

Pavement Management Plan

Prepared for:
The Town of Carlisle, MA
66 Westford Street, Carlisle, MA 01741



Town of
Carlisle
MASSACHUSETTS



Nitsch Engineering



Baden
CONSULTING SERVICES

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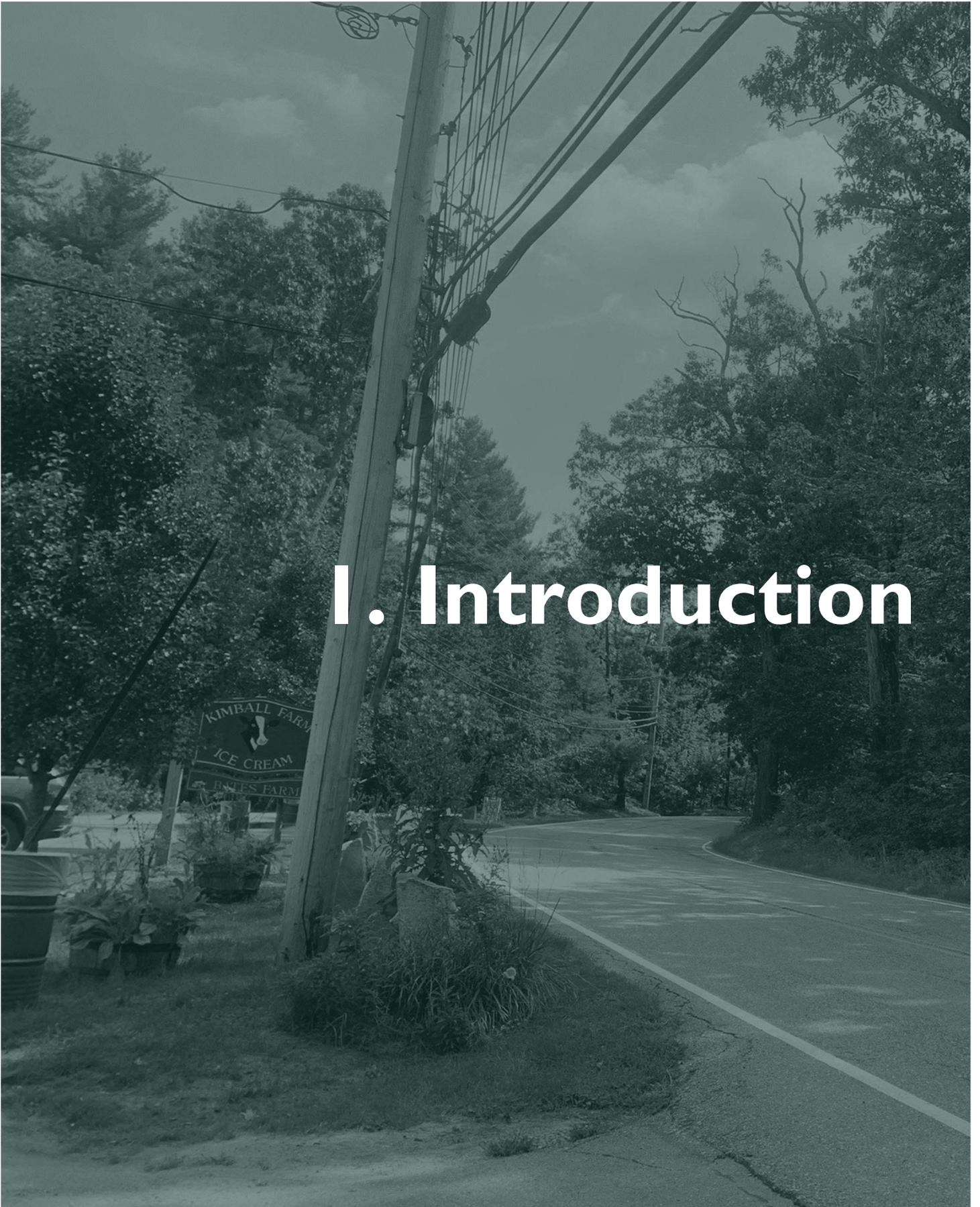
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I. Introduction

1 Introduction

Nitsch Engineering and their subconsultant, Baden Consulting Services, LLC (collectively, The Consultant) were retained by the Town of Carlisle to perform a pavement management study on the Town's road network. The purpose of the study is to document town-wide roadway pavement conditions, analyze roadway maintenance and rehabilitation budgetary needs, and develop a multi-year capital plan. This type of project is referred to as a "network level" pavement management study as it gives a high-level view of the status of the pavement assets, and the initial steps in development of work plans. This is typically the first step in the pavement management process, which is then followed by finalizing project selection, project specific cost estimating and design, procurement, and construction phase oversight.

This report describes the theory and methodology of the pavement management study which includes development of a pavement management database, performing a condition rating on all Town maintained paved roadways, analysis of the road network conditions, budget analysis, and the beginning steps in road program development.

1.1 Pavement Management Theory

Pavement management is the practice of planning for pavement repairs and maintenance with the goal of maximizing the value and life of a pavement network. To accomplish this, a community needs to have several repair techniques in its arsenal and the knowledge of when to apply them. This is where pavement management comes into play. With a comprehensive database of road conditions, the pavement management plan can model when to perform which repairs on a road network. Engineering judgment is required to finalize any list of road repairs. Resources can be allocated based on cost effectiveness, similar maintenance needs, and priority roadway types.

The nine major pavement distress types are grouped into two categories: base related stresses and surface related stresses. Base related stresses include potholes, alligator cracking, distortion, and rutting. Surface related stresses include block cracking, transverse/longitudinal cracking, bleeding/polished aggregate, surface wear or raveling, and corrugations/shoving/slippage. See Figure 1 to Figure 9 for examples of various distress types.

These distresses are caused by a number of items, such as aging, poor sub-soils, inadequate asphalt material in the asphalt mix, failing surface course, overloading of pavement, or failing pavement structure.

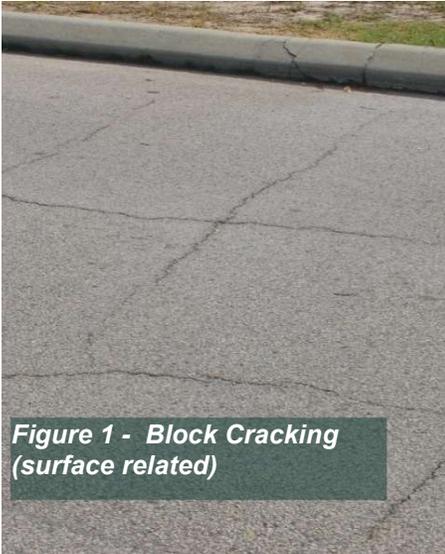


Figure 1 - Block Cracking
(surface related)



Figure 2 - Raveling
(surface related)

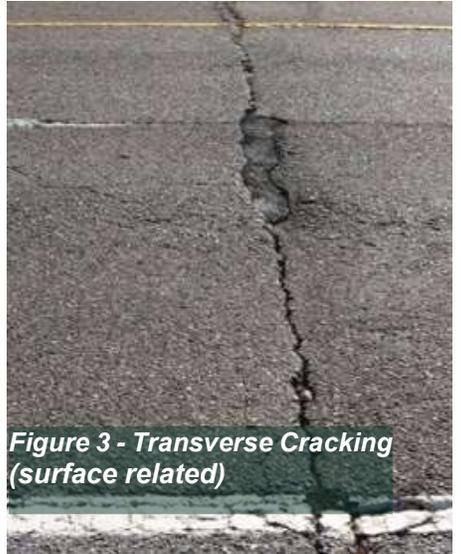


Figure 3 - Transverse Cracking
(surface related)

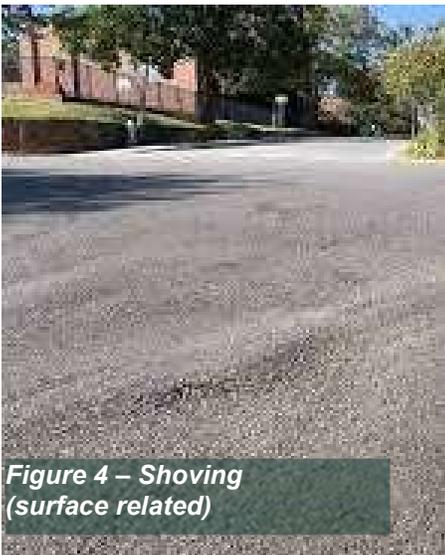


Figure 4 - Shoving
(surface related)



Figure 5 - Bleeding
(surface related)

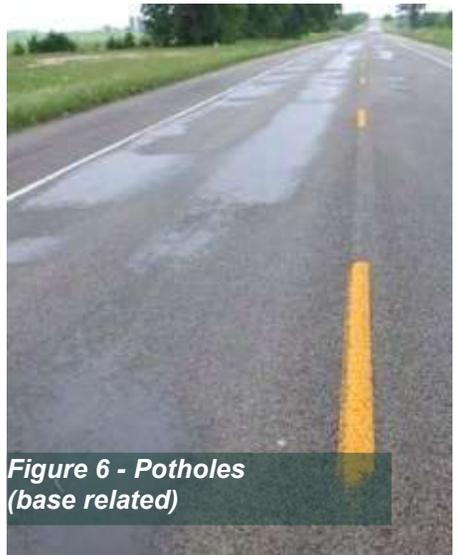


Figure 6 - Potholes
(base related)



Figure 7 - Rutting
(base related)

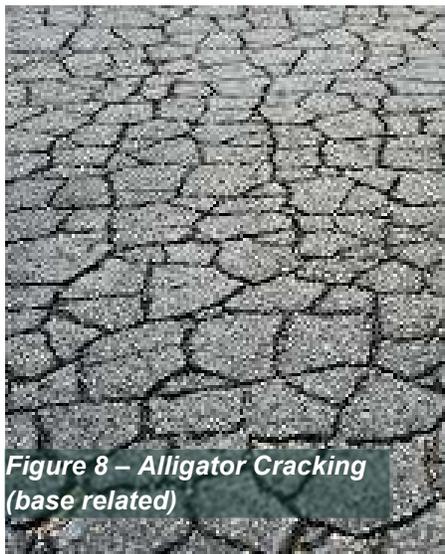


Figure 8 - Alligator Cracking
(base related)

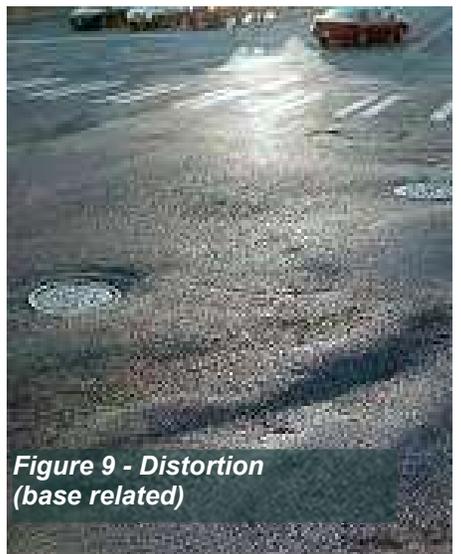


Figure 9 - Distortion
(base related)

Typically, the condition of a given segment of pavement corresponds to the age of the pavement. Older pavement segments show more signs of deterioration/distress, and deterioration accelerates if early repairs are not made. Correspondingly, maintenance costs increase as time passes; the longer a segment goes without repair, the more intensive and expensive the repairs will ultimately be to return that pavement to good condition. Figure 10 shows the approximate cost over time based on the condition of the pavement. The unit costs shown are typical approximate costs.

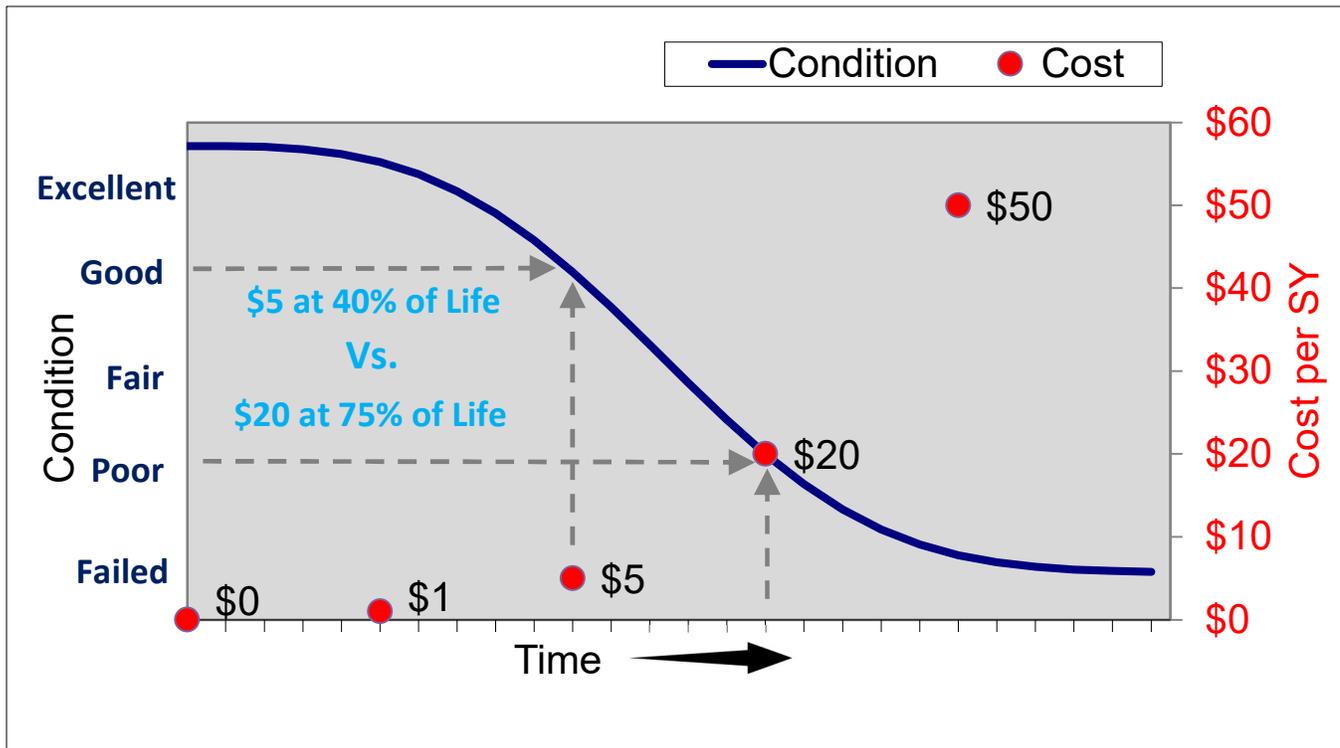


Figure 10 - Pavement Condition and Cost Over Time

1.2 The Pavement Condition Index (PCI)

The Pavement Condition Index (PCI) is a measure of a segment of pavement’s maintenance needs. The severity and extent of the nine major distress types described above are entered into a weighted formula to determine the PCI. The PCI is reported on a scale from zero to 100, with zero representing a roadway that is impassable, and 100 representing a roadway in perfect condition. These PCI values are then categorized into treatment bands that describe the roadway’s maintenance needs, as shown in Table 1. Common distress types are shown above, and common repairs for each treatment band are described in Section 3. Many distress types and their associated repair types are applicable to multiple treatment bands.

Table 1 - Treatment Bands for Varying PCIs

| Treatment Band | PCI * | Condition Rating | Maintenance Description |
|--------------------------|----------|------------------|--|
| Do Nothing | 93 - 100 | Excellent | No to minimal maintenance required |
| Routine Maintenance | 83 - 92 | Good | May need crack sealing or minor localized repair |
| Preventative Maintenance | 73 - 82 | Fair | Pavement surface may need surface treatment, full depth patch and/or crack sealing |
| Structural Overlay | 56 - 72 | Deficient | Pavement surface structure in need of added strength for existing traffic. Typical repairs are overlay with or without milling or leveling |
| Base Rehabilitation | 0 - 55 | Poor | In need of base improvement. Typical repairs are reclamation or full depth reconstruction |

*PCI ranges to be calibrated based on 5-year plan

PCI is calculated based on a variety of factors during site observations. We calculate PCI based on a weighted equation of the 9 distresses, ranked low-medium-high, and the apparent percentage they are observed on the roadway. A PCI was generated for each inventoried roadway section in Carlisle using visual observation of the surface distresses. Each type of observed pavement distress is assigned a deduct value based on the type, severity, and extent of the distress. A weighted sum of the deduct points is subtracted from the perfect “one hundred” road in order to generate a PCI for each pavement management section, as shown in the equation below:

PCI Is Calculated as:

$$100 - (\text{Highest Deduct Value}) - (25\% \text{ of remaining base related deduct values}) - (10\% \text{ of remaining surface related deduct values})$$

In general, base related (pavement foundation) distresses are weighted more heavily than surface related distresses. An example of deducts for medium block cracking (5%) and alligator cracking (20%) are shown in Table 2.

Table 2 - Example Distress Deduct Values

| <u>Distress</u> | <u>Severity</u> | <u>Extent Coverage</u> | <u>Deduct Value</u> |
|--------------------|-----------------|------------------------|---------------------|
| Block Cracking | Medium | 1) 5% | 5 |
| Alligator Cracking | Medium | 2) 5% | 20 |

During our observations, an experienced pavement technician located, identified, and rated all pavement distresses along each roadway segment. The observed distresses were used to calculate the PCI for each segment. It should be noted that the PCI is based on visual observations of the pavement surface and cannot always be indicative of subsurface conditions. Therefore, subsurface testing, such as test pits and pavement cores, is recommended to analyze the pavement structure, where such conditions will have a considerable effect on project cost and effectiveness. Appendix A and Appendix B show the backlog of reports by street name and by reported PCI, respectively. Appendix C shows a summary of the distresses identified on each roadway segment and the corresponding PCI.

The following sections provide a detailed description of the roadway conditions for each treatment band shown in Table 1.

1.2.1 Do Nothing (PCI 93 – 100)

The Do Nothing treatment band describes pavement that is in good condition and requires no maintenance currently. Any existing distresses are minor and do not require repair but should be monitored for future deterioration. Figure 11 shows an example of a roadway with a “Do Nothing” PCI. Curve Street has a PCI of 94 and is in excellent condition.



1.2.2 Routine Maintenance (PCI 83 – 92)

The Routine Maintenance treatment band describes pavement that is still in good condition, but some localized maintenance tasks and repairs are recommended to limit future, higher cost maintenance interventions. Distresses are localized and primarily surface level. Common distress types seen at this level include minor transverse or longitudinal cracking. Figure 12 shows an example of pavement that falls into the Routine Maintenance band. This portion of Skeleton Road has a PCI of 88 and is in good condition.



1.2.3 Preventative Maintenance (PCI 73 – 82)

The Preventative Maintenance treatment band describes roadways in fair condition. Some more extensive repairs may be needed. Distresses are generalized and located throughout the pavement structure. Common distress types seen at this level include minor transverse or longitudinal cracking, localized raveling, and other low severity distresses. Figure 13 shows an example of pavement in need of Preventative Maintenance to ensure the current roadway condition does not further deteriorate.



1.2.4 Structural Overlay (PCI 56 – 72)

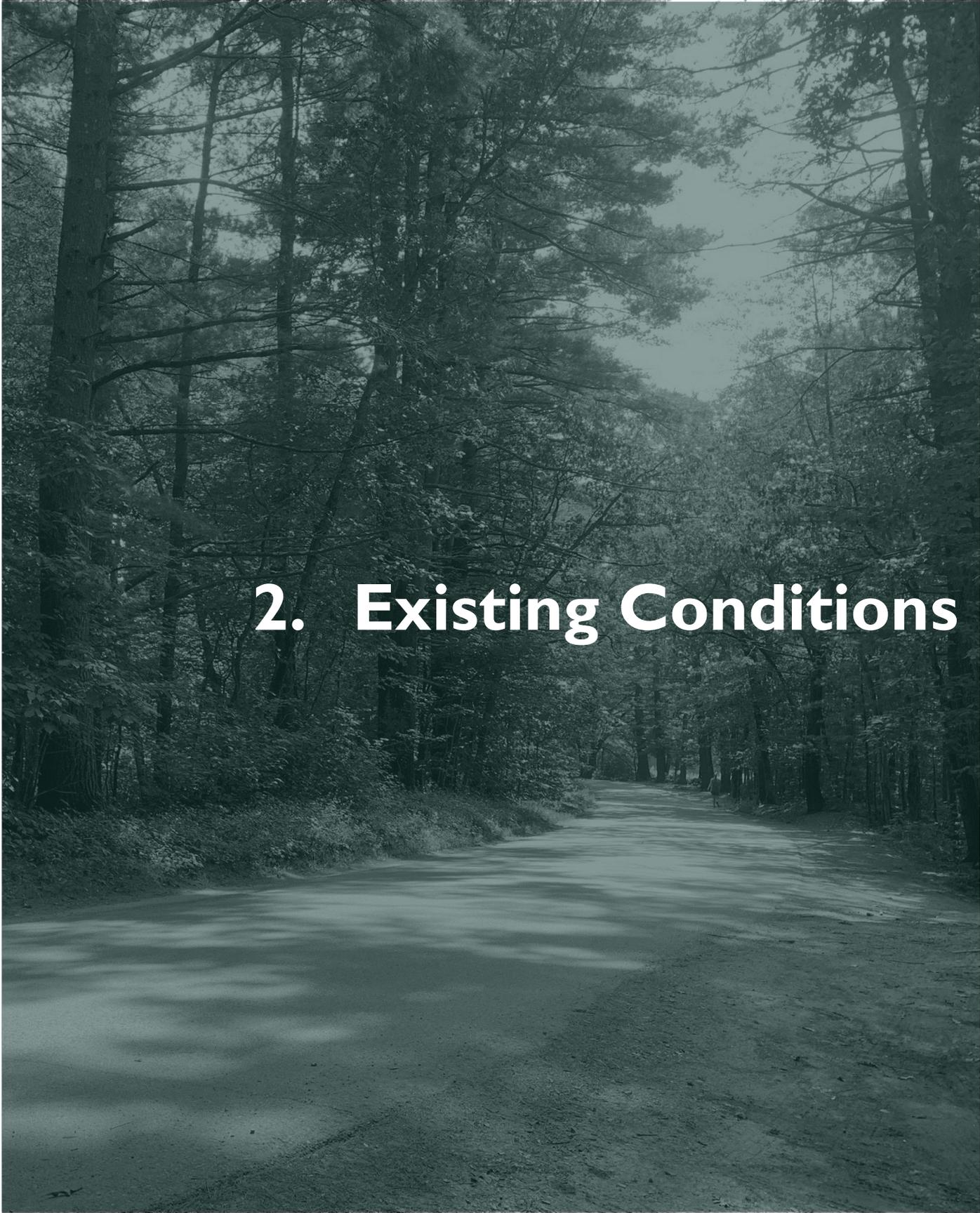
Structural Overlay describes a pavement condition where the existing pavement surface needs an additional strengthening HMA layer to continue to handle traffic adequately. Common distress types include extensive transverse and longitudinal cracking, block cracking, raveling including some aggregate loss, and moderate levels of other distresses. Figure 14 shows pavement along North Road that has a PCI of 52, falling in the Structural Overlay treatment band.



1.2.5 Base Rehabilitation (PCI 0 – 55)

The Base Rehabilitation treatment band describes pavement structures that need significant structural repairs. Common distress types include alligator cracking, major transverse or longitudinal cracking, potholes, distortion, and rutting. Figure 15 shows pavement along Prospect Street in need of Base Rehabilitation. Alligator cracking, potholes, and some rutting can be seen, indicating that the roadway pavement structure has failed.





2. Existing Conditions

2 Existing Conditions

Network Identification builds an inventory of Roads describing Carlisle's complete roadway network. The direction of travel, road length, width, one-way status, ownership, functional classification, and pavement type are among the items identified at this initial phase in the pavement management process.

Based on the pavement observations performed in 2023, the average Pavement Condition Index (PCI) for Carlisle is 75.7 (76) for all town owned roadways. Based on our observations and measurements, we rated 31,085 linear feet of town owned roads, or 58.88 miles. Figure 16 below shows the Town's average PCI in context with the common treatment bands. Thus, the "average" Carlisle road needs preventative maintenance before more expensive structural improvements are needed. Overall, the townwide average for the PCI is adequate and the Town is recommended to continue maintaining and investing in the pavement to not lower the PCI index. As discussed further, the higher volume roadways have a higher than average PCI, while local low volume roadways appear to have lower than average PCIs. This means that previous pavement management work in town was primarily focused on high volume roadways.

Based on the existing inventory, we created a GIS map to visualize the existing roadway conditions inventory. This GIS map identifies each segment of roadway and its associated PCI, estimated cost, and functional classification. Each segment of road can be selected to view its specific characteristics, recommended repair types, and cost of repair per square yard. Using this tool, the Town of Carlisle can identify key neighborhoods for repair, assess emergency routes, and group repairs by type and potential impact.

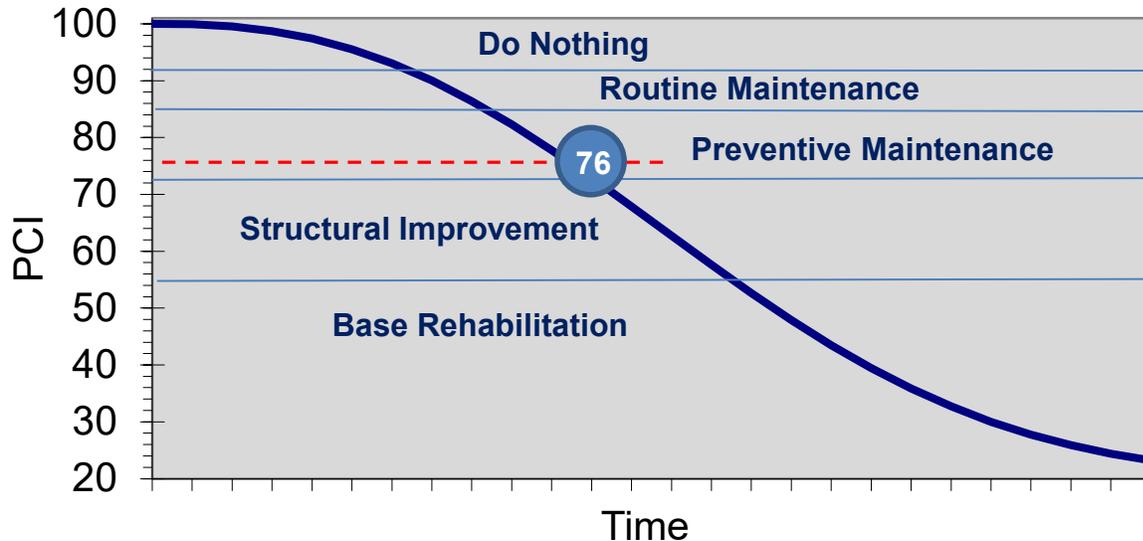


Figure 16 - Average PCI vs Treatment Bands

2.1 Review and Analysis of Existing Conditions

We reviewed existing conditions of all roadways through field observations and recorded measurements. This information was compiled and analyzed to understand which roadways are most in need of repair. Each roadway was divided into segments based on roadway size and pavement condition. Roadway segments were split into

segments from intersecting streets and by a significant change in pavement condition. This was done so that if different sections of a roadway need different pavement treatments, they can be programmed accordingly.

The Town of Carlisle currently has 59 miles of roadway with pavement structures in various states of repair. These 59 miles of centerline roadways can be functionally classified into Urban Minor Arterials (9 miles), Urban Collectors (8 miles), and Local Roadways (42 miles). Roadway functional classification organizes roadways into categories based on their intended function within the overall traffic network. The highest use roadways are arterials to connect neighborhoods and municipalities, followed by collectors which funnel local traffic to arterials from local roadways. Local roadways serve small neighborhood level traffic and connect to collectors, typically residential, low volume streets. Typical traffic volumes decrease from arterials to collectors to local roadways. All of Carlisle’s roadways are two lane roads, with varying shoulder widths. Figure 17 below shows the breakdown of roadway miles in Carlisle based on functional classification.

| Functional Classification | Length (mi) |
|---------------------------|-------------|
| Local | 42 |
| Urban Minor Arterial | 9 |
| Urban Collector | 8 |
| Total | 59 |

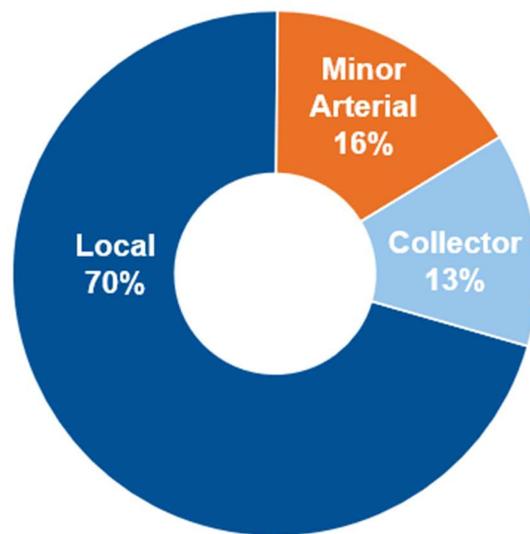


Figure 17 - Roadway Miles by Functional Classification

As shown in the figure above, most of Carlisle’s roadway network is local type roadways. Arterials and Collectors make up less than a third of the total roadways, by mileage.

The street network is defined by a series of intersections between Lowell Street, East Street, Concord Street, Bedford Road, and Westford Street. These four Urban Minor Arterials extend from their intersection at the center of Carlisle to the town limits, dividing the town into four distinct quadrants. Each of these quadrants has a smaller network of Urban Collectors and Local Roads that connect residents from their homes to destinations throughout the town.

Appendix D contains roadway assessment maps showing Massachusetts Department of Transportation (MassDOT) Functional Classifications and PCI data.

2.2 Summary of Roadway Condition by Roadway Classifications

This average PCI can be further broken out by functional roadway class. Based on functional class, the Urban Minor Arterials in Carlisle are in the best condition, with an average PCI of 85, and on average require only routine maintenance. Urban Collectors have a collective PCI of 72, and Local Roads have a collective PCI of 71. The average pavement on both Urban Collectors and/or Local Roads thus needs Structural Improvement. See Figure 18 below.

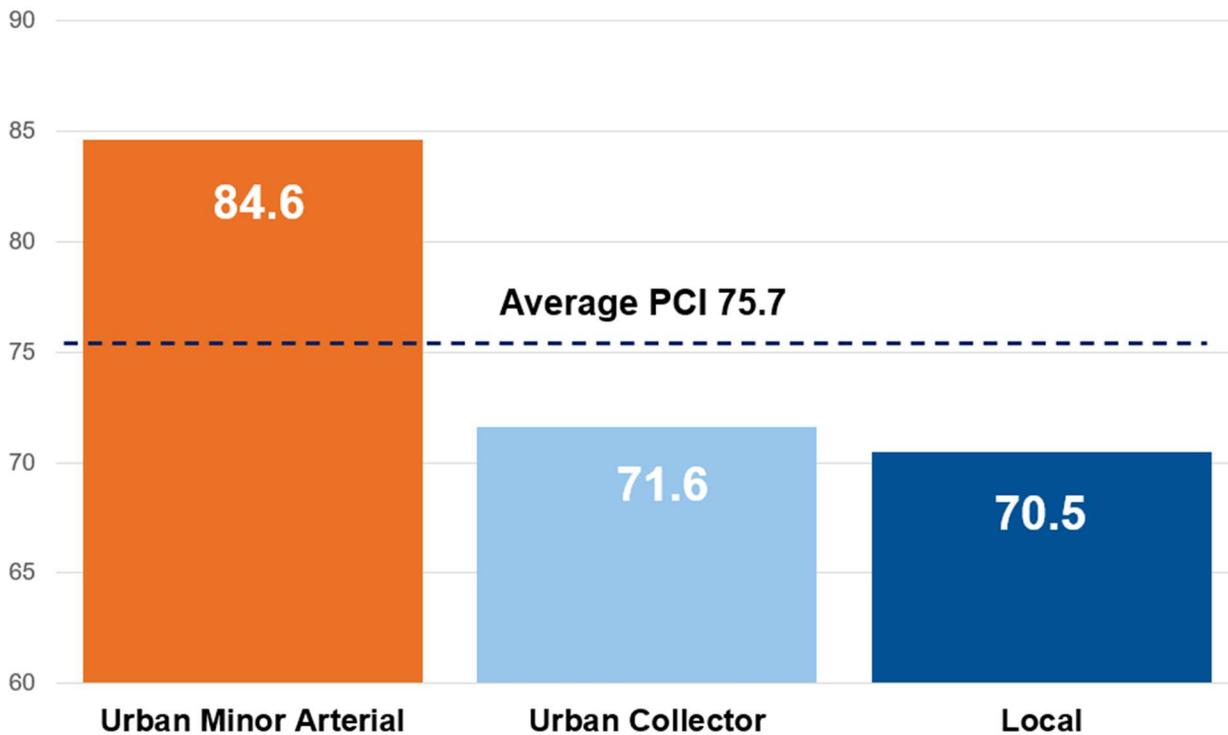


Figure 18 - Average PCI by Functional Class

2.2.1 Urban Minor Arterials

Urban Minor Arterials make up nine miles of Carlisle's centerline roadway miles. These roadways are characterized by higher traffic volumes and connect between neighborhoods, serving major activity centers as well as larger arterials. In Carlisle, the Urban Minor Arterials include Westford Street, Bedford Road, and Lowell Street.

Based on our assessments, the Urban Minor Arterials in Carlisle are generally in good condition, with an average PCI of 85 and thus in need of routine maintenance to keep the pavement in a state of good repair. The conditions range from a PCI of 45 along Proctor Street to a PCI of 98 along portions of Lowell Street, Westford Street, Concord Street, and Bedford Road. Figure 19 below shows the breakdown of the arterial roadways based on the treatment band. From this data, it appears that the arterials have been previously well maintained, as only 2% is slated for major maintenance. The majority of the roadways require some preventative or routine maintenance. It shall be noted that the Town has historically milled and overlaid their arterial and collector roads, which may make the surface appear in better condition than the sub-surface conditions. These roadways shall be closely monitored to see if pavement distresses are noticed sooner than expected, meaning base rehabilitation may be required.

