



Advertisement, Specification, Insurance Requirements, Sample Agreement, Sample Performance Bond
and Conditions and Instructions to Bidders

For

Special Trackwork – Direct Fixation Fasteners

Bid No.: **B26-10-65**

Electronic proposals are due at 11:00 A.M. on **November 18, 2026**

Executive Summary

The Port Authority of Allegheny County has recently implemented eBusiness. eBusiness is a mechanism which allows contractors and vendors to electronically submit bids on Port Authority procurement events. It is a system of modules that provides everything from procurement to contract management and you will see advantages like these:

- Monitor Invoice Payments
- Improved Purchasing Process
- More Fluid, Automated and Single System Return Authorization
- Automated RFP/Bid Process Including Bidding, Procurement Contracts & Purchase Orders
- The Latest Technology from Workflow to E-mail Notification to Approval Process

The implementation of eBusiness represents a change in the method of the competitive bidding process; however, the Port Authority must continue to adhere to stringent governmental and internal procurement regulations.

Additionally this document contains the Advertisement, Specification, Insurance Requirements, Sample Copies of the Agreement, Sample Copies of Performance Bond and the Conditions and Instructions to Bidders. It is recommended that you take the time to read the attached documents – especially the “Conditions and Instructions to Bidders”.

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PORT AUTHORITY OF ALLEGHENY COUNTY d.b.a. Pittsburgh Regional Transit “PRT”

Electronic Proposals will be received online at PRT’s Ebusiness website (<http://ebusiness.rideprt.org>).

Proposals/bid submittals will be due **11:00 AM on November 18, 2026** and will be read at **11:15 AM.**, the same day, through your web browser via Microsoft Teams video conferencing, for the following:

Electronic Proposal - Ebusiness website (<http://ebusiness.rideprt.org>)

	Bid Number	Bid Name
1	B26-08-50R	March Network Video Surveillance Equipment
2	B26-10-65	Special Trackwork - Direct Fixation Fasteners

No bidder may withdraw a submitted Proposal for a period of 75 days after the scheduled time for opening of the sealed bids.

To join the bid opening through Microsoft Teams meeting on your computer, mobile app or room device

Meeting ID: 237 440 757 768 222

Passcode: 7nd7hQ6C

Or call in (audio only)

412-927-0245

Phone Conference ID: 176 371 484#

No bidder may withdraw a submitted Proposal for a period of 75 days after the scheduled time for opening of the sealed bids.

A Pre-Bid Conference will be held for each of the above items at **10:00 AM on November 4, 2026**, through your web browser via Microsoft Teams video conferencing. Attendance at this meeting is not mandatory but is strongly encouraged.

Join on your computer, mobile app or room device

Meeting ID: 282 557 148 524 083

Passcode: UH6SG3os

Or call in (audio only)

412-927-0245

Phone Conference ID: 745 549 371#

Questions regarding any of the above bids will not be entertained by the PRT within five (5) business days of the scheduled bid opening.

These contracts may be subject to a financial assistance contract between Port Authority of Allegheny County d.b.a. PRT and the United States Department of Transportation. The Contractor will be required to comply with all applicable Equal Employment Opportunity laws and regulations.

Contractor is responsible for expenses related to acquiring a performance bond and insurance where applicable. All items are to be FOB delivered unless otherwise specified. Costs for delivery, bond, and insurance shall be included in bidder’s proposal pricing.

Port Authority of Allegheny County d.b.a. PRT hereby notifies all bidders that it will affirmatively insure that in regard to any contract entered into pursuant to this advertisement, disadvantaged business enterprise will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.

The Board of PRT reserves the right to reject any or all bids.

All awards made in excess of \$100,000.00 shall require a performance bond of 50% of the contract value. All performance bond expenses shall be the responsibility of the contract awardee.

Port Authority of Allegheny County
(dba Pittsburgh Regional Transit)
Special Trackwork - Direct Fixation Fasteners
Specification PAT-5609-1
October 2026

1.0 Scope Of Work

- 1.1 This Specification outlines the requirements to furnish and deliver special trackwork direct fixation fasteners (herein “Fasteners”) and hardware for Pittsburgh Regional Transit’s (PRT’s) Light Rail System, complete as specified herein. The contract duration will be one (1) year from PRT’s date of “Notice to Proceed”. A single purchase order for all line items and quantities will be issued by PRT upon Notice to Proceed.
- 1.2 Prices quoted must remain firm for the period covered by this contract. Prices quoted shall include the cost of obtaining a Performance Bond (for all procurements in excess of \$100,000), cost of obtaining insurance coverages (see Section 12.0_– Insurance Requirements), as well as delivery costs and charges (see Section 8.0 – Delivery) as well as any additional fees and surcharges (i.e. tariffs).
- 1.3 PRT will only accept bids from manufacturers of rail trackwork. Bids from distributors of rail trackwork will not be accepted.

2.0 Technical Data

- 2.1 All parts and equipment supplied in this contract shall be in compliance with the latest American Railway Engineering and Maintenance-of-Way Association (AREMA) standards.
- 2.2 Direct fixation fasteners shall be for use in No. 4, No. 6 and No. 8 special trackwork, and limited to the switch and frog assemblies.
 - 2.2.1 Fasteners shall be as manufactured by L.B. Foster, fastener model series, referenced in Attachment A: Bill of Materials, or “Approved Equal”.
 - 2.2.2 Fasteners shall be manufactured to meet the switch and frog geometry as shown in Attachment B: Reference Plans. These plans depict the latest documented as-built conditions but may no longer match the conditions in the field. The manufacturer shall confirm the actual existing conditions in the field and identify any changes required to meet the field conditions.
 - 2.2.3 The rail fastener system shall be manufactured to provide no rail cant.
- 2.3 Fasteners will be used to fasten 115 RE AREMA rail directly to concrete plinths.
 - 2.3.1 Each fastener (assembly) shall include the appropriate quantities from the Bill of Materials referenced in Attachment A.

