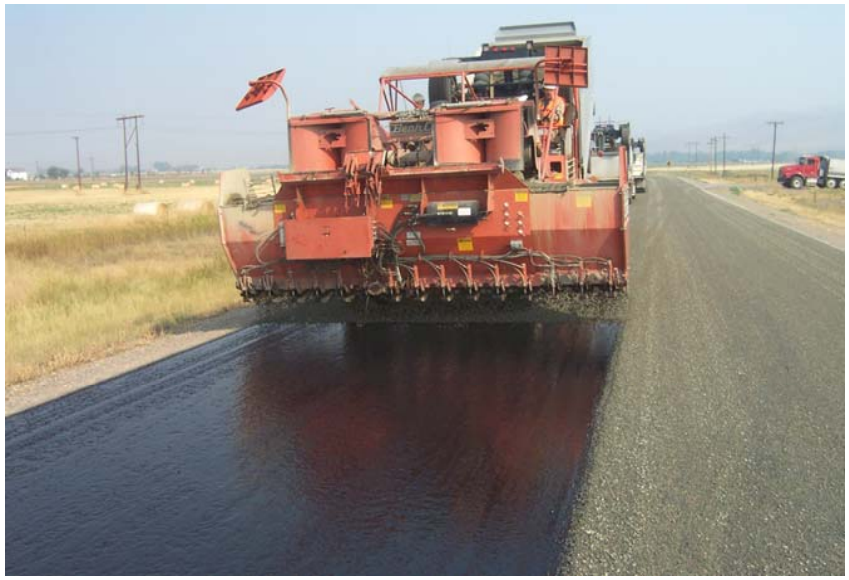
Montana Department of Transportation



2008
Seal Coat Warranty Administration Guide

Montana Department of Transportation

serving you with pride

Introduction

The purpose of this guide is to present guidelines for the evaluation of the finished seal coat. This guide presents examples of desirable seal coat appearance and acceptable longitudinal joint location as well as other conditions, which include tracking, flushing, bleeding, equipment damage to seal coat, and cover material loss. An emphasis is placed on recommended solutions in cases where unacceptable conditions exist.

Throughout the warranty period, MDT personnel must carefully document (photos, video, diary) the progression of the seal coat cure. Frequency and type of documentation will be dictated by the number and severity of potential problem areas.

At the end of the warranty period, the Project Manager will facilitate and conduct an on- site inspection. Based on findings from this inspection, the Project Manager will send a letter to the Contractor stating whether or not repairs are required and at which locations. Copies of this letter will be sent to the District Construction Engineer, Materials Bureau, Construction Engineering Services Bureau, Construction Administration Services Bureau, and the project file.

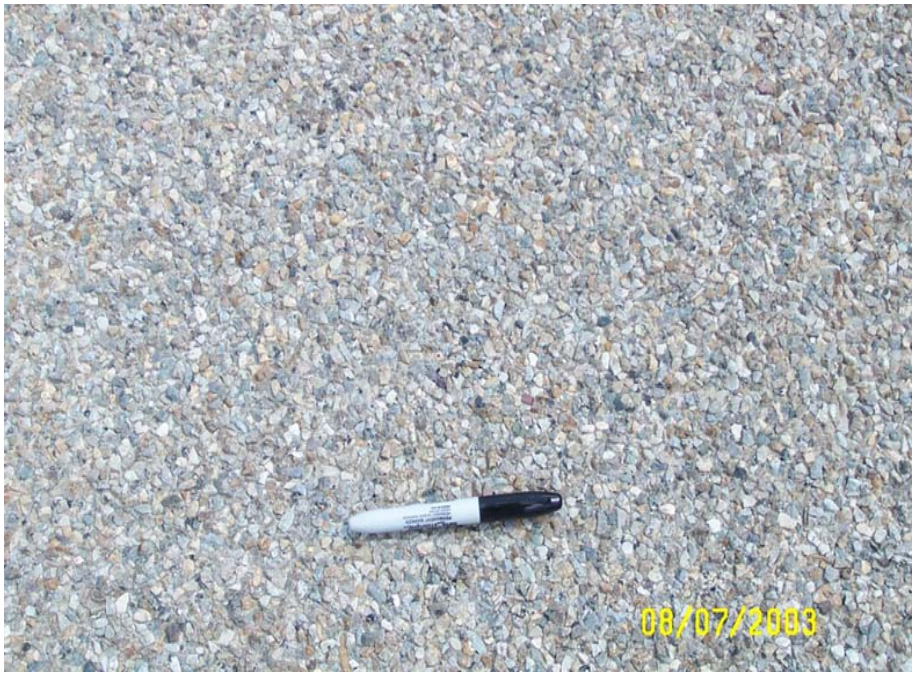
In the interest of uniform seal coat warranty administration statewide; coordinate warranty determinations with the appropriate Construction Bureau staff.

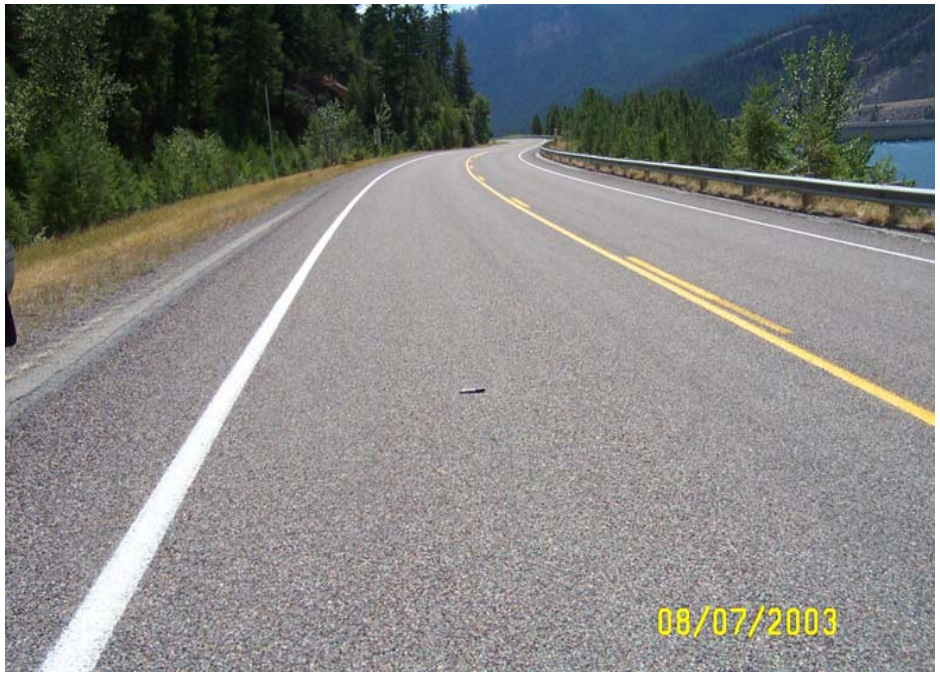
2008 Edition – Third Printing

The changes to this version are listed below.

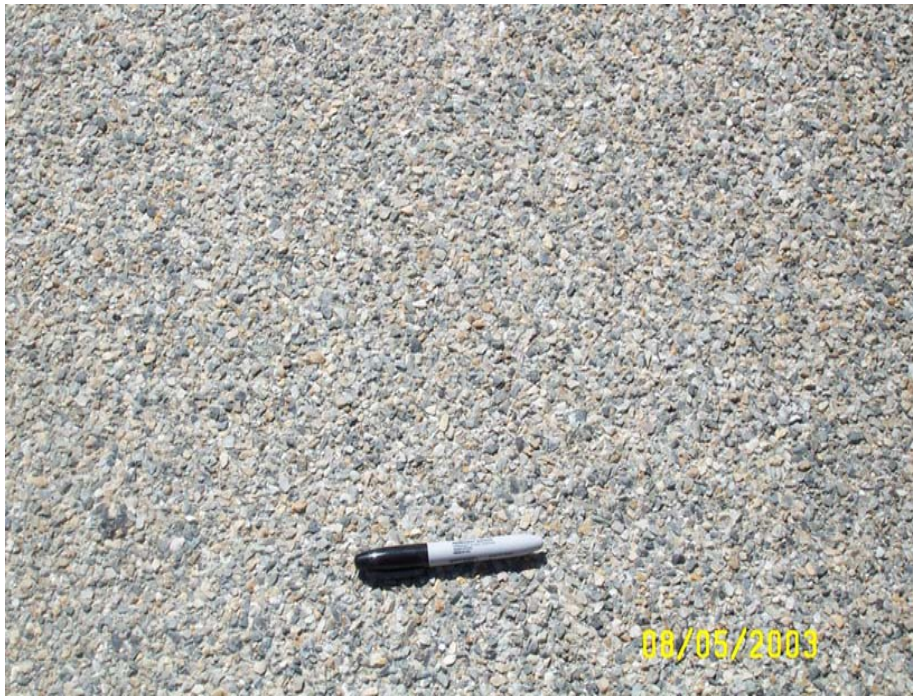
Pages 4 - 21	Minor errata changes
Pages 15- 19	New examples of cover material loss, defined causes, and administration guidance.

