FTBA Construction Conference 2010 Smoothness Committee Session

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Agenda

1. Smoothness Committee Charter
    1. Members
    2. Overview
    3. Preliminary Tasking
    4. Committee Tasking
2. First Smoothness Committee Meeting
    1. Summary
    2. Ongoing committee “homework”

Committee Members

Michael Bienvenu, FDOT D4 Dir of Ops
Ed DeVincenzo, Hubbard/Orl. Paving
John Hooper, APAC Southeast
Albert Lopez, General Asphalt
Brian Pickard, FDOT Construction
Kevin Price, DAB Contractors
William Sears, FDOT Construction
Pat Upshaw, FDOT Materials
Jim Warren, ACAF

Tom Byron, FDOT Materials
Richard Hewitt, FDOT Materials
Frank Kreis, FDOT Materials
Shailesh Patel, FDOT Construction
Scott Pittman, AJAX Paving Ind
Joe Restino, Better Roads
Paul Steinman, FDOT Construction
Emmanuel Uwaibi, FDOT Pav't Des
Tony Williams, Anderson-Columbia

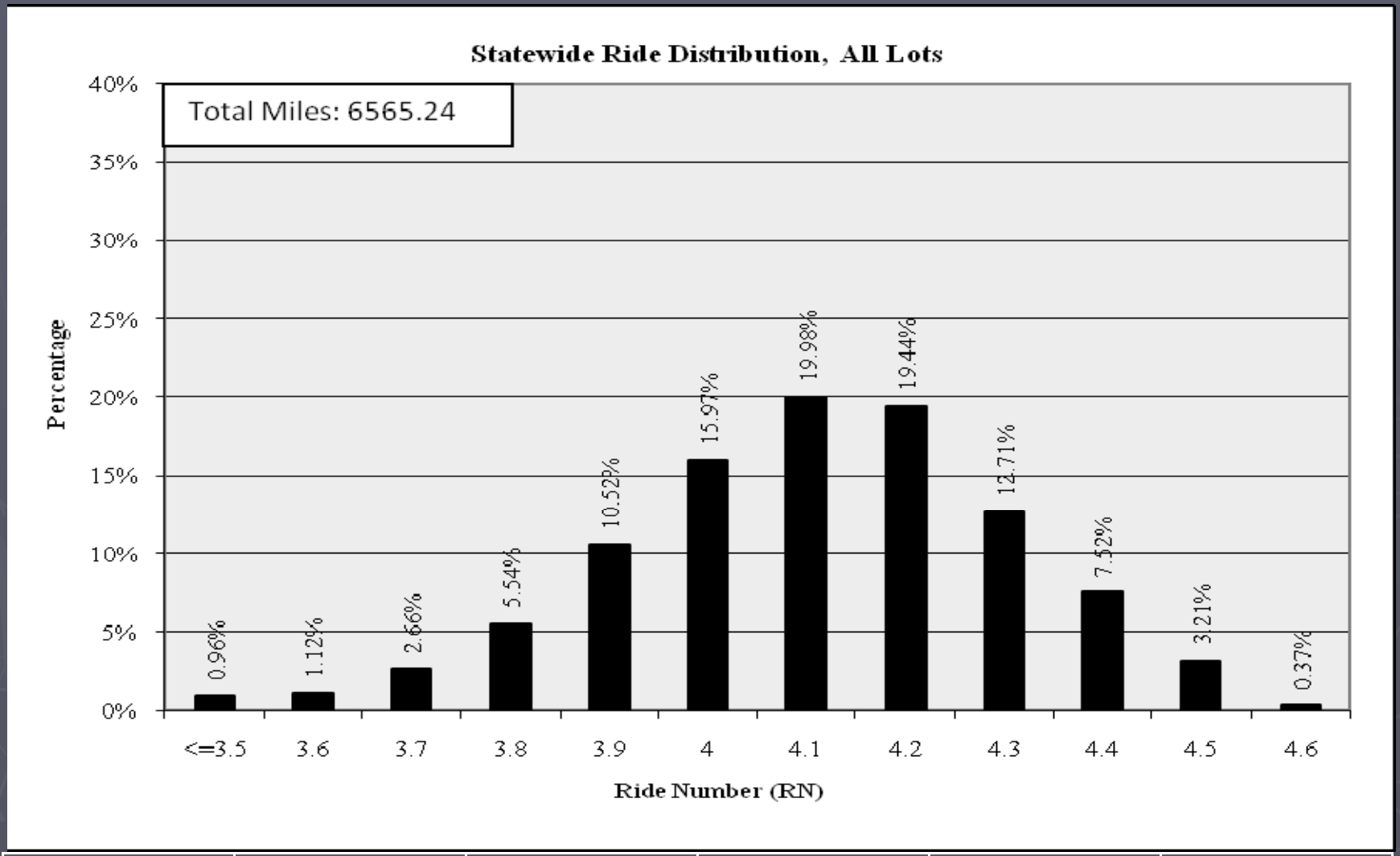
Charter Overview

1. Committee “owner” – David Sadler, Director, Office of Construction
2. Intentional break from previous effort
    1. Analyze ride acceptance data to-date
    2. Define specific tasks and objectives
    3. Re-form the committee with a focus on the charter objectives

Ride Acceptance Data

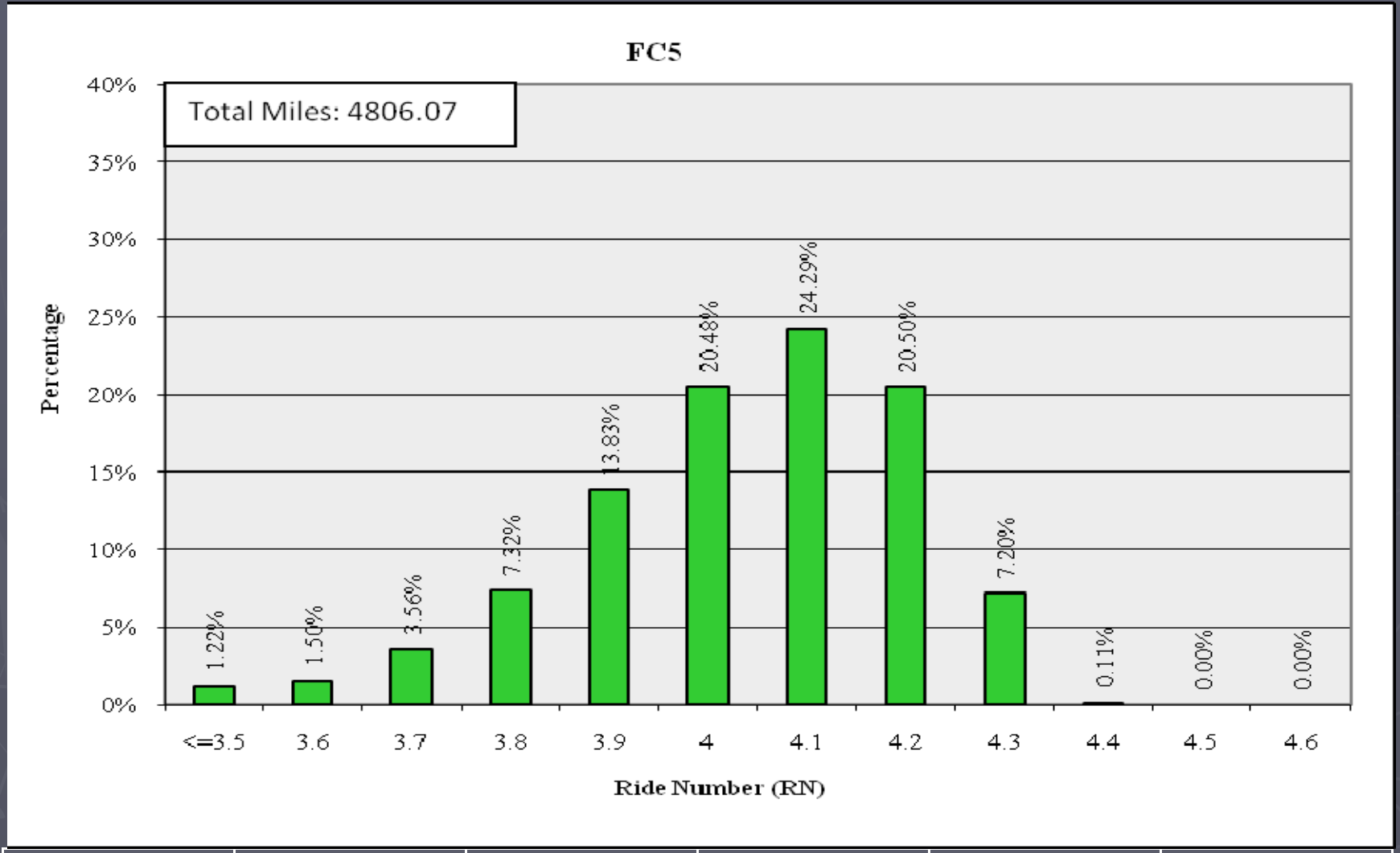
1. Ride acceptance data supports 4.0 RN
2. http://materials.dot.state.fl.us/smo/administration/resources/library/publications/researchreports/pavement/10-530.pdf