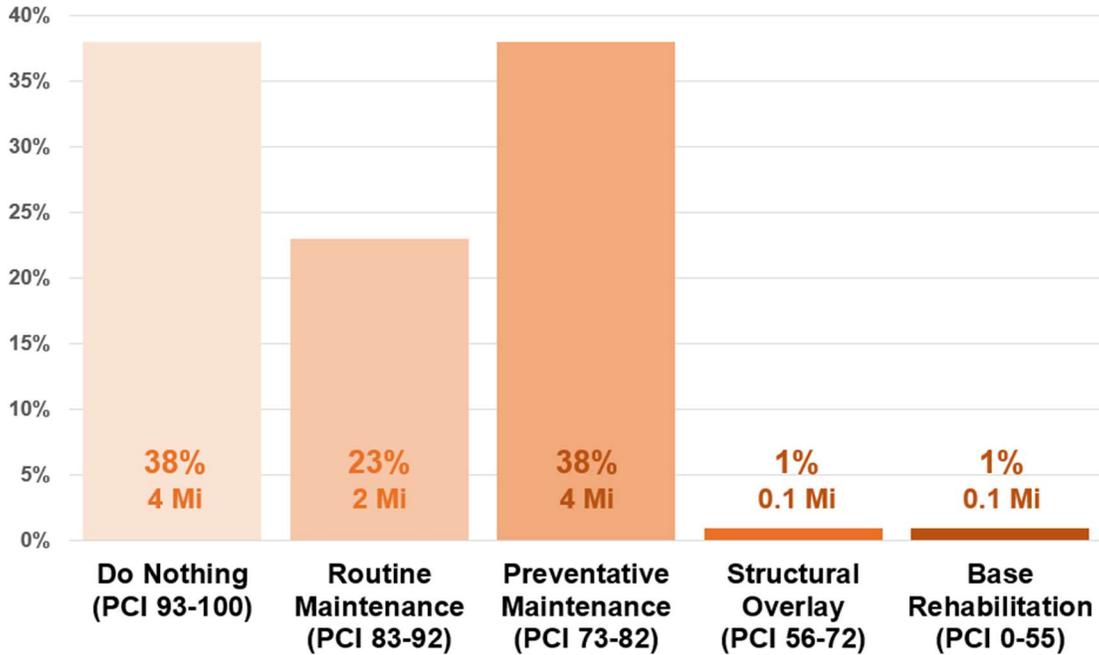


Figure 19 - Distribution of Treatment Bands along Urban Minor Arterials

2.2.2 Urban Collectors

Urban Collectors make up eight of Carlisle’s centerline roadway miles. As the name suggests, these roads collect drivers from local roadways and distribute them to neighborhood destinations and to larger arterial roads, allowing for traffic circulation. In Carlisle, examples of Urban Collectors include River Road, Church Street, and South Street.

Based on our assessments, the Urban Collectors in Carlisle are generally in fair condition, with an average PCI of 72. The average Urban Collector needs some amount of preventative maintenance to inhibit further deterioration and extend pavement useful life. The conditions of Urban Collectors vary widely, ranging from a PCI of 39 along Church Street to a PCI of 100 along East Street. Figure 20 below shows the breakdown of the collector roadways based on the treatment band. From this data, it appears that some of the collector roadways have been well maintained, but others will require more intensive repair work. It shall be noted that the Town has historically milled and overlaid their arterial and collector roads, which may make the surface appear in better condition than the sub-surface conditions. These roadways shall be closely monitored to see if pavement distresses are noticed sooner than expected, meaning base rehabilitation may be required.

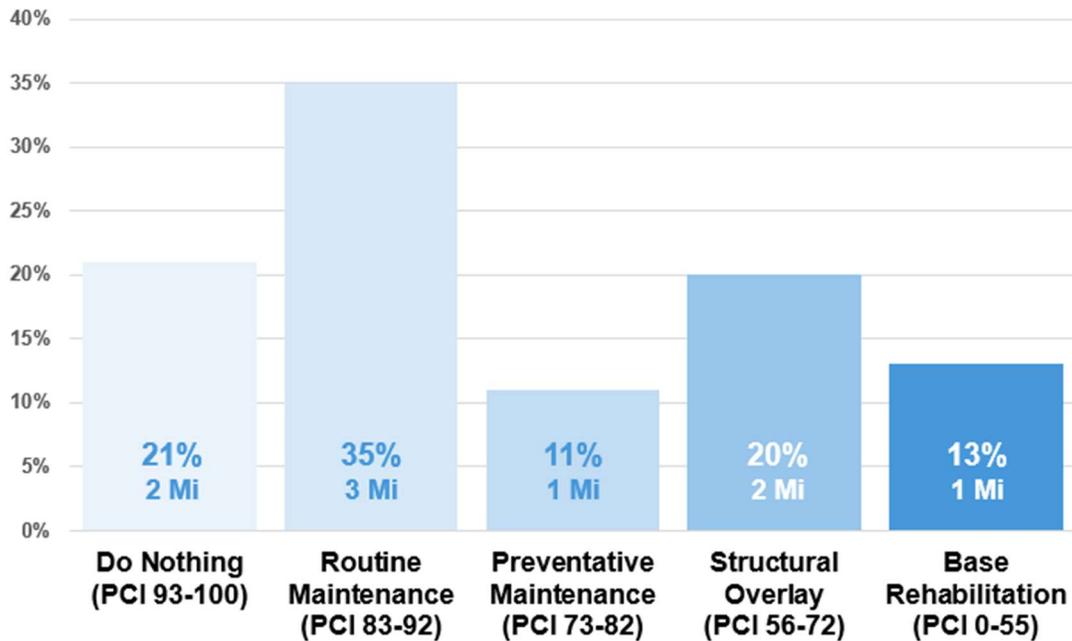


Figure 20 - Distribution of Treatment Bands along Urban Collectors

2.2.3 Local Roadways

Local Roadways make up most of Carlisle’s centerline roadway miles. These roadways are small, one or two lane roads and serve primarily neighborhood traffic by providing direct access to abutting land. In Carlisle, examples of Local Roads include Prospect Street, Berry Corner Lane, and Red Pine Drive.

Based on our assessments, the Local Roadways are generally in fair condition, with an average PCI of 71. The average Local Roadway in Carlisle needs preventative maintenance to inhibit further deterioration and extend pavement useful life. The conditions of the Local Roadways vary widely, from a PCI of 39 along Church Street to a PCI of 100 along sections of Patch Meadow Lane, Pheasant Hill Lane, and Pine Brook Road. Figure 21 shows the breakdown of the local roadways based on the treatment band. From this data, it appears that most of the local roadways need major repairs to improve the pavement condition.

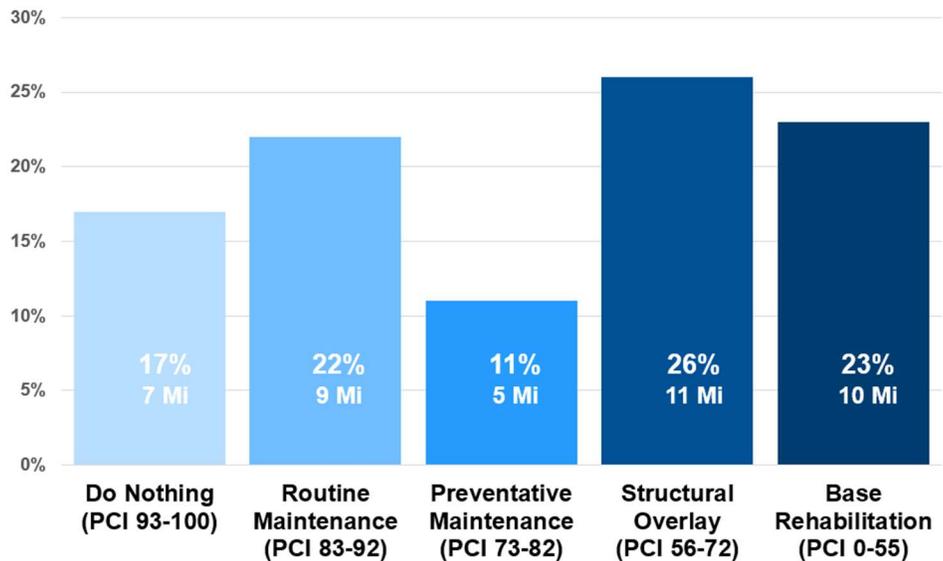


Figure 21 - Distribution of Treatment Bands along Local Roadways



3. Treatment Techniques

3 Treatment Techniques

Below is a description of typical treatment techniques per treatment band. On February 29, 2024, we discussed which treatments were appropriate for the Town based on their pavement needs, vehicle impacts, and cost benefits, and we incorporated these preferred treatments into the final pavement management plan.

3.1 Do Nothing (93 – 100)

The Do Nothing treatment band contains roadways that require no maintenance. These roadways, or segments of roadway, are in excellent condition. No maintenance is immediately needed; therefore, no treatments are assigned to this band. In Carlisle, 13 miles, or 22%, of roadway have a PCI ranging from 93 to 100.

3.2 Routine Maintenance (PCI 83 – 92)

The Routine Maintenance treatment band encompasses roadways that need some minor maintenance and repairs to limit future maintenance interventions. Common repairs at this treatment band include crack sealing, fog sealing, and full depth patching. Seals are designed to prevent moisture/water intrusion and limit further deterioration. They function best when applied before extensive cracking occurs. In Carlisle, 14 miles, or 24%, of roadway have a PCI ranging from 83 to 92 and will have an extended pavement life with proper maintenance. Below are more detailed descriptions of different treatments that may be used.

3.2.1.1 Crack seal

Crack sealing involves placing hot liquid asphalt over cracks within the roadway. The main purpose is to seal the cracks to limit water intrusion and the cracks becoming deeper. This repair seals cracks to help prevent further failures such as potholes and subbase deterioration. Crack sealant is applied to cracks greater than 0.125 inch wide and is often used after milling in preparation for overlays or other global surface treatments. This repair is typically the most cost effective to gain years of extended pavement life and can extend pavement life by about three to five years. The Town expressed interest in the use of crack sealant as the primary strategy for routine maintenance to extend the life on their roadways. There are a variety of roadways where crack sealant could assist in extending the life of the roads.



3.2.1.2 Fog seal

Fog sealant consists of a single application of emulsified asphalt to an existing asphalt surface. This application is typically light and can help renew oxidized HMA surfaces to seal minor cracks and surface voids, limit raveling, and improve the appearance of the asphalt surface. This repair typically extends pavement life by about two to four years. The Town expressed interest in the use of fog seal treatment for routine maintenance only on an as-needed basis, and it would not be part of their typical maintenance program.



3.2.1.3 Full depth patching

A localized removal and replacement of the full pavement structure typically at spot areas of failure or utility patches. This repair excavates the full pavement structure and replaces it with new gravel subbase and pavement layers. This repair type is used for localized pavement distresses or failure such as potholes. Care should be taken to ensure a smooth transition between the patch and the surrounding pavement, consisting of off-set joints. The Town agreed with the benefits of full depth patching for preventative maintenance and extending the life of the Carlisle roadways. This will be a primary strategy for the pavement management plan and will be used as needed by the Town for routine maintenance.



3.3 Preventative Maintenance (PCI 73 – 82)

The Preventative Maintenance treatment band describes roadways in fair condition. These roadways need additional maintenance activities such as sealing or providing a new wearing surface via micro-surfacing or ultra-thin lift hot mix asphalt. Ten miles, or 17%, of roads in Carlisle fall within this PCI band. Below are more detailed descriptions of different treatments that may be used.

3.3.1.1 Crack seal

Crack sealing involves placing hot liquid asphalt over cracks within the roadway. This repair seals cracks to help prevent further failures such as potholes and subbase deterioration. Crack sealant is applied to cracks greater than 0.125 inch wide and is often used after milling in preparation for overlays or other global surface treatments. This repair is typically the most cost effective to gain years of extended pavement life and can extend pavement life by about three to five years. The Town expressed interest in the use of crack sealant as the primary strategy for preventative maintenance to extend the life on their roadways. There are a variety of roadways where crack sealant could assist in extending the life of the roads.



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3.3.1.3 Chip seal

Chip seal consists of a combination of a single or multiple layers of asphalt binder and a layer(s) of small stone aggregate placed over the roadway. This repair seals minor cracks, provides a new wearing surface, and prevents raveling. The chip filler can be either stone or rubber. This treatment adds a new aggregate wearing surface and does not increase the roadway elevation. Chip seals can be combined with other types of repairs, and typically extend pavement life by about five to seven years. The Town expressed interest in the use of chip seal for preventative maintenance. However, there were concerns of driver and bicyclist comfort on the textured roadway and was therefore not selected as a primary treatment technique.



3.3.1.4 Full depth patching

Full depth patching consists of localized removal and replacement of the full pavement structure typically at spot areas of failure or utility patches. This repair excavates the full pavement structure and replaces it with new gravel subbase, and pavement layers. This repair type is used for localized pavement distresses or failure such as pot holes. Care should be taken to ensure a smooth transition between the patch and the surrounding pavement, consisting of off-set joints. The Town agreed with the benefits of full depth patching for preventative maintenance and extending the life of the Carlisle roadways. This will be a primary strategy for the pavement management plan and will be used as needed by the Town for preventative maintenance.



3.3.1.5 Slurry Seal

A slurry seal is a surface treatment that extends pavement useful life by renewing the wearing surface with a liquid seal. Slurry seals are designed to provide increased skid resistance and restrict moisture intrusion to minor cracks or voids in the surface course. The slurry mix adds no thickness to the roadway and restores a uniform black pavement surface. This repair can extend the pavement's useful life by about five to seven years. The Town decided that this technique may not be appropriate for typical pavement management in the Town and therefore was not selected for the program.



3.4 Structural Overlay (PCI 56 – 72)

Structural Overlay describes a pavement condition where the existing pavement surface needs additional strengthening to handle traffic. Common repairs include leveling and overlays. Thirteen miles, or 22%, of roads in Carlisle fall within this PCI band. Below are more detailed descriptions of different treatments that may be used:

3.4.1.1 Cold planing and overlay

Also known as mill and overlay, this repair removes the surface of the existing pavement by pavement milling, followed by a layer of hot mix asphalt, typically about two inches. Cold planing and overlay can correct rutting, raveling, and bleeding. This treatment can also be used to achieve a new cross slope or depth, by adjusting the thickness and level. This repair method is typically used as the traditional way to repair structural overlays. This repair type smooths the pavement, correcting drainage issues and some surface level raveling. This treatment has a higher initial cost than other preservation techniques but can extend a pavement's useful life by up to 15 years. This technique is appropriate for Carlisle Roads and cold planning and overlay is a primary strategy for addressing roads that fall within this PCI band. This technique was previously used by the Town for pavement management and was discussed with the Town to be the primary pavement management technique.



3.4.1.2 Hot in-place recycling

This method involves a train of equipment that first heats up the existing asphalt, removes the existing pavement between 0.75 inch to 2 inches, and mixes it with a recycling agent to form a new wearing surface. The new surface is placed into a paver and placed on the existing roadway. This repair type reuses and recycles the existing pavement structure, lowering materials costs. This option puts the roadway back in the existing location and grade, which does not allow for grade adjustments. It is most beneficial for longer roads due to its construction sequencing and mobilization. Hot in-place recycling can extend a pavement's useful life by seven to 15 years, depending on the existing pavement's material properties. This option was determined to not be feasible for the Town's pavement management program as it requires long roadway segments to be cost beneficial.



3.4.1.3 Cold in-place recycling

Alternatively, cold in-place recycling consists of milling the roadway surface and combining the milled material with a new recycling asphalt agent. The material is then placed back on the milled surface and compacted. This process is often followed by an additional sealing course to provide a better wearing surface, and to seal surface voids. Cold in-place recycling can add approximately 15 to 20 years to a pavement's useful life. This option was determined to not be feasible for the Town's pavement management program as it requires long roadway segments to be cost beneficial.



3.4.1.4 Full depth patching

A localized removal and replacement of the full pavement structure typically at spot areas of failure or utility patches. This repair excavates the full pavement structure and replaces it with new gravel subbase, and pavement layers. This repair type is used for localized pavement distresses or failure such as potholes. Care should be taken to ensure a smooth transition between the patch and the surrounding pavement, consisting of off-set joints. The Town agreed with the benefits of full-depth patching for structural overlay and extending the life of the Carlisle roadways. This will be a primary strategy for the pavement management plan and will be used as needed by the Town for structural overlay.



3.5 Base Rehabilitation (PCI 0 – 55)

The Base Rehabilitation treatment band describes pavement structures that need significant structural repairs. These repairs could include reclamation or full-depth reconstruction. Eleven miles, or 19%, of roads in Carlisle fall within this PCI band. Below are more detailed descriptions of different treatments that may be used:

3.5.1.1 Pavement reclamation

A process in which the existing pavement is pulverized in place with the existing subbase to generate a new gravel subbase. The reclaimed material is then graded and compacted in place, then paved over with new HMA layers. The in-place pulverizing typically occurs 12 to 18 inches deep to blend the existing subbase soils with the pulverized asphalt. This repair method typically raises the roadway elevation several inches or requires removal of a large amount of excess reclaimed borrow. This method has the benefit of not bringing in new gravel borrow, reducing excavation and construction timing, and allows the roadway to be re-graded. Testing shall be done to verify the sub-soils and existing HMA is adequate for re-use. This repair type can extend a pavement's segment life by up to 25 years, depending on the type of HMA courses. The Town decided that this is their preferred method of base rehabilitation for the pavement management program due to its cost effectiveness.



3.5.1.2 Full depth pavement

This method is a complete pavement replacement consisting of removal of the existing pavement structure and construction of an entire section of new pavement. This includes subgrade, subbase, base, wearing course, and other layers to achieve the desired thickness, grade, and smoothness. Full depth pavement installation creates opportunities for simultaneous utility upgrades/maintenance and realignment of roadways. This is the most expensive treatment, but provides 25 to 30 years of pavement life, if maintained. This treatment will only be utilized by the Town for pavement management when reclamation is not feasible, as it is more costly.





4. Budget Analysis

4 Budget Analysis

4.1 Budget Analysis Methodology

Once the roadway conditions were inventoried and analyzed, and the repair strategies were defined, the impact of various spending programs on the road network were assessed. Deterioration curves, unit costs, and the strategy table developed in the repair strategy definition phase are used to assign each road a repair type and associated cost for each year of the study. Each road is also assigned a benefit value that is used to determine which roads the software assumes will be repaired each year. It is important to understand that this study is a network-wide planning tool. Field verification and testing are recommended to confirm any road repair list generated.

Pavement management deals with the life cycle of pavement structure and the various repair treatments to maintain the pavement in good condition. The pavement management system and the various repair types utilized in the study do not directly address other physical improvements associated with a roadway. Some of the items, which might be encountered on a roadway project, include the storm drainage system, traffic signals, minor traffic items, sidewalks, and utility adjustments. To develop a reasonable cost of various improvements, the overall scope of a typical project associated with the various repair types was estimated to develop a network-level unit cost for the work. The actual scope of work and costs will vary for each individual roadway. Actual repair costs will need to be developed at the project level and may differ from the costs utilized in this study. The costs used to develop the plan were based on bids received by the Town in 2023.

To properly plan for future repairs, the budget analysis feature of the pavement management system uses deterioration curves, which estimate the rate at which the pavement condition decreases over time. In the pavement management system, each pavement segment can be assigned a custom curve; however, it is more common to develop families of curves that are developed for roads of common pavement type and functional class.

The budget analysis software prioritizes needed system repairs based on a calculated project “Benefit Value.” The Benefit Value is calculated using variables representing the average daily traffic (ADT), repair service life, PCI, and unit repair costs for each pavement management section. For each plan year, the software prepares a future roadway condition projection, exhausts the assigned budget, and then produces an annual list of roads included in the repair program. The Benefit Value prioritization process generally favors cost effective maintenance alternatives. Repair actions are typically delayed on those sections that require reconstruction or major rehabilitation because the benefits for dollars spent are generally lower than maintenance candidates. Following the preventative/routine maintenance of roadways in good repair, improvements are directed towards the poorer arterial and collector roads, and then to the local roads in need of major rehabilitation. This strategy is summarized in the equation below:

The Benefit Value is calculated as:

$$\text{Benefit Value} = \frac{\text{ADT} * \text{Life of Repair}}{\text{PCI} * \text{Unit Cost of Repair}}$$

4.2 Pavement Management Scenarios

A variety of pavement management scenarios were created to explore how the town can best allocate their funds. Figure 22 and Figure 23 below show the effects on town-wide PCI and backlog based on four different budget scenarios and Appendix E shows map views of the PCI. Budget scenarios can adjust year to year based on town-wide priorities and funding availability. Backlog was assessed by increasing the current \$9.1 million backlog by the projected deterioration, assuming a 4% annual inflation of construction cost.

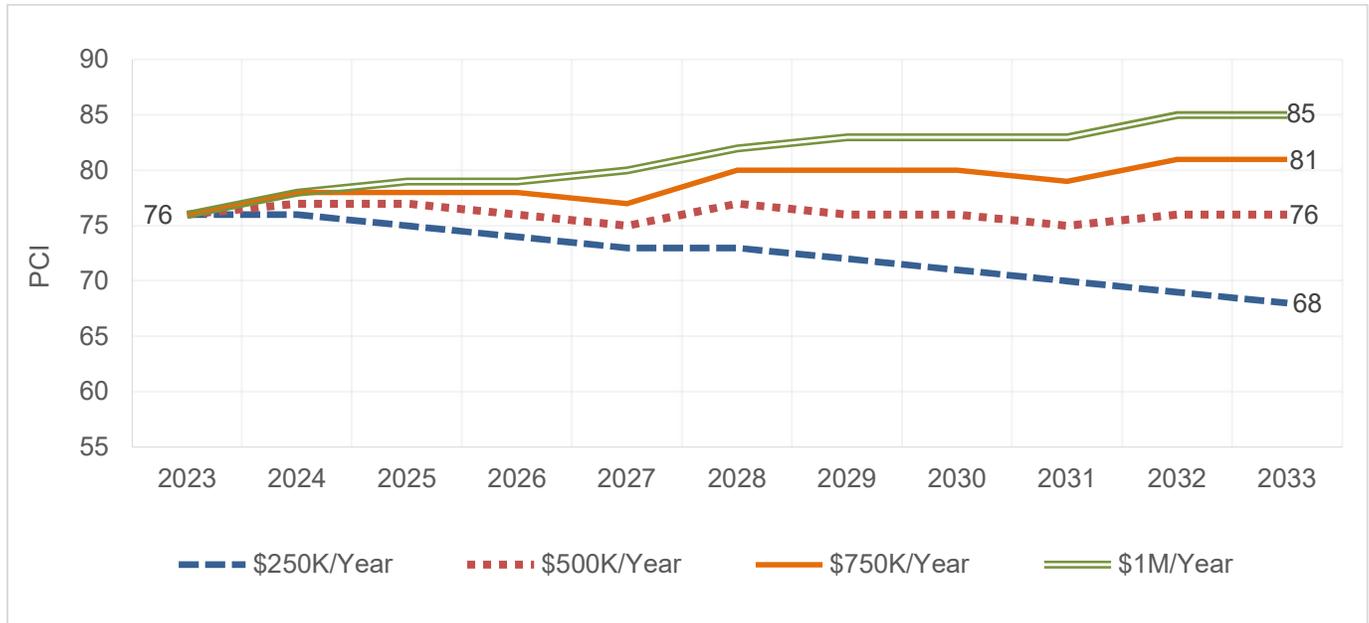


Figure 22 - Projected Townwide PCI by Budget Scenario

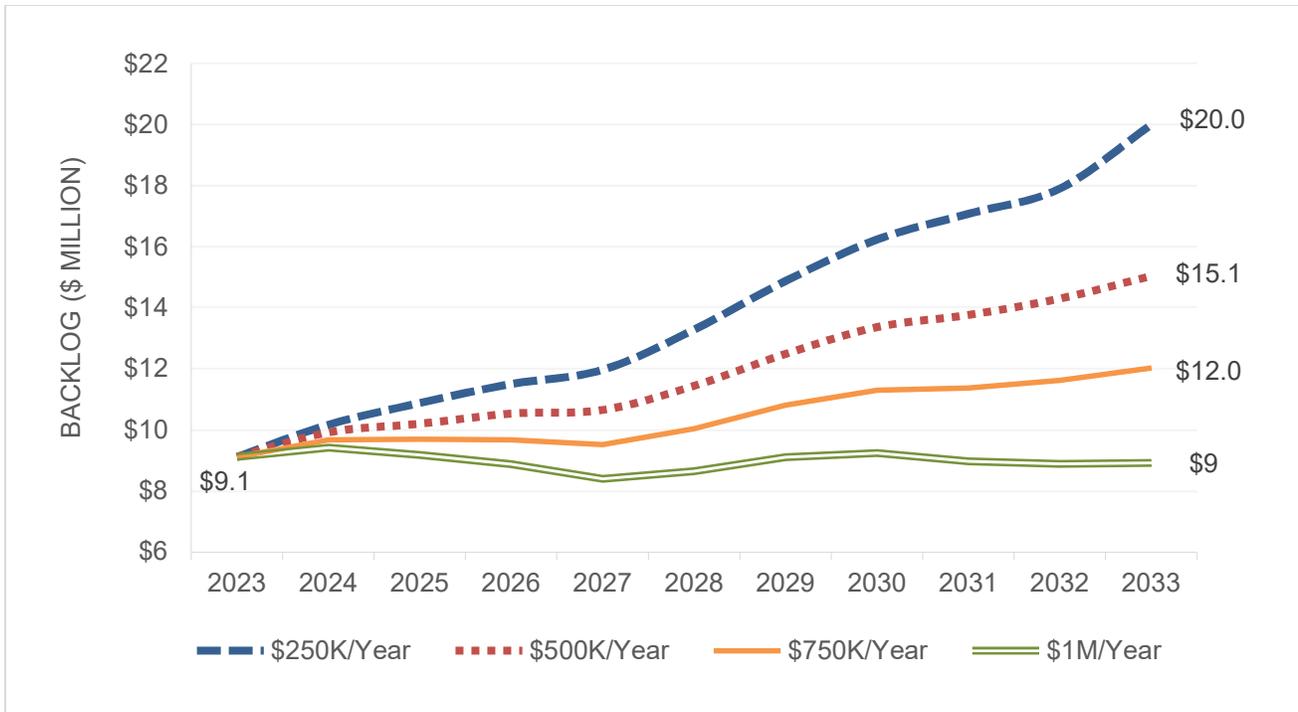


Figure 23 - Project Backlog by Budget Scenario

4.2.1 \$250,000 (Chapter 90 funds only)

Based on typical roadway deterioration, we estimate that Chapter 90 funds would be insufficient to maintain the current town-wide pavement condition. We understand that in 2023, Carlisle received approximately \$252,000 in Chapter 90 funding. At this funding level, the average PCI in the town would decline to 68 over a 10-year period. Additionally, the projected backlog over the same 10-year period would increase to \$20 million.

4.2.2 \$500,000 (town matches Chapter 90 funds)

Based on the analysis done here, we estimate that the town will need to at least match the Chapter 90 funding with equivalent additional funds to maintain current conditions over a 10-year period. This funding scenario would maintain the average town-wide PCI of 76 over the course of the 10-year period and would increase the backlog amount to \$15.1 million. Based on meetings with the town, this budget scenario is the preferred plan and is the basis for the future pavement management recommendations, which is further explained later herein.

4.2.3 \$750,000

Based on typical roadway deterioration, we estimate that a total annual pavement budget of \$750,000 would increase the Town's average town-wide PCI from 76 to 81 over the 10-year period. This funding scenario would increase the average PCI, but the backlog would continue to increase from \$9.1 million to \$12 million over the 10-year study period.

4.2.4 \$1 million

Based on our analysis, we estimate that \$1,000,000 total annual expenditure on the road program for a 10-year period would increase the town-wide average PCI from 76 to 85. This is the only funding scenario in which the backlog decreases, from \$9.1 million to \$9 million over 10 years.

4.3 Stakeholder Engagement

Nitsch Engineering and Baden Consulting Services attended meetings with the Town of Carlisle for input on pavement management priorities and budget preferences before finalizing recommendations and the recommended plan.

4.3.1 Selectboard Meeting

On December 19, 2023, we presented at a Selectboard Meeting at Town Hall in Carlisle. The goal of the presentation was to provide an overview of the existing conditions, asphalt distress and typical treatments, as well as to present the pavement management funding scenarios. We presented common types of distresses seen in asphalt within the Town, including types of surface and base stresses, and discussed the corresponding PCI and treatments bands associated with the distresses. Roads in Carlisle, with their PCIs, were shown to provide an example of pavement conditions throughout the Town. We then presented on the current conditions of pavement in Carlisle, which was broken down by functional classifications, and preliminary projections of roadway conditions under different funding scenarios. The funding discussion was provided to present how much funding would be required in maintaining or improving the average PCI overtime. The presentation concluded with discussions of pavement management goals, and we provided the Town with a draft report and preliminary findings for review.

4.3.2 Public Works Meeting

On February 29, 2024, we met with town officials to discuss treatment techniques that are appropriate for the proposed pavement management plan, and the preferred funding for a pavement management plan. Treatment techniques were broken down into categories corresponding to needed pavement repair, including routine maintenance, preventative maintenance, structural overlay, and base rehabilitation. The Town discussed which treatment techniques were appropriate and the different budget scenarios for future town pavement management. Discussions from this conversation were used to develop a 7-year pavement management plan and future recommendations tailored to the needs of the Town.

During our meeting, the Town expressed their preference for a 7-year plan. The first two years would be created with a \$1 million dollar budget, allocating \$500,000 per year. This 2-year plan is to immediately tackle priority roads identified by the town and the pavement management study. The 2-year plan was to focus on milling and overlaying with excess funds to be for maintenance such as crack sealing. After the first two years, a 5-year plan would be followed with a budget of \$500,000 per year. This 5-year plan was discussed to balance structural overlays (mill & overlay) with routine maintenance. A portion of the pavement budget would be used for repairing low PCI roads with pavement reclamation. The 5-year plan was intended to address a wide array of roadway types and not just arterial/collectors.

5 Recommendations and Summary

Based on existing conditions, budget analysis, and town input, we created a 7-year pavement management plan. In the proposed plan, roadways were prioritized based on their PCI, targeting roads with a low PCI that could potentially be saved by a mill/overlay before a reclamation would be required. We then selected one or two of the worst roads to be an annual reclamation project.

Additionally, the recommended plan was developed using prices from previous town paving contracts. The prices were then adjusted based on the current market.

It is important to note that mill and overlay is the main pavement maintenance technique recommended for roadways. However, some road PCIs may be too low for this treatment, as they may have base deficiencies, and fieldwork should be conducted to determine the best methods. Roadways were prioritized by current PCI and the remaining budget per year was allocated for crack seal preventative maintenance. Depending on the type of distress, different techniques, such as full depth patching to address potholes, may be used for maintenance. The yearly roadway priority list is shown below in Table 3 and the full table with pricing and treatment technique is provided in Appendix F. Appendix G shows a full pavement data GIS export.

We recommend that the Town continue to assess the pavement condition after this study to determine changes in PCI, as well as refine the recommended plan based on current roadway needs/conditions and costs.

5.1 Two Year Recommended Improvements

The following bullets provide a summary of the 2-year plan for Carlisle's pavement management system:

- The 2-year plan totals \$1 million, with \$500,000 allocated for each year, to match Chapter 90 funding and maintain the town's existing PCI.
- Prioritize roads that have been identified by the Town that need immediate repairs with lower PCI and use the remaining budget for preventative maintenance, primarily with the use of crack sealant.

The Town will issue two bid packages, one for the pavement milling and overlay. A second bid will be solicited for the routine maintenance.

5.2 Five Year Recommended Improvements

The following bullets provide a summary of the 5-year plan for Carlisle's pavement management system:

- Match the \$250,000 Chapter 90 funding for a total of \$500,000 per year.
- Prioritize roads with lower PCIs for repair (milling and overlay) and use the remaining budget for preventative maintenance, primarily with the use of crack sealant.
- The crack seal recommended roadway list was only developed for the first three years. After these roadways are completed, we recommend the Town reassess roadways for crack sealant based on future deteriorations. We also recommend the town utilize full depth patching where required based on conditions.
- Select one low PCI local road located in proximity to planned road work for full reclamation.

