
2024 Pavement Management Report

Marion, MA

Prepared for: Town of Marion
Department of Public Works
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June 25, 2024

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I. INTRODUCTION AND METHODOLOGY

PURPOSE OF STUDY

The Town of Marion has retained TEC, Inc. (TEC) to provide Town-wide pavement inspection and consulting services for up to approximately 28 miles of Town-accepted roadways. The scope of work included collecting and analyzing field data to create a roadway database to assist the Marion Department of Public Works (DPW) with data-driven and objective planning for future roadway rehabilitation and maintenance projects.

METHODOLOGY

TEC performed a two-person, Town-wide visual pavement inspection in November 2023 to evaluate the condition of Marion's existing roadways. The roadways were divided into segments (from) side street / (to) side street or pavement joint to pavement joint if possible. Data collected during the survey included roadway length, average width, and Pavement Condition Index (PCI) based on visual observation on a scale of 0 to 100; 0 indicative of an impassable street, and 100 indicative of a newly paved roadway.

Based on data collected during visual pavement inspections, PCI, and utilizing the standard pavement deterioration curve (Figure 1), a treatment banding analysis was performed to categorize each roadway segment in the appropriate treatment category. Treatment band categories include no maintenance, routine maintenance, preventative maintenance, minor rehabilitation, and major rehabilitation (Table 1).

TEC created an updated roadway database in Excel utilizing information provided by the DPW, MassDOT's Road Inventory mapping, and TEC's field inventory data. The database includes the roadway name, functional classification, length, average width, area (square yards), PCI, suggested roadway repair treatment, estimated cost associated with the repair treatment, and repair history.

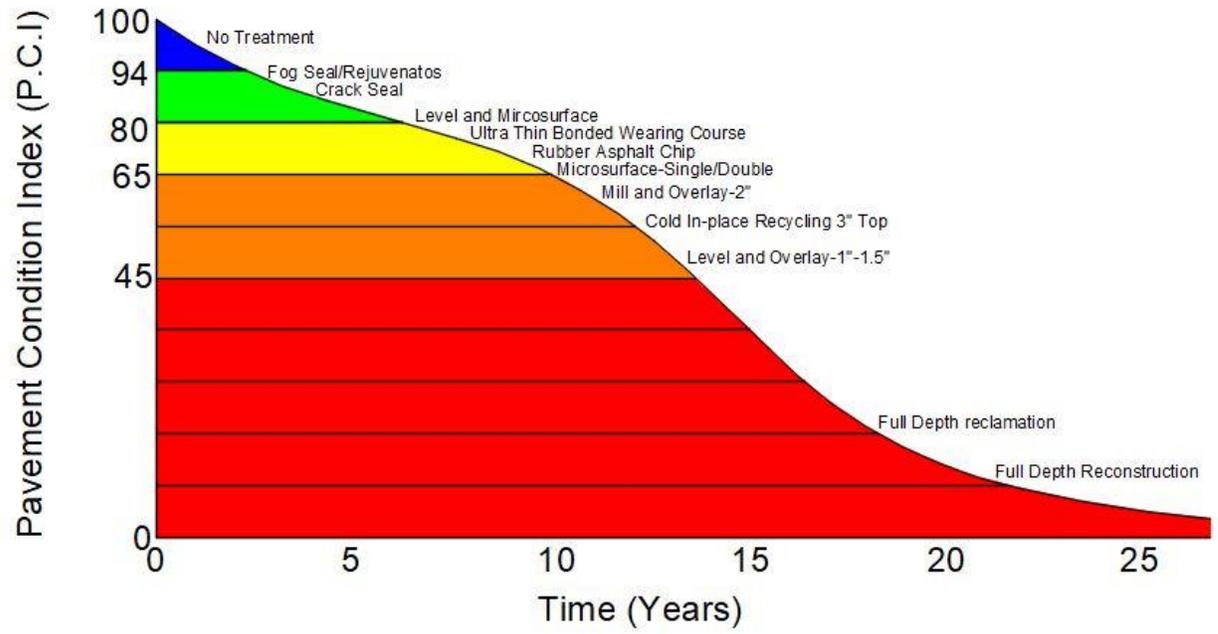


FIGURE 1 – PAVEMENT DETERIORATION CURVE

TABLE 1 – PCI AND TREATMENT OPTIONS

P.C.I	Condition	Description	Treatment	Photo
94 to 100	Excellent	*New Pavement	*No Maintenance	
80 to 94	Good	*Raveling *Oxidation *Minor cracking	<u>Routine Maintenance:</u> *Fog Seal / Rejuvenators *Crack Seal *Localized patching	
65 to 80	Fair	*Raveling *Minor trench patch *Oxidation *Cracks	<u>Preventative Maintenance:</u> *Level and Microsurface *Ultra Thin Bonded Wearing Course *Rubber Asphalt Chipseal *Microsurface-single layer *Microsurface-double layer	
45 to 65	Deficient	*Longitudinal & transverse trench patch *Cracks *Poor rideability *Raveling *Oxidation	<u>Minor Rehabilitation:</u> *Mill and Overlay-2" *Cold in-place Recycling-3" Top *Level and Overlay-1"-1.5"	
0 to 45	Poor	*Uneven *longitudinal & transverse trench patch *Poor Rideability *Raveling *Oxidation *Longitudinal & transverse Cracks	<u>Major Rehabilitation:</u> *Full Depth Reclamation *Full Depth Reconstruction	

II. REPAIR CATEGORIES AND TREATMENT BANDING

By categorizing roadways into repair bands, the appropriate repair types and estimated costs for each individual roadway segment can be estimated. The following repair bands were used:

No Maintenance Required: No maintenance required indicates that a roadway is in excellent condition and is not yet in need of any repairs.

Routine Maintenance: Routine maintenance may be recommended to preserve a roadway segment in good condition thereby extending the segment's lifespan. Routine maintenance repair methods include crack sealing, fog seal/rejuvenators, and minor localized patching.

Preventative Maintenance: Preventative maintenance treatments help protect and seal pavement surfaces that are beginning to show signs of deterioration. Preventative maintenance methods vary depending on a roadway segment's PCI within the treatment band but include chip seal or micro surfacing (single or double layer), slurry seal, cape seal, and ultra-thin bonded wearing course to prevent further deterioration. These treatments are less expensive than more intensive repair options in lower treatment bands and help prolong the life of roadways by approximately 8-10 years.

Minor Rehabilitation: Minor rehabilitation includes hot mix asphalt (HMA) shim & overlay, HMA mill and overlay, hot-in-place recycling, and cold-in-place recycling. Although these practices are more costly than preventative maintenance repairs, they add approximately 10-15 years to the life expectancy of roadways.

Major Rehabilitation: Major rehabilitation methods include full-depth reconstruction and full-depth reclamation. 15 to 25 years of life is added to roadways that undergo these types of treatment.

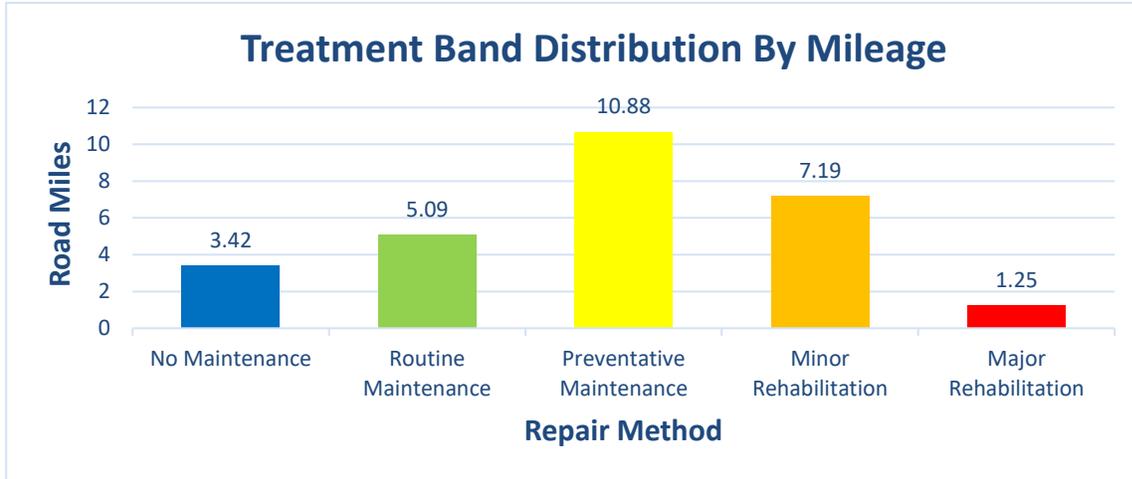
III. SUMMARY OF FINDINGS

A PCI was assigned to each roadway segment by assessing surface distresses present on the existing pavement surface. Based on the severity and extent of each distress, the PCI assigned to each roadway segment ranges from 0-100. The PCI varies throughout Marion and the Town-wide average PCI is 71.8, representing a roadway network in 'fair' condition with approximately 39% of its roadways falling within the preventative maintenance treatment band. A summary of the Town's roadway conditions, including backlog and estimated repair costs based on the treatment banding analysis, is demonstrated in Table 2.

