REPORT TO THE GOVERNOR AND THE LEGISLATURE ON NEW JERSEY'S ROADWAY PAVEMENT SYSTEM

FISCAL YEAR 2020

July 01, 2019-June 30,2020

Prepared by:

New Jersey Department of Transportation

July 2021

State of New Jersey
DEPARTMENT OF TRANSPORTATION
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PHILIP D. MURPHY
Governor

SHEILA Y. OLIVER
Lt. Governor

DIANE GUTIERREZ-SCACCETTI
Commissioner

July 12, 2021

Dear Governor Murphy and members of the Legislature:

In compliance with N.J.S.A. 27:1B-21.23 and 21.24, I am pleased to submit the Department's report on New Jersey's state-maintained pavement system for State Fiscal Year 2020. The state highway network is one of New Jersey's largest assets and preserving our pavement investment continues to be a high priority for the Department. The state highway system carries approximately 40% of the state's vehicular traffic and is an essential element of New Jersey's economy.

The Department strives to maintain the roadway infrastructure in a state of good repair and address deficiencies. Funding for pavement projects remains a critical criterion for how much roadway repair and how many improvements can be accomplished.

The Department utilizes a comprehensive Pavement Management System to make the most effective use of available resources. This strategy includes using a mix of pavement treatments and various techniques, ranging from preventive maintenance to rehabilitation and reconstruction.

This report highlights work completed through the plan during State Fiscal Year 2020. Additionally, Appendix A of this report details pavement segments of the state highway system in need of major repair in the future.

Sincerely,

Diane Gutierrez-Scaccetti
Commissioner

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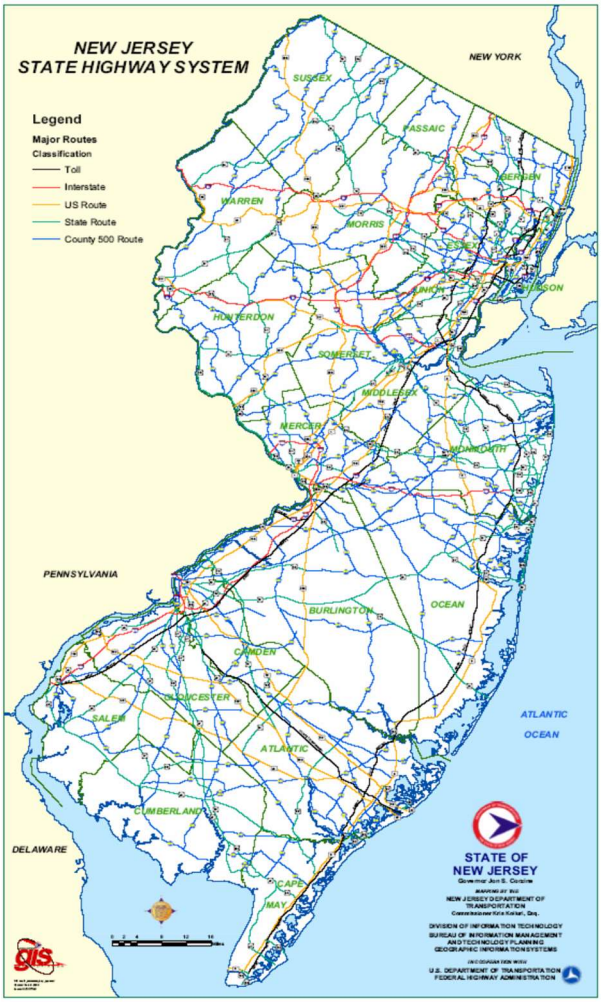
CURRENT STATUS OF THE STATE HIGHWAY SYSTEM

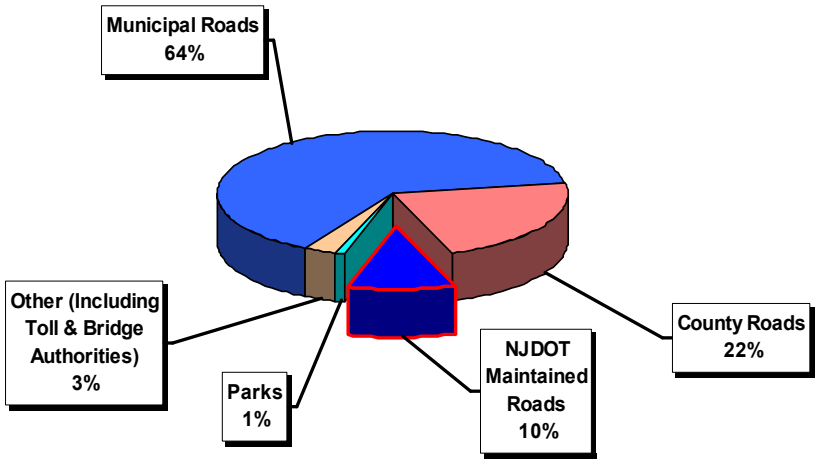
Description of System

There are approximately 38,950 centerline (CL) miles of roadways in New Jersey. NJDOT maintains approximately 2,334 CL miles of those roadways, commonly referred to as the state highway system. Most of the remaining mileage is under the jurisdiction of counties (6,707 CL miles) and municipalities (28,783 CL miles). Other mileage consists of toll roads including the Garden State Parkway and the New Jersey Turnpike, administered by the New Jersey Turnpike Authority (324 CL miles), the Atlantic City Expressway (46 CL miles) administered by the South Jersey Transportation Authority and mileage maintained by bridge authorities (33 CL miles), park roads both state and local (401 CL miles), other facilities such as the Palisades Interstate Parkway (12 CL miles), and finally federal agencies including the U.S. Fish & Wildlife Service, the National Park Services, and the Military (311 CL miles).



