

Progressive Pavement Management Program



Governments Taking Control of Roadway Networks



What Infrastructure Challenges are State and Local Governments Facing Today?

Local and State Governments are facing challenges from the economy, the environment, and growing populations.

- Controlling the life cycle needs of infrastructure systems.
- Maintaining rapidly aging infrastructure systems.
- Stretching each budget dollar as tax revenues fall.
- Meeting the new environment challenges our world demands.
- Keeping up with the challenges of growing urban populations.
- Allowing continued economic growth without compromising service.
- Keeping constituents highly satisfied with the level of leadership provided.

How are Governments Managing These Challenges?

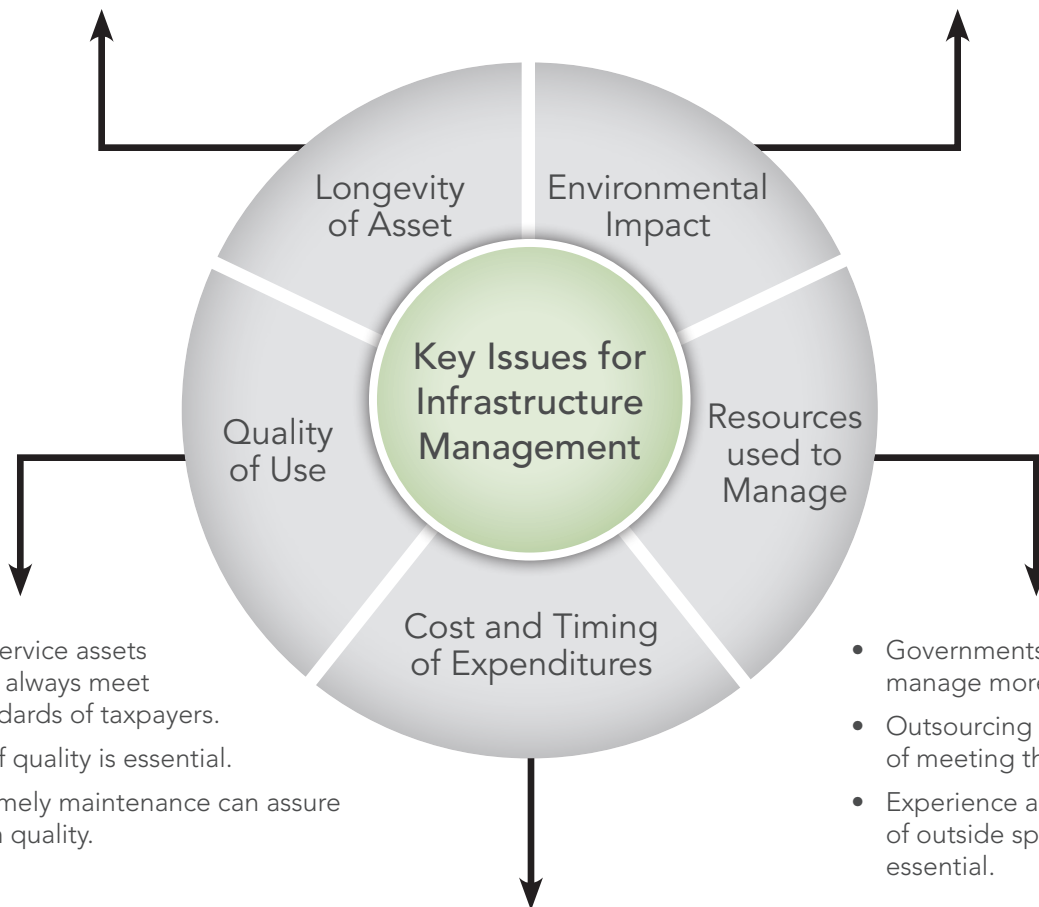
What is clear is that the solutions of the past are not sustainable for the future. Modern government will require new management approaches that will meet the new set of challenges.

- Implement systems that provide long term control and predictability of maintenance.
- Implement management programs such as NYBIT's Progressive Pavement Management Program on existing infrastructure assets that work for the asset's entire life cycle.
- Employ products and processes used in managing infrastructure that minimize environmental impact.
- Practice preventive maintenance of assets versus waiting for system failure.
- Make budgetary impacts predictable and manageable by using long-term planning.
- Continuously inspect infrastructure assets for safety and efficiency of planning for maintenance events.

Facing Key Issues in Managing Existing Infrastructure

- As funds for replacement do not exist.
- Proper and timely maintenance must be completed.
- Quality of work is critical.

