

TRANSPORTATION NETWORK IMPROVEMENTS 2023 ROADS PROGRAM

City of Newton

April 19th, 2023



TRANSPORTATION NETWORK IMPROVEMENTS

Program Goals

To strategically enhance the City of Newton's roadway and sidewalk network and provide an improved level of service. The City strives to provide a great user experience for all modes of transportation including pedestrian, bike and vehicles.

The goal of the City is to accommodate all users regardless of age, ability, income, or preferred mode of transportation.

The City's Infrastructure Asset Management Program assists in guiding data-driven decisions to perform timely maintenance and rehabilitation which best benefits Newton.



City-owned
Roadways



Bicycle
Infrastructure



Sidewalks and
Curb Ramps



Public Transit



PROGRAM WORK HISTORY



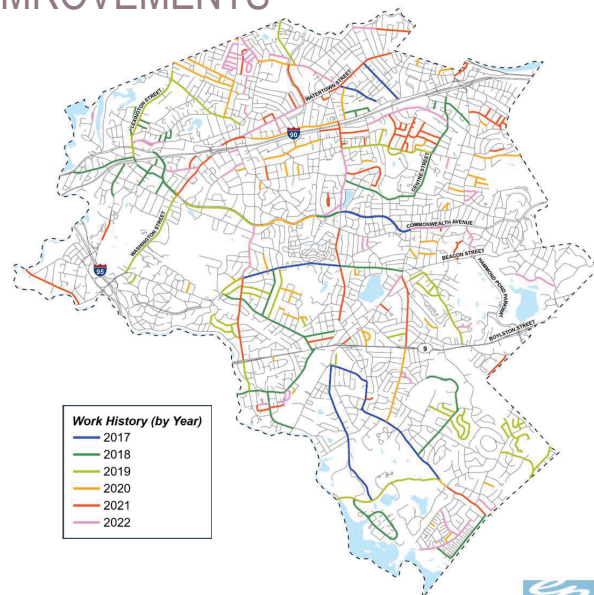
TRANSPORTATION NETWORK IMPROVEMENTS

2017 – 2022 Construction History

2017-2018			2019		
Treatment	Length (ft)	Length (mi)	Treatment	Length (ft)	Length (mi)
Bonded Wearing Course	12,762	2.417	Bonded Wearing Course	14,685	2.781
Cape Seal	9,148	1.733	Cape Seal	8,479	1.606
Hot In-Place Recycling	23,163	4.387	Maintenance Overlay	19,258	3.647
Microsurfacing	9,796	1.855	Microsurfacing	5,590	1.059
Mill & Overlay	43,026	8.149	Mill & Overlay	26,674	5.052
Reclamation	2,603	0.493	Total	74,687	14.145
Total	100,497	19.034			

2020			2021		
Treatment	Length (ft)	Length (mi)	Treatment	Length (ft)	Length (mi)
Bonded Wearing Course	3,991	0.756	Cold In-Place	6,887	1.304
Concrete Overlay	1,965	0.372	Concrete Overlay	6,799	1.288
Hot In-Place Recycling	4,167	0.789	Maintenance Overlay	32,498	6.155
Maintenance Overlay	25,555	4.840	Mill & Overlay	24,229	4.589
Mill & Overlay	16,364	3.099	Overlay	1,059	0.201
Reclamation	2,493	0.472	Total	71,471	13.536
Total	54,536	10.329			

2022		
Treatment	Length (ft)	Length (mi)
Bonded Wearing Course	6,629	1.256
Concrete Overlay	1,303	0.247
Crack Seal	31,582	5.981
Maintenance Overlay	12,140	2.299
Mill & Overlay	9,315	1.764
Total	60,970	11.547