Figure 2 represents the miles of roadway associated with each treatment option. The total mileage of roadways with a PCI range of 94-100 (with a repair band of No Maintenance) is 3.42 miles. The total mileage of roadways with a PCI range of 80-94 (with a repair band of Routine Maintenance) is 5.09 miles. The total mileage of roadways with a PCI range of 65-80 (with a repair band of Preventative Maintenance) is 10.88 miles. The total mileage of roadways with a PCI range of 45-65 (with a repair band of Minor Rehabilitation) is 7.18 miles. The total mileage of roadways with a PCI range of 0-45 (with a repair band of Major Rehabilitation) is 1.25 miles.

After establishing the repair bands and unit costs for the roadway network, a summary was generated which categorized each roadway into the five repair categories. An estimated cost for each roadway segment was established based on the treatment categories in Table 2. The tables and maps located in the appendices summarize the data for each of the roadway segments and provide a breakdown of the roadways that fall into each repair band category.

FIGURE 2 –TREATMENT BAND DISTRIBUTION BY MILEAGE



Current Backlog Summary						
Repair Method	Cost (Square yards)	P.C.I.	Length (Miles)	Area (Square Yards)	Estimated Cost	Current Town P.C.I.
No Maintenance	\$0	94 to 100	3.42	84,241.92	\$ -	71.8
Routine Maintenance	\$2	80 to 94	5.09	82,415.88	\$ 164,831.76	
Preventative Maintenance	\$8	65 to 80	10.88	172,323.65	\$ 1,378,589.20	
Minor Rehabilitation	\$35	45 to 65	7.19	96,608.91	\$ 3,381,311.85	
Major Rehabilitation	\$65	0 to 45	1.25	15,217.00	\$ 989,105.00	
Total			27.83	453,374	\$5,934,374	

TABLE 2 – SUMMARY OF CURRENT PAVEMENT CONDITIONS

IV. BUDGET ANALYSIS

Utilizing the data collected during the field inspections and compiled in the Town’s database, and assuming an annual repair program that is more preventative-maintenance heavy given Marion’s current treatment band distribution plus annual inflation relative to repair costs; TEC performed a high-level budget evaluation to approximate the necessary annual funding to achieve desired performance outcomes relative to network PCI.

TEC evaluated the following scenarios on a 5-year horizon to approximate the impact on the Town's pavement network and estimate the required funding to achieve the desired outcome on the Town's pavement network:

Chapter 90 only

This scenario evaluated the impact on the Town's pavement network utilizing Chapter 90 funding only, which based on input from the DPW is the Town's current annual funding level for roadway repairs. TEC utilized Marion's FY2024 Chapter 90 apportionment of approximately \$170,000 for the analysis.

Assuming Marion utilizes only Chapter 90 funding over a 5-year period, the network PCI projects to decrease approximately 3.75 points from the current network PCI of 71.80 to 68.05.

Maintain Level Average Network Conditions

This scenario evaluated the approximate budget needed to maintain level Network PCI (72 +/-) on an annual basis.

Based on the budget analysis over a 5-year period, an estimated \$325,000 annual budget, or nearly double the DPW's current annual budget, is required to maintain Marion's network PCI of 71.80.

5-Point Network PCI Increase

This scenario evaluated the approximate budget needed to increase Network PCI by 5-points over a 5-year time horizon. A 5-point increase would result in a network PCI of approximately 77, towards the upper bound of the preventative maintenance category, which would be desirable for most any community, since preventative repairs are less costly on a unit-cost basis compared to lower treatment bands which allows the Town to spread its budget further on an annual basis. For this reason, the tenet of any sound pavement management strategy is to have as many roadway miles as possible categorized within the preventative maintenance treatment band.

Based on the budget analysis over a 5-year period, an estimated \$525,000 annual budget, or nearly triple the DPW's current annual budget, is required to increase Marion's network PCI 5-points.

The results of the budget evaluation for each scenario are demonstrated in Figure 3 below.