- Assets must be maintained using methods that minimize CO2 emissions and energy use.
- Assets must be environmentally sustainable from all aspects.



- The level of service assets provide must always meet the high standards of taxpayers.
- Monitoring of quality is essential.
- Preventive, timely maintenance can assure constant high quality.

- Governments are forced to manage more with less.
- Outsourcing is a key method of meeting this demand.
- Experience and commitment of outside specialists is essential.

- Costs must be minimized while still meeting all other goals.
- With reduced borrowing capacity for capital improvements, adhering to routine maintenance schedules is crucial.
- Optimization of the entire roadway system should be the focus rather than the "worst first" project selections of the past.



How Should Roadway Assets be Managed? Progressive Pavement Management Program

The Progressive Pavement Management Program (PPMP) is a design-build solution to managing the maintenance cycle of roadway assets. This allows governments maximum control of costs, timing, and the overall condition of their assets. NYBIT works hand-in-hand with the state or municipality to design a customized PPMP that maximizes use of available funding to best maintain their roadway network.

The 5 Key Advantages

1. Control Asset
2. Save Money
3. Improve Condition
4. Streamline Planning
5. Save Environment

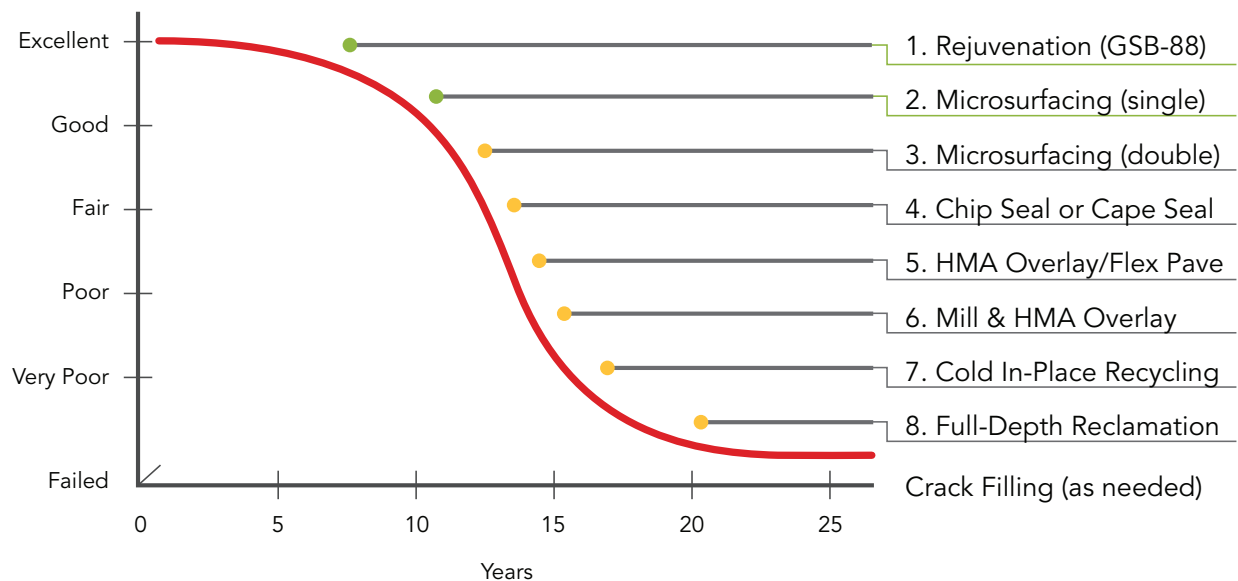
Further, NYBIT ensures proper execution of the plan while giving the municipality flexibility to make adjustments to ensure the best outcome for all stakeholders. This is because the agency is always in control of the process and thus can make informed decisions using the trusted expertise of NYBIT for guidance.

Key benefits of implementing a PPMP include:

- More roads treated (2x to 3x more) with the same budget.
- Higher overall roadway network condition over the entire life of the asset.
- Minimizes the costs of maintaining the roadway network via preventive maintenance.
- Gives maximum planning and control of the lifetime maintenance needs of the roadway network to the agency.
- Uses Green processes and technologies to minimize energy consumption and CO2 output.
- Provides best stewardship of the asset keeping taxpayers happy.

