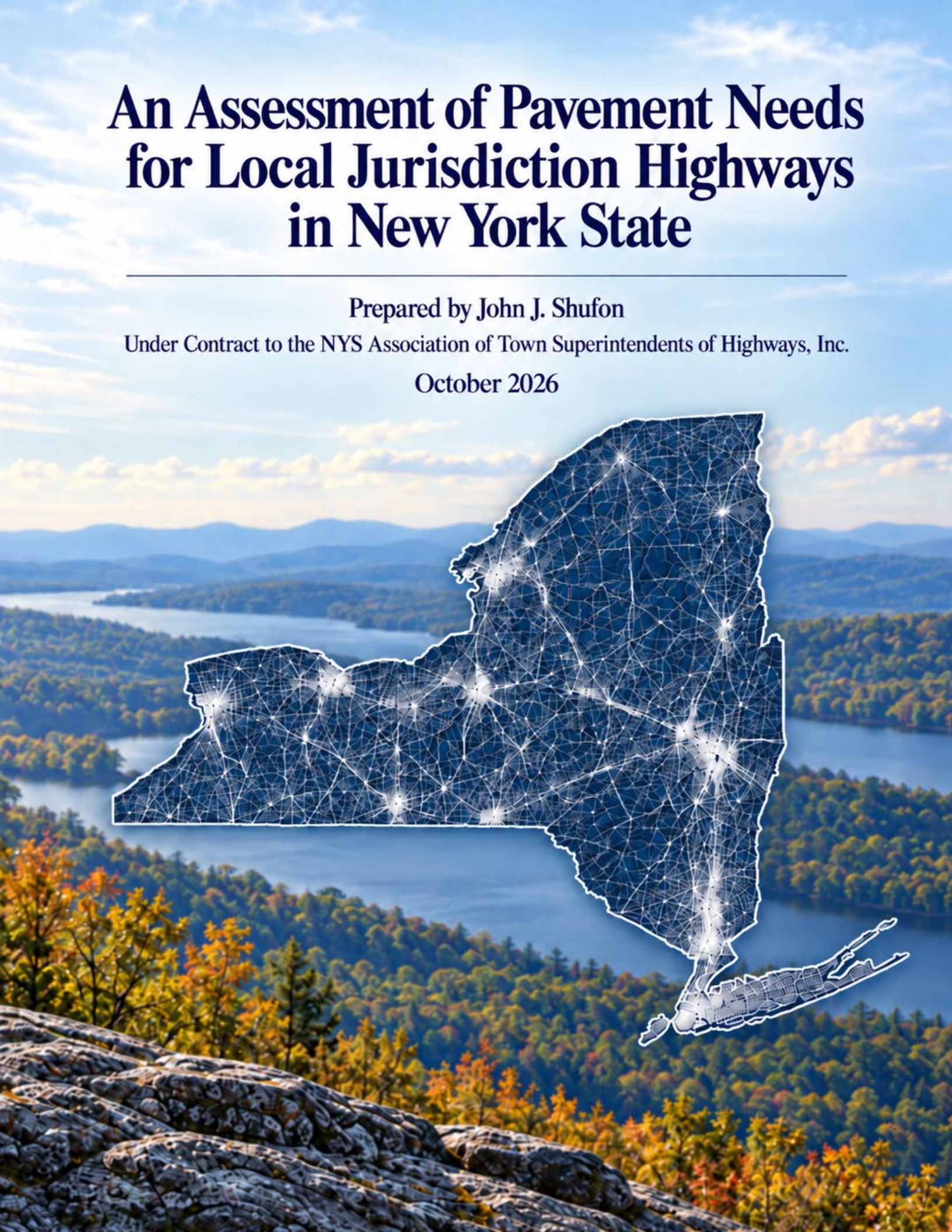
An Assessment of Pavement Needs for Local Jurisdiction Highways in New York State

