

Pay Schedule for Ride Quality

2007 Design & Bridge Conference

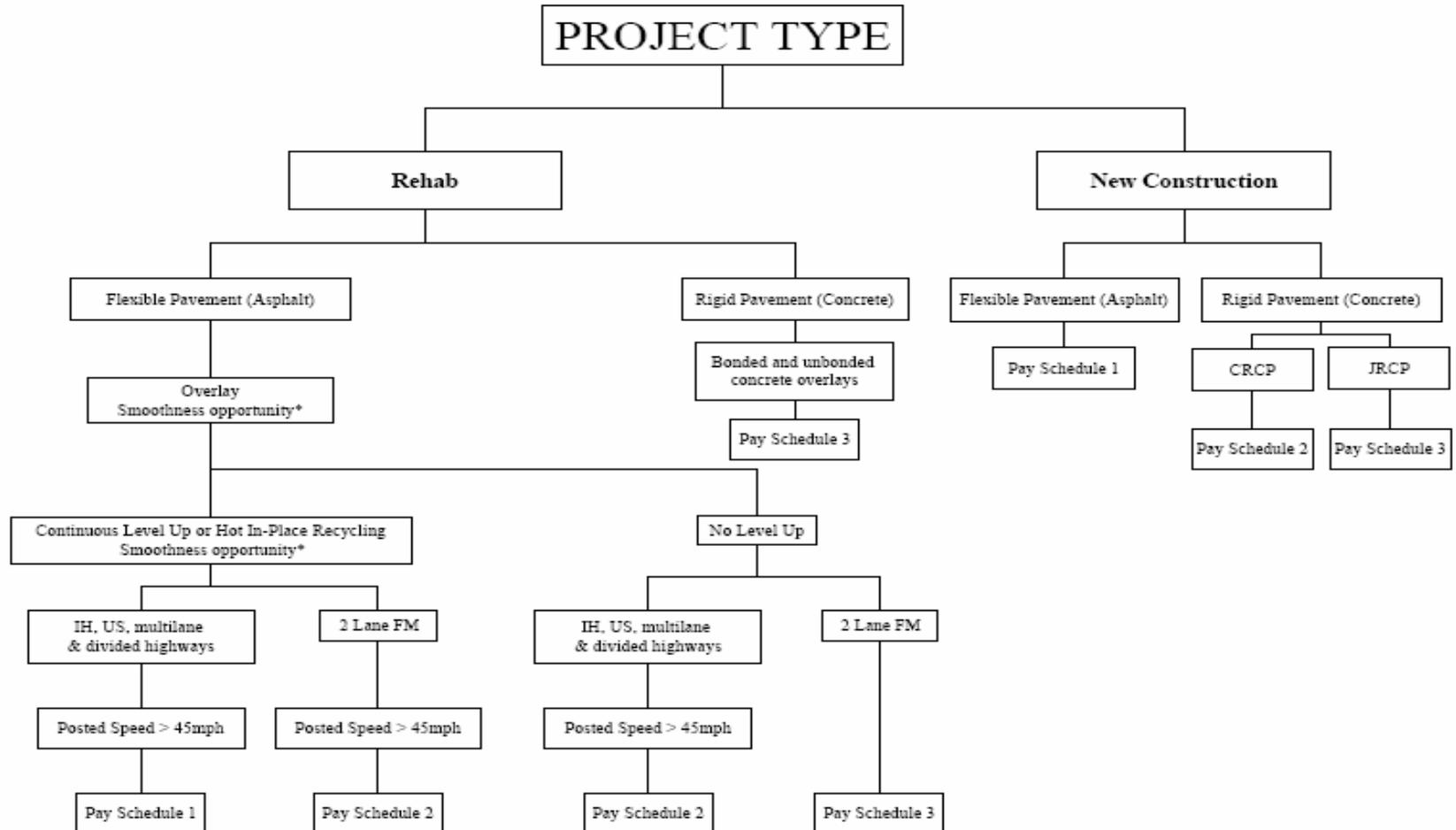
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Ride Specification

- International Roughness Index (IRI)
 - is the International Roughness Index and measures pavement roughness. The units of IRI are usually in/mile.
- Pay Schedule
 - Is used to determine the level of bonus or penalty for each 0.1-mi. section on the project.

