NOTICE OF BID

The City of Pigeon Forge is receiving equipment bids for signalized intersection modernization.

Specifications may be obtained from the Public Works Department in City Hall between the hours of 8:00 and 4:30 p.m., Monday thru Friday.

All bids must be in sealed envelope with bidders name and address on outside and marked "Bid on Signalized Intersection Modernization."

Bids will be received until 10:00 a.m., January 13, 2014, at which time they will be opened and read aloud. Equipment must be delivered within 45 days of receipt of purchase order.

The City reserves the right to reject any or all bids or to accept the bid most favorable to the City.

This 23rd day of December, 2013.

Department of Public Works
Pigeon Forge, Tennessee

SIGNAL HEAD DESCRIPTION

Type 130 Signal Head is a 3-section signal with 12” red, yellow and green balls LED lens.

Type 130A2 Signal Head is a 3-section signal with 12” red ball, yellow arrow and green arrow LED lens.

Type 150A2H Signal Head is a 5-section signal with 12” red, yellow and green balls LED lends and also has 12” yellow arrow and green arrow LED lens.

Ped signal is single section signal with “Hand & Man” display with countdown timer display. These ped heads also include ADA (American Disabilities Act) compliant push buttons.

All signal heads are to be Black Aluminum.

All signal heads are to include Quick Disconnect hangers with appropriate span wire hangers.

Aluminum

The lightweight aluminum housings, visors, and doors are equipped with stainless steel hardware. Door and lens gaskets make the signal weatherproof and dust-tight, while the integral visor rims prevent light leakage.

Reflectors are available in Alzak. The lamp receptacle can be rotated 360° for filament alignment and has quick disconnect leads for easy maintenance. To simplify alignment of the signal and assure positive locking, integral locking rings are included to provide adjustments in 5° steps. Vertical and horizontal mounting is provided for by a universal mounting arrangement. The signals are adaptable for span wire or mast arm suspension, side of pole, or post top mounting.

Aluminum Specifications

Characteristic	Description
Material	Die-cast aluminum alloy housing and door. Stainless steel hardware.
Finish	Electrostatically applied powder coat with five stage iron phosphate treatment.
Wire opening between sections	Accommodates three ¾" diameter cables.
Signal alignment	Integral 72-tooth serrated locking ring. Adjustable in 5° steps.
Overall dimensions	12"(300mm)Section 13.25"W x 13.44"H x 6.44"D (337mm x 341mm x 164mm) Lane Control Section 13.50"W x 13.50"H x 9.75"D (343mm x 33mm x 248mm)
Weight	12 (300mm)Section 12.75 lbs. (5.7kg) Lane Control Section 19.25 lbs. (8.7kg)

XL Series LED Traffic Signals

Operating Voltage Range: 80VAC to 135VAC (120VAC nominal)
Operating Temperature Range: -40˚c to +74˚C
Turn-on/Turn-off time < 75 msec
Power Factor >0.9
Total Harmonic Distortion <20%
Meets FCC Title 47, Subpart B, Section 15 regulations for electrical noise
Failed State Impedance >250K ohm within 300ms
Conforms to MIL-STD-810F for blowing rain
Conforms to MIL-STD-883, Test Method 2007, for mechanical vibration
Conforms to MIL-STD-883, Test Method 1010, temperature cycling requirements
Provided with quick connect terminals and spade adapters
Written manufacturer's warranty available on request
All products traceable by serial number
Luminance uniformity and color uniformity exceed ITE VTCSH-LED Circular Signal supplement requirements
Transient suppression exceeds ITE VTCSH-LED Circular Supplement requirements and meets the following standards:

- NEMA TS-2 Sec.2.1.6 and Sec. 2.1.8
- IEC 1000-4-5, 3KV, 2 ohm source impedance
- ANS/IEEE C62, 41-2002; IEC 61000-4-12, 6KV, 200A, 100KHz ring wave