To get a better idea of pavement quantities, lane miles rather than centerline miles are used (1 mile of a 2-lane road represents 2 lane miles). As shown in Figure 1 below, NJDOT maintains about 10% of the total statewide lane mileage, but approximately 40% of all traffic, including a high percentage of heavy trucks, is carried on NJDOT-maintained roads.

FIGURE 1
NJ Roadway System, Breakdown by Lane Miles



Assessment of the State Highway System

Evaluation of the New Jersey state highway system is based upon data collected on state-maintained roads and stored in the Pavement Management System. Analysis of this data to assess current pavement conditions considers the following functional adequacy indices:

- **IRI (International Roughness Index)** estimates roughness as perceived by vehicle occupants by using lasers to determine the actual variations in the pavement surface from a perfectly flat condition, measured in inches per mile. Although IRI can vary theoretically from 0 to an unlimited number, practical ranges seen on pavement are 30 to 400 (higher values mean rougher pavements). The FHWA acceptable ranges for IRI are: IRI<= 400 and IRI >= 30.
- **SDI (Surface Distress Index)** assesses surface distress and visible deterioration by evaluating cracking, patching, faulting, shoulder drop, rut depth and joint deterioration. SDI is reported on a scale of 0 to 5 (5 is a perfect pavement free of any distress). Rut Depth measures depths of cracking primarily in vehicle wheel paths.
- **Skid Number** measures the pavement surface frictional characteristics.

While all of the indices listed above are considered in selecting locations and types of pavement treatments, IRI and SDI are most indicative of functional adequacy and are used to evaluate the system status. IRI is a national standard supported by the Federal Highway Administration and SDI is a New Jersey standard used for many years in roadway assessment.

The analyses discussed herein utilized road data collected in 2019 to evaluate the state highway system consisting of approximately 2,334 centerline miles of roadway. In terms of pavement quantities, this amounts to 8,563 lane miles of mainline roadway, approximately 4,050 miles of shoulders, and 550 miles of ramps that are state-owned and maintained. The criteria shown in Table 1 below were used to evaluate the mainline roadway condition.

TABLE 1 - CONDITION CRITERIA

Status	Condition Index Criteria (IRI = International Roughness Index, in/mi; SDI = Surface Distress Index, 0 – 5 Scale)	Engineering Significance
Deficient (Poor)	**IRI > 170 *AND/OR* SDI ≤ 2.4 (Deficient classification results from either deficient roughness alone or surface distress alone or both).**	**These roads are due for treatment.** Drivers on these roads will notice that they are driving on a rough surface and may be barely tolerable for high-speed traffic. These pavements may have deteriorated to such an extent that they affect the speed of free flow traffic and may cause damage to vehicles. There will be signs of significant deterioration, including potholes and deep cracks. Deficient pavements will generally be most costly to rehabilitate.
Fair	**All combinations of IRI and SDI between those above and below listed range. IRI ≥ 95 and IRI ≤ 170 and/or SDI > 2.4 and < 3.5**	**These roads exhibit minimally acceptable smoothness that is noticeably inferior to those of new paving.** These pavements may show some signs of deterioration such as rutting and cracking or patching. Most importantly, roads in this category are in jeopardy and should immediately be programmed for a cost-effective treatment that will restore them to a good condition and avoid costly rehabilitation in the near future.
Good	**IRI < 95 *AND* SDI ≥ 3.5 (Both IRI and SDI must be good to rate this classification).**	**These roads exhibit good ride quality with little or no sign of deterioration.** A proactive preventive maintenance strategy is necessary to keep roads in this category as long as possible.

The road data analysis results are presented in tabular form in Table 2 below and graphically in Figure 2.

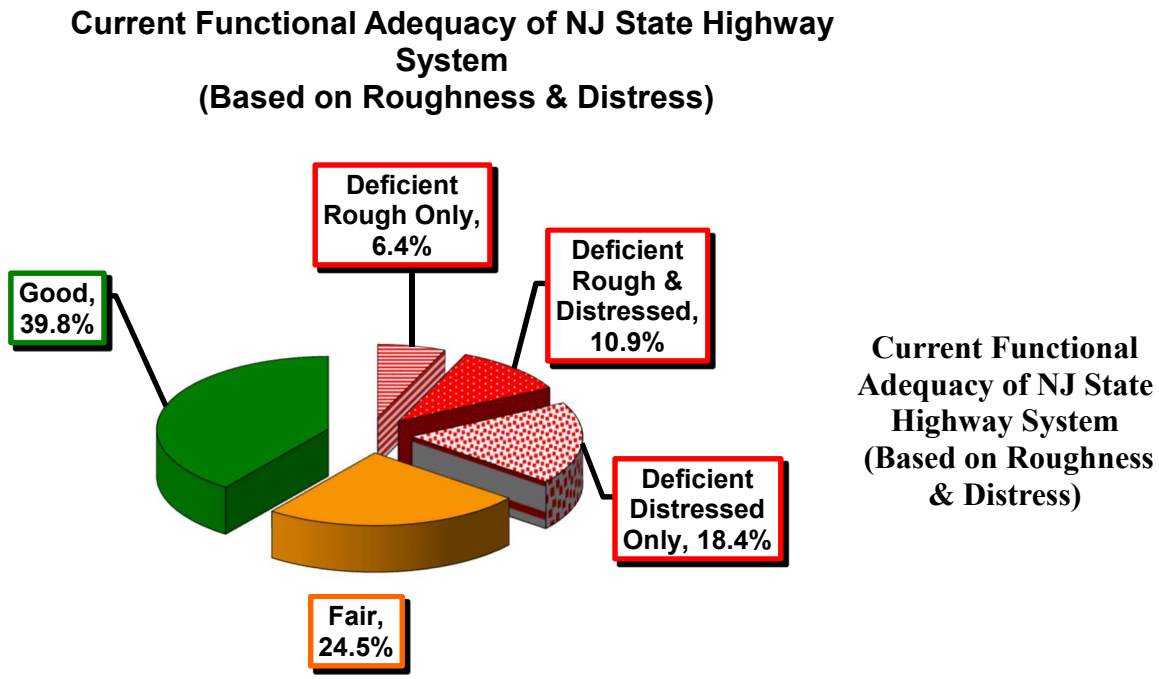
TABLE 2
Functional Adequacy of NJ State Highway System
(Based on Roughness and Distress)

