



Public Facilities Committee Agenda

City of Newton In City Council

Wednesday, April 21, 2021

The Public Facilities Committee will hold this meeting as a virtual meeting on Wednesday, April 21, 2021 at 7:00 pm. To view this meeting using Zoom use this link: <https://us02web.zoom.us/j/82389797143> or call 1-646-558-8656 and use the following Meeting ID: 823 8979 7143

Item Scheduled for Discussion:

#140-21 **Discussion on the Transportation Network Improvement Program**
PUBLIC FACILITIES COMMITTEE requesting an update on the City's Transportation Network Improvement Plan (Roads Program).

Respectfully submitted,

Alison M. Leary, Chair

The location of this meeting is accessible and reasonable accommodations will be provided to persons with disabilities who require assistance. If you need a reasonable accommodation, please contact the city of Newton's ADA Coordinator, Jini Fairley, at least two business days in advance of the meeting: jfairley@newtonma.gov or (617) 796-1253. The city's TTY/TDD direct line is: 617-796-1089. For the Telecommunications Relay Service (TRS), please dial 711.

**Newton - Transportation Network Improvements
2021 Roads Construction List**

140-21

Year/Repair/Contract	To	From	Length (ft)
2021			48,610
1. Mill and Overlay			17,550
Albermarle Road (East)	Watertown Street	Crafts Street	2,300
Arlington Street	Park Street	Nonantum Street	1,500
Chestnut Street	Boyleston Street	Beacon Street	4,500
Crafts Street	North Street	Watertown Street	2,600
Cypress Street	Parker Street	Centre Street	700
Dedham Street	Brookline Street	Spiers Road	2,750
Parker Street	Route 9	Cypress Street	3,200
2. Cold In-Place			7,250
Chestnut Street	Boyleston Street	Beacon Street	4,500
Dedham Street	Brookline Street	Spiers Road	2,750
3. Concrete Overlay			2,550
Centre Street	Boylston Street	Walnut Street	350
Washington Street	Commonwealth Ave	Perkins Street	2,200
Watertown Street	Walnut Street	Pearl Street	
4. Maintenance Overlay			10,910
Belmont Street	Tremont Street	Arlington Street	550
Bishopsgate Road	Beacon Street	Intervale Road	2,000
Croftdale Street	Bishopsgate Road	Dead End	150
Curve Street	Prospect Street	Auburn Street	800
Grove Street	Rt 128 Ramps	MBTA Bridge (190'	1,600
Huntington Road	Farlow Road	Chamberlain Road	750
Jefferson Street	Centre Street	Maple Street	1,100
Louise Road	Florence Street	Dead End	1,500
Maple Street	Nonantum Street	City Limit	500
Marlboro Street	Tremont Street	Arlington Street	900
Ricker Road	Tremont Street	Arlington Street	550
Ricker Terrace	Ricker Road	City Limit	260
Williams Street	Jefferson Street	City Limit	250
5. Preservation (BWC)			2,400
Grove Street	Maintenance Overlay	Woodland Street	2,400
6. Preservation (Crack/Fog)			
Preservation (Crack/Fog)	Misc	Misc	
7. Engineering Services			
Engineering Services	NA	NA	
8. Street Maintenance			
Street Maintenance	NA	NA	
9. Transportation Budget			
Transportation Budget	NA	NA	
10. Sidewalk Budget			
Sidewalk Budget	NA	NA	
Carry Over FY21			7,950
Austin Street	Walnut Street	Lowell Street	1,000
California Street	Faxon Street	Town Line	1,800
Clafin Place	Walnut Street	Dead End	250
Walnut Street	Beacon Street	Homer Street	2,000
Walnut Street	Forest Street	Beacon Street	2,900
Grand Total			48,610

Transportation Network Improvements 2021 Program Update

City of Newton

April 21st, 2021



TRANSPORTATION NETWORK IMPROVEMENTS

Program Goals

Our primary goal is to establish benchmarks and coordinate infrastructure improvements to leverage available funding in an efficient manner benefitting all users.

The City's Infrastructure Asset Management Program assists in guiding decision makers to prioritize repairs.



