



Performance Specifications for Rapid Renewal – Panel Discussion

Alabama's Experiences

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AMERICAN ASSOCIATION
OF STATE HIGHWAY AND
TRANSPORTATION OFFICIALS

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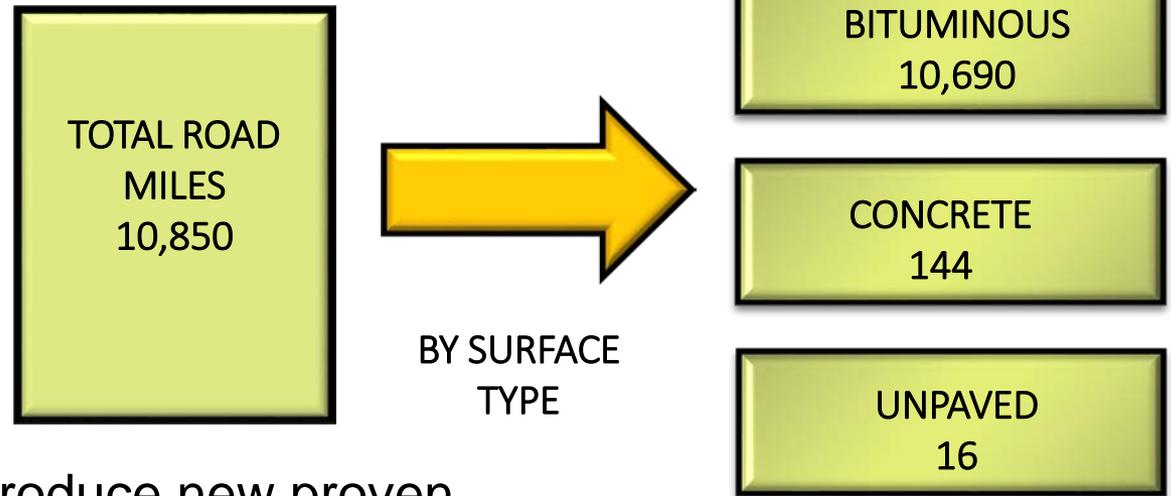


Why So Many Pavement Projects?

► Challenges to Alabama

► Why R07?

- Enables us to introduce new proven technologies to DOT.
- Supported by research, financial, and technical assistance.
- Allows for flexibility in an era of changing cultures, retirements, and staffing reductions.
- Helps us solve problems!!



Alabama State Facts



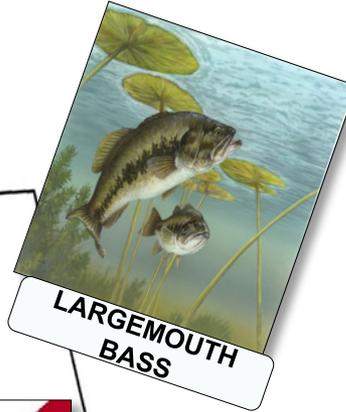
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SOUTHERN PINE



