



Chapter Six

Pavement Management

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Pavement Management Concepts

Historically, small agencies have developed an informal process for managing pavements. Pavements are examined periodically and the worst ones are repaired, rehabilitated, or reconstructed. At times, individuals with clout bring pressure to bear to repair a particular street or road. Through the years, this informal process has worked because the knowledge, experience, and common sense of those in decision making positions led to logical street and highway programs.

Today, however, as traffic volumes and vehicle loadings increasingly burden pavements, maintenance budgets have not kept pace with the rising costs of labor, materials, and equipment. Because agencies today are faced with increasing economic demands, a more systematic process is needed to justify and account for pavement maintenance expenditures.

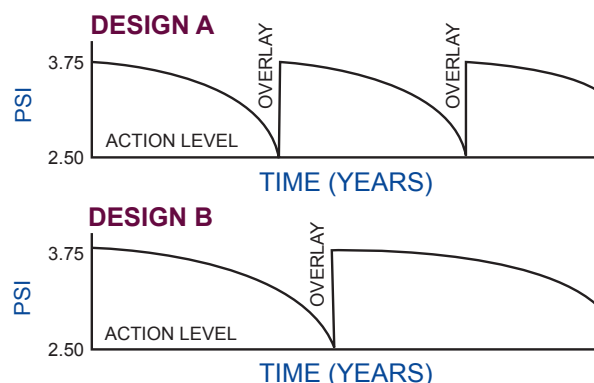
More and more agencies are adopting a pavement management program that will answer the following questions:

1. How does one determine what pavement is “worst”?
2. When is the best time to schedule repair, resealing, or resurfacing?
3. What is the savings or cost of deferring repairs?
4. What is the most cost-effective action to take in repair or restoration?
5. How are Pavements and/or maintenance processes performing.

Pavement management can be defined as “an orderly process for providing, operating, monitoring, maintaining, repairing, and restoring a network of pavements.”

The decision to repair or rehabilitate is complicated because of the variety of types of pavement distress – some serious and others relatively minor. If pavements with some serious levels of distress are not rehabilitated in an expeditious manner, their ultimate repair may be significantly more expensive. An overlay made at the proper time in the life of a pavement, for example, may extend the life for many years. If not overlaid, the same pavement may require more extensive rehabilitation.

Figure 6-1: Pavement Action Model



Carrying out a pavement management program involves developing a recordkeeping strategy with the appropriate forms. The procedures can be relatively simple or very complex depending on the size of the agency. Complex and costly computer operations are used in large jurisdictions. In the case of a smaller street or road network, there are a number of microcomputer programs available from consultants, or through public agencies

The Asphalt Institute has developed A Pavement Rating System for Low-Volume Asphalt Roads. Information about its system is contained in Information Series No. 169 (IS-169). The subject also is covered in some detail in The Asphalt Handbook Manual Series No. 4 (MS-4).

Rating a Road

The Asphalt Institute's publication provides a system for any individual or agency to inspect a road, rate it, and interpret the results. All that is needed is an individual or individuals with maintenance knowledge – such as a superintendent or foreman – to walk the road and assign a numerical value to each type of pavement defect. The type of distress, the extent of the distress, and its relative seriousness must be recorded.

In this procedure, lower values are assigned to less serious problems and higher values to more serious problems. A rating of zero indicates that the pavement is relatively free of defects. A rating of 5 or 10 would indicate serious distress. After each defect has been rated, the individual ratings are added. The sum is then subtracted from 100 and the result is a condition rating for that particular piece of road.

It is important that pavements are evaluated in a consistent manner. Those conducting a condition rating survey must have knowledge of the various types of defects, their cause, and the remedial action required. Additional detailed information on this subject is available in The Asphalt Institute's publications (MS-16), (MS-17), (MS-4), and others.

Interpretation of a Condition Rating

The absolute value assigned by the condition rating provides an indicator of the type and degree of repair work necessary. As a general rule, if the condition rating is between 80 and 100, normal maintenance operations (crackfilling, pothole repair, or seal coating) are all that may be required. If the condition falls below 80, it is likely that an overlay will be necessary. If the condition rating is below 30, major reconstruction may be necessary.

Another valuable use for the condition rating is to provide a rational method for ranking roads and streets according to their condition. A priority ranking should be the basis for programming and budgeting maintenance, rehabilitation, and reconstruction

Figure 6-2: Pavement Management Program Flow Chart

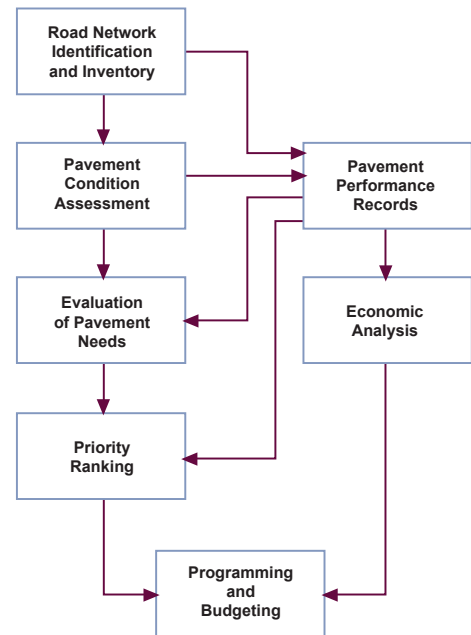


Figure 6-3: Asphalt Pavement Rating Form

ASPHALT PAVEMENT RATING FORM

STREET OR ROUTE _____ CITY OR COUNTY _____

LENGTH OF PROJECT _____ WIDTH _____

PAVEMENT TYPE _____ DATE _____

(Note: A rating of "0" indicates defect does not occur)

DEFECTS	RATING	
Transverse Cracks	0-5	_____
Longitudinal Cracks	0-5	_____
Alligator Cracks	0-10	_____
Shrinkage Cracks	0-5	_____
Rutting	0-10	_____
Corrugations	0-5	_____
Raveling	0-5	_____
Shoving or Pushing	0-10	_____
Pot Holes	0-10	_____
Excess Asphalt	0-10	_____
Polished Aggregate	0-5	_____
Deficient Drainage	0-10	_____
Overall Riding Quality (0 is excellent; 10 is very poor)	0-10	_____
	Sum of Defects	_____

Condition Rating = 100 - Sum of Defects
= 100 - _____

Condition Rating =