- 2.3.2 The manufacturer shall submit detailed shop drawings locating the weld on shoulders according to the geometry of the turnout, existing or proposed.
- 2.3.3 Welded shoulders are required on all fasteners unless otherwise directed.
- 2.4 All materials in this specification shall be confirmed to be compatible with PRT's track gauge of 62.5 inches. Any proposed materials that are not compliant shall have shop drawings submitted and approved by PRT prior to manufacture.
- 2.5 Quality Assurance / Design Criteria
- 2.5.1 Design criteria for High Restraint Direct Fixation Fasteners, including Anchorage shall be as follows:
- 2.5.1.1 Function
- Secure and distribute the structural loads of 115RE rail and special trackwork to concrete track bed.
 - Provide vertical and lateral stability to the rail
 - Restrain rail from movement in longitudinal direction
 - Dampen vibrations generated by moving wheels on the rail.
 - Electrically insulate the rail from the track structure.
- 2.5.1.2 Parts
- All direct fixation rail fastener bodies shall be of a molded, one-piece, sandwich-style design consisting of top and bottom plates vulcanized rubber bonded into a single fastener body.
 - Parts shall have as few components as economically and technically feasible to facilitate assembling, disassembling, and maintaining in the field by means of standard hand tools.
 - Direct fixation fastener top plates shall be a minimum of ½-inch thick and shall be fabricated from A36 steel. Bottom plates shall be a minimum of 3/16-inch thick. All plates shall be of ductile iron casting or steel.
 - Vulcanized rubber bonds shall have a minimum elastomer thickness of 5/8-inch.
 - Rail clip holders shall be integral with the top plate. There shall be a positive means (other than by friction) of preventing lateral movement of the rail in relation to the fastener body.
 - All welds shall be performed prior to vulcanization.
- 2.5.1.3 Accommodation of Rail Removal

- The design of the rail fastener shall permit the release of the rail fastening system so that the rail may be removed by raising the rail vertically until it is completely free of the fastener without disturbing the horizontal or vertical alignment of the fastener.

2.5.1.4 Accommodation of Fastener Removal

- The design of the rail fastener and anchorage system shall permit the removal of in-place fasteners without raising the rail by more than three (3) inches.

2.5.1.5 Anchorage Assemblies

- Anchorages shall be designed for embedment into concrete plinths or slab track that would provide electrical isolation from the rail, and shall meet the following requirements:
 - Anchor Bolt:
 - Steel shall conform to SAE J429, Grade 5.
 - Anchor bolts shall be 7/8-inch diameter, 9 UNC Class 2A threads.
 - Anchor bolts shall be electroplated with zinc in accordance with ASTM B633, Type III, SC2.
 - The bolt length shall be sufficient to provide 2 inches of thread engagement in the insert when fully assembled at designed torque.
 - Washers:
 - Washers shall be self-locking type, 7/8 inch diameter, steel, disc-lock or “Approved Equal”.
 - Self-locking washers may not come into contact with any electrical isolation measures and must include an additional steel washer to provide separation between the two.
 - Insert:
 - Steel, if used, shall conform to SAE J429, Grade 5, Type III, SC2, suitable for use with 7/8 inch diameter, 9 UNC Class 2B internal threads and 2 inches of thread engagement for anchor bolt, galvanized, female type, not shorter than 5 inches and no longer than 5-½ inches, and shall have a non-welded collar and rotation prevention device or shape with nylon or plastic pull-away type plug.
- Rail Fastening System:

- Rail fasteners shall employ non-threaded rail hold-down assemblies and shall provide on each side of the rail base a positive means of preventing more than 1/8-inch total lateral movement of the rail base relative to the fastener, in the event of failure or loosening of one or both hold-down assemblies.
- Electrical isolation shall be provided between toe of rail clip and base of rail.
- Lateral Rail Adjustment:
 - The design of the rail fastener shall be so that lateral adjustment of the rail for specified increments is made by a method which does not require removal, substitution or addition of a component to the fastener.
- Rail Restraint:
 - The fastener shall be designed so that the longitudinal and lateral rail restraint properties of the fastener assembly shall be identical in both directions respectively in all positions of the rail on the fastener.
- Compressive Strength of Elastomer:
 - The fastener design shall be so that the compressive strain on the elastomer does not exceed twenty five percent (25%) of its compressive thickness for a load of 15,000 lbs. applied vertically to the rail in fully assembled fastener.
- Bearing:
 - The turnout plate shall be designed so that the fastener has full bearing on the elastomer for each specified position of lateral adjustment and that the elastomer when installed in fastener assembly shall not be displaced under a “no load” condition.
- Configuration:
 - The rail fastener shall be designed such that the rail seat of ductile iron and the underside of the fastener base is flat and parallel to the plane of the rail seat and without projections into the concrete or tie.
 - The installed distance from the base of the anchor hold down bolt head to the base of the fastener shall not exceed 2-1/2”. The overall vertical distance between the base of the rail and the base of the fastener shall be at least 1-3/8” and no more than 2-3/16”.
 - The overall dimensions of the fasteners (including the elastomer) shall not be less than 7” wide or exceed 8”

wide measured parallel to the rail. The fastener length for each fastener type shall be detailed by the manufacturer, and at a minimum shall meet the lengths of the fasteners as shown in Attachment B: Reference Plans.

- Rail fasteners shall be designed to provide for a minimum of two (2) anchorage assemblies, sized to accommodate 7/8" diameter anchor bolts when anchored in concrete. The center of each anchor bolt shall not be closer than 1-1/4" from the edge of the fastener.
- Each rail fastener shall provide a means of providing lateral positioning adjustment of a minimum range of +/- 1/2" in increments of 1/8". Lateral or longitudinal stability of the rail shall not be reduced in any adjusted position. Friction alone shall not be used as a means of adjustment.
- Each rail fastener shall provide an electrical leakage distance of not less than 1/2" under all load conditions, measured from the ground portion of the fastener in direct contact with the rail by the most direct path that does not pass through the insulating material.
- To the extent possible, the leakage distance shall be without recesses or other geometric configurations that are capable of collecting and/or holding moisture, dust, or other materials that could create a conductive path to ground.