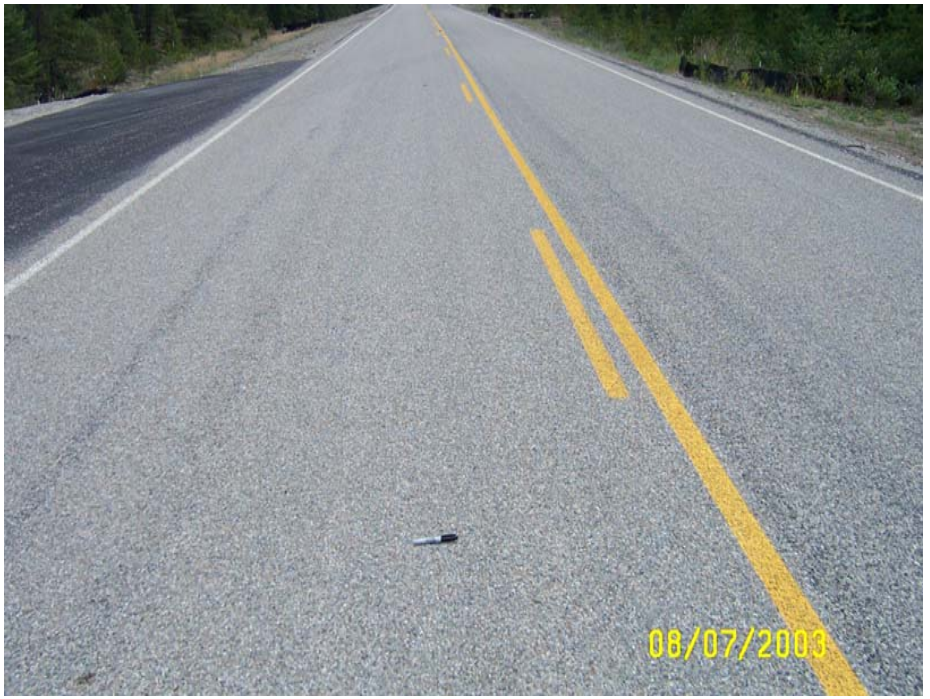
Condition: Desired Final Appearance



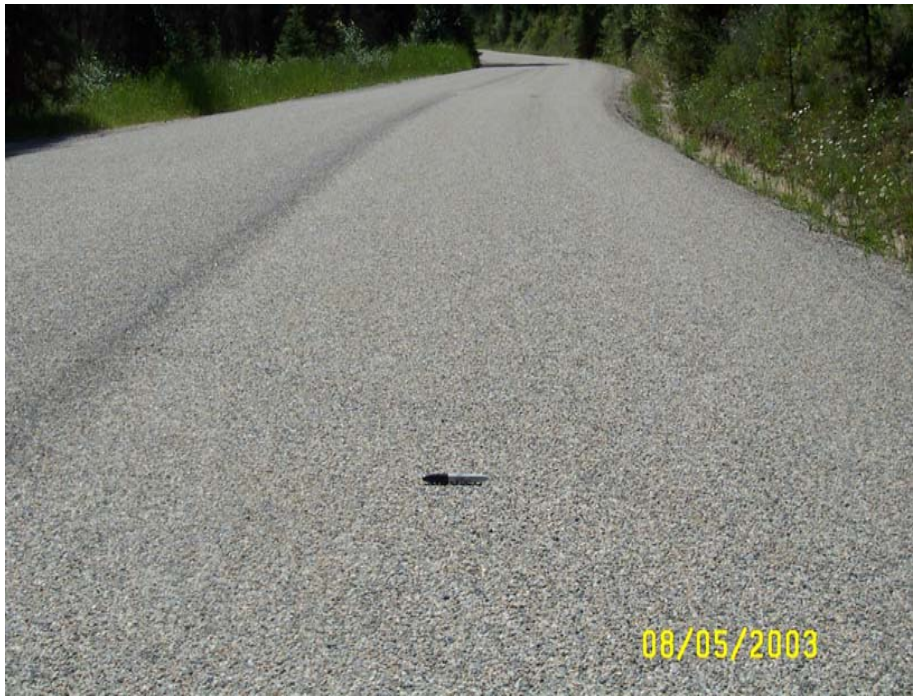


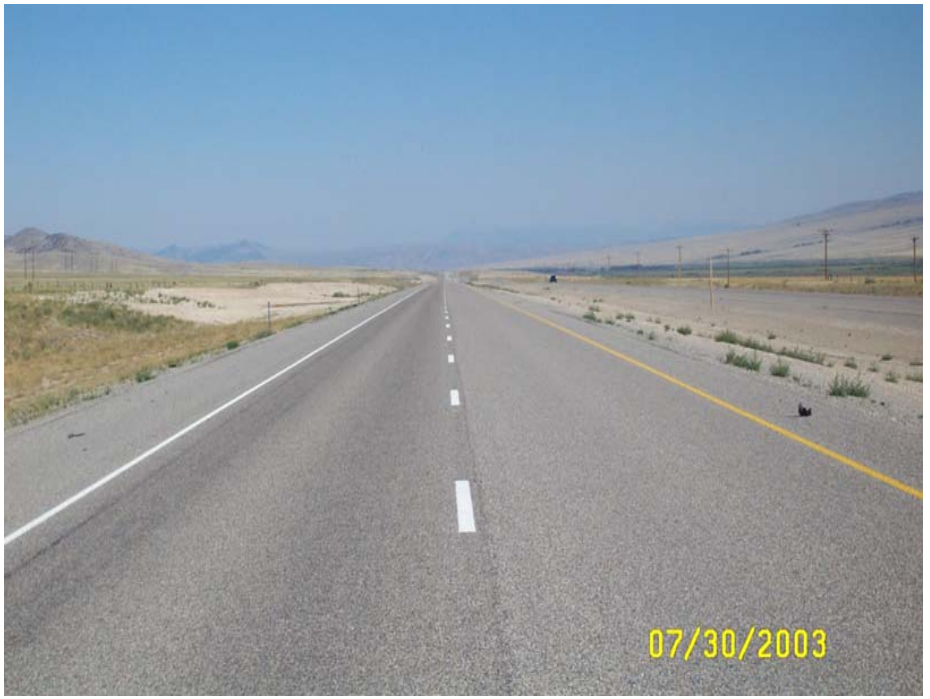
Condition: Desired Final Appearance





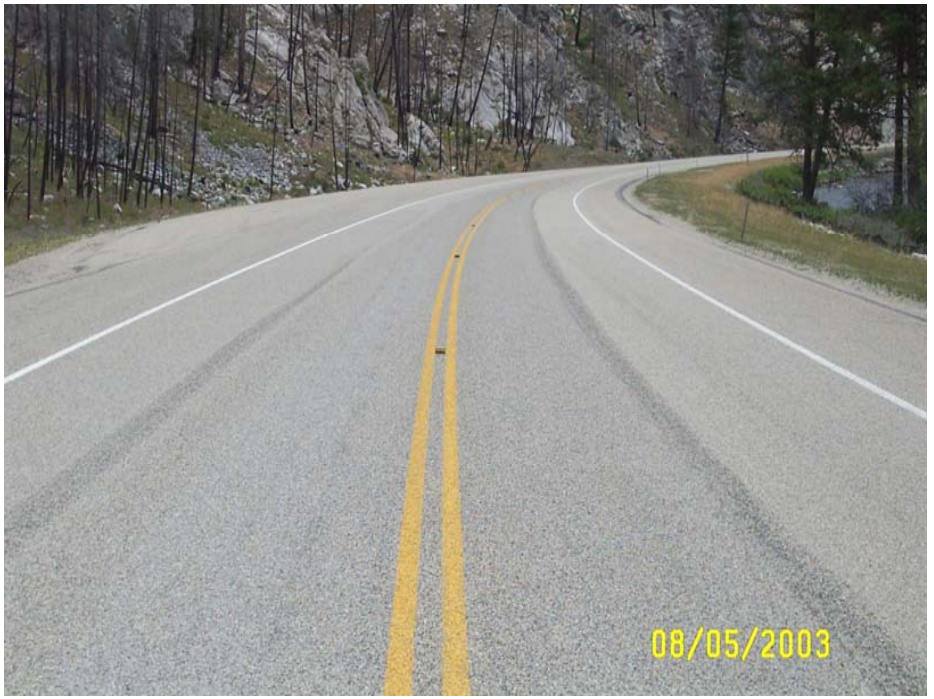
Condition: Desired Final Appearance





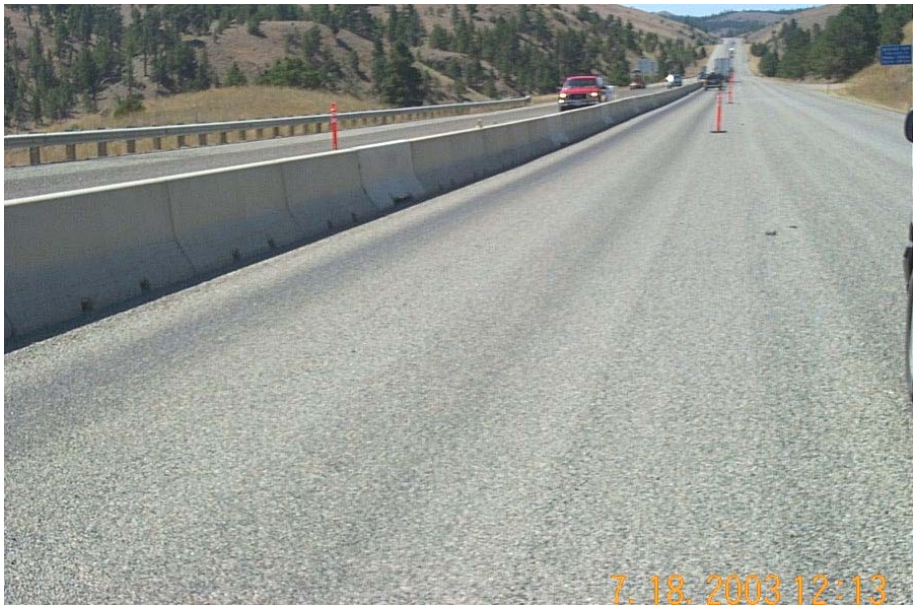
Condition: Longitudinal Joint Location

- Per Subsection 409.03.7, Locate Longitudinal Joints at The Centerline or Lane Line.



- Obtain Approval From The Project Manager to Construct The Joint at Any Other Location.

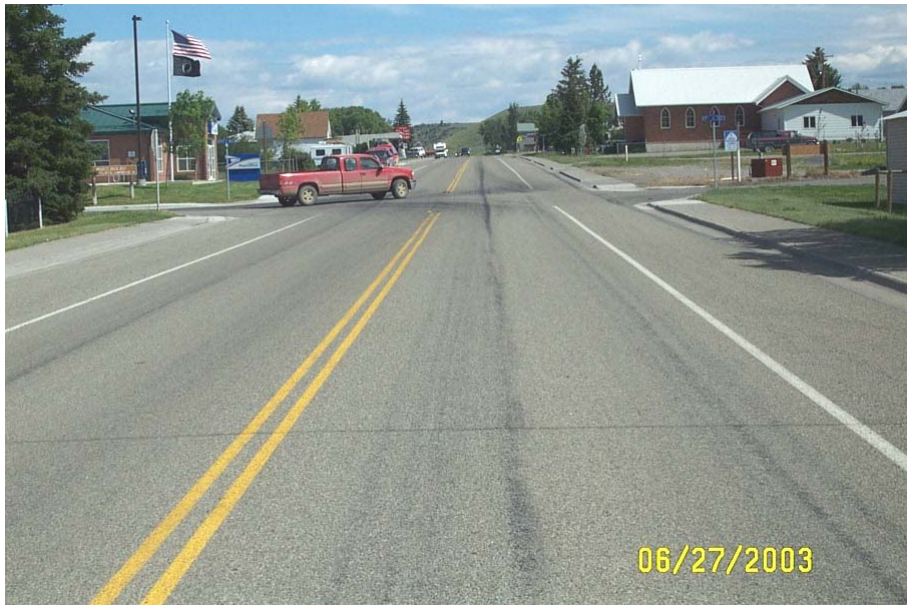
Condition: Light Tracking