Guidelines to selecting appropriate ride quality requirements

- Guidance Document for Item 585 is available online at www.dot.state.tx.us/DES/specs/2004/ExtraInfor.htm



* Milling, spot level ups, and seal coats are not smoothness opportunities



585.1. Description. Measure and evaluate the ride quality of pavement surfaces.

585.2 Equipment.

- A. Surface Test Type A.** Provide a 10-ft. straightedge.
- B. Surface Test Type B.** Provide a high-speed or lightweight inertial profiler, certified at the Texas Transportation Institute. Provide the Engineer with equipment certification documentation. Display a current decal on the equipment indicating the certification expiration date.

Use a certified profiler operator from the Construction Division's approved list. **When requested**, furnish the Engineer documentation for the person certified to operate the profiler.

High Speed Inertial profiler





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585.3 Work Methods. Measure and evaluate profiles **using Surface Test Types A and B** on surfaces as described below unless otherwise shown on the plans.

A. Transverse Profile. Measure the transverse profile of the finished riding surface in accordance with Surface Test Type A.

B. Longitudinal Profile. Measure the longitudinal profile of the surface, including horizontal curves.

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- 1. Travel Lanes. Unless otherwise shown on the plans, use Surface Test Type B on the finished riding surface of all travel lanes except as follows.**



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- a. **Service Roads and Ramps.** Use Surface Test Type A on service roads and ramps **unless Surface Test Type B is shown on the plans.**
- b. **Short Projects.** Use Surface Test Type A when project pavement length is less than 2,500 ft. **unless otherwise shown on the plans.**
- c. **Bridge Structures.** For span type bridge structures, approach slabs, and the 100 ft. leading into and away from such structures, **measure the profile in accordance with the pertinent item or use Surface Test Type A.**
- d. **Leave-out Sections.** Use Surface Test Type A for **areas listed on the plans** as leave-out sections.
- e. **Ends.** **Use Surface Test Type A on the first and last 100 ft. of the project pavement length.**



C. Profile Measurements. Measure the finished surface in accordance with Surface Test Type A or B in accordance with Section 585.3.A, “Transverse Profile”; Section 585.3.B, “Longitudinal Profile”; **and the plans.**

- 1. Surface Test Type A. Test the surface with a 10-ft. straightedge at locations selected by the Engineer.**



