Final Report

Pavement Management Study

Village of Rye Brook, New York

Prepared for **Mr. Christopher Bradbury**
Village Administrator
938 King Street
Rye Brook, NY 10573

Prepared by  Eschbacher VHB Engineering, Surveying and Landscape Architecture, P.C.

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Introduction

The Village of Rye Brook, New York, retained the firm of Eschbacher VHB Engineering, Surveying, and Landscape Architecture, P.C., (VHB) to provide pavement management services and software. As part of this project, VHB conducted an investigation of the surface conditions of all 29 centerline miles of Village-maintained roadways. The data gathered during this investigation has formed the basis of VHB's analysis of current pavement conditions and possible future conditions, including the estimated effects of various pavement budgets.

VHB has also delivered to the Village VHB's RoadManager GPMS™ pavement management software. VHB has installed the pavement management software and its database onto the Village network and has trained Village staff how to use the software. The RoadManager GPMS™ software allows the Village to interact with its pavement data and to project the implications of future roadway budgets – all within a geographic information system (GIS) environment. With its pavement data and analysis program embedded in GIS, the Village is now equipped with a powerful planning tool that will allow the Village to use its pavement data effectively and to present the data in an intuitive and useful way.

This report explains, in detail, the methodology used by VHB to collect and analyze the data for this project. The results of this analysis are then explored in the form of budget scenarios and funding recommendations.

Theory of Pavement Management

Pavement management is defined as the practice of planning for pavement repairs and maintenance with the goal of maximizing the value and life of a pavement network. Simply put, pavement management is the selection of the correct repair on the correct road at the correct time.

Aside from a realistic level of funding, effective pavement management requires that several main components exist: in-depth knowledge of local roads; a systematic means of cataloguing data, selecting repairs, and determining which streets receive

repairs; a variety of repair options available to the engineer to use to address pavement concerns; and sound engineering judgment.

Familiarity with local roads, including their composition and repair history, can be obtained through first-hand experience with the roadway network or through research into documentation of roadway construction and repair history. Such information allows the engineer to approximate an age for a given pavement and to discover any trends with regard to pavement behavior and success/failure history. Without this knowledge, a community may not be fully aware of the implications of the problems it finds with its roadways, or it may not address these problems in the most efficient manner.

The effective practice of pavement management also requires that a community utilize a systematic and objective tool to assist in the decision-making process. Pavement management software, such as RoadManager GPMS™, is an excellent example of such a tool. Pavement management software can use real data and estimates of local practices to imitate the local repair strategy over time, thus providing guidance to the community regarding the effectiveness of its current or proposed practices. Pavement management software has the added benefit of being able to make decisions objectively, i.e. without regard to local politics or any other factor unrelated to the pavement itself.

Pavement management also involves the use of several different repair techniques and the knowledge of how and when to use these techniques. Pavement management software can assist in this effort by storing local repair options and an approximation of the local repair strategy. With local data and settings, the software can then provide repair recommendations for the engineer to evaluate. Rarely will the software's recommendations be directly applicable without some revisions. Even so, the computer's recommendation serves as an excellent starting point for creating maintenance and improvement plans.

Though it can be effective and make good and objective recommendations, pavement management software cannot know all of the aspects of the pavement network and must remain as just one of the tools that a community uses to manage its pavement. Engineering judgment must be combined with such pavement management tools to provide the best results. In other words, engineering judgment must be used to interpret the results of decision-making tools and determine whether those results make practical and financial sense.

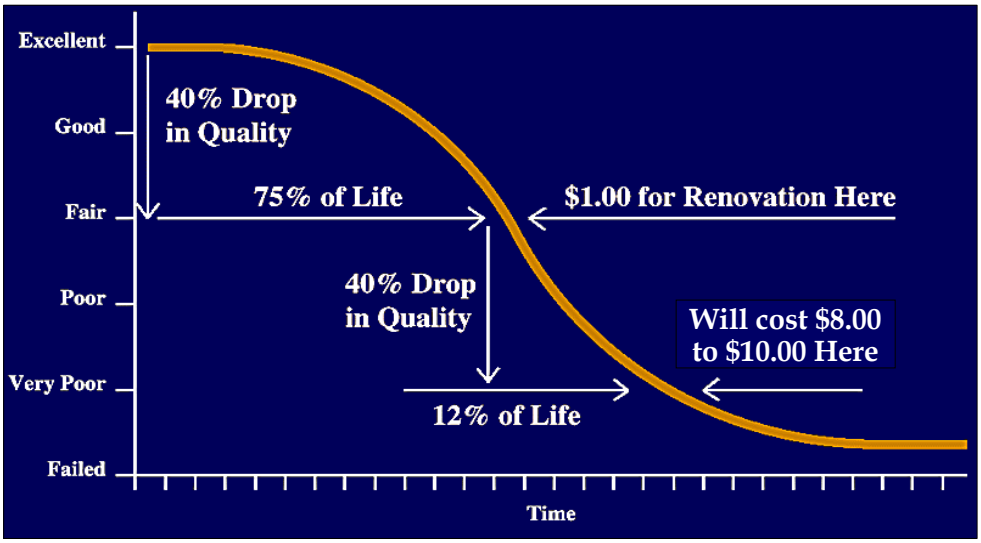
The Pavement Deterioration Curve

Pavement generally deteriorates according to a certain pattern. Figure 1 below is a model of this pattern, shown as a graph of pavement condition versus time. Please note that this figure is not to scale.

A street's pavement begins its life in excellent condition and remains in excellent condition for a few years, without need of any maintenance. Over time, however, the condition of the street will worsen, and the rate at which its pavement condition deteriorates will increase dramatically as the street passes the midpoint of its life. It is at this point that pavement repair options must be weighed. Questions must be answered, such as: Will the investment related to a preventive maintenance repair be offset by the opportunity cost of not doing such a repair, or is the pavement at such a state that it would be better to simply wait until the pavement completely deteriorates before making the repair? The answers (and, indeed, the questions themselves) depend upon the individual pavement segment.

Figure 1 illustrates the benefit of addressing pavement concerns before the pavement condition reaches a poor or failed state. A preventive maintenance repair that may be applicable to a pavement in fair condition will not be appropriate for that same pavement in a few years when it is in poor or failed condition. By the time a pavement reaches a poor or failed condition, the required repair can be eight to ten times the cost of the preventive maintenance repair that could have been applied as soon as five years before. The answer, therefore, is to perform timely maintenance to slow or to repair pavement deterioration, thereby extending the life of the road – and doing so in a cost-effective manner.

Figure 1 –Typical Pavement Deterioration Curve



Methodology

VHB performed a detailed evaluation of the condition of the Village's pavement network, consisting of approximately 29 centerline-miles of roadway. VHB's evaluation process involved five main steps:

Step 1: Identify the pavement network;
Step 2: Map the pavement network;
Step 3: Identify pavement management sections;
Step 4: Conduct a pavement condition survey;
Step 5: Customize the RoadManager GPMS™ settings to reflect Village practices.

Each of these steps was critical to the creation of a pavement management database for the Village that could be used for budget analysis. Only after all of these steps were completed was meaningful budget analysis possible using the RoadManager GPMS™ software.

Step 1: Identify the Pavement Network

VHB obtained from the Village a list of Village-maintained streets and cross-referenced this list with information provided by Westchester County and online mapping sources. VHB brought any discrepancies to the attention of Village staff so to determine the correct information about each street.

The identification of the pavement network served as the critical first step in the process of building the Village's street inventory into the RoadManager GPMS™ database. Information such as street name, termini, pavement type, pavement class, street length, and street width were among the data gathered for each street during this step.

Step 2: Map the Pavement Network

Once all of the basic street information had been entered into the pavement database, VHB created what is known as a "route system" for the Village's pavement network. The route system is a linear-reference system that uses as its foundation the line work of the Village's street centerlines in a geographic information systems (GIS) environment. In other words, a new line was drawn to trace each Village street centerline, and each of these new lines was assigned a name, a length, and a direction. The resulting route system allows for pavement data to be displayed at its actual location on a map of the Village, thus allowing for pavement segmentation using GIS. In short, the route system serves as a basis for the graphical representation of pavement management sections.

Step 3: Identify Pavement Management Sections

With the basic street data collected and the underlying route system created, each pavement management section needed to be defined. A pavement management section is a length of pavement that exhibits similar physical and condition characteristics throughout its length. As such, each street consists of at least one pavement management section.

Identification of pavement management sections was the first step in the pavement evaluation process that occurred on site. VHB's pavement staff determined the limits of each pavement management segment and entered this data into the RoadManager GPMS™ database while on the street itself – as opposed to doing so later in an office – thus ensuring the accuracy of the data.

Step 4: Conduct the Pavement Condition Survey

Once a pavement management section was defined, it was time to evaluate the condition of that section's pavement. As with the creation of the pavement management sections, the pavement condition data was recorded into the RoadManager GPMS™ database while on site in the Village.

VHB's pavement evaluation method has been used for over 20 years, and over 100 communities throughout New England and Long Island have implemented this methodology through VHB's RoadManager software. This method is logical, universal, and – most importantly – repeatable. Pavement will deteriorate over time, and the pavement conditions will need to be updated on a regular basis. By following VHB's field evaluation manual, pavement ratings can be updated by Village staff on a regular basis or as repairs are completed.

The pavement condition survey involved recording the severity and extent of nine major pavement distresses for each pavement management section. These pavement distresses are categorized as either base-related or surface-related distresses, as shown in Table 1 below.

Table 1 – Pavement Distresses in the RoadManager Methodology

The four base related distresses are:	The five surface related distresses are:
• potholes and non-utility patches	• block cracking
• alligator cracking	• transverse & longitudinal cracking
• distortions	• bleeding or polished aggregate
• rutting	• surface wear or raveling
	• corrugations

Base-related distresses indicate that the subsurface soil strength is inadequate for the existing traffic load. Streets that show significant base-related distresses may need to have the subsurface soils fortified with stone to strengthen the structure or the street

may require a structural overlay. Typical repairs for streets with base-related distresses are full-depth patching, structural overlays, reclamation, and complete reconstruction.

Surface-related distresses are caused by age and weathering of the pavement. Streets that exhibit predominantly surface-related distresses are excellent candidates for maintenance sealing to inhibit further pavement oxidization (the main effect of aging). Typical repairs for streets with surface-related distresses are crack sealing, partial-depth patching, and surface seals/microsurfacing.

PCI Defined

Once the pavement distress data was observed and recorded, RoadManager GPMS™ was able to interpret the distresses by entering them into a weighted formula to arrive at a Pavement Condition Index (PCI). The RoadManager software was used to generate a PCI for each inventoried pavement management section in the Village of Rye Brook, thus providing a basis of comparison among all of the Village streets.

A segment's PCI is measured on a scale between zero and one hundred, with one hundred representing a pavement in perfect condition and zero describing a road in impassable condition. In reality, it is difficult to find a pavement segment either in perfect condition or in an impassible condition. A perfect pavement would require that it had been built to be exactly on grade and to be free from any defects whatsoever. Even if this were true when the street was built, given time, the pavement will deteriorate. Similarly, an impassible pavement segment is difficult to find. In part, this is due to the fact that only so many distresses can be recorded for a particular pavement section. More significantly, however, is that most communities will find the resources to fix a street well before its pavement becomes impassible.

Each pavement distress in the RoadManager GPMS™ software is assigned a corresponding PCI deduction (a "deduct value") according to the severity and extent recorded for that distress. Deduct values increase with higher severity and with more wide-spread extents. Deduct values also vary based upon the significance of the distress. For example, rutting is a significant pavement distress and will have a higher deduct value than a similar severity and extent of block cracking, which is a lesser distress. (In general, base-related distresses are weighted more heavily than surface-related distresses.) Furthermore, a distress with a high severity will have a greater deduct value than that same distress of low severity.

A weighted sum of the deduct values for a pavement segment is calculated by the RoadManager GPMS™ software and is then subtracted from the perfect PCI of 100 in order to generate a PCI for that segment. This process is repeated by the software for every pavement segment for which condition information was recorded.

Treatment Bands

VHB's RoadManager GPMS™ software uses broad ranges to group repairs of similar nature and scope into four major "treatment bands." Together, treatment bands form a useful tool and help to summarize pavement condition data and repair needs on a Village-wide basis. Treatment bands allow the results of the software to be displayed in such a way as to provide a broad understanding of the existing conditions in simple yet meaningful terms.

Table 2 - Treatment Band Descriptions

Treatment Band	PCI*	Description
Do Nothing	93-100	Excellent condition – pavement is in need of no maintenance.
Routine Maintenance	86-92	Good condition – pavement may be in need of crack sealing or minor localized repairs.
Preventive Maintenance	73-85	Fair condition – pavement surface may be in need of surface sealing or overlay.
Structural Improvement	0-72	Deficient condition – pavement surface structure is in need of added strength for existing traffic. The typical repair for these roads is to mill and pave.

*These are only general PCI ranges for reference purposes, and represent only one pavement type. There are several fields considered by the RoadManager GPMS™ strategy table when assigning repair types to each individual pavement section.

While the "do nothing" treatment band is fairly straight-forward, the other three would benefit from some explanation. "Routine maintenance" refers to minor pavement repairs – such as crack sealing and minor patching – that are needed to preserve pavement that is in good condition. Repairs that fall into the "preventive maintenance" category are generally more significant than those in the routine maintenance treatment band. These repairs include extensive patching and surface seals and are meant to be a cost-effective means of prolonging the life of a pavement that is in fair condition. The "structural improvement" treatment band contains the repairs that are needed for pavement that is in poor condition. Repairs such as reclamation or mill and pave are included within the structural improvement treatment band.

Though every pavement will eventually require structural improvement, routine and preventative maintenance can be used to lengthen the time a pavement deteriorates to the point that it would need such a major repair. By prolonging the life of the pavement, routine and preventive maintenance repairs help maintain the condition and the value of the pavement while limiting the investment needed to do so.

General Roadway Indices

In addition to recording the pavement distresses during the condition survey, a series of general roadway indices was recorded for each pavement management section. These indices describe a number of roadway attributes that may be used as factors in the repair-selection process. Each index is based on a scale of 0 to 100, with 100 indicating an ideal condition. These indices include:

- Rideability Index (RI)
- Drainage Condition Index (DCI)
- Utility Condition Index (UCI)
- Sidewalk Condition Index (SCI)
- Traffic Control Index (TCI)
- Traffic Safety Index (TSI)
- Roadside Maintenance Index (RMI)

A brief definition of each index can be found in Appendix G.

Step 5: Customize Software Settings

VHB met and conferred with the Public Works staff of the Village of Rye Brook to review the capabilities of the RoadManager GPMS™ software and to learn how to customize its settings and strategies to meet the Village's specific needs. Local repair strategies and repair unit costs were incorporated into the RoadManager GPMS™ database. The goal was to understand the decision-making process in Rye Brook and to simulate that process in the RoadManager GPMS™ software as best as possible. The result was pavement management software configured such that its budget projections constitute a realistic approximation of real-world conditions and consequences for the Village of Rye Brook. In short, this ability to reliably predict future conditions forms the backbone of the functionality of the RoadManager GPMS™ software.