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EASTERN TIGER SWALLOWTAIL



SHRP2 Opportunity - Advancing Three New Technologies Together

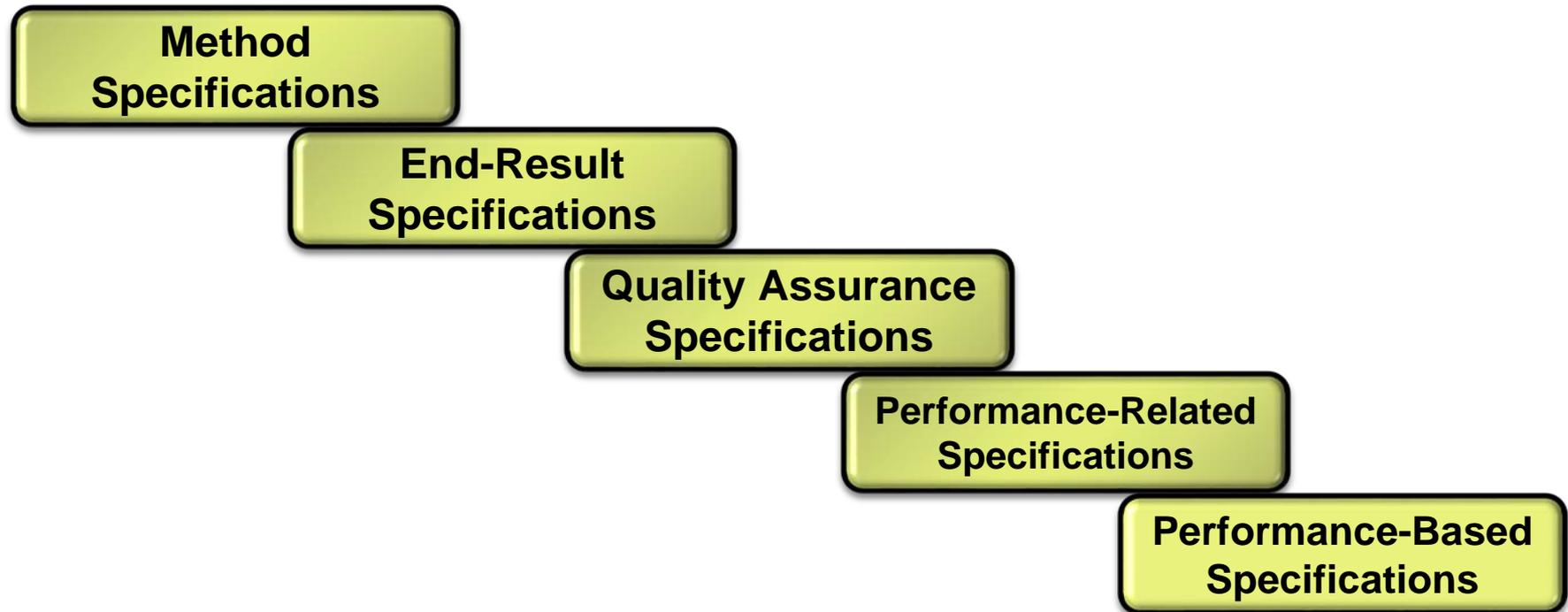
- ▶ Alabama DOT wants **new testing methods** to address uniformity of the mat during mix placement to get longer-term pavement performance and increase contractor productivity.
 - ▶ Lead Adopter for ***Using Technologies to Enhance Quality Control on Asphalt Pavements (Ro6C)***
- ▶ EDC's **intelligent compaction technology**
 - ▶ Identifies temperature segregation areas, zones or spots of lower stiffness, paver stops, quality of joints
 - ▶ Potentially preventing premature failure providing long term cost saving benefits.
- ▶ SHRP2 **performance-based specifications (R07)** will allow ALDOT to assess the entire roadway mat and provide real-time quality control for the contractor in asphalt laydown operations.

What is Alabama's Approach?