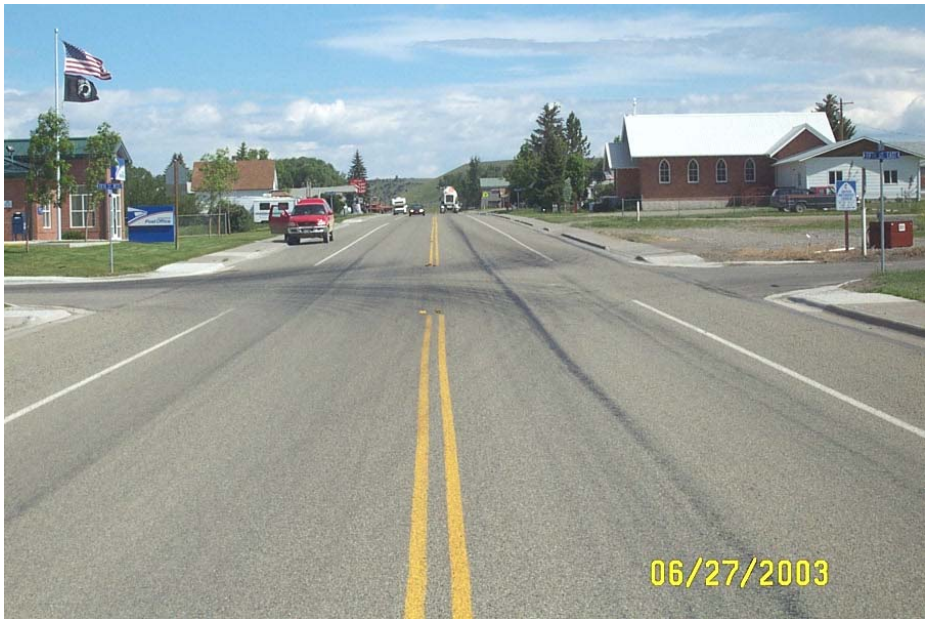


Recommended Solutions:

- Move Traffic Control Devices as Needed; Keep Vehicle Tires Off of Oil Tracking Areas.
- Apply Blotter Material on Live Oil Areas For Duration of Warranty Period. Refer to Subsection 409.03.9. Application of Blotter Material.

Condition: Light Tracking at Intersection

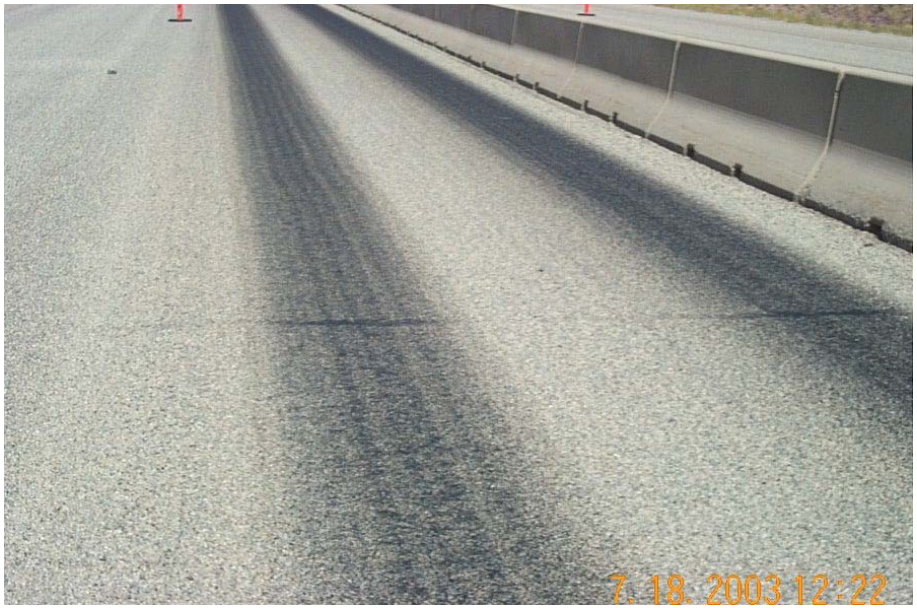




Recommended Solutions:

- Blot Live Oil Areas Throughout Warranty Period. Refer to Subsection 409.03.9. Application of Blotter Material.
- This Level of Tracking is Considered Acceptable And is Expected to Diminish With Cooler Temperatures.

