Requisition

Ship To: Public Works Traffic Operations
5440 Roslyn
Building E
Denver CO 80216

Business Unit:	PWTRN	
Req ID: 0000056452	Date 07/22/2016	Page 1
Requisition Name: Prof Pavement Products 82,200		
Requester Romero, Deann - PW HR		Currency USD
Requester Signature		

Line-Schd	Item	Description	Mfg ID	Quantity	UOM	Price	Extended Amt	Due Date
1-1		ITEM 12-9-7-5-LLG7 INCLUDES WIRELESS HIGH DEFINITION CAMERA, SYSTEM CONTROLLER & MOUNTING SYSTEM (SQUID MOUNT)		1.0000	EA	82,000.00	82,000.00	09/21/2016

Buyer: Hannu, Brenda - Purchasing
Vendor: 0000099493 PROFESSIONAL PAVEMENT PRODUCTS INC
Attn: Romero, Deann - PW HR

Line Total: 82,000.00

2-1		SHIPPING		1.0000	EA	200.00	200.00	09/21/2016

Buyer: Hannu, Brenda - Purchasing
Vendor: 0000099493 PROFESSIONAL PAVEMENT PRODUCTS INC
Attn: Romero, Deann - PW HR

Line Total: 200.00

Total Requisition Amount: 82,200.00

Per quote attached and specifications. The vendor does not have a vendor Id#. Paperwork sent to vendor and will submit to new vendor desk once I receive.

REQUISITION INFORMATION ONLY - NOT FOR PO
Public Works -28579 -858000- 5011102- 34993- PI00815_031

VENDOR Contact Name & Phone Number: 713-864-0906
AGENCY Contact Name & Phone Number: Deann Romero 720-865-4005

I hereby certify that the articles or services requested are necessary for the operation of this agency and are properly chargeable to the chartfield distribution shown above and to the allotment on file with the Auditor for which sufficient unencumbered balance exists.

Agency Head/Authorized Department Signature:

_____ date _____

Other Auth: _____ date _____

Budget Auth: _____ date _____

Approval Signature	Approval Signature	Approval Signature

Request for SOLE SOURCE – Bidding Exception Justification – Sec. 20-64 (a)(1)

Agency: TEM Requisition Number: 56452

Requests for a "Sole Source" bidding exception must be provided on this form (with any necessary attachments) and accompany the requisition or be electronically submitted to the Purchasing Division referencing the requisition number. This "Sole Source" bidding exception document must be signed by the Head of the Agency or their authorized designee and the agency's Purchasing Contact Representative. Use additional attached pages if necessary.

1. Are you requesting a "Sole Source" bidding exception in accordance with D.R.M.C. Section 20-64(a)(1)?
Yes ☒ No ☐ If No, explain under what authority you believe a "Sole Source" purchase is justified:

Why is the good or service available from only one source?
The product requested is currently the only product available that is self-contained and does not require mounting and set up on one specific vehicle. Additionally, this unit does not require a permanently mounted computer to be installed in the vehicle.

Why can't the good or service be substituted with another that may meet the same need or fulfill the same function?
Although other products can provide retroreflective data of roadway markings, this product is the most versatile and least costly of other products in that it can be used on any fleet vehicle and is entirely self-contained with no additional computer hardware needed.

If there is an alternative source or an "approved, acceptable equal" to the good or service desired, why, for "practical purposes" can't the alternative or "equal" fulfill your needs?
There is likely an acceptable equal that will provide accurate retroreflectivity readings of roadway markings. However, as stated previously, this product does not require a specific vehicle for permanent mounting and does not require additional computer hardware to process the data. Therefore, the overall cost is much less than other products in the market.

What verifiable efforts have you made to investigate alternative or "equal" goods or services? (Include any source documents you've reviewed during this process.)
In addition to web based research, representatives from the two primary manufacturers of retrometers sold in the US were invited to demonstrate the capabilities and installation requirements of their respective products.

What additional information would you like to present in support of your "Sole Source" justification?
Vendors for the two primary manufacturers of these devices were invited to demonstrate their products for Transportation & Mobility and the unanimous opinion of those in attendance is that the Roadvista Laserlux G7 is the best product overall, combining versatility of utilization as well as the lowest cost.

The Purchasing Division shall review this justification for compliance with applicable law and may require additional information from the agency, from the suggested vendor or alternative vendors or from trade associations, industry experts or other appropriate sources. In some instances, the Purchasing Division may request review of the "sole source" request and supporting documentation by the Office of the City Attorney.