- Elastomer:

- The manufacturer shall determine all dimensions affecting the shape of the elastomer in the rail fastener to ensure complete conformance to the specified physical requirements.

2.5.1.6 Allowable deviations from the indicated plate dimensions shall be as follows:

- Thickness: 1/32"
- Straightness (using a 36 inch straightedge oriented in any direction): 1/32"
- Hole diameters: 1/32"
- Hole centerline locations: 1/16"
- Deviation from the straightness of edges of riser plates parallel and adjacent to base of rail: 1/32"

- Deviation from overall planar dimensions: 1/8"

2.6 Inspection

PRT reserves the right to inspect the fabrication and all items within this contract. The Supplier shall provide to PRT the dates of fabrication periods at least seven (7) calendar days in advance of the start of fabrication. The Supplier shall organize and coordinate all inspections at PRT's request.

3.0 **Testing of Rail Fasteners**

- 3.1 Items submitted on this contract are subject to the successful completion of qualification testing and certification as identified herein.
- 3.2 Testing shall be completed and certified by an independent testing laboratory provided by the Supplier and the results of such tests shall be submitted to PRT either with the bid or within seven calendar days of request.
- 3.3 Qualification Failure: Only manufacturers submitting a complete rail fastener assembly passing the qualification tests specified herein will be acceptable. **All qualification testing stated in this specification must be completed prior to bid submission.** The Bidder shall submit proof / documentation of successful completion of all test criteria either with the bid or within seven calendar days of request by PRT.
 - 3.3.1 Test results shall be as tested within the last ten years, and the date of such tests shall be clearly identified on the test results. Fasteners shall comply with the design criteria specified in this contract.
 - 3.3.2 A random sample of not less than 4 plates from random lots of produced plates shall be submitted for testing.
 - 3.3.3 Visual inspection shall include measuring all dimensions for compliance with this specification, and verification that dimensions are within the tolerances specified in this specification.
 - 3.3.4 Complete Assembly Testing:
 - 3.3.4.1 Clean and dry all components of the test assembly
 - 3.3.4.2 Assemble one (1) complete rail fastener and mount to a section of 115RE rail having a length of no less than 12 inches.
 - 3.3.4.3 Mount the test assembly on a concrete block, having compressive strength of no less than 4,000 PSI. Secure the test assembly to the block by the anchorage assembly as specified herein to simulate field installation.
 - 3.3.4.4 Immediately prior to beginning tests, stabilize the temperature of the fasteners to 68°F, +/- 2°F.
 - 3.3.4.5 Testing shall only be performed when test assembly is within the temperature limitation specified.

3.3.4.6 If a single rail fastener is unstable for test purposes, mount two complete fasteners on a section of 115RE rail no less than 12 inches in length with less than 1 inch longitudinal separation between the fasteners, and apply double the test load at a point midway between the two fasteners.

3.3.5 Sequence of Testing: Each assembly shall be subject to the following sequence of tests. Four Fastener samples shall be designated as fasteners A, B, C, & D and tested as stated below.

3.3.5.1 Fasteners A, B, C, & D shall be subject to static testing, dynamic to static stiffness ratio, and corrosion testing as specified herein. Fastener B shall be subject to the corrosion testing as specified herein.

3.3.5.2 Rail Fastener A shall be subject to the Vertical and Lateral Repeated Load Test as specified, and retested through the above static tests without replacement of any component. Do not disassemble the rail fastener from the rail after the repeated load test with one anchor as specified, and do not reposition any rail clip.

3.3.5.3 Rail Fastener B shall be subject to the Heat Aging test as specified; then, retest the rail fastener through the above static tests without replacing any components.

3.3.5.4 Rail Fastener C shall be subject to the Heat Aging test as specified, then retested as specified for the Uplift Repeated Load Test. Retest rail fastener through each of the static tests as specified above without replacement of any component.

3.3.5.5 Rail Fastener D shall be subject to the Push Pull Test as specified, then, retest the fastener through each of the static tests specified above without replacement of any component. For the Longitudinal Restraint Test, the rail fastener shall not be disassembled from the rail after the Push Pull Test, nor shall rail hold down assemblies be repositioned.

3.3.5.6 Alternatively, it is acceptable to perform all tests identified in this section on all four fasteners.

3.3.6 Vertical Load Test

3.3.6.1 Total Test Load: 15,000 lbs. developed in increments of 900 lbs.

3.3.6.2 Point of Application: downward at centerline of the fastener normal to rail head.

3.3.6.3 Test Procedure:

- For each load increment, measure continually and record immediately the vertical deflection of the rail head to the nearest 1/64 inch.
- Remove the load. After one minute of zero load, measure and record the final position of the rail head.

- Plot record values for vertical loads against deflection on a graph.

3.3.6.4 Test Acceptance Procedure:

- Slope of the load-deflection curve (spring rate of the fastener):
Not less than 120 lbs. per inch nor more than 300 lbs. per inch. Consistency of slope: within 10% over the load range.
- Recovery of the fastener to original position: within ½ inch within 1 minute.
- Stability: No movement of components caused by other than deflections, and no sign of failure by slippage, yielding, or fracture.
- Ratio of deflection to thickness of elastomer:
 - Maximum value for initial test: 4 to 1 or 25%
 - Basis of determination: the deflection measured at 15,000 lbs. divided by the thickness of elastomer in inches; not to exceed 25% of elastomer thickness
 - Value for repeated tests on the same fastener: within 20% of initial test values

3.3.7 Vertical Uplift Test:

3.3.7.1 Test Loads: increasing in increments of 190 lbs. alternated upward and downward, applying up to 2,000 lbs. total uplift load.