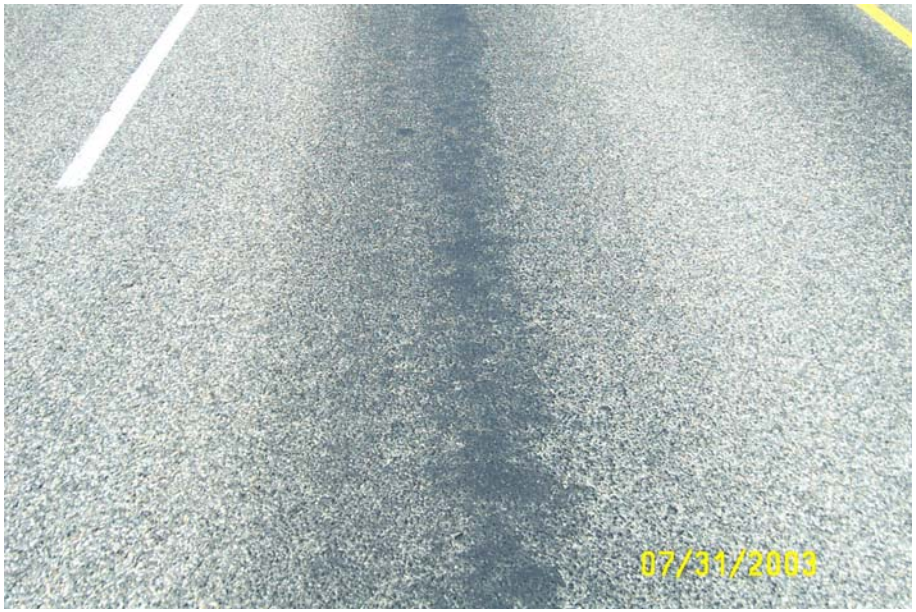
Condition: Moderate Tracking

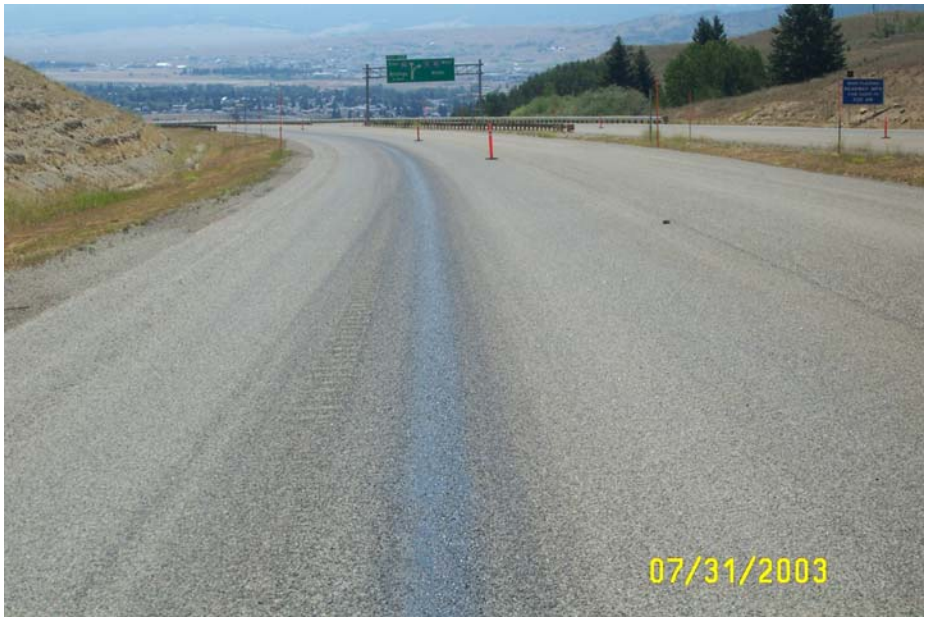


Recommended Solutions:

- Move Traffic Control Devices as Needed; Keep Vehicle Tires Off of Oil Tracking Areas.
- Apply Blotter Material on Live Oil Areas For Duration of Warranty Period. Refer to Subsection 409.03.9. Application of Blotter Material.

Condition: Moderate Tracking





Recommended Solutions:

- Move Traffic Control Devices as Needed to Keep Vehicle Tires Off of Oil Tracking Areas.
- Apply Blotter Material on Live Oil Areas For Duration of Warranty Period. Refer to Subsection 409.03.9. Application of Blotter Material.

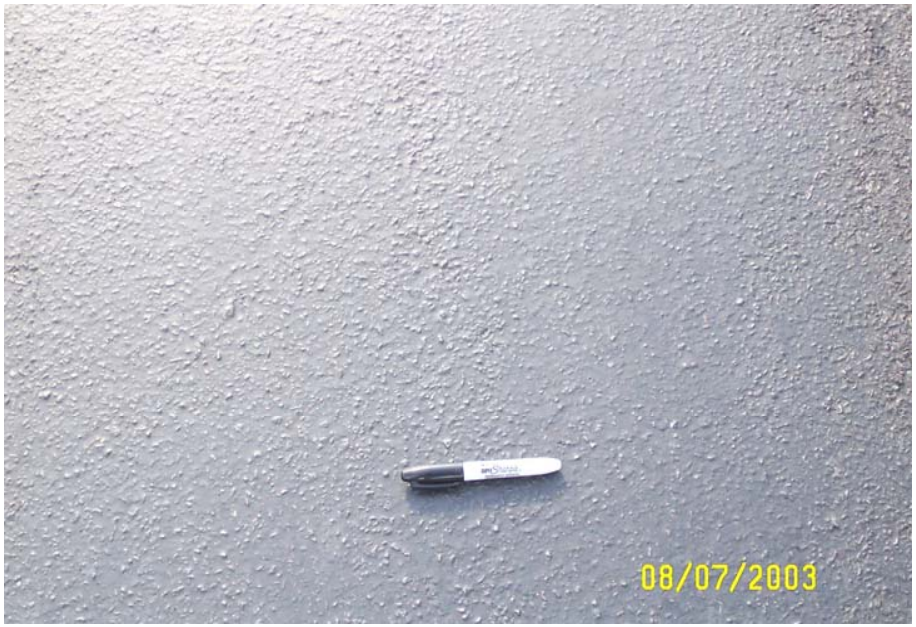
Condition: Heavy Tracking in Curve Section

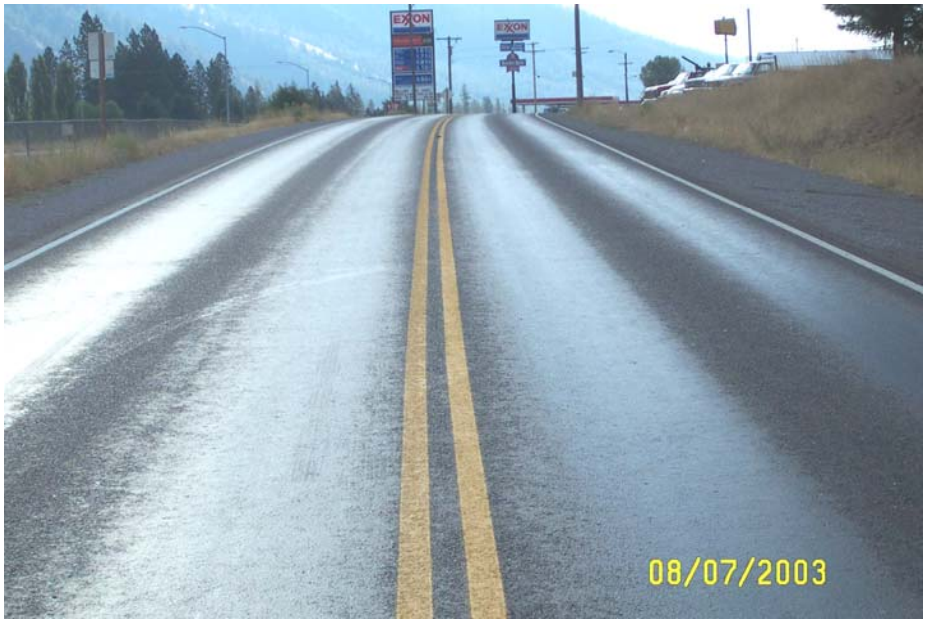
Recommended Solutions:

- Blot Live Oil Areas Throughout Warranty Period. Refer to Subsection 409.03.9. Application of Blotter Material.
- In Cases Where This Condition Persists at The End of The Warranty Period, Acceptance is Made Under Subsection 105.03.1.
- Due to The Loss of Service Life, Skid Resistance and Headlight Reflectivity, a 50% Price Reduction is Recommended for Affected Area.

- During Seal Coat Placement in High ADT And/or Turning Movement Areas, Consider Reducing Traffic Speeds And Continually Monitor Device Placement (i.e. Flagging Station Locations), to Avoid Aggregate Rollover During Curing Period.

