

Relationships.
Responsiveness.
Results.



**2018 Pavement
Condition Study
Final Report
Lebanon, Maine**

PREPARED FOR:

Town of Lebanon

15 Upper Guinea Road

Lebanon, Maine 04027

January 2019

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Town of Lebanon, Maine Pavement Condition Study

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Introduction

Gorrill Palmer was retained by the Town of Lebanon to conduct pavement and gravel roadway condition assessments for all municipal roadways.

The purpose of the study was to assess the pavement and gravel condition of the municipal roads and to develop a ten-year plan for improving the pavement and gravel conditions. By continuing to complete these pavement and gravel evaluations on a regular basis, it is possible for the Town to better gauge how quickly the pavement or gravel is deteriorating and, consequently, how best to allocate resources.

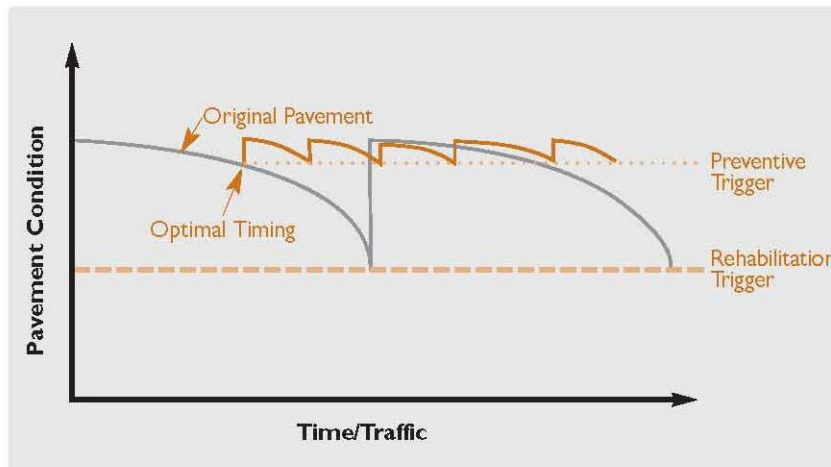
The following graphic illustrates the ideal timing to complete preventative maintenance before the pavement condition reaches a point where pavement rehabilitation is required. It is significantly less expensive to perform regular preventative maintenance on a roadway than to rehabilitate or reconstruct a roadway. Roadway rehabilitation and reconstruction often costs three to six times the amount of preventative maintenance and road reconstruction typically costs at least six times the amount of preventative maintenance. Therefore, it is most cost-effective to complete regular preventive maintenance to maintain the roadways so they do not reach the point where they require rehabilitation or reconstruction.

Definitions

Pavement Management: The process of planning maintenance and repair of a network of roadways in order to optimize pavement conditions over the entire network.

Preventative Maintenance: Cost-effective treatments to an existing roadway system and preserves the system, retards future deterioration, and maintains or improves the functional condition of the system (without significantly increasing the structural capacity).

Pavement Rehabilitation: To extend the service life of a paved road and/or improve road strength and load carrying capacity.



*Graph from TRNews 228

The pavement and gravel conditions were evaluated in the field and entered into the Road Surface Management System (RSMS) Software, Version 16, distributed by the Maine Local

Roads Center (MaineDOT). The pavement condition rating methodology is summarized on the following pages.

Data Collection

The initial geographic information system (GIS) and database files for the Town of Lebanon's road network were provided by RSMS and MaineDOT. State-aid, and private roadways were excluded from the evaluation. Several of the roads were split into sections based on their prior paving history or dimensional characteristics. For example, a road that had been partially paved in prior years would be segmented so that the segment with newer pavement would not artificially improve the condition rating of the portion that had not been recently paved.

Field Inventory

The data collection was performed by Gorrill Palmer between the dates August 13 – 30, 2018. The survey work was performed by one person to ensure consistent ratings and results for each road section. Approximately 75 miles of local Town road were evaluated.

The pavement/gravel condition data was collected using a pavement distress survey approach developed by the Maine Local Roads Center. The RSMS Field Manual states that the survey may be completed while driving and it is not necessary to stop to perform any of the survey work. However, based on our experience, our field inspector also stopped periodically to better observe the condition of each road segment. The distress survey records the extent and the severity of commonly occurring pavement/gravel distresses.

For pavement, the critical distresses include the following types of cracking and damage: alligator cracking, transverse/longitudinal cracking, edge cracking, and patching/potholes. In addition, overall pavement distortion and grading, roughness, rutting, and roadside drainage were observed. A brief description of each type of distress is provided below and corresponding photographs are shown on pages 4 through 7:

- Alligator Cracking: A series of interconnected cracks in the pavement resembling alligator skin or chicken wire. This type of cracking is typically caused by repeated traffic loadings and often indicates fatigue failure.
- Longitudinal/Transverse Cracking: Cracks running parallel and/or perpendicular to the roadway. These types of cracks are typically caused by inadequate support, reflection of underlying layers, or a precursor to alligator cracking.
- Edge Cracking: Cracks begin parallel to and within 24 inches of the pavement edge. Cracking is either a fairly continuous straight crack or crescent-shaped cracks in wave-formation. Edge cracking can be caused by the lack of adequate road shoulders or damaged shoulders due to erosion or other causes.

- Patching/Potholes: Patching is where original pavement has been replaced, but patch is failing. Potholes are where pavement has broken, leaving a bowl-shaped depression. A pothole is either not patched, or the patch is failing.
- Roughness: Uneven roadway surface that affects the comfort of the ride.
- Rutting: Channels in the wheel path caused by displacement of pavement material. Rutting generally indicates a structural deficiency in the base gravel or the road subgrade.
- Roadside Drainage: Proper drainage allows water to flow off the pavement freely and allows water in the pavement subbase to drain and be conveyed away from the road. Lack of drainage often results in damage to the pavement structure, either through frost heaving, resulting in pavement cracking, or weakened subbase resulting in structural damage to the pavementsystem.

The severity of each of the seven pavement distresses was estimated and recorded on a none/low/medium/high scale. For example, low severity cracking would be considered a hairline crack in the pavement whereas a high severity crack would be a 1-inch wide crack.

Similar to severity, extent of distress is measured on a none/low/medium/high scale where low is less than 10% of the roadway segment and high is greater than 30% of the roadway segment for any specific distress. A copy of the field data form is included in Appendix D. In this study, we entered data directly into the RSMS software.

Typical Pavement Distresses



Alligator Cracking - Blanchard Road



Longitudinal Cracking - Smith road

Typical Pavement Distresses (Continued)



Edge Cracking - Academy Road



Patching/Potholes - Sewell Shores Road

Typical Pavement Distresses (Continued)



Roughness - River Road



Rutting - Center Road

Typical Pavement Distresses (Continued)



Roadside Drainage - Indian Lake Drive

Gravel distresses were only evaluated for severity, not extent. These distress conditions include the following: rock/clay, rutting, loose aggregate, corrugations, potholes, dust, cross section, and roadside drainage. A brief description and example photograph of each of these distress types is provided below:

- Rock/Clay: Rocks larger than 6” and/or areas of clay in the road surface. Road lacks any apparent and suitable base material, and/or natural materials provide no support for anticipated traffic loading.
- Rutting: Long, narrow depressions caused by a vehicles’ tires.
- Loose Aggregate: Loose material on the road surface.
- Corrugations: A series of bumps perpendicular to the road surface, resembling a washboard.
- Potholes: Areas where the road surface has eroded leaving a bowl-shaped depression.
- Dust: Fine particles that are raised by wind or vehicular traffic, reducing visibility.
- Cross Section: Loss of crown, inhibiting natural drainage of water from the center to the sides of the road.
- Roadside Drainage: Same as paved roads.

Typical Gravel Distresses



Rock/Clay - Maine Local Roads Center Image



Rutting - Lord Road

Typical Gravel Distresses (Continued)



Loose Aggregate - Maine Local Roads Center Image



Corrugations - Maine Local Road Center Image

Typical Gravel Distresses (Continued)



Potholes - Lower Guinea Road



Dust - Maine Local Road Center Image

Typical Gravel Distresses (Continued)



Cross Section - Maine Local Road Center Image

While our survey generally followed the RSMS methodology, our survey work did include stopping the vehicle and inspecting the road distresses in more detail. To improve the accuracy of the inventory, at least one distress area for each road segment was observed from outside the vehicle.

In addition, a representative photograph of the survey section was taken for each road segment. The photographs are linked to the Road Segment in the RSMS database.

Survey sites were randomly selected by the surveyor in areas felt to best represent the roadway segment.

Maintenance Status

Over the years, the MaineDOT has provided several methods for conducting a pavement management survey. The RSMS software and methodology is a simplified method that can be implemented by communities, often without technical assistance from a consultant or MaineDOT, if so desired. Other methods generate Pavement Condition Ratings (PCRs) based on the results of the pavement evaluation. The RSMS software does not generate PCRs, rather it computes a “maintenance status” for each road segment. The maintenance status is determined based on the pavement distress type(s) and distress severity and extent as observed in the pavement evaluation. As previously stated, the maintenance status for gravel roads is determined only based on the extent of distresses. A description of each of the maintenance status categories is as follows:

- No Maintenance: These roads are in excellent condition and require no maintenance.
- Routine: These roads are in reasonably good condition, and only periodic lower cost repairs are required to maintain their condition. This would include (but not be limited to) crack sealing, fog sealing, pothole repair, and maintaining gravel shoulders.
- Preventative: These roads are in fair condition and require more expensive repairs designed to minimize further deterioration before it becomes a serious issue. This would include (but not be limited to) chip seals, drag shims, thin overlays and/or improving ditches. It is imperative that these roads receive preventative treatment within 3 - 4 years so they do not decline even further into the Rehabilitate or Reconstruct status categories.
- Rehabilitation: These roads require significant repairs that usually require some major funding and generally will add many years of life if done correctly. This would include (but not be limited to) a shim and overlay, mill and overlay, and/or improve drainage.
- Reconstruction: These roads have reached the end of their useful life and must be completely rebuilt from the gravel subbase and include new pavement. This is generally the most expensive category to complete.

The results of the pavement/gravel evaluation and the maintenance status for each town road are shown in the tables in Appendix A. The data are presented in three different tables, including:

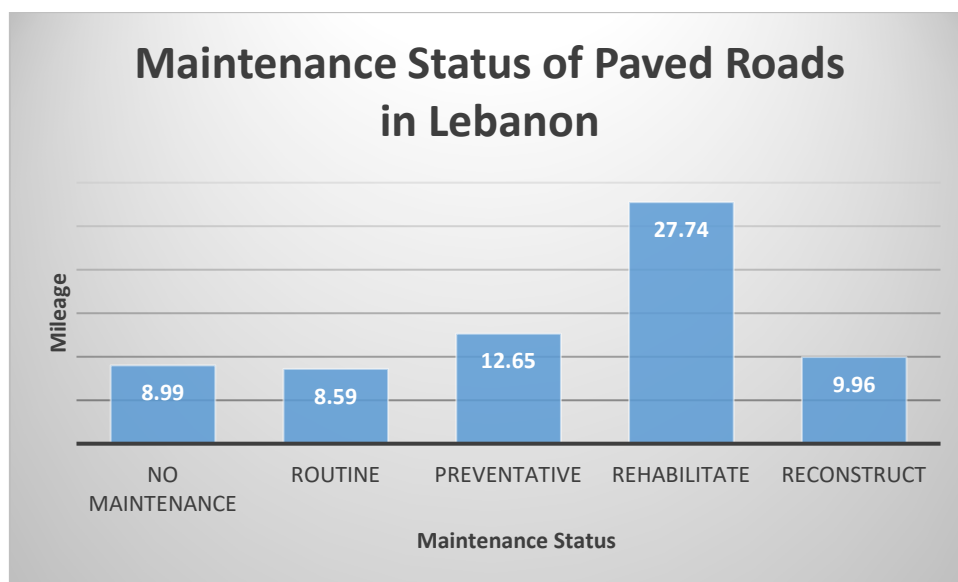
- Table 1: Paved/Gravel Network Inventory – Municipal Road/Section (Alphabetical)
- Table 2: Paved/Gravel Network Inventory – Municipal Road/Section (By Treatment)
- Table 3: Costed Repair Options – Municipal Road/Section (Alphabetical)

Data Analysis

The overall maintenance status of the municipal roads in Lebanon was determined by calculating the total miles of roadway within each maintenance status category. The following table and chart present the maintenance status of the municipal roads in 2018.

Maintenance Status of Municipal Paved Roads

Maintenance Status	2018 Mileage
No Maintenance	8.99
Routine	8.59
Preventative	12.65
Rehabilitate	27.74
Reconstruct	9.96
Total	67.93



As shown, approximately 41% of the municipal roads are in the Rehabilitate status category. As stated previously, roads in Rehabilitate condition require significant repairs that often require major funding. However, these repairs will generally increase the roadway lifespan by many years. Such repairs would include (but not be limited to) a shim and overlay, mill and overlay, and/or improving drainage. It is our recommendation that the Town address these roadway repairs as the paving budget allows for it. Repairing roads that are in Rehabilitate condition will be less costly than allowing further deterioration of the roadways into the Reconstruct condition.

As shown, approximately 19% of the municipal roads are currently in the Preventative status category. We recommend these roads receive treatment within 3 to 4 years. Some roads with medium to medium-high traffic that fall within the Preventative status are:

- Champion Street
- Emery Mills Road
- Heath Road I
- River Road
- T M Wentworth Road
- West Lebanon Road 2

If these roads do not receive proper treatment within a few years they may deteriorate into the Rehabilitate or Reconstruct status categories, which will result in much more costly treatment. See Appendix A for details on the roads included in the various maintenance status categories.

Approximately 26% of Town roads are in the Routine or No Maintenance status categories. This is likely due to pavement overlay and/or reconstruction projects that have occurred in recent years. Roadway sections that appeared to receive treatment in recent years include:

- Center Road 2 and 3
- Indian lake Drive 2
- Lower Barley Street 2
- Merchants Row
- Mills Road
- River Road 3
- Shapleigh Road 2
- Stanley Street
- Upper Cross Road
- Wentworth Street
- West Lebanon Road I

As noted previously, the RSMS software does not calculate a PCR value for each roadway segment. PCR values are numerical ratings that allow roads to be ranked according to

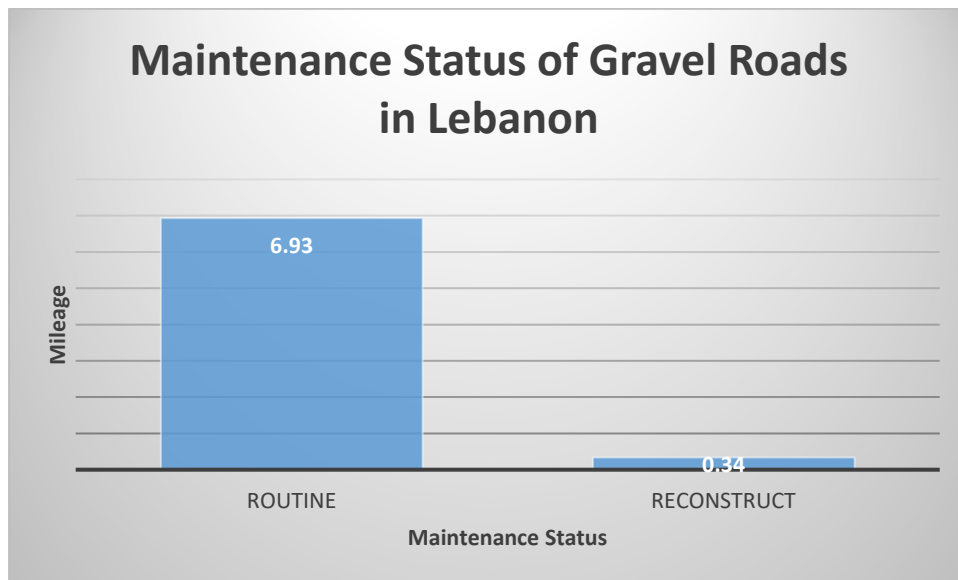
condition. The output from RSMS does not provide this ability to rank the roads, however, in our opinion, the paved roads in Reconstructive condition and in most need of full reconstruction based on traffic volume are:

- Fall Road 1
- Goding Road 3
- River Road 2
- Schoolhouse Lane

The following table and chart present the maintenance status of the municipal gravel roads:

Maintenance Status of Local Gravel Roads

Maintenance Status	2018 Mileage
Routine	6.93
Reconstruct	0.34
Total	7.1



As shown, approximately 95% of the municipal gravel roads are in the Routine maintenance category. This means that there were no cases of extreme distresses surveyed. However, this does not mean that the roads have no distresses present. Since the rating system for gravel roads only considers the extent, and not the severity of distresses, as well as only having No Maintenance, Routine, or Reconstruct maintenance status categories, it is a more general

rating system compared to the pavement rating system.

Approximately 5% of the municipal gravel roads are in the Reconstruct maintenance status category. Sections of gravel roadway that need to be reconstructed include Bog Road 1 and Edgecomb Road. Edgecomb Road appears to have a crushed stone surface and appears to function more as a driveway than a road, so the Town may not view it as a priority. Routine maintenance repairs for distresses such as potholes, corrugations, and drainage/ditching should be noted for:

- Lord Road 1 and 2
- Lower Guinea 2 and 4
- Orrills Hill Road 2
- Kennebec Drive 1
- Goding Road 1

Drainage issues were observed and noted on many of the municipal roads. Specific drainage concerns were added in the notes section of the RSMS database. Drainage is identified as a distress in the RSMS evaluation methodology and is rated in extent and severity for each road section, similar to the other pavement/gravel distresses. The following roads appeared to be most in need of ditching and drainage improvements:

- Chick Road
- Fall Road
- Flat Rock Bridge Road
- Gully Oven Road
- Hubbard Road
- River Road
- Smith Road

There are more roads with poor drainage, however the roads listed above are prioritized with greater importance due to the traffic volume that was provided by the Town.

Several roads with more dense residential development may benefit from more significant drainage improvements, including construction of curb and enclosed drainage systems (catch basin and storm drain). These roads include:

- Academy Lane
- Bigelow Road
- Blaisdell Corner Road
- Carpenter Street
- Indian Lake Drive 1
- Stokewood Drive
- Stanley Street
- Varney Street

Prioritization of roads to receive treatments ultimately rests with the Town and should be partially based on criteria such as traffic volume, road importance (provides access to town facilities such as schools, emergency facilities, health facilities, and town office, for example).

