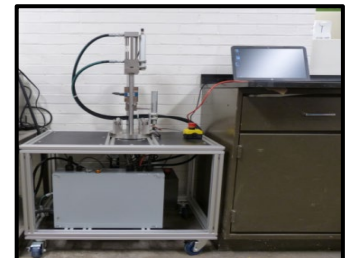


IDOT HMA Technical Update

66th Annual Illinois Bituminous Paving Conference



2016 I-FIT Pilot Projects & ICT R27-161 Study Projects

Preliminary Data Results

Condition Rating Survey (CRS)

New Surface = 9.0



Failure = 1.0



Source: Illinois Department of Transportation
(2004) Condition Rating Survey Manual.

Comparison Assumptions

- Projects with multiple mix surfaces
 - Averaged Flexibility Index (FI) values
 - If only one FI value was available, that value was used
- 2016 pilot projects with a pavement preservation treatment applied were not included in analysis
- R27-161 study projects evaluated to determine time (in years) to reach a CRS of 6.5

2016 I-FIT Pilot Projects



2016 IDOT I-FIT Pilot Projects

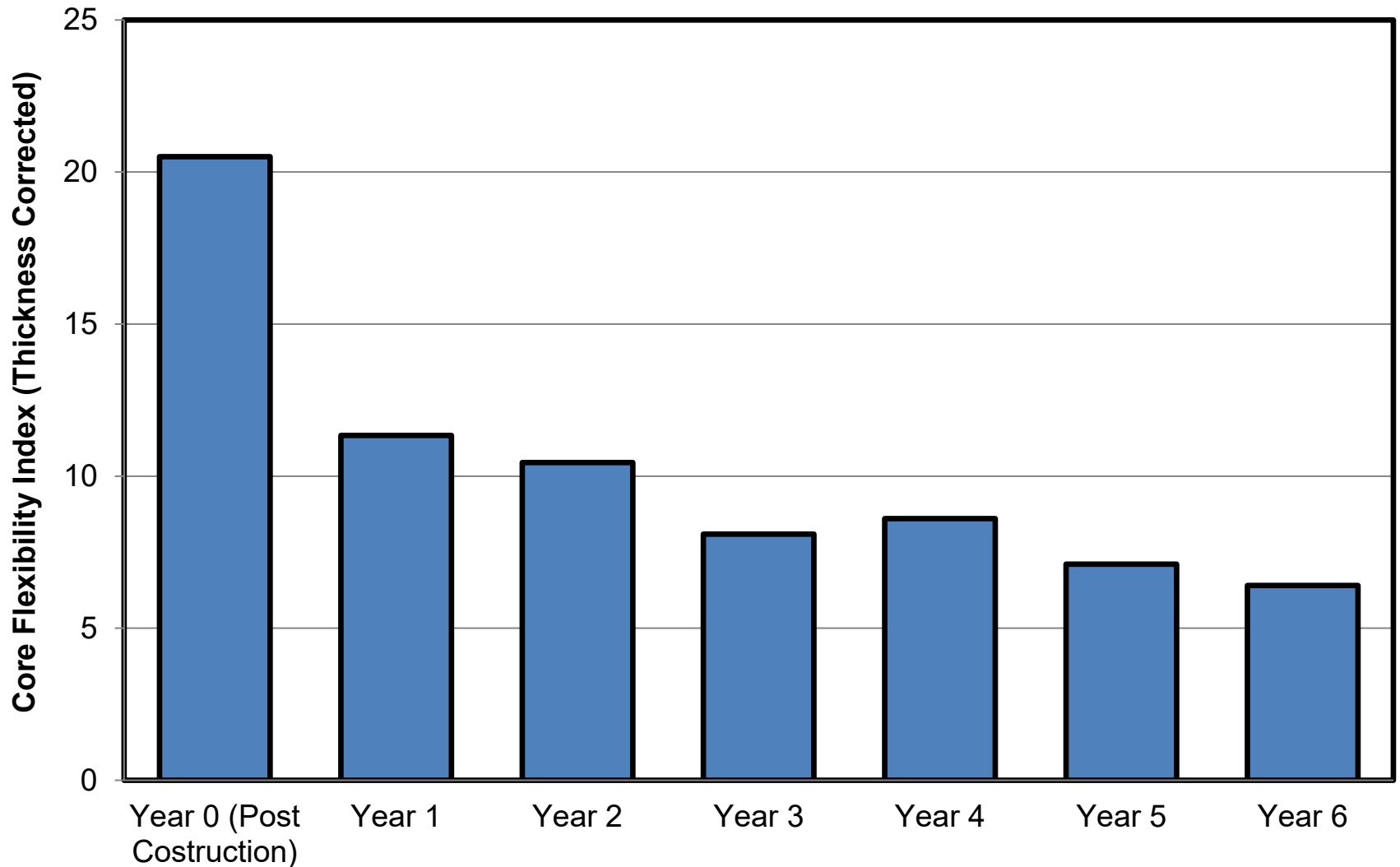
- 11 Total Projects Across All 9 Districts
- Mix Design and Production Testing, Hamburg Wheel & I-FIT
- Pre-construction Distress Surveys Conducted
- I-FIT Core Testing and Distress Surveys