3.3.7.2 Point of application: Center of the rail head along the centerline of the fastener.

3.3.7.3 Test procedure:

- For at least six cycles, continually measure and immediately record the loads and corresponding deflections to the nearest 1/64 inch on a load versus time graph, and a deflection versus time graph, respectively.
- Remove load. After one minute of zero load, measure and record the final position of the rail head.
- Anchor the fastener to a concrete test block centered about the loading point. Restrain the test block within the test frame, ensuring it remains stationary throughout the test cycle.

3.3.7.4 Test Acceptance Criteria:

- Ratio of the deflection for the total uplift test load to the deflection for the total vertical downward test load: shall not exceed 125% for rail fasteners of the deflection for a 2,000 lb downward vertical load as determined from the vertical load test.

- Stability: No indication of backlash and free-play when vertical load is continuously varied from vertical upwards and vertical downwards.
- Recovery of fastener to original position: within ½ inch within 1 minute after the application of the 2,000 lb upward test and again after application of the 2,000lb downward test load.

3.3.8 Lateral Load Restraint Test

3.3.8.1 Test load: Increasing in increments of 900 lbs., apply up to 7,500 lbs horizontally to the rail head while under a constant vertical load downward at the centerline of the rail head of 13,500 lbs.

3.3.8.2 Point of horizontal load application: 5/8 inch below top of rail along the centerline of the fastener normal to the rail.

3.3.8.3 Test Procedure:

- Continuously measure and immediately record the lateral deflection of the rail head. Plot the recorded values for the lateral loads versus the deflection on a graph.
- Remove the lateral load. After one minute of zero lateral load, measure and record the final position of the rail head.

3.3.8.4 Test Acceptance Criteria:

- Maximum lateral deflection for 4,000 lb lateral test load: 1/8 inch.
- Maximum lateral deflection for 7,500 lb lateral test load: ¼ inch.
- Maximum difference between the original and the final position of the rail head: 1/16 inch
- Stability: no visual signs of failure by slippage, yielding or fracture during testing.

3.3.9 Lateral Restraint Test

3.3.9.1 Set Load: Lateral load increasing in increments of 450lbs, from zero to 2,500 lbs.

3.3.9.2 Test loads: Two (2) equal lateral loads increasing simultaneously in increments of 450 lbs, from zero to 2,500 lbs.

3.3.9.3 Point of Application: normal to and at the base of rail, centered between two fasteners within the test frame.

3.3.9.4 Test Procedure: Apply and release set load; set deflection indicators at zero; apply test loads; and measure and record, after each increment of loading, the deflection at the intersection of

the centerline of the fastener and the gauge line of the rail to the nearest 1/64 inch.

3.3.9.5 Test Acceptance Criteria:

- Maximum lateral deflection when fully loaded: 1/8 inch
- Maximum difference between the original and final positions of the gauge line: 1/16 inch.
- Stability: No visual signs of failure by slippage, yielding or fracture during testing.

3.3.10 High Voltage Withstand Test

3.3.10.1 Effect of high voltage on the quality of elastomer

- Procedure: place ground plate between rail fastener and concrete test block. Apply a DC potential of 15KV between rail head and ground plate for one minute.
- Acceptance Criteria: neither cracks, pinholes, electrical flashover, nor arcing nor fracture to occur.

3.3.11 Electrical Resistance Impedance Test

3.3.11.1 Dry resistance:

- Remove moisture, if any, from rail fastener assembly and with one (1) lead of high potential tester connected to rail head and ground lead connected to anchor bolt, apply 500 volts DC for three minutes. Use the current value obtained to calculate the resistance.
- Acceptable resistance to 500 volts DC: not less than 10 mega-ohms.

3.3.11.2 Wet Resistance:

- Release ground plate, rail fastener, and anchorage assembly from the concrete test block and rail; immerse rail fastener in distilled water for 72 hours at 212°F for neoprene based elastomers and for 336 hours at 158°F for natural rubber based elastomers.
- After rail fastener has been removed from water without drying and with no portion of the rail fastener cooler than 95°F, reassemble and anchor ground plate, rail fastener and rail on the concrete test block.
- Connect on lead of high potential tester to rail head and ground lead to anchor bolt, apply 500 volts DC for three minutes and

test for electrical resistance. Use current value obtained to calculate resistance.

- Allowable resistance: not less than 1 mega-ohm.

3.3.11.3 Wet Impedance:

- With the rail fastener still wet and with no portion of the assembly cooler than 95°F, apply a potential of 50 volts AC between the rail head and the grounded anchor bolt.
- After reading has stabilized for 30 seconds, measure impedance frequencies of 1,000; 2,000; 4,000; 6,000; 8,000 and 10,000 hertz within an accuracy of +/- 2% and recorded for each frequency. Each frequency should be tested for three minutes.
- Impedance for frequencies between 20 Hz and 5 KHz with 50 volts AC shall be 10,000 ohms; at 6 KHz shall be 9,000 ohms, at 8 KHz shall be 7,000 ohms, and at 10 KHz shall be 6,000 ohms.

3.3.12 Vertical and Lateral Repeated Load Test:

3.3.12.1 Procedure:

- Apply test loads to the rail head, so as to produce a vertical downward load of 13,500 lbs and lateral loads 5/8 inch below top of rail and along the centerline of the rail fastener normal to the rail of 4,900 lbs to the gauge side and 3,200 lbs to the field side.
- Alternate the lateral loads and combine with alternated application and release of the vertical load for a total of 3 million complete cycles. (One cycle consists of one application each of the lateral field side load and of the gauge side load and two applications of the vertical load).
- Regulate the frequency to prevent the temperature of the components from exceeding 158 degrees F.
- Do not re-torque the threaded elements subsequent to the completion of 500,000 cycles of loading without written approval of the engineer.

