

STOCKPILE MEASUREMENT PILOT PROJECT

Project results & expected benefits

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Project scope

- Conduct measurements/adjustments to attain results within $\pm 2\%$ of LiDAR on small stockpiles.
- Conduct 2 month operations pilot in Beaumont & Lubbock districts to learn advantages and disadvantages of app in daily operations.

Application operation description

Required equipment:

- iPhone 5 or higher w/Stockpile Reports app
- 2 solid orange traffic cones
- 25' length of rope
- Wireless internet access aids convenience

Measurement

- Set cones in front of pile, known distance apart
- Video pile circumference
 - Keep top and bottom of pile in viewfinder
 - Start at one traffic cone, slightly overlap w/starting point
- Synchronize video data w/Stockpile Reports

What we learned

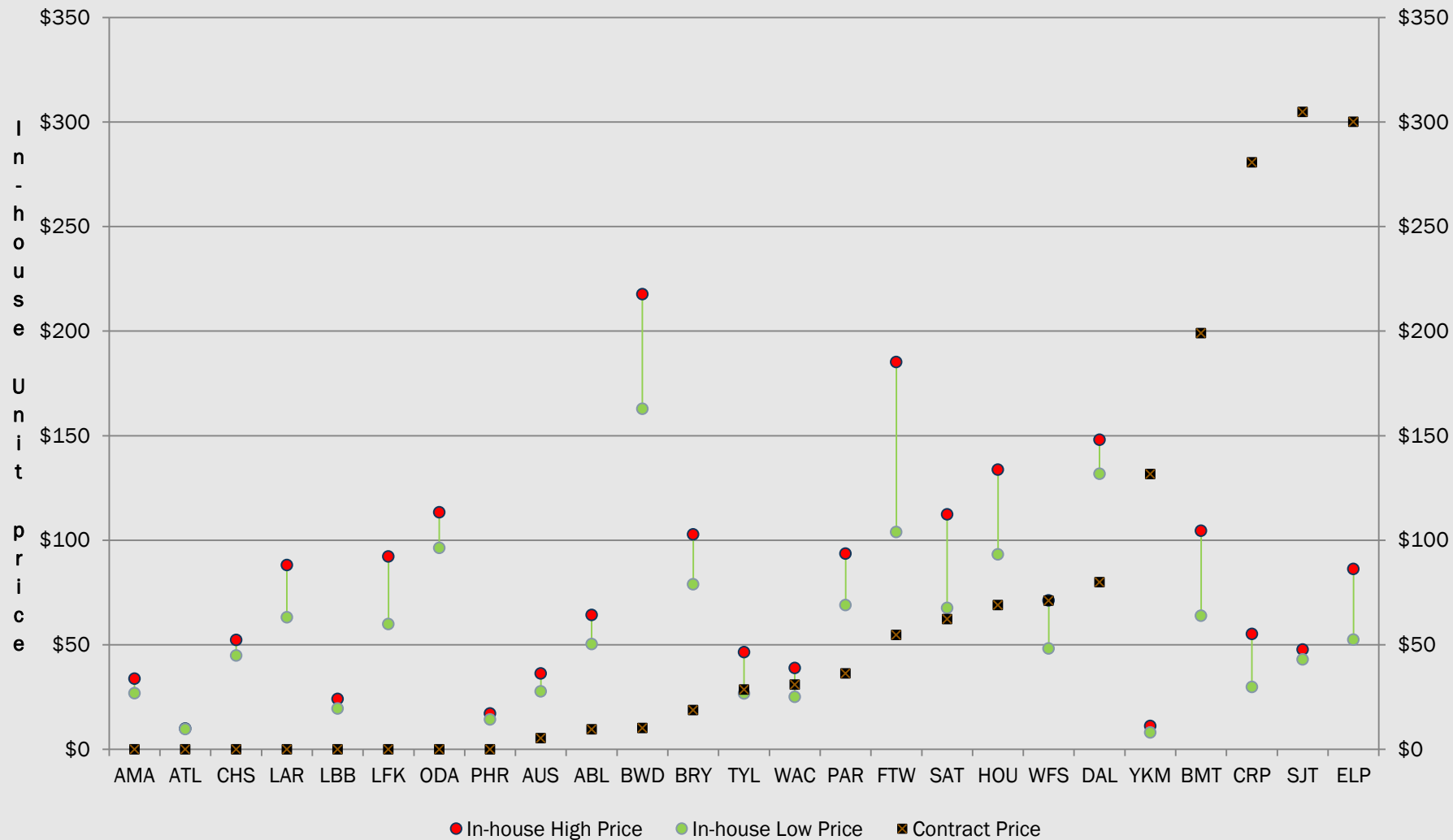
- Existing stockpile management methods are not Best in Class
- Maintenance supervisors want to improve stockpile management
- Existing, accurate measurement tools are expensive and impractical
- Cost allocations to some maintenance performance measures are incorrect
- All stockpiles can be managed with the Stockpile Reports (SPR) app
- Some stockpiles currently not measurable with the SPR app
- Pilot participants had good experience with the SPR app

