

*Pavement Surface Evaluation and Rating*

# PASER **Brick & Block** Manual



*Transportation  
Information Center*

University of Wisconsin–Madison

## *Pavement Surface Evaluation and Rating*

# **Brick & Block PASER Manual**

Brick or block materials have been used for many years for street surfacing. This publication provides a system to evaluate and rate brick and block streets. The rating system is consistent with other PASER rating manuals and the evaluations can be used in a pavement management system or for the Wisconsin Information System for Local Roads (WISLR).

## **Street materials and conditions**

Bricks were widely used at one time for street surfacing and some of these older brick surface streets still remain. Brick pavers are also being used for selected urban development areas in both streets and sidewalks. Other paving materials include granite blocks, limestone blocks, and cast concrete paving blocks.



Brick or block streets are generally constructed on a sand stabilized base. The bricks or blocks may be laid with essentially no joints. In this case sand is often spread over the surface material to fill up any irregularities between the bricks or blocks. They may be laid in a wide variety of patterns.

Some brick or block streets are laid with joints. These may be mortared together but more commonly are filled with sand.

Urban sections normally include a curb. This curb may be cast concrete or larger stone blocks.

## Defects

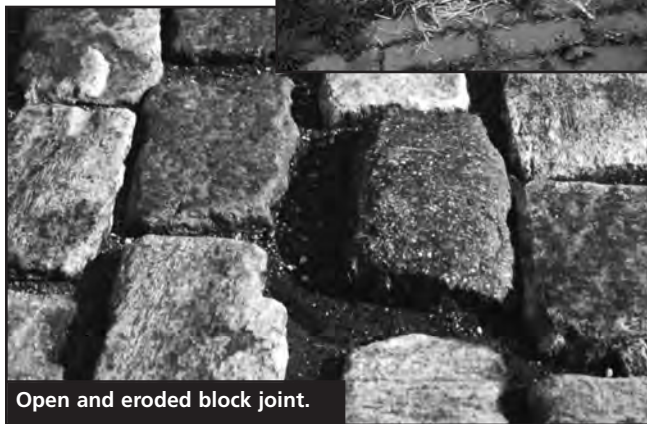
This section describes typical defects found on brick and block streets. You will need to recognize these symptoms and evaluate their severity in order to use the rating system described on page 6. Defects include: joint erosion, gaps, breaks or discoloration, settlement, utility patches, and ride quality.

### JOINT EROSION

Joints may become eroded, allowing water to collect between the bricks or blocks. ▼

Open joints may fill with dirt and be covered with vegetation in lower traffic areas. ▶

Grass in open joints.



Open and eroded block joint.

### BROKEN OR DISCOLORED BRICK

A brick or block may be broken. Often the breaks are either on a corner or edge and the pieces usually become dislodged and are removed from the pavement surface. Broken or settled bricks or blocks may also occur adjacent to manholes, valve boxes and inlets. ▼

Broken and disintegrated bricks.



Open joints and broken brick at utility cover.



Patches for missing bricks and blocks.



### GAPS

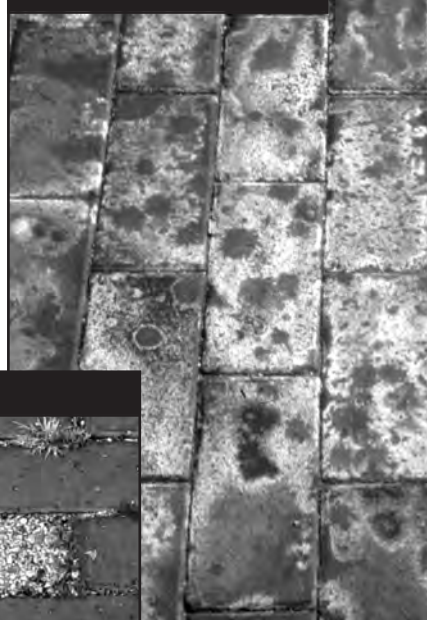
◀ Bricks or blocks may be missing.

Occasionally, the gaps are patched with either asphalt or concrete. ▼

Patch for missing brick.



Efflorescence on new bricks.



