2.27 Transit

2.27.1 *General*

The Design-Builder shall perform all Work necessary to construct local transit facilities and the Bus Rapid Transit (BRT) Stations in accordance with the *General Provisions*, these Technical Requirements, and as described in the Appendices. The Work shall include, but is not limited to, reconstruction of the existing park and rides, constructing the at-grade and below-grade elements defined herein, including the bus pullouts, local transit platforms, BRT Platforms, and associated supporting infrastructure.

2.27.2 *Mandatory Standards*

The following is a list of Mandatory Standards that shall be followed for all design and construction related to this Section as referenced in Section 2.2, *Mandatory Standards*.

1. Vertical Construction Specifications (Appendix S)
2. Sound Transit BRT Station Material Requirements (Appendix S)
3. Sound Transit *Design Criteria Manual* (Appendix S)
4. Sound Transit *Customer Signage Design Manual* (Appendix S)
5. King County Metro *Transit Facility Guidelines* (Appendix S)
6. Community Transit *Passenger Facility Standards* (Appendix S)
7. Special Provisions (Appendix B)
8. Standard Specifications M 41-10 (Appendix B)
9. WSDOT *Design Manual* M 22-01 (Appendix D)
10. WSDOT *Plans Preparation Manual* M 22-31 (Appendix D)
11. WSDOT *Construction Manual* M 41-01 (Appendix D)
12. WSDOT *Materials Manual* M 46-01 (Appendix D)
13. Standard Plans M 21-01 (Appendix D)
14. *Washington State Modifications to the Manual on Uniform Traffic Control Devices* (WAC 468-95) (Appendix D)
15. *FHWA Manual on Uniform Traffic Control Devices for Streets and Highways*, 2009 Edition with Revisions 1 & 2 dated May 2012 (Appendix D)
16. *I-405 Urban Design Criteria* (Appendix L)
17. *AASHTO A Policy on Design Standards – Interstate System*
18. *AASHTO A Policy on Geometric Design of Highway and Streets*

19. *AASHTO Guide for High Occupancy Vehicle Facilities*
20. *AASHTO Roadside Design Guide*
21. *US Access Board ADA Accessibility Guidelines for Buildings and Facilities* (ADAAG)
22. *AASHTO Guide for the Development of Bicycle Facilities*
23. *AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities*
24. *U.S. Access Board Revised Draft Guidelines for Accessible Public Rights of Way* (PROWAG), November 2005 (Appendix D)
25. *Qualified Products List* (QPL) http://www.wsdot.wa.gov/Business/MaterialsLab/QPL.htm
26. *American National Standards Institute, Inc. (ANSI)*
27. *Crime Prevention Through Environmental Design (CPTED)*
28. *International Building Code* (IBC) with local amendments
29. *International Fire Code* (IFC) with local amendments
30. *WAC Title 51*

2.27.3 *Performance Requirements*

2.27.3.1 Coordination

The Design-Builder shall coordinate local transit improvements with King County Metro (KCM) and Community Transit (CT) through the WSDOT Engineer. The Design-Builder shall coordinate BRT Improvements with Sound Transit through the WSDOT Engineer until Physical Completion.

The Design-Builder shall ensure there are no conflicting elements within the footprint of the BRT Platform, including, but not limited to, Utilities, storm sewer and landscaping. The Design-Builder shall coordinate access and Maintenance of Traffic (MOT) for Sound Transit and its contractor after handover with the WSDOT Engineer.

The Design-Builder shall relocate existing bus stops and shelters if impacted by the design and construction of the Project in accordance with the applicable transit agency. See Appendix S for *Swift* BRT facility relocation. Shelter design and placement shall be coordinated with the applicable transit agency.

The Design-Builder shall provide a minimum of 30 Calendar Days notice to the local transit authority prior to relocating bus stops and shelters. Bus stop and shelter relocation shall be coordinated with the applicable transit agency.

The Design-Builder shall provide 10 Calendar Days notification for bus reroutes and 5 Calendar Days notification for bus stop impacts. Any construction or installation activities affecting transit operations or facilities must be coordinated through the applicable transit agency such as the Metro Transit Systems Impacts Group.

A permit or airspace lease will be required for areas within WSDOT Right of Way (ROW) to be occupied by transit facilities. The Design-Builder shall coordinate with WSDOT and the applicable transit agency and provide supporting documents, including but not limited to, plans, details, exhibits, photos, and calculations to the transit agency to apply for the permit or airspace lease.

2.27.3.1.1 *Transit Task Force*

The Design-Builder shall establish a team to provide input on design and construction issues associated with the BRT Improvements including, but not limited to, signing, pavement markings, channelization, ITS, Illumination, BRT Station Area elements, and local transit stops. Members of this team shall attend transit task force meetings as needed. Meetings shall also include representatives from WSDOT, Sound Transit, King County Metro, and Community Transit.

The Design-Builder shall schedule and chair the transit task force meetings every 14 Calendar Days from Notice to Proceed to 21 Calendar Days after the BRT Improvements Handover is granted by WSDOT. Thereafter, the transit task force shall meet monthly until Substantial Completion. The meeting schedule and frequency of meetings may be adjusted upon agreement by the team members. If the WSDOT Engineer determines in their sole discretion that the frequency of transit task force meetings is not meeting Project needs, the Design-Builder shall schedule transit task force meetings more frequently.

2.27.3.2 Safety and Security

The Design-Builder shall ensure that all transit facilities meet the Occupational Safety and Health Act (OSHA) safety standards, WAC Title 51, Title 49.17 RCW WISHA, and the Crime Prevention Through Environmental Design (CPTED) principles.

BRT Improvements shall be designed to facilitate the movement of patrons in an direct, safe and secure manner with open sight lines and minimized visual and physical barriers.

The Design-Builder shall submit a line of sight analysis as part of the Preliminary Design Submittal to demonstrate a station configuration that allows bus operators an unobstructed view of the full platform when entering the station.

Line of sight analysis shall demonstrate pedestrian safety measures incorporation into the design to minimize vehicle and pedestrian conflicts. Pedestrian line of sight analysis shall be evaluated using an eye height of 5 feet.

Pedestrian pathways shall be clearly delineated to minimize crossing outside of the crosswalk. Pedestrian crosswalks shall have adequate sight lines between pedestrians and motorists, including accounting for vegetation, signs, street parking, and other roadside elements that may block motorists' and pedestrians' views of one another.

The Design-Builder shall locate cabinets so they are not installed in pedestrian areas and that cabinet placement does not interfere with the unobstructed sight lines of the BRT Platform.

2.27.3.2.1 *Support of Sound Transit Certifiable Items List*

The Sound Transit Certifiable Items List (CIL) (Appendix S) identifies elements of the Project that shall be incorporated by the Design-Builder through design and construction to address the safety and security of its patrons. The Design-Builder shall coordinate with Sound Transit for Safety and Security Certification processes. The Design-Builder shall develop a Safety and Security Design Conformance Checklist for Review and Comment. The Safety and Security Design Conformance Checklist shall include the items listed in the Sound Transit CIL (Appendix S) with references or document pages in the design or construction submittal where applicable CIL items are confirmed. The Safety and Security Design Conformance Checklist shall meet the requirements of this Section.

2.27.4 *Park and Ride Lot Design and Construction Requirements*

The Design-Builder shall configure the new Canyon Park Park and Ride following the requirements detailed in the Canyon Park – Park and Ride Transit Requirements (Appendix S). Canyon Park shall include new *Swift* BRT and local service infrastructure. The Design-Builder shall design the Canyon Park Park and Ride platform curb to be Forward Compatible with the Interim Forward Compatible Plans (Appendix M).

