



Intelligent Compaction

ODOT Annual Project Manager Meeting
January 14, 2014



Robert Townsend, P.E.

Assistant Project Manager – The Dalles
Oregon Department of Transportation



Agenda

- Project Overview
- Specification
- IC Results
- Lessons learned





Project Overview

I-84 Arlington to Tower Rd., MP 138-159

Construction Authorization 9 million

2.5" Inlay

115,360 Tons of Level 4, HMA

Night time construction (7 p.m. to 7 a.m.)

PM 7:34 JUN/ 8/2014



Intelligent Compaction Specification

Added via Contract Change Order

- CCO Value of \$27,000 (\$0.23 per ton added to the contract)
- CCO included payment for Roller Rental, Equipment Training, Intelligent Compaction Software, IC Data, GPS Usage Fee)





Intelligent Compaction Specification

Added via Contract Change Order

- Added Section to **00745.49 Compaction, QC**
- Main Intelligent Compaction Components for Paving
 - On Board Documentation System & Display
 - Location of the Roller (GPS)
 - Surface Temperatures
 - Number of Roller Passes
 - Roller Speeds





Intelligent Compaction Specification

Added via Contract Change Order

- **00745.49 Compaction, QC** – Add the following section.
-
- **(f) Intelligent Compaction** – This work shall consist of the compaction of the asphalt mixtures utilizing intelligent compaction (IC) rollers within the limits of the work as described in the plans. IC is defined as a process that uses vibratory rollers equipped with a measurement and documentation system that automatically records various critical compaction parameters in real time during the compaction process.
-
- The Contractor shall supply rollers meeting the requirements of 00745.24. The breakdown roller shall be used for IC. Any additional IC rollers shall be used in the intermediate phase.
-
- Intelligent compaction shall apply to all asphalt on the project with the exception of the following:
 - Driveways,
 - Tapered transitions associated with shoulders, ramps, acceleration, deceleration, climbing and turn lanes
 - Short isolated pavement areas requiring handwork,
 - Interstate Ramps
 - Other areas as defined by the Engineer.
-
- **(1) Global Positioning System (GPS) Requirements**
- Provide the supplier, make, model, and unique.....
- **(2) Temperature Measurement**
- Breakdown rollers shall be equipped with non-contact temperature sensors.....
- **(3) Integrated On-Board Documentation System**
- An on-board documentation system that is capable of displaying real-time color-coded maps.....
- **(4) Construction Methods**