Pilot project measurement results

	Total LiDAR Measure	ABV GPS Variance from LiDAR	ABV iPhone Variance from LiDAR	ABV Employee Variance from LiDAR	ABV MSMS Variance from LiDAR
Phase I Measures (CY)	2,521.90	43.90	36.70	713.80	618.10
% Variance from LiDAR		1.74%	1.46%	28.30%	24.51%
			Total iPhone Measure	ABV Employee Variance from iPhone	ABV MSMS Variance from iPhone
Phase II Employee Measures (CY)	-	-	25,558.00	8,225.77	
Phase II MSMS Measures (CY)	-	-	15,047.74	-	8,142.61
% Variance from iPhone				32.18%	54.11%

Material cost impacts on job cost reporting

FY13 Remove & Replace function(110) in-house & contract cost per CY



Expected benefits of stockpile measurement app

Improve stockpile management methods with new tools that:

- Require no additional equipment investment
- Eliminate climbing on stockpiles
- Provide same accuracy as GPS at greatly reduced cost
- Provide management visibility of stockpiled inventory
- Provide more accurate performance measurement data

Stockpile account log in

http://service.stockpilereports.com/index.php?opt=1&m=0

Welcome to Stockpile Repo...

DOP Templates - All Forms Suggested Sites AT&T Real Yellow Pages ... TxDOT Home Page Get more Add-ons

Home Queue Profile Help Logout

Hierarchy: Texas DOT

Site: All
(s): FM-570 (23304-Eastland Co)
East yard @ US90 (15305-Hondo)
FM 2676 @ RM460-461 (15305-Hondo)
FM-8 (23304-Eastland Co)

Dates: Month to Date
Quarter to Date
Year to Date
Custom Date range
All Available

2015-01-26 to 2015-03-17

Map View List View

iPhone Estimate Aerial Walking Wheel GPS Laser

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Stockpile summary report

http://service.stockpilereports.com/index.php?opt=1&m=0 Welcome to Stockpile Repo...

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Hierarchy:
Texas DOT

Site All
(s):
FM-570 (23304-Eastland Co)
East yard @ US90 (15305-Hondo)
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FM-8 (23304-Eastland Co)


Dates:
Month to Date
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Custom Date range
All Available

