ADDENDUM #4

June 14, 2023

RFP-23-T010

ELECTRIC TRANSIT BUSES

PURPOSE: To Answer Request for Clarification or Approved Equal and Extend Deadline

The Proposal Deadline is Revised as Follows:
Proposal Deadline: July 10, 2023 at 2:00 pm

' FOR PROPOSAL REMAIN THE SAME UNLESS CHANGED THROUGH A WRITTEN AMENDMENT TO THE REQUEST FOR PROPOSAL. NO ORAL CHANGES ARE BINDING. CHANGE REQUESTS MUST BE IN THE FORM OF A WRITTEN REQUEST TO BE ANSWERE
RESPONDANTS MUST ACKNOWLEDGE RECEIPT OF THIS ADDENDUM IN THE FORM 1 IN THEIR PROPOSAL. FAILURE TO DO SO MAY INVALIDATE THE PROPOSAL.

Request Number	Page #	Section #	Section Title	Specficiation Language	Clarification or Approved Equal	Trinity Metro Response
1	28	TS 5.4	Maintenance and Inspection	Power receptacles (12VDC power supply) shall be available for	Contractor would like to clarify that there are no auxiliary power	Approved
2	29	TS 5.5	Interchangeability	Unless otherwise agreed, all units and components procured under this Contract, whether provided by Suppliers or manufactured by the Contractor, shall be duplicates in design, manufacture and installation to ensure interchangeability among buses in each order group in this procurement.	Contractor requests approval to provide coaches manufactured within a given production run to be duplicates in design. However, since this request for proposal includes options for additional coaches, interchangeability cannot be guaranteed between option orders.	Approved
3	34	TS 6.9	Interior Headroom	Headroom above the aisle and at the centerline of the aisle seats shall be no less than 76.75 in. in the forward half of the bus, tapering to no less than 74 in. forward of the rear settee. At the centerline of the window seats, headroom shall be no lower than 65 in., except for parcel racks and reading lights, if specified. Headroom at the back of the rear bench seat may be reduced to a minimum of 56 in., but it shall increase to the ceiling height at the front of the seat cushion. In any area of the bus directly over the head of a seated passenger and positioned where a passenger entering or leaving the seat is prone to strike his or her head, padding shall be provided on the overhead paneling.	New Flyer requests approval for headroom at centerline of the rear bench window seat only to be 56". However, when a person stands up the actual headroom is the normal ceiling height of 78". Headroom shall be 50.45 inches when measured from the rear-most sitting area of the rear bench seat to the PLC enclosure directly above. The access panel directly above the rear bench does not require padding. This feature is inherent to Contractor's bus design and has proven successful and reliable in service. Furthermore, Contractor believes that there are no risks of passengers striking their head due to the proposed headroom dimension	Approved
4	39	TS 9.	Propulsion System (Electric)	A. The BMS system must be capable of monitoring the voltage level of cells within each battery pack. The BMS must be able to read and store individual battery or block voltages at a frequency of 1 data point per block every 15 seconds. The system must also monitor battery pack temperatures using no fewer than 2 thermocouples placed in and around each battery pack sampled at the same 4 samples per minute frequency.	Contractor requests approval to provide BMS controllers which are capable of providing all of the data-points listed at a sufficient sample rate, but are not capable of long-term self-storage of said data beyond typical fault code storage requirements. With that said, separate logging capability could be supported, as all of the data can be broadcast on vehicle J1939 network.	Approved

5	39	TS 9.	Propulsion System (Electric)	E. The BMS system must be able to communicate all data to the bus level information system for storage and communication.	Contractor requests approval to provide BMS controllers which send pertinent information to the master BMS for the purpose of ESS control and oversight. The master BMS aggregates ESS string data and communicates ESS system level information to the vehicle network for propulsion, vehicle and telematics systems. Specific battery information is not transferred to the vehicle level network but is available through the service tool provided.	Approved
6	39	TS 9.	Propulsion System (Electric)	The ESS battery packs shall be cooled via a recirculating air system. This air shall be reconditioned and cooled by a small radiator in each pack that uses a vehicle-based water/glycol cooling system.	Contractor requests approval to utilize liquid cooled batteries with a dedicated chiller to maintain the optimal temperature of the ESS battery packs. Liquid cooling is more efficient than air cooling, and utilizing a single chiller reduces the vehicle loads and improved range.	Approved
7	40	TS 10.1	Propulsion Cooling	The transmission shall be equipped with a standalone oil to air cooler mounted next to the transmission.	Contractor requests clarification that there is no transmission on a Contractor battery bus. Contractor requests approval to provide a traction motor which is cooled via ethylene/glycol coolant and radiator.	Approved
8	40	TS 10.1	Propulsion Cooling	The transmission shall be equipped with a standalone oil to air cooler mounted next to the transmission.	Contractor requests removal of this requirement as the proposed bus is not equipped with a transmission.	Approved
9	41	TS.11	Power Train Engagement	The electronically controlled transmission shall have on-board diagnostic capabilities, be able to monitor functions, store and time-stamp out-of-parameter conditions in memory, and communicate faults and vital conditions to service personnel.	Contractor requests removal of this requirement as the proposed bus is not equipped with a transmission however all functionality of this section is met with the electric propulsion system.	Approved
10	41	TS.11	Power Train Engagement	An electronic transmission fluid level monitoring and protection system shall be provided.	Contractor requests removal of this requirement as the proposed bus is not equipped with a transmission.	Approved
11	41	TS.11	Power Train Engagement	**Automatic Neutral Function with Automatic Re-Engagement** The transmission, when in forward direction, shall automatically shift the transmission to neutral when the vehicle registers zero road speed, engine is idle and service brakes are applied. If the status of any one or more of the three signals changes, the transmission immediately and automatically resumes forward mode operation.	Contractor requests removal of this requirement as the proposed bus is not equipped with a transmission however all functionality of this section is met with the electric propulsion system.	Approved

12	41	TS 10.1	Propulsion Cooling	All hose clamps shall be constant tension type clamps.	Contractor requests approva to provide Ideal clamps made of AISI 201 or 300 stainless steel. Ideal SmartSeal constant torque clamps exhibit superior sealing compared to traditional worm gear hose clamps. These SmartSeal clamps have excellent band loading and even pressure distribution, creating a uniform high quality seal onto hardlines. A unique trough-shaped design creates higher pressure loading compared to a conventional worm gear design, and increases resistance against potential leaks. The trough shape also helps by penetrating deeper into the house wall due to the narrower cross-section. Outside, chamfered liner edge protects the hose component from cutting. Ideal WaveSeal constant torque clamps exhibit superior sealing compared to traditional worm gear hose clamps. These WaveSeal clamps have excellent band loading and even pressure distribution, creating a uniform high quality seal onto hardlines. The O-ring effect allows the hose to act as an additional spring component. Outside, chamfered liner edge protects the hose component from cutting.	Approved
13	42	TS.12	Regenerative Braking (Transit Coach)	**Standard Requirement for Retarder Activation** The retarder shall be adjustable within the limits of the power train and activated when the brake pedal is depressed. The Agency will work with the OEM/drive system manufacturer to determine retarder performance settings.	Contractor requests removal of this requirement as the proposed bus utilizes regenerative braking which can be adjusted to meet customer requirements.	Approved
14	42	TS.12	Regenerative Braking (Transit Coach)	The thermostatically controlled cooling fan shall be activated when the retarder is engaged and the coolant temperature reaches the maximum operating temperature established by the engine and transmission manufacturers.	Contractor requests removal of this requirement as the proposed bus is not equipped with a retarder. Regenerative braking is our standard offering.	Approved
15	42	TS.12	Regenerative Braking (Transit Coach)	Accessible Retarder Disable Switch Switch shall be located in overhead compartment.	Contractor requests clarification on the intent of this switch.	not required as the retarder disable switch is for vehicles that have a transmission.
16	46	TS 21.	Jacking	Jacking pads located on the axle or suspension near the wheels shall permit easy and safe jacking with the flat tire or dual set on a 6 in. high run-up block not wider than a single tire.	Contractor requests approval to provide jacking pads that are located on the structure, not on the axles or suspension. Please see attached the Drawing #354153 for your review.	Approved
17	46	TS 21.	Jacking	Apply decals to identify location of jacking pads	NFI request approval to provide Jacking pad without decals ,Jacking pads are yellow painted to be identified.	Approved
18	47	TS 23.	Floor	Similarly, a molding or cover shall prevent debris accumulation between the floor and wheel housings.	Contractor requests approval to not provide cove molding at all vertical surfaces or between the flooring and the rear wheelhouses. The flooring is sealed in a clean butt joint and does not required circular molding to prevent debris accumulation.	Approved
19	50	TS 25.2	Design and Construction (Transit Coach)	If fiberglass wheel housings are provided, then they shall be color-impregnated to match interior finishes.	Contractor requests approval to provide fiberglass wheelhouse covers which are not color-impregnated. Standard fiberglass layup techniques are utilized and only the A surface is gelcoat painted.	Approved

20	51	TS 25.2	Design and Construction (Transit Coach)	Wheel housings not equipped with seats or equipment enclosure shall have a horizontal assist mounted on the top portion of the housing no more than 4 in. higher than the wheel well housing.	Contractor requests approval to provide a horizontal assist which is 6.7 inches above the top surface of the wheel housing. This is the same as provided on your current Xcelsior buses.	Approved
21	51	TS 26.6	Lubrication	Each element requiring lubrication shall have its own grease fitting with a relief path. The lubricant specified shall be standard for all elements on the bus serviced by standard fittings and shall be required no less than every 6000 miles.	Contractor requests approval to provide grease fittings that are not all readily accessible to allow a rigid tube end grease gun to be used. A flexible hose end will be required in limited applications. This is inherent to the bus design and was provided on previous builds.	Approved
22	52	TS 26.7	Kneeling	The bus shall kneel at a maximum rate of 1.25 in. per second at essentially a constant rate.	Contractor requests approval to provide a bus with kneeling capabilities of 2" per second.	Approved
23	53	TS 27.2	Tires	Sufficient space shall be provided to allow the Agency to carry a spare tire, if required.	Contractor requests approval to provide a coach which does not include space for a spare tire.	Approved
24	53	TS 28.1	Steering Axle (Transit Coach)	**Solid Beam Axle and Grease-Type Front Bearings and Seals** The front axle shall be a Meritor solid beam, non-driving with a load rating sufficient for the bus loaded to GVWR and shall be equipped with grease type front wheel bearings and seals.	NFI request approval to provide M.A.N-VOK-07F steering axle (Cast iron dropped beam with hollow center sections, steered, non-driven) and non-serviceable maintenance-free wheel bearings.(SIB #203-002) for reference.	Approved
25	55	TS 28.2.4	Steering Wheel Telescopic Adjustment	Table 4 Angle of Slope – Height – Angle of Slope Height 0 deg 29 in. 0 deg 34 in. 15 deg 26.2 in. 15 deg 31.2 in. 25 deg 24.6 in. 25 deg 29.6 in. 35 deg 22.5 in. 35 deg 27.5 in.	Contractor wishes to clarify that APTA White Book calls for very odd steering wheel angles that do not align with any steering column's locking mechanisms. So these positions are only achievable while the release lever is held up and the column is free-floating. If the operator releases the lever, it will snap into the closest 7-degree angle increment.	Approved
26	55	TS 29	Drive Axle	The bus shall be installed with a Meritor drive axle, driven by a heavy-duty axle with a load rating sufficient for the bus loaded to GVWR. The drive axle shall have a design life to operate for not less than 300,000 miles on the design operating profile without replacement or major repairs. The lubricant drain plug shall be magnetic type. If a planetary gear design is employed, the oil level in the planetary gears shall be easily checked through the plug or sight gauge. The axle and driveshaft components shall be rated for both propulsion and retardation modes with respect to duty cycle.	Contractor requests approval to provide a front axle and suspension installation that consists of a MAN VOK-07-F low floor axle complete with wheel hub assembly, brake caliper & brake disc assembly, center link assembly, tie rod arms and a steering arm. The axle assembly also includes ABS sensor and pulse generating wheel. The brake chambers are mounted directly on the disc brake caliper assembly.	Approved
27	55	TS 31.1	Service Brake	Brakes shall be self-adjusting. Brake wear indicators (visible brake sensors) shall be provided on exposed push rods.	Contractor requests approval to provide disc brakes without the visible brake sensor as this feature is not applicable to a disc brake system. The brake chamber pushrod is totally enclosed and sealed against the caliper to improve reliability of the brake system, and that makes it not visible. As an alternative to stroke indicators, Contractor can offer the end of life sensor which provides the first warning level at 10% pad material remaining when the brake is applied at an additional cost.	Approved
28	56	TS 30	Turning Radius	**Bus Length (approximate): 60ft** 44.5ft (outside front axle, TR0) 17 ft (inside rearmost axle, TR4)	Contractor requests removal of this requirement as the proposed bus length is 35/40ft.	Approved
29	57	TS 31.2	Actuation	The total braking effort shall be distributed among all wheels in such a ratio as to ensure equal friction material wear rate at all wheel locations.	Contractor requests approval that equal friction material wear rate at all wheel locations cannot be ensured. Wear is closely related to lining temperature, which is dependent on axle load, cooling properties and other factors. Due to these many factors involved, of which can be different at each axle, it is not possible to predict equal wear at all wheel locations.	Approved

