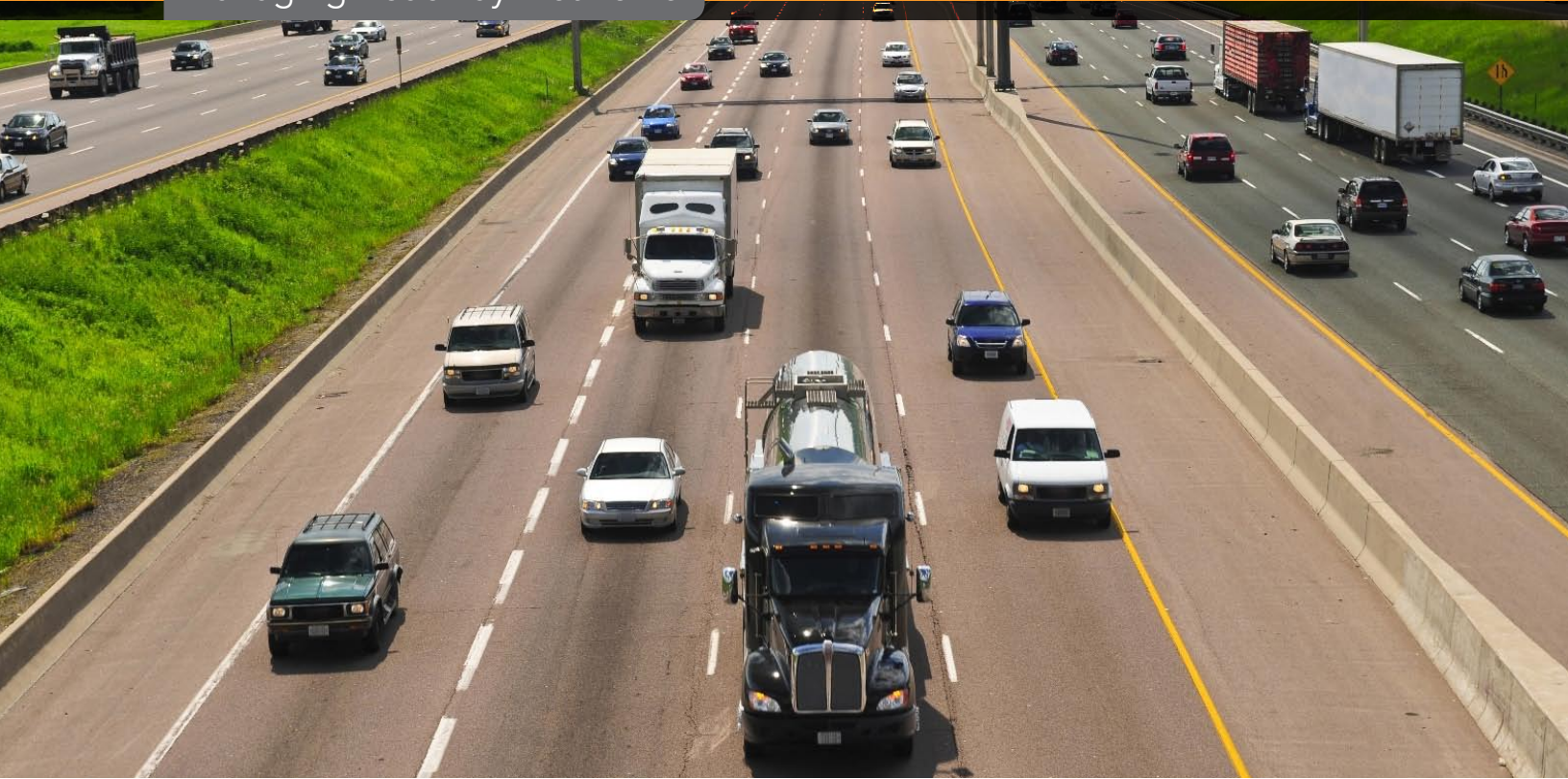




Managing Roadway Networks



Modern P3 Methods to Finance Improvements



The Challenge of Managing Roadway Networks

America has experienced tremendous growth over the last century. Unfortunately our infrastructure has not been managed properly. Roadways, like any other asset, require routine preventive care to minimize life cycle costs while maintaining optimal condition. NYBIT provides innovative solutions to today's problems.

- Pavement conditions on many roadway networks have fallen to failing levels.
- Economic growth is threatened when road conditions deteriorate and we cannot meet needs.
- Safety and decreased rideable roads put citizens at greater risk.
- The cost of needed repairs grows rapidly as conditions only fall worse with time.
- Current methods are not sustainable, leadership is required to fix the problem now.
- Deteriorating roadways are a liability that must be addressed immediately.