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About the Author

This report was authored by John J. Shufon. John has 35 years of experience with the New York State Department of Transportation in the collection, analysis, and forecasting of infrastructure data. He is published in pavement management, management systems and asset management, and for 15 years served as the Department's chief technical analyst in conducting a variety of needs studies for use in budget requests and capital program development. John retired from the Department in 2006 as the Director of the Data Analysis and Forecasting Bureau. Since then, working under contract with the New York State Association of Town Superintendents of Highways, he prepared the 2007 and 2013 needs studies addressing local jurisdiction pavements and bridges. In 2019, working with the Rebuild New York Now coalition, John authored the analysis entitled *State Highway Pavements: Are Worsening Conditions on the Horizon?* This report examined pavement condition trends, forecasts, and emerging risks affecting the State maintained pavement network.

EXECUTIVE SUMMARY

New York State's locally owned highway system, maintained by more than 1,600 municipalities, is a critical component of the State's transportation infrastructure. These roadways support hundreds of thousands of daily commuting trips each day, connecting residents to employment, education, healthcare, and commercial centers. They also function as essential corridors for freight movement, agriculture, tourism, and emergency response. Local jurisdiction highways are indispensable to New York's economic vitality and public safety.

This study provides an estimate of the annual investment required to restore and maintain locally owned highways in a state of good repair. It evaluates the scope and usage of the system, examines the effects of rapidly rising construction inflation, and quantifies the funding necessary to ensure that this extensive network remains safe, reliable, and capable of supporting the State's mobility and economic objectives.

Key findings of the study are as follows:

- **Massive Network:** Counties, cities, towns, and villages are responsible for nearly **97,000 centerline miles of highways**, representing almost **85 percent of the State's total public highway mileage.**

- **Vital Roads:** Local jurisdiction roads carry **40 percent of total statewide vehicle miles of travel**. In addition, over 5,200 centerline miles of local roads are functionally classified as arterials. As such, these **local highways are among the most important roads in the State.**

- **Surging Inflation:** Construction inflation has imposed a severe and compounding constraint on local government highway programs. According to the Federal Highway Administration (FHWA), **highway construction costs have increased by more than 100 percent over the past decade, a rate that averages over 10 percent per year**.

- **Inadequate Spending:** At the same time that construction costs have risen sharply, local government expenditure on pavement rehabilitation has increased at a rate of only one percent annually. The resulting disparity between construction cost inflation and highway expenditures has substantially reduced the amount of roadway that local governments can repair each year. **As repairs are deferred, pavement conditions will deteriorate at an accelerated rate resulting in higher vehicle operating costs for motorists, reduced safety and reliability, and greater future repair costs.**

- **Worse Condition:** Pavement condition data does not exist for the universe of local highways. Data is available, however, for a limited number of higher functioning local roads on the federal-aid system. **The available data suggests that local jurisdiction highways are in worse condition than their state highway counterparts.**

- **Implementing a State of Good Repair:** The lack of pavement condition data is a major limitation in the needs estimation process. Accordingly, this study uses an alternate method to estimate pavement repair needs over time. The study establishes a **12-year paving cycle as the benchmark for achieving and sustaining a "state of good repair" for the local highway network.** The benchmark is consistent with the concept of a state of good repair previously used by the New York State Department of Transportation (NYSDOT) in its statewide pavement needs assessments.

- **Repair Strategies and Costs:** Treatment strategies used in the analysis are consistent with the NYSDOT 2022 *Asset Management Plan*, and cost estimates are based on an evaluation of 2025–2026 contract bid prices along with input from the highway construction industry**.** The results of the needs estimation process show that the **total annual contract cost required to achieve and maintain a state of good repair for local highways is estimated at $3.4 billion per year**.

- **Capital Shortfall:** Each year, municipal governments report highway maintenance and capital construction expenditures to the Office of the State Comptroller (OSC). An analysis of these data indicates that local governments spend approximately **$1.0 billion**

annually on pavement capital resurfacings. Compared with the estimated $3.4 billion in annual investment required to achieve a state of good repair, current funding levels result in an annual shortfall of more than $2.4 billion.