30	57	TS 31.4	Hubs and Drums/Discs	Replaceable wheel bearing seals shall run on replaceable wear surfaces or be of an integral wear surface sealed design.	Contractor requests approval to provide front MAN axles with unitized, nonserviceable, maintenance free wheel bearings.	Approved
31	58	TS 32.1	Passenger Door Interlocks	To prevent opening mid and rear passenger doors while the bus is in motion, a speed sensor shall be integrated with the door controls to prevent the mid/rear doors from being enabled or opened unless the bus speed is less than 2 mph.	Contractor requests approval to use vehicle speed (through the PLC system) to restrict door operation as opposed to providing dedicated wiring between the door and speed sensor. This will prevent the exit doors from being opened unless the bus speed is less than 2 mph. However, please note that in an emergency situation, an emergency exit functionality is provided to allow door to open with subsequent and immediate activation of interlocks regardless of the bus' speed.	Approved
32	58	TS 32.1	Passenger Door Interlocks	All door systems employing brake and accelerator interlocks shall be supplied with supporting failure mode effects analysis (FEMA) documentation, which demonstrates that failure modes are of a failsafe type, thereby never allowing the possibility of release of interlock while an interlocked door is in an unsecured condition, unless the door master switch has been actuated to intentionally release the interlocks.	Contractor's proposal is based on the discussion of the FEMA documentation at the pre-production meeting as opposed to proving a copy of the documentation. Please note that the information therein is confidential and we prefer to maintain its integrity.	Approved
33	58	TS 32.1	Passenger Door Interlocks	Braking effort adjustable with hand tools.	Contractor requests approval to provide non-adjustable brake interlock regulator.	Approved
34	59	TS 33.3	Air Lines and Fittings	Nylon tubing shall be installed in accordance with the following color-coding standards: • Green: Indicates primary brakes and supply. • Red: Indicates secondary brakes. • Brown: Indicates parking brake. • Yellow: Indicates compressor governor signal. • Black: Indicates accessories.	Contractor requests approval to provide nylon tubing with the following color-coding standards: • Green: rear service brakes & supplies • Red: front service brakes • Brown: Parking brake • Black: Accessories & brake hose • Yellow: Compressor & governor • Blue: Suspension	Approved
35	62	TS 36.1.2.1	Battery Cables	Except as interrupted by the master battery switch, battery and starter wiring shall be continuous cables with connections secured by bolted terminals and shall conform to specification requirements of SAE Standard J1127–Type SGR, SGT, SGX or GXL and SAE Recommended Practice J541, with 2100 strand 4/0 cable or greater recommended	Contractor requests approval to provide a jumper power cable in the fusebox which links the disconnect switch to the main 24V busbar. A power cable feeds the starter from main 24V busbar. Contractor provides this configuration to minimize the amount of electrical connections that would be stacked on the 24V load side of the disconnect switch.	Approved
36	63	TS 36.1.2.1	Battery Cables	A jump-start connector, red for 24V and blue for 12V, shall be provided in the engine compartment, equipped with dust cap and adequately protected from moisture, dirt and debris.	Contractor requests approval to provide a single red 24V jumpstart next to the disconnect switch on the fuse box. 24V is the correct potential to charge the low voltage batteries in a dead battery scenario. Contractor also uses a Vanner Battery equalizer, ensuring that the batteries remain at the same potential during various load/charging conditions. When you connect the 24V jumpstart both batteries are equally charged, and both 12V and 24V power is supplied to the various bus electrical systems.	Approved

37	63	TS 36.1.3	Battery Compartment	The battery hold-down bracket shall be constructed of a nonconductive and corrosion-resistant material (plastic or fiberglass). This access door shall not require any special locking devices to gain access to the switch, and it shall be accessible without removing or lifting the panel.	NFI request approval equal to provide an aluminum battery disconnect switch, its access door is located in the rear curbside of the bus.	Approved
38	63	TS 36.1.3	Battery Compartment	The batteries shall be securely mounted on a stainless steel or equivalent tray that can accommodate the size and weight of the batteries. The battery tray, if applicable, shall pull out easily and properly support the batteries while they are being serviced. The tray shall allow each battery cell to be easily serviced. A locking device shall retain the battery tray to the stowed position.	NFI requests approval equal to provide a battery enclosure and tray are constructed from a combination of heavy-duty 3/16" polyethylene plastic and stainless steel. This design is proven to eliminate corrosion as well as dampen any mechanical vibrations. Furthermore, a slide-out tray system improves access to the batteries for maintenance purposes.(SIB #260-001) for reference.	Approved
39	64	TS 36.1.4	Auxiliary Electronic Power Supply	Inductive Charger a. An Inductive charger is to be installed on vehicles, providing alternative wireless charging capabilities.	Contractor requests approval to provide its current design of a conductive charging system. Inductive charging is not an available option for Contractor buses.	Approved
40	64	TS 36.1.5	Master Battery Switch	Turning the master switch off with the power plant operating, during an emergency, shall shut off the engine and shall not damage any component of the electrical system. The master switch shall be capable of carrying and interrupting the total circuit load.	Contractor would like to clarify that while steps are taken to minimize the impact of shutting off the vehicle using the master battery switch, it is impossible to guarantee that there would be no impact to vehicle if this were to be done on a regular basis. Proper procedure in normal operation is to apply an orderly shutdown through the standard ignition switches (i.e. the master run switch on the side console panel or equivalent). The master battery disconnect switch is meant for emergency and maintenance applications and should only be used in such instances.	Approved
41	65	TS 36.1.7	Circuit Protection	Fuses shall be used only where it can be demonstrated that circuit breakers are not practicable.	Contractor would like to clarify that we use high current fuses for circuits with current requirements of 80 amps or higher. These would be the main power distribution circuits that originate in the fuse box and distribute power throughout the coach. Fuses are used for these circuits to emphasize a severe problem in the circuit that requires immediate action and it cannot be delayed by simply resetting with a circuit breaker.	Approved
42	65	TS 36.1.7	Circuit Protection	The Agency shall consider the application of automatic reset circuit breakers on a case-by-case basis.	Contractor requests approval to provide manual reset circuit breakers. This type of circuit protection is used to address the root cause and correct the problem before power is restored to the circuit. Auto-reset circuit breakers have the potential to cycle the power to these circuits on and off for prolonged periods of time without addressing the issue/problem. This could cause severe damage to the circuit.	Approved

43	65	TS 36.1.6	Low-Voltage Generation and Distribution	These points to all equipment requiring dedicated power and ground wiring to the batteries shall be accomplished by using power bus bars consisting of either a solid copper bar or heavy-duty terminal strip.	Contractor requests approval to provide battery grounds which are attached to a stainless steel ground bar in the engine compartment. Contractor ensures that this ground bar provides high quality grounds with the following: -Every ground point has the correct torque applied based on the specific connection point size -After torque has been applied to the connection point it's witness marked -Dielectric grease is applied to all ground points	Approved
44	67	TS 36.2.2	Electrical Components	All electrical components, including switches, relays, flashers and circuit breakers, shall be heavy-duty designs with either a successful history of application in heavy-duty vehicles or design specifications for an equivalent environment.	Contractor requests approval to provide EMP brushless fans that have been tested to 25,000 hours in maximum temperature environment without failure. The L10 life of EMP brushless fans is expected to be a minimum of 40,000 hours.(APTA Aes)	Approved
45	67	TS 36.2.3	Electrical Compartments	"Rear start and run" controls shall be mounted in an accessible location in the engine compartment and shall be protected from the environment.	Contractor requests clarification that on electric bus configurations, a rear start and run control box is not provided. The distributed nature of the propulsion batteries are such that there is no requirement to perform gauge checks or other primary diagnostics from the rear engine compartment. All propulsion battery checks are designed to be performed inside the vehicle from the rear panel with a suitably equipped laptop. At the rear of the bus, on the street side, switches are provided to activate the service lighting and a switch to select the coolant fill modes. For more information, please refer to Drawing 655299, Sheet 3.	Approved
46	72	TS 42.3	Visors/Sun Shades	An adjustable roller type sunscreen shall be provided over the driver's windshield and/or the driver's side window. The sunscreen shall be capable of being lowered to the midpoint of the driver's window.	Contractor requests approval for the specification language to be changed to read as follows: Adjustable sun visor shall be provided for the drivers windshield and a roller blind shall be provided for the drivers side window. The roller blind shall be capable of being lowered to the midpoint of the drivers side window.	Approved
47	73	TS 42.5	Normal Bus Operation Instrumentation and Controls	Device: Engine start, rear Description: Approved momentary switch Location: Engine compartment Function: Activates engine starter motor Visual/Audible: n/a	Contractor requests approval to provide an electric bus design which does not have Engine Start/Run Rear and Remote Engine speed switches. No equivalent switches are required for the electric bus configuration.	Approved
48	73	TS 42.5	Normal Bus Operation Instrumentation and Controls	Device: Engine start, rear Description: Approved momentary switch Location: Engine compartment Function: Activates engine starter motor Visual/ Audible:	Contractor would like to clarify that this switch is not applicable in an electric bus configuration.	Approved