All Ride Acceptance 2005-2009



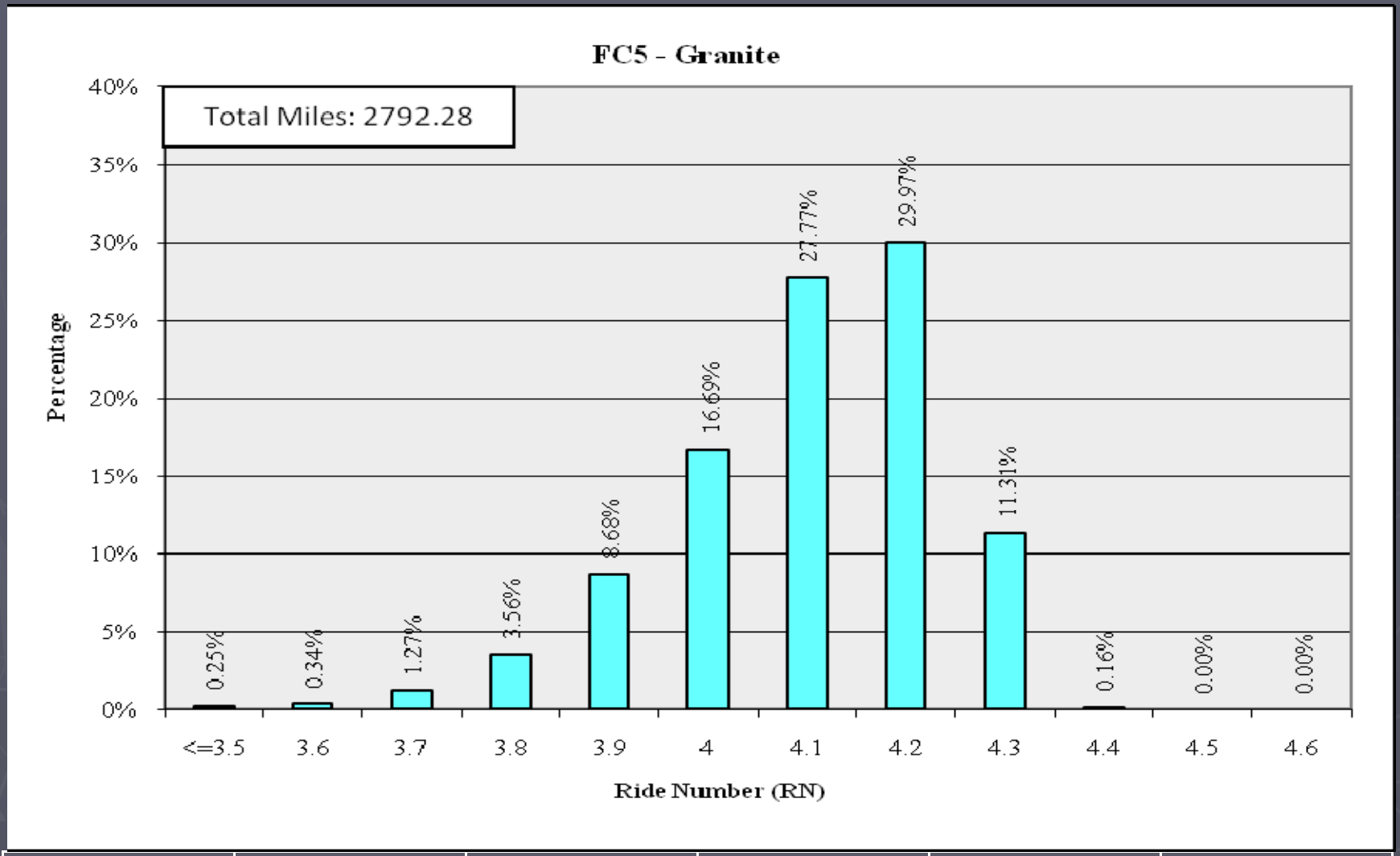
Total Lots	Total Miles	Minimum	Mean	Maximum	St. Dev
67345	6565.24	1.7	4.1	4.6	0.20