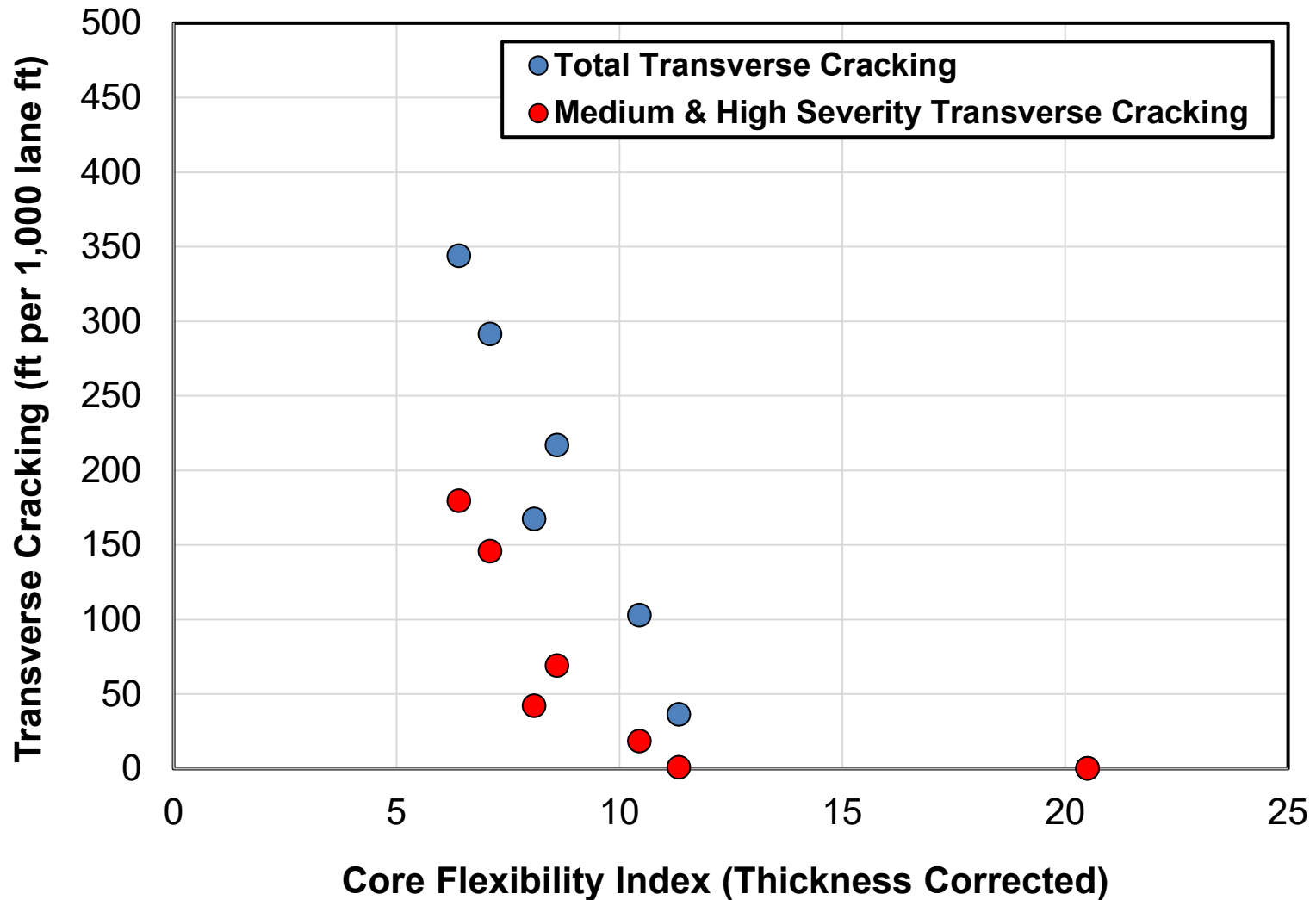
Combined Data Results Per Year

Surface Mixture

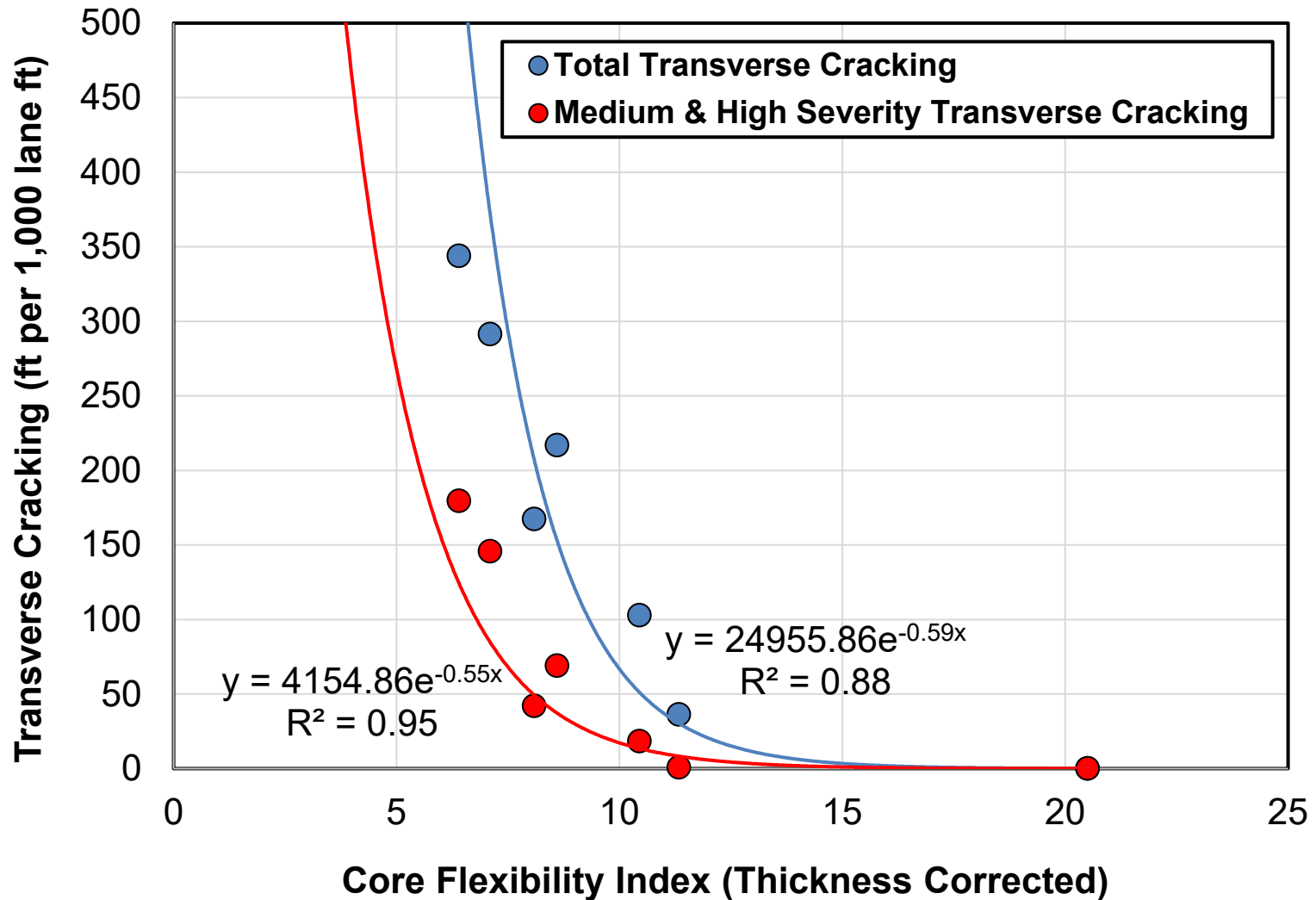
Core Flexibility Index Over Time



Avg Transverse Cracking vs Avg Core FI



Avg Transverse Cracking vs Avg Core FI



Project Level Comparisons

CRS Summary Table

District	Project	Type	CRS Year	CRS	Delta CRS	2018 STD Delta CRS for Pvmnt Type (Above CRS = 6.5)
1	A	600	2023	6.5	0.36	0.34
1	B	600	2023	8.1	0.13	0.34
2	C	650	2023	7.2	0.26	0.41
3	D	610	2023	7.3	0.24	0.41
5	E	610	2023	7.0	0.29	0.38
5	F	610	2024	8.1	0.11	0.38
6	G	600	2023	7.5	0.21	0.34
7	H	610	2023	7.5	0.21	0.38
8	I	610	2024	6.9	0.26	0.38
9	J	630	2023	7.2	0.26	0.34
			AVG	7.3	0.23	0.37