Condition	Road Miles (Two Directions)	Lane Miles (Two Directions)	% of Total System Performance by Lane Miles
Deficient by Roughness Alone (IRI > 170)	289.82	543.99	6.4%
Deficient by Roughness & Distress (Both)	582.8	928.2	10.9%
Deficient by Distress Alone (SDI ≤ 2.4)	917.36	1564.86	18.4%
Total Deficient	1789.98	3037.05	35.7%
Total Fair/Mediocre	1148.98	2092.29	24.5%
Total Good	1734.44	3395.03	39.8%
Total State System	4673.4 †	8524.37 †	100.0%

Source: NJDOT Pavement Management System, 2019 Data

† Note: Mileage in Table 2 represents tested mileage which is slightly less than system mileage (4673.4 out of 4675.64 and 8524.37 out of 8563.30) due to inaccessibility of some areas for testing.

FIGURE 2

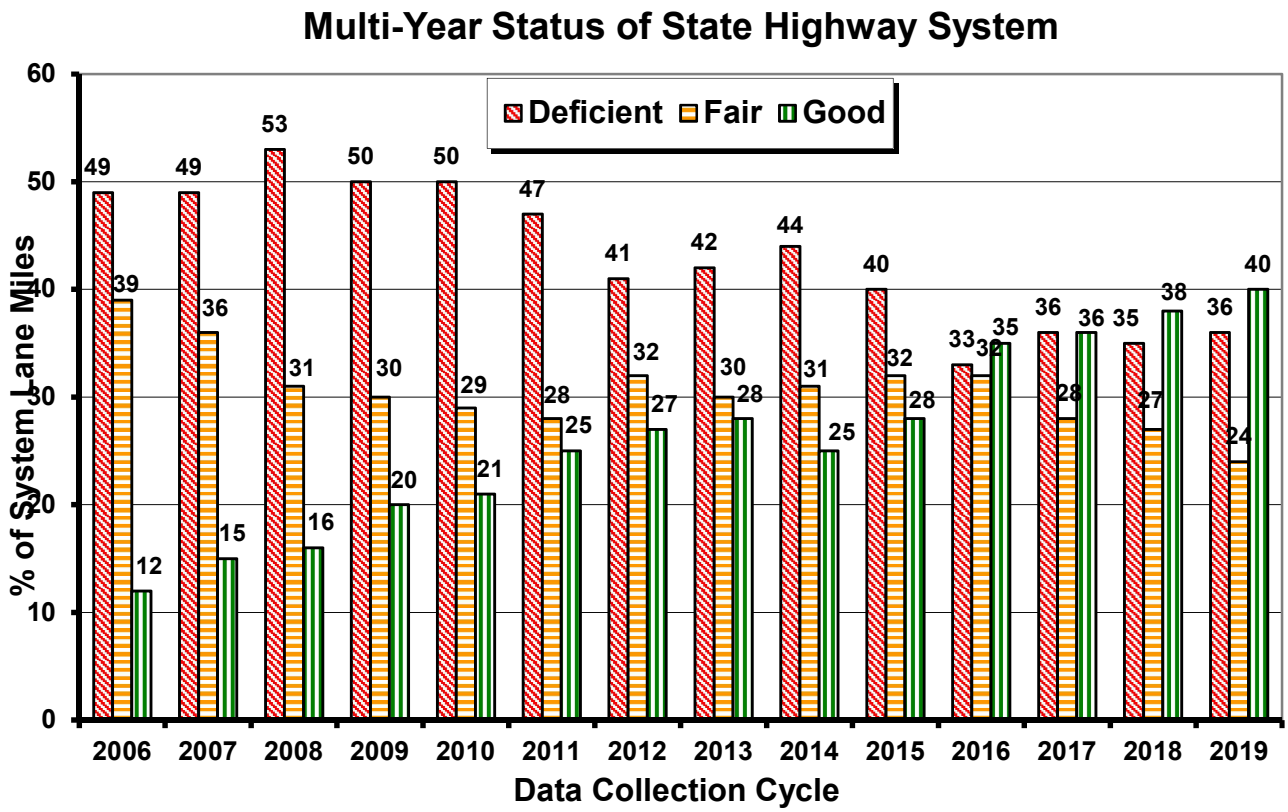


Source: NJDOT Pavement Management System, 2019

NJDOT considers the 35% total deficiency (combination of three deficient subcategories above) as a serious condition that warrants treatment as soon as possible. Deficiency by IRI could indicate a safety or vehicle damage concern. SDI deficiency indicates a serious condition with regards to pavement breakup, potholes, shortened pavement life, etc. Obviously, the presence of both deficiencies is even more serious. The type of deficiency is important in that it can aid in selecting the most efficient treatment methodology and can indicate whether materials currently in use are performing adequately by the amount of deficiency due to cracking.

Similar analyses using data collected over the last 15 years show that, while the total deficiency has remained significant over time, current efforts have resulted in reduced deficiencies (see Figure 3). Year 2016 was a milestone year in NJDOT's Pavement Management and Asset Management history. For the first time since NJDOT has been performing annual network condition assessments on its pavement assets, the number of pavements classified as "good" has grown to be the largest of the three Functional Adequacy categories. This trend has continued in 2017, 2018, and 2019 as shown in Figure 2 and 3.