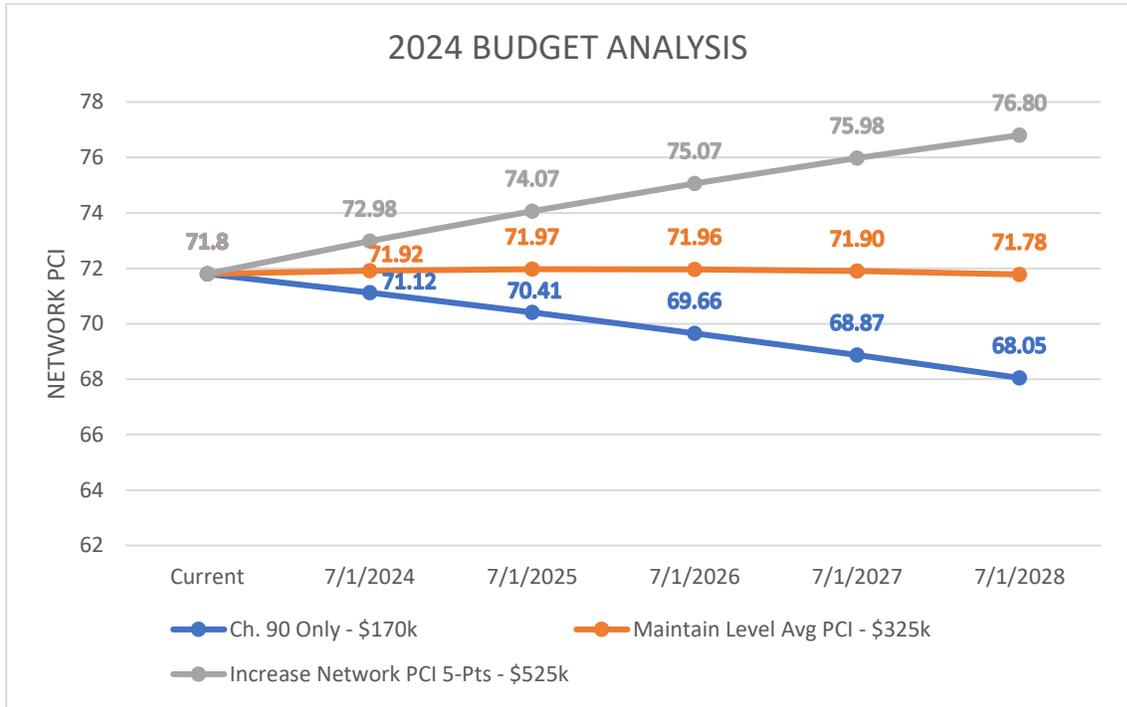


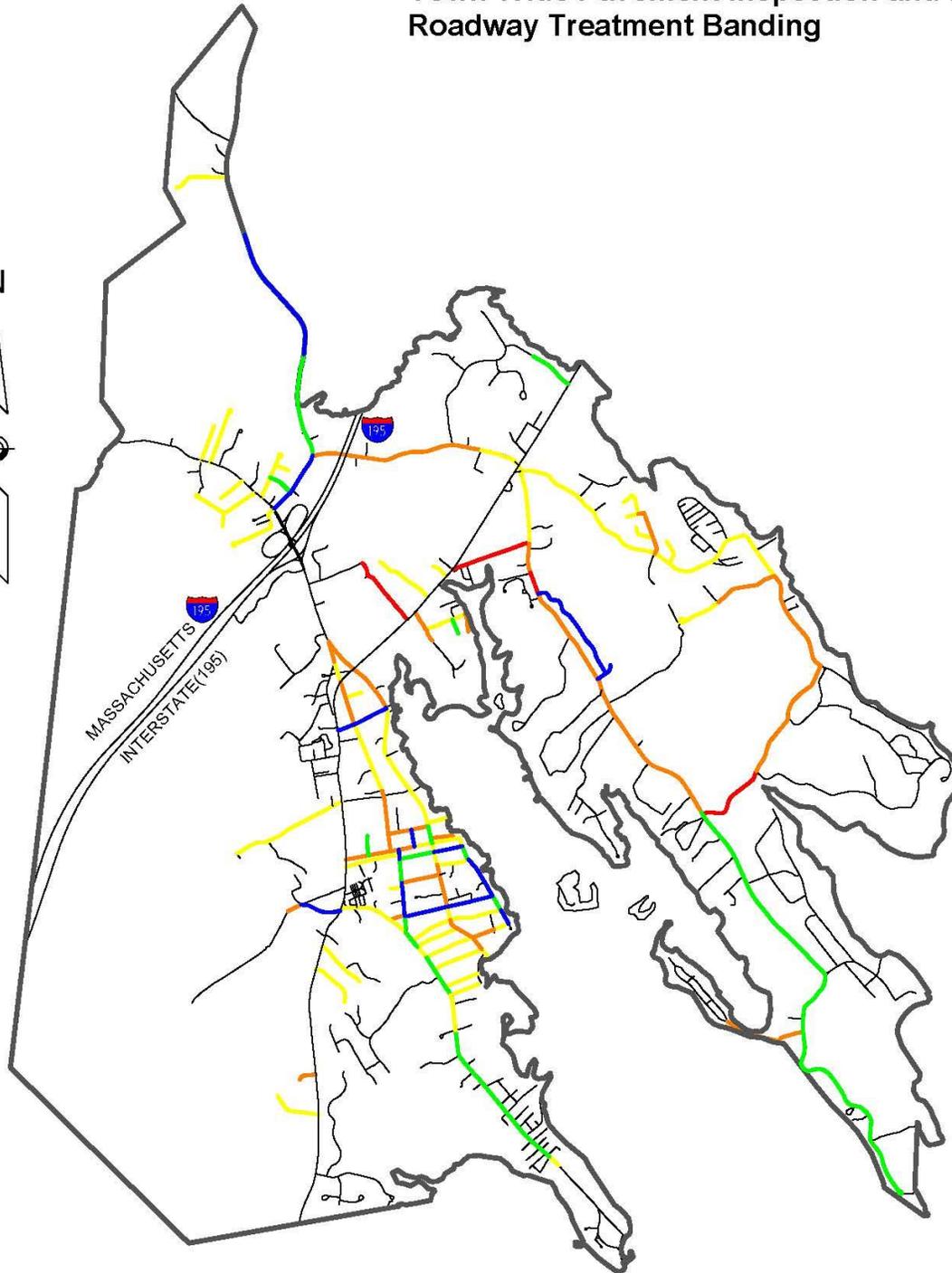
FIGURE 3– 2024 BUDGET ANALYSIS

V. CONCLUSION & RECOMMENDATIONS

The updated database will serve as a valuable planning tool for the Marion DPW to facilitate a data-driven approach to managing the Town’s roadway infrastructure. TEC recommends the database be updated on a regular basis including maintaining the database and mapping, adding any new roadways to the database as soon as the Town accepts the roadways, maintaining repair history and construction costs, updating repair unit costs annually, field surveying roadways periodically to keep the system up to date to reflect existing conditions, and reinspecting the roadways to ensure the accuracy of the data.

APPENDIX A – PAVEMENT INSPECTION
TABLE AND MAP – TREATMENT BANDING

Town of Marion, MA Town-Wide Pavement Inspection and Planning Roadway Treatment Banding



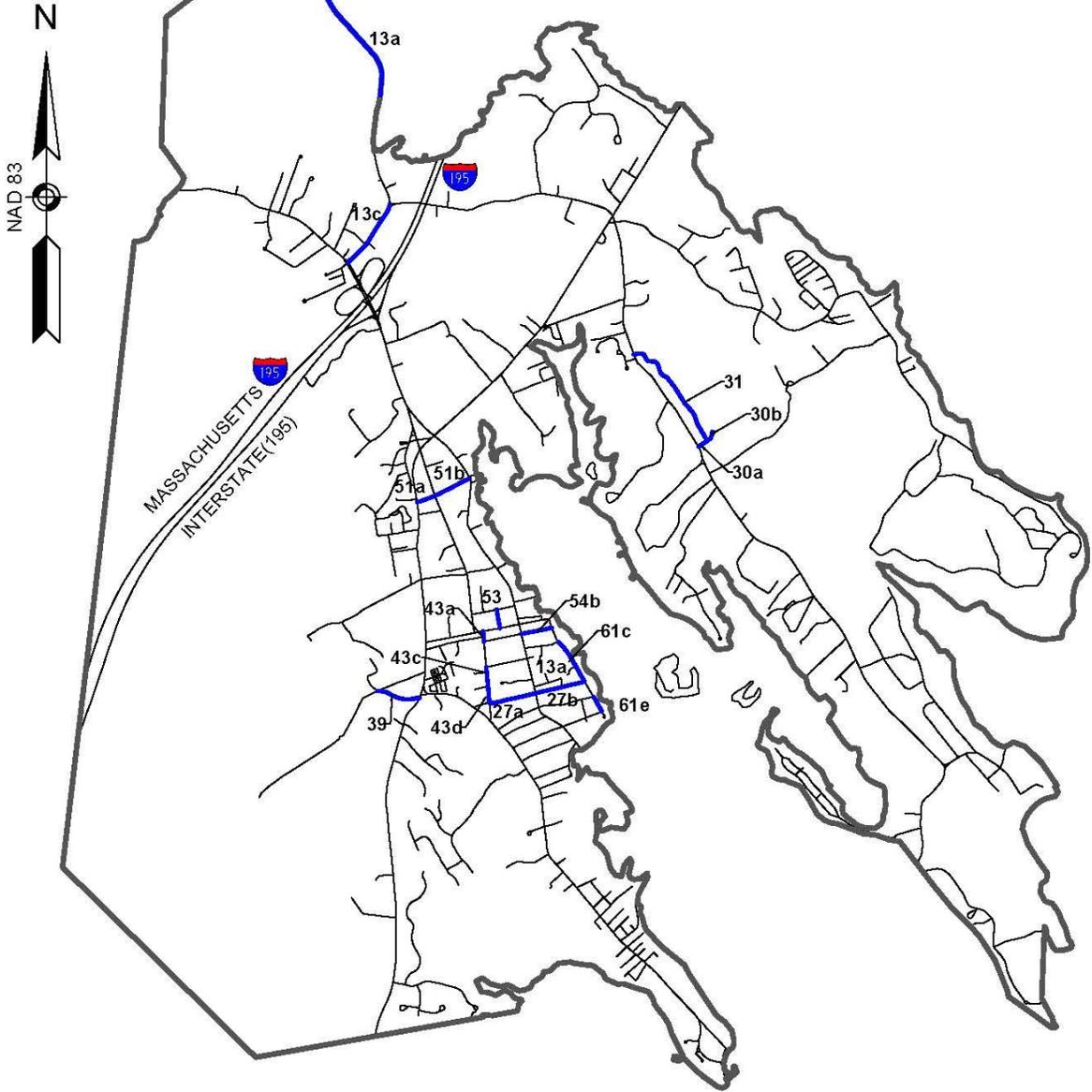
TEC
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311 Main Street
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-  NO MAINTENANCE
-  ROUTINE MAINTENANCE
-  PREVENTATIVE MAINTENANCE
-  MINOR REHABILITATION
-  MAJOR REHABILITATION

