



**RIDE (Ride Incentive Disincentive Evaluation)  
Fall Asphalt Conference**

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## Agenda

- **Background**
- **Value of RIDE**
- **Achieving smoothness with different treatments**
- **How are we doing in Virginia**
- **Way forward**

# Background

- **Genesis ~ 1996**
- **Applies high-speed profilers & the IRI (International Roughness Index)**
- **IRI “targets” for Interstate and Non-Interstate pavements**
- **Incentives for superior smoothness**
- **Disincentives for roughness that exceeds targets**
  - **Exempted if improvement 30%**
  - **Good ‘insurance’ for the contractor**
- **Applied to 0.01-mile pay lots**
  - **Single Lift is summarized in 0.10-mile pay to assess percent improvement**

## Value of RIDE (VTRC 06-R28) - McGhee

- Can defer overlay by approximately 2 years
- New overlays an average of 8.6 in/mi smoother when subject to spec
- Asphalt pavements accumulate ~1.23 in/mi of IRI roughness per year (Ride Spec or Not)

# Achieving Smoothness (VTRC 99-R19) - McGhee

## Factors affecting achieved smoothness

Functional classification

Original surface ride quality

Use of “spec” (6 to 8 in/mi smoother)

## Factors that did NOT affect smoothness

Surface mix type

Additional layers

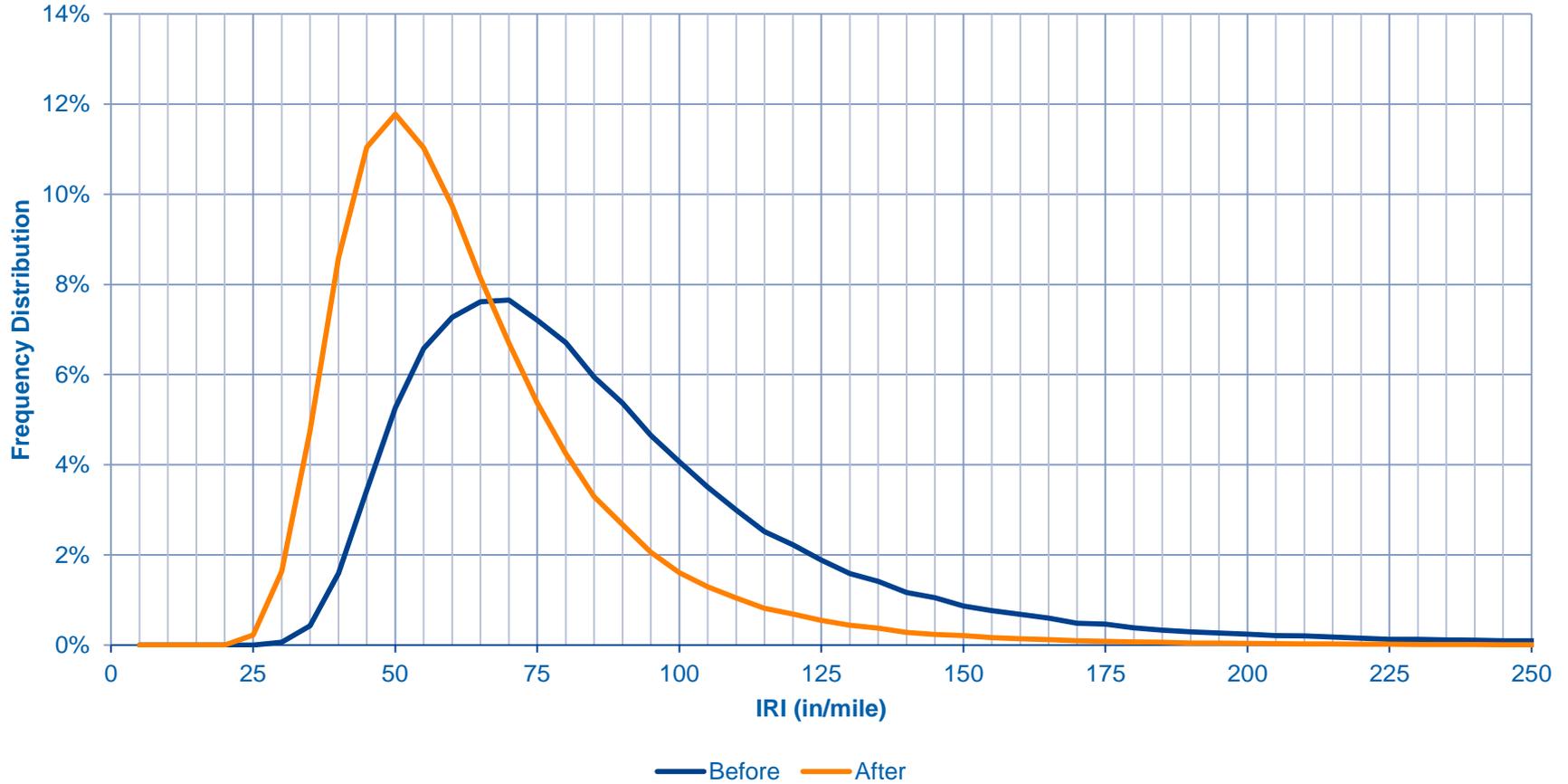
Milling/planning

Time-of-day restrictions

## Achieving smoothness with different treatments

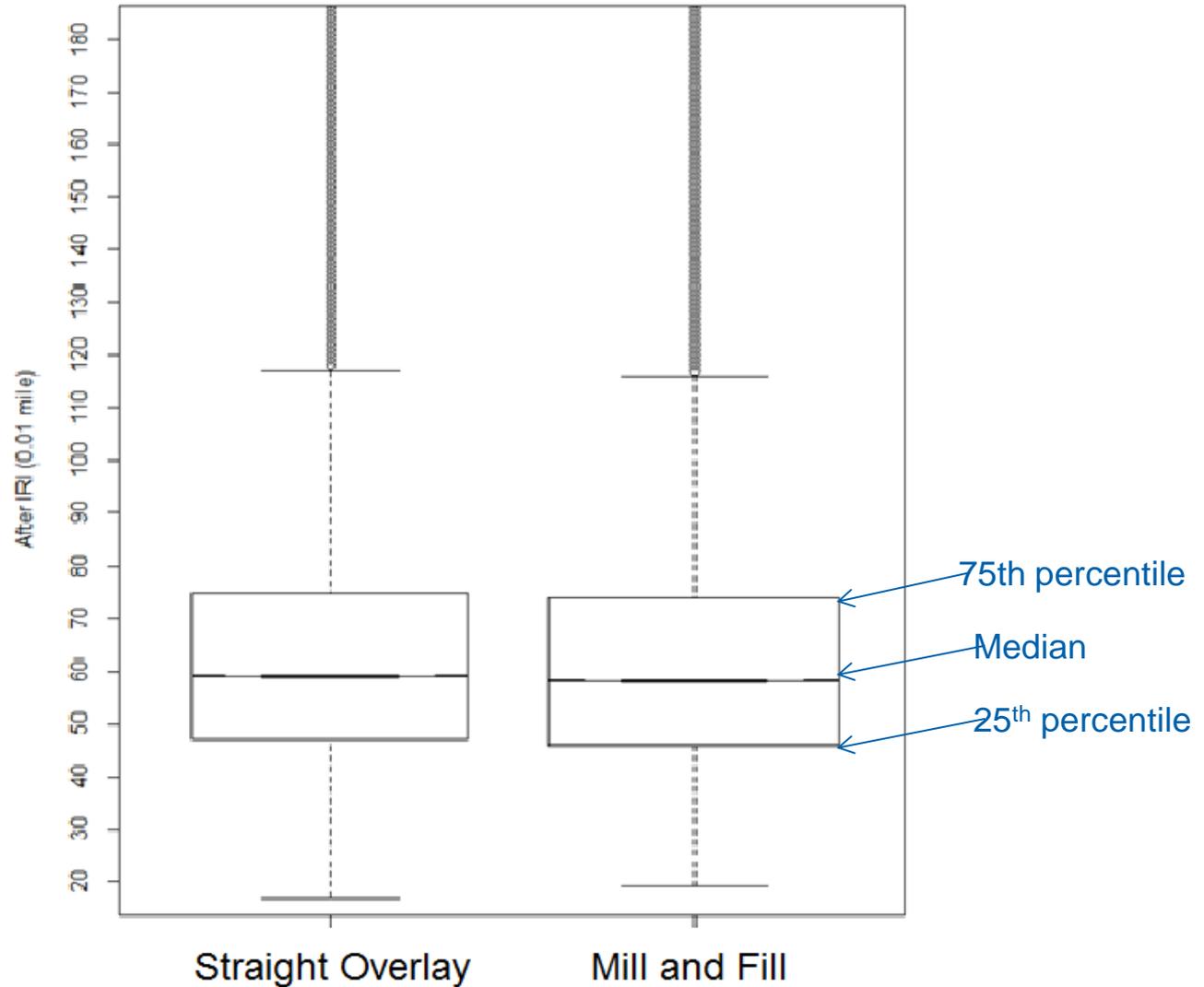
- **Straight Overlay**
- **Mill and Fill**
- **Multiple Lifts**
- **Scratch Course**