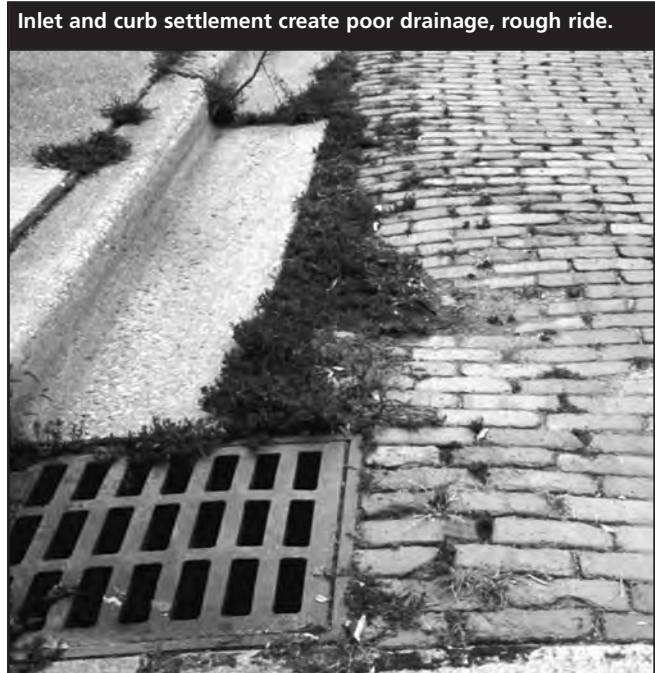
◀ New bricks may develop a white coating called efflorescence. This is minerals surfacing from within the brick material and can be cleaned off. Efflorescence is a cosmetic problem but it may cause some complaints.

**4 Street materials and conditions**

**SETTLEMENT**

Brick or block streets may have sunken or settled areas. These may be isolated areas or they may have adjacent settlements creating a rippled effect.

The flow line adjacent to the curb may settle. This creates ponding and often collects debris.



**UTILITY PATCHES**

Utility repairs may be patched with asphalt or concrete or restored by relaying brick and block.

Utility repair patched with asphalt.

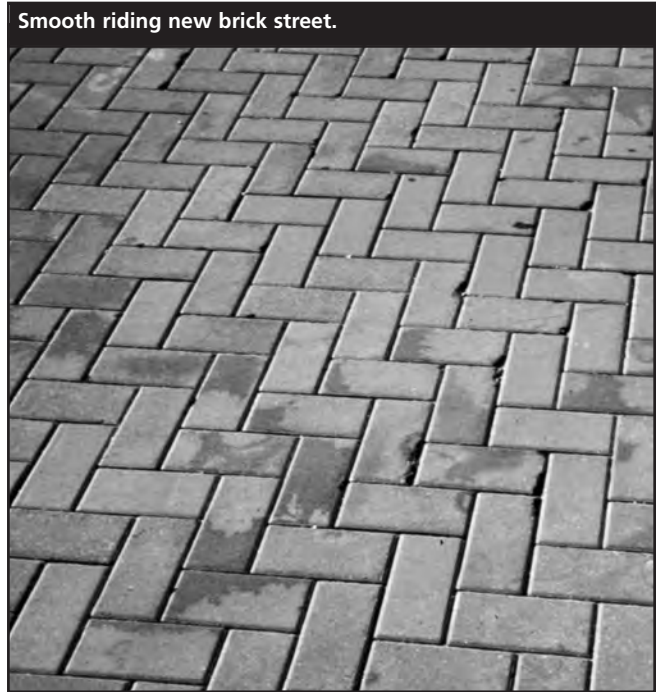


Manhole repairs leaving surface in very poor condition.

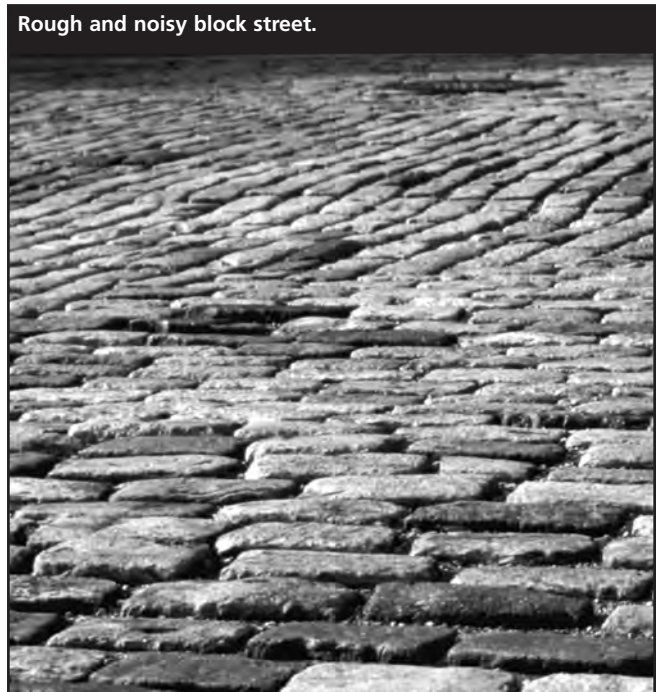
**Ride quality**

The ride quality of brick and block streets varies significantly. Pavements with very narrow and tight joints and a level surface may have a very smooth ride and minor traffic noise. Streets with some settlement and open joints can produce a very rough ride and significant traffic noise.