3.3.12.2 Acceptance Criteria:

- Minimum cycles of test load application with no visual evidence of failure: 3 million
- Allowable visual failure by slippage, yielding abrasion, or fracture at any time during the test: None

3.3.13 Vertical and Lateral Repeated Load Test with 1 Anchor Test:

3.3.13.1 Procedure:

- After completion of vertical and lateral load test as specified, reassemble rail fastener using only the original components subjected to testing.
- Apply vertical and lateral repeated load test with gauge side anchor bolt removed for 15,000 cycles.

3.3.13.2 Acceptance criteria:

- minimum cycles of application with no visual evidence of failure by slippage, yielding or cracking: 15,000 cycles

3.3.14 Heat Aging Procedure:

3.3.14.1 Test specimen: fully assembled rail fastener, except that the anchor bolts are not installed

3.3.14.2 Procedure:

- Age test the specimen in an air oven for a period of 70 hours at a temperature of 212°F (158°F for natural rubber fasteners) in accordance with ASTM D 573.

3.3.14.3 Acceptance criteria: none, the purpose of the test is to age the rail fastener for additional testing.

3.3.15 Uplift Repeated Load Test:

3.3.15.1 Test Loads:

- Apply loads to the rail head so as to produce a vertical downward load of 11,900 lbs and a vertical upward load of 2,000 lbs at the centerline of the fastener in a direction normal to the rail.
- Longitudinal load: starting at 100 lbs and increasing in increments of 100 lbs up to a maximum load of 600 lbs, and interval of not less than one increment per 100 cycles of vertical loading.

3.3.15.2 Test procedure:

- Alternate the upward and downward loads for 1.5 million cycles
- Regulate the frequency to prevent the temperature of components of the test specimen from reaching 158°F.
- Do not re-torque threaded elements subsequent to 500,000 loading cycles without written approval from the Engineer.
- During the final 500,000 loading cycles of vertical loading, apply the vertical load at a rate of not less than 25 cycles per minute.

- For each load increment, measure the longitudinal deflection of the rail to the nearest 1/64 inch and record.
- Remove the longitudinal load and measure and record the final position of the rail. Plot the recorded values for the longitudinal load versus deflections on a graph.

3.3.15.3 Test Acceptance Criteria:

- The rail fastener shall withstand 1.5 million cycles of load application without evidence of failure.
- Upon visual inspection, no component of the rail fastener shall exhibit any evidence of failure by yielding, abrasion, or fracture.
- The rail shall exhibit no visual evidence of wear or grooving that would contribute to a failure of the rail.
- The plot of the loads versus deflections for the longitudinal load portion of the test shall show that movement of the rail was due to the elastic deformation and not slippage of the rail through the rail fastener.

3.3.16 Push-Pull Test

3.3.16.1 Test Load: 4,200 lbs cycling longitudinally of sufficient load to move the rail +/- 1/8 inch.

3.3.16.2 Points of application: Centroids of the rail at both ends.

3.3.16.3 Procedure:

- Push & pull with the test load for 1 million complete cycles
- Repositioning or re-torque of the rail hold-down assembly will be allowed after every 250,000 cycles, but not for the last 250,000 cycles.

3.3.16.4 Acceptance Criteria:

- Rail fastener shall withstand one million (1,000,000) cycles of loading with no evidence of failure. Upon visual examination, no component of the rail fastener shall exhibit any evidence of failure by yielding, abrasion, slippage or fracture. The rail shall exhibit no evidence of wear or grooving contributing to a failure at the rail.

3.3.17 Dynamic to Static Stiffness Ratio Test:

3.3.17.1 Initial static vertical downward test load: 5,000 lbs to deflect the fully assembled fastener.

3.3.17.2 Rate of application: 10 cycles per second.

3.3.17.3 Procedure:

- Apply initial dynamic vertical downward test load to the rail head over the centerline of fully assembled rail fastener for 1,000 cycles.
- Increase the dynamic test load in increments of 1,000 lbs up to a total of 12,000 lbs maximum. Record the dynamic load corresponding to each load increment.
- After completing the dynamic load measurements and allowing the fastener to stabilize for one minute, measure and record the static deflection of 2,250 lb increments, for the loading of 5,400 lbs to 12,150 lbs. Allow the fastener to stabilize for at least one (1) minute before each increment of testing is applied.
- Measure the deflections within accuracy of 5/1000 inch, and measure the test loads within an accuracy of 2.5%.

3.3.17.4 Acceptance Criteria:

- The dynamic and static stiffness shall each be calculated by dividing the difference between each increment of recorded loads by the respective difference between each increment in recorded deflections. The ratio of dynamic to static stiffness shall then be determined by dividing the mean of the dynamic stiffness by the mean of the static stiffness. The ratio shall not exceed 1.5 for neoprene and 1.4 for natural rubber.

3.3.18 Corrosion Test:

3.3.18.1 Test Procedure:

- Rail fastener body unit without loose components shall be exposed to a 5% chloride solution per ASTM B 117 for 1,000 hours.

3.3.18.2 Test acceptance criteria:

- There shall be no loss of adhesion from this test at any elastomer and steel boundary deeper than 1/8 inch nor shall there be pitting or corrosion depressions deeper than 1/16 inch measured from the plane of the affected surface.

3.3.19 Elastomer:

3.3.19.1 General:

- Elastomers shall be certified by an independent testing laboratory approved by the Agency to possess the physical properties specified in the following tabulation as determined by the respective ASTM specifications identified therein.

3.3.19.2 Test material:

- Two specimens certified by the accepted independent testing organization to have been taken from a batch of compound

used for producing the elastomer component of the fastener and having the same quality cure equivalent to the quality cure of the elastomeric component.