The Design-Builder shall provide improvements at the Brickyard Park and Ride lot in accordance with the Brickyard Park and Ride Requirements (Appendix S).

2.27.5 *Sound Transit Design and Construction Requirements*

2.27.5.1 BRT Station

The Design-Builder shall design and construct the elements associated with the BRT Stations at each of the following locations:

- Brickyard BRT Station
- SR 522 Transit Hub BRT Station
- SR 522 Direct Access (DA) BRT Station
- Canyon Park BRT Station

The BRT Stations are composed of a BRT Station Area and BRT Platform. The BRT Stations shall meet the following requirements:

- Bus only lanes shall be a minimum of 11 feet wide
- Stairs and designated walkways at the BRT Station shall be a minimum of 6 feet wide and shall meet the requirements of the Sound Transit *Design Criteria Manual* unless noted elsewhere in these Technical Requirements.

Each BRT Station shall be analyzed following the *King County Metro Transit Facilities Guidelines* (Appendix S) for Autoturn simulation. Bus only lanes shall be analyzed using a Sound Transit 40 feet bus with bike rack as shown in the Transit Bus Dimensions (Appendix S).

The stormwater drainage system for the BRT Stations shall be designed and constructed in accordance with Section 2.14, *Stormwater* and this Section.

2.27.5.1.1 *Brickyard BRT Station*

- A minimum 9 feet wide bypass lane shall be provided along the entire BRT Platform length. This bypass lane shall be designed to allow an AASHTO SU-30 design vehicle to bypass a second bus docked at the platform.
- A 25-foot-long by 9-foot-wide paved spot for a maintenance vehicle shall be provided. This paved spot shall be adjacent to the elevator machine rooms at both the northbound and southbound median locations.
- Median barrier shall be continuous through the Brickyard BRT Station.

2.27.5.1.2 *SR 522 Transit Hub BRT Station*

The SR 522 Transit Hub BRT Station shall provide a bus only lane for buses to circulate and bypass the platforms and layover spaces for the entire length of the bus loop.

The Design-Builder shall analyze the paratransit accommodation following the *King County Metro Transit Facilities Guidelines* (Appendix S) for Autoturn simulation.

2.27.5.2 BRT Station Area

The Design-Builder shall design and construct the elements associated with the BRT Station Area at each of the following locations:

- Brickyard BRT Station
- SR 522 Transit Hub BRT Station
- SR 522 DA BRT Station
- Canyon Park BRT Station

2.27.5.2.1 *Brickyard BRT Station Area*

A plaza space shall be provided at the east and west bridge ends.

- The west plaza shall contain the following:
  - Concrete foundations for 8 two tiered bike lockers providing 16 bike locker spaces and 2 bike rack spaces
  - Planter bench
  - Comfort station (existing to remain)
  - Elevator
  - Railings and stairs
  - Bollards
  - Elevator machine room, electrical room, communication equipment room as detailed in Section 2.31, *Vertical Construction.*
- The east plaza shall contain the following:
  - Concrete foundations for 8 two tiered bike lockers providing 16 bike locker spaces and 2 bike rack spaces
  - Elevator
  - Railings and stairs

- Elevator machine room, electrical room, communication equipment room as detailed in Section 2.31, *Vertical Construction*
- One maintenance vehicle parking spot

The King County Metro layover spaces at the Brickyard Park and Ride shall contain a center bypass lane with layover space on either side measuring a minimum of 125 feet and 105 feet in length and a minimum of 12 feet wide. The layover space shall not overlap with the crosswalk.

Egress curb ramps shall be provided at the ends of the BRT Platforms. The maximum longitudinal slope of the ramps shall be 5 percent.

For information regarding the pedestrian bridge connecting the plazas to the median BRT Platform see Section 2.31, *Bridges and Structures.*

2.27.5.2.2 *SR 522 Transit Hub BRT Station Area*

The SR 522 Transit Hub BRT Station shall include a bus only loop with BRT Platforms at the south side and east side of the BRT Station, a rider pick-up drop-off (PUDO) loop, bus layover space, charging yard, Battery Electric Bus (BEB) charging, and a comfort station. See Section 2.31, *Vertical Construction* for details on the comfort station. The SR 522 Transit Hub BRT Station shall provide the following:

- A bus-only off-ramp from the southbound I-405 to westbound SR 522 ramp connecting to the SR 522 Transit Hub. No non-transit traffic shall have access to this off-ramp.
- Four 25-foot by 11½-foot parallel parking spaces for transit agency maintenance vehicles shall be provided within 40 feet of the electrical room. The parking spaces shall not be located within the PUDO loop.
- A rider pick-up/drop-off loop independent of the bus loop. The rider pick-up/drop-off loop shall meet the following requirements:
  - It shall be constructed on the interior of the bus loop.
  - The design vehicle shall be an SU-30.
  - Shall include a bypass lane that provides the ability for vehicles to continuously circulate without interacting with the bus loop or loading/unloading vehicles.
  - A loading/unloading sidewalk that is a minimum 200 linear feet by 8 feet wide (back of curb to back of curb).
  - A minimum 45 linear feet of paratransit accommodation shall be provided within the 200 linear feet mentioned above. The paratransit accommodation shall be adjacent to the sloped ramp for crossing to the south BRT Platform.
  - Parallel curb ramp shall have a maximum slope of 5 percent.
- The Design-Builder shall construct the area around the BEB chargers, charging yard, and pedestrian pathway to be Forward Compatible. See the Forward Compatible Plans (Appendix M) for the proposed location. The BEB chargers, charging yard, and pedestrian pathway from the layover spaces to the comfort

station will be installed by Sound Transit. The Forward Compatible area shall consist of the following:

- An area of 25 feet wide by 185 feet long adjacent to the layover space, with the far end tapering from 25 feet wide to 15 feet wide over the last 60 feet. Sound Transit will install the BEB infrastructure and a 4 feet wide pathway connecting the layover spaces to the comfort station. This area shall be included in all design submittals. The Design-Builder shall grade the area prior to Charging Yard Handover.
- An area 50 feet by 50 feet for the charging yard. This area shall be setback a minimum of 5 feet from the building foundation, and with a 6 feet wide pathway connecting the two areas.

- Two lanes of bus layover space with a minimum of 320 total feet of usable length (minimum total of 350 feet including tapers). The first 250 feet of the usable length shall be on a tangent to support the parking operation of the BEB buses over the induction charging pads.
- The SR 522 Transit Hub BRT Station roundabout shall be designed for both a 45-foot bus (with bike rack) and a 60-foot articulated bus (with bike rack). The center inscribed circle shall be paint.
- Sidewalks shall be a minimum of 12 feet wide unless noted elsewhere in this Section.
- The Design-Builder shall provide a Customer Emergency System (CES) at the start and end of the pathway to the North Creek Trail from the SR 522 Transit Hub. Additional CES shall be provided along the pathway ensuring that the maximum distance along the pathway between each CES is less than 600 ft. The CES shall support a Talkaphone ETP-MTE-72 or latest iteration of call station tower model equipped with a blue light along with a Talkaphone VOIP-500E or latest iteration of call station model and integrate with the existing Sound Transit systems. The Design-Builder shall ensure camera coverage along the pathway meets the minimum pixel densities for the areas as indicated in the Sound Transit Camera Coverage and Resolution Requirements (Appendix S).
- The plaza space shall contain the following:
  - Concrete foundations for 32 bike locker spaces and 24 bike rack spaces
  - Pathway connecting the SR 522 Transit Hub BRT Station to the SR 522 DA BRT Station

2.27.5.2.3 *SR 522 DA BRT Station Area*

South of the northbound platform, a minimum of an 8 feet sidewalk shall be provided from the face of curb to the bridge column.