$$\text{Delta CRS} = \frac{9.0 - \text{CRS}}{\text{CRS Year} - 2016}$$

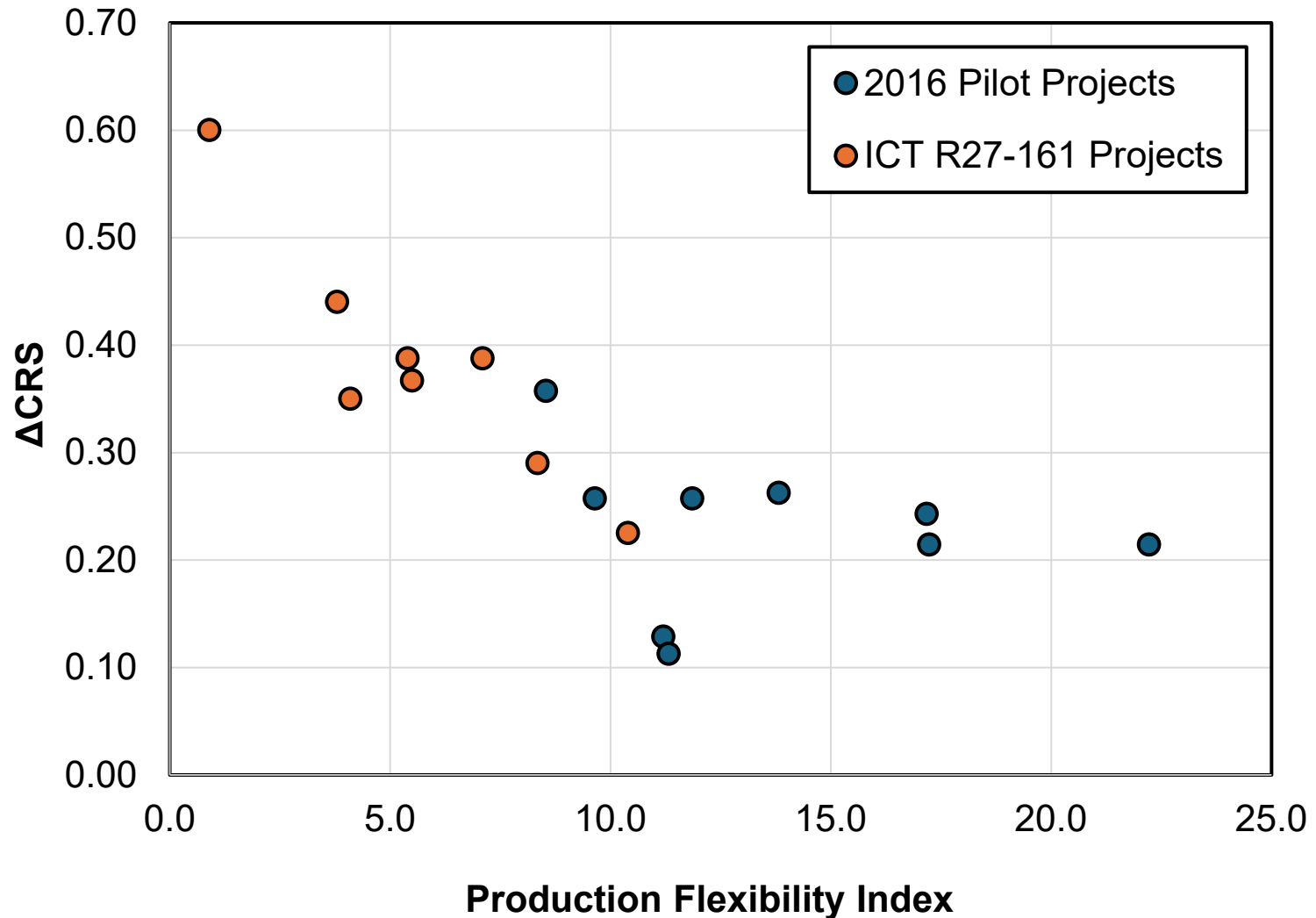
Code	Description
---	<u>High Type Bituminous (rigid base)</u> – Any bituminous surface treatment (Overlay 1 inch or more in compacted thickness) on any RIGID base (PCC pavement and brick) with a combined surface and base thickness of 7 inches or more. Includes any bituminous concrete, sheet asphalt, or rock asphalt.
600	<u>Over PCC - Reinforcement unknown</u>
610	<u>Over PCC - No reinforcement</u>
615	<u>Over PCC - No reinforcement but having short panels and dowels</u>
620	<u>Over PCC - Partial reinforcement</u>
625	<u>Over PCC - With No or Partial Reinforcement - But having Hinged Joints</u>
630	<u>Over PCC - Full reinforcement</u>
640	<u>Over PCC - Continuous reinforcement</u>
650	<u>Over Brick, Block, Steel, or similar material</u>

