Transportation Network Improvements
2022 Roads Program

City of Newton

April 20th, 2022

ENVIRONMENTAL PARTNERS

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TRANSPORTATION NETWORK IMROVEMENTS

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 equally which can be utilized by everyone regardless of age, ability, income, or preferred mode of transportation.

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

City-owned Roadways

Bicycle Infrastructure

Sidewalks and Curb Ramps

Public Transit

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PROGRAM WORK HISTORY

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TRANSPORTATION NETWORK IMROVEMENTS

2017 – 2021 Construction History

2017-2018			2019		
Year and Treatment	Length (ft)	Length (miles)	Year and Treatment	Length (ft)	Length (miles)
Crack Seal	31,655	6.00	Preservation	30,810	5.84
Preservation	35,630	6.75	Rehabilitation	27,425	5.19
Hot In-Place	5,650	1.07	Maintenance Overlay	18,470	3.50
Rehabilitation	24,497	4.64	**Total 2021**	**76,705**	**14.53**
Total 2021	**97,432**	**18.45**			

| 2020			2021		
Year and Treatment	Length (ft)	Length (miles)	Year and Treatment	Length (ft)	Length (miles)
Crack Seal	23,850	4.52	Cold In-Place	6,960	1.32
Preservation	4,000	0.76	Concrete Overlays	6,500	1.23
Hot In-Place	4,000	0.76	Fog Seal	4,600	0.87
Rehabilitation	23,150	4.38	Maintenance Overlay	35,630	6.75
Maintenance Overlay	20,365	3.86	Mill and Overlay	22,750	4.31
Concrete Overlays	2,000	0.38	Overlay	1,000	0.19
Total 2021	**77,365**	**14.65**	**Total 2021**	**77,440**	**14.67**

Program Totals   **328,942 ft   62.30 miles**

- Improved pedestrian infrastructure
- Added 6 Miles of new bike lanes over the past 2 years. (Parker, Cypress, Beacon, Crafts)

Work History (by Year)
- 2017
- 2018
- 2019
- 2020
- 2021

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PEDESTRIAN NETWORK IMPROVEMENTS

Major Sidewalk Construction

- Mileage by Year
  - 2017 = 2.60 miles
  - 2018 = 8.34 miles
  - 2019 = 8.39 miles
  - 2020 = 6.29 miles
  - 2021 = 8.33 miles

- Number of Curb Ramps by Year
  - 2017 = 55
  - 2018 = 164
  - 2019 = 56
  - 2020 = 89
  - 2021 = 179
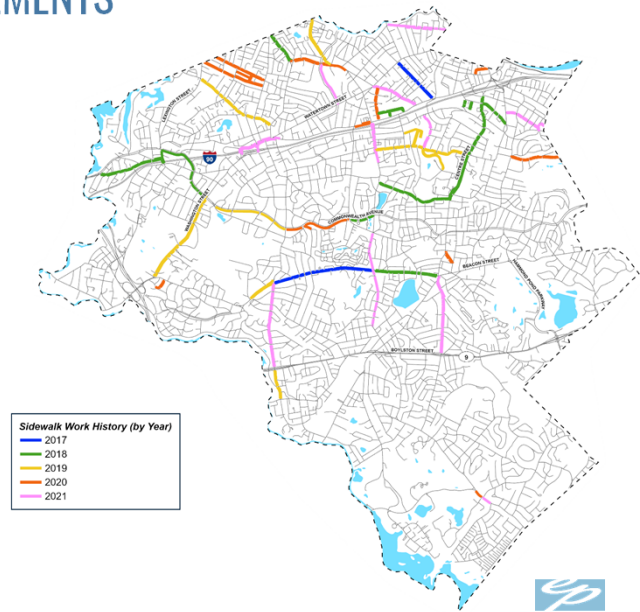
* Work history numbers are approximate