49	73	TS 42.5	Normal Bus Operation Instrumentation and Controls	Device: Engine run, rear Description: Three-position toggle switch Location: Engine compartment Function: Permits running engine from rear start, normal front run position and off Visual/ Audible: Amber light	Contractor would like to clarify that this switch is not applicable in an electric bus configuration.	Approved
50	73	TS 42.5	Normal Bus Operation Instrumentation and Controls	Device: Drive selector Description: Touch panel switch Location: Side Console Function: Provides selection of propulsion: forward, reverse and neutral Visual/ Audible: Gear selection	Contractor requests approval to provide a shift selector positioned on the right side of the instrument panel in easy reach of the driver. This layout allows for defroster controls to be located on the left side of the instrument panel, giving the driver easy access to both of these controls. Please refer to Drawing 655299 for further information.	Approved
51	74	TS 42.5	Normal Bus Operation Instrumentation and Controls	Device: WC ramp/ kneel enable Description: Two-position switch1 Location: Side console or Dash right wing Function: Permits operation of ramp and kneel operations at each door remote panel1 Visual/ Audible: Amber light	Contractor requests approval to provide a momentary/maintained three position switch. When positioned on raise, the switch is in the maintained position. When positioned on lower, the switch is in the momentary position. When kneeling, the switch must be held in the lower position. Contractor further requests approval to provide a momentary three position switch for the wheelchair ramp. The switch must be held in the active state to deploy or stow the ramp. These switches are located on the right side of the instrument panel. Please refer to Drawing 655299 for further information.	Approved
52	74	TS 42.5	Normal Bus Operation Instrumentation and Controls	Device: Front door ramp/kneel enable Description: Two-position keyed switch1 Location: Front door remote or Dash right wing Function: Permits ramp and kneel activation from front door area, key required1 Visual/ Audible: Amber light	Contractor requests approval to provide a momentary/maintained three position switch. When positioned on raise, the switch is in the maintained position. When positioned on lower, the switch is in the momentary position. When kneeling, the switch must be held in the lower position. Contractor further requests approval to provide a momentary three position switch for the wheelchair ramp. The switch must be held in the active state to deploy or stow the ramp. These switches are located on the right side of the instrument panel. Please refer to Drawing 655299 for further information.	Approved
53	74	TS 42.5	Normal Bus Operation Instrumentation and Controls	Device: Front kneel Description: Three-position momentary switch Location: Front door remote Function: Permits kneeling activation and raise and normal at front door remote location Visual/Audible: Amber or red dash indicator exterior alarm and amber light	Contractor requests approval to mount the front kneel switch on the right hand side of the dash. This is the same as what was provided in previous builds.	Approved
54	74	TS 42.5	Normal Bus Operation Instrumentation and Controls	Device: Rear door ramp/kneel enable Description: Two-position keyed switch1 Location: Rear door remote Function: Permits ramp and kneel activation from rear door area; key required1 Visual/Audible: Red light	Contractor requests approval to provide a bus without a rear ramp and rear kneeling because it is not defined in the spec.	Approved

55	74	TS 42.5	Normal Bus Operation Instrumentation and Controls	Device: Fire suppression Description: Red push button with protective cover Location: Dash left wing or dash center Function: Permits driver to override and manually discharge fire suppression system Visual/ Audible: Red light	Contractor requests clarification as to the requirement of a fire suppression system. Per specification section TS 5.10, a suppression system is not required.	Approved
56	75	TS 42.5	Normal Bus Operation Instrumentation and Controls	Device: Park brake release Description: Pneumatic PPV Location: **Vertical side of the side consoler dash center** Function: Permits driver to push and hold to release brakes Visual/Audible: n/a	Contractor requests approval to mount the park brake release on the horizontal side of the side console. This location permits the driver to easily push down the brake release as opposed to pushing it in. Please note this is similar to what was provided in previous Xcelsior builds.	Approved
57	75	TS 42.5	Normal Bus Operation Instrumentation and Controls	Device: Remote engine speed Description: Rotary rheostat Location: Engine compartment Function: Permits technician to raise and lower engine RPM from engine compartment Visual/ Audible:	Contractor would like to clarify that a remote engine speed control is not applicable to an electric bus configuration.	Approved
58	75	TS 42.5	Normal Bus Operation Instrumentation and Controls	**Device:** Master door/ interlock **Description: Multi-pole toggle,** detented **Location: Out of operator's reach** **Function:** Permits driver override to disable door and brake/throttle interlock **Visual/Audible:** Red light	Contractor requests approval to provide a single-pole 2-position switch for the door master switch. We also request to mount the door master switch on the driver's sawtooth to match what was provided in previous builds.	Approved
59	76	TS 42.5	Normal Bus Operation Instrumentation and Controls	Device: Alarm acknowledge Description: Push button momentary Location: Approved location Function: Permits driver to acknowledge alarm condition Visual/ Audible:	Contractor would like to clarify that providing an extinguishable alarm is not an available option. Allowing the alarm to be extinguished could result in the root cause of the problem going unaddressed, causing more severe damage. Please note that an audible alarm indicates a serious issues that requires action.	Approved
60	76	TS 42.5	Normal Bus Operation Instrumentation and Controls	Device: Rear door passenger sensor disable Description: Two-position switch Location: **In sign compartment or driver's barrier compartment** Function: Permits driver to override rear door passenger sensing system Visual/Audible: n/a	Contractor requests approval to access this switch on the side console as opposed to the sign compartment or driver's barrier compartment.	Approved
61	76	TS 42.5	Normal Bus Operation Instrumentation and Controls	Device: Auxiliary power Description: **110 V power receptacle** Location: Approved location Function: Property to specify what function to supply Visual/Audible: n/a	Contractor requests clarification if a power inverter needs to be provided.	
62	76	TS 42.5	Normal Bus Operation Instrumentation and Controls	Device: Air pressure gauge Description: **Primary and secondary, 5 psi increments** Location: Dash center panel Function: Visual indication of primary and secondary air systems Visual/Audible: Red light and buzzer	Contractor clarifies that we provide a separate air pressure gauge for each air system (primary, secondary or center) as opposed to providing one gauge with two different pointers (to indicate the primary and secondary system). Please note that our air gauges are labelled to clearly identify which air system it refers to. This greatly reduces the chance of misidentification of air pressure readings when looking at multiple pointers.	Approved

63	78	TS 42.5	TABLE 6 (ALTERNATIVE, Transit Coach)	Fleet watch model JX55 GPS Mileage Tracking Module (mounted on the interior of the 1st roadside window or interior compartment near driver's area). This must have the fleet specific software in each unit designed specifically for the Trinity Metro.	Contractor requests approval to provide Fleet watch JX200 as opposed to the JX55 data recorder system. Please note The JX200 is the next evolution of the JX55 Datalogger. It is backward compatible with older JX55 installations, and with Series 55 readers (FR55 - Fixed Reader & MR55 – Mobile Receiver/Programmer, as well as the MR55LT Mobile Receiver).	Approved
64	79	TS 42.7	Pedal Angle	The vertical angle of the accelerator and brake pedals shall be determined from a horizontal plane regardless of the slope of the cab floor. The accelerator and brake pedals shall be positioned at an angle of 37 to 50deg at the point of initiation of contact and extend downward to an angle of 10 to 18 deg at full throttle. The location of the brake and accelerator pedals shall be determined by the manufacturer, based on space needs, visibility, lower edge of windshield and vertical H-point.	Contractor requests approval to provide the pedals that have an angle of approx. 50 degrees at the point of initial contact for the brake pedal and the throttle at 45 degree. Pedal travel is 20 degrees. This is the same as provided on previous Xcelsior® builds.	Approved
65	79	TS 42.7.1	Pedal Dimensions and Position	The floor-mounted accelerator pedal shall be 10 to 12 in. long and 3 to 4 in. wide. Clearance around the pedal must allow for no interference precluding operation. The accelerator and brake pedals shall be positioned such that the spacing between them, measured at the heel of the pedals, is between 1 and 2 in. Both pedals should be located approximately on the same plane coincident to the surface of the pedals.	Contractor requests approval to provide a acceleration pedal that is 9.84 inches long. This is the same as provided on previous Xcelsior® builds.	Approved
66	79	TS 43	Driver Foot Switches	ALTERNATIVE **• Turn Signal Controls** Adjustable turn signal platform.	Contractor's proposal is based on providing a turn signal platform that is angled 37 degrees from the floor and is not adjustable. This is inherent to the Xcelsior Bus Design.	Approved
67	80	TS 44.3	Storage Box	**Storage Box** An enclosed driver storage area shall be provided with a positive latching door and/or lock. The minimum size is 2750 in.3	Contractor requests approval to provide one of the following storage box options: 1 - Storage box above the seated driver, standard on all buses: 12"H x 13-19"L x 9W (~1728 in.3) 2 - Storage box behind the seated driver: 12"H x 19"L x 7"W (~1596 in.3) Space in driver's area does not allow for anything larger. Please note that a keyed lock can only be provided on Option #2. Please confirm the preference on storage box option.	Approved
68	81	TS 45.1	Windshield Wipers	ALTERNATIVE **• Intermittent Wiper with Variable Control** A variable-speed feature shall be provided to allow adjustment of wiper speed for each side of the windshield between approximately five (5) and twenty-five (25) cycles per minute.	Contractor requests approval for intermittent windshield wiper system with 24 volt electric Comotech motors and with Smartrend wet arm wipers. The windshield wiper system is designed to provide two frequencies. The highest frequency is a minimum of 45 cycles/min. The lower frequency is at least 20 cycles/min. The highest and one lower frequencies differ by at least 15 cycles/min.	Approved
69	81	TS 45.1	Windshield Wipers	ALTERNATIVE Multiple wiper systems and controls.	Contractor requests approval to provide a motorized windshield wiper system as this is the only option available.	Approved
70	85	TS 47.1	Exterior Mirrors	Mirrors shall be firmly attached to the bus to minimize vibration and to prevent loss of adjustment with a breakaway mounting system. Mirrors shall permit the driver to view the roadway along the sides of the bus, including the rear wheels. Mirrors should be positioned to prevent blind spots. Mirrors shall retract or fold sufficiently to allow bus washing operations but avoid contact with windshield.	Contractor requests approval to provide a pull-back mirror function. Break away mirrors have an inherent safety risk of injury if a mirror was to fall from a bus. Contractor will propose the Spring back mirrors, unless Pull back mirrors are required, as the breakaway system is not available.	Approved