3.3.19.3 Test Pre-conditioning: not less than seven days at 73°F at 50% relative humidity.

3.3.19.4 For testing purposes under this article, the following distinction is made between neoprene and natural rubber:

- Natural Rubber: elastomers containing more than 50% natural rubber.
- Neoprene: elastomers containing 50% or more neoprene.

3.3.19.5 General Test requirements for all elastomer materials:

<u>Test</u>	<u>ASTM Designation</u>	<u>Requirements</u>
Durometer Hardness (shore A)	D2240	50 plus or minus 5
Ultimate elongation	D412	350% Minimum
Compression set at minus 50°F for 70 hours to determine percent compression set 30 minus after release of test load	D1229	60% maximum
Resistance of ozone cracking of specimens prepared in accordance with procedures A of ASTM D518 and subjected to 104°F for 100 hours in 50 PPM ozone concentration	D1149	No cracking
Change in Durometer Hardness	D573	10 Points Maximum
Adhesion of Metal Test	D429 Method B	Elastomer tears before
Flame propagation index (Is)	E162	Acceptance criteria not specified but report test results to Agency. Allowable drippings: none
Smoke Generation	NFPA No. 258-T	Acceptance criteria not specified, but report test results to Agency.

3.3.19.6 Additional Test Requirements for Neoprene Elastomers:

<u>Test</u>	<u>ASTM Designation</u>	<u>Requirements</u>
High temperature compression set after 22 hours at 212°F	D395 Method B	35% Maximum
Tensile Strength	D412	10340 KPa Minimum
<u>Accelerated aging after 70 hours at 212°F:</u>		
Decrease in tensile strength	D573	15% Maximum
Decrease in ultimate elongation	D573	40% Maximum
<u>Oil absorption test at 212°F for 70 hours:</u>		
ASTM Oil No. 3	D471	100% Maximum
ASTM Oil No. 1	D471	Minus 10% plus 20%

3.3.19.7 Additional Test Requirements for Natural Rubber Elastomers:

<u>Test</u>	<u>ASTM Designation</u>	<u>Requirements</u>
High temperature compression set after 22 hours at 158°F	D395 Method B	25% Maximum
Tensile strength	D412	15800 KPa Minimum
<u>Accelerated aging after 70 hours at 212°F:</u>		
Decrease in tensile Strength	D573	25% Maximum
Decrease in ultimate elongation	D573	25% Maximum
Change in hardness, measured on the Durometer A scale		10 Points Maximum
<u>Test</u>	<u>ASTM Designation</u>	<u>Requirements</u>
<u>Oil absorption test at 212 degrees F for 70 hours</u>		
ASTM Oil No. 3	D471	100%
ASTM Oil No. 1	D471	Minus 10% plus 20%

- 3.4 The Manufacturer and Supplier shall certify that all rail fasteners produced and supplied on this contract were manufactured in the same manner as the rail fasteners subjected to the Qualification Testing and that the manufacturing process used for producing each rail fastener is the same.
- 3.5 Manufacturer and Supplier shall ensure that quality assurance is maintained throughout the production of fasteners by performing production testing on at least two randomly selected fasteners for each switch or frog assembly set produced.
- 3.6 Each fastener shall be permanently marked with the following minimum criteria:

- Lot Number
- Manufacturer's name or trademark
- Consecutive numbers on each style of rail fastener.

4.0 Samples

- 4.1 Bidders proposing an alternate fastener to those specified in Attachment A: Bill of Materials, shall provide a sample fastener of each and corresponding fastener kit within seven calendar days of request by PRT.
- 4.1.1 Sample shall be provided at the Bidder's expense. Failure to provide the sample may result in the rejection of the bid.
- 4.1.2 The sample will be compared to PRT's rail system for dimensional compliance and either accepted or rejected for use on this contract at PRT's sole discretion.

5.0 Drawings & Manuals

- 5.1 The Supplier shall provide "As-Built" drawings either with their bid or within seven calendar days of request by PRT.
- 5.1.1 Drawings shall include, but not be limited to the following:
- 5.1.1.1 All mechanical and structural information
- 5.1.1.2 All dimensions
- 5.1.2 Drawings shall show recommended plate torque installation values (where applicable).
- 5.2 The Supplier shall provide installation instruction, maintenance, and operating manuals covering the plates.
- 5.2.1 Manuals shall be in sufficient detail to describe proper installation, maintenance, operation, diagnosis and repair procedures, warnings and other safety information necessary to properly maintain the tie plates in accordance with the latest AREMA standards and manufacturer's recommendations.
- 5.2.2 Manuals and drawings shall be submitted in the English language with Imperial dimensional measurements (metric measurements may be included in parentheses).
- 5.3 The Supplier shall provide; all drawing interchange (DFX), "MicroStation" (DGN), or "AutoCAD" (DWG) format files of those drawings prepared by computer aided design methods. The Supplier shall also provide a TIFF raster file of all "As Built" drawings. The TIFF files should be scanned from the original full size drawings at a resolution of 300 dpi.

6.0 Definitions / Referenced Standards Organizations

- PRT – Pittsburgh Regional Transit
- AREMA – American Railway Engineering and Maintenance of Way Association
- ASTM – ASTM International (formerly American Society for Testing and Materials)
- AAR – Association of American Railroads
- IFIS – Industrial Fasteners Institute Standards
- NEMA – National Electrical Manufacturer’s Association
- NFPA – National Fire Protection Association

7.0 Warranty

- 7.1 All equipment/materials supplied on this contract shall be warranted against defects in materials and workmanship for a period of one (1) year, commencing on the date PRT accepts the material as complete.
- 7.2 The Supplier shall provide repair service to cover warranty repairs within 24 hours’ notice by PRT. Warranty repairs shall not be chargeable to PRT, and shall include all parts, materials, labor, travel, and other expenses.
- 7.3 This warranty is in addition to any rights provided under the Uniform Commercial Code or any other remedy provided by law.