Treatment Alternatives

Multiple treatment options are available to maintain and repair roads in the various maintenance status categories. The following tables identify several of the treatment alternatives that are available within a given maintenance status category. We have reviewed the literature and have attempted to provide information on benefits, general longevity, and relative cost. As shown, the estimated service life of each alternative can vary significantly and is dependent on multiple factors such as local climate, quality of the construction and condition of the underlying pavement/gravel and pavement/gravel sub- base, among others. There is no standardized guidance providing information on the longevity of a given treatment with any degree of certainty. The tables below summarize the various treatment alternatives for paved and gravel roads.

Treatment Alternatives - Paved Roads

Maintenance Status	Treatment Alternative	Description	Estimated Service Life (1)	Comments
Routine	Patching	This treatment alternative consists of removing and replacing the defective pavement with new pavement matching the depth of the surrounding pavement. Patching can also include filling potholes to the normal road grade.	Varies	Field verify locations.
	Crack Seal	This treatment alternative involves placement of specialized materials (such as rubberized liquid asphalt) into cracks to prevent infiltration of water into the underlying pavement layers.	3 - 8 Years	Field verify locations.
Preventative	Sand Seal	This treatment alternative involves the application of asphalt binder covered with a fine aggregate. This alternative is used to improve the skid resistance of slippery pavements and to seal against air and water intrusion.	1 - 2 Years	Does not improve the overall strength of roadway.
	Chip Seal	This treatment alternative consists of spraying the pavement surface with liquid asphalt and then immediately covering with aggregate and rolling.	5 - 10 Years	Does not improve load-associated cracking, Not recommended for use on high volume roadways.
	Drag Shim (3/4")	This treatment consists of a 3/4" shim course of pavement. The shim course is applied to the existing pavement to smooth out any distortion (rutting, small depressions, etc.) prior to the surface course. The shim allows for a more uniform roadway and for a more evenly compacted surface layer, which extends the pavement life and ride quality.	No information found	Cost effective if only used in areas where needed. Locations should be field verified prior to shimming.
	Thin Overlay (3/4 - 1")	This treatment alternative consists of a 3/4" - 1" surface course of pavement placed in one lift.	5 - 12 Years	Inspect existing pavement condition prior to overlaying to help avoid reflecting cracks. Consider shimming in areas that meet the "Shim & 1" Overlay" description. Not recommended in areas with alligator cracking.
	Shim & 1" Overlay	This treatment alternative consists of a 3/4" shim course of pavement and a 1" surface course of pavement. The shim course is applied to the existing pavement to smooth out any distortion (rutting, small depressions, etc.) prior to the surface course. The shim allows for a more uniform roadway and for a more evenly compacted surface layer, which extends the pavement life and ride quality. It is listed as a preventative treatment to allow the town to budget for future maintenance, as well as existing needs.	5 - 12 Years	This treatment is the preferred option for Preventative status as it improves roadway strength, cross slopes, and ride quality.
	Thick (>1") Overlay	This treatment is similar to the Light/ Future overlay, but uses a 1.25 - 2" course of surface pavement to address a roadway build-up that has been further deteriorated, and therefore needs a more structural treatment.	5-12 Years	Shimming may also be recommended to smooth out any distortion in the existing pavement surface.
	Overlay w/ 2" Cold Mix, top w/ 1" HMA	This treatment alternative consists of a 2" overlay of cold mix pavement and surfaced with a 1" overlay of hot mix asphalt. The cold mix asphalt is a blend of coarse and fine aggregate combined with soft emulsified asphalt, typically used for paving low volume rural and secondary roads.	No information found	
	Mill & Fill 1.25"	This treatment grinds down (mills) the existing pavement and then an overlay is placed. This treatment is used where it is necessary to maintain the existing finish grade of the roadway at approximately the same elevation due to adjacent driveways or curbing with limited reveal.	5-12 Years	This treatment is ideal in urban areas where ditches aren't present.

Maintenance Status	Treatment Alternative	Description	Estimated Service Life (1)	Comments
Rehabilitate	Reclaim & Revert to Gravel	A full depth reclamation treatment pulverizes the existing pavement and mixes some of it with the existing base material. The material is then re-graded and compacted.	No information found	
	Shim & 2" Overlay	This treatment is similar to the Shim & 1" Overlay, but uses a 3/4" shim and a 2" course of surface pavement to address a roadway build-up that has been further deteriorated, and therefore needs a more structural treatment.	5-12 Years	Existing gravel depths should be verified prior to paving to insure proper service life.
	Reclaim (6-8" base), 2" Binder, 1.5" Surface HMA	A full depth reclamation treatment pulverizes the existing pavement and mixes some of it with the existing base material. The material is then re-graded and prepared for a 2" base course and 1.5" surface course pavement.	10-15 Years	Pavement depths shall be in accordance with town/state specifications.
	Reclaim (6-8" base), Stabilized, 2" Binder, 1.5" Surface HMA	A full depth reclamation treatment pulverizes the existing pavement and mixes some of it with the existing base material. The material is then re-graded and prepared for a 2" base course and 1.5" surface course pavement.	10-15 Years	Pavement depths shall be in accordance with town/state specifications.
	PM RAP Reclamation	Existing pavement is removed and recycled at a pavement plant. The recycled asphalt pavement (RAP) is then placed on roadway and regraded and compacted.	No information found	
Reconstruct	Reclaim & Revert to Gravel	A full depth reclamation treatment pulverizes the existing pavement and mixes some of it with the existing base material. The material is then re-graded and compacted.	No information found	
	Reconstruct w/ 18" Gravel, 2" Binder, 1" Surface HMA	This treatment is a full reconstruction of the roadway; including the removal of all pavements and gravels. A new layer of gravel is then placed at a depth of 18". Finally a new 2" base course and 1" surface course of pavement are placed. This treatment should be applied on low volume rural and secondary roads.	Up to 20 Years	Gravel and pavement depths shall be in accordance with town/state specifications.
	Reconstruct w/ 24" Gravel, 2" Binder, 2" Surface HMA	This treatment is a full reconstruction of the roadway; including the removal of all pavements and gravels. A new layer of gravel is then placed at a depth of 24". Finally a new 2" base course and 2" surface course of pavement are placed. This treatment should be applied on arterial and collector roads.	Up to 20 Years	Gravel and pavement depths shall be in accordance with town/state specifications.

Notes

(1). Estimated Service Life based on review of the literature. Estimated Service Life is highly variable and dependent on many variables, such as climate, quality of construction, existing pavement and subbase conditions, and drainage.

Gravel Treatment Alternatives

Maintenance Status	Treatment Alternative	Description
Routine	Add Gravel (Up to 4")	This treatment consists of adding gravel to the surface up to a depth of 4".
	Routine Grading	This treatment consists of using a grader to smooth the roadway surface, helping to maintain its shape, drivability, and structural integrity.
	Spot Grading/Blading	This treatment consists of targeting particular areas for grading as needed. Blading is also a grading technique used to refinish the roadway surface, which would target areas as needed.
Reconstruct	Add 12" of Gravel to Base and 3" to Surface	This treatment is necessary when a road needs reconstruction of the base as well as the surface. Once the base and surface have been graveled, the road will regain its structural integrity and serviceability.

The RSMS Software computes repair costs for multiple treatment alternatives, based on the maintenance status of a given road segment. The tables in Appendix A provide these cost estimates for each road segment. The cost estimates are based on unit price data (see Appendix C) for each treatment alternative and the area of road to be treated. It is very important to understand, that the unit costs used to generate the total costs are strictly for the pavement/gravel treatment and two drainage treatments. These costs do not include other repairs such as curbing, culverts, catch basin/manhole repair, other utility improvements, etc. The final cost of a project may vary significantly depending on many factors, such as length of road, width of road, other improvements, etc. Also note that all costs are presented in 2018 dollars and don't account for inflation.

10 Year Roadway Improvement Plans

Gorrill Palmer has prepared three 10-year roadway improvement plan options, as follows:

- Option 1 – Annual Budget of \$235,000, which appears to be the approximate annual Town budget for roadway improvement projects.
- Option 2 – Annual Budget of \$750,000.
- Option 3 - \$3 million bond to jump start the improvements in year 1, followed by \$450,000 per year for years 2 through 10.

Based on the assessed condition of the road, the total costs to maintain and rehabilitate all the paved roads in the Town of Lebanon is approximately \$12,511,000. As shown, about 55% of the roads are in the rehabilitate or reconstruct category and require a significant expenditure to repair and improve. This is a challenge and will require diligence and substantial additional funding if the Town wants to address these roads.

Option 1 - \$235,000 Annual Budget

Gorrill Palmer has prepared a 10-Year Roadway Improvement Plan based on the reported annual roadway improvements budget of \$235,000. It is our understanding that this has been the typical town budget expenditure for town road improvements. Based on the general poor condition of the roads, this amount is not adequate to make a substantial dent in improving the town roads.

This plan focuses on addressing the roads in the preventative treatment category within the first four years to keep these roads from getting worse and becoming more expensive to repair. Initially, an estimated cost was determined for all Preventative roads assuming a shim and 1-inch overlay. However, the estimated cost for this scope of work was determined to be approximately \$1,657,189. Using simple math, it would take over seven years to address the Preventative roads with the \$235,000 annual budget. And while this work was being done, the remaining roads would not receive any repairs or improvements. This is not sustainable. Therefore, we modified the treatment to reduce the cost. The modified treatment is a ¾-inch drag shim with no overlay. Using this approach we were able to address the Preventative roads in the first four years of the plan. After addressing all of the roads in the Preventative status, roads that are in the Rehabilitate status can be addressed. Maintenance repairs were selected to exhaust the remainder of each annual budget.

The 10-year plan Option 1 is included in Appendix C. Note that with this annual budget, there are still over \$10,153,000 of road work that is not completed within the duration of the plan. In our opinion, this option is not sustainable, nor adequate to result in significant improvements to the Town of Lebanon's road conditions.

Option 2 - \$750,000 Annual Budget

Gorrill Palmer has prepared a 10-Year Roadway Improvement Plan based on an annual paving/road budget of \$750,000. This plan attempts to make a more significant impact in improving the condition of the town roads. Option 2 is included in Appendix C and while it does apply significant funds and results in substantial improvements, there are still over \$5,000,000 of road work remaining at the end of the 10-year plan.

This plan focuses on addressing the roads in the preventative treatment category first to keep them from getting worse and becoming more expensive to repair. Unlike in the Option 1 plan, we did not reduce the preventative treatment. We assumed the standard preventative treatment would be shim and 1-inch pavement overlay.

For the roads in the reconstruction category we reduced the preferred treatment to reclaiming the existing pavement and repaving, rather than the costlier full depth reconstruction option.

Option 3 - \$3 Million Bond followed by \$450,000 Annual Budget

Gorrill Palmer has prepared a third plan based on an initial \$3 million bond, then followed by an annual budget of \$450,000 for the following 9 years. The intent with this plan is to front load the plan and hopefully take advantage of an economy of scale by bidding a significant amount of work at one time. In theory this approach may result in better contractor pricing because of larger projects, but also because the cost of these types of improvements will likely only increase as time goes on. As with the other two plans, there is still over \$5,453,000 of road work remaining at the end of the 10-year plan. Option 3 is also included in Appendix C.

This plan focuses on addressing the roads in the preventative treatment category first to keep them from getting worse and becoming more expensive to repair. Unlike in the Option 1 plan, we did not reduce the preventative treatment. We assumed the standard preventative treatment would be shim and 1-inch pavement overlay.

For the roads in the reconstruction category we reduced the preferred treatment to reclaiming the existing pavement and repaving, rather than the costlier full depth reconstruction option.

Use of Report

Care should be taken when using this report. Identified roadway conditions should be considered average over the length of each road segment. It is entirely possible that some sections of any given road segment may be in better or worse condition than the average. The roadway treatments identified in this report should not be considered as final design options. Before any project bidding is requested or construction is scheduled, additional site visits should be made, and design plans and specifications prepared to clearly identify the desired end product and construction scope of work. Other improvement work may be necessary as well. For instance, the Town may need to include repairs and replacement of catch basins, culverts, other underground utilities, raising the road profile and safety improvements. All of these will affect the final cost of the construction project.

Another consideration when scheduling the roadway improvements is the impact on neighborhoods. The Town should consider the number of mobilizations required by a paving contractor when planning overlays on local road to reduce cost. If several roads are in need of treatment in a neighborhood based on the current maintenance status, the Town should review other roads in the neighborhood that may have a similar status to eliminate future work in the neighborhood for the next five years.

In summary, this report is intended to be used as a resource by the Town in developing their annual pavement programs. It is anticipated that some of the roadways included in the annual program may be taken out of the order listed based on a more detailed field review by the public

works director or hired consultant. Development of the annual program should consider additional factors such as drainage needs, and proximity of the projects to one another to minimize contractor mobilization costs.

Conclusions

The Town of Lebanon has a significant undertaking to repair their roadway system. Approximately 19% of the Town's local paved roads are currently included in the Preventative maintenance status category. About 56% of the Town roads are in the Rehabilitate/Reconstruct category.

We have prepared 3 different 10-Year Roadway Improvement plans for the Town to consider. Option 1 is maintaining the status quo and continue with funding roadway improvements at approximately \$235,000 per year. With this option, progress will not be achieved and overall the roads will continue to get worse. Option 2 increases the annual roadway/paving budget to \$750,000. This option makes a substantial impact on improving the roads, however, there is still about \$5,000,000 of roadway improvements needed after 10 years. Option 3 front loads the roadway work with a \$3 million bond, followed by 9 years with a \$450,000 budget. Again, this option makes a substantial impact on improving the roads, however, there is still about \$5.4 million of roadway improvements needed after 10 years.

Given the overall condition of the Town roads, we recommend proceeding with Option 2 or 3. Option 3 may be the better of the two because it may provide some economy of scale, which may result in better pricing early on in the plan.

All three options prioritize Preventative treatments up front. It is important to treat the Preventative roads early to reduce the chances that their condition degrades and ultimately costs more money in the long run. Similarly, it is also important not to neglect the roads in the Routine and No Maintenance categories either. Many of these roads will require Routine maintenance in the next 5 to 7 years as well, and if this Routine maintenance is not performed, the Town can expect these roads to slip further into the Preventative category. It is a slippery slope and requires continuous diligence and funding to maintain the roads in good condition.

We recommend the Town continue to inventory pavement condition ratings every three years. This will allow for the development of historical pavement condition data which will reveal potential deficiencies with the roadway subgrade or drainage. Additionally, we also recommend that the Town update the RSMS database annually to track the road improvement work that has been completed each year.

Appendix A
Road Inventory

Road Network Inventory

Analysis Report
Lebanon 2018

<u>Jurisdiction</u>	<u>Road/Street Name</u>	<u>Sec</u>	<u>From</u>	<u>To</u>	<u>Surface</u>	<u>Length</u>	<u>Surface Status</u>	<u>Drainage status</u>
Municipal	Abbott Rd	1	Little River Rd	Town Line	Gravel	0.55	Routine-2	Good-2
Municipal	Academy Ln	1	Shapleigh Rd	Jim Grant Rd	Paved	0.16	Reconstruct-2	Poor-2
Municipal	Apache Ln	1	Dead end	Indian Lake Dr	Gravel	0.05	Routine-2	Good-2
Municipal	Bakers Grant Rd	1	Smith Rd	Milton Mills Rd	Paved	1.30	Rehabilitate-4	Good-4
Municipal	Bigelow Rd	1	River Rd	US 202 (Carl Brogg)	Paved	0.61	Reconstruct-2	Poor-2
Municipal	Blaisdell Corner Rd	1	Hubbard Rd	US 202 Carl Brogg	Paved	0.43	Rehabilitate-2	Poor-2
Municipal	Blanchard Rd	1	Town Line	Smith Rd	Paved	0.60	Reconstruct-2	Poor-2
Municipal	Bog Rd	1	Dead end	Surface Change	Gravel	0.04	Reconstruct-2	Good-2
Municipal	Bog Rd	2	Surface Change	Heath Rd	Gravel	0.59	Routine-2	Good-2
Municipal	Carpenter St	1	Varney St	River Rd	Paved	0.06	Rehabilitate-2	Poor-2
Municipal	Cemetery Rd	1	Dead end	Bakers Grant Rd	Paved	0.26	Routine-2	Good-2
Municipal	Center Rd	1	Dead end		Paved	1.67	Rehabilitate-4	Good-4
Municipal	Center Rd	3			Paved	1.15	No Maint-4	Good-4
Municipal	Center Rd	4			Paved	0.93	Rehabilitate-4	Good-4
Municipal	Center Rd	5			Paved	1.32	Rehabilitate-4	Good-4
Municipal	Center Rd	2	Holtby Ln	Shapleigh Rd	Paved	0.38	No Maint-4	Good-4
Municipal	Champion St	1	T M Wentworth Rd	Prospect Hill Rd	Paved	0.74	Preventive-3	Good-3
Municipal	Chick Rd	1	Town Line	Little River Rd	Paved	2.06	Rehabilitate-2	Poor-2
Municipal	Columbus Cir	1	Dead end	Merchants Row	Paved	0.23	Routine-2	Good-2
Municipal	Comanche Ln	1	Kennebec Dr	Indian Lake Dr	Paved	0.08	Rehabilitate-2	Poor-2
Municipal	Conifer Dr	1	Dead end	Keay Rd	Paved	0.20	Reconstruct-2	Good-2
Municipal	Creamery Hill Rd	1	US 202 (Carl Brogg)	US 202 (Carl Brogg)	Paved	0.87	Preventive-2	Good-2
Municipal	Dixon Rd	1	Poplar Hill Rd	Pavement change	Paved	1.04	Rehabilitate-2	Good-2
Municipal	Dixon Rd	2	Pavement change	Shapleigh Rd	Paved	0.28	Preventive-2	Good-2
Municipal	Dolby Rd	1	Dead end	Hillside Dr	Gravel	0.23	Routine-2	Good-2
Municipal	Edgecomb Rd	1	Dead end	Center Rd	Gravel	0.30	Reconstruct-2	Poor-2
Municipal	Emery Mills Rd	1	Town Line	Smith Rd	Paved	1.18	Preventive-4	Good-4