FIGURE 3



Source: NJDOT Pavement Management System

SUMMARY OF PAVEMENT PROJECT EXPENDITURES

A summary of pavement projects expenditures in State Fiscal Year 2020 is provided in Table 3 below. Costs for individual projects awarded in State FY 2020 are shown on pages 6 through 13.

TABLE 3
Summary of Pavement Projects Expenditures for State Fiscal Year 2020
(Individual costs for projects awarded in State FY 2020 are shown on pages 6 through 13)

Program Category	Description	Expenditure In $ Millions
Highway Capital Maintenance (Betterments) Projects	This is an ongoing program of minor improvements / betterments to the state highway system for miscellaneous maintenance repair projects, repair parts, miscellaneous needs for emergent projects, handicap ramps, and drainage rehabilitation / maintenance. (Table 4)	**$5.541**
Highway Resurfacing – Division of Operations Support Projects	This is a comprehensive program of providing renewed riding surfaces to state highways to prolong the life of the pavement and provide a smoother ride for users of the system. (Table 5)	**$98.711**
Highway Resurfacing / Rehab & Reconstruct – Division of Capital Program Management Projects	This program funds larger scale projects administered through Capital Program Management which are primarily involved with pavement restoration. (Table 6)	**$121.001**
Pavement Preservation Preventive Maintenance – Division of Capital Program Management Projects	This program provides funding for eligible federal pavement preservation preventive maintenance activities which help to keep New Jersey's highway system in a state of good repair. (Table 7)	**$85.501**
Totals		**$310.754**

WORK COMPLETED IN STATE FISCAL YEAR 2020

The Department's Division of Operations Support administers highway capital maintenance and selected resurfacing projects. Alternatively, the Division of Capital Program Management administers resurfacing and major rehabilitation/reconstruction projects which are more involved regarding required project documents, scoping and design. Each of these types of projects, which result in significant pavement system improvement, is broken down and described by program categories in the sections which follow.

State FY 2020 Highway Capital Maintenance (Betterments) Projects in SFY 2020

As described in Table 4, Highway Capital Maintenance dollars, which are also the state Transportation Trust Fund (TTF) dollars, were spent in State Fiscal Year 2020 on pavement-related maintenance work administered through the Division of Operations Support of NJDOT. In-house operations (maintenance) crews regularly performed a variety of maintenance tasks to extend the life of pavement and address emergency conditions, including the following:

- Patching potholes to keep the riding surface intact and prevent intrusion of moisture into the pavement layers.
- Quick-set concrete to patch and repair bridge decks.

In addition, specialized maintenance work was performed through projects awarded and administered through the Division of Operations Support, including the following:

- "If-And-Where" resurfacing projects statewide administered through Regional Operations personnel to quickly address emergency conditions.
- Crack sealing and longitudinal joint patching to prolong pavement life.
- Diamond grinding of concrete pavement to improve ride quality, skid resistance, wet weather visibility and to reduce tire noise.

TABLE 4

Highway Capital Maintenance (Betterments) Projects –Awarded by Division of Operations Support
State FY 2020

Projects	Description of Work	County	Total Cost In $ Millions
Maintenance Resurfacing Contract#522 (MRC)	This is a Statewide "If and Where Directed" contract which will address various locations within the regions. The work will be mostly temporary restoration of surface, curb to curb for a short distance OR a short distance of travel lane and shoulder, to extend the life of pavement until a full resurfacing project is initiated and constructed.	Various locations in different counties will be addressed on an "as and when needed" basis	$5.541
Totals			**$5.541**

MRC *- Maintenance Resurfacing Contract*

State FY 2020 Highway Resurfacing – Division of Operations Support Projects

As mentioned previously, selected resurfacing projects are administered through the Department's Division of Operations Support. These projects are funded with state TTF dollars. Table 5 below lists the resurfacing projects valued at **$98.711M** that were awarded in State Fiscal Year 2020.

TABLE 5
Highway Resurfacing Projects – Division of Operations Support Projects Awarded in SFY 2020

Project	Route	Direction	Start Mile Post	End Mile Post	Total Lane Miles	County	Total Cost In $ Millions
MRRC #N109	23	NB & SB	42.00	49.00	14.00	Bergen, Hudson, Sussex, Warren	$14.479
	94	NB & SB	35.40	45.94	21.08		
MRRC #N211	46	EB & WB	33.50	34.50	2.00	Essex, Morris, Passaic, Union	$17.694
		EB & WB	36.00	42.20	18.60		
		EB	43.50	47.00	7.30		
		EB	54.50	59.10	11.30		
MRRC #C114	31	NB	28.80	31.74	5.88	Hunterdon, Somerset, Middlesex	$8.589
		SB	28.80	31.78	5.96		
MRRC #C115	133	WB	0.00	3.50	7.00	Mercer	$4.961
		EB	0.00	3.50	7.00		
MRRC #C116	29	NB	0.50	2.20	4.40	Mercer, Monmouth, Ocean	$10.553
		SB	0.00	2.20	6.90		
	129	NB & SB	0.00	0.32	0.64		
		NB & SB	0.32	1.60	4.36		
	175	NB & SB	0.26	2.95	5.38		
	195	EB	0.00	0.56	1.68		
MRRC #C212	287	NB	5.85	12.90	21.15	Middlesex Somerset	$13.400
		SB	5.87	10.17	13.07		
			12.00	12.90	2.70		
MRRC #S114	130	NB	26.00	29.48	8.94	Burlington Camden, Gloucester	$12.990
		SB	26.00	29.48	7.66		
		SB	45.69	46.83	3.29		
MRRC #S210	55	SB	51.30	60.54	18.04	Gloucester	$5.998
MRRC #S211	49	EB & WB	37.20	38.60	3.20	Atlantic, Cape May, Cumberland, Salem	$10.047
		EB & WB	40.12	44.29	8.36		
	55	NB & SB	20.00	22.00	6.40		
Total					**216.29**		**$98.711**

MRRC *- Maintenance Roadway Repair Contracts*

State Fiscal Year 2020 Highway Resurfacing, Rehabilitation, Reconstruction - Division of Capital Program Management Projects

This funding category includes pavement projects administered through Division of Capital Program Management. These projects are more involved than those administered through the Division of Operations Support regarding required project design, documentation, and scoping. This program consists primarily of resurfacing, rehabilitation, or reconstruction of highway pavements, but may also include more repair activities, upgrades to sidewalks, curbing and guiderails, Americans with Disabilities Act (ADA) improvements, application of long-life pavement markings and raised pavement markers, and safety improvements. Table 6 below lists **10** highway resurfacing, rehabilitation, or reconstruction projects awarded in State Fiscal Year 2020, administered through the Division of Capital Program Management valued at **$121.001 million**.

