



# INTERESTED IN GIVING RECYCLED ASPHALT PAVEMENT A TRY?

READ THIS TO LEARN MORE

The use of Recycled Asphalt Pavement (RAP) is allowed and encouraged in the construction of new roadways and pavements in Minnesota. Its use reduces cost and environmental impacts of road construction by reusing existing asphalt pavement. The document "Synopsis of Recycled Asphalt Pavement" was developed as a reference for local agencies that have minimal knowledge of incorporating RAP material into new asphalt and would like to understand more. This document helps new RAP users understand:

- Minnesota Specifications
- The Findings from RAP Use Surveys in MN and Nationwide
- National Trends
- Resources to learn more

Download the full document here:

[lrrb.org/pdf/2016RIC08.pdf](http://lrrb.org/pdf/2016RIC08.pdf)



## 1

## MINNESOTA SPECIFICATION

Minnesota Department of Transportation specifications for plant mixed asphalt pavement is intended to maximize the use of RAP material without compromising the performance and durability of the constructed asphalt pavement. MnDOT initially began incorporating RAP into plant mixed asphalt nearly 40 years ago and has maintained RAP usage within the standard MnDOT specifications for more than 30 years.



Pavement being constructed with 20% and 40% RAP (CSAH 18 in Lake County, MN)

During production of asphalt mixtures, RAP material is introduced into heated virgin aggregate. MnDOT specification controls the amount of RAP that may be included in an asphalt mixture based on the ratio of new added asphalt binder to total asphalt binder in the mixture. Ratios listed in Table 2360-8, excerpted below from the MnDOT Specification 2360, represent the minimum proportion of binder in the asphalt mixture that must be virgin material. (i.e. For PG 58-34 non-wear course a minimum of 80% of the total binder content must be from virgin material allowing up to 20% of the total binder in the asphalt mixture to derive from the RAP material.)

as placed. To evaluate compliance with MnDOT 2360 total asphalt content of the mixture is compared to virgin asphalt binder added to the mixture. An extraction of the asphalt mixture is required to determine the total asphalt binder content as placed. The amount of virgin asphalt binder added is known from the plant recordation records. The percentage of virgin asphalt binder added to the mixture is divided by the total extracted asphalt binder content, then evaluated against the allowable percentages shown in Table 2360-8 of the MnDOT 2016 Edition of the Standard Specifications for Construction. Check for updated versions of this specification: <http://www.dot.state.mn.us/lrrb/letting/index.html>

Testing requirements to meet MnDOT construction specifications include extraction of the asphalt binder material to determine the total asphalt binder content



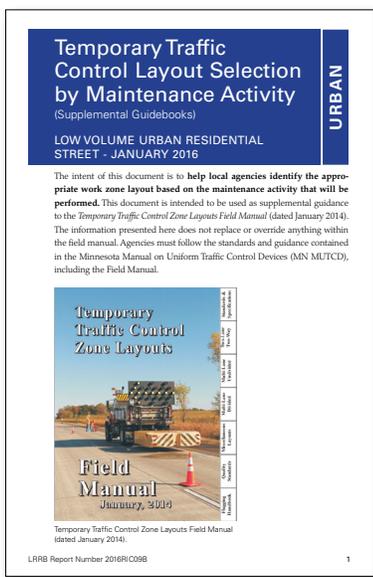


# Having Trouble Determining How to Select the Appropriate Workzone?

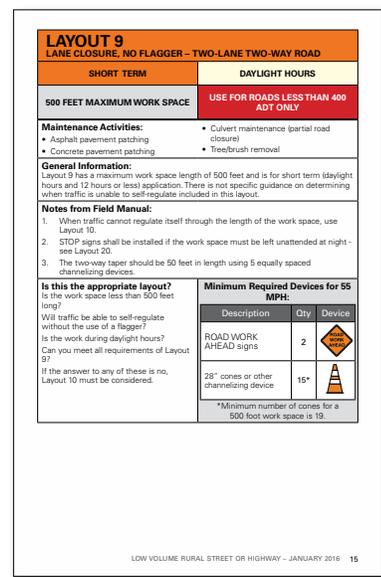
## Guidance for Temporary Traffic Control on Low Volume Roads

The LRRB recently funded the development of two supplemental guidebooks (rural and urban) to the **MN Temporary Traffic Control Work Zone Layouts Field Manual** (dated January 2014). The intent of these guidebooks is to help local agencies identify the appropriate work zone layout based on the maintenance activity that will be performed. These documents focus on **low volume roads** only. The information presented here does not replace or override anything within the field manual.

The full report includes a copy of a letter that was written and submitted to the MN Committee on Uniform Traffic Control Devices in April 2016, requesting changes for low volume roadways and a summary of work zone resources and training opportunities.



Urban Temporary Traffic Control



Example of a layout guidance table

**“These guidebooks will be a great resource for our maintenance staff when selecting a work zone layout”**  
– Lon Aune, County Engineer, Marshall County

### Get a copy here:

- Full Report: [mndot.gov/research/ITS/2016/2016RIC09.pdf](http://mndot.gov/research/ITS/2016/2016RIC09.pdf)
- Rural Maintenance – Supplemental Guidebook: [mndot.gov/research/ITS/2016/2016RIC09A.pdf](http://mndot.gov/research/ITS/2016/2016RIC09A.pdf)
- Urban Maintenance – Supplemental Guidebook: [mndot.gov/research/ITS/2016/2016RIC09B.pdf](http://mndot.gov/research/ITS/2016/2016RIC09B.pdf)
- Letter to MCUTCD Committee: [mndot.gov/research/ITS/2016/2016RIC09C.pdf](http://mndot.gov/research/ITS/2016/2016RIC09C.pdf)

### Printing Instructions for Supplemental Guides:

The supplemental guides are formatted to be printed as a booklet. The printed document is the same size as the field manual so that it can be stored within the book. In order for it to print properly, use these printing settings:

- Landscape
- 2-sided, flip on the short side (if you flip on long side ½ of the pages will be upside down)
- Color (preferred, but optional)

Once printed, fold the entire stack of paper in half to create a booklet. Staple the seam.

**“These guidebooks give confidence to maintenance personnel selecting a traffic control layout because they are grouped by type of activity instead of location on the roadway. More confidence equals better compliance.”**  
– Vic Lund, Traffic Engineer, St. Louis County