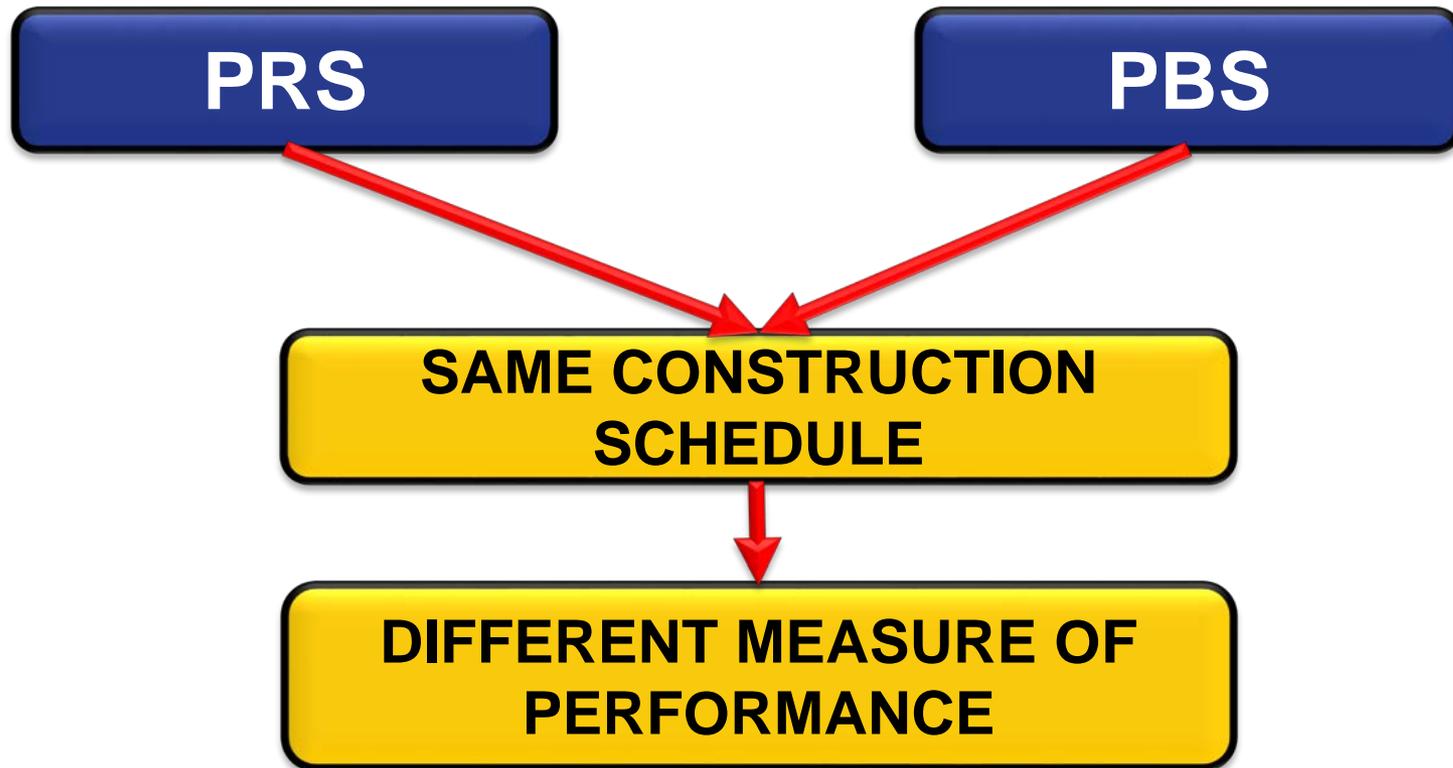
- ▶ Incorporate intelligent compaction through the use of performance-based specifications
- ▶ Our first project with IR is on **US 43 in North Alabama** using performance specs through R07
- ▶ Conduct **side-by-side testing**
- ▶ Develop a **performance-based specification** in the area of Intelligent Compaction.
- ▶ Utilizing IC, IR, and IRI for **full Quality Control coverage** of the pavement surface.