Table 3 - Mill and Overlay Roadway Priority List

| Year | Road Name | From | To | Length (ft) |
|------|--------------------------|--------------------------|--------------------------|-------------|
| 2024 | Church Street | Bedford Road | 850' W of Bedford Road | 846 |
| | Church Street | 850' W of Bedford Road | School Street | 1,297 |
| | Church Street | School Street | Concord Street | 242 |
| | Church Street | Concord Street | Westford Street | 562 |
| | Curve Street | Fiske Street | Westford Street | 4,557 |
| | Proctor Road (Connector) | Proctor Road | Lowell Street | 462 |
| | Proctor Road | Lowell Street | Chelmsford TL | 300 |
| | Prospect Street | Monument Street | River Road | 1,997 |
| | River Road | Nowell Farme Road | Prospect Street | 3,258 |
| | School Street | 300' N of Baldwin Road | Church Street | 1,942 |
| | School Street | Church Street | Westford Street | 414 |
| 2025 | Baldwin Road | Stearns Street | Dead End | 2,243 |
| | Pattern Lane | Cul-de-sac | Stearns Street | 686 |
| | Rodger Road | Stearns Street | Cul-de-sac | 1,646 |
| | Stearns Street | Bedford Road | 1500' W of Baldwin Road | 2,960 |
| | Stearns Street | 1500' W of Baldwin Road | Baldwin Road | 1,511 |
| | West Street | Acton Street | Westford Town Line | 3,329 |
| | Woodridge Road | Baldwin Road | Baldwin Road | 2,574 |
| 2026 | Heald Road | Acton Street | Judy Farm Road (N) | 1,180 |
| | Heald Road | 2200' N of South Road | South Street | 2,198 |
| | Pope Road | West Street | Concord TL | 790 |
| | South Street | 150' E of West Street | West Street | 134 |
| | West Street | Concord Town Line | 50' S of South Street | 1,255 |
| | West Street | 50' S of South Street | 100' N of South Street | 180 |
| | West Street | 2000' S of Acton Street | Acton Street | 1,896 |
| | North Road | 3400' E of Lowell Street | 1400' E of Lowell Street | 1,404 |
| | North Road | 1400' E of Lowell Street | Lowell Street | 2,048 |
| 2027 | Hemlock Hill Road | Laurel Wood Drive | Oak Knoll Road | 1,717 |
| | Laurel Wood Drive | Milne Cove Road | Hemlock Hill Road | 1,112 |
| | Milne Cove Road | East Street | Maple Street | 939 |
| | Oak Knoll Road | Hemlock Hill Road | Dead End | 1,232 |
| | Russel Street | Concord Street | 800' E of Concord Street | 844 |
| | Carleton Road | East Riding Drive | Tophet Road | 1,683 |
| | Tophet Road | Carleton Road | East Riding Drive | 2,331 |

| <u>Year</u> | <u>Road Name</u> | <u>From</u> | <u>To</u> | <u>Length (ft)</u> |
|-------------|----------------------|-------------------------|-------------------------|--------------------|
| 2028 | Elizabeth Ridge Road | Morse Road | Sunset Road | 2,914 |
| | Garnet Rock Lane | Long Ridge Road | Nowell Farme Road | 947 |
| | Long Ridge Road | Garnet Rock Lane | Nowell Farme Road | 1,377 |
| | Nowell Farme Road | River Road | 100' N of Fern Lane | 1,807 |
| | Nowell Farme Road | 100' N of Fern Lane | Dead End | 1,457 |
| | Suffolk Lane | Nowell Farme Road | Cul-de-sac | 2,097 |
| | Sunset Road | Lowell Street | Elizabeth Ridge Road | 1,376 |
| 2029 | Bedford Road | Church Street | 500' E of Church Street | 455 |
| | Bedford Road | 500' E of Church Street | Maple Street (E) | 4,620 |
| | Bedford Road | Maple Street (E) | Skelton Road | 4,484 |
| 2030 | Hutchins Road | Kimball Road | 1400' W of Curve Street | 1,418 |
| | Hutchins Road | 1400' W of Curve Street | Curve Street | 1,407 |
| | Lowell Street | Hickory Lane | 200' N of Rotary | 4,782 |
| | Carlisle Pines Drive | Evergreen Lane | Dead End | 1,449 |
| | Evergreen Lane | Carlisle Pines Drive | Forest Park Drive | 1,341 |

APPENDIX CONTENTS

Appendix A - Backlog Report by Street Name

Appendix B - Backlog Report by PCI

Appendix C - Pavement Distress Report

Appendix D – Road Assessment Maps

Appendix E – PCI Projections

Appendix F – Road Program and Budget Analysis

Appendix G - Master Street List Data Export from GIS

APPENDIX A – Backlog Report by Street Name

Pavement Backlog Report (by Street Name)

| <u>Street Name</u> | <u>From</u> | <u>To</u> | <u>Alternative</u> | <u>Length (ft)</u> | <u>PCI</u> | <u>Repair Cost</u> | <u>Benefit Value</u> |
|----------------------|----------------------------|----------------------------|----------------------------------|--------------------|------------|--------------------|----------------------|
| AARON WAY | MUNROE HILL RD | CUL-DE-SAC | Prep & Overlay | 920 | 66 | \$34,588 | 4.45 |
| ACTON STREET | WESTFORD ST | 200' E OF WEST ST | Do Nothing | 4,450 | 95 | \$0 | 0.00 |
| ACTON STREET | 200' E OF WEST ST | 200' W OF WEST ST | Surface Treatment (Double Lift) | 408 | 76 | \$12,632 | 5.25 |
| ACTON STREET | 200' W OF WEST ST | 1000' W OF WEST ST | Do Nothing | 768 | 95 | \$0 | 0.00 |
| ACTON STREET | 1000' W OF WEST ST | 1350' W OF WEST ST | Surface Treatment (Double Lift) | 338 | 75 | \$7,101 | 5.32 |
| ACTON STREET | 1350' W OF WEST ST | ACTON TL | Do Nothing | 752 | 95 | \$0 | 0.00 |
| AUTUMN LANE | ROBBINS DR | 100' N OF KIBBY PL | Reclaim & Pave | 1,425 | 41 | \$121,329 | 7.66 |
| AUTUMN LANE | 100' N OF KIBBY PL | DEAD END (W) | Prep & Overlay | 1,566 | 67 | \$70,650 | 4.38 |
| AUTUMN LANE #2 | AUTUMN LN | CUL-DE-SAC | Prep & Overlay | 1,172 | 67 | \$52,875 | 4.38 |
| BALDWIN ROAD | SCHOOL ST | STEARNS ST | Do Nothing | 2,566 | 93 | \$0 | 0.00 |
| BALDWIN ROAD | STEARNS ST | DEAD END | Reclaim & Pave | 2,243 | 43 | \$138,892 | 7.30 |
| BARNES PLACE | HUTCHINS RD | DEAD END | Surface Treatment (Double Lift) | 245 | 78 | \$4,335 | 5.12 |
| BEDFORD ROAD | ROTARY | 150' E OF EAST ST | Do Nothing | 584 | 98 | \$0 | 0.00 |
| BEDFORD ROAD | 150' E OF EAST ST | CHURCH ST | Surface Treatment (Double Lift) | 1,778 | 77 | \$51,117 | 103.76 |
| BEDFORD ROAD | CHURCH ST | 500' E OF CHURCH ST | Prep & Overlay (Major Collector) | 455 | 67 | \$22,238 | 87.71 |
| BEDFORD ROAD | 500' E OF CHURCH ST | MAPLE ST (E) | Surface Treatment (Double Lift) | 4,620 | 74 | \$137,932 | 107.96 |
| BEDFORD ROAD | MAPLE ST (E) | SKELTON RD | Surface Treatment (Double Lift) | 4,484 | 74 | \$133,872 | 107.96 |
| BELLOWS HILL ROAD | ESTABROOK RD | SCHOOL ST | Crackseal w/Local Patch | 2,129 | 87 | \$6,356 | 15.20 |
| BERRY CORNER LANE | BERRY CORNER RD | CUL-DE-SAC | Reclaim & Pave | 60 | 51 | \$11,610 | 6.15 |
| BERRY CORNER ROAD | HEALD RD | DEAD END | Reclaim & Pave | 912 | 54 | \$88,239 | 5.81 |
| BINGHAM ROAD | CONCORD ST | 700' E OF PHEASANT HILL LN | Crackseal | 2,289 | 88 | \$2,151 | 44.44 |
| BINGHAM ROAD | 700' E OF PHEASANT HILL LN | CROSS ST | Surface Treatment (Double Lift) | 1,199 | 75 | \$25,190 | 5.32 |
| BLAISDELL DRIVE | EAST ST | DEAD END | Prep & Overlay | 841 | 71 | \$28,456 | 4.13 |
| BROOK STREET | BEDFORD RD | PETER HANS RD | Surface Treatment (Single Lift) | 6,004 | 85 | \$79,667 | 6.84 |
| CANTERBURY COURT | BEDFORD RD | 700' S OF BEDFORD RD | Reclaim & Pave | 707 | 55 | \$57,460 | 5.71 |
| CANTERBURY COURT | 700' S OF BEDFORD RD | DEAD END | Surface Treatment (Single Lift) | 387 | 84 | \$5,392 | 6.93 |
| CARLETON ROAD | EAST RIDING DR | TOPHET RD | Reclaim & Pave | 1,683 | 54 | \$156,323 | 5.81 |
| CARLISLE PINES DRIVE | EVERGREEN LN | DEAD END | Reclaim & Pave | 1,449 | 47 | \$123,372 | 6.68 |
| CARRIAGE WAY | EAST RIDING DR | CUL-DE-SAC | Surface Treatment (Double Lift) | 1,262 | 77 | \$27,909 | 5.18 |
| CHURCH STREET | BEDFORD RD | 850' W OF BEDFORD RD | Reclaim & Pave | 846 | 44 | \$62,209 | 28.55 |
| CHURCH STREET | 850' W OF BEDFORD RD | SCHOOL ST | Reclaim & Pave | 1,297 | 37 | \$120,470 | 33.95 |
| CHURCH STREET | SCHOOL ST | CONCORD ST | Prep & Overlay | 242 | 66 | \$10,008 | 17.80 |
| CHURCH STREET | CONCORD ST | WESTFORD ST | Reclaim & Pave | 562 | 52 | \$32,625 | 24.16 |
| CONCORD STREET | CONCORD TOWN LINE | 400' N OF INDIAN HILL RD | Crackseal | 2,806 | 92 | \$4,034 | 851.06 |
| CONCORD STREET | 400' N OF INDIAN HILL RD | 100' N OF RUSSELL ST | Surface Treatment (Double Lift) | 2,167 | 73 | \$64,697 | 109.43 |
| CONCORD STREET | 100' N OF RUSSELL ST | 50' S OF BINGHAM RD | Do Nothing | 3,156 | 95 | \$0 | 0.00 |
| CONCORD STREET | 50' S OF BINGHAM RD | 200' S OF CHURCH ST | Crackseal | 2,863 | 88 | \$4,116 | 888.88 |

Pavement Backlog Report (by Street Name)

| <u>Street Name</u> | <u>From</u> | <u>To</u> | <u>Alternative</u> | <u>Length (ft)</u> | <u>PCI</u> | <u>Repair Cost</u> | <u>Benefit Value</u> |
|----------------------|----------------------|----------------------|---------------------------------|--------------------|------------|--------------------|----------------------|
| CONCORD STREET | 200' S OF CHURCH ST | WESTFORD ST | Do Nothing | 626 | 98 | \$0 | 0.00 |
| CONNECTOR ROAD | PROCTOR RD | LOWELL ST | Reclaim & Pave | 462 | 34 | \$25,032 | 9.23 |
| CRAIGIE CIRCLE | PETER HANS RD | PETER HANS RD | Surface Treatment (Double Lift) | 1,439 | 73 | \$39,780 | 5.47 |
| CRANBERRY HILL LANE | CURVE ST | CUL-DE-SAC | Surface Treatment (Single Lift) | 1,232 | 80 | \$14,713 | 7.27 |
| CROSS STREET | SOUTH ST | 150' N OF BRIGHAM RD | Do Nothing | 4,026 | 93 | \$0 | 0.00 |
| CROSS STREET | 150' N OF BRIGHAM RD | WESTFORD ST | Prep & Overlay | 2,495 | 71 | \$84,421 | 4.13 |
| CURVE STREET | LOWELL ST | MARTIN ST | Do Nothing | 3,792 | 94 | \$0 | 0.00 |
| CURVE STREET | MARTIN ST | FISKE ST | Crackseal | 4,006 | 88 | \$3,544 | 44.44 |
| CURVE STREET | FISKE ST | WESTFORD ST | Reclaim & Pave | 4,557 | 52 | \$335,089 | 6.04 |
| DAVIS ROAD | MAPLE ST | MAPLE ST | Prep & Overlay | 2,557 | 69 | \$96,132 | 4.25 |
| EAST MEADOW LANE | EAST ST | CUL-DE-SAC | Shim & Overlay | 1,104 | 65 | \$51,027 | 3.49 |
| EAST RIDING DRIVE | BROOK ST | EAST ST | Surface Treatment (Single Lift) | 4,788 | 83 | \$76,239 | 7.01 |
| EAST STREET | MAPLE ST | RUTLAND ST | Do Nothing | 5,249 | 100 | \$0 | 0.00 |
| EAST STREET | RUTLAND ST | BLAISDELL DR | Surface Treatment (Double Lift) | 4,578 | 77 | \$121,492 | 20.75 |
| EAST STREET | BLAISDELL DR | BEDFORD RD | Do Nothing | 995 | 99 | \$0 | 0.00 |
| ELIZABETH RIDGE ROAD | MORSE RD | SUNSET RD | Reclaim & Pave | 2,914 | 54 | \$270,662 | 5.81 |
| EMBER LANE | LOWELL ST | CUL-DE-SAC | Shim & Overlay | 1,747 | 59 | \$101,997 | 3.84 |
| ESTABROOK ROAD | BELLOWS HILL RD | KIBBY PLACE | Crackseal | 1,828 | 88 | \$1,819 | 44.44 |
| EVERGREEN LANE | CARLISLE PINES DR | FOREST PARK DR | Reclaim & Pave | 1,341 | 54 | \$93,418 | 5.81 |
| FERN LANE | NOWELL FARME RD | CUL-DE-SAC | Shim & Overlay | 990 | 61 | \$55,392 | 3.72 |
| FISKE STREET | CURVE ST | CHELMSFORD TL | Crackseal w/Local Patch | 3,458 | 87 | \$9,750 | 15.20 |
| FOREST PARK DRIVE | CURVE ST | EVERGREEN LN | Surface Treatment (Double Lift) | 851 | 73 | \$16,938 | 5.47 |
| FOREST PARK DRIVE | EVERGREEN LN | DEAD END | Crackseal | 487 | 88 | \$485 | 44.44 |
| FOSS ST | BEDFORD RD | RIVER RD | Reclaim & Pave | 540 | 52 | \$20,899 | 6.04 |
| GARNET ROCK LANE | LONG RIDGE RD | NOWELL FARME RD | Reclaim & Pave | 947 | 55 | \$91,626 | 5.71 |
| GREAT BROOK PATH | RUTLAND ST | CUL-DE-SAC | Surface Treatment (Double Lift) | 1,238 | 76 | \$24,641 | 5.25 |
| HANOVER ROAD | WESTFORD ST | CUL-DE-SAC | Crackseal | 2,802 | 89 | \$3,098 | 43.95 |
| HARTWELL ROAD | CONCORD TL | CUL-DE-SAC | Reclaim & Pave | 1,550 | 46 | \$107,977 | 6.82 |
| HEALD ROAD | ACTON ST | JUDY FARM RD (N) | Reclaim & Pave | 1,180 | 51 | \$114,169 | 6.15 |
| HEALD ROAD | JUDY FARM RD (N) | 2200' N OF SOUTH ST | Shim & Overlay | 2,912 | 65 | \$177,098 | 3.49 |
| HEALD ROAD | 2200' N OF SOUTH ST | SOUTH ST | Reclaim & Pave | 2,198 | 51 | \$204,158 | 6.15 |
| HEMLOCK HILL ROAD | LAURELWOOD DR | OAK KNOLL RD | Reclaim & Pave | 1,717 | 54 | \$132,901 | 5.81 |
| HILLSIDE DRIVE | MEADOWBROOK RD | CUL-DE-SAC | Surface Treatment (Double Lift) | 916 | 74 | \$23,296 | 5.39 |
| HUTCHINS ROAD | KIMBALL RD | 1400' W OF CURVE ST | Prep & Overlay | 1,418 | 66 | \$53,311 | 4.45 |
| HUTCHINS ROAD | 1400' W OF CURVE ST | CURVE ST | Shim & Overlay | 1,407 | 56 | \$68,455 | 4.05 |
| ICE POND ROAD | EAST ST | CUL-DE-SAC | Surface Treatment (Double Lift) | 1,465 | 73 | \$29,159 | 5.47 |
| INDIAN HILL | INDIAN HILL RD | 300' W OF ROBBINS DR | Reclaim & Pave | 2,430 | 47 | \$225,707 | 6.68 |

Pavement Backlog Report (by Street Name)

| <u>Street Name</u> | <u>From</u> | <u>To</u> | <u>Alternative</u> | <u>Length (ft)</u> | <u>PCI</u> | <u>Repair Cost</u> | <u>Benefit Value</u> |
|---------------------|----------------------|----------------------|---------------------------------|--------------------|------------|--------------------|----------------------|
| INDIAN HILL | 300' W OF ROBBINS DR | ROBBINS DR | Surface Treatment (Single Lift) | 293 | 79 | \$3,499 | 7.36 |
| INDIAN HILL ROAD | CONCORD ST | DEAD END | Do Nothing | 2,016 | 95 | \$0 | 0.00 |
| JOHNSON ROAD | HANOVER RD | WESTFORD ST | Crackseal | 1,230 | 89 | \$1,360 | 43.95 |
| JUDY FARM ROAD | HEALD RD | HEALD RD | Prep & Overlay | 2,870 | 67 | \$134,874 | 4.38 |
| KIBBY PLACE | AUTUMN LN | ESTABROOK RD | Do Nothing | 772 | 94 | \$0 | 0.00 |
| KIMBALL ROAD | FISKE ST | CUL-DE-SAC | Shim & Overlay | 3,245 | 65 | \$157,880 | 3.49 |
| KONING FARM ROAD | ACTON ST | CUL-DE-SAC | Prep & Overlay | 1,787 | 68 | \$67,183 | 4.32 |
| LAURELWOOD DRIVE | MILNE COVE RD | HEMLOCK HILL RD | Reclaim & Pave | 1,112 | 54 | \$103,286 | 5.81 |
| LAURELWOOD DRIVE | HEMLOCK HILL RD | DEAD END | Surface Treatment (Double Lift) | 409 | 75 | \$10,854 | 5.32 |
| LOG HILL ROAD | WEST ST | 900' W OF WEST ST | Reclaim & Pave | 898 | 52 | \$83,409 | 6.04 |
| LOG HILL ROAD | 900' W OF WEST ST | DEAD END | Shim & Overlay | 987 | 64 | \$57,625 | 3.54 |
| LONG RIDGE ROAD | GARNET ROCK LN | NOWELL FARME RD | Shim & Overlay | 1,377 | 63 | \$77,045 | 3.60 |
| LOWELL STREET | CHELMSFORD TL | EMBER LN | Do Nothing | 5,536 | 93 | \$0 | 0.00 |
| LOWELL STREET | EMBER LN | HICKORY LN | Crackseal | 1,875 | 89 | \$2,488 | 879.12 |
| LOWELL STREET | HICKORY LN | 200' N OF ROTARY | Surface Treatment (Single Lift) | 4,782 | 79 | \$79,316 | 147.36 |
| LOWELL STREET | 200' N OF ROTARY | WESTFORD ST | Do Nothing | 159 | 98 | \$0 | 0.00 |
| MAPLE STREET | BILLERICA TL | EAST ST | Crackseal w/Local Patch | 1,720 | 87 | \$6,562 | 60.83 |
| MAPLE STREET | EAST ST | RED FOX DR | Crackseal | 7,596 | 88 | \$7,979 | 44.44 |
| MAPLE STREET Y INT | MAPLE ST | MAPLE ST | Do Nothing | 368 | 93 | \$0 | 0.00 |
| MARTIN STREET | CURVE ST | CHELMSFORD TL | Surface Treatment (Single Lift) | 1,821 | 83 | \$19,330 | 7.01 |
| MEADOWBROOK ROAD | HILLSIDE DR | DEAD END | Surface Treatment (Double Lift) | 1,093 | 74 | \$27,798 | 5.39 |
| MILNE COVE ROAD | EAST ST | MAPLE ST | Reclaim & Pave | 939 | 55 | \$65,413 | 5.71 |
| MUNROE HILL ROAD | NATHAN LN | AARON WAY | Prep & Overlay | 2,934 | 66 | \$132,367 | 4.45 |
| NATHAN LANE | MUNROE HILL RD | CUL-DE-SAC | Prep & Overlay | 2,327 | 68 | \$104,982 | 4.32 |
| NICKLES LANE | EAST ST | OLD EAST ST | Surface Treatment (Double Lift) | 1,108 | 74 | \$24,504 | 5.39 |
| NORTH ROAD | BILLERICA TL | RUTLAND ST | Surface Treatment (Double Lift) | 3,766 | 76 | \$74,957 | 5.25 |
| NORTH ROAD | RUTLAND ST | 3400' E OF LOWELL ST | Crackseal | 4,871 | 89 | \$5,117 | 43.95 |
| NORTH ROAD | 3400' E OF LOWELL ST | 1400' E OF LOWELL ST | Reclaim & Pave | 1,404 | 49 | \$108,674 | 6.41 |
| NORTH ROAD | 1400' E OF LOWELL ST | LOWELL ST | Reclaim & Pave | 2,048 | 52 | \$150,595 | 6.04 |
| NOWELL FARME RD | RIVER RD | 100' N OF FERN LN | Prep & Overlay | 1,807 | 69 | \$81,522 | 4.25 |
| NOWELL FARME RD | 100' N OF FERN LN | DEAD END | Reclaim & Pave | 1,457 | 54 | \$135,331 | 5.81 |
| OAK KNOLL ROAD | HEMLOCK HILL RD | DEAD END | Reclaim & Pave | 1,232 | 54 | \$95,360 | 5.81 |
| OLD EAST STREET | EAST ST | EAST MEADOW LN | Do Nothing | 952 | 94 | \$0 | 0.00 |
| OLD NORTH ROAD | LOWELL ST | DEAD END | Shim & Overlay | 1,181 | 56 | \$45,968 | 4.05 |
| ORCHARD ACRES DRIVE | LOWELL ST | DEAD END | Shim & Overlay | 967 | 59 | \$42,343 | 3.84 |
| PAGE BROOK ROAD | BROOK ST | DEAD END | Shim & Overlay | 1,192 | 63 | \$69,594 | 3.60 |
| PARTRIDGE LANE | EAST ST | CUL-DE-SAC | Prep & Overlay | 2,272 | 67 | \$93,959 | 4.38 |

Pavement Backlog Report (by Street Name)

| <u>Street Name</u> | <u>From</u> | <u>To</u> | <u>Alternative</u> | <u>Length (ft)</u> | <u>PCI</u> | <u>Repair Cost</u> | <u>Benefit Value</u> |
|----------------------|-----------------------|-----------------------|---------------------------------|--------------------|------------|--------------------|----------------------|
| PATCH MEADOW LANE | RUTLAND ST | CUL-DE-SAC | Do Nothing | 1,489 | 100 | \$0 | 0.00 |
| PATTEN LANE | CUL-DE-SAC | STEARNS ST | Shim & Overlay | 686 | 64 | \$40,051 | 3.54 |
| PETER HANS ROAD | BROOK ST | CUL-DE-SAC | Shim & Overlay | 2,156 | 65 | \$131,120 | 3.49 |
| PHEASANT HILL LANE | BINGHAM RD | 150' N OF BINGHAM RD | Surface Treatment (Single Lift) | 174 | 82 | \$2,540 | 7.09 |
| PHEASANT HILL LANE | 150' N OF BINGHAM RD | CUL-DE-SAC | Do Nothing | 1,380 | 100 | \$0 | 0.00 |
| PINE BROOK ROAD | NORTH RD | CUL-DE-SAC | Do Nothing | 1,550 | 100 | \$0 | 0.00 |
| POPE ROAD | WEST ST | CONCORD TL | Reclaim & Pave | 790 | 53 | \$61,148 | 23.70 |
| PROCTOR ROAD | LOWELL ST | CHELMSFORD TL | Reclaim & Pave | 300 | 45 | \$25,543 | 139.59 |
| PROSPECT STREET | MONUMENT ST | RIVER RD | Reclaim & Pave | 1,997 | 40 | \$123,659 | 7.85 |
| RED PINE DRIVE | BEDFORD RD | 800' S OF BEDFORD RD | Do Nothing | 818 | 95 | \$0 | 0.00 |
| RED PINE DRIVE | 800' S OF BEDFORD RD | DEAD END | Surface Treatment (Double Lift) | 484 | 73 | \$8,563 | 5.47 |
| RIVER ROAD | BEDFORD RD | NOWELL FARME RD | Do Nothing | 2,758 | 95 | \$0 | 0.00 |
| RIVER ROAD | NOWELL FARME RD | PROSPECT ST | Shim & Overlay | 3,258 | 57 | \$182,289 | 15.93 |
| ROBBINS DRIVE | INDIAN HILL | RUSSELL ST | Crackseal w/Local Patch | 1,852 | 87 | \$5,836 | 15.20 |
| ROCKLAND ROAD | WESTFORD ST | DEAD END | Reclaim & Pave | 2,469 | 44 | \$133,775 | 7.13 |
| RODGERS ROAD | STEARNS ST | CUL-DE-SAC | Reclaim & Pave | 1,646 | 54 | \$152,886 | 5.81 |
| ROUTE 225 ROUNDABOUT | ROUNDABOUT | ROUNDABOUT | Do Nothing | 252 | 95 | \$0 | 0.00 |
| RUSSELL STREET | CONCORD ST | 800' E OF CONCORD ST | Crackseal w/Local Patch | 844 | 86 | \$2,800 | 15.38 |
| RUSSELL STREET | 800' E OF CONCORD ST | 1000' E OF CONCORD ST | Do Nothing | 191 | 98 | \$0 | 0.00 |
| RUSSELL STREET | 1000' E OF CONCORD ST | BELLOWS HILL RD | Surface Treatment (Double Lift) | 2,872 | 74 | \$60,339 | 5.39 |
| RUTLAND STREET | EAST ST | BILLERICA TL | Do Nothing | 6,746 | 99 | \$0 | 0.00 |
| SCHOOL STREET | BELLOWS HILL RD | 300' N OF BALDWIN RD | Do Nothing | 4,078 | 93 | \$0 | 0.00 |
| SCHOOL STREET | 300' N OF BALDWIN RD | CHURCH ST | Shim & Overlay | 1,942 | 64 | \$113,381 | 3.54 |
| SCHOOL STREET | CHURCH ST | WESTFORD ST | Prep & Overlay | 414 | 67 | \$20,234 | 4.38 |
| SKELTON ROAD | BEDFORD RD | RIVER RD | Crackseal | 2,333 | 88 | \$2,451 | 44.44 |
| SOUTH STREET | CONCORD ST | 150' E OF WEST ST | Crackseal | 6,935 | 92 | \$7,668 | 170.21 |
| SOUTH STREET | 150' E OF WEST ST | WEST ST | Surface Treatment (Double Lift) | 134 | 74 | \$3,556 | 21.59 |
| STEARNS STREET | BEDFORD RD | 1500' W OF BALDWIN RD | Reclaim & Pave | 2,960 | 51 | \$206,201 | 6.15 |
| STEARNS STREET | 1500' W OF BALDWIN RD | BALDWIN RD | Shim & Overlay | 1,511 | 64 | \$62,488 | 3.54 |
| SUFFOLK LANE | NOWELL FARME RD | CUL-DE-SAC | Shim & Overlay | 2,097 | 65 | \$122,431 | 3.49 |
| SUNSET ROAD | LOWELL ST | ELIZABETH RIDGE RD | Reclaim & Pave | 1,376 | 48 | \$85,205 | 6.54 |
| SUNSET ROAD | ELIZABETH RIDGE RD | CUL-DE-SAC | Shim & Overlay | 751 | 64 | \$36,539 | 3.54 |
| TIMOTHY LANE | BROOK ST | DEAD END | Crackseal | 535 | 88 | \$592 | 44.44 |
| TOPHET ROAD | CARLETON RD | EAST RIDING DR | Reclaim & Pave | 2,331 | 42 | \$216,511 | 7.47 |
| VIRGINIA FARME LANE | NATHAN LN | CUL-DE-SAC | Surface Treatment (Double Lift) | 2,916 | 74 | \$77,385 | 5.39 |
| WEST STREET | CONCORD TOWN LINE | 50' S OF SOUTH ST | Prep & Overlay | 1,255 | 71 | \$51,901 | 16.55 |
| WEST STREET | 50' S OF SOUTH ST | 100' N OF SOUTH ST | Shim & Overlay | 180 | 60 | \$8,758 | 15.14 |

Pavement Backlog Report (by Street Name)

| <u>Street Name</u> | <u>From</u> | <u>To</u> | <u>Alternative</u> | <u>Length (ft)</u> | <u>PCI</u> | <u>Repair Cost</u> | <u>Benefit Value</u> |
|--------------------|-------------------------|-------------------------|---------------------------------|--------------------|------------|---------------------|----------------------|
| WEST STREET | 100' N OF SOUTH ST | LOG HILL RD | Crackseal w/Local Patch | 2,945 | 87 | \$9,281 | 60.83 |
| WEST STREET | LOG HILL RD | 2000' S OF ACTON ST | Crackseal | 2,901 | 88 | \$3,047 | 177.77 |
| WEST STREET | 2000' S OF ACTON ST | ACTON ST | Reclaim & Pave | 1,896 | 53 | \$132,080 | 23.70 |
| WEST STREET | ACTON ST | WESTFORD TOWN LINE | Prep & Overlay | 3,329 | 66 | \$118,898 | 17.80 |
| WESTFORD STREET | WESTFORD TL | CURVE ST | Do Nothing | 4,690 | 93 | \$0 | 0.00 |
| WESTFORD STREET | CURVE ST | 50' E OF MUNROE HILL RD | Do Nothing | 3,755 | 95 | \$0 | 0.00 |
| WESTFORD STREET | 50' E OF MUNROE HILL RD | 1000' W OF ROCKLAND RD | Crackseal | 2,684 | 88 | \$3,858 | 888.88 |
| WESTFORD STREET | 1000' W OF ROCKLAND RD | 500' W OF ROCKLAND RD | Surface Treatment (Double Lift) | 528 | 74 | \$15,180 | 107.96 |
| WESTFORD STREET | 500' W OF ROCKLAND RD | CONCORD ST | Crackseal | 1,191 | 88 | \$1,712 | 888.88 |
| WESTFORD STREET | CONCORD ST | ROUNDAABOUT | Do Nothing | 297 | 98 | \$0 | 0.00 |
| WILDWOOD DRIVE | SOUTH ST | DEAD END | Shim & Overlay | 636 | 62 | \$34,038 | 3.66 |
| WILKINS LANE | KIMBALL RD | CUL-DE-SAC | Surface Treatment (Double Lift) | 923 | 77 | \$18,371 | 5.18 |
| WOLF ROCK ROAD | LOWELL ST | 500' E OF LOWELL ST | Do Nothing | 491 | 95 | \$0 | 0.00 |
| WOLF ROCK ROAD | 500' E OF LOWELL ST | DEAD END | Reclaim & Pave | 1,094 | 54 | \$101,614 | 5.81 |
| WOODBINE ROAD | EAST ST | CUL-DE-SAC | Shim & Overlay | 1,722 | 65 | \$92,159 | 3.49 |
| WOODLAND ROAD | LOG HILL RD | DEAD END | Prep & Overlay | 1,090 | 68 | \$49,175 | 4.32 |
| WOODRIDGE ROAD | BALDWIN RD | BALDWIN RD | Shim & Overlay | 2,574 | 65 | \$150,280 | 3.49 |
| Totals: | | | | 58.99 Miles | | \$ 9,118,983 | |

APPENDIX B – Backlog Report by PCI

Pavement Backlog Report (PCI Ascending)

| <u>Street Name</u> | <u>From</u> | <u>To</u> | <u>Alternative</u> | <u>Length (ft)</u> | <u>PCI</u> | <u>Repair Cost</u> | <u>Benefit Value</u> |
|----------------------|----------------------|-----------------------|--------------------|--------------------|------------|--------------------|----------------------|
| CONNECTOR ROAD | PROCTOR RD | LOWELL ST | Reclaim & Pave | 462 | 34 | \$25,032 | 9.23 |
| CHURCH STREET | 850' W OF BEDFORD RD | SCHOOL ST | Reclaim & Pave | 1,297 | 37 | \$120,470 | 33.95 |
| PROSPECT STREET | MONUMENT ST | RIVER RD | Reclaim & Pave | 1,997 | 40 | \$123,659 | 7.85 |
| AUTUMN LANE | ROBBINS DR | 100' N OF KIBBY PL | Reclaim & Pave | 1,425 | 41 | \$121,329 | 7.66 |
| TOPHET ROAD | CARLETON RD | EAST RIDING DR | Reclaim & Pave | 2,331 | 42 | \$216,511 | 7.47 |
| BALDWIN ROAD | STEARNS ST | DEAD END | Reclaim & Pave | 2,243 | 43 | \$138,892 | 7.30 |
| CHURCH STREET | BEDFORD RD | 850' W OF BEDFORD RD | Reclaim & Pave | 846 | 44 | \$62,209 | 28.55 |
| ROCKLAND ROAD | WESTFORD ST | DEAD END | Reclaim & Pave | 2,469 | 44 | \$133,775 | 7.13 |
| PROCTOR ROAD | LOWELL ST | CHELMSFORD TL | Reclaim & Pave | 300 | 45 | \$25,543 | 139.59 |
| HARTWELL ROAD | CONCORD TL | CUL-DE-SAC | Reclaim & Pave | 1,550 | 46 | \$107,977 | 6.82 |
| CARLISLE PINES DRIVE | EVERGREEN LN | DEAD END | Reclaim & Pave | 1,449 | 47 | \$123,372 | 6.68 |
| INDIAN HILL | INDIAN HILL RD | 300' W OF ROBBINS DR | Reclaim & Pave | 2,430 | 47 | \$225,707 | 6.68 |
| SUNSET ROAD | LOWELL ST | ELIZABETH RIDGE RD | Reclaim & Pave | 1,376 | 48 | \$85,205 | 6.54 |
| NORTH ROAD | 3400' E OF LOWELL ST | 1400' E OF LOWELL ST | Reclaim & Pave | 1,404 | 49 | \$108,674 | 6.41 |
| BERRY CORNER LANE | BERRY CORNER RD | CUL-DE-SAC | Reclaim & Pave | 60 | 51 | \$11,610 | 6.15 |
| HEALD ROAD | ACTON ST | JUDY FARM RD (N) | Reclaim & Pave | 1,180 | 51 | \$114,169 | 6.15 |
| HEALD ROAD | 2200' N OF SOUTH ST | SOUTH ST | Reclaim & Pave | 2,198 | 51 | \$204,158 | 6.15 |
| STEARNS STREET | BEDFORD RD | 1500' W OF BALDWIN RD | Reclaim & Pave | 2,960 | 51 | \$206,201 | 6.15 |
| CHURCH STREET | CONCORD ST | WESTFORD ST | Reclaim & Pave | 562 | 52 | \$32,625 | 24.16 |
| CURVE STREET | FISKE ST | WESTFORD ST | Reclaim & Pave | 4,557 | 52 | \$335,089 | 6.04 |
| FOSS ST | BEDFORD RD | RIVER RD | Reclaim & Pave | 540 | 52 | \$20,899 | 6.04 |
| LOG HILL ROAD | WEST ST | 900' W OF WEST ST | Reclaim & Pave | 898 | 52 | \$83,409 | 6.04 |
| NORTH ROAD | 1400' E OF LOWELL ST | LOWELL ST | Reclaim & Pave | 2,048 | 52 | \$150,595 | 6.04 |
| POPE ROAD | WEST ST | CONCORD TL | Reclaim & Pave | 790 | 53 | \$61,148 | 23.70 |
| WEST STREET | 2000' S OF ACTON ST | ACTON ST | Reclaim & Pave | 1,896 | 53 | \$132,080 | 23.70 |
| BERRY CORNER ROAD | HEALD RD | DEAD END | Reclaim & Pave | 912 | 54 | \$88,239 | 5.81 |
| CARLETON ROAD | EAST RIDING DR | TOPHET RD | Reclaim & Pave | 1,683 | 54 | \$156,323 | 5.81 |
| ELIZABETH RIDGE ROAD | MORSE RD | SUNSET RD | Reclaim & Pave | 2,914 | 54 | \$270,662 | 5.81 |
| EVERGREEN LANE | CARLISLE PINES DR | FOREST PARK DR | Reclaim & Pave | 1,341 | 54 | \$93,418 | 5.81 |
| HEMLOCK HILL ROAD | LAURELWOOD DR | OAK KNOLL RD | Reclaim & Pave | 1,717 | 54 | \$132,901 | 5.81 |
| LAURELWOOD DRIVE | MILNE COVE RD | HEMLOCK HILL RD | Reclaim & Pave | 1,112 | 54 | \$103,286 | 5.81 |
| NOWELL FARME RD | 100' N OF FERN LN | DEAD END | Reclaim & Pave | 1,457 | 54 | \$135,331 | 5.81 |
| OAK KNOLL ROAD | HEMLOCK HILL RD | DEAD END | Reclaim & Pave | 1,232 | 54 | \$95,360 | 5.81 |
| RODGERS ROAD | STEARNS ST | CUL-DE-SAC | Reclaim & Pave | 1,646 | 54 | \$152,886 | 5.81 |
| WOLF ROCK ROAD | 500' E OF LOWELL ST | DEAD END | Reclaim & Pave | 1,094 | 54 | \$101,614 | 5.81 |
| CANTERBURY COURT | BEDFORD RD | 700' S OF BEDFORD RD | Reclaim & Pave | 707 | 55 | \$57,460 | 5.71 |
| GARNET ROCK LANE | LONG RIDGE RD | NOWELL FARME RD | Reclaim & Pave | 947 | 55 | \$91,626 | 5.71 |