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Municipal	Fall Rd	1	Town Line	Pavement change	Paved	0.70	Reconstruct-4	Poor-4
Municipal	Fall Rd	2	Pavement change	Little River Rd	Paved	0.72	Rehabilitate-4	Poor-4
Municipal	Flat Rock Bridge Rd	1	Town Line	River Rd	Paved	0.41	Rehabilitate-4	Poor-4
Municipal	Gale Ln	1	Town Line	Dead end	Paved	0.09	Unknown-2	Unknown-2
Municipal	Goding Rd	1	Town Line	Pave to Gravel	Gravel	0.63	Routine-3	Good-3
Municipal	Goding Rd	2	Milton Mills Rd	Goding Rd	Gravel	0.02	Routine-3	Good-3
Municipal	Goding Rd	3	Pave to Gravel	Milton Mills Rd	Paved	1.08	Reconstruct-3	Good-3
Municipal	Gully Oven Rd	1	T M Wentworth Rd	Shapleigh Rd	Paved	1.66	Rehabilitate-3	Poor-3
Municipal	Half Mile Rd	1	Dead end	Little River Rd	Paved	0.57	Preventive-2	Good-2
Municipal	Hartford Dr	1	Lower Guinea Rd	US 202 (Carl Brogg)	Gravel	0.12	Routine-2	Good-2
Municipal	Heath Rd	1	Center Rd	Pavement change	Paved	1.20	Preventive-3	Good-3
Municipal	Heath Rd	4	Heath Rd	Depot St	Paved	0.02	Rehabilitate-2	Good-2
Municipal	Heath Rd	2	Pavement change	Pavement change	Paved	0.29	Routine-3	Good-3
Municipal	Heath Rd	3	Pavement change	Depot St	Paved	0.74	Rehabilitate-3	Good-3
Municipal	Hebo Hybo Rd	1	Bakers Grant Rd	Dead end	Gravel	0.13	Routine-2	Good-2
Municipal	Hersom Ln	1	Center Rd	Dead end	Paved	0.25	Rehabilitate-2	Poor-2
Municipal	Hillside Dr	1	Dolby Rd	New Bridge Rd	Gravel	0.19	Routine-2	Good-2
Municipal	Holtby Ln	1	Dead end	Center Rd	Gravel	0.35	Routine-2	Poor-2
Municipal	Hubbard Rd	1	Hubbard Rd	Lower Barley St	Paved	0.11	Rehabilitate-5	Poor-5
Municipal	Indian Lake Dr	1	Dead end	Kennebec Dr	Paved	0.35	Reconstruct-2	Poor-2
Municipal	Indian Lake Dr	2	Kennebec Dr	River Rd	Paved	0.55	No Maint-2	Good-2
Municipal	Jim Grant Rd	2	Pavement change	Merchants Row	Paved	0.66	Rehabilitate-4	Good-4
Municipal	Jim Grant Rd	3			Paved	1.63	Routine-4	Good-4
Municipal	Jim Grant Rd	1	Merchants Row	Center Rd	Paved	0.70	Preventive-2	Good-2
Municipal	Keay Rd	1	Milton Mills Rd	Dead end	Paved	0.28	Preventive-2	Good-2
Municipal	Kelly Ln	1	W Lebanon Rd	Dead end	Gravel	0.10	Routine-2	Good-2
Municipal	Kennebec Dr	1	Dead end	Comanche Ln	Gravel	0.09	Routine-2	Good-2

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Municipal	Kennebec Dr	2	Comanche Ln	Paved	Paved	0.03	Routine-2	Good-2
Municipal	Kennebec Dr	3	Paved	Indian Lake Dr	Gravel	0.29	Routine-2	Good-2
Municipal	Knowles Ln	1	Dead end	Lizotte Rd	Paved	0.23	Routine-2	Good-2
Municipal	Little River Rd	1	US 202 (Carl Brogg	Town Line	Paved	2.86	Routine-5	Good-5
Municipal	Lizotte Rd	1	Lizotte Rd	Town Line	Paved	0.10	Routine-2	Good-2
Municipal	Lizotte Rd	2	Dead end	Lizotte Rd	Paved	0.26	Rehabilitate-2	Good-2
Municipal	Long Swamp Rd	1	US 202 (Carl Brogg	Town Line	Paved	1.39	Routine-5	Good-5
Municipal	Lord Rd	1	Dead end	Long Swamp Rd	Gravel	0.66	Routine-2	Good-2
Municipal	Lord Rd	2	Little River Rd	Dead end	Gravel	0.28	Routine-2	Good-2
Municipal	Lower Barley St	1	Blaisdell Corner R	US 202 (Carl Brogg	Paved	0.14	Rehabilitate-2	Poor-2
Municipal	Lower Barley St	2	US 202 (Carl Brogg	Dead end	Paved	0.42	No Maint-2	Good-2
Municipal	Lower Cross Rd	1	Depot St	Center Rd	Paved	1.87	Preventive-2	Good-2
Municipal	Lower Guinea Rd	4	Hubbard Rd	Gravel	Paved	0.86	Reconstruct-2	Poor-2
Municipal	Lower Guinea Rd	1	Gravel to paved	Long Swamp Rd	Gravel	0.58	Routine-2	Good-2
Municipal	Lower Guinea Rd	2	Paved	Gravel to paved	Paved	0.92	Routine-2	Good-2
Municipal	Lower Guinea Rd	3	Gravel	Paved	Gravel	0.83	Routine-2	Poor-2
Municipal	Lower Middle Rd	1	Creamery Hill Rd	Little River Rd	Paved	1.23	Rehabilitate-2	Good-2
Municipal	Merchants Row	1	Shapleigh Rd	Upper Guinea Rd	Paved	1.46	No Maint-3	Good-3
Municipal	Mills Rd	1	US 202 (Carl Brogg	Lower Guinea Rd	Paved	0.07	No Maint-2	Good-2
Municipal	Myrtle St	1	Dead end	Champion St	Paved	0.09	Preventive-2	Good-2
Municipal	N Rochester Rd	1	River Rd	Jim Grant Rd	Paved	1.60	Rehabilitate-4	Good-4
Municipal	New Bridge Rd	1	Town Line	T M Wentworth Rd	Paved	0.97	Preventive-2	Good-2
Municipal	Orrills Hill Rd	1	Dead end	Beauliers Way	Gravel	0.09	Routine-2	Good-2
Municipal	Orrills Hill Rd	2	Dead end	Prospect Hill Rd	Gravel	0.35	Routine-2	Good-2
Municipal	Orrills Hill Rd	3	Beauliers Way	Jim Grant Rd	Paved	0.23	Reconstruct-2	Good-2
Municipal	Pine Grove Ln	1	Dead end	Lower Barley St	Paved	0.25	Preventive-2	Poor-2
Municipal	Pine Tree Dr	1	Dead end	Jim Grant Rd	Paved	0.21	Preventive-2	Good-2

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Municipal	Pond View Dr	1	Dead end	Hubbard Rd	Paved	0.24	Routine-2	Good-2
Municipal	Poplar Hill Rd	1	T M Wentworth Rd	Dixon Rd	Paved	1.13	Rehabilitate-2	Good-2
Municipal	Pork St	1	Dead end	Heath Rd	Paved	0.52	Rehabilitate-2	Good-2
Municipal	Prospect Hill Rd	1	Schoolhouse Ln	Town Line	Paved	1.44	Rehabilitate-3	Good-3
Municipal	Rd Inv 3200704	1	Hubbard Rd	Lower Barley St	Paved	0.03	Rehabilitate-5	Poor-5
Municipal	Rd Inv 3200729	1	Little River Rd	Fall Rd	Paved	0.03	Routine-4	Poor-4
Municipal	River Rd	1	US 202 (Carl Brogg)	River Rd	Paved	0.26	Preventive-4	Poor-4
Municipal	River Rd	2	River Rd	N Rochester Rd	Paved	2.52	Reconstruct-4	Good-4
Municipal	River Rd	3	N Rochester Rd	Town Line	Paved	0.76	No Maint-4	Good-4
Municipal	Sam Wentworth Rd	1	Dixon Rd	Dead end	Paved	0.65	Reconstruct-2	Good-2
Municipal	Schoolhouse Ln	1	Prospect Hill Rd	Poplar Hill Rd	Paved	0.58	Reconstruct-3	Good-3
Municipal	Second St	1	Dead end	US 202 (Carl Brogg)	Paved	0.18	Routine-2	Good-2
Municipal	Sewell Shores Rd	1	Dead end	Center Rd	Paved	0.05	Preventive-2	Good-2
Municipal	Shapleigh Rd	1	Pavement change	Jim Grant Rd	Paved	2.18	Rehabilitate-4	Good-4
Municipal	Shapleigh Rd	2	Town Line	Bakers Grant Rd	Paved	0.90	No Maint-4	Good-4
Municipal	Smith Rd	1	Bigelow Rd	River Rd	Paved	1.51	Rehabilitate-3	Poor-3
Municipal	Stanley St	1	US 202 (Carl Brogg)	US 202 (Carl Brogg)	Paved	0.13	No Maint-2	Good-2
Municipal	Stokewood Dr	1	Center Rd	US 202 (Carl Brogg)	Paved	0.32	Reconstruct-2	Poor-2
Municipal	T M Wentworth Rd	1	US 202 (Carl Brogg)	Poplar Hill Rd	Paved	1.92	Preventive-4	Good-4
Municipal	Union School Rd	1	N Rochester Rd	Town Line	Paved	0.18	Rehabilitate-3	Good-3
Municipal	Upper Barley Rd	1	Paved	Paved	Paved	0.37	Rehabilitate-2	Poor-2
Municipal	Upper Barley Rd	2	Depot St	Dead end	Gravel	0.38	Routine-2	Good-2
Municipal	Upper Cross Rd	1	Depot St	Center Rd	Paved	1.74	No Maint-4	Good-4
Municipal	Upper Guinea Rd	1	Center Rd	W Lebanon Rd	Paved	3.70	Rehabilitate-8	Good-8
Municipal	Upper Middle Rd	1	Dead end	Bakers Grant Rd	Gravel	0.25	Routine-2	Good-2
Municipal	Upper Middle Rd	2	Dead end	US 202 (Carl Brogg)	Paved	0.81	Reconstruct-2	Poor-2
Municipal	Van Veen Dr	1	Depot St	Depot St	Paved	0.29	Reconstruct-2	Poor-2

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Municipal	Varney St	1	Carpenter St	River Rd	Paved	0.20	Routine-2	Poor-2
Municipal	W Lebanon Rd	1			Paved	1.36	No Maint-5	Good-5
Municipal	W Lebanon Rd	2	Jim Grant Rd	Pavement change	Paved	1.21	Preventive-5	Good-5
Municipal	Wentworth St	1	River Rd	Varney St	Paved	0.07	No Maint-2	Good-2
Municipal	Wittun Dr	1	Kennebec Dr	Indian Lake Dr	Gravel	0.08	Routine-2	Poor-2
						75.21		

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Municipal	Academy Ln	1	Shapleigh Rd	Jim Grant Rd	Paved	0.16	Reconstruct-2	Poor-2
Municipal	Bigelow Rd	1	River Rd	US 202 (Carl Brogg	Paved	0.61	Reconstruct-2	Poor-2
Municipal	Blanchard Rd	1	Town Line	Smith Rd	Paved	0.60	Reconstruct-2	Poor-2
Municipal	Conifer Dr	1	Dead end	Keay Rd	Paved	0.20	Reconstruct-2	Good-2
Municipal	Fall Rd	1	Town Line	Pavement change	Paved	0.70	Reconstruct-4	Poor-4
Municipal	Goding Rd	3	Pave to Gravel	Milton Mills Rd	Paved	1.08	Reconstruct-3	Good-3
Municipal	Indian Lake Dr	1	Dead end	Kennebec Dr	Paved	0.35	Reconstruct-2	Poor-2
Municipal	Lower Guinea Rd	4	Hubbard Rd	Gravel	Paved	0.86	Reconstruct-2	Poor-2
Municipal	Orrills Hill Rd	3	Beauliers Way	Jim Grant Rd	Paved	0.23	Reconstruct-2	Good-2
Municipal	River Rd	2	River Rd	N Rochester Rd	Paved	2.52	Reconstruct-4	Good-4
Municipal	Sam Wentworth Rd	1	Dixon Rd	Dead end	Paved	0.65	Reconstruct-2	Good-2
Municipal	Schoolhouse Ln	1	Prospect Hill Rd	Poplar Hill Rd	Paved	0.58	Reconstruct-3	Good-3
Municipal	Stokewood Dr	1	US 202 (Carl Brogg	US 202 (Carl Brogg	Paved	0.32	Reconstruct-2	Poor-2
Municipal	Upper Middle Rd	2	Dead end	US 202 (Carl Brogg	Paved	0.81	Reconstruct-2	Poor-2
Municipal	Van Veen Dr	1	Depot St	Depot St	Paved	0.29	Reconstruct-2	Poor-2
Municipal	Bakers Grant Rd	1	Smith Rd	Milton Mills Rd	Paved	1.30	Rehabilitate-4	Good-4
Municipal	Blaisdell Corner Rd	1	Hubbard Rd	US 202 Carl Brogg	Paved	0.43	Rehabilitate-2	Poor-2
Municipal	Carpenter St	1	Varney St	River Rd	Paved	0.06	Rehabilitate-2	Poor-2
Municipal	Center Rd	1			Paved	1.67	Rehabilitate-4	Good-4
Municipal	Center Rd	4			Paved	0.93	Rehabilitate-4	Good-4
Municipal	Center Rd	5			Paved	1.32	Rehabilitate-4	Good-4
Municipal	Chick Rd	1	Town Line	Little River Rd	Paved	2.06	Rehabilitate-2	Poor-2
Municipal	Comanche Ln	1	Kennebec Dr	Indian Lake Dr	Paved	0.08	Rehabilitate-2	Poor-2
Municipal	Dixon Rd	1	Poplar Hill Rd	Pavement change	Paved	1.04	Rehabilitate-2	Good-2
Municipal	Fall Rd	2	Pavement change	Little River Rd	Paved	0.72	Rehabilitate-4	Poor-4
Municipal	Flat Rock Bridge Rd	1	Town Line	River Rd	Paved	0.41	Rehabilitate-4	Poor-4
Municipal	Gully Oven Rd	1	T M Wentworth Rd	Shapleigh Rd	Paved	1.66	Rehabilitate-3	Poor-3

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Municipal	Heath Rd	4	Heath Rd	Depot St	Paved	0.02	Rehabilitate-2	Good-2
Municipal	Heath Rd	3	Pavement change	Depot St	Paved	0.74	Rehabilitate-3	Good-3
Municipal	Hersom Ln	1	Center Rd	Dead end	Paved	0.25	Rehabilitate-2	Poor-2
Municipal	Hubbard Rd	1	Hubbard Rd	Lower Barley St	Paved	0.11	Rehabilitate-5	Poor-5
Municipal	Jim Grant Rd	2	Pavement change	Merchants Row	Paved	0.66	Rehabilitate-4	Good-4
Municipal	Lizotte Rd	2	Dead end	Lizotte Rd	Paved	0.26	Rehabilitate-2	Good-2
Municipal	Lower Barley St	1	Blaisdell Corner R	US 202 (Carl Brogg	Paved	0.14	Rehabilitate-2	Poor-2
Municipal	Lower Middle Rd	1	Creamery Hill Rd	Little River Rd	Paved	1.23	Rehabilitate-2	Good-2
Municipal	N Rochester Rd	1	River Rd	Jim Grant Rd	Paved	1.60	Rehabilitate-4	Good-4
Municipal	Poplar Hill Rd	1	T M Wentworth Rd	Dixon Rd	Paved	1.13	Rehabilitate-2	Good-2
Municipal	Pork St	1	Dead end	Heath Rd	Paved	0.52	Rehabilitate-2	Good-2
Municipal	Prospect Hill Rd	1	Schoolhouse Ln	Town Line	Paved	1.44	Rehabilitate-3	Good-3
Municipal	Rd Inv 3200704	1	Hubbard Rd	Lower Barley St	Paved	0.03	Rehabilitate-5	Poor-5
Municipal	Shapleigh Rd	1	Town Line	Bakers Grant Rd	Paved	2.18	Rehabilitate-4	Good-4
Municipal	Smith Rd	1	US 202 (Carl Brogg	Town Line	Paved	1.51	Rehabilitate-3	Poor-3
Municipal	Union School Rd	1	N Rochester Rd	Paved	Paved	0.18	Rehabilitate-3	Good-3
Municipal	Upper Barley Rd	1	Center Rd	W Lebanon Rd	Paved	0.37	Rehabilitate-2	Poor-2
Municipal	Upper Guinea Rd	1	T M Wentworth Rd	Prospect Hill Rd	Paved	3.70	Rehabilitate-8	Good-8
Municipal	Champion St	1	US 202 (Carl Brogg	US 202 (Carl Brogg	Paved	0.74	Preventive-3	Good-3
Municipal	Creamery Hill Rd	1	Pavement change	Shapleigh Rd	Paved	0.87	Preventive-2	Good-2
Municipal	Dixon Rd	2	Town Line	Smith Rd	Paved	0.28	Preventive-2	Good-2
Municipal	Emery Mills Rd	1	Dead end	Little River Rd	Paved	1.18	Preventive-4	Good-4
Municipal	Half Mile Rd	1	Center Rd	Pavement change	Paved	0.57	Preventive-2	Good-2
Municipal	Heath Rd	1	Merchants Row	Center Rd	Paved	1.20	Preventive-3	Good-3
Municipal	Jim Grant Rd	1	Milton Mills Rd	Dead end	Paved	0.70	Preventive-2	Good-2
Municipal	Keay Rd	1	Depot St	Center Rd	Paved	0.28	Preventive-2	Good-2
Municipal	Lower Cross Rd	1			Paved	1.87	Preventive-2	Good-2