- **Funding the Shortfall:** Closing this funding gap will require a substantial and sustained commitment from all levels of government. An analysis of records from the New York State Department of Taxation and Finance and the Division of the Budget indicates that **local governments would receive an additional $1.0 billion annually if highway-related revenues were distributed based on motorists' actual use of the local highway system.** This additional support would narrow the gap between needs and available resources, help stabilize pavement conditions, reduce long-term rehabilitation costs and ensure a safe and reliable highway system for the citizens of New York State.

INTRODUCTION AND PURPOSE OF STUDY

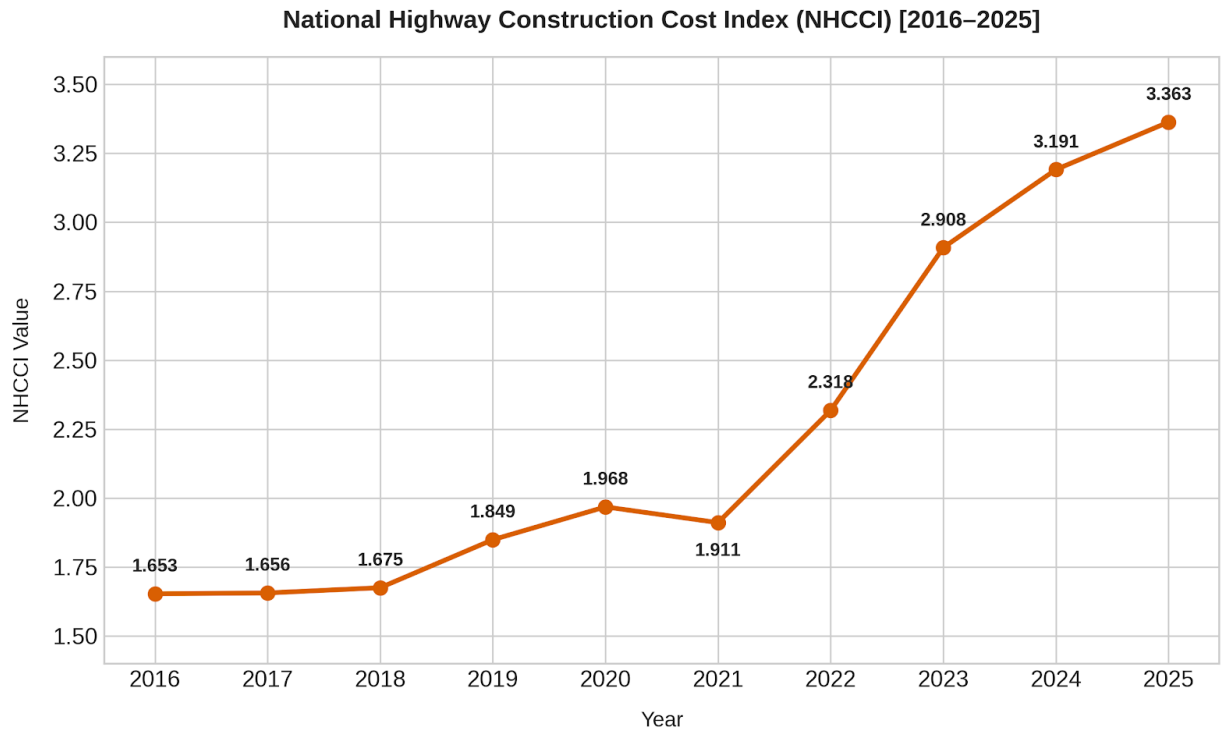
New York State's locally owned highway system is a vast and complex transportation network consisting of almost 97,000 centerline miles of roadway. In comparison, the New York State Department of Transportation (NYSDOT) owns and maintains approximately 15,000 centerline miles. Together, these networks form the backbone of New York's highway system, with municipal roads representing almost 85% of total public mileage.

Locally owned highways are essential to the state's mobility, economy, and quality of life. They accommodate hundreds of thousands of daily commuting trips connecting residents to employment, education, healthcare, and commercial centers. Importantly, they provide essential routes for freight movement, agriculture, tourism, and emergency response. From rural farm-to-market roads to urban and suburban streets, local jurisdiction highways support virtually every aspect of New York's economic and social activity.

