



**CITY OF NORTHAMPTON, MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS
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Donna LaScaleia
Director

Memorandum

To: Mayor David Narkewicz
From: Donna LaScaleia, Director of Public Works
Date: April 6, 2017
Re: FY 2018 Northampton Roadway Improvements

The Department of Public Works (DPW) has developed a plan to improve the condition of several City streets in this fiscal year (FY2018). This memorandum identifies the selected streets, the approximate budget and cost of improvements, and the current schedule for bidding and construction.

For FY18, \$1.01 million in State Chapter 90 funds has been apportioned to the City. DPW would also propose to use \$500,000 in local tax dollars as recommended in your Capital Improvement Program. The types of improvements proposed and the streets where the work is planned are described below.

Generally, the DPW uses data and analysis provided through the Vanasse Hangen Brustlin, Inc. (VHB) Pavement Management Program as the primary guide for pavement management selection. In addition, DPW applies our field knowledge of roadway usage, current repair conditions, and consideration of recent and upcoming underground utility projects when developing a list of streets for pavement improvement.

CRACK SEALING

Crack sealing pavement is the process of cleaning out pavement cracks using compressed air and applying a heated, liquefied asphalt-fiber sealant followed by the hand application of boiler slag to prevent pickup of the sealant by vehicles. Crack sealing prolongs the service life of pavement for about 5 years by reducing the amount of water entering into the pavement. The selection of streets to be crack sealed is intended to maintain newer roads in good condition for as long as possible. The streets to be crack sealed this year were determined by reviewing the pavement condition index (PCI) for City streets and developing an estimated list of streets that could be crack sealed within the \$50,000 budget for this work. Parking lots are also applicable for crack sealing. The list of streets and parking lots are as follows:

<u>Street Name</u>	<u>From Segment</u>	<u>To Segment</u>	<u>Length (ft)</u>	<u>PCI</u>
Acrebrook Drive	Beatie Dr (South)	Brookside Cir (South)	2053	80
Arnold Avenue	West St	Dead End	271	92
Bancroft Road	Crescent St	Round Hill Rd	960	76
Bancroft Road	Franklin St	Crescent St	350	73
Bardwell Street	North Main St	North Maple St	1081	74
Beech Street	Fern St	Bridge Rd	256	73
Bliss Street	Nonotuck St	150' S Of Nonotuck St	150	73
Bridge Road	North Main St	Juniper St	635	84
Bridge Road	Juniper St	Lake St	1460	76
Carolyn Street	Mountain St	Clair Ave/Mary Jane Ln	1058	85
Conz Street	200' S Of Old South St	Wright Ave	1685	91
Florence Road	Route 66	Easthampton Town line	3335	82
Golden Drive	Spruce Hill Ave	Spruce Hill Ave	1025	80
Gothic Street	Main St	Trumbull Rd	1294	79
Grandview Street	Bridge Rd	Carolyn St	737	74
Michelman Avenue	Pleasant St	200' W Of Pleasant St	204	75
Montague Road	200' S Of Chesterfield Rd	Westhampton Town line	1221	91
Mountain Street	48' N Of Carolyn St	North Farms Rd	1153	73
Mountain Street	Bridge Rd	48' N Of Carolyn St	466	73
New South Street	Main St	Ho # 82 South St	1143	74
North Maple Street	36' W Of High St	200' N Of Bridge Rd	2850	81
Parsons Street	Union St	Cherry St	370	75
Pearl Street	Pleasant St	Strong Av	407	79
Platinum Circle	Burts Pit Rd (East)	Burts Pit Rd	1395	86
Pleasant Street	100' S Of Holyoke St	100' N Of Fulton Av	484	74
Roe Avenue	Prospect St	Calvin Ter	912	73
Ryan Road	79' W Of Burts Pit Ex (E)	1269' E Of Sylvester Rd	1574	90
Ryan Road	1269' E Of Sylvester Rd	Sylvester Rd	1269	75
Stoddard Street	State St	Prospect St	907	75
Strawberry Hill Road	Chestnut St	Dead End	657	86
Trumbull Road	Prospect St	State St	340	75
Vernon Street	Federal St	Ward Av	1023	92
Ward Avenue	James Ave	Dead End	1029	92
Warner Street	Maplewood Ter	Liberty St	324	81
Warners Row	Florence St	Dead End	348	87

Bridge Street Elementary School Parking lot

Northampton High School Parking Lot

Ryan Road Elementary School Parking Lot

Crack sealing Schedule: Bid specifications for the crack sealing contract are being prepared and bidding is expected to occur in April or early May. It is expected that the work will occur in late Summer or Fall 2017.