A Modern Public Private Partnership Method

The challenge of roadway network deterioration is larger than most agencies can manage alone. The financed Progressive Pavement Management Program is a P3 innovation that uses the private sector for expertise and financing and eliminates typical public sector concerns. This innovation offers great promise of a workable solution that can begin today.

- Spur economic growth by putting people to work today.
- Promote innovation, transparency, and communication.
- Owner agency retains control.
- Reasonable ten year duration of partnership.
- Utilize experts to restore roadway networks in the fastest, most cost effective manner.
- Obtain financing that can cover the gap agency budgets cannot manage.
- Cost savings and improved pavement conditions begin to accrue immediately.
- Ensure that the next generation is left with a high quality roadway system.
- Restore condition while not spending more than already budgeted.

The Key Component of this P3 Approach... Progressive Pavement Management Program

The Progressive Pavement Management Program (PPMP) is a design-build solution to managing the life 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 agency to design a customized PPMP that uses a wide range of pavement preservation and rehabilitation treatments that maximizes use of available funding to best manage the 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 agency 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.

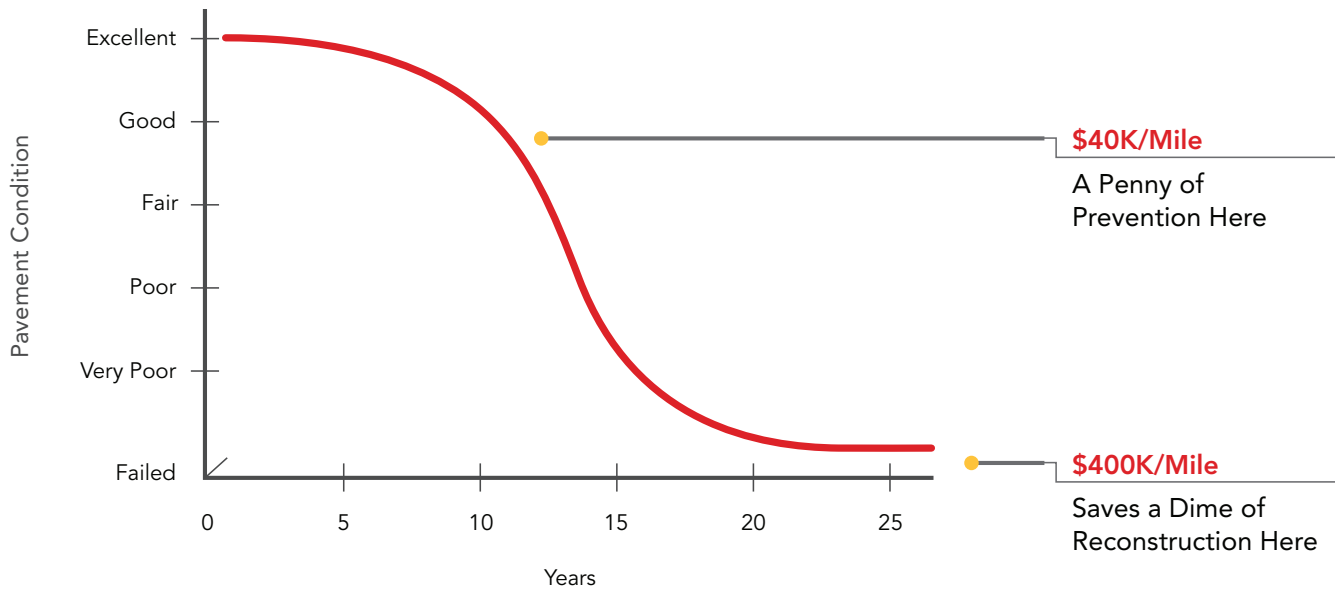
Key benefits of implementing a PPMP include:

- 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.