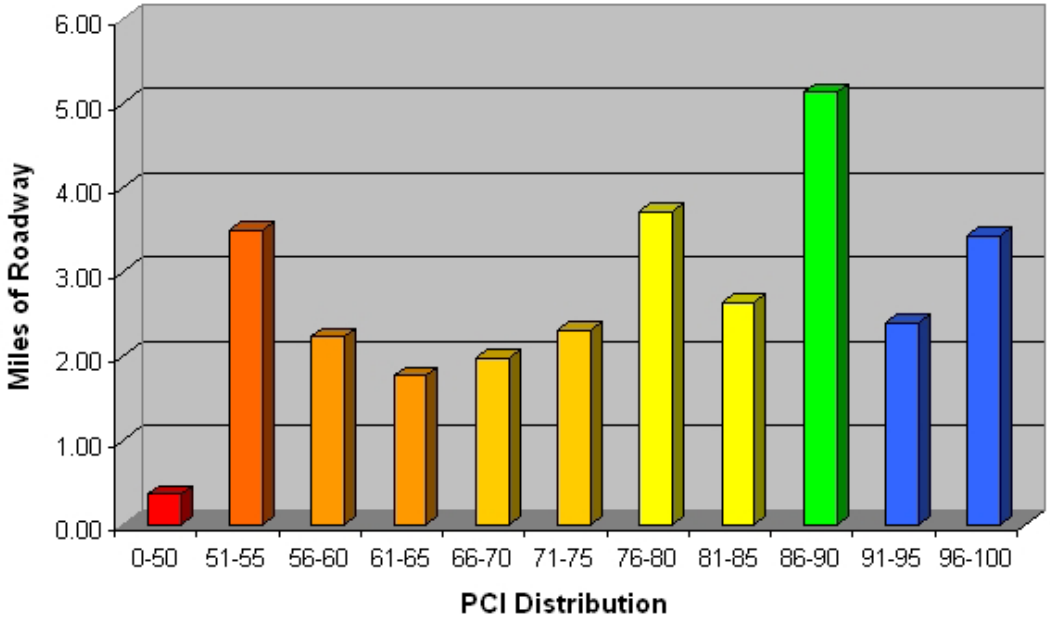
Existing Conditions

Current Network Conditions

VHB evaluated the conditions of the pavement in the Village of Rye Brook in May and June of 2007. The pavement condition survey found that the average PCI of Village roads was 77, an average that is similar to that of communities of similar size throughout New England and Long Island.

Figure 2 below illustrates the PCI distribution throughout the Village's pavement network. As the chart shows, the pavement conditions are fairly balanced throughout the Village with slightly more roadway mileage in the higher PCI range. This PCI distribution suggests that the Village would be served best by a roadway program that allows for repairs at every level yet emphasizes maintenance work such as crack sealing and surface treatments.

Figure 2 - PCI Distribution of Village Streets



Backlog of Work

Armed with the data collected during the pavement condition survey and an understanding of Village repair practices, VHB was able to use the tools of RoadManager GPMS™ to generate a current repair recommendation for every pavement segment in the Village. Collectively, these repair recommendations constitute a snapshot of the current conditions of the Village's pavement network in terms of what type of work is needed – and in terms of how much that work would cost if performed today – to bring the Village's average network PCI up to 100. VHB refers to this list of needed repairs as the "backlog of work."

The backlog of work is also sometimes referred to as an "ideal" scenario, because it represents the work the Village would perform on its roads if the Village had an unlimited budget. Though no community has an unlimited budget, the backlog of work remains a useful tool to gauge the effectiveness of a community's pavement repair budget and repair strategy. An effective budget and strategy will help to keep the backlog of work from rapidly increasing in cost over time.

The backlog of work represents a complete listing of the repairs that are needed today for every pavement segment in the Village. (A complete listing of the backlog of work can be found in Appendix C.) A summary of the backlog report can be found below in Table 3, listed according to which treatment band the recommended repairs belong. This table is particularly useful in that it allows for a quick identification of the current pavement condition trends and repair needs of the Village.

Table 3 - Summary of the Village Roadway Backlog of Work

Treatment band	Miles	Dollar Backlog
Do Nothing	5.8	$ 0
Routine Maintenance	5.1	$ 112,152
Preventive Maintenance	8.1	$ 445,472
Structural Improvement	10.4	$ 2,405,824
Totals:	29.5	$ 2,963,448

Figures 3 and 4 on the next page present the backlog summary information in Table 3 graphically.

Figure 3 - Miles of Outstanding Work

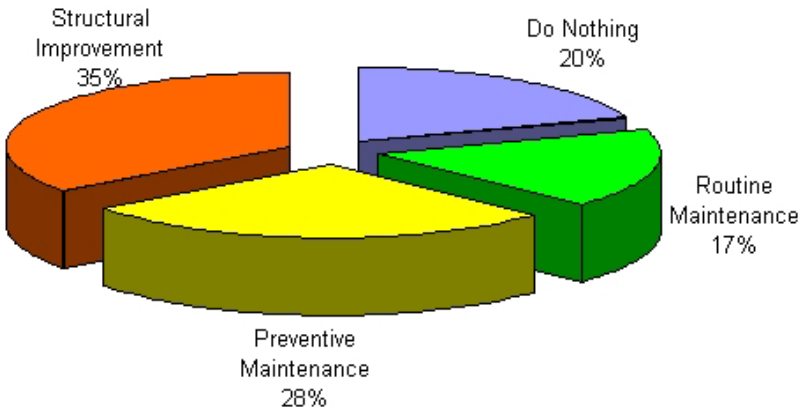
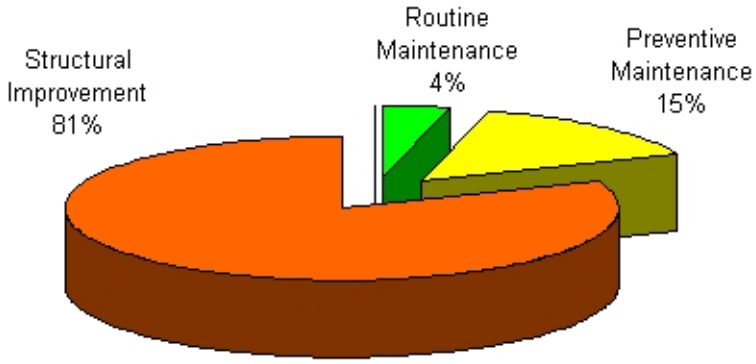


Figure 4 - Dollars of Outstanding Work



Figures 3 and 4 do more than simply restate the backlog summary information from Table 3. These charts clearly show how the structural improvement treatment band represents 81% of the total cost of the backlog of work and yet only 35% of the total roadway mileage in the Village. This discrepancy is an indication of how expensive structural improvements are relative to the other repairs. On the other hand, the routine maintenance treatment band represents 17% of the roadway network but only 4% of the total cost of the Village's backlog. This suggests that it is fiscally wise to invest in maintenance repairs, as such an investment improves more roadway for less money.

Map of Current Pavement Conditions

Along with its pavement database and its budget-projection capabilities, a key strength of RoadManager GPMS™ is its ability to easily display a map of roadway characteristics. A map has been included in Appendix B that displays the current pavement conditions in the Village and groups the roadway conditions by treatment band. Whereas Figures 3 and 4 provided a general sense of the type of repairs that are needed, a map of this information provides a context for the pavement conditions. Village staff can now get an idea of the general conditions of a particular street or an entire neighborhood without leaving their desk. This map is but one example of what the Village can produce using RoadManager GPMS™.

Budget Analysis

The 29 centerline miles of roadway that are maintained by the Village of Rye Brook represent the Village's single most significant investment. As such, the Village has a responsibility to maintain this investment and to anticipate future needs. The budget analysis capabilities of RoadManager GPMS™ will serve as an effective tool to assist the Village in this effort.

VHB used the budget analysis tools of RoadManager GPMS™ to project the effects of several funding scenarios upon the average network conditions and the annual backlog of work.

Introduction to Budget Scenarios

RoadManager GPMS™ budget scenarios use pavement conditions and characteristics, repair alternative pricing, and projected pavement deterioration trends to attempt to determine the most effective road improvements for the budget that is defined. These budget scenarios can take into account any number of local factors and form a powerful planning and budgeting tool. The projections made by these scenarios are estimates based upon the information at hand and are only as good as the information and assumptions upon which they are based. That said, the combination of local experience with VHB's expertise and history in the field of pavement management make the results of these budget scenarios worthy of consideration.

Two types of budget scenario are referenced here: a limited-budget scenario and a backlog scenario. A limited-budget scenario analyzes the impact of specific funding levels over the course of several years. All of the multi-year scenarios referenced here are limited-budget scenarios. A backlog scenario provides the recommended repair for every pavement segment without considering a budget. This scenario is meant to give a snapshot of the amount of work left to do (the backlog of work) for the pavement network.

RoadManager GPMS™ is capable of providing a backlog report for each year of a limited-budget scenario, thus giving an indication of whether or not the backlog is increasing or decreasing over time. The backlog will gradually increase over time unless an aggressive maintenance and improvement plan is in place.

How a Budget Scenario Works

A budget scenario in RoadManager GPMS™ considers several sources of information, including: pavement condition data, pavement deterioration curves,

pavement repair strategy, repair costs, and annual budget. A budget scenario relies upon this information to be accurate and current. Otherwise, credible recommendations cannot be provided.

A budget scenario uses the most recent pavement condition data and the typical pavement deterioration curve assigned to each pavement segment to predict the likely condition of a pavement segment for a given year in the scenario. RoadManager GPMS™ finds the current pavement condition on the assigned deterioration curve and then finds the point on the curve that corresponds to the number of years between the pavement condition survey and the scenario date. In other words, RoadManager GPMS™ "ages" the pavement using the deterioration curve to estimate a future pavement condition. This future condition is referred to as the "deteriorated condition" or the "deteriorated PCI." The deteriorated PCI will be recalculated for every year of a budget scenario. The deterioration curves for the Village of Rye Brook can be viewed in Appendix E.

Next, the budget scenario considers the deteriorated PCI and other pavement information to recommend a repair for each pavement segment. The selection of each repair is based upon a defined repair strategy in RoadManager GPMS™. The repair strategy lists several different pavement segment attributes and uses these attributes as decision factors to determine the appropriate repair. The criteria included in the Village's strategy table are: pavement type, pavement class, PCI, base index, and average curb reveal.

Now that a repair has been recommended for each pavement segment, RoadManager GPMS™ can calculate the relative importance of making each of these repairs. The device used by RoadManager GPMS™ to prioritize the recommended repairs is called the "benefit value." The benefit value is an objective factor calculated by RoadManager GPMS™ for every pavement segment involved in a budget scenario. The benefit value formula is:

$$\text{Benefit Value} = \frac{\text{ADT x Estimated Repair Life}}{\text{Repair Cost x Pavement Condition Index}}$$

As the formula indicates, a higher benefit value will be placed upon roads that are used most frequently, have the poorest condition, and whose recommended repair offers the highest life-to-cost ratio. RoadManager GPMS™ prioritizes the list of recommended repairs beginning with the pavement segments that have the highest benefit value. The result is that the highest priority will be placed upon the most cost-effective repairs that benefit the most drivers.

In the final step in a budget scenario, RoadManager GPMS™ applies the given budget to the prioritized list of recommended repairs. RoadManager GPMS™ selects the highest priority repair that fits within the budget and then moves down the list to select as many repairs as it can before exhausting the budget. The repairs that are selected become the scenario results for that year.

The budget scenario then moves to the next year, and the cycle of deteriorating conditions, assigning repairs, prioritizing repairs, and applying the budget begins once again. This cycle will repeat for every year in the budget scenario.

A Note of Caution

It is important to understand that RoadManager GPMS™ is a network-wide planning tool. As such, it is not intended to give definitive street-by-street repair data. Field verification and testing are recommended to confirm any street repair list generated.

Pavement management deals with the life cycle of pavement structure and the various available repair treatments to maintain the condition of the pavement. The pavement management system and the various repair types utilized in the study do not necessarily address all of the other physical improvements associated with a roadway. Some of the items that would likely be encountered on a roadway project include the storm drainage system, traffic signals, minor traffic items, sidewalks, and utility adjustments. Because each roadway project presents its own combination of direct pavement repairs and indirect secondary repairs, the actual scope of work and costs will be unique for each individual roadway. Actual repair costs need to be developed at the project level and may differ from the estimated costs utilized in this network-level study.

Scenarios Explored

VHB used the budget analysis capabilities of RoadManager GPMS™ to project the network-level impacts of several annual funding levels. All of the scenarios used a 10-year time frame beginning with the current conditions, as determined by the pavement condition survey. The goal was to find reasonable estimates for what the Village can expect if it adopts certain funding levels for pavement repairs.

The following budget scenarios were analyzed and have been included in this report:

- **Previous Funding –** This scenario allocated $350,000/year, roughly that which the Village had spent on road repairs in previous years.
- **Current Funding –** This scenario used the current budget of $400,000/year.
- **Alternate Strategy –** This scenario used the current budget along with an alternate repair strategy that did not consider microsurfacing or thin overlays as repair options.
- **Target PCI –** This scenario used an increased budget of $500,000/year to increase the Village's average network PCI to 85 within ten years.