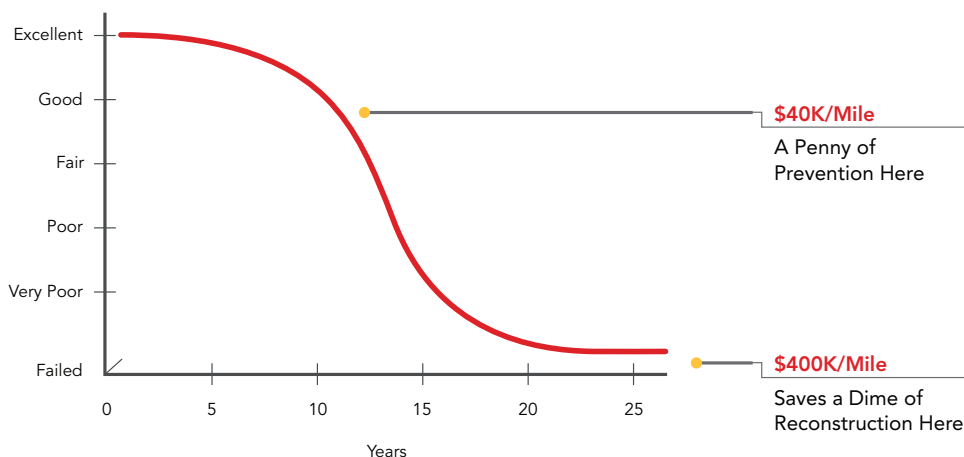
What Treatments are Used and When in a Progressive Pavement Management Program?

NYBIT offers a wide array of different treatments so only the most appropriate, cost effective application is used. To determine what a particular roadway segment needs and when, a qualified engineer inspects all the roads in a network and assigns a Pavement Condition Index (PCI) to each road and for the overall network. This is used to determine the order, priority, and scope of work needed. While preventative maintenance is stressed, NYBIT possesses all the tools and equipment need to restore a road at any point along the Asphalt Deterioration Curve as shown below:



How Much are the Potential Cost Savings?

PPMP allows municipalities to realize cost savings through proactive management and planning, while at the same time improving quality and safety – a true win, win scenario! Taxpayers deserve to have every dollar maximized via PPMP.



**Cost Comparison
over 50yrs**

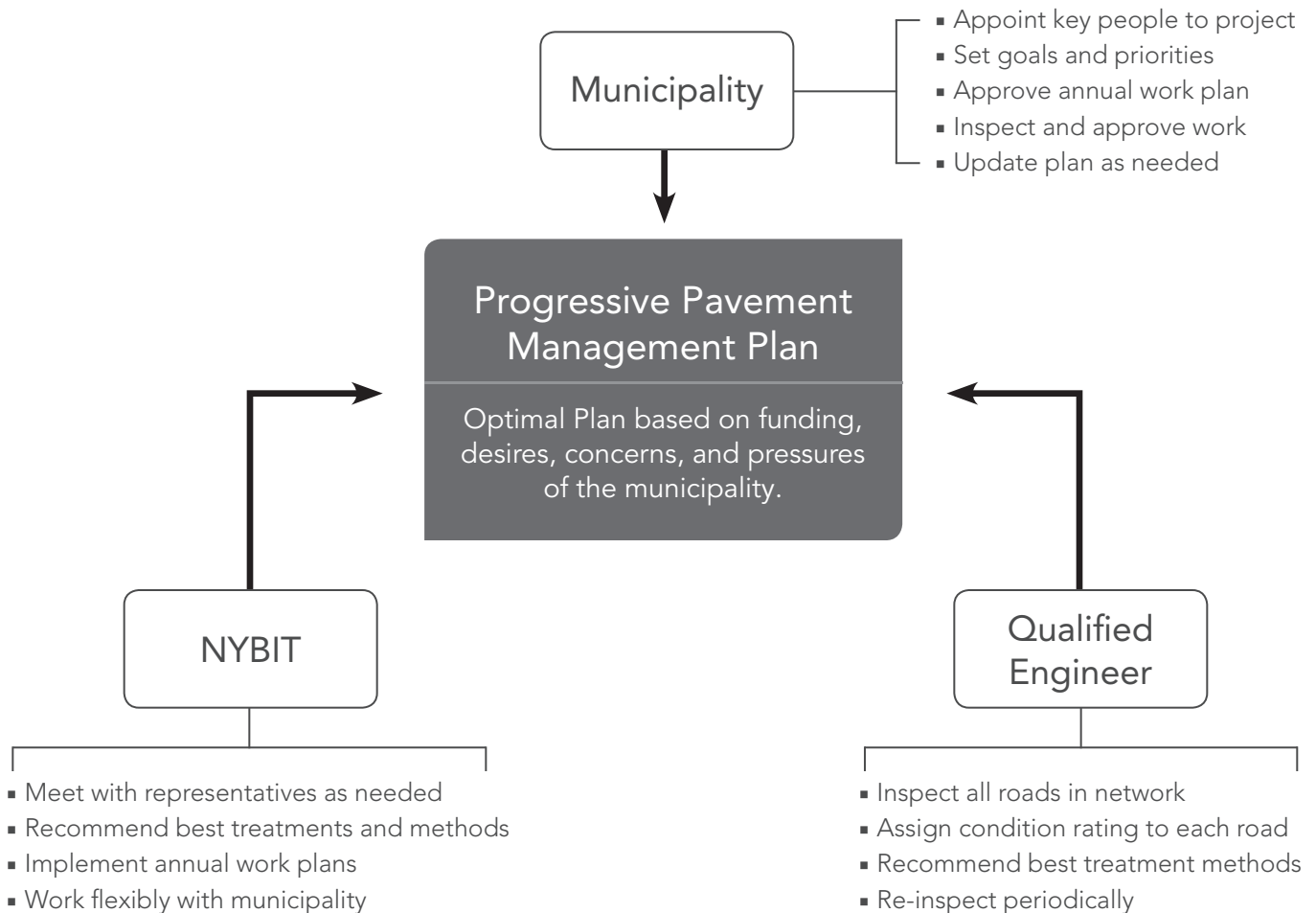
HMA Overlay Only
\$252,000/mile over 50yrs