Pavement Backlog Report (PCI Ascending)

| <u>Street Name</u> | <u>From</u> | <u>To</u> | <u>Alternative</u> | <u>Length (ft)</u> | <u>PCI</u> | <u>Repair Cost</u> | <u>Benefit Value</u> |
|---------------------|-----------------------|---------------------|----------------------------------|--------------------|------------|--------------------|----------------------|
| MILNE COVE ROAD | EAST ST | MAPLE ST | Reclaim & Pave | 939 | 55 | \$65,413 | 5.71 |
| HUTCHINS ROAD | 1400' W OF CURVE ST | CURVE ST | Shim & Overlay | 1,407 | 56 | \$68,455 | 4.05 |
| OLD NORTH ROAD | LOWELL ST | DEAD END | Shim & Overlay | 1,181 | 56 | \$45,968 | 4.05 |
| RIVER ROAD | NOWELL FARME RD | PROSPECT ST | Shim & Overlay | 3,258 | 57 | \$182,289 | 15.93 |
| EMBER LANE | LOWELL ST | CUL-DE-SAC | Shim & Overlay | 1,747 | 59 | \$101,997 | 3.84 |
| ORCHARD ACRES DRIVE | LOWELL ST | DEAD END | Shim & Overlay | 967 | 59 | \$42,343 | 3.84 |
| WEST STREET | 50' S OF SOUTH ST | 100' N OF SOUTH ST | Shim & Overlay | 180 | 60 | \$8,758 | 15.14 |
| FERN LANE | NOWELL FARME RD | CUL-DE-SAC | Shim & Overlay | 990 | 61 | \$55,392 | 3.72 |
| WILDWOOD DRIVE | SOUTH ST | DEAD END | Shim & Overlay | 636 | 62 | \$34,038 | 3.66 |
| LONG RIDGE ROAD | GARNET ROCK LN | NOWELL FARME RD | Shim & Overlay | 1,377 | 63 | \$77,045 | 3.60 |
| PAGE BROOK ROAD | BROOK ST | DEAD END | Shim & Overlay | 1,192 | 63 | \$69,594 | 3.60 |
| LOG HILL ROAD | 900' W OF WEST ST | DEAD END | Shim & Overlay | 987 | 64 | \$57,625 | 3.54 |
| PATTEN LANE | CUL-DE-SAC | STEARNS ST | Shim & Overlay | 686 | 64 | \$40,051 | 3.54 |
| SCHOOL STREET | 300' N OF BALDWIN RD | CHURCH ST | Shim & Overlay | 1,942 | 64 | \$113,381 | 3.54 |
| STEARNS STREET | 1500' W OF BALDWIN RD | BALDWIN RD | Shim & Overlay | 1,511 | 64 | \$62,488 | 3.54 |
| SUNSET ROAD | ELIZABETH RIDGE RD | CUL-DE-SAC | Shim & Overlay | 751 | 64 | \$36,539 | 3.54 |
| EAST MEADOW LANE | EAST ST | CUL-DE-SAC | Shim & Overlay | 1,104 | 65 | \$51,027 | 3.49 |
| HEALD ROAD | JUDY FARM RD (N) | 2200' N OF SOUTH ST | Shim & Overlay | 2,912 | 65 | \$177,098 | 3.49 |
| KIMBALL ROAD | FISKE ST | CUL-DE-SAC | Shim & Overlay | 3,245 | 65 | \$157,880 | 3.49 |
| PETER HANS ROAD | BROOK ST | CUL-DE-SAC | Shim & Overlay | 2,156 | 65 | \$131,120 | 3.49 |
| SUFFOLK LANE | NOWELL FARME RD | CUL-DE-SAC | Shim & Overlay | 2,097 | 65 | \$122,431 | 3.49 |
| WOODBINE ROAD | EAST ST | CUL-DE-SAC | Shim & Overlay | 1,722 | 65 | \$92,159 | 3.49 |
| WOODRIDGE ROAD | BALDWIN RD | BALDWIN RD | Shim & Overlay | 2,574 | 65 | \$150,280 | 3.49 |
| AARON WAY | MUNROE HILL RD | CUL-DE-SAC | Prep & Overlay | 920 | 66 | \$34,588 | 4.45 |
| CHURCH STREET | SCHOOL ST | CONCORD ST | Prep & Overlay | 242 | 66 | \$10,008 | 17.80 |
| HUTCHINS ROAD | KIMBALL RD | 1400' W OF CURVE ST | Prep & Overlay | 1,418 | 66 | \$53,311 | 4.45 |
| MUNROE HILL ROAD | NATHAN LN | AARON WAY | Prep & Overlay | 2,934 | 66 | \$132,367 | 4.45 |
| WEST STREET | ACTON ST | WESTFORD TOWN LINE | Prep & Overlay | 3,329 | 66 | \$118,898 | 17.80 |
| AUTUMN LANE | 100' N OF KIBBY PL | DEAD END (W) | Prep & Overlay | 1,566 | 67 | \$70,650 | 4.38 |
| AUTUMN LANE #2 | AUTUMN LN | CUL-DE-SAC | Prep & Overlay | 1,172 | 67 | \$52,875 | 4.38 |
| BEDFORD ROAD | CHURCH ST | 500' E OF CHURCH ST | Prep & Overlay (Major Collector) | 455 | 67 | \$22,238 | 87.71 |
| JUDY FARM ROAD | HEALD RD | HEALD RD | Prep & Overlay | 2,870 | 67 | \$134,874 | 4.38 |
| PARTRIDGE LANE | EAST ST | CUL-DE-SAC | Prep & Overlay | 2,272 | 67 | \$93,959 | 4.38 |
| SCHOOL STREET | CHURCH ST | WESTFORD ST | Prep & Overlay | 414 | 67 | \$20,234 | 4.38 |
| KONING FARM ROAD | ACTON ST | CUL-DE-SAC | Prep & Overlay | 1,787 | 68 | \$67,183 | 4.32 |
| NATHAN LANE | MUNROE HILL RD | CUL-DE-SAC | Prep & Overlay | 2,327 | 68 | \$104,982 | 4.32 |
| WOODLAND ROAD | LOG HILL RD | DEAD END | Prep & Overlay | 1,090 | 68 | \$49,175 | 4.32 |

Pavement Backlog Report (PCI Ascending)

| <u>Street Name</u> | <u>From</u> | <u>To</u> | <u>Alternative</u> | <u>Length (ft)</u> | <u>PCI</u> | <u>Repair Cost</u> | <u>Benefit Value</u> |
|---------------------|----------------------------|-----------------------|---------------------------------|--------------------|------------|--------------------|----------------------|
| DAVIS ROAD | MAPLE ST | MAPLE ST | Prep & Overlay | 2,557 | 69 | \$96,132 | 4.25 |
| NOWELL FARME RD | RIVER RD | 100' N OF FERN LN | Prep & Overlay | 1,807 | 69 | \$81,522 | 4.25 |
| BLAISDELL DRIVE | EAST ST | DEAD END | Prep & Overlay | 841 | 71 | \$28,456 | 4.13 |
| CROSS STREET | 150' N OF BRIGHAM RD | WESTFORD ST | Prep & Overlay | 2,495 | 71 | \$84,421 | 4.13 |
| WEST STREET | CONCORD TOWN LINE | 50' S OF SOUTH ST | Prep & Overlay | 1,255 | 71 | \$51,901 | 16.55 |
| CONCORD STREET | 400' N OF INDIAN HILL RD | 100' N OF RUSSELL ST | Surface Treatment (Double Lift) | 2,167 | 73 | \$64,697 | 109.43 |
| CRAIGIE CIRCLE | PETER HANS RD | PETER HANS RD | Surface Treatment (Double Lift) | 1,439 | 73 | \$39,780 | 5.47 |
| FOREST PARK DRIVE | CURVE ST | EVERGREEN LN | Surface Treatment (Double Lift) | 851 | 73 | \$16,938 | 5.47 |
| ICE POND ROAD | EAST ST | CUL-DE-SAC | Surface Treatment (Double Lift) | 1,465 | 73 | \$29,159 | 5.47 |
| RED PINE DRIVE | 800' S OF BEDFORD RD | DEAD END | Surface Treatment (Double Lift) | 484 | 73 | \$8,563 | 5.47 |
| BEDFORD ROAD | 500' E OF CHURCH ST | MAPLE ST (E) | Surface Treatment (Double Lift) | 4,620 | 74 | \$137,932 | 107.96 |
| BEDFORD ROAD | MAPLE ST (E) | SKELTON RD | Surface Treatment (Double Lift) | 4,484 | 74 | \$133,872 | 107.96 |
| HILLSIDE DRIVE | MEADOWBROOK RD | CUL-DE-SAC | Surface Treatment (Double Lift) | 916 | 74 | \$23,296 | 5.39 |
| MEADOWBROOK ROAD | HILLSIDE DR | DEAD END | Surface Treatment (Double Lift) | 1,093 | 74 | \$27,798 | 5.39 |
| NICKLES LANE | EAST ST | OLD EAST ST | Surface Treatment (Double Lift) | 1,108 | 74 | \$24,504 | 5.39 |
| RUSSELL STREET | 1000' E OF CONCORD ST | BELLOWS HILL RD | Surface Treatment (Double Lift) | 2,872 | 74 | \$60,339 | 5.39 |
| SOUTH STREET | 150' E OF WEST ST | WEST ST | Surface Treatment (Double Lift) | 134 | 74 | \$3,556 | 21.59 |
| VIRGINIA FARME LANE | NATHAN LN | CUL-DE-SAC | Surface Treatment (Double Lift) | 2,916 | 74 | \$77,385 | 5.39 |
| WESTFORD STREET | 1000' W OF ROCKLAND RD | 500' W OF ROCKLAND RD | Surface Treatment (Double Lift) | 528 | 74 | \$15,180 | 107.96 |
| ACTON STREET | 1000' W OF WEST ST | 1350' W OF WEST ST | Surface Treatment (Double Lift) | 338 | 75 | \$7,101 | 5.32 |
| BINGHAM ROAD | 700' E OF PHEASANT HILL LN | CROSS ST | Surface Treatment (Double Lift) | 1,199 | 75 | \$25,190 | 5.32 |
| LAURELWOOD DRIVE | HEMLOCK HILL RD | DEAD END | Surface Treatment (Double Lift) | 409 | 75 | \$10,854 | 5.32 |
| ACTON STREET | 200' E OF WEST ST | 200' W OF WEST ST | Surface Treatment (Double Lift) | 408 | 76 | \$12,632 | 5.25 |
| GREAT BROOK PATH | RUTLAND ST | CUL-DE-SAC | Surface Treatment (Double Lift) | 1,238 | 76 | \$24,641 | 5.25 |
| NORTH ROAD | BILLERICA TL | RUTLAND ST | Surface Treatment (Double Lift) | 3,766 | 76 | \$74,957 | 5.25 |
| BEDFORD ROAD | 150' E OF EAST ST | CHURCH ST | Surface Treatment (Double Lift) | 1,778 | 77 | \$51,117 | 103.76 |
| CARRIAGE WAY | EAST RIDING DR | CUL-DE-SAC | Surface Treatment (Double Lift) | 1,262 | 77 | \$27,909 | 5.18 |
| EAST STREET | RUTLAND ST | BLAISDELL DR | Surface Treatment (Double Lift) | 4,578 | 77 | \$121,492 | 20.75 |
| WILKINS LANE | KIMBALL RD | CUL-DE-SAC | Surface Treatment (Double Lift) | 923 | 77 | \$18,371 | 5.18 |
| BARNES PLACE | HUTCHINS RD | DEAD END | Surface Treatment (Double Lift) | 245 | 78 | \$4,335 | 5.12 |
| INDIAN HILL | 300' W OF ROBBINS DR | ROBBINS DR | Surface Treatment (Single Lift) | 293 | 79 | \$3,499 | 7.36 |
| LOWELL STREET | HICKORY LN | 200' N OF ROTARY | Surface Treatment (Single Lift) | 4,782 | 79 | \$79,316 | 147.36 |
| CRANBERRY HILL LANE | CURVE ST | CUL-DE-SAC | Surface Treatment (Single Lift) | 1,232 | 80 | \$14,713 | 7.27 |
| PHEASANT HILL LANE | BINGHAM RD | 150' N OF BINGHAM RD | Surface Treatment (Single Lift) | 174 | 82 | \$2,540 | 7.09 |
| EAST RIDING DRIVE | BROOK ST | EAST ST | Surface Treatment (Single Lift) | 4,788 | 83 | \$76,239 | 7.01 |
| MARTIN STREET | CURVE ST | CHELMSFORD TL | Surface Treatment (Single Lift) | 1,821 | 83 | \$19,330 | 7.01 |
| CANTERBURY COURT | 700' S OF BEDFORD RD | DEAD END | Surface Treatment (Single Lift) | 387 | 84 | \$5,392 | 6.93 |

Pavement Backlog Report (PCI Ascending)

| <u>Street Name</u> | <u>From</u> | <u>To</u> | <u>Alternative</u> | <u>Length (ft)</u> | <u>PCI</u> | <u>Repair Cost</u> | <u>Benefit Value</u> |
|--------------------|-------------------------|----------------------------|---------------------------------|--------------------|------------|--------------------|----------------------|
| BROOK STREET | BEDFORD RD | PETER HANS RD | Surface Treatment (Single Lift) | 6,004 | 85 | \$79,667 | 6.84 |
| RUSSELL STREET | CONCORD ST | 800' E OF CONCORD ST | Crackseal w/Local Patch | 844 | 86 | \$2,800 | 15.38 |
| BELLOWS HILL ROAD | ESTABROOK RD | SCHOOL ST | Crackseal w/Local Patch | 2,129 | 87 | \$6,356 | 15.20 |
| FISKE STREET | CURVE ST | CHELMSFORD TL | Crackseal w/Local Patch | 3,458 | 87 | \$9,750 | 15.20 |
| MAPLE STREET | BILLERICA TL | EAST ST | Crackseal w/Local Patch | 1,720 | 87 | \$6,562 | 60.83 |
| ROBBINS DRIVE | INDIAN HILL | RUSSELL ST | Crackseal w/Local Patch | 1,852 | 87 | \$5,836 | 15.20 |
| WEST STREET | 100' N OF SOUTH ST | LOG HILL RD | Crackseal w/Local Patch | 2,945 | 87 | \$9,281 | 60.83 |
| BINGHAM ROAD | CONCORD ST | 700' E OF PHEASANT HILL LN | Crackseal | 2,289 | 88 | \$2,151 | 44.44 |
| CONCORD STREET | 50' S OF BINGHAM RD | 200' S OF CHURCH ST | Crackseal | 2,863 | 88 | \$4,116 | 888.88 |
| CURVE STREET | MARTIN ST | FISKE ST | Crackseal | 4,006 | 88 | \$3,544 | 44.44 |
| ESTABROOK ROAD | BELLOWS HILL RD | KIBBY PLACE | Crackseal | 1,828 | 88 | \$1,819 | 44.44 |
| FOREST PARK DRIVE | EVERGREEN LN | DEAD END | Crackseal | 487 | 88 | \$485 | 44.44 |
| MAPLE STREET | EAST ST | RED FOX DR | Crackseal | 7,596 | 88 | \$7,979 | 44.44 |
| SKELTON ROAD | BEDFORD RD | RIVER RD | Crackseal | 2,333 | 88 | \$2,451 | 44.44 |
| TIMOTHY LANE | BROOK ST | DEAD END | Crackseal | 535 | 88 | \$592 | 44.44 |
| WEST STREET | LOG HILL RD | 2000' S OF ACTON ST | Crackseal | 2,901 | 88 | \$3,047 | 177.77 |
| WESTFORD STREET | 50' E OF MUNROE HILL RD | 1000' W OF ROCKLAND RD | Crackseal | 2,684 | 88 | \$3,858 | 888.88 |
| WESTFORD STREET | 500' W OF ROCKLAND RD | CONCORD ST | Crackseal | 1,191 | 88 | \$1,712 | 888.88 |
| HANOVER ROAD | WESTFORD ST | CUL-DE-SAC | Crackseal | 2,802 | 89 | \$3,098 | 43.95 |
| JOHNSON ROAD | HANOVER RD | WESTFORD ST | Crackseal | 1,230 | 89 | \$1,360 | 43.95 |
| LOWELL STREET | EMBER LN | HICKORY LN | Crackseal | 1,875 | 89 | \$2,488 | 879.12 |
| NORTH ROAD | RUTLAND ST | 3400' E OF LOWELL ST | Crackseal | 4,871 | 89 | \$5,117 | 43.95 |
| CONCORD STREET | CONCORD TOWN LINE | 400' N OF INDIAN HILL RD | Crackseal | 2,806 | 92 | \$4,034 | 851.06 |
| SOUTH STREET | CONCORD ST | 150' E OF WEST ST | Crackseal | 6,935 | 92 | \$7,668 | 170.21 |
| BALDWIN ROAD | SCHOOL ST | STEARNS ST | Do Nothing | 2,566 | 93 | \$0 | 0.00 |
| CROSS STREET | SOUTH ST | 150' N OF BRIGHAM RD | Do Nothing | 4,026 | 93 | \$0 | 0.00 |
| LOWELL STREET | CHELMSFORD TL | EMBER LN | Do Nothing | 5,536 | 93 | \$0 | 0.00 |
| MAPLE STREET Y INT | MAPLE ST | MAPLE ST | Do Nothing | 368 | 93 | \$0 | 0.00 |
| SCHOOL STREET | BELLOWS HILL RD | 300' N OF BALDWIN RD | Do Nothing | 4,078 | 93 | \$0 | 0.00 |
| WESTFORD STREET | WESTFORD TL | CURVE ST | Do Nothing | 4,690 | 93 | \$0 | 0.00 |
| CURVE STREET | LOWELL ST | MARTIN ST | Do Nothing | 3,792 | 94 | \$0 | 0.00 |
| KIBBY PLACE | AUTUMN LN | ESTABROOK RD | Do Nothing | 772 | 94 | \$0 | 0.00 |
| OLD EAST STREET | EAST ST | EAST MEADOW LN | Do Nothing | 952 | 94 | \$0 | 0.00 |
| ACTON STREET | WESTFORD ST | 200' E OF WEST ST | Do Nothing | 4,450 | 95 | \$0 | 0.00 |
| ACTON STREET | 200' W OF WEST ST | 1000' W OF WEST ST | Do Nothing | 768 | 95 | \$0 | 0.00 |
| ACTON STREET | 1350' W OF WEST ST | ACTON TL | Do Nothing | 752 | 95 | \$0 | 0.00 |
| CONCORD STREET | 100' N OF RUSSELL ST | 50' S OF BINGHAM RD | Do Nothing | 3,156 | 95 | \$0 | 0.00 |

Pavement Backlog Report (PCI Ascending)

| <u>Street Name</u> | <u>From</u> | <u>To</u> | <u>Alternative</u> | <u>Length (ft)</u> | <u>PCI</u> | <u>Repair Cost</u> | <u>Benefit Value</u> |
|----------------------|----------------------|-------------------------|--------------------|--------------------|------------|---------------------|----------------------|
| INDIAN HILL ROAD | CONCORD ST | DEAD END | Do Nothing | 2,016 | 95 | \$0 | 0.00 |
| RED PINE DRIVE | BEDFORD RD | 800' S OF BEDFORD RD | Do Nothing | 818 | 95 | \$0 | 0.00 |
| RIVER ROAD | BEDFORD RD | NOWELL FARME RD | Do Nothing | 2,758 | 95 | \$0 | 0.00 |
| ROUTE 225 ROUNDABOUT | ROUNDABOUT | ROUNDABOUT | Do Nothing | 252 | 95 | \$0 | 0.00 |
| WESTFORD STREET | CURVE ST | 50' E OF MUNROE HILL RD | Do Nothing | 3,755 | 95 | \$0 | 0.00 |
| WOLF ROCK ROAD | LOWELL ST | 500' E OF LOWELL ST | Do Nothing | 491 | 95 | \$0 | 0.00 |
| BEDFORD ROAD | ROTARY | 150' E OF EAST ST | Do Nothing | 584 | 98 | \$0 | 0.00 |
| CONCORD STREET | 200' S OF CHURCH ST | WESTFORD ST | Do Nothing | 626 | 98 | \$0 | 0.00 |
| LOWELL STREET | 200' N OF ROTARY | WESTFORD ST | Do Nothing | 159 | 98 | \$0 | 0.00 |
| RUSSELL STREET | 800' E OF CONCORD ST | 1000' E OF CONCORD ST | Do Nothing | 191 | 98 | \$0 | 0.00 |
| WESTFORD STREET | CONCORD ST | ROUNDABOUT | Do Nothing | 297 | 98 | \$0 | 0.00 |
| EAST STREET | BLAISDELL DR | BEDFORD RD | Do Nothing | 995 | 99 | \$0 | 0.00 |
| RUTLAND STREET | EAST ST | BILLERICA TL | Do Nothing | 6,746 | 99 | \$0 | 0.00 |
| EAST STREET | MAPLE ST | RUTLAND ST | Do Nothing | 5,249 | 100 | \$0 | 0.00 |
| PATCH MEADOW LANE | RUTLAND ST | CUL-DE-SAC | Do Nothing | 1,489 | 100 | \$0 | 0.00 |
| PHEASANT HILL LANE | 150' N OF BINGHAM RD | CUL-DE-SAC | Do Nothing | 1,380 | 100 | \$0 | 0.00 |
| PINE BROOK ROAD | NORTH RD | CUL-DE-SAC | Do Nothing | 1,550 | 100 | \$0 | 0.00 |
| Totals: | | | | 58.99 Miles | | \$ 9,118,983 | |

APPENDIX C – Pavement Distress Report

Pavement Distress Report

| | | <u>Survey Date</u> | <u>Length (ft)</u> | <u>PCI</u> |
|--|--------|--------------------------|---------------------|------------------|
| ■ AARON WAY | | | | |
| <i>MUNROE HILL RD TO CUL-DE-SAC</i> | | <i>08/03/2023</i> | <i>920</i> | <i>66</i> |
| Alligator Cracking | Medium | 2) 1% - 5% | | |
| Potholes & Non-Utility Pat | Light | 1) 0% - 1% | | |
| Distortion | Light | 2) 1% - 5% | | |
| Block Cracking | Medium | 1) 0% - 5% | | |
| Transverse & Long. Cracking | Heavy | 3) 50% - 75% | | |
| ■ ACTON STREET | | | | |
| <i>WESTFORD ST TO 200' E OF WEST ST</i> | | <i>08/23/2023</i> | <i>4,450</i> | <i>95</i> |
| Alligator Cracking | Light | 1) 0% - 1% | | |
| Transverse & Long. Cracking | Light | 1) 0% - 5% | | |
| <i>200' E OF WEST ST TO 200' W OF WEST ST</i> | | <i>08/23/2023</i> | <i>408</i> | <i>76</i> |
| Alligator Cracking | Light | 2) 1% - 5% | | |
| Distortion | Light | 1) 0% - 1% | | |
| Transverse & Long. Cracking | Medium | 3) 50% - 75% | | |
| <i>200' W OF WEST ST TO 1000' W OF WEST ST</i> | | <i>08/23/2023</i> | <i>768</i> | <i>95</i> |
| Alligator Cracking | Light | 1) 0% - 1% | | |
| <i>1000' W OF WEST ST TO 1350' W OF WEST ST</i> | | <i>08/23/2023</i> | <i>338</i> | <i>75</i> |
| Alligator Cracking | Medium | 2) 1% - 5% | | |
| Potholes & Non-Utility Pat | Light | 1) 0% - 1% | | |
| Distortion | Light | 2) 1% - 5% | | |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% | | |
| <i>1350' W OF WEST ST TO ACTON TL</i> | | <i>08/23/2023</i> | <i>752</i> | <i>95</i> |
| Alligator Cracking | Light | 1) 0% - 1% | | |
| Ravelling | Light | Localized | | |

■ **AUTUMN LANE**

ROBBINS DR TO 100' N OF KIBBY PL **08/22/2023** **1,425** **41**

| | | |
|-----------------------------|--------|---------------|
| Alligator Cracking | Heavy | 4) 10% - 100% |
| Ravelling | Light | Extensive |
| Potholes & Non-Utility Pat | Light | 2) 1% - 5% |
| Distortion | Light | 3) 5% - 10% |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% |

100' N OF KIBBY PL TO DEAD END (W) **08/22/2023** **1,566** **67**

| | | |
|-----------------------------|--------|-------------|
| Alligator Cracking | Medium | 3) 5% - 10% |
| Distortion | Light | 2) 1% - 5% |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% |

■ **AUTUMN LANE #2**

AUTUMN LN TO CUL-DE-SAC **08/22/2023** **1,172** **67**

| | | |
|-----------------------------|--------|-------------|
| Alligator Cracking | Medium | 3) 5% - 10% |
| Distortion | Light | 2) 1% - 5% |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% |

■ **BALDWIN ROAD**

SCHOOL ST TO STEARNS ST **08/24/2023** **2,566** **93**

| | | |
|-----------------------------|--------|------------|
| Alligator Cracking | Light | 1) 0% - 1% |
| Distortion | Light | 1) 0% - 1% |
| Transverse & Long. Cracking | Medium | 1) 0% - 5% |

STEARNS ST TO DEAD END **08/24/2023** **2,243** **43**

| | | |
|-----------------------------|--------|---------------|
| Alligator Cracking | Heavy | 4) 10% - 100% |
| Distortion | Light | 3) 5% - 10% |
| Block Cracking | Medium | 1) 0% - 5% |
| Transverse & Long. Cracking | Heavy | 2) 5% - 50% |

■ **BARNES PLACE**

HUTCHINS RD TO DEAD END **08/02/2023** **245** **78**

| | | |
|-----------------------------|--------|------------|
| Alligator Cracking | Medium | 2) 1% - 5% |
| Distortion | Light | 1) 0% - 1% |
| Transverse & Long. Cracking | Medium | 1) 0% - 5% |

■ **BEDFORD ROAD**

| | | | <u>Survey Date</u> | <u>Length (ft)</u> | <u>PCI</u> |
|---|--------|--|--------------------|--------------------|------------|
| <i>ROTARY TO 150' E OF EAST ST</i> | | | 08/17/2023 | 584 | 98 |
| Ravelling | Light | | Localized | | |
| Transverse & Long. Cracking | Light | | 1) 0% - 5% | | |
| <i>150' E OF EAST ST TO CHURCH ST</i> | | | 08/17/2023 | 1,778 | 77 |
| Alligator Cracking | Medium | | 2) 1% - 5% | | |
| Potholes & Non-Utility Pat | Medium | | 1) 0% - 1% | | |
| Block Cracking | Light | | 1) 0% - 5% | | |
| Transverse & Long. Cracking | Medium | | 1) 0% - 5% | | |
| Bleeding | Light | | Localized | | |
| <i>CHURCH ST TO 500' E OF CHURCH ST</i> | | | 08/17/2023 | 455 | 67 |
| Alligator Cracking | Medium | | 3) 5% - 10% | | |
| Potholes & Non-Utility Pat | Light | | 2) 1% - 5% | | |
| Transverse & Long. Cracking | Medium | | 2) 5% - 50% | | |
| <i>500' E OF CHURCH ST TO MAPLE ST (E)</i> | | | 08/17/2023 | 4,620 | 74 |
| Alligator Cracking | Medium | | 2) 1% - 5% | | |
| Ravelling | Heavy | | Extensive | | |
| Potholes & Non-Utility Pat | Light | | 2) 1% - 5% | | |
| Distortion | Light | | 1) 0% - 1% | | |
| Transverse & Long. Cracking | Medium | | 2) 5% - 50% | | |
| <i>MAPLE ST (E) TO SKELTON RD</i> | | | 08/17/2023 | 4,484 | 74 |
| Alligator Cracking | Medium | | 2) 1% - 5% | | |
| Ravelling | Heavy | | Extensive | | |
| Potholes & Non-Utility Pat | Light | | 2) 1% - 5% | | |
| Distortion | Light | | 1) 0% - 1% | | |
| Transverse & Long. Cracking | Medium | | 2) 5% - 50% | | |