Condition: Heavy Tracking, Bleeding



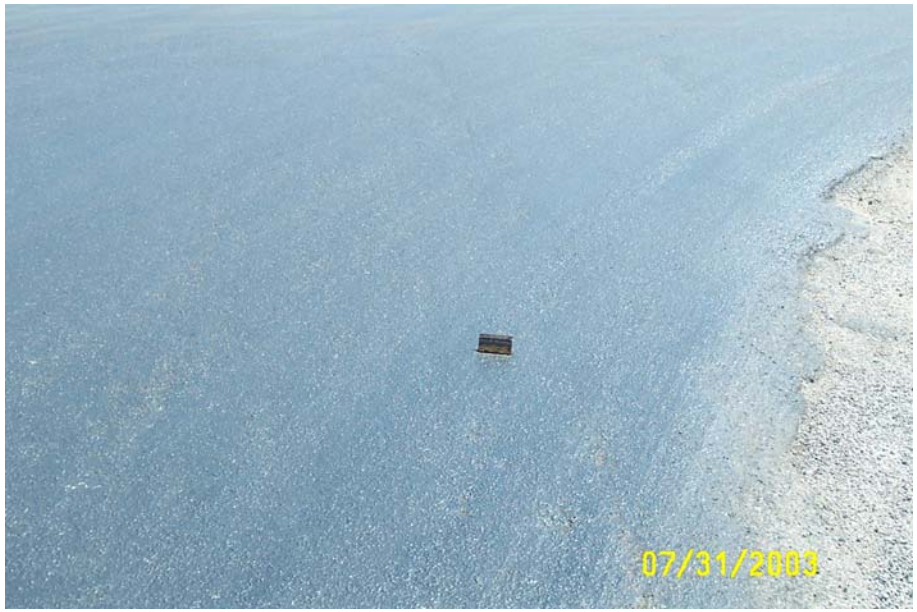


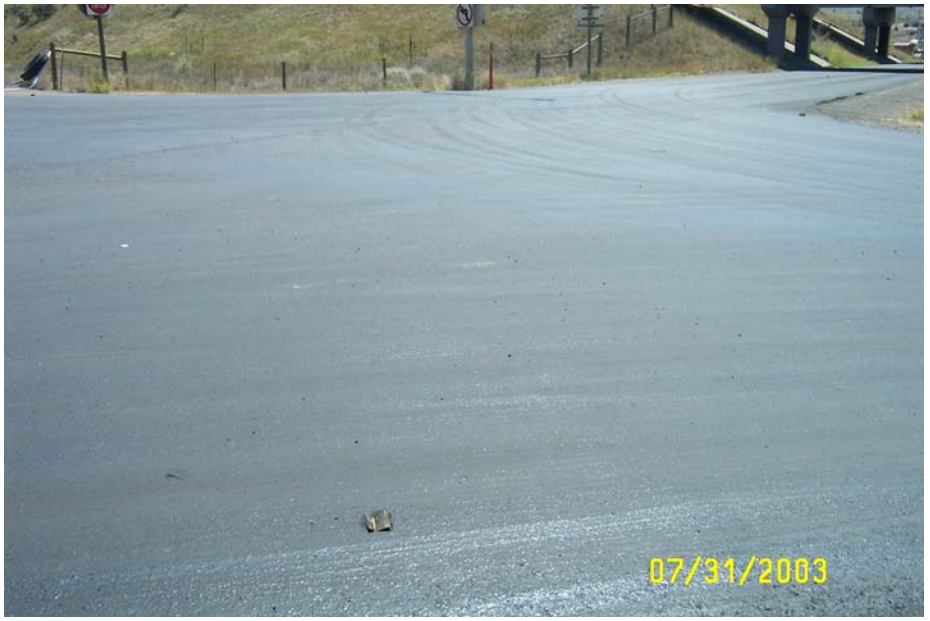
Recommended Solutions:

- Blot Live Oil Areas Throughout Warranty Period. Refer to Subsection 409.03.9. Application of Blotter Material.
- In Cases Where This Condition Persists at The End of The Warranty Period, Acceptance is Made Under Subsection 105.03.1.
- Due to The Loss of Service Life, Skid Resistance and Headlight Reflectivity, a 50% Price Reduction is Recommended for Affected Area.

- During Seal Coat Placement in High ADT And/or Turning Movement Areas, Consider Reducing Traffic Speeds And Continually Monitor Device Placement (i.e. Flagging Station Locations) to Avoid Aggregate Rollover During Curing Period

Condition: Heavy Tracking, Bleeding





Recommended Solutions:

- Blot Live Oil Areas Throughout Warranty Period. Refer to Subsection 409.03.9. Application of Blotter Material.
- In Cases Where This Condition Persists at The End of The Warranty Period, Acceptance is Made Under Subsection 105.03.1.
- Due to The Loss of Service Life, Skid Resistance and Headlight Reflectivity, a 50% Price Reduction is Recommended for Affected Area.

- During Seal Coat Placement in High ADT And/or Turning Movement Areas, Consider Reducing Traffic Speeds And Continually Monitor Device Placement (i.e. Flagging Station Locations) to Avoid Aggregate Rollover During Curing Period.

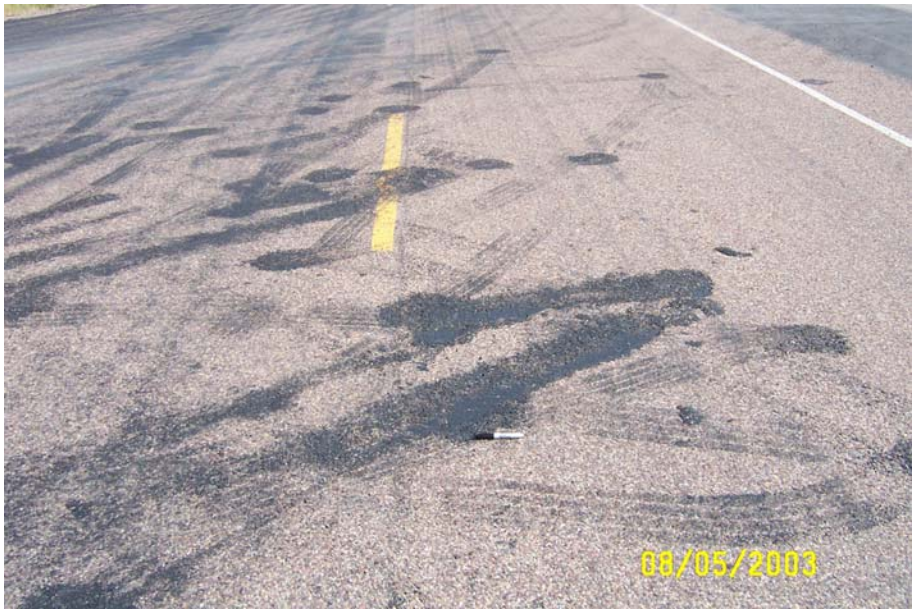
Condition: Flushing, Excess Bituminous Material

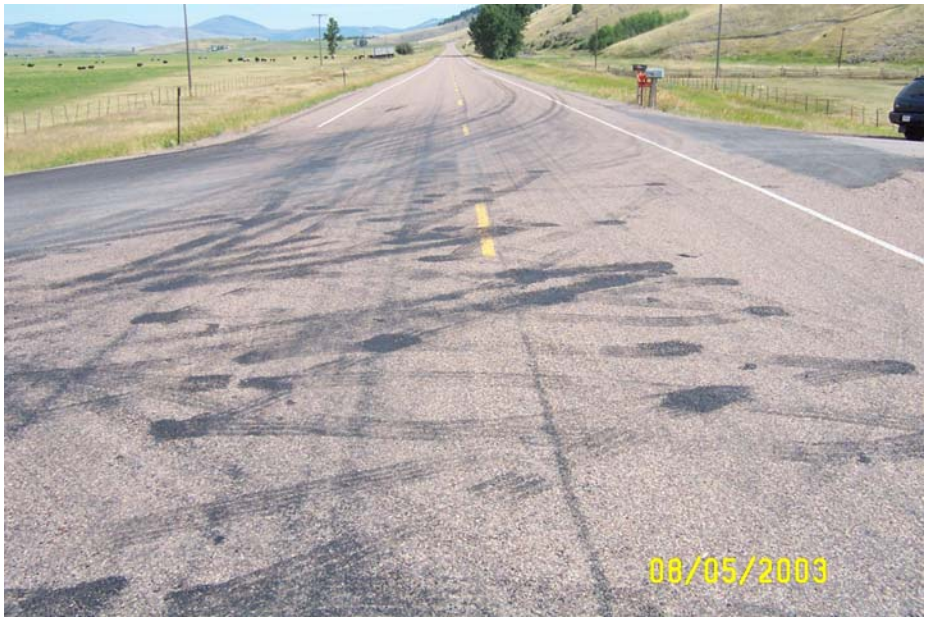
Recommended Solutions:

- Decrease Bituminous Material Application Rate.
- Increase Cover Material Application Rate.
- ***** Reduce The Amount of Water Applied to Cover Material.
- Modify Aggregate Wetting Method to More Uniformly Distribute Water.
- Blot Live Oil Areas Throughout Warranty Period. Refer to Subsection 409.03.9. Application of Blotter Material.

- ***** This Condition Typically Occurs When Cover Material is Saturated to The Point Where Free Water Runs From The Bed of The End Dump at The Chip Spreader. Bituminous Materials Are Then Drawn to The Surface by Seal Coat Equipment Tires.