Front Loading Repairs – A Necessary Step in Restoring the Public’s Roadway Assets

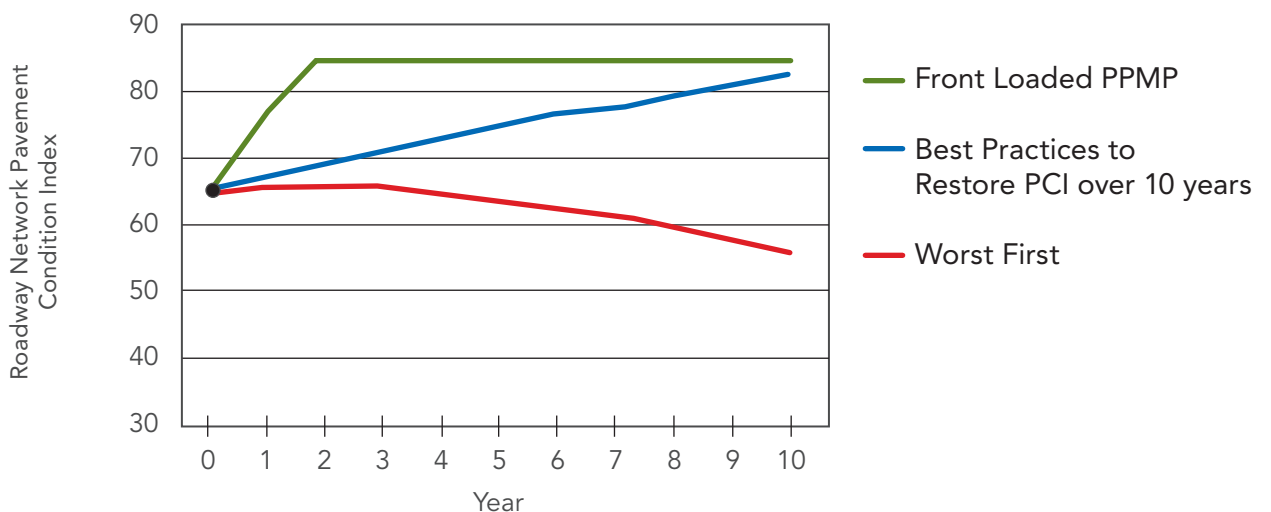
PPMP represents the best practice in terms of quality, cost, and environmental impact in managing a roadway network. Properly implemented, the roadways under a PPMP will maintain an overall condition of good to very good for the entire life cycle. The reality is that most networks have already reached the failing condition where lower cost treatment methods cannot be used. The road network must be brought back to good condition as soon as possible as costs will only grow as time waits. The Asphalt Deterioration Curve explains the issue:

The Importance of Timing: Getting the most BANG for your dollars



For roads in the failed condition, the penny of prevention can only be applied if the dime of reconstruction is spent now to restore the pavement condition. Thus owners of roadway networks have three paths to consider. First, just keep using “worst first” and watch the condition fall rapidly; second, implement the best practices (PPMP) over ten years to restore condition; or three, **front load the repairs and maintain proper life-cycle management for the life of the road thereafter.**