2.27.5.2.4 *Canyon Park BRT Station Area*

A minimum of a 10 feet wide pedestrian path shall be provided between the existing pedestrian bridge and the Canyon Park Park and Ride elevators. The plaza space shall contain the following:

- Concrete foundations for 24 bike locker spaces and 24 bike rack spaces
- Planter benches
- Elevator
- Comfort station
- Railings and stairs

2.27.5.2.5 *Pavement*

The pavement section for the BRT Stations shall meet the minimum requirement in Section 2.7, *Pavement*.

2.27.5.2.6 *BRT Station Area Sidewalk and Concrete Plaza Paving*

The sidewalk and concrete plaza paving shall be constructed in accordance with the Transit Facilities Architectural and Urban Design Criteria (Appendix S).

Plaza paving materials with slip-resistant qualities shall be used to increase pedestrian safety and accommodate the needs of individuals with disabilities. Pedestrian surfaces such as pedestrian bridges, stairs, landings, and areas around equipment shall have high slip-resistant properties. Finish surface materials shall meet the static coefficient of friction as defined in the ADA Standards and Dynamic Coefficient of Friction (DCOF) AccuTest (ANSI A137.1 Section 9.6) or better.

Water or water runoff (such as from planting areas) shall not drain across walkways or plazas.

2.27.5.2.7 *Ramp, Site Stairs, Railings, and Bollards*

The Design-Builder shall provide site stairs, ramp, and associated railings that shall comply with WAC Title 51, and the parameters indicated in the Sound Transit *Design Criteria Manual* (Appendix S), the Vertical Construction Specifications (Appendix S), and the Transit Facilities Architectural and Urban Design Criteria (Appendix S). All stairs in the Project shall be considered public in accordance with the Sound Transit *Design Criteria Manual*. The Design-Builder shall ensure all pedestrian plaza surfaces adhere to ADA guidelines and have uniform slopes of 1–2 percent in all directions. The Design-Builder shall limit the need for site stairs and ramps.

In areas where stairs or ramps are proposed, open handrails and railings shall be used instead of solid walls, to maintain visibility and to adhere to CPTED principles and guidelines. Handrails and top guardrails in site stairs and ramps shall be stainless steel Type 316 with a satin finish. The railings shall have two horizontal pipes and vertical pipes at 4’-0” on center at a minimum.

All railing base plate connections shall be concealed.

Railings adjacent to BRT Platforms shall be stainless steel Type 316 with a satin finish.

The Design-Builder shall minimize design solutions that may be susceptible to skateboarders. If potential skateboard areas are unavoidable, provide significant breaks in

surfaces (preferred) or durable skateboard deterrents on surface edges at no more than 30-inch centers.

The Design-Builder shall provide railings in the median at the Brickyard BRT Station Area where no detectable warning tile is provided. The Design-Builder shall install a maintenance swing gate with the bollards and railing leading to the maintenance vehicle parking spot.

The Design-Builder shall provide railings at the end of the pedestrian bridge to prevent people from crossing between BRT Platforms where there is no designated crosswalk at the Canyon Park BRT Station.

The Design-Builder shall provide bollards at the end of the BRT Platforms and the north end of the west plaza at the Brickyard BRT Station, to protect against potential vehicular threats. Bollards shall be K8 impact rated and high visibility contrast painted.

2.27.5.2.8 *Bike Locker Pad*

The Design-Builder shall construct concrete bike locker foundations for the required spaces at each BRT Station Area. The foundations shall be constructed in accordance with the WSDOT Standard Plans for sidewalk with the thickness per the manufacturer's requirements. Bike lockers provide up to two bike spaces based on the accessibility of each door. Each bike rack provides two bike spaces. Canopy coverage at bicycle storage areas is not required.

2.27.5.2.9 *Plaza Lighting*

The Design-Builder shall be responsible for designing and installing lighting for the plaza areas. The Design-Builder shall prepare lighting photometric calculations for these areas demonstrating that the illumination level in the plaza meets the illumination levels as indicated in the Sound Transit *Design Criteria Manual* (Appendix S).

Lighting in the SR 522 Transit Hub charging yard and bus charging layover zones will be designed and installed by others. Illumination of the SR 522 Transit Hub and SR 522 Direct Access BRT Station Areas shall be designed and constructed in accordance with Chapter 21 of the Sound Transit *Design Criteria Manual* (Appendix S) as noted below. See SR 522 Transit Hub Light Levels (Appendix S).

- Sidewalks and planter areas shall be designed to light levels for "Pedestrian Walkways".
- BRT Platform lighting shall be designed by others. The Design-Builder shall install all underground conduit, junction boxes conduit stubs, and foundations for this work. Locations shall be coordinated with Sound Transit during design and construction.
- All plazas and amenities (bike lockers, etc.) shall be designed to light levels for "Open Plaza".
- The transit loop roadway shall be designed to light levels for "Bus Loading Zones, Bus Roadways".

- All landscaping areas shall be designed to a minimum horizontal light level of 2.0 foot-candle, including the following:
  - From the entrance of the Transit Hub to the transition curve between the BRT drop-off platform and the BRT layover space.
  - The area between the back of the BRT drop-off platform and southbound I-405.
  - The area between the southbound I-405 to WB SR 522 connection ramp to the northside of the transition curve between BRT drop-off platform to the BRT layover space.
- The drop-off/pick-up loop roadway shall be designed to light levels for "Passenger Drop-Off".
- All other roadway segments at the Transit Hub shall be designed to light levels for "Bus Loading Zones, Bus Roadways".
- All Sound Transit maintained illumination systems shall be connected to a Sound Transit electrical service.

2.27.5.2.10 *Pavement Markings*

Each bus pullout and bus only lane shall include a "Bus Only" pavement marking at the beginning, sized in accordance with the WSDOT Standard Plans. Pavement markings shall be methyl methacrylate (MMA).

2.27.5.2.11 *Sound Transit Customer Signage*

The Design-Builder shall prepare a customer signage plan for Sound Transit. The plan shall identify locations where Sound Transit customer signs are to be installed at the BRT Stations. The Design-Builder shall label the plan in accordance with the Sound Transit Customer Signage Design Manual (Appendix S).

The Sound Transit Customer Signage Plan shall include sign drawings (other than Standard Plans) showing details of sign mounting and foundations. A conceptual Customer Signage Plan has been included in Appendix S. The Design-Builder shall select the appropriate mounting type in accordance with the Sound Transit Customer Signage Design Manual (Appendix S) and WSDOT Standard Plans. The Design-Builder shall ensure installation locations and mounting hardware do not conflict with the reinforcing requirements for sidewalk, BRT Platforms, traffic barrier, and bridge deck.

The Design-Builder shall submit the Sound Transit Customer Signage Plan to the WSDOT Engineer for Review and Comment as part of the Preliminary and Final Design Submittals, in accordance with Section 2.28, *Quality Management Plan*, and in accordance with the Sound Transit Customer Signage Design Manual (Appendix S).

Sound Transit will provide all Sound Transit customer signage. The Design-Builder shall construct the foundations and/or mounting brackets for the Sound Transit customer signs, listed in this Section, in accordance with the Sound Transit Customer Signage Plan.

The Design-Builder shall locate Sound Transit customer signs in illuminated areas meeting the pedestrian and transit facilities illumination levels as indicated in the Sound Transit Design Criteria Manual (Appendix S).