Local highways carry a significant share of statewide travel. Of the approximately 327 million daily vehicle miles of travel (VMT) in New York, 40 percent occurs on roads owned by counties, cities, towns, and villages [(1)]. The local network is maintained by over 1,600 municipalities and continues to meet the demands of residential, commercial, and industrial development.

Maintaining this network in a safe and reliable condition is becoming increasingly difficult. Much of the local highway infrastructure is aging and deteriorating, while available funding for pavement rehabilitation has failed to keep pace with rapidly escalating construction costs. In fact, highway construction costs have more than doubled over the past decade. This results in an average annual increase in costs of just over ten percent. And these data do not address oil price disruptions caused by current and potential geopolitical conflicts. Figure 1 illustrates the dramatic increase in highway construction costs over time [(2)].

Figure 1



Source: Federal Highway Administration

According to Office of the State Comptroller (OSC), local government spending on road maintenance and rehabilitation has only been increasing by 1 percent annually [3]. The imbalance between inflation rate and expenditures means that fewer miles of roadway are repaired each year. As repairs are deferred, pavement conditions will deteriorate at an accelerated rate resulting in higher vehicle operating costs for motorists, reduced safety and reliability, and substantially greater future repair costs.

The purpose of this report is to provide an updated pavement needs estimate for locally owned highways in New York State. It builds upon the previous needs study commissioned by the New York State Association of Town Superintendents of Highways, released in November 2013 [4]. The study will describe the magnitude of the local highway system by NYSDOT region and functional system, provide condition data where available, and estimate statewide needs, available resources and the investment necessary to maintain local highways in a state of good repair.

The geographic location and counties that comprise each NYSDOT region are as follows:

Region	Name	Counties
1	Capital District	Albany, Essex, Greene, Rensselaer, Saratoga, Schenectady, Warren, Washington
2	Mohawk Valley	Fulton, Hamilton, Herkimer, Madison, Montgomery, Oneida
3	Central New York	Cayuga, Cortland, Onondaga, Oswego, Seneca, Tompkins
4	Genesee Valley	Genesee, Livingston, Monroe, Ontario, Orleans, Wayne, Wyoming
5	Western New York	Cattaraugus, Chautauqua, Erie, Niagara
6	Southern Tier / Central New York	Allegany, Chemung, Schuyler, Steuben, Yates
7	North Country	Clinton, Franklin, Jefferson, Lewis, St. Lawrence
8	Hudson Valley	Columbia, Dutchess, Orange, Putnam, Rockland, Ulster, Westchester
9	Southern Tier	Broome, Chenango, Delaware, Otsego, Schoharie, Sullivan, Tioga
10	Long Island	Nassau, Suffolk
11	New York City	Bronx, Kings, New York, Queens, Richmond

SYSTEM EXTENT BY JURISDICTION

Table 1 provides a regional breakdown of local jurisdiction centerline mileage by municipality type. Local highways comprise almost 85 percent of total public mileage in New York State.

It should be noted that while New York City (Region 11) is included in system extent data, the five boroughs are excluded from the needs estimates.

Table 1
Local Jurisdiction Centerline Mileage by Municipality Type and Region

NYSDOT Region	Town	County	City/Village	Total*
1	6,557	2,342	1,270	**10,169**
2	3,448	2,232	992	**6,672**
3	4,488	2,504	1,114	**8,106**
4	5,722	2,252	1,147	**9,121**
5	4,851	2,398	1,903	**9,152**
6	4,579	1,567	514	**6,660**
7	5,290	1,969	539	**7,798**
8	7,746	1,792	2,456	**11,993**
9	7,651	2,224	649	**10,524**
10	8,007	985	1,909	**10,901**
11	---	---	5,711	**5,711**
Total	58,338	20,265	18,204	**96,807**

*Any discrepancies in the totals are due to rounding.