APPENDIX B –NO MAINTENANCE
TABLE AND MAP - NO MAINTENANCE

Road Number	Street	Functional Classification	From	To	Length (Feet)	Average Width (Feet)	Area (Square Yards)	P.C.I. (1 to 100)	Maintenance / Rehabilitation	Estimated Cost
13a	County Road-01	Minor Arterial	Front Street	Blackmore Pond Road	3550	22	8678	100.0	No Maintenance	\$0
13c	County Road-03	Minor Arterial	Point Road	Front Street	1815	22	4436	100.0	No Maintenance	\$0
27a	Holmes Street-01	Local	Pleasant Street	Front Street	1133.50	22	2771	95.0	No Maintenance	\$0
27b	Holmes Street-02	Local	Front Street	Water Street	1211.64	28	3770	95.0	No Maintenance	\$0
30a	Jenna Drive	Local	Point Road	Joanne Drive	259.65	20	577	100.0	No Maintenance	\$0
30b	Jenna Drive	Local	Joanne Drive	CUL DE SAC	261.89	20	582	100.0	No Maintenance	\$0
31	Joanne Drive	Local	Point Road	Jenna Drive	2910.29	20	6467	100.0	No Maintenance	\$0
39	Parlotown Road	Local	Mill Street	Old Indian Trail	1056.58	18	2113	98.0	No Maintenance	\$0
43a	Pleasant Street-01	Local	Main Street	South Street	246.19	26	711	98.0	No Maintenance	\$0
43c	Pleasant Street-03	Local	Pitcher Street	Rose Cottage Lane	111.41	30	371	95.0	No Maintenance	\$0
43d	Pleasant Street-04	Local	Rose Cottage Lane	Clark Street	755.35	30	2518	95.0	No Maintenance	\$0
51a	Ryder Lane-01	Local	Mill Street	Spring Street	455.44	20	1012	95.0	No Maintenance	\$0
51b	Ryder Lane-02	Local	Spring Street	Front Street	938.31	20	2085	95.0	No Maintenance	\$0
53	School Street	Local	Main Street	Cottage Street	449.8	19	950	100.0	No Maintenance	\$0
54b	South Street-02	Local	Front Street	Water Street	746.49	24	1991	100.0	No Maintenance	\$0
61c	Water Street-03	Local	Vine Street	Holmes Street	1165.49	20	2590	96.0	No Maintenance	\$0
61e	Water Street-05	Local	Allen Street	Lewis Street	995.46	22	2433	96.0	No Maintenance	\$0

Town of Marion, MA Town-Wide Pavement Inspection and Planning Backlog-No Maintenance



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- NO MAINTENANCE
- ROUTINE MAINTENANCE
- PREVENTATIVE MAINTENANCE
- MINOR REHABILITATION
- MAJOR REHABILITATION

APPENDIX C – ROUTINE MAINTENANCE
TABLE AND MAP - ROUTINE MAINTENANCE

Road ID	Street	Functional Classification	From	To	Length (Feet)	Average Width (Feet)	Area (Square Yards)	P.C.I. (1 to 100)	Maintenance / Rehabilitation	Estimated Cost
5	Blueberry Way	Local	County Road	Cranberry Way	669.63	22	1637	89.0	Routine Maintenance	\$3,274
11d	Converse Road-04	Local	Pleasant Street	Allen Street	294.76	23	753.00	81.0	Routine Maintenance	\$1,506
11e	Converse Road-05	Local	Allen Street	Crapo Street	210.31	23	537.00	92.0	Routine Maintenance	\$1,074
11g	Converse Road-07	Local	Lewis Street	Zora Road	384.08	23	982.00	80.0	Routine Maintenance	\$1,964
11h	Converse Road-08	Local	Zora Road	Beach Street	518.04	23	1324.00	90.0	Routine Maintenance	\$2,648
11i	Converse Road-09	Local	Beach Street	Cove Street	263.86	23	674.00	90.0	Routine Maintenance	\$1,348
11k	Converse Road-11	Local	Driveway #160	Puckerbrush Lane	673.30	24	1795.00	90.0	Routine Maintenance	\$3,590
11l	Converse Road-12	Local	Puckerbrush Lane	Reservation Way	1053.45	24	2809.00	85.0	Routine Maintenance	\$3,590
11m	Converse Road-13	Local	Reservation Way	Jobs Cove Road	626.90	23	1602.00	86.0	Routine Maintenance	\$3,204
11n	Converse Road-14	Local	Jobs Cove Road	Bayview Road	260.51	23	666.00	89.0	Routine Maintenance	\$1,332
11p	Converse Road-16	Local	Bayberry Lane	Holly Lane	302.00	23	772.00	81.0	Routine Maintenance	\$1,544
11r	Converse Road-18	Local	Taunton Avenue	Kabeyun Road	154.55	23	395.00	92.0	Routine Maintenance	\$790
11s	Converse Road-19	Local	Kabeyun Road	Wianno Road	133.06	23	340.00	80.0	Routine Maintenance	\$680
13b	County Road-02	Minor Arterial	Blackmore Pond Road	Point Road	2700	22	6600	92.0	Routine Maintenance	\$13,200

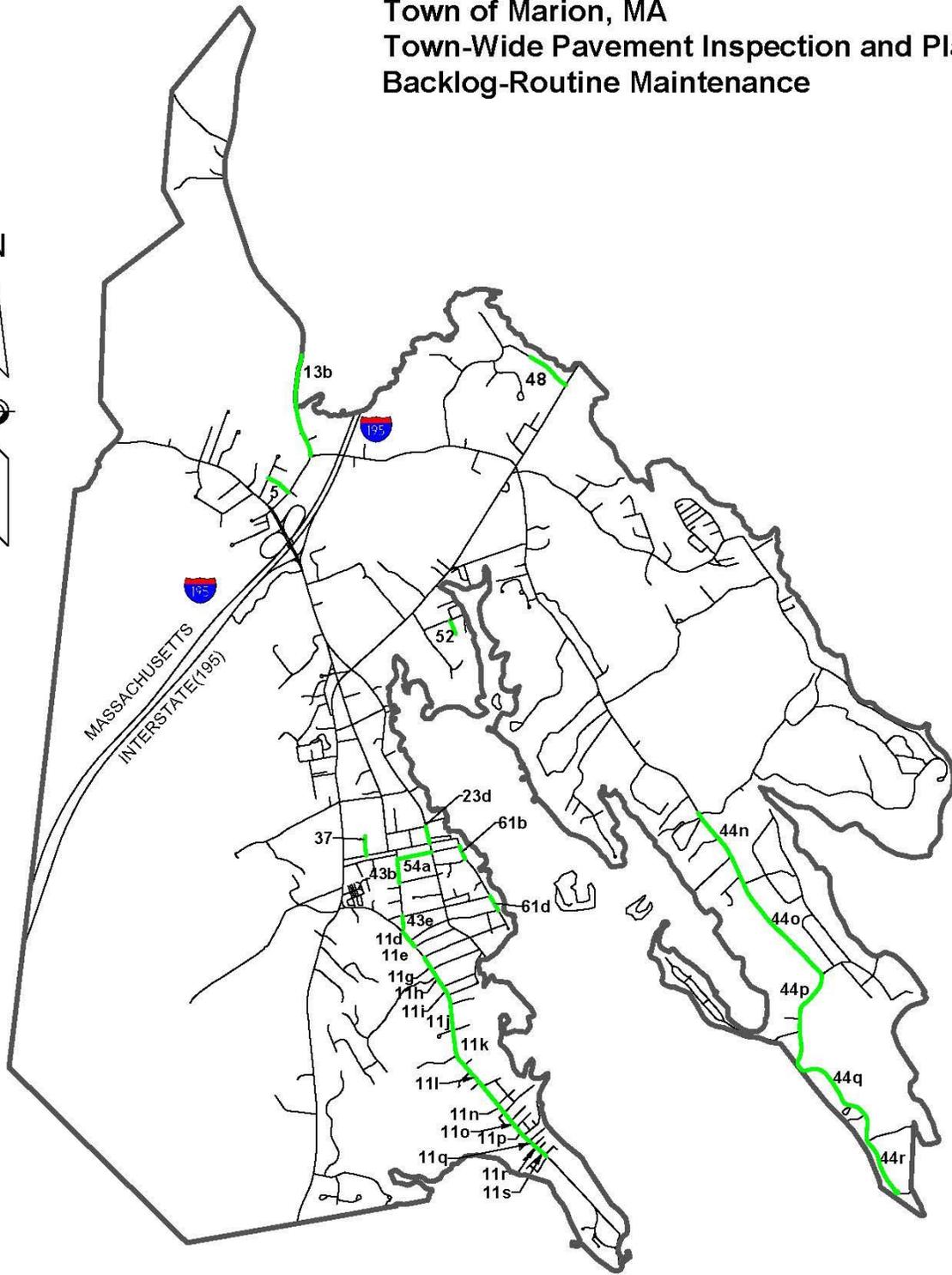
Road ID	Street	Functional Classification	From	To	Length (Feet)	Average Width (Feet)	Area (Square Yards)	P.C.I. (1 to 100)	Maintenance / Rehabilitation	Estimated Cost
23d	Front Street-04	Local	Cottage Street	Main Street	456.92	25	1269	83.0	Routine Maintenance	\$2,538
37	Park Street	Local	Main Street	Dead End	554.105	20	1231	89.0	Routine Maintenance	\$2,462
43b	Pleasant Street-02	Local	South Street	Pitcher Street	623.65	28	1940	85.0	Routine Maintenance	\$3,880
43e	Pleasant Street-05	Local	Clark Street	Driveway #3	282	28	877	82.0	Routine Maintenance	\$1,754
44n	Point Road-14	Local	Delano Road	Rogers Drive	2181.27	22	5332	84.0	Routine Maintenance	\$10,664
44o	Point Road-15	Local	Rogers Drive	Piney Point Road	3210.11	22	7847	82.0	Routine Maintenance	\$15,694
44p	Point Road-16	Local	Piney Point Road	Planting Island Road	1722	22	4209	87.0	Routine Maintenance	\$8,418
44q	Point Road-17	Local	Planting Island Road	Haven Road	3960.7	24	10562	88.0	Routine Maintenance	\$21,124
44r	Point Road-18	Local	Haven Road	Dead End	2180.17	20	4845	90.0	Routine Maintenance	\$9,690
48	River Road	Local	Wareham Street	Dead End	1369.98	19	2892	81.3	Routine Maintenance	\$5,784
52	Sarah Sherman Lane	Local	Oakdale Avenue	CUL-DE-SAC	392.47	21	916	81.3	Routine Maintenance	\$1,832
54a	South Street-01	Local	Pleasant Street	Front Street	916.44	24	2444	90.0	Routine Maintenance	\$4,888
61b	Water Street-02	Local	South Street	Vine Street	366.12	24	976	91.0	Routine Maintenance	\$1,952