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Municipal	Myrtle St	1	Dead end	Champion St	Paved	0.09	Preventive-2	Good-2
Municipal	New Bridge Rd	1	Town Line	T M Wentworth Rd	Paved	0.97	Preventive-2	Good-2
Municipal	Pine Grove Ln	1	Dead end	Lower Barley St	Paved	0.25	Preventive-2	Poor-2
Municipal	Pine Tree Dr	1	Dead end	Jim Grant Rd	Paved	0.21	Preventive-2	Good-2
Municipal	River Rd	1	US 202 (Carl Brogg)	River Rd	Paved	0.26	Preventive-4	Poor-4
Municipal	Sewell Shores Rd	1	Dead end	Center Rd	Paved	0.05	Preventive-2	Good-2
Municipal	T M Wentworth Rd	1	Center Rd	Poplar Hill Rd	Paved	1.92	Preventive-4	Good-4
Municipal	W Lebanon Rd	2	Jim Grant Rd	Pavement change	Paved	1.21	Preventive-5	Good-5
Municipal	Cemetery Rd	1	Dead end	Bakers Grant Rd	Paved	0.26	Routine-2	Good-2
Municipal	Columbus Cir	1	Dead end	Merchants Row	Paved	0.23	Routine-2	Good-2
Municipal	Heath Rd	2	Pavement change	Pavement change	Paved	0.29	Routine-3	Good-3
Municipal	Jim Grant Rd	3			Paved	1.63	Routine-4	Good-4
Municipal	Kennebec Dr	2	Comanche Ln	Paved	Paved	0.03	Routine-2	Good-2
Municipal	Knowles Ln	1	Dead end	Lizotte Rd	Paved	0.23	Routine-2	Good-2
Municipal	Little River Rd	1	US 202 (Carl Brogg)	Town Line	Paved	2.86	Routine-5	Good-5
Municipal	Lizotte Rd	1	Lizotte Rd	Town Line	Paved	0.10	Routine-2	Good-2
Municipal	Long Swamp Rd	1	US 202 (Carl Brogg)	Town Line	Paved	1.39	Routine-5	Good-5
Municipal	Lower Guinea Rd	2	Paved	Gravel to paved	Paved	0.92	Routine-2	Good-2
Municipal	Pond View Dr	1	Dead end	Hubbard Rd	Paved	0.24	Routine-2	Good-2
Municipal	Rd Inv 3200729	1	Little River Rd	Fall Rd	Paved	0.03	Routine-4	Poor-4
Municipal	Second St	1	Dead end	US 202 (Carl Brogg)	Paved	0.18	Routine-2	Good-2
Municipal	Varney St	1	Carpenter St	River Rd	Paved	0.20	Routine-2	Poor-2
Municipal	Center Rd	3			Paved	1.15	No Maint-4	Good-4
Municipal	Center Rd	2	Holtby Ln	Shapleigh Rd	Paved	0.38	No Maint-4	Good-4
Municipal	Indian Lake Dr	2	Kennebec Dr	River Rd	Paved	0.55	No Maint-2	Good-2
Municipal	Lower Barley St	2	US 202 (Carl Brogg)	Dead end	Paved	0.42	No Maint-2	Good-2
Municipal	Merchants Row	1	Shapleigh Rd	Upper Guinea Rd	Paved	1.46	No Maint-3	Good-3

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Municipal	Mills Rd	1	US 202 (Carl Brogg	Lower Guinea Rd	Paved	0.07	No Maint-2	Good-2
Municipal	River Rd	3	N Rochester Rd	Town Line	Paved	0.76	No Maint-4	Good-4
Municipal	Shapleigh Rd	2	Pavement change	Jim Grant Rd	Paved	0.90	No Maint-4	Good-4
Municipal	Stanley St	1	Bigelow Rd	River Rd	Paved	0.13	No Maint-2	Good-2
Municipal	Upper Cross Rd	1	Depot St	Center Rd	Paved	1.74	No Maint-4	Good-4
Municipal	W Lebanon Rd	1			Paved	1.36	No Maint-5	Good-5
Municipal	Wentworth St	1	River Rd	Varney St	Paved	0.07	No Maint-2	Good-2
Municipal	Bog Rd	1	Dead end	Surface Change	Gravel	0.04	Reconstruct-2	Good-2
Municipal	Edgecomb Rd	1	Dead end	Center Rd	Gravel	0.30	Reconstruct-2	Poor-2
Municipal	Abbott Rd	1	Little River Rd	Town Line	Gravel	0.55	Routine-2	Good-2
Municipal	Apache Ln	1	Dead end	Indian Lake Dr	Gravel	0.05	Routine-2	Good-2
Municipal	Bog Rd	2	Surface Change	Heath Rd	Gravel	0.59	Routine-2	Good-2
Municipal	Dolby Rd	1	Dead end	Hillside Dr	Gravel	0.23	Routine-2	Good-2
Municipal	Goding Rd	1	Town Line	Pave to Gravel	Gravel	0.63	Routine-3	Good-3
Municipal	Goding Rd	2	Milton Mills Rd	Goding Rd	Gravel	0.02	Routine-3	Good-3
Municipal	Hartford Dr	1	Lower Guinea Rd	US 202 (Carl Brogg	Gravel	0.12	Routine-2	Good-2
Municipal	Hebo Hybo Rd	1	Bakers Grant Rd	Dead end	Gravel	0.13	Routine-2	Good-2
Municipal	Hillside Dr	1	Dolby Rd	New Bridge Rd	Gravel	0.19	Routine-2	Good-2
Municipal	Holtby Ln	1	Dead end	Center Rd	Gravel	0.35	Routine-2	Poor-2
Municipal	Kelly Ln	1	W Lebanon Rd	Dead end	Gravel	0.10	Routine-2	Good-2
Municipal	Kennebec Dr	1	Dead end	Comanche Ln	Gravel	0.09	Routine-2	Good-2
Municipal	Kennebec Dr	3	Paved	Indian Lake Dr	Gravel	0.29	Routine-2	Good-2
Municipal	Lord Rd	1	Dead end	Long Swamp Rd	Gravel	0.66	Routine-2	Good-2
Municipal	Lord Rd	2	Little River Rd	Dead end	Gravel	0.28	Routine-2	Good-2
Municipal	Lower Guinea Rd	1	Gravel to paved	Long Swamp Rd	Gravel	0.58	Routine-2	Good-2
Municipal	Lower Guinea Rd	3	Gravel	Paved	Gravel	0.83	Routine-2	Poor-2
Municipal	Orrills Hill Rd	1	Dead end	Beautliers Way	Gravel	0.09	Routine-2	Good-2

Road Network Inventory

Analysis Report
Lebanon 2018

<u>Jurisdiction</u>	<u>Road/Street Name</u>	<u>Sec</u>	<u>From</u>	<u>To</u>	<u>Surface</u>	<u>Length</u>	<u>Surface Status</u>	<u>Drainage status</u>
Municipal	Orrills Hill Rd	2	Dead end	Prospect Hill Rd	Gravel	0.35	Routine-2	Good-2
Municipal	Upper Barley Rd	2	Paved	Dead end	Gravel	0.38	Routine-2	Good-2
Municipal	Upper Middle Rd	1	Dead end	Bakers Grant Rd	Gravel	0.25	Routine-2	Good-2
Municipal	Wittun Dr	1	Kennebec Dr	Indian Lake Dr	Gravel	0.08	Routine-2	Poor-2
Municipal	Gale Ln	1	Town Line	Dead end	Paved	0.09	Unknown-2	Unknown-2
						75.21		

Costed Repair Options

Lebanon 2018

Abbott Rd-1 [Gravel] From: Little River Rd To: Town Line (Length: 0.55mi., Width: 22.00ft.)

Surface Status: Routine -2	<u>Estimated Cost</u>
Spot Grading/Blading (L)	\$ 14,197
Routine Grading (L)	\$ 14,197
Add Gravel (Up to 4") (L)	\$ 19,734

Academy Ln-1 [Paved] From: Shapleigh Rd To: Jim Grant Rd (Length: 0.16mi., Width: 18.00ft.)

Surface Status: Reconstruct -2	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 8,363
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 49,842
18" Gravel, 2" Binder, 1" Surface HMA (L)	\$ 98,839
24" Gravel, 2" Binder, 2" Surface HMA (L)	\$ 129,251
Drainage Status: Poor -2	<u>Estimated Cost</u>
Grade Shoulders (L)	\$ 3,840
Ditching (L)	\$ 6,400

Apache Ln-1 [Gravel] From: Dead end To: Indian Lake Dr (Length: 0.05mi., Width: 18.00ft.)

Surface Status: Routine -2	<u>Estimated Cost</u>
Routine Grading (L)	\$ 1,056
Spot Grading/Blading (L)	\$ 1,056
Add Gravel (Up to 4") (L)	\$ 1,468

Bakers Grant Rd-1 [Paved] From: Smith Rd To: Milton Mills Rd (Length: 1.30mi., Width: 20.00ft.)

Surface Status: Rehabilitate-4	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 75,501
Shim and 2" Overlay (L)	\$ 302,007
PM RAP Reclamation (L)	\$ 343,191
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 449,961
Reclaim (6-8) Base, Stabilized, 2" Binder, 1.5" Surface HMA (L)	\$ 617,743

Bigelow Rd-1 [Paved] From: River Rd To: US 202 (Carl Brogg (Length: 0.61mi., Width: 20.00ft.)

Surface Status: Reconstruct -2	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 35,428
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 211,136
18" Gravel, 2" Binder, 1" Surface HMA (L)	\$ 418,692
24" Gravel, 2" Binder, 2" Surface HMA (L)	\$ 547,521
Drainage Status: Poor -2	<u>Estimated Cost</u>
Grade Shoulders (L)	\$ 14,640
Ditching (L)	\$ 24,400

Costed Repair Options

Lebanon 2018

Blaisdell Corner Rd-1 [Paved] From: Hubbard Rd To: US 202 Carl Brogg (Length: 0.43mi., Width: 20.00ft.)

Surface Status: Rehabilitate-2	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 24,741
Shim and 2" Overlay (L)	\$ 98,965
PM RAP Reclamation (L)	\$ 112,461
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 147,449
Reclaim (6-8) Base, Stabilized, 2" Binder, 1.5" Surface HMA (L)	\$ 202,430
Drainage Status: Poor -2	<u>Estimated Cost</u>
Grade Shoulders (L)	\$ 10,224
Ditching (L)	\$ 17,040

Blanchard Rd-1 [Paved] From: Town Line To: Smith Rd (Length: 0.60mi., Width: 22.00ft.)

Surface Status: Reconstruct -2	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 38,331
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 228,442
18" Gravel, 2" Binder, 1" Surface HMA (L)	\$ 453,011
24" Gravel, 2" Binder, 2" Surface HMA (L)	\$ 592,400
Drainage Status: Poor -2	<u>Estimated Cost</u>
Grade Shoulders (L)	\$ 14,400
Ditching (L)	\$ 24,000

Bog Rd-1 [Gravel] From: Dead end To: Surface Change (Length: 0.04mi., Width: 20.00ft.)

Surface Status: Reconstruct -2	<u>Estimated Cost</u>
Add 12" Gravel to Base and 3" to Surface (L)	\$ 4,890

Bog Rd-2 [Gravel] From: Surface Change To: Heath Rd (Length: 0.59mi., Width: 20.00ft.)

Surface Status: Routine -2	<u>Estimated Cost</u>
Routine Grading (L)	\$ 13,845
Spot Grading/Blading (L)	\$ 13,845
Add Gravel (Up to 4") (L)	\$ 19,245

Carpenter St-1 [Paved] From: Varney St To: River Rd (Length: 0.06mi., Width: 18.00ft.)

Surface Status: Rehabilitate-2	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 3,136
Shim and 2" Overlay (L)	\$ 12,545
PM RAP Reclamation (L)	\$ 14,256
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 18,691
Reclaim (6-8) Base, Stabilized, 2" Binder, 1.5" Surface HMA (L)	\$ 25,660
Drainage Status: Poor -2	<u>Estimated Cost</u>
Grade Shoulders (L)	\$ 1,440
Ditching (L)	\$ 2,400

Cemetery Rd-1 [Paved] From: Dead end To: Bakers Grant Rd (Length: 0.26mi., Width: 18.00ft.)

Surface Status: Routine -2	<u>Estimated Cost</u>
Crack Seal (L)	\$ 5,491
Patching (L)	\$ 29,652

Costed Repair Options

Lebanon 2018

Center Rd-1 [Paved] From: To: (Length: 1.67mi., Width: 22.00ft.)

Surface Status: Rehabilitate-4

	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 106,625
Shim and 2" Overlay (L)	\$ 426,503
PM RAP Reclamation (L)	\$ 484,665
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 635,449
Reclaim (6-8) Base, Stabilized, 2" Binder, 1.5" Surface HMA (L)	\$ 872,396

Center Rd-4 [Paved] From: To: (Length: 0.93mi., Width: 22.00ft.)

Surface Status: Rehabilitate-4

	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 59,542
Shim and 2" Overlay (L)	\$ 238,167
PM RAP Reclamation (L)	\$ 270,646
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 354,846
Reclaim (6-8) Base, Stabilized, 2" Binder, 1.5" Surface HMA (L)	\$ 487,162

Center Rd-5 [Paved] From: To: (Length: 1.32mi., Width: 22.00ft.)

Surface Status: Rehabilitate-4

	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 84,265
Shim and 2" Overlay (L)	\$ 337,063
PM RAP Reclamation (L)	\$ 383,027
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 502,191
Reclaim (6-8) Base, Stabilized, 2" Binder, 1.5" Surface HMA (L)	\$ 689,449

Champion St-1 [Paved] From: T M Wentworth Rd To: Prospect Hill Rd (Length: 0.74mi., Width: 22.00ft.)

Surface Status: Preventive -3

	<u>Estimated Cost</u>
Sand Seal (L)	\$ 25,787
Chip Seal (Latex Modified) (L)	\$ 34,383
Drag Shim (3/4") (L)	\$ 48,995
Thin Overlay (3/4 - 1") (L)	\$ 64,467
Thick (>1") Overlay (L)	\$ 103,147
Shim and 1" Overlay (L)	\$ 103,147
Overlay w/ 2" Cold Mix, Top w/ 1" HMA (L)	\$ 193,401
Mill & Fill (1.25") (L)	\$ 214,890

Chick Rd-1 [Paved] From: Town Line To: Little River Rd (Length: 2.06mi., Width: 20.00ft.)

Surface Status: Rehabilitate-2

	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 119,641
Shim and 2" Overlay (L)	\$ 478,565
PM RAP Reclamation (L)	\$ 543,826
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 713,015
Reclaim (6-8) Base, Stabilized, 2" Binder, 1.5" Surface HMA (L)	\$ 978,885

Drainage Status: Poor -2

	<u>Estimated Cost</u>
Grade Shoulders (L)	\$ 49,440
Ditching (L)	\$ 82,400

Columbus Cir-1 [Paved] From: Dead end To: Merchants Row (Length: 0.23mi., Width: 22.00ft.)

Surface Status: Routine -2

	<u>Estimated Cost</u>
Crack Seal (L)	\$ 5,937
Patching (L)	\$ 32,059

Costed Repair Options

Lebanon 2018

Comanche Ln-1 [Paved] From: Kennebec Dr To: Indian Lake Dr (Length: 0.08mi., Width: 18.00ft.)

Surface Status: Rehabilitate-2	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 4,182
Shim and 2" Overlay (L)	\$ 16,727
PM RAP Reclamation (L)	\$ 19,007
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 24,921
Reclaim (6-8) Base, Stabilized, 2" Binder, 1.5" Surface HMA (L)	\$ 34,213
Drainage Status: Poor -2	<u>Estimated Cost</u>
Grade Shoulders (L)	\$ 1,920
Ditching (L)	\$ 3,200

Conifer Dr-1 [Paved] From: Dead end To: Keay Rd (Length: 0.20mi., Width: 20.00ft.)

Surface Status: Reconstruct -2	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 11,616
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 69,225
18" Gravel, 2" Binder, 1" Surface HMA (L)	\$ 137,276
24" Gravel, 2" Binder, 2" Surface HMA (L)	\$ 179,515

Creamery Hill Rd-1 [Paved] From: US 202 (Carl Brogg To: US 202 (Carl Brogg (Length: 0.87mi., Width:

Surface Status: Preventive -2	<u>Estimated Cost</u>
Sand Seal (L)	\$ 30,317
Chip Seal (Latex Modified) (L)	\$ 40,423
Drag Shim (3/4") (L)	\$ 57,602
Thin Overlay (3/4 - 1") (L)	\$ 75,792
Thick (>1") Overlay (L)	\$ 121,267
Shim and 1" Overlay (L)	\$ 121,267
Overlay w/ 2" Cold Mix, Top w/ 1" HMA (L)	\$ 227,377
Mill & Fill (1.25") (L)	\$ 252,641

Dixon Rd-1 [Paved] From: Poplar Hill Rd To: Pavement change (Length: 1.04mi., Width: 18.00ft.)

Surface Status: Rehabilitate-2	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 54,361
Shim and 2" Overlay (L)	\$ 217,445
PM RAP Reclamation (L)	\$ 247,097
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 323,972
Reclaim (6-8) Base, Stabilized, 2" Binder, 1.5" Surface HMA (L)	\$ 444,775

Dixon Rd-2 [Paved] From: Pavement change To: Shapleigh Rd (Length: 0.28mi., Width: 18.00ft.)

Surface Status: Preventive -2	<u>Estimated Cost</u>
Sand Seal (L)	\$ 7,983
Chip Seal (Latex Modified) (L)	\$ 10,644
Drag Shim (3/4") (L)	\$ 15,168
Thin Overlay (3/4 - 1") (L)	\$ 19,958
Thick (>1") Overlay (L)	\$ 31,932
Shim and 1" Overlay (L)	\$ 31,932
Overlay w/ 2" Cold Mix, Top w/ 1" HMA (L)	\$ 59,873
Mill & Fill (1.25") (L)	\$ 66,526

Costed Repair Options

Lebanon 2018

Dolby Rd-1 [Gravel] From: Dead end To: Hillside Dr (Length: 0.23mi., Width: 18.00ft.)

Surface Status: Routine -2	<u>Estimated Cost</u>
Routine Grading (L)	\$ 4,857
Spot Grading/Blading (L)	\$ 4,857
Add Gravel (Up to 4") (L)	\$ 6,752

Edgecomb Rd-1 [Gravel] From: Dead end To: Center Rd (Length: 0.30mi., Width: 10.00ft.)