Project Level Comparisons including R27-161 Projects with Production FI Results

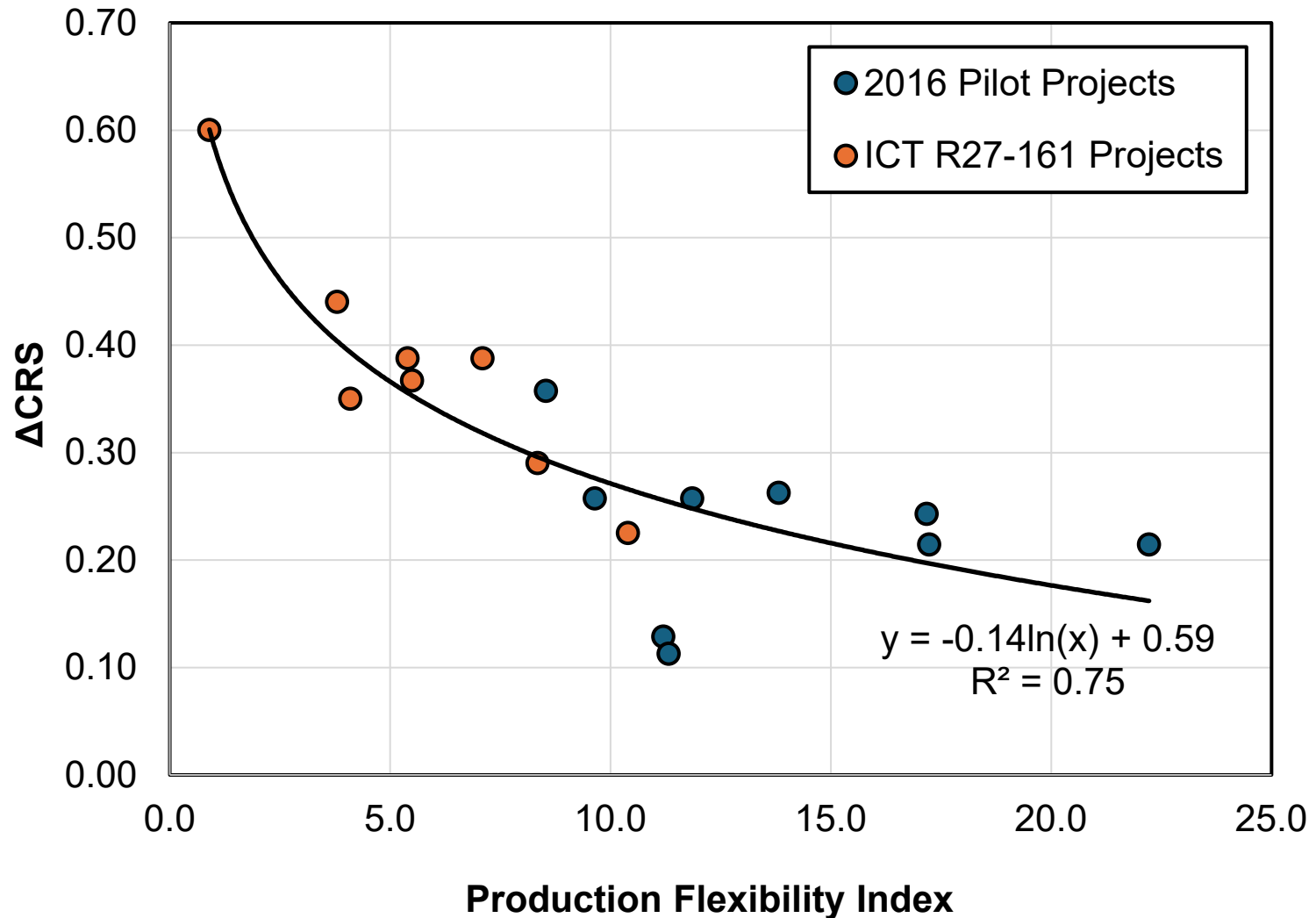
ICT R27-161 Projects

April 26, 2013, Letting Projects																
Year	Project	Letting Item ¹	Contract	Net Length (mi)	Surface Mix Details									Mix Designs		Pavement Family ⁴
					Dir.	Mix ID	Mix	ABR %	RAS ³ %	RAP ³ %	AC %	Virgin PG	Surface Tons	Surface	Level Binder	
2013	26 th St. (Chicago Heights) from Western Ave to East End Ave	4	60L62	2.0	Both	L62-137M	N50T RA ²	60	4.5	51	6.7	52-28	3,060	81IT137M	81BIT121M	Thin
2013	Harrison St. (Hillside) from IL 38/Roosevelt Rd. to Wolf Rd.	28	60N67	1.1	Both	N67-338K	N50T RA ²	56	5.0	53	6.5	52-28	2,131	81BIT338K	81BIT300K	Thin FD HMA
2013	Richards St. (Joliet) from 5 th Ave to Manhattan Rd.	31	60P70	0.9	Both	P70-138Z	N50T RA ²	37	None	27	5.8	58-28	2,223	81BIT138Z	81BIT137Z	Thin
2013	Wolf Rd. (Hillside) from IL 38/Roosevelt Rd. to Harrison St.	9	60M30	0.5	Both	M30-306K	N70 Mix D	20	None	30	5.9	58-28	1,382	81BIT306K	81BIT300K	Thin
June 13, 2014, Letting Projects																
Year	Project	Letting Item ¹	Contract	Net Length (mi)	Surface Mix Details									Mix Designs		Pavement Family ⁴
					Dir.	Mix ID	Mix	ABR %	RAS ³ %	RAP ³ %	AC %	Virgin PG	Surface Tons	Surface	Level Binder	
2014	Crawford Ave./Pulaski Rd. from 172 nd to US Rt.	30	60Y03	1.5	S	Y03-157M	N70-30	30	5.0	10	5.7	58-28	2,150	81BIT157M	81BIT147M	Thin
					N	Y03-156M	N70-15	15	2.5	5	5.6	64-22	2,150	81BIT156M		
2014	US 52 from Chicago St. (IL 53) to Laraway Rd.	29	60Y02	3.3	E	Y02-140M	N70-30	30	3.1	20	5.5	58-28	2,320	81BIT140M	81BIT141M	Thin Thick
					W	Y02-159M	N70-30	30	None	34	6.0	58-28	2,320	81BIT159M		
2015	US 52 from Laraway Rd. to Gouger Rd.	16	60N08	3.3	Both	N08-185M	N70 TRA ²	48	5.0	39	6.0	52-34	5,236	81BIT185M	81BIT163M	Thick
2015	US 52 from Gouger Rd. to Second St.	15	60N07	1.5	Both	N07-185M	N70 TRA ²	48	5.0	39	6.3	52-28	3,014	81BIT185M	81BIT163M	Thick
2015	Washington St. from Briggs St. to US 30 (Lincoln Highway)	31	60Y04	1.9	W	Y04-177M	N70-30	30	3.1	20	6.6	58-34	1,580	81BIT177M	81BIT163M	Thin Thick
					E	Y04-159M	N70-30	30	None	34	6.0	58-34	1,580	81BIT159M		