IC RESULTS

Data Management

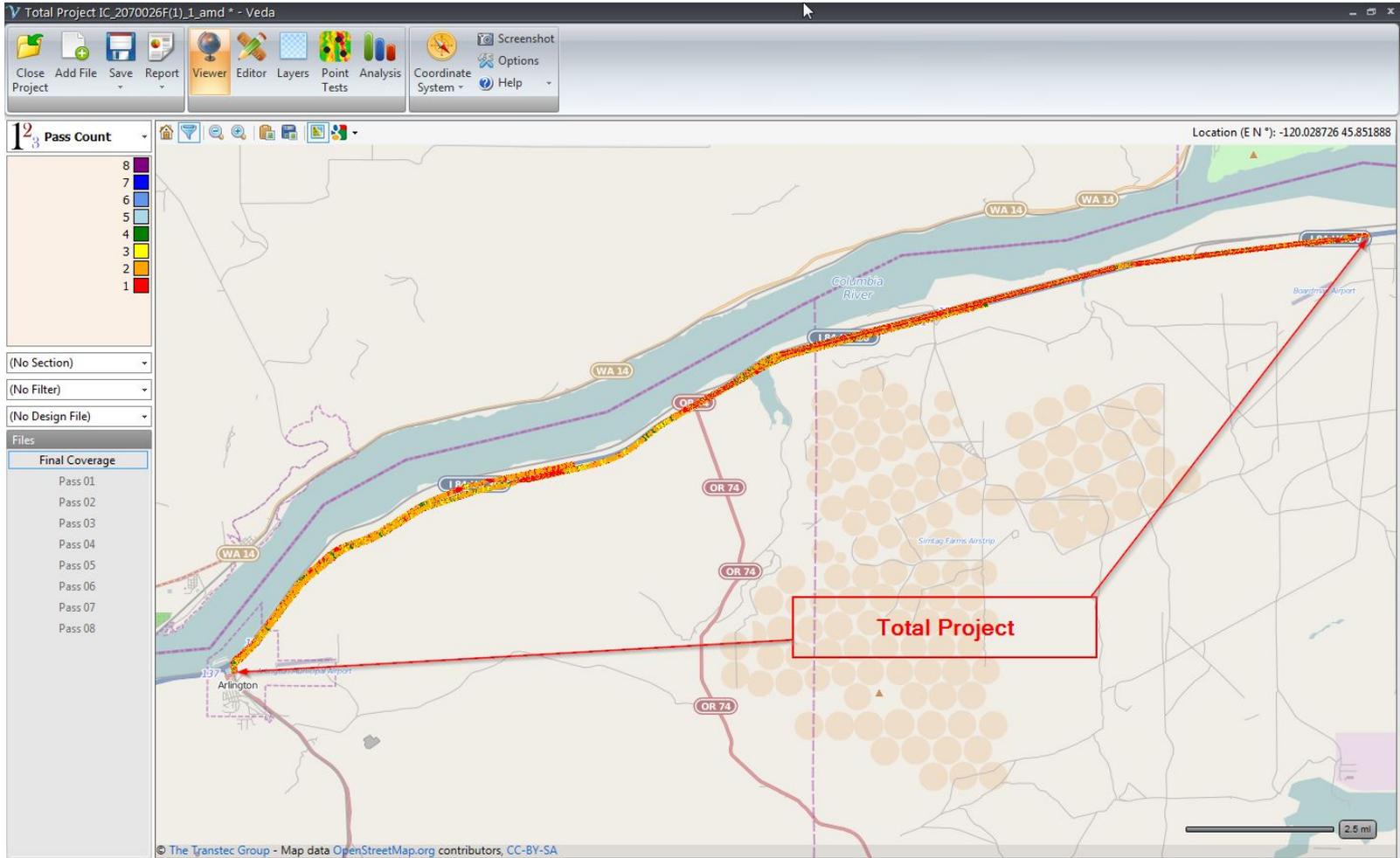
20140523;112623.000;-
120.163886281515;45.751535539999;129.699997;1;1;4.800;1;26.0;0.490;114;0.
0
20140523;112622.600;-
120.163882411597;45.751535539999;129.699997;1;1;4.900;1;24.0;0.490;114;0.
0
20140523;112623.400;-
120.163894021351;45.751532839999;129.699997;2;1;4.800;1;31.0;0.490;113;0.
0
20140523;112623.000;-
120.163890151433;45.751532839999;129.699997;2;1;4.800;1;26.0;0.490;114;0.
0
20140523;112623.000;-
120.163886281515;45.751532839999;129.699997;3;1;4.800;1;26.0;0.490;114;0.
0
20140523;112622.600;-
120.163882411597;45.751532839999;129.699997;4;1;4.900;1;24.0;0.490;114;0.
0
20140523;112624.200;-
120.163905631105;45.751530139999;129.600006;1;1;4.800;1;38.0;0.490;113;67.
.0
20140523;112623.800;-
120.163901761187;45.751530139999;129.699997;1;1;4.800;1;35.0;0.490;114;91.
.0
20140523;112623.400;-
120.163897891269;45.751530139999;129.699997;2;1;4.800;1;31.0;0.490;113;0.
^