Source: NYSDOT, August 2026

SYSTEM EXTENT BY FUNCTION

Table 2 provides a summary of local highway centerline mileage by functional classification. Functional classification is a process used by the Federal Highway Administration (FHWA) to group streets and highways into classes or systems according to the character of service they are intended to provide [(5)]. The highest functional class called “arterials” generally provides for mobility service (e.g. longer trips on major roadways such as the Interstate System) while the lowest level system called “locals” provides mostly accessibility service. The intermediate category, “collectors”, gathers traffic from locals and connects these facilities to the arterial network. There are several subcategories of functional classes for both urban and rural roads. For the sake of simplicity, all categories have been grouped into the three major functional classes as described above.

As seen on the table, over 5,200 miles of local jurisdiction highways are classified as arterials and as such, by definition, are among the most important and heavily traveled roads in the state.

Table 2
Local Jurisdiction Centerline Mileage by Functional Classification and Region

NYSDOT Region	Arterials	Collectors	Local	Total*
1	299	1,598	8,273	**10,169**
2	109	1,249	5,313	**6,672**
3	284	1,245	6,577	**8,106**
4	313	1,718	7,090	**9,121**
5	554	1,639	6,960	**9,152**
6	65	1,459	5,136	**6,660**
7	59	1,699	6,040	**7,798**
8	633	1,842	9,518	**11,993**
9	123	2,051	8,348	**10,524**
10	1,382	1,035	8,482	**10,901**
11	1,455	542	3,715	**5,711**
Total	**5,276**	**16,077**	**75,454**	**96,807**

*Any discrepancies in the totals are due to rounding.

Source : NYSDOT, August 2026

PAVEMENT CONDITIONS

Condition surveys are a critical component of an asset management system [(6)]. NYSDOT annually collects pavement conditions and ride quality data on the entire universe of State-maintained highway [(7)]. The condition survey utilizes a 10-point scale where each scale point was originally selected to depict a pavement in need of a general treatment strategy. Survey results are reported in terms of the percentage of pavements rated poor (surface condition rating of 1 through 5), fair (rating of 6), good (rating of 7 or 8) or excellent (rating of 9 or 10). Pavements rated poor and fair are candidates for repair.

Unfortunately, a similar survey has never been conducted on the universe of local highways. Pavement condition data, however, is available on segments of the local highway network which are evaluated as part of the NYSDOT annual condition survey. These highways, called State Touring Routes, are the 630 centerline miles of local jurisdiction roads signed with route shields for the convenience of the motoring public. The 2024 condition survey reveals that 41.7% of these highways are rated poor or fair and thus need rehabilitation. This compares to 39.0% poor

and fair for all State highways [7]. It is important to understand that most of the touring routes reside within cities or villages and will require very expensive treatments due to closed drainage systems, utility conflicts, and significant resources for maintenance and protection of traffic.

Further, a 2025 study by the National Transportation Research Nonprofit (TRIP) in conjunction with NYSDOT and FHWA, estimates 45 percent of New York's major municipal and State maintained roads are in poor or fair condition [8]versus the 39% for all State maintained highways . Although this comparison is not directly equivalent, the data does suggest local jurisdiction roads are in worse condition than their state highway counterparts. This finding is supported in a recent national study by the Brookings Institution entitled "*Shakedown: How local road users are subsidizing state highway investment."* A full section in this study is entitled, "Locally owned roads are in worse condition than state roads, demonstrating the need for greater investment [9]."

PAVEMENT NEEDS ESTIMATE

Conventional asset management methodology relies on pavement condition data and performance modelling to evaluate system needs over time. However, as already stated, pavement conditions are not available for the universe of local jurisdiction highways. To address this limitation, the study establishes a goal of a 12-year treatment, or "paving cycle," for the local highway network and estimates the investment required to achieve it. For purposes of this study, a 12-year paving cycle is considered the minimum repair cycle necessary to maintain or improve pavement conditions and, therefore, represents a "state of good repair." This goal is consistent with the pavement element of the NYSDOT Multi-Modal Needs Assessment for the 2010–2030 period.

