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| Sponsor | Nominations must be submitted by an AASHTO member DOT willing to help promote the technology | 1. Sponsoring DOT (State): Texas
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| 1. Name and Title: Darran Anderson, Chief Strategy and Innovation Officer
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| Organization: Texas Department of Transportation |
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| City: Austin | State: Texas | Zip code: 78701 |
| E-mail: darran.anderson@txdot.gov | Phone: 512-305-9508 | Fax: 512-463-0283 |
| 3. Is the sponsoring State DOT willing to promote this technology to other states by participating on a Lead States Team supported by the AASHTO Innovation Initiative? Yes or No:  |
| **Technology Description (10 points)** | The term “technology” may include processes, products, techniques, procedures, and practices. | 4. Name of Technology:Stockpile Reports, stockpile measurement and volume calculation application |
| 1. Please describe the technology.

Stockpile Reports offers a web-based application utilizing an iPhone 4s or higher, 2 solid orange traffic cones, and a 25 foot length of rope to create a video image of a stockpile. The video is used to create a 3D model of the stockpile for calculating its volume. The resulting volume calculation report is overlaid on Google Maps within 24 hours giving management visibility into location and an accurate volume of existing inventory. |
| 6. If appropriate, please attach photographs, diagrams, or other images illustrating the appearance or functionality of the technology. (If electronic, please provide a separate file.) Please list your attachments here.1. Measuring stockpile with iPhone2. Stockpile Reports location map3. Example of stockpile measurement report |
| **State of Development** **(30 points)** | Technologies must be successfully deployed in at least one State DOT. The AII selection process will favor technologies that have advanced beyond the research stage, at least to the pilot deployment stage, and preferably into routine use. | 1. Briefly describe the history of its development.

After conducting preliminary tests of the application in September 2013, TxDOT entered a two phase contract with Stockpile Reports in June 2014 to improve the accuracy of its stockpile volume calculation application to ±2% on stockpiles of 100 cubic yards or less and determine how to adapt the application to TxDOT operations. Phase One, improving SRP application’s accuracy, was completed July 31, 2014.Phase Two tested the SRP app in TxDOT’s Beaumont and Lubbock districts’ daily operations during August and September 2014. Results indicate the application will provide substantial improvements to employee safety, operating costs, and performance measurement data. TxDOT is in process of procuring this service for statewide implementation in its remaining maintenance sections. |
| 1. For how long and in approximately how many applications has your State DOT used this technology?

Since July 1, 2014 we have measured more than 150 stockpiles in three districts’ maintenance operations. This application will be used to verify vendor deliveries, procurement needs, and annual inventories. |
| 1. What additional development is necessary to enable routine deployment of the technology?

No more development is needed. We are procuring the service for statewide implementation. TxDOT’s standard communication device is the iPhone thus no additional equipment is required. |
| 1. Have other organizations used this technology? Yes or No: Yes. If so, please list organization names and contacts.
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| Organization | Name | Phone | E-mail |
| Everett Dykes & Warehouse | Jared Darsey | 478-934-2707 | jdarsey@everettdykes.com |
| Epic Scan Ltd. | Carlos Vasquez | 415-524-0516 | carlos@epicscan.com |
| Miles Sand and Gravel Company | Jarud Pierson | 253-833-3705 | JarudP@gravelpits.com |
| **Potential Payoff****(30 points)** | Payoff is defined as the combination of broad applicability and significant benefit or advantage over other currently available technologies. | 1. How does the technology meet customer or stakeholder needs in your State DOT or other organizations that have used it?

Maintenance sections no longer require survey crews and special equipment to accurately calculate stockpile volumes. One person can video a stockpile in less than five minutes, without climbing on the stockpile, and obtain accurate results within 24 hours. |
| 12. What type and scale of benefits has your DOT realized from using this technology? Include cost savings, safety improvements, transportation efficiency or effectiveness, environmental benefits, or any other advantages over other existing technologies.The Stockpile Reports application calculates stockpile volume as accurately as our GPS survey method and provides the following financial benefits:* Requires no additional equipment investment
* Halves the personnel required per stockpile measurement
* Saves $2.1M per year in measurement costs
* Saves 20 FTEs per year in measurement time
* Improves employee cubic yard estimates 27%
* Adjusts existing cubic yard inventory quantity down 40%

The application provides these management benefits: * Improves employee safety by eliminating climbing on stockpiles
* Eliminates survey crew scheduling
* Verifies existing inventory and potentially reduces purchase orders
* Eliminates weight to volume conversion calculations
* Values cubic yard inventory unit prices accurately
* Provides stockpile measurement reports overlaid on Google Maps
* Improves cost accounting and cost allocations
* Refines performance management reports
* Reduces inventory adjustments
* Improves public perception if stockpiles are cleaned for measurement
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| 1. Please describe the potential extent of implementation in terms of geography, organization type (including other branches of government and private industry) and size, or other relevant factors. How broadly might the technology be deployed?

TxDOT is deploying this technology in its maintenance operations statewide. Testing is underway to determine its benefits to construction operations such as verifying materials on hand, calculating monthly pay estimates, and speeding change order negotiations. We are also exploring its capabilities for inventorying permitted signs’ square footage and location. |
| **Market Readiness (30 points)** | The AII selection process will favor technologies that can be adopted with a reasonable amount of effort and cost, commensurate with the payoff potential. | 1. What actions would another organization need to take to adopt this technology?

Stockpile Reports only operates with iPhone. An organization can use iPhones as video collection devices (no data plans) if it does not currently employ iPhones.Conducting a pilot test will reveal what operational changes are needed to take advantage of this technology.  |
| 1. What is the estimated cost, effort, and length of time required to deploy the technology in another organization?

Size and complexity of the organization will dictate the scope of a pilot project. We conducted a two month pilot in two districts comprising 23 maintenance sections to sample our diverse operations. The pilot cost $230K including employee salaries and Stockpile Reports access fees. |
| 1. What resources—such as technical specifications, training materials, and user guides—are already available to assist deployment?

Stockpile Reports maintains instructional videos, tutorials, tips, FAQs, and a blog on its website. |
| 1. What organizations currently supply and provide technical support for the technology?

Stockpile Reports.com |
| 1. Please describe any legal, environmental, social, intellectual property, or other barriers that might affect ease of implementation.

Altering existing operations to take advantage of this technology is our biggest challenge. Stockpile location, vegetation interference, and fixed obstructions in or around stockpiles all affect stockpile measurement accuracy. Each maintenance section is unique and will create its own adoption plan for utilizing this technology.  |
| ***Submit Completed form to*** | [***http://web.transportation.org/tig\_solicitation/Submit.aspx***](http://transportation1.org/tig_solicitation/Submit.aspx) |