PPMP Methods
\$138,600/mile over 50yrs

SAVINGS
\$113,400/mile over 50yrs

Who Participates in the Progressive Pavement Management Program?

Implementing a PPMP is an application of teamwork at its best. The key player and decision-maker in the process is the municipality who actually controls the program along with the aid of NYBIT and their strategic partner, a highly experienced engineering firm. The roles and responsibilities of each party are as follows:



Three Paths to Consider:

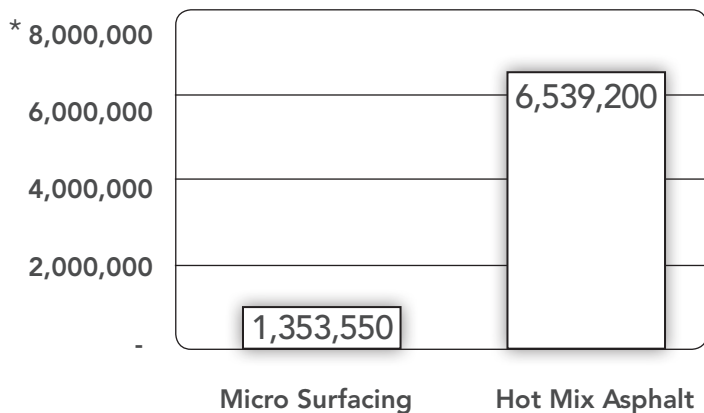
1. Proceed using current methods and not gain full control of the asset's maintenance.
2. Take partial advantage of the PPMP model and maintain the current network condition level with a reduced budget, and reduced environmental impact.
3. Take full advantage of the PPMP model to accelerate the overall condition of your roadway network with the same budget, and reduced environmental impact.



How does PPMP Save the Environment?

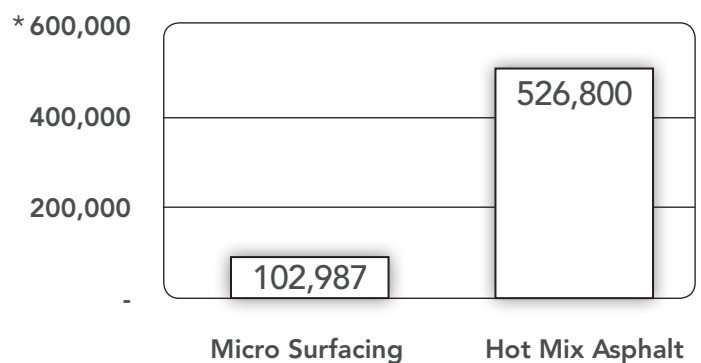
NYBIT specializes in using the most advanced roadway preservation and maintenance techniques available when implementing PPMP. The products and processes used are engineered to save energy in all phases from manufacturing to final application on the road. Additionally, they are also designed to minimize CO₂ and other green house gas emissions. NYBIT is an active member of the U.S. Green Building Council. The charts below compare the energy consumption and CO₂ emissions of micro surfacing (one example of the many treatments used by NYBIT) versus conventional Hot Mix Asphalt:

Energy Consumption over 50 Years



*Measurements are in mega joules.

CO₂ Emissions over 50 Years



*Measurements are in kilograms.



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