Δ CRS vs Production FI



Δ CRS vs Production FI



I-FIT Database

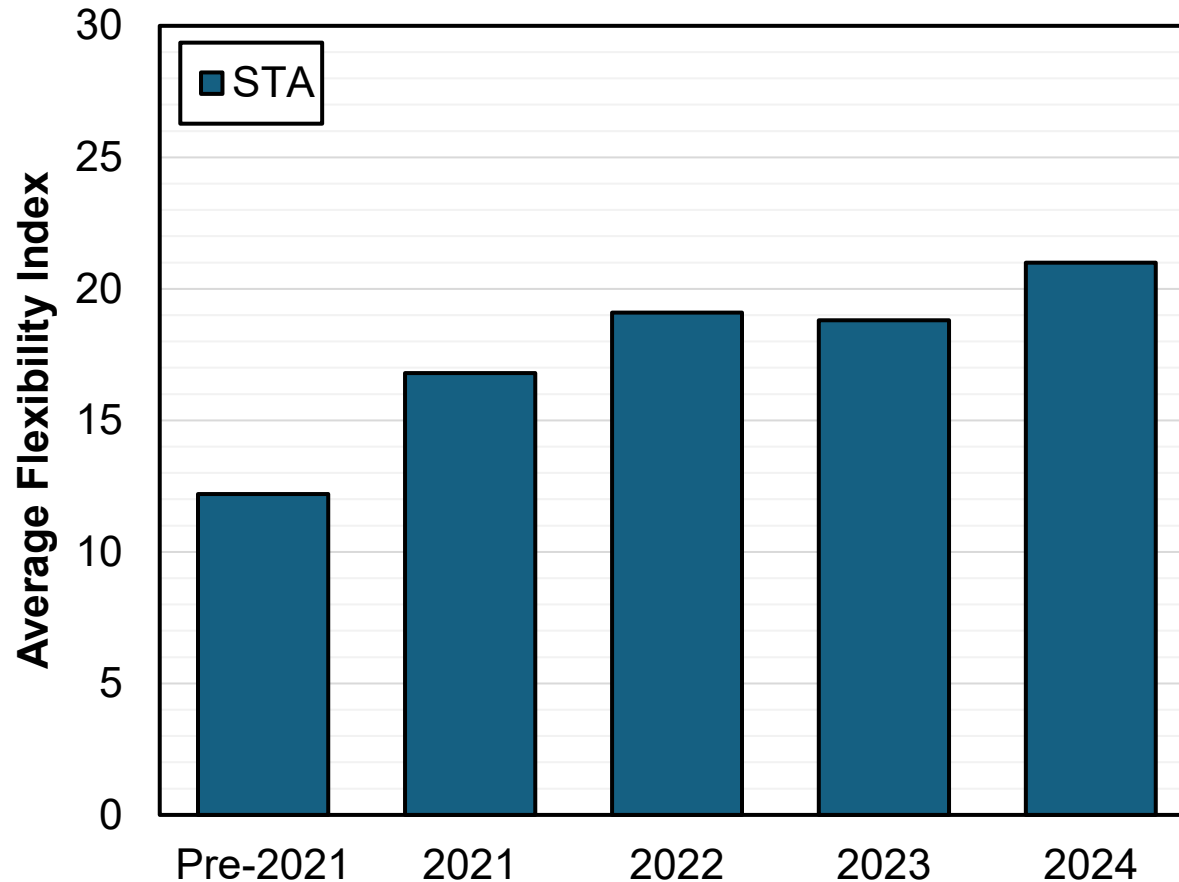
Preliminary Analysis

(Thru 2024)