Condition: Equipment Damage During Seal Coat Cure





Recommended Solutions:

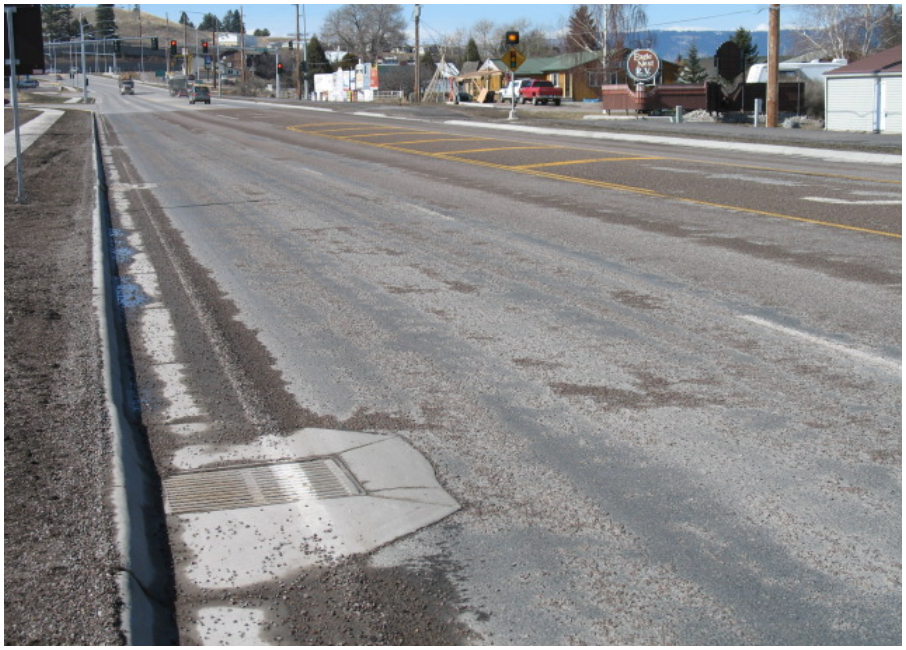
- Clean Surface, Patch Bare Areas With Additional Bituminous Material And Cover Aggregate.
- Per Subsection 409.03.8 Warranty, Submit a Detailed Repair Plan to The Project Manager For Approval Within 14 Calendar Days of Notification of Required Repairs.
- Turning Movements Resulting in Damage of This Severity Should Not Occur at Any Time During The Curing Period.

Condition: Cover Material Loss Attributed to Insufficient Embedment.

Comments:

- Per Subsection 409.03.8 Warranty, Submit a Detailed Repair Plan to The Project Manager For Approval Within 14 Calendar Days of Notification of Required Repairs.
- This Condition is Unacceptable And Must be Repaired Prior to Final Acceptance.

Condition: Cover Material Loss Attributed to Insufficient Embedment.



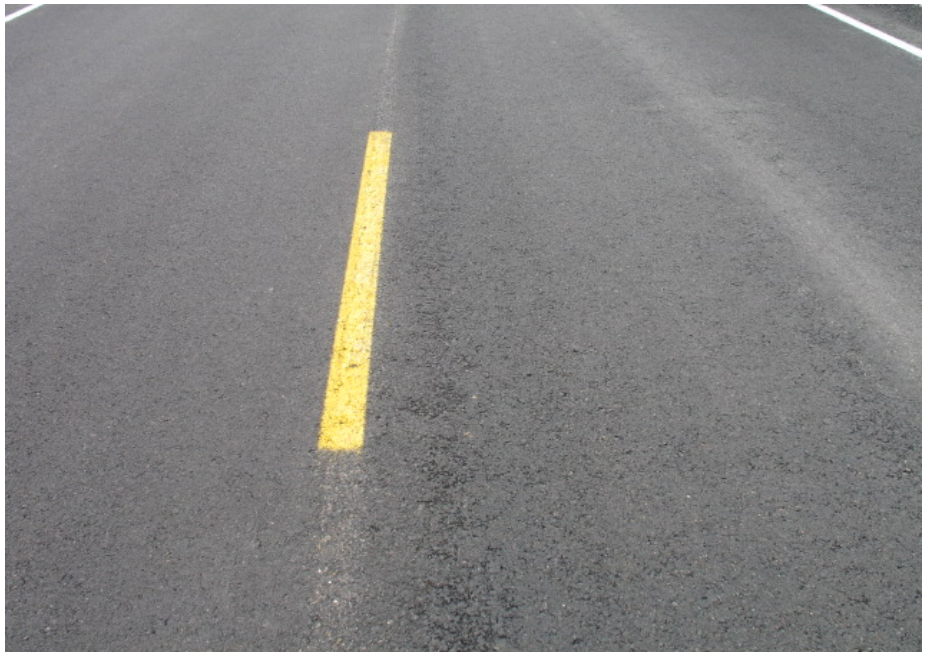
Comments:

- Per Subsection 409.03.8 Warranty, Submit a Detailed Repair Plan to The Project Manager For Approval Within 14 Calendar Days of Notification of Required Repairs.
- This Condition is Unacceptable And Must be Repaired Prior to Final Acceptance.

Characteristics:

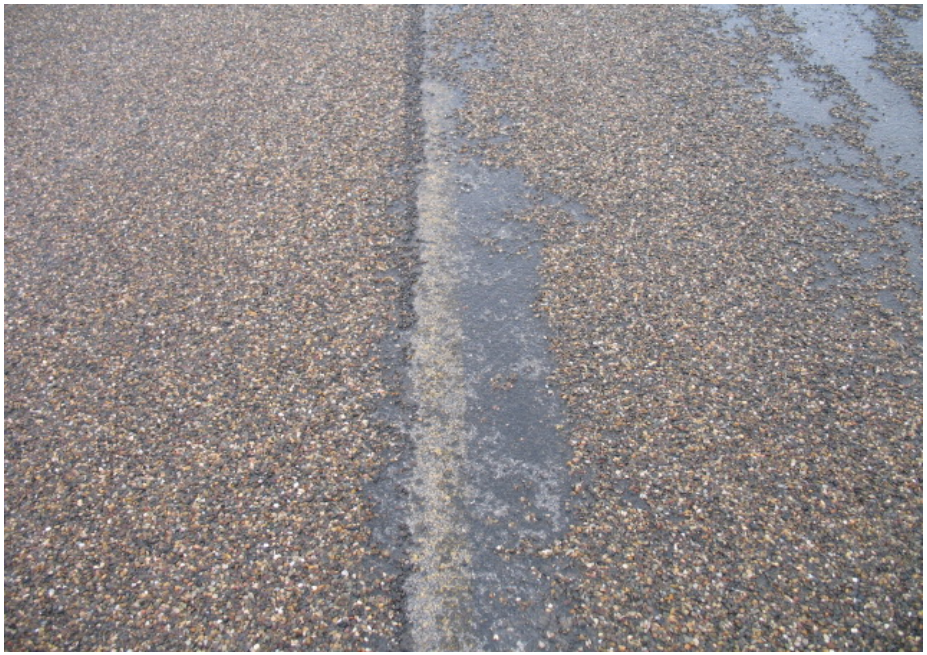
- Cover Material Removed From Roadway Found to Have Less Than 20% Embedment.
- Condition Attributed to a Distributor Calibration Issue.
- Project Was Sealed in Late August; Weather Conditions Included High Humidity and Heavy Fog.
- Cover Material Loss Began to Occur Within Days of Application.

Condition: Cover Material Loss Attributed to Insufficient Embedment Caused From Plant Mix Surfacing Segregation.



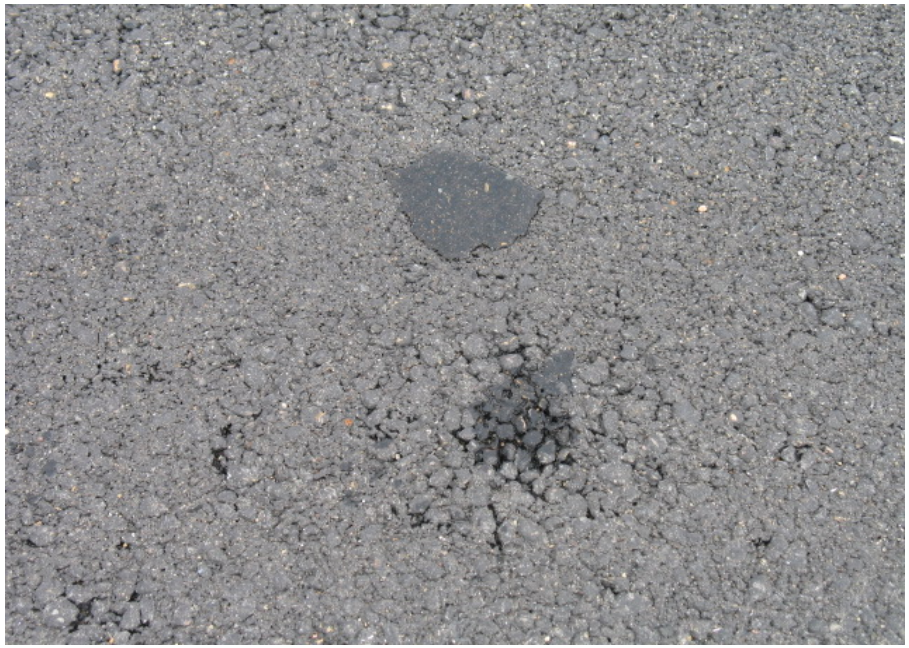
Comments:

- Segregated Plant Mix Surfacing Sections Should be Identified And Addressed Prior to Seal Coat Application.