City-owned Roadways

Pedestrian and Bicycle Infrastructure



ADA and AAB Compliance

Public Transit



PAVEMENT MANAGEMENT

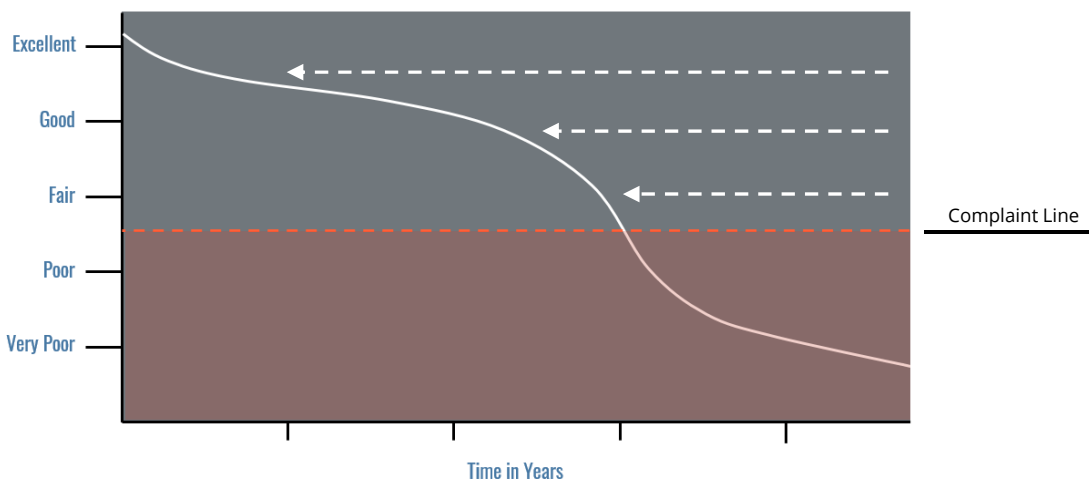
What is Pavement Management?

Pavement Management is the practice of planning pavement maintenance to maximize the value of the roadway network.

Enables you to perform the Right Repair at the Right Time on the Right Road!



PAVEMENT DETERIORATION CURVE



Life-Cycle Analysis



Town A	Town B
<p>2004: 2" Mill & Fill \$12 per sy</p> <p>2017: 2" Mill & Fill Reclamation</p> <p>Total: \$24-\$44 per sy</p>	<p>2004: 2" Mill & Fill \$12 per sy</p> <p>2010: Crack Sealing & Microsurfacing \$4.50 per sy</p> <p>2017: Crack Sealing & Microsurfacing \$4.50 per sy</p> <p>Total: \$21 per sy</p>

Preservation Success!

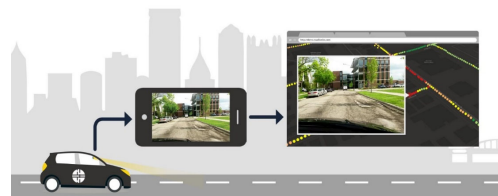
DATA COLLECTION

Roadway Assessments

- Completed using Machine-Learning Technology
- Provides photographs every 10' along the roadway network
- Non-Biased
- Extremely cost-effective
- High resolution photographs for planning



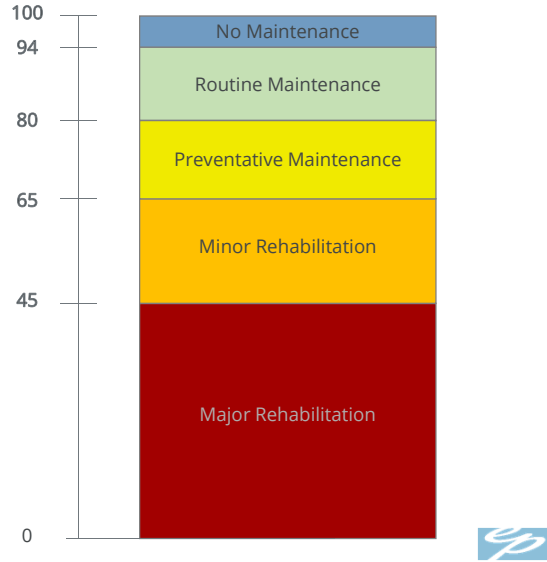
Commonwealth Avenue - Newton



ANALYSIS & REPORTING

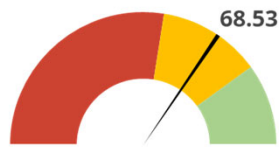
Maintenance Categories

- No Maintenance Required
- Routine Maintenance - **\$1.00**
 - Fog Seal
 - Crack Seal
- Preventative Maintenance - **\$14.00**
 - Bonded Wearing Course
 - Cape Seal
 - Shim and Overlay
- Minor Rehabilitation - **\$50.00**
 - Mill and Overlay
 - Cold In-Place Recycling
- Major Rehabilitation - **\$60.00**
 - Full Depth Reclamation