71	85	TS 47.1	Exterior Mirrors	ALTERNATIVE Exterior mirrors shall be installed with a breakaway mounting system.	Contractor requests approval to provide a pull-back mirror function. Break away mirrors have an inherent safety risk of injury if a mirror was to fall from a bus. Contractor will propose the Pull Back mirrors, unless spring-back mirrors are required, as the breakaway system is not available.	Approved
72	87	TS 50	Driver's Side Window	The operator's side window and destination sign(s) upper glazing shall be ThremoGuard BlueSpruce70, manufactured out of Pomona, CA or approved equal. The glazing shall have a ¼ inch nominal thickness and be laminated heattreated safety glass. The glazing tint shall be blue in color and comply with AS@ DOT requirements, blocking 99% of the UV and allowing less that 6% of the infrared heat to pass through the pane.	Contractor requests approval to provide ThermoGuard Blue Spruce AS2 heat treated laminated glass for the operator's window which blocks approximately 94% of UV light.	Approved
73	89	TS 51.4	Materials	Windows on the bus sides and in the rear door shall be tinted a neutral color, complementary to the bus exterior. The maximum solar energy transmittance shall not exceed 37 percent, as measured by ASTM E-424. Luminous transmittance shall be measured by ASTM D-1003. Windows over the destination signs shall not be tinted.	Contractor requests approval to provide Framed, top tip-in, side window glazing material that is 1/4" grey laminated glass with 44% light transmittance and that has a max solar energy transmittance of 51%. Options that will be provided are: -Framed – full fixed – 44% Lam -Flush – full fixed – 44% Temp -Flush – tip-in – 44% Temp *** Option for Egress Driver *** Option for gas strut *** Film options	Approved
74	91	TS 52	Capacity and Performance	The air conditioning system is to be a ThermoKing RLFE1-M1 roof top system and or the TE14-EH rear mount system, or approved equal.	Contractor requests approval to provide a Thermo King TE15-M3 electric rear mount HVAC unit for all 35/40' battery buses.	Approved
75	91	TS 52	Capacity and Performance	The air conditioning portion of the HVAC system shall be capable of reducing the passenger compartment temperature from 110to 70°F ±3°F in less than 30 minutes after system engagement for 30, 35 and 40ft buses.	Contractor requests approval to provide an APTA default for HVAC pull-down specification where passenger compartment temperature shall be reduced from 110°F to 90°F in less than 20 minutes. With battery buses that are plugged into chargers when at the depot, there is a unique opportunity to pre-condition the cabin with the buses connected to shore power in a more gradual way to minimize peak demand but still maintain a maximum possible HV battery State of Charge upon pull-out. Since these buses are zero-emissions, there is no need to limit the "idle time" during pull-down prior to pull-out thus no need for exceptional pull down capacity or speed. Sizing a system for the APTA alternative Pull-Down specifications for hotter ambient conditions, causes the system to be oversized for the actual required demand in revenue service which increases the system cost and reduces system efficiency which in turn negatively affects range. The default pull down specification ensures sufficient cooling capacity to perform necessary duties when in service. This is inherent to the Xcelsior Bus Design.	Approved
76	91	TS 52	Capacity and Performance	Each individual vehicle must pass the Fort Worth Air Conditioning test prior to bidding. The inside temperature of the vehicle must drop from 110 degrees F. to 70 degrees F. in thirty (30) minutes.	Contractor would like to clarify that the pilot vehicle only will be tested at the Thermo King testing facility prior to delivery should Contractor be awarded the contract.	Approved

77	92	TS 52	Capacity and Performance	This test will be conducted at the factory prior to acceptance by on-site inspectors. However, due to the excessive heat experienced in Fort Worth, the unit will be tested upon receipt in Fort Worth. Each individual coach must pass this test at the Fort Worth facility prior to acceptance of the coach for payment.	Contractor requests details regarding the testing facility in Fort Worth, along with clarification on testing methods, procedures and controls utilized. Contractor further requests that the testing will be completed on the pilot bus only, at the Thermo King facility, not the factory (manufacturing plant).	Approved
78	93	TS 54.1	Passenger Area	The bus interior climate control system shall deliver at least 100 cfm of air to the driver's area when operating in the ventilating and cooling modes. Adjustable nozzles shall permit variable distribution or shutdown of the airflow.	Contractor requests approval to provide air directly to the driver, ducted from the main evaporator outlet. This is possible due to the proximity of the HVAC unit and the position of the air vents to the bus interior. Air will always be available through a control vent to the upper left of the driver. There are three (3) sources of air to the driver from the driver's panel louver - 448 cfm of air will be available.	Approved
79	93	TS 54.1	Passenger Area	**The windshield defroster unit** shall meet the requirements of SAE Recommended Practice J382, "Windshield Defrosting Systems Performance Requirements," and shall have the capability of diverting heated air to the driver's feet and legs.	Contractor requests approval to provide a defroster system that is designed to defrost and defog the front windshield only. To defrost and defog the driver's side window and front door panels, there are ducts and louvers from the main roof mounted HVAC unit that allow air from the unit to flow over the respective surfaces to help clear the areas.	Approved
80	94	TS 54.3	Driver's Compartment Requirements	A separate heating, ventilation and defroster system for the driver's area shall be provided and shall be controlled by the driver. The system shall meet the following requirements: The heater and defroster system shall provide heating for the driver and heated air to completely defrost and defog the windshield, driver's side window, and the front door glasses in all operating conditions.	Contractor requests approval to provide a defroster system is designed to defrost and defog the front windshield only. To defrost and defog the driver`s side window and front door panels there are ducts and louvers from the main roof mounted HVAC unit that allow air from the unit to flow over the respective surfaces to help clear the areas	Approved
81	95	TS 54.4	Driver's Cooling	Air from the evaporator shall be provided to the driver's area through vents located on the dash in front of the driver.	Contractor requests approval to provide air directly to the driver, ducted from the main evaporator outlet. This is possible due to the proximity of the HVAC unit and the position of the air vents to the bus interior. Air will always be available through a control vent to the upper left of the driver. There are three (3) sources of air to the driver from the driver's panel louver - 448 cfm of air will be available.	Approved
82	95	TS 54.4	Driver's Cooling	Driver's booster blower.	Contractor requests approval to provide three (3) sources of air to the drive from the driver's panel louver with 448 cfm of air available. Due to the proximity of the HVAC unit, and the position of the air vents to the driver, a separate driver's booster blower is not required.	Approved
83	98	TS 65 R	Rub rails	• **Requirement for Rub Rails** Rub rails composed of flexible, resilient material shall be provided to protect both sides of the bus body from damage caused by minor sideswipe accidents with automobiles. Rub rails shall have vertical dimensions of no less than 2 in. (50 mm) with the centerline no higher than 35 in. above the ground between the wheel wells. The rub rails shall withstand impacts of 200 ft-lbs of energy from a steel-faced spherical missile no less than 9 in. in diameter and of a 500lbload applied anywhere along their length by a rigid plate 1 ft in length, wider than the rub rail, and with a ¼ in. end radii, with no visible damage to the rub rail, retainer or supporting structure.	Contractor requests approval to delete the requirements for rubrails as this feature does not apply to low floor design. This design is the same as with the latest Xcelsior build.	Approved
84	99	TS 67.1	Splash Aprons	If required, full width rear splash apron.	Contractor would like to clarify that the design of the splash aprons provide full width front splash aprons for the front axle and wheel. The rear axle and wheel will have one piece behind the axle and two pieces behind the rear wheels.	Approved

85	99	TS 68.1	Access Doors (Transit Coach)	All access doors shall be retained in the open position by props or counterbalancing with over-center or gas-filled springs with safety props and shall be easily operable by one person.	Contractor requests approval to provide the top hinged access doors are held open by two gas struts. The side console, radiator and defroster access doors have two (2) non-locking gas struts. The engine door has two struts, one of which is locking.	Approved
86	99	TS 68.1	Access Doors (Transit Coach)	The front and rear door glazing shall be ThremoGuard BlueSpruce70, manufactured out of Pomona, CA or approved equal. The tints for the front and rear door shall match all tints in the driver and passenger window assembly locations.	Contractor requests approval to provide Front door glazing supplied by Vapor that is in accordance with all applicable mandatory motor vehicle safety regulations including FMVSS and CMVSS. Glass type AS2 laminated, single density green, with 72% light transmittance.	Approved
87	100	TS 70	Bumpers	Bumpers shall provide impact protection for the front and rear of the bus with the top of the bumper being 27 in., ±2 in., above the ground.	Contractor requests approval to provide a front bumper height of 24 inches at the center line of the bus which follows the body style lines of the proposed bus. The height at the outer edges is 27 inches from the street level at ride height.	Approved
88	100	TS 70.2	Front Bumper	• **Integrated Design with Recessed Middle Portion** The bumper shall be an integrated design with the coach styling and be recessed in the middle portion to provide for mounting of a bike rack if necessary.	Contractor would like to clarify that the front bumper is not recessed in the middle portion. However, bike rack mounting provisions can be provided if required.	Approved
89	101	TS 71	Finish and Color	Paint shall be applied smoothly and evenly with the finished surface free of visible dirt and the following other imperfections: • blisters or bubbles appearing in the topcoat film • chips, scratches or gouges of the surface finish • cracks in the paint film • craters where paint failed to cover due to surface contamination • overspray • peeling • runs or sags from excessive flow and failure to adhere uniformly to the surface • chemical stains and water spots • dry patches due to incorrect mixing of paint activators • buffing swirls	Contractor requests approval to provide and apply the paint in accordance to Contractor's standard quality assurance paint appearance standards. Contractor further requests clarification as to which paint scheme will be required as several options are presented within the specification.	paint scheme is to be standard Trinity Metro fleet paint scheme.
90	102	TS 71	Finish and Color	**High Gloss External Paint Finish Quality** Painted surfaces shall have a minimum 95 gloss and an orange peel rating of 7 or more on the Advanced Coating Technologies, Inc., orange peel standard panels set #APR 14941 or Agency accepted wave scan equipment. Paint shall last a minimum of six years with a minimum gloss of 90 as measured in ASTM E97-92, “Standard Test Method for Directional Reflectance.”	Contractor requests approval to provide painted surfaces that meet the ASTM standard of max gloss of 90, but we cannot meet orange peel rating of 7 or more. Rating 7 would mean the paint finish would almost be glass quality finish. Contractor uses BYK Gardner Wave Scan from scales 1-10. This is inherent to the bus build and is the same as previous builds.	Approved
91	102	TS 72	Decals, Numbering and Signing	On exterior roof of vehicle, a 24" 4-digit number will be placed no more than 5' from the front of vehicle.	Contractor requests approval to provide roof numbers which will be 18 inches high.	Approved
92	104	TS 73	Exterior Lighting	Commercially available LED-type lamps shall be utilized at all exterior lamp locations.	Contractor requests approval to provide a full LED headlight assembly manufactured by JW Speaker.	Approved
93	104	TS 73	Exterior Lighting	• Potted Lamps LED lamps shall be potted type and designed to last the life of the bus.	Contractor requests approval to provide potted rear tail lights only. The remainder of the exterior lights are hardened surface mount type. This is the same as provided on your current Xcelsior buses.	Approved