- Program Totals = 68.59 miles

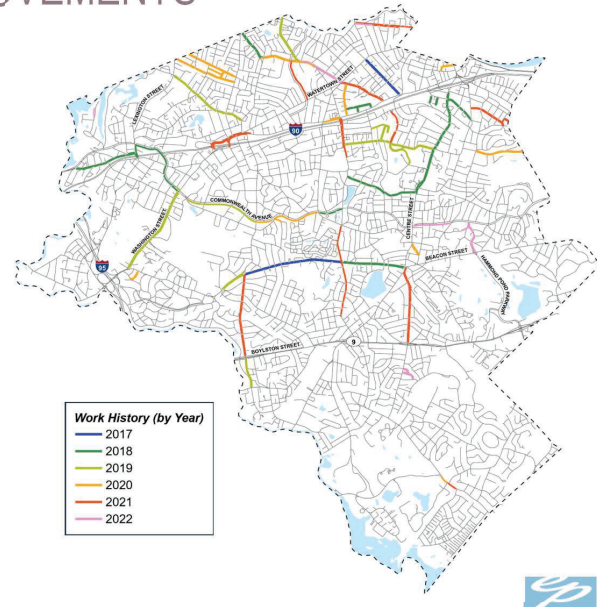


PEDESTRIAN NETWORK IMPROVEMENTS

Major Sidewalk Construction

- Mileage by Year
 - 2017 = 2.57 miles
 - 2018 = 8.33 miles
 - 2019 = 8.39 miles
 - 2020 = 6.29 miles
 - 2021 = 8.33 miles
 - 2022 = 2.19 miles
- Number of Curb Ramps by Year
 - 2017 = 55
 - 2018 = 164
 - 2019 = 56
 - 2020 = 89
 - 2021 = 179
 - 2022 = 57

* Work history numbers are approximate



PEDESTRIAN INFRASTRUCTURE NETWORK

PEDESTRIAN INFRASTRUCTURE

Sidewalks & Curb Ramps

- Collected asset data utilizing City's existing asset management software
- Sidewalks
 - Material Type
 - Condition
 - Maintenance Locations
- Curb Ramps
 - Material
 - Condition
 - Ramp Type
 - Detectable Warning Panel



Mike Jasset
Inspector



PEDESTRIAN INFRASTRUCTURE

Maintenance Categories - Sidewalks

Excellent

No distresses are observed on the sidewalk. Typically, new segment and/or very well maintained

Good

No distresses identified up to minor surface blemishes and deterioration observed on sidewalk.

Fair

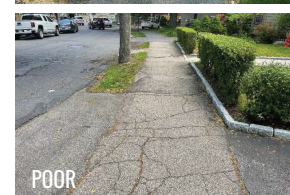
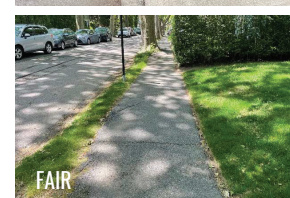
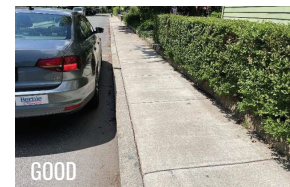
Distresses start to develop, but provide minimal to no impedence

Poor

Distresses and obstructions are actively found, proving the sidewalk to be potentially non-compliant in certain areas.

Replace

Most of the sidewalk is deemed to be non-compliant and/or inaccessible.



PEDESTRIAN INFRASTRUCTURE

Maintenance Categories - Ramps

Good

No distresses identified up to minor surface blemishes and deterioration observed on ramp.

Fair

Distresses start to develop but provide minimal to no impedence.

Poor

Distresses and obstructions are actively found, proving the ramp to be potentially non-compliant.