FC-5 Ride Acceptance 2005-2009



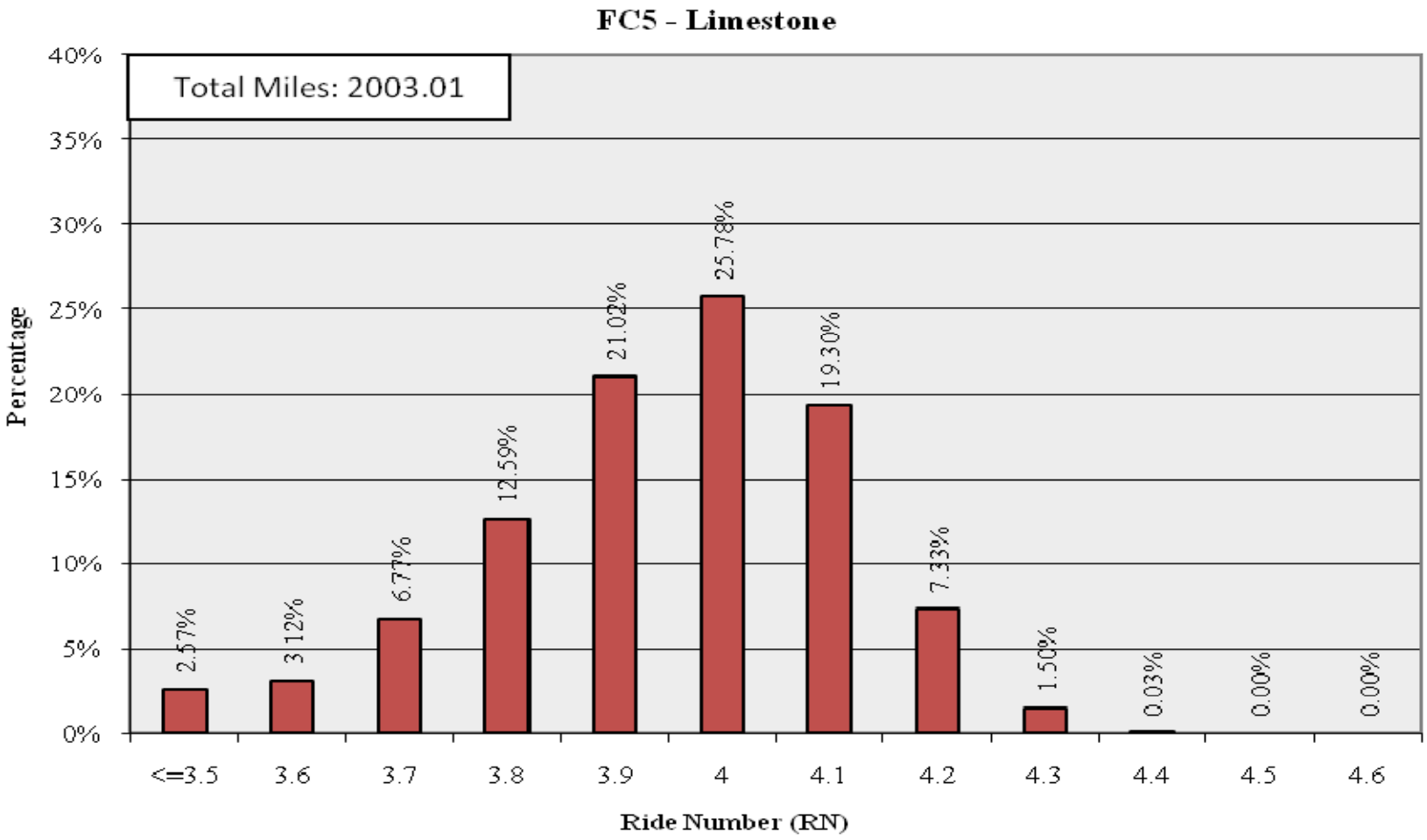
Total Lots	Total Miles	Minimum	Mean	Maximum	St. Dev
49425	4806.07	1.7	4.0	4.4	0.18