At a minimum, the plan shall include installation locations for the following signs:

- Two A1 station identification signs
- One A3 station identification sign
- One A6 station identification sign
- Three B3 platform identification signs
- One C1 customer information sign
- One C2 customer information sign
- Two C4 customer information signs
- Two C6 customer information signs
- Three C6.D customer information signs
- Twenty-one D2 directional signs
- Fifteen D3 directional signs
- Nine D14 directional signs
- Two E1 bus identification signs
- One E3 bus identification sign
- Fourteen F1/F2.J facility amenity signs
- Three F1.D facility amenity signs
- Fourteen F3.A facility amenity signs
- Five F5 facility amenity signs
- Three G5 directional guide signs
- One R1.B regulatory sign
- One R1.D regulatory sign
- One R1.E regulatory sign
- Six R1.H regulatory signs
- Two R1.I regulatory signs
- Four R1.J regulatory signs
- Two R3 regulatory signs
- Six Passenger Information Management Signs (PIMS)

See Section 2.31, *Vertical Construction* for additional customer signage requirements.

2.27.5.2.12 *Sound Transit Closed-Circuit Television Cameras*

The Design-Builder shall submit a camera coverage survey as part of the Preliminary and Final Design Submittals. The camera coverage survey shall show the camera locations and coverage. CCTV coverage shall be in accordance with the Sound Transit *Design Criteria Manual* and the requirements outlined in the Sound Transit Camera Coverage and Resolution Requirements (Appendix S).

For the BRT Improvements, the Design-Builder shall provide a fully functioning facility CCTV system inclusive of conduit systems, cabling, cameras, and facility Network Video Recorders (NVR) to support the facility CCTV camera system in addition to what is indicated in Section 2.31, *Vertical Construction*. The CCTV system must integrate to the existing Sound Transit Genetec backend (Genetec Installation - System ID: GSC-170727-498766) and be comprised of Axis M3058-PLVE, Axis P3267-LVE or latest iteration of camera models.

The Design-Builder shall provide conduit systems to support the CCTV cameras at the BRT Platforms. Refer to the Sound Transit *Design Criteria Manual* (Appendix S) for requirements. The CCTV cameras will be supplied and installed by Sound Transit at the BRT Platforms. For WSDOT CCTV camera requirements see Section 2.18, *Intelligent Transportation Systems*.

2.27.5.2.13 *Tactile Wayfinding Path*

The Design-Builder shall provide tactile wayfinding provisions to assist people with disabilities, who are blind or have vision impairments. The tactile path shall be provided to guide the users through the BRT Station.

A tactile waiting area shall be provided in front of the elevator door at each public landing. The area shall consist of 12-inch by 12-inch nominal dark gray precast concrete ribbed pavers. The minimum dimension shall be 4 feet by 6 feet, centered, at the elevator door.

The materials and typical pattern of tactile wayfinding shall be in accordance with the Vertical Construction Specifications (Appendix S) and the Sound Transit Architectural Directive Drawings (Appendix S).

The Design-Builder shall provide tactile wayfinding paths at the following locations:

SR 522 Transit Hub and SR 522 DA BRT Stations

- Connect the accessible boarding areas of the SR 522 Transit Hub BRT Station and the SR 522 DA BRT Station through the plaza, sidewalks, and platforms. The tactile wayfinding path shall be 3 feet from the detectable warning tiles at the platform edge.

2.27.5.3 BRT Platforms

The Design-Builder shall construct BRT Platforms at each BRT Station. The Design-Builder shall coordinate with Sound Transit for the final configuration of the BRT Platforms at each BRT station.

2.27.5.3.1 *BRT Platform Requirements*

The BRT Platforms shall meet the following requirements:

- Provide a minimum BRT Platform length of 150 feet.
- Within the BRT Platform length, the Design-Builder shall:
  - Provide length for a minimum of two 60-foot articulated buses, as described in Transit Bus Dimensions (Appendix S) except where noted.
  - Provide a minimum of 10 feet from the lead boarding end of the platform to the start of ribbed pavers for the accessible clear boarding area except where noted. The front bumper of the first bus shall align with this ribbed paver. See the Sound Transit BRT Platform Configuration Minimum Requirement (Appendix S).
  - Provide a minimum of 10 feet between the back of the first bus and the front bumper of the second bus.
- The BRT Platform shall be 9 inches high.
- The running slope of the sloped walkway between the BRT Platform and the sidewalk shall not exceed 5 percent.

The Design-Builder shall provide anchor bolts for each vertical column and base plate for the future Sound Transit canopy. Anchor bolts shall be cast-in-place with the concrete foundation for the future Sound Transit canopy. See the *I-405 Bus Shelter Foundation Reactions Memo* (Appendix S). The Design-Builder shall coordinate with Sound Transit on the geometry, spacing, and arrangement of the cast-in-place anchors for the future Sound Transit platform canopies. The Design-Builder shall provide temporary protection of exposed anchor bolts.

2.27.5.3.2 *Brickyard BRT Station*

The Brickyard BRT Station shall include northbound and southbound BRT Platforms in the median of I-405, south of the NE 160th Street Interchange.

The BRT Platforms shall be a minimum of 16 feet-6 inches wide.

The BRT Platforms may overlap the stair surge zone.

2.27.5.3.3 *SR 522 Transit Hub BRT Station*

The SR 522 Transit Hub BRT Station shall include a pick-up platform (south side) and a drop-off platform (east side).

- Pick-up Platform
  - The platform shall be a minimum of 270 feet long.
  - The platform shall be designed for a BRT Platform with a 60-foot articulated bus at the lead boarding end. The BRT Platform shall provide a minimum of 12 feet from the end of the BRT Platform to the start of ribbed pavers for the accessible clear boarding area.
  - A crosswalk to the PUDO loop curb space shall be located between the first and second buses. The crosswalk shall be a minimum of 8 feet wide.

- The platform shall be designed for a second 60-foot articulated bus located west of the crosswalk. The location of the second bus shall allow for independent arrival of the first bus (sufficient space for the first bus to meet the docking requirements of this Section at the BRT Platform while the second bus is docked).
- The platform shall provide sufficient space for a third bus, a 40-foot bus, to dock behind the second 60-foot articulated bus. See the Transit Bus Dimensions (Appendix S) for more information.
- The pick-up platform width shall be a minimum of 12 feet 6 inches with an additional 10-foot attached sidewalk.

- The drop-off platform width shall be a minimum of 16 feet 6 inches.

2.27.5.3.4 *SR 522 Direct Access BRT Station*

The SR 522 DA BRT Station shall include northbound and southbound BRT Platforms along the new SR 522 DA ramps.

The northbound BRT Platform width shall be a minimum of 14 feet 6 inches.

The northbound BRT Platform shall not overlap with the existing bridge column for the westbound to southbound flyover.

A minimum of 3 feet of horizontal landscaped area shall be provided behind the full length of the BRT Platform shelters and Stride Pylon at the northbound BRT Platform.

The southbound BRT Platform width shall be a minimum of 12 feet 6 inches.

The southbound BRT Platform shall provide a minimum of 12 feet from the lead boarding end of the BRT Platform to the start of ribbed pavers for the accessible clear boarding area.

2.27.5.3.5 *Canyon Park BRT Station*

The Canyon Park BRT Station shall include new northbound and southbound BRT Platforms along the 17th Avenue SE direct access ramps.

The minimum width of the BRT Platform shall be 12 feet.

The BRT Platforms shall not overlap the pedestrian bridge width.