PEDESTRIAN INFRASTRUCTURE

Sidewalk Inventory Results

- 420 miles of sidewalk infrastructure were evaluated and mapped (to-date)
 - Excellent/Good = 41%
 - Fair = 48%
 - Poor/Replace = 11%
- The City of Newton maintains approximately 5,200 curb ramps
 - Excellent/Good = 57%
 - Fair = 39%
 - Poor = 4%
 - 1,200 potential new ramps needed



Sidewalks (by Condition)
 — Excellent
 — Good
 — Fair
 — Poor



PEDESTRIAN INFRASTRUCTURE IMPROVEMENTS

Priority Analysis

- Priority pedestrian routes
 - Schools
- Roadway classification
 - Connections the roadway provides within the network
- Safe Routes to School
 - Previously established plow routes for sidewalks
- Condition Assessment
- ADA & AAB Compliance
- High pedestrian locations



PEDESTRIAN PRIORITIZATION ANALYSIS – EXISTING CONDITIONS

Ward School



Underwood School

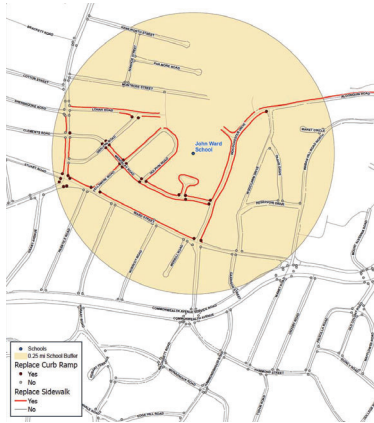


Williams School



PEDESTRIAN PRIORITIZATION ANALYSIS – PRIORITY RECONSTRUCTION

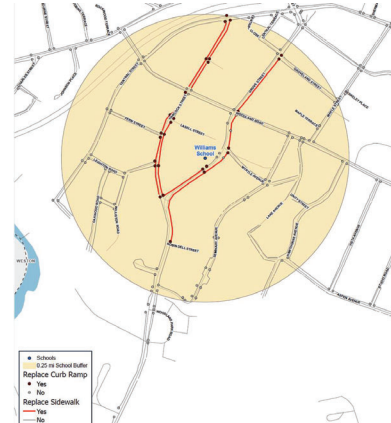
Ward School



Underwood School



Williams School



PEDESTRIAN PRIORITIZATION ANALYSIS – FISCAL YEAR 2024

Ward School

Priority Sidewalk (mi)	2.27
Total Sidewalk (mi)	9.13
Percent	25%
Priority Curb Ramps	33
Total Curb Ramps	76
Percent	43%
Planning Cost	789,500

Underwood School

Priority Sidewalk (mi)	1.62
Total Sidewalk (mi)	4.96
Percent	33%
Priority Curb Ramps	31
Total Curb Ramps	163
Percent	19%
Planning Cost	363,360

Williams School

Priority Sidewalk (mi)	1.01
Total Sidewalk (mi)	7.21
Percent	14%
Priority Curb Ramps	27
Total Curb Ramps	98
Percent	28%
Planning Cost	177,960



ROADWAY NETWORK

ROADWAY NETWORK

Current Conditions

- Current PCI Rating is 72.56*
 - Program began at PCI of 62
- 274 centerline miles of road
 - Approximately 50% in need of rehabilitation
 - Approximately 25% in good/very good condition

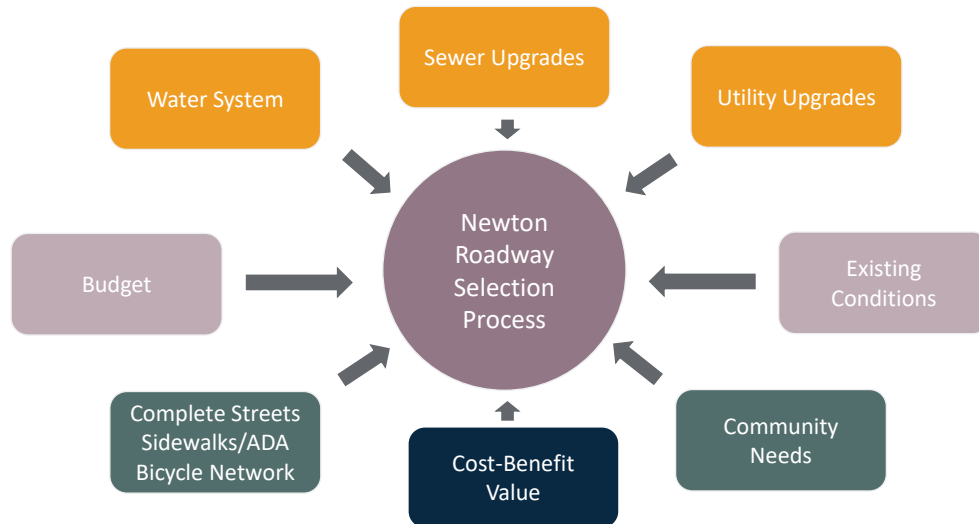
*Based on inspection data from October 2022