Budget Scenario Results

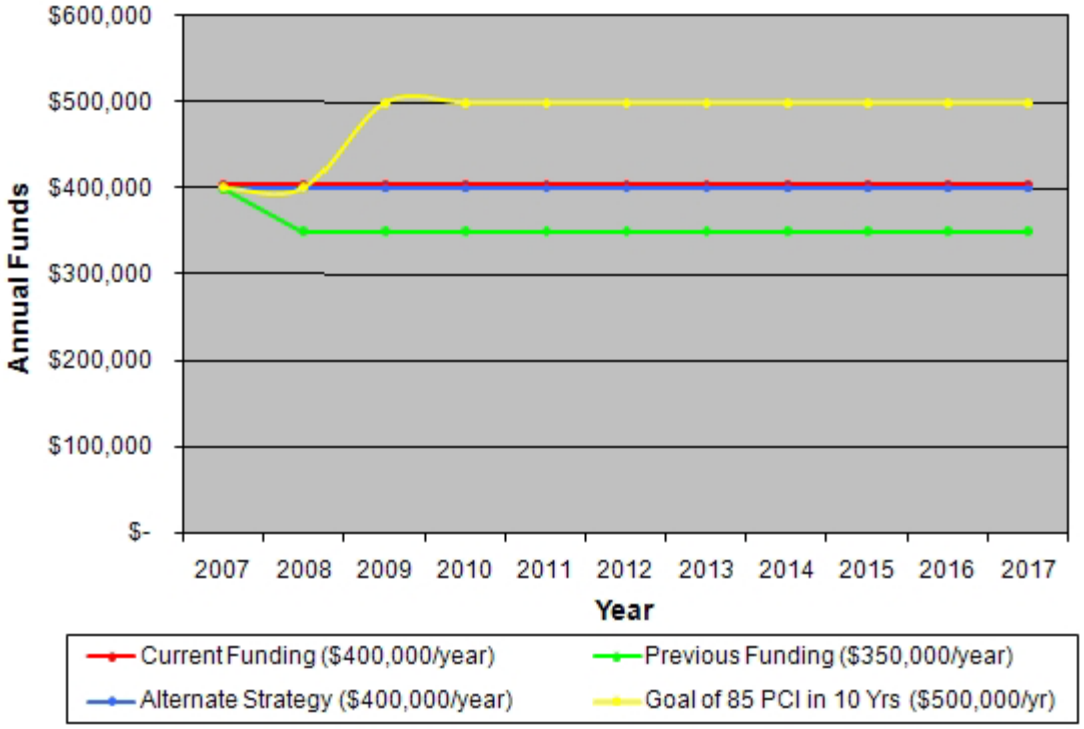
The goal of analyzing budget scenarios is to find a realistic funding level that maintains or improves the average network PCI while maintaining or decreasing the total repair backlog. Scenario results can be deceiving if one looks only at the effect the scenario has on the network PCI, for scenarios might focus too heavily on making

cheaper repairs to increase the network PCI, thus allowing the total repair backlog to increase out of control. Therefore, a balance must be found between raising condition levels and investing in often costly capital repairs.

Scenario Funding

The chart below illustrates the annual funding from each budget scenario. The Current Funding (red), Alternate Strategy (blue), and Previous Funding (green) scenarios all follow a similar pattern and maintain steady budgets throughout the ten years of analysis. The Target PCI scenario (yellow), however, begins with the current budget and increases to a steady funding level of $500,000 per year.

Figure 5 – Scenario Funding Over Time

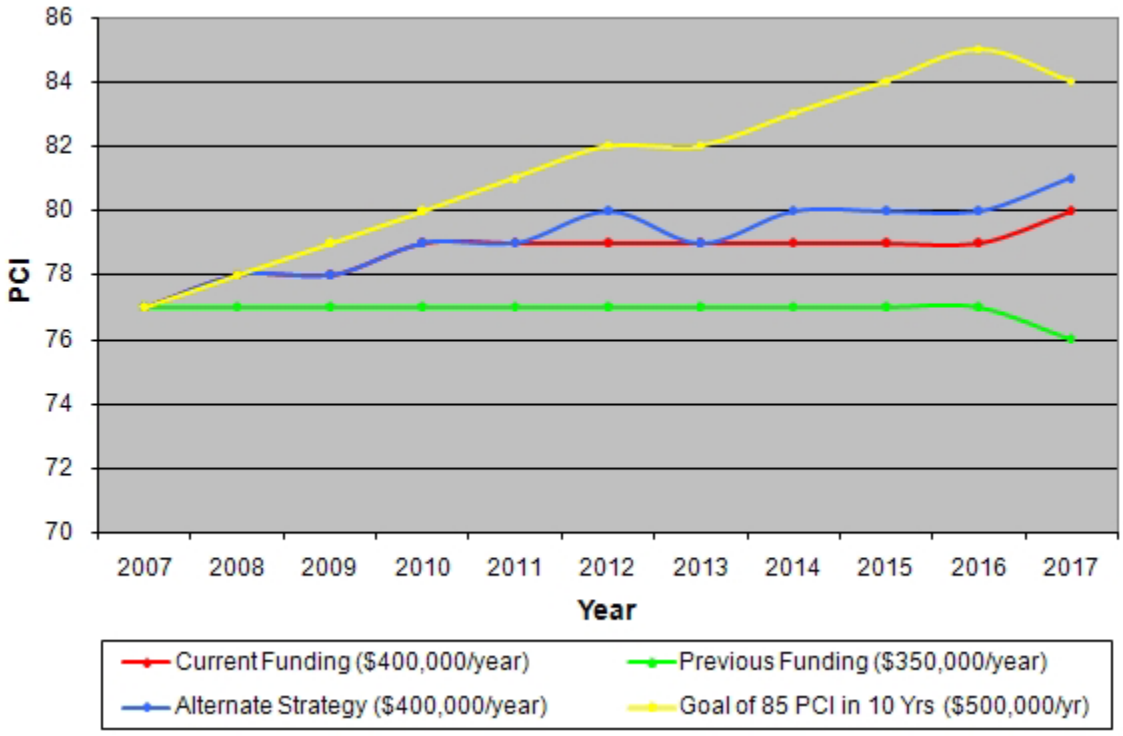


Average Network PCI

The chart below illustrates the annual average network PCI that resulted from each of the four scenarios. As one might expect, the Target PCI scenario (yellow), with its increased budget, results in the highest network PCI over time. Likewise, the Previous Funding scenario (green) results in the lowest network PCI of these scenarios.

Though its results are the lowest, it is noteworthy that the Previous Funding scenario maintains the current network PCI. Should the Village ever be forced to cut its annual pavement repair budget, it may consider the previous funding levels as its minimum possible funding level. At the very least, this scenario preserves the network PCI.

Figure 6 – Pavement Condition Index (PCI) Over Time



Also of note is the performance of the current budget using the standard and alternate strategies. The Current Funding scenario (red) uses a repair strategy that includes microsurfacing and thin overlays for roads in fair condition. The Alternate Strategy scenario (blue), however, does not consider these repairs. The Alternate Strategy scenario is limited to crack seal, patch, and mill-and-pave repairs. Over time, it appears that this change in strategy has a subtle effect on the network PCI, and that the use of microsurface and thin overlay repairs do not produce the results of simply crack sealing and patching. One reason the Alternate Strategy scenario out-performs the Current Funding scenario is that the cheaper crack seal and patch

repairs allow for more of the budget to be allocated to other roads, whereas the thin overlay and microsurface repairs require more of an investment, meaning that fewer streets are repaired.

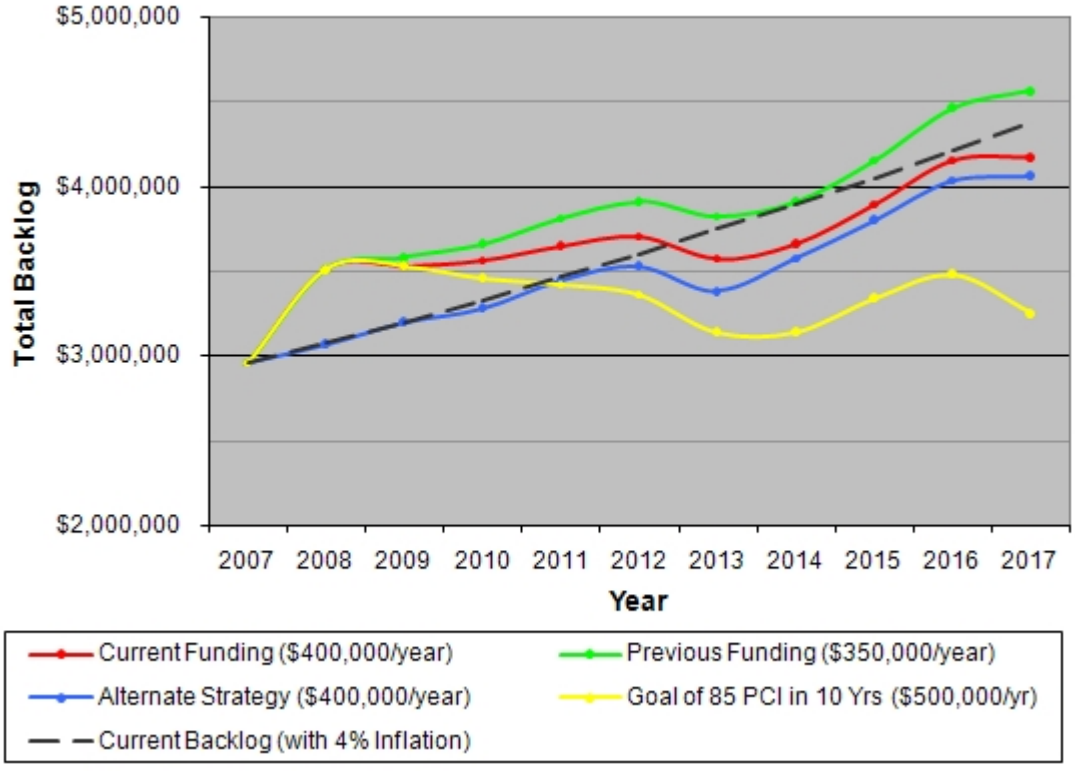
These results should not exclude microsurfacing or thin overlays from consideration. Indeed, these repairs have aesthetic and other benefits that could outweigh a one-point increase in the network PCI over ten years. It should suffice to note that the current budget, whether or not it considers microsurfacing and thin overlays, is projected to increase the Village's average network PCI.

Annual Backlog of Work

As pavement deteriorates, it requires increasingly expensive repairs. When this is coupled with the constantly increasing costs for hot mix asphalt and other materials used in these repairs, these two factors build upon each other to rapidly increase the cost of the total repair backlog. Keeping the backlog in check requires timely, persistent investment.

Perhaps the most telling of the three charts shown in this report, Figure 7 below shows the annual total repair backlog that is projected for each budget scenario. Also shown is a projection of the current backlog cost (black) and how the backlog would increase over time if it were subject only to inflation. This represents the ideal minimum increase in the backlog of work if no investments were made into the roadway network during this time. It also represents the constant value of the total repair backlog, as its cost is increased due to inflation.

Figure 7 – Total Repair Backlog over Time



The cost of the total repair backlog is significant, because it represents the sum of money that would be required to address all of the pavement repairs that are needed at any given time. If insufficient investment is made into the pavement network, the total repair backlog can grow out of control and become too expensive to rein in. In other words, if the cost of the Village's total repair backlog is increasing rapidly, then the Village is losing its ability to control it or to even influence it.

The Previous Funding (green), Current Funding (red), and Alternate Strategy (blue) scenarios all show an increase in the total repair backlog. The Previous Funding scenario shows an increase in the backlog of approximately 50% over ten years. If the Village were to allow this trend to occur, it would find that the backlog of work will be much more difficult to address than what it faces today.

The Current Funding and Alternate Strategy scenarios perform better than the Previous Funding scenario, but they too show a significant increase in the total repair backlog. These scenarios result in increases of the total repair backlog of between 35% and 40%. These two scenarios may out-perform the Previous Funding scenario, but they also do not prevent the cost of the total repair backlog from increasing significantly.

The Target PCI scenario (yellow) fluctuates but allows the total repair backlog to increase by only 10% over the ten-year analysis period. To do so, the Target PCI scenario invests enough into the Village's pavement network to outpace natural pavement deterioration, gradually reducing the number of significant repairs needed throughout the Village pavement network over time.

Concluding Remarks

Based upon the results of the scenarios discussed in this report, the Target PCI scenario provides the most effective approach to maintaining the Village's pavement network. The Target PCI scenario achieves two important goals: first, this scenario increases the current network average PCI; second, this scenario maintains the current total repair backlog. Both of these goals were achieved using a budget that is expensive, yet one that is realistic for the Village to implement.

The fact that the Target PCI scenario achieves both of these goals within a reasonable budget should not be understated. If the Village can increase its roadway funding levels to approximately $500,000 per year, then it will put itself on track not only to increase its average pavement conditions but also to begin to reduce the future financial burden of pavement repairs represented by the total repair backlog.

As the Current Funding scenario illustrated, the Village can improve its average pavement conditions by maintaining its current budget. However, the current budget allows the total repair backlog to increase significantly. This increase in the average PCI coupled with an increase in the total repair backlog might be an indication that not enough funding is currently being allocated for capital repairs, such as mill and pave. As seen in Figure 4, structural improvements represent roughly 80% of the dollar value of the Village's current total repair backlog. While aggressive routine and preventive maintenance can address many roads and improve the average network PCI, only investment in capital improvements will prevent the total repair backlog from increasing out of the Village's control.

Increasing the annual budget from its current level of $400,000 to $500,000, and allocating much of this increased spending for capital repairs, will help the Village increase its network PCI and maintain its current total repair backlog.

Though the amount of funding is important, so too is the allocation of these funds. The Village's approach has been to divide the total annual budget among maintenance work, microsurfacing applications, and mill-and-pave projects. With its emphasis on dividing funding among a variety of types of work, the Village's plan has also spread the available funding to reach pavement of every condition level. In doing so, the Village has developed a plan that reflects the definition of pavement management: the Village is maintaining the roads in good condition while it attempts to improve those roads in poor condition. This approach has perhaps contributed the most to the Village's strong network PCI, and it is a key factor in the success of the Village's pavement network in these budget scenarios.

VHB recommends that the Village increase its current annual funding and maintain its current pavement management practices. As the budget scenarios suggest, this strategy will allow the Village to raise its current network pavement conditions while helping to maintain or reduce the total repair backlog.

Recommendations – Pavement Management

The Village currently has a good grasp on the theory and the practice of pavement management. VHB recommends that the Village utilize its new RoadManager GPMS software to augment its current practices.

Recommendations – RoadManager GPMS™ system

- Maintain the accuracy of the software by updating the system with work that has been completed.
- Update pavement conditions at least every 4 years. To make it easier, update at least 25% of the roadway network every year.
- Evaluate funding levels and repair unit costs prior to additional budget analysis.
- Use GIS to coordinate planned work and to develop multi-year roadway improvement programs.

Appendix A

Tabular Results of Budget Scenarios

The following three tables contain the data that corresponds to the charts in the report above.