- **VEDA Software Required**
- Download from www.intelligentcompaction.com



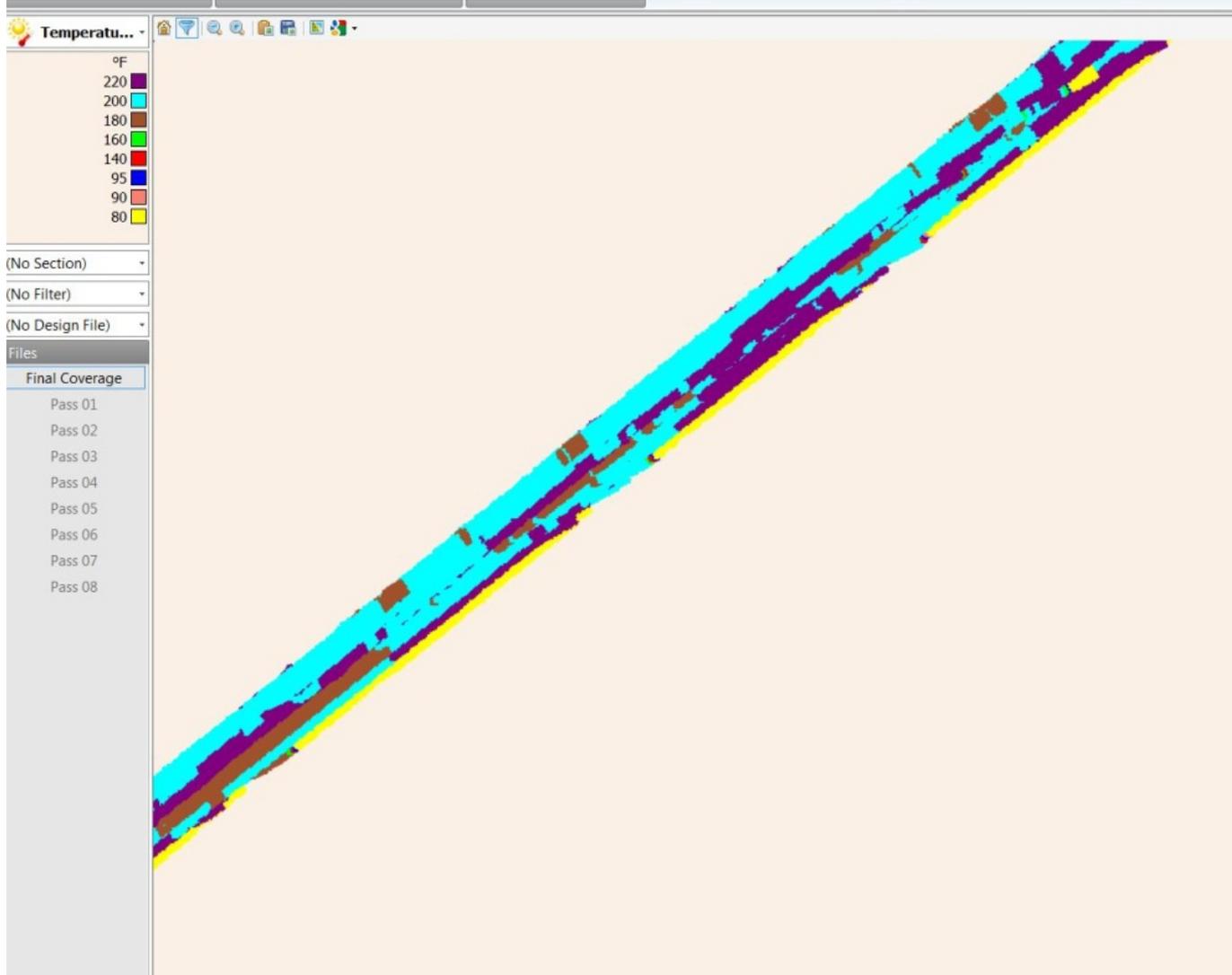
IC RESULTS

VEDA Software