8.0 Delivery

- 8.1 The Supplier shall coordinate the schedule for manufacture and delivery with PRT within two (2) weeks after PRT’s “Notice to Proceed”. Delivery shall be in compliance with AREMA standards.
- 8.2 The Supplier shall notify PRT’s Director of Track & Way, Mr. Nathan Delaney (telephone 412-488-3050, email: ndelaney@rideprt.org) by written notice within seven (7) calendar days and with a 48 hour telephone confirmation of shipping date prior to delivery. Deliveries will be accepted no sooner than 8:30 a.m. with delivery fully completed by 3:30 p.m., Monday through Friday.

- 8.3 All rail and special trackwork shall be delivered F.O.B. to:

Pittsburgh Regional Transit
Haberman Storage Yard
Haberman and Warrington Avenues
Pittsburgh, PA 15226

- 8.4 Rail and special trackwork shall be unloaded and stacked by PRT. PRT’s capacity to unload special trackwork is limited to estimate four (4) trucks per day

in the time allotted under Section 8.2 as specified herein. PRT will accommodate only that number of trucks agreed to by written notice of delivery.

8.5 A single purchase order for all line items and quantities will be issued by PRT upon Notice to Proceed. The successful Bidder shall be able to make delivery of all material within three hundred (300) calendar days of receipt of purchase order.

8.6 All items should be arranged to be delivered in a single shipment if possible.

9.0 Attachments

The following attachments are included and shall become a part of this specification:

9.1 Attachment A: Bill of Materials

9.2 Attachment B: Record Plans

10.0 Payment

The Supplier will be paid in “lump sum” upon delivery and acceptance of the complete plates and hardware kits by PRT’s Project Manager in accordance with the bid pricing indicated.

11.0 Bidder Requirement

Failure to provide a completed Bidder Information Sheet and/or Certification Regarding Lobbying form at time of bid may result in the Bid being determined non-responsive and ineligible for further review and award. Please be advised that a completed and signed Certification Regarding Lobbying form is required for all solicitations, regardless of the dollar value of your bid. Negative responses to Lobbying activities are required.

12.0 Insurance Requirements

The Supplier shall maintain Insurance in accordance with the following requirements throughout the duration of a resultant contract. A Certificate of Insurance (COI) will be required prior to award.

The Bidder shall factor the cost of obtaining these coverages into the bid pricing.

Please reference the Contract Number and Name in the “Description of Operations” field of the COI.

The Port Authority of Allegheny County d/b/a Pittsburgh Regional Transit (PRT) must be listed as an additional insured under the General Liability and Auto policies.

The Policy must be endorsed with a waiver of subrogation clause with respect to PRT and must be reflected on the insurance certificate or related document.

Insurance

General. Contractor shall procure, and cause any subcontractors to procure, before the Contract Services are commenced hereunder, and maintain at its own cost and expense, during the entire period of the performance under this Agreement, the types and amounts of insurance listed in this Section with insurance companies authorized to operate in Pennsylvania and with insurance companies having a minimum A- rating as then stated by A.M. Best. Limits shall be primary and non contributory. Evidence of coverage shall be provided on an annual basis and/or upon request of Port Authority.

Limits may be satisfied by any combination of primary and excess or umbrella per occurrence policies. In the event that the required limits must be satisfied by any combination of primary and excess or umbrella the policies shall provide drop down coverage and provide at least as broad of coverage as the underlying policies.

Worker's Compensation and Employer's Liability.

(a) Workers' Compensation - Statutory Limits

(b) Employer's Liability in an amount not less than:

\$500,000 Each Accident
\$500,000 Disease - Policy Limit
\$500,000 Disease - Each Employee

Note:

- (i) Coverage shall be provided in accordance with the laws of the Commonwealth of Pennsylvania and the laws of such other jurisdictions as may apply.
- (ii) The Contractor shall require, and hereby certifies, that each of its Subcontractors maintains Workers' Compensation Insurance in accordance herewith, and shall provide to Authority written evidence of such coverage then in effect for each Subcontractor upon Port Authority of Allegheny County d/b/a Pittsburgh Regional Transit's request.

Commercial General Liability.

In an amount not less than:

\$2,000,000 General Aggregate
\$2,000,000 Products – Completed Operations Aggregate
\$1,000,000 Each Occurrence

Notes:

- (i) Contractor shall maintain such Products and Completed Operations liability coverage for at least (1) year after final payment.

(ii) Policy shall provide that “Port Authority of Allegheny County d/b/a Pittsburgh Regional Transit” be named as an Additional Insured for Contractor's full limits of coverage on a primary and non-contributory basis, but in no case less than the limits specified. Policy shall be endorsed with a waiver of subrogation clause with respect to Authority, and neither Contractor nor its insurer shall have any claim against Authority to the extent the claim is or should have been covered by insurance.

Business Automobile Liability.

With a Combined Single Limit not less than:

\$1,000,000 Each Accident

Notes:

(i) Policy shall cover the use of all owned, hired and non-owned vehicles.

(ii) Policy shall provide that “Port Authority of Allegheny County d/b/a Pittsburgh Regional Transit” be named as an additional insured for Contractor’s full limits of coverage on a primary and non-contributory basis, but in no case less than the limits specified. Policy shall be endorsed with a waiver of subrogation clause with respect to Authority, and neither Contractor nor its insurer shall have any claim against Authority to the extent the claim is or should have been covered by insurance.