Sidewalk Work History (by Year)
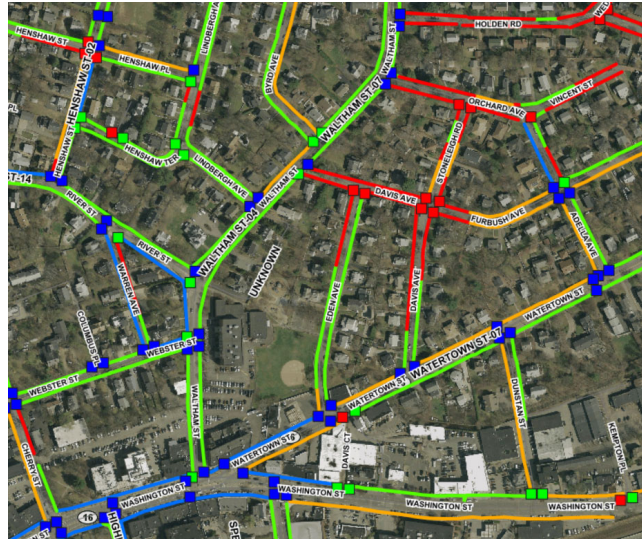2017
2018
2019
2020
2021

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PEDESTRIAN INFRASTRUCTURE NETWORK

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PEDESTRIAN INFRASTRUCTURE

Sidewalks & Curb Ramps

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

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PEDESTRIAN INFRASTRUCTURE

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  - Material Type
  - Condition
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- Curb Ramps
  - Material
  - Condition
  - Ramp Type
  - Detectable Warning Panel

Mike Jasset – Inspector

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PEDESTRIAN INFRASTRUCTURE

Maintenance Categories - Sidewalks

GOOD

- 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

- Fair
  - Distresses start to develop, but provide minimal to no impedance
- Poor
  - Distresses and obstructions are actively found, proving the sidewalk to be unsafe in certain areas.

POOR

- Replace
  - Most of the sidewalk is deemed unsafe and/or inaccessible.

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PEDESTRIAN INFRASTRUCTURE

Maintenance Categories - Ramps

GOOD

- Good
  - No distresses identified up to minor surface blemishes and deterioration observed on ramp.
- Fair
  - Distresses start to develop but provide minimal to no impedance.

FAIR

- Poor
  - Distresses and obstructions are actively found, proving the sidewalk to be unsafe in certain areas.
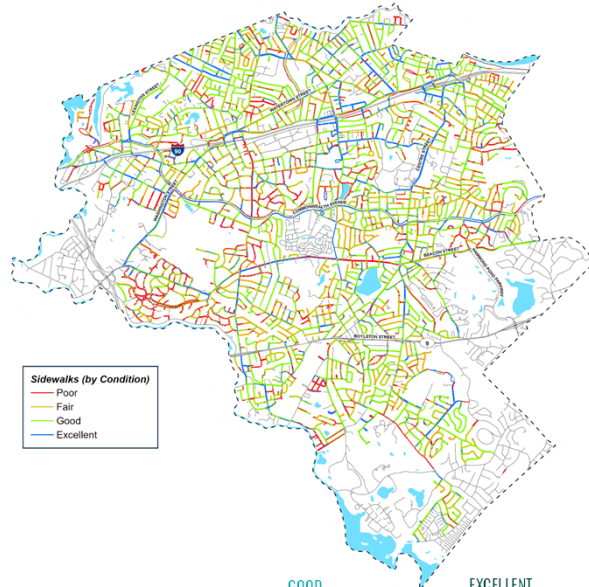
POOR

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PEDESTRIAN INFRASTRUCTURE

Sidewalk Inventory Results

- 414 miles of sidewalk infrastructure were evaluated and mapped (to-date)
  - Excellent/Good = 38%
  - Fair = 42%
  - Poor/Replace = 20%
- The City of Newton maintains approximately 5,100* curb ramps