2015-01-26 to 2015-03-17
Map View
List View

Map Satellite

iPhone
Estimate
Aerial
Walking Wheel
GPS
Laser

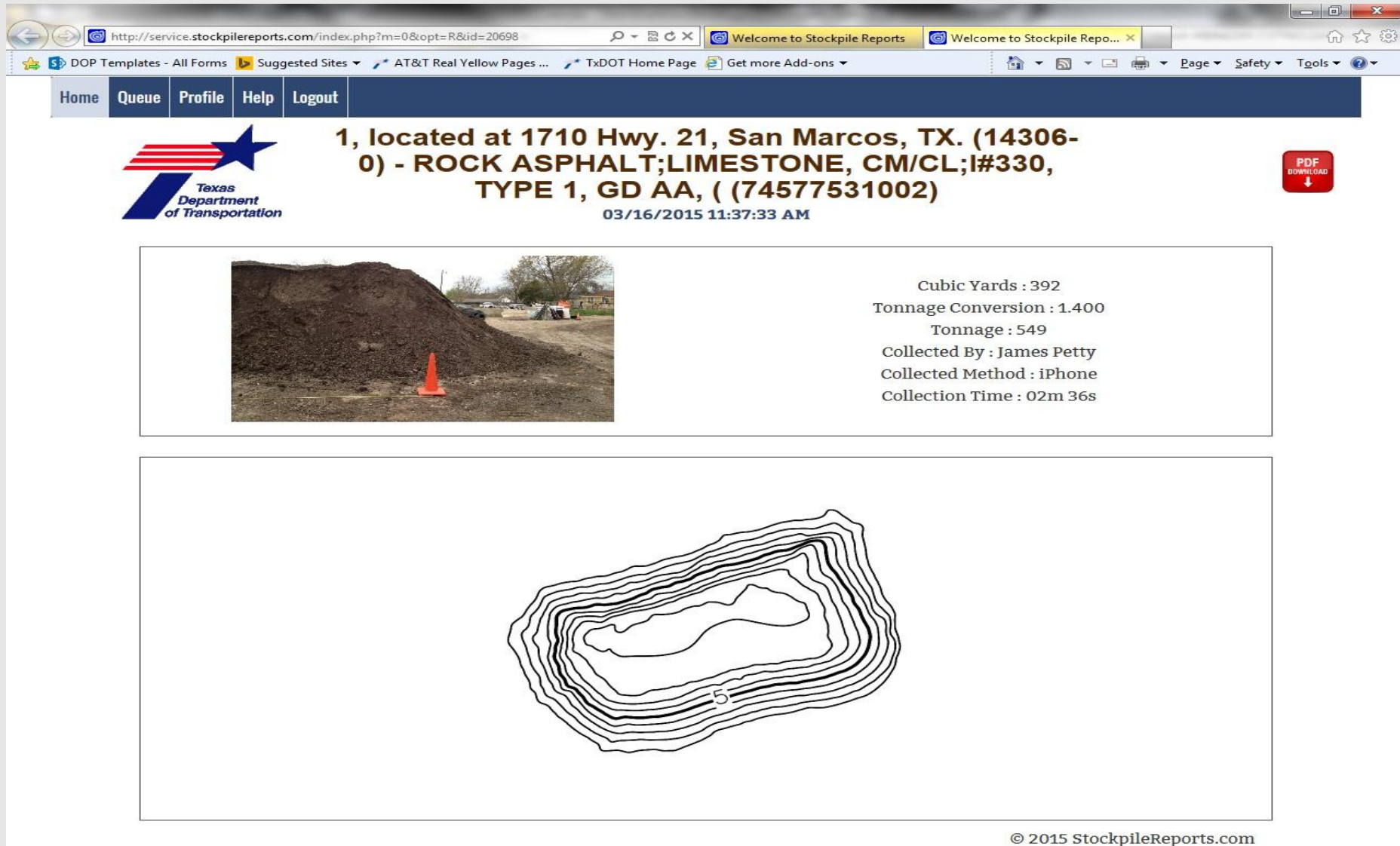
ROCK ASPHALT; LIMESTONE, CM/CL; #330, TYPE 1, GD AA, (X



Date: 03/16/15 11:37 AM
Site Name: 1, located at 1710 Hwy. 21, San Marcos, TX.
Site Code: 14306-0
Item Code: 74577531002
Volume CY: 392
Weight TN: 549
Full Report
Reconstructed Video

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Stockpile detail report



First functions to implement

Materials we keep in inventory

- Material receipts – to establish known beginning inventory
- Annual inventory – to establish known ending inventory
- Verify inventory before starting a job
- Check inventory before/after job – ensure correct quantity charged to job

Next steps

Develop the following business cases for stockpile measurement app:

- Measuring debris piles for contract hauling volumes
- Measuring materials on hand volumes
- Measuring stockpile volumes for change order negotiations
- Measuring stockpile volumes for monthly pay estimates
- Measuring monthly supplier inventories
- Measuring vendor stockpile volumes to meet testing requirements

QUESTIONS?