Approval. Contractor shall not commence work under this Agreement until it has forwarded to Port Authority of Allegheny County d/b/a Pittsburgh Regional Transit, for review and approval, certificate(s) of the insurance required. Port Authority of Allegheny County d/b/a Pittsburgh Regional Transit shall be given a minimum of 30 days’ notice in the event of change or cancellation of any of the insurance required. The fact that Contractor has obtained the insurance required in this Agreement shall in no manner lessen nor affect Contractor's other obligations set forth in any provision of this Agreement. The policies of insurance referenced above are not to contain any deductible or self insured retention, as applicable to Port Authority of Allegheny County d/b/a Pittsburgh Regional Transit as an additional insured. In the event the insurance policies purchased by Contractor pursuant to the above insurance requirements contain any deductible or self insured retention provisions, Contractor shall provide Port Authority of Allegheny County d/b/a Pittsburgh Regional Transit with disclosure of said deductible or self insurance retention prior to execution of the Contract, which will be subject to Port Authority of Allegheny County d/b/a Pittsburgh Regional Transit approval. If Port Authority of Allegheny County d/b/a Pittsburgh Regional Transit approves any insurance policy that includes a deductible or self insured retention, Contractor shall be responsible for payment of any and all deductibles or self insured retentions, whether owing from the named insured or Port Authority of Allegheny County d/b/a Pittsburgh Regional Transit as an additional insured, applicable to the policies of insurance referenced above

Indemnification. Contractor, for itself, its officers, members, employees, agents, consultants, contractors, subcontractors, and its successors and assigns, shall indemnify (including but not limited to indemnification for costs of defense), and hold harmless Port Authority of Allegheny County d/b/a Pittsburgh Regional Transit, its officers, members, employees, agents, consultants,

contractors, subcontractors and its successors and assigns, from and against any losses, costs, liability or damage, and attorney's fees, including but not limited to claims for property damage, bodily injury or wrongful death, claimed against, suffered by, or incurred by Port Authority of Allegheny County d/b/a Pittsburgh Regional Transit, its officers, members, employees, agents, consultants, contractors, subcontractors and its successors and assigns, as a result of or arising in connection with and to the extent of Contractor's performance of the Project or otherwise relating to Contractor's use of Port Authority of Allegheny County d/b/a Pittsburgh Regional Transit's property pursuant to this Agreement. This indemnification provision further applies to any claims brought by any employee, subcontractor, or employee of a subcontractor of Contractor against Port Authority of Allegheny County d/b/a Pittsburgh Regional Transit, and Contractor expressly waives protections afforded under the Pennsylvania Workers' Compensation Act as is necessary to comply with its responsibilities under this indemnity provision.

Certificate Holder.

Port Authority of Allegheny County d/b/a Pittsburgh Regional Transit, 345 Sixth Avenue,
Pittsburgh, PA 15222

SAMPLE AGREEMENT

THIS AGREEMENT made this [Date], by and between PORT AUTHORITY OF ALLEGHENY COUNTY, a body corporate and politic organized and existing under the laws of the Commonwealth of Pennsylvania and having its principal office in the City of Pittsburgh, Allegheny County, Pennsylvania, hereinafter called "Port Authority", and [Contractor's Name], with principal office at [Contractor's Address], hereinafter called "Contractor".

WHEREAS, Contractor submitted to the Port Authority a proposal to furnish certain item or items for the prices specified, and said proposal was accepted by Port Authority.

NOW, THEREFORE, Contractor and Port Authority agree as follows:

1. Contractor shall furnish the following when ordered at the prices shown:

[SAMPLE]

2. The Contract Documents are made a part hereof with like force and effect as though recited herein at length and are comprised of the following:

- (a) Invitation for Proposals
- (b) Proposal
- (c) Certification
- (d) Specification
- (e) Conditions and Instructions to Bidders
- (f) All addenda issued prior to the time of opening Proposals
- (g) Insurance [if required]

3. Port Authority, upon delivery of above equipment, parts, materials and/or supplies in accordance with this Agreement and the Contract Documents, and upon submission of invoices, shall pay the current amounts due for current deliveries under this Agreement.

PORT AUTHORITY OF ALLEGHENY COUNTY

By _____

CONTRACTOR

(Company Name)

By _____
(Signature and Title)

SAMPLE PERFORMANCE BOND

(FOR CONTRACTS TOTALING \$100,000 AND OVER)

KNOW ALL MEN BY THESE PRESENTS, That we, _____
_____, as PRINCIPAL, and _____
_____, as SURETY, are held and
firmly bound unto Port Authority of Allegheny County, hereinafter called PORT AUTHORITY,
in the sum of _____ DOLLARS
(\$ _____), said sum being at least 50% of the contract price, for the payment of
which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and
successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Principal
entered into a certain contract, hereto attached, with Port Authority, dated **[Date]**, for:

[SAMPLE]

NOW, THEREFORE, if the Principal shall well and truly perform and fulfill all the
undertakings, covenants, terms, conditions and agreements of said contract during the original
term of said contract and any extensions thereof that may be granted by Port Authority, with or
without notice to the Surety, and during the life of any guaranty required under the contract, and
shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions and
agreements of any and all duly authorized modifications of said contract that may hereafter be
made, then Principal and Surety shall have no further obligation to Port Authority under the
contract, otherwise this obligation shall remain in full force and effect.

IN WITNESS WHEREOF, the above bound parties have executed this instrument this
_____ day of _____, 20____, the name of each corporate party being
hereto affixed and these presents duly signed by its undersigned representatives, pursuant to authority
of its governing body.

[SAMPLE]

[SAMPLE]

[SAMPLE]

[SAMPLE]

[SAMPLE]

PRINCIPAL

(IF A SOLE PROPRIETOR)

(Name of Company)

(Handwritten Signature of Owner)

(Name of Owner - TYPED)

(IF A PARTNERSHIP)

(Name of Company)

(Handwritten Signature of General Partner)

(Name of General Partner - TYPED)

(IF A CORPORATION)

(Name of Corporation)

by _____
(Handwritten Signature)

(Name and Title - TYPED)

[SAMPLE]

[SAMPLE]

[SAMPLE]

[SAMPLE]

[SAMPLE]

SURETY

WITNESS:

(Handwritten Signature)

(Corporate Surety Company Name)

(Title)

(Business Address)

by _____
(Handwritten Signature)

(Name and Title - TYPED)