94	104	TS 73	Exterior Lighting	Front marker (clearance) lights along with lights located on the roof and sides of the bus shall have protective shields or be of the flush mount type to protect the lens against minor impacts.	Contractor requests approval to provide our universal marker clearance lights that is low profile mount type and proven to withstand minor impacts.	Approved
95	104	TS 73.2	Doorway Lighting	Lamps at the front and rear passenger doorways (if applicable) shall comply with ADA requirements and shall activate only when the doors open. The lights may be positioned above or below the lower daylight opening of the windows and shall be shielded to protect passengers' eyes from glare.	Contractor requests approval to provide an ADA compliant door header light, measuring 1.0" x 18.5" LED strip light at both the entrance door and exit door. This will preclude the need for installation of exterior curb lights.	Approved
96	105	TS 73.3	Turn Signals	Front turn signals shall be of wraparound design or shall be designed to be visible from the front and the near side of the bus.	Contractor would like to clarify that the front turn signals are located in the front of the bus and can be visible from the front of the coach only.	Approved
97	105	TS 73.4	Headlights	**LED** Headlamps shall be LED/halogen, sealed beam. Low beam headlight shall be Dialight, part number HLC324CB while high beam light shall be standard OEM light with high/low beam controlled by a foot switch.	Contractor's proposal is based on providing full LED headlights (both low and high beams). Refer to SIB-273-001 LED Headlights_NFA	Approved
98	106	TS 73.5	Brake Lights Transit Coach	**• High and Center Mount Red Brake Lamp** Bus shall include red, high and center mount brake lamp(s) along the backside of the bus in addition to the lower brake lamps required under FMVSS. The high and center mount brake lamp(s) shall illuminate steadily with brake application. Agency specifies the size of the high and center mount brake lamp(s) to be 7 inch round LED.	Contractor requests approval to provide 2 amber strip lights which are positioned above the propulsion compartment door. These strip lights are 1" X 18".	Approved
99	106	TS 73.6	Service Area Lighting (Interior and Exterior)	Power shall latch on with activation of the switch and shall be automatically discontinued (timed out) after 30 minutes to prevent damage caused by inadvertently leaving the service area lighting switch in the "on" position after repairs are made.	Contractor requests approval to provide power through a Vansco multiplex output that controls the supply of power to all service lights. The lights are not supplied power from individual multiplexing outputs that latch on. The lights are provided with maintained switches.	Approved
100	106	TS 74	General Requirements	Requirements for additional anti-graffiti/vandalism treatments for interior surfaces.	Contractor requests additional information concerning anti-graffiti/vandalism requirements. Contractor does not provide any treatments on the interior panels of the bus.	not required
101	107	TS 74.1	Interior Panels	Melamine-type material.	Contractor requests approval to provide a combination of interior panel materials that include thermoplastic for the upper pier panels and melamine for the lower sidewalls.	Approved
102	107	TS 74.2	Driver Area Barrier	A barrier or bulkhead between the driver and the street-side front passenger seat shall be provided. The barrier shall minimize glare and reflections in the windshield directly in front of the barrier from interior lighting during night operation.	Contractor would like to clarify that the driver's barrier is formed by the front side of the SDS enclosure which extends from the top of the wheelhouse to the ceiling.	Approved
103	108	TS 74.3	Modesty Panels	Modesty panels shall extend from at least the window opening of the side windows, and those forward of transverse seats shall extend downward to 1 and 1½ in. above the floor.	Contractor requests approval to provide rear exit modesty panels that are approx. 3.83" above the lower daylight opening of the side window and the rear exit modesty panel is approx. 3.39" above the floor. This is inherent to the bus design.	Approved
104	110	TS 75	Interior Lighting	Vehicle interior lighting shall be Dinex LED lighting with I/O controls with integral modular advertising panel or approved equal.	Contractor requests approval to provide Contractor interior lights. The covers are an esthetically pleasing, and one continuous piece of polycarbonate, without gaps.	Approved

105	111	TS 75.4	Vestibules/Doors (Transit Coach)	Floor surface in the aisles shall be a minimum of 10 foot-candles, and the vestibule area a minimum of 4 foot-candles with the front doors open and a minimum of 2 foot-candles with the front doors closed.	Contractor's requests approval to provide zero (0) foot-candles in the front vestibule area with the doors closed as the lower light level in this area prevents glare on the windshield that could affect the drivers visibility.	Approved
106	111	TS 75.5	Step Lighting	The step lighting shall be low profile to minimize tripping and snagging hazards for passengers and shall be shielded as necessary to protect passengers' eyes from glare.	Contractor requwests approval to provide round, non shielded, step lights. This is the same as previously provide buses	Approved
107	111	TS 76	Fare Collection	Whole section	Contractor requests clarification if Trinity metro needs Farebox and fare card reader to be provided and installed by Contractor as it was in the previous build or needs just provision.	yes, both installed by Contractor as it was in the previous build.
108	111	TS 76	Fare Collection	A GENFARE FASTFARE FAREBOX AND TRIM WITH TRINITY METRO SPECIFIC SOFTWARE IS REQUIRED TO BE PROVIDED AND INSTALLED BY THE AWARDEE.	Contractor requests clarification if the Genfare Fastfare Farebox will be provided by Trinity Metro and installed by the contractor. Please clarify as there is a requirement for wiring provisions in the same section.	bus manufacturer is required to obtain the farebox and install it and ensure it is fully functional prior to vehicle delivery
109	112	TS 77	Interior Access Panels and Doors (Transit Coach)	Access doors shall be hinged with gas props or overcenter springs, where practical, to hold the doors out of the mechanic's way.	Contractor requests approval to provide two interior access doors that do not meet this requirement. The rear bulkhead access panels are not hinged or held open with gas props or springs. They are retained with captive hardware. The front wheelchair mechanism access door is hinged but not held open with a gas prop or strut.	Approved
110	112	TS 78	Floor Panels	Flooring material at or around access openings shall be flush with the floor and shall be edge-bound with stainless steel or another material that is acceptable to the Agency to prevent the edges from coming loose.	Contractor requests approval for a driveshaft access panel that is manufactured completely out of polyurethane and is not edge bound with trim. The panel has a recessed area which is covered in flooring material to match the bus interior. The flooring material in this area is secured using approved adhesive and is edge sealed using approved sealant.	Approved
111	114	TS 79.3	Hip-to-Knee Room	Hip-to-knee room measured from the center of the seating position, from the front of one seat back horizontally across the highest part of the seat to a vertical surface immediately in front, shall be a minimum of 26 in. At all seating positions in paired transverse seats immediately behind other seating positions, hip-to-knee room shall be no less than 27 in.	Contractor requests approval to provide the hip-to-knee measurements shown on seat layouts. Per this layout, the hip-to-knee measurements range between 27.15" and 27.26" on the lower deck and between 26.51" and 30.76" on the upper deck. However, Contractor is able to provide foot room that measures down to 10" at the curbside seat location immediately aft of the exit door. This is due to the structure at this location and is the same as provided in previous builds. Please see attached DWG 445309.	Approved
112	118	TS 80.3	Vestibule (Transit Coach)	The aisle side of the driver's barrier, the wheel housings and when applicable the modesty panels shall be fitted with vertical passenger assists that are functionally continuous with the overhead assist and that extend to within 36 in. of the floor.	Contractor requests approval to provide a vertical stanchion fore of curbside front wheelhouse which measures 38.5" from the floor.	Approved
113	118	TS 80.5	Overhead (Transit Coach)	Grab straps or other extensions as necessary shall be provided for sections where vertical assists are not available and for use by passengers that cannot reach to 70 in.	Contractor wants to clarify the quantity of grab straps required.	to be the same as previous builds
114	120	TS 81.3.1	Transit Coach	**• Doorway Clear Width Greater than 31¾ in.** The front door clear width shall be a minimum of [36] in. with the doors fully opened. The rear door clear width shall be a minimum of [32] in. with the doors fully opened.	Contractor of America requests approval to provide entrance door with clear width (handle to handle) of 33.8" and for a medium exit door of 30.3".	Approved

115	121	TS 81.4	Door Glazing	The upper section of both front and rear doors shall be glazed for no less than 45 percent of the respective door opening area of each section. The lower section of the front door shall be glazed for no less than 25 percent of the door opening area of the section. Door glazing shall be easily replaceable.	Contractor requests approval to provide a full one-piece design front door glazing, provided by Vapor, in accordance with all applicable mandatory motor vehicle safety regulations including FMVSS and CMVSS. Glass type AS2 laminated, single density green, with 72% light transmittance. This is same as was provided in your last build SR-2600. Rear door glazing can be accommodated with ThermoGuard BlueSpruce, if required.	Approved
116	121	TS 81.4	Door Glazing	The front door panel glazing material shall be Safety Glass with ThermoGuard BlueSpruce	Contractor requests approval to provide front door glazing supplied by Vapor is in accordance with all applicable mandatory motor vehicle safety regulations including FMVSS and CMVSS. Glass type AS2 laminated, single density green, with 72% light transmittance.	Approved
117	121	TS 81.8	Rear Door Closing Force (Transit Coach)	Power-close rear doors shall be equipped with an obstruction-sensing system such that if an obstruction is within the path of the closing doors, the doors will stop and/or reverse direction prior to imparting a 10 lb force on 1 sq in. of that obstruction. If a contactless obstruction sensing system is employed, then it shall be capable of discriminating between the normal doorway environment and passengers or other obstructions within the doorway, and of altering the zones of detection based upon the operating state of the door system.	Contractor requests clarification on the CLASS system required. Contractor proposal is based on providing non-CLASS system in the base and will provide CLASS system as an option when the specifics are known.	CLASS system is not required. The non-CLASS system is prefferred.
118	122	TS 81.9	Actuators	After enabling and unlocking, the doors shall be opened by either the passenger manually pushing the door open, or by a powered mechanism actuated by passenger activation of a touch bar or touch switch.	Contractor requests clarification on which door opening system is required.	VAPOR electric door system
119	125	TS 83.2	Loading System for 30 to 60ft Low-Floor Bus	**Front Door Location of Loading System, Flip-Out Design Ramp with 6:1 Slope** The wheelchair loading system shall be located at the front door, with the ramp being of a simple hinged, flip-out type design being capable of deploying to the ground at a maximum 6:1 slope.	Contractor requests approval to provide Contractor's patented self contained, modular flip type that is stored in a stainless steel box mounted into the floor of the bus. The non-skid 3/16 inch thick aluminum ramp platform has a clear width of 32.25 inches, a length of 47.6 inches and is rated at 660 lbs. with a deployment angle ratio of 1:7. The ramp exceeds ADA requirements.	Approved
120	126	TS 84	Destination Signs	**Street and Curb Side Route Sign** The sign located near the front door shall not block the driver's critical horizontal line of sight. Display areas of destination signs shall be clearly visible in direct sunlight and/or at night.	Contractor requests clarification if a streetside route sign is required, in addition to the proposed electronic destination sign system which shall supply signs for the front, side (curbside) and rear of the bus.	there is to be only one curb side destination sign. It is to be of the same brand as the front destination sign as with the rear block sign as well.
121	126	TS 85.1	Interior Displays	Provisions shall be made on the rear of the driver's barrier or equipment box located on the wheel well for a frame to retain information such as routes and schedules. Advertising media 11 in. high and 0.09 in. thick shall be retained near the juncture of the bus ceiling and sidewall.	Contractor requests clarification of the required dimensions of the ad frame itself.	Trinity Metro will install this frame and media holder after the delivery of the vehicles.
122	127	TS 86	Passenger Stop Request/Exit Signal	• **Use for Touch Tape Passenger Signal** A passenger "stop requested" signal system that complies with applicable ADA requirements defined in 49 CFR, Part 38.37, shall be provided. The system shall consist of a **pull cord,** chime and interior sign message. The **pull cord shall be yellow** in color and accessible to all seated passengers, with provisions for standees. It shall be easily accessible to all passengers, seated or standing.	Contractor would like to clarify if the requirement is for Touch Tape or Pull cord passenger signal system.	yellow pull cord - as stated in the specification