Table 4: Annual Scenario Funding

Budget Year	Previous Funding ($350,000/year)	Current Funding ($400,000/year)	Alternate Strategy ($400,000/year)	Target PCI (85 in 10 years)
2007	$ 400,000	$ 400,000	$ 400,000	$ 400,000
2008	$ 350,000	$ 400,000	$ 400,000	$ 400,000
2009	$ 350,000	$ 400,000	$ 400,000	$ 500,000
2010	$ 350,000	$ 400,000	$ 400,000	$ 500,000
2011	$ 350,000	$ 400,000	$ 400,000	$ 500,000
2012	$ 350,000	$ 400,000	$ 400,000	$ 500,000
2013	$ 350,000	$ 400,000	$ 400,000	$ 500,000
2014	$ 350,000	$ 400,000	$ 400,000	$ 500,000
2015	$ 350,000	$ 400,000	$ 400,000	$ 500,000
2016	$ 350,000	$ 400,000	$ 400,000	$ 500,000
2017	$ 350,000	$ 400,000	$ 400,000	$ 500,000

Table 5: Annual Pavement Condition Indices based upon Budget Scenarios

Budget Year	Previous Funding ($350,000/year)	Current Funding ($400,000/year)	Alternate Strategy ($400,000/year)	Target PCI (85 in 10 years)
2007	77	77	77	77
2008	77	78	78	78
2009	77	78	78	79
2010	77	79	79	80
2011	77	79	79	81
2012	77	79	80	82
2013	77	79	79	82
2014	77	79	80	83
2015	77	79	80	84
2016	77	79	80	85
2017	76	80	81	84

Table 6: Annual Total Repair Backlog based upon Budget Scenarios

Budget Year	Previous Funding ($350,000/year)	Current Funding ($400,000/year)	Alternate Strategy ($400,000/year)	Target PCI (85 in 10 years)
2007	$ 2,960,000	$ 2,960,000	$ 2,960,000	$ 2,960,000
2008	$ 3,510,000	$ 3,510,000	$ 3,070,000	$ 3,510,000
2009	$ 3,580,000	$ 3,530,000	$ 3,200,000	$ 3,530,000
2010	$ 3,660,000	$ 3,560,000	$ 3,280,000	$ 3,460,000
2011	$ 3,810,000	$ 3,650,000	$ 3,450,000	$ 3,420,000
2012	$ 3,910,000	$ 3,700,000	$ 3,530,000	$ 3,360,000
2013	$ 3,820,000	$ 3,570,000	$ 3,380,000	$ 3,140,000
2014	$ 3,910,000	$ 3,660,000	$ 3,570,000	$ 3,140,000
2015	$ 4,150,000	$ 3,890,000	$ 3,800,000	$ 3,340,000
2016	$ 4,460,000	$ 4,150,000	$ 4,030,000	$ 3,480,000
2017	$ 4,560,000	$ 4,170,000	$ 4,060,000	$ 3,250,000

Appendix B

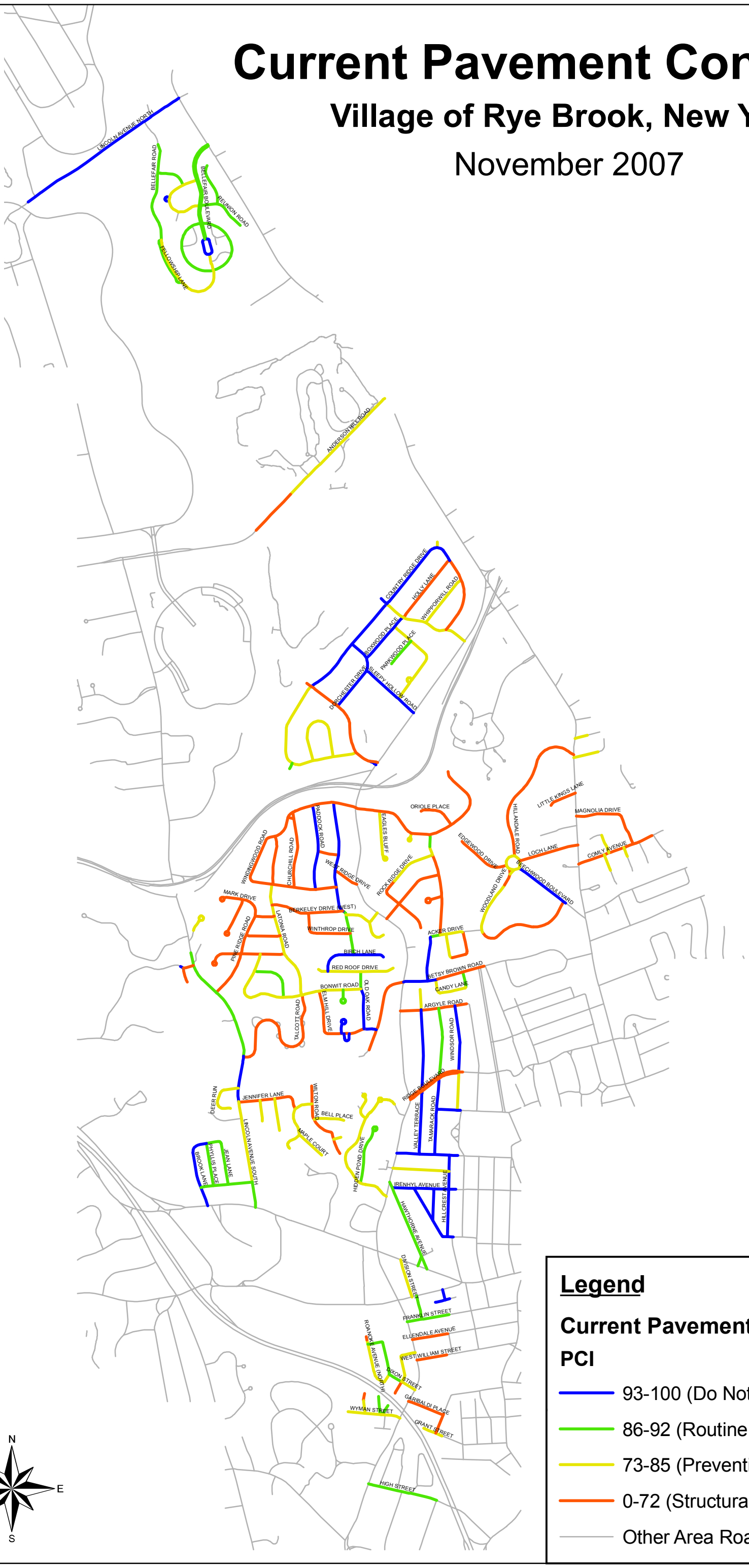
Street List and Map of Current Conditions

This appendix contains a listing of all Village-maintained pavement segments. This list includes the basic geometric and functional description of each pavement segment. A Village map has also been included that shows the current pavement conditions throughout the Village.

Current Pavement Condtions

Village of Rye Brook, New York

November 2007



Legend

Current Pavement Condition

PCI

- 93-100 (Do Nothing)
- 86-92 (Routine Maintenance)
- 73-85 (Preventive Maintenance)
- 0-72 (Structural Improvement)
- Other Area Roads

Pavement Inventory Report

Street Name	From Segment	End Segment	Pavement Type	Pavement Class	Length	PCI
ACKER DRIVE	KNOLLWOOD DR	ROCK RIDGE DR	Bituminous Concrete	Residential - Thru Street	171	90
ACKER DRIVE	RICK RIDGE DR	ARLINGTON PL	Bituminous Concrete	Residential - Thru Street	437	75
ANDERSON HILL ROAD	NEW YORK STATE LINE	440 FT WEST OF GOLF COURSE EN'	Bituminous Concrete	Major/Minor Collector	2,271	80
ANDERSON HILL ROAD	440 FT WEST OF GOLF COURSE EN'	VILLAGE LINE	Bituminous Concrete	Major/Minor Collector	844	57
ARGYLE ROAD	RIDGE ST NORTH	TOWNLINE	Bituminous Concrete	Residential - Thru Street	1,130	69
ARLINGTON PLACE	ACKER DR	CONCORD PL	Bituminous Concrete	Residential - Thru Street	636	62
BARBER PLACE	FRANKLIN ST	BOWMAN AV	Bituminous Concrete	Residential - Thru Street	406	89
BEACON LANE	WILTON RD	DEAD END	Bituminous Concrete	Residential - Dead End	1,113	77
BEECHWOOD BOULEVARD	BEECHWOOD CIR	VILLAGE LINE	Bituminous Concrete	Residential - Thru Street	983	95
BEECHWOOD CIRCLE	LOCH LA	LOCH LA	Bituminous Concrete	Residential - Thru Street	751	74
BELL PLACE	WILTON RD	CUL DE SAC	Bituminous Concrete	Residential - Dead End	503	80
BELLEFAIR BOULEVARD	KING ST NORTH	TOP END OF LOOP (W)	Bituminous Concrete	Residential - Thru Street	1,726	89
BELLEFAIR BOULEVARD	NORTH END OF LOOP (W)	NORTH END OF LOOP (E)	Bituminous Concrete	Residential - Thru Street	656	100
BELLEFAIR BOULEVARD	TOP END OF LOOP (E)	KING ST NORTH	Bituminous Concrete	Residential - Thru Street	1,688	88
BELLEFAIR ROAD	BELLEFAIR BLVD	FELLOWSHIP LA	Bituminous Concrete	Residential - Dead End	1,927	80
BELLEFAIR ROAD	FELLOWSHIP LA	CUL DE SAC	Bituminous Concrete	Residential - Dead End	1,669	86
BERKELEY DRIVE (EAST)	OLD ORCHARD RD	RIDGE ST N	Bituminous Concrete	Residential - Thru Street	645	75
BERKELEY DRIVE (WEST)	LATONIA RD	OLD ORCHARD RD	Bituminous Concrete	Residential - Thru Street	1,222	65
BERKELEY LANE	BERKLEY DR EXT	CUL DE SAC	Bituminous Concrete	Residential - Dead End	420	76
BETSY BROWN ROAD	VILLAGE LINE	30' E OF CANDY LANE	Bituminous Concrete	Major/Minor Collector	814	68
BETSY BROWN ROAD	30' E OF CANDY LANE	RIDGE ST NORTH	Bituminous Concrete	Major/Minor Collector	579	68
BETSY BROWN ROAD	RIDGE ST NORTH	PARK	Bituminous Concrete	Residential - Thru Street	1,392	51
BIRCH LANE	RED ROOF DR	CUL DE SAC	Bituminous Concrete	Residential - Dead End	1,145	94
BISHOP DRIVE NORTH	KING ST NORTH	VILLAGE LINE	Bituminous Concrete	Residential - Thru Street	216	77
BISHOP DRIVE SOUTH	KING ST SOUTH	VILLAGE LINE	Bituminous Concrete	Residential - Thru Street	421	75
BLUEBIRD HOLLOW	ROCK RIDGE DR EXT	MEADOWLARK RD	Bituminous Concrete	Residential - Thru Street	205	87
BOBBIE LANE	RIDGE ST N	ROCKRIDGE DR	Bituminous Concrete	Residential - Thru Street	1,197	56
BOLTON PLACE	COMLY AV	VILLAGE LINE	Bituminous Concrete	Residential - Dead End	159	80
BONWIT ROAD	MOHEGAN LA	650' S OF MOHEGAN LA	Bituminous Concrete	Residential - Thru Street	651	75
BONWIT ROAD	650' S OF MOHEGAN LA	TALCOTT RD	Bituminous Concrete	Residential - Thru Street	1,086	80
BONWIT ROAD	TALCOTT RD	OLD OAK RD	Bituminous Concrete	Residential - Thru Street	1,019	77
BOXWOOD PLACE	DORCHESTER DR	FAIRLAWN PKWY	Bituminous Concrete	Residential - Thru Street	926	99
BROOK LANE	WESTCHESTER AV	PHYLLIS PL	Bituminous Concrete	Residential - Thru Street	1,248	93
BROOKSIDE WAY	LINCOLN AV SOUTH	CUL DE SAC LOOP	Bituminous Concrete	Residential - Dead End	452	80
CANDY LANE	BETSY BROWN RD	SYLVAN RD	Bituminous Concrete	Residential - Thru Street	698	76
CARLTON LANE	BONWIT RD N	BONWIT RD S	Bituminous Concrete	Residential - Thru Street	812	89
CASTLE LANDING	COMLY AV	VILLAGE LINE	Bituminous Concrete	Residential - Dead End	283	82
CASTLE VIEW COURT	COMLY AV	CUL DE SAC	Bituminous Concrete	Residential - Dead End	326	80
CHARLES LANE	MARK DR	CUL DE SAC LOOP	Bituminous Concrete	Residential - Dead End	790	67
CHURCHILL ROAD	WINDING WOOD RD S	WINDING WOOD RD N	Bituminous Concrete	Residential - Thru Street	1,277	57

Pavement Inventory Report

Street Name	From Segment	End Segment	Pavement Type	Pavement Class	Length	PCI
CHURCHILL ROAD Y-INTER	WINDING WOOD RD	CHURCHILL RD	Bituminous Concrete	Residential - Thru Street	101	60
COLLEGE AVENUE	TAMARACK RD	VILLAGE LINE	Bituminous Concrete	Residential - Thru Street	414	100
COMLY AVENUE	KING ST SOUTH	VILLAGE LINE	Bituminous Concrete	Major/Minor Collector	1,329	52
CONCORD PLACE	ARLINGTON PL	ACKER DR	Bituminous Concrete	Residential - Thru Street	429	84
COUNTRY RIDGE CIRCLE	COUNTRY RIDGE DR W	COUNTRY RIDGE DR E	Bituminous Concrete	Residential - Thru Street	1,495	83
COUNTRY RIDGE CLOSE	COUNRTY RIDGE DR	CUL DE SAC	Bituminous Concrete	Residential - Dead End	102	89
COUNTRY RIDGE DRIVE	ROCKINGHORSE TR S	ROCKINGHORSE TR N	Bituminous Concrete	Residential - Thru Street	2,564	79
COUNTRY RIDGE DRIVE	ROCKINGHORSE TR N	FAIRLAWN PKWY W	Bituminous Concrete	Residential - Thru Street	1,902	99
COUNTRY RIDGE DRIVE	FAIRLAWN PKWY W	HOLLY LANE	Bituminous Concrete	Residential - Thru Street	1,611	72
COUNTRY RIDGE DRIVE	HOLLY LANE	FAIRLAWN PKWY E	Bituminous Concrete	Residential - Thru Street	1,322	72
COUNTRY RIDGE DRIVE EX	COUNTRY RIDGE DR	CUL DE SAC	Bituminous Concrete	Residential - Dead End	94	78
CRESCENT PLACE	RIDGE ST NORTH	HIGHVIEW AV NORTH	Bituminous Concrete	Residential - Thru Street	246	79
CROSSWAY DRIVE	PADDOCK RD	OLD ORCHARD RD	Bituminous Concrete	Residential - Thru Street	351	58
DEER RUN	LINCOLN AV SOUTH	CUL DE SAC	Bituminous Concrete	Residential - Dead End	777	77
DIVISION STREET	BOWMAN AV	WESTCHESTER AV	Bituminous Concrete	Residential - Thru Street	661	79
DIXON STREET	RIDGE ST SOUTH	HIGHVIEW AV SOUTH	Bituminous Concrete	Residential - Thru Street	262	77
DIXON STREET	HIGHVIEW AV SOUTH	ROANOKE AV	Bituminous Concrete	Residential - Thru Street	246	88
DORCHESTER DRIVE	ROCKINGHORSE TR	COUNTRY RIDGE DR	Bituminous Concrete	Residential - Thru Street	1,332	95
EAGLES BLUFF	MEADOWLARK RD	CUL DE SAC LOOP	Bituminous Concrete	Residential - Dead End	970	76
EDGEWOOD DRIVE	BEECHWOOD CIR	CUL DE SAC	Bituminous Concrete	Residential - Dead End	913	48
ELLENDALE AVENUE	RISGE ST SOUTH	VILLAGE LINE	Bituminous Concrete	Residential - Thru Street	612	60
ELM HILL DRIVE	BONWIT RD	OLD OAK RD	Bituminous Concrete	Residential - Thru Street	1,391	55
ELM HILL DRIVE	OLD OAK RD	BETSY BROWN RD	Bituminous Concrete	Residential - Thru Street	210	100
FAIRLAWN PARKWAY	RIDGE ST NORTH	COUNTRY RIDGE DR	Bituminous Concrete	Residential - Thru Street	1,510	75
FAIRLAWN PARKWAY	COUNTRY RIDGE DR	DEAD END	Bituminous Concrete	Residential - Dead End	133	100
FELLOWSHIP LANE	BELLEFAIR RD S	BELLEFAIR RD N	Bituminous Concrete	Residential - Thru Street	889	89
FRANKLIN STREET	RIDGE ST SOUTH	VILLAGE LINE	Bituminous Concrete	Residential - Thru Street	715	88
GARIBALDI PLACE	RIDGE ST SOUTH	WEST ST	Bituminous Concrete	Residential - Thru Street	629	64
GRANT STREET	DEAD END	VILLAGE LINE	Bituminous Concrete	Residential - Dead End	335	81
GREENHOUSE CIRCLE	BONWIT RD	CUL DE SAC LOOP	Bituminous Concrete	Residential - Dead End	383	89
HAWTHORNE AVENUE	WESTCHESTER AV	RIDGE ST NORTH	Bituminous Concrete	Residential - Thru Street	1,600	88
HAWTHORNE AVENUE Y-IN	HAWTHORN AV	WESTCHESTER AV	Bituminous Concrete	Residential - Thru Street	173	90
HIDDEN POND DRIVE	LONGLEDGE DR	CUL DE SAC LOOP	Bituminous Concrete	Residential - Dead End	1,146	88
HIGH POINT CIRCLE	BELLEVFAIR BLVD	BELLEVFAIR BLVD	Bituminous Concrete	Residential - Thru Street	2,593	89
HIGH STREET	RIDGE ST SOUTH	VILLAGE LINE	Bituminous Concrete	Residential - Thru Street	1,183	90
HIGHVIEW AVENUE (NORT	CRESCENT PL	DIXON ST	Bituminous Concrete	Residential - Dead End	455	75
HIGHVIEW AVENUE (NORT	DIXON ST	DEAD END	Bituminous Concrete	Residential - Dead End	222	58
HIGHVIEW AVENUE (SOUTI	WYMAN ST	DEAD END	Bituminous Concrete	Residential - Dead End	194	89
HILLANDALE ROAD	BEECHWOOD CIR	1250' N OF BEECHWOOD CIR	Bituminous Concrete	Residential - Thru Street	1,250	54
HILLANDALE ROAD	1250' N OF BEECHWOOD CIR	KING ST SOUTH	Bituminous Concrete	Residential - Thru Street	1,270	54

