

# Pavement Report



## New York State Department of Transportation

Stanley Gee, Acting Commissioner

David A. Paterson, Governor

### Did you know...

...according to a recent survey, 19 percent of meals in the United States are eaten in the car? Whether your family is eating breakfast as you drive them to school, or you are making your way to work, or delivering goods by truck, chances are a large part of your trip is made using many of the 16,000 miles of roads maintained by the New York State Department of Transportation. This extensive highway network is a substantial public investment, with a replacement value for the pavements alone of at least \$40 billion. To efficiently manage the maintenance and repair of the pavements on the State Highway System, the New York State Department of Transportation collects a wide variety of information about the condition and performance of the pavement surface. This report presents a summary of information and the condition of these important pavements.

### What roads make up the New York State highway system?

The New York State highway system is a collection of highways that provide local and interregional travel within and between towns, cities and other states. There are several subsystems that make up the State highway network in New York, including Interstates, US Routes, NY State Routes, most Parkways and some local roads.

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This organized collection of highways is referred to as the *New York State Touring Route System*. There are about 41,000 lane miles of Touring Routes, 94 percent of which are maintained by NYSDOT.

Most of the figures and charts in this report refer to the State-maintained portion of the Touring Route highway network.

### Pavement Condition Highlights

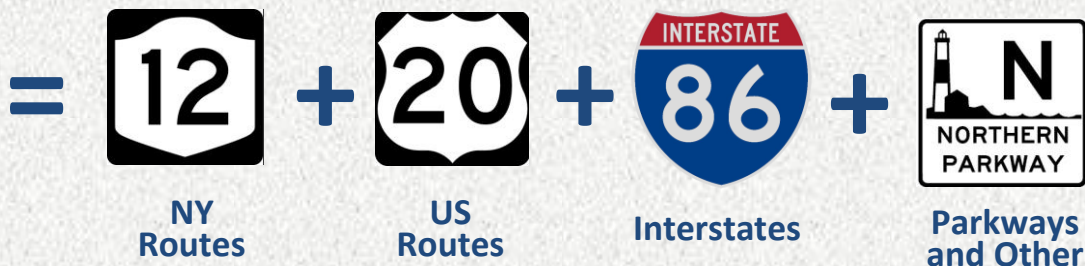
**More than one-third of the State Highway system has a Fair or Poor surface condition.**

**The Department of Transportation spent about \$425 million to maintain, repair or replace almost 2,520 lane miles of pavement last year.**

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

**Currently, there is \$4.9 billion of needed work to bring the pavement system to a State of Good Repair.**

**New York  
Touring Route  
System**



## 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.

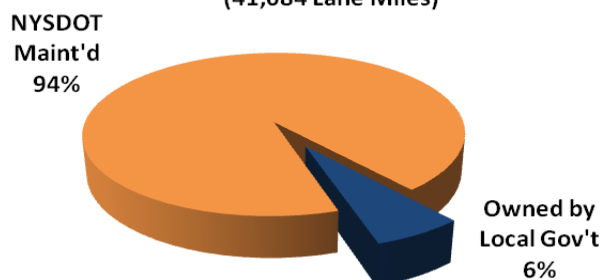
The Federal Highway Administration (FHWA) is particularly interested in roads designated for the National Highway System since they have high national significance for interregional travel and are a critical part of the national defense system.

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.

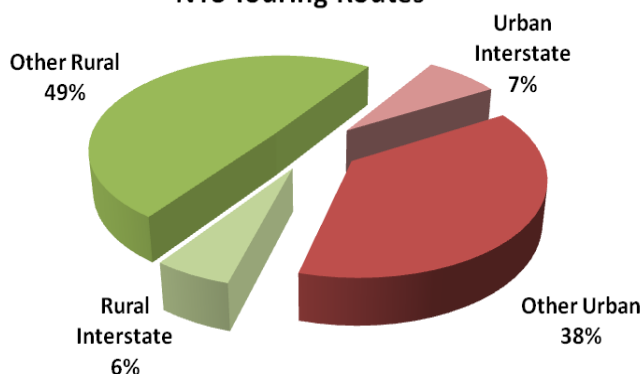
### *What are "Lane Miles?"*

*A lane mile is one lane of road for one mile. So a two-lane road has two lane miles per mile, and a four-lane highway has four lane miles per mile. Using lane miles is a better way to measure the amount of pavement that is on a road.*