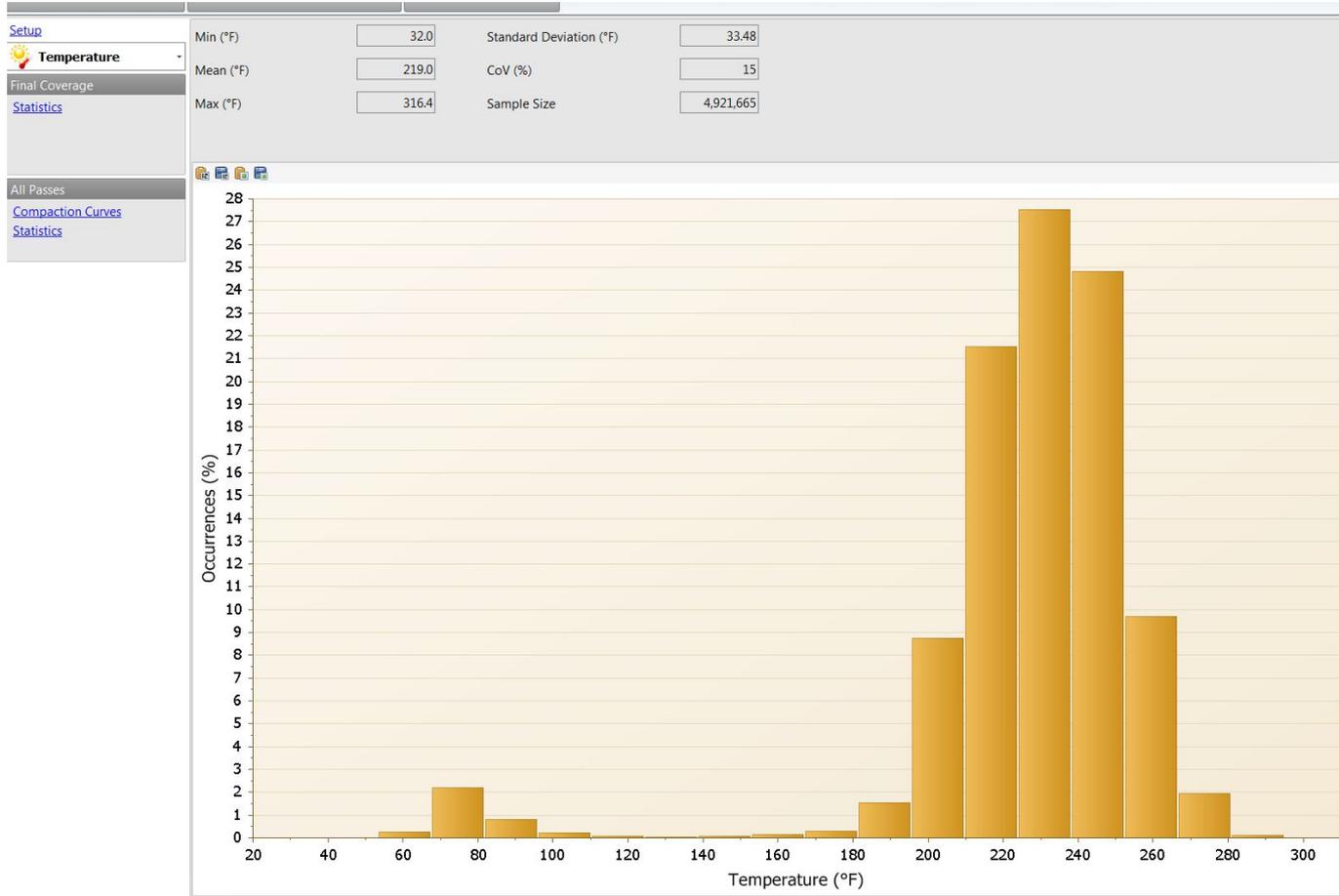
IC RESULTS

Surface Temperature – View Mode



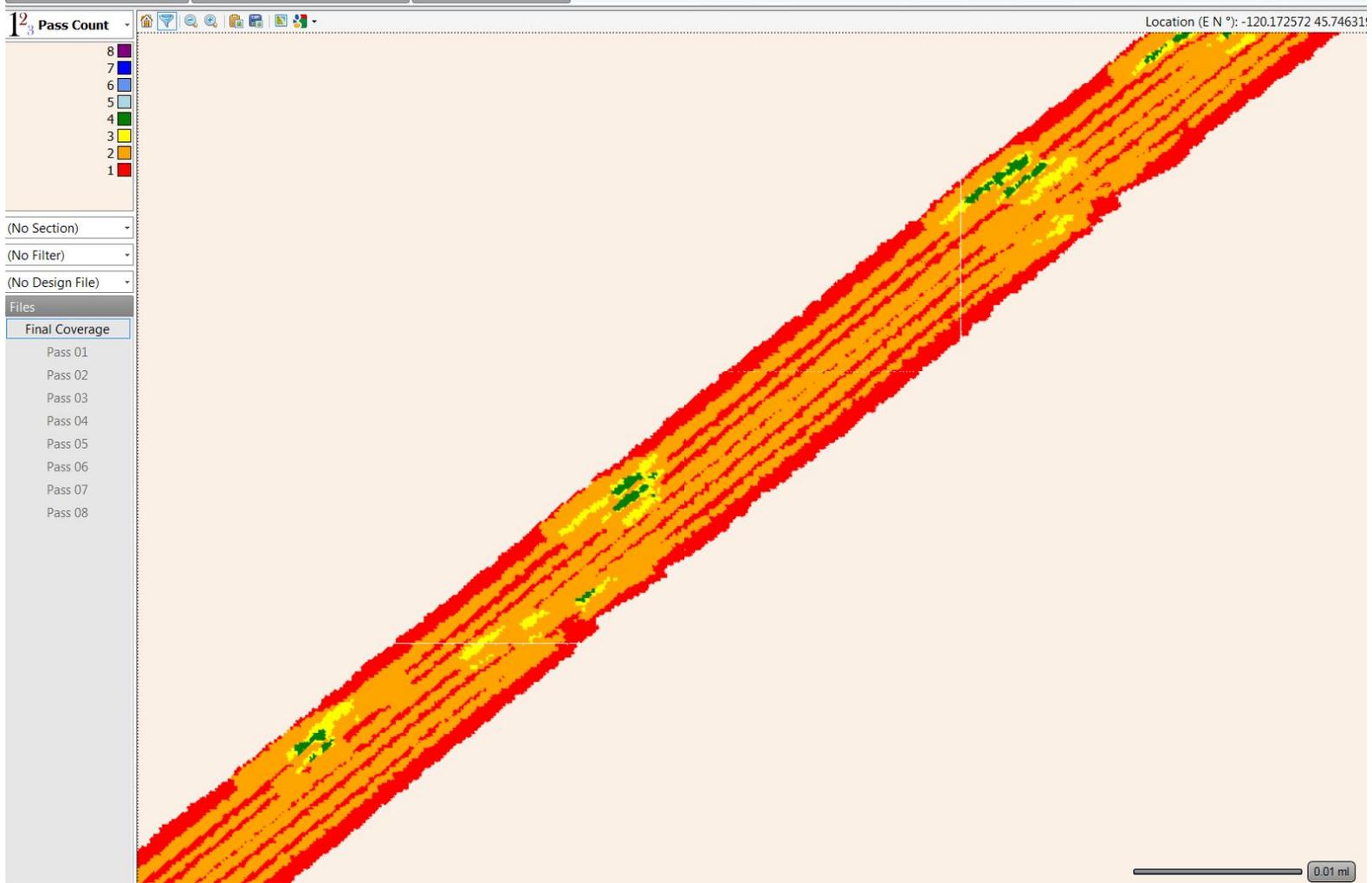
IC RESULTS