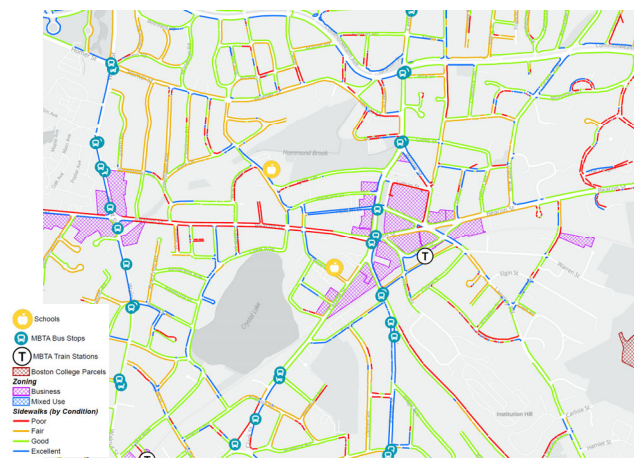| REPLACE	POOR	FAIR	GOOD	EXCELLENT
14%	6%	42%	36%	2%

* Evaluation is ongoing. DPW is working to finalize existing conditions and report on findings in summer/fall 2022

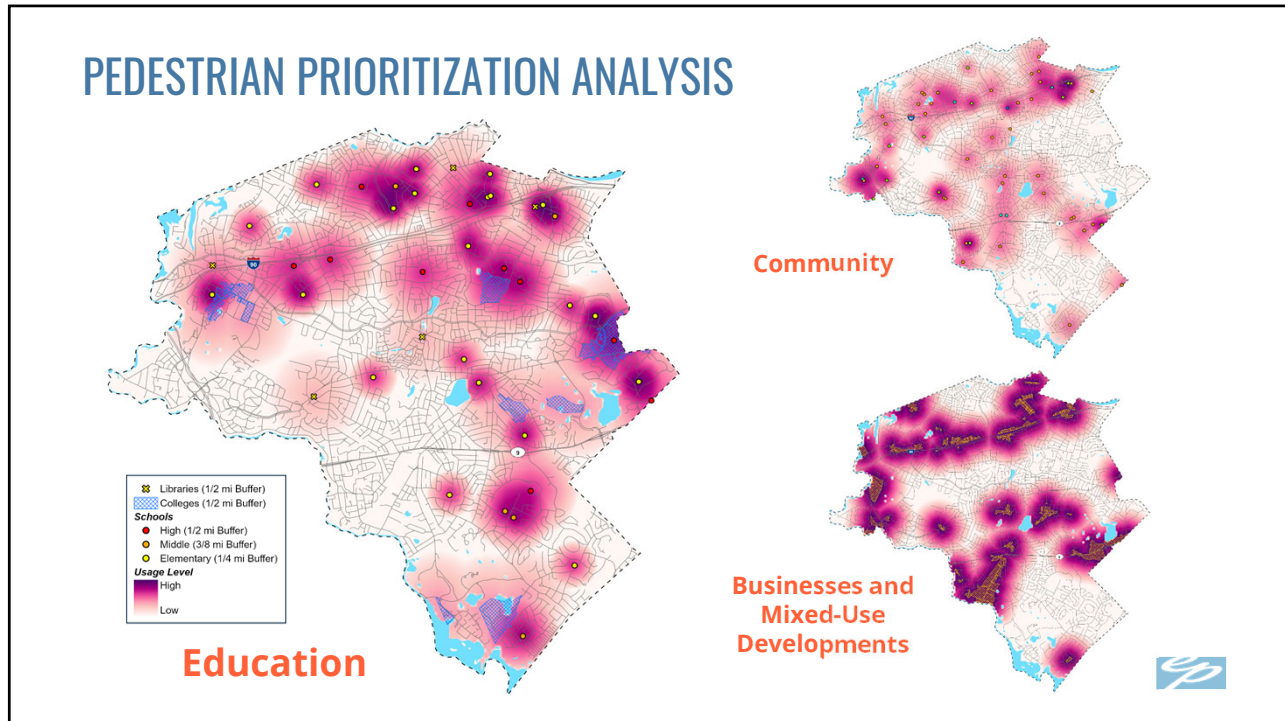11

PEDESTRIAN INFRASTRUCTURE IMPROVEMENTS

Priority Analysis

- Inventory output
  - Deficiencies in the network
- ADA & AAB Compliance
- Priority pedestrian routes
  - Schools
  - Businesses and Mixed-Use Developments