Power supply is conformally coated for robust operation

12" (300MM) 120VAC Signal Modules

Part Number	Color	Lens Type	Dominant Wavelength (nm)	Typical Wattage at 25˚C	Peak Minimum Maintained Luminous Intensity (cd)	Meets ITE VTCSH LED Circular Signal Supplement
433-1210-003XL	Red	Tinted	625	6	365	x
433-3230-001XL	Yellow	Tinted	590	19	910	x
433-2220-001XL	Green	Tinted	500	9	475	x

Uniform Appearance LED Arrows

Operating Voltage Range: 80VAC to 135VAC (120VAC nominal)
Operating Temperature Range: -40˚c to +74˚C
Turn-on/Turn-off time < 75 msec
Power Factor >0.9
Total Harmonic Distortion <20%
Meets FCC Title 47, Subpart B, Section 15 regulations for electrical noise
Failed State Impedance >250K ohm within 300ms
Conforms to MIL-STD-810F for blowing rain
Conforms to MIL-STD-883, Test Method 2007, for mechanical vibration
Conforms to MIL-STD-883, Test Method 1010, temperature cycling requirements
Provided with quick connect terminals and spade adapters
Written manufacturer's warranty available on request
All products traceable by serial number
Luminance uniformity and color uniformity exceed ITE VTCSH-3 LED Arrow specification requirements
Transient suppression exceeds ITE VTCSH-3 LED Arrow specification requirements and meets the following standards:

- NEMA TS-2 Sec.2.1.6 and Sec. 2.1.8
- IEC 1000-4-5, 3KV, 2 ohm source impedance
- ANS/IEEE C62, 41-2002; IEC 61000-4-12, 6KV, 200A, 100KHz ring wave

Power supply is conformally coated for robust operation

Part Number	Color	Lens Type	Typical Wattage at 25˚C	Dominant Wavelength (nm)	Peak Minimum Maintained Luminous Intensity (cd)
432-1314-001X	Red	Tinted	7	625	59
431-3334-001X	Yellow	Tinted	9	590	146
432-2324-001X	Green	Tinted	7	500	76

Free Swinging Signal MTGS
Disconnect Hanger Assemblies

W/2" Non-Threaded Top, Tri-Stud Hub & 4' Harness……SE-5031
12 Cir. Term. W/7" Leads……SE-0620
Disconnect Hub Assy., Tri-Stud…… SE-5033
Male Harness: 12 Circuit, 84"……SE-0626

Specifications
Cast Aluminum Span Wire Clamp

Material: Span Wire Clamp shall be cast from aluminum alloy 713 or equivalent, free of voids, pits, dents, molding, sand and excessive foundry grinding marks. All design radii shall be smooth and intact. Exterior surface finish shall be smooth and cosmetically acceptable, free of molding fins, cracks and other exterior blemishes. Certification shall be available upon request.

Shall be fabricated from aluminum ingot with minimum requirements as follows:

Aluminum Alloy……713	Brinell Hardness……75
Yield Strength, KSI……25	Elongation (% in 2")……3
Tensile Strength, KSI……35	

Design:

1. The span Wire Clamp shall be fabricated with dimensions and design characteristics as shown in Figure 1.
2. Shall accommodate cables ¼" – 5/8" diameter.
3. Weight shall not be less than 1-3/4 lbs. with hardware
4. Shall have a minimum overall length of 7"
5. Shall have a centerline dimension from cable to clevis pin of 2" (+1/2", -0)
6. Shall have a cast aluminum Cable Bar to protect calbe when tightening U-bolts or J-bolts.
7. Shall have a mounting opening of ¾" (+1/32").
8. Shall have ½"-13 UNC U-bolts with ½" lockwashers and nuts. If J-bolts are allowed a minimum of 3½" in overall length is required to allow for mounting on cable without removal of lockwashers and nuts.
9. Clevis pin shall be 5/8" diameter with a length of 2½" and secured with a hump back stainless steel cotter pin.

Finish: Clamp and Cable Bar shall have an alodine 1200 conversion coating to help resist oxidization. Clevis Pin and hardware shall be galvanized per ASTM-123 or stainless steel.

Delivery: Upon request, successful bidder shall deliver a completed assembly within 45 working days after bid opening date.