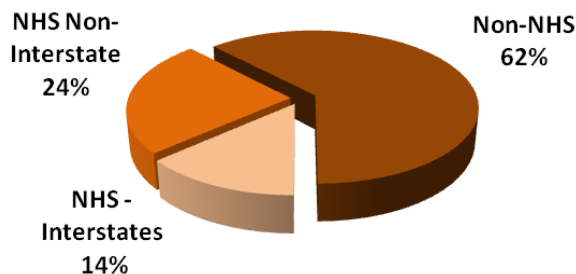
**NYS Touring Routes**  
(41,084 Lane Miles)



**NYS Touring Routes**



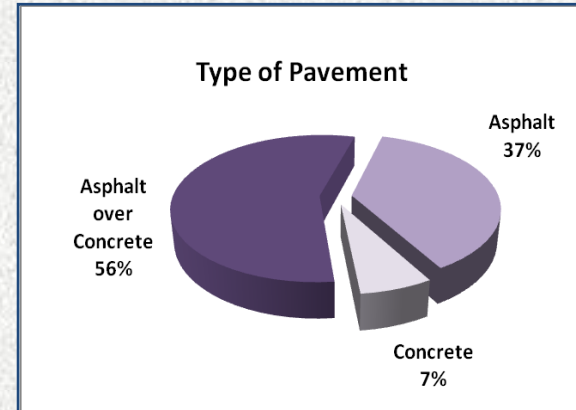
**Highway Classification**



## 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.

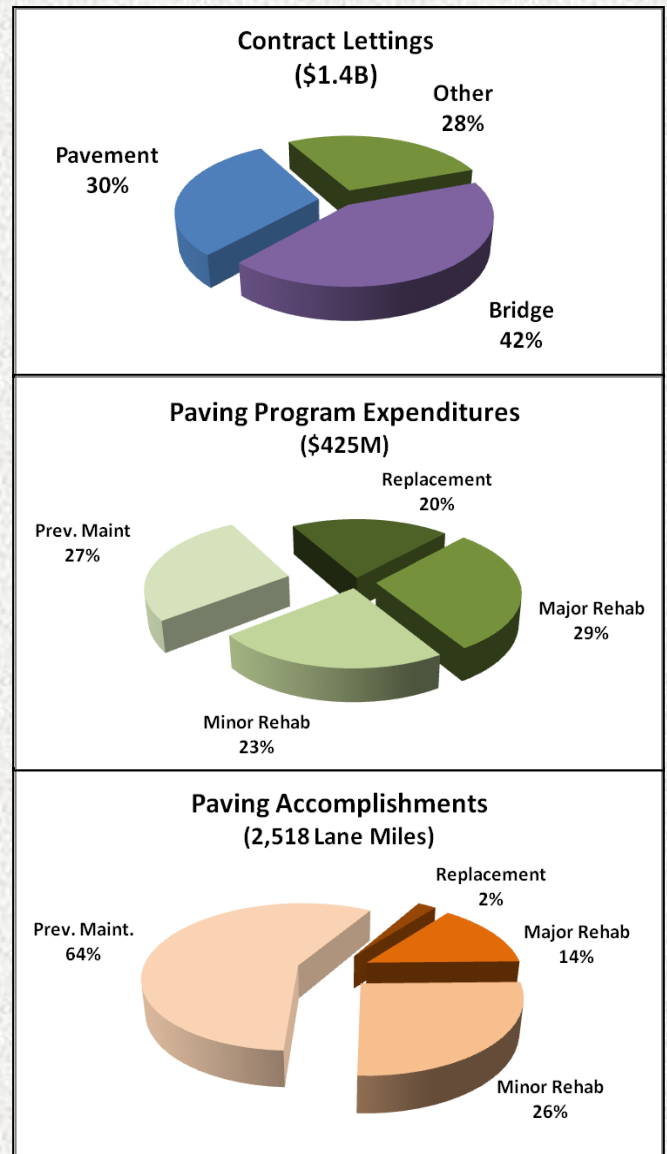
The Pavement Program includes several categories of treatments, ranging from preventive maintenance to rehabilitation and complete reconstruction.