  - Transit
  - Local points of interest
- Roadway classification
  - Connections the roadway provides within the network
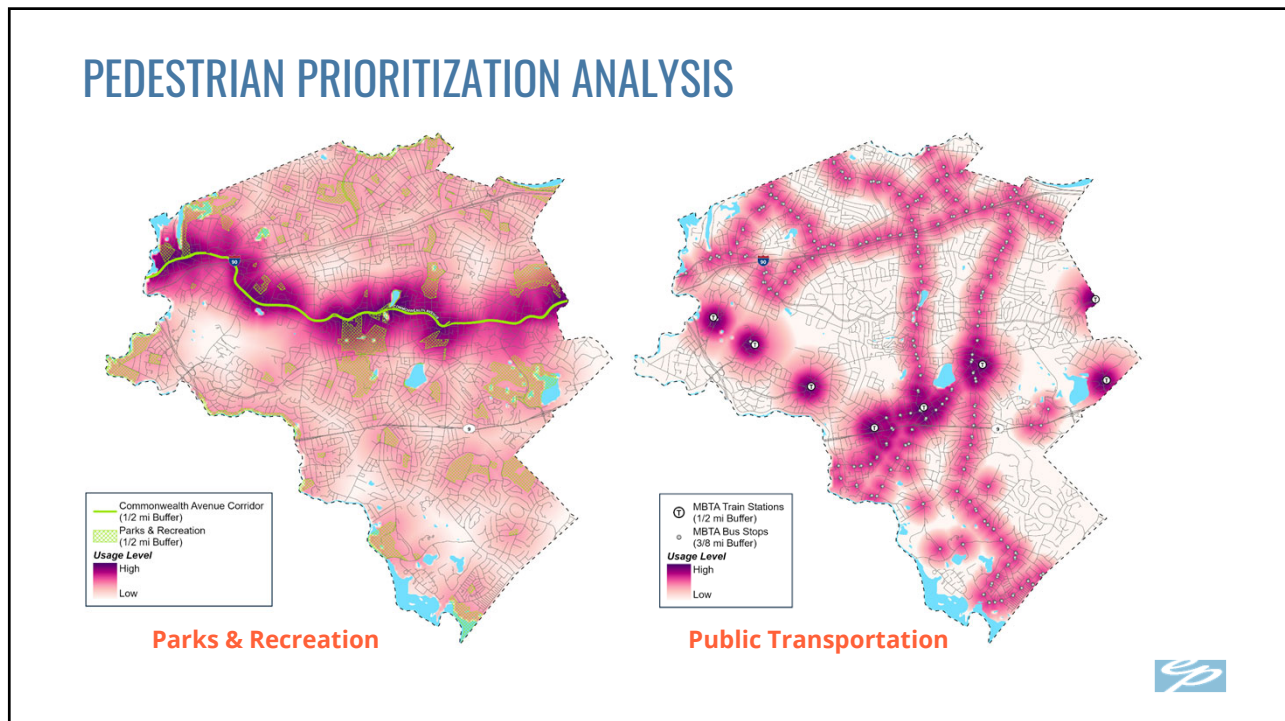- Gaps in the network
- Safe Routes to School

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PEDESTRIAN PRIORITIZATION ANALYSIS

Education

Community

Businesses and Mixed-Use Developments

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PEDESTRIAN PRIORITIZATION ANALYSIS