TABLE 6
Highway Resurfacing, Rehabilitation, Reconstruction Projects Awarded in State FY 2020
Administered Through Division of Capital Program Management

Project Description	DOT UPC No.	Route	Direction	Start Mile Post	End Mile Post	Total Lane Miles	County	Fund Source	Cost In $ Millions
Rt 21, Lafayette St to On Ramp at Interchange 7	153770	21	NB	2.10	4.20	6.00	Essex	Federal	$3.634
			SB	2.10	4.02	5.00			
Rt 28, Grove St to Highland Ave	124210	28	EB	23.24	25.24	4.00	Union	Federal	$7.422
			WB	23.24	25.30	4.20			
Rt 30, Elmwood Rd/Weymouth Rd (CR623) to Haddon Ave.	113370	30	EB & WB	36.40	46.18	39.20	Atlantic	Federal	$32.869
				47.64	50.80	13.20			
Rt 80 EB, Fairfield Rd (CR679) to Route 19	113410	80	EB	53.00	58.20	19.90	Passaic	Federal	$13.257

TABLE 6 (Cont'd)
Highway Resurfacing, Rehabilitation, Reconstruction Projects Awarded in State FY 2020
Administered Through Division of Capital Program Management

Project Description	DOT UPC No.	Route	Direction	Start Mile Post	End Mile Post	Total Lane Miles	County	Fund Source	Cost In $ Millions
Rt 130, Charlestown Rd/Cooper St (CR630) to Crafts Creek	124150	130	NB NB & SB	43.01 47.38	47.38 51.58	12.50 16.80	Burlington	Federal	$28.162
Rt 130, Plant St to High Hill Rd (CR 662)	114140	130	NB & SB	0.20	10.98	25.80	Gloucester, Salem	Federal	$11.028
Rt 202, Childs Rd/N Maple Ave to Academy Rd	153810	202	NB & SB	39.00	46.70	17.30	Morris, Somerset	Federal	$5.997
Rt 322, Rt 50 to Leipzig Ave	124330	322	EB & WB	45.90	50.00	16.40	Atlantic	Federal	$11.415
Rt 10 WB, Rt 287 to Jefferson Rd	124360	10	WB	12.79	13.19	0.80	Morris	State	$4.485
Rt 171, Rt 130 to Lincoln Ave	153630	171	NB & SB	0.00	1.30	4.00	Middlesex	State	$2.732
Total						**185.10**			**$121.001**

State Fiscal Year 2020 Pavement Preservation Preventive Maintenance Projects

NJDOT has significantly increased the use of preventive maintenance treatments over the last several years. Instead of waiting until pavements deteriorate to a poor condition which then requires conventional resurfacing or rehabilitation treatments, preventive maintenance treatments are applied at a fraction of the cost to roadway sections in good or fair condition. While the majority of the pavement funding is still applied to conventional restoration of deficient pavements, the preventive maintenance strategy applied to non-deficient pavements slows the rate of deterioration and allows NJDOT to reduce the backlog of deficient pavements with the funding available.

In State FY 2020, the following specialized preventive maintenance treatments were utilized:

- **Microsurfacing / Slurry Seal:** This process involves sealing the entire pavement surface with a special cold mixture of polymer modified asphalt emulsion, mineral aggregate, mineral filler, water, and other additives applied in a thin layer on the existing pavement surface.

- **Ultra-Thin Friction Course (UTFC):** A surface treatment that places a 0.75-in. thick polymer-modified hot mix asphalt layer placed on a polymer-modified emulsified asphalt membrane. This process utilizes a specially designed "spray paver" or "ultra-thin lift paver" to rapidly place polymer modified asphalt emulsion material just ahead of the hot mix asphalt that allows for faster opening to traffic and improved overlay performance.
- **High Performance Thin Overlay (HPTO):** Application of a special hot mix asphalt overlay using a modified asphalt binder generally with an average thickness of 1 inch to the entire pavement surface. This process sometimes utilizes a specially designed "spray paver" or "ultra-thin lift paver" for improved overlay performance.
- **Asphalt Rubber Chip Seal (AR Chip Seal):** Application of asphalt rubber modified binder to the roadway followed by spreading pre-coated high-quality chip seal aggregate, over the binder which is then rolled with pneumatic tire rollers.
- **Cape Seal:** A surface treatment that involves the application of slurry seal to a newly constructed surface treatment or chip seal. Cape seals are used to provide a dense, waterproof surface with improved skid resistance and ride quality.

Projects which were completed in State FY 2020 up to June 30 through the Capital Program Management are listed in Table 7 below.

