

The Pennsylvania Local Roads Program

Identifying Asphalt Block Cracking

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This is the second tech sheet in a series designed to help municipalities identify and address different types of pavement distress. The sheet looks at block cracking.

ROAD INVENTORY SURVEY

To operate any kind of pavement management system, municipalities must collect data on the conditions of their roads. This data must meet the three "C" data standards. Data must be clear, concise, and consistent.

To accomplish this, employees gathering the data, must be trained to use consistent criteria when classifying pavement sections according to the type, size, and severity of the distress observed. When crews go out and record their assessment of pavement conditions, the data are entered into a Surface Condition Survey. These surveys are then compiled. The resulting compilation of pavement conditions in an entire municipality is known as the Road Inventory Survey.

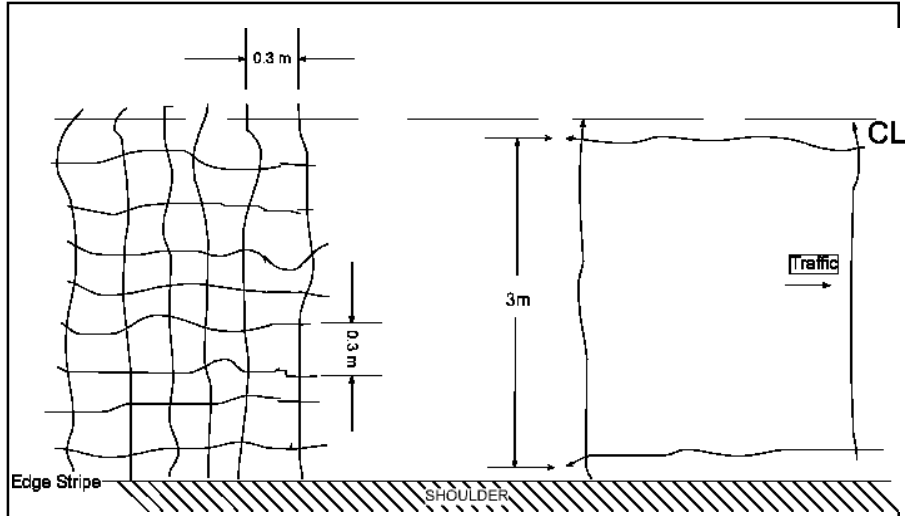
BLOCK CRACKING

Block cracking is defined as a pattern of cracks dividing the pavement into approximately rectangular pieces. These pieces, or blocks may be as small as 1 square foot, or as large as 100 square feet. The severity of the cracking and the total area affected will determine what repair strategy is necessary.

Of course, there may not be funds available to repair all distressed road surfaces. But using a pavement management strategy, municipalities can plan their repairs in a way that stretches their dollars the farthest.

SEVERITY

Pavement management systems classify each type of distress according to severity levels; low, medium, and high. For block cracking, low severity is characterized by cracks with a mean width a quarter of an inch or less. Sealed cracks with sealant material in good condition whose widths cannot be determined would also meet the criteria.



The size of each distressed area should be recorded for each level of severity. This information is crucial in developing a repair strategy.

With a mission to help Pennsylvania's municipalities solve road and bridge management problems, LTAP is sponsored by the Pennsylvania Department of Transportation, the Federal Highway Administration and The Pennsylvania State University in partnership with the Governor's Center for Local Government Services. For information about LTAP services across the state that include Roads Scholar courses, on-site training (roadshows), technical assistance and publications, write or call:

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As block cracking gets worse, the cracks get wider. Once the cracks are greater than a quarter of an inch, but still less than three-quarters of an inch, the cracking is classified as moderately severe. Usually, cracks this size show some low severity cracking nearby. This is evidence that more of the surface is cracking.



This is an example of moderate block cracking. The cracks are larger than a quarter of an inch and are dividing the pavement into roughly rectangular sections.

Cracks with a mean width larger than three-quarters of an inch are considered severe. These cracks are often accompanied by moderate to severe random cracking in adjacent areas.



High severity block cracking shown here often is often accompanied by random cracks indicating that the road surface is in an advanced state of deterioration.

MEASURE THE AREA

While it is very important to accurately record the severity of the cracking on the surface condition survey, it is equally important to document the size of the area affected. This information is important because it often dictates what steps are next.

The size and severity allow municipalities to do two things. First, it enables municipal managers to prioritize areas that need attention the most. Secondly, the size and severity information provides the information necessary to choose the proper repair strategy.

USING THE DATA

Municipalities using pavement management software use size and severity information to generate a report showing the recommended approach to fixing the problem. This report generates a cost estimate. Municipalities may use this information to determine what repairs may be made without busting the budget.

For more detailed information on pavement management, see the lead article, "The Pavement Management Process", in the Summer 2002 *Moving Forward*. Recent newsletters and tech sheets are available online at <http://www.ltap.psu.edu>. Related articles are available through the LTAP library. The library may be searched online through the publications section of the website.

Block Cracking Severity Checklist

Low Severity Characteristics

- ✓ Cracks less than or equal to a quarter inch mean width in a block pattern,
- ✓ Or sealed cracks in good condition with an undeterminable width in a block pattern.

Medium Severity Characteristics

- ✓ Cracks with a mean width over a quarter of an inch, but less than three-quarters of an inch forming a block pattern,
- ✓ Or any crack with a mean width less than three-quarters of an inch accompanied by low severity block cracking.

High Severity Characteristics

- ✓ Cracks with a mean width greater than three-quarters of an inch,
- ✓ Or smaller cracks with nearby medium or high severity block cracking.