MILL AND OVERLAY

This process mechanically mills and removes the top 2-3 inch layer of pavement leaving curbing, catch basins and manholes in place. These structures are adjusted as needed to match the final pavement grade. A new top course of pavement is installed after a tack coat of bitumen is applied as a bonding agent with the base course. The expected repair life is typically 12-15 years.

The mill and overlay locations are determined by reviewing the streets that fall within the top Benefit Value tier as calculated by the VHB software. The streets selected below are within that top tier.

<u>Mill and Overlay Streets</u>	<u>Estimated Cost</u>
Ryan Road: Brookside Circle to 79' West of Burts Pit Road Ext	<u>\$260,000</u>
TOTAL	\$260,000

Mill and Overlay Schedule: Bid specifications for the mill and overlay projects will be part of a Pavement Contract that is currently being prepared, and bidding is expected to occur in May. The paving schedule for each street will be determined once a contract has been awarded.

MICRO-SURFACING

Micro-surfacing is a thin overlay that restores the wearing surface of the pavement. Any large cracks or defects must be sealed or patched before micro-surfacing. The combination of aggregate, asphalt emulsion, mineral filler, and water is then applied with mixing equipment and a spreader box. This mixture can cure in about one hour. The street may be closed to ensure that the treatment is not damaged. The expected repair life is typically 7-9 years. This preventative maintenance is performed on roadways that are in fairly good condition.

<u>Micro-Surfacing Streets</u>	<u>Estimated Cost</u>
Park Hill Road: 1,000' West of Greenleaf Drive to the T Intersection	\$ 29,000
Ryan Road: Florence Road to Brookside Circle	<u>\$107,000</u>
TOTAL	\$136,000

Micro-Surfacing Schedule: The micro-surfacing project will be included in the Pavement Contract discussed above.

RECLAIM

A roadway that is reclaimed is mechanically ground, removing all existing layers of pavement. The material can be used to repair or supplement the road's gravel base as needed. Excess material is stockpiled for use by the DPW. The road base is graded and compacted before base and top courses of new pavement are installed. Structures are adjusted and may be rebuilt if required. The expected repair life is typically 18-22 years. DPW uses information from the VHB asset management to determine what streets are appropriate for reclaiming and we use the VHB benefit value as a guide to prioritizing street candidates for reclaiming. For this year, Audubon Road from Reservoir and River Roads is scheduled for reclaiming in conjunction with water line replacement in the roadway and to the Audubon Road tank, and drainage improvements, including a box culvert replacement near Leeds center. Day Avenue from Bridge Street to North Street will also be reclaimed in conjunction with water, sewer, drain utilities along with the installation of sidewalk and curbing.

<u>Reclaim Streets</u>	<u>Estimated Cost</u>
Audubon Road: Reservoir & River Road to 2,600' Westerly and Kennedy Road to 600' Easterly	\$225,000
Day Avenue: Bridge Street to North Street	<u>\$125,000</u>
TOTAL	\$350,000

Reclaim Schedule: Bids for Audubon Road were opened on February 23, 2017. The low bid contractor was Borges Construction Inc. of Ludlow, MA. Bids for Day Avenue were opened on February 1, 2017. The low bid contractor was Caracas Construction Corp of Ludlow, MA. Both projects are expected to start in Spring 2017. Waterline and drainage work will precede the roadway reclaiming and repaving. It is anticipated that at least the base course of pavement will be installed by the end of the construction season. The bid price for the total Audubon Road project is \$958,202. The bid price for the total Day Avenue project, which also includes water line replacement on North Maple Street and North Farms Road to Country Way with a permanent trench patch, is \$1,084,640.

FULL DEPTH RECONSTRUCTION

Full depth reconstruction entails removing all the existing pavement and 12-18 inches of base gravel material, depending on the local soil conditions. New gravel base material to meet current specifications is then installed, graded and compacted before base and top courses of new pavement are placed. This process is the most expensive roadway treatment and is typically undertaken only when underground utility replacement is also being done. The expected repair life is typically 22 or more years. For this year, Hinckley Street is scheduled for full depth reconstruction in conjunction with the replacement of water, sewer and drain lines, reconfiguration of drain lines that includes a new outfall, slope stabilization and a drainage access road off Riverside Drive, and replacement of existing and installation of new sidewalks. The estimated cost for the total Hinckley Street project is \$3,000,000.

<u>Full Depth Reconstruction Streets</u>	<u>Estimated Cost</u>
Hinckley Street: Riverside Drive to South Main Street	<u>\$1,000,000</u>
TOTAL	\$1,000,000

Full Depth Reconstruction Schedule: Design and permitting for the project is complete. The project is currently out to bid with bids due on April 11, 2017 and construction is expected to start in late spring or early summer. The underground utility replacement and outfall work will precede the roadway reconstruction and repaving. It is hoped that the base course of pavement will be installed by the end of the construction season.

