

### WHAT IS IT?

Asset management is a proactive, systematic process of maintaining, upgrading, and operating physical assets, such as roadways and bridges, in a cost-effective manner. The practice combines engineering, business management, economics, and computer-aided technology. The Federal Highway Administration (FHWA) describes asset management as “a quick check of your highway network health.”

Traditionally, transportation departments have considered the construction and maintenance of a roadway as two separate operations with separate funding levels assigned to each.

#### Why do it?

Pavement asset management (PAM) combines the operations and funding to better benefit the public and efficiently manage the entire network of streets, roads, and highways.

A major goal of PAM is to use asset performance information in the short- and long-term decision-making, planning, budgeting, and operating functions so the physical assets stay at the highest condition level. Considering needs for the entire network allows agencies to make project-level decisions that optimize the system.

Pavement preservation is less expensive and more cost effective than reconstruction. The Transportation Research Board reports that every dollar invested in preventive maintenance, at the appropriate time in the life of a pavement, saves \$3 to \$4 dollars in future rehabilitation costs. Add user costs to the equation, and the cost savings increase dramatically.

The result is a well-maintained pavement network at the lowest constant level of funding. PAM also helps justify expenditures by keeping track of the value of long-lived assets and preservation activities. The practice is also in compliance



with the Government Accounting Standards Board (GASB) 34, which is aimed at providing public accountability.

#### Benefits Overview of Pavement Asset Management

- Maintains road network at the highest condition level
- Levels peaks and valleys in an agency’s annual budget
- Minimizes annual expenditures for maximum benefit
- Justifies expenditures to taxpayers and legislators
- Ensures safety
- Ensures serviceability
- Optimizes resources
- Ensures asset needs are not overlooked

The concrete pavement industry, together with state and local agencies, is continually investigating innovative methods to efficiently renovate, replace, and expand roadways. A successful pavement network requires a mix of fixes so that pavements come of age at different times to maintain a consistent flow of expenditures.

### Steps for Success

1. Evaluate the existing system
2. Develop a plan of action
3. Implement the plan
4. Review the system's response, then repeat the process

The best way to see the effects of pavement choice is to calculate the average remaining service life (RSL) for each mile of the network using the 'base policy mix' principle. RSL considers pavement distress modes and serviceability issues. Pavement asset management is only possible when an agency applies life-cycle cost analysis (LCCA) across their roadway network and continuously throughout time.

Such a system is inherently dynamic, so reallocation is necessary at regular intervals to deliver a continuously optimized system of roads.

### Concrete Pavements Facilitate Effective Asset Management

- Extends the life of the roadway network by extending the life of each section of the roadway.
- Lowers the cost of keeping the system in good, serviceable condition.
- Maintains a consistent, annual flow of expenditures on the system.
- Increases public satisfaction by lowering user costs, reducing the number and length of work zones, and extending roadway performance.

Available concrete pavement repair techniques offer a mix of fixes for preserving, maintaining, and rehabilitating roadways of all classifications, applications, and time frames. The concrete pavement industry, together with state and local agencies, is continually investigating innovative methods to efficiently renovate, replace, and expand roadways. A successful pavement network requires a mix of fixes so that pavements come of age at different times to maintain a consistent flow of expenditures.

### A Mix of Fixes

- **Restoration** – When a concrete pavement exhibits only minor distress.
  - Techniques include full and partial depth repair, slab stabilization, dowel bar retrofitting, retrofitting concrete shoulders and edge drains, cross-stitching, and diamond grinding.
- **Resurfacing** – When pavements have medium-to-high levels of distress and restoration is not longer effective.
  - Techniques include bonded and unbounded concrete overlays.
- **Rehabilitation** – When flexible pavements fail primarily due to base failure and cannot be repaired by a simple asphalt overlay or a “mill and fill” approach.
  - Full-depth reclamation with cement recycles in-place roadway materials to create a uniform, stronger, and durable stabilized base for a concrete or asphalt surface.
- **Reconstruction** – When pavements have high levels of distress requiring total removal and replacement of worn out or insufficient pavement.
  - Existing concrete pavements can be recycled into aggregate for use as base material and also incorporated into a new concrete pavement.



Portland Cement Association  
5420 Old Orchard Road  
Skokie, Illinois 60077-1083  
847.966.6200 Fax 847.966.9781

500 New Jersey Avenue NW, 7th Floor  
Washington, DC 20001-2066  
202.408.9494 Fax 202.408.0877  
[www.cement.org](http://www.cement.org)