Preventive maintenance treatments are the least expensive and can treat many lane miles of pavements for the money spent. These treatments are similar in function to 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 Scale 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

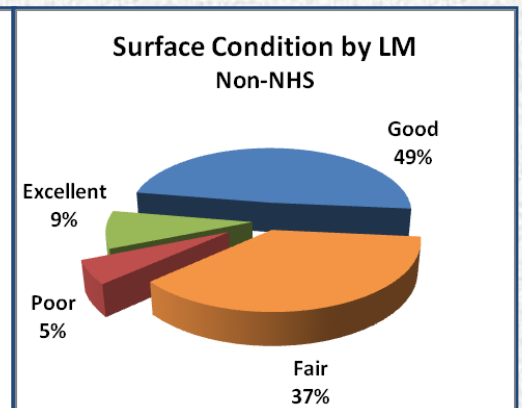
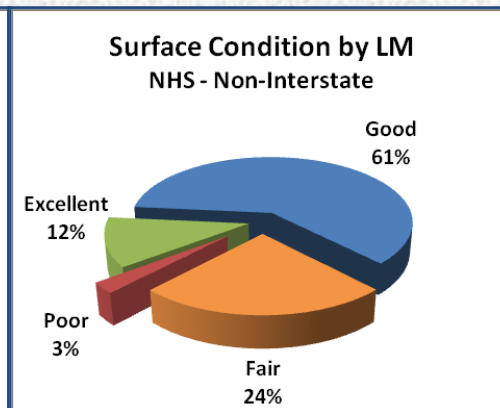
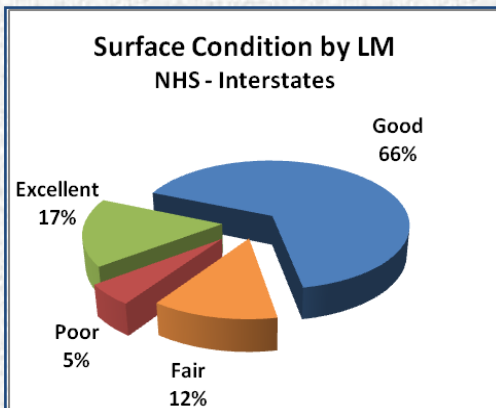
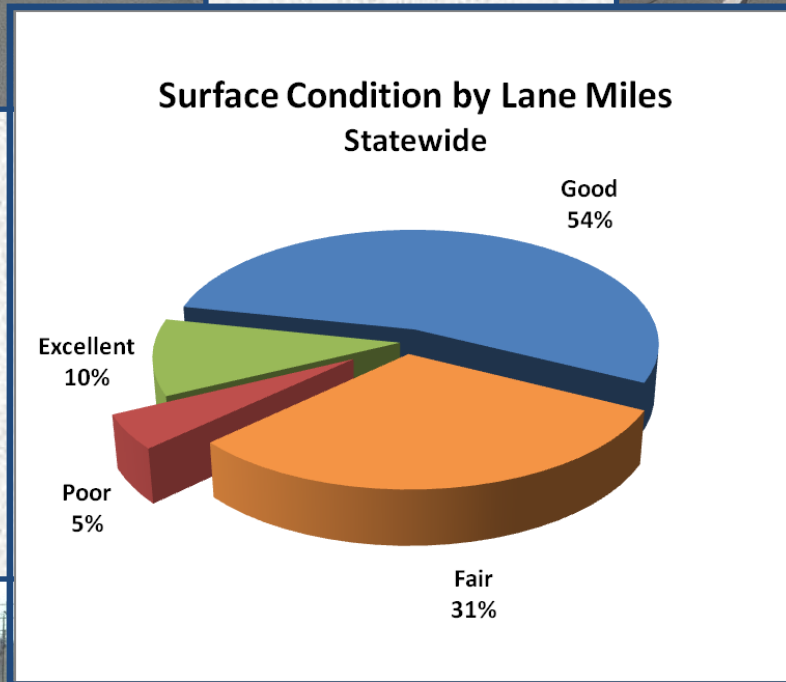