ANALYSIS AND REPORTING

Roadway Network



Road Network Rating

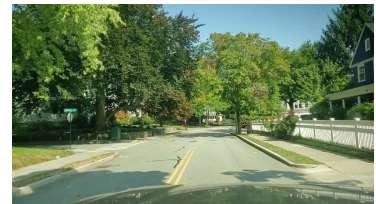
PCI

0-100 Rating Scale

Repair Category	Length (Miles)	Square Yardage	Estimated Costs
No Maintenance Required	43.00	747,298	\$0
Routine Maintenance	30.93	503,707	\$503,707
Preventative Maintenance	68.72	1,078,720	\$10,787,201
Minor Rehabilitation	96.33	1,517,334	\$75,866,703
Major Rehabilitation	35.17	519,646	\$31,178,774
Totals	274.15	4,366,705	\$118,336,385

Existing Conditions – Backlog
Includes presumed percentage of sidewalk enhancements

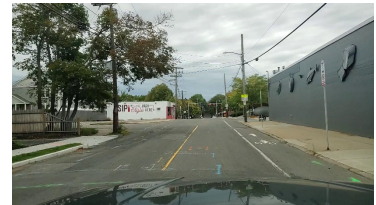
Lake Avenue
Routine Maint.



Lowell Avenue
Preventative Maint.

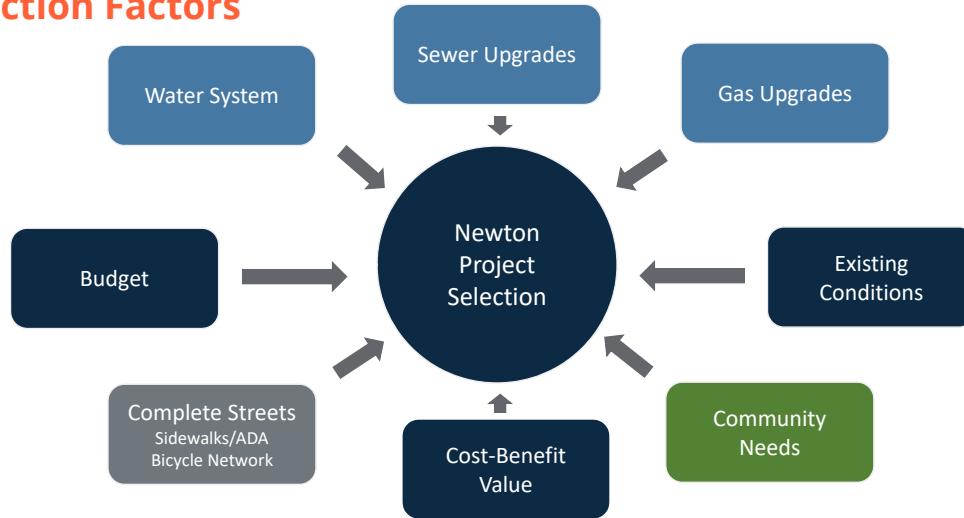


Walnut Street
Minor Rehabilitation



ROADWAY SELECTION PROCESS

Selection Factors



ROADWAY SELECTION PROCESS

Cost-Benefit Value

Data driven guide to prioritize which roadways should be worked on first to get the most benefit from dollars spent

$$\text{CBV} = \frac{(\text{Traffic}) \times (\text{Service Life})}{(\text{Unit \$}) \times (\text{Condition})}$$

Higher CBV = Higher Priority

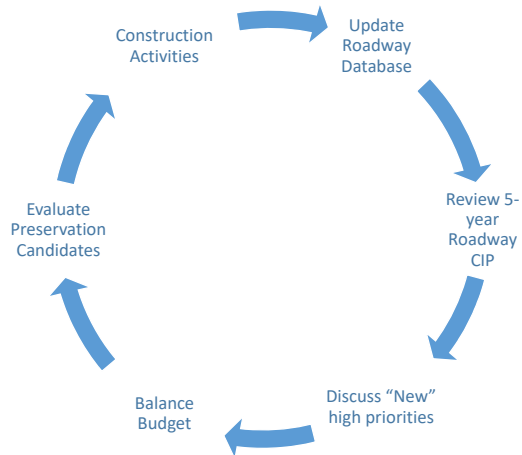


ROADWAY SELECTION PROCESS

Yearly Process

This process typically begins in Fall and includes:

1. Update of database and work completed
2. Review of 5-year CIP
3. Discuss "new" high priority roadways
4. Balance budget appropriations based on available funding
5. Evaluate pavement preservation candidates
6. Prepare bid documents, compile roadway quantities, assess needs for construction oversight



TRANSPORTATION NETWORK IMPROVEMENTS

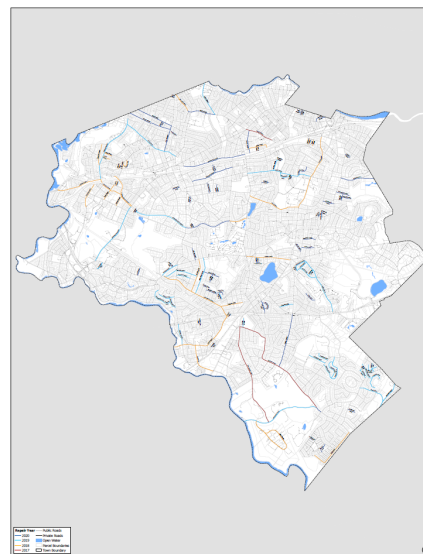
2017 – 2020 Work History

2017-2018			
Year and Treatment	Length (ft)	Length (miles)	Total Costs
Crack Seal	31,655	6.00	\$120,000
Preservation	35,630	6.75	\$1,400,000
Hot In-Place Rec	5,650	1.07	\$450,000
Rehabilitation	24,497	4.64	\$5,100,000
Total 2017-2018	97,432	18.45	\$7,070,000

2019			
Year and Treatment	Length (ft)	Length (miles)	Total Costs
Preservation	30,810	5.84	\$1,600,000
Rehabilitation	27,425	5.19	\$6,100,000
Maintenance Overlay	18,470	3.50	\$350,000
Total 2019	76,705	14.53	\$8,050,000

2020			
Year and Treatment	Length (ft)	Length (miles)	Total Costs
Crack Seal	23,850	4.52	\$210,000
Preservation	4,000	0.76	\$260,000
Hot In-Place Rec	4,000	0.76	\$180,000
Rehabilitation	23,150	4.38	\$3,200,000
Maintenance Overlay	20,365	3.86	\$620,000
Concrete Overlay	2,000	0.38	\$310,000
Total 2020	77,365	14.65	\$4,780,000

Program Totals			
	Length (ft)	Length (miles)	Total Costs
Program Totals	251,502	47.63	\$19,900,000