■ **BELLOWS HILL ROAD**

| | | | | | |
|---|-------|--|-------------------|--------------|-----------|
| <i>ESTABROOK RD TO SCHOOL ST</i> | | | 08/22/2023 | 2,129 | 87 |
| Alligator Cracking | Light | | 2) 1% - 5% | | |
| Ravelling | Heavy | | Localized | | |
| Distortion | Light | | 2) 1% - 5% | | |
| Transverse & Long. Cracking | Light | | 2) 5% - 50% | | |

| | | | <u>Survey Date</u> | <u>Length (ft)</u> | <u>PCI</u> |
|--|--------|---------------|--------------------|--------------------|------------|
| ■ BERRY CORNER LANE | | | | | |
| <hr/> | | | | | |
| <i>BERRY CORNER RD TO CUL-DE-SAC</i> | | | 08/22/2023 | 60 | 51 |
| Alligator Cracking | Medium | 4) 10% - 100% | | | |
| Distortion | Light | 4) 10% - 100% | | | |
| Transverse & Long. Cracking | Heavy | 3) 50% - 75% | | | |
| ■ BERRY CORNER ROAD | | | | | |
| <hr/> | | | | | |
| <i>HEALD RD TO DEAD END</i> | | | 08/22/2023 | 912 | 54 |
| Alligator Cracking | Medium | 4) 10% - 100% | | | |
| Potholes & Non-Utility Pat | Medium | 1) 0% - 1% | | | |
| Distortion | Light | 2) 1% - 5% | | | |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% | | | |
| ■ BINGHAM ROAD | | | | | |
| <hr/> | | | | | |
| <i>CONCORD ST TO 700' E OF PHEASANT HILL LN</i> | | | 08/22/2023 | 2,289 | 88 |
| Alligator Cracking | Medium | 1) 0% - 1% | | | |
| Distortion | Light | 1) 0% - 1% | | | |
| Transverse & Long. Cracking | Medium | 1) 0% - 5% | | | |
| <i>700' E OF PHEASANT HILL LN TO CROSS ST</i> | | | 08/23/2023 | 1,199 | 75 |
| Alligator Cracking | Medium | 2) 1% - 5% | | | |
| Potholes & Non-Utility Pat | Light | 1) 0% - 1% | | | |
| Distortion | Light | 2) 1% - 5% | | | |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% | | | |
| ■ BLAISDELL DRIVE | | | | | |
| <hr/> | | | | | |
| <i>EAST ST TO DEAD END</i> | | | 08/03/2023 | 841 | 71 |
| Alligator Cracking | Medium | 2) 1% - 5% | | | |
| Ravelling | Light | Extensive | | | |
| Distortion | Light | 3) 5% - 10% | | | |
| Block Cracking | Medium | 2) 5% - 50% | | | |
| Transverse & Long. Cracking | Medium | 3) 50% - 75% | | | |

| | | | <u>Survey Date</u> | <u>Length (ft)</u> | <u>PCI</u> |
|---|--------|---------------|--------------------------|---------------------|------------------|
| ■ BROOK STREET | | | | | |
| <hr/> | | | | | |
| <i>BEDFORD RD TO PETER HANS RD</i> | | | <i>08/03/2023</i> | <i>6,004</i> | <i>85</i> |
| Alligator Cracking | Medium | 1) 0% - 1% | | | |
| Potholes & Non-Utility Pat | Light | 1) 0% - 1% | | | |
| Distortion | Light | 2) 1% - 5% | | | |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% | | | |
| ■ CANTERBURY COURT | | | | | |
| <hr/> | | | | | |
| <i>BEDFORD RD TO 700'S OF BEDFORD RD</i> | | | <i>08/23/2023</i> | <i>707</i> | <i>55</i> |
| Alligator Cracking | Medium | 4) 10% - 100% | | | |
| Distortion | Light | 2) 1% - 5% | | | |
| Block Cracking | Medium | 3) 50% - 75% | | | |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% | | | |
| <i>700'S OF BEDFORD RD TO DEAD END</i> | | | <i>08/23/2023</i> | <i>387</i> | <i>84</i> |
| Alligator Cracking | Heavy | 1) 0% - 1% | | | |
| Distortion | Light | 1) 0% - 1% | | | |
| Transverse & Long. Cracking | Light | 1) 0% - 5% | | | |
| ■ CARLETON ROAD | | | | | |
| <hr/> | | | | | |
| <i>EAST RIDING DR TO TOPHET RD</i> | | | <i>08/03/2023</i> | <i>1,683</i> | <i>54</i> |
| Alligator Cracking | Medium | 4) 10% - 100% | | | |
| Potholes & Non-Utility Pat | Light | 1) 0% - 1% | | | |
| Distortion | Light | 2) 1% - 5% | | | |
| Transverse & Long. Cracking | Medium | 3) 50% - 75% | | | |
| ■ CARLISLE PINES DRIVE | | | | | |
| <hr/> | | | | | |
| <i>EVERGREEN LN TO DEAD END</i> | | | <i>08/02/2023</i> | <i>1,449</i> | <i>47</i> |
| Alligator Cracking | Medium | 4) 10% - 100% | | | |
| Ravelling | Heavy | Localized | | | |
| Potholes & Non-Utility Pat | Medium | 2) 1% - 5% | | | |
| Distortion | Light | 3) 5% - 10% | | | |
| Block Cracking | Medium | 1) 0% - 5% | | | |
| Transverse & Long. Cracking | Medium | 3) 50% - 75% | | | |

| | | | <u>Survey Date</u> | <u>Length (ft)</u> | <u>PCI</u> |
|--|--------|---------------|--------------------------|---------------------|------------------|
| ■ CARRIAGE WAY | | | | | |
| <hr/> | | | | | |
| <i>EAST RIDING DR TO CUL-DE-SAC</i> | | | <i>08/03/2023</i> | <i>1,262</i> | <i>77</i> |
| Alligator Cracking | Light | 1) 0% - 1% | | | |
| Distortion | Light | 1) 0% - 1% | | | |
| Block Cracking | Medium | 1) 0% - 5% | | | |
| Transverse & Long. Cracking | Medium | 3) 50% - 75% | | | |
| ■ CHURCH STREET | | | | | |
| <hr/> | | | | | |
| <i>BEDFORD RD TO 850' W OF BEDFORD RD</i> | | | <i>08/18/2023</i> | <i>846</i> | <i>44</i> |
| Alligator Cracking | Heavy | 4) 10% - 100% | | | |
| Potholes & Non-Utility Pat | Light | 2) 1% - 5% | | | |
| Distortion | Light | 2) 1% - 5% | | | |
| Block Cracking | Medium | 2) 5% - 50% | | | |
| <i>850' W OF BEDFORD RD TO SCHOOL ST</i> | | | <i>08/18/2023</i> | <i>1,297</i> | <i>37</i> |
| Alligator Cracking | Heavy | 4) 10% - 100% | | | |
| Potholes & Non-Utility Pat | Light | 3) 5% - 10% | | | |
| Distortion | Medium | 2) 1% - 5% | | | |
| Block Cracking | Heavy | 2) 5% - 50% | | | |
| Transverse & Long. Cracking | Heavy | 1) 0% - 5% | | | |
| <i>SCHOOL ST TO CONCORD ST</i> | | | <i>08/18/2023</i> | <i>242</i> | <i>66</i> |
| Alligator Cracking | Medium | 2) 1% - 5% | | | |
| Distortion | Light | 2) 1% - 5% | | | |
| Block Cracking | Medium | 2) 5% - 50% | | | |
| Transverse & Long. Cracking | Medium | 4) 75% - 100% | | | |
| <i>CONCORD ST TO WESTFORD ST</i> | | | <i>08/11/2023</i> | <i>562</i> | <i>52</i> |
| Alligator Cracking | Medium | 4) 10% - 100% | | | |
| Potholes & Non-Utility Pat | Light | 2) 1% - 5% | | | |
| Distortion | Light | 3) 5% - 10% | | | |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% | | | |

| | | <u>Survey Date</u> | <u>Length (ft)</u> | <u>PCI</u> |
|--|--------|--------------------------|---------------------|------------------|
| ■ CONCORD STREET | | | | |
| <i>CONCORD TOWN LINE TO 400' N OF INDIAN HILL RD</i> | | <i>08/18/2023</i> | <i>2,806</i> | <i>92</i> |
| Alligator Cracking | Light | 1) 0% - 1% | | |
| Potholes & Non-Utility Pat | Light | 1) 0% - 1% | | |
| Distortion | Light | 1) 0% - 1% | | |
| Transverse & Long. Cracking | Light | 2) 5% - 50% | | |
| <i>400' N OF INDIAN HILL RD TO 100' N OF RUSSELL ST</i> | | <i>08/18/2023</i> | <i>2,167</i> | <i>73</i> |
| Alligator Cracking | Medium | 2) 1% - 5% | | |
| Potholes & Non-Utility Pat | Light | 1) 0% - 1% | | |
| Distortion | Light | 2) 1% - 5% | | |
| Block Cracking | Medium | 2) 5% - 50% | | |
| Transverse & Long. Cracking | Medium | 3) 50% - 75% | | |
| <i>100' N OF RUSSELL ST TO 50' S OF BINGHAM RD</i> | | <i>08/18/2023</i> | <i>3,156</i> | <i>95</i> |
| Distortion | Light | 1) 0% - 1% | | |
| Transverse & Long. Cracking | Medium | 1) 0% - 5% | | |
| <i>50' S OF BINGHAM RD TO 200' S OF CHURCH ST</i> | | <i>08/18/2023</i> | <i>2,863</i> | <i>88</i> |
| Alligator Cracking | Medium | 1) 0% - 1% | | |
| Potholes & Non-Utility Pat | Light | 1) 0% - 1% | | |
| Transverse & Long. Cracking | Medium | 1) 0% - 5% | | |
| <i>200' S OF CHURCH ST TO WESTFORD ST</i> | | <i>08/18/2023</i> | <i>626</i> | <i>98</i> |
| Ravelling | Light | Localized | | |
| ■ CONNECTOR ROAD | | | | |
| <i>PROCTOR RD TO LOWELL ST</i> | | <i>08/02/2023</i> | <i>462</i> | <i>34</i> |
| Alligator Cracking | Heavy | 4) 10% - 100% | | |
| Potholes & Non-Utility Pat | Light | 4) 10% - 100% | | |
| Distortion | Light | 4) 10% - 100% | | |

■ **CRAIGIE CIRCLE**

PETER HANS RD TO PETER HANS RD **08/03/2023** **1,439** **73**

| | | |
|-----------------------------|--------|-------------|
| Alligator Cracking | Medium | 2) 1% - 5% |
| Ravelling | Light | Localized |
| Distortion | Light | 3) 5% - 10% |
| Transverse & Long. Cracking | Heavy | 2) 5% - 50% |

■ **CRANBERRY HILL LANE**

CURVE ST TO CUL-DE-SAC **08/02/2023** **1,232** **80**

| | | |
|-----------------------------|--------|-------------|
| Alligator Cracking | Medium | 1) 0% - 1% |
| Distortion | Light | 2) 1% - 5% |
| Transverse & Long. Cracking | Heavy | 2) 5% - 50% |

■ **CROSS STREET**

SOUTH ST TO 150' N OF BRIGHAM RD **08/22/2023** **4,026** **93**

| | | |
|-----------------------------|--------|------------|
| Alligator Cracking | Light | 1) 0% - 1% |
| Distortion | Light | 1) 0% - 1% |
| Transverse & Long. Cracking | Medium | 1) 0% - 5% |

150' N OF BRIGHAM RD TO WESTFORD ST **08/22/2023** **2,495** **71**

| | | |
|-----------------------------|--------|-------------|
| Alligator Cracking | Medium | 2) 1% - 5% |
| Potholes & Non-Utility Pat | Medium | 1) 0% - 1% |
| Distortion | Medium | 2) 1% - 5% |
| Rutting | Light | 1) 0% - 5% |
| Transverse & Long. Cracking | Heavy | 2) 5% - 50% |

| | | | <u>Survey Date</u> | <u>Length (ft)</u> | <u>PCI</u> |
|---------------------------------------|--------|---------------|--------------------|--------------------|------------|
| ■ CURVE STREET | | | | | |
| <i>LOWELL ST TO MARTIN ST</i> | | | 08/02/2023 | 3,792 | 94 |
| Alligator Cracking | Light | 1) 0% - 1% | | | |
| Ravelling | Light | Localized | | | |
| Distortion | Light | 1) 0% - 1% | | | |
| <i>MARTIN ST TO FISKE ST</i> | | | 08/02/2023 | 4,006 | 88 |
| Alligator Cracking | Medium | 1) 0% - 1% | | | |
| Ravelling | Light | Localized | | | |
| Distortion | Light | 1) 0% - 1% | | | |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% | | | |
| <i>FISKE ST TO WESTFORD ST</i> | | | 08/02/2023 | 4,557 | 52 |
| Alligator Cracking | Medium | 4) 10% - 100% | | | |
| Ravelling | Heavy | Localized | | | |
| Potholes & Non-Utility Pat | Light | 2) 1% - 5% | | | |
| Distortion | Light | 2) 1% - 5% | | | |
| Block Cracking | Medium | 2) 5% - 50% | | | |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% | | | |
| ■ DAVIS ROAD | | | | | |
| <i>MAPLE ST TO MAPLE ST</i> | | | 08/03/2023 | 2,557 | 69 |
| Alligator Cracking | Medium | 1) 0% - 1% | | | |
| Distortion | Light | 1) 0% - 1% | | | |
| Block Cracking | Medium | 3) 50% - 75% | | | |
| Transverse & Long. Cracking | Heavy | 3) 50% - 75% | | | |
| ■ EAST MEADOW LANE | | | | | |
| <i>EAST ST TO CUL-DE-SAC</i> | | | 08/03/2023 | 1,104 | 65 |
| Alligator Cracking | Medium | 2) 1% - 5% | | | |
| Potholes & Non-Utility Pat | Light | 1) 0% - 1% | | | |
| Distortion | Light | 4) 10% - 100% | | | |
| Block Cracking | Medium | 2) 5% - 50% | | | |
| Transverse & Long. Cracking | Heavy | 3) 50% - 75% | | | |

| | | | <u>Survey Date</u> | <u>Length (ft)</u> | <u>PCI</u> |
|--|--------|---------------|--------------------|--------------------|------------|
| ■ EAST RIDING DRIVE | | | | | |
| <hr/> | | | | | |
| <i>BROOK ST TO EAST ST</i> | | | 08/08/2023 | 4,788 | 83 |
| Alligator Cracking | Heavy | 1) 0% - 1% | | | |
| Distortion | Light | 1) 0% - 1% | | | |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% | | | |
| ■ EAST STREET | | | | | |
| <hr/> | | | | | |
| <i>MAPLE ST TO RUTLAND ST</i> | | | 08/08/2023 | 5,249 | 100 |
| <i>RUTLAND ST TO BLAISDELL DR</i> | | | 08/08/2023 | 4,578 | 77 |
| Alligator Cracking | Medium | 2) 1% - 5% | | | |
| Potholes & Non-Utility Pat | Light | 1) 0% - 1% | | | |
| Distortion | Light | 1) 0% - 1% | | | |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% | | | |
| <i>BLAISDELL DR TO BEDFORD RD</i> | | | 08/08/2023 | 995 | 99 |
| Transverse & Long. Cracking | Light | 1) 0% - 5% | | | |
| ■ ELIZABETH RIDGE ROAD | | | | | |
| <hr/> | | | | | |
| <i>MORSE RD TO SUNSET RD</i> | | | 08/08/2023 | 2,914 | 54 |
| Alligator Cracking | Medium | 4) 10% - 100% | | | |
| Potholes & Non-Utility Pat | Light | 1) 0% - 1% | | | |
| Distortion | Light | 2) 1% - 5% | | | |
| Transverse & Long. Cracking | Medium | 3) 50% - 75% | | | |
| ■ EMBER LANE | | | | | |
| <hr/> | | | | | |
| <i>LOWELL ST TO CUL-DE-SAC</i> | | | 08/08/2023 | 1,747 | 59 |
| Alligator Cracking | Medium | 3) 5% - 10% | | | |
| Ravelling | Heavy | Extensive | | | |
| Potholes & Non-Utility Pat | Light | 2) 1% - 5% | | | |
| Distortion | Light | 3) 5% - 10% | | | |
| Block Cracking | Medium | 2) 5% - 50% | | | |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% | | | |

| | | | <u>Survey Date</u> | <u>Length (ft)</u> | <u>PCI</u> |
|---|--------|---------------|--------------------------|---------------------|------------------|
| ■ ESTABROOK ROAD | | | | | |
| <hr/> | | | | | |
| <i>BELLOWS HILL RD TO KIBBY PLACE</i> | | | <i>08/22/2023</i> | <i>1,828</i> | <i>88</i> |
| Alligator Cracking | Medium | 1) 0% - 1% | | | |
| Ravelling | Light | Localized | | | |
| Distortion | Light | 1) 0% - 1% | | | |
| Transverse & Long. Cracking | Medium | 1) 0% - 5% | | | |
| ■ EVERGREEN LANE | | | | | |
| <hr/> | | | | | |
| <i>CARLISLE PINES DR TO FOREST PARK DR</i> | | | <i>08/02/2023</i> | <i>1,341</i> | <i>54</i> |
| Alligator Cracking | Heavy | 3) 5% - 10% | | | |
| Potholes & Non-Utility Pat | Light | 2) 1% - 5% | | | |
| Distortion | Light | 2) 1% - 5% | | | |
| Block Cracking | Medium | 1) 0% - 5% | | | |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% | | | |
| ■ FERN LANE | | | | | |
| <hr/> | | | | | |
| <i>NOWELL FARME RD TO CUL-DE-SAC</i> | | | <i>08/22/2023</i> | <i>990</i> | <i>61</i> |
| Alligator Cracking | Medium | 3) 5% - 10% | | | |
| Distortion | Light | 4) 10% - 100% | | | |
| Block Cracking | Medium | 2) 5% - 50% | | | |
| Transverse & Long. Cracking | Heavy | 2) 5% - 50% | | | |
| ■ FISKE STREET | | | | | |
| <hr/> | | | | | |
| <i>CURVE ST TO CHELMSFORD TL</i> | | | <i>08/02/2023</i> | <i>3,458</i> | <i>87</i> |
| Alligator Cracking | Medium | 1) 0% - 1% | | | |
| Potholes & Non-Utility Pat | Light | 1) 0% - 1% | | | |
| Distortion | Light | 1) 0% - 1% | | | |
| Transverse & Long. Cracking | Light | 2) 5% - 50% | | | |

■ FOREST PARK DRIVE

| <i>CURVE ST TO EVERGREEN LN</i> | | | <i>08/02/2023</i> | <i>851</i> | <i>73</i> |
|--|--------|-------------|--------------------------|-------------------|------------------|
| Alligator Cracking | Medium | 2) 1% - 5% | | | |
| Potholes & Non-Utility Pat | Medium | 1) 0% - 1% | | | |
| Distortion | Light | 2) 1% - 5% | | | |
| Block Cracking | Medium | 2) 5% - 50% | | | |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% | | | |

| <i>EVERGREEN LN TO DEAD END</i> | | | <i>08/02/2023</i> | <i>487</i> | <i>88</i> |
|--|--------|------------|--------------------------|-------------------|------------------|
| Alligator Cracking | Light | 1) 0% - 1% | | | |
| Distortion | Light | 2) 1% - 5% | | | |
| Transverse & Long. Cracking | Medium | 1) 0% - 5% | | | |

■ FOSS ST

| <i>BEDFORD RD TO RIVER RD</i> | | | <i>08/29/2023</i> | <i>540</i> | <i>52</i> |
|--------------------------------------|--------|---------------|--------------------------|-------------------|------------------|
| Alligator Cracking | Medium | 4) 10% - 100% | | | |
| Potholes & Non-Utility Pat | Light | 1) 0% - 1% | | | |
| Distortion | Light | 2) 1% - 5% | | | |
| Rutting | Light | 3) 50% - 75% | | | |
| Transverse & Long. Cracking | Medium | 1) 0% - 5% | | | |

■ GARNET ROCK LANE

| <i>LONG RIDGE RD TO NOWELL FARME RD</i> | | | <i>08/22/2023</i> | <i>947</i> | <i>55</i> |
|--|--------|---------------|--------------------------|-------------------|------------------|
| Alligator Cracking | Medium | 4) 10% - 100% | | | |
| Potholes & Non-Utility Pat | Light | 2) 1% - 5% | | | |
| Distortion | Light | 2) 1% - 5% | | | |
| Transverse & Long. Cracking | Medium | 1) 0% - 5% | | | |

■ GREAT BROOK PATH

| <i>RUTLAND ST TO CUL-DE-SAC</i> | | | <i>08/08/2023</i> | <i>1,238</i> | <i>76</i> |
|--|--------|-------------|--------------------------|---------------------|------------------|
| Alligator Cracking | Medium | 2) 1% - 5% | | | |
| Ravelling | Light | Localized | | | |
| Distortion | Light | 2) 1% - 5% | | | |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% | | | |

| | | | <u>Survey Date</u> | <u>Length (ft)</u> | <u>PCI</u> |
|---|--------|---------------|--------------------------|---------------------|------------------|
| ■ HANOVER ROAD | | | | | |
| <hr/> | | | | | |
| <i>WESTFORD ST TO CUL-DE-SAC</i> | | | <i>08/08/2023</i> | <i>2,802</i> | <i>89</i> |
| Alligator Cracking | Medium | 1) 0% - 1% | | | |
| Distortion | Light | 1) 0% - 1% | | | |
| Transverse & Long. Cracking | Light | 1) 0% - 5% | | | |
| ■ HARTWELL ROAD | | | | | |
| <hr/> | | | | | |
| <i>CONCORD TL TO CUL-DE-SAC</i> | | | <i>08/22/2023</i> | <i>1,550</i> | <i>46</i> |
| Alligator Cracking | Heavy | 4) 10% - 100% | | | |
| Potholes & Non-Utility Pat | Medium | 1) 0% - 1% | | | |
| Block Cracking | Heavy | 2) 5% - 50% | | | |
| ■ HEALD ROAD | | | | | |
| <hr/> | | | | | |
| <i>ACTON ST TO JUDY FARM RD (N)</i> | | | <i>08/23/2023</i> | <i>1,180</i> | <i>51</i> |
| Alligator Cracking | Medium | 4) 10% - 100% | | | |
| Ravelling | Heavy | Extensive | | | |
| Potholes & Non-Utility Pat | Light | 2) 1% - 5% | | | |
| Distortion | Light | 3) 5% - 10% | | | |
| Block Cracking | Medium | 1) 0% - 5% | | | |
| <i>JUDY FARM RD (N) TO 2200' N OF SOUTH ST</i> | | | <i>08/23/2023</i> | <i>2,912</i> | <i>65</i> |
| Alligator Cracking | Medium | 3) 5% - 10% | | | |
| Potholes & Non-Utility Pat | Light | 1) 0% - 1% | | | |
| Distortion | Light | 2) 1% - 5% | | | |
| Transverse & Long. Cracking | Heavy | 2) 5% - 50% | | | |
| <i>2200' N OF SOUTH ST TO SOUTH ST</i> | | | <i>08/23/2023</i> | <i>2,198</i> | <i>51</i> |
| Alligator Cracking | Medium | 4) 10% - 100% | | | |
| Ravelling | Heavy | Extensive | | | |
| Potholes & Non-Utility Pat | Light | 2) 1% - 5% | | | |
| Distortion | Light | 2) 1% - 5% | | | |
| Block Cracking | Medium | 2) 5% - 50% | | | |
| Transverse & Long. Cracking | Heavy | 2) 5% - 50% | | | |

| | | | <u>Survey Date</u> | <u>Length (ft)</u> | <u>PCI</u> |
|---|--------|---------------|--------------------------|---------------------|------------------|
| ■ HEMLOCK HILL ROAD | | | | | |
| <hr/> | | | | | |
| <i>LAURELWOOD DR TO OAK KNOLL RD</i> | | | <i>08/08/2023</i> | <i>1,717</i> | <i>54</i> |
| Alligator Cracking | Medium | 4) 10% - 100% | | | |
| Potholes & Non-Utility Pat | Light | 1) 0% - 1% | | | |
| Distortion | Light | 2) 1% - 5% | | | |
| Block Cracking | Medium | 1) 0% - 5% | | | |
| Transverse & Long. Cracking | Medium | 3) 50% - 75% | | | |
| ■ HILLSIDE DRIVE | | | | | |
| <hr/> | | | | | |
| <i>MEADOWBROOK RD TO CUL-DE-SAC</i> | | | <i>08/08/2023</i> | <i>916</i> | <i>74</i> |
| Alligator Cracking | Medium | 1) 0% - 1% | | | |
| Distortion | Light | 2) 1% - 5% | | | |
| Block Cracking | Medium | 2) 5% - 50% | | | |
| Transverse & Long. Cracking | Medium | 3) 50% - 75% | | | |
| ■ HUTCHINS ROAD | | | | | |
| <hr/> | | | | | |
| <i>KIMBALL RD TO 1400' W OF CURVE ST</i> | | | <i>08/02/2023</i> | <i>1,418</i> | <i>66</i> |
| Alligator Cracking | Medium | 3) 5% - 10% | | | |
| Distortion | Light | 1) 0% - 1% | | | |
| Block Cracking | Medium | 1) 0% - 5% | | | |
| Transverse & Long. Cracking | Medium | 3) 50% - 75% | | | |
| <i>1400' W OF CURVE ST TO CURVE ST</i> | | | <i>08/02/2023</i> | <i>1,407</i> | <i>56</i> |
| Alligator Cracking | Medium | 4) 10% - 100% | | | |
| Potholes & Non-Utility Pat | Light | 1) 0% - 1% | | | |
| Distortion | Light | 1) 0% - 1% | | | |
| Block Cracking | Medium | 1) 0% - 5% | | | |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% | | | |
| ■ ICE POND ROAD | | | | | |
| <hr/> | | | | | |
| <i>EAST ST TO CUL-DE-SAC</i> | | | <i>08/08/2023</i> | <i>1,465</i> | <i>73</i> |
| Alligator Cracking | Medium | 2) 1% - 5% | | | |
| Ravelling | Light | Localized | | | |
| Potholes & Non-Utility Pat | Light | 3) 5% - 10% | | | |
| Distortion | Light | 1) 0% - 1% | | | |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% | | | |

■ **INDIAN HILL**

| <i>INDIAN HILL RD TO 300' W OF ROBBINS DR</i> | <i>08/22/2023</i> | <i>2,430</i> | <i>47</i> |
|---|-------------------|--------------|-----------|
| Alligator Cracking | Heavy | 3) 5% - 10% | |
| Ravelling | Heavy | Extensive | |
| Potholes & Non-Utility Pat | Light | 3) 5% - 10% | |
| Distortion | Light | 3) 5% - 10% | |
| Transverse & Long. Cracking | Heavy | 3) 50% - 75% | |

| <i>300' W OF ROBBINS DR TO ROBBINS DR</i> | <i>08/22/2023</i> | <i>293</i> | <i>79</i> |
|---|-------------------|-------------|-----------|
| Alligator Cracking | Light | 3) 5% - 10% | |
| Ravelling | Heavy | Localized | |
| Transverse & Long. Cracking | Light | 2) 5% - 50% | |

■ **INDIAN HILL ROAD**

| <i>CONCORD ST TO DEAD END</i> | <i>08/22/2023</i> | <i>2,016</i> | <i>95</i> |
|-------------------------------|-------------------|--------------|-----------|
| Distortion | Light | 1) 0% - 1% | |
| Transverse & Long. Cracking | Light | 1) 0% - 5% | |

■ **JOHNSON ROAD**

| <i>HANOVER RD TO WESTFORD ST</i> | <i>08/08/2023</i> | <i>1,230</i> | <i>89</i> |
|----------------------------------|-------------------|--------------|-----------|
| Alligator Cracking | Medium | 1) 0% - 1% | |
| Distortion | Light | 1) 0% - 1% | |
| Transverse & Long. Cracking | Light | 1) 0% - 5% | |

■ **JUDY FARM ROAD**

| <i>HEALD RD TO HEALD RD</i> | <i>08/29/2023</i> | <i>2,870</i> | <i>67</i> |
|-----------------------------|-------------------|--------------|-----------|
| Alligator Cracking | Medium | 2) 1% - 5% | |
| Ravelling | Heavy | Localized | |
| Distortion | Light | 1) 0% - 1% | |
| Block Cracking | Medium | 2) 5% - 50% | |
| Transverse & Long. Cracking | Heavy | 3) 50% - 75% | |

| | | | <u>Survey Date</u> | <u>Length (ft)</u> | <u>PCI</u> |
|---|--------|---------------|--------------------|--------------------|------------|
| ■ KIBBY PLACE | | | | | |
| <hr/> | | | | | |
| <i>AUTUMN LN TO ESTABROOK RD</i> | | | <i>08/22/2023</i> | <i>772</i> | <i>94</i> |
| Alligator Cracking | Light | 1) 0% - 1% | | | |
| Distortion | Light | 1) 0% - 1% | | | |
| Transverse & Long. Cracking | Light | 1) 0% - 5% | | | |
| ■ KIMBALL ROAD | | | | | |
| <hr/> | | | | | |
| <i>FISKE ST TO CUL-DE-SAC</i> | | | <i>08/02/2023</i> | <i>3,245</i> | <i>65</i> |
| Alligator Cracking | Medium | 3) 5% - 10% | | | |
| Ravelling | Light | Localized | | | |
| Potholes & Non-Utility Pat | Light | 1) 0% - 1% | | | |
| Block Cracking | Medium | 2) 5% - 50% | | | |
| Transverse & Long. Cracking | Medium | 3) 50% - 75% | | | |
| ■ KONING FARM ROAD | | | | | |
| <hr/> | | | | | |
| <i>ACTON ST TO CUL-DE-SAC</i> | | | <i>08/24/2023</i> | <i>1,787</i> | <i>68</i> |
| Alligator Cracking | Medium | 2) 1% - 5% | | | |
| Distortion | Light | 1) 0% - 1% | | | |
| Block Cracking | Medium | 1) 0% - 5% | | | |
| Transverse & Long. Cracking | Heavy | 3) 50% - 75% | | | |
| ■ LAURELWOOD DRIVE | | | | | |
| <hr/> | | | | | |
| <i>MILNE COVE RD TO HEMLOCK HILL RD</i> | | | <i>08/08/2023</i> | <i>1,112</i> | <i>54</i> |
| Alligator Cracking | Medium | 4) 10% - 100% | | | |
| Potholes & Non-Utility Pat | Light | 1) 0% - 1% | | | |
| Distortion | Light | 2) 1% - 5% | | | |
| Transverse & Long. Cracking | Medium | 3) 50% - 75% | | | |
| <i>HEMLOCK HILL RD TO DEAD END</i> | | | <i>08/08/2023</i> | <i>409</i> | <i>75</i> |
| Alligator Cracking | Medium | 1) 0% - 1% | | | |
| Distortion | Light | 2) 1% - 5% | | | |
| Block Cracking | Medium | 1) 0% - 5% | | | |
| Transverse & Long. Cracking | Medium | 3) 50% - 75% | | | |

■ LOG HILL ROAD

| <i>WEST ST TO 900' W OF WEST ST</i> | <i>08/22/2023</i> | <i>898</i> | <i>52</i> |
|-------------------------------------|---------------------------|------------|-----------|
| Alligator Cracking | Medium 4) 10% - 100% | | |
| Potholes & Non-Utility Pat | Light 2) 1% - 5% | | |
| Distortion | Light 2) 1% - 5% | | |
| Block Cracking | Medium 2) 5% - 50% | | |
| Transverse & Long. Cracking | Heavy 2) 5% - 50% | | |

| <i>900' W OF WEST ST TO DEAD END</i> | <i>08/22/2023</i> | <i>987</i> | <i>64</i> |
|--------------------------------------|--------------------------|------------|-----------|
| Alligator Cracking | Medium 3) 5% - 10% | | |
| Ravelling | Heavy Localized | | |
| Potholes & Non-Utility Pat | Light 1) 0% - 1% | | |
| Distortion | Light 2) 1% - 5% | | |
| Transverse & Long. Cracking | Medium 3) 50% - 75% | | |

■ LONG RIDGE ROAD

| <i>GARNET ROCK LN TO NOWELL FARME RD</i> | <i>08/24/2023</i> | <i>1,377</i> | <i>63</i> |
|--|-------------------------|--------------|-----------|
| Alligator Cracking | Medium 3) 5% - 10% | | |
| Potholes & Non-Utility Pat | Light 1) 0% - 1% | | |
| Distortion | Light 2) 1% - 5% | | |
| Block Cracking | Medium 2) 5% - 50% | | |
| Transverse & Long. Cracking | Heavy 2) 5% - 50% | | |

■ **LOWELL STREET**

CHELMSFORD TL TO EMBER LN **08/17/2023** **5,536** **93**

| | | |
|-----------------------------|-------|-------------|
| Alligator Cracking | Light | 1) 0% - 1% |
| Ravelling | Heavy | Localized |
| Potholes & Non-Utility Pat | Light | 1) 0% - 1% |
| Transverse & Long. Cracking | Light | 2) 5% - 50% |

EMBER LN TO HICKORY LN **08/17/2023** **1,875** **89**

| | | |
|-----------------------------|--------|-------------|
| Alligator Cracking | Medium | 1) 0% - 1% |
| Ravelling | Heavy | Localized |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% |

HICKORY LN TO 200' N OF ROTARY **08/17/2023** **4,782** **79**

| | | |
|-----------------------------|--------|-------------|
| Alligator Cracking | Heavy | 1) 0% - 1% |
| Ravelling | Heavy | Localized |
| Potholes & Non-Utility Pat | Light | 1) 0% - 1% |
| Distortion | Medium | 1) 0% - 1% |
| Transverse & Long. Cracking | Heavy | 2) 5% - 50% |

200' N OF ROTARY TO WESTFORD ST **08/17/2023** **159** **98**

| | | |
|-----------|-------|-----------|
| Ravelling | Light | Localized |
|-----------|-------|-----------|

■ **MAPLE STREET**

BILLERICA TL TO EAST ST **08/18/2023** **1,720** **87**

| | | |
|-----------------------------|--------|------------|
| Alligator Cracking | Medium | 1) 0% - 1% |
| Ravelling | Heavy | Localized |
| Potholes & Non-Utility Pat | Light | 1) 0% - 1% |
| Distortion | Light | 1) 0% - 1% |
| Transverse & Long. Cracking | Medium | 1) 0% - 5% |

EAST ST TO RED FOX DR **08/18/2023** **7,596** **88**

| | | |
|-----------------------------|--------|------------|
| Alligator Cracking | Medium | 1) 0% - 1% |
| Distortion | Light | 1) 0% - 1% |
| Transverse & Long. Cracking | Medium | 1) 0% - 5% |

| | | | <u>Survey Date</u> | <u>Length (ft)</u> | <u>PCI</u> |
|----------------------------------|--------|---------------|--------------------|--------------------|------------|
| ■ MAPLE STREET Y INT | | | | | |
| <hr/> | | | | | |
| <i>MAPLE ST TO MAPLE ST</i> | | | <i>08/18/2023</i> | <i>368</i> | <i>93</i> |
| Alligator Cracking | Light | 1) 0% - 1% | | | |
| Distortion | Light | 1) 0% - 1% | | | |
| Transverse & Long. Cracking | Medium | 1) 0% - 5% | | | |
| ■ MARTIN STREET | | | | | |
| <hr/> | | | | | |
| <i>CURVE ST TO CHELMSFORD TL</i> | | | <i>08/08/2023</i> | <i>1,821</i> | <i>83</i> |
| Alligator Cracking | Heavy | 1) 0% - 1% | | | |
| Distortion | Light | 1) 0% - 1% | | | |
| Transverse & Long. Cracking | Medium | 1) 0% - 5% | | | |
| ■ MEADOWBROOK ROAD | | | | | |
| <hr/> | | | | | |
| <i>HILLSIDE DR TO DEAD END</i> | | | <i>08/08/2023</i> | <i>1,093</i> | <i>74</i> |
| Alligator Cracking | Medium | 1) 0% - 1% | | | |
| Distortion | Light | 2) 1% - 5% | | | |
| Block Cracking | Medium | 3) 50% - 75% | | | |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% | | | |
| ■ MILNE COVE ROAD | | | | | |
| <hr/> | | | | | |
| <i>EAST ST TO MAPLE ST</i> | | | <i>08/11/2023</i> | <i>939</i> | <i>55</i> |
| Alligator Cracking | Medium | 4) 10% - 100% | | | |
| Ravelling | Heavy | Localized | | | |
| Potholes & Non-Utility Pat | Light | 1) 0% - 1% | | | |
| Distortion | Light | 2) 1% - 5% | | | |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% | | | |
| ■ MUNROE HILL ROAD | | | | | |
| <hr/> | | | | | |
| <i>NATHAN LN TO AARON WAY</i> | | | <i>08/11/2023</i> | <i>2,934</i> | <i>66</i> |
| Alligator Cracking | Medium | 2) 1% - 5% | | | |
| Potholes & Non-Utility Pat | Light | 1) 0% - 1% | | | |
| Distortion | Light | 2) 1% - 5% | | | |
| Block Cracking | Medium | 1) 0% - 5% | | | |
| Transverse & Long. Cracking | Heavy | 3) 50% - 75% | | | |