# Achieving smoothness with different treatments – Straight Overlay



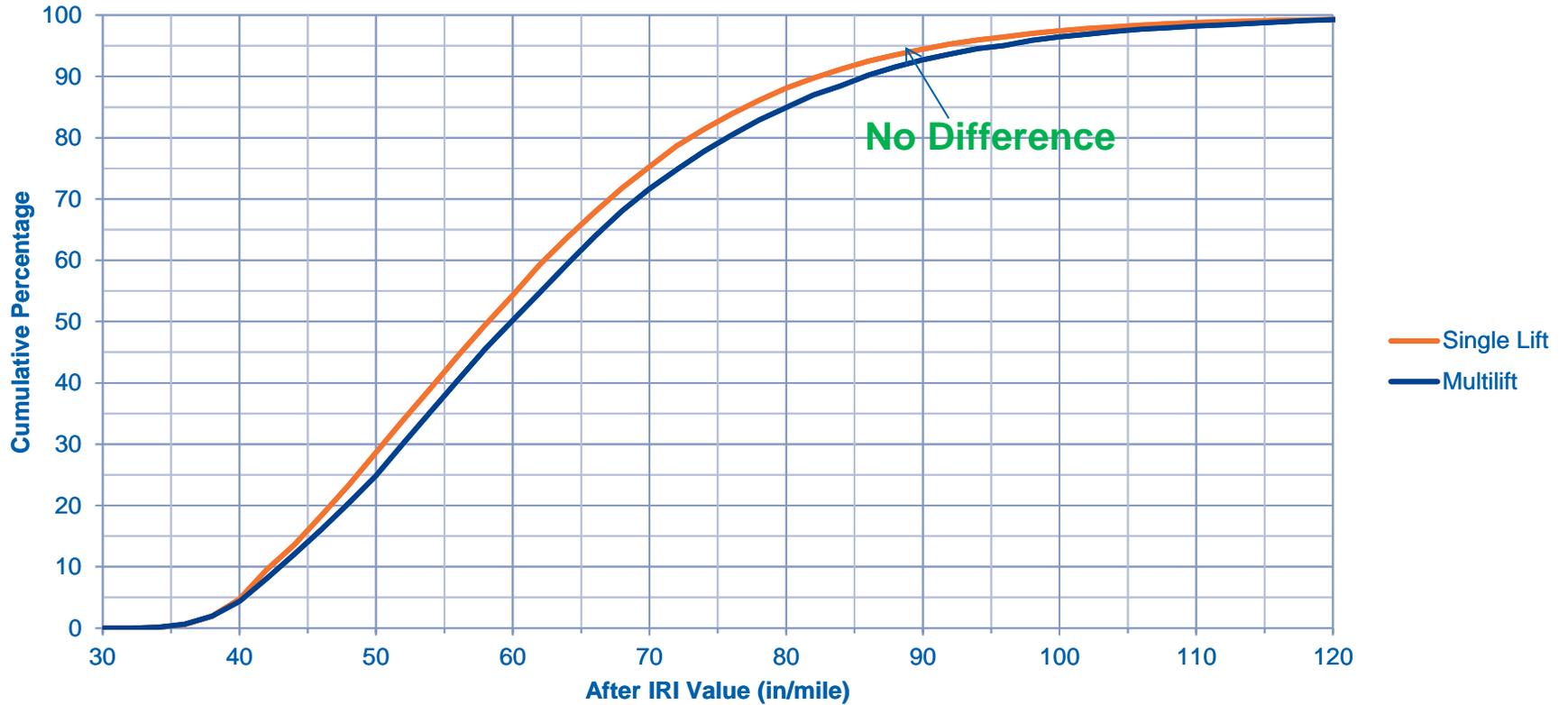
Common – 50 in/mile after, 70 in/mile before