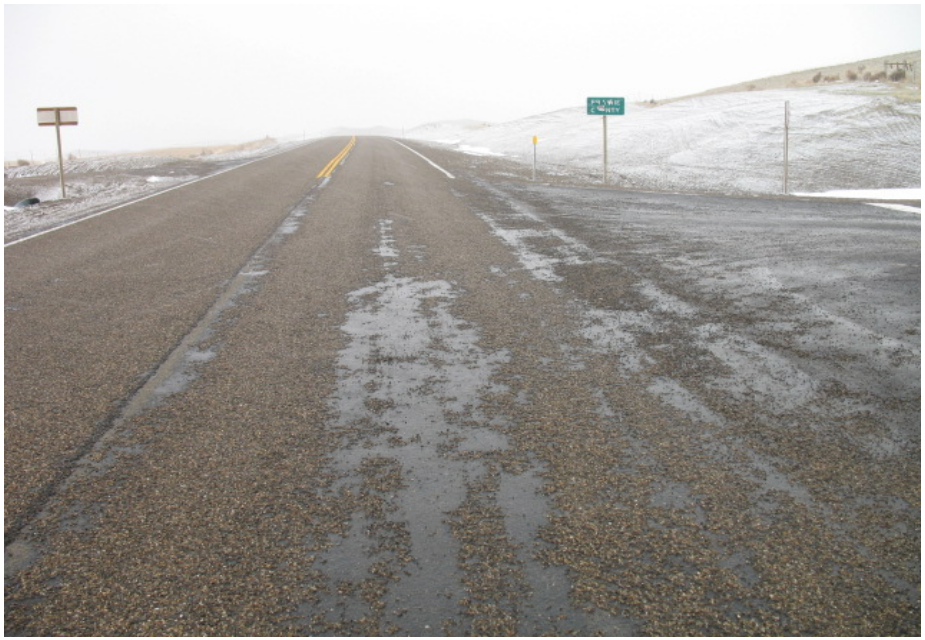
- Condition Attributed to Plant Mix Surfacing Segregation.
- Per Subsection 409.03.8 Warranty, Submit a Detailed Repair Plan to The Project Manager For Approval Within 14 Calendar Days of Notification of Required Repairs.
- This Condition is Unacceptable And Must be Repaired Prior to Final Acceptance.

Condition: Cover Material Loss Attributed to Insufficient Embedment Caused From Plant Mix Surfacing Segregation.



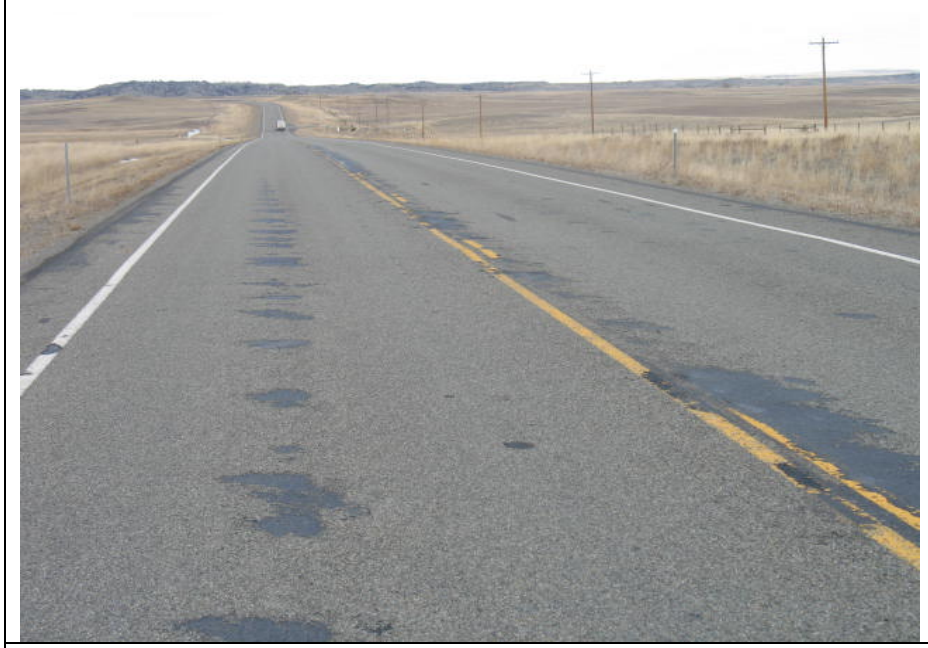
Comments:

- Water Poured on Plant Mix Surface Illustrates Effects of Segregation. Bituminous Materials Will Behave Similarly, Resulting in Insufficient Quantities Remaining on the Plant Mix Surface to Embed Cover Material.
- Segregated Plant Mix Surfacing Sections Should be Identified And Addressed Prior to Seal Coat Application.



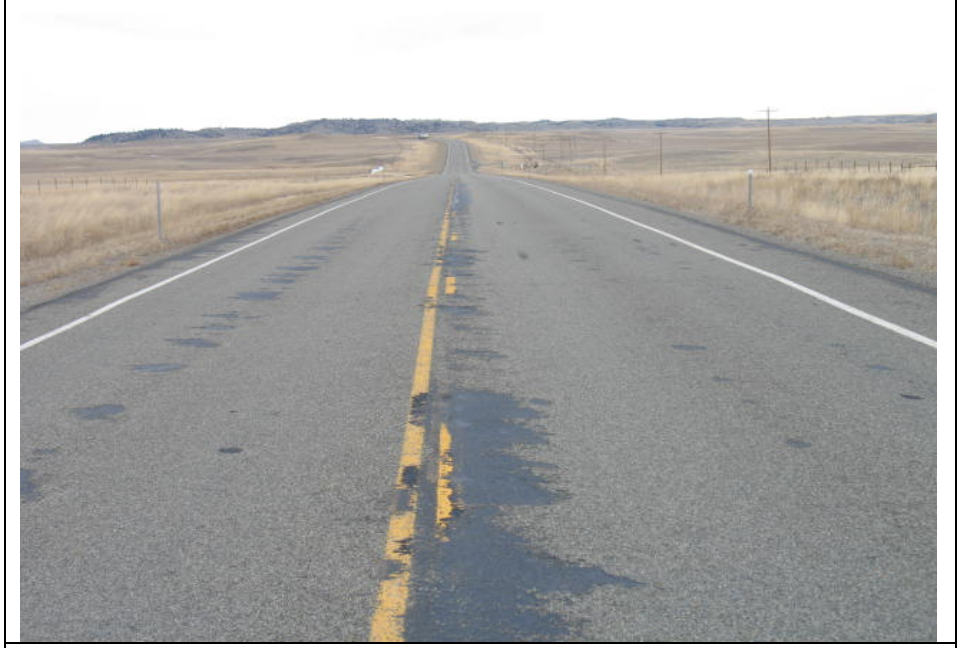
- Cover Material Loss Attributed to Plant Mix Surfacing Segregation.
- Per Subsection 409.03.8 Warranty, Submit a Detailed Repair Plan to The Project Manager For Approval Within 14 Calendar Days of Notification of Required Repairs.
- This Condition is Unacceptable And Must be Repaired Prior to Final Acceptance.

Condition: Cover Material Loss- Snow Plow Damage



Characteristics:

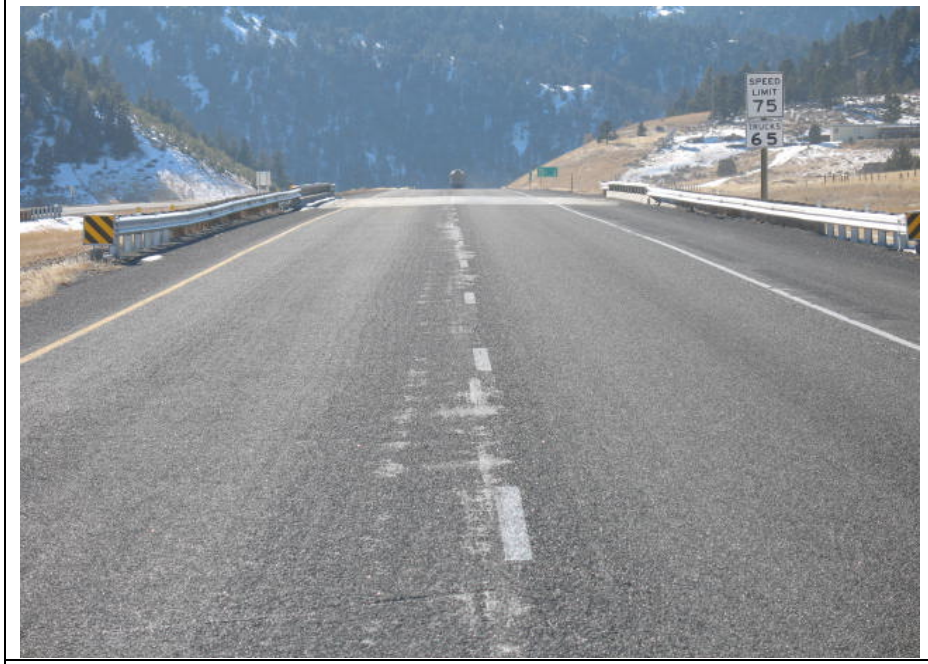
- Condition Typically Presents Itself in a Transverse Fashion.
- Accompanied by Tell Tale “Chatter Mark” Effect.
- Damage Typically Located at, or Near, Roadway Crown, Quarter Line, And Shoulder.