Surface Status: Reconstruct -2	<u>Estimated Cost</u>
Add 12" Gravel to Base and 3" to Surface (L)	\$ 18,339

Drainage Status: Poor -2	<u>Estimated Cost</u>
Grade Shoulders (L)	\$ 7,200
Ditching (L)	\$ 12,000

Emery Mills Rd-1 [Paved] From: Town Line To: Smith Rd (Length: 1.18mi., Width: 22.00ft.)

Surface Status: Preventive -4	<u>Estimated Cost</u>
Sand Seal (L)	\$ 41,119
Chip Seal (Latex Modified) (L)	\$ 54,826
Drag Shim (3/4") (L)	\$ 78,127
Thin Overlay (3/4 - 1") (L)	\$ 102,799
Shim and 1" Overlay (L)	\$ 164,477
Thick (>1") Overlay (L)	\$ 164,477
Overlay w/ 2" Cold Mix, Top w/ 1" HMA (L)	\$ 308,396
Mill & Fill (1.25") (L)	\$ 342,663

Fall Rd-1 [Paved] From: Town Line To: Pavement change (Length: 0.70mi., Width: 19.00ft.)

Surface Status: Reconstruct -4	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 38,622
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 230,172
18" Gravel, 2" Binder, 1" Surface HMA (L)	\$ 456,443
24" Gravel, 2" Binder, 2" Surface HMA (L)	\$ 596,887

Drainage Status: Poor -4	<u>Estimated Cost</u>
Grade Shoulders (L)	\$ 16,800
Ditching (L)	\$ 28,000

Fall Rd-2 [Paved] From: Pavement change To: Little River Rd (Length: 0.72mi., Width: 19.00ft.)

Surface Status: Rehabilitate-4	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 39,725
Shim and 2" Overlay (L)	\$ 158,902
PM RAP Reclamation (L)	\$ 180,571
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 236,749
Reclaim (6-8) Base, Stabilized, 2" Binder, 1.5" Surface HMA (L)	\$ 325,028

Drainage Status: Poor -4	<u>Estimated Cost</u>
Grade Shoulders (L)	\$ 17,280
Ditching (L)	\$ 28,800

Costed Repair Options

Lebanon 2018

Flat Rock Bridge Rd-1 [Paved] From: Town Line To: River Rd (Length: 0.41mi., Width: 20.00ft.)

Surface Status: Rehabilitate-4	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 23,812
Shim and 2" Overlay (L)	\$ 95,248
PM RAP Reclamation (L)	\$ 108,237
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 141,911
Reclaim (6-8) Base, Stabilized, 2" Binder, 1.5" Surface HMA (L)	\$ 194,827
Drainage Status: Poor -4	<u>Estimated Cost</u>
Grade Shoulders (L)	\$ 9,840
Ditching (L)	\$ 16,400

Goding Rd-1 [Gravel] From: Town Line To: Pave to Gravel (Length: 0.63mi., Width: 20.00ft.)

Surface Status: Routine -3	<u>Estimated Cost</u>
Routine Grading (L)	\$ 14,784
Spot Grading/Blading (L)	\$ 14,784
Add Gravel (Up to 4") (L)	\$ 20,549

Goding Rd-2 [Gravel] From: Milton Mills Rd To: Goding Rd (Length: 0.02mi., Width: 12.00ft.)

Surface Status: Routine -3	<u>Estimated Cost</u>
Routine Grading (L)	\$ 282
Spot Grading/Blading (L)	\$ 282
Add Gravel (Up to 4") (L)	\$ 391

Goding Rd-3 [Paved] From: Pave to Gravel To: Milton Mills Rd (Length: 1.08mi., Width: 20.00ft.)

Surface Status: Reconstruct -3	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 62,724
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 373,814
18" Gravel, 2" Binder, 1" Surface HMA (L)	\$ 741,291
24" Gravel, 2" Binder, 2" Surface HMA (L)	\$ 969,381

Gully Oven Rd-1 [Paved] From: T M Wentworth Rd To: Shapleigh Rd (Length: 1.66mi., Width: 18.00ft.)

Surface Status: Rehabilitate-3	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 86,769
Shim and 2" Overlay (L)	\$ 347,076
PM RAP Reclamation (L)	\$ 394,406
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 517,109
Reclaim (6-8) Base, Stabilized, 2" Binder, 1.5" Surface HMA (L)	\$ 709,929
Drainage Status: Poor -3	<u>Estimated Cost</u>
Grade Shoulders (L)	\$ 39,840
Ditching (L)	\$ 66,400

Costed Repair Options

Lebanon 2018

Half Mile Rd-1 [Paved] From: Dead end To: Little River Rd (Length: 0.57mi., Width: 20.00ft.)

Surface Status: Preventive -2	<u>Estimated Cost</u>
Sand Seal (L)	\$ 18,057
Chip Seal (Latex Modified) (L)	\$ 24,076
Drag Shim (3/4") (L)	\$ 34,308
Thin Overlay (3/4 - 1") (L)	\$ 45,143
Shim and 1" Overlay (L)	\$ 72,228
Thick (>1") Overlay (L)	\$ 72,228
Overlay w/ 2" Cold Mix, Top w/ 1" HMA (L)	\$ 135,428
Mill & Fill (1.25") (L)	\$ 150,476

Hartford Dr-1 [Gravel] From: Lower Guinea Rd To: US 202 (Carl Brogg (Length: 0.12mi., Width: 20.00ft.)

Surface Status: Routine -2	<u>Estimated Cost</u>
Spot Grading/Blading (L)	\$ 2,816
Routine Grading (L)	\$ 2,816
Add Gravel (Up to 4") (L)	\$ 3,914

Heath Rd-1 [Paved] From: Center Rd To: Pavement change (Length: 1.20mi., Width: 20.00ft.)

Surface Status: Preventive -3	<u>Estimated Cost</u>
Sand Seal (L)	\$ 38,015
Chip Seal (Latex Modified) (L)	\$ 50,687
Drag Shim (3/4") (L)	\$ 72,228
Thin Overlay (3/4 - 1") (L)	\$ 95,038
Shim and 1" Overlay (L)	\$ 152,059
Thick (>1") Overlay (L)	\$ 152,059
Overlay w/ 2" Cold Mix, Top w/ 1" HMA (L)	\$ 285,112
Mill & Fill (1.25") (L)	\$ 316,792

Heath Rd-2 [Paved] From: Pavement change To: Pavement change (Length: 0.29mi., Width: 20.00ft.)

Surface Status: Routine -3	<u>Estimated Cost</u>
Crack Seal (L)	\$ 6,805
Patching (L)	\$ 36,748

Heath Rd-3 [Paved] From: Pavement change To: Depot St (Length: 0.74mi., Width: 20.00ft.)

Surface Status: Rehabilitate-3	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 42,978
Shim and 2" Overlay (L)	\$ 171,912
PM RAP Reclamation (L)	\$ 195,355
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 256,132
Reclaim (6-8) Base, Stabilized, 2" Binder, 1.5" Surface HMA (L)	\$ 351,638

Heath Rd-4 [Paved] From: Heath Rd To: Depot St (Length: 0.02mi., Width: 20.00ft.)

Surface Status: Rehabilitate-2	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 1,162
Shim and 2" Overlay (L)	\$ 4,646
PM RAP Reclamation (L)	\$ 5,280
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 6,922
Reclaim (6-8) Base, Stabilized, 2" Binder, 1.5" Surface HMA (L)	\$ 9,504

Costed Repair Options

Lebanon 2018

Hebo Hybo Rd-1 [Gravel] From: Bakers Grant Rd To: Dead end (Length: 0.13mi., Width: 20.00ft.)

Surface Status: Routine -2	<u>Estimated Cost</u>
Routine Grading (L)	\$ 3,051
Spot Grading/Blading (L)	\$ 3,051
Add Gravel (Up to 4") (L)	\$ 4,240

Hersom Ln-1 [Paved] From: Center Rd To: Dead end (Length: 0.25mi., Width: 12.00ft.)

Surface Status: Rehabilitate-2	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 8,712
Shim and 2" Overlay (L)	\$ 34,847
PM RAP Reclamation (L)	\$ 39,599
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 51,919
Reclaim (6-8) Base, Stabilized, 2" Binder, 1.5" Surface HMA (L)	\$ 71,278

Drainage Status: Poor -2	<u>Estimated Cost</u>
Grade Shoulders (L)	\$ 6,000
Ditching (L)	\$ 10,000

Hillside Dr-1 [Gravel] From: Dolby Rd To: New Bridge Rd (Length: 0.19mi., Width: 18.00ft.)

Surface Status: Routine -2	<u>Estimated Cost</u>
Spot Grading/Blading (L)	\$ 4,013
Routine Grading (L)	\$ 4,013
Add Gravel (Up to 4") (L)	\$ 5,578

Holtby Ln-1 [Gravel] From: Dead end To: Center Rd (Length: 0.35mi., Width: 18.00ft.)

Surface Status: Routine -2	<u>Estimated Cost</u>
Spot Grading/Blading (L)	\$ 7,392
Routine Grading (L)	\$ 7,392
Add Gravel (Up to 4") (L)	\$ 10,275

Drainage Status: Poor -2	<u>Estimated Cost</u>
Grade Shoulders (L)	\$ 8,400
Ditching (L)	\$ 14,000

Hubbard Rd-1 [Paved] From: Hubbard Rd To: Lower Barley St (Length: 0.11mi., Width: 24.00ft.)

Surface Status: Rehabilitate-5	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 7,666
Shim and 2" Overlay (L)	\$ 30,665
PM RAP Reclamation (L)	\$ 34,847
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 45,688
Reclaim (6-8) Base, Stabilized, 2" Binder, 1.5" Surface HMA (L)	\$ 62,725

Drainage Status: Poor -5	<u>Estimated Cost</u>
Grade Shoulders (L)	\$ 2,640
Ditching (L)	\$ 4,400

Costed Repair Options

Lebanon 2018

Indian Lake Dr-1 [Paved] From: Dead end To: Kennebec Dr (Length: 0.35mi., Width: 18.00ft.)

Surface Status: Reconstruct -2	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 18,295
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 109,029
18" Gravel, 2" Binder, 1" Surface HMA (L)	\$ 216,210
24" Gravel, 2" Binder, 2" Surface HMA (L)	\$ 282,736

Drainage Status: Poor -2	<u>Estimated Cost</u>
Grade Shoulders (L)	\$ 8,400
Ditching (L)	\$ 14,000

Jim Grant Rd-1 [Paved] From: Merchants Row To: Center Rd (Length: 0.70mi., Width: 20.00ft.)

Surface Status: Preventive -4	<u>Estimated Cost</u>
Sand Seal (L)	\$ 22,175
Chip Seal (Latex Modified) (L)	\$ 29,567
Drag Shim (3/4") (L)	\$ 42,133
Thin Overlay (3/4 - 1") (L)	\$ 55,439
Thick (>1") Overlay (L)	\$ 88,701
Shim and 1" Overlay (L)	\$ 88,701
Overlay w/ 2" Cold Mix, Top w/ 1" HMA (L)	\$ 166,315
Mill & Fill (1.25") (L)	\$ 184,795

Jim Grant Rd-2 [Paved] From: Pavement change To: Merchants Row (Length: 0.66mi., Width: 20.00ft.)

Surface Status: Rehabilitate-4	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 38,331
Shim and 2" Overlay (L)	\$ 153,327
PM RAP Reclamation (L)	\$ 174,235
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 228,442
Reclaim (6-8) Base, Stabilized, 2" Binder, 1.5" Surface HMA (L)	\$ 313,623

Jim Grant Rd-3 [Paved] From: To: (Length: 1.63mi., Width: 20.00ft.)

Surface Status: Routine -4	<u>Estimated Cost</u>
Crack Seal (L)	\$ 38,273
Patching (L)	\$ 206,674

Keay Rd-1 [Paved] From: Milton Mills Rd To: Dead end (Length: 0.28mi., Width: 18.00ft.)

Surface Status: Preventive -2	<u>Estimated Cost</u>
Sand Seal (L)	\$ 7,983
Chip Seal (Latex Modified) (L)	\$ 10,644
Drag Shim (3/4") (L)	\$ 15,168
Thin Overlay (3/4 - 1") (L)	\$ 19,958
Shim and 1" Overlay (L)	\$ 31,932
Thick (>1") Overlay (L)	\$ 31,932
Overlay w/ 2" Cold Mix, Top w/ 1" HMA (L)	\$ 59,873
Mill & Fill (1.25") (L)	\$ 66,526

Kelly Ln-1 [Gravel] From: W Lebanon Rd To: Dead end (Length: 0.10mi., Width: 20.00ft.)

Surface Status: Routine -2	<u>Estimated Cost</u>
Routine Grading (L)	\$ 2,347
Spot Grading/Blading (L)	\$ 2,347
Add Gravel (Up to 4") (L)	\$ 3,262

Costed Repair Options

Lebanon 2018

Kennebec Dr-1 [Gravel] From: Dead end To: Comanche Ln (Length: 0.09mi., Width: 18.00ft.)

Surface Status: Routine -2	<u>Estimated Cost</u>
Routine Grading (L)	\$ 1,901
Spot Grading/Blading (L)	\$ 1,901
Add Gravel (Up to 4") (L)	\$ 2,642

Kennebec Dr-2 [Paved] From: Comanche Ln To: Paved (Length: 0.03mi., Width: 18.00ft.)

Surface Status: Routine -2	<u>Estimated Cost</u>
Crack Seal (L)	\$ 634
Patching (L)	\$ 3,421

Kennebec Dr-3 [Gravel] From: Paved To: Indian Lake Dr (Length: 0.29mi., Width: 18.00ft.)

Surface Status: Routine -2	<u>Estimated Cost</u>
Routine Grading (L)	\$ 6,125
Spot Grading/Blading (L)	\$ 6,125
Add Gravel (Up to 4") (L)	\$ 8,513

Knowles Ln-1 [Paved] From: Dead end To: Lizotte Rd (Length: 0.23mi., Width: 20.00ft.)

Surface Status: Routine -2	<u>Estimated Cost</u>
Crack Seal (L)	\$ 5,397
Patching (L)	\$ 29,145

Little River Rd-1 [Paved] From: US 202 (Carl Brogg To: Town Line (Length: 2.86mi., Width: 22.00ft.)

Surface Status: Routine -5	<u>Estimated Cost</u>
Crack Seal (L)	\$ 73,824
Patching (L)	\$ 398,649

Lizotte Rd-1 [Paved] From: Lizotte Rd To: Town Line (Length: 0.10mi., Width: 20.00ft.)

Surface Status: Routine -2	<u>Estimated Cost</u>
Crack Seal (L)	\$ 2,347
Patching (L)	\$ 12,672

Lizotte Rd-2 [Paved] From: Dead end To: Lizotte Rd (Length: 0.26mi., Width: 20.00ft.)

Surface Status: Rehabilitate-2	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 15,100
Shim and 2" Overlay (L)	\$ 60,401
PM RAP Reclamation (L)	\$ 68,638
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 89,992
Reclaim (6-8) Base, Stabilized, 2" Binder, 1.5" Surface HMA (L)	\$ 123,549

Long Swamp Rd-1 [Paved] From: US 202 (Carl Brogg To: Town Line (Length: 1.39mi., Width: 20.00ft.)

Surface Status: Routine -5	<u>Estimated Cost</u>
Crack Seal (L)	\$ 32,618
Patching (L)	\$ 176,135

Costed Repair Options

Lebanon 2018

Lord Rd-1 [Gravel] From: Dead end To: Long Swamp Rd (Length: 0.66mi., Width: 19.00ft.)

Surface Status: Routine -2	<u>Estimated Cost</u>
Spot Grading/Blading (L)	\$ 14,713
Routine Grading (L)	\$ 14,713
Add Gravel (Up to 4") (L)	\$ 20,451

Lord Rd-2 [Gravel] From: Little River Rd To: Dead end (Length: 0.28mi., Width: 19.00ft.)

Surface Status: Routine -2	<u>Estimated Cost</u>
Routine Grading (L)	\$ 6,242
Spot Grading/Blading (L)	\$ 6,242
Add Gravel (Up to 4") (L)	\$ 8,676

Lower Barley St-1 [Paved] From: Blaisdell Corner R To: US 202 (Carl Brogg (Length: 0.14mi., Width:

Surface Status: Rehabilitate-2	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 8,131
Shim and 2" Overlay (L)	\$ 32,524
PM RAP Reclamation (L)	\$ 36,959
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 48,457
Reclaim (6-8) Base, Stabilized, 2" Binder, 1.5" Surface HMA (L)	\$ 66,526

Drainage Status: Poor -2	<u>Estimated Cost</u>
Grade Shoulders (L)	\$ 3,360
Ditching (L)	\$ 5,600

Lower Cross Rd-1 [Paved] From: Depot St To: Center Rd (Length: 1.87mi., Width: 20.00ft.)

Surface Status: Preventive -2	<u>Estimated Cost</u>
Sand Seal (L)	\$ 59,240
Chip Seal (Latex Modified) (L)	\$ 78,987
Drag Shim (3/4") (L)	\$ 112,555
Thin Overlay (3/4 - 1") (L)	\$ 148,100
Shim and 1" Overlay (L)	\$ 236,959
Thick (>1") Overlay (L)	\$ 236,959
Overlay w/ 2" Cold Mix, Top w/ 1" HMA (L)	\$ 444,299
Mill & Fill (1.25") (L)	\$ 493,667

Lower Guinea Rd-1 [Gravel] From: Gravel to paved To: Long Swamp Rd (Length: 0.58mi., Width: 20.00ft.)

Surface Status: Routine -2	<u>Estimated Cost</u>
Spot Grading/Blading (L)	\$ 13,610
Routine Grading (L)	\$ 13,610
Add Gravel (Up to 4") (L)	\$ 18,918

Lower Guinea Rd-2 [Paved] From: Paved To: Gravel to paved (Length: 0.92mi., Width: 20.00ft.)

Surface Status: Routine -2	<u>Estimated Cost</u>
Crack Seal (L)	\$ 21,589
Patching (L)	\$ 116,579

Costed Repair Options

Lebanon 2018

Lower Guinea Rd-3 [Gravel] From: Gravel To: Paved (Length: 0.83mi., Width: 20.00ft.)