# Achieving smoothness with different treatments – Mill and Fill



# Achieving smoothness with different treatments – Multiple Lifts

## Cumulative Frequency



## Achieving smoothness with different treatments – Scratch Course

- No specific study on the use of scratch course
- Since there is no difference between single lift and multi lift after IRI, the impact of scratch course on ride needs to be evaluated
- If we pay for scratch course, the current pay adjustment may need review

# How are we doing in Virginia

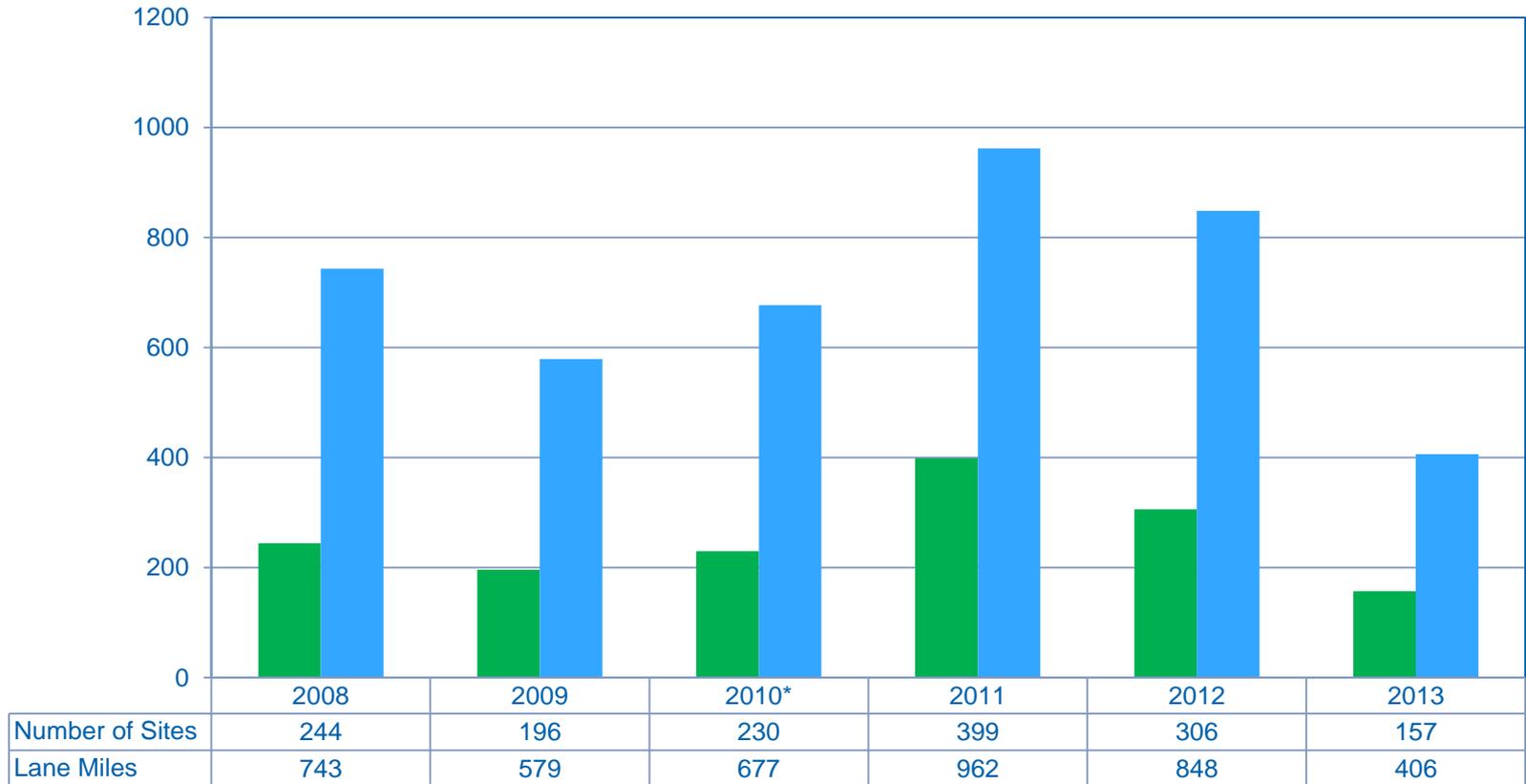
## 2013 After IRI by District



1, One STD DEV + below avg, 2, STD DEV+ above avg

# How are we doing in Virginia Historical Data

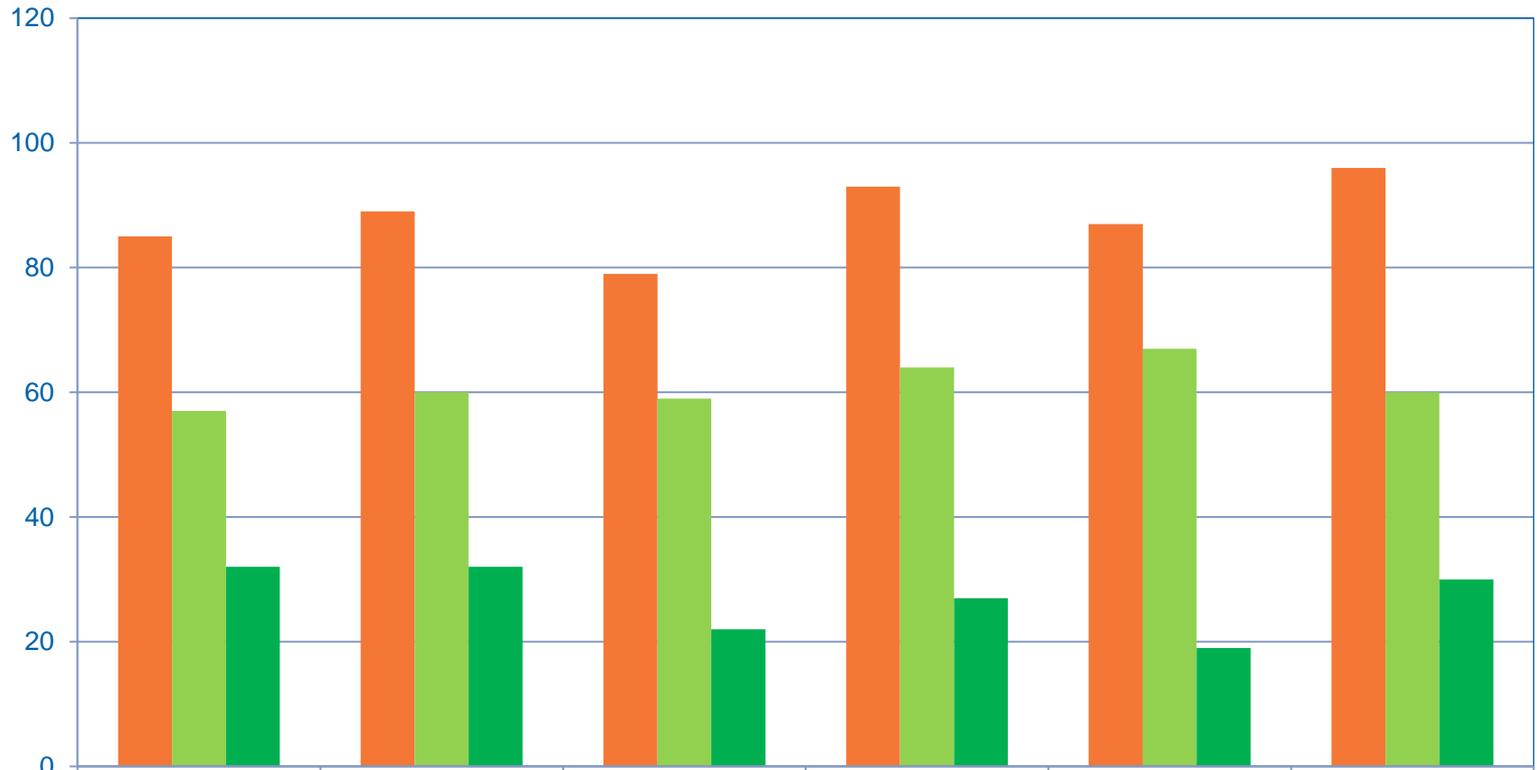
## Ride Spec Sites and Lane Miles



Most interstates have spec, but missing primary 12

# How are we doing in Virginia

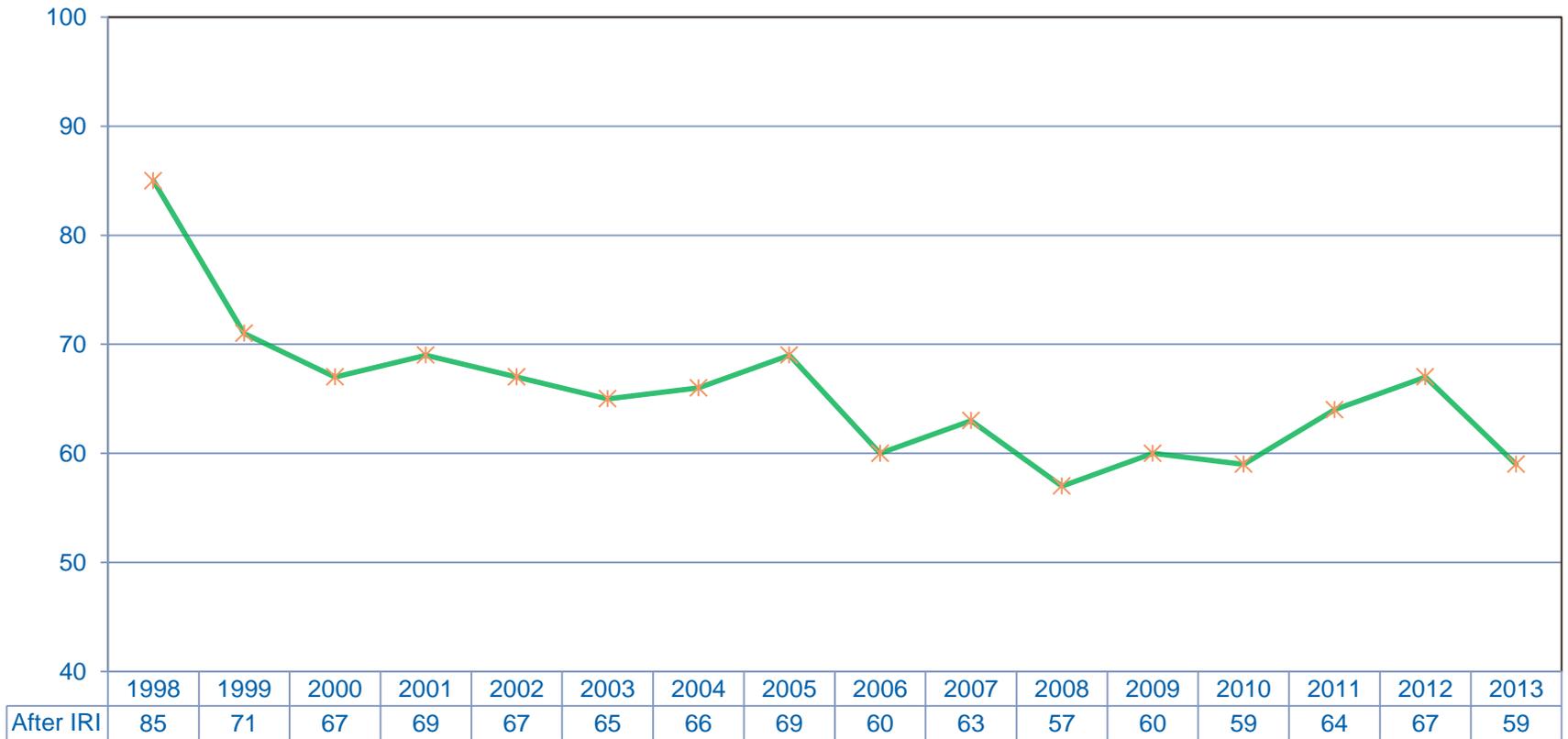
## Before IRI, After IRI & % Improvement



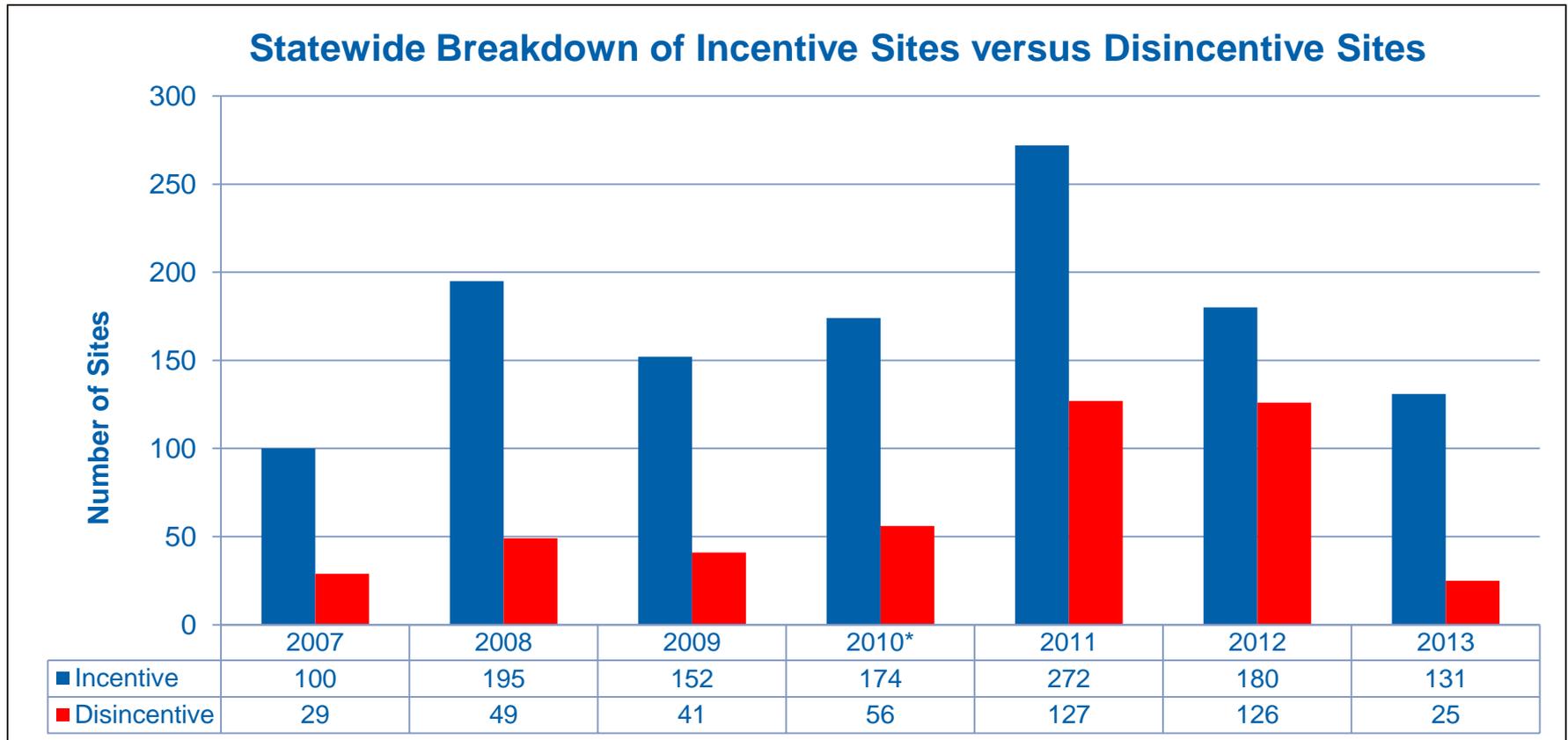
	2008	2009	2010*	2011	2012	2013
Before IRI	85	89	79	93	87	96
After IRI	57	60	59	64	67	60
% Improvement	32	32	22	27	19	30

# How are we doing in Virginia Historical Data, contd.

## After Paving IRI Trend

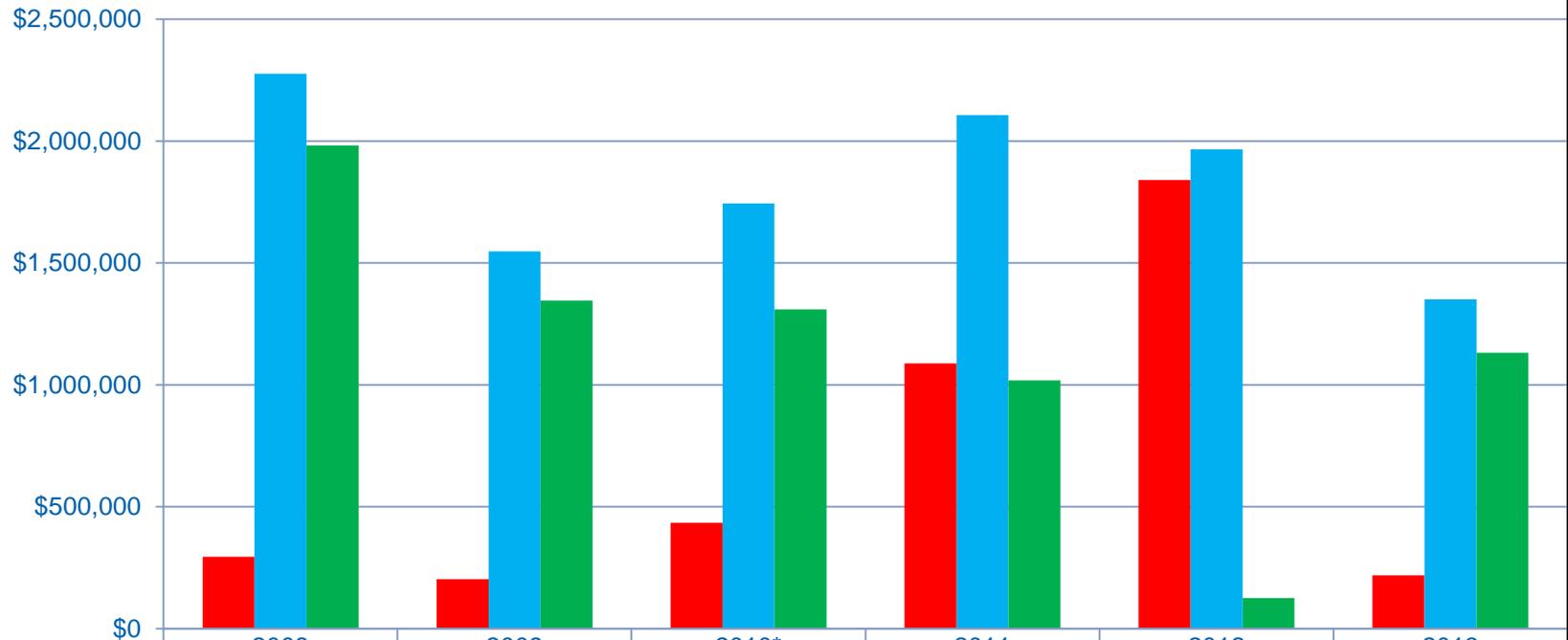


# How are we doing in Virginia Historical Data, contd.



# How are we doing in Virginia Historical Data, contd.

## Incentive and Disincentive, \$



	2008	2009	2010*	2011	2012	2013
■ Disincentive	\$294,325	\$202,523	\$434,359	\$1,088,117	\$1,840,654	\$219,161
■ Incentive	\$2,276,028	\$1,548,096	\$1,743,844	\$2,106,241	\$1,966,380	\$1,350,240
■ Net Incentive	\$1,981,703	\$1,345,573	\$1,309,485	\$1,018,124	\$125,726	\$1,131,079

## How are we doing in Virginia Historical Data, contd.

Net Pay per Lane Mile



2012 – A few projects influenced the net pay

## Benefit of Applying Ride Spec

- Pavements are built smoother with ride spec
- Traveling public expect smoother ride
  - Helps to fulfill public expectation
- Pavement built smoother lasts longer
- Department can defer resurfacing by 2 years (VCTIR 06-R28)
  - May be a wash with the pay out
  - Fuel savings from smooth roads
- 1.3% to 10% increased fuel efficiency for 10% improvement in ride (VCTIR 06-R28)
  - Fuel savings of ~1.8M/year from 2013 ride spec projects (for 3% fuel efficiency improvement & 500 trucks/day)
  - Out weighs pay out, administrative cost by big margin
- Reduced vehicle maintenance cost from smooth roads
- Reduced traffic congestion cost due to less frequent maintenance

## •Existing RIDE Specification

- Apply as default to interstate and primary routes
- District would have to remove (as necessary)

## •Incentive only RIDE Specification

- Thus far – Pilot in NOVA & Culpeper (2 schedules & 2 Contractors) with additional control sites in F'burg, Staunton, Hampton Roads & Culpeper (17 projects/74 lane miles) – Findings did not support wholesale implementation as written
- Moving Ahead – revise incentive summary method & relaxed IRI ranges by 5 in/mile
- Pay adjustments estimated for each 0.01 mile segment
- Adjustments then aggregated every 0.1 mile
  - Net penalty (per 0.1-mi.) = \$0
  - Net incentive (per 0.1-mi) added to project bonus
- 10 Foot straight edge still applies