Surface Temperature – Analysis Mode



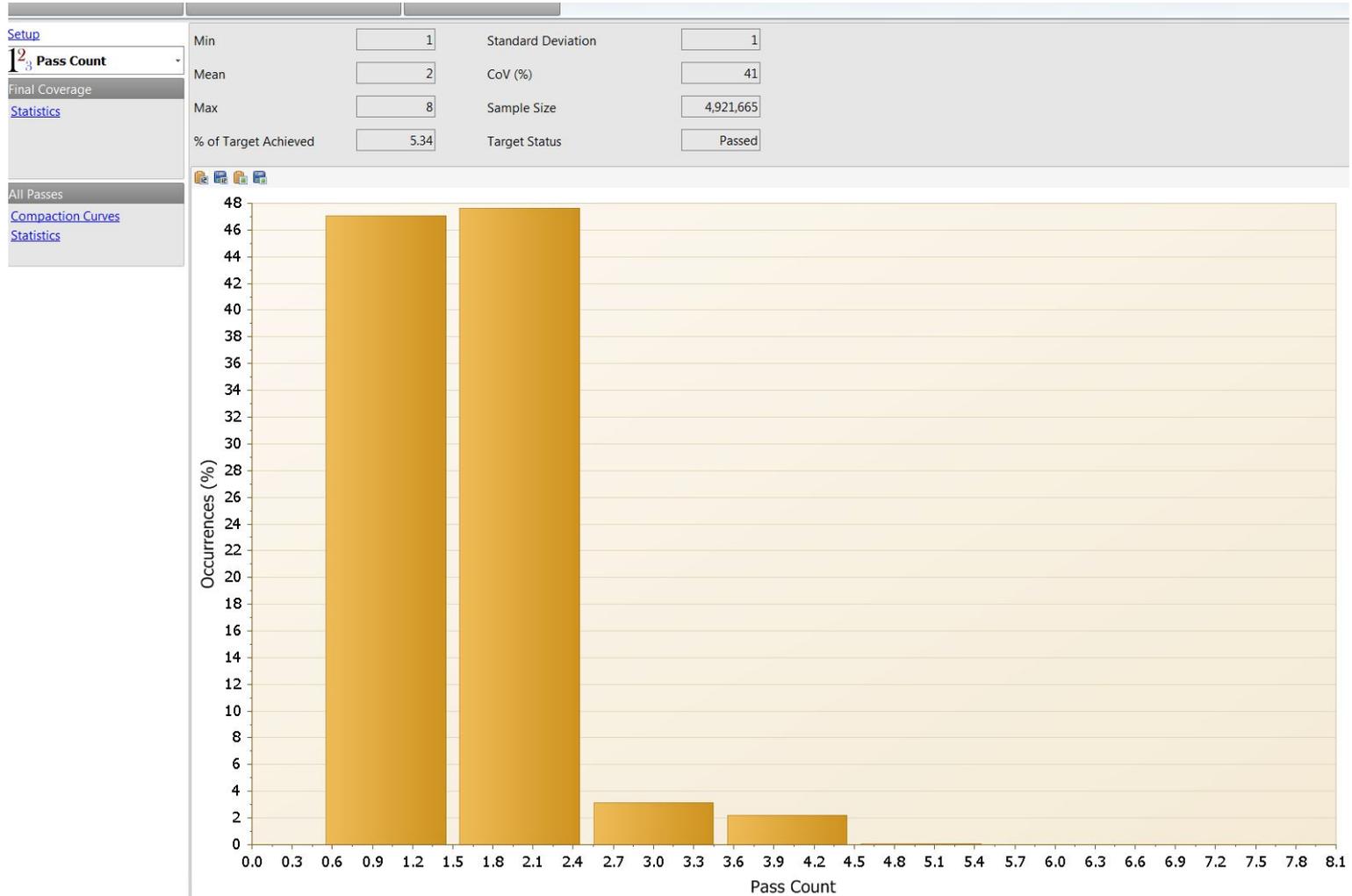
IC RESULTS

Passes – View Mode



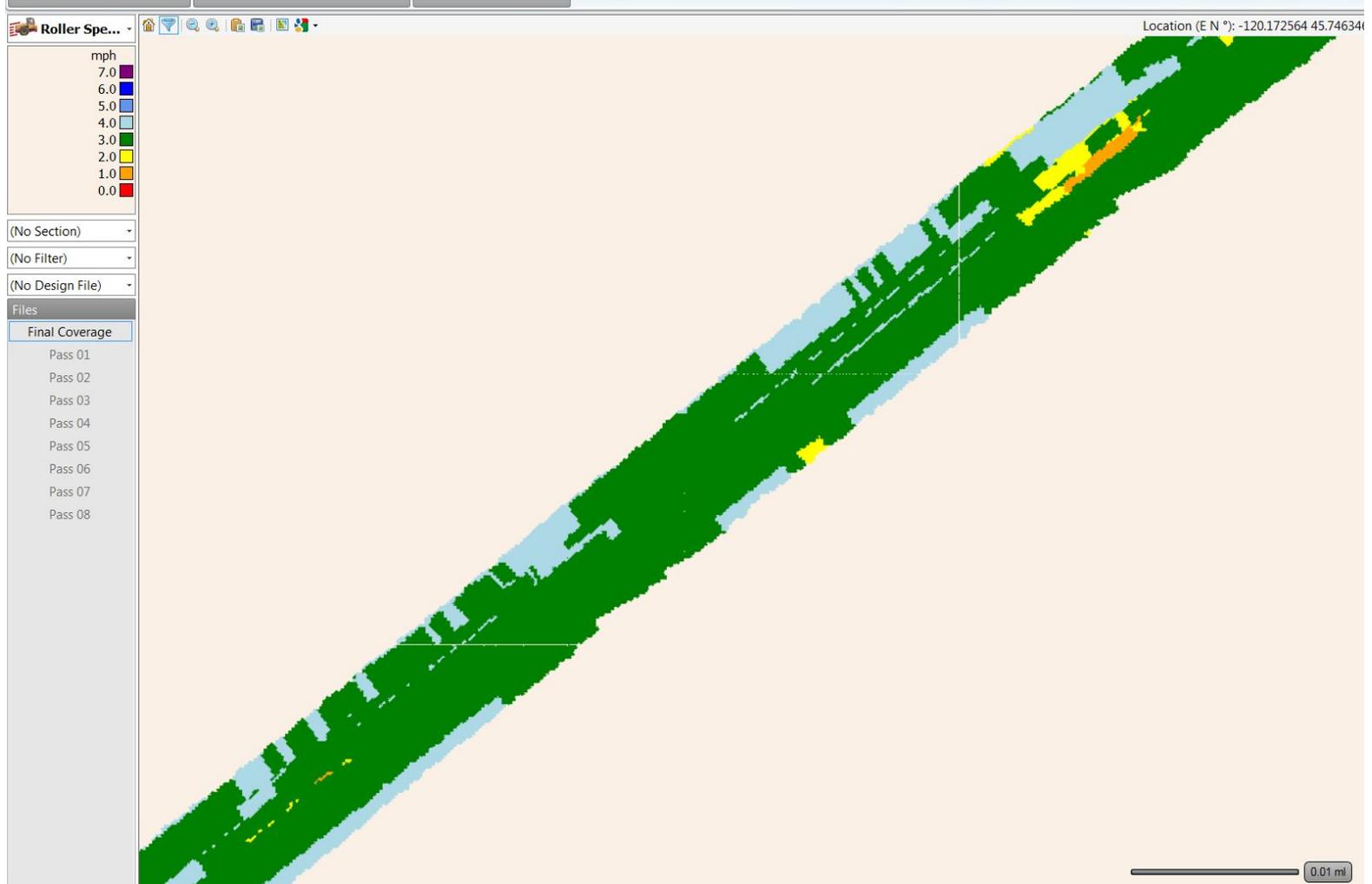