■ **NATHAN LANE**

MUNROE HILL RD TO CUL-DE-SAC **08/11/2023** **2,327** **68**

| | | |
|-----------------------------|-------|--------------|
| Alligator Cracking | Heavy | 1) 0% - 1% |
| Potholes & Non-Utility Pat | Light | 1) 0% - 1% |
| Distortion | Light | 2) 1% - 5% |
| Transverse & Long. Cracking | Heavy | 3) 50% - 75% |

■ **NICKLES LANE**

EAST ST TO OLD EAST ST **08/11/2023** **1,108** **74**

| | | |
|-----------------------------|--------|-------------|
| Alligator Cracking | Medium | 2) 1% - 5% |
| Distortion | Medium | 2) 1% - 5% |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% |

■ **NORTH ROAD**

BILLERICA TL TO RUTLAND ST **08/03/2023** **3,766** **76**

| | | |
|-----------------------------|--------|-------------|
| Alligator Cracking | Medium | 2) 1% - 5% |
| Ravelling | Light | Localized |
| Potholes & Non-Utility Pat | Light | 1) 0% - 1% |
| Distortion | Light | 1) 0% - 1% |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% |

RUTLAND ST TO 3400' E OF LOWELL ST **08/03/2023** **4,871** **89**

| | | |
|-----------------------------|--------|------------|
| Alligator Cracking | Medium | 1) 0% - 1% |
| Ravelling | Heavy | Localized |
| Transverse & Long. Cracking | Light | 1) 0% - 5% |

3400' E OF LOWELL ST TO 1400' E OF LOWELL ST **08/03/2023** **1,404** **49**

| | | |
|-----------------------------|--------|---------------|
| Alligator Cracking | Medium | 4) 10% - 100% |
| Potholes & Non-Utility Pat | Light | 3) 5% - 10% |
| Distortion | Light | 3) 5% - 10% |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% |

1400' E OF LOWELL ST TO LOWELL ST **08/03/2023** **2,048** **52**

| | | |
|-----------------------------|--------|---------------|
| Alligator Cracking | Medium | 4) 10% - 100% |
| Potholes & Non-Utility Pat | Light | 3) 5% - 10% |
| Block Cracking | Light | 3) 50% - 75% |
| Transverse & Long. Cracking | Heavy | 2) 5% - 50% |

■ NOWELL FARME RD

RIVER RD TO 100' N OF FERN LN **08/24/2023** **1,807** **69**

| | | |
|-----------------------------|--------|---------------|
| Alligator Cracking | Medium | 1) 0% - 1% |
| Distortion | Light | 2) 1% - 5% |
| Block Cracking | Medium | 2) 5% - 50% |
| Transverse & Long. Cracking | Medium | 4) 75% - 100% |

100' N OF FERN LN TO DEAD END **08/24/2023** **1,457** **54**

| | | |
|-----------------------------|--------|---------------|
| Alligator Cracking | Medium | 4) 10% - 100% |
| Potholes & Non-Utility Pat | Medium | 1) 0% - 1% |
| Distortion | Light | 2) 1% - 5% |
| Block Cracking | Medium | 1) 0% - 5% |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% |

■ OAK KNOLL ROAD

HEMLOCK HILL RD TO DEAD END **08/11/2023** **1,232** **54**

| | | |
|-----------------------------|--------|---------------|
| Alligator Cracking | Medium | 4) 10% - 100% |
| Potholes & Non-Utility Pat | Light | 1) 0% - 1% |
| Distortion | Light | 2) 1% - 5% |
| Block Cracking | Medium | 1) 0% - 5% |
| Transverse & Long. Cracking | Medium | 3) 50% - 75% |

■ OLD EAST STREET

EAST ST TO EAST MEADOW LN **08/11/2023** **952** **94**

| | | |
|--------------------|-------|------------|
| Alligator Cracking | Light | 1) 0% - 1% |
| Distortion | Light | 1) 0% - 1% |

■ OLD NORTH ROAD

LOWELL ST TO DEAD END **08/08/2023** **1,181** **56**

| | | |
|----------------------------|--------|---------------|
| Alligator Cracking | Medium | 4) 10% - 100% |
| Potholes & Non-Utility Pat | Light | 1) 0% - 1% |
| Distortion | Light | 2) 1% - 5% |

■ ORCHARD ACRES DRIVE

LOWELL ST TO DEAD END

08/11/2023 967 59

| | | |
|-----------------------------|--------|--------------|
| Alligator Cracking | Heavy | 2) 1% - 5% |
| Ravelling | Heavy | Localized |
| Potholes & Non-Utility Pat | Medium | 1) 0% - 1% |
| Distortion | Light | 3) 5% - 10% |
| Block Cracking | Medium | 3) 50% - 75% |
| Transverse & Long. Cracking | Heavy | 1) 0% - 5% |

■ PAGE BROOK ROAD

BROOK ST TO DEAD END

08/11/2023 1,192 63

| | | |
|-----------------------------|--------|--------------|
| Alligator Cracking | Medium | 3) 5% - 10% |
| Potholes & Non-Utility Pat | Medium | 1) 0% - 1% |
| Distortion | Light | 2) 1% - 5% |
| Transverse & Long. Cracking | Medium | 3) 50% - 75% |

■ PARTRIDGE LANE

EAST ST TO CUL-DE-SAC

08/11/2023 2,272 67

| | | |
|-----------------------------|--------|-------------|
| Alligator Cracking | Medium | 3) 5% - 10% |
| Distortion | Light | 2) 1% - 5% |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% |

■ PATCH MEADOW LANE

RUTLAND ST TO CUL-DE-SAC

08/03/2023 1,489 100

■ PATTEN LANE

CUL-DE-SAC TO STEARNS ST

08/24/2023 686 64

| | | |
|-----------------------------|--------|--------------|
| Alligator Cracking | Heavy | 2) 1% - 5% |
| Ravelling | Heavy | Extensive |
| Distortion | Light | 2) 1% - 5% |
| Block Cracking | Medium | 1) 0% - 5% |
| Transverse & Long. Cracking | Heavy | 3) 50% - 75% |

■ PETER HANS ROAD

BROOK ST TO CUL-DE-SAC ***08/11/2023*** ***2,156*** ***65***

| | | |
|-----------------------------|--------|-------------|
| Alligator Cracking | Medium | 3) 5% - 10% |
| Potholes & Non-Utility Pat | Light | 1) 0% - 1% |
| Distortion | Light | 2) 1% - 5% |
| Transverse & Long. Cracking | Heavy | 2) 5% - 50% |

■ PHEASANT HILL LANE

BINGHAM RD TO 150' N OF BINGHAM RD ***08/23/2023*** ***174*** ***82***

| | | |
|-----------------------------|--------|-------------|
| Alligator Cracking | Light | 1) 0% - 1% |
| Distortion | Light | 1) 0% - 1% |
| Block Cracking | Medium | 2) 5% - 50% |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% |

150' N OF BINGHAM RD TO CUL-DE-SAC ***08/23/2023*** ***1,380*** ***100***

■ PINE BROOK ROAD

NORTH RD TO CUL-DE-SAC ***08/11/2023*** ***1,550*** ***100***

■ POPE ROAD

WEST ST TO CONCORD TL ***08/18/2023*** ***790*** ***53***

| | | |
|-----------------------------|--------|---------------|
| Alligator Cracking | Medium | 4) 10% - 100% |
| Ravelling | Heavy | Extensive |
| Potholes & Non-Utility Pat | Light | 2) 1% - 5% |
| Distortion | Light | 2) 1% - 5% |
| Block Cracking | Medium | 1) 0% - 5% |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% |

■ PROCTOR ROAD

LOWELL ST TO CHELMSFORD TL ***08/08/2023*** ***300*** ***45***

| | | |
|----------------------------|--------|---------------|
| Alligator Cracking | Heavy | 3) 5% - 10% |
| Potholes & Non-Utility Pat | Light | 4) 10% - 100% |
| Distortion | Medium | 2) 1% - 5% |

| | | | <u>Survey Date</u> | <u>Length (ft)</u> | <u>PCI</u> |
|--|--------|---------------|--------------------------|---------------------|------------------|
| ■ PROSPECT STREET | | | | | |
| <hr/> | | | | | |
| <i>MONUMENT ST TO RIVER RD</i> | | | <i>08/24/2023</i> | <i>1,997</i> | <i>40</i> |
| Alligator Cracking | Heavy | 4) 10% - 100% | | | |
| Potholes & Non-Utility Pat | Light | 2) 1% - 5% | | | |
| Distortion | Light | 2) 1% - 5% | | | |
| Rutting | Medium | 1) 0% - 5% | | | |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% | | | |
| ■ RED PINE DRIVE | | | | | |
| <hr/> | | | | | |
| <i>BEDFORD RD TO 800' S OF BEDFORD RD</i> | | | <i>08/23/2023</i> | <i>818</i> | <i>95</i> |
| Distortion | Light | 1) 0% - 1% | | | |
| Transverse & Long. Cracking | Light | 2) 5% - 50% | | | |
| <i>800' S OF BEDFORD RD TO DEAD END</i> | | | <i>08/23/2023</i> | <i>484</i> | <i>73</i> |
| Alligator Cracking | Medium | 2) 1% - 5% | | | |
| Distortion | Light | 3) 5% - 10% | | | |
| Transverse & Long. Cracking | Medium | 3) 50% - 75% | | | |
| ■ RIVER ROAD | | | | | |
| <hr/> | | | | | |
| <i>BEDFORD RD TO NOWELL FARME RD</i> | | | <i>08/24/2023</i> | <i>2,758</i> | <i>95</i> |
| Alligator Cracking | Light | 1) 0% - 1% | | | |
| Transverse & Long. Cracking | Medium | 1) 0% - 5% | | | |
| <i>NOWELL FARME RD TO PROSPECT ST</i> | | | <i>08/29/2023</i> | <i>3,258</i> | <i>57</i> |
| Alligator Cracking | Medium | 3) 5% - 10% | | | |
| Ravelling | Heavy | Extensive | | | |
| Potholes & Non-Utility Pat | Medium | 3) 5% - 10% | | | |
| Distortion | Light | 1) 0% - 1% | | | |
| Block Cracking | Medium | 2) 5% - 50% | | | |
| Transverse & Long. Cracking | Heavy | 2) 5% - 50% | | | |
| ■ ROBBINS DRIVE | | | | | |
| <hr/> | | | | | |
| <i>INDIAN HILL TO RUSSELL ST</i> | | | <i>08/22/2023</i> | <i>1,852</i> | <i>87</i> |
| Alligator Cracking | Medium | 1) 0% - 1% | | | |
| Potholes & Non-Utility Pat | Light | 1) 0% - 1% | | | |
| Distortion | Light | 1) 0% - 1% | | | |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% | | | |

■ **ROCKLAND ROAD**

WESTFORD ST TO DEAD END

08/11/2023 *2,469* *44*

| | | |
|----------------------------|--------|-------------|
| Alligator Cracking | Heavy | 3) 5% - 10% |
| Potholes & Non-Utility Pat | Medium | 2) 1% - 5% |
| Distortion | Medium | 2) 1% - 5% |
| Rutting | Medium | 2) 5% - 50% |

■ **RODGERS ROAD**

STEARNS ST TO CUL-DE-SAC

08/29/2023 *1,646* *54*

| | | |
|-----------------------------|--------|--------------|
| Alligator Cracking | Heavy | 3) 5% - 10% |
| Ravelling | Heavy | Localized |
| Potholes & Non-Utility Pat | Light | 1) 0% - 1% |
| Distortion | Light | 1) 0% - 1% |
| Block Cracking | Medium | 1) 0% - 5% |
| Transverse & Long. Cracking | Heavy | 3) 50% - 75% |

■ **ROUTE 225 ROUNDABOU**

ROUNDABOUT TO ROUNDABOUT

08/11/2023 *252* *95*

| | | |
|-----------------------------|-------|------------|
| Alligator Cracking | Light | 1) 0% - 1% |
| Ravelling | Light | Localized |
| Transverse & Long. Cracking | Light | 1) 0% - 5% |

| | | | <u>Survey Date</u> | <u>Length (ft)</u> | <u>PCI</u> |
|---|--------|--------------|--------------------------|---------------------|------------------|
| ■ SCHOOL STREET | | | | | |
| <i>BELLOWS HILL RD TO 300' N OF BALDWIN RD</i> | | | <i>08/18/2023</i> | <i>4,078</i> | <i>93</i> |
| Alligator Cracking | Light | 1) 0% - 1% | | | |
| Ravelling | Light | Localized | | | |
| Distortion | Light | 1) 0% - 1% | | | |
| Transverse & Long. Cracking | Medium | 1) 0% - 5% | | | |
| <i>300' N OF BALDWIN RD TO CHURCH ST</i> | | | <i>08/18/2023</i> | <i>1,942</i> | <i>64</i> |
| Alligator Cracking | Medium | 3) 5% - 10% | | | |
| Potholes & Non-Utility Pat | Light | 2) 1% - 5% | | | |
| Distortion | Light | 2) 1% - 5% | | | |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% | | | |
| <i>CHURCH ST TO WESTFORD ST</i> | | | <i>08/18/2023</i> | <i>414</i> | <i>67</i> |
| Alligator Cracking | Medium | 2) 1% - 5% | | | |
| Distortion | Light | 1) 0% - 1% | | | |
| Block Cracking | Medium | 3) 50% - 75% | | | |
| Transverse & Long. Cracking | Heavy | 3) 50% - 75% | | | |
| ■ SKELTON ROAD | | | | | |
| <i>BEDFORD RD TO RIVER RD</i> | | | <i>08/29/2023</i> | <i>2,333</i> | <i>88</i> |
| Alligator Cracking | Light | 1) 0% - 1% | | | |
| Potholes & Non-Utility Pat | Light | 1) 0% - 1% | | | |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% | | | |

■ **SUNSET ROAD**

| <i>LOWELL ST TO ELIZABETH RIDGE RD</i> | <i>08/11/2023</i> | <i>1,376</i> | <i>48</i> |
|---|--------------------------|---------------------|------------------|
| Alligator Cracking | Heavy | 3) 5% - 10% | |
| Potholes & Non-Utility Pat | Medium | 1) 0% - 1% | |
| Distortion | Light | 3) 5% - 10% | |
| Rutting | Medium | 1) 0% - 5% | |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% | |

| <i>ELIZABETH RIDGE RD TO CUL-DE-SAC</i> | <i>08/11/2023</i> | <i>751</i> | <i>64</i> |
|--|--------------------------|-------------------|------------------|
| Alligator Cracking | Medium | 3) 5% - 10% | |
| Distortion | Light | 2) 1% - 5% | |
| Block Cracking | Heavy | 1) 0% - 5% | |
| Transverse & Long. Cracking | Heavy | 4) 75% - 100% | |

■ **TIMOTHY LANE**

| <i>BROOK ST TO DEAD END</i> | <i>08/11/2023</i> | <i>535</i> | <i>88</i> |
|------------------------------------|--------------------------|-------------------|------------------|
| Alligator Cracking | Medium | 1) 0% - 1% | |
| Distortion | Light | 1) 0% - 1% | |
| Transverse & Long. Cracking | Medium | 1) 0% - 5% | |

■ **TOPHET ROAD**

| <i>CARLETON RD TO EAST RIDING DR</i> | <i>08/11/2023</i> | <i>2,331</i> | <i>42</i> |
|---|--------------------------|---------------------|------------------|
| Alligator Cracking | Heavy | 4) 10% - 100% | |
| Potholes & Non-Utility Pat | Light | 2) 1% - 5% | |
| Distortion | Light | 3) 5% - 10% | |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% | |

■ **VIRGINIA FARME LANE**

| <i>NATHAN LN TO CUL-DE-SAC</i> | <i>08/17/2023</i> | <i>2,916</i> | <i>74</i> |
|---------------------------------------|--------------------------|---------------------|------------------|
| Alligator Cracking | Medium | 2) 1% - 5% | |
| Ravelling | Heavy | Localized | |
| Potholes & Non-Utility Pat | Light | 1) 0% - 1% | |
| Distortion | Light | 2) 1% - 5% | |
| Transverse & Long. Cracking | Medium | 3) 50% - 75% | |

■ WEST STREET

| | | | <u>Survey Date</u> | <u>Length (ft)</u> | <u>PCI</u> |
|--|--------|---------------|--------------------|--------------------|------------|
| CONCORD TOWN LINE TO 50' S OF SOUTH ST | | | 08/18/2023 | 1,255 | 71 |
| Alligator Cracking | Medium | 2) 1% - 5% | | | |
| Ravelling | Heavy | Extensive | | | |
| Potholes & Non-Utility Pat | Medium | 1) 0% - 1% | | | |
| Distortion | Light | 2) 1% - 5% | | | |
| Block Cracking | Medium | 2) 5% - 50% | | | |
| Transverse & Long. Cracking | Medium | 3) 50% - 75% | | | |
| 50' S OF SOUTH ST TO 100' N OF SOUTH ST | | | 08/23/2023 | 180 | 60 |
| Alligator Cracking | Medium | 1) 0% - 1% | | | |
| Potholes & Non-Utility Pat | Light | 2) 1% - 5% | | | |
| Block Cracking | Medium | 4) 75% - 100% | | | |
| 100' N OF SOUTH ST TO LOG HILL RD | | | 08/23/2023 | 2,945 | 87 |
| Alligator Cracking | Medium | 1) 0% - 1% | | | |
| Potholes & Non-Utility Pat | Light | 1) 0% - 1% | | | |
| Distortion | Light | 1) 0% - 1% | | | |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% | | | |
| LOG HILL RD TO 2000' S OF ACTON ST | | | 08/23/2023 | 2,901 | 88 |
| Alligator Cracking | Medium | 1) 0% - 1% | | | |
| Distortion | Light | 1) 0% - 1% | | | |
| Transverse & Long. Cracking | Medium | 1) 0% - 5% | | | |
| 2000' S OF ACTON ST TO ACTON ST | | | 08/23/2023 | 1,896 | 53 |
| Alligator Cracking | Medium | 4) 10% - 100% | | | |
| Ravelling | Light | Extensive | | | |
| Potholes & Non-Utility Pat | Light | 2) 1% - 5% | | | |
| Distortion | Light | 2) 1% - 5% | | | |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% | | | |
| ACTON ST TO WESTFORD TOWN LINE | | | 08/23/2023 | 3,329 | 66 |
| Alligator Cracking | Medium | 3) 5% - 10% | | | |
| Ravelling | Light | Extensive | | | |
| Potholes & Non-Utility Pat | Light | 1) 0% - 1% | | | |
| Distortion | Light | 1) 0% - 1% | | | |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% | | | |

■ WESTFORD STREET

| | | | <u>Survey Date</u> | <u>Length (ft)</u> | <u>PCI</u> |
|--|--------|-------------|--------------------|--------------------|------------|
| WESTFORD TL TO CURVE ST | | | 08/24/2023 | 4,690 | 93 |
| Alligator Cracking | Light | 1) 0% - 1% | | | |
| Ravelling | Heavy | Localized | | | |
| Potholes & Non-Utility Pat | Light | 1) 0% - 1% | | | |
| Transverse & Long. Cracking | Medium | 1) 0% - 5% | | | |
| CURVE ST TO 50' E OF MUNROE HILL RD | | | 08/24/2023 | 3,755 | 95 |
| Alligator Cracking | Light | 1) 0% - 1% | | | |
| Transverse & Long. Cracking | Medium | 1) 0% - 5% | | | |
| 50' E OF MUNROE HILL RD TO 1000' W OF ROCKLAND RD | | | 08/24/2023 | 2,684 | 88 |
| Alligator Cracking | Medium | 1) 0% - 1% | | | |
| Distortion | Light | 1) 0% - 1% | | | |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% | | | |
| 1000' W OF ROCKLAND RD TO 500' W OF ROCKLAND RD | | | 08/24/2023 | 528 | 74 |
| Alligator Cracking | Medium | 2) 1% - 5% | | | |
| Potholes & Non-Utility Pat | Light | 3) 5% - 10% | | | |
| Transverse & Long. Cracking | Heavy | 2) 5% - 50% | | | |
| 500' W OF ROCKLAND RD TO CONCORD ST | | | 08/24/2023 | 1,191 | 88 |
| Alligator Cracking | Medium | 1) 0% - 1% | | | |
| Potholes & Non-Utility Pat | Light | 1) 0% - 1% | | | |
| Transverse & Long. Cracking | Medium | 1) 0% - 5% | | | |
| CONCORD ST TO ROUNDABOUT | | | 08/24/2023 | 297 | 98 |
| Ravelling | Light | Localized | | | |

■ WILDWOOD DRIVE

| | | | | | |
|-----------------------------|--------|---------------|-------------------|------------|-----------|
| SOUTH ST TO DEAD END | | | 08/29/2023 | 636 | 62 |
| Alligator Cracking | Medium | 3) 5% - 10% | | | |
| Potholes & Non-Utility Pat | Light | 1) 0% - 1% | | | |
| Distortion | Light | 4) 10% - 100% | | | |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% | | | |

| | | | <u>Survey Date</u> | <u>Length (ft)</u> | <u>PCI</u> |
|--|--------|---------------|--------------------------|---------------------|------------------|
| ■ WILKINS LANE | | | | | |
| <hr/> | | | | | |
| <i>KIMBALL RD TO CUL-DE-SAC</i> | | | <i>08/03/2023</i> | <i>923</i> | <i>77</i> |
| Alligator Cracking | Light | 1) 0% - 1% | | | |
| Distortion | Light | 1) 0% - 1% | | | |
| Block Cracking | Medium | 1) 0% - 5% | | | |
| Transverse & Long. Cracking | Medium | 3) 50% - 75% | | | |
| ■ WOLF ROCK ROAD | | | | | |
| <hr/> | | | | | |
| <i>LOWELL ST TO 500' E OF LOWELL ST</i> | | | <i>08/17/2023</i> | <i>491</i> | <i>95</i> |
| Alligator Cracking | Light | 1) 0% - 1% | | | |
| <i>500' E OF LOWELL ST TO DEAD END</i> | | | <i>08/17/2023</i> | <i>1,094</i> | <i>54</i> |
| Alligator Cracking | Medium | 4) 10% - 100% | | | |
| Potholes & Non-Utility Pat | Light | 2) 1% - 5% | | | |
| Distortion | Light | 2) 1% - 5% | | | |
| Block Cracking | Medium | 1) 0% - 5% | | | |
| Transverse & Long. Cracking | Medium | 1) 0% - 5% | | | |
| ■ WOODBINE ROAD | | | | | |
| <hr/> | | | | | |
| <i>EAST ST TO CUL-DE-SAC</i> | | | <i>08/17/2023</i> | <i>1,722</i> | <i>65</i> |
| Alligator Cracking | Medium | 3) 5% - 10% | | | |
| Potholes & Non-Utility Pat | Light | 1) 0% - 1% | | | |
| Distortion | Light | 2) 1% - 5% | | | |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% | | | |
| ■ WOODLAND ROAD | | | | | |
| <hr/> | | | | | |
| <i>LOG HILL RD TO DEAD END</i> | | | <i>08/22/2023</i> | <i>1,090</i> | <i>68</i> |
| Alligator Cracking | Medium | 3) 5% - 10% | | | |
| Distortion | Light | 1) 0% - 1% | | | |
| Transverse & Long. Cracking | Medium | 2) 5% - 50% | | | |

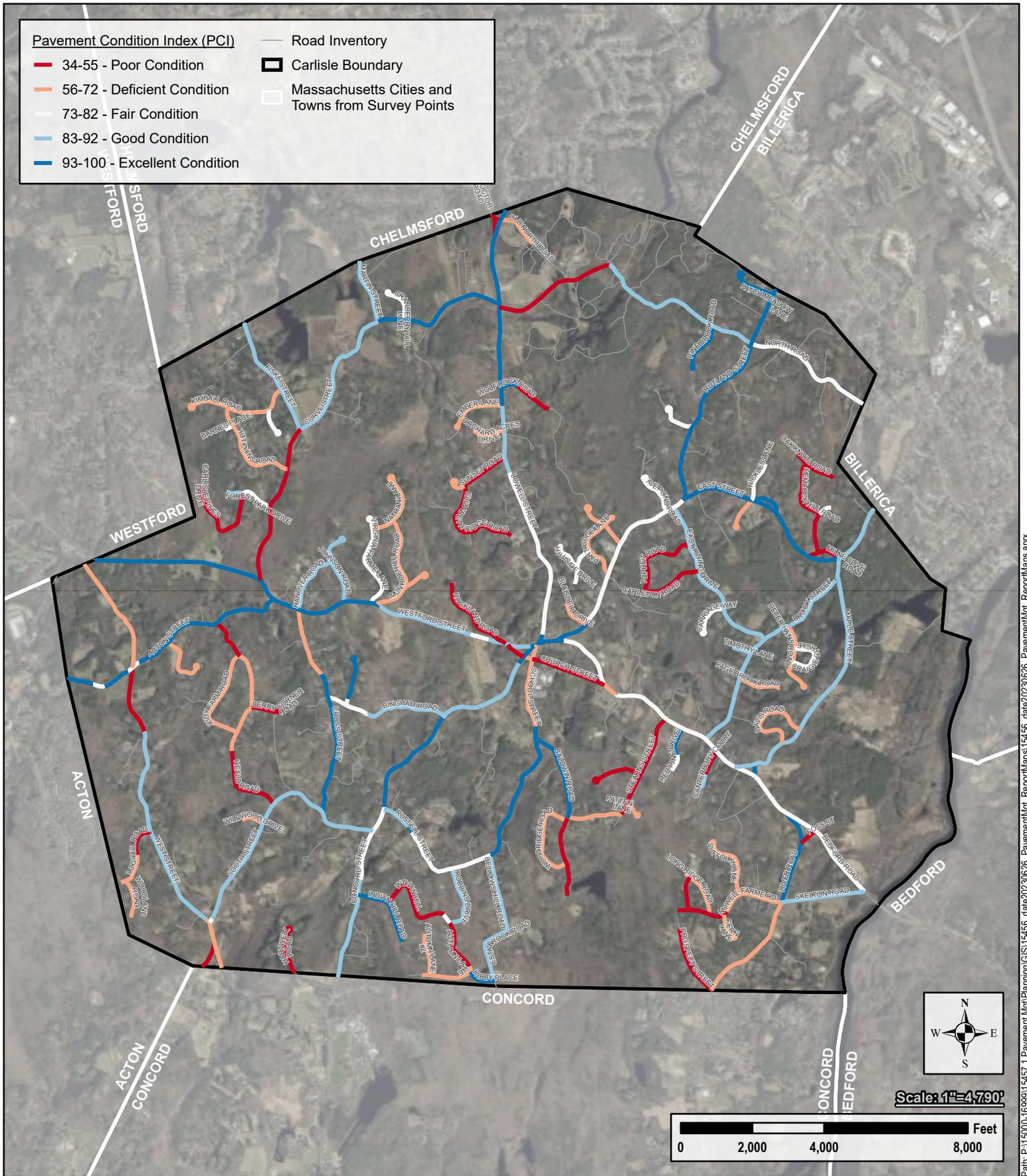
■ **WOODRIDGE ROAD**

BALDWIN RD TO BALDWIN RD

08/29/2023 *2,574* *65*

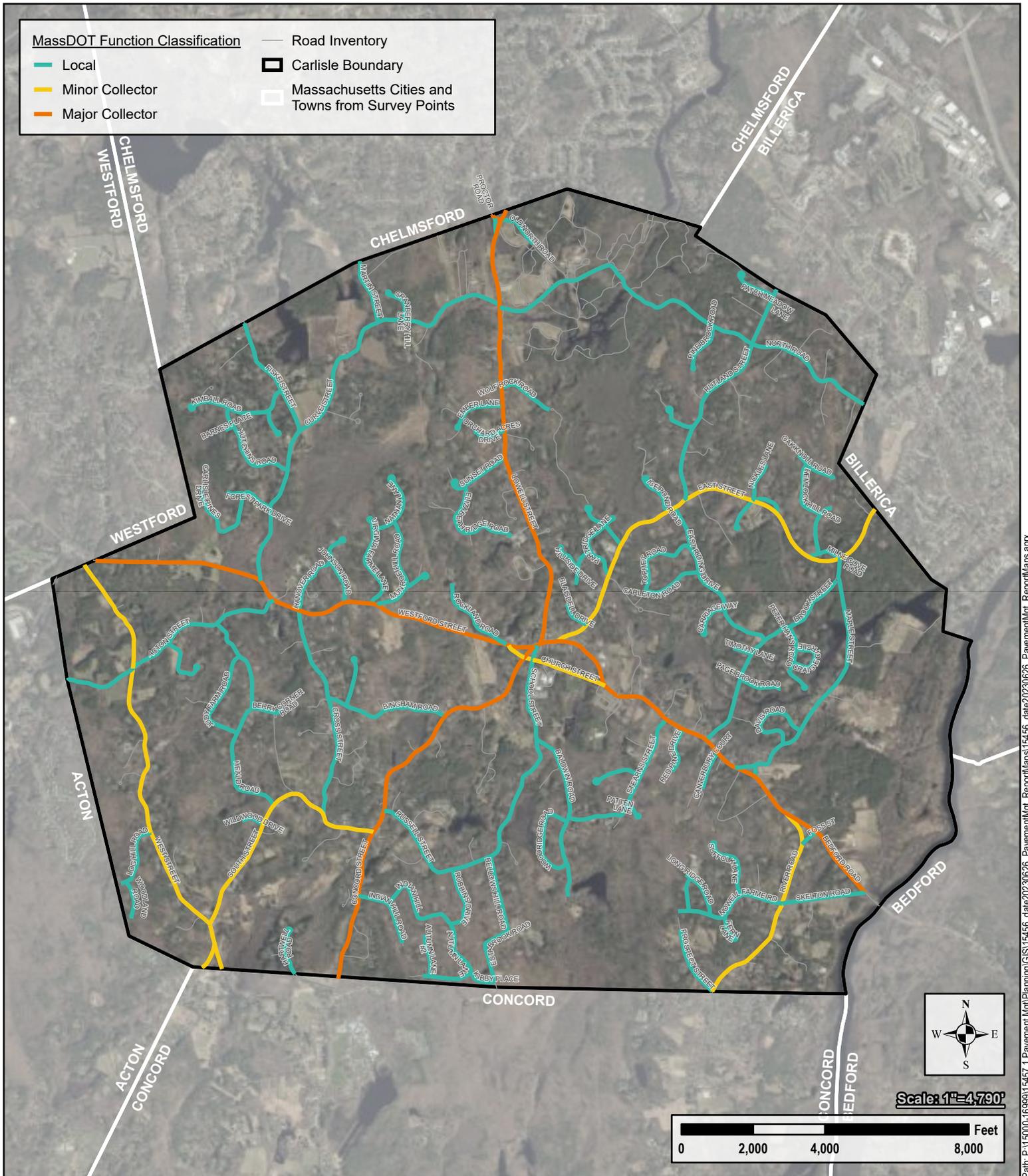
| | | |
|-----------------------------|--------|--------------|
| Alligator Cracking | Medium | 3) 5% - 10% |
| Distortion | Medium | 1) 0% - 1% |
| Block Cracking | Medium | 1) 0% - 5% |
| Transverse & Long. Cracking | Medium | 3) 50% - 75% |

APPENDIX D – Road Assessment Maps



Road Assessment - Pavement Condition Index (PCI)

Carlisle, MA



Road Assessment - MassDOT Functions

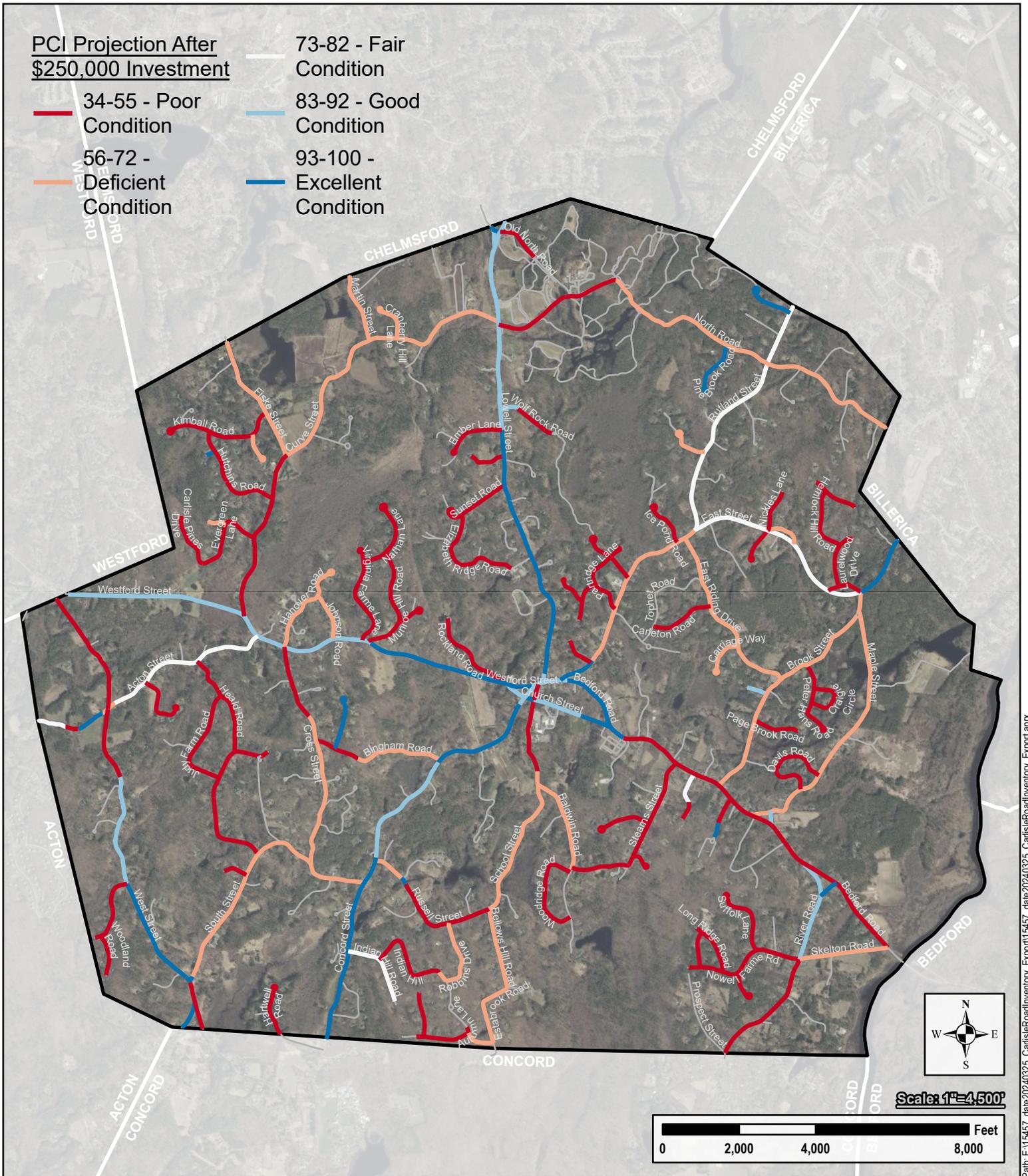
Carlisle, MA

10/18/2023

APPENDIX E – PCI Projections

PCI Projection After \$250,000 Investment

- 34-55 - Poor Condition
- 56-72 - Deficient Condition
- 73-82 - Fair Condition
- 83-92 - Good Condition
- 93-100 - Excellent Condition