Pavement Inventory Report

Street Name	From Segment	End Segment	Pavement Type	Pavement Class	Length	PCI
HILLCREST AVENUE	WOODLAND AV	NEUTON AV	Bituminous Concrete	Residential - Thru Street	1,380	95
HILLS POINT LANE	ELM HILL DR	CUL DE SAC LOOP	Bituminous Concrete	Residential - Dead End	404	95
HOLLY LANE	FAIRLAWN PARKWAY	COUNTRY RIDGE DR	Bituminous Concrete	Residential - Thru Street	1,246	68
HORSESHOE LANE	ELM HILL DR W	ELM HILL DR E	Bituminous Concrete	Residential - Thru Street	283	99
HUNTER DRIVE	PINE RIDGE RD	LATONIA RD	Bituminous Concrete	Residential - Thru Street	577	57
IRENHYL AVENUE	HAWTHORNE AV	VILLAGE LINE	Bituminous Concrete	Residential - Thru Street	1,081	100
JACQUELINE LANE	ROCK RIDGE DR	CUL DE SAC LOOP	Bituminous Concrete	Residential - Dead End	440	64
JEAN LANE	SUNSET RD	PHYLLIS PL	Bituminous Concrete	Residential - Thru Street	970	88
JENNIFER LANE	LINCOLN AV S	BEACON LA	Bituminous Concrete	Residential - Thru Street	1,101	55
KNOLLWOOD DRIVE	BETSY BROWN RD	ACKER DR	Bituminous Concrete	Residential - Thru Street	748	95
LATONIA ROAD	MOHEGAN LA	WINDING WOOD RD S	Bituminous Concrete	Residential - Thru Street	1,216	74
LATONIA ROAD	WINDING WOOD RD S	WINDING WOOD RD N	Bituminous Concrete	Residential - Thru Street	814	68
LAWRIDGE DRIVE	SLEEPY HOLLOW RD	BOXWOOD PL	Bituminous Concrete	Residential - Thru Street	1,609	81
LAWRIDGE DRIVE LOOP	LAWRIDGE DR S	LAWRIDGE DR N	Bituminous Concrete	Residential - Thru Street	189	80
LEE LANE	JENNIFER LA	CUL DE SAC	Bituminous Concrete	Residential - Dead End	351	78
LEGENDARY CIRCLE	BELLEFAIR BLVD S	BELLEFAIR BLVD N	Bituminous Concrete	Residential - Thru Street	1,283	85
LEGENDARY CIRCLE EXT	LEGENDARY CIR S	LEGENDARY CIR N	Bituminous Concrete	Residential - Thru Street	185	94
LINCOLN AVENUE NORTH	KING ST NORTH	500' W OF KING ST N	Bituminous Concrete	Residential - Thru Street	569	99
LINCOLN AVENUE NORTH	500' W OF KING ST N	DEAD END (GATE)	Bituminous Concrete	Residential - Dead End	3,097	95
LINCOLN AVENUE SOUTH	WESTCHESTER AV	SUNSET RD	Bituminous Concrete	Major/Minor Collector	436	86
LINCOLN AVENUE SOUTH	SUNSET RD	JENNIFER LA	Bituminous Concrete	Major/Minor Collector	1,376	74
LINCOLN AVENUE SOUTH	JENNIFER LA	TALCOTT RD	Bituminous Concrete	Major/Minor Collector	777	95
LINCOLN AVENUE SOUTH	TALCOTT RD	300' S OF PINE RIDGE RD	Bituminous Concrete	Major/Minor Collector	894	90
LINCOLN AVENUE SOUTH	300' S OF PINE RIDGE RD	PINE RIDGE RD	Bituminous Concrete	Major/Minor Collector	299	90
LINCOLN AVENUE SOUTH	PINE RIDGE RD	VILLAGE LINE	Bituminous Concrete	Major/Minor Collector	838	90
LITTLE KINGS LANE	KING ST SOUTH	CUL DE SAC	Bituminous Concrete	Residential - Dead End	467	61
LOCH LANE	BEECHWOOD CIRCLE	KING ST SOUTH	Bituminous Concrete	Residential - Thru Street	1,010	46
LONGLEDGE DRIVE	RIDGE ST NORTH	PARK RIDGE CT	Bituminous Concrete	Residential - Dead End	1,810	82
LONGLEDGE DRIVE	PARK RIDGE CT	CUL DE SAC LOOP	Bituminous Concrete	Residential - Dead End	561	81
LONGLEDGE DRIVE EXT	LONGLEDGE DR	DEAD END	Bituminous Concrete	Residential - Dead End	231	82
MAGNOLIA DRIVE	KING ST SOUTH	COMLY AV	Bituminous Concrete	Residential - Thru Street	1,287	60
MAPLE COURT	BEACON LA	CUL DE SAC	Bituminous Concrete	Residential - Dead End	511	81
MARK DRIVE	PINE RIDGE RD	CUL DE SAC LOOP	Bituminous Concrete	Residential - Dead End	927	63
MAYWOOD AVENUE	RIDGE ST NORTH	HILLCREST AV	Bituminous Concrete	Residential - Thru Street	953	80
MEADOWLARK ROAD	RIDGE ST NORTH	BLUEBIRD HOLLOW	Bituminous Concrete	Residential - Thru Street	1,412	52
MEADOWLARK ROAD	BLUEBIRD HOLLOW	CUL DE SAC	Bituminous Concrete	Residential - Thru Street	1,587	54
MILESTONE ROAD	REUNION RD	CUL DE SAC	Bituminous Concrete	Residential - Dead End	700	88
MILLENIUM PLACE	LEGENDARY CIR	BELLEFAIR RD	Bituminous Concrete	Residential - Thru Street	523	89
MOHEGAN LANE	BONWIT RD	LATONIA RD	Bituminous Concrete	Residential - Thru Street	789	82
MOHEGAN LANE	LATONIA RD	CUL DE SAC LOOP	Bituminous Concrete	Residential - Dead End	1,441	66

Pavement Inventory Report

Street Name	From Segment	End Segment	Pavement Type	Pavement Class	Length	PCI
NEUTON AVENUE	RIDGE ST SOUTH	VILLAGE LINE	Bituminous Concrete	Residential - Thru Street	1,037	100
OLD OAK ROAD	ELMHILL DR	BONWIT RD	Bituminous Concrete	Residential - Thru Street	689	100
OLD OAK ROAD	BONWIT RD	RED ROOF DR	Bituminous Concrete	Residential - Thru Street	290	86
OLD ORCHARD ROAD	BIRCH LA	250' N OF BIRCH LA	Bituminous Concrete	Residential - Thru Street	251	89
OLD ORCHARD ROAD	250' N OF BIRCH LA	BERKLEY DR W	Bituminous Concrete	Residential - Thru Street	520	88
OLD ORCHARD ROAD	BERKLEY DR W	WINDING WOOD RD	Bituminous Concrete	Residential - Thru Street	1,884	100
ORIOLE PLACE	MEADOW LARK RD	CUL DE SAC	Bituminous Concrete	Residential - Dead End	626	57
OSBORNE PLACE	BOWMAN AV	DEAD END	Bituminous Concrete	Residential - Dead End	264	99
OSBORNE PLACE WEST	OSBORNE PL	CUL DE SAC	Bituminous Concrete	Residential - Dead End	166	99
PADDOCK ROAD	WINDING WOOD RD S	WINDING WOOD RD N	Bituminous Concrete	Residential - Thru Street	1,438	100
PARKRIDGE COURT	LONGLEDGE DR	CUL DE SAC LOOP	Bituminous Concrete	Residential - Dead End	569	80
PARKWOOD PLACE	LAWRIDGE DR	CUL DE SAC	Bituminous Concrete	Residential - Dead End	509	88
PHYLLIS PLACE	SUNSET RD	JEAN LA	Bituminous Concrete	Residential - Thru Street	721	88
PINE RIDGE ROAD	LINCOLN AV SOUTH	MOHEGAN LA	Bituminous Concrete	Residential - Thru Street	787	56
PINE RIDGE ROAD	MOHEGAN LA	LACONIA RD	Bituminous Concrete	Residential - Thru Street	1,016	67
RED ROOF DRIVE	CUL DE SAC W	CUL DE SAC E	Bituminous Concrete	Residential - Dead End	1,281	84
REUNION ROAD	BELLEFAIR BLVD	DEAD END (GATE)	Bituminous Concrete	Residential - Dead End	841	86
RIDGE BOULEVARD	RIDGE ST NORTH	TOENLINE	Bituminous Concrete	Residential - Thru Street	1,029	54
RIDGE BOULEVARD (WB)	WINDSOR RD	RIDGE ST NORTH	Bituminous Concrete	Residential - Thru Street	970	54
ROANOKE AVENUE (NORTI	DIXON ST	72' N OF WESTVIEW AV	Bituminous Concrete	Residential - Thru Street	964	82
ROANOKE AVENUE (NORTI	72' N OF WESTVIEW AV	PARKING LOT	Bituminous Concrete	Residential - Thru Street	58	54
ROANOKE AVENUE (SOUTH	WYMAN ST	DEAD END	Bituminous Concrete	Residential - Thru Street	318	89
ROBINS ROOST	MEADOWLARK RD	CUL DE SAC LOOP	Bituminous Concrete	Residential - Dead End	248	79
ROCK RIDGE DRIVE	ACKER DR	ROCK RIDGE DR EXT	Bituminous Concrete	Residential - Thru Street	1,375	57
ROCK RIDGE DRIVE	ROCK RIDGE DR EXT	800' W OF RICK RIDGE DR EXT	Bituminous Concrete	Residential - Thru Street	800	79
ROCK RIDGE DRIVE	800' W OF RICK RIDGE DR EXT	BOBBIE LA	Bituminous Concrete	Residential - Thru Street	525	67
ROCK RIDGE DRIVE	BOBBIE LA	CUL DE SAC	Bituminous Concrete	Residential - Thru Street	567	54
ROCK RIDGE DRIVE EXT	ROCK RIDGE DR	BLUEBIRD HOLLOW	Bituminous Concrete	Residential - Thru Street	152	77
ROCKINGHORSE TRAIL	RIDGE ST NORTH	DEAD END	Bituminous Concrete	Residential - Thru Street	1,940	70
ROCKINGHORSE TRAIL Y-II	ROCKINGHORSE TR	RIDGE ST NORTH	Bituminous Concrete	Residential - Thru Street	119	99
SLEEPY HOLLOW ROAD	RIDGE ST NORTH	DORCHESTER DR	Bituminous Concrete	Residential - Thru Street	1,070	99
SUNSET ROAD	BROOK LA	LINCOLN AV SOUTH	Bituminous Concrete	Residential - Thru Street	873	88
SYLVAN ROAD	BETSY BROWN RD	CANDY LA	Bituminous Concrete	Residential - Thru Street	264	88
TALCOTT ROAD	LINCOLN AV SOUTH	1300' W OF LINCOLN AV SOUTH	Bituminous Concrete	Residential - Thru Street	1,300	55
TALCOTT ROAD	1300' W OF LINCOLN AV SOUTH	BONWIT RD	Bituminous Concrete	Residential - Thru Street	1,271	55
TAMARACK ROAD	NEUTON AV	RIDGE BLVD	Bituminous Concrete	Residential - Thru Street	1,316	100
TAMARACK ROAD	RIDGE BLVD	ARGYLE RD	Bituminous Concrete	Residential - Thru Street	1,168	89
TERRACE COURT	JENNIFER LA	CUL DE SAC	Bituminous Concrete	Residential - Dead End	544	82
VALLEY TERRACE	NEUTON AVE	RIDGE BLVD	Bituminous Concrete	Residential - Thru Street	1,074	100
VALLEY TERRACE	RIDGE BLVD	ARGYLE RD	Bituminous Concrete	Residential - Thru Street	1,369	94

