

# PAVEMENT GUIDELINES FOR SMALL QUANTITY ASPHALT CONCRETE APPLICATIONS

SEPT 6, 2005

## **BACKGROUND:**

These guidelines are intended to be used when asphalt concrete pavement applications are encountered that require small amounts of hot mix asphalt. A variety of situations may be encountered where a small quantity of hot mix asphalt is needed. However, most common would be culvert or small bridge replacements, bridge deck overlays, bridge approach corrections, etc.

The goal of these small quantity guidelines is to aid District staff in minimizing the variety of mix types from section 400 of this manual commonly applied in small applications of asphalt concrete pavement design. This will reduce the cost of materials and reduce the time and complexity of construction and construction administration where complexity is not needed.

As there are no previous documents regarding the treatment of the above situations it is anticipated there will be questions dealing with special circumstance issues. Technical assistance with these guidelines is available by contacting any of the following individuals.

Dave Powers - Asphalt Materials Engineer, Office of Materials Management (614-275-1387)  
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Dave Miller - Pavement Design Engineer, Office of Pavement Engineering (614-995-5991)

## **DEFINITIONS:**

Medium Traffic: Medium traffic is 50 to 1499 trucks per day using the current year designation.

High Traffic: High traffic is 1500 or more trucks per day using the current year designation.

High Stress Location: High stress locations are found at areas of high acceleration and braking, at intersections, sharp curves, ramps, and where heavy vehicles frequent at slow speeds. Follow application criteria found in the High Stress Guidelines found in this manual.

Small Quantity Asphalt Concrete: Small quantity asphalt concrete for purposes of this guideline would be any asphalt concrete application for or similar to any of the following criteria:

- 1) Projects where asphalt concrete is only used to transition pavement or structure modification or replacement to existing pavement.

- 2) Projects where asphalt concrete is placed on mainline and can be used as a bridge overlay mix type on existing bridges.
- 3) Projects where a new bridge and asphalt overlay on the new bridge is placed according to the Bridge Design Manual and transition is needed from the bridge to existing pavement.
- 4) Projects where the only asphalt concrete items are for lane additions at intersections and/or turn lanes for driveways or other applications with lengths of no more than 0.25 miles where the adjoining existing asphalt concrete is more than 3 years old.
- 5) Washouts, collapse or other limited pavement problems necessitate replacement of asphalt concrete and where the adjoining asphalt concrete is more than 3 years old.

## **TREATMENT OF SMALL QUANTITY ASPHALT CONCRETE APPLICATIONS:**

1) *Projects where asphalt concrete is only used to transition pavement or structure modification or replacement to existing pavement.*

Medium Traffic project: Use a 448 Type 1 surface course with PG 64-22 for surface and intermediate courses of asphalt concrete and a 301 or 302 with PG 64-22 for a base course. Require construction placement lift thicknesses of the Type 1 to be no more than 2 inches for each lift.

High Traffic project: Use a 442, 12.5 mm, Surface Course Type A or B (Hint- use Type B as a replacement for Type 1H if Type 1H was typically specified in the past), (448) using PG 64-22 for surface and intermediate courses of asphalt concrete. Use a PG 70-22M in the above for interstate applications where adjoining asphalt concrete surface is less than 7 years old for all asphalt concrete needed regardless of design thickness. Use a 302 with PG 64-22 for the base course. Require construction placement lift thicknesses of the 442, 12.5 mm, Surface Course to be no more than 2 inches for each lift.

High Stress Location: Use asphalt concrete per the High Stress Guidelines surface and intermediate courses of asphalt concrete needed regardless of the design thickness. Require construction placement lift thicknesses for the above of no more than 2 inches for each lift. Use 302 with a PG 64-22 for the base course.

2) *Projects where asphalt concrete is placed on mainline and can be used as a bridge overlay mix type on existing bridges.*

Medium Traffic project: Use the same asphalt concrete mix type on the bridge deck as specified for the mainline pavement. If needed use a leveling course of the same mix as used on the surface.

High Traffic project: Use the same asphalt concrete mix type on the bridge deck as specified for the mainline pavement. If needed, use a leveling course of the same mix as used on the surface or the same leveling course used on the mainline pavement if required in mainline paving.

*3) Projects where a new bridge and asphalt overlay on the new bridge is placed according to the Bridge Design Manual and transition is needed from the bridge to existing pavement.*

Require the same mix type in transition pavement as specified for the bridge overlay in the Bridge Design Manual. Require the same mix type or types for the transition pavement surface and/or intermediate courses as is used for the bridge overlay. Require construction placement lift thicknesses of no more than 2 inches for each lift if only a surface course is used for transition. If needed use 301 or 302 with a PG 64-22 for the base course.

*4) Projects where the only asphalt concrete items are for lane additions at intersections and/or turn lanes for driveways or other similar applications with lengths of no more than 0.25 miles where the adjoining existing asphalt concrete is more than 3 years old.*

Medium Traffic project: Use a 448 Type 1 surface course with PG 64-22 for all surface and intermediate course asphalt concrete needed and a 301 or 302 with PG 64-22 for a base course. Require construction placement lift thicknesses of the Type 1 to be no more than 2 inches for each lift.

High Traffic project: Use a 442, 12.5 mm, Surface Course Type A or B (Hint- use Type B as a replacement for Type 1H if you typically wanted Type 1H), (448) using PG 64-22 for surface and intermediate courses of asphalt concrete. Use a PG 70-22M in the above for interstate applications where adjoining asphalt concrete surface is less than 7 years old for all asphalt concrete needed regardless of design thickness. Use a 302 with PG 64-22 for the base course. Require construction placement lift thicknesses of the 442, 12.5 mm, Surface Course to be no more than 2 inches for each lift.

High Stress Location: Use asphalt concrete per the High Stress Guidelines surface and intermediate courses of asphalt concrete needed regardless of the design thickness. Require construction placement lift thicknesses for the above of no more than 2 inches for each lift. Use 302 with a PG 64-22 for the base course.

*5) Washouts, collapse or other limited pavement problems necessitate replacement with asphalt concrete and where the adjoining asphalt concrete is more than 3 years old.*

Medium Traffic project: Use a 448 Type 1 surface course with PG 64-22 for all surface and intermediate course asphalt concrete needed and a 301 or 302 with PG 64-22 for a

base course. Require construction placement lift thicknesses of the Type 1 to be no more than 2 inches for each lift.

High Traffic project: Use a 442, 12.5 mm, Surface Course Type A or B (Hint- use Type B as a replacement for Type 1H if you typically wanted Type 1H), (448) using PG 64-22 for surface and intermediate courses of asphalt concrete. Use a PG 70-22M in the above for interstate applications where adjoining asphalt concrete surface is less than 7 years old for all asphalt concrete needed regardless of design thickness. Use a 302 with PG 64-22 for the base course. Require construction placement lift thicknesses of the 442, 12.5 mm, Surface Course to be no more than 2 inches for each lift.

High Stress Location: Use asphalt concrete per the High Stress Guidelines surface and intermediate courses of asphalt concrete needed regardless of the design thickness. Require construction placement lift thicknesses for the above of no more than 2 inches for each lift. Use 302 with a PG 64-22 for the base course.