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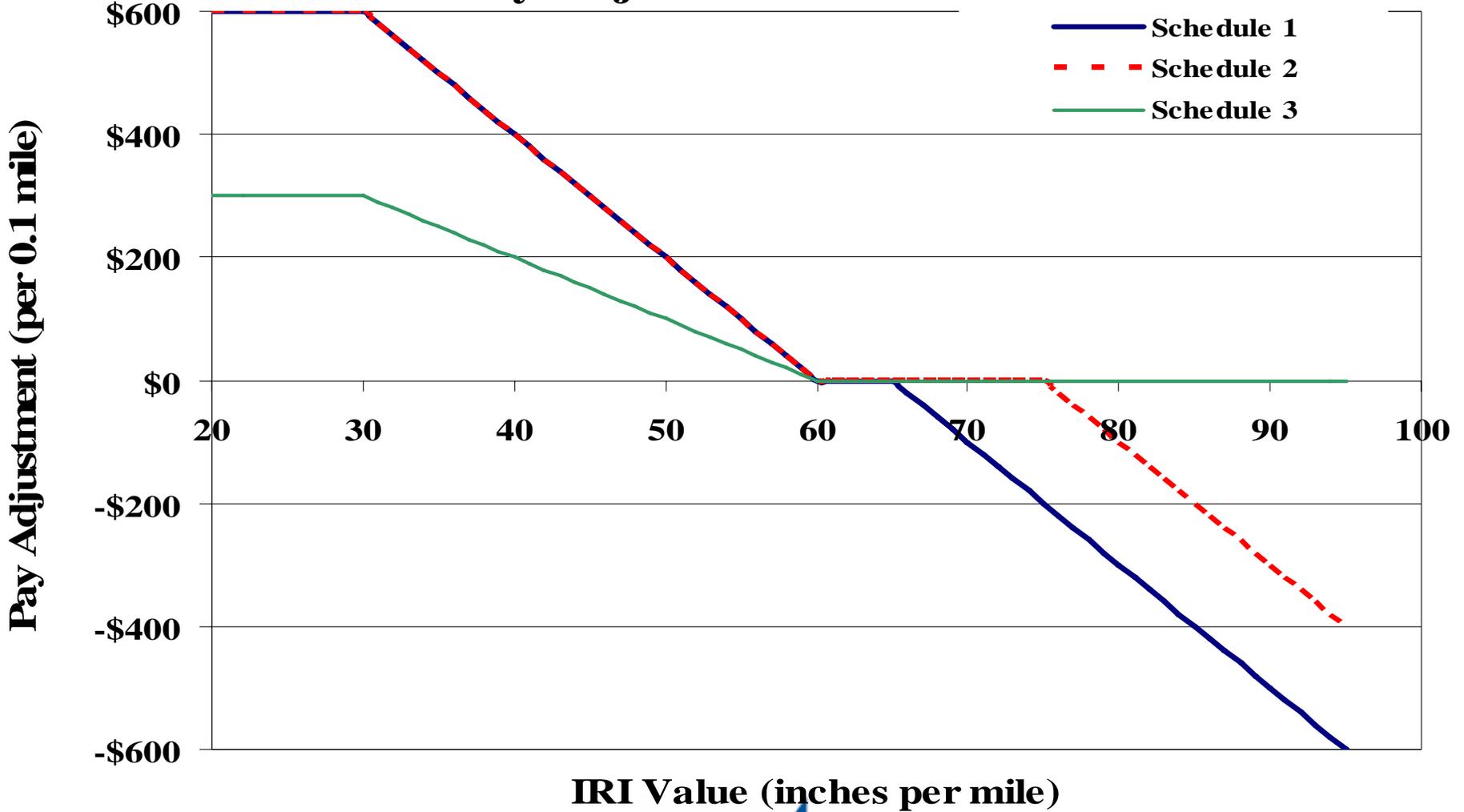
- D. Acceptance Plan and Pay Adjustments. The Engineer will evaluate profiles for determining acceptance, bonus, penalty, and corrective action.**
- 1. Surface Test Type A. Use diamond grinding or other methods approved by the Engineer to correct surface areas that have more than 1/8-in. variation between any 2 contacts on a 10-ft. straightedge. For asphalt concrete pavements, fog seal the aggregate exposed from diamond grinding. Following correction, retest the area to verify compliance with this Item.**



- a. **IRI Pay Adjustment for 0.1-mi. Sections. Unless pay adjustment Schedule 1 or 2 is shown on the plans, Schedule 3 from Table 1 will be used to determine the level of bonus or penalty for each 0.1-mi. section on the project.**

When Schedule 3 is specified, **no associated bonuses will be paid for any 0.1-mi. section that contains localized roughness.**

Pay Adjustment Schedule





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c. **Localized Roughness.** Localized roughness will be measured using an inertial profiler in accordance with **Tex-1001-S**. The Engineer will determine areas of localized roughness using the average profile from both wheel paths.

The Engineer may waive localized roughness requirements for deficiencies resulting from manholes or other similar appurtenances near the wheel path.



(1) Corrective Action. **When Schedule 1 or 2** is specified, **use diamond grinding or other approved methods to remove localized roughness.**

When Schedule 3 is specified, **use a 10-ft. straightedge to further evaluate areas with localized roughness, and use grinding or other approved methods to correct areas that have more than 1/8-in. variation between any 2 contacts on the straightedge.**



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For Schedule 1, a localized roughness penalty of **\$500 per occurrence** will be assessed.