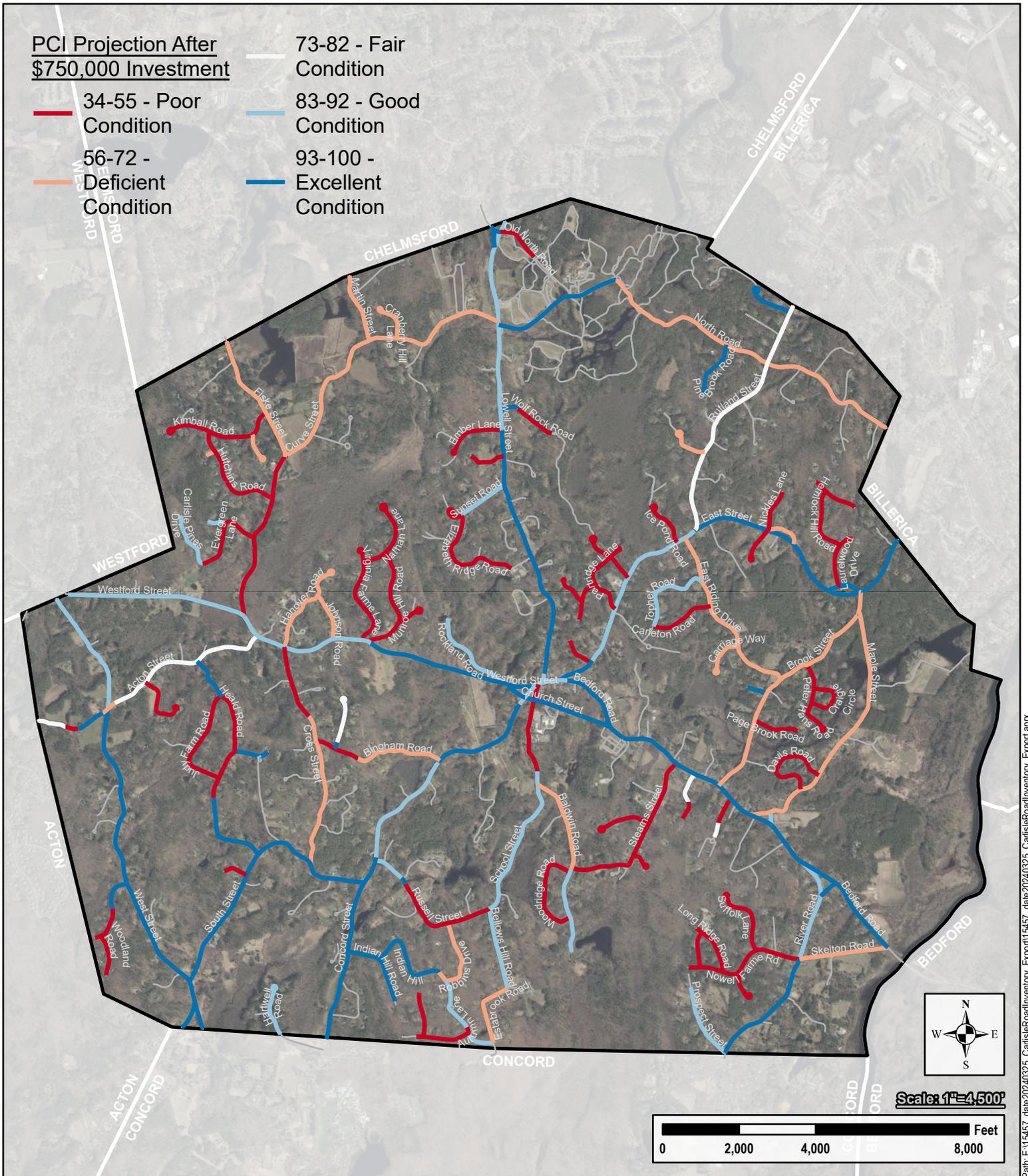


PCI Projection After \$250,000 Investment
Carlsle, MA

3/26/2024

PCI Projection After \$750,000 Investment

- 34-55 - Poor Condition
- 56-72 - Deficient Condition
- 73-82 - Fair Condition
- 83-92 - Good Condition
- 93-100 - Excellent Condition



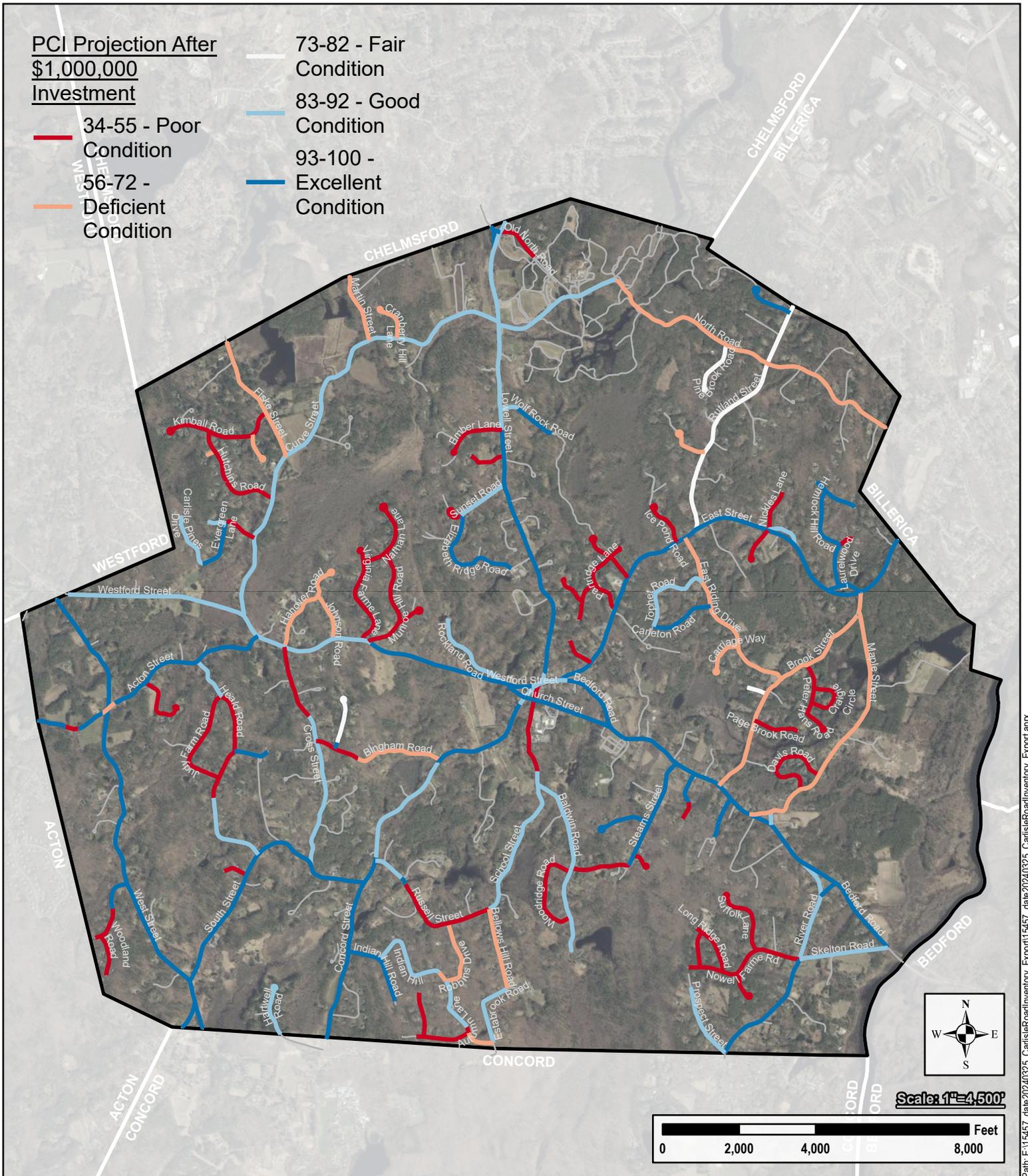
PCI Projection After \$750,000 Investment
Carlsle, MA

3/26/2024

**PCI Projection After
\$1,000,000
Investment**

- 34-55 - Poor Condition
- 56-72 - Deficient Condition

- 73-82 - Fair Condition
- 83-92 - Good Condition
- 93-100 - Excellent Condition



**PCI Projection After \$1,000,000 Investment
Carlsle, MA**

3/26/2024

APPENDIX F– Road Program and Budget Analysis

Paving Program

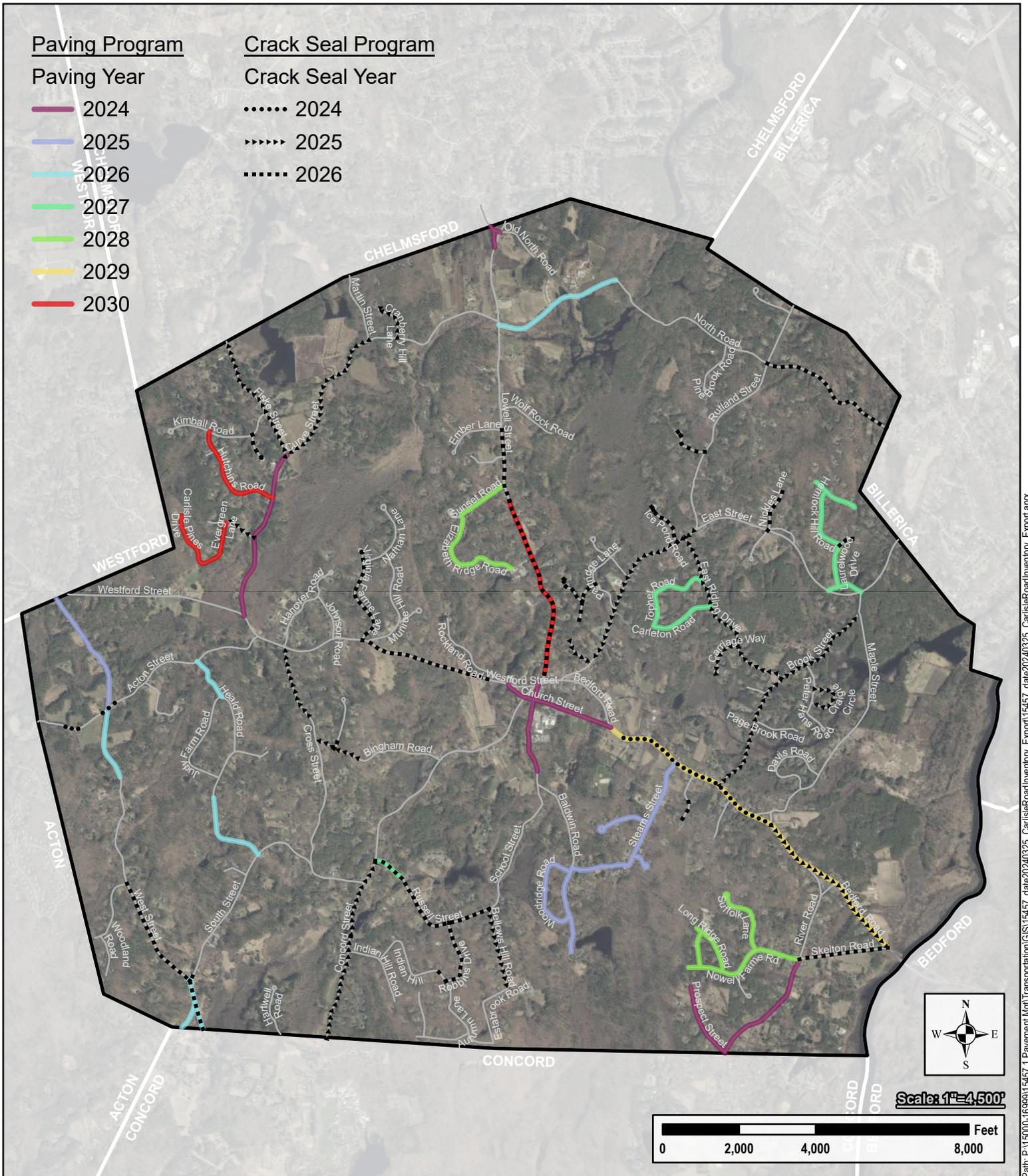
Paving Year

- 2024
- 2025
- 2026
- 2027
- 2028
- 2029
- 2030

Crack Seal Program

Crack Seal Year

- - - - - 2024
- - - - - 2025
- - - - - 2026



Road Programs

Carlsle, MA

3/26/2024

For Planning Purposes Only
 Data Source: MassGIS, Nitsch Engineering
 Nitsch Project #15457.1



Path: P:\15000-16989\15457.1 Pavement Mgt\Transportation\GIS\15457_date20240325_CarlsleRoadInventory_Export15457_date20240325_CarlsleRoadInventory_Export.aprx

**Town of Carlisle
CY 2024-2030 Pavement Plan**

| Road Name | From | To | Length (ft) | PCI | Treatment | Est. Cost |
|---------------------------|-----------------------|-----------------------|-------------|-----|-------------------------|------------------|
| 2024 | | | | | | |
| CHURCH STREET | BEDFORD RD | 850' W OF BEDFORD RD | 846 | 44 | Level or Mill & Overlay | \$23,218 |
| CHURCH STREET | 850' W OF BEDFORD RD | SCHOOL ST | 1297 | 37 | Level or Mill & Overlay | \$44,963 |
| CHURCH STREET | SCHOOL ST | CONCORD ST | 242 | 66 | Level or Mill & Overlay | \$7,690 |
| CHURCH STREET | CONCORD ST | WESTFORD ST | 562 | 52 | Level or Mill & Overlay | \$12,177 |
| CURVE STREET | FISKE ST | WESTFORD ST | 4557 | 52 | Level or Mill & Overlay | \$125,064 |
| PROCTOR RD (CONNECTOR) | PROCTOR RD | LOWELL ST | 462 | 34 | Level or Mill & Overlay | \$9,343 |
| PROCTOR ROAD | LOWELL ST | CHELMSFORD TL | 300 | 45 | Level or Mill & Overlay | \$9,533 |
| PROSPECT STREET | MONUMENT ST | RIVER RD | 1997 | 40 | Level or Mill & Overlay | \$46,153 |
| RIVER ROAD | NOWELL FARME RD | PROSPECT ST | 3258 | 57 | Level or Mill & Overlay | \$108,238 |
| SCHOOL STREET | 300' N OF BALDWIN RD | CHURCH ST | 1942 | 64 | Level or Mill & Overlay | \$67,323 |
| SCHOOL STREET | CHURCH ST | WESTFORD ST | 414 | 67 | Level or Mill & Overlay | \$15,548 |
| CRACK SEAL 2024 (Sheet 3) | | | | | | \$10,114 |
| | | | | | TOTAL | \$479,363 |
| 2025 | | | | | | |
| BALDWIN ROAD | STEARNS ST | DEAD END | 2243 | 43 | Level or Mill & Overlay | \$51,838 |
| PATTEN LANE | CUL-DE-SAC | STEARNS ST | 686 | 64 | Level or Mill & Overlay | \$23,781 |
| RODGERS ROAD | STEARNS ST | CUL-DE-SAC | 1646 | 54 | Level or Mill & Overlay | \$57,061 |
| STEARNS STREET | BEDFORD RD | 1500' W OF BALDWIN RD | 2960 | 51 | Level or Mill & Overlay | \$76,960 |
| STEARNS STREET | 1500' W OF BALDWIN RD | BALDWIN RD | 1511 | 64 | Level or Mill & Overlay | \$37,103 |
| WEST STREET | ACTON ST | WESTFORD TOWN LINE | 3329 | 66 | Level or Mill & Overlay | \$91,363 |
| WOODRIDGE ROAD | BALDWIN RD | BALDWIN RD | 2574 | 65 | Level or Mill & Overlay | \$89,232 |
| CRACK SEAL 2025 (Sheet 3) | | | | | | \$47,599 |
| | | | | | TOTAL | \$474,938 |
| 2026 | | | | | | |
| HEALD ROAD | ACTON ST | JUDY FARM RD (N) | 1180 | 51 | Level or Mill & Overlay | \$42,611 |
| HEALD ROAD | 2200' N OF SOUTH ST | SOUTH ST | 2198 | 51 | Level or Mill & Overlay | \$76,197 |
| POPE ROAD | WEST ST | CONCORD TL | 790 | 53 | Level or Mill & Overlay | \$22,822 |
| SOUTH STREET | 150' E OF WEST ST | WEST ST | 134 | 74 | Level or Mill & Overlay | \$4,645 |
| WEST STREET | CONCORD TOWN LINE | 50' S OF SOUTH ST | 1255 | 71 | Level or Mill & Overlay | \$39,881 |
| WEST STREET | 50' S OF SOUTH ST | 100' N OF SOUTH ST | 180 | 60 | Level or Mill & Overlay | \$5,200 |
| WEST STREET | 2000' S OF ACTON ST | ACTON ST | 1896 | 53 | Level or Mill & Overlay | \$49,296 |
| NORTH ROAD | 3400' E OF LOWELL ST | 1400' E OF LOWELL ST | 1404 | 49 | Reclaim and Pave | \$78,000 |
| NORTH ROAD | 1400' E OF LOWELL ST | LOWELL ST | 2048 | 52 | Reclaim and Pave | \$108,089 |
| CRACK SEAL 2026 (Sheet 3) | | | | | | \$45,987 |
| | | | | | TOTAL | \$472,729 |

**Town of Carlisle
CY 2024-2030 Pavement Plan**

| Road Name | From | To | Length (ft) | PCI | Treatment | Est. Cost |
|----------------------------------|---------------------|----------------------|-------------|-----|------------------------------------|------------------|
| 2027 | | | | | | |
| HEMLOCK HILL ROAD | LAURELWOOD DR | OAK KNOLL RD | 1717 | 54 | Level or Mill & Overlay | \$49,602 |
| LAURELWOOD DRIVE | MILNE COVE RD | HEMLOCK HILL RD | 1112 | 54 | Level or Mill & Overlay | \$38,549 |
| MILNE COVE ROAD | EAST ST | MAPLE ST | 939 | 55 | Level or Mill & Overlay | \$24,414 |
| OAK KNOLL ROAD | HEMLOCK HILL RD | DEAD END | 1232 | 54 | Level or Mill & Overlay | \$35,591 |
| RUSSELL STREET | CONCORD ST | 800' E OF CONCORD ST | 844 | 86 | Level or Mill & Overlay | \$24,382 |
| CARLETON ROAD | EAST RIDING DR | TOPHET RD | 1683 | 54 | Reclaim and Pave | \$112,200 |
| TOPHET ROAD | CARLETON RD | EAST RIDING DR | 2331 | 42 | Reclaim and Pave | \$155,400 |
| MAINTENANCE/CRACK SEAL AS NEEDED | | | | | | \$50,000 |
| | | | | | TOTAL | \$490,139 |
| 2028 | | | | | | |
| ELIZABETH RIDGE ROAD | MORSE RD | SUNSET RD | 2914 | 54 | Level or Mill & Overlay | \$101,019 |
| GARNET ROCK LANE | LONG RIDGE RD | NOWELL FARME RD | 947 | 55 | Level or Mill & Overlay | \$34,197 |
| LONG RIDGE ROAD | GARNET ROCK LN | NOWELL FARME RD | 1377 | 63 | Level or Mill & Overlay | \$45,747 |
| NOWELL FARME RD | RIVER RD | 100' N OF FERN LN | 1807 | 69 | Level or Mill & Overlay | \$62,643 |
| NOWELL FARME RD | 100' N OF FERN LN | DEAD END | 1457 | 54 | Level or Mill & Overlay | \$50,509 |
| SUFFOLK LANE | NOWELL FARME RD | CUL-DE-SAC | 2097 | 65 | Level or Mill & Overlay | \$72,696 |
| SUNSET ROAD | LOWELL ST | ELIZABETH RIDGE RD | 1376 | 48 | Reclaim and Pave | \$61,156 |
| MAINTENANCE/CRACK SEAL AS NEEDED | | | | | | \$50,000 |
| | | | | | TOTAL | \$477,966 |
| 2029 | | | | | | |
| BEDFORD ROAD | CHURCH ST | 500' E OF CHURCH ST | 455 | 67 | Level or Mill & Overlay (Art/Coll) | \$22,346 |
| BEDFORD ROAD | 500' E OF CHURCH ST | MAPLE ST (E) | 4620 | 74 | Level or Mill & Overlay (Art/Coll) | \$235,620 |
| BEDFORD ROAD | MAPLE ST (E) | SKELTON RD | 4484 | 74 | Level or Mill & Overlay (Art/Coll) | \$228,684 |
| | | | | | | \$486,650 |
| 2030 | | | | | | |
| HUTCHINS ROAD | KIMBALL RD | 1400' W OF CURVE ST | 1418 | 66 | Level or Mill & Overlay | \$40,964 |
| HUTCHINS ROAD | 1400' W OF CURVE ST | CURVE ST | 1407 | 56 | Level or Mill & Overlay | \$40,647 |
| LOWELL STREET | HICKORY LN | 200' N OF ROTARY | 4782 | 79 | Level or Mill & Overlay (Art/Coll) | \$225,817 |
| CARLISLE PINES DRIVE | EVERGREEN LN | DEAD END | 1449 | 47 | Reclaim and Pave | \$88,550 |
| EVERGREEN LANE | CARLISLE PINES DR | FOREST PARK DR | 1341 | 54 | Reclaim and Pave | \$67,050 |
| | | | | | TOTAL | \$463,028 |

| Plan Year | PavementID | Name | From | To | PCI | Len ft | Area sf | Pvmt Class | UnitCost | EstCost |
|-----------|-----------------|----------------------|----------------------------|--------------------------|-------|---------|-----------------|-----------------|--------------|-----------------|
| 2024 | 2,091 | CONCORD STREET | CONCORD TOWN LINE | 400' N OF INDIAN HILL RD | 92 | 2,806 | 72,956 | Major Collector | 0.50 | \$ 4,053 |
| | 2,099 | LOWELL STREET | EMBER LN | HICKORY LN | 89 | 1,875 | 45,000 | Major Collector | 0.50 | \$ 2,500 |
| | 1,959 | CURVE STREET | MARTIN ST | FISKE ST | 88 | 4,006 | 64,096 | Local | 0.50 | \$ 3,561 |
| | | | | | | | | | TOTAL | \$10,114 |
| 2025 | 1,961 | SKELTON ROAD | BEDFORD RD | RIVER RD | 88 | 2,333 | 44,327 | Local | 0.50 | \$ 2,463 |
| | 661 | WESTFORD STREET | 50' E OF MUNROE HILL RD | 1000' W OF ROCKLAND RD | 88 | 2,684 | 69,784 | Major Collector | 0.50 | \$ 3,877 |
| | 2,073 | BELLOWS HILL ROAD | ESTABROOK RD | SCHOOL ST | 87 | 2,129 | 38,322 | Local | 0.50 | \$ 2,129 |
| | 667 | FISKE STREET | CURVE ST | CHELMSFORD TL | 87 | 3,458 | 58,786 | Local | 0.50 | \$ 3,266 |
| | 669 | ROBBINS DRIVE | INDIAN HILL | RUSSELL ST | 87 | 1,852 | 35,188 | Local | 0.50 | \$ 1,955 |
| | 677 | WEST STREET | 100' N OF SOUTH ST | LOG HILL RD | 87 | 2,945 | 55,955 | Minor Collector | 0.50 | \$ 3,109 |
| | 2,003 | RUSSELL STREET | CONCORD ST | 800' E OF CONCORD ST | 86 | 844 | 16,880 | Local | 0.50 | \$ 938 |
| | 2,007 | BROOK STREET | BEDFORD RD | PETER HANS RD | 85 | 6,004 | 120,080 | Local | 0.50 | \$ 6,671 |
| | 689 | EAST RIDING DRIVE | BROOK ST | EAST ST | 83 | 4,788 | 114,912 | Local | 0.50 | \$ 6,384 |
| | 695 | PHEASANT HILL LANE | BINGHAM RD | 150' N OF BINGHAM RD | 82 | 174 | 3,828 | Local | 0.50 | \$ 213 |
| | 2,069 | CRANBERRY HILL LANE | CURVE ST | CUL-DE-SAC | 80 | 1,232 | 22,176 | Local | 0.50 | \$ 1,232 |
| | 1,895 | INDIAN HILL | 300' W OF ROBBINS DR | ROBBINS DR | 79 | 293 | 5,274 | Local | 0.50 | \$ 293 |
| | 709 | LOWELL STREET | HICKORY LN | 200' N OF ROTARY | 79 | 4,782 | 119,550 | Major Collector | 0.50 | \$ 6,642 |
| | 1,937 | CARRIAGE WAY | EAST RIDING DR | CUL-DE-SAC | 77 | 1,262 | 25,240 | Local | 0.50 | \$ 1,402 |
| 725 | EAST STREET | RUTLAND ST | BLAISDELL DR | 77 | 4,578 | 109,872 | Minor Collector | 0.50 | \$ 6,104 | |
| 1,903 | WILKINS LANE | KIMBALL RD | CUL-DE-SAC | 77 | 923 | 16,614 | Local | 0.50 | \$ 923 | |
| | | | | | | | | | TOTAL | \$47,599 |
| 2026 | 731 | ACTON STREET | 200' E OF WEST ST | 200' W OF WEST ST | 76 | 408 | 11,424 | Local | 0.50 | \$ 635 |
| | 761 | GREAT BROOK PATH | RUTLAND ST | CUL-DE-SAC | 76 | 1,238 | 22,284 | Local | 0.50 | \$ 1,238 |
| | 765 | NORTH ROAD | BILLERICA TL | RUTLAND ST | 76 | 3,766 | 67,788 | Local | 0.50 | \$ 3,766 |
| | 2,057 | ACTON STREET | 1000' W OF WEST ST | 1350' W OF WEST ST | 75 | 338 | 6,422 | Local | 0.50 | \$ 357 |
| | 1,941 | BINGHAM ROAD | 700' E OF PHEASANT HILL LN | CROSS ST | 75 | 1,199 | 22,781 | Local | 0.50 | \$ 1,266 |
| | 1,915 | LAURELWOOD DRIVE | HEMLOCK HILL RD | DEAD END | 75 | 409 | 9,816 | Local | 0.50 | \$ 545 |
| | 1,921 | BEDFORD ROAD | 500' E OF CHURCH ST | MAPLE ST (E) | 74 | 4,620 | 124,740 | Major Collector | 0.50 | \$ 6,930 |
| | 797 | BEDFORD ROAD | MAPLE ST (E) | SKELTON RD | 74 | 4,484 | 121,068 | Major Collector | 0.50 | \$ 6,726 |
| | 801 | HILLSIDE DRIVE | MEADOWBROOK RD | CUL-DE-SAC | 74 | 916 | 21,068 | Local | 0.50 | \$ 1,170 |
| | 1,879 | MEADOWBROOK ROAD | HILLSIDE DR | DEAD END | 74 | 1,093 | 25,139 | Local | 0.50 | \$ 1,397 |
| | 2,075 | NICKLES LANE | EAST ST | OLD EAST ST | 74 | 1,108 | 22,160 | Local | 0.50 | \$ 1,231 |
| | 2,105 | RUSSELL STREET | 1000' E OF CONCORD ST | BELLOWS HILL RD | 74 | 2,872 | 54,568 | Local | 0.50 | \$ 3,032 |
| | 851 | SOUTH STREET | 150' E OF WEST ST | WEST ST | 74 | 134 | 3,216 | Minor Collector | 0.50 | \$ 179 |
| | 2,043 | VIRGINIA FARME LANE | NATHAN LN | CUL-DE-SAC | 74 | 2,916 | 69,984 | Local | 0.50 | \$ 3,888 |
| | 2,041 | WESTFORD STREET | 1000' W OF ROCKLAND RD | 500' W OF ROCKLAND RD | 74 | 528 | 13,728 | Major Collector | 0.50 | \$ 763 |
| | 875 | CONCORD STREET | 400' N OF INDIAN HILL RD | 100' N OF RUSSELL ST | 73 | 2,167 | 58,509 | Major Collector | 0.50 | \$ 3,251 |
| | 2,065 | CRAIGIE CIRCLE | PETER HANS RD | PETER HANS RD | 73 | 1,439 | 35,975 | Local | 0.50 | \$ 1,999 |
| | 891 | FOREST PARK DRIVE | CURVE ST | EVERGREEN LN | 73 | 851 | 15,318 | Local | 0.50 | \$ 851 |
| | 1,983 | ICE POND ROAD | EAST ST | CUL-DE-SAC | 73 | 1,465 | 26,370 | Local | 0.50 | \$ 1,465 |
| | 1,991 | RED PINE DRIVE | 800' S OF BEDFORD RD | DEAD END | 73 | 484 | 7,744 | Local | 0.50 | \$ 430 |
| 1,977 | BLAISDELL DRIVE | EAST ST | DEAD END | 71 | 841 | 15,138 | Local | 0.50 | \$ 841 | |
| 1,973 | CROSS STREET | 150' N OF BRIGHAM RD | WESTFORD ST | 71 | 2,495 | 44,910 | Local | 0.50 | \$ 2,495 | |
| 895 | WEST STREET | CONCORD TOWN LINE | 50' S OF SOUTH ST | 71 | 1,255 | 27,610 | Minor Collector | 0.50 | \$ 1,534 | |
| | | | | | | | | | TOTAL | \$45,987 |