Parks & Recreation

Public Transportation

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PEDESTRIAN USAGE ANALYSIS

Pedestrian Activity Map

- Results show where pedestrian activity will most likely occur
- Assists with prioritizing repairs and provide the most value to the community
- We will also utilize crash/accident data for prioritization of projects

Legend:
- Schools
- Libraries
- Community Resources
- MBTA Train Stations
- MBTA Bus Stops
- Commonwealth Avenue Corridor
- Parks & Recreation
- Business/Mixed Use Zoning
- Colleges

Usage Level
- High
- Low
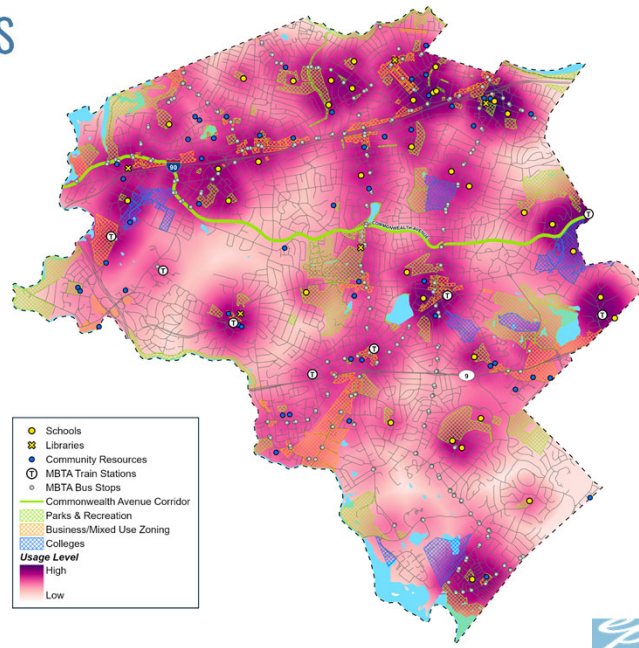
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ROADWAY NETWORK

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ROADWAY NETWORK

Current Conditions

- Current PCI Rating is 71*
- 274 centerline miles of road
  - Approximately 45% in need of rehabilitation
  - Approximately 30% in good/very good condition

- Roadway network to be re-inspected in summer of 2022

*Information above as of Sept 2021 and accounts for roadwork complete in 2021.

Chestnut Street – Completed 2021

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ROADWAY SELECTION PROCESS

Selection Factors

- Water System
- Sewer Upgrades
- Gas Upgrades
- Budget
- Newton Roadway Selection Process
- Existing Conditions
- Complete Streets Sidewalks/ADA Bicycle Network
- Cost-Benefit Value
- Community Needs
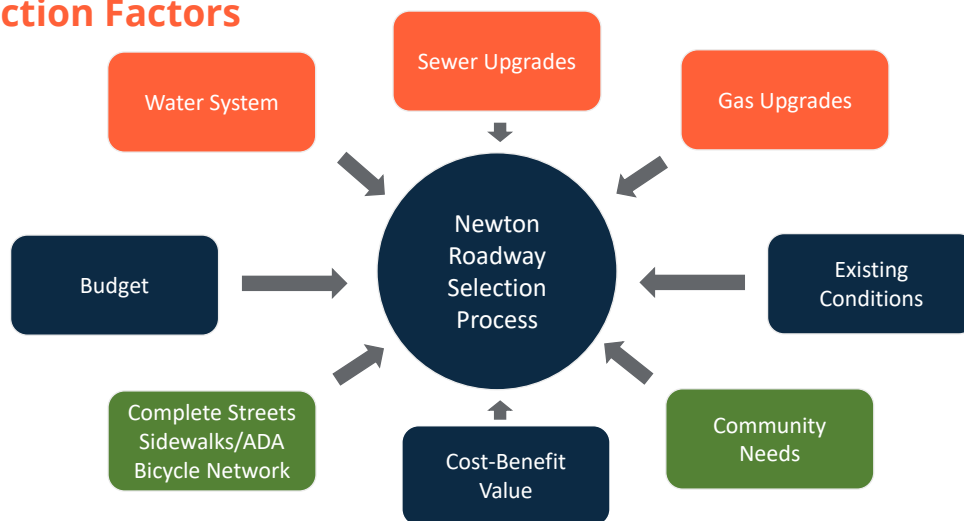
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TRANSPORTATION NETWORK IMROVEMENTS