Surface Status: Routine -2	<u>Estimated Cost</u>
Spot Grading/Blading (L)	\$ 19,477
Routine Grading (L)	\$ 19,477
Add Gravel (Up to 4") (L)	\$ 27,073
Drainage Status: Poor -2	<u>Estimated Cost</u>
Grade Shoulders (L)	\$ 19,920
Ditching (L)	\$ 33,200

Lower Guinea Rd-4 [Paved] From: Hubbard Rd To: Gravel (Length: 0.86mi., Width: 20.00ft.)

Surface Status: Reconstruct -2	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 49,947
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 297,667
18" Gravel, 2" Binder, 1" Surface HMA (L)	\$ 590,288
24" Gravel, 2" Binder, 2" Surface HMA (L)	\$ 771,915
Drainage Status: Poor -2	<u>Estimated Cost</u>
Grade Shoulders (L)	\$ 20,640
Ditching (L)	\$ 34,400

Lower Middle Rd-1 [Paved] From: Creamery Hill Rd To: Little River Rd (Length: 1.23mi., Width: 20.00ft.)

Surface Status: Rehabilitate-2	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 71,436
Shim and 2" Overlay (L)	\$ 285,745
PM RAP Reclamation (L)	\$ 324,711
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 425,733
Reclaim (6-8) Base, Stabilized, 2" Binder, 1.5" Surface HMA (L)	\$ 584,480

Myrtle St-1 [Paved] From: Dead end To: Champion St (Length: 0.09mi., Width: 14.00ft.)

Surface Status: Preventive -2	<u>Estimated Cost</u>
Sand Seal (L)	\$ 1,996
Chip Seal (Latex Modified) (L)	\$ 2,661
Drag Shim (3/4") (L)	\$ 3,792
Thin Overlay (3/4 - 1") (L)	\$ 4,989
Shim and 1" Overlay (L)	\$ 7,983
Thick (>1") Overlay (L)	\$ 7,983
Overlay w/ 2" Cold Mix, Top w/ 1" HMA (L)	\$ 14,968
Mill & Fill (1.25") (L)	\$ 16,632

N Rochester Rd-1 [Paved] From: River Rd To: Jim Grant Rd (Length: 1.60mi., Width: 20.00ft.)

Surface Status: Rehabilitate-4	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 92,925
Shim and 2" Overlay (L)	\$ 371,701
PM RAP Reclamation (L)	\$ 422,389
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 553,798
Reclaim (6-8) Base, Stabilized, 2" Binder, 1.5" Surface HMA (L)	\$ 760,299

Costed Repair Options

Lebanon 2018

New Bridge Rd-1 [Paved] From: Town Line To: T M Wentworth Rd (Length: 0.97mi., Width: 18.00ft.)

Surface Status: Preventive -2	<u>Estimated Cost</u>
Sand Seal (L)	\$ 27,656
Chip Seal (Latex Modified) (L)	\$ 36,875
Drag Shim (3/4") (L)	\$ 52,546
Thin Overlay (3/4 - 1") (L)	\$ 69,140
Thick (>1") Overlay (L)	\$ 110,623
Shim and 1" Overlay (L)	\$ 110,623
Overlay w/ 2" Cold Mix, Top w/ 1" HMA (L)	\$ 207,419
Mill & Fill (1.25") (L)	\$ 230,466

Orrills Hill Rd-1 [Gravel] From: Dead end To: Beauliers Way (Length: 0.09mi., Width: 16.00ft.)

Surface Status: Routine -2	<u>Estimated Cost</u>
Spot Grading/Blading (L)	\$ 1,690
Routine Grading (L)	\$ 1,690
Add Gravel (Up to 4") (L)	\$ 2,348

Orrills Hill Rd-2 [Gravel] From: Dead end To: Prospect Hill Rd (Length: 0.35mi., Width: 20.00ft.)

Surface Status: Routine -2	<u>Estimated Cost</u>
Spot Grading/Blading (L)	\$ 8,213
Routine Grading (L)	\$ 8,213
Add Gravel (Up to 4") (L)	\$ 11,416

Orrills Hill Rd-3 [Paved] From: Beauliers Way To: Jim Grant Rd (Length: 0.23mi., Width: 16.00ft.)

Surface Status: Reconstruct -2	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 10,686
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 63,687
18" Gravel, 2" Binder, 1" Surface HMA (L)	\$ 126,294
24" Gravel, 2" Binder, 2" Surface HMA (L)	\$ 165,154

Pine Grove Ln-1 [Paved] From: Dead end To: Lower Barley St (Length: 0.25mi., Width: 20.00ft.)

Surface Status: Preventive -2	<u>Estimated Cost</u>
Sand Seal (L)	\$ 7,920
Chip Seal (Latex Modified) (L)	\$ 10,560
Drag Shim (3/4") (L)	\$ 15,048
Thin Overlay (3/4 - 1") (L)	\$ 19,800
Thick (>1") Overlay (L)	\$ 31,679
Shim and 1" Overlay (L)	\$ 31,679
Overlay w/ 2" Cold Mix, Top w/ 1" HMA (L)	\$ 59,398
Mill & Fill (1.25") (L)	\$ 65,998

Drainage Status: Poor -2	<u>Estimated Cost</u>
Grade Shoulders (L)	\$ 6,000
Ditching (L)	\$ 10,000

Costed Repair Options

Lebanon 2018

Pine Tree Dr-1 [Paved] From: Dead end To: Jim Grant Rd (Length: 0.21mi., Width: 22.00ft.)

Surface Status: Preventive -2	<u>Estimated Cost</u>
Sand Seal (L)	\$ 7,318
Chip Seal (Latex Modified) (L)	\$ 9,757
Drag Shim (3/4") (L)	\$ 13,904
Thin Overlay (3/4 - 1") (L)	\$ 18,295
Thick (>1") Overlay (L)	\$ 29,271
Shim and 1" Overlay (L)	\$ 29,271
Overlay w/ 2" Cold Mix, Top w/ 1" HMA (L)	\$ 54,884
Mill & Fill (1.25") (L)	\$ 60,982

Pond View Dr-1 [Paved] From: Dead end To: Hubbard Rd (Length: 0.24mi., Width: 20.00ft.)

Surface Status: Routine -2	<u>Estimated Cost</u>
Crack Seal (L)	\$ 5,632
Patching (L)	\$ 30,412

Poplar Hill Rd-1 [Paved] From: T M Wentworth Rd To: Dixon Rd (Length: 1.13mi., Width: 20.00ft.)

Surface Status: Rehabilitate-2	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 65,628
Shim and 2" Overlay (L)	\$ 262,514
PM RAP Reclamation (L)	\$ 298,312
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 391,120
Reclaim (6-8) Base, Stabilized, 2" Binder, 1.5" Surface HMA (L)	\$ 536,961

Pork St-1 [Paved] From: Dead end To: Heath Rd (Length: 0.52mi., Width: 20.00ft.)

Surface Status: Rehabilitate-2	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 30,201
Shim and 2" Overlay (L)	\$ 120,803
PM RAP Reclamation (L)	\$ 137,276
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 179,984
Reclaim (6-8) Base, Stabilized, 2" Binder, 1.5" Surface HMA (L)	\$ 247,097

Prospect Hill Rd-1 [Paved] From: Schoolhouse Ln To: Town Line (Length: 1.44mi., Width: 20.00ft.)

Surface Status: Rehabilitate-3	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 83,632
Shim and 2" Overlay (L)	\$ 334,531
PM RAP Reclamation (L)	\$ 380,150
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 498,419
Reclaim (6-8) Base, Stabilized, 2" Binder, 1.5" Surface HMA (L)	\$ 684,269

Rd Inv 3200704-1 [Paved] From: Hubbard Rd To: Lower Barley St (Length: 0.03mi., Width: 24.00ft.)

Surface Status: Rehabilitate-5	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 2,091
Shim and 2" Overlay (L)	\$ 8,363
PM RAP Reclamation (L)	\$ 9,504
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 12,460
Reclaim (6-8) Base, Stabilized, 2" Binder, 1.5" Surface HMA (L)	\$ 17,107

Drainage Status: Poor -5	<u>Estimated Cost</u>
Grade Shoulders (L)	\$ 720
Ditching (L)	\$ 1,200

Costed Repair Options

Lebanon 2018

Rd Inv 3200729-1 [Paved] From: Little River Rd To: Fall Rd (Length: 0.03mi., Width: 19.00ft.)

Surface Status: Routine -4	<u>Estimated Cost</u>
Crack Seal (L)	\$ 669
Patching (L)	\$ 3,611
Drainage Status: Poor -4	<u>Estimated Cost</u>
Grade Shoulders (L)	\$ 720
Ditching (L)	\$ 1,200

River Rd-1 [Paved] From: US 202 (Carl Brogg To: River Rd (Length: 0.26mi., Width: 20.00ft.)

Surface Status: Preventive -4	<u>Estimated Cost</u>
Sand Seal (L)	\$ 8,237
Chip Seal (Latex Modified) (L)	\$ 10,982
Drag Shim (3/4") (L)	\$ 15,649
Thin Overlay (3/4 - 1") (L)	\$ 20,591
Shim and 1" Overlay (L)	\$ 32,946
Thick (>1") Overlay (L)	\$ 32,946
Overlay w/ 2" Cold Mix, Top w/ 1" HMA (L)	\$ 61,774
Mill & Fill (1.25") (L)	\$ 68,638
Drainage Status: Poor -4	<u>Estimated Cost</u>
Grade Shoulders (L)	\$ 6,240
Ditching (L)	\$ 10,400

River Rd-2 [Paved] From: River Rd To: N Rochester Rd (Length: 2.52mi., Width: 20.00ft.)

Surface Status: Reconstruct -4	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 146,357
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 872,232
18" Gravel, 2" Binder, 1" Surface HMA (L)	\$ 1,729,680
24" Gravel, 2" Binder, 2" Surface HMA (L)	\$ 2,261,889

Sam Wentworth Rd-1 [Paved] From: Dixon Rd To: Dead end (Length: 0.65mi., Width: 18.00ft.)

Surface Status: Reconstruct -2	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 33,976
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 202,483
18" Gravel, 2" Binder, 1" Surface HMA (L)	\$ 401,533
24" Gravel, 2" Binder, 2" Surface HMA (L)	\$ 525,081

Schoolhouse Ln-1 [Paved] From: Prospect Hill Rd To: Poplar Hill Rd (Length: 0.58mi., Width: 20.00ft.)

Surface Status: Reconstruct -3	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 33,685
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 200,752
18" Gravel, 2" Binder, 1" Surface HMA (L)	\$ 398,101
24" Gravel, 2" Binder, 2" Surface HMA (L)	\$ 520,594

Second St-1 [Paved] From: Dead end To: US 202 (Carl Brogg (Length: 0.18mi., Width: 20.00ft.)

Surface Status: Routine -2	<u>Estimated Cost</u>
Crack Seal (L)	\$ 4,224
Patching (L)	\$ 22,809

Costed Repair Options

Lebanon 2018

Sewell Shores Rd-1 [Paved] From: Dead end To: Center Rd (Length: 0.05mi., Width: 18.00ft.)

Surface Status: Preventive -2	<u>Estimated Cost</u>
Sand Seal (L)	\$ 1,426
Chip Seal (Latex Modified) (L)	\$ 1,901
Drag Shim (3/4") (L)	\$ 2,709
Thin Overlay (3/4 - 1") (L)	\$ 3,564
Shim and 1" Overlay (L)	\$ 5,702
Thick (>1") Overlay (L)	\$ 5,702
Overlay w/ 2" Cold Mix, Top w/ 1" HMA (L)	\$ 10,692
Mill & Fill (1.25") (L)	\$ 11,880

Shapleigh Rd-1 [Paved] From: To: (Length: 2.18mi., Width: 20.00ft.)

Surface Status: Rehabilitate-4	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 126,494
Shim and 2" Overlay (L)	\$ 505,978
PM RAP Reclamation (L)	\$ 574,977
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 753,858
Reclaim (6-8) Base, Stabilized, 2" Binder, 1.5" Surface HMA (L)	\$ 1,034,957

Smith Rd-1 [Paved] From: Town Line To: Bakers Grant Rd (Length: 1.51mi., Width: 20.00ft.)

Surface Status: Rehabilitate-3	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 87,698
Shim and 2" Overlay (L)	\$ 350,793
PM RAP Reclamation (L)	\$ 398,629
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 522,647
Reclaim (6-8) Base, Stabilized, 2" Binder, 1.5" Surface HMA (L)	\$ 717,532

Drainage Status: Poor -3	<u>Estimated Cost</u>
Grade Shoulders (L)	\$ 36,240
Ditching (L)	\$ 60,400

Strokewood Dr-1 [Paved] From: US 202 (Carl Brogg To: US 202 (Carl Brogg (Length: 0.32mi., Width:

Surface Status: Reconstruct -2	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 18,585
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 110,760
18" Gravel, 2" Binder, 1" Surface HMA (L)	\$ 219,642
24" Gravel, 2" Binder, 2" Surface HMA (L)	\$ 287,224

Drainage Status: Poor -2	<u>Estimated Cost</u>
Grade Shoulders (L)	\$ 7,680
Ditching (L)	\$ 12,800

T M Wentworth Rd-1 [Paved] From: Center Rd To: Poplar Hill Rd (Length: 1.92mi., Width: 22.00ft.)

Surface Status: Preventive -4	<u>Estimated Cost</u>
Sand Seal (L)	\$ 66,906
Chip Seal (Latex Modified) (L)	\$ 89,209
Drag Shim (3/4") (L)	\$ 127,121
Thin Overlay (3/4 - 1") (L)	\$ 167,266
Shim and 1" Overlay (L)	\$ 267,624
Thick (>1") Overlay (L)	\$ 267,624
Overlay w/ 2" Cold Mix, Top w/ 1" HMA (L)	\$ 501,796
Mill & Fill (1.25") (L)	\$ 557,553

Costed Repair Options

Lebanon 2018

Union School Rd-1 [Paved] From: US 202 (Carl Brogg To: Town Line (Length: 0.18mi., Width: 20.00ft.)

Surface Status: Rehabilitate-3	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 10,454
Shim and 2" Overlay (L)	\$ 41,816
PM RAP Reclamation (L)	\$ 47,519
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 62,302
Reclaim (6-8) Base, Stabilized, 2" Binder, 1.5" Surface HMA (L)	\$ 85,534

Upper Barley Rd-1 [Paved] From: N Rochester Rd To: Paved (Length: 0.37mi., Width: 18.00ft.)

Surface Status: Rehabilitate-2	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 19,340
Shim and 2" Overlay (L)	\$ 77,360
PM RAP Reclamation (L)	\$ 87,910
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 115,259
Reclaim (6-8) Base, Stabilized, 2" Binder, 1.5" Surface HMA (L)	\$ 158,237

Drainage Status: Poor -2	<u>Estimated Cost</u>
Grade Shoulders (L)	\$ 8,880
Ditching (L)	\$ 14,800

Upper Barley Rd-2 [Gravel] From: Paved To: Dead end (Length: 0.38mi., Width: 18.00ft.)

Surface Status: Routine -2	<u>Estimated Cost</u>
Routine Grading (L)	\$ 8,025
Spot Grading/Blading (L)	\$ 8,025
Add Gravel (Up to 4") (L)	\$ 11,155

Upper Guinea Rd-1 [Paved] From: Center Rd To: W Lebanon Rd (Length: 3.70mi., Width: 20.00ft.)

Surface Status: Rehabilitate-8	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 214,889
Shim and 2" Overlay (L)	\$ 859,558
PM RAP Reclamation (L)	\$ 976,774
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 1,280,659
Reclaim (6-8) Base, Stabilized, 2" Binder, 1.5" Surface HMA (L)	\$ 1,758,192

Upper Middle Rd-1 [Gravel] From: Dead end To: Bakers Grant Rd (Length: 0.25mi., Width: 20.00ft.)

Surface Status: Routine -2	<u>Estimated Cost</u>
Spot Grading/Blading (L)	\$ 5,867
Routine Grading (L)	\$ 5,867
Add Gravel (Up to 4") (L)	\$ 8,155

Upper Middle Rd-2 [Paved] From: Dead end To: US 202 (Carl Brogg (Length: 0.81mi., Width: 19.00ft.)

Surface Status: Reconstruct -2	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 44,691
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 266,342
18" Gravel, 2" Binder, 1" Surface HMA (L)	\$ 528,170
24" Gravel, 2" Binder, 2" Surface HMA (L)	\$ 690,684

Drainage Status: Poor -2	<u>Estimated Cost</u>
Grade Shoulders (L)	\$ 19,440
Ditching (L)	\$ 32,400

Costed Repair Options

Lebanon 2018

Van Veen Dr-1 [Paved] From: Depot St To: Depot St (Length: 0.29mi., Width: 18.00ft.)

Surface Status: Reconstruct -2	<u>Estimated Cost</u>
Reclaim & Revert to Gravel (L)	\$ 15,158
Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA (L)	\$ 90,338
18" Gravel, 2" Binder, 1" Surface HMA (L)	\$ 179,145
24" Gravel, 2" Binder, 2" Surface HMA (L)	\$ 234,267
Drainage Status: Poor -2	<u>Estimated Cost</u>
Grade Shoulders (L)	\$ 6,960
Ditching (L)	\$ 11,600

Varney St-1 [Paved] From: Carpenter St To: River Rd (Length: 0.20mi., Width: 18.00ft.)

Surface Status: Routine -2	<u>Estimated Cost</u>
Crack Seal (L)	\$ 4,224
Patching (L)	\$ 22,809
Drainage Status: Poor -2	<u>Estimated Cost</u>
Grade Shoulders (L)	\$ 4,800
Ditching (L)	\$ 8,000

W Lebanon Rd-2 [Paved] From: Jim Grant Rd To: Pavement change (Length: 1.21mi., Width: 22.00ft.)

Surface Status: Preventive -5	<u>Estimated Cost</u>
Sand Seal (L)	\$ 42,165
Chip Seal (Latex Modified) (L)	\$ 56,220
Drag Shim (3/4") (L)	\$ 80,113
Thin Overlay (3/4 - 1") (L)	\$ 105,413
Shim and 1" Overlay (L)	\$ 168,659
Thick (>1") Overlay (L)	\$ 168,659
Overlay w/ 2" Cold Mix, Top w/ 1" HMA (L)	\$ 316,236
Mill & Fill (1.25") (L)	\$ 351,375

Wittun Dr-1 [Gravel] From: Kennebec Dr To: Indian Lake Dr (Length: 0.08mi., Width: 18.00ft.)