Chestnut Street – Completed 2021

ROADWAY SELECTION PROCESS

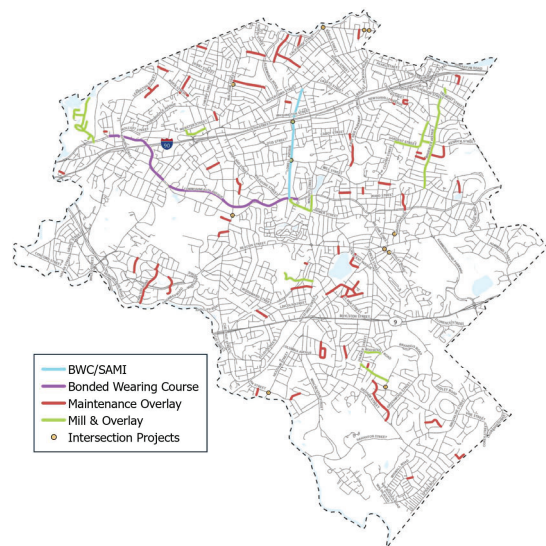
Selection Factors



TRANSPORTATION NETWORK IMPROVEMENTS

2023 Planned Construction Planned Major Paving*

Street	From	To	Average PCI	Treatment
AUSTIN STREET	WALNUT ST	CHESTNUT ST	69.3	Cold In-Place Recycle
BORDER STREET	WEBSTER ST	ELM ST	55.8	Mill & Overlay
COMMONWEALTH AVENUE SERVICE ROAD	HIGGINS ST	WASHINGTON ST	65.8	Bonded Wearing Course
COMMONWEALTH AVENUE SERVICE ROAD	BEAUMONT AVE	OLDHAM RD	65.8	Bonded Wearing Course
DUFFIELD ROAD	ISLINGTON RD	DEAD END	50.6	Mill & Overlay
HOMER STREET	WALNUT ST	COMMONWEALTH AVE	79.5	Mill & Overlay
ISLINGTON ROAD	PAVED SECTION	DEAD END	57.3	Mill & Overlay
KINGSWOOD ROAD	ISLINGTON RD	CUL DE SAC	61.9	Mill & Overlay
LOWELL AVENUE	WALNUT ST	WASHINGTON ST	69	BWC/SAMI
LOWELL AVENUE	AUSTIN ST	COMMONWEALTH AVE	69	BWC/SAMI
MALVERN TERRACE	ISLINGTON RD	CUL DE SAC	71.6	Mill & Overlay
PARK STREET	SARGENT ST	FRANKLIN ST	63.2	Mill & Overlay
RIDER TERRACE	ISLINGTON RD	DEAD END	63.6	Mill & Overlay
ROOSEVELT ROAD	BRANDEIS RD	PARKER ST	64.2	Mill & Overlay
SARGENT STREET	CENTRE ST	WAVERLY AVE	67.9	Mill & Overlay
WALNUT STREET	COMMONWEALTH AVE	HOMER ST	79.5	Mill & Overlay
WARD STREET	MANET STREET	WAVERLY AVE	59.3	Mill & Overlay
WAVERLEY AVENUE	DURANT ST	WARD ST	60.1	Mill & Overlay
WHEELER ROAD	PARKER ST	MEADOWBROOK RD	59.7	Mill & Overlay