Fiscal Year 2023 – Budget Distribution

Category		Budgetary Estimate
Mill and Overlay (with sidewalks)	$	3,500,000
Concrete Overlays	$	800,000
Preventative Maintenance	$	1,500,000
Maintenance Overlays	$	1,000,000
Sidewalks	$	200,000
Engineering Services	$	500,000
Street Maintenance	$	725,000
Intersection Budget	$	400,000
Pavement Markings	$	300,000
Traffic Calming	$	350,000
Contingency	$	225,000
Total FY22 Budgeted Expenses	**$**	**9,500,000**

Proposed FY2023 Construction
— Concrete Overlay
— Maintenance Overlay
— Mill and Overlay
— Reclamation

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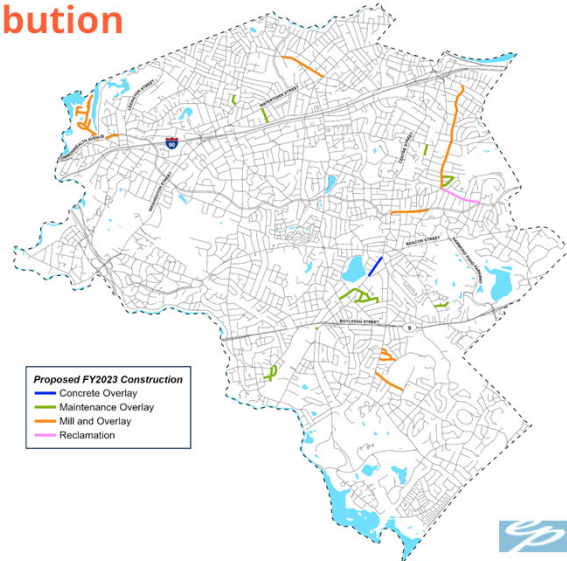
TRANSPORTATION NETWORK IMROVEMENTS