Granite FC-5 2005-2009



Total Lots	Total Miles	Minimum	Mean	Maximum	St. Dev
28553	2792.28	2.2	4.1	4.4	0.14

Limestone FC-5 2005-2009



[illegible]	Total Miles	Minimum	Mean	Maximum	St. Dev
20758	2003.01	1.7	3.9	4.4	0.18

Preliminary Tasking

1. Differences between Districts – why?
2. Differences between aggregate types – why?
3. Effects of gradation / fineness / texture on laser profiler data?
4. Assess feasibility of using IRI vs. RN for ride acceptance

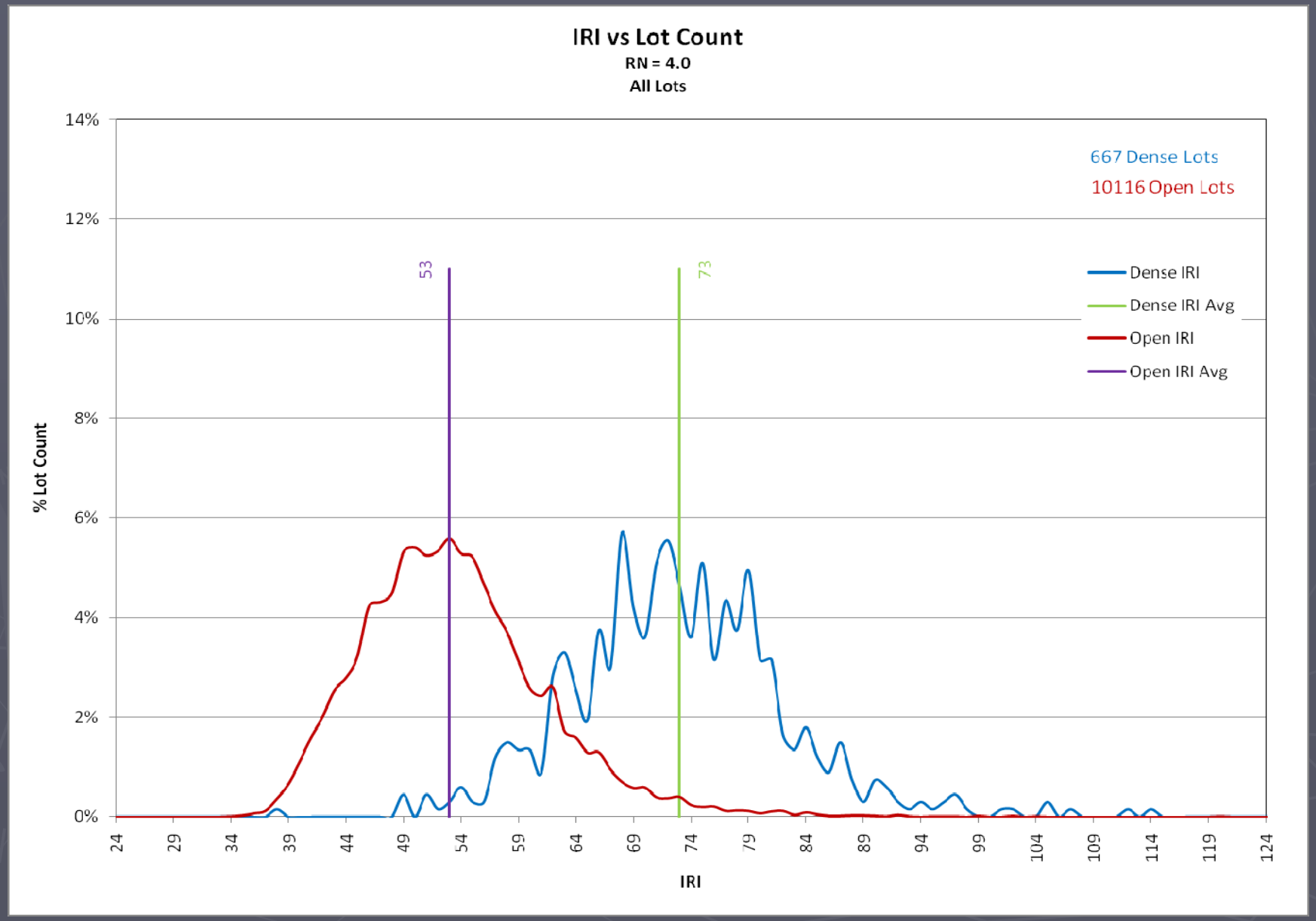
District Differences Open Graded– Limestone (LS) vs. Granite (GR)

