

Pavement Report 2009



New York State Department of Transportation

Stanley Gee, Acting Commissioner

David A. Paterson, Governor

Keeping the Good Roads Good

One of the most common complaints raised by road users when they see a pavement preservation project is “Why are they paving that good road when this other road is in worse condition?” The answer lies in understanding the concept of “Keeping the Good Roads Good.”

Analyses completed by NYSDOT engineers agree with conclusions from several other studies: it is less expensive over the life of a pavement to keep a pavement in good condition than to let it deteriorate to a point that requires more extensive repairs.

The paving that highway users see on Good roads is usually a preventive maintenance treatment that is designed to keep damaging water out of the pavement’s support structure. These relatively inexpensive treatments are similar to seal-coating on a driveway: they keep water out but do not add strength. To get the longest possible life and protective effects from a preventive maintenance treatment, it must be applied when the pavement is still in good condition.

If the pavement looks like it needs to be fixed, it is too late for preventive maintenance. The repairs at this point will cost about 4 times as much as the preventive treatment. If repair work is not done and the pavement declines to Poor condition, the rehabilitation cost is about 15 times as much as the preventive treatment. Rehabilitation and reconstruction work also takes much longer to complete, so drivers, adjacent businesses and local residents must endure construction activities for a longer time.

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The Department’s general strategy then is to preserve as many pavements as possible with low-cost maintenance treatments, giving priority to the most heavily traveled roads. This approach serves the most number of users as possible for each dollar spent.

Pavement Condition Highlights

This report includes ‘08-‘09 spending and construction accomplishments and the resulting 2009 pavement conditions.

More than one-third of the State Highway system has a Fair or Poor surface condition.

The Department of Transportation spent about \$425 million to maintain, repair or replace about 2,500 lane miles of pavement in 2009.

87% of vehicle travel on the State’s most important roads has acceptable ride quality.

Currently, there is \$3.7 billion of work needed to bring the pavement system to a State of Good Repair.

**New York
Touring
Route**



Highway Systems in New York

The highways in New York can be grouped into various categories depending on how the highway serves its users. Two of the most common ways the highway system is categorized are the New York State Touring Route System and the National Highway System.

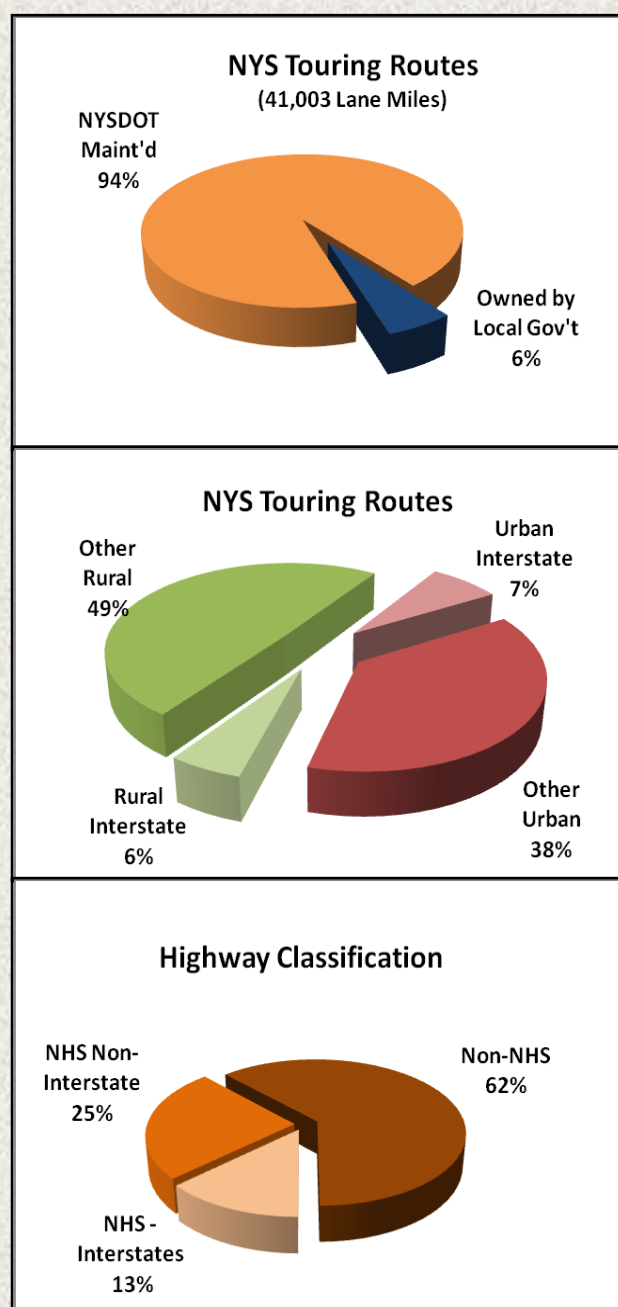
New York State Touring Route System

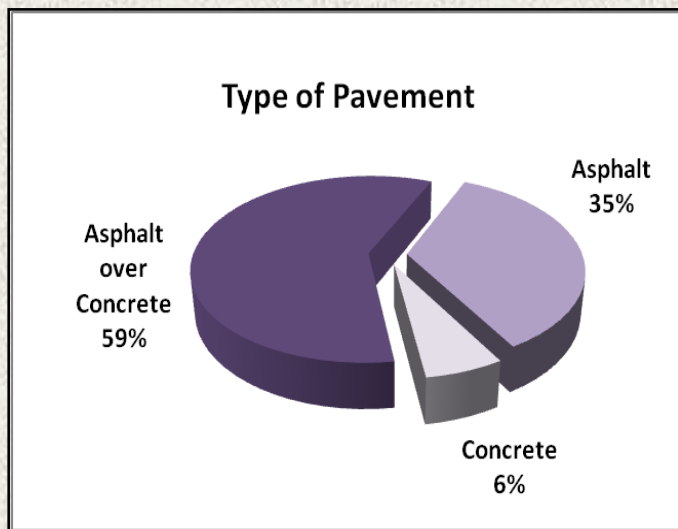
The broadest category of highways is the New York State Touring Route System. This collection of roads includes Interstates, US Routes, NY State Routes, most Parkways and some local roads. The Touring Route System connects the cities, towns and villages in the state with the surrounding farm land, other regions of the state and other states. There are about 41,000 lane miles of roads on the Touring Route System, about 94% of which are under the maintenance responsibility of the Department.

The National Highway System

The National Highway System (NHS) consists of the most important roads for interregional travel and for access to other transportation facilities, such as airports, train stations and shipping ports. The Federal Highway Administration (FHWA) is particularly interested in roads designated for the National Highway System since they have high national significance for interregional travel and are a critical part of the national defense system.

Because of their national significance, highways on the National Highway System receive higher priority for maintenance and repair. About 38 percent of the State highway system is designated as a part of the NHS.





Type of Pavement

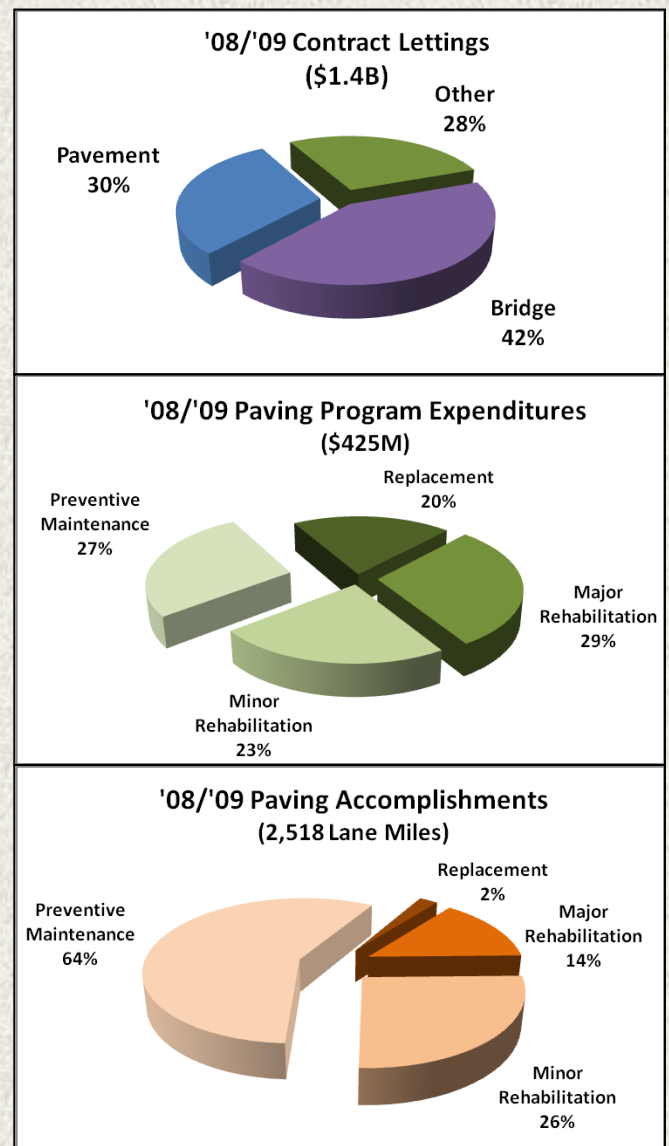
There are three types of pavement on the New York State highway network: asphalt, concrete and asphalt over concrete (otherwise called “overlaid” or “composite” pavements). There are no unpaved or gravel roads on the State Touring Route system.

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 2008, about \$425 million was spent on pavements. This represents about 30 percent of all project contract dollars spent by the Department. The money spent in fiscal year 2008-09 is reflected in the paving accomplishments that contribute to the 2009 pavement conditions.

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



Pavement Condition Measures

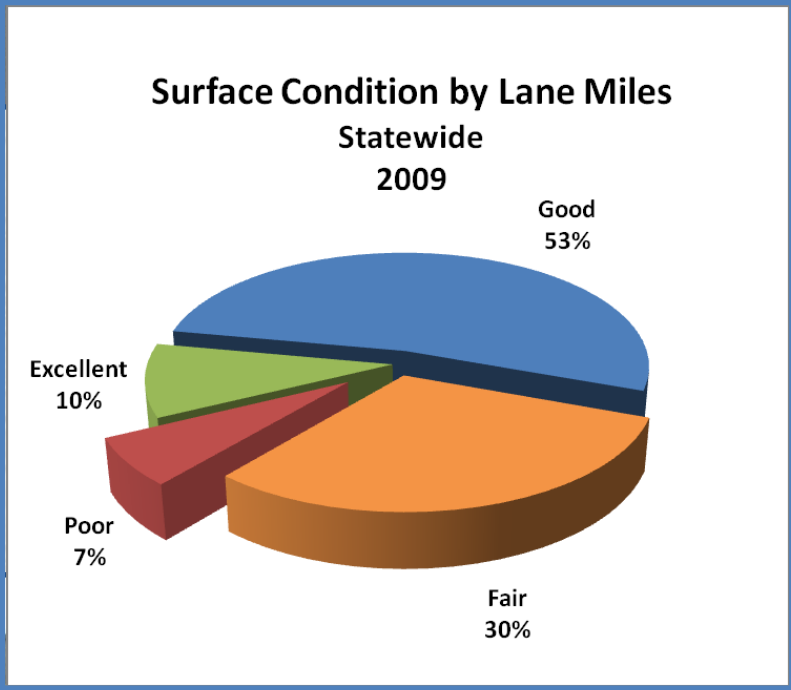
Identifying the places where work is needed on pavements and what type of work should be done is based on a surface rating system that describes the amount and type of cracks on the surface of the pavement. In addition, a measurement of ride quality is used to identify locations with rough riding pavement.



Excellent
No Cracking



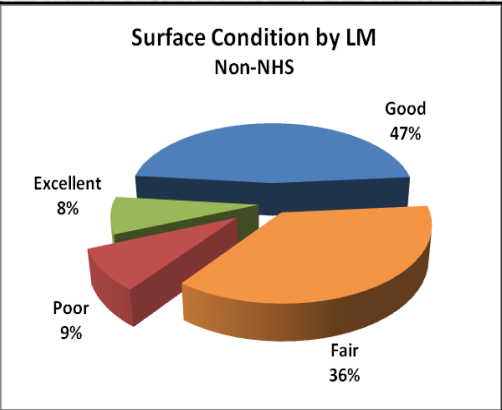
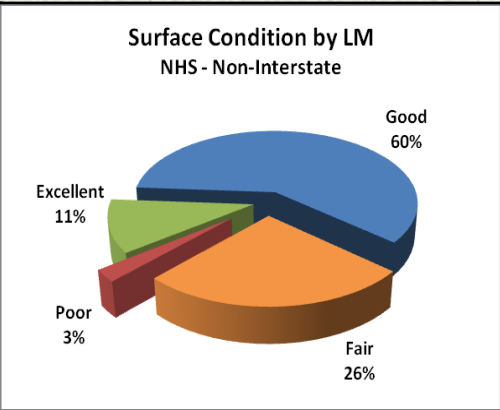
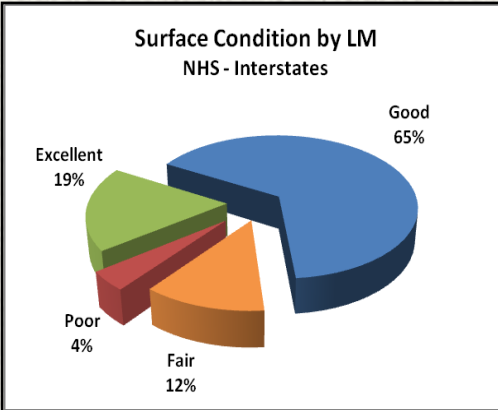
Good
Infrequent
Minor Cracking



Poor
Very Frequent
Severe Cracking



Fair
Frequent
Minor Cracking



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.

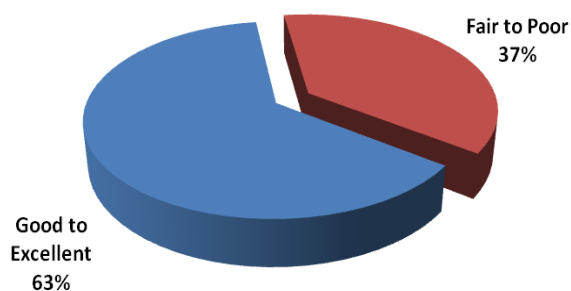
Good ride quality means satisfied customers.

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.

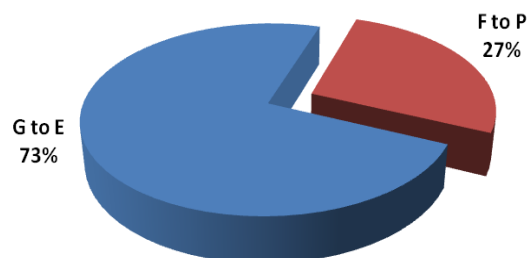
When evaluating the condition of a pavement by the amount of cracking on the surface, 37 percent of the lane miles are Fair or Poor, but those Fair and Poor pavements carry only 27 percent of the vehicle travel. So as far as cracking is considered, the better pavements tend to be on roads with more traffic.

With respect to ride quality, only 26 percent of the highway system lane miles have a Fair or Rough ride quality, but those pavements carry 37 percent of the vehicle travel. This means that there is a significant amount of traffic riding on pavement that does not have a comfortable ride quality.

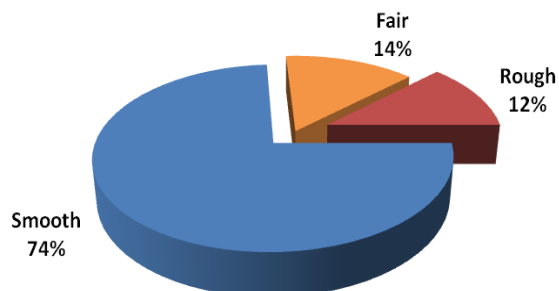
Surface Condition by Lane Miles



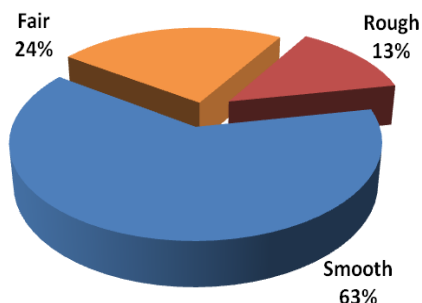
Surface Condition by Vehicle Travel



Ride Quality by Lane Miles



Ride Quality by Vehicle Travel

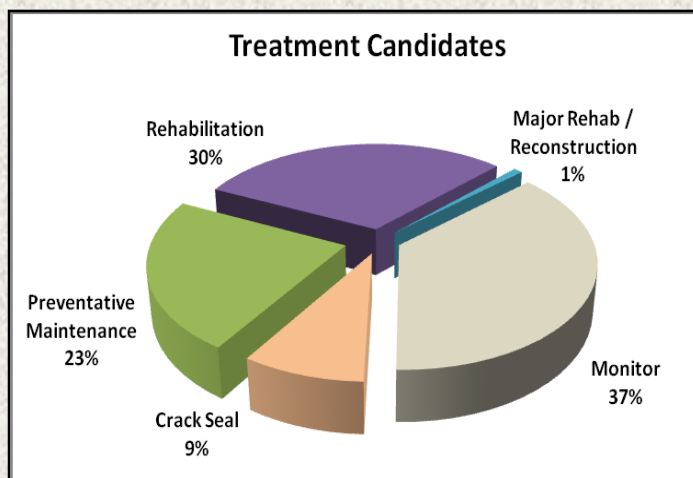




What happens if a road is not maintained?

If a pavement is left untreated, it will eventually 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, and snow plows can have difficulty effectively clearing the pavement of snow and ice.

The pavement structure shown above is so badly damaged that the only reasonable repair is 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 340 lane miles on the Touring Route System that are beyond repair and require reconstruction.



New York compared Nationally

Pavement ride quality is measured using specialized equipment that travels down the road at traffic speed. Lasers are used to measure the road surface to calculate the *International Roughness Index (IRI)*.

The International Roughness Index is the only condition measure that is routinely collected and reasonably consistent among all the States, so it is often used to evaluate pavement condition and to make comparisons between the States.

Percent National Highway System Acceptable Ride Quality

State	Percent Acceptable Ride Quality	National Rank
Georgia	99.7	1
Nevada	99.5	2
Kansas	99.4	3
Maryland	91.8	40
Michigan	90.2	41
New York	87.7	42
California	87.0	43
Louisiana	85.4	44
Massachusetts	78.4	48
New Jersey	78.3	49
Hawaii	77.2	50

Data Source: 2008 Highway Statistics Table HM-47, Oct. 2009, FHWA

Historically, New York has identified locations needing work based on the type and extent of surface cracking. Only recently has the Department begun to add ride quality as a factor in specifying the type of work needed to repair a pavement. Without this intentional focus on ride quality, many pavements in the State have a rough ride. Compared nationally, New York currently ranks 42nd of the 50 States in ride quality.