The southbound BRT Platform shall provide a minimum of 12 feet from the lead boarding end of the BRT Platform to the start of ribbed pavers for the accessible clear boarding area.

2.27.5.3.6 *Stormwater*

The Design-Builder stormwater design shall include the BRT Platforms and the future BRT shelters, as shown in the Sound Transit *BRT Station Design Plans and Details* (Appendix S). The design shall conform to Section 2.14, *Stormwater*.

The platforms shall have a cross slope between 1 and 2 percent to drain the platforms towards the roadway. Water from planting areas or water runoff from BRT shelter shall not drain across platforms, walkways or plazas.

2.27.5.3.7 *Bus Docking*

The Design-Builder shall submit an Autoturn analysis utilizing a minimum speed of 5 mph illustrating the platform length meets the following criteria for all buses shown in the Transit Bus Dimensions (Appendix S):

- Front Bus: All doors of the front bus shall dock within 6 inches horizontally from the face of platform. The front door shall align with the ribbed paver on the platform.
- Second Bus and third bus: The front door of the second and third buses shall be within 6 inches horizontally from the face of platform. If the back doors are more than 6 inches away from the platform, they shall be a minimum of 18 inches away to allow safe space to step off.
    - At the SR 522 Transit Hub pick-up platform, the second bus shall meet the requirements of the front bus.
- Buses shall be fully within the platform and pullout when docking.

2.27.5.3.8 *Accessible Clear Boarding Area*

Each BRT Platform shall contain an accessible clear boarding area per International Code Council (ICC) A117.1. An accessible clear boarding area shall be a minimum of 100 inches deep and 60 inches wide. The Design-Builder shall construct six feet by six feet concrete ribbed boarding pavers and assembly overlapping the accessible clear boarding area of the BRT Platforms for the front bus only. An accessible clear boarding area without concrete ribbed boarding pavers shall be provided for the second and third buses.

The detailing and profile of the design of the concrete ribbed boarding pavers, and the concrete ribbed boarding pavers assembly shall be in accordance with the Sound Transit *BRT Station Design Plans and Details* (Appendix S). The materials used for the accessible clear boarding area shall comply with the Sound Transit BRT Station Material Requirements (Appendix S).

The Design-Builder shall coordinate with Sound Transit for the final configuration of the accessible clear boarding area.

2.27.5.3.8.1 SR 522 Transit Hub BRT Platform

The Design-Builder shall construct six feet by six feet concrete ribbed boarding pavers and assembly located in the accessible clear boarding area of the pick-up platform for the first and second buses.

2.27.5.3.9 *Platform Edge*

The Design-Builder shall construct 2-foot-wide detectable warning tiles and assembly along the entire BRT Platform edge. The detailing and profile of the design of the detectable warning tiles and assembly shall be in accordance with the Sound Transit *BRT Station Design Plans and Details* (Appendix S). The materials used at the BRT Platform edge shall comply with the Sound Transit BRT Station Material Requirements (Appendix S).

The Design-Builder shall coordinate with Sound Transit for the final configuration of the BRT Platform edge.

2.27.5.3.10 *Platform Materials*

The BRT Platforms are comprised of differing material requirements depending on the location within the BRT Platform. Details are shown in the Sound Transit *BRT Station Design Plans and Details* (Appendix S).

The detectable warning tiles shall be constructed by a company specializing in performing tile installation, with a minimum of 5 years' documented experience.

The Design-Builder shall design and construct the material below the detectible warning strips as a reinforced concrete slab on grade. The slab on grade shall include a continuous reinforced grade beam that is a minimum of 2 feet deep by 2 feet wide to support the detectable warning tiles as well as anchor zone for rub rail and curb angle and studs. It shall include thickened edge slabs as indicated in the Sound Transit *BRT Station Design Plans and Details* (Appendix S). The materials utilized for the platforms beneath the detectable warning tiles shall be in accordance with the WSDOT Standard Plans for sidewalks.

The Design-Builder shall construct a continuous foundation that is a minimum of 2 feet deep by 6 feet 6 inches wide along the full-length of the back of the BRT Platforms as shown in the Sound Transit *BRT Station Design Plans and Details* (Appendix S). The Design-Builder shall design and construct the foundation in accordance with applicable structural criteria and for the reactions provided in the Structural I-405 Bus Shelter Foundation Reactions Memorandum (Appendix S) as well as for the reactions exerted on the foundation by a 25-foot-tall light pole. The Design-Builder shall coordinate the foundation reinforcement with the Sound Transit elements that will be attached to the foundation and ensure the reinforcement will not conflict with above grade elements, including but not limited to shelter columns, BRT Pylons, data cabinets, light poles, ngORCA Ticket Vending Machines, and the ngORCA Wayside Validators.

The foundation shall include conduit at each BRT Platform as described in this Section.

The material utilized between the detectible warning strip foundation and the continuous foundation for the BRT shelters and appurtenances shall be concrete sidewalk in accordance with WSDOT Standard Plans.

2.27.5.3.10.1 SR 522 Transit Hub BRT Platform

The Design-Builder shall construct a continuous foundation for the shelter and appurtenances as described above for the first bus at the Pick-up platform.

No continuous foundation for the shelter and appurtenances shall be installed at the drop-off platform.

2.27.5.3.11 *Surface Requirements*

The platforms and the associated sloped walkway surfaces shall meet static coefficient of friction as defined in the ADA Standards and Dynamic Coefficient of Friction (DCOF) AccuTest (ANSI A137.1 Section 9.6) or better.

Expansion joints shall be constructed in relation to the platform layout control point as shown in the Sound Transit *BRT Station Design Plans and Details* (Appendix S).

The Design-Builder shall utilize integral colored concrete for platform paving in a neutral/grey color. The finish shall be CIP-9, in accordance with the Vertical Construction Specifications (Appendix S). Expansion joint sealant shall match the color of the adjacent pavement.

Manholes, junction boxes, vaults, and hand holes that must be located on platforms and the associated sloped walkways shall have a decorative concrete cover. Stamped steel tops shown on WSDOT standards shall not be used. The concrete decorative cover shall be Wonder Cover 90-105-10D-7.5F-P-SS or approved equal.

2.27.5.3.12 *Sound Transit Supplied and Installed Equipment*

The Design-Builder shall coordinate connections and foundation requirements with Sound Transit for elements that Sound Transit provides and installs for the BRT Platforms as indicated in the Sound Transit *BRT Station Design Plans and Details* (Appendix S).

2.27.6 *Utilities*

The Design-Builder shall provide water, electrical service, and communications at each BRT Station. The Design-Builder shall furnish, permit, design, construct, test, and commission the Utilities. For sewer requirements see Section 2.31, *Vertical Construction.*

The Design-Builder shall coordinate connections and foundation requirements with Sound Transit for elements that Sound Transit provides and installs for the BRT Platforms as indicated in the Sound Transit *BRT Station Design Plans and Details* (Appendix S).

The Design-Builder shall follow each Utility Owner Standards for service connections required for each BRT Station. The Design-Builder shall determine all Utility services required for the BRT Stations and coordinate connection points to the platforms. See Illustrative Representation of a BRT Platform (Appendix S) for an illustrative representation of the Utility connections.

The Design-Builder shall provide all supporting documents, including, but not limited to, plans, details, exhibits, photos, and calculations to Sound Transit to apply for the applicable franchise, permit, or lease. WSDOT will compile, prepare, and execute franchises or permits in accordance with Section 2.10, *Utilities and Relocation Agreements*.