	Dist 1		Dist 2		Dist 3		Dist 4		Dist 5		Dist 6		Dist 7	
	MI	RN	MI	RN	MI	RN	MI	RN	MI	RN	MI	RN	MI	RN
LS	606	4.0	33	3.9	0	0	813	3.9	331	4.1	91	3.8	10	3.9
GR	263	4.1	789	4.1	471	4.2	0	0	868	4.1	0	0	313	4.1

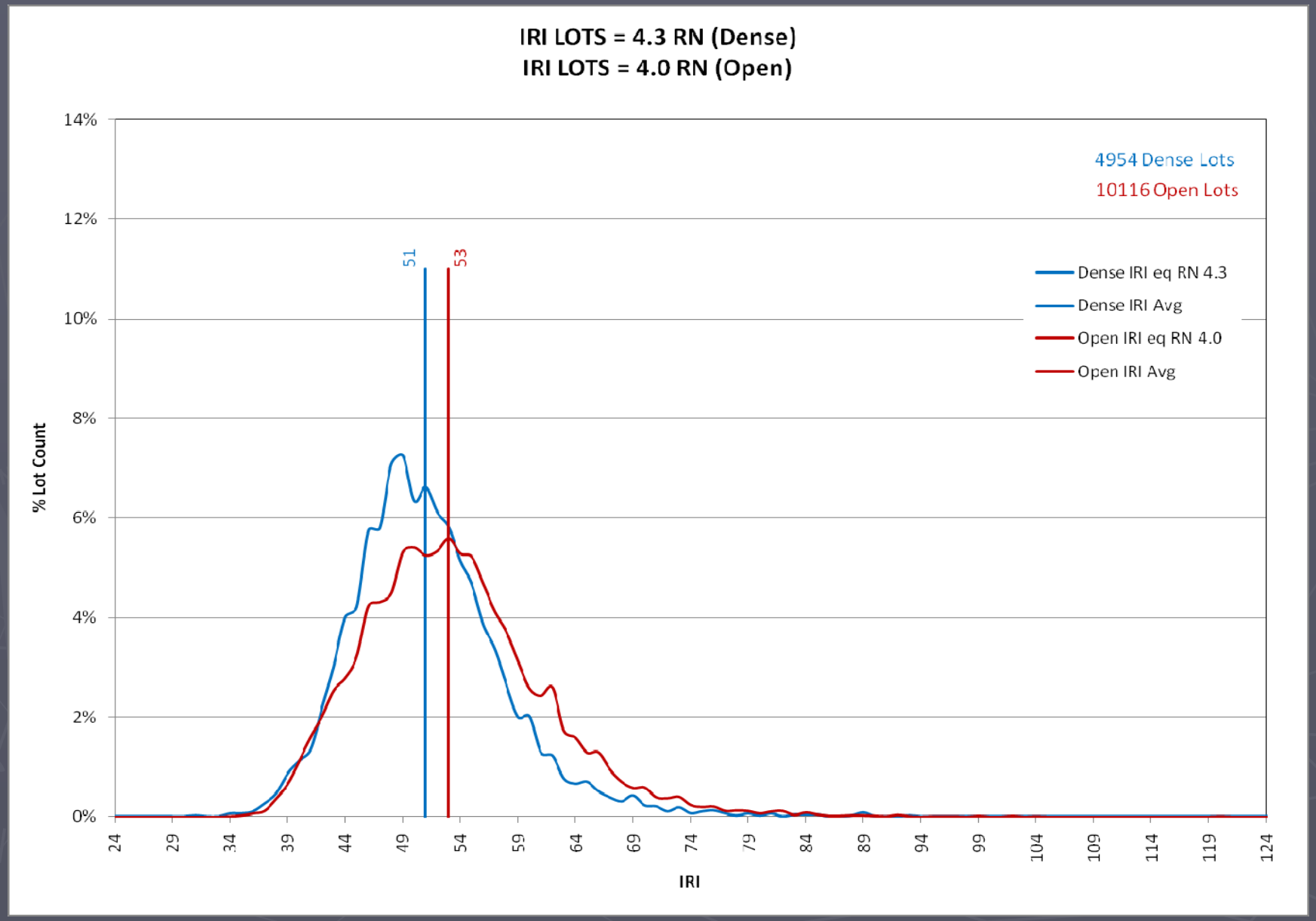
Preliminary Tasking

1. Differences between Districts – why?
2. Differences between aggregate types – why?
3. Effects of gradation / fineness / texture on laser profiler data?
4. Assess feasibility of using IRI vs. RN for ride acceptance

RN 4.0 VS IRI (Open Grade Comparison)



Dense RN vs. Open RN - IRI Comparison



Committee Tasking

1. Review / rewrite ride acceptance spec
    1. Decouple laser profiler from RSE
    2. Remove RSE requirement from ride acceptance process
    3. Stay within the current CQC model

Committee Tasking - cont

2. Develop / propose methods to use ride improvement as contractor measure
    1. What is appropriate payment / bonus for a given % ride improvement?
    2. Would this apply to mill and fill projects?
    3. What pavement thickness would / could this apply to?
    4. What pre-construction testing – and other expense – be required to implement?

First Meeting Overview

1. 11 Jan 2010
2. Committee Consensus:
    1. Decoupling LP and RSE a must
    2. LP is a better tool for measuring ride quality
    3. Goal of using LP as sole source is desirable – but many significant steps required to get before we get there

First Meeting Overview - cont

1. Steps to meet objective of LP testing only
    1. Develop comfort level / understanding of LP within Industry
    2. Address concerns about texture's effects on LP
    3. Develop methods to identify unacceptable LP data caused by things beyond the contractor's control
    4. Make sure methods eliminate RSE safety concerns
    5. Determine equipment options so Industry knows its equipment gives the same result as the Department's

Questions?