The key to the needs assessment process is to realistically estimate repair strategies and costs for local highways. This is not a simple process due to the diversity of the local network from high volume county roads on Long Island to the unpaved local roads throughout rural New York State. In order to determine repair strategies, costs, and ultimately "needs" the following steps were undertaken:

1) Based on an analysis of recent contract bid prices [10] with input by representatives from the highway construction industry, baseline contract repair costs were determined by NYSDOT region. The repair strategies used in the analysis are consistent with NYSDOT's Transportation Asset Management Plan [11] and for the purpose of this study are categorized into four general treatment types: major rehabilitation, minor rehabilitation corrective maintenance, and surface treatment for unpaved roads. Typical repair actions within each category are as follows:

    - Major Rehabilitation - Mill 3" plus 4" Asphalt Pavement overlay
    - Minor Rehabilitation - Mill 2" plus 2" Asphalt Pavement overlay
    - Corrective Maintenance - 1 ½ "Asphalt Pavement overlay
    - Surface Treatment (unpaved roads) - Grading and Re-crowning or Gravel Re-topping

    To simplify the cost estimation process, NYSDOT regions were grouped based on similar cost structures (materials and labor) and demographic characteristics.

2) The mix of repair strategies to be applied to the mileage necessary to reach the state of good repair goal was determined in concert with industry officials and is based on regional groupings and the distribution of functionally classified roads within each grouping. For example, local roads in a region with a high proportion of urban principal arterials (Regions 8 and 10) are assumed to receive a more rigorous mix of treatments than local roads in a region with a high proportion of rural collectors and roads functionally classified as local (Regions 2,6,7,9). Table 3 provides the treatment mix matrix used in the analysis.

Table 3
Treatment Mix Matrix by NYSDOT Region

NYSDOT Regions	Functional Class	Major Rehabilitation (renewal)	Minor Rehabilitation.	Corrective Maintenance (preservation)	Surface Treatment (unpaved)
1,3,4,5	Arterials	50%	50%	---	---
	Collectors	---	50%	50%	---
	Local	---		85%	15%
2,6,7,9	Arterials	40%	60%	---	---
	Collectors	---	40%	60%	---
	Local	---	---	80%	20%
8,10	Arterials	60%	40%	---	---
	Collectors	---	60%	40%	---
	Local	---	---	95%	5%

3) Pavement capital needs were calculated by multiplying the mileage in each cell of the matrix by the appropriate costs as determined in steps 1 and 2 above.

4) The resultant pavement need for local governments to reach a state of good repair is calculated at $41 billion for the 12-year period beginning in 2026. This translates to an annual resource need of $3.4 billion.

Table 4 shows the 12-year pavement needs estimate by regional grouping.

Table 4
12-Year Resource Needs to a Reach State of Good Repair by Regional Grouping

Regional Grouping	Centerline Miles *	12-Year Needs Estimate ($ billions)
1,3,4,5	36,551	**15.8**
2,6,7,9	31,652	**11.6**
8,10	22,893	**13.6**
Total	**91,096**	**41.0**