The Design-Builder shall prepare service applications for Sound Transit to apply for service. The Design-Builder shall be responsible for all service connection costs, including but not limited to permit fees, materials, Utility inspection fees, and the cost of the Utility installation.

Prior to each handover, the Design-Builder shall complete the final start-up, including conducting testing and commissioning of each Utility in accordance with Section 2.10, *Utilities*, and the Vertical Construction Specifications (Appendix S).

The Utility supply account shall be transferred to Sound Transit at handover. The Design-Builder shall remain responsible for the start-up of and payment for BRT Station Utilities necessary to complete the work up to that time even if permanent connections have been installed and are in use. No disruption to Utilities shall occur after handover.

The Design-Builder shall utilize Sound Transit asset naming conventions as indicated in the Sound Transit Equipment and Facilities Numbering Standard (Appendix S).

2.27.6.1 Water Service Connections

The Design-Builder shall provide water service connections at each BRT Station from the following Utility Owners:

- Brickyard BRT Station – Northshore Utility District (NUD)
- SR 522 DA BRT Station – City of Bothell
- SR 522 Transit Hub BRT Station – City of Bothell
- Canyon Park BRT Station – Alderwood Water District (AWWD)

The Design-Builder shall provide equipment information for the water system such as meter number, model, and serial number for backflow preventers, pressure reducing valve, and yard hydrant for Sound Transit to review prior to Platform Handover.

2.27.6.1.1 *Water Distribution*

The Design-Builder shall design the BRT Station water distribution to provide water to yard hydrants and vertical construction elements at each BRT Station. For vertical construction elements requiring water service see Section 2.31, *Vertical Construction*. The water distribution shall comply with all applicable codes and authority having jurisdiction requirements.

Floor mounted yard hydrants shall be located on each BRT Platform and plaza. Yard hydrants shall be located where a 75-foot hose can reach the full length of the BRT Platform, sidewalk, sloped walkway, and plazas to be maintained by Sound Transit. The yard hydrant water source shall be available all year.

The Design-Builder shall provide a water meter, backflow prevention device, and pressure-reducing valve station required for service to the proposed yard hydrants, which shall be in an underground utility vault.

The water source for floor mounted hydrants and hose bibs shall be available all year. Floor mounted hydrants and hose bibs shall be compatible with a 3/4-inch hose, freeze-proof type, key-operated, ASSE 1052, current UPC and approved by the authority having jurisdiction. The hydrants and hose bibs shall be installed in cast brass and satin nickel plated or similar material hydrant box. The box cover shall be opened with the same hydrant key. Wall mounted hydrant boxes shall be installed flush to the finished wall surface. Floor mounted hydrant boxes shall be installed flush to the finished platform surface and sidewalk surface. The hose bib, and the pipe feeding the bib, shall be manually drainable, a drain valve shall be provided, downstream, next to the main shutoff valve. The water lines for hose bibs shall be sloped toward the main shut off valve which shall be located in an underground valve box.

Underground water pipe serving the hydrants shall not be smaller than 1½-inch-diameter. Water supply pressure shall be maintained uniformly at a minimum of 20 psi. The Design-Builder shall verify with each respective agency if individual pressure reducing valves are required for any services to a hydrant due to system pressures based on final design.

Water meters are preferred to be located in unpaved areas of the BRT Station such as landscaped areas. Utility service minimum pipe sizes shall be determined based on Utility Owner standards and their required calculations. The water supply line shall be installed underground below the frost line, at a minimum of 24 inches deep with the exception of the SR 522 bridge at North Creek (Bridge No. 522/28S). The Design-Builder shall submit service sizing to the WSDOT Engineer for Review and Comment.

2.27.6.2 Electrical Service and Distribution

The Design-Builder shall coordinate and provide electrical service connections at each BRT Station from the following Utility Owners:

- Brickyard BRT Station – Puget Sound Energy
- SR 522 DA BRT Station – Puget Sound Energy
- SR 522 Transit Hub BRT Station – Puget Sound Energy
- Canyon Park BRT Station – Snohomish County Public Utility District

The Design-Builder shall coordinate with the Utility Owner to identify the nearest electrical service point of connection and size the electrical service for each location. Utility service connections shall comply with Utility Owner requirements.

The Design-Builder shall coordinate capacity for input feeder cables and for distribution to all elements requiring power. The Design-Builder shall size the electrical conduits based on the on the size of conductors so that conduit fill is not exceeded.

The Design-Builder shall provide a 9.5kVA load for each BRT Platform.

The Design-Builder shall install the required below-grade electrical conduits. No electrical taps will be allowed.

The Design-Builder shall secure conduit stub-ups with a cover of contrasting color to the surrounding pavement. Conduit stub-ups, and stub-outs from concrete, shall be galvanized steel.

The electrical distribution systems shall conform to parameters as indicated in the Vertical Construction Specifications (Appendix S).

The Design-Builder shall be responsible for excavating a pathway between the electrical service point of connection and the transformer. The Design-Builder shall be responsible for restoring said pathway after the Utility Owner has completed their work.

The Design-Builder shall coordinate design and construction of transit facility electrical utility connections with the requirements of Section 2.16, *Illumination*.

The Design-Builder shall provide sufficient conduit to allow for CCTV installation at the BRT Platforms. For power requirements for vertical construction see Section 2.31, *Vertical Construction.*

2.27.6.2.1 *Brickyard BRT Station*

The Design-Builder shall install conduit between the electrical room at the west plaza through the pedestrian bridge to the electrical rooms on the northbound BRT Platform, southbound BRT Platform, and the east plaza.

The Design-Builder shall install conduit to support digital passenger information signs located at the east plaza, west plaza, entrances to the pedestrian bridge, and elevator plazas. The Design-Builder shall install conduit to support the back-up generator.

2.27.6.2.2 *SR 522 Transit Hub BRT Station and SR 522 DA BRT Station*

The Design-Builder shall coordinate with the Utility Owner to install a power connection point within the interior of the transit hub. The Design-Builder shall develop and submit a service application that accounts for the power needed for BEB, BRT Station Areas, and WSDOT facilities.

The Design-Builder shall install conduit between the SR 522 Transit Hub electrical room and the power cabinet at the pick-up platform, drop-off platform, and the northbound and southbound BRT Platforms at the SR 522 DA BRT Station.

The Design-Builder shall provide civil infrastructure equipment pads and provisions for all transformers. Transformer requirements for the SR 522 Transit Hub BRT Station are indicated below.

- BRT Station Area
  - BRT Station Area: 100 kVA 120/240V single phase
  - The Design-Builder shall provide conduit and conductors from the transformer to the comfort station electrical room.
- BEB transformer
  - Sound Transit BEB charging: 1000 kVA service with a 480V three-phase secondary
  - The Design-Builder shall provide conduit from the BEB transformer to a stub up location near the edge of the charging yard.
  - The Design-Builder shall seal conduit for later connection to work by others.
- WSDOT transformer(s) shall meet the requirements of Section 2.16, *Illumination.*

2.27.6.2.2.1 Inductive Charging Tubs

Sound Transit will furnish two Ideanomics WAVE charging pad tubs (charging pad tubs) with temporary tub cover for installation by the Design-Builder. The Design-Builder shall submit a notification to the WSDOT Engineer 90 Calendar Days in advance of

installation of the charging pad tubs. The Design-Builder shall coordinate with Sound Transit for delivery of the charging pad tubs.