Surface Status: Routine -2	<u>Estimated Cost</u>
Routine Grading (L)	\$ 1,690
Spot Grading/Blading (L)	\$ 1,690
Add Gravel (Up to 4") (L)	\$ 2,348
Drainage Status: Poor -2	<u>Estimated Cost</u>
Grade Shoulders (L)	\$ 1,920
Ditching (L)	\$ 3,200



Appendix B
10-Year Roadway Improvement Plans

10-Year Roadway Improvement Plan

Option 1: \$235,000 Annual Budget

2019

Road/Section Name	#	From	To	Length	Recommended Repair	Budget																																			
Capital																																									
New Bridge Rd	1	Town Line	T M Wentworth Rd	0.97	Shim and 1" Overlay	110,623																																			
Myrtle St	1	Dead End	Champion St	0.09	Shim and 1" Overlay	7,938																																			
West Lebanon Rd	1	Jim Grant	Pavement Change	1.21	Drag Shim (3/4")	80,113																																			
River Rd	1	US 202 Carl Brogg	River Rd	0.26	Drag Shim (3/4")	15,649																																			
Keay rd	1	Milton Mills Rd	Dead End	0.28	Drag Shim (3/4")	15,168							<u>229,491</u>	Maintenance							Heath Rd	2	Pavement Change	Pavement Change	0.29	Crack Seal	6,805							<u>6,805</u>	Total						<u><u>\$236,296</u></u>
						<u>229,491</u>																																			
Maintenance																																									
Heath Rd	2	Pavement Change	Pavement Change	0.29	Crack Seal	6,805																																			
						<u>6,805</u>																																			
Total						<u><u>\$236,296</u></u>																																			

10-Year Roadway Improvement Plan

Option I: \$235,000 Annual Budget

2020

	<u>Road/Section Name</u>	<u>#</u>	<u>From</u>	<u>To</u>	<u>Length</u>	<u>Recommended Repair</u>	<u>Budget</u>
Capital	T M Wentworth	1	Center Rd	Poplar Hill Rd	1.92	Drag Shim (3/4")	127,121
	Emery Mills	1	Town Line	Smith Rd	1.18	Drag Shim (3/4")	78,127
	Dixon Rd	2	Pavement Change	Shapleigh Rd	0.28	Drag Shim (3/4")	15,168
	Pine Grove Ln	1	Dead End	Lower Barley St	0.25	Drag Shim (3/4")	15,048
							<u>235,464</u>
Maintenance							
Total							\$235,464

10-Year Roadway Improvement Plan

Option I: \$235,000 Annual Budget

2021

	<u>Road/Section Name</u>	<u>#</u>	<u>From</u>	<u>To</u>	<u>Length</u>	<u>Recommended Repair</u>	<u>Budget</u>
Capital	Heath Rd	1	Center Rd	Pavement Change	1.2	Drag Shim (3/4")	72,228
	Champion St	1	T M Wentworth Rd	Prospect Hill Rd	0.74	Drag Shim (3/4")	48,995
	Lower Cross Rd	1	Depot St	Center Rd	1.87	Drag Shim (3/4")	112,555
							<u>233,778</u>
Maintenance							
	Carpenter St	1	Vaimey St	River Rd	0.06	Grade Shoulders	1,440
Total							\$ 235,218

10-Year Roadway Improvement Plan

Option I: \$235,000 Annual Budget

2022

Road/Section Name	#	From	To	Length	Recommended Repair	Budget
Capital						
Jim Grant Rd	1	Merchants Row	Center Rd	0.7	Drag Shim (3/4")	42,133
Pine Tree Dr	1	Dead End	Jim Grant Rd	0.21	Drag Shim (3/4")	13,904
Creamery Hill Rd	1	US 202 Carl Brogg	US 202 Carl Brogg	0.87	Drag Shim (3/4")	57,602
Half Mile Rd	1	Dead End	Little River Rd	0.57	Drag Shim (3/4")	34,308
Sewell Shores Rd	1	Dead End	Center Rd	0.05	Drag Shim (3/4")	2,709
Hubbard Rd	1	Hubbard Rd	Lower Barley St	0.11	Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA	45,688
Rd Inv 3200704	1	Hubbard Rd	Lower Barley St	0.03	Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA	12,460
						<u>208,804</u>
Maintenance						
Rd Inv. 3200704	1	Hubbard Rd	Lower Barley St	0.03	Ditching	1,200
Blaisdell Corner Rd	1	Hubbard Rd	US 202 Carl Brogg	0.43	Ditching	17,040
Comanche Ln	1	Kennebec Dr	Indian Lake Dr	0.08	Ditching	3,200
Wittun Dr	1	Kennebec Dr	Indian Lake Dr	0.08	Ditching	3,200
						<u>24,640</u>
Total						<u>\$ 233,444</u>

**10-Year Roadway Improvement Plan
Option I: \$235,000 Annual Budget**

<u>2023</u>	<u>Road/Section</u>	<u>#</u>	<u>From</u>	<u>To</u>	<u>Length</u>	<u>Recommended Repair</u>	<u>Budget</u>
Capital	Center Rd	1	Sewell Shores Rd	Center Rd 2	0.92	Shim and 2" Overlay	235,000
Maintenance							<u>235,000</u>
Total							\$ 235,000

**10-Year Roadway Improvement Plan
Option I: \$235,000 Annual Budget**

<u>2024</u>	<u>Road/Section</u>	<u>#</u>	<u>From</u>	<u>To</u>	<u>Length</u>	<u>Recommended Repair</u>	<u>Budget</u>
	Capital						
	Center Rd	1	Sewell Shores Rd	Center Rd 2	0.76	Shim and 2" Overlay	194,097
	Center Rd	4	Center Rd 3	Center Rd 5	0.16	Shim and 2" Overlay	40,903
	Maintenance						<u>235,000</u>
	Total						\$ 235,000

**10-Year Roadway Improvement Plan
Option 1: \$235,000 Annual Budget**

<u>2025</u>	<u>Road/Section</u>	<u>#</u>	<u>From</u>	<u>To</u>	<u>Length</u>	<u>Recommended Repair</u>	<u>Budget</u>
	Capital						
	Center Rd	4	Center Rd 3	Center Rd 5	0.77	Shim and 2" Overlay	197,264
	Heath Rd	3	Pavement Change	Depot St	0.16	Shim and 2" Overlay	37,736
							<u>235,000</u>
	Maintenance						
Total							\$ 235,000

10-Year Roadway Improvement Plan

Option 1: \$235,000 Annual Budget

2026

Road/Section	#	From	To	Length	Recommended Repair	Budget
Capital						
Heath Rd	3	Pavement Change	Depot St	0.58	Shim and 2" Overlay	134,136
Heath Rd	4	Heath Rd 3	Depot St	0.02	Shim and 2" Overlay	4,646
Center Rd	5	Center Rd 4	Long Swamp Rd	0.38	Shim and 2" Overlay	96,218
						235,000

Maintenance

Total	2026	\$	235,000
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**10-Year Roadway Improvement Plan
Option I: \$235,000 Annual Budget**

<u>2027</u>	<u>Road/Section</u>	<u>#</u>	<u>From</u>	<u>To</u>	<u>Length</u>	<u>Recommended Repair</u>	<u>Budget</u>
Capital	Center Rd	5	Center Rd 4	Long Swamp Rd	0.94	Shim and 2" Overlay	240,845
Maintenance							<u>240,845</u>
Total							\$ 240,845

10-Year Roadway Improvement Plan

Option I: \$235,000 Annual Budget

2028

	<u>Road/Section</u>	<u>#</u>	<u>From</u>	<u>To</u>	<u>Length</u>	<u>Recommended Repair</u>	<u>Budget</u>
Capital	Jim Grant Rd	2	Pavement Change	Merchants Row	0.66	Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA	228,442
	Bog Rd	1	Dead End	Surface Change	0.04	Add 12" Gravel to Base and 3" to Surface	4,890
							<u>233,332</u>
Maintenance	Lower Barley St	1	Blaisdell Corner Rd	US 202 Carl Brogg	0.14	Grade Shoulders	<u>3,360</u>
	Total						<u>\$ 236,692</u>

**10-Year Roadway Improvement Plan
Option 2: \$750,000 Annual Budget**

2019

<u>Road/Section Name</u>	<u>#</u>	<u>From</u>	<u>To</u>	<u>Length</u>	<u>Recommended Repair</u>	<u>Budget</u>
Capital Improvements						
W Lebanon Rd	2	Jim Grant Rd	W Lebanon Rd 1	1.21	Shim and 1" Overlay	\$ 168,659
T M Wentworth Rd	1	Center Rd	Poplar Hill Rd	1.92	Shim and 1" Overlay	\$ 267,624
Emery Mills Rd	1	Town Line	Smith Rd	1.18	Shim and 1" Overlay	\$ 164,477
Heath Rd	1	Center Rd	Heath Rd 2	1.2	Shim and 1" Overlay	\$ 152,059
						\$ 752,819

Maintenance

Total	2019					\$ 752,819
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**10-Year Roadway Improvement Plan
Option 2: \$750,000 Annual Budget**

2020

Capital Improvements

<u>Road/Section Name</u>	<u>#</u>	<u>From</u>	<u>To</u>	<u>Length</u>	<u>Recommended Repair</u>	<u>Budget</u>
River Rd	1	US 202	River Rd 2	0.26	Shim and 1" Overlay	\$ 32,946
Champion St	1	T M Wentworth Rd	Prospect Hill Rd	0.74	Shim and 1" Overlay	\$ 103,147
Jim Grant Rd	1	Merchants Row	Center Rd	0.7	Shim and 1" Overlay	\$ 88,701
Lower Cross Rd	1	Depot St	Center Rd	1.87	Shim and 1" Overlay	\$ 236,959
Hubbard Rd	1	Hubbard Rd	Lower Barley St	0.11	Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA	\$ 45,688
Rd Inv 3200704	1	Hubbard Rd	Lower Barley St	0.03	Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA	\$ 12,460
Flat Rock Bridge Rd	1	Town Line	River Rd	0.41	Shim and 2" Overlay	\$ 95,248
Half Mile Rd	1	Dead End	Little River Rd	0.57	Shim and 1" Overlay	\$ 72,228
Keay Rd	1	Milton Mills Rd	Dead End	0.28	Shim and 1" Overlay	\$ 31,932
						\$ 719,309
Maintenance						
River Rd	1	US 202	River Rd 2	0.26	Ditching	\$ 10,400
Hubbard Rd	1	Hubbard Rd	Lower Barley St	0.11	Ditching	\$ 4,400
Rd Inv 3200704	1	Hubbard Rd	Lower Barley St	0.03	Ditching	\$ 1,200
Flat Rock Bridge Rd	1	Town Line	River Rd	0.41	Ditching	\$ 16,400
						\$ 32,400
Total						\$ 751,709

**10-Year Roadway Improvement Plan
Option 2: \$750,000 Annual Budget**

2021

Capital Improvements

<u>Road/Section Name</u>	<u>#</u>	<u>From</u>	<u>To</u>	<u>Length</u>	<u>Recommended Repair</u>	<u>Budget</u>
New Bridge Rd	1	Town Line	T M Wentworth Rd	0.97	Shim and 1" Overlay	\$ 110,623
Creamery Hill Rd	1	US 202	US 202	0.87	Shim and 1" Overlay	\$ 121,267
Dixon Rd	2	Dixon Rd 1	Shapleigh Rd	0.28	Shim and 1" Overlay	\$ 31,932
Pine Grove Ln	1	Dead End	Lower Barley St	0.25	Shim and 1" Overlay	\$ 31,679
Pine Tree Dr	1	Dead End	Jim Grant Rd	0.21	Shim and 1" Overlay	\$ 29,271
Myrtle St	1	Dead End	Champion St	0.09	Shim and 1" Overlay	\$ 7,983
Sewell Shores Rd	1	Dead End	Center Rd	0.05	Shim and 1" Overlay	\$ 5,702
Upper Guinea	1	W Lebanon Rd	Sta. 91+34	1.73	Shim and 2" Overlay	\$ 401,543
						\$ 740,000
Maintenance						
Pine Grove Ln	1	Dead End	Lower Barley St	0.25	Ditching	\$ 10,000
						\$ 10,000
Total						\$ 750,000

**10-Year Roadway Improvement Plan
Option 2: \$750,000 Annual Budget**

2022

<u>Road/Section Name</u>	<u>#</u>	<u>From</u>	<u>To</u>	<u>Length</u>	<u>Recommended Repair</u>	<u>Budget</u>
Capital Improvements						
Upper Guinea Rd	1	Sta. 91+34	Center Rd	1.97	Shim and 2" Overlay	\$ 458,015
Jim Grant Rd	2	Jim Grant Rd 3	Merchants Row	0.66	Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA	\$ 228,442
Carpenter St	1	Varney St	River Rd	0.06	Shim and 2" Overlay	\$ 12,545
Union School Rd	1	US 202	Town Line	0.18	Shim and 2" Overlay	\$ 41,816
						\$ 740,818
Maintenance						
Carpenter St	1	Varney St	River Rd	0.06	Ditching	\$ 2,400
Cemetery Rd	1	Dead End	Bakers Grant Rd	0.26	Crack Seal	\$ 5,491
Kennebec Dr	2	Kennebec Dr 1	Kennebec Dr 3	0.03	Crack Seal	\$ 634
						\$ 8,525
Total						\$ 749,343

**10-Year Roadway Improvement Plan
Option 2: \$750,000 Annual Budget**

<u>2023</u>	<u>Road/Section</u>	<u>#</u>	<u>From</u>	<u>To</u>	<u>Length</u>	<u>Recommended Repair</u>	<u>Budget</u>
	Capital Improvements						
	Shapleigh Rd	1	Center Rd	Shapleigh Rd 2	2.18	Shim and 2" Overlay	\$ 505,978
	Center Rd	4	Center Rd 3	Center Rd 5	0.93	Shim and 2" Overlay	\$ 238,167
	Bog Rd	1	Dead End	Bog Rd 1	0.04	Add 12" gravel to base and 3" to surface	\$ 4,890
							\$ 749,035
	Maintenance						
Total							\$ 749,035

**10-Year Roadway Improvement Plan
Option 2: \$750,000 Annual Budget**

2024

Capital Improvements

<u>Road/Section</u>	<u>#</u>	<u>From</u>	<u>To</u>	<u>Length</u>	<u>Recommended Repair</u>	<u>Budget</u>
Center Rd	5	Center Rd 4	Long Swamp Rd	1.32	Shim and 2" Overlay	\$ 337,063
N Rochester Rd	1	River Rd	Jim Grant Rd	1.6	Shim and 2" Overlay	\$ 371,701
						\$ 708,764

Maintenance

Long Swamp Rd	1	US 202	Town Line	1.39	Crack Seal	\$ 32,618
Columbus Circle	1	Dead End	Merchants Row	0.23	Crack Seal	\$ 5,937
Rd Inv 3200729	1	Little River Rd	Fall Rd	0.03	Patching	\$ 3,611
						\$ 42,166

Total

2024 **\$ 750,930**

**10-Year Roadway Improvement Plan
Option 2: \$750,000 Annual Budget**

2025

Capital Improvements

<u>Road/Section</u>	<u>#</u>	<u>From</u>	<u>To</u>	<u>Length</u>	<u>Recommended Repair</u>	<u>Budget</u>
Gully Oven Rd	1	T M Wentworth Rd	Shapleigh Rd	1.66	Shim and 2" Overlay	\$ 347,076
Blaisdell Corner Rd	1	Hubbard Rd	US 202	0.426	Shim and 2" Overlay	\$ 98,965
Heath Rd	3	Heath Rd 2	Depot St	0.74	Shim and 2" Overlay	\$ 171,912
Heath Rd	4	Heath Rd 3	Depot St	0.02	Shim and 2" Overlay	\$ 4,646
Lower Barley St	1	Blaisdell Corner Rd	US 202	0.14	Shim and 2" Overlay	\$ 32,524
						\$ 655,123
Maintenance						
Gully Oven Rd	1	T M Wentworth Rd	Shapleigh Rd	1.66	Ditching	\$ 66,400
Blaisdell Corner Rd	1	Hubbard Rd	US 202	0.426	Ditching	\$ 17,040
Lower Barley St	1	Blaisdell Corner Rd	US 202	0.14	Ditching	\$ 5,600
Kennebec Dr	3	Kennebec Dr 2	Indian Lake Dr	0.29	Routine Grading	\$ 6,125
						\$ 95,165
Total						\$ 750,288

**10-Year Roadway Improvement Plan
Option 2: \$750,000 Annual Budget**

<u>2026</u>	<u>Road/Section</u>	<u>#</u>	<u>From</u>	<u>To</u>	<u>Length</u>	<u>Recommended Repair</u>	<u>Budget</u>
Capital Improvements							
	Center Rd	1	Sewell Shores Rd	Center Rd 2	1.67	Shim and 2" Overlay	\$ 426,503
	Bakers Grant Rd	1	Smith Rd	Milton Mills Rd	1.3	Shim and 2" Overlay	\$ 302,007
	Comanche Ln	1	Kennebec Dr	Indian Lake Dr	0.08	Shim and 2" Overlay	\$ 16,727
							\$ 745,237
Maintenance							
	Comanche Ln	1	Kennebec Dr	Indian Lake Dr	0.08	Ditching	\$ 3,200
	Wittun Dr	1	Kennebec Dr	Indian Lake Dr	0.08	Routine Grading	\$ 1,690
							\$ 4,890
Total							\$ 750,127

**10-Year Roadway Improvement Plan
Option 2: \$750,000 Annual Budget**

2027

Capital Improvements

<u>Road/Section</u>	<u>#</u>	<u>From</u>	<u>To</u>	<u>Length</u>	<u>Recommended Repair</u>	<u>Budget</u>
Fall Rd	1	Town Line	Fall Rd 2	0.7	Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA	\$ 230,172
Fall Rd	2	Fall Rd 1	Little River Rd	0.72	Shim and 2" Overlay	\$ 158,902
River Rd	2	River Rd 1	Sta. 46+47	0.88	Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA	\$ 304,126
						\$ 693,200
Maintenance						
Fall Rd	1	Town Line	Fall Rd 2	0.7	Ditching	\$ 28,000
Fall Rd	2	Fall Rd 1	Little River Rd	0.72	Ditching	\$ 28,800
						\$ 56,800
Total						\$ 750,000