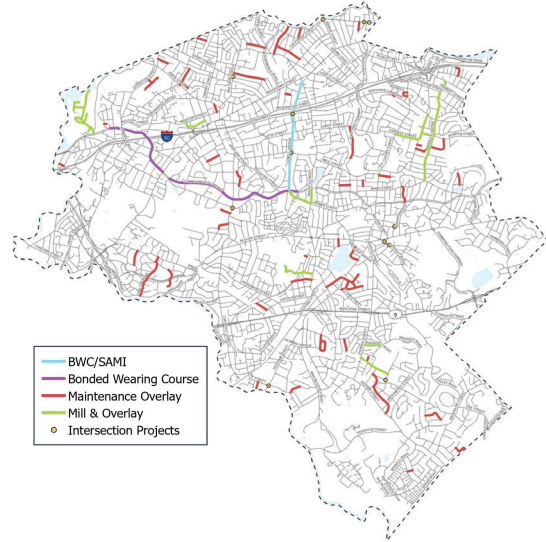
*This is a working list that may be revised based on factors such as unexpected utility work
 **Does not include all preservation, routine maintenance or patching



TRANSPORTATION NETWORK IMPROVEMENTS

2023 Planned Construction Maintenance Overlay*

Street	From	To	Average TCI	Treatment	Street	From	To	Average TCI	Treatment
ABBOTT ST	DEAD END	OAK ST	49.6	Maintenance Overlay	MARLA CIRCLE	GRACE RD	CUL DE SAC	47.6	Maintenance Overlay
ALBERT ROAD	ROBERTA RD	CUL DE SAC (SW)	49.7	Maintenance Overlay	MAYNARD STREET	ALBEMARLE RD	MORRILL ST	47	Maintenance Overlay
ALDERWOOD ROAD	CENTRE ST	BURKAGE RD	44.3	Maintenance Overlay	NORWOOD AVENUE 2	CRESCENT AVE	CENTRE ST	45.3	Maintenance Overlay
ALLERTON ROAD	HYDE ST	HERWARD RD	48	Maintenance Overlay	OAKLAND STREET	NEVTONVILLE AVE	WINTHROP AVE	46.6	Maintenance Overlay
ALLISON STREET	CALIFORNIA ST	LOS ANGELES ST	50.6	Maintenance Overlay	PARK DRIVE	ELNOR RD	SELWYN RD	47.6	Maintenance Overlay
ANDREW STREET	DEDHAM ST	ANDREW ST	40.8	Maintenance Overlay	PROCTOR STREET	WALKER ST	BROOKS AVE	46.6	Maintenance Overlay
APPLEGARTH STREET	CHANNING RD	ELMORE ST	44.6	Maintenance Overlay	REGINA TERRACE	REGINA RD	CUL DE SAC	60.1	Maintenance Overlay
ARNOLD ROAD	DEDHAM ST	SHARPE RD	39.4	Maintenance Overlay	ROBERTA ROAD	LEXINGTON ST	ALBERT RD	51.6	Maintenance Overlay
BARNES ROAD	HUNNIBELL AVE	FAIRVIEW ST	42.6	Maintenance Overlay	ROLAND STREET	CHARLEMONT ST	CHRISTINA ST	47.6	Maintenance Overlay
BARNHABLE ROAD	HAMPSHIRE ST	PRINCE ST	49.4	Maintenance Overlay	ROSE DRIVE	MAGUE AVE	SMITH AVE	46.6	Maintenance Overlay
BLAKE STREET	CABOT ST	BLAKE ST (PVT)	49.3	Maintenance Overlay	ROTHERWOOD ROAD	ROWENA RD	ALLERTON RD	54.6	Maintenance Overlay
BONNYBROOK ROAD	CHESTNUT ST	CUL DE SAC	46.6	Maintenance Overlay	ROWENA ROAD	CLARK ST	CEDRIC RD	57.5	Maintenance Overlay
BREWSTER ROAD	WOODWARD ST	MAPLE COWER TERR	44.1	Maintenance Overlay	SEWALL STREET	STIRLING ST	PRINCE ST	51.6	Maintenance Overlay