Specification
Cast Aluminum Tri-Stud Disconnect Balancer Assembly

Material: Tri-Stud Balancer shall be cast from aluminum alloy 713 or equivalent, free of voids, pits, dents, molding sand and excessive foundry grinding marks. All design radii shall be smooth and intact. Exterior surface finish shall be smooth and cosmetically acceptable, free of molding fins, cracks and other exterior blemishes. Certification shall be available upon request.

Shall be fabricated from aluminum ingot with minimum requirements as follows:

Aluminum Allow……713
Brinell Hardness……..75
Yield Strength, KSI……25
Elongation (%in 2”)……. 3

Design: 1. Tri-Stud Balancer Assembly shall be fabricated with dimensions and design characteristics as shown in Figure 1. Balancer Assembly is designed to hang a non-threaded Disconnect Body & Traffic Signal array.

2. Balancer shall have top mounting support width of 11/16” thick (+ or = 1/16”).

3. Weight shall not be less than 1.00 lb. with hardware.

4. Mounting support shall have at least four clevis openings for clevis pin adjustment to balance a Disconnect Body. Mounting support shall accommodate stainless steel bushing(s) if specified.

5. Disconnect end shall be serrated. Serrations shall have 72 tooth design to match Disconnect Body.

6. Three (3) stainless steel Studs shall be cast into Balancer. The Studs shall be 5/16”-18 and extend 1½” beyond the serrations (+ or – 1/16”).

7. A Tri-Stud Hardware Kit shall consist of a slotted washer, slotted gasket, three (3) 5/16”-18 hex nuts and three (3) 5/16” split lock washers.

Finish: The Tri-Stud Balancer shall have an alodine conversion coating to provide base for paint adhesion. The assembly shall be painted federal yellow or other color as specified and baked in a drying oven after painting.

Delivery: Successful bidder shall deliver complete order in 45 days.

Pedestrian Signals and Pushbuttons
Lighting Uniformity

Operating Voltage Range: 80VAC to 135VAC (120VAC nominal)
Operating Temperature Range: -40˚c to +74˚C
Turn-on/Turn-off time < 75 msec
Power Factor >0.9
Total Harmonic Distortion <20%
Meets FCC Title 47, Subpart B, Section 15 regulations for electrical noise
Conforms to MIL-STD-810F for blowing rain
Conforms to MIL-STD-883, Test Method 2007, for mechanical vibration
Conforms to MIL-STD-883, Test Method 1010, temperature cycling requirements
Provided with quick connect terminals and spade adapters
Written manufacturer's warranty available on request
All products traceable by serial number
Luminance uniformity and color uniformity exceed ITE PTCSI-2 LED Pedestrian Signal specification requirements
Transient suppression exceeds ITE PTCSI-2 LED Pedestrian Signal Specification requirements and meets the following standards:

- NEMA TS-2 Sec.2.1.6 and Sec. 2.1.8
- IEC 1000-4-5, 3KV, 2 ohm source impedance
- ANS/IEEE C62, 41-2002; IEC 61000-4-12, 6KV, 200A, 100KHz ring wave

430-6479-001X meets City of Pigeon Forge DOT specifications

Part Number	Housing Size	Symbol Color			Typical Wattage @25°C			Min Luminance		
	Inches	countdown	hand	person	countdown	hand	person	ctdown	hand	peson
430-6479-001X	16x18	Portland orange	Portland orange	Lunar white	5	8	6	1,400	1,400	2,200
430-7773-001X	12x12	Portland	n/a	n/a	5	n/a	n/a	1,400	n/a	n/a

Sign with bush button illustration.

Aluminum Model 9098

The general construction shall include a single piece cast aluminum case housing, a solid state LED indication, message lens, a single piece cast aluminum swing down door frame, a blackout Z-Crate sun visor, and appropriate other hardware.

9098……..18 lbs (8.2 kg) max

The case shall be one piece corrosion resistant aluminum alloy die casting complete with integrally cast top, bottom, sides and back. Four integrally cast top, bottom, sides and back. Four integrally cast hinge lug pairs, two at the top and two at the bottom of each case, shall be provided for operation of a swing down door.