Road ID

Street	Functional Classification	From	To	Length (Feet)	Average Width (Feet)	Area (Square Yards)	P.C.I. (1 to 100)	Maintenance / Rehabilitation	Estimated Cost
Water Street-04	Local	Holmes Street	Allen Street	418.95	20	931	93.0	Routine Maintenance	\$1,862
Total				26,879		67,157			\$134,314

61d

Town of Marion, MA Town-Wide Pavement Inspection and Planning Backlog-Routine Maintenance



311 Main Street
Worcester, MA 01608

- NO MAINTENANCE
- ROUTINE MAINTENANCE
- PREVENTATIVE MAINTENANCE
- MINOR REHABILITATION
- MAJOR REHABILITATION

APPENDIX D – PREVENTATIVE MAINTENANCE
TABLE AND MAP – PREVENTATIVE MAINTENANCE

Road Number	Street	Functional Classification	From	To	Length (Feet)	Average Width (Feet)	Area (Square Yards)	P.C.I. (1 to 100)	Maintenance / Rehabilitation	Estimated Cost
1	Abels Way	Local	Mill Street	CUL DE SAC	1241.04	24	3309	76.0	Preventive Maintenance	\$26,472
2a	Allen ST-01	Local	Water Street	Front Street	1344.95	24	3587	79.0	Preventive Maintenance	\$28,696
2b	Allen ST-02	Local	Front Street	Converse Road	1134.71	24	3026	67.0	Preventive Maintenance	\$24,208
3	Beach Street	Local	Converse Road	Dead End	900.80	20	2002	71.0	Preventive Maintenance	\$16,016
4	Benson Brook Road	Local	Mill Street	Gate/DPW Entrance	1014.86	26	2932	70.0	Preventive Maintenance	\$23,456
6	Boxberry Way	Local	CUL-DE-SAC	Cranberry Way	363.01	24	968	75.0	Preventive Maintenance	\$7,744
7a	Briggs Lane-01	Local	Mill Street	Briggs Lane Court	777.40	16	1382	70.0	Preventive Maintenance	\$11,056
7b	Briggs Lane-02	Local	Briggs Lane Court	Pleasant Street	649.09	16	1154	65.0	Preventive Maintenance	\$9,232
8a	Briggs Terrace	Local	Front Street	CUL DE SAC	735.88	22	1799	79.0	Preventive Maintenance	\$14,392
9a	Brook Haven Lane	Local	Front Street	Dead End	945.20	24	2521	78.0	Preventive Maintenance	\$20,168
11a	Converse Road-01	Local	Mill Street	Cemetery	673.31	23	1721	78.0	Preventive Maintenance	\$13,768
11b	Converse Road-02	Local	Cemetery	Clark Street	945.59	24	2522	69.0	Preventive Maintenance	\$20,176
11c	Converse Road-03	Local	Clark Street	Pleasant Street	504.81	23	1290	79.0	Preventive Maintenance	\$10,320

Road ID	Street	Functional Classification	From	To	Length (Feet)	Average Width (Feet)	Area (Square Yards)	P.C.I. (1 to 100)	Maintenance / Rehabilitation	Estimated Cost
11f	Converse Road-06	Local	Crapo Street	Lewis Street	360.69	23	922.00	75.0	Preventive Maintenance	\$7,376
11j	Converse Road-10	Local	Cove Street	Driveway #160	920.03	23	2351.00	75.0	Preventive Maintenance	\$18,808
11o	Converse Road-15	Local	Bayview Road	Bayberry Lane	502.78	23	1285.00	75.0	Preventive Maintenance	\$10,280
11q	Converse Road-17	Local	Holly Lane	Taunton Avenue	543.00	23	1388.00	75.0	Preventive Maintenance	\$10,280
11t	Converse Road-20	Local	Wianno Road	Dead End	157.74	23	403.00	68.0	Preventive Maintenance	\$3,224
14	Cove Street	Local	Converse Road	CUL DE SAC	971.74	21	2267	71.0	Preventive Maintenance	\$79,345
15a	Coves End Road	Local	Wareham Street	New Pavement	312.00	25	867	75.0	Preventive Maintenance	\$30,345
15b	Coves End Road	Local	New Pavement	Dead End	119.17	25	331	75.0	Preventive Maintenance	\$11,585
16a	Cranberry Way-01	Local	Front Street	Blueberry Way	567.00	24	1512	75.0	Preventive Maintenance	\$12,096
16b	Cranberry Way-02	Local	Blueberry Way	Boxberry Way	350.77	24	935	75.0	Preventive Maintenance	\$7,480
16c	Cranberry Way-03	Local	Boxberry Way	CUL DE SAC	465.08	24	1240	75.0	Preventive Maintenance	\$9,920
17	Crapo Street	Local	Converse Road	Front Street	1136.05	21	2651	78.80	Preventive Maintenance	\$21,208
19b	Cross Neck Road-02	Local	Lady Slipper Lane	Dead End	364.45	19	769	68.0	Preventive Maintenance	\$6,152
20a	Delano Road-01	Local	Point Road	Macs Way	2819.92	18	5640	71.0	Preventive Maintenance	\$45,120