The charging pad tubs shall be cast-in-place with the pavement in the charging yard and parallel to the adjacent curb as illustrated in the Sound Transit BRT Station Design Plans and Details (Appendix S). The finished surface of the charging pad tub shall match the slope of the pavement. Curb geometry shall be tangent in areas where buses will be parked over the inductive charging pad tubs. The center of the charging pad tubs shall be installed 57 inches from the adjacent curb. The center of the charging pad tub, normal to the adjacent curb, shall be located 12 feet from the face of the bus, not including the bike rack at the front of the bus. Charging lane geometry shall be designed and constructed to allow Sound Transit design vehicle to enter the charging lanes and park the centerline of the bus over, and in alignment with, the centerline of the charging pad tub. Bus charging lane pavement section and reinforcement shall be designed and constructed to support the charging pad tub with the Sound Transit design vehicle loading.

The Design-Builder shall install six 3-inch conduits from the charging pad tubs to a junction box offset 48 inches from the back side of the adjacent curb. The installation of the charging pad tub power and cooling will be performed by others after Charging Yard Handover. The Design-Builder shall ground the tub with 4AWG bare copper wire and two 5/8 inch x 8 feet ground rods. See WAVE Pad Construction Information (Appendix S).

2.27.6.2.3 *Canyon Park BRT Station*

The Design-Builder shall install conduit between the electrical room at the plaza through the pedestrian bridge to the northbound and southbound BRT Platforms.

The Design-Builder shall install conduit to support digital passenger information signs located at the Canyon Park Park and Ride, plazas, entrances to the pedestrian bridge, and elevator plazas. The Design-Builder shall install conduit to support the back-up generator.

2.27.6.3 Data Service Requirements

The Design-Builder shall provide required data service connections at each BRT Station. The Design-Builder shall coordinate design and construction of transit facility data connections with the requirements of Section 2.16, *Illumination* and Section 2.18, *Intelligent Transportation Systems*.

The Design-Builder shall provide a commercial fiber connection from Ziply or Lumen to each BRT Station. The Design-Builder shall construct two 2-inch conduits and junction boxes connecting the commercial fiber connection to the communication equipment room.

The Design-Builder shall be responsible for the coordination, scheduling, and construction of all infrastructure to support the fiber connection from the commercial fiber provider junction box into the main communication room. Within the main communication room, the Design-Builder shall coordinate with the commercial fiber provider for installation of their equipment in the communication room and activating the

service. The fiber service will support all data services for the Design-Builder facility systems and the complete Sound Transit BRT Station systems.

The Design-Builder is to ensure a fully functioning communication network at each BRT Station is designed and built to support the Design-Builder facility systems and the complete Sound Transit BRT Station systems. The Design-Builder shall install the Sound Transit provided network switching equipment in each communication equipment room in accordance with the Vertical Construction Specifications (Appendix S).

The Design-Builder shall coordinate with WSDOT to connect to a WSDOT cable vault near each BRT Station. The Design-Builder shall install a 3-inch communication conduit from the WSDOT cable vault to a pull box at each BRT Station. The Design-Builder shall connect two 2-inch conduits from the pull box to the communication equipment room.

Data connections shall connect into the communication equipment room, routed to the data cabinet on each BRT Platform, and then be distributed to the individual locations. A minimum of two 2-inch conduits shall be provided from the communication equipment room to the data cabinet at each BRT Platform.

The Design-Builder shall coordinate the locations of the data cabinet with the WSDOT Engineer. The Design-Builder shall ensure the data cabinet is positioned in the BRT Station where the maximum length of communication conduit pathway from the data cabinet to a stub up located on the BRT Platform does not exceed 250 feet. Stub-up locations for the BRT Platforms are shown in the Sound Transit *BRT Station Design Plans and Details* (Appendix S).

The Design-Builder shall provide sufficient conduit to allow for CCTV installation at the BRT Platforms. For communication requirements for vertical construction see Section 2.31, *Vertical Construction.*

2.27.6.3.1 *Brickyard BRT Station*

The Design-Builder shall install conduit and the required fiber cabling to support a fully functioning facility including installation of fiber between the communication equipment room at the west plaza through the pedestrian bridge to the communication equipment rooms on the northbound BRT Platform, southbound BRT Platform, and the east plaza in addition to installation of fiber cabling to support the Design-Builder provided equipment and systems including but not limited to heating, cooling, fire suppression, building management, access control, security, camera surveillance systems, vertical conveyance and IT. Fiber cabling is to be terminated and connected to the network switching equipment in each room to ensure a fully functioning facility network is established.

The Design-Builder shall install conduit to support digital passenger information signs located at the east plaza, west plaza, entrances to the pedestrian bridge, and elevator plazas. The Design-Builder shall install conduit to support the back-up generator.

2.27.6.3.2 *SR 522 Transit Hub BRT Station and SR 522 DA BRT Station*

The Design-Builder shall install conduit and the required fiber cabling between the communication equipment room and the Transit Hub Plaza, in addition to installation of

fiber cabling to support the Design-Builder provided equipment and including but not limited to heating, cooling, fire suppression, building management, access control, security, camera surveillance systems, vertical conveyance and IT to support a fully functioning facility including installation of fiber to support digital passenger information signs, customer emergency phones, surveillance cameras located throughout the BRT Station. Fiber cabling is to be terminated and connected to the network switching equipment in each room to ensure a fully functioning facility network is established.

The Design-Builder shall install conduit between the SR 522 Transit Hub communication equipment room and the data cabinet at the pick-up platform, and the northbound and southbound BRT Platforms at the SR 522 DA BRT Station. The Design-Builder shall provide a Customer Emergency Station (CES) along the pathway at the midpoint between the SR 522 Transit Hub pick-up platform and the SR 522 DA BRT Platforms. The CES shall support a Talkaphone ETP-MTE-72 or latest iteration of model of call station tower with a Talkaphone VOIP-500E or latest iteration of model of call station and integrate the CES with the existing Sound Transit systems.

2.27.6.3.3 *Canyon Park BRT Station*

The Design-Builder shall install conduit and the required fiber cabling to support a fully functioning facility including installation of fiber between the communication equipment room at the plaza to the communication equipment room on the plaza 3rd floor, in addition to installation of fiber cabling to support the Design-Builder provided equipment and systems including but not limited to heating, cooling, fire suppression, building management, access control, security, camera surveillance systems, vertical conveyance and IT. Fiber cabling is to be terminated and connected to the network switching equipment in each room to ensure a fully functioning facility network is established.

The Design-Builder shall install conduit to support digital passenger information signs located at the Canyon Park Park and Ride, plazas, entrances to the pedestrian bridge, and elevator plazas. The Design-Builder shall install conduit to support the back-up generator.

2.27.6.4 Electrical and Data Conduits and Stub-outs

The Design-Builder shall provide conduit pathways between power and data cabinets and designated at-grade locations for shelters and equipment, including CCTV cameras.

All conduits shall be concealed below grade and the Design-Builder shall secure conduit stub-ups with a cover of contrasting color to the surrounding pavement. Conduit stub-ups, and stub-outs from concrete, shall be galvanized steel.

The Design-Builder shall provide the following electrical and communications conduits below grade:

- Shelter: one 1-inch electrical conduit and one 2-inch communications conduit at each end column of the shelter to provide a connection to above-grade internal raceway in the shelter
- BRT Pylon: one 2-inch electrical conduit to one column and one 1-inch communications conduit to another column

- Ticket Vending Machine (TVM): one 2-inch electrical conduit and one 1-inch communications conduit
- Wayside Validators ngORCA (post mounted): one 1-inch communications conduit
- Customer Emergency Station (CES): one 1-inch communications conduit
- Sound Transit Light Pole: one 2-inch electrical conduit and one 1-inch communications conduit
- Passenger Information Sign: one 2-inch electrical conduit and one 1-inch communications conduit

The Design-Builder shall coordinate with WSDOT and Sound Transit regarding equipment locations, conduit stub-out locations, and conduit sizes.