Door Flat Black
Housing Federal Black
Clamshell 2 Mounting (pole left of message)
Clamshell 2 Mounting (pole right of message)
Clamshell 3 Mounting (pole left of message)
Clamshell 3 Mounting (pole right of message)
"Vision" Z-Crate Visor/Door

ADA Round Push Button Assembly W/2" Plunger

Material: Push, button housing shall be cast from aluminum alloy 319 or equivalent, free of voids, pits, dents, molding and sand and excessive foundry grinding marks. All design radii shall be smooth and intact. Exterior surface finish shall be smooth and cosmetically acceptable, free of molding fins, cracks and other exterior blemishes.

Design: 1. The Push Button Assembly shall be fabricated with design characteristics as shown in Figure 1.

2. The bottom of the push button housing shall be tapped for and provided with a ½" NPT threaded conduit plug.

3. The back of the push button housing shall be provided with a hole capable of being threaded for a ½" NPT threaded conduit plug and capped with a non-threaded ½" plastic plug.

4. The back portion of the housing shall be designed to accommodate pole diameters from 3" through 14".

5. The push button housing shall be tapped and provided with (2) ¼"-20 stainless steel flat socket head screws, as shown, to accommodate the push button cover.

6. A neoprene O-ring as shown shall be provided to provide a weather tight seal between the housing and cover.

7. The Push Button Switch shall be actuated by a 2" diameter chrome plated die cast aluminum plunger.

8. The Plunger shall be convex to maximize accessibility. The plunger shall have an integral shaft to actuate the switch.

9. The Assembly shall be designed so that the maximum plunger travel does not exceed the switch travel.

10. A Spring shall be installed between the plunger and switch. The Spring shall provide an operating force not to exceed 5 lbs.

11. A protective shroud shall encircle the plunger to deter vandalism. The shroud shall be cast as an integral part of the cover.

12. The switch shall mount to the cover utilizing an adapter. The adapter shall be able to provide a moisture barrier between the plunger and switch.

13. The Cover Assembly shall be 3" diameter and have a nylon shoulder bushing installed to minimize friction between the plunger and cover.

14. The Cover Assembly shall be configured to provide adequate space to be drilled, tapped and fitter with a lens if required. This lens would be capable of being equipped with a LED to provide actuation confirmation.

15. The assembly shall conform to all minimum requirements set forth by the Americans with Disabilities Act.

Finish: Both housing and cover shall have an alodine conversion coating to prevent oxidation to provide a proper base for paint adhesion. The assembly shall be painted federal yellow or other color as specified and baked in a drying oven after painting.

Push Button Switch:

1. Shall consist of a mounting assembly injection molded from PBT Plastics and a case and plunger molded from wear-resistant phenolic.

2. The switch shall meet and conform to a MicroSwitch #3bV12B011 with SOST-NO Contacts.

3. The switch assembly shall be capable of disengaging from the mounting bracket assembly without removing the mounting bracket assembly.

4. Each switch shall be equipped with (2) 3" tinned wire leads soldered to the switch terminal with free ends stripped complete with (2) sire nuts.

5. The switch assembly shall be capable of operating in temperature ranges of –65 F through +180 F and have a mechanical life of up to 10,000,000 actuations.

6. The switch assembly shall have an operating force of approximately 8 oz. But shall not exceed 16 oz. (1 lb.).

7. The switch assembly shall be electrically rated to carry 25 AMP at 125 Volts AC, 250 Volts AC maximum.

8. Must have the following recognized certifications and/or approval: UL, CSA, MIL Spec # MIL-S-8805.

Delivery: Successful bidder shall deliver complete order in 45 days.

1. All items will be installed by the City of Pigeon Forge Traffic Signal Maintenance Contractor.

2. All items shall be delivered to the City of Pigeon Forge Traffic Signal Maintenance Contractor and labeled Pigeon Forge Project:
3.

Progression Electric
2823 Thorngrove Pike
Knoxville, TN 37914

4. All billing will be submitted to:

City of Pigeon Forge
Public Works Department
Mark Miller, Public Works Director
P.O. Box 1350
Pigeon Forge, TN 37868