123	128	TS 87.1	Camera Surveillance System	Conduit shall be 1” and all cables shall be installed in eight locations throughout the vehicle in order to facilitate installation of eight cameras, utilizing appropriate mounting devices.	Contractor would like to clarify that if a full system installation is being performed, there is no need to run conduit as all cables will be installed during production.	Approved
124	129	TS 87.2.4	Speakers	Mounting shall be accomplished with riv-nuts and machine screws.	Contractor requests approval to provide interior speakers mounted with machine screws, flat washers and nuts. This combination of hardware provides a robust connection which can be removed and re-assembled multiple times without stripping.	Approved
125	129	TS 87.2.4	Speakers	Eight interior loudspeakers shall be provided, semi-flush mounted, on alternate sides of the bus passenger compartment, installed with proper phasing.	Contractor requests approval to provide our standard 6 speakers for 40/35 ft buses located strategically to allow all passengers to hear the PA announcements. These interior speakers are semi-flush mounted, on alternate sides of the bus light closing panels, installed with proper phasing.	Approved
126	129	TS 87.2.4	Speakers	Total impedance seen at the input connecting end shall be 8 Ohms.	Contractor would like to clarify that the interior speaker interface connections, total impedance will be between 4-8 ohms.	Approved
127	129	TS 89.1	Drivers Speaker	Each bus shall have a recessed speaker in the ceiling panel above the driver. This speaker shall be the same component used for the speakers in the passenger compartment. It shall have 8 Ohms of impedance.	Contractor requests approval to wire these speakers in series and parallel combinations such that the total impedance is between 4 Ohm and 8 Ohm. This meets the specs of nearly all amplifiers we currently use in transit buses.	Approved
128	130	TS 89.3	Driver Display Unit (DDU)	Contractor shall install a driver display unit as close to the driver’s instrument panel as possible. Vontas Transit Master ITS system.	Contractor requests approval to provide power, ground, mounting, fishwire and conduits for the radio system. The radio system will be installed by the customer after bus delivery.	not approved - manufacturer is to provide all hardware and install it for a fully functioning system, This is the same for the Radio system, Vontas Transit Master ITS system, Camera system, etc.
129	130	TS 89.4	Emergency Alarm	It shall be constructed of 0.145-gauge minimum thickness aluminum measuring 40” tall by 24” wide by 30” deep and be secured at the top and bottom for no movement.	Contractor requests approval to provide a communications box, Secure Diagnostic Station (SDS) box, located on the wheelhouse where the forward wall of the box acts as the upper portion of the barrier and the wheelhouse as the lower portion separating the operator from the street-side front passenger seat there by precluding the need for a separate barrier. The SDS box is made of fiberglass.	Approved
130	130	TS 89.4	Emergency Alarm	It shall contain a quantity of 4 - ¼” aluminum shelves (no wood) and each shelf will be supported on heavy duty slide rails capable of supporting 50 lbs each.	Contractor requests approval to provide trays that are fabricated out of 1/8" aluminum.	denied
131	130	TS 89.4	Emergency Alarm	Conduit with antenna coax shall be installed from the radio compartment to the Roof-mounted antenna.	Contractor would like to clarify that there is no need for conduit if we install the coax cable. All locations are easily accessible in the event that the coax cable needs to be replaced.	Approved
132	131	TS 89.4	Emergency Alarm	A 5" or 6" flush mount, round, marine-type access panel will be installed on the interior of the vehicle which will allow access to the connection on the roof mounted antennas.	Contractor requests approval to provide a rectangular plate to allow access to the antennas. Please note that the plate is not flush to the ceiling and it's made of the same material as the ceiling panel.	Approved
133	131	TS 91.2	On-Route Charging (Options)	The coach must be able to automatically connect or electrically couple to an on-route overhead fast-charging system with minimal driver intervention and automatically disconnect when charging is complete or commanded by the operator. The bus shall be able charge at rates in excess of 350kW each trip in order to replenish the energy consumed. Fully charging the Energy Storage System must take less than twelve (12) minutes on average.	Contractor wishes to clarify that the 350kW charge rate can only be met with the high power batteries that are part of the restricted coach portion of TS 7.4. The high energy batteies will not charge at more than 220kw on a string bus, and a 5 string high energy will be even less.	Approved
134	30	TS 5.6.1	Technical Service/Service Representatives	under the provisions of “Section 7: Warranty Requirements.”	Contractor requests that the Section & Warranty Requirements document be provided so that we can provide an accurate and thorough response	Warranty requested - 2 years bus, 2 seasons for climate control, vendor supplied warranty on High voltage power system and drive equipment is acceptable.

135	New	New	Regulatory change	New	Contractor requests approval to add a regulatory price change escaloter clause to cover cost increases caused by regulation changes during the duration of the contract	Please include as an exception in proposal.
136	47	TS 23.3 Construction	Floor covering shall be Wood grain Flooring or approved equal.	Contractor would like to clarify that Contractor standard floor covering is Gerflor floor covering. Contractor requests approval	GERFLOR TARABUS floor covering	Flooring is to be Altro Cherry TFWSA2202F 2.7 mm thick for all isles and under seats.
137	53	TS 28.1 Steering Axle (Transit Coach)	The front axle shall be a Meritor solid beam, non-driving with a load rating sufficient for the bus loaded to GVWR and shall be equipped with grease type front wheel bearings and seals.	Contractor would like to clarify that ZF 82A front axle is Contractor standard design. And ZF RL82A is a heavy-duty, low-floor, reverse-Elliot, I-beam, deep-drop axle with front shaft fist-shaped ends and grease-type bearings.And this axle has been Altoona tested. Contractor requests approval.	ZF Axle Product	Approved
138	55	TS 29 Drive Axle	The bus shall be installed with a Meritor drive axle, driven by a heavy-duty axle with a load rating sufficient for the bus loaded to GVWR.	Contractor would like to clarify that Contractor's drive axle was designed, engineered,and manufactured by Contractor purposely for heavy-duty transportation operations. It has been Altoona tested on Contractor bus. Contractor requests approval of Contractor drive axle	RIDE Propulsion System	Approved
139	57	TS 31.3	The brake linings shall be made of non-asbestos material. In order to aid maintenance personnel in determining extent of wear, a provision such as a scribe line or a chamfer indicating the thickness at which replacement becomes necessary shall be provided on each brake lining. The complete brake lining wear indicator shall be clearly visible from the hoist or pit without removing backing plates.	Contractor would like to clarify that Contractor will offer electronic brake wear indicators, using visible pins and electronic sensors. The electronic indicators can take minute measurements and will remotely alert the driver and/or mechanic on the Contractor Electronic Dashboard if brake pads need replacement. Contractor requests approval		Approved
140	60	TS 33.5 Air System Dryer	A "Sludgebreaker" air dryer, Grahm & White QBA-60, with heater shall be installed in the air sy	Contractor would to clarify that Contractor standard design is Bendix AD-IS air dryer. The Bendix AD-IS assembly integrates two air dryers system and it is to provide heavy vehicles that use large amounts of air with a dryer system that facilitates continuous flow drying. Contractor requests approval of Bendix AD-IS air dryer.	Contractor Air Dryer	Denied
141	79	TS 42.7.2 Brake and Accelerator Pedals	Both pedals shall be adjustable forward and rearward a minimum of 3 in.	Contractor requests approval for unadjustable accelerator pedal from Williams and brake pedal from Bendix.	Knorr Brake Pedal Williams Accelerator Pedal	Approved
142	87	TS 50 Driver's Side Window	The operator's side window and destination sign(s) upper glazing shall be ThremoGuard BlueSpruce70, manufactured out of Pomona, CA or approved equal.	Contractor requests approval of employing Ricon side windows to fulfill the needs of Trinity Metro. Please refer to the Ricon attachment for more details.	Ricon Windows	Approved
143	88	TS 51 Side Windows	Side window glazing shall be ThremoGuard BlueSpruce70, manufactured out of Pomona, CA or approved equal.	Contractor requests approval of employing Ricon side windows to fulfill the needs of Trinity Metro. Please refer to the Ricon attachment for more details.	Ricon Windows	Approved
144	91	TS 52 Capacity and Performance	The air conditioning system is to be a ThermoKing RLFE1-M1 roof top system and or the TE14-EH rear mount system, or approved equal	Contractor requests approval of Contractor's own HVAC system which has been thoroughly researched and developed in-house. Contractor's HVAC system is highly integrated into the bus design and has proven to be reliable and efficient in altoona test	Contractor HVAC	Denied - HVAC system request is for a ThermoKing rear AC unit.

145	120	TS 81.3.1 Transit Coach	The front door clear width shall be a minimum of [36] in. with the doors fully opened	Contractor would like to clari that Contractor front door opening width is 38in. And the clear front door width is 33.7in. It can meet ADA front door width requirement Contractor requests approval		Approved
146	125	TS 84 Destination Signs	Sign shall be latest design of Luminator or approved equal	Contractor would like to clarify that Contractor standard destination sign is IO Controls Destination Sign. Contractor requests approval	IO Controls Destination Sign	Denied
147	37	Propulsion Control System	The drive motor shall be equipped with an electronically controlled management system, compatible with 12-volt power distribution.	Contractor would like to clarify that the motor controller of Contractor bus works in 24V. Contractor requests approval		Approved
148	62	TS 36.2 Main supply Batteries	The batteries must be able to charge to full charge state during a six hour period using 480 volt 100 AMP service and when fully charged the vehicle shall provide a 125 mile range minimum with full passenger load and continuous Air Conditioner load.	To achieve the requirement of 175mile long range with continuous Air Conditioner load, Contractor would like to propose a bus with more than 391kWh useable battery capacity. The bus will takes more than 8.5 hours to charge fully using 480 volt 100AMP service. Normally the bus only needs 3.5 hours from 10%SOC to 100%SOC at the DC charger without input current limited. Contractor requests approval.		Approved
149	63	TS 36.1.2.1 Battery Cables	A jump-start connector, red for 24V and blue for 12V, shall be provided in the engine compartment, equipped with dust cap and adequately protected from moisture, dirt and debris.	Contractor would like to clarify that Contractor bus is pure electrical bus and all the system is 24V, we can provide a 24V jump-start connector in rear compartment. Contractor requests approval.		Approved
150	63-64	TS 36.1.4 Auxiliary Electronic Power Supply	On Board Charger The propulsion system shall be supplied with an onboard charging system as an integral part of the drive system. The charging system shall be capable of providing a full charge in six hours using a 480 volt 100 AMP service. In no event will additional infrastructure modifications beyond the480 volt 100 AMP service be required and no additional expenses for charging stations, charging infrastructure, en-route charging or disruption or modifications to FWTA's existing routes be required for the operationof the bus	Contractor would like to clarify that Contractor bus offers a DC plug-in charging port which is fully compatible with SAE J1772 CCS 1 connectors. There is no OBC in the bus. To achieve the requirement of 175mile long range with continuous Air Conditioner load, Contractor would like to propose a bus with more than 390kWh useable battery capacity. The bus will takes more than 8.5 hours to charge fully using 480 volt 100AMP service. Normally the bus only needs 3.5 hours from 10%SOC to 100%SOC at the DC charger without input current limited. Contractor requests approval.		Approved
151	64	TS 36.1.6 Low-Voltage Generation and Distribution	The vehicle shall be equipped with a 300-AMP minimum, 24 VDC DC-DC power converter, suitably rated to handle the electrical load requirements. The high output DC amps shall be achieved at the DC-DC Power converter's designed maximum output.	Contractor would like to clarify that the max power rate of 24V DC-DC is 6kW on Contractor bus, 250A max. it is enough for Contractor pure electrical bus and all the electrical system assgined by customer. Contractor requests approval.		Approved

152	22	TS 1 Scope	Also a complete and turn Key charging system including infrastructure for charging these buses and any future bus purchases.	Does Trinity Metro Transit intend to park & charge this additional, new solicitation for 35' buses in the same way as it plans to charge the larger, 45' buses? More specifically, should bidders assume that this additional batch of shorter buses will be parked and charged in the same general part of the open, un-covered parking lot as the longer buses, in additional lanes parallel to the rows of chargers and lanes for the larger buses?		Yes.
153	134 & 154	Section 2: Qualification and Experience with Similar Projects:	Qualifications of the firm and key personnel responsible for implementation of the **farebox system** and ongoing support during the term of the contract. Proposer shall demonstrate the ability and resources to provide the outlined services and technical support to FWTA. Provide names and contact information of at least three owners/agencies for similar services performed.	Submittal Requirements listed on 154 reference the farebox system in Section 2 but Submittal Requirements on page 134 do not reference the farebox system in Section 2. Do we need to highlight the farebox system in Section 2?		No. The only requirement for the farebox is to obtain the farebox, install the farebox, ensure the software matches Trinity Metro current configuration set up and ensure the farebox is fully functional prior to vehicle delivery.
154	103	TS 72 Decals, Numbering and Signing	NOTICE: Bidders will submit samples of all signs and decals as well as detailed layouts of all lettering and sign locations for approval prior to bid opening.	Our company does not produce the decals for the buses. On page 102, it states "All decals shall be installed per the **decal Supplier** recommendations." Please confirm this requirement.		Confirmed. When installing the decals by the manufacturer, which obtained from the decal supplier, the manufacturer is to "install them per the suppliers recommendation of proper installation. Trinity Metro is to receive layouts showing the placement of all decals for approval.