TABLE 7

Pavement Preservation Preventive Maintenance Projects Awarded in State FY 2020 Administered Through Division of Capital Program Management

Project Description	Treatment	DOT UPC No.	Route	Direction	Start Mile Post	End Mile Post	Total Lane Miles	County	Total Cost In $ Millions
Rt 3, Rt 46 to Rt 495	Micromill + HPTO	193180	3	EB WB EB WB	0.50 0.50 6.02 6.06	5.25 5.53 10.49 10.49	14.10 15.00 15.32 14.72	Bergen Passaic Hudson	$16.569
Rt 9, Rio Grande Ave (CR 634) to Egert Rd	Slurry Seal	203080	9	NB & SB	6.98	15.00	17.20	Cape May	$2.360
Rt 9, Madison Avenue to Garden State Parkway	Slurry + AR Chip Seal	203090	9	NB & SB	46.50	52.40	11.80	Atlantic	$1.788

TABLE 7 (Cont'd)

Pavement Preservation Preventive Maintenance Projects Awarded in State FY 2020
Administered Through Division of Capital Program Management

Project Description	Treatment	DOT UPC No.	Route	Direction	Start Mile Post	End Mile Post	Total Lane Miles	County	Total Cost In $ Millions
Rt 17, Rt 46 to W Saddle River	UTFC	203130	17	NB	11.70	16.50	13.80	Bergen	$9.575
				SB	8.70	17.04	22.40		
Rt 17, Summit Ave to Rt 287	UTFC	203140	17	NB & SB	22.87	26.50	21.99	Bergen	$9.810
				SB	19.50	22.87	9.90		
Rt 18, Rt 138 to Rt 34	UTFC	193200	18	NB	5.14	18.80	27.30	Monmouth	$8.446
				SB	11.25	17.30	12.20		
Rt 31, Rt 173 to South Lincoln Ave/Hawke Point Boulevard (CR 640)	Slurry seal	203150	31	NB & SB	32.50	40.90	21.70	Hunterdon, Warren	$3.421
Rt 38, Rt 295 to Rt 206	Slurry seal	203110	38	NB & SB	9.60	19.19	45.26	Burlington	$7.223

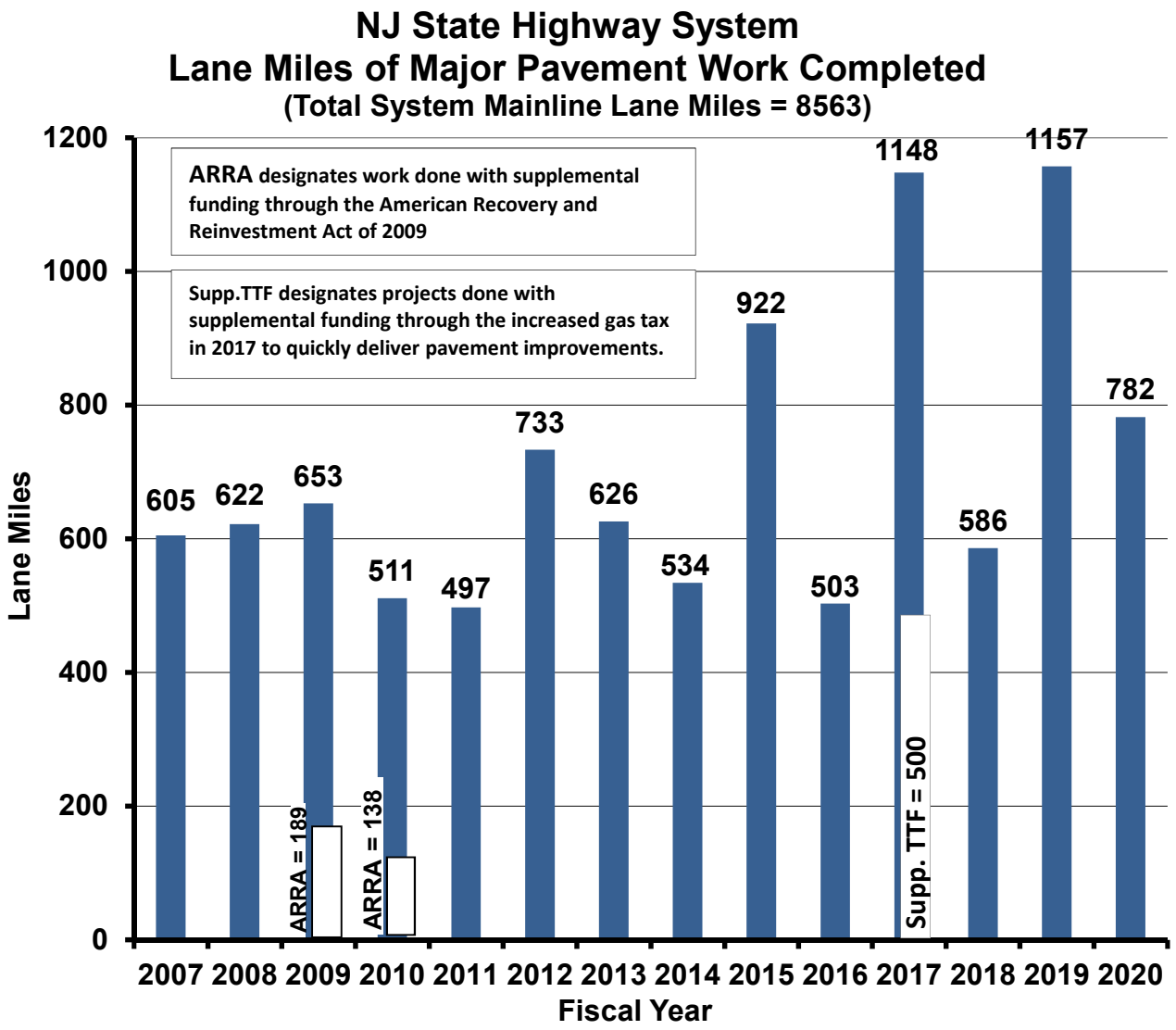
TABLE 7 (Cont'd)
Pavement Preservation Preventive Maintenance Projects Awarded in State FY 2020
Administered Through Division of Capital Program Management