Comments:

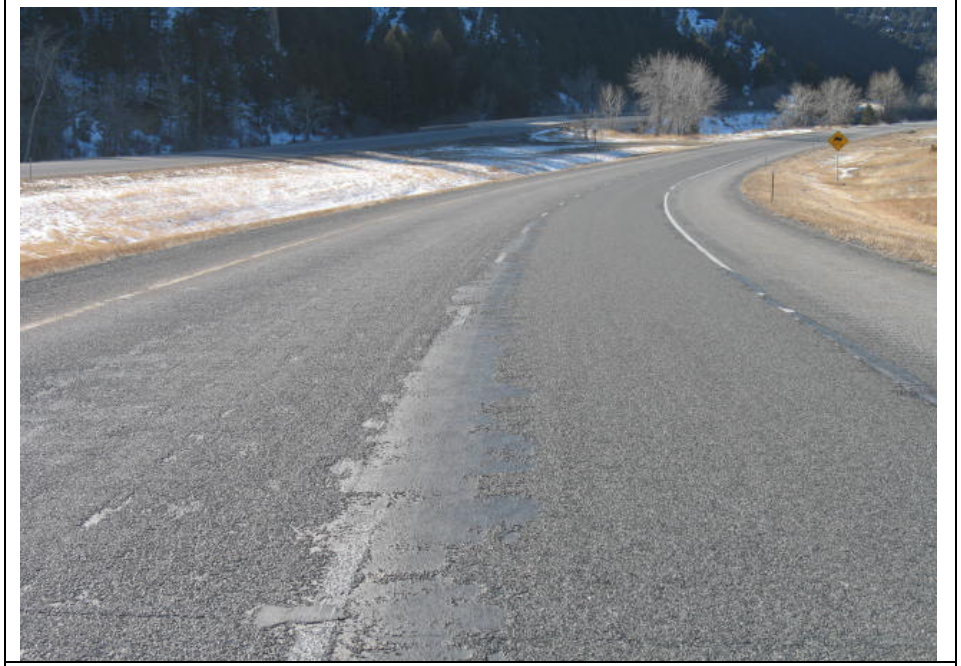
- Contributing Factors Include Plant Mix Surfacing Smoothness & Snow Plow Speed.
- Areas Determined as Having Damage Resulting From Snow Plow Activities Are Not Subject to Seal Coat Warranty Provisions.

Condition: Cover Material Loss- Snow Plow Damage



Characteristics:

- Condition Typically Presents Itself in a Transverse Fashion.
- Accompanied by Tell Tale “Chatter Mark” Effect.
- Damage Typically Located at, or Near, Roadway Crown, Quarter Line, And Shoulder.



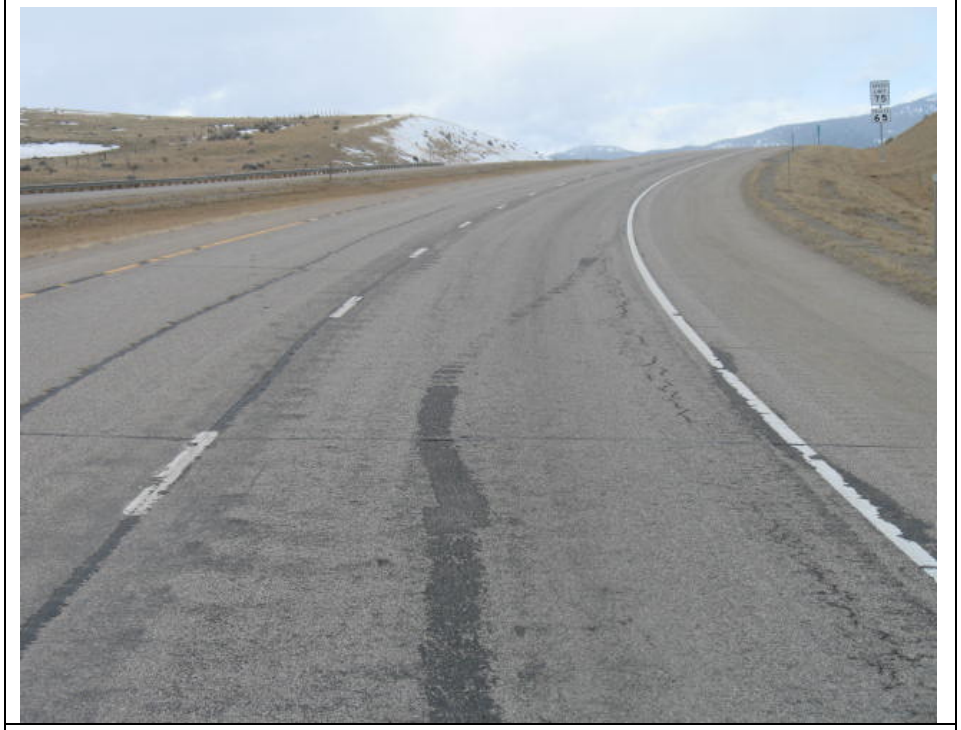
Comments:

- Contributing Factors Include Plant Mix Surfacing Smoothness & Snow Plow Speed.
- Areas Determined as Having Damage Resulting From Snow Plow Activities Are Not Subject to Seal Coat Warranty Provisions.

Condition: Cover Material Loss- Tire Chain Damage

Characteristics:

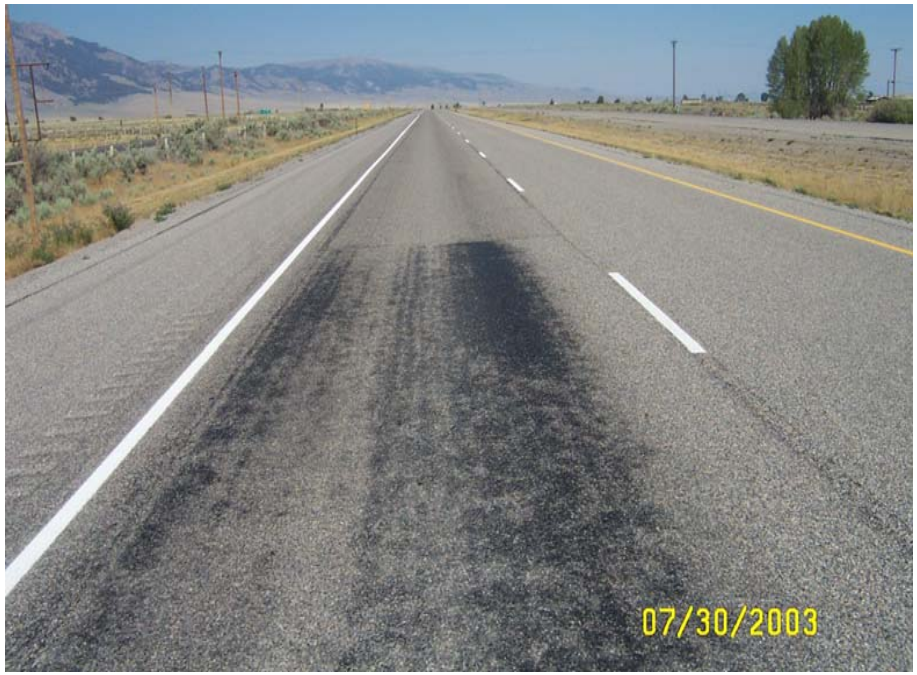
- Condition Typically Present in Steep Grade Sections.
- Grooved Surface Texture Shown Indicates Damage Induced by “V Bar” Style Tire Chain.



Comments:

- Areas Determined as Having Damage Resulting From Tire Chains Are Not Subject to Seal Coat Warranty Provisions.

Condition: Acceptable Appearance After Repairs



Comments:

- Aggregate Colors Are Uniform, Longitudinal Joints Match Reasonably.
- Per Subsection 409.03.7 Application of Seal Coat Materials, Ensure That Transverse And Longitudinal Joints Are Smooth And Match Adjacent Surfaces.

Example- Seal Coat Warranty Deduction Calculation

This example relates to the photos shown on page 11 of the Seal Coat Warranty Administration Guide.

Given:

- Area affected- 3,624 yd^2.
- Emulsified asphalt price- $370.00/ton.
- Weight of emulsified asphalt- 8.49 lbs./gal.
- Application rate of bituminous material- 0.40 gals./yd^2.
- Cover material price- $0.50/$yd^2$.

Asphalt:

3,624 yd^2 * 0.40 gals./yd^2 = 1,450 gallons.
1,450 gals. * 8.49 lbs./gallon = 12,311 lbs. or 6.16 tons.
6.16 tons * $370.00/ MT= $2,279.20.

Cover Material:

3,624 yd^2 * $0.50/ yd^2 = $1,812.00

Total Materials- $4,091.20

In this case, the recommended 50% price reduction would total $2,045.60.

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