Request Number	Page #	Section #	Specification Requirement	Clarification or Approved Equal Request	Trinity Metro Response
155	33	TS 6.6 Table 2a	Approach Angle: 8.6 deg (min)	Contractor requests approval to provide a minimum Approach Angle of 8.3 deg	Approved
156	34	TS 6.9 Interior Headroom	At the centerline of the window seats, headroom shall be no lower than 65 in	Contractor requests approval to provide headroom of 64.1 in at the centerline of the window seats	Approved
157					
158	40	TS 10.1	The radiator, shall be of durable corrosion-resistant construction with integral tanks, unless the EMP Mini-Hybrid System is installed.	Contractor wishes to clarify that our Battery Electric Bus Electronic Cooling Package includes a Modine Radiator Core with 14 fin/in., aluminum core face area. Aingle pass with horixontal coolant flow. Tis is the only Cooling Pack	Approved
159		Propulsion		Contractor Requests approval	
160		Cooling			
161					
162	42	TS.12	Accessible Retarder Disable Switch Switch shall be located in overhead compartment.	Contractor wishes to clarify that the battery electric bus utilizes a regenerative braking system as a similar function of a retarder. It would still include a disable switch and for safety precautions, Contractor requires that the operator needs to be able to disable the regen from their seat when adverse road conditions require it. Contractor requests approval to place the regen disable switch in a location of the agency's choosing in the driver's console area. Contractor does not consider the Overhead compartment to be accessible to the operator while driving.	Approved
163		Regenerative Braking Coach)			
164					
165					
166	45	TS 18.1 Engine Compartment Bulkheads	This bulkhead shall preclude or retard propagation of an engine compartment fire into the passenger compartment and shall be in accordance with the Recommended Fire Safety Practices defined in FTA Docket 90A, dated October 20, 1993.	Contractor wishes to advise the Agency that the Contractor Low Floor bus is fully compliant with all the applicable Federal Motor Vehicle Safety Standards (FMVSS), including FMVSS 302, which is the current industry standard. Over the years Contractor has continued a program with suppliers to provide components that meet or exceed these "voluntary recommended" guidelines. Developing technology, unavailability of suitable materials, product performance, reliability, and costs have precluded some materials being available for manufactures' use. Given the competitive nature of the transit bus industry, some items are very cost prohibitive in our competitive environment, and we wanted to clarify for the record that the Docket 90A requirement listed in the specifications were a voluntary recommended regulation. This is consistent with the fleet of Contractor buses currently in service at the agency. Contractor requests approval to delete this requirement.	Approved
167	46	TS 21. Jacking	Jacking pads shall be painted safety yellow.	Contractor requests approval to provide jacking points painted safety Yellow located on the front and rear axles, rather than jack pads mounted on the	Approved

				suspension or axle. This is the standard offering from Meritor and will permit easy and safe jacking with the flat tire or dual set on a 6 in. high run-up block not wider than a single tire.	
168	48	TS 23.3 Construction	Pressure-Preserved Plywood Panel Plywood shall be certified at the time of manufacturing by an industry-Approved third- party inspection agency such as APA – The Engineered Wood Association (formerly the American Plywood Association).Plywood shall be of a thickness adequate to support design loads, manufactured with exterior glue, satisfy the requirements of a Group I Western panel as defined in PS 1-95 (Voluntary Product Standard PS 1-95, "Construction and Industrial Plywood") and be of a grade that is manufactured with a solid face and back. Plywood shall be installed with the highest-grade, veneer side up. Plywood shall be pressure-treated with a preservative chemical and process such as alkaline copper quaternary (ACQ) that prevents decay and damage by insects. Preservative treatments shall utilize no EPA-listed hazardous chemicals. The concentration of preservative chemicals shall be equal to or greater than required	Contractor wishes to advise we provide all composite flooring from Milwaukee Composites (MCI). The flooring is a lightweight composite material that is fully enclosed and made to our exact sizes. This provides a weight reduction on the Battery Electric Bus compared to a Plywood solution to allow for maximum Contractor requests approval	Approved
169		TS 27.1 Wheels	All wheels shall be interchangeable	Contractor wishes to advise that our design would include 9 inch wheels at the front axle and 8.25 inch wheels at the rear axle. This is inherent to our design in order to provide adequate weight rating's needed for the Battery Electric Bus. Contractor requests approval	Approved
170	53	TS 27.2 Tires	Sufficient space shall be provided to allow the Agency to carry a spare tire, if required.	Contractor would like to clarify that we can ship a spare tire upon initial delivery of the vehicle in the passenger compartment, but we do not provide a place to carry one during normal transit operation. Contractor requests approval to delete	Approved
171	55	TS 29 Drive Axle	The drive shaft shall be guarded to prevent hitting any critical systems, including brake lines, coach floor or the ground, in the event of a tube or universal joint failure.	Contractor wishes to advise that our design includes a guard that goes around and below the drive shaft. Although the guard is not above the drive shaft, the inherent position of the drive shaft is below chassis structural beam and therefore protects the coach floor. Contractor requests concurrence	Approved
172		TS 31.5		Contractor wishes to clarify that our system meets FMVSS121 guidelines. The FMVSS121 dual circuit air braking system which has a dual air supply system consisting of a primary air tank and a secondary air tank. The spring brakes are automatically supplied by the air tank from either circuit with the highest air pressure. In the event of a loss of pressure in either system, the parking brake system will automatically draw its air supply from the remaining circuit and air tank. The spring brakes will remain released until the pressure in both tanks	Approved

		Parking/Emergen Brake	Emergency Brake An emergency brake release shall be provided to release the brakes in the event of automatic emergency brake application. The driver shall be able to manually depress and hold down the emergency brake release valve to release the brakes and maneuver the bus to safety. Once the driver releases the emergency brake release valve, the brakes shall engage to hold the bus in place. Air to the emergency brake release system shall be provided by a dedicated emergency air tank.	automatically pop up to apply the spring brakes.. With the FMVSS121 dual system the driver will have a warning of loss of pressure in either circuit and the parking brakes will continue to remain released using pressure from the remaining circuit. This gives the driver warning and the ability to drive and park the bus before spring brake application. Contractor requests Approval	
173	60	TS 33.5 Air System Dryer	A “Sludgebreaker” air dryer, Grahm & White QBA-60, with heater shall be installed in the air system.	Contractor requests approval to provide a single Bendix AD-IP air dryer. The Contractor compressed air system for EV applications uses a Bendix AD-IP air dyer. The main marketed benefit of the Haldex Gemini air dryer is it’s oil control features, however, Contractor uses an oil-less scroll compressor which does not introduce oil into the pneumatic system. The Bendix AD-IP air dyer has been proven in the Contractor application and the preferred air dryer for the Contractor battery electric applications. This is inherent to the Contractor Low Floor Plus battery electric bus, and is the only available option.	Denied, the agency prefers sludgebreaker air dryer
174	63	TS 36.1.2.1 Battery Cables	A jump-start connector, red for 24V and blue for 12V, shall be provided in the engine compartment, equipped with dust cap and adequately protected from moisture, dirt and debris.	Contractor wishes to clarify that with the Battery Electric Bus, the High Voltage System starts the bus. The Low Voltage system does need enough charge to bring the High Voltage System online. For this we do offer a "Jump Charge" In an effort to save extra weight, cost and extra complication of more lines, Contractor recommends having the Jump Charge connector at the battery compartment at the front of the bus only and not at the rear of the bus. The way the system is set up, we would anticipate that the charge connector would not be utilized on the road by a service vehicle like a typical Jump Start on a non-electric bus would and therefore the rear position which is optimally utilized for road call conditions would not be necessary. Contractor requests approval	Approved

175	64	TS 36.1.4 Auxiliary Electronic Power Supply	An Inductive charger is to be installed on vehicles, providing alternative wireless charging capabilities.	Contractor wishes to advise that our Inductive Charging offering is with InductEV (formerly Momentum Dynamics). Ref attached cut sheet.	Approved
176	66	TS 36.2.1 Low Voltage/Low Current Wiring and Terminals	All wiring harnesses over 5 ft. long and containing at least five wires shall include 10 percent (minimum one wire) excess wires for spares.	Contractor wishes to clarify that we provide spares on the majority of our main harnesses to the extent practical. However, not all harnesses meet this requirement. Contractor can work with Agency to add spares to specific harnesses if deemed necessary at the preproduction meeting if we are the successful bidder.	Approved
177	69	TS 38 Multiplexing	Ten percent of the total number of inputs and outputs, or at least one each for each voltage type utilized (0V,12V, 24V) at each module location shall be designated as spares.	Contractor wishes to clarify that we provide spares on the majority of our main harnesses to the extent practical. However, not all harnesses meet this requirement. Contractor can work with Agency to add spares to specific harnesses if deemed necessary at the preproduction meeting if we are the successful bidder.	Approved
178	73	TS 42.5 Normal Bus Operation Instrumentation and Controls	TABLE 6 (Transit Coach) Transit Bus Instruments and Alarms	Contractor requests approval that the instrumentation, switches, controls and indicators can be discussed at the pre-production meeting if Contractor is the successful bidder. This is due to the unique design of our bus. Contractor is providing a standard blank Dash Layout template that is customizable to the agency's specifications for reference.	Approved
179	78	TS 42.5 Normal Bus Operation Instrumentation and Controls	USB & 110V outlets	Contractor wishes to advise that we do have a design for both USB and 110V outlets accessible within reach for seated passenger locations. The design that accommodates this requirement are wall mounted power strips mounted below the window line along the length of the bus and require a power converter box in the Electrical Equipment Cabinet. However to forego the 110V outlets and just get USB, which allows the design to change to Seat mounted USB modules without the need of the separate converter box in the Electrical Cabinet. This design allows for better USB outlet locations for passengers and is less maintenance and cost for the Authority. Contractor requests approval to provide seat mounted USB ports only	Approved
180	78	TS 42.5 Normal Bus Operation Instrumentation and Controls	Fleetwatch model JX55 GPS Mileage Tracking Module (mounted on the interior of the 1st roadside window or interior compartment near driver’s area). This must have the fleet specific software in each unit designed specifically for the Trinity Metro.	Contractor wishes to advise that Fleetwatch has discontinued the JX55 model and replaced with the TX200 Datalogger PN: JX200-DB19-24-G	Approved