Project Description	Treatment	DOT UPC No.	Route	Direction	Start Mile Post	End Mile Post	Total Lane Miles	County	Total Cost In $ Millions
Rt 41, Rt 70 to CR 611	Slurry Seal	203180	41	NB & SB	10.90	14.08	14.82	Camden, Burlington	$2.154
Rt 94, Cedar Lake Rd to Kerr Rd	Slurry Seal	203190	94	NB & SB	9.30	13.96	9.32	Warren	$2.513
Rt 195 EB, Hobson Ave to CR 526 (Robbinsville/ Allentown Rd)	HPTO	203160	195	EB	0.58	7.25	13.80	Mercer	$3.389
Rt 287 SB, North Maple Ave to South St (CR601)	Slurry + 1" HPTO	193170	287	SB	30.30	35.50	15.30	Morris	$3.955
Rt 295, Rancocas Mount Holly Road (CR 626) to Route 130	Slurry + 1" HPTO	193140	295	NB	45.20	56.70	34.00	Burlington	$14.298
				SB	46.50	56.76	30.60		
Total							**380.53**		**$85.501**

MULTI-YEAR SUMMARY OF MAJOR PAVEMENT WORK

Figure 4 below shows the lane miles of mainline pavement that received restoration over the last 14 fiscal years. It should be noted that the availability of funding as well as the schedules of Capital Program Management projects are the major factors which affect the total lane miles restored during the state fiscal year. A higher number of lane miles paved during SFY 2017 and SFY 2019 can be attributed to Supplemental Transportation Trust Funds, and to a significant increase in preservation lane miles, respectively.

FIGURE 4



REFERENCES

1. New Jersey Department of Transportation, *STATE FY 2020 – 2029 Statewide Transportation Improvement Program,* December 1, 2019.

2. New Jersey Department of Transportation, *Pavement Management System.*

3. New Jersey Department of Transportation, *Transportation Capital Program, State Fiscal Year 2020,* July 1, 2019.

APPENDIX A
DEFICIENT PAVEMENT SECTIONS
NEEDING FUTURE RESTORATION

DEFICIENT PAVEMENTS NEEDING FUTURE RESTORATION
76 Candidate Projects Sorted By Benefit Rank

Notes:
(1) Candidate projects are based on 2018 Pavement Management Database. Minimum project length = 0.5 mile.
(2) Many of the projects shown below are already programmed for future work and are in design.
(3) AADT = Average Annual Daily Traffic. FPR = Final Pavement Rating (0-5 scale, 5 = perfect pavement).
(4) Benefit = 0.9(5.0-Avg FPR) + 0.1(Traffic Factor) and Traffic Factor = (5/60000)(Avg AADT), with Max = 5.0
(5) For undivided routes (Dir = B): FPR and Benefit shown are the most critical set of values in either direction.
(6) In Rte designation, L=Local, B=Business, T=Truck, U=Upper, 095M = NJDOT maintained portion of Rte* I-95.
(7) Dir =Direction; B=Both; N=North; S=South; E=East; W=West

Benefit Rank	Rte	Dir	MP Start	MP End	Center Line Length	Lane Miles	County	Avg AADT	Avg FPR	Benefit	Cost Estimate (Millions)
1	001	B	45.4	45.5	0.1	0.5	Union	47024	0.000	4.70	0.175
2	322	B	2.2	3.95	1.75	5.2	Gloucester	40058	0.000	4.68	1.89
3	001	N	50.97	51.17	0.2	0.4	Essex	21575	0.000	4.68	0.14
4	028	B	21.5	23.24	1.74	4.16	Union	28377	0.000	4.63	1.4
5	130	B	25	25.4	0.4	1.6	Camden, Gloucester	25387	0.000	4.63	0.56
6	031	B	13	13.6	0.6	1.2	Hunterdon	27302	0.000	4.61	0.42
7	007	B	1.3	1.7	0.4	1.7	Hudson	22812	0.009	4.58	0.595
8	012	B	0.1	0.94	0.84	1.82	Hunterdon	12148	0.000	4.55	0.595
9	009 W	B	7.3	9	1.7	4	Bergen	10238	0.024	4.52	1.4
10	028	E	14.59	15.5	0.91	1.81	Union	9339	0.100	4.49	0.63
11	202	B	50.05	50.65	0.6	2.7	Morris	34777	0.146	4.48	1.05
12	045	B	24.8	27	2.2	7	Gloucester	31086	0.180	4.45	2.45
13	206	B	33.9	35.6	1.7	6.9	Burlington	32308	0.262	4.43	2.555
14	046	B	61.9	63	1.1	4.4	Passaic	64772	0.471	4.42	1.54
15	047	B	55.2	56.8	1.6	3.2	Gloucester	12376	0.151	4.42	1.12
16	028	B	15.5	17.2	1.7	3.4	Union	18886	0.182	4.41	1.19
17	027	B	3.16	4.9	1.74	3.68	Middlesex	19766	0.193	4.41	1.225
18	040	B	32.7	36.28	3.58	7.76	Atlantic	14432	0.171	4.41	2.73
19	013	B	0	0.5	0.5	2	Ocean	15108	0.208	4.38	0.7
20	001	N	54.5	57	2.5	5	Hudson	65624	0.705	4.37	1.75
21	035	S	45.75	47.47	1.72	3.51	Middlesex	14365	0.294	4.36	1.225
22	202	B	51.4	51.9	0.5	1.6	Morris	14116	0.240	4.34	0.56
23	049	B	25.08	25.72	0.64	2.48	Cumberland	25518	0.305	4.33	0.77
24	001 T	W	0	2.3	2.3	5.5	Essex, Hudson	27331	0.457	4.32	1.925
25	049	B	26.4	27	0.6	1.2	Cumberland	23172	0.325	4.30	0.42