ROADWAY LINE PAINTING

The double yellow centerlines and white edge lines delineate the travel lane, bikes lanes, and parking lanes. Streets for this contract are generally chosen based on visual inspection. Roads that are heavily used such as King Street or Elm Street will be repainted annually. 460,000 linear feet of lines were painted in 2016. This work is paid from the highway general funds.

Line Painting Schedule: The work is expected to occur in Fall 2017.

STATE CHAPTER 90 FUNDS PROJECTS

Chapter 90 is a state reimbursement program for projects that involve maintaining, repairing, and reconstructing City streets. Other eligible uses include engineering design services and personnel for site inspection. Several construction and resurfacing projects listed on the previous pages are partially funded using the Chapter 90 program. For FY17, \$1.01 million was allocated for Northampton. For FY18, as mentioned above, \$1.01 million has been apportioned to the City. Funds for each community are determined by the number of accepted road miles, the population, and employment. The following design projects span over multiple fiscal years.

Current Chapter 90 Projects (Requested Funds)

Chesterfield Road Survey (\$8,000)

- Northeast Survey Consultants was hired to perform surveying services on Chesterfield Road for future roadway improvements. This included 2,600 linear feet of the roadway from Spring Street to Shepards Hollow.

Sidewalk Inventory (\$32,000)

- Alta Planning + Design is creating a City-wide sidewalk inventory. The sidewalk condition is collected using handheld systems developed by the Georgia Institute of Technology. This work also includes inspections for wheelchair ramps and driveway curb cuts. Alta will identify gaps in the network and generate a priority list of construction and reconstruction projects. Additional funding for this contract was provided by a City capital improvement allocation for sidewalks. The maps and report generated from this inventory will be the basis for future sidewalk improvements.

King Street Corridor Design (\$200,000)

- Fuss & O'Neill has a contract for the design work of King Street between Bright Street and the signalized rail trail crossing. This includes reducing the traveled way to one lane in each direction, realignment of Summer Street towards North Street, reconstructed sidewalks and driveways, bike lanes, a traffic signal at the intersection of Finn Street and State Street, pedestrian signals, and updated traffic signal timings. Pre-25% plans have been submitted to the Massachusetts Department of Transportation (MassDOT) for review. The construction will be federally funded under the Transportation Improvement Program and is planned for 2021.

Pleasant Street Corridor Improvements (\$82,500)

- Nitsch Engineering has designed improvements on Pleasant Street between Hampton Avenue to Hockanum Road. This includes a raised intersection at the rail trail crossing, multiple raised crosswalks, separated bike lane between Holyoke Street and Hockanum Road, localized sidewalk reconstruction, realignment of Hockanum Road, and landscaping. The construction will be funded by a Massworks Grant and MassDOT Complete Streets Funding. The project has been awarded to JBL Construction and work is scheduled to begin this spring.

Pavement Management Services (\$12,000)

- The City has an annual contract with Vanasse Hangen Brustlin (VHB) for pavement management services. VHB evaluates the pavement condition for a quarter of the City's streets each year and updates the database. This allows the City to see the condition of all the road segments and to generate a paving list based on this data.

Audubon Road Engineering Design Services (\$40,000)

- Tighe & Bond has an engineering contract for the replacement of the drainage and water utilities in Audubon road as well as reclaiming the roadway section from Reservoir Road to a point 2,600 feet westerly. This contract includes design, permitting, bidding, construction administration, and resident inspection services.

Hinckley Street Engineering Design Services (\$83,000)

- Kleinfelder has a contract for geotechnical design and construction oversight services for slope stabilization off of Riverside Drive adjacent to the Mill River. This is associated with the reconstruction of Hinckley Street. The design includes a new drainage outfall, an access road for maintenance, and retaining walls.

Day Avenue Engineering Design Services (\$8,100)

- Tata & Howard has a contract for the design, bidding, and construction administration services for Day Avenue. The design includes reclaiming the roadway section and reconstructing the sidewalk and curbing in conjunction with the replacement of water, sewer, and drain utilities. Additional funding for this engineering contract was provided from water and sewer enterprise funds.

Future Chapter 90 Projects

Damon Road Right of Way Acquisition (\$TBD)

- The City has issued a request for proposals for right of way acquisition services for takings and easements on Damon Road. This work is being done for the planned reconstruction of Damon Road that will be overseen by MassDOT. Greenman-Peterson, Inc. has a contract with MassDOT for the design and right of way plans, but the City is responsible for property takings and easements. The project is currently scheduled to be bid in late 2018.

Burts Pit Road Survey (\$TBD)

- Professional surveying services will be performed on Burts Pit Road in FY18 for future roadway improvements. This will include approximately 7,200 linear feet of roadway. The future design work after surveying is completed will likely include reclaiming the pavement and utility improvements.