Fiscal Year 2023 – Planned Major Paving*

Street	To	From	Treatment	Fiscal Year	Length (ft)	Length (miles)
Allerton Road	Hyde Street	Rowena Road	Maintenance Overlay	2023	1,775	0.34
Beecher Place	Langley Road	Dead End	Maintenance Overlay	2023	880	0.17
Byrd Avenue	Waltham Street	Princess Road	Maintenance Overlay	2023	615	0.12
Cedric Road	Athelstane Road	Rowena Road	Maintenance Overlay	2023	285	0.05
Centre Street	Cypress Street	Paul Street	Concrete Overlay	2023	1,305	0.25
Cheney Street	Mechanic Street	Linden Street	Maintenance Overlay	2023	370	0.07
Chestnut Street	Commonwealth Avenue	Beacon Street	Mill and Overlay	2023	2,968	0.56
Commonwealth Avenue	Melrose Street	Ash Street	Mill and Overlay	2023	740	0.14
Commonwealth Avenue	Centre Street	Grant Avenue	Mill and Overlay	2023	2,095	0.40
Crafts Street	North Street	Watertown Street	Mill and Overlay	2023	2,600	0.49
Cross Street	Watertown Stree	Washington Street	Maintenance Overlay	2023	855	0.16
Curtis Street	Winchester Street	Dead End	Maintenance Overlay	2023	155	0.03
David Street	Theodore Road	Parker Street	Mill and Overlay	2023	432	0.08
Duffield Road	Islington Road	Dead End	Mill and Overlay	2023	555	0.11
Gralynn Road	Waverly Avenue	Lorna Road	Maintenance Overlay	2023	845	0.16
Islington Road	Commonwealth Avenue	Dead End	Mill and Overlay	2023	3,990	0.76
Jameson Road	Sargent Street	Dead End	Maintenance Overlay	2023	630	0.12
Kingswood Road	Islington Road	Dead End	Mill and Overlay	2023	1,495	0.28
Lorna Road	Waverly Avenue	Private Section	Maintenance Overlay	2023	670	0.13
Malvern Terrace	Islington Road	Dead End	Mill and Overlay	2023	265	0.05
Mechanic Street	Elliot Street	Dead End	Maintenance Overlay	2023	800	0.15
Rider Terrace	Islington Road	Dead End	Mill and Overlay	2023	265	0.05
Roosevelt Road	Parker Street	Brandeis Street	Mill and Overlay	2023	250	0.05
Rotherwood Road	Allerton Road	Rowena Road	Maintenance Overlay	2023	490	0.09
Rowena Road	Cedric Road	Clark Street	Maintenance Overlay	2023	1,260	0.24
Theodore Road	Parker Street	Roosevelt Road	Mill and Overlay	2023	750	0.14
Waverly Avenue	Washington Street	Ward Street	Mill and Overlay	2023	6,100	1.16
Wetherell Street	Mechanic Street	Elliot Street	Maintenance Overlay	2023	815	0.15
Wheeler Road	Parker Street	Meadowbrook Road	Mill and Overlay	2023	1,835	0.35
Totals					**36,090**	**6.84**
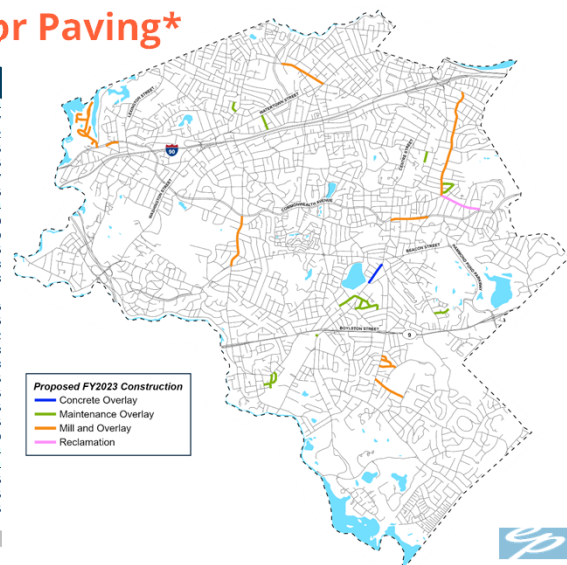
This is a working list that may be revised based on factors such as unexpected utility work

Proposed FY2023 Construction
— Concrete Overlay
— Maintenance Overlay
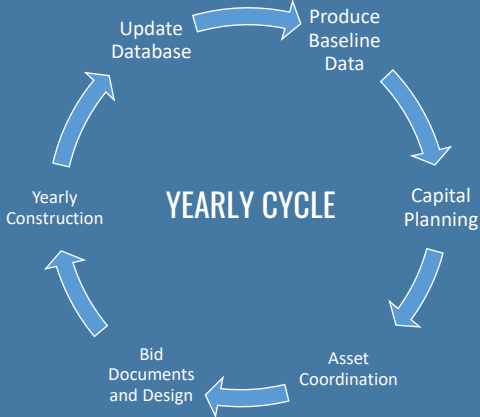— Mill and Overlay
— Reclamation

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NEXT STEPS

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PLATFORM MAINTENANCE

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

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

Update Database → Produce Baseline Data → Capital Planning → Asset Coordination → Bid Documents and Design → Yearly Construction → (Update Database)

YEARLY CYCLE

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THANK YOU

ENVIRONMENTAL PARTNERS

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