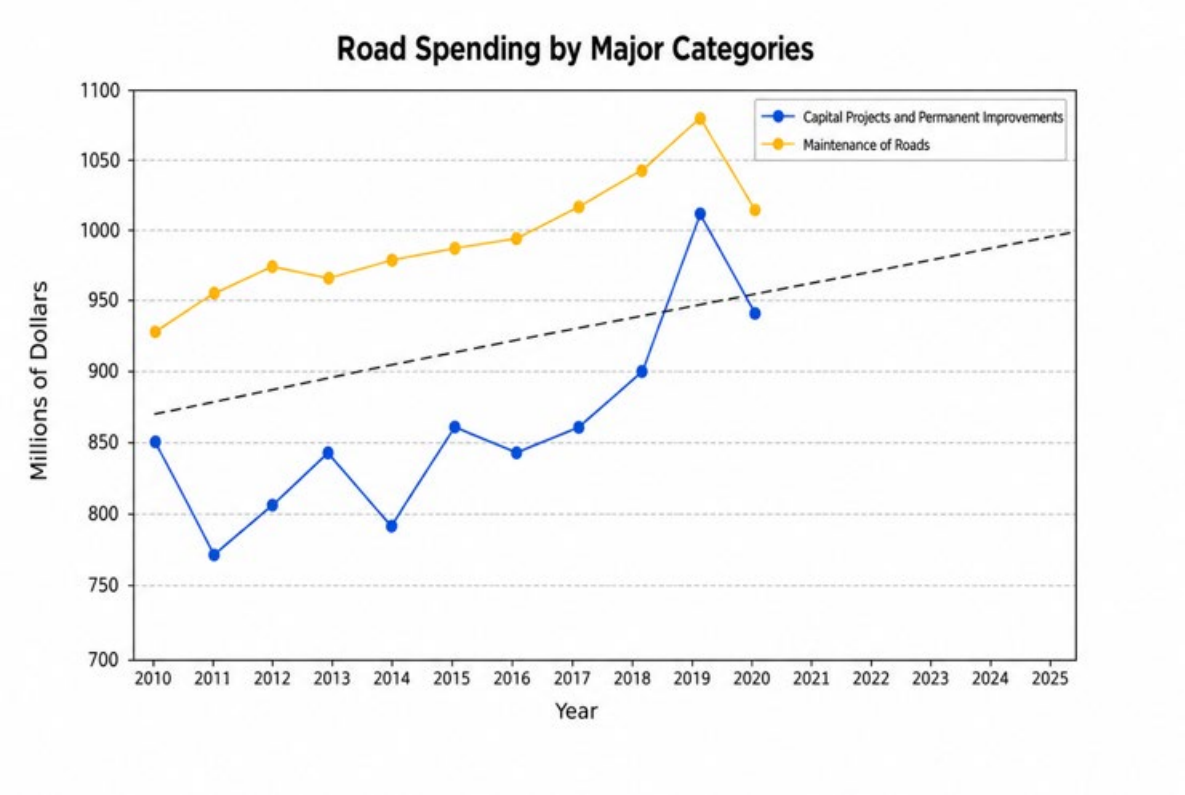
*excluding Region 11

EXPENDITURE ON LOCAL JURISDICTION PAVEMENTS

Each year all municipal governments report highway expenditures to the Office of the State Comptroller. Expenditures are reported for two categories of work - highway maintenance and capital construction [(3)]. Generally, maintenance activities keep existing roads safe and operational and are performed by municipal staff. Typical maintenance activities include snow and ice removal, mowing and vegetation control, pavement patching, and pothole repair. Capital construction for the purpose of this study is defined as activities which improve the riding surface and usually add structure and /or service life to the pavement.

Figure 2 is an excerpt from the 2022 OSC "by the numbers "report on local government expenditures and profiles highway spending on maintenance and capital construction over time. Unfortunately, 2020 is the last year the data was made available. Given the visual trend line , a $1 billion expenditure for capital construction is a reasonable projection for 2026. A simple linear regression line (dashed line in Figure 2) confirms this estimate.

Figure 2



Source: Office of the State Comptroller

The reader should be advised that the OSC road-spending category "Capital Projects and Permanent Improvements" includes expenditures for a broad range of highway-related projects that extend well beyond the scope of this study. These expenditures include highway reconstruction and widening, drainage reconstruction, traffic signal installation, roundabout construction, and numerous other capital improvements, in addition to projects for which pavement resurfacing is the primary objective. Consequently, the expenditures shown in Figure 2 represent more than the cost of in-kind pavement rehabilitation and therefore tend to overstate actual resurfacing expenditures.

To account for this, the analysis assumes that recent increases in State aid to local governments [(12)] will result in a corresponding increase in local highway expenditures on projects where pavement resurfacing is the primary objective. On this basis, and for purposes of this study, the projected $1 billion in annual local highway expenditures for 2025 is considered a reasonable estimate.