APPENDIX G– GIS Export

| OBJECTID | PavementID | Name | FrSegment | ToSegment | FrStation | ToStation | Length | Width | Area | IsOneWay | DtSurvey | PCI | BaseIndex | PavementType | FunctionalClass | Zoning | Volume | SurfIndex | Comment | Crackseal | CurbType | Repair | EstCost | Shape_Length | UnitCostSY |
|----------|------------|----------------------|--------------------------|----------------------------|-----------|-----------|--------|-------|--------|----------|--------------------|-----|-----------|---------------------|-----------------|-------------|--------|-----------|---------|-----------|--------------------|----------------------------------|---------|--------------|------------|
| 1 | 851 | ROBBINS DRIVE | INDIAN HILL | RUSSELL ST | 0 | 1852 | 1852 | 19 | 35188 | 0 | 2023-08-22 0:00:00 | 87 | 85 | Bituminous Concrete | Local | Residential | 500 | 90 | | None | None | Crackseal w/Local Patch | 5836 | 1851.570963 | 1.5 |
| 2 | 915 | JUDY FARM ROAD | HEALD RD | HEALD RD | 0 | 2870 | 2870 | 25 | 71750 | 0 | 2023-08-29 0:00:00 | 67 | 78 | Bituminous Concrete | Local | Residential | 500 | 65 | | None | None | Prep & Overlay | 134874 | 2866.802378 | 17 |
| 3 | 903 | WOODBINE ROAD | EAST ST | CUL-DE-SAC | 0 | 1722 | 1722 | 22 | 37884 | 0 | 2023-08-17 0:00:00 | 65 | 63 | Bituminous Concrete | Local | Residential | 500 | 90 | | None | None | Shim & Overlay | 92159 | 1718.739027 | 22 |
| 4 | 839 | POPE ROAD | WEST ST | CONCORD TL | 0 | 790 | 790 | 20 | 15800 | 0 | 2023-08-18 0:00:00 | 53 | 50 | Bituminous Concrete | Minor Collector | Residential | 2000 | 83 | | None | None | Reclaim & Pave | 61148 | 789.9872914 | 35 |
| 5 | 823 | PAGE BROOK ROAD | BROOK ST | DEAD END | 0 | 1192 | 1192 | 24 | 28608 | 0 | 2023-08-11 0:00:00 | 63 | 60 | Bituminous Concrete | Local | Residential | 500 | 80 | | None | None | Shim & Overlay | 69594 | 1191.782892 | 22 |
| 6 | 711 | ELIZABETH RIDGE ROAD | MORSE RD | SUNSET RD | 0 | 2914 | 2914 | 24 | 69936 | 0 | 2023-08-08 0:00:00 | 54 | 53 | Bituminous Concrete | Local | Residential | 500 | 80 | | None | Berm (Bituminous) | Reclaim & Pave | 270662 | 2913.999956 | 35 |
| 7 | 761 | HILLSIDE DRIVE | MEADOWBROOK RD | CUL-DE-SAC | 0 | 916 | 916 | 23 | 21068 | 0 | 2023-08-08 0:00:00 | 74 | 85 | Bituminous Concrete | Local | Residential | 500 | 73 | | None | None | Surface Treatment (Double Lift) | 23296 | 913.2778998 | 10 |
| 8 | 2125 | RIVER ROAD | BEDFORD RD | NOWELL FARME RD | 0 | 2758 | 2758 | 24 | 66192 | 0 | 2023-08-24 0:00:00 | 95 | 95 | Bituminous Concrete | Minor Collector | Residential | 2000 | 95 | | None | None | Do Nothing | 0 | 2758.000041 | |
| 9 | 809 | OLD EAST STREET | EAST ST | EAST MEADOW LN | 0 | 952 | 952 | 16 | 15232 | 0 | 2023-08-11 0:00:00 | 94 | 93 | Bituminous Concrete | Local | Residential | 500 | 100 | | None | None | Do Nothing | 0 | 951.9093294 | |
| 10 | 1991 | WEST STREET | 100' N OF SOUTH ST | LOG HILL RD | 1435 | 4380 | 2945 | 19 | 55955 | 0 | 2023-08-23 0:00:00 | 87 | 85 | Bituminous Concrete | Minor Collector | Residential | 2000 | 90 | | None | None | Crackseal w/Local Patch | 9281 | 2945.000013 | 1.5 |
| 11 | 765 | ICE POND ROAD | EAST ST | CUL-DE-SAC | 0 | 1465 | 1465 | 18 | 26370 | 0 | 2023-08-08 0:00:00 | 73 | 68 | Bituminous Concrete | Local | Residential | 500 | 89 | | None | None | Surface Treatment (Double Lift) | 29159 | 1464.56555 | 10 |
| 12 | 1905 | FOREST PARK DRIVE | EVERGREEN LN | DEAD END | 851 | 1338 | 487 | 18 | 8766 | 0 | 2023-08-02 0:00:00 | 88 | 88 | Bituminous Concrete | Local | Residential | 500 | 95 | | None | None | Crackseal | 485 | 486.9999948 | 0.5 |
| 13 | 1979 | WESTFORD STREET | WESTFORD TL | CURVE ST | 0 | 4690 | 4690 | 26 | 121940 | 0 | 2023-08-24 0:00:00 | 93 | 93 | Bituminous Concrete | Major Collector | Residential | 5000 | 93 | | None | None | Do Nothing | 0 | 4689.999977 | |
| 14 | 1977 | WESTFORD STREET | 50' E OF MUNROE HILL RD | 1000' W OF ROCKLAND RD | 8445 | 11129 | 2684 | 26 | 69784 | 0 | 2023-08-24 0:00:00 | 88 | 88 | Bituminous Concrete | Major Collector | Residential | 5000 | 90 | | None | None | Crackseal | 3858 | 2683.999967 | 0.5 |
| 15 | 1973 | WESTFORD STREET | 1000' W OF ROCKLAND RD | 500' W OF ROCKLAND RD | 11129 | 11657 | 528 | 26 | 13728 | 0 | 2023-08-24 0:00:00 | 74 | 70 | Bituminous Concrete | Major Collector | Residential | 5000 | 85 | | None | None | Surface Treatment (Double Lift) | 15180 | 527.9999934 | 10 |
| 16 | 677 | CARRIAGE WAY | EAST RIDING DR | CUL-DE-SAC | 0 | 1262 | 1262 | 20 | 25240 | 0 | 2023-08-03 0:00:00 | 77 | 93 | Bituminous Concrete | Local | Residential | 500 | 78 | | None | Berm (Bituminous) | Surface Treatment (Double Lift) | 27909 | 1261.770218 | 10 |
| 17 | 1923 | SUNSET ROAD | LOWELL ST | ELIZABETH RIDGE RD | 0 | 1376 | 1376 | 16 | 22016 | 0 | 2023-08-11 0:00:00 | 48 | 38 | Bituminous Concrete | Local | Residential | 500 | 90 | | None | None | Reclaim & Pave | 85205 | 1376.00001 | 35 |
| 18 | 1903 | FOREST PARK DRIVE | CURVE ST | EVERGREEN LN | 0 | 851 | 851 | 18 | 15318 | 0 | 2023-08-02 0:00:00 | 73 | 70 | Bituminous Concrete | Local | Residential | 500 | 80 | | None | None | Surface Treatment (Double Lift) | 16938 | 892.4562365 | 10 |
| 19 | 657 | BARNES PLACE | HUTCHINS RD | DEAD END | 0 | 245 | 245 | 16 | 3920 | 0 | 2023-08-02 0:00:00 | 78 | 78 | Bituminous Concrete | Local | Residential | 500 | 95 | | None | None | Surface Treatment (Double Lift) | 4335 | 244.8179424 | 10 |
| 20 | 837 | PINE BROOK ROAD | NORTH RD | CUL-DE-SAC | 0 | 1550 | 1550 | 24 | 37200 | 0 | 2023-08-11 0:00:00 | 100 | 100 | Bituminous Concrete | Local | Residential | 500 | 100 | | None | None | Do Nothing | 0 | 1547.244448 | |
| 21 | 2071 | BINGHAM ROAD | CONCORD ST | 700' E OF PHEASANT HILL LN | 0 | 2289 | 2289 | 17 | 38913 | 0 | 2023-08-23 0:00:00 | 88 | 88 | Bituminous Concrete | Local | Residential | 500 | 95 | | None | None | Crackseal | 2151 | 2289.000016 | 0.5 |
| 22 | 2107 | CANTERBURY COURT | BEDFORD RD | 700' S OF BEDFORD RD | 0 | 707 | 707 | 21 | 14847 | 0 | 2023-08-23 0:00:00 | 55 | 55 | Bituminous Concrete | Local | Residential | 500 | 75 | | None | None | Reclaim & Pave | 57460 | 707.000032 | 35 |
| 23 | 2075 | PHEASANT HILL LANE | BINGHAM RD | 150' N OF BINGHAM RD | 0 | 174 | 174 | 22 | 3828 | 0 | 2023-08-23 0:00:00 | 82 | 93 | Bituminous Concrete | Local | Residential | 500 | 80 | | None | None | Surface Treatment (Single Lift) | 2540 | 174.000055 | 6 |
| 24 | 2017 | CONCORD STREET | 50' S OF BINGHAM RD | 200' S OF CHURCH ST | 8129 | 10992 | 2863 | 26 | 74438 | 0 | 2023-08-18 0:00:00 | 88 | 88 | Bituminous Concrete | Major Collector | Residential | 5000 | 95 | | None | None | Crackseal | 4116 | 2863.000009 | 0.5 |
| 25 | 2007 | CONCORD STREET | 400' N OF INDIAN HILL RD | 100' N OF RUSSELL ST | 2806 | 4973 | 2167 | 27 | 58509 | 0 | 2023-08-18 0:00:00 | 73 | 73 | Bituminous Concrete | Major Collector | Residential | 5000 | 73 | | None | None | Surface Treatment (Double Lift) | 64697 | 2166.999994 | 10 |
| 26 | 1999 | WEST STREET | 2000' S OF ACTON ST | ACTON ST | 7281 | 9177 | 1896 | 18 | 34128 | 0 | 2023-08-23 0:00:00 | 53 | 50 | Bituminous Concrete | Minor Collector | Residential | 2000 | 87 | | None | None | Reclaim & Pave | 132080 | 1895.999946 | 35 |
| 27 | 2061 | LOG HILL ROAD | 900' W OF WEST ST | DEAD END | 898 | 1885 | 987 | 24 | 23688 | 0 | 2023-08-22 0:00:00 | 64 | 63 | Bituminous Concrete | Local | Residential | 500 | 78 | | None | None | Shim & Overlay | 57625 | 986.9999917 | 22 |
| 28 | 919 | MAPLE STREET Y INT | MAPLE ST | MAPLE ST | 0 | 368 | 368 | 17 | 6256 | 0 | 2023-08-18 0:00:00 | 93 | 93 | Bituminous Concrete | Local | Residential | 500 | 95 | | None | None | Do Nothing | 0 | 367.781796 | |
| 29 | 1889 | NORTH ROAD | 3400' E OF LOWELL ST | 1400' E OF LOWELL ST | 8636 | 10040 | 1404 | 20 | 28080 | 0 | 2023-08-03 0:00:00 | 49 | 40 | Bituminous Concrete | Local | Residential | 500 | 90 | | None | None | Reclaim & Pave | 108674 | 1404.000007 | 35 |
| 30 | 1879 | NORTH ROAD | BILLERICA TL | RUTLAND ST | 0 | 3766 | 3766 | 18 | 67788 | 0 | 2023-08-03 0:00:00 | 76 | 75 | Bituminous Concrete | Local | Residential | 500 | 89 | | None | None | Surface Treatment (Double Lift) | 74957 | 3766 | 10 |
| 31 | 865 | ROUTE 225 ROUNDABOUT | ROUNDABOUT | ROUNDABOUT | 0 | 252 | 252 | 16 | 4032 | 0 | 2023-08-11 0:00:00 | 95 | 95 | Bituminous Concrete | Major Collector | Residential | 5000 | 98 | | None | Granite (Vertical) | Do Nothing | 0 | 252.0000296 | |
| 32 | 889 | TOPHET ROAD | CARLETON RD | EAST RIDING DR | 0 | 2331 | 2331 | 24 | 55944 | 0 | 2023-08-11 0:00:00 | 42 | 35 | Bituminous Concrete | Local | Residential | 500 | 90 | | None | None | Reclaim & Pave | 216511 | 2330.999974 | 35 |
| 33 | 923 | WILDWOOD DRIVE | SOUTH ST | DEAD END | 0 | 636 | 636 | 22 | 13992 | 0 | 2023-08-29 0:00:00 | 62 | 55 | Bituminous Concrete | Local | Residential | 500 | 90 | | None | None | Shim & Overlay | 34038 | 635.6166362 | 22 |
| 34 | 799 | MILNE COVE ROAD | EAST ST | MAPLE ST | 0 | 939 | 939 | 18 | 16902 | 0 | 2023-08-11 0:00:00 | 55 | 53 | Bituminous Concrete | Local | Residential | 500 | 88 | | None | None | Reclaim & Pave | 65413 | 938.8820445 | 35 |
| 35 | 775 | JOHNSON ROAD | HANOVER RD | WESTFORD ST | 0 | 1230 | 1230 | 20 | 24600 | 0 | 2023-08-08 0:00:00 | 89 | 88 | Bituminous Concrete | Local | Residential | 500 | 99 | | None | Granite (Sloped) | Crackseal | 1360 | 1229.999998 | 0.5 |
| 36 | 2091 | ACTON STREET | 200' E OF WEST ST | 200' W OF WEST ST | 4450 | 4858 | 408 | 28 | 11424 | 0 | 2023-08-23 0:00:00 | 76 | 88 | Bituminous Concrete | Local | Residential | 500 | 80 | | None | None | Surface Treatment (Double Lift) | 12632 | 408.0000231 | 10 |
| 37 | 2057 | INDIAN HILL | 300' W OF ROBBINS DR | ROBBINS DR | 2430 | 2724 | 293 | 18 | 5274 | 0 | 2023-08-22 0:00:00 | 79 | 80 | Bituminous Concrete | Local | Residential | 500 | 93 | | None | None | Surface Treatment (Single Lift) | 3499 | 293.6498233 | 6 |
| 38 | 779 | KIMBALL ROAD | FISKE ST | CUL-DE-SAC | 0 | 3245 | 3245 | 20 | 64900 | 0 | 2023-08-02 0:00:00 | 65 | 68 | Bituminous Concrete | Local | Residential | 500 | 72 | | None | Granite (Sloped) | Shim & Overlay | 157880 | 3242.088736 | 22 |
| 39 | 2003 | CONCORD STREET | CONCORD TOWN LINE | 400' N OF INDIAN HILL RD | 0 | 2806 | 2806 | 26 | 72956 | 0 | 2023-08-18 0:00:00 | 92 | 90 | Bituminous Concrete | Major Collector | Residential | 5000 | 95 | | None | None | Crackseal | 4034 | 2806.000019 | 0.5 |
| 40 | 709 | EAST RIDING DRIVE | BROOK ST | EAST ST | 0 | 4788 | 4788 | 24 | 114912 | 0 | 2023-08-08 0:00:00 | 83 | 83 | Bituminous Concrete | Local | Residential | 500 | 90 | | None | None | Surface Treatment (Single Lift) | 76239 | 4787.588303 | 6 |
| 41 | 2051 | AUTUMN LANE | ROBBINS DR | 100' N OF KIBBY PL | 0 | 1425 | 1425 | 22 | 31350 | 0 | 2023-08-22 0:00:00 | 41 | 35 | Bituminous Concrete | Local | Residential | 500 | 87 | | None | None | Reclaim & Pave | 121329 | 1425 | 35 |
| 42 | 829 | PATTEN LANE | CUL-DE-SAC | STEARNS ST | 0 | 686 | 686 | 24 | 16644 | 0 | 2023-08-24 0:00:00 | 64 | 65 | Bituminous Concrete | Local | Residential | 500 | 68 | | None | None | Shim & Overlay | 40051 | 684.3079589 | 22 |
| 43 | 1953 | BEDFORD ROAD | CHURCH ST | 500' E OF CHURCH ST | 2362 | 2817 | 455 | 26 | 11830 | 0 | 2023-08-17 0:00:00 | 67 | 65 | Bituminous Concrete | Major Collector | Residential | 5000 | 90 | | None | None | Prep & Overlay (Major Collector) | 22238 | 455.0000103 | 17 |
| 44 | 1943 | MAPLE STREET | BILLERICA TL | EAST ST | 0 | 1720 | 1720 | 23 | 39560 | 0 | 2023-08-18 0:00:00 | 87 | 85 | Bituminous Concrete | Minor Collector | Residential | 2000 | 93 | | None | None | Crackseal w/Local Patch | 6562 | 1720 | 1.5 |
| 45 | 661 | BELLOWS HILL ROAD | ESTABROOK RD | SCHOOL ST | 0 | 2129 | 2129 | 18 | 38322 | 0 | 2023-08-22 0:00:00 | 87 | 85 | Bituminous Concrete | Local | Residential | 500 | 93 | | None | None | Crackseal w/Local Patch | 6356 | 2128.968575 | 1.5 |
| 46 | 1907 | PROCTOR ROAD | LOWELL ST | CHELMFORD TL | 0 | 300 | 300 | 22 | 6600 | 0 | 2023-08-08 0:00:00 | 45 | 30 | Bituminous Concrete | Major Collector | Residential | 5000 | 100 | | None | None | Reclaim & Pave | 25543 | 300.000014 | 35 |
| 47 | 695 | CRANBERRY HILL LANE | CURVE ST | CUL-DE-SAC | 0 | 1232 | 1232 | 18 | 22176 | 0 | 2023-08-02 0:00:00 | 80 | 85 | Bituminous Concrete | Local | Residential | 500 | 85 | | None | Berm (Bituminous) | Surface Treatment (Single Lift) | 14713 | 1230.777786 | 6 |
| 48 | 1965 | WESTFORD STREET | | | | | | | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | | | | | |
|-----|------|----------------------|-----------------------|-------------------------|-------|-------|------|----|--------|----|--------------------|----|-----|---------------------|-----------------|-------------|------|-----|------|--------------------|---------------------------------|--------|-------------|-----|
| 85 | 2129 | NOWELL FARME RD | RIVER RD | 100' N OF FERN LN | 0 | 1807 | 1807 | 24 | 43368 | 0 | 2023-08-24 0:00:00 | 69 | 85 | Bituminous Concrete | Local | Residential | 500 | 68 | None | None | Prep & Overlay | 81522 | 1807.000005 | 17 |
| 86 | 2095 | ACTON STREET | 200' W OF WEST ST | 1000' W OF WEST ST | 4858 | 5626 | 768 | 19 | 14592 | 0 | 2023-08-23 0:00:00 | 95 | 95 | Bituminous Concrete | Local | Residential | 500 | 100 | None | None | Do Nothing | 0 | 768.0000391 | |
| 87 | 2101 | ACTON STREET | 1350' W OF WEST ST | ACTON TL | 5964 | 6716 | 752 | 19 | 14288 | 0 | 2023-08-23 0:00:00 | 95 | 95 | Bituminous Concrete | Local | Residential | 500 | 98 | None | None | Do Nothing | 0 | 751.9618152 | |
| 88 | 2041 | RUSSELL STREET | 1000' E OF CONCORD ST | BELLOWS HILL RD | 1034 | 3906 | 2872 | 19 | 54568 | 0 | 2023-08-18 0:00:00 | 74 | 74 | Bituminous Concrete | Local | Residential | 500 | 83 | None | None | Surface Treatment (Double Lift) | 60339 | 2872.000057 | 10 |
| 89 | 1933 | EAST STREET | BLAISDELL DR | BEDFORD RD | 9827 | 10822 | 995 | 23 | 22885 | 0 | 2023-08-08 0:00:00 | 99 | 100 | Bituminous Concrete | Minor Collector | Residential | 2000 | 99 | None | None | Do Nothing | 0 | 995.0000327 | |
| 90 | 1925 | SUNSET ROAD | ELIZABETH RIDGE RD | CUL-DE-SAC | 1376 | 2127 | 751 | 20 | 15020 | 0 | 2023-08-11 0:00:00 | 64 | 65 | Bituminous Concrete | Local | Residential | 500 | 65 | None | Berm (Bituminous) | Shim & Overlay | 36539 | 751.0000364 | 22 |
| 91 | 663 | BERRY CORNER ROAD | HEALD RD | DEAD END | 0 | 912 | 912 | 25 | 22800 | 0 | 2023-08-22 0:00:00 | 54 | 50 | Bituminous Concrete | Local | Residential | 500 | 90 | None | None | Reclaim & Pave | 88239 | 920.5443579 | 35 |
| 92 | 1929 | WOLF ROCK ROAD | 500' E OF LOWELL ST | DEAD END | 491 | 1586 | 1094 | 24 | 26256 | 0 | 2023-08-17 0:00:00 | 54 | 50 | Bituminous Concrete | Local | Residential | 500 | 93 | None | None | Reclaim & Pave | 101614 | 1094.6402 | 35 |
| 93 | 905 | WOODLAND ROAD | LOG HILL RD | DEAD END | 0 | 1090 | 1090 | 24 | 26160 | 0 | 2023-08-22 0:00:00 | 68 | 68 | Bituminous Concrete | Local | Residential | 500 | 90 | None | None | Prep & Overlay | 49175 | 1089.999957 | 17 |
| 94 | 1891 | CURVE STREET | LOWELL ST | MARTIN ST | 0 | 3792 | 3792 | 18 | 68256 | 0 | 2023-08-02 0:00:00 | 94 | 93 | Bituminous Concrete | Local | Residential | 500 | 98 | None | None | Do Nothing | 0 | 3792.000015 | |
| 95 | 931 | NATHAN LANE | MUNROE HILL RD | CUL-DE-SAC | 0 | 2327 | 2327 | 24 | 55848 | 0 | 2023-08-11 0:00:00 | 68 | 78 | Bituminous Concrete | Local | Residential | 500 | 75 | None | Berm (Bituminous) | Prep & Overlay | 104982 | 2326.632909 | 17 |
| 96 | 941 | KONING FARM ROAD | ACTON ST | CUL-DE-SAC | 0 | 1787 | 1787 | 20 | 35740 | 0 | 2023-08-24 0:00:00 | 68 | 78 | Bituminous Concrete | Local | Residential | 500 | 73 | None | Granite (Sloped) | Prep & Overlay | 67183 | 1785.59465 | 17 |
| 97 | 861 | RODGERS ROAD | STEARNS ST | CUL-DE-SAC | 0 | 1646 | 1646 | 24 | 39504 | 0 | 2023-08-29 0:00:00 | 54 | 55 | Bituminous Concrete | Local | Residential | 500 | 70 | None | Berm (Bituminous) | Reclaim & Pave | 152886 | 1643.341247 | 35 |
| 98 | 2033 | SCHOOL STREET | CHURCH ST | WESTFORD ST | 6020 | 6434 | 414 | 26 | 10764 | 0 | 2023-08-18 0:00:00 | 67 | 78 | Bituminous Concrete | Local | Residential | 500 | 65 | None | Granite (Vertical) | Prep & Overlay | 20234 | 413.5364814 | 17 |
| 99 | 2067 | CROSS STREET | SOUTH ST | 150' N OF BRIGHAM RD | 0 | 4026 | 4026 | 18 | 72468 | 0 | 2023-08-22 0:00:00 | 93 | 93 | Bituminous Concrete | Local | Residential | 500 | 95 | None | None | Do Nothing | 0 | 4026 | |
| 100 | 2063 | SOUTH STREET | CONCORD ST | 150' E OF WEST ST | 0 | 6935 | 6935 | 20 | 138700 | 0 | 2023-08-22 0:00:00 | 92 | 90 | Bituminous Concrete | Minor Collector | Residential | 2000 | 95 | None | None | Crackseal | 7668 | 6934.999978 | 0.5 |
| 101 | 2015 | CONCORD STREET | 200' S OF CHURCH ST | WESTFORD ST | 10992 | 11619 | 626 | 26 | 16276 | 0 | 2023-08-18 0:00:00 | 98 | 100 | Bituminous Concrete | Major Collector | Residential | 5000 | 98 | None | None | Do Nothing | 0 | 626.8832743 | |
| 102 | 791 | LONG RIDGE ROAD | GARNET ROCK LN | NOWELL FARME RD | 0 | 1377 | 1377 | 23 | 31671 | 0 | 2023-08-24 0:00:00 | 63 | 63 | Bituminous Concrete | Local | Residential | 500 | 78 | None | None | Shim & Overlay | 77045 | 1376.796188 | 22 |
| 103 | 2027 | CHURCH STREET | BEDFORD RD | 850' W OF BEDFORD RD | 0 | 846 | 846 | 19 | 16074 | 0 | 2023-08-18 0:00:00 | 44 | 40 | Bituminous Concrete | Minor Collector | Residential | 2000 | 85 | None | None | Reclaim & Pave | 62209 | 846.0000282 | 35 |
| 104 | 731 | GREAT BROOK PATH | RUTLAND ST | CUL-DE-SAC | 0 | 1238 | 1238 | 18 | 22284 | 0 | 2023-08-08 0:00:00 | 76 | 75 | Bituminous Concrete | Local | Residential | 500 | 89 | None | Berm (Bituminous) | Surface Treatment (Double Lift) | 24641 | 1234.013049 | 10 |
| 105 | 1981 | WESTFORD STREET | CURVE ST | 50' E OF MUNROE HILL RD | 4690 | 8445 | 3755 | 26 | 97630 | 0 | 2023-08-24 0:00:00 | 95 | 95 | Bituminous Concrete | Major Collector | Residential | 5000 | 95 | None | None | Do Nothing | 0 | 3758.701362 | |
| 106 | 717 | ESTABROOK ROAD | BELLOWS HILL RD | KIBBY PLACE | 0 | 1828 | 1828 | 18 | 32904 | 0 | 2023-08-22 0:00:00 | 88 | 88 | Bituminous Concrete | Local | Residential | 500 | 94 | None | None | Crackseal | 1819 | 1827.6695 | 0.5 |
| 107 | 1937 | EAST STREET | RUTLAND ST | BLAISDELL DR | 5249 | 9827 | 4578 | 24 | 109872 | 0 | 2023-08-08 0:00:00 | 77 | 75 | Bituminous Concrete | Minor Collector | Residential | 2000 | 90 | None | None | Surface Treatment (Double Lift) | 121492 | 4578.000013 | 10 |
| 108 | 651 | AARON WAY | MUNROE HILL RD | CUL-DE-SAC | 0 | 920 | 920 | 20 | 18400 | 0 | 2023-08-03 0:00:00 | 66 | 73 | Bituminous Concrete | Local | Residential | 500 | 73 | None | Berm (Bituminous) | Prep & Overlay | 34588 | 915.210386 | 17 |
| 109 | 1955 | BEDFORD ROAD | ROTARY | 150' E OF EAST ST | 0 | 584 | 584 | 25 | 14600 | 0 | 2023-08-17 0:00:00 | 98 | 100 | Bituminous Concrete | Major Collector | Residential | 5000 | 98 | None | Granite (Vertical) | Do Nothing | 0 | 584.0000153 | |
| 110 | 831 | PETER HANS ROAD | BROOK ST | CUL-DE-SAC | 0 | 2156 | 2156 | 25 | 53900 | 0 | 2023-08-11 0:00:00 | 65 | 63 | Bituminous Concrete | Local | Residential | 500 | 85 | None | None | Shim & Overlay | 131120 | 2155.644638 | 22 |
| 111 | 807 | OAK KNOLL ROAD | HEMLOCK HILL RD | DEAD END | 0 | 1232 | 1232 | 20 | 24640 | 0 | 2023-08-11 0:00:00 | 54 | 53 | Bituminous Concrete | Local | Residential | 500 | 78 | None | Berm (Bituminous) | Reclaim & Pave | 95360 | 1231.557187 | 35 |
| 112 | 777 | KIBBY PLACE | AUTUMN LN | ESTABROOK RD | 0 | 772 | 772 | 24 | 18528 | 0 | 2023-08-22 0:00:00 | 94 | 93 | Bituminous Concrete | Local | Residential | 500 | 99 | None | None | Do Nothing | 0 | 771.9999533 | |
| 113 | 729 | GARNET ROCK LANE | LONG RIDGE RD | NOWELL FARME RD | 0 | 947 | 947 | 25 | 23675 | 0 | 2023-08-22 0:00:00 | 55 | 50 | Bituminous Concrete | Local | Residential | 500 | 95 | None | None | Reclaim & Pave | 91626 | 946.6365163 | 35 |
| 114 | 2115 | STEARNS STREET | BEDFORD RD | 1500' W OF BALDWIN RD | 0 | 2960 | 2960 | 18 | 53280 | 0 | 2023-08-29 0:00:00 | 51 | 45 | Bituminous Concrete | Local | Residential | 500 | 85 | None | None | Reclaim & Pave | 206201 | 2959.999986 | 35 |
| 115 | 801 | NICKLES LANE | EAST ST | OLD EAST ST | 0 | 1108 | 1108 | 20 | 22160 | 0 | 2023-08-11 0:00:00 | 74 | 70 | Bituminous Concrete | Local | Residential | 500 | 90 | None | Berm (Bituminous) | Surface Treatment (Double Lift) | 24504 | 1107.99997 | 10 |
| 116 | 2083 | HEALD ROAD | ACTON ST | JUDY FARM RD (N) | 0 | 1180 | 1180 | 25 | 29500 | 0 | 2023-08-23 0:00:00 | 51 | 45 | Bituminous Concrete | Local | Residential | 500 | 88 | None | None | Reclaim & Pave | 114169 | 1179.999999 | 35 |
| 117 | 2123 | FOSS ST | BEDFORD RD | RIVER RD | 0 | 540 | 540 | 10 | 5400 | -1 | 2023-08-29 0:00:00 | 52 | 45 | Bituminous Concrete | Local | Residential | 500 | 95 | None | None | Reclaim & Pave | 20899 | 539.4820863 | 35 |
| 118 | 2105 | RED PINE DRIVE | 800' S OF BEDFORD RD | DEAD END | 818 | 1302 | 484 | 16 | 7744 | 0 | 2023-08-23 0:00:00 | 73 | 70 | Bituminous Concrete | Local | Residential | 500 | 80 | Some | None | Surface Treatment (Double Lift) | 8563 | 484.0000547 | 10 |
| 119 | 1915 | LOWELL STREET | EMBER LN | HICKORY LN | 5536 | 7411 | 1875 | 24 | 45000 | 0 | 2023-08-17 0:00:00 | 89 | 90 | Bituminous Concrete | Major Collector | Residential | 5000 | 88 | None | None | Crackseal | 2488 | 1874.999993 | 0.5 |
| 120 | 1969 | WESTFORD STREET | 500' W OF ROCKLAND RD | CONCORD ST | 11657 | 12847 | 1191 | 26 | 30966 | 0 | 2023-08-24 0:00:00 | 88 | 88 | Bituminous Concrete | Major Collector | Residential | 5000 | 95 | None | None | Crackseal | 1712 | 1190.000019 | 0.5 |
| 121 | 675 | CARLISLE PINES DRIVE | EVERGREEN LN | DEAD END | 0 | 1449 | 1449 | 22 | 31878 | 0 | 2023-08-02 0:00:00 | 47 | 40 | Bituminous Concrete | Local | Residential | 500 | 75 | None | None | Reclaim & Pave | 123372 | 1448.629341 | 35 |
| 122 | 1911 | LOWELL STREET | CHELMSFORD TL | EMBER LN | 0 | 5536 | 5536 | 24 | 132864 | 0 | 2023-08-17 0:00:00 | 93 | 93 | Bituminous Concrete | Major Collector | Residential | 5000 | 93 | None | None | Do Nothing | 0 | 5535.999973 | |
| 123 | 1921 | LOWELL STREET | HICKORY LN | 200' N OF ROTARY | 7411 | 12192 | 4782 | 25 | 119550 | 0 | 2023-08-17 0:00:00 | 79 | 78 | Bituminous Concrete | Major Collector | Residential | 5000 | 83 | None | None | Surface Treatment (Single Lift) | 79316 | 4781.000034 | 6 |
| 124 | 859 | ROCKLAND ROAD | WESTFORD ST | DEAD END | 0 | 2469 | 2469 | 14 | 34566 | 0 | 2023-08-11 0:00:00 | 44 | 28 | Bituminous Concrete | Local | Residential | 500 | 100 | None | None | Reclaim & Pave | 133775 | 2468.999998 | 35 |
| 125 | 895 | WILKINS LANE | KIMBALL RD | CUL-DE-SAC | 0 | 923 | 923 | 18 | 16614 | 0 | 2023-08-03 0:00:00 | 77 | 93 | Bituminous Concrete | Local | Residential | 500 | 78 | None | None | Surface Treatment (Double Lift) | 18371 | 921.1816427 | 10 |
| 126 | 1887 | NORTH ROAD | 1400' E OF LOWELL ST | LOWELL ST | 10040 | 12088 | 2048 | 19 | 38912 | 0 | 2023-08-03 0:00:00 | 52 | 50 | Bituminous Concrete | Local | Residential | 500 | 78 | None | None | Reclaim & Pave | 150595 | 2047.60242 | 35 |
| 127 | 933 | MUNROE HILL ROAD | NATHAN LN | AARON WAY | 0 | 2934 | 2934 | 24 | 70416 | 0 | 2023-08-11 0:00:00 | 66 | 73 | Bituminous Concrete | Local | Residential | 500 | 73 | None | Berm (Bituminous) | Prep & Overlay | 132367 | 2934 | 17 |
| 128 | 2087 | ACTON STREET | WESTFORD ST | 200' E OF WEST ST | 0 | 4450 | 4450 | 22 | 97900 | 0 | 2023-08-23 0:00:00 | 95 | 95 | Bituminous Concrete | Local | Residential | 500 | 99 | None | None | Do Nothing | 0 | 4449.999957 | |
| 129 | 1983 | WEST STREET | CONCORD TOWN LINE | 50' S OF SOUTH ST | 0 | 1255 | 1255 | 22 | 27610 | 0 | 2023-08-18 0:00:00 | 71 | 70 | Bituminous Concrete | Minor Collector | Residential | 2000 | 68 | None | None | Prep & Overlay | 51901 | 1254.999991 | 17 |
| 130 | 2043 | RUSSELL STREET | CONCORD ST | 800' E OF CONCORD ST | 0 | 844 | 844 | 20 | 16880 | 0 | 2023-08-18 0:00:00 | 86 | 85 | Bituminous Concrete | Local | Residential | 500 | 88 | None | None | Crackseal w/Local Patch | 2800 | 843.9999838 | 1.5 |
| 131 | 2065 | SOUTH STREET | 150' E OF WEST ST | WEST ST | 6935 | 7069 | 134 | 24 | 3216 | 0 | 2023-08-22 0:00:00 | 74 | 75 | Bituminous Concrete | Minor Collector | Residential | 2000 | 72 | None | None | Surface Treatment (Double Lift) | 3556 | 134.0000301 | 10 |
| 132 | 2059 | LOG HILL ROAD | WEST ST | 900' W OF WEST ST | 0 | 898 | 898 | 24 | 21552 | 0 | 2023-08-22 0:00:00 | 52 | 50 | Bituminous Concrete | Local | Residential | 500 | 78 | None | None | Reclaim & Pave | 83409 | 897.9999801 | 35 |
| 133 | 2055 | INDIAN HILL | INDIAN HILL RD | 300' W OF ROBBINS DR | 0 | 2430 | 2430 | 24 | 58320 | 0 | 2023-08-22 0:00:00 | 47 | 40 | Bituminous Concrete | Local | Residential | 500 | 70 | None | None | Reclaim & Pave | 225707 | 2429.999981 | 35 |
| 134 | 771 | INDIAN HILL ROAD | CONCORD ST | DEAD END | 0 | 2016 | 2016 | 26 | 52416 | 0 | 2023-08-22 0:00:00 | 95 | 95 | Bituminous Concrete | Local | Residential | 500 | 99 | None | None | Do Nothing | 0 | 2015.903753 | |
| 135 | 2037 | SCHOOL STREET | 300' N OF BALDWIN RD | CHURCH ST | 4078 | 6020 | 1942 | 24 | 46608 | 0 | 2023-08-18 0:00:00 | 64 | 60 | Bituminous Concrete | Local | Residential | 500 | 90 | None | None | Shim & Overlay | 113381 | 1942.000028 | 22 |
| 136 | 719 | EVERGREEN LANE | CARLISLE PINES DR | FOREST PARK DR | 0 | 1341 | 1341 | 18 | 24138 | 0 | 2023-08-02 0:00:00 | 54 | 50 | Bituminous Concrete | Local | Residential | 500 | 88 | None | None | Reclaim & Pave | 93418 | 1341.000021 | 35 |
| 137 | 1901 | HUTCHINS ROAD | 1400' W OF CURVE ST | CURVE ST | 1418 | 2825 | 1407 | 20 | 28140 | 0 | 2023-08-02 0:00:00 | 56 | 55 | Bituminous Concrete | Local | Residential | 500 | 88 | None | Granite (Sloped) | Shim & Overlay | 68455 | 1406.998239 | 22 |
| 138 | 939 | BERRY CORNER LANE | BERRY CORNER RD | CUL-DE-SAC | 0 | 60 | 60 | 50 | 3000 | 0 | 2023-08-22 0:00:00 | 51 | 48 | Bituminous Concrete | Local | Residential | 500 | 75 | None | None | Reclaim & Pave | 11610 | 60.00004683 | 35 |
| 139 | 869 | RUTLAND STREET | EAST ST | BILLERICA TL | 0 | 6746 | 6746 | 21 | 141666 | 0 | 2023-08-11 0:00:00 | 99 | | | | | | | | | | | | |