2.27.7 *Field Test*

Sound Transit, in coordination with King County Metro, will conduct a field test between the Preliminary Design Submittal and the Final Design Submittal to validate transit vehicle maneuverability and ensure that the design complies with the Technical Requirements. A field test will be conducted for the SR 522 Transit Hub BRT Station including the BRT charging and layover area.

The Design-Builder shall provide notice to the WSDOT Engineer 90 Calendar Days prior to the Preliminary Design Submittal to allow Sound Transit to secure a test site. The Design-Builder shall submit the Preliminary Design Submittal and provide 60 Calendar Days for Review and Comment, so that field test comments can be included. The Design-Builder shall include CADD files in the submittal to the WSDOT Engineer for Sound Transit to test.

After the conclusion of the field test, WSDOT, Sound Transit, Community Transit, and King County Metro will provide comments informed by the bus maneuverability results. The Design-Builder and the WSDOT Engineer shall agree on changes and applicable adjustments from the field test before proceeding to the Final Design Submittal. The Design-Builder is encouraged to attend the field test.

2.27.8 *Handover*

The Design-Builder shall make the BRT Improvements available for Sound Transit installation and testing of BRT elements. The Design-Builder shall accommodate Sound Transit installation in the Design-Builder's schedule and construction activities. Illustrative areas are shown in the Handover Diagram (Appendix S).

Handover of the BRT Improvements shall occur in three stages: Charging Yard Handover, Platform Handover, and BRT Improvements Handover.

Each handover shall include a Handover Staging Plan, pre-inspection walk-through, inspection, and corrections.

The Design-Builder shall submit a Handover Staging Plan to WSDOT for Review and Comment for each handover. The Handover Staging Plan shall include:

- Dates for inspections and other activities in the process for handover

- Access plan for Sound Transit. Access shall be based on a 60-foot articulated bus as described in Transit Bus Dimensions (Appendix S).
- Expected traffic conditions
- Expected coordination activities between the Design-Builder and Sound Transit
- Schedule for when substantially complete BRT Improvements are open to transit use, general purpose, ETL traffic, and pedestrian use

The Design-Builder shall hold a pre-inspection walk-through with WSDOT and Sound Transit. At the pre-inspection walk-through the Design-Builder shall submit a package containing:

- The Released for Construction Drawings, including related revisions per the approved Quality Management Plan, for the handover elements. The drawings shall reflect the as built condition at the time of handover.
- All material and manufacturers' information as well as maintenance, operation, and training documentation and manuals.

The Design-Builder, WSDOT, and Sound Transit shall inspect the handover elements. The inspection shall include:

- Corrected Punch List items from the pre-inspection walk.
- Corrected Punch List items provided by Sound Transit and WSDOT.

When the Design-Builder has completed all Punch List items for the handover elements, handover will have been achieved. The Design-Builder shall not access the handover area for remaining work, unless otherwise indicated in this Section.

The timing for each element of handover shall be as follows:

Activity	Schedule Requirements
Handover Staging Plan	Minimum of 105 Calendar Days prior to handover. The Handover Staging Plan shall be completed at least one month prior to the pre-inspection walk through.
Pre-inspection walk through by WSDOT and Sound Transit with Design-Builder	Minimum of 75 Calendar Days prior to handover. The pre-inspection walkthrough shall be held at least 30 Calendar Days prior to inspection.
Inspection day shall be mutually agreed upon as to date and time	Minimum of 45 Calendar Days prior to handover. The inspection day shall be held at least 30 Calendar Days prior to handover.
Corrections shall be made, inspected, and confirmed satisfactory by WSDOT	Minimum of 15 Calendar Days prior to handover.

2.27.8.1 Charging Yard Handover

The charging yard area is indicated on the Forward Compatible Plans (Appendix M). Paved vehicular access to and from SR 522 shall be provided to this area via the proposed traffic signal at SR 522 and southbound I-405 off-ramp and transit center. Access shall be provided to allow a 60 foot articulated bus to circulate without reversing.

Prior to Charging Yard Handover, the Design-Builder shall complete the final start-up, including conducting testing and commissioning of the electrical service to the charging yard area.

The Design-Builder shall have the layover paving, area grading, electrical service, conduit, and the foundation for the comfort station, electrical room, and communication equipment room complete prior to Charging Yard Handover.

2.27.8.2 Platform Handover

Platform Handover shall include the BRT Platforms, adjacent bus pullouts, conduits, and all Utility services.

The Design-Builder shall provide paved vehicular access to and from each BRT Platform.

The Design-Builder and Sound Transit will have joint access to the electrical room and communication equipment rooms.

2.27.8.3 BRT Improvements Handover

All Work associated with the BRT Improvements shall be complete at this time, except for the work at the northbound SR 527 to southbound I-405 on-ramp. All lanes, ramps, and non-motorized facilities are open to the public.

2.27.8.4 Handover Plan

The Handover Plan shall describe the Work needed for a smooth handover of the BRT infrastructure. The Handover Plan shall be submitted for WSDOT Review and Comment as part of the Preliminary and Final Design Submittals.

At a minimum, the Handover Plan shall include:

- Testing and Commissioning Personnel
- Testing and Commissioning schedule for BRT infrastructure
- Testing and Commissioning processes for each handover milestone
- Handover dates

2.27.9 *Submittals*

2.27.9.1.1 *BRT Station Design Plans*

The Design-Builder shall submit plans and details for Work relating to the BRT Stations, including the Sound Transit Customer Signage Plan, in accordance with Section 2.28, *Quality Management Plan*.

2.27.9.1.2 *BRT Station Technical Specifications*

In accordance with Section 2.28, *Quality Management Plan*, the Design-Builder shall submit Preliminary, Final, and RFC Technical Specifications for the BRT Stations.

2.27.9.1.3 *Design Calculations*

In accordance with the Technical Requirements, the Design-Builder shall submit the following calculations:

- Photometric calculations for the Project
- Electrical load calculations for the BRT Platforms
- Foundation structural design for the BRT Platforms
- Autoturn analysis
- Line of sight analysis
- Camera coverage survey

2.27.9.1.4 *Sound Transit Certifiable Items List*

The Design-Builder shall develop a Safety and Security Design Conformance Checklist and submit it to the WSDOT Engineer for Review and Comment.

During the Design Phase, the Design-Builder shall review the Safety and Security Design Conformance Checklist with Sound Transit Transportation Safety and Security Specialists prior to each milestone submission.

The Design-Builder shall be responsible for documenting conformance required for the Safety and Security Certification program until all safety and security certification items are deemed closed by Sound Transit.

The Design Conformance Checklist shall confirm the CIL mitigation integration in Design Plans that all CIL items have been designed and constructed according to the Safety and Security Requirements as listed in the CIL (Appendix S). The Design Conformance Checklist shall include references or document pages in the design or construction submittal where applicable CIL items are confirmed.

2.27.9.1.5 *Working Drawings*

The Design-Builder shall submit Working Drawings for Work relating to the BRT Stations, in accordance with Section 2.28, *Quality Management Plan*.

2.27.9.1.6 *As Built Plans*

In accordance with Section 2.28, *Quality Management Plan*, the Design-Builder shall provide As Built Plans of the BRT Platforms. The Design-Builder shall provide a separate As Built Plans package that is limited to the Sound Transit elements.

End of Section