CLOSING THE FUNDING GAP

As stated above, the needs estimation analysis indicates that approximately $3.4 billion in annual investment is required to achieve and sustain a state of good repair for New York State's locally owned highway system. By comparison, the current annual expenditure for capital construction on local highways is projected at $1 billion. This disparity leaves an annual funding shortfall of approximately $2.4 billion**.**

In order to fill the gap, a substantial and sustained increase in State support for locally owned highways is necessary. The government expenditures discussed above include funding provided through New York State's local highway programs: the Consolidated Local Street and Highway Improvement Program (CHIPS), Emergency Winter Recovery (EWR), PAVE-NY, Pave Our Potholes (POP), and the State Touring Routes Program (STR).

During NYSDOT's current five-year highway program covering State Fiscal Years 2022–23 through 2026–27, state highway assistance (highways and bridges) to local governments will increase to approximately $1.2 billion. This represents a 19 percent increase over the previous

five-year program. Over the same period, however, the National Highway Construction Cost Index shows highway construction costs increased by approximately 45 percent. In other words, state support has not kept pace with rising construction costs even with the recent bump in funding. Adjusted for highway construction inflation, the purchasing power of state local highway assistance has effectively declined by 26 percent.

While the five State aid programs listed above are a vital source of support for local roads, their value represents only a fraction of the highway-related taxes and fees collected from road users. An analysis of records from the New York State Department of Taxation and Finance and the Division of the Budget indicates that approximately $5.7 billion is collected annually through gasoline taxes, vehicle sales taxes, congestion pricing revenues, and Department of Motor Vehicles fees [13]. With at least 40 percent of vehicle miles traveled in New York occurring on local roads, municipal governments should receive an increase of $1 billion annually if highway related revenues were distributed based on motorists' actual use of the local transportation system. Such a distribution would closely align highway funding with actual usage and provide local governments with additional resources to address the funding shortfall and improve the roadways that motorists rely on every day.

In summary, State transportation policy must recognize preservation of the local highway system as a core infrastructure priority and establish a funding level commensurate with the cost of maintaining this 97,000-mile system in a state of good repair. Without immediate action to close the funding gap, the condition of the local highway system will continue to deteriorate and the cost of restoring it will continue to increase. Construction inflation at current levels will only exacerbate this problem,

SUMMARY AND CONCLUSIONS

New York State's locally owned highway system is a vast network consisting of more than 97,000 centerline miles of roadway. Local roads represent 85 percent of total public mileage and carry 40 percent of total Statewide vehicle miles of travel. These roads are essential to the State's mobility, economy, and quality of life.

This study provides an estimate of the investment required to repair and maintain local jurisdiction highways in a safe and reliable condition. Conventional asset management methodology relies on pavement condition data and performance modelling to evaluate system needs. However, pavement conditions are not available for the universe of locally owned highways. In order to address this limitation, the study estimates the funding required to achieve and sustain a 12-year paving cycle for local highways. For purposes of this study, a 12-year paving cycle is considered the minimum repair cycle necessary to maintain or improve current pavement conditions and, therefore, represents a "state of good repair."

Treatment strategies used in the needs analysis align with the NYSDOT Asset Management Plan, and cost estimates are based on an evaluation of 2025-2026 contract bid prices with review and input from the construction industry. **The results of the analysis show that the total annual contract cost required to achieve a state of good repair for local highways is estimated at $3.4 billion. By contrast, annual capital expenditures on pavement repair total approximately $1 billion. This imbalance results in a funding shortfall of $2.4 billion annually**.

Closing this funding gap will require a substantial and sustained commitment from all levels of government. An analysis of records from the New York State Department of Taxation and Finance and the Division of the Budget indicates that **local governments would receive approximately $1 billion more annually if highway-related revenues were distributed based on motorists' actual use of the local highway system.** Aligning revenue distribution with system usage would not eliminate the shortfall entirely, but it would represent a meaningful first step toward narrowing the gap and establishing a more equitable and rational funding structure.

In conclusion, without a significant and immediate increase in funding, the condition of local jurisdiction pavements will continue to deteriorate, the backlog of rehabilitation needs will grow, and the cost of addressing these needs will increase substantially. Persistently high construction inflation will worsen this trend.

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