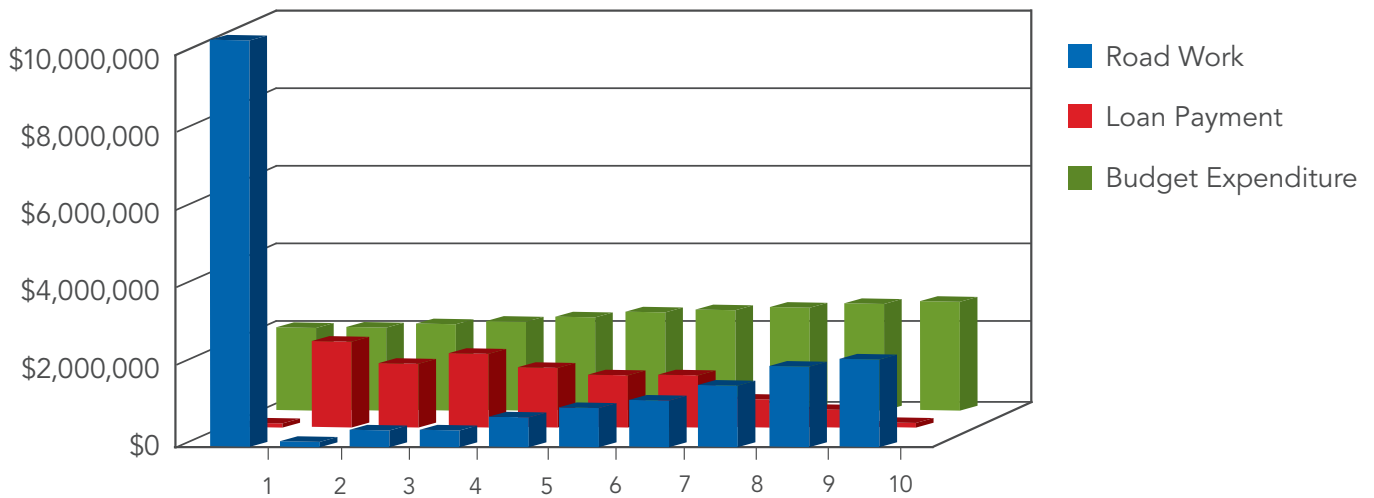
Three Paths to Consider



Lowest Cost Option – Financing Major Repairs Today Saves Millions Tomorrow

Because of the nature of the Asphalt Deterioration Curve, waiting to do needed repairs is not an option. Unfortunately few municipalities possess the resources to expend the capital needed to make such repairs. The best option is to finance the needed front loaded repairs and repay using the existing road resurfacing budget. The best part is that over ten years, the savings alone will more than cover the financing costs while the citizens get the best, safest roads today. Consider this example. An agency has a roadway network with an average Pavement Condition Index (PCI) of 65 and an annual resurfacing budget of \$2 million expected to grow at 2% per year to cover inflation. The example shows how financing the repairs up-front saves \$8.7 million in just ten years after paying the financing costs.

Financed PPMP

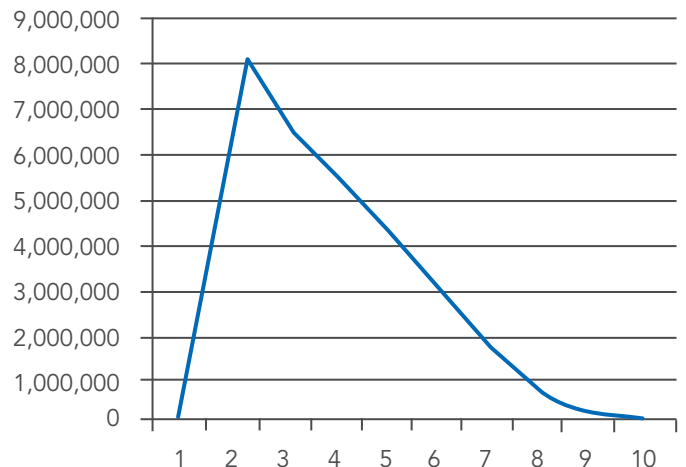


\$8 million is borrowed (assuming 7% cost of debt and a 2% origination fee) from a private source that, along with the already budgeted \$2 million, will rapidly restore the PCI to the mid-eighties. The loan will then be paid back rapidly over ten years using part of the previously budgeted resurfacing expenditure. At the end of the ten years, the debt is zero, the PCI is still in the mid-eighties, and the taxpayers have saved over \$8.7 million. This is a win, win for all.

Cost Benefit Analysis

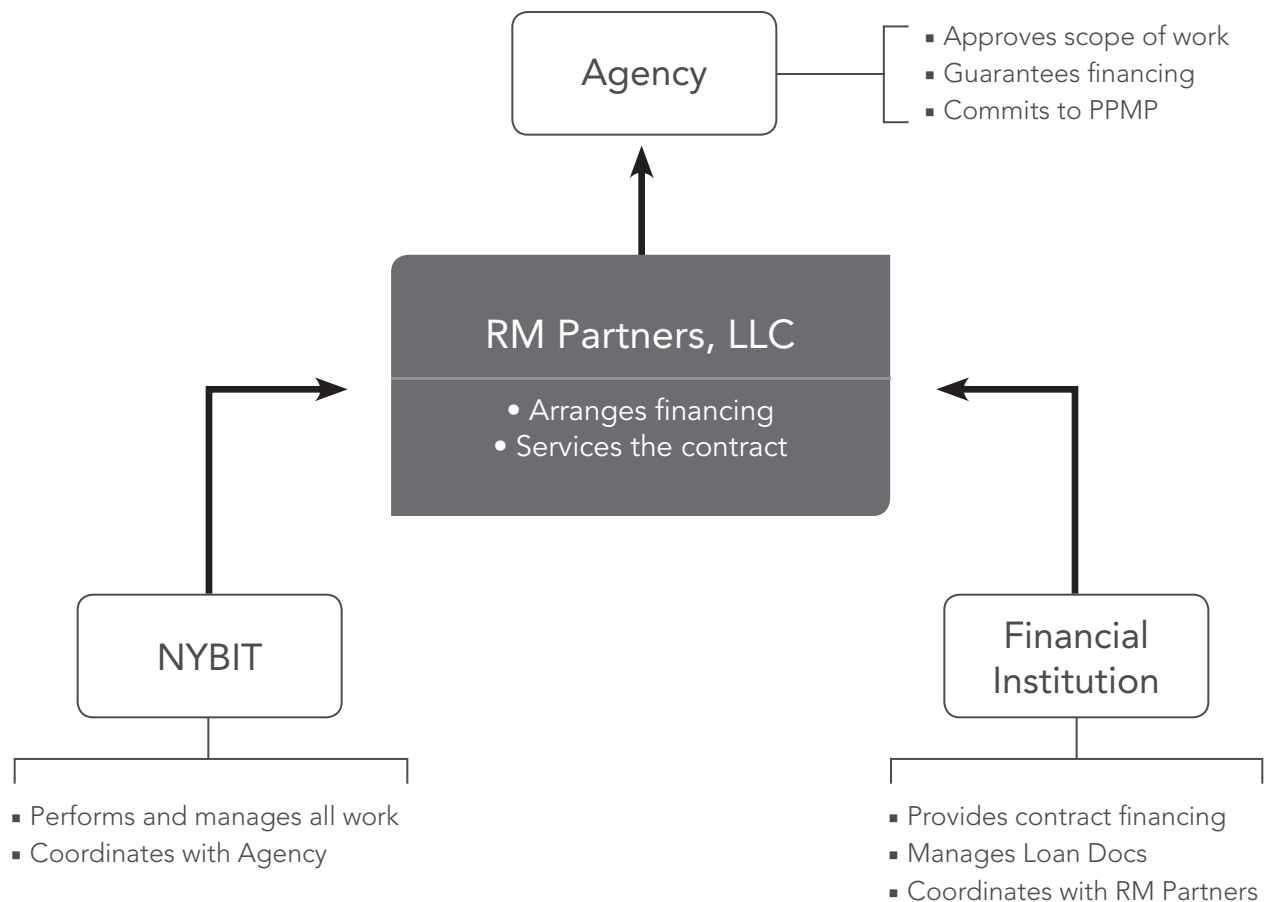
Best Practices to Restore PCI over 10 yrs.	\$ 30,659,219
Front Loaded PPMP	\$ 19,570,522
Financing Costs	\$ 2,328,920
Total Savings	\$ 8,759,777
"Worst First"	+\$20,000,000