Smooth riding new brick street.



Rough and noisy block street.



# Rating surface conditions of brick and block streets

The extent and severity of each type of defect are used to rate the street section's overall condition. Defects may gradually worsen with age or they may deteriorate rapidly, depending on the volume of heavy traffic and the road quality.

Inspecting and rating streets every year or two helps track the rate of deterioration and lets local officials plan for maintenance and improvement. The photographic examples will help you become familiar with the general patterns of each rating.

Surface rating	General condition, defects, and recommended improvement
<b>4</b> Very Good	New condition. No defects.
<b>3</b> Good	Very few defects. Good ride.
<b>2</b> Fair	One or more types of defects present extending over 5% to 25% of the surface area. Ride may be uneven and rough. Sunken or settled areas. Broken bricks or blocks. Areas of poor drainage. Open joints. Spot repairs are recommended.
<b>1</b> Poor	Defects cover more than 25% of the surface area. Very rough ride. Numerous patches in fair to poor condition. Poor drainage. Requires extensive repair or reconstruction.

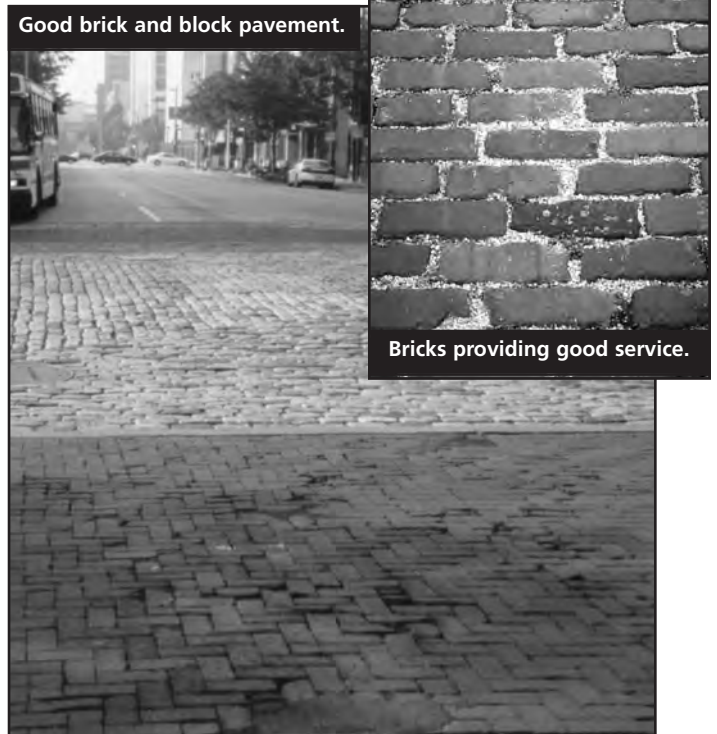
## ✓ 4 – VERY GOOD

New condition. No defects.



## ✓ 3 – GOOD

Few defects. Good ride.



**✓ 2 – FAIR**

One or more types of defects extending over 5 to 25% of the surface area.

Overall ride may be uneven and rough.

Sunken or settled areas.

Broken bricks or blocks.

Areas of poor drainage.

Open joints.

Spot repairs are recommended.



**✓ 1 – POOR**

Defects cover more than 25% of the surface area.

Very rough ride.

Numerous patches in fair to poor condition.

Poor drainage.

Requires extensive repair or reconstruction.



## Summary

Assessing street conditions is essential to good planning and efficient use of local street funds. The PASER pavement surface evaluation and rating procedure, described here and in other PASER Manuals, has proven effective in improving decision making and using street repair and improvement funds efficiently. For more information and training contact the Transportation Information Center.



Produced by the T.I.C. with support from the Federal Highway Administration, the Wisconsin Department of Transportation, and the University of Wisconsin-Extension. The T.I.C., part of the nationwide Local Technical Assistance Program (LTAP), is a Center of the College of Engineering, Department of Engineering Professional Development, University of Wisconsin-Madison.

Copyright © 2001, reprint 2013, 2015

Wisconsin Transportation Information Center  
432 North Lake Street  
Madison, WI 53706


800/442-4615 TEL  
608/263-3160 FAX  
tic@epd.engr.wisc.edu  
<http://tic.engr.wisc.edu/>

**Donald Walker**  
Former T.I.C. Director  
*author*

**Lynn Entine**  
Entine & Associates  
*editor*

**Susan Kummer**  
Artifax, *designer*

UW-Madison provides equal opportunities in employment and programming, including Title IX requirements.

 Printed on recycled paper