IC RESULTS

Passes – Analysis Mode



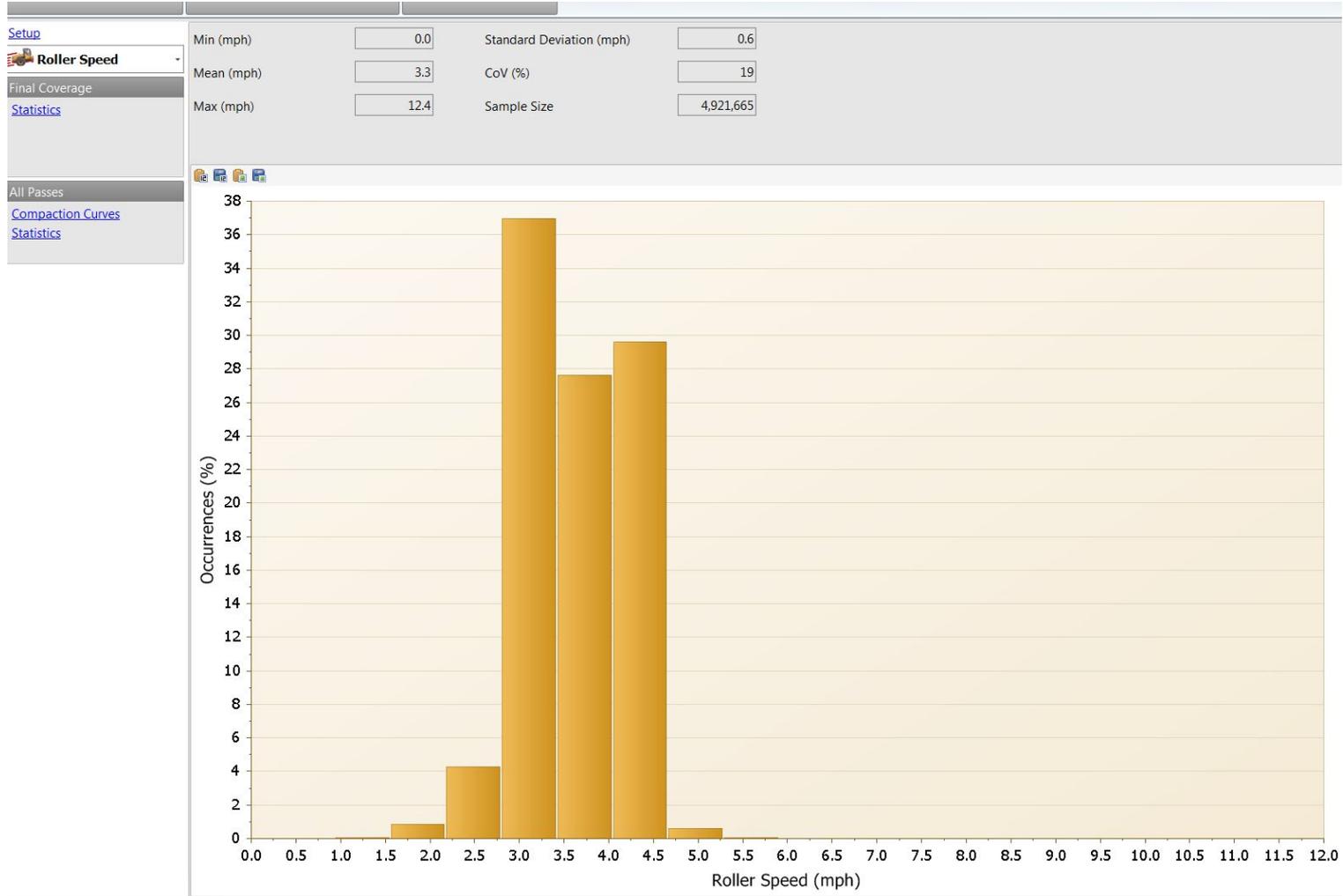
IC RESULTS

Roller Speeds – View Mode



IC RESULTS

Roller Speeds – Analysis Mode





Intelligent Compaction

Lesson's Learned

Benefits

- Consistent Compactive Effort
- Informative Data
- Equipment Requirement Spec.

Areas for Improvement

- Data Review
- Performance Spec.
- Stiffness Value???





Questions?

AM 9:00 AUG/23/2014

