

Pavement Report 2011



New York State Department of Transportation

Joan McDonald, Commissioner

Andrew M. Cuomo, Governor

Revitalizing New York State

The long-term health of the transportation system depends on a reliable preservation program. NYSDOT is working hard to extend the life of the highway system by employing a strategy that slows the rate of deterioration by using effective, low-cost preservation strategies.

Good asset management guides investment decisions toward effective preservation strategies and enhancing public safety. To align with this precept, NYSDOT identified four guiding principles for planning and building transportation projects: **Preservation First; System Not Projects; Maximize Return on Investment; and Make It Sustainable.** Inherent in all of our investment decisions is protecting public safety.

One of the highest priorities at NYSDOT is to preserve the functionality of the existing highway system. This is done by following the proven asset management strategy to keep the good roads good.

Asset preservation is a long-term approach that takes several years to demonstrate benefits. This strategy may result in a short-term decline in the condition of some pavements as the backlog of preservation work is addressed first. But with perseverance, the strategy will ensure a highway system in good repair that is less expensive to operate and maintain.

NYSDOT also has established intentional investment strategies to produce the greatest possible return on investment when addressing

infrastructure needs. The intent is to maximize the impact of every dollar spent. The investment strategies consider the transportation system as a whole, ensuring the highway links vital to the State's economic health are maintained to benefit the users and the environment.

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Pavement Condition Highlights

This report includes '2010-'2011 spending and construction accomplishments and the resulting 2011 pavement conditions.

Nearly 40 percent of the State highway system has a Fair or Poor surface condition.

The Department spent about \$360 million to maintain, repair or replace about 2,100 lane miles of pavement in 2010.

86 percent of vehicle travel on the State's most important roads has acceptable ride quality.

Currently, \$4.03 billion of work is needed to bring the pavement system to a State of Good Repair.



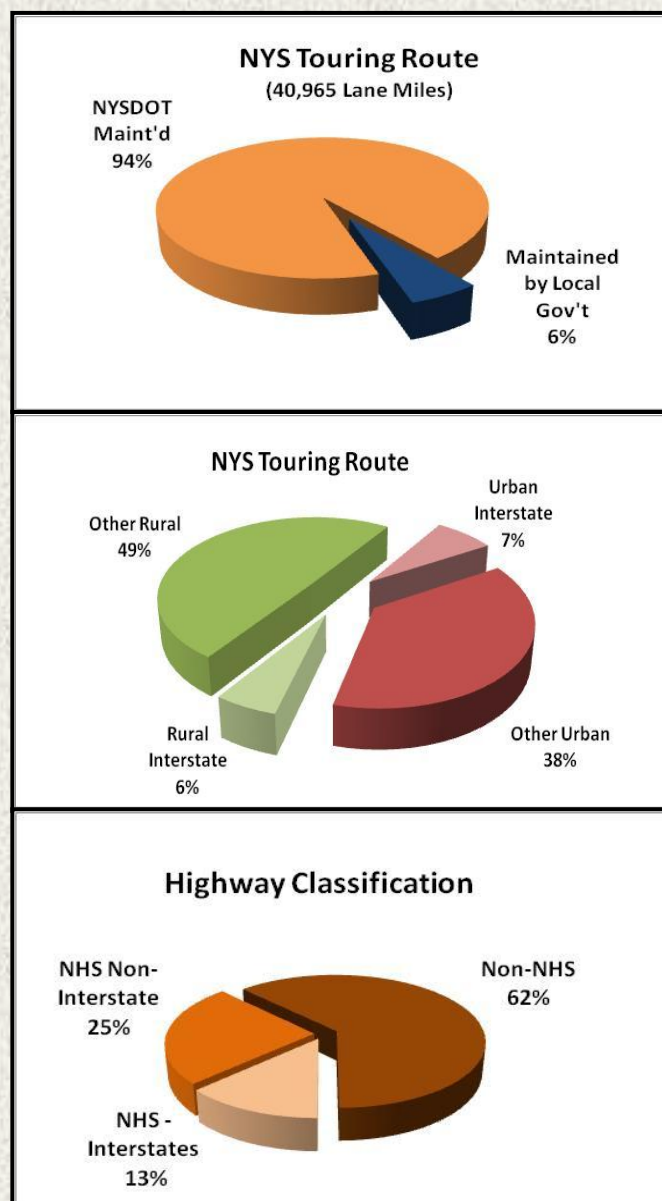
NYSDOT Maintenance Responsibility

The highways in New York can be grouped into categories depending on how the highway serves its users. The most common groups are the *New York State Touring Route* and the *National Highway System*.



The Touring Route connects the various regions within New York State. The National Highway System identifies roads of greater significance due to their role in national defense.

The charts and information in this report relate to the NYSDOT-maintained portions of the Touring Route unless otherwise noted.



Type of Pavement

There are three types of pavement on the Touring Route: asphalt, concrete, and asphalt over concrete (otherwise called “overlaid” or “composite” pavements). There are no unpaved or gravel roads on the Touring Route.

Overlaid pavements were once concrete but as the old concrete deteriorated due to years of weathering and traffic, the pavement was rehabilitated by placing one or more layers of asphalt on top of the concrete. This allows the pavement to continue in service for many more years.

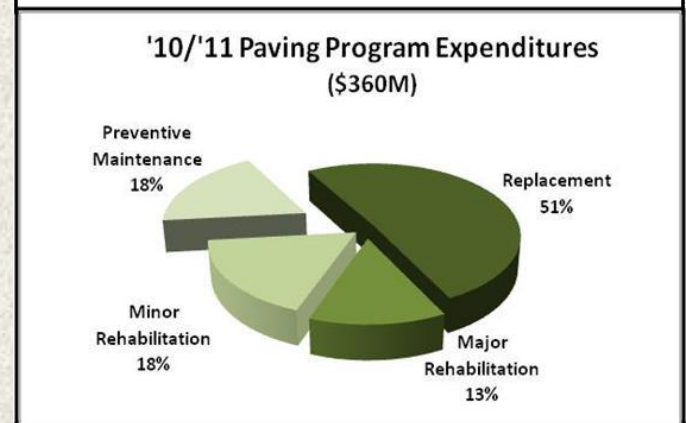
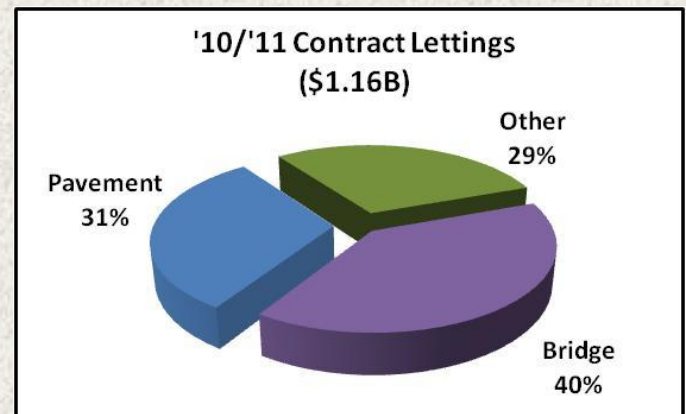
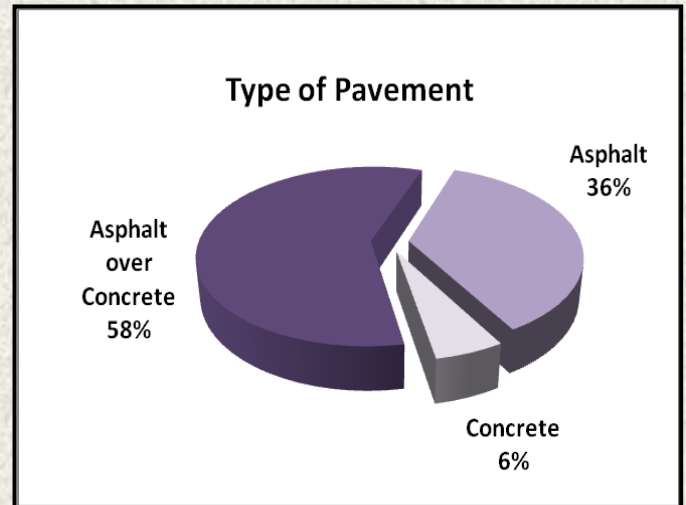
What funding was spent on pavements?

In 2010, about \$360 million was spent on pavements. This represents about 31 percent of all project contract dollars spent by the Department. The money spent in fiscal year 2010-11 is reflected in the paving accomplishments that contribute to the 2011 pavement conditions.

The Pavement Program includes several categories of treatments, ranging from preventive maintenance to rehabilitation to complete reconstruction. Preventive maintenance treatments are the least expensive and can treat many lane miles of pavement for the money spent. These thin treatments are similar to seal-coating your driveway: they help the pavement last longer. Major rehabilitation and reconstruction projects are very expensive. Only a few lane miles can be repaired for the large amount of money spent.

Pavement Condition Measures

Identifying where pavement work is needed and what type of work should be done is based on a surface rating system that describes the amount and type of cracks on the surface of the pavement. In addition, a measurement of ride quality is used to identify locations with rough riding pavement.



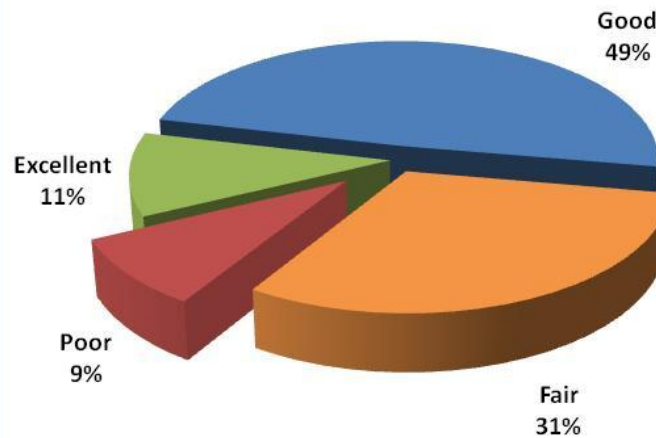


Excellent
No Cracking



Good
Infrequent
Minor Cracking

**Surface Condition by Lane Miles (LM)
Statewide**

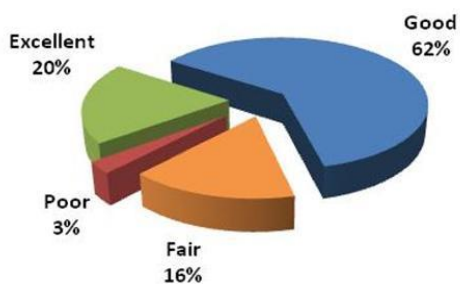


Poor
Very Frequent
Severe Cracking

Fair
Frequent
Minor Cracking



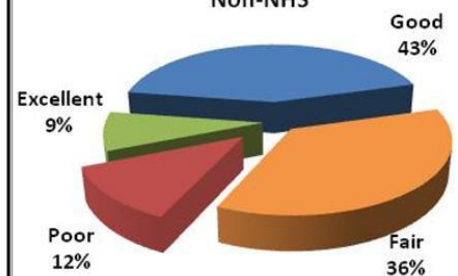
**Surface Condition by LM
NHS - Interstates**



**Surface Condition by LM
NHS - Non-Interstate**



**Surface Condition by LM
Non-NHS**



Pavement Ride Quality



Smooth

Comfortable ride; only slight bumps are present and are generally not noticed.



Fair

Roughness is noticeable; may be difficult to drink open liquids; some loss of fuel economy and increased maintenance costs.



Rough

Very uncomfortable ride; roughness is annoying and distracting; increased vehicle operating costs, especially for trucks.

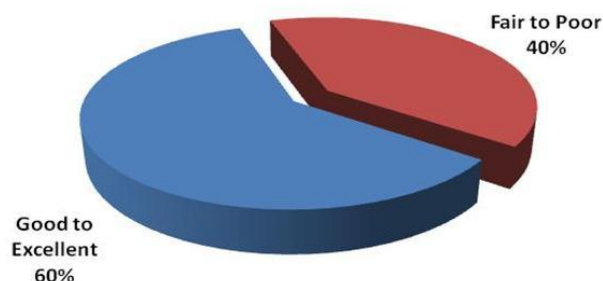
Good ride quality means satisfied customers.

Pavement ride quality is a good indicator of customer satisfaction with the quality and performance of a pavement. This is because most travelers will notice how rough or smooth a pavement is to ride on and not necessarily the amount of cracks on the surface.

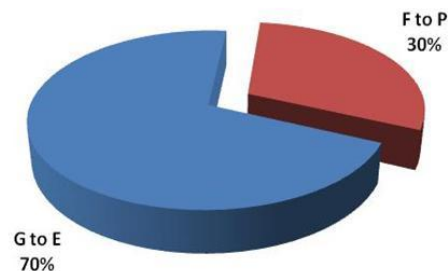
When evaluating the condition of a pavement by the amount of cracking on the surface, 40 percent of the lane miles are Fair or Poor. Those Fair and Poor pavements carry only 30 percent of the vehicle travel. As far as cracking is considered, roads with more traffic tend to be in better condition.

With respect to ride quality, there is only 18 percent of the highway system lane miles with a Fair or Rough ride quality, but those pavements carry 35 percent of the vehicle travel.

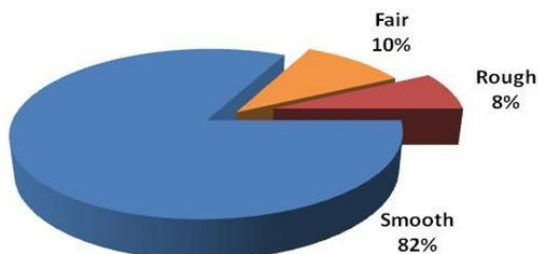
Surface Condition by Lane Miles



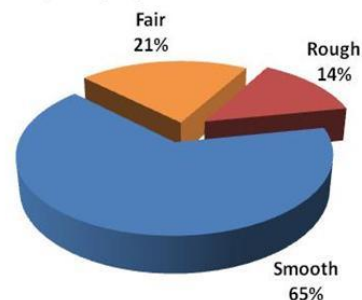
Surface Condition by Vehicle Travel



Ride Quality by Lane Miles



Ride Quality by Vehicle Travel

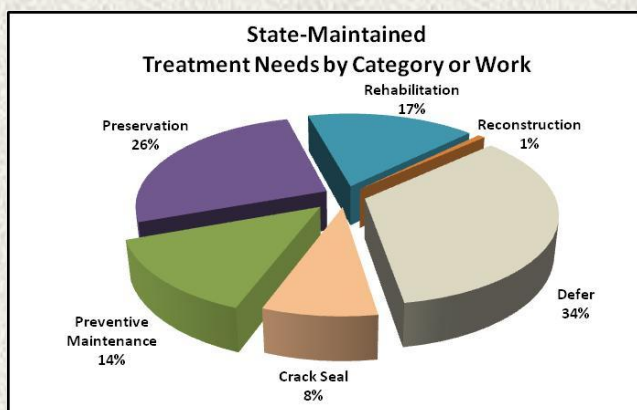




New York's Pavement Needs

The work needed to bring a pavement back to a state of good repair depends on the types and severity of cracking and other distresses in a pavement. A pavement with little cracking requires only a little maintenance work, while a pavement with a lot of potholes and large cracks may require costly reconstruction. The pie chart below shows the general categories of treatments and the amount of each required to address the current pavement needs on the State-maintained highway system.

Pavements that are relatively free of cracking and in Good condition fall into the *Defer* category. Even though work is not needed today, these pavements are monitored regularly to determine the optimal time to treat them.



What happens if a road is not maintained?

If a pavement is left untreated, it will deteriorate to a point where normal travel is impaired. The pavement surface will become so rough that vehicles will be forced to travel at slower speeds. Snowplows can have difficulty effectively clearing the pavement of snow and ice.

The pavement structure shown above is so badly damaged that it needs major rehabilitation work or even a complete reconstruction, which costs at least twice as much over the life of the pavement than if the pavement received regular preventive maintenance to keep it in good condition. Currently, there are 275 lane miles on the Touring Route System that are beyond repair and require reconstruction.

Preventative Maintenance typically is done to pavements in Good condition with only minor amounts of cracking. Preventive treatment at this stage extends the life of the pavement by sealing cracks to keep water out, refreshing the riding surface and slowing the rate of deterioration.

Preservation treatments repair pavements with more frequent cracking, areas of rutting and high roughness. Treatment usually involves removing the top layer of the pavement and replacing it with new material.

Rehabilitation treatments are applied to pavements in Fair condition. These treatments are costlier and usually involve adding multiple layers to increase the strength of the pavement.

Reconstruction of a pavement that has deteriorated to Poor condition is very expensive. The structure of a poor pavement is usually damaged beyond repair due to the infiltration of water. The old pavement, including the layers under the pavement, must be replaced. The expense and inconvenience of having to reconstruct a pavement can be avoided by regular maintenance.