Loan Balance



PPMP Contract Financing – A Plan that Makes Best Stewardship a Reality

NYBIT and its affiliate, RM Partners, will facilitate the financing of the needed front loaded repairs for the roadway network. The agency gains greater control of its roadway assets by implementing a long term plan that will forever prevent severe deterioration of the road surfaces. NYBIT provides all needed services to manage and maintain the roadway network and RM Partners facilitates the PPMP contract and the financing from a partner financial institution. This is accomplished without increasing the annual budget! The chart below explains the roles and responsibilities of all parties involved.

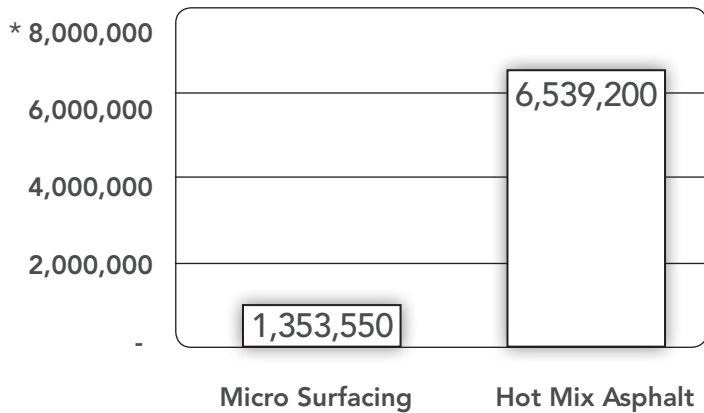




How does PPMP Save the Environment?

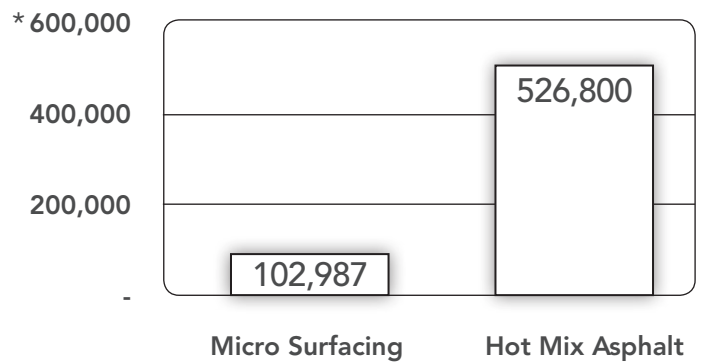
NYBIT specializes in using the most advanced roadway preservation and maintenance techniques available when implementing PPMP. The products and processes used are engineered to save energy in all phases from manufacturing to final application on the road. Additionally, they are also designed to minimize 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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