CARLTON ROAD	BEACON ST	QUINORQUIN RD	49	Maintenance Overlay	SHUMAN CIRCLE	WHEELER RD	CUL DE SAC	40.6	Maintenance Overlay
CAROLINE PARK	CHESTNUT ST	MCFARL ST	47.6	Maintenance Overlay	SMITH AVENUE	CLEVELAND ST	RIVER ST	48.2	Maintenance Overlay
CROFTON ROAD	HEBORN RD	DEAD END	48.8	Maintenance Overlay	THAXTER ROAD	NEVADA ST	PARKWAY DR	47.6	Maintenance Overlay
DIANA ROAD	PARKMETER RD	FALMOUTH RD	49.6	Maintenance Overlay	TRAVIS DRIVE	WOODLAWN DR	RESERVOIR DR	51.6	Maintenance Overlay
ELIOTT MEMORIAL ROAD	WATERVILLE AVE	MAGNOLIA AVE	44.6	Maintenance Overlay	TREELAND CIRCLE	PARK AVE	CUL DE SAC	49.6	Maintenance Overlay
EVERGREEN TERRACE	OAKLAND AVE	EVERGREEN AVE	28.6	Maintenance Overlay	VINEYARD ROAD	MORTON ST	CEAD ST	47.6	Maintenance Overlay
FAIR OAKS AVENUE	CALIFORNIA ST	SCOFIELD DR	52	Maintenance Overlay	WARREN AVENUE	WEBSTER ST	RIVER ST	50.6	Maintenance Overlay
FESSENDON STREET	CRAFTS ST	KINGSMAN RD	50.7	Maintenance Overlay	WARWICK ROAD	WALTHAM ST	WILDWOOD AVE	52.2	Maintenance Overlay
GREEN PARK	WATERVILLE AVE	PARK AVE	51.6	Maintenance Overlay	WEHMAN ROAD	MANCHESTER RD	DEAD END	29.6	Maintenance Overlay
HARRISON STREET	LINCOLN ST	DEAD END	46.6	Maintenance Overlay	WESLEY STREET	CENTRE ST	CENTRE ST	44.6	Maintenance Overlay
HAY ROAD	MCCARTHY RD	HANSON RD	49.6	Maintenance Overlay	WESTBOURNE ROAD	WARD ST	COMMONWEALTH AVE	51.8	Maintenance Overlay
HILLSIDE ROAD	BOWDON ST	WALNUT ST	48.6	Maintenance Overlay	WESTGATE ROAD	REDWOOD RD	CLIFTON RD	41.6	Maintenance Overlay
HERWARD ROAD	ROWENA RD	DEAD END	60	Maintenance Overlay	WHITE OAK ROAD	BEACON ST	NESHOBE RD	47.6	Maintenance Overlay
LAUREL STREET	BEACON ST	LAKE AVE	48.6	Maintenance Overlay	WHITLOWE ROAD	LEXINGTON ST	JAMES ST	45.6	Maintenance Overlay
MAGNOLIA AVENUE	ELIOTT MEMORIAL RD	KENRICK ST	54.6	Maintenance Overlay					



- BWC/SAMI
- Bonded Wearing Course
- Maintenance Overlay
- Mill & Overlay
- Intersection Projects

