Pulverization: The Montana Experience

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Topics

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• Calculations
• Specifications
• Project Example
Guidelines for Nomination and Development of Pavement Projects

GUIDELINES FOR NOMINATION AND DEVELOPMENT OF PAVEMENT PROJECTS
(CORRECTIVE MAINTENANCE TO RECONSTRUCTION)
MONTANA DEPARTMENT OF TRANSPORTATION
MONTANA DIVISION, FEDERAL HIGHWAY ADMINISTRATION

Major Rehabilitation

Major Rehabilitation
Major rehabilitation improves pavement structure, typically exposing base gravel. These projects may include grading and/or wetting. The intent of these projects is to rehabilitate the existing pavement structure through an engineered approach that considers the observed pavement distress, the in-place material, and roadway geometrics. Milling operations may expose base gravel which can then be treated or modified. New right-of-way and utility relocation may be required to improve geometrics, to flatten slopes and enhance safety. Reconstruction work should be limited to less than 25% of the project length.

Appropriate soil survey work, subsurface analysis, traffic data and crash data must be collected. The preliminary surfacing recommendation for a 20-year design life will be used. The data collection and engineering required to determine the level of rehabilitation should take six to nine months. Additional development time for a major rehabilitation should be three to four years, given the probable inclusion of other features.

Major rehabilitation treatments include:
- Overlay > 3.3 ft
- Full depth reclamation
- Pulverize wooterslay
- Grading beyond the surfacing section and/or wetting
- Exposure of base gravel
- CPR = 0.9 ft
- Crack and seal wooterslay
- Concrete overlay unbonded or bonded

Hazard Mitigations:
A Safety Engineering report or crash analysis is required. Safety Engineering crash analysis recommendations should be included with the project. Crash analysis recommendations that are not included should be documented in the Scope of Work report with supporting justification. Features to mitigate correctable hazards identified by the design team may be included. Consider project scope, schedule, cost-effectiveness and benefit-cost when evaluating hazard mitigation features.
Reasons for Pulverization

- Recycling/aggregate availability
- Increased Material Costs
- Reduction in Fuel usage when compared to reconstruction
- Allows for use of CTPB when necessary
- Rubble in lower lifts of existing plant mix

Investigation Procedure

- Traffic
- Distress
- Coring
- DCP
- FWD/GPR
Calculations

- AASHTO 93
- Calculation spreadsheets

<table>
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<tr>
<th>Basic Material</th>
<th>Coefficient per cu yd</th>
<th>Cubing Materials</th>
<th>Coefficient per cu yd</th>
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<td>MES (or Graded)</td>
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<tr>
<td>Crushed Aggregates (Gravel)</td>
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<tr>
<td>MES (or Graded) (crushed, pigmented, or colored in place)</td>
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<td>MES (or Graded) (crushed, pigmented, or colored in place)</td>
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<tr>
<td>Clean and Graded Base (CTB)</td>
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<tr>
<td>OAS (Oscillated)</td>
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<td>Coal Recycled Ashfalt (RCAC)</td>
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<tr>
<td>Gabions Material</td>
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<td>Special Stone</td>
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Specifications

- Section 302 and 304 of the Standard Specifications
- Special Provision for varying depths along project
Project Example

• P-323 between RP 50.82 and RP 69.03
• “Emergency Project” administered by Maintenance
• 0.2 ft mill, 0.6 ft pulverization with 6% cement
• 0.2 ft PMS overlay

Questions?

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