</td>
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<tr>
<td>Lower Berryessa Creek Project (LBC)</td>
<td>81.2</td>
<td>77.6</td>
<td>Closeout</td>
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<tr>
<td>Montague Reconstruction Project (MRP)</td>
<td>22.0</td>
<td>9.5</td>
<td>Under Construction</td>
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<tr>
<td>Upper Penitencia Creek Trail Connector (UPC)</td>
<td>2.5</td>
<td>1.1</td>
<td>Under Construction</td>
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<tr>
<td>Montague Pedestrian Overcrossing (MPOC)</td>
<td>0.8</td>
<td>0.1</td>
<td>Environmental &amp; Design</td>
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<tr>
<td>Berryessa Garage Solar Panels</td>
<td>2.0</td>
<td>1.8</td>
<td>Substantially Complete</td>
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<tr>
<td><strong>Corridor Establishment And Maintenance Total</strong></td>
<td>$ 470.4</td>
<td>$ 434.2</td>
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<tr>
<td><strong>BART Silicon Valley Extension</strong></td>
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<tr>
<td>SVBX - Berryessa Extension Project</td>
<td>2,421.3</td>
<td>1,755.2</td>
<td>Under Construction</td>
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<tr>
<td>SVSX - Future Extension to Santa Clara**</td>
<td>4,304.4</td>
<td>148.6</td>
<td>Under Development</td>
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<tr>
<td>Newhall Maintenance Facility**</td>
<td>388.3</td>
<td>25.9</td>
<td>Under Development</td>
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<tr>
<td>BART Core System Modifications (BCS)</td>
<td>264.6</td>
<td>136.8</td>
<td>Ongoing</td>
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<td><strong>BART Silicon Valley Extension Total</strong></td>
<td>$ 7,378.6</td>
<td>$ 2,066.5</td>
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<td><strong>BART Warm Springs Extension</strong></td>
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<tr>
<td>Warm Springs Extension (WSX)***</td>
<td>9.5</td>
<td>9.5</td>
<td>VTA Funding Commitment</td>
</tr>
</tbody>
</table>

| SVRT PROGRAM TOTALS                                       | $ 8,138.9 | $ 2,785.4         |                 |

* Incurred through February 28, 2016; The totals may differ from SAP totals due to rounding.
** Source: Short Range Transportation Plan FY2014-2023.
*** Program Estimates adjusted to reflect assignment of grant funds appropriated between VTA and BART.
BSV Phase I Update – SVBX Project Cost Summary

<table>
<thead>
<tr>
<th>SCC</th>
<th>SCC Description</th>
<th>FFGA Estimate</th>
<th>Forecast At Completion</th>
<th>Incurred to Date</th>
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<tbody>
<tr>
<td>10</td>
<td>Guideway and Trackwork Elements</td>
<td>$ 416.1</td>
<td>$ 334.7</td>
<td>$ 326.1</td>
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<tr>
<td>20</td>
<td>Stations, Stops, terminals</td>
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<td>30</td>
<td>Support Facilities</td>
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<td>40</td>
<td>Sitework and Special Conditions</td>
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<td>$ 252.7</td>
<td>$ 200.5</td>
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<td>Systems</td>
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<td>ROW, Land</td>
<td>$ 261.0</td>
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<td>70</td>
<td>Vehicles</td>
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<td>80</td>
<td>Professional Services</td>
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<td>Subtotal SCC</td>
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<td>$ 2,177.3</td>
<td>$ 2,067.4</td>
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<td>90</td>
<td>Unallocated Contingency</td>
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<td>$ 150.1</td>
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<td>100</td>
<td>Finance Charges</td>
<td>$ 112.5</td>
<td>$ 112.5</td>
<td>$ 82.4</td>
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<td>Total NSP - New Starts Project</td>
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<td>$ 2,330.0</td>
<td>$ 2,330.0</td>
<td>$ 1,675.6</td>
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<tr>
<td>CNPA - Concurrent Non-Project Activities</td>
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<td>$ 91.3</td>
<td>$ 91.3</td>
<td>$ 66.6</td>
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<tr>
<td>Total SVBX</td>
<td></td>
<td>$ 2,421.3</td>
<td>$ 2,421.3</td>
<td>$ 1,742.1</td>
</tr>
</tbody>
</table>

*Work in Progress; Costs in Millions
Traction Power Substation Integration Activities Ongoing at Warren Ave. in Fremont.
Sidewalk, curb, and gutter pours at Piper Drive in Milpitas.
Construction Progress (cont.)

Exterior cladding, roofing, and atrium finishes ongoing at the Milpitas Station.
Lighting installation at the platform level in the Milpitas Station.
Ballasted track, systems raceway installation in the guideway near Trade Zone in San Joe.
Prepping for painting the upper canopy, lower exterior cladding ongoing at the Berryessa Station.
Constructing the End-of-Line building at the Berryessa Station.