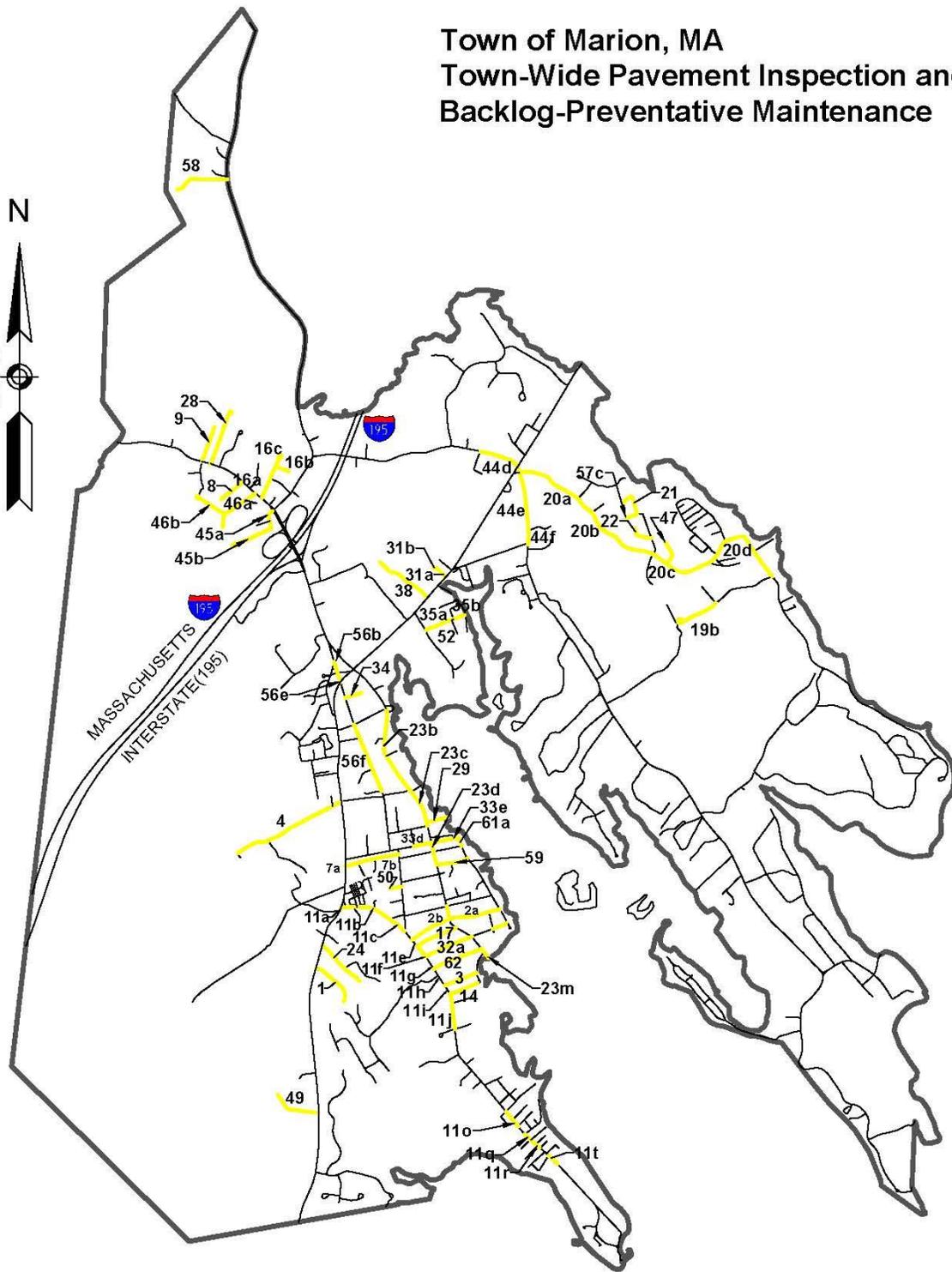
Road ID	Street	Functional Classification	From	To	Length (Feet)	Average Width (Feet)	Area (Square Yards)	P.C.I. (1 to 100)	Maintenance / Rehabilitation	Estimated Cost
20b	Delano Road-02	Local	Macs Way	Stoney Run Lane	1492.27	18	2985	75.0	Preventive Maintenance	\$23,880
20c	Delano Road-03	Local	Stoney Run Lane	Ridgewood Lane	438.55	22	1072	74.0	Preventive Maintenance	\$8,576
20d	Delano Road-04	Local	Ridgewood Lane	Dexter Road	1920.74	20	4268	74.0	Preventive Maintenance	\$34,144
20e	Delano Road-05	Local	Dexter Road	Cross Neck Road	1794.26	18	3589	69.0	Preventive Maintenance	\$28,712
21	Edgewater Lane	Local	Stoney Run Lane	CUL DE SAC	813.92	24	2170	78.0	Preventive Maintenance	\$17,360
22	Emils Way	Local	Stoney Run Lane	CUL DE SAC	582.77	24	1554	66.48	Preventive Maintenance	\$12,432
23b	Front Street-02	Local	Ryder Lane	Holmes Street	2399.45	26	6932	75.0	Preventive Maintenance	\$55,456
23c	Front Street-03	Local	Holmes Lane	Cottage Street	1005.10	26	2904	73.0	Preventive Maintenance	\$23,232
23e	Front Street-05	Local	Main Street	South Street	236.88	25	658	72.0	Preventive Maintenance	\$5,264
23f	Front Street-06	Local	South Street	Vine Street	352.42	25	979	75.0	Preventive Maintenance	\$7,832
23i	Front Street-09	Local	Holmes Street	Allen Street	347.03	25	964	73.0	Preventive Maintenance	\$7,712
23m	Front Street-13	Local	Zora Road	Dead End	329.91	24	880	71.0	Preventive Maintenance	\$7,040
24	Giffords Corner Road	Local	Mill Street	Dead End	475.20	22	1162	71.0	Preventive Maintenance	\$9,296

Road ID	Street	Functional Classification	From	To	Length (Feet)	Average Width (Feet)	Area (Square Yards)	P.C.I. (1 to 100)	Maintenance / Rehabilitation	Estimated Cost
28	Ichabod Lane	Local	Front Street	Dead End	1598.02	20	3551	76.0	Preventive Maintenance	\$28,408
29	Island Wharf Road	Local	Front Street	Dead End	560.25	19	1183	78.0	Preventive Maintenance	\$9,464
32a	Lewis Street-01	Local	Converse Road	Front Street	1311.23	20	2914	75.0	Preventive Maintenance	\$23,312
32c	Lewis Street-03	Local	Pie Alley	Water Street	406.04	20	902	73.0	Preventive Maintenance	\$7,216
33d	Main Street-04	Minor Arterial	School Street	Front Street	468.46	24	1249	67.0	Preventive Maintenance	\$9,992
33e	Main Street-05	Minor Arterial	Front Street	Water Street	729.33	22	1783	73.0	Preventive Maintenance	\$14,264
34	Maple Avenue	Local	Spring Street	Dead End	1640	26	4739	73.0	Preventive Maintenance	\$37,912
35a	Oakdale Avenue-01	Local	Hermitage Road	Sarah Sherman Lane	724.26	19	1529	78.0	Preventive Maintenance	\$12,232
35b	Oakdale Avenue-02	Local	Sarah Sherman Lane	Camp Marion	360.09	19	760	72.0	Preventive Maintenance	\$6,080
38	Parkway Lane	Local	Wareham Street	Dead End	1550	22	3789	71.0	Preventive Maintenance	\$30,312
40	Partridge Place	Local	Qualis Crossing Road	CUL DE SAC	354.11	19	748	67.0	Preventive Maintenance	\$5,984
44d	Point Road-04	Local	Barros Drive	Wareham Street	1076.11	24	2870	65.0	Preventive Maintenance	\$22,960
44e	Point Road-05	Local	Wareham Street	Rezendes Terrance	1710.38	22	4181	65.0	Preventive Maintenance	\$33,448

Road ID	Street	Functional Classification	From	To	Length (Feet)	Average Width (Feet)	Area (Square Yards)	P.C.I. (1 to 100)	Maintenance / Rehabilitation	Estimated Cost
44f	Point Road-06	Local	Rezendes Terrance	Creek Road	353.46	22	864	72.0	Preventive Maintenance	\$6,912
45a	Pumping Station Road-01	Local	Front Street	Thomas Lane	205.07	24	547	72.0	Preventive Maintenance	\$4,376
45b	Pumping Station Road-02	Local	Thomas Lane	Dead End	891.8	24	2378	75.0	Preventive Maintenance	\$19,024
46a	Quails Crossing Road-01	Local	Front Street	Partridge Place	984.24	22	2406	76.0	Preventive Maintenance	\$19,248
46b	Quails Crossing Road-02	Local	Partridge Place	CUL DE SAC	976.22	22	2386	68.0	Preventive Maintenance	\$19,088
47	Ridgewood Lane	Local	Delano Road	Dead End	642.6	22	1571	79.2	Preventive Maintenance	\$12,568
49	Rocky Knook Lane	Local	Mill Street Exit	Dead End	1269.87	22	3104	78.0	Preventive Maintenance	\$24,832
50	Rose Cottage Lane	Local	Pleasant Street	CUL DE SAC	311.72	24	831	78.0	Preventive Maintenance	\$6,648
56b	Spring Street Exit-02	Minor Arterial	Mill Street Exit	Wells Road	303.33	26	876	78.0	Preventive Maintenance	\$7,008
56c	Spring Street Exit-03	Minor Arterial	Wells Road	Wareham Street	253.21	26	731	78.0	Preventive Maintenance	\$5,848
56f	Spring Street-06	Local	Ryder Lane	Holmes Street	2036.64	34	7694	68.0	Preventive Maintenance	\$61,552
57c	Stoney Run Lane-03	Local	Edgewater Lane	CUL DE SAC	289.37	21	289.37	66.0	Preventive Maintenance	\$2,315