Pavement Inventory Report

Street Name	From Segment	End Segment	Pavement Type	Pavement Class	Length	PCI
VALLEY TERRACE	NAUTON AB	DEAD END	Bituminous Concrete	Residential - Dead End	345	79
WEST RIDGE DRIVE	RIDGE ST N	OLD ORCHARD RD	Bituminous Concrete	Residential - Thru Street	438	54
WEST STREET	GRANT ST	TOWNLINE	Bituminous Concrete	Residential - Thru Street	352	60
WEST WILLIAM STREET	RISGE ST SOUTH	VILLAGE LINE	Bituminous Concrete	Residential - Thru Street	514	65
WESTERLEIGH COURT	WESTERLEUGHT RD	CUL DE SAC	Bituminous Concrete	Residential - Dead End	247	57
WESTERLEIGH ROAD	LINCOLN AV EXT	WESTERLEIGH CT	Bituminous Concrete	Residential - Thru Street	179	59
WESTERLEIGH ROAD	WESTERLEIGH CT	280' W OF WESTERLEIGH CT	Bituminous Concrete	Residential - Thru Street	102	100
WESTVIEW AVENUE	DIXON ST	ROANOKE AV SOUTH	Bituminous Concrete	Residential - Thru Street	813	87
WHIPPORWILL ROAD	FAIRLAWN PKWY	COUNTRY RIDGE DR	Bituminous Concrete	Residential - Thru Street	938	82
WHITTEMORE PLACE	WOODLAND AV	IRENHYL AV	Bituminous Concrete	Residential - Thru Street	531	100
WILTON CIRCLE	WILTON RD	CUL DE SAC	Bituminous Concrete	Residential - Dead End	130	78
WILTON ROAD	DEAD END S	DEAD END N	Bituminous Concrete	Residential - Dead End	1,344	62
WINDINGWOOD ROAD	OLD ORCHARD RD	CHURCHILL RD (S)	Bituminous Concrete	Residential - Thru Street	721	56
WINDINGWOOD ROAD	CHURCHILL RD (S)	CHURCHILL RD (N)	Bituminous Concrete	Residential - Thru Street	2,180	64
WINDINGWOOD ROAD	CHURCHILL RD (N)	RIDGE ST NORTH	Bituminous Concrete	Residential - Thru Street	1,101	55
WINDSOR ROAD	COLLEGE AV	RIDGE BLVD	Bituminous Concrete	Residential - Thru Street	663	82
WINDSOR ROAD	RIDGE BLVD	ARGYLE RD	Bituminous Concrete	Residential - Thru Street	1,111	99
WINTHROP DRIVE	BERKLEY DR W	OLD ORCHARD RD	Bituminous Concrete	Residential - Thru Street	997	55
WOODLAND AVENUE	IRENHYL AV	VILLAGE LINE	Bituminous Concrete	Residential - Thru Street	1,129	100
WOODLAND DRIVE	BEECHWOOD CIR	300' S OF BEECHWOOD CIR	Bituminous Concrete	Residential - Thru Street	300	57
WOODLAND DRIVE	300' S OF BEECHWOOD CIR	1217' S OF BEECHWOOD CIR	Bituminous Concrete	Residential - Thru Street	917	75
WOODLAND DRIVE	1217' S OF BEECHWOOD CIR	710' W OF BEECHWOOD BLVD	Bituminous Concrete	Residential - Thru Street	974	61
WOODLAND DRIVE	1217' S OF BEECHWOOD CIR	710' W OF BEECHWOOD BLVD	Bituminous Concrete	Residential - Thru Street	709	56
WOODLAND DRIVE Y-INTE	WOODLAND DR	BEECHWOOD CIR	Bituminous Concrete	Residential - Thru Street	103	80
WYMAN STREET	RIDGE ST NORTH	DEAD END	Bituminous Concrete	Residential - Dead End	888	75
WYMAN STREET NORTH	WYMAN ST	216' N OF WYMAN ST	Bituminous Concrete	Residential - Dead End	216	82
WYMAN STREET NORTH	216' N OF WYMAN ST	PARKING LOT	Bituminous Concrete	Residential - Dead End	119	67

Appendix C

Total Backlog of Work

Every pavement segment, except for those that have very recently been repaved, requires some sort of maintenance. Listed here are the repairs that RoadManager GPMS™ has suggested for each pavement segment. The recommendations of RoadManager GPMS™ are based upon pavement type, pavement condition, pavement class, and average curb reveal. These recommendations, therefore, are generally accurate but do not account for details that could suggest a different approach. This list is provided as a reference only: it is not and should not be mistaken for a list of roadway projects.

Scenario Results Report

ScenarioName: **2007 Backlog**

Street Name	From Segment	To Segment	Length	Repaired PCI	Repair Alternative	Repair Cost	Benefit Value
ACKER DRIVE	KNOLLWOOD DR	ROCK RIDGE DR	171	99	Crackseal or Patch	$ 795	74
ACKER DRIVE	RICK RIDGE DR	ARLINGTON PL	437	99	Mill and Pave - Local	$ 15,676	33
ANDERSON HILL ROAI	NEW YORK STATE LINE	440 FT WEST OF GOLF CO	2,271	99	Thin Overlay or Surface Treatmen	$ 28,286	83
ANDERSON HILL ROAI	440 FT WEST OF GOLF CO	VILLAGE LINE	844	99	Mill and Pave - Arterial	$ 35,022	28
ARGYLE ROAD	RIDGE ST NORTH	TOWNLINE	1,130	99	Mill and Pave - Local	$ 42,023	36
ARLINGTON PLACE	ACKER DR	CONCORD PL	636	99	Mill and Pave - Local	$ 22,808	40
BARBER PLACE	FRANKLIN ST	BOWMAN AV	406	99	Crackseal or Patch	$ 1,280	74
BEACON LANE	WILTON RD	DEAD END	1,113	99	Thin Overlay or Surface Treatmen	$ 12,751	9
BEECHWOOD CIRCLE	LOCH LA	LOCH LA	751	99	Mill and Pave - Local	$ 29,922	34
BELL PLACE	WILTON RD	CUL DE SAC	503	99	Thin Overlay or Surface Treatmen	$ 6,090	8
BELLEFAIR BOULEVAI	KING ST NORTH	TOP END OF LOOP (W)	1,726	99	Crackseal or Patch	$ 5,161	74
BELLEFAIR BOULEVAI	TOP END OF LOOP (E)	KING ST NORTH	1,688	99	Crackseal or Patch	$ 5,047	75
BELLEFAIR ROAD	BELLEFAIR BLVD	FELLOWSHIP LA	1,927	99	Thin Overlay or Surface Treatmen	$ 23,037	8
BELLEFAIR ROAD	FELLOWSHIP LA	CUL DE SAC	1,669	99	Crackseal or Patch	$ 7,451	19
BERKELEY DRIVE (EA	OLD ORCHARD RD	RIDGE ST N	645	99	Mill and Pave - Local	$ 23,134	33
BERKELEY DRIVE (WE	LATONIA RD	OLD ORCHARD RD	1,222	99	Mill and Pave - Local	$ 43,844	38
BERKELEY LANE	BERKLEY DR EXT	CUL DE SAC	420	99	Mill and Pave - Local	$ 22,815	8
BETSY BROWN ROAD	VILLAGE LINE	30' E OF CANDY LANE	814	99	Mill and Pave - Arterial	$ 48,667	59
BETSY BROWN ROAD	30' E OF CANDY LANE	RIDGE ST NORTH	579	99	Mill and Pave - Arterial	$ 34,623	59
BETSY BROWN ROAD	RIDGE ST NORTH	PARK	1,392	99	Mill and Pave - Local	$ 66,589	49
BISHOP DRIVE NORTH	KING ST NORTH	VILLAGE LINE	216	99	Mill and Pave - Local	$ 7,455	32
BISHOP DRIVE SOUTH	KING ST SOUTH	VILLAGE LINE	421	99	Mill and Pave - Local	$ 14,546	33
BLUEBIRD HOLLOW	ROCK RIDGE DR EXT	MEADOWLARK RD	205	99	Crackseal or Patch	$ 951	76
BOBBIE LANE	RIDGE ST N	ROCKRIDGE DR	1,197	99	Mill and Pave - Local	$ 42,940	45
BOLTON PLACE	COMLY AV	VILLAGE LINE	159	99	Thin Overlay or Surface Treatmen	$ 2,221	8
BONWIT ROAD	MOHEGAN LA	650' S OF MOHEGAN LA	651	99	Mill and Pave - Local	$ 23,346	33
BONWIT ROAD	650' S OF MOHEGAN LA	TALCOTT RD	1,086	99	Thin Overlay or Surface Treatmen	$ 14,604	33
BONWIT ROAD	TALCOTT RD	OLD OAK RD	1,019	99	Mill and Pave - Local	$ 36,543	32
BROOKSIDE WAY	LINCOLN AV SOUTH	CUL DE SAC LOOP	452	99	Thin Overlay or Surface Treatmen	$ 6,080	8
CANDY LANE	BETSY BROWN RD	SYLVAN RD	698	99	Thin Overlay or Surface Treatmen	$ 9,039	35
CARLTON LANE	BONWIT RD N	BONWIT RD S	812	99	Crackseal or Patch	$ 3,642	74

Scenario Results Report

ScenarioName: **2007 Backlog**

Street Name	From Segment	To Segment	Length	Repaired PCI	Repair Alternative	Repair Cost	Benefit Value
CASTLE LANDING	COMLY AV	VILLAGE LINE	283	99	Thin Overlay or Surface Treatmen	$ 3,949	8
CASTLE VIEW COURT	COMLY AV	CUL DE SAC	326	99	Thin Overlay or Surface Treatmen	$ 5,445	8
CHARLES LANE	MARK DR	CUL DE SAC LOOP	790	99	Mill and Pave - Local	$ 28,343	9
CHURCHILL ROAD	WINDING WOOD RD S	WINDING WOOD RD N	1,277	99	Mill and Pave - Local	$ 42,426	44
CHURCHILL ROAD Y-II	WINDING WOOD RD	CHURCHILL RD	101	99	Mill and Pave - Local	$ 2,678	42
COMLY AVENUE	KING ST SOUTH	VILLAGE LINE	1,329	99	Mill and Pave - Arterial	$ 56,283	77
CONCORD PLACE	ARLINGTON PL	ACKER DR	429	99	Thin Overlay or Surface Treatmen	$ 5,766	32
COUNTRY RIDGE CIRC	COUNTRY RIDGE DR W	COUNTRY RIDGE DR E	1,495	99	Thin Overlay or Surface Treatmen	$ 18,624	32
COUNTRY RIDGE CLOS	COUNRTY RIDGE DR	CUL DE SAC	102	99	Crackseal or Patch	$ 770	19
COUNTRY RIDGE DRIV	ROCKINGHORSE TR S	ROCKINGHORSE TR N	2,564	99	Thin Overlay or Surface Treatmen	$ 33,846	34
COUNTRY RIDGE DRIV	FAIRLAWN PKWY W	HOLLY LANE	1,611	99	Mill and Pave - Local	$ 57,784	35
COUNTRY RIDGE DRIV	HOLLY LANE	FAIRLAWN PKWY E	1,322	99	Mill and Pave - Local	$ 47,424	35
COUNTRY RIDGE DRIV	COUNTRY RIDGE DR	CUL DE SAC	94	99	Mill and Pave - Local	$ 8,594	8
CRESCENT PLACE	RIDGE ST NORTH	HIGHVIEW AV NORTH	246	99	Thin Overlay or Surface Treatmen	$ 3,191	34
CROSSWAY DRIVE	PADDOCK RD	OLD ORCHARD RD	351	99	Mill and Pave - Local	$ 10,723	43
DEER RUN	LINCOLN AV SOUTH	CUL DE SAC	777	99	Thin Overlay or Surface Treatmen	$ 11,531	9
DIVISION STREET	BOWMAN AV	WESTCHESTER AV	661	99	Thin Overlay or Surface Treatmen	$ 7,571	34
DIXON STREET	RIDGE ST SOUTH	HIGHVIEW AV SOUTH	262	99	Thin Overlay or Surface Treatmen	$ 3,387	35
DIXON STREET	HIGHVIEW AV SOUTH	ROANOKE AV	246	99	Crackseal or Patch	$ 1,061	75
EAGLES BLUFF	MEADOWLARK RD	CUL DE SAC LOOP	970	99	Thin Overlay or Surface Treatmen	$ 13,043	9
EDGEWOOD DRIVE	BEECHWOOD CIR	CUL DE SAC	913	99	Mill and Pave - Local	$ 33,942	13
ELLENDALE AVENUE	RISGE ST SOUTH	VILLAGE LINE	612	99	Mill and Pave - Local	$ 23,580	42
ELM HILL DRIVE	BONWIT RD	OLD OAK RD	1,391	99	Mill and Pave - Local	$ 49,881	45
FAIRLAWN PARKWAY	RIDGE ST NORTH	COUNTRY RIDGE DR	1,510	99	Mill and Pave - Local	$ 72,200	33
FELLOWSHIP LANE	BELLEFAIR RD S	BELLEFAIR RD N	889	99	Crackseal or Patch	$ 2,954	74
FRANKLIN STREET	RIDGE ST SOUTH	VILLAGE LINE	715	99	Crackseal or Patch	$ 3,324	75
GARIBALDI PLACE	RIDGE ST SOUTH	WEST ST	629	99	Mill and Pave - Local	$ 22,571	39
GRANT STREET	DEAD END	VILLAGE LINE	335	99	Thin Overlay or Surface Treatmen	$ 4,669	8
GREENHOUSE CIRCLE	BONWIT RD	CUL DE SAC LOOP	383	99	Crackseal or Patch	$ 1,654	19
HAWTHORNE AVENUE	WESTCHESTER AV	RIDGE ST NORTH	1,600	99	Crackseal or Patch	$ 7,970	75
HAWTHORNE AVENUE	HAWTHORN AV	WESTCHESTER AV	173	99	Crackseal or Patch	$ 633	74