**Good**  
Infrequent  
Minor Cracking

**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.

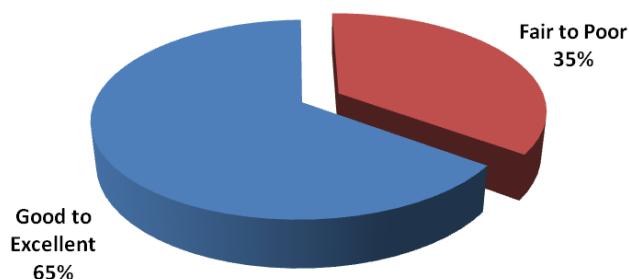
### Good ride quality means satisfied customers.

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.

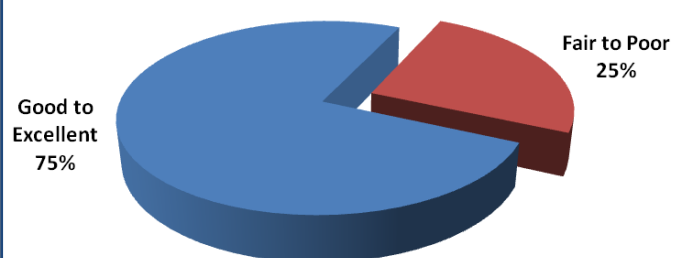
When evaluating the condition of a pavement by the amount of cracking on the surface, 35 percent of the lane miles are Fair or Poor, but those Fair and Poor pavements carry only 25 percent of the vehicle travel. So as far as cracking is considered, the better pavements tend to be on roads with more traffic.

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 57 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.