Laser Profilers

Laser Sensors

- The lasers measures the distance to the ground at highway speeds to determine longitudinal profile
- Laser sensors fire @ 32,000 times per second or 30 readings per inch @ 60 MPH

Additional Required Equipment

1. Accelerometers

- The Accelerometers remove the motion of the vehicle at highway speeds

2. Distance Measurement Instrument (DMI)

Calibration

Daily Calibrations / Checks

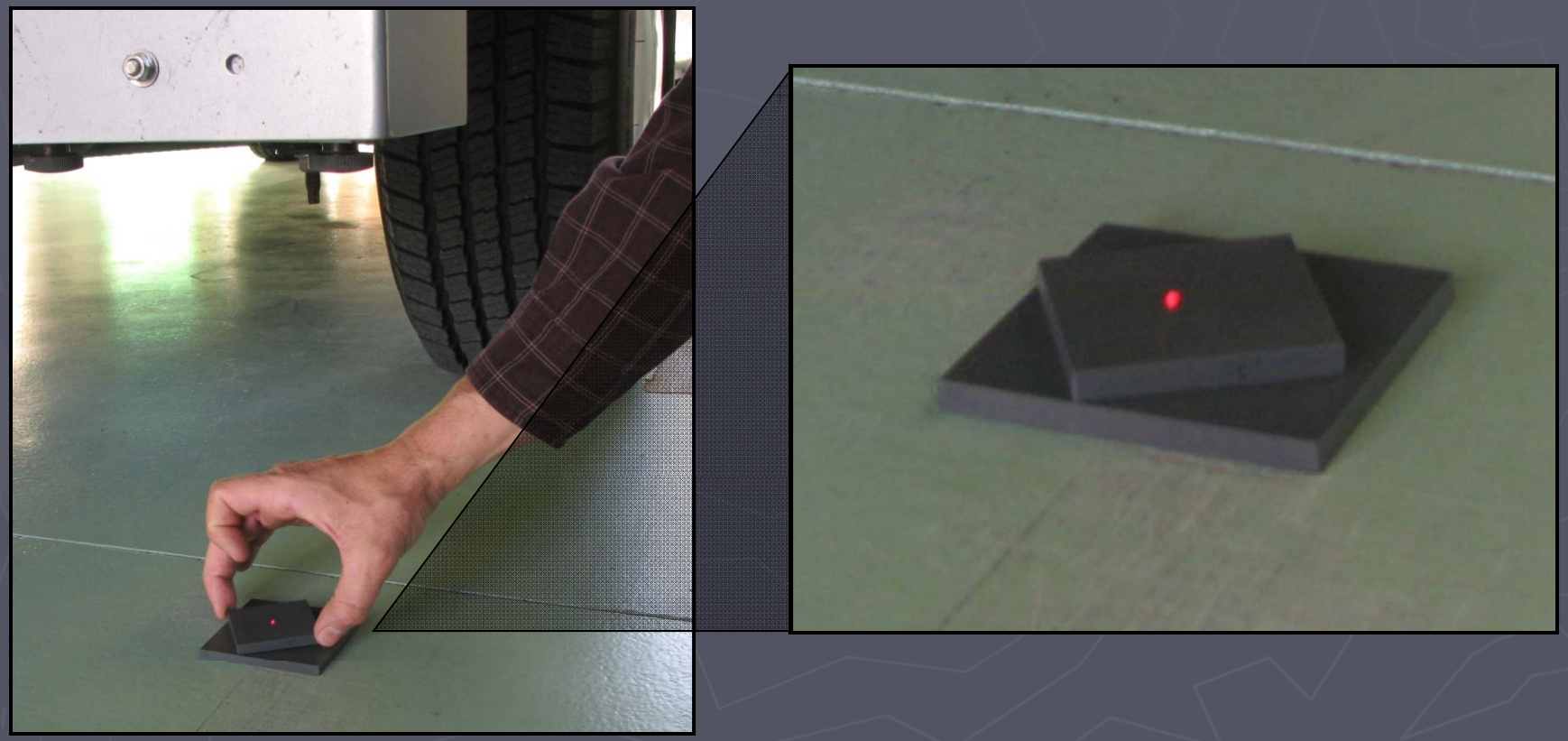
- Tire pressure and Accelerometers

Monthly Calibration

- Rut bar calibration

Monthly Calibration - cont

- Block Check



Monthly Calibration - cont

- Distance measurement (DMI) on calibrated section

Monthly Section Validation

- A minimum of 3 sections
- Reference sections contain various levels of smoothness

Questions


PAVEMENT CONDITION SURVEY
State Materials Office
FLORIDA DOT
Longitudinal Profile

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