181	78	TS 42.5 Normal Bus Operation Instrumentation and Controls	A traffic control emitter will be installed at the front curbside upper windshield area. Global Traffic Technologies LLC, Stock No. 76-1000-1047-0, Model No. 794T LED Emitter, Transit. This shall be wired in conjunction with the vehicles emergency flashers so that when parked at an intersection with the flashers operating the emitter is rendered ineffective on the traffic lights.	Contractor requests approval to provide our standard programming for when the traffic emitter is disabled. System disabled with Front &/Or Rear Door in open position or parking brake set. Contractor believes this is a more thorough form of ensuring the emitter is not adversely affecting traffic lights is situations that it should not be. The situation described in your spec would be covered by the parking brake. Contractor requests approval	Approved
182	78	TS 42.5 Normal Bus Operation Instrumentation and Controls	Bus will need to be pre-wired for 9 IP Ethernet camera system and Back up camera with driver monitor, power and ground to the Radio Storage box for the NVR. Camera Layout will be provided by Trinity Metro	Contractor requests clarification if the agency can advise the Camera System Vendor that the Pre- wire is being done for? Vendors can potentially require different types of wiring.	Review TS87.1 system to be pref-tech installed by vendor
183	79	TS 43 Driver Foot Switches	Turn Signal Controls Adjustable turn signal platform.	Contractor wishes to clarify that although we do offer adjustable brake and accelerator pedals, we do not offer an adjustable turn signal platform. Contractor requests approval to provide our standard fixed turn signal platform	Approved
184	81	TS 45.1 Windshield Wipers	Non-Synchronized Wipers For non-synchronized wipers, separate controls for each side shall be supplied.	Contractor wishes to clarify that our wipers will be synchronized and on one control at the driver's dash area. This is how they are on the agency's current Contractor buses.	Approved
185	85	TS 46.7 Seat Options	Choose among the following: • seat alarm • fabric options • seat air vent • side bolsters adjustments • silicone seat cushion	Contractor requests clarification on what seat options the Agency wishes to have as their base driver's seat. There is conflicting information such as Cushion material in section 49.5 asks for Open-cell polyurethane, but this section states Silicone seat cushion. These are conflicting. Contractor requests clarification	Approved Same seat as all previous Contractor builds
186	87	TS 49.1 Glazing	One-piece windshield.	Contractor requests approval to provide our standard 2-piece windshield. This is our only offering in our low floor plus design.	Approved
187	91	TS 52 Capacity and Performance	TE14-EH rear mount system, or Approved equal.	Contractor wishes to clarify that our Battery Electric Bus offering includes a Thermo King Rear Mount TE18 All Electric Unit. See attached spec sheet. Contractor requests approval	TE 18 Approved

188	93	TS 53.1 Auxiliary Heater	No auxiliary heater.	Contractor wishes to clarify that our Battery Electric Bus offering includes and Electric-only coolant heater to assist the HVAC to keep the cabin ambient temperature at the set desired range. See attached spec sheet Contractor requests approval	Approved
189	96	TS 57 Maintainability	High and low refrigerant pressure electronic gauges to be located in the return air area.	Contractor wishes to clarify that Thermo King no longer offers gauges and instead offers a Refrigerant Pressure Display Module to accomplish determining status of Freon pressure during troubleshooting. Contractor requests approval	Approved
190	98	TS 65 Rub rails	Requirement for Rails Rub rails composed of flexible, resilient material shall be provided to protect both sides of the bus body from damage caused by minor sideswipe accidents with automobiles. Rub rails shall have vertical dimensions of no less than 2 in. (50 mm) with the centerline no higher than 35 in. above the ground between the wheel wells. The rub rails shall withstand impacts of 200 ft-lbs of energy from a steel-faced spherical missile no less than 9 in. in diameter and of a 500lbload applied anywhere along their	Contractor wishes to advise the Agency that rub rails have been eliminated from the Contractor Low Floor bus design to provide a modern, sleek and attractive body style. Instead, the Contractor Low Floor bus incorporates a unique side impact crash barrier to protect from major and incidental side damage. This side impact structure, combined with the side wall structure, provides superior protection to that of a rub rail. Contractor wishes approval to delete the rub rail requirement.	Approved
191	100	TS 70.2 Front Bumper	Integrated Design with Recessed Middle Portion The bumper shall be an integrated design with the coach styling and be recessed in the middle portion to provide for mounting of a bike rack if necessary.	Contractor uses a standoff style mounting bracket compatible for mounting any of BYK-RAK transit style Bike rack offerings. This is not a recessed style mounting. Contractor requests approval to provide our standard non-recessed bike rack mounting bracket only.	Approved

192	107	TS 74.1 Interior Panels	Materials shall comply with the Recommended Fire Safety Practices defined in FTA Docket 90- A, dated October 20, 1993.	Contractor wishes to advise the Agency that the Contractor Low Floor bus is fully compliant with all the applicable Federal Motor Vehicle Safety Standards (FMVSS), including FMVSS 302, which is the current industry standard. Over the years Contractor has continued a program with suppliers to provide components that meet or exceed these "voluntary recommended" guidelines. Developing technology, unavailability of suitable materials, product performance, reliability, and costs have precluded some materials being available for manufactures' use. Given the competitive nature of the transit bus industry, some items are very cost prohibitive in our competitive environment, and we wanted to clarify for the record that the Docket 90A requirement listed in the specifications were a voluntary recommended regulation. This is consistent with the fleet of Contractor buses currently in service at the agency. Contractor requests approval to delete this requirement.	Approved
193	109	TS 74.8 Insulation	FTA Docket 90-A All insulation materials shall comply with the Recommended Fire Safety Practices defined in FTA Docket 90-A, dated October 20, 1993.	Contractor wishes to advise the Agency that the Contractor Low Floor bus is fully compliant with all the applicable Federal Motor Vehicle Safety Standards (FMVSS), including FMVSS 302, which is the current industry standard. Over the years Contractor has continued a program with suppliers to provide components that meet or exceed these "voluntary recommended" guidelines. Developing technology, unavailability of suitable materials, product performance, reliability, and costs have precluded some materials being Given the competitive nature of the transit bus industry, some items are very cost prohibitive in our competitive environment, and we wanted to clarify for the record that the Docket 90A requirement listed in the specifications were a voluntary recommended regulation. This is consistent with the fleet of Contractor buses currently in service at the agency. Contractor requests approval to delete this requirement.	Approved
194	118	TS 80.5 Overhead (Transit Coach)	Grab straps or other extensions as necessary shall be provided for sections where vertical assists are not available and for use by passengers that cannot reach to 70 in.	Contractor requests clarification on the number of Grab Straps the agency requires per bus	like all Contractor previous builds
195	120	TS 81.3 Dimensions	The rear door clear width shall be a minimum of [32] in. with the doors fully opened.	Contractor requests approval to provide our standard Transit style 34" swing out style door with a minimum of 24.8" clear opening (including door handles). This is consistent with the fleet of Contractor buses currently in service at the agency.	Approved

196	125	TS 84 Destination Signs	Sign shall be latest design of Luminator or Approved equal. Preferred warranty to be life of vehicle, twelve (12) years.	Contractor requests that the Hanover Destination Signs be considered as an Approved equal. The Signs meet the contract specification technical requirements and would allow for price competitiveness from multiple vendors in the quoting process. Hanover includes a 12 year warranty standard to meet the specification.	Approved
197	63	TS 36.1.4 Auxiliary Electronic Power Supply	The propulsion system shall be supplied with an onboard charging system as an integral part of the drive system. The charging system shall be capable of providing a full charge in six hours using a 480 volt 100 AMP service. In no event will additional infrastructure modifications beyond the 480 volt 100 AMP service be required and no additional expenses for charging stations, charging infrastructure, en-route charging or disruption or modifications to FWTA's existing routes be required for the operation of the bus. The contractors' technical proposal shall clearly address and define the buses charging system and process and confirm that all needed charging equipment is integrated with the drive system and included in the contractors quoted price per bus INCLUDING INSTALLATION ON DEFINED	Contractor respectfully requests the removal of "TS 36.1.4 Auxiliary Electronic Power Supply". Contractor's BEB charging technology requires offboard DC Fast Charging plug-in equipment compliant with SAE J1772. Based on publically available data, all major North American heavy- duty bus manufacturers only offer BEBs compatible with SAE J1772 charging specifications. Furthermore, Contractor's scope of work will be limited to providing charging associated commissioning services, and will not include installation of charging equipment. Contractor will work with its charging equipment partners to find qualified electrical contractors that are capable of providing installation services directly to the customer.	Approved
198		ACCEPTANCE	Specification clarification information.	Contractor requests the addition of the following paragraph to your bid specifications: Within fifteen (15) days after arrival at the designated point of delivery, each coach shall undergo the Agency tests. If the coach passes these tests, acceptance of the coach by the Agency occurs on the fifteenth day after delivery. Acceptance may occur earlier if the Agency notifies the Contractor of early acceptance or places the coach in revenue service. If the coach fails these tests, Contractor requests a letter of discrepancies for resolution be issued by the fifteenth day after delivery.	Approved
199		PAYMENT	Specification clarification information.	Contractor requests the addition of the following industry standard payment terms be incorporated into the bid specifications: The CITY shall make payment in full to the contractor within thirty (30) calendar days after acceptance of each vehicle.	Please include this as an exception with your proposal
200		PRODUCER PRICE	Specification clarification information.	In order to best serve the interest of the Procuring agency, and to assist in determining the lowest bidder for this procurement, we recommend the addition of the FTA Approved Producer's Price Index (PPI) for Truck and Bus Bodies #1413 for the purchase of "Option Orders". Use of the PPI avoids arbitrary	Please include this as an exception with your proposal

		INDEX		inflation estimates which may unnecessarily raise the option bus prices quoted. For multi-year procurements, the use of the PPI has been well accepted in the transit industry and Approved by the FTA.	
201		INSURANCE CERTIFICATE	Specification clarification information.	Contractor maintains and pays the premiums for insurance of the types and limits it deems sufficient for its protection. Enclosed is a copy of our Certificate of Liability Insurance for your information and approval.	Please include this as an exception with your proposal
202		FINANCIAL STATEMENTS	Proposers shall provide information demonstrating that it has the necessary financial resources to perform the Contract. This information shall include: □ Audited financial statements for the last (3) years, and year-to-date financial statements for the most recently completed operating quarter. The financial statements shall include Balance Sheets, Statements of Income and Stockholder's Equity, and a Statement of Change in Financial Position.	Contractor requests approval to provide our "CONFIDENTIAL FINANCIAL" information by separate sealed Federal Express package prior to the bid due date. We propose providing this information in place of the electronic bid submission. If this request is denied, Contractor'S proposal will include a deviation with our bid submission.	Approved