2021 ROAD TREATMENTS

Routine Maintenance



Crack Seal



Fog Seal



2021 ROAD TREATMENTS

Preventative Maintenance

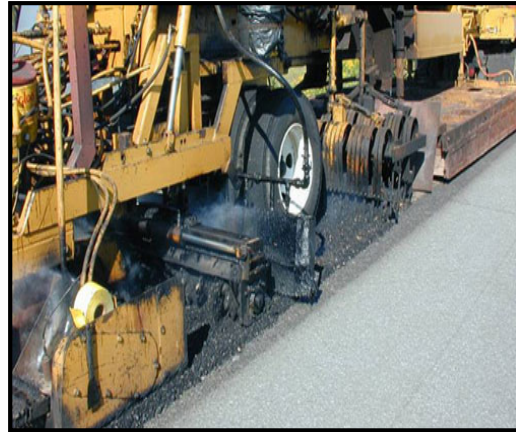


Bonded Wearing Course



2021 ROAD TREATMENTS

Preventative Maintenance



Hot In-Place Recycling



2021 ROAD TREATMENTS

Rehabilitation



Mill and Overlay



Reclamation



2021 ROAD TREATMENTS

Rehabilitation



Cold In-Place Recycling



2021 ROAD TREATMENTS

Overlays



Maintenance Overlay

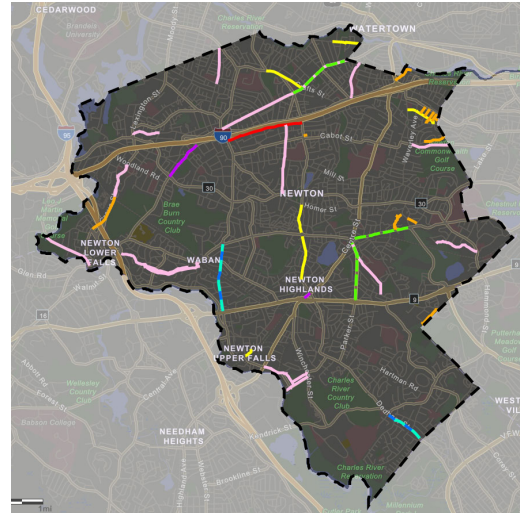
Concrete Overlay



FY2022 BUDGET DISTRIBUTION

\$7.5 MILLION

Funding Category	Length (ft)	Estimated Cost
2021	51,810	\$7,493,081
1. Mill and Overlay	17,550	\$2,554,294
2. Cold In-Place	7,250	\$550,000
3. Concrete Overlay	2,550	\$1,440,000
4. Maintenance Overlay	10,910	\$692,787
5. Preservation (BWC)	2,400	\$106,000
6. Preservation (Crack/Fog)	TBD	\$375,000
7. Engineering Services	N/A	\$450,000
8. Street Maintenance	N/A	\$725,000
9. Transportation Budget	N/A	\$400,000
10. Sidewalk Budget	N/A	\$200,000
Capital Project	3,200	
Carry Over FY21	7,950	



Bicycle & Ped Improvements

- Parker Street (entire length), and Cypress Street / Centre Street up to Beacon St
 - bike lanes (parking restrictions, pending April 29 Traffic Council meeting vote)
- Beacon Street (Washington to Centre)
 - bike lanes (parking restrictions already approved by Traffic Council, striping in Spring 2021)
- West Newton Square
 - bike lanes
 - shorter pedestrian crossings
- Newtonville Walnut Street, Austin Street, and Highland Avenue
 - shorter pedestrian crossings
- Crafts Street bike lane extension from North Street to Watertown Street
- Walnut Street, Homer Street to Forest Street
 - Crosswalks across Walnut Street at every bus stop, including four new crosswalks
 - New RRFB to cross Walnut Street at Carthay Circle / Whole Foods
- Chestnut Street (Route 9 to Beacon Street)
 - Reduced corner radius at two intersections
 - New crosswalks across Chestnut Street at three locations



Bicycle & Ped Improvements

- Washington Street, Chestnut to Lowell
 - Implemented three new crosswalks in Fall 2020
 - Restriping plan, possible protected bike lanes. Public input process starting in May 2021
 - Pedestrian Hybrid Beacon (aka HAWK) controlled crosswalk and bump-outs proposed near Trader Joe's bus stop (developer mitigation)
- Watertown Street / Edinboro Street
 - New sidewalk bump-outs to fix ADA issues, and shorten pedestrian crossing
- Watertown Street / West Street
 - New sidewalk bump-outs to fix ADA issues, and shorten pedestrian crossing
- California Street / Los Angeles Street (developer mitigation)
 - New bump-outs, new crosswalk across California Street, new RRFB
- Commonwealth Ave Carriage Lane
 - Legal, two-way bicycle travel (in design)
- Commonwealth Ave Greenway, Marriot to Lyons Field (in design)
 - Proposed off-street two-way bike path, new sidewalks, and new crosswalks across Comm Ave
- Library Parking Lot (in design)
 - Improved pedestrian access and circulation within the parking lot



Bicycle & Ped Improvements

- Beethoven Ave / Puritan Road
 - Raised table intersection
- Allen Ave at Pine Ridge Road and at Plainfield Street
 - Curb bump-outs, and new crosswalks across Allen Ave for better access to Richardson Field
- Waltham Street / Derby Street / Fairway Drive
 - Bump-outs and median islands
- Lowell Street / Austin Street (in design)
 - Bump-outs and median islands
- Lowell Street / Hull Street (in design)
 - Bump-outs and reduced pedestrian crossing distances



Bicycle & Ped Improvements

- Walnut Street / Crafts Street (shovel ready)
 - Eliminates high-speed soft right-turn
 - Creates new crosswalks across Walnut Street and across Crafts Street
- Waltham Street / River Street (shovel ready)
 - Reduces wide pavement area
 - Eliminates median island, and shortens crosswalk distance
 - Creates new crosswalk across Waltham Street
- Windsor Road / Kinmonth Rd (development mitigation)
 - Creates typical T-intersection
 - Significantly reduces crossing distance across Kinmonth Road for pedestrians on Windsor Road
- Pettee Square (Oak Street / Chestnut Street) – in design
 - Raised intersection design, includes Upper Falls Greenway crossing as part of raised table intersection
 - Placement making project to enhance Pettee Square



THANK YOU

ENVIRONMENTAL
 PARTNERS