**10-Year Roadway Improvement Plan
Option 2: \$750,000 Annual Budget**

<u>2028</u>	<u>Road/Section</u>	<u>#</u>	<u>From</u>	<u>To</u>	<u>Length</u>	<u>Recommended Repair</u>	<u>Budget</u>
	Capital Improvements						
	Smith Rd	1	Town Line	Bakers Grant Rd	1.51	Shim and 2" Overlay	\$ 350,793
	River Rd	2	Sta. 46+47	Sta. 60+90	1.15	Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA	\$ 399,207
							<u>\$ 750,000</u>
	Maintenance						
Total							<u>\$ 750,000</u>

**10-Year Roadway Improvement Plan
Option 3: \$3 Million Bond \$450,000 Annual Budget**

2019

<u>Road/Section Name</u>	<u>#</u>	<u>From</u>	<u>To</u>	<u>Length</u>	<u>Recommended Repair</u>	<u>Budget</u>
Capital						
Upper Guinea Rd	1	Center Rd	W Lebanon Rd	3.7	Shim and 2" Overlay	\$ 859,558
W Lebanon Rd	2	Jim Grant Rd	Pavement Change	1.21	Shim and 1" Overlay	\$ 168,659
T M Wentworth Rd	1	Center Rd	Poplar Hill Rd	1.92	Shim and 1" Overlay	\$ 267,624
Emery Mills Rd	1	Town Line	Smith Rd	1.18	Shim and 1" Overlay	\$ 164,477
Jim Grant Rd	1	Merchants Row	Center Rd	0.7	Shim and 1" Overlay	\$ 88,701
Champion St	1	T M Wentworth Rd	Prospect Hill Rd	0.74	Shim and 1" Overlay	\$ 103,147
River Rd	1	US 202	River Rd 2	0.26	Shim and 1" Overlay	\$ 32,946
Creamery Hill Rd	1	US 202	US 202	0.87	Shim and 1" Overlay	\$ 121,267
Heath Rd	1	Center Rd	Heath Rd 2	1.2	Shim and 1" Overlay	\$ 152,059
Lower Cross Rd	1	Depot St	Center Rd	1.87	Shim and 1" Overlay	\$ 236,959
Myrtle St	1	Dead End	Champion St	0.09	Shim and 1" Overlay	\$ 7,983
Sewell Shores Rd	1	Dead End	Center Rd	0.05	Shim and 1" Overlay	\$ 5,702
Pine Tree Dr	1	Dead End	Jim Grant Rd	0.21	Shim and 1" Overlay	\$ 29,271
New Bridge Rd	1	Town Line	T M Wentworth Rd	0.97	Shim and 1" Overlay	\$ 110,623
Half Mile Rd	1	Dead End	Little River Rd	0.57	Shim and 1" Overlay	\$ 72,228
Shapleigh Rd	1	Center Rd	Shapleigh Rd 2	2.18	Shim and 2" Overlay	\$ 505,978
Hubbard Rd	1	Hubbard Rd	Lower Barley St	0.11	Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA	\$ 45,688
Rd Inv 3200704	1	Hubbard Rd	Lower Barley St	0.03	Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA	\$ 12,460
						\$ 2,985,330
Maintenance						
Hubbard Rd	1	Hubbard Rd	Lower Barley St	0.11	Ditching	\$ 4,400
Rd Inv 3200704	1	Hubbard Rd	Lower Barley St	0.03	Ditching	\$ 1,200
River Rd	1	US 202	River Rd 2	0.26	Ditching	\$ 10,400
						\$ 16,000
Total						\$ 3,001,330

**10-Year Roadway Improvement Plan
Option 3: \$3 Million Bond \$450,000 Annual Budget**

2020

<u>Road/Section Name</u>	<u>#</u>	<u>From</u>	<u>To</u>	<u>Length</u>	<u>Recommended Repair</u>	<u>Budget</u>
Capital						
Pine Grove Ln	1	Dead End	Lower Barley St	0.25	Shim and 1" Overlay	\$ 31,679
Keay Rd	1	Milton Mills Rd	Dead End	0.28	Shim and 1" Overlay	\$ 31,932
Dixon Rd	2	Dixon Rd 1	Shapleigh Rd	0.28	Shim and 1" Overlay	\$ 31,932
Center Rd	5	Center Rd 4	Long Swamp Rd	1.32	Shim and 2" Overlay	\$ 337,063
						\$ 432,606
Maintenance						
Pine Grove Ln	1	Dead End	Lower Barley St	0.25	Ditching	\$ 10,000
Holtby Ln	1	Dead End	Center Rd	0.35	Routine Grading	\$ 7,392
						\$ 17,392
Total						\$ 449,998

**10-Year Roadway Improvement Plan
Option 3: \$3 Million Bond \$450,000 Annual Budget**

2021

<u>Road/Section Name</u>	<u>#</u>	<u>From</u>	<u>To</u>	<u>Length</u>	<u>Recommended Repair</u>	<u>Budget</u>
Capital						
Center Rd	1	Sewell Shores Rd	Center Rd 2	1.67	Shim and 2" Overlay	\$ 426,503
Carpenter St	1	Varney St	River Rd	0.06	Shim and 2" Overlay	\$ 12,545
						<u>\$ 439,048</u>
Maintenance						
Carpenter St	1	Varney St	River Rd	0.06	Ditching	\$ 2,400
Orrills Hill Rd	2	Dead End	Prospect Hill Rd	0.09	Routine Grading	\$ 8,213
						<u>\$ 10,613</u>
Total						<u>\$ 449,661</u>

**10-Year Roadway Improvement Plan
Option 3: \$3 Million Bond \$450,000 Annual Budget**

2022

<u>Road/Section Name</u>	<u>#</u>	<u>From</u>	<u>To</u>	<u>Length</u>	<u>Recommended Repair</u>	<u>Budget</u>
Capital						
N Rochester Rd	1	River Rd	Jim Grant Rd	1.6	Shim and 2" Overlay	\$ 371,701
Union School Rd	1	US 202	Town Line	0.18	Shim and 2" Overlay	\$ 41,816
						\$ 413,517
Maintenance						
Long Swamp Rd	1	US 202	Town Line	1.39	Crack Seal	\$ 32,618
Rd Inv 3200729	1	Little River Rd	Fall Rd	0.03	Patching	\$ 3,611
						\$ 36,229
Total						\$ 449,746

**10-Year Roadway Improvement Plan
Option 3: \$3 Million Bond \$450,000 Annual Budget**

2023

<u>Road/Section</u>	<u>#</u>	<u>From</u>	<u>To</u>	<u>Length</u>	<u>Recommended Repair</u>	<u>Budget</u>
Capital						
Center Rd	4	Center Rd 3	Center Rd 5	0.93	Shim and 2" Overlay	\$ 238,167
Heath Rd	3	Heath Rd 2	Depot St	0.74	Shim and 2" Overlay	\$ 171,912
Heath Rd	4	Heath Rd 3	Depot St	0.02	Shim and 2" Overlay	\$ 4,646
Lower Barley St	1	Blaisdell Corner Rd	US 202	0.14	Shim and 2" Overlay	\$ 32,524
						\$ 447,249
Maintenance						
Lower Barley St	1	Blaisdell Corner Rd	US 202	0.14	Ditching	\$ 5,600
						\$ 5,600
Total						\$ 452,849

**10-Year Roadway Improvement Plan
Option 3: \$3 Million Bond \$450,000 Annual Budget**

2024

<u>Road/Section</u>	<u>#</u>	<u>From</u>	<u>To</u>	<u>Length</u>	<u>Recommended Repair</u>	<u>Budget</u>
Capital						
Bakers Grant Rd	1	Smith Rd	Milton Mills Rd	1.3	Shim and 2" Overlay	\$ 302,007
Flat Rock Bridge Rd	1	Town Line	River Rd	0.41	Shim and 2" Overlay	\$ 95,248
Fall Rd	2	Fall Rd 1	Sta. 13+39	0.25	Shim and 2" Overlay	\$ 55,978
						\$ 453,233
Maintenance						
Flat Rock Bridge Rd	1	Town Line	River Rd	0.41	Ditching	\$ 16,400
Total						\$ 453,233

**10-Year Roadway Improvement Plan
Option 3: \$3 Million Bond \$450,000 Annual Budget**

2025

<u>Road/Section</u>	<u>#</u>	<u>From</u>	<u>To</u>	<u>Length</u>	<u>Recommended Repair</u>	<u>Budget</u>
Capital						
Gully Oven Rd	1	T M Wentworth Rd	Shapleigh Rd	1.66	Shim and 2" Overlay	\$ 347,076
Fall Rd	2	Sta. 13+39	Little River Rd	0.47	Shim and 2" Overlay	\$ 102,924
Maintenance						
Total						\$ 450,000

**10-Year Roadway Improvement Plan
Option 3: \$3 Million Bond \$450,000 Annual Budget**

2026

<u>Road/Section</u>	<u>#</u>	<u>From</u>	<u>To</u>	<u>Length</u>	<u>Recommended Repair</u>	<u>Budget</u>
Capital						
Smith Rd	1	Town Line	Bakers Grant Rd	1.51	Shim and 2" Overlay	\$ 350,793
Flat Rock Bridge Rd	1	Town Line	River Rd	0.41	Shim and 2" Overlay	\$ 95,248
						\$ 446,041
Maintenance						
Wittun Dr	1	Kennebec Dr	Indian Lake Dr	0.08	Routine Grading	\$ 1,690
Wittun Dr	1	Kennebec Dr	Indian Lake Dr	0.08	Ditching	\$ 3,200
						\$ 4,890
Total						\$ 450,931

**10-Year Roadway Improvement Plan
Option 3: \$3 Million Bond \$450,000 Annual Budget**

<u>2027</u>	<u>Road/Section</u>	<u>#</u>	<u>From</u>	<u>To</u>	<u>Length</u>	<u>Recommended Repair</u>	<u>Budget</u>
	Capital						
	River Rd	2	River Rd 1	Sta. 68+64	1.3	Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA	\$ 450,000
	Maintenance						\$ 450,000
	Total						\$ 450,000

**10-Year Roadway Improvement Plan
Option 3: \$3 Million Bond \$450,000 Annual Budget**

2028

<u>Road/Section</u>	<u>#</u>	<u>From</u>	<u>To</u>	<u>Length</u>	<u>Recommended Repair</u>	<u>Budget</u>
Capital						
River Rd	2	Sta .68+64	N Rochester Rd	1.22	Reclaim (6-8") Base, 2" Binder, 1.5" Surface HMA	\$ 422,232
Edgecomb Rd	1	Dead End	Center Rd	0.3	Add 12" Gravel to Base and 3" to Surface	\$ 18,339
Bog Rd	1	Dead End	Bog Rd 2	0.04	Add 12" Gravel to Base and 3" to Surface	\$ 4,890
						\$ 445,461
Maintenance						
Dolby Rd	1	Dead End	Hillside Dr	0.23	Routine Grading	\$ 4,857
						\$ 4,857
Total						\$ 450,318

Appendix C
Road Repair Unit Prices

Pavement Repair Unit Prices

	Description	Unit	Proposed Unit Price
Routine	Patching	S.Y.	\$ 10.80
	Crack Seal	S.Y.	\$ 2.00
Preventative	Sand Seal	S.Y.	\$ 2.70
	Chip Seal (Latex Modified)	S.Y.	\$ 3.60
	Drag Shim (3/4")	S.Y.	\$ 5.13
	Thin Overlay (3/4 - 1")	S.Y.	\$ 6.75
	Shim & 1" Overlay	S.Y.	\$ 10.80
	Thick (>1") Overlay	S.Y.	\$ 10.80
	Overlay w/ 2" Cold Mix, top w/ 1" HMA	S.Y.	\$ 20.25
	Mill & Fill 1.25"	S.Y.	\$ 22.50
Rehabilitate	Reclaim & Revert to Gravel	S.Y.	\$ 4.95
	Shim & 2" Overlay	S.Y.	\$ 19.80
	Reclaim (6-8" base), 2" Binder, 1.5" Surface HMA	S.Y.	\$ 29.50
	Reclaim (6-8" base), Stabilized, 2" Binder, 1.5" Surface HMA	S.Y.	\$ 40.50
	PM RAP Reclamation	S.Y.	\$ 22.50
Reconstruct	Reclaim & Revert to Gravel	S.Y.	\$ 4.95
	18" Gravel, 2" Binder, 1" Surface HMA	S.Y.	\$ 58.50
	24" Gravel, 2" Binder, 2" Surface HMA	S.Y.	\$ 76.50
Drainage	Ditching	Mile	\$ 40,000.00
	Grade Shoulders	Mile	\$ 24,000.00
	Replace/New Culverts	EA	\$ 1,800.00

Gravel Repair Unit Prices

	Description		
Routine	Add Gravel (up to 4")	S.Y.	\$ 2.78
	Routine Grading	S.Y.	\$ 2.00
	Spot Grading/Blading	S.Y.	\$ 2.00
Reconstruct	Add 12" gravel to base and 3" to surface	S.Y.	\$ 10.42
Drainage	Minor Ditching	Mile	\$ 40,000.00
	Major Ditching		
	Grade Shoulders	Mile	\$ 24,000.00



Appendix D
Road Condition Survey Sheet

Paved Road Survey Form

Road Name: _____
 Section ID: _____
 From Road: _____
 To Road: _____
 From Milepost: _____ To Milepost: _____
 Width (ft.): _____
 Shoulder Width (if paved): _____
 Importance (1-5) : _____
 Traffic (1-5): _____

Alligator Cracking

		Extent		
		<10%	10-30%	>30%
Severity	none	low	med	high
	low			
	med			
	high			

Long/Tran Cracking

		Extent		
		<10%	10-30%	>30%
Severity	none	low	med	high
	low			
	med			
	high			

Edge Cracking

		Extent		
		<10%	10-30%	>30%
Severity	none	low	med	high
	low			
	med			
	high			

Patches/Potholes

		Extent		
		<10%	10-30%	>30%
Severity	none	low	med	high
	low			
	med			
	high			

Roughness

		Extent		
		<10%	10-30%	>30%
Severity	none	low	med	high
	low			
	med			
	high			

Rutting

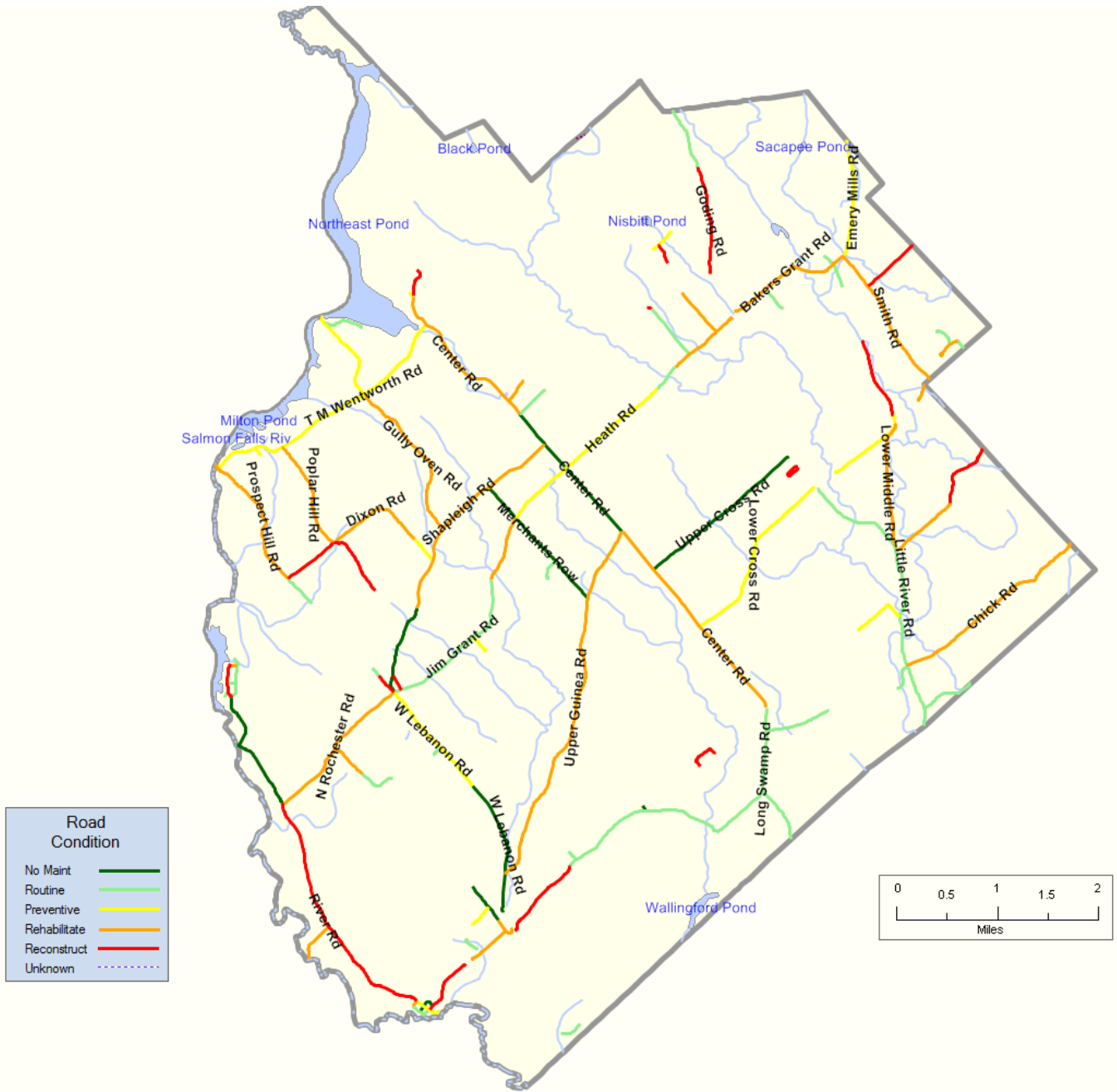
		Extent		
		<10%	10-30%	>30%
Severity	none	low	med	high
	low			
	med			
	high			

Roadside Drainage

		Extent		
		<10%	10-30%	>30%
Severity	none	low	med	high
	low			
	med			
	high			



Appendix E
Roadway Condition Map



Road Condition Map