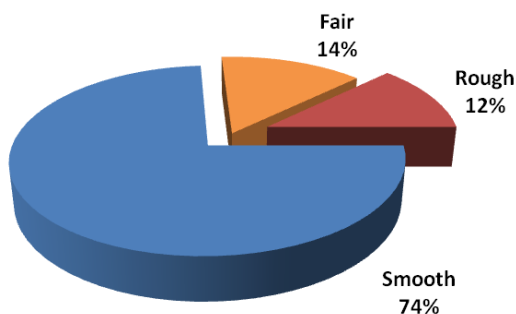
**Surface Condition by Lane Miles**



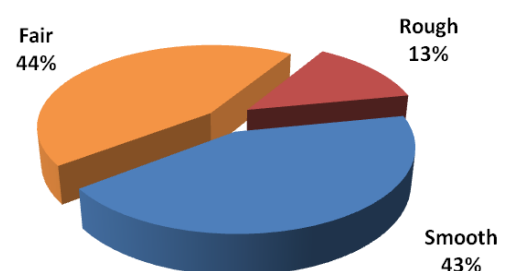
**Surface Condition by Vehicle Travel**



**Ride Quality by Lane Miles**



**Ride Quality by Vehicle Travel**

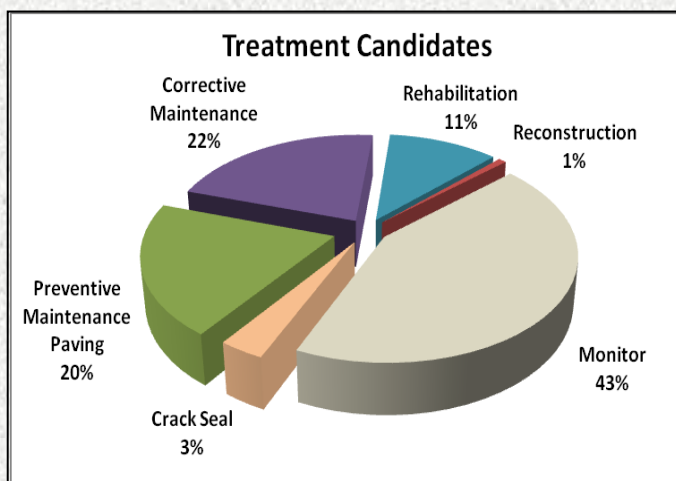




## What happens if a road is not maintained?

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 304 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)*.

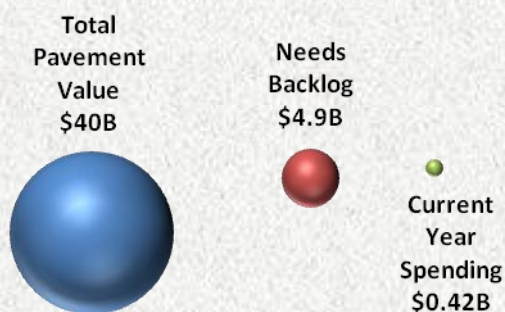
The International Roughness Index is the only condition measure that is routinely collected and reasonably consistent among all the States, so it is often used to evaluate pavement condition and to make comparisons between the States.

## Percent National Highway System Acceptable Ride Quality

State	Percent Acceptable Ride Quality	National Rank
Georgia	99.9	1
Nevada	99.6	2
Kansas	99.4	3
Illinois	86.2	43
Louisiana	86.1	44
<b>New York</b>	<b>85.6</b>	<b>45</b>
Alaska	84.7	46
Rhode Island	80.5	47
Massachusetts	80.3	48
Hawaii	78.5	49
New Jersey	78.3	50

Data Source: 2007 Highway Statistics Table HM-47, Oct. 2008, 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 45<sup>th</sup> of the 50 States in ride quality.



### Value, Needs and Spending

The total value of New York State's pavements, or the cost to replace them all from scratch, is at least \$40 billion. The backlog of pavement work, which is the cost to bring all the pavements from their current condition to a State of Good Repair, is \$4.9 billion. The amount of money spent on pavements by the Department in 2008 was about \$425 million.

## Approach to Maintaining and Repairing Pavements

The Department's approach to maintaining and repairing pavements is to benefit the most travelers for each dollar spent. Several studies and Department experience have shown that it is less expensive over the life of a pavement to keep a pavement in good condition with regular preventive maintenance, than to let the pavement deteriorate to the point when it must be reconstructed.

Not only are preventive maintenance treatments far less expensive than reconstruction (just as seal-coating a driveway is much less expensive than removing and replacing the entire driveway), but a preventive maintenance treatment can be placed in a few days or weeks as opposed to reconstruction that could take one or two *years* to complete. Travelers must endure the disruption and inconvenience of reconstruction for a much longer period.

The Department emphasizes a pavement preservation approach by scheduling as many preventive maintenance treatments as possible at the appropriate time. This is why you may see a road that looks to be in good condition being paved, when other roads are in worse shape – the Department is using its resources in the most efficient manner by preserving more of the good roads at less cost, rather than allowing good roads to deteriorate to poor condition that require expensive reconstruction. The Department also prioritizes work on the higher-volume roads first, such as Interstates and heavily traveled corridors on the National Highway System.

By following this approach, the Department is able to serve the greatest number of travelers for each dollar spent. Additional information on the Department's maintenance and repair strategies and detailed pavement condition data can be obtained by contacting the NYSDOT Pavement Management Unit.

\* Michael Pollan, *The Omnivore's Dilemma* (New York, Penguin Books, 2007), Pg. 110.