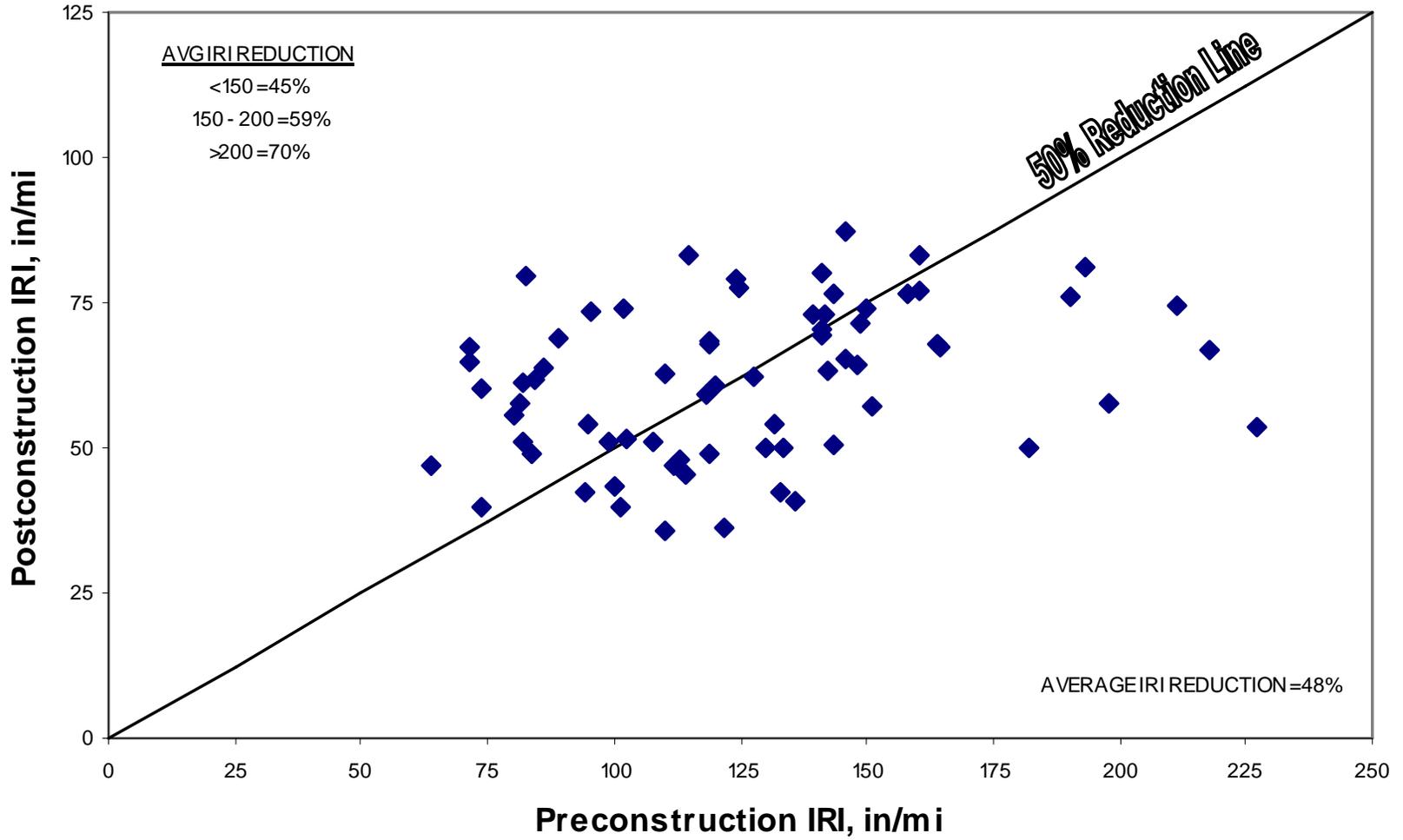
For Schedule 2, a localized roughness penalty of **\$250 per occurrence** will be assessed.

For Schedule 3, **localized roughness penalties will not be assessed.**

Factors To Consider for Pay Schedule

- Existing roughness of road from PMIS data
- Obtain before and after IRI data on District projects
- Obtain as much data as possible on IRI values from hot mix projects from different Contractors.
- Number of smoothness opportunities
- Continuous level up, a specified lift of 1.0 inch or more of HMA, in place base recycling, & grading for base courses.

TxDOT Ride Quality Data



Factors To Consider for Pay Schedule

- Not considered as a smoothness opportunity
 - Spot level up.....(still a good practice)
 - Milling operations
 - Mill and fill operations

Selecting Pay Schedule

- Recommended Pay Adjustment Schedule in Guidance Document is a good beginning.
- Once the historical District data is obtained, the decision of which schedule to use becomes easier.

Summary & Conclusions

- Don't always default to Schedule 3
- Select to pay schedule based on what is achievable.
- Take advantage of the opportunity to improve the ride quality, it does not come around that often.
- Be proactive, know the existing ride quality and what it takes to improve it.