Road ID	Street	Functional Classification	From	To	Length (Feet)	Average Width (Feet)	Area (Square Yards)	P.C.I. (1 to 100)	Maintenance / Rehabilitation	Estimated Cost
58	Tucker Lane	Local	County Road	CUL DE SAC	1031.52	25	2865	69.0	Preventive Maintenance	\$22,920
59	Vine Street	Local	Front Street	Water Street	824.11	24	2198	74.0	Preventive Maintenance	\$17,584
61a	Water Street-01	Local	Main Street	South Street	218.51	24	5244	72.0	Preventive Maintenance	\$41,954
62	Zora Road	Local	Front Street	Converse Road	1355.32	22	29817	77.0	Preventive Maintenance	\$238,536
Total					56,395		172,324			\$1,378,589

Town of Marion, MA Town-Wide Pavement Inspection and Planning Backlog-Preventative Maintenance



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311 Main Street
Worcester, MA 01608

- NO MAINTENANCE
- ROUTINE MAINTENANCE
- PREVENTATIVE MAINTENANCE
- MINOR REHABILITATION
- MAJOR REHABILITATION

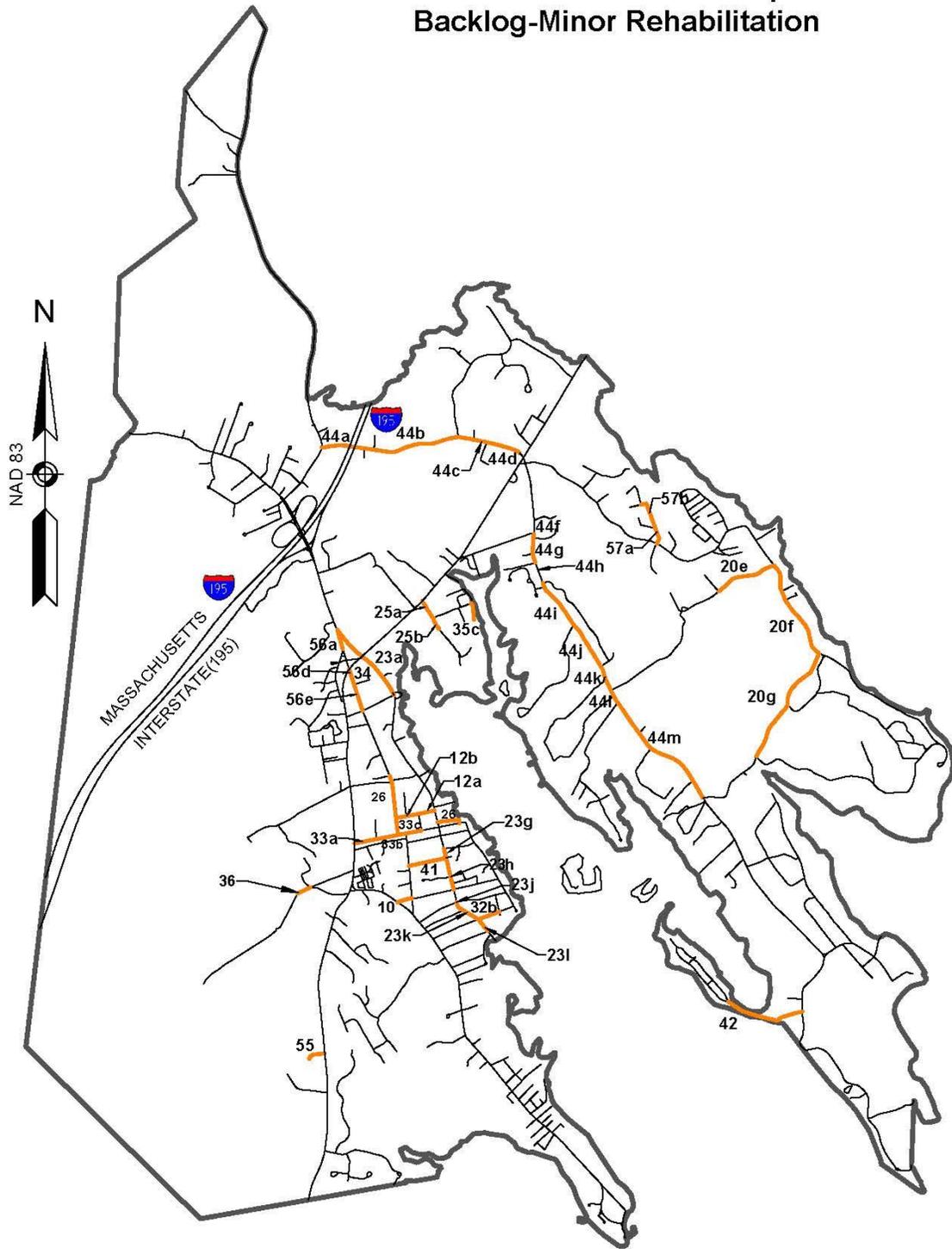
APPENDIX E – MINOR REHABILITATION
TABLE AND MAP – MINOR REHABILITATION

Road ID	Street	Functional Classification	From	To	Length (Feet)	Average Width (Feet)	Area (Square Yards)	P.C.I. (1 to 100)	Maintenance / Rehabilitation	Estimated Cost
10a	Clark Street	Local	Pleasant Street	Converse Road	402.22	20	894	63.0	Minor Rehabilitation	\$31,290
12a	Cottage Street-01	Local	Front Street	School Street	440.50	28	1370	60.0	Minor Rehabilitation	\$47,950
12b	Cottage Street-02	Local	School Street	Spring Street	610.85	28	1900	62.0	Minor Rehabilitation	\$66,500
19a	Cross Neck Road-01	Local	Delano Road	Lady Slipper Lane	1681.48	19	3550	59.0	Minor Rehabilitation	\$124,250
20f	Delano Road-06	Local	Cross Neck Road	Great Hill Drive	2706.98	18	5414	45.0	Minor Rehabilitation	\$189,490
20g	Delano Road-07	Local	Great Hill Drive	South Great Hill Drive	3303.01	18	6606.00	51.0	Minor Rehabilitation	\$231,210
23a	Front Street-01	Major Collector	Mill Street	Ryder Lane	1349.87	25	3750	63.0	Minor Rehabilitation	\$131,250
23g	Front Street-07	Local	Vine Street	Pitcher Street	256.04	25	711	59.0	Minor Rehabilitation	\$24,885
23h	Front Street-08	Local	Pitcher Street	Holmes Street	860.83	25	2391	58.0	Minor Rehabilitation	\$83,685
23j	Front Street-10	Local	Allen Street	Crapo Street	295.26	25	820	55.0	Minor Rehabilitation	\$28,700
23k	Front Street-11	Local	Crapo Street	Lewis Street	470.20	25	1306	49.0	Minor Rehabilitation	\$45,710
23l	Front Street-12	Local	Lewis Street	Zora Road	399.17	24	1064	55.0	Minor Rehabilitation	\$37,240
25a	Hermitage Road-01	Local	Wareham Street	Oakdale Avenue	548.10	18	1096	45.0	Minor Rehabilitation	\$38,360

Road ID	Street	Functional Classification	From	To	Length (Feet)	Average Width (Feet)	Area (Square Yards)	P.C.I. (1 to 100)	Maintenance / Rehabilitation	Estimated Cost
25b	Hermitage Road-02	Local	Oakdale Avenue	Private Drive	330.78	18	662	45.0	Minor Rehabilitation	\$23,170
26	Hiller Street	Local	Main Street	Front Street	660.79	21	1542	45.0	Minor Rehabilitation	\$53,970
32b	Lewis Street-02	Local	Front Street	Pie Alley	596.80	20	1326	62.0	Minor Rehabilitation	\$46,410
33a	Main Street-01	Minor Arterial	Mill Street	Park Street	600.50	28	1868	57.0	Minor Rehabilitation	\$65,380
33b	Main Street-02	Minor Arterial	Park Street	Spring Street	583.45	28	1815	55.0	Minor Rehabilitation	\$63,525
33c	Main Street-03	Minor Arterial	Spring Street	School Street	634.55	32	2256	52.0	Minor Rehabilitation	\$78,960
35c	Oakdale Avenue-03	Local	Camp Marion	Dead End	461.14	19	974	58.0	Minor Rehabilitation	\$34,090
36	Old Indian Trail	Local	Mill Street	Gravel Selection	211	13	305	60.0	Minor Rehabilitation	\$10,675
41	Pitcher Street	Local	Pleasant Street	Front Street	1009.37	24	2692	55.0	Minor Rehabilitation	\$94,220
42	Planting Island Road	Local	Point Road	West Ave	2126.29	18	4253	63.0	Minor Rehabilitation	\$148,855
44a	Point Road-01	Local	County Road	Sherman's Way	1546.16	40	6872	55.0	Minor Rehabilitation	\$240,520
44b	Point Road-02	Local	Sherman's Way	Bullivant Farm Road	2298.96	24	6131	52.0	Minor Rehabilitation	\$214,585
44c	Point Road-03	Local	Bullivant Farm Road	Barros Drive	780.89	22	1909	60.0	Minor Rehabilitation	\$66,815
44g	Point Road-07	Local	Creek Road	Boat Work Lane	506.59	22	1238	45.0	Minor Rehabilitation	\$43,330