Purchasing Contact Representative	Date	Agency Head (Authorized Department Signature)	Date

! **Sec. 20-64 (a)(1). Purchases not subject to bidding procedures.**

(1) Supplies or services indispensable to the City which are obtainable, for practical purposes, from only

one (1) single source (a sole source purchase);

Professional Pavement Products, Inc
7115 Belgold St
Suite 1
Houston TX 77066
United States
713-864-0906

Quote

Date	Estimate #
2/4/2016	Q364641

Bill To	Ship To
James L. Cavon City/County of Denver 201 W. Colfax Ave. Dept. 611 Denver, CO 80202	Ron Villafurete Public Works Transportation/Engineering 5440 Roslyn Street Building E Denver, CO 80216

Customer ID	Expires	Exp. Close	Sales Rep	Partner	PO #
C145-City/County	3/5/2016	2/4/2016	05- Steven J Norkus		

Job Location	Terms	Shipping Met...	Note -
	07-Prepaid Prior to	UPS Ground 1	

Item	Quantity	Description	Disc. P...	Amount
12-9-7-5	1	LLG7 includes wireless High Definition Camera, System Controller &Mounting System (Squid Mount)	82,000.00	82,000.00
Special Note	1	This unit includes two years of software and firmware upgrades and on-site training	0.00	0.00

Subtotal	82,000.00
Shipping Cost (UPS Ground 1)	200.00
Total	$82,200.00

Florida-Branch
9556 Historic Kings Rd S
Suite 315
Jacksonville, FL 32257
Ph: 904.733.2121
Fx: 904.448.4076

Miami - Branch
10250 NW 89th Ave
Unit 1
Medley FL 33178
Ph: 305-885-4274
Fx: 305-885-4273

Orlando - Branch
6441 Pinecastle Blvd
Orlando, FL 32809
Ph: 407.888.2080
Fx: 407.888.2425

Texas-Branch
7115 Belgold St
Suite 1
Houston, TX 77066
Ph: 713.864.0906
Fx: 713.864.0833

North Carolina
1955 Scott Futrell Dr
Charlotte NC 28208
Ph: 704-697-9577
Fx: 704-697-9576

Raleigh - Branch
200 Travis Park
Cary NC 27511
Ph 919.851.0799
Fx 919.851.1294

Vehicle Mounted Retrometer Request

This document is intended to provide detailed information to support the acquisition of a vehicle mounted retrometer. A retrometer is utilized to record the retro-reflectivity of pavement markings. Simply stated, retro-reflectivity is how bright pavement markings appear at night when illuminated by vehicle headlights. The impetus behind the need to test, verify and record this data is multi-faceted.

First, the Federal Highway Administration (FHWA) has identified minimum levels of retro-reflectivity at which agencies must be proactive with the replacement of these markings. The ability to effectively monitor and track the degradation of these markings is critical in planning our annual work program.

Second, the Colorado Department of Transportation (CDOT) is now requiring the markings that the City maintains on State Highways, to be tested and reported on for these minimum levels bi-annually. In addition, as these levels have been identified by FHWA and are expected to be adhered to by all agencies nationwide, it is imperative that the City also measure and monitor the reflectivity of markings on all City streets.

Lastly, as autonomous vehicles become more prevalent in the transportation industry, it is imperative that pavement markings be maintained proactively at a level suitable for the effective operation of these self-driving vehicles. Since current autonomous vehicle technology utilizes pavement markings to determine the vehicles positioning within the designated travel lane, assuring proper retro-reflectivity levels is critical to support the reliable operation of this emerging technology.

At present, City forces utilize a hand held retrometer to record reflectivity levels at spot locations. This process is very labor intensive, requires additional resources for traffic control and exposes employees to moving traffic. In addition, the measurement at a spot location is truly not indicative of the reflectivity level of the marking overall. Although this process is acceptable to meet the requirements of both FHWA and CDOT, it is not supportive of autonomous vehicles as the technology current utilized constantly scans pavement markings to assure the vehicle is within the designated travel lane.

By utilizing a vehicle mounted retrometer, the collection of data will most certainly be safer for employees, require less resources and collection of data will be much more efficient, effective and comprehensive in supporting our efforts to provide a safe and reliable transportation system.

Specification for Vehicle Mounted Retroreflectometer for determining the coefficient of retroreflected luminance of pavement markings

1. Instrument shall perform real-time pavement marking retroreflectivity measurements.
2. Instrument shall also detect, measure, and record the location of retroreflective road studs (raised pavement markers) in the 30-meter geometry.
3. The driver/headlight geometry shall be a 1/5th scaled system utilizing the ASTM E1710 and EN1436 30-meter geometry with a minimum of 12 cm of ground clearance when in use.
4. While not in use, the instrument shall raise up to achieve a minimum of 7 inches (17.8 cm) ground clearance.
5. Measurement shall be made 6 meters in front of the instrument to most closely mimic the driver perspective.
6. Illumination Angle shall be 1,24° (per EN 1436)
7. Observation Angle shall be 2,29° (per EN 1436)
8. Entrance Angle shall be 88.76° (per ASTM E1710)
9. Observation Angle shall be 1.05° (per ASTM E1710)
10. Measuring aspects of the total angular spread shall not exceed 0.33 degree
11. Operating Temperature Range shall be 20° to 131°F (-7 to 55°C)
12. Measuring width of the instrument shall be minimum of 1 meter (39.3 inches).
13. Measurements shall be made at any speed up to 110 mph (180 km/h).
14. Measurements shall be collected at minimum of 400 measurements per second.
15. Instrument shall make a measurement on the line every 3 inches (7.62 cm) at most while traveling at 75 mph (120 km/h).
16. Instrument shall have longitudinal resolution of 8 inches (20 cm) to ensure continuous coverage of a line at all speeds up to 110 mph (180 km/h).

Specification for Vehicle Mounted Retroreflectometer for determining the coefficient of retroreflected luminance of pavement markings

17. Resolution of the measurement shall be at least 18-bit.

18. Instrument shall utilize a solid-state light source that requires no maintenance for 10,000 hours of operation.

19. Instrument shall accurately measure skip lines (broken lines) without any correction factors

20. Device shall be able to measure both white and yellow, flat and profiled road markings of any type on Flat and Rough, Dry and Wet surfaces. The device must compensate for the day light and must continue to measure under different light conditions during the day and night.

21. Instrument shall give individual readings for both lines of a double line.

22. System shall be controlled wirelessly using any iOS, Windows, OSX, Android, or Linux tablet, laptop, or smartphone with a wifi connection using a web browser. The system shall be capable of being operated by multiple devices at the same time and not require any software or Application installation

23. The system shall have a standard real-time display of retroreflectivity profile of measured markings.

24. The system shall have a built-in standard high precision Distance Measuring Instrument to tag data to odometer.

25. GPS system shall report GPS coordinates with each measurement point

26. The system shall have a real-time event codes, with programmable header labels so the operator can tag data as measurements are being collected.

27. Data file shall record and report the following values in a user-specified test distance (adjustable from 0.01 to 10 miles, but typically every 0.1 miles, or 10 to 10000 meters, but typically every 100 meters): Record number; Odometer reading; Date; Time; GPS Coordinates; GPS position fix accuracy; Vehicle Speed; Ambient Temperature; Ambient Humidity; Number of valid scans; Maximum, minimum, average, stripe width of left and right stripes individually, number of road studs found, stripe type, user road condition codes.

28. Data shall be recorded to an easily removable USB flash drive in the instrument.

Specification for Vehicle Mounted Retroreflectometer for determining the coefficient of retroreflected luminance of pavement markings

29. The instrument shall automatically generate color-coded Google Map Files (KML) with green, yellow, red, and black coding indicating good, marginal, bad, and no line levels, which shall be saved to the same removable USB flash drive as the recorded data.

30. Calibration standard shall attach to the front of the instrument for simple calibration that takes less than 1 minute, requires no flat ground, nor requires placing any calibration standards on the ground at the measurement distance from the instrument.

31. Calibration Standard shall have a traceable certificate from NIST and be ISO/IEC 17025 compliant.

32. Retroreflectometer shall be capable of being mounted to either side of a vehicle without making any modifications to the vehicle utilizing a cinema-grade vacuum mount system capable of supporting more than 200 kg.

33. The instrument shall be fully self-contained inside the optical head, and require only a power connection to a vehicle cigarette lighter.

34. Weight of the instrument shall be less than 26 lbs (12 kg).

35. Instrument power consumption shall be less than 50 Watts at all times while in operation.

36. The instrument shall automatically adjust its height and tilt to maintain the correct geometry while measuring.

37. A video recording system shall digitally record the roadway while displaying the Date, Time, GPS Coordinates, Retroreflectivity values, and Odometer reading. The videos shall be recorded to a removable USB flash drive on the instrument.

New Window Help Personalize Page http

Commitment Control Budget Details

Business Unit	Ledger Group	Account	Fund	Org	Program	Class	PC Bus Unit	Project	Activity
DENVR	PROJ_CHLD	700000	34993	5011102	00000	00000	DENVR	PI00815_031	BUDGE

Display Chart

Ledger Amounts

Budget:	1,750,000.000 USD		
Expense:	1,069,309.810 USD		
Encumbrance:	316,354.870 USD		
Pre-Encumbrance:	0.000 USD		

Max Rows: 100
Attributes
Parent / Children
Associated Budgets

Associate Revenue: 0.000 USD
Available Budget

Without Tolerance:	364,335.320	USD	Percent:	(20.82%)
With Tolerance:	364,335.320	USD	Percent:	(20.82%)

Budget Exceptions

Exception Errors: 0 Exception Warnings: 0 Budget Exceptions

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