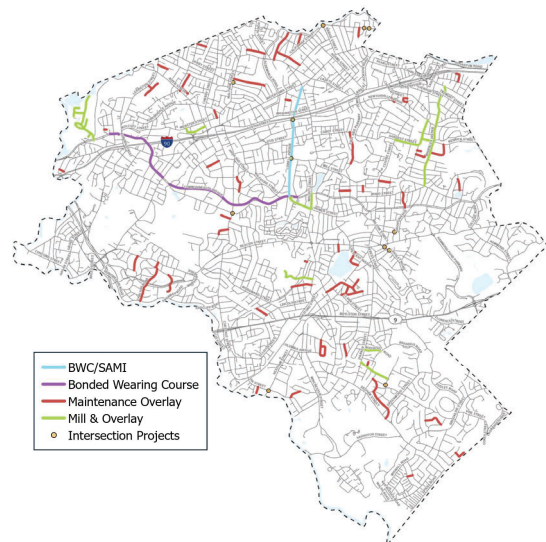
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TRANSPORTATION NETWORK IMPROVEMENTS

2023 Planned Construction Intersection/Traffic Calming

- 14 Locations
 - Waltham Street
 - Derby Street
 - Fairway Drive
 - Lowell Avenue
 - Hull Street
 - Austin Street
 - Langley Road
 - Warren Street
 - Chase Street
 - Chestnut Street at Fuller Street
 - Everett Street at Gibbs Street



- BWC/SAMI
- Bonded Wearing Course
- Maintenance Overlay
- Mill & Overlay
- Intersection Projects

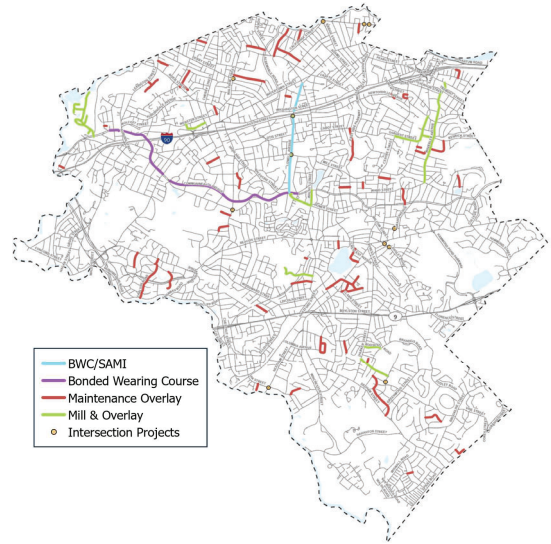
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TRANSPORTATION NETWORK IMPROVEMENTS

2023 Planned Construction Summary of Work

Treatment	Area (SY)	Length (mi)	Cost
Bonded Wearing Course	32,017	2.35	\$ 645,000
BWC/SAMI	21,362	1.15	\$ 875,000
Maintenance Overlay	109,259	8.81	\$ 3,723,504
Mill & Overlay	76,706	4.83	\$ 4,629,315
Total	239,344	17.13	\$ 9,872,819



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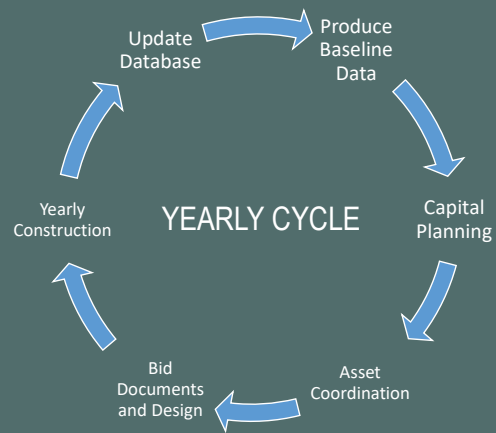


NEXT STEPS

PLATFORM MAINTENANCE

The Transportation Network Improvement Program is not meant to be a stagnant, but rather a living document.

Newton's DPW is committed to continually updating the information in order to maintain useful infrastructure data for decision-making purposes.



THANK YOU