Road ID	Street	Functional Classification	From	To	Length (Feet)	Average Width (Feet)	Area (Square Yards)	P.C.I. (1 to 100)	Maintenance / Rehabilitation	Estimated Cost
44i	Point Road-09	Local	Joanne Drive	Hammett's Cove Road	1398.39	22	3418	48.0	Minor Rehabilitation	\$119,630
44j	Point Road-10	Local	Hammett's Cove Road	Jenna Drive	1319.23	24	3518	51.0	Minor Rehabilitation	\$123,130
44k	Point Road-11	Local	Jenna Drive	North Drive	441.64	22	1080	55.0	Minor Rehabilitation	\$37,800
44l	Point Road-12	Local	North Drive	Allens Point Road	635.11	24	1694	58.0	Minor Rehabilitation	\$59,290
44m	Point Road-13	Local	Allens Point Road	Delano Road	3485.82	20	7746	58.0	Minor Rehabilitation	\$271,110
55	Sparrow Lane	Local	Mill Street	CUL DE SAC	468.39	18	937	59.0	Minor Rehabilitation	\$32,795
56a	Spring Street-01	Minor Arterial	Front Street	Mill Street Ext.	648.31	26	1873	62.0	Minor Rehabilitation	\$65,555
56d	Spring Street-04	Local	Wareham Road	Maple Avenue	428.11	26	1237	64.0	Minor Rehabilitation	\$43,295
56e	Spring Street-05	Local	Maple Avenue	Ryder Lane	733.3	26	2118	58.0	Minor Rehabilitation	\$74,130
56g	Spring Street-07	Local	Holmes Street	Cottage Street	978.1	44	4782	60.0	Minor Rehabilitation	\$167,370
56h	Spring Street-08	Local	Cottage Street	Main Street	451.43	44	2207	63.0	Minor Rehabilitation	\$77,245
57a	Stoney Run Lane-01	Local	Delano Road	Emils Way	461.46	21	461.46	60.0	Minor Rehabilitation	\$16,151
57b	Stoney Run Lane-02	Local	Emils Way	Edgewater Lane	822.45	21	822.45	63.0	Minor Rehabilitation	\$28,786
Total					37,944		96,609			\$3,381,312

Town of Marion, MA Town-Wide Pavement Inspection and Planning Backlog-Minor Rehabilitation



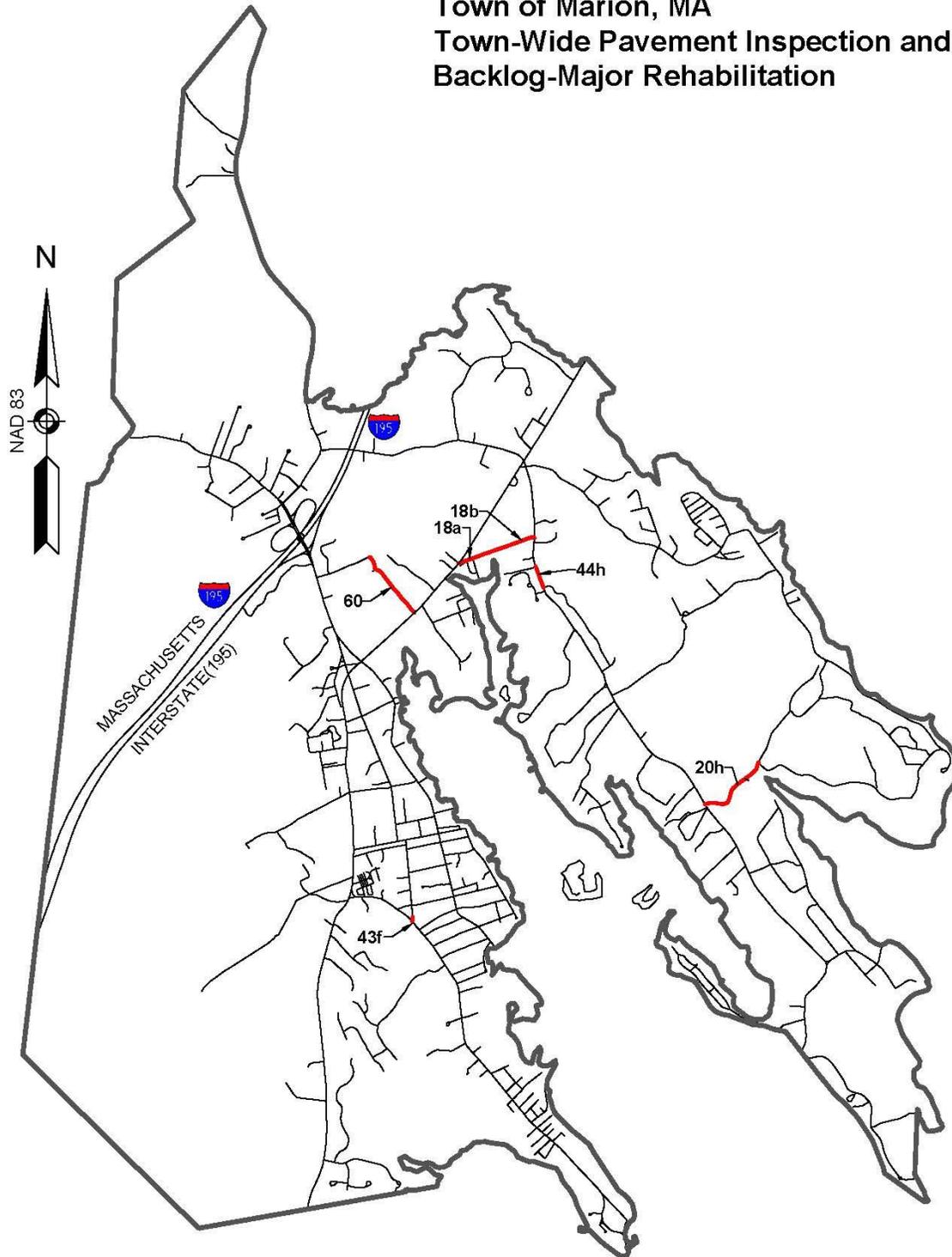
TEC
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- ROUTINE MAINTENANCE
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APPENDIX F – MAJOR REHABILITATION
TABLE AND MAP – MAJOR REHABILITATION

Road ID	Street	Functional Classification	From	To	Length (Feet)	Average Width (Feet)	Area (Square Yards)	P.C.I. (1 to 100)	Maintenance / Rehabilitation	Estimated Cost
18a	Creek Road-01	Local	Wareham Street	Hastings Road	387.20	22	946	41.0	Major Rehabilitation	\$61,490
18b	Creek Road-02	Local	Hastings Road	Point Road	1724.18	22	4215	41.0	Major Rehabilitation	\$273,975
20h	Delano Road-08	Local	South Great Hill Drive	Point Road	1997.54	18	3995	41.0	Major Rehabilitation	\$259,675
43f	Pleasant Street-06	Local	Driveway #3	Converse Road	92	30	307	40.0	Major Rehabilitation	\$19,955
44h	Point Road-08	Local	#840 Point Road	Joanne Drive	850.93	22	2080	44.0	Major Rehabilitation	\$135,200
60	Washburn Lane	Local	Wareham Street	Gravel Selection	1574.5	21	3674	21.0	Major Rehabilitation	\$238,810
Total					6,626		15,217			\$989,105

Town of Marion, MA Town-Wide Pavement Inspection and Planning Backlog-Major Rehabilitation



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