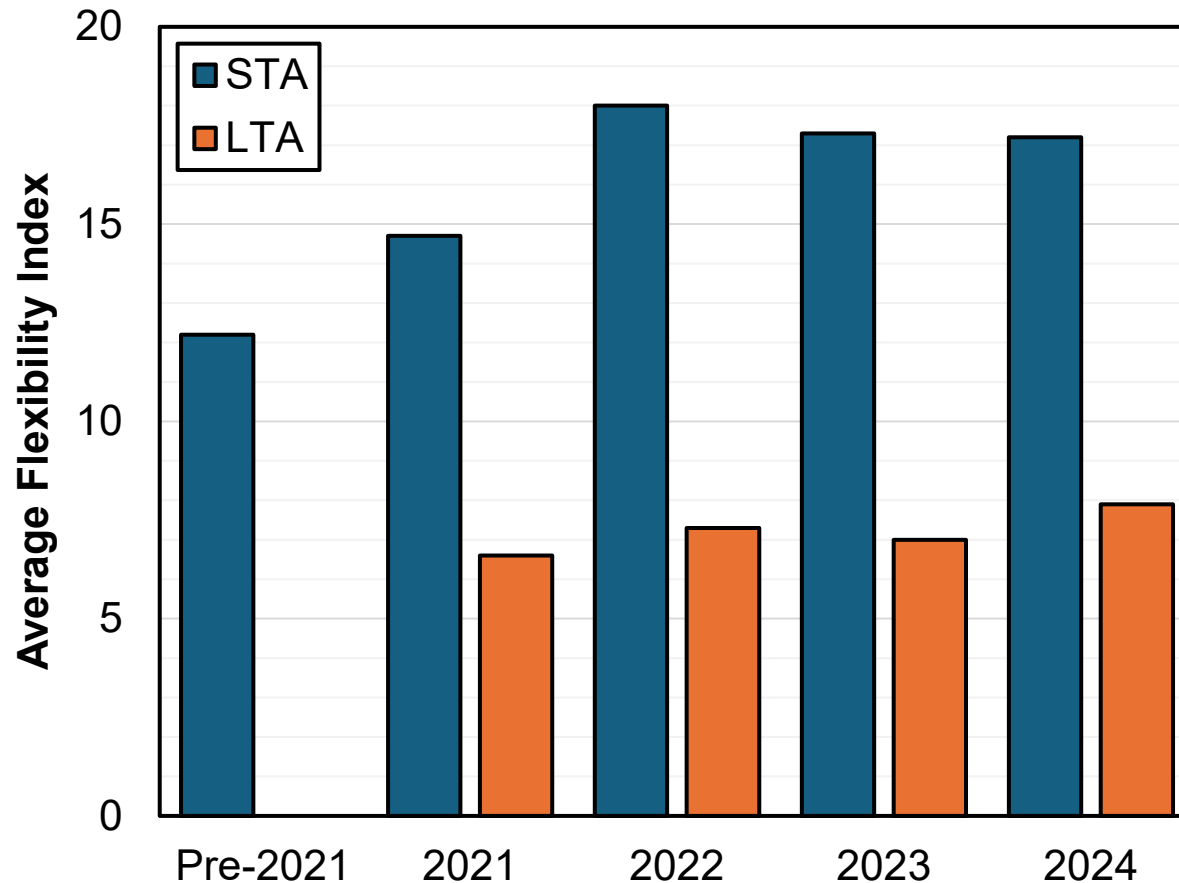
IL-4.75 Polymer Mixtures

(Lab Compacted Specimens)



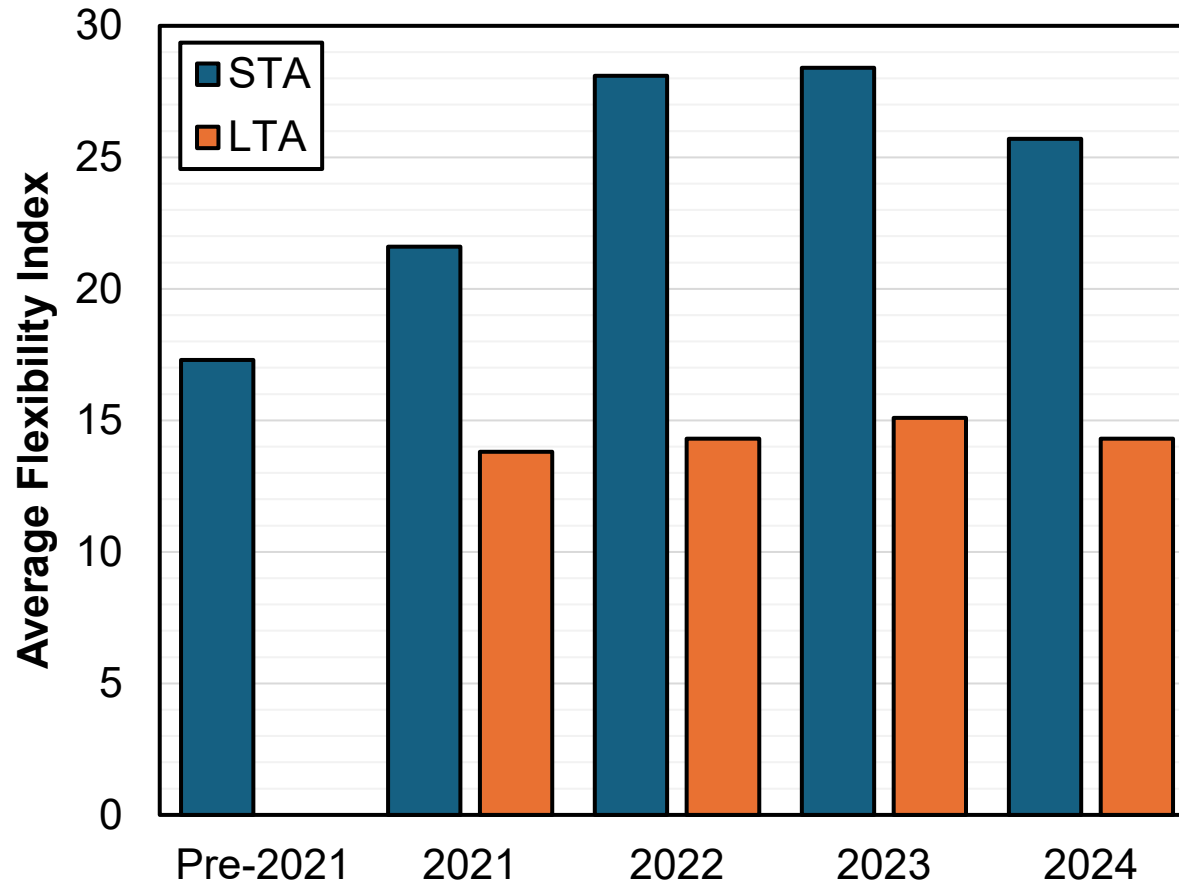
IL-9.5 Non-Polymer Mixtures

(Lab Compacted Specimens)



SMA Polymer Mixtures

(Lab Compacted Specimens)



Hot-Mix Asphalt BDE Special Provision



January 2026 HMA BDE Special Provision Updates

Hot-Mix Asphalt Special Provision

- No HMA binder course mix left open over winter
- Leftover HMA samples will be collected by Contractor upon notification of Engineer
- QC/QA QC Air Voids target allowance between 3.2 and 4.8%
- Test Strips
 - Deleted Test Strip Evaluation for Payment Options at end of Art. 406.14
 - Mix is acceptable if: (1) within Acceptable Limits as shown in Art. 1030.09(i)(1), and (2) no visible pavement distress

Hot-Mix Asphalt Special Provision

- Performance Test Failures - Initial Hamburg Wheel or I-FIT Failure
 - Test Retained Gyratory Cylinders for Hamburg Wheel or I-FIT depending on which failed
 - Failure
 - Contractor Options
 - » Substitute Approved Mix Design
 - » Submit a New Mix Design for Verification Testing & Use
 - » Pave 250 tons with or without adjustment & resample for both Hamburg Wheel & I-FIT
 - Failure
 - Contractor Options
 - Substitute Approved Mix Design
 - Submit a New Mix Design for Verification Testing & Use

Accompanying Manual of Test Procedures (MoTP) Appendix B.9 Update

- A mix design with three consecutive performance test failures required to make adjustment approved by Engineer prior to additional use
- Engineer verification of improvement by completing performance tests
- Mix design removed if verification sample fails

Proposed Future BDE Special Provision Quality Control (QC)/Quality Assurance (QA) Updates



1030.09 QC/QA QMP Updates

- Comparisons outside Precision Limits
 - District test retained split sample
 - Retained sample results replace original results for all tests
 - Increase to 200 lb sample taken to allow for additional retained split sample testing
- Mixture Verification Tonnage Limit
 - Change “3,000 tons” to a “maximum of 3,000 tons”
 - District would list tonnage increment in contract plans

Other Notable MoTP Updates



MoTP Temperature Changes

- Changed the tolerance for water baths from $\pm 1.8^{\circ}\text{F}$ to $\pm 2^{\circ}\text{F}$ in the following documents
 - D 1188
 - T 164
 - T 166
 - T 209
 - Appendix D.4
 - T 245
 - T 283
 - T 324
 - T 383

MoTP IL Modifications

- 10 Specs had updates

- M 325 (Y)

- T 30 (RY)

- **T 164 (C R)**

- T 166 (RY)

- T 209 (RY)

- T 283 (FR)

- **T 287 (C RY)**

- **T 308 (CFRY)**

- T 312 (FR)

- D 8159 (F)

C – Content

F – Formatting

R – References

Y – Publication Year



Appendix Updates

- B.11 - Calibration of Equipment for Asphalt Binder Content Determination
 - Requires ignition oven recalibration for all approved mixture designs every three years
- B.19 - Procedure for Internal Angle Calibration of Superpave Gyratory Compactors
 - Completely replaced appendix
 - Now covers RAM operation
 - IDOT will be using RAM device instead of DAV-II

IDOT Quality Management Training Program (QMTP)



QMTP Recertification

- Recertification Phase
 - Currently Finishing Year 2 of 5 on December 31st
 - Applies to Individuals with Certification Dates between 2000 & 2006
- 2026 Spring & Fall Schedule
 - <https://learn.lakelandcollege.edu/upload/2026%20IDOT%20Re-Certification%20Schedule.pdf>

QMTP Websites

- QMTP General Website
 - <https://learn.lakelandcollege.edu/IDOT/index.jsp>
- QMTP Recertification FAQ's Website
 - <https://learn.lakelandcollege.edu/IDOT/faq-recertification.jsp>



Thank You for Your Attention!