Types of Construction Specifications

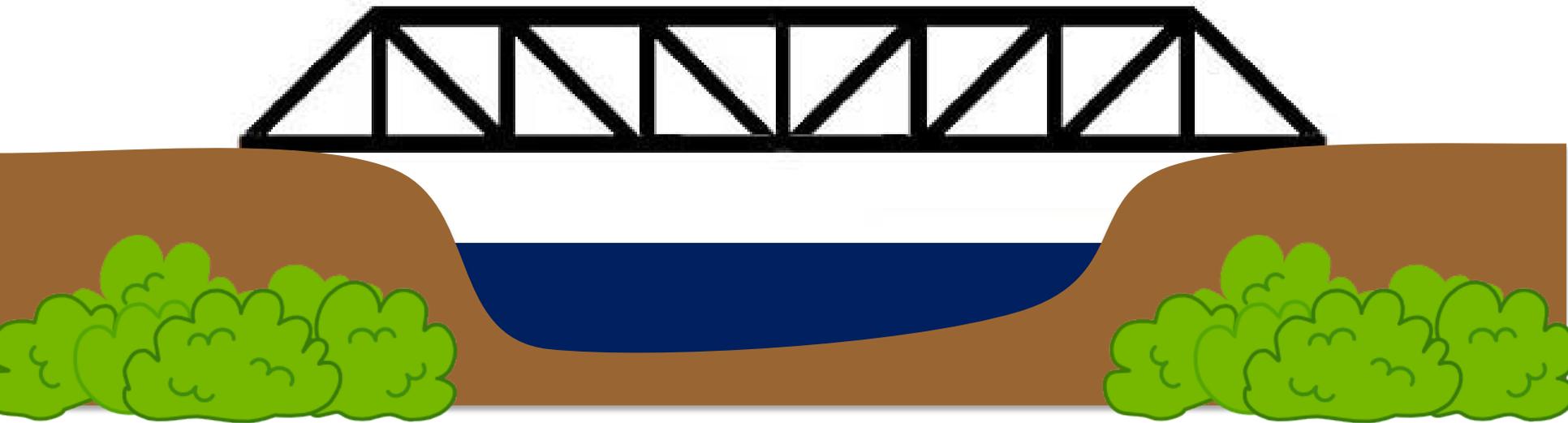


Two Processes



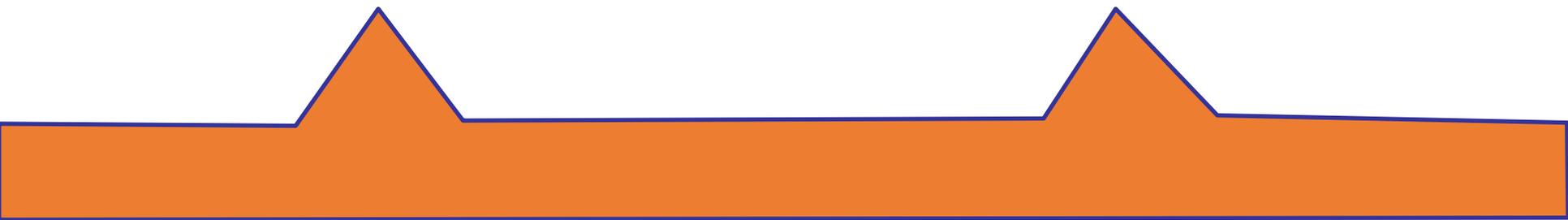
Example

SPAN TWO POINTS WITH A...



Example

- **Project**
 - Span Two Points with Boards
 - Connect Boards Together
 - Place a Load in Middle of Boards
- **Materials**
 - Wood Boards
 - Epoxy
 - Load



Performance–Related Specifications

- **Materials Attributes**
 - Performance of the in-place product
 - Treated Wood versus Composite Wood
 - Wood Glue versus Wood Epoxy
 - Specify only product Quality Characteristics
- **Mathematical Models**
 - Based on product data
 - Distress prediction
 - Life-Cycle Cost (LCC)
 - As-Designed LLC
 - As-Constructed LCC
- **Price Adjustments**
 - Related to the expected LCC

Performance-Based Specifications

- **Desired Performance Level / Target to be Achieved**
 - Engineering properties that are predictors of performance
 - Creep between boards
 - Fatigue after specified loads or time
- **Performance Concern**
 - Final in-place product
 - Define in terms of Outputs instead of Inputs
- **Mathematical Models**
 - Quantify relationship between engineering properties measured and product performance
 - Acceptance limits established using statistically valid basis
 - Price adjustments based on the expected LCC of final product

Summary

- **PRS**

- Use quantified Quality Characteristics and LCC relationships that are correlated to product performance
- PRS are improved Quality Assurance Specifications

- **PBS**

- Focuses on outcome rather than process
- Complete PBS do not yet exist
- Requires good Management System data to generate and validate models

Expected Value to Alabama DOT Using R07

- ▶ Supply ALDOT with **new methods** to accurately and completely evaluate the roadway mat and placement practices of the contractor.
- ▶ **Encourage contractors** to apply greater control and ingenuity.
- ▶ **Improve** project quality.
- ▶ **Accelerate** construction.
- ▶ **Minimize costly** construction oversight.
- ▶ **Reduce claims and inspection.**





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QUESTIONS? 