DEFICIENT PAVEMENTS SORTED BY BENEFIT RANK – Continued from 2 | Appendix A

Benefit Rank	Rte	Dir	MP Start	MP End	Center Line Length	Lane Miles	County	Avg AADT	Avg FPR	Benefit	Cost Estimate (Millions)
26	322	B	15	15.5	0.5	2	Gloucester	36064	0.392	4.30	0.7
27	206	B	11	26.6	15.6	35.8	Burlington	24604	0.360	4.28	12.53
28	028	B	9.2	14.59	5.39	13.58	Union	29146	0.382	4.28	4.76
29	001T	E	0	2.3	2.3	5.8	Essex, Hudson	60701	0.842	4.24	2.03
30	033	B	14.3	15.2	0.9	1.8	Mercer	20658	0.397	4.23	0.63
31	053	B	0	1.9	1.9	5.6	Morris	19202	0.416	4.20	1.96
32	001B	B	0.25	0.45	0.2	0.9	Mercer	11798	0.421	4.17	0.28
33	001	S	0.4	1.3	0.9	1.8	Mercer	24112	0.623	4.14	0.63
34	046	W	52.6	55.7	3.1	6.2	Essex, Passaic	31141	0.691	4.14	2.17
35	009	S	132.7	136.4	3.68	9.66	Middlesex	30307	0.688	4.13	3.395
36	124	B	10.5	11.1	0.6	2.2	Union	39682	0.591	4.13	0.77
37	073	B	22.65	24.3	1.65	6.7	Burlington	85642	0.814	4.12	2.38
38	009	S	116.8	122.7	5.9	13.5	Middlesex, Monmouth	28026	0.687	4.11	4.725
39	028	W	14.59	15.5	0.91	1.81	Union	6796	0.496	4.11	0.63
40	094	B	0.2	0.77	0.57	1.74	Warren	8160	0.487	4.10	0.63
41	046	B	46.4	50.3	3.9	16.3	Morris	59781	0.685	4.06	5.705
42	001T	B	2.3	4.35	2.05	8.15	Hudson	53540	0.740	4.04	2.905
43	028	B	3	6.15	3.15	6.3	Somerset	21580	0.640	4.01	2.24
44	027	B	27.2	33.4	6.2	23.49	Union	45708	0.768	4.00	8.225
45	001	N	14.5	15.48	0.98	1.96	Middlesex	54417	1.074	3.99	0.7
46	046	E	66	66.9	0.9	1.8	Bergen	67011	1.156	3.96	0.63
47	010	B	0	0.94	0.94	3.76	Morris	49454	0.789	3.94	1.26
48	440	N	18.8	21.4	2.6	5.4	Hudson	28131	0.893	3.93	1.89
49	055	N	57	60.54	3.54	7.08	Gloucester	65620	1.191	3.93	2.52
50	046	B	27.1	31.5	4.4	15.9	Morris	40835	0.879	3.87	5.565
51	030	B	32	36.4	4.4	17.6	Atlantic	23914	0.823	3.86	6.16
52	046	W	49.3	49.97	0.67	1.34	Morris	22266	0.981	3.80	0.49
53	033	W	15.2	16.1	0.9	2.3	Mercer	15155	1.193	3.55	0.8050001
54	124	B	4.75	7.55	2.8	5.65	Morris, Union	35694	1.224	3.55	1.96
55	047	B	46.6	50.4	3.8	7.6	Cumberland	15544	1.147	3.53	2.66
56	023	B	4.9	6.7	1.8	9.3	Passaic	85704	1.578	3.50	3.255
57	023	S	10.23	13	2.77	8.31	Morris	32541	1.432	3.48	2.94
58	440	S	18.8	21.4	2.6	5.2	Hudson	18955	1.360	3.43	1.82
59	040	B	19.74	20.4	0.66	1.36	Salem	23012	1.292	3.43	0.49
60	033	B	41	42	1	3.1	Monmouth	20652	1.348	3.37	1.19
61	130	S	36.35	42.8	6.45	19.35	Burlington	26272	1.498	3.37	6.825
62	007	B	9.4	10.16	0.76	1.52	Essex	11960	1.321	3.36	0.56
63	023	B	30.62	42	11.38	22.98	Sussex	26506	1.386	3.36	8.050001
64	036	B	0	5.7	5.7	21.9	Monmouth	55941	1.547	3.27	7.665

DEFICIENT PAVEMENTS SORTED BY BENEFIT RANK – Continued from 2 | Appendix A

Benefit Rank	Rte	Dir	MP Start	MP End	Center Line Length	Lane Miles	County	Avg AADT	Avg FPR	Benefit	Cost Estimate (Millions)
65	022	B	54.7	58.3	3.6	14.4	Union	95796	1.704	3.27	5.04
66	046	B	69.18	70.68	1.5	6.68	Bergen	57043	1.738	3.22	2.24
67	173	B	0	8.1	8.1	22.6	Hunterdon, Warren	10212	1.474	3.22	7.91
68	015	B	17	19.53	2.53	5.52	Sussex	35056	2.089	2.77	2.03
69	035	N	4	9	5	10	Ocean	10474	2.102	2.70	3.5
70	022	B	60	60.56	0.56	2.65	Essex	94381	2.304	2.69	1.05
71	056	B	4.8	7.9	3.1	7	Cumberland, Salem	13732	2.236	2.55	2.45
72	130	N	40.8	43	2.2	6.6	Burlington	40201	2.642	2.46	2.31
73	010	B	11.3	18.8	7.5	35.1	Essex, Morris	61588	2.748	2.20	12.285
74	001L	S	45.5	46.7	1.2	2.8	Essex, Union	28222	3.068	1.97	0.9800001
75	035Z	S	4	9	5	10	Ocean	10287	2.956	1.93	3.5
76	077	B	3.2	6.89	3.69	7.38	Cumberland	8700	2.901	1.93	2.59