Scenario Results Report

ScenarioName: **2007 Backlog**

Street Name	From Segment	To Segment	Length	Repaired PCI	Repair Alternative	Repair Cost	Benefit Value
HIDDEN POND DRIVE	LONGLEDGE DR	CUL DE SAC LOOP	1,146	99	Crackseal or Patch	$ 4,568	19
HIGH POINT CIRCLE	BELLEVFAIR BLVD	BELLEVFAIR BLVD	2,593	99	Crackseal or Patch	$ 10,335	74
HIGH STREET	RIDGE ST SOUTH	VILLAGE LINE	1,183	99	Crackseal or Patch	$ 5,895	74
HIGHVIEW AVENUE (N	CRESCENT PL	DIXON ST	455	99	Thin Overlay or Surface Treatmen	$ 5,899	9
HIGHVIEW AVENUE (N	DIXON ST	DEAD END	222	99	Mill and Pave - Local	$ 7,664	11
HIGHVIEW AVENUE (S	WYMAN ST	DEAD END	194	99	Crackseal or Patch	$ 806	19
HILLANDALE ROAD	BEECHWOOD CIR	1250' N OF BEECHWOOD C	1,250	99	Mill and Pave - Local	$ 45,686	46
HILLANDALE ROAD	1250' N OF BEECHWOOD (	KING ST SOUTH	1,270	99	Mill and Pave - Local	$ 46,413	46
HOLLY LANE	FAIRLAWN PARKWAY	COUNTRY RIDGE DR	1,246	99	Mill and Pave - Local	$ 46,364	37
HUNTER DRIVE	PINE RIDGE RD	LATONIA RD	577	99	Mill and Pave - Local	$ 20,681	44
JACQUELINE LANE	ROCK RIDGE DR	CUL DE SAC LOOP	440	99	Mill and Pave - Local	$ 15,780	10
JEAN LANE	SUNSET RD	PHYLLIS PL	970	99	Crackseal or Patch	$ 3,544	75
JENNIFER LANE	LINCOLN AV S	BEACON LA	1,101	99	Mill and Pave - Local	$ 36,567	45
LATONIA ROAD	MOHEGAN LA	WINDING WOOD RD S	1,216	99	Thin Overlay or Surface Treatmen	$ 16,962	36
LATONIA ROAD	WINDING WOOD RD S	WINDING WOOD RD N	814	99	Mill and Pave - Local	$ 27,037	37
LAWRIDGE DRIVE	SLEEPY HOLLOW RD	BOXWOOD PL	1,609	99	Thin Overlay or Surface Treatmen	$ 21,649	33
LAWRIDGE DRIVE LOC	LAWRIDGE DR S	LAWRIDGE DR N	189	99	Thin Overlay or Surface Treatmen	$ 3,575	33
LEE LANE	JENNIFER LA	CUL DE SAC	351	99	Thin Overlay or Surface Treatmen	$ 4,020	9
LEGENDARY CIRCLE	BELLEFAIR BLVD S	BELLEFAIR BLVD N	1,283	99	Thin Overlay or Surface Treatmen	$ 14,703	31
LINCOLN AVENUE SOU	WESTCHESTER AV	SUNSET RD	436	99	Crackseal or Patch	$ 2,605	192
LINCOLN AVENUE SOU	SUNSET RD	JENNIFER LA	1,376	99	Thin Overlay or Surface Treatmen	$ 22,615	90
LINCOLN AVENUE SOU	TALCOTT RD	300' S OF PINE RIDGE RD	894	99	Crackseal or Patch	$ 3,712	184
LINCOLN AVENUE SOU	300' S OF PINE RIDGE RD	PINE RIDGE RD	299	99	Crackseal or Patch	$ 1,240	184
LINCOLN AVENUE SOU	PINE RIDGE RD	VILLAGE LINE	838	99	Crackseal or Patch	$ 3,478	184
LITTLE KINGS LANE	KING ST SOUTH	CUL DE SAC	467	99	Mill and Pave - Local	$ 24,103	10
LOCH LANE	BEECHWOOD CIRCLE	KING ST SOUTH	1,010	99	Mill and Pave - Local	$ 37,588	54
LONGLEDGE DRIVE	RIDGE ST NORTH	PARK RIDGE CT	1,810	99	Thin Overlay or Surface Treatmen	$ 21,643	8
LONGLEDGE DRIVE	PARK RIDGE CT	CUL DE SAC LOOP	561	99	Thin Overlay or Surface Treatmen	$ 6,712	8
LONGLEDGE DRIVE EX	LONGLEDGE DR	DEAD END	231	99	Thin Overlay or Surface Treatmen	$ 1,842	8
MAGNOLIA DRIVE	KING ST SOUTH	COMLY AV	1,287	99	Mill and Pave - Local	$ 47,878	42
MAPLE COURT	BEACON LA	CUL DE SAC	511	99	Thin Overlay or Surface Treatmen	$ 6,348	8

Scenario Results Report

ScenarioName: **2007 Backlog**

Street Name	From Segment	To Segment	Length	Repaired PCI	Repair Alternative	Repair Cost	Benefit Value
MARK DRIVE	PINE RIDGE RD	CUL DE SAC LOOP	927	99	Mill and Pave - Local	$ 33,268	10
MAYWOOD AVENUE	RIDGE ST NORTH	HILLCREST AV	953	99	Thin Overlay or Surface Treatmen	$ 16,145	33
MEADOWLARK ROAD	RIDGE ST NORTH	BLUEBIRD HOLLOW	1,412	99	Mill and Pave - Local	$ 50,645	48
MEADOWLARK ROAD	BLUEBIRD HOLLOW	CUL DE SAC	1,587	99	Mill and Pave - Local	$ 65,599	46
MILESTONE ROAD	REUNION RD	CUL DE SAC	700	99	Crackseal or Patch	$ 3,486	19
MILLENIUM PLACE	LEGENDARY CIR	BELLEFAIR RD	523	99	Crackseal or Patch	$ 2,083	74
MOHEGAN LANE	BONWIT RD	LATONIA RD	789	99	Mill and Pave - Local	$ 28,311	30
MOHEGAN LANE	LATONIA RD	CUL DE SAC LOOP	1,441	99	Mill and Pave - Local	$ 51,689	9
OLD OAK ROAD	BONWIT RD	RED ROOF DR	290	99	Crackseal or Patch	$ 1,299	77
OLD ORCHARD ROAD	BIRCH LA	250' N OF BIRCH LA	251	99	Crackseal or Patch	$ 1,082	74
OLD ORCHARD ROAD	250' N OF BIRCH LA	BERKLEY DR W	520	99	Crackseal or Patch	$ 2,243	75
ORIOLE PLACE	MEADOW LARK RD	CUL DE SAC	626	99	Mill and Pave - Local	$ 22,438	11
PARKRIDGE COURT	LONGLEDGE DR	CUL DE SAC LOOP	569	99	Thin Overlay or Surface Treatmen	$ 6,524	8
PARKWOOD PLACE	LAWRIDGE DR	CUL DE SAC	509	99	Crackseal or Patch	$ 2,832	19
PHYLLIS PLACE	SUNSET RD	JEAN LA	721	99	Crackseal or Patch	$ 2,634	75
PINE RIDGE ROAD	LINCOLN AV SOUTH	MOHEGAN LA	787	99	Mill and Pave - Local	$ 28,225	45
PINE RIDGE ROAD	MOHEGAN LA	LACONIA RD	1,016	99	Mill and Pave - Local	$ 36,436	37
RED ROOF DRIVE	CUL DE SAC W	CUL DE SAC E	1,281	99	Thin Overlay or Surface Treatmen	$ 23,689	8
REUNION ROAD	BELLEFAIR BLVD	DEAD END (GATE)	841	99	Crackseal or Patch	$ 3,352	19
RIDGE BOULEVARD	RIDGE ST NORTH	TOENLINE	1,029	99	Mill and Pave - Local	$ 30,066	46
RIDGE BOULEVARD (W	WINDSOR RD	RIDGE ST NORTH	970	99	Mill and Pave - Local	$ 28,347	46
ROANOKE AVENUE (N	DIXON ST	72' N OF WESTVIEW AV	964	99	Thin Overlay or Surface Treatmen	$ 12,485	32
ROANOKE AVENUE (N	72' N OF WESTVIEW AV	PARKING LOT	58	99	Mill and Pave - Local	$ 2,070	46
ROANOKE AVENUE (S	WYMAN ST	DEAD END	318	99	Crackseal or Patch	$ 1,321	74
ROBINS ROOST	MEADOWLARK RD	CUL DE SAC LOOP	248	99	Mill and Pave - Local	$ 8,577	8
ROCK RIDGE DRIVE	ACKER DR	ROCK RIDGE DR EXT	1,375	99	Mill and Pave - Local	$ 52,975	44
ROCK RIDGE DRIVE	ROCK RIDGE DR EXT	800' W OF RICK RIDGE DR	800	99	Mill and Pave - Local	$ 28,705	32
ROCK RIDGE DRIVE	800' W OF RICK RIDGE DR	BOBBIE LA	525	99	Mill and Pave - Local	$ 19,531	37
ROCK RIDGE DRIVE	BOBBIE LA	CUL DE SAC	567	99	Mill and Pave - Local	$ 22,262	46
ROCK RIDGE DRIVE EX	ROCK RIDGE DR	BLUEBIRD HOLLOW	152	99	Mill and Pave - Local	$ 5,453	32
ROCKINGHORSE TRAI	RIDGE ST NORTH	DEAD END	1,940	99	Mill and Pave - Local	$ 92,771	36

Scenario Results Report

ScenarioName: **2007 Backlog**

Street Name	From Segment	To Segment	Length	Repaired PCI	Repair Alternative	Repair Cost	Benefit Value
SUNSET ROAD	BROOK LA	LINCOLN AV SOUTH	873	99	Crackseal or Patch	$ 3,190	75
SYLVAN ROAD	BETSY BROWN RD	CANDY LA	264	99	Crackseal or Patch	$ 1,007	75
TALCOTT ROAD	LINCOLN AV SOUTH	1300' W OF LINCOLN AV S	1,300	99	Mill and Pave - Local	$ 48,373	45
TALCOTT ROAD	1300' W OF LINCOLN AV S	BONWIT RD	1,271	99	Mill and Pave - Local	$ 47,278	45
TAMARACK ROAD	RIDGE BLVD	ARGYLE RD	1,168	99	Crackseal or Patch	$ 5,238	74
TERRACE COURT	JENNIFER LA	CUL DE SAC	544	99	Thin Overlay or Surface Treatmen	$ 5,964	8
VALLEY TERRACE	NAUTON AB	DEAD END	345	99	Thin Overlay or Surface Treatmen	$ 4,121	8
WEST RIDGE DRIVE	RIDGE ST N	OLD ORCHARD RD	438	99	Mill and Pave - Local	$ 17,450	46
WEST STREET	GRANT ST	TOWNLINE	352	99	Mill and Pave - Local	$ 12,624	42
WEST WILLIAM STREE	RISGE ST SOUTH	VILLAGE LINE	514	99	Mill and Pave - Local	$ 20,479	38
WESTERLEIGH COURT	WESTERLEUGHT RD	CUL DE SAC	247	99	Mill and Pave - Local	$ 13,446	11
WESTERLEIGH ROAD	LINCOLN AV EXT	WESTERLEIGH CT	179	99	Mill and Pave - Local	$ 6,190	42
WESTVIEW AVENUE	DIXON ST	ROANOKE AV SOUTH	813	99	Crackseal or Patch	$ 3,510	76
WHIPPORWILL ROAD	FAIRLAWN PKWY	COUNTRY RIDGE DR	938	99	Thin Overlay or Surface Treatmen	$ 12,620	32
WILTON CIRCLE	WILTON RD	CUL DE SAC	130	99	Thin Overlay or Surface Treatmen	$ 1,422	9
WILTON ROAD	DEAD END S	DEAD END N	1,344	99	Mill and Pave - Local	$ 39,276	10
WINDINGWOOD ROAD	OLD ORCHARD RD	CHURCHILL RD (S)	721	99	Mill and Pave - Local	$ 22,990	45
WINDINGWOOD ROAD	CHURCHILL RD (S)	CHURCHILL RD (N)	2,180	99	Mill and Pave - Local	$ 69,510	39
WINDINGWOOD ROAD	CHURCHILL RD (N)	RIDGE ST NORTH	1,101	99	Mill and Pave - Local	$ 35,104	45
WINDSOR ROAD	COLLEGE AV	RIDGE BLVD	663	99	Thin Overlay or Surface Treatmen	$ 9,577	32
WINTHROP DRIVE	BERKLEY DR W	OLD ORCHARD RD	997	99	Mill and Pave - Local	$ 35,779	45
WOODLAND DRIVE	BEECHWOOD CIR	300' S OF BEECHWOOD CI	300	99	Mill and Pave - Local	$ 11,153	44
WOODLAND DRIVE	300' S OF BEECHWOOD CI	1217' S OF BEECHWOOD C	917	99	Thin Overlay or Surface Treatmen	$ 12,798	35
WOODLAND DRIVE	1217' S OF BEECHWOOD C	710' W OF BEECHWOOD BI	974	99	Mill and Pave - Local	$ 36,230	41
WOODLAND DRIVE	1217' S OF BEECHWOOD C	710' W OF BEECHWOOD BI	709	99	Mill and Pave - Local	$ 22,621	45
WOODLAND DRIVE Y-I	WOODLAND DR	BEECHWOOD CIR	103	99	Thin Overlay or Surface Treatmen	$ 1,028	33
WYMAN STREET	RIDGE ST NORTH	DEAD END	888	99	Mill and Pave - Local	$ 27,123	8
WYMAN STREET NORT	WYMAN ST	216' N OF WYMAN ST	216	99	Mill and Pave - Local	$ 6,897	8
WYMAN STREET NORT	216' N OF WYMAN ST	PARKING LOT	119	99	Mill and Pave - Local	$ 3,791	9
2007 Backlog			**124,762**			**$ 2,963,447**	

Scenario Results Report

ScenarioName: **2007 Backlog**

Street Name	From Segment	To Segment	Length	Repaired PCI	Repair Alternative	Repair Cost	Benefit Value

Appendix D

Pavement Plan and Budget

A Pavement Plan and Budget report provides the repair recommendations generated by RoadManager GPMS™ for a specified budget. The report includes only those roads that can be fit into the proposed budget. For this report, the proposed budget of $500,000/year was used.

As with the total repair backlog report, the recommendations of RoadManager GPMS™ are based upon pavement type, pavement condition, pavement class, and average curb reveal. These recommendations are generally accurate but do not account for details that could suggest a different approach. Therefore, this list is provided as a reference only: it is not and should not be mistaken for a list of specific roadway projects. Rather, this report is meant to provide guidance as to which streets to repair and what sort of repairs should be considered for these streets.

Appendix D: Pavement Plan and Budget Report

ScenarioName: **2007 $500,000/Year**

Street Name	From Segment	To Segment	Length	Repaired PCI	Repair Alternative	Repair Cost	Benefit Value
6/29/2008							
ACKER DRIVE	KNOLLWOOD DR	ROCK RIDGE DR	171	99	Crackseal or Patch	$ 818	76
ANDERSON HILL ROAI	NEW YORK STATE LINE	440 FT WEST OF GOLF COI	2,271	99	Thin Overlay or Surface Treatmen	$ 29,084	89
BEECHWOOD BOULEV	BEECHWOOD CIR	VILLAGE LINE	983	99	Crackseal or Patch	$ 3,358	72
BETSY BROWN ROAD	VILLAGE LINE	30' E OF CANDY LANE	814	99	Mill and Pave - Arterial	$ 50,040	63
BETSY BROWN ROAD	RIDGE ST NORTH	PARK	1,392	99	Mill and Pave - Local	$ 68,467	52
BROOK LANE	WESTCHESTER AV	PHYLLIS PL	1,248	99	Crackseal or Patch	$ 4,688	74
COMLY AVENUE	KING ST SOUTH	VILLAGE LINE	1,329	99	Mill and Pave - Arterial	$ 57,870	83
DORCHESTER DRIVE	ROCKINGHORSE TR	COUNTRY RIDGE DR	1,332	99	Crackseal or Patch	$ 6,140	72
HAWTHORNE AVENUE	HAWTHORN AV	WESTCHESTER AV	173	99	Crackseal or Patch	$ 651	76
HIGH STREET	RIDGE ST SOUTH	VILLAGE LINE	1,183	99	Crackseal or Patch	$ 6,061	76
HILLCREST AVENUE	WOODLAND AV	NEUTON AV	1,380	99	Crackseal or Patch	$ 7,068	72
KNOLLWOOD DRIVE	BETSY BROWN RD	ACKER DR	748	99	Crackseal or Patch	$ 3,193	72
LEGENDARY CIRCLE E	LEGENDARY CIR S	LEGENDARY CIR N	185	99	Crackseal or Patch	$ 696	73
LINCOLN AVENUE SOU	WESTCHESTER AV	SUNSET RD	436	99	Thin Overlay or Surface Treatmen	$ 8,035	81
LINCOLN AVENUE SOU	SUNSET RD	JENNIFER LA	1,376	99	Mill and Pave - Arterial	$ 77,511	58
LINCOLN AVENUE SOU	JENNIFER LA	TALCOTT RD	777	99	Crackseal or Patch	$ 3,317	180
LINCOLN AVENUE SOU	TALCOTT RD	300' S OF PINE RIDGE RD	894	99	Crackseal or Patch	$ 3,817	192
LINCOLN AVENUE SOU	300' S OF PINE RIDGE RD	PINE RIDGE RD	299	99	Crackseal or Patch	$ 1,275	192
LINCOLN AVENUE SOU	PINE RIDGE RD	VILLAGE LINE	838	99	Crackseal or Patch	$ 3,576	192
LOCH LANE	BEECHWOOD CIRCLE	KING ST SOUTH	1,010	99	Mill and Pave - Local	$ 38,648	57
VALLEY TERRACE	RIDGE BLVD	ARGYLE RD	1,369	99	Crackseal or Patch	$ 6,310	73
WEST RIDGE DRIVE	RIDGE ST N	OLD ORCHARD RD	438	99	Mill and Pave - Local	$ 17,942	49
WOODLAND DRIVE Y-I	WOODLAND DR	BEECHWOOD CIR	103	99	Thin Overlay or Surface Treatmen	$ 1,057	35
			20,748			**$ 399,622**	
6/28/2009							
ELM HILL DRIVE	BONWIT RD	OLD OAK RD	1,391	99	Mill and Pave - Local	$ 53,338	51
HILLANDALE ROAD	BEECHWOOD CIR	1250' N OF BEECHWOOD C	1,250	99	Mill and Pave - Local	$ 48,852	51
JENNIFER LANE	LINCOLN AV S	BEACON LA	1,101	99	Mill and Pave - Local	$ 39,101	51
MEADOWLARK ROAD	RIDGE ST NORTH	BLUEBIRD HOLLOW	1,412	99	Mill and Pave - Local	$ 54,155	53
MEADOWLARK ROAD	BLUEBIRD HOLLOW	CUL DE SAC	1,587	99	Mill and Pave - Local	$ 70,145	51
RIDGE BOULEVARD (W	WINDSOR RD	RIDGE ST NORTH	970	99	Mill and Pave - Local	$ 30,311	51

Appendix D: Pavement Plan and Budget Report

ScenarioName: **2007 $500,000/Year**

Street Name	From Segment	To Segment	Length	Repaired PCI	Repair Alternative	Repair Cost	Benefit Value
ROANOKE AVENUE (N	72' N OF WESTVIEW AV	PARKING LOT	58	99	Mill and Pave - Local	$ 2,213	51
ROCK RIDGE DRIVE	BOBBIE LA	CUL DE SAC	567	99	Mill and Pave - Local	$ 23,805	51
TALCOTT ROAD	LINCOLN AV SOUTH	1300' W OF LINCOLN AV S	1,300	99	Mill and Pave - Local	$ 51,725	51
TALCOTT ROAD	1300' W OF LINCOLN AV S	BONWIT RD	1,271	99	Mill and Pave - Local	$ 50,554	51
WINDINGWOOD ROAD	CHURCHILL RD (N)	RIDGE ST NORTH	1,101	99	Mill and Pave - Local	$ 37,537	51
WINTHROP DRIVE	BERKLEY DR W	OLD ORCHARD RD	997	99	Mill and Pave - Local	$ 38,259	51
			13,004			**$ 499,995**	
6/27/2010							
BOBBIE LANE	RIDGE ST N	ROCKRIDGE DR	1,197	99	Mill and Pave - Local	$ 47,751	52
CHURCHILL ROAD	WINDING WOOD RD S	WINDING WOOD RD N	1,277	99	Mill and Pave - Local	$ 47,180	51
CHURCHILL ROAD Y-II	WINDING WOOD RD	CHURCHILL RD	101	99	Mill and Pave - Local	$ 2,979	49
CROSSWAY DRIVE	PADDOCK RD	OLD ORCHARD RD	351	99	Mill and Pave - Local	$ 11,924	51
HILLANDALE ROAD	1250' N OF BEECHWOOD (	KING ST SOUTH	1,270	99	Mill and Pave - Local	$ 51,613	53
HUNTER DRIVE	PINE RIDGE RD	LATONIA RD	577	99	Mill and Pave - Local	$ 22,998	51
MAGNOLIA DRIVE	KING ST SOUTH	COMLY AV	1,287	99	Mill and Pave - Local	$ 53,242	49
OLD OAK ROAD	BONWIT RD	RED ROOF DR	290	99	Thin Overlay or Surface Treatmen	$ 4,334	36
PINE RIDGE ROAD	LINCOLN AV SOUTH	MOHEGAN LA	787	99	Mill and Pave - Local	$ 31,387	52
RIDGE BOULEVARD	RIDGE ST NORTH	TOENLINE	1,029	99	Mill and Pave - Local	$ 33,434	53
ROCK RIDGE DRIVE	ACKER DR	ROCK RIDGE DR EXT	1,375	99	Mill and Pave - Local	$ 58,910	51
ROCK RIDGE DRIVE EX	ROCK RIDGE DR	BLUEBIRD HOLLOW	152	99	Mill and Pave - Local	$ 6,064	38
SYLVAN ROAD	BETSY BROWN RD	CANDY LA	264	99	Thin Overlay or Surface Treatmen	$ 3,359	35
WEST STREET	GRANT ST	TOWNLINE	352	99	Mill and Pave - Local	$ 14,038	49
WESTERLEIGH ROAD	LINCOLN AV EXT	WESTERLEIGH CT	179	99	Mill and Pave - Local	$ 6,884	50
WINDINGWOOD ROAD	OLD ORCHARD RD	CHURCHILL RD (S)	721	99	Mill and Pave - Local	$ 25,566	52
WOODLAND DRIVE	BEECHWOOD CIR	300' S OF BEECHWOOD CI	300	99	Mill and Pave - Local	$ 12,403	51
WOODLAND DRIVE	1217' S OF BEECHWOOD C	710' W OF BEECHWOOD BI	974	99	Mill and Pave - Local	$ 40,290	49
WOODLAND DRIVE	1217' S OF BEECHWOOD C	710' W OF BEECHWOOD BI	709	99	Mill and Pave - Local	$ 25,155	52
			13,191			**$ 499,510**	
6/26/2011							
ARGYLE ROAD	RIDGE ST NORTH	TOWNLINE	1,130	99	Mill and Pave - Local	$ 48,599	46
ARLINGTON PLACE	ACKER DR	CONCORD PL	636	99	Mill and Pave - Local	$ 26,377	50
BEECHWOOD CIRCLE	LOCH LA	LOCH LA	751	99	Mill and Pave - Local	$ 34,604	43

Appendix D: Pavement Plan and Budget Report

ScenarioName: **2007 $500,000/Year**

Street Name	From Segment	To Segment	Length	Repaired PCI	Repair Alternative	Repair Cost	Benefit Value
BERKELEY DRIVE (WE	LATONIA RD	OLD ORCHARD RD	1,222	99	Mill and Pave - Local	$ 50,705	49
BOXWOOD PLACE	DORCHESTER DR	FAIRLAWN PKWY	926	99	Crackseal or Patch	$ 4,800	72
COUNTRY RIDGE DRIV	ROCKINGHORSE TR N	FAIRLAWN PKWY W	1,902	99	Crackseal or Patch	$ 10,230	72
ELLENDALE AVENUE	RISGE ST SOUTH	VILLAGE LINE	612	99	Mill and Pave - Local	$ 27,270	52
GARIBALDI PLACE	RIDGE ST SOUTH	WEST ST	629	99	Mill and Pave - Local	$ 26,103	49
HOLLY LANE	FAIRLAWN PARKWAY	COUNTRY RIDGE DR	1,246	99	Mill and Pave - Local	$ 53,620	46
HORSESHOE LANE	ELM HILL DR W	ELM HILL DR E	283	99	Crackseal or Patch	$ 1,306	72
LATONIA ROAD	WINDING WOOD RD S	WINDING WOOD RD N	814	99	Mill and Pave - Local	$ 31,269	46
LINCOLN AVENUE NOI	KING ST NORTH	500' W OF KING ST N	569	99	Crackseal or Patch	$ 3,603	72
OSBORNE PLACE WES	OSBORNE PL	CUL DE SAC	166	99	Crackseal or Patch	$ 790	18
PINE RIDGE ROAD	MOHEGAN LA	LACONIA RD	1,016	99	Mill and Pave - Local	$ 42,138	47
ROCK RIDGE DRIVE	800' W OF RICK RIDGE DR	BOBBIE LA	525	99	Mill and Pave - Local	$ 22,587	47
ROCKINGHORSE TRAII	ROCKINGHORSE TR	RIDGE ST NORTH	119	99	Crackseal or Patch	$ 433	72
SLEEPY HOLLOW ROA	RIDGE ST NORTH	DORCHESTER DR	1,070	99	Crackseal or Patch	$ 5,550	72
WEST WILLIAM STREE	RISGE ST SOUTH	VILLAGE LINE	514	99	Mill and Pave - Local	$ 23,684	49
WINDINGWOOD ROAD	CHURCHILL RD (S)	CHURCHILL RD (N)	2,180	99	Mill and Pave - Local	$ 80,388	49
WINDSOR ROAD	RIDGE BLVD	ARGYLE RD	1,111	99	Crackseal or Patch	$ 5,761	72
			17,420			**$ 499,818**	
7/1/2012							
ACKER DRIVE	KNOLLWOOD DR	ROCK RIDGE DR	171	99	Crackseal or Patch	$ 956	72
ACKER DRIVE	RICK RIDGE DR	ARLINGTON PL	437	99	Mill and Pave - Local	$ 18,856	45
ANDERSON HILL ROAI	NEW YORK STATE LINE	440 FT WEST OF GOLF COI	2,271	99	Crackseal or Patch	$ 11,341	182
BEECHWOOD BOULEV	BEECHWOOD CIR	VILLAGE LINE	983	99	Crackseal or Patch	$ 3,928	72
BERKELEY DRIVE (EAS	OLD ORCHARD RD	RIDGE ST N	645	99	Mill and Pave - Local	$ 27,827	45
BETSY BROWN ROAD	VILLAGE LINE	30' E OF CANDY LANE	814	99	Crackseal or Patch	$ 5,854	182
BISHOP DRIVE NORTH	KING ST NORTH	VILLAGE LINE	216	99	Mill and Pave - Local	$ 8,967	44
BONWIT ROAD	MOHEGAN LA	650' S OF MOHEGAN LA	651	99	Mill and Pave - Local	$ 28,082	45
BROOK LANE	WESTCHESTER AV	PHYLLIS PL	1,248	99	Crackseal or Patch	$ 5,484	72
COMLY AVENUE	KING ST SOUTH	VILLAGE LINE	1,329	99	Crackseal and Patch	$ 14,668	84
COUNTRY RIDGE DRIV	HOLLY LANE	FAIRLAWN PKWY E	1,322	99	Mill and Pave - Local	$ 57,044	47
DORCHESTER DRIVE	ROCKINGHORSE TR	COUNTRY RIDGE DR	1,332	99	Crackseal or Patch	$ 7,183	72

Appendix D: Pavement Plan and Budget Report

ScenarioName: **2007 $500,000/Year**

Street Name	From Segment	To Segment	Length	Repaired PCI	Repair Alternative	Repair Cost	Benefit Value
FAIRLAWN PARKWAY	RIDGE ST NORTH	COUNTRY RIDGE DR	1,510	99	Mill and Pave - Local	$ 86,845	45
HAWTHORNE AVENUE	HAWTHORN AV	WESTCHESTER AV	173	99	Crackseal or Patch	$ 761	72
HIGH STREET	RIDGE ST SOUTH	VILLAGE LINE	1,183	99	Crackseal or Patch	$ 7,090	72
HILLCREST AVENUE	WOODLAND AV	NEUTON AV	1,380	99	Crackseal or Patch	$ 8,269	72
KNOLLWOOD DRIVE	BETSY BROWN RD	ACKER DR	748	99	Crackseal or Patch	$ 3,736	72
LATONIA ROAD	MOHEGAN LA	WINDING WOOD RD S	1,216	99	Mill and Pave - Local	$ 54,409	45
LEGENDARY CIRCLE E	LEGENDARY CIR S	LEGENDARY CIR N	185	99	Crackseal or Patch	$ 814	72
LINCOLN AVENUE SOU	WESTCHESTER AV	SUNSET RD	436	99	Crackseal or Patch	$ 3,133	182
LINCOLN AVENUE SOU	SUNSET RD	JENNIFER LA	1,376	99	Crackseal or Patch	$ 9,068	182
LINCOLN AVENUE SOU	JENNIFER LA	TALCOTT RD	777	99	Crackseal or Patch	$ 3,880	182
LINCOLN AVENUE SOU	TALCOTT RD	300' S OF PINE RIDGE RD	894	99	Crackseal or Patch	$ 4,465	182
LINCOLN AVENUE SOU	300' S OF PINE RIDGE RD	PINE RIDGE RD	299	99	Crackseal or Patch	$ 1,492	182
LINCOLN AVENUE SOU	PINE RIDGE RD	VILLAGE LINE	838	99	Crackseal or Patch	$ 4,184	182
OSBORNE PLACE	BOWMAN AV	DEAD END	264	99	Crackseal or Patch	$ 1,264	19
ROCKINGHORSE TRAII	RIDGE ST NORTH	DEAD END	1,940	99	Mill and Pave - Local	$ 111,590	48
VALLEY TERRACE	RIDGE BLVD	ARGYLE RD	1,369	99	Crackseal or Patch	$ 7,382	72
WOODLAND DRIVE Y-I	WOODLAND DR	BEECHWOOD CIR	103	99	Crackseