



U.S. Department
of Transportation
**Federal Highway
Administration**

New Mexico Division

December 3, 2015

4001 Office Court Drive
Suite 801
Santa Fe, NM 87507
505-820-2021

In Reply Refer To:
HFO-NM
ENG23

Mr. Tom Church
Cabinet Secretary
New Mexico Department of Transportation
PO Box 1149
Santa Fe, NM 87507

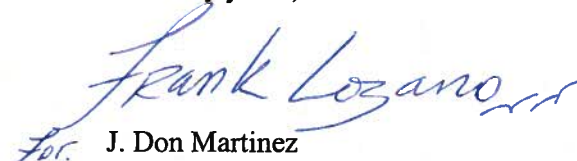
Dear Secretary Church:

The Federal Highway Administration, New Mexico Division Office has reviewed the New Mexico Department of Transportation's (NMDOT's) request for approval of a Project Interest Finding (PIF) that would allow the NMDOT to procure a patented or proprietary product under state Project CN 1100620. The product is a CS9200H Trailer Mounted Profiling System from Surface Systems & Instruments, Inc. (SSI). The profiler system is used to measure pavement smoothness.

In accordance with 23 CFR 635.411 and the supporting information provided in your request, your request is hereby approved specifically for this project. It is also established that this product can be utilized and amortized across several other federal aid projects resulting in an overarching benefit on the use of taxpayer's dollars by promoting pavement surface quality.

If you have any further questions, feel free to contact Mr. Max Valerio (505)820-2035 or at max.valerio@dot.gov.

Sincerely yours,


For. J. Don Martinez
Division Administrator

Cc: Anthony Lujan, NMDOT
Armando Armendariz, NMDOT
Trent Doolittle, NMDOT
Sally Reeves, NMDOT
Filiberto Castorena, NMDOT
Benito Trevino, NMDOT
Tisha Lujan, NMDOT



November 19, 2015

J. Don Martinez, Division Administrator
New Mexico Division
Federal Highway Administration (FHWA)
4001 Office Court Drive, Suite 801
Santa Fe, New Mexico 87507

Susana Martinez
Governor

Tom Church
Cabinet Secretary

Ref: Request for Public Interest Find to purchase profiling measure equipment

Mr. Martinez:

The New Mexico Department of Transportation (NMDOT) is hereby requesting a Public Interest Finding (PIF) for the purpose of determining and categorizing the appropriate MRI Based Profile Pay Adjustment Schedule during the designing stages of the projects and to be used during construction to verify roadway profile results obtained from the Contractors for the following projects: CN: LC00150, 110160, 1100620, 1101130, 1100570. (An amortized cost analysis is attached). The initial investment will occur under Control No. 1100620 (This project has letting date of December 2015) using federal funds upon approval granted from the FHWA.

Commissioners

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Chairman
District 3

Ronald Schmeits
Vice Chairman
District 4

Dr. Kenneth White
Secretary
District 1

Butch Mathews
Commissioner
District 5

Jackson Gibson
Commissioner
District 6

Description of History:

NMDOT District One does not have a profile measuring instrument to profile the roadways to ensure the appropriate specification is applied to the projects. Due to the lack of profile data from the existing roadway, the Department is unable to determine with accuracy the category type for the appropriate MRI based Profile Pay Adjustment Schedule. In addition, based on the feedback obtained from the construction offices we have discovered that unnecessary "must grinds" and "corrective work" were likely performed by the Contractor. District One Construction personnel utilizes District Two personnel to profile and compare the results from the contractor when available. Based on our findings we have discovered a significant difference between the Contractor's and the Department's results which warrants for the verification of data collected from the Contractor. In the past, errors were discovered from the Contractor for Projects CN: CP701, E100060 and E100030 after comparing results.

Description of Needs

The NMDOT District 1 construction personnel intends to use the Profilograph testing equipment to profile the existing HMA or Concrete pavements to obtain accurate results. The ride quality analysis will be used to determine the appropriate MRI Based Profile Pay Adjustments Schedule during the design stage of the projects. The profile testing equipment will be used for all District One Projects that meets the conditions of Section 401: Pavement Smoothness Measurement. In addition, the profile testing equipment will be used to verify the Contractor's results to ensure the contractor results correlate with the conditions of the new pavements. The profile data collected during construction will be used exclusively for the verification of the results unless specified otherwise in the contract. The Contractor will still have the responsibility of profiling the roadway and said work will still be considered incidental to asphalt and concrete pavements. Data collected during construction will be used solely for comparison and verification purposes only.

Equipment Comparison

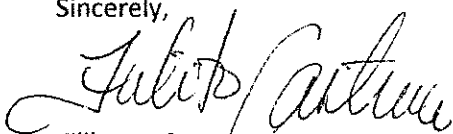
For dependability, low cost, technical support, upgrades and easy to operate NMDOT considered three other manufacturers that produced measuring profiling equipment and compared their services. These manufacturers were compared against SSI – Surface Systems and Support. NMDOT contacted Ames, International Cybernetics Corporation and Dynatest profiling equipment and compared the services offered including customer support. Based on our inquiries we determined that the prices were lower or higher and depended on the options requested. The prices ranged from \$58,000 to \$75,000 plus training expenses. AMES and Dynatest appeared to have a higher cost for training varying from \$3,000 to \$5,000 dollars plus all expenses for traveling. In addition, depending on the amount of personnel training the cost could be significant higher. International Cybernetics Corporation mounted unit was found to be lower in price, approximately \$60,000 however this profiling measuring equipment is not easily removed and remounted on other vehicles. Also removing and reinstalling the equipment can void the warranty. In researching the services further we determined that their customer support was limited and difficult to obtain. On the other hand, training from SSI has a flat rate of \$1,500 for training which includes all expenses for traveling. Also, customer and technical support is guaranteed for the life of the equipment. In further reviewing this request we contacted ACNM and District Two for input. The information we received from ACNM and from District Two indicate the other three types of profilers have their own unique issues and are more difficult to operate and to upgrade. Based on this information obtained NMDOT is requesting that FHWA considers SSI-Surface Systems and Support as the preferred equipment for NMDOT due to the services offered and customer support.

Benefit to the Public

By utilizing a profile measuring instrument the Department can analyze and design according to the pavement ride quality conditions and can determine the appropriate corrective work required during construction. Also, unnecessary grinding reduces the longevity of the pavement. Depending on the amount of grinding performed, it can reduce the life span of the pavements from 2-3 years from the intended design. The absence of a profile measuring device has presented a challenge in verifying the data obtained by the contractor. It is the Department's responsibility to ensure the tax payers received a quality smooth road in accordance with our specifications. Our goal is to limit the amount of grinding or corrective work required for the projects and to lessen the traffic disruptions to the traveling public. The cost to purchase a CS9200 Trailer System from SSI has been quoted at a price of \$66,400.00. This system is a portal trailer that can be pulled and interchanged as needed and can be utilized by several project managers in District One. The District is planning to certify at list 6-8 NMDOT Civil Engineering Technician Advanced or Technician Supervisors through ACNM. The training from SSI will include training for at least 6-8 NMDOT employees. The On-Site Set-Up and Operator Training is an additional \$1,500.00, including technical support as needed. At this time, the total amount requested for this equipment is \$67,900.00. The Gross Receipt Taxes will be paid under the Contract Unit Bid Item for Dona Ana County. The estimated Gross Receipt Taxes is estimated at \$5,389.56. Once the manufacturer's warranty expires, District One will be responsible for all Maintenance or upgrades as needed. The CS9200 type of Trailer System has an approximately life expectancy of at least 15-20 years. The cost has been amortized at approximately \$70,418 which will be offset within 5 years based on our calculations. NMDOT will closely analyze/monitor the contractor's Profilograph results to ensure unnecessary must grinds or corrective work is not performed by the Contractor which reduces the life expectancy of the pavement (s) for at least 2-3 years. The Department will ensure that traveling public is less impacted and receives higher quality roads with a longer longevity by eliminating unnecessary must grinds or further corrective work by the contractor.

We respectfully request that FHWA consider our request to assist District One in purchasing this equipment. Please let us know if you need further information or justification.

Sincerely,



Filiberto Castorena,

Assistant District Engineer – Construction

Enclosures: SSI Cost quote

Amortize Cost Analysis

Xc: Benito Trevino, Project Manager

Vince Peña, Resident Engineer

Trent Doolittle, District Engineer

Jessica Hunter, Project Development Engineer

Gabriela Apodaca-Contreras, South Region Design Manager

Michael Smelker, Assistant South Design Manager

Tisha Lujan, Construction Liaison Engineer

Max Valerio, FHWA Field Operations Engineer

Frank Lozano, FHWA Transportation Operations Engineer

Amortize Cost Analysis

Control No. LC100150

Note: This Cost Analysis is based on assuming grinding all entire lanes should this senario occur. This anlaysis was requested by FHWA.

Grinding Operations - Inspection	Employee	Hours	Rate/Hr.	Lane Miles	Cost per employee
Employee 1	1	412	\$ 19.75	26	\$ 8,137.00
Employee 2	1	412	\$ 19.75	26	\$ 8,137.00
					<u>\$ 16,274.00</u>

Control No. 110160

Grinding Operations - Inspection	Employee	Hours	Rate/Hr.	Lane Miles	Cost per employee
Employee 1	1	80	\$ 18.30	4.6	\$ 1,464.00
Employee 2	1	80	\$ 18.30	4.6	\$ 1,464.00
					<u>\$ 2,928.00</u>

Control No. 1100620

Grinding Operations - Inspection	Employee	Hours	Rate/Hr.	Lane Miles	Cost per employee
Employee 1	1	600	\$ 20.00	59	\$ 12,000.00
Employee 2	1	600	\$ 20.00	59	\$ 12,000.00
					<u>\$ 24,000.00</u>

Control No. 1101130

Grinding Operations - Inspection	Employee	Hours	Rate/Hr.	Lane Miles	Cost per employee
Employee 1	1	258	\$ 21.00	50	\$ 5,418.00
Employee 2	1	258	\$ 21.00	50	\$ 5,418.00
					<u>\$ 10,836.00</u>

Control No. 1100570

Grinding Operations - Inspection	Employee	Hours	Rate/Hr.	Lane Miles	Cost per employee
Employee 1	1	390	\$ 21.00	23	\$ 8,190.00
Employee 2	1	390	\$ 21.00	23	\$ 8,190.00
					<u>\$ 16,380.00</u>

Total cost--> \$ 70,418.00



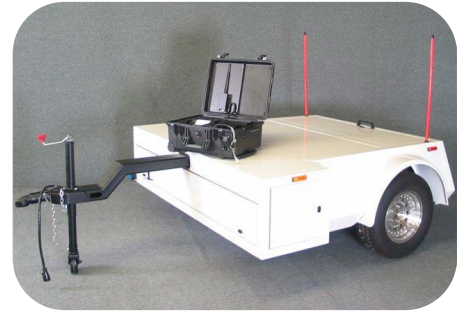
California 1845 Industrial Drive Auburn, California 95603 Telephone: (415) 383-0570 Facsimile: (415) 358-4340	Kansas 307 Plymate Manhattan, Kansas 66502 Telephone: (785) 539-6305 Facsimile: (415) 358-4340
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SURFACE SYSTEMS & INSTRUMENTS, INC.
 Custom Test Equipment • Mobile Technology Solutions

smoothroad.com

**Sales Quotation
 (CS9200 Multiple Purpose Profiler)**

Feliciano Bravo, Civil Engineer – B
 NMDOT – Anthony Project Office
 Tel: (575) 882-2294 • Fax: (575) 882-3764
 Email: FelicianoT.Bravo@state.nm.us



CS9200 Multiple Purpose Profiling System

Quote No.	Date	Customer P.O.	Terms	Notes
1510053R1	October 8, 2015			Remit Payments to SSI California SSI Taxpayer ID: 39-1850182

Line	Item	Description	Rate	Qty	Price
1.	CS9200H SSI-Trailer Mounted Profiling System Hardware	Custom profiling system trailer hardware. Includes: <ul style="list-style-type: none"> • Professionally engineered DOT rated trailer with adjustable, independent air-ride suspension for left/right wheels; • Lightweight frame system configuration with weight dispersion hardware design and wide footprint tire pattern for low PSI surface impact; • Profile measurement sensors (one Class IIIb laser rangefinder and one +/- 5 g accelerometer); • Distance measurement components (wheel mounted encoder and collets); • Profiling system mount hardware with adjustments for vertical or lateral repositioning of sensor modules). • Portable housing for Toughbook computer with internal AC/DC power supplies. 	\$27,500	1	\$27,500
2.	CS9200ES Data Collection Electronics and SSI Profiling System Software	SSI patented bi-directional data collection electronics and software. Includes: <ul style="list-style-type: none"> • ISO9001 built portable digital data collection electronics module; • SSI DataCollector software for calibration and data collection • SSI Profiler and Validation Engine analysis software. • Capabilities include: <ul style="list-style-type: none"> • IRI, MRI, HRI, PRI, RN profile indexes • multiple wheel paths with a single track system • real time display of position, profile, speed & more 	\$22,500	1	\$22,500

		<ul style="list-style-type: none"> •Adjustable templates for localized roughness (bump/dip locations and grinding/fill estimates); •Outputs PDF images, ProVal (ERD/PPF), Excel; •Guaranteed compliance with ASTM E-950 Class I requirements, AASHTO M328, R054, 56-57, and DOT/Transport Ministry specifications. 			
3.	CS9200CF19/31/53 Operator Interface Computer— Configured with SSI Calibration, Collection and Data Analysis Software	<p>Panasonic ruggedized notebook computer configured for profiling system operation. Typical configuration:</p> <ul style="list-style-type: none"> •Daylight readable, touch-screen controls, minimum Intel i5 processor, 8GB RAM, 500 GB hard drive, Windows 7/8 Pro operating system (64 Bit). • Toughbook pre-configured with SSI data collection, analysis and reporting software. •Software license for profiling system and desktop computer use. 	\$4,500	1	\$4,500
4.	Subtotal	CS9200 Trailer Profiling System (Single Track)			\$54,500
5.	CS9200DL Dual Laser System Upgrade	<p>Dual track components for simultaneous profiling of left and right wheel tracks. Includes:</p> <ul style="list-style-type: none"> •Laser rangefinder, aerospace/industrial accelerometer, related mounting hardware and cabling; •SSI data collection electronics upgrades for dual laser configuration; •Software version upgrades to dual path data collection and analysis. 	\$8,500	1	\$8,500
6.	Subtotal	CS9200 Trailer Profiling System (Dual Track)			\$63,000
OPTIONS & ACCESSORIES					
Wide Footprint Lasers					
7.	CS9200RL – Gocator RoLine 5KHz Wide-Beam Laser for Grooved or Coarse Textured Pavements	<p>Upgrade to LMI/Selcom 5KHz “Gocator” Roline wide scan sensor for laser readings with up to 6”/150mm lateral footprint. Minimizes impact of grooved, tined and coarse textured concrete pavements on profile index calculations. Includes:</p> <ul style="list-style-type: none"> •Selcom Gocator laser and quick-disconnect cabling; •Custom mounting hardware for Gocator sensor; •Data collection electronics an power supply support for Roline sensor; •Gocator data collection software. 	\$5,447	0	\$0.00
GPS Solutions					
Low Resolution GPS (1-3 M Accuracy))					
8.	CS9350LRGPS Low Resolution GPS Sub-System	<p>5Hz low resolution GPS electronics and software. Includes:</p> <ul style="list-style-type: none"> •~1-3 meter accuracy GPS receiver, antenna and signal cable; •Integration of GPS positioning with profiling system stationing and areas of localized roughness; •GPS Tracker for real time position display along profile trace; GPS integration with Google Earth/Maps for visualization of profile data and real-time navigation. 	\$2,250	1	\$2,250
Medium Resolution GPS—Option 1 (.7 M Accuracy)					
9.	CS9350GPSEM1	10Hz OEM GPS subsystem with GP</GLONASS, with limited corrections. Includes:	\$3,990	0	\$ 0

	Medium Resolution GPS Sub-System (Option 1)	<ul style="list-style-type: none"> • ~.7 meter (2.3 ft) accuracy GPS receiver, antenna and signal cable; • Integration of GPS positioning with profiling system stationing and areas of localized roughness; • Real time GPS display on scalable profile trace; • GPS Tracker for real time position display along profile trace; GPS integration with Google Earth/Maps for visualization of profile data and real-time navigation. 			
Medium Resolution GPS—Option 2 (10 Centimeter Accuracy)					
10.	CS9350GPSEM2 Medium Resolution GPS Sub-System (Option 2)	20Hz OEM GPS subsystem with GPS/GLONASS (L1-L2, L-Band), with limited corrections. Includes: <ul style="list-style-type: none"> • ~10 centimeter (4") accuracy GPS receiver, antenna and signal cabling; • Integration of GPS positioning with profiling system stationing and areas of localized roughness; • Real time GPS display on scalable profile trace; • GPS Tracker for real time position display along profile trace; GPS integration with Google Earth/Maps for visualization of profile data and real-time navigation. • Real-time display of ProVal corrective grinding projections for IRI localized roughness thresholds with current GPS position for layout. 	\$5,990	0	\$ 0
11.	CS9350GPS-TSD	Subscription based precise positioning augmentation service for decimeter position accuracy. <ul style="list-style-type: none"> • 50% discount off first year subscription. 	\$1,800	0	\$ 0
High Resolution GPS (2 Centimeter Accuracy)					
12.	CS9350GPS-RTK RTK Corrected GPS-Sub-System	Electronics and software for integration of 20-50Hz GPS (embedded or external) and radio with inertial profiling system for RTK corrected GPS content. Includes: <ul style="list-style-type: none"> • ~2 centimeter (0.8 in) accuracy (horizontal & vertical) GPS receiver; embedded and external device solutions available. • Integration of GPS positioning with profiling system stationing and areas of localized roughness; • GPS Tracker for real time position display along profile trace; GPS integration with Google Earth/Maps for visualization of profile data and real-time navigation. • Requires SSI or customer supplied external RTK GPS rover and base instrumentation. 	Quote	0	\$0
13.	CS9350RTP-R	Kit, Rover CS9350. Includes: <ul style="list-style-type: none"> • L1/L2 corrected GPS antenna; • GPS mast, mount hardware, and signal cabling. 	\$1,450	0	\$0
Peripherals (Printers, Camera, Wireless Data Modems, Computer Mounts & Miscellaneous)					
14.	CS9200PM Dedicated Pedestal Mount for Operator Computer	Pedestal Mount for Toughbook computer; includes lockable docking station, pole assemblies for attachment to base plate, motion attachment for repositioning operator computer for driver or passenger.	\$1,150	1	\$1,150
15.	CS9200MP Mobile Printer (Option 1)	Portable printer (8.5" x 11" sheet feed) with vehicle power supply and Windows driver for in-vehicle printing.	\$385	0	\$0

16.	CS9200MP Mobile Printer (Option 2)	Thermal printer (4"/100mm) continuous roll format output with motorized paper-take up assembly in rugged suitcase with AC/DC power supplies.	\$1,250	0	\$0
17.	CS9200RF Integrated Wireless Radio Data Communication System	Wireless RF radio system and communication protocol for replacement of serial data cable with wireless transmission of profile data from collection system to operator interface computer. Includes collection system RF radio and in-cab housing for in-cab RF Radio,	\$3,450	0	\$0
18.	CS9200DIC In Vehicle Camera for Images Paired with Profile Data	Digital camera (dashboard mounted) with images Integrated with profiling system data at user specified intervals. Simultaneous viewing of profile data/results with images of adjacent area.	\$4,250	0	\$0
19.	Subtotal	CS9200 Trailer Profiling System			\$66,400
		DELIVERY & TRAINING			
20.	On-Site Set-Up & Operator Training.	On-site assistance with configuration and set-up, system validation and calibration. Operator training.	Time & Materials	1	\$1,000
21.	Equipment Delivery	Shipment/delivery of system from SSI fabrication facility.	Time & Materials	1	\$500
22.	TOTAL	CS9200 Trailer Profiling System			\$67,900

Delivery estimate: 6-12 weeks.

Quote Duration: 45 days.

Terms and Conditions: SSI Standard Terms and Conditions of Sale are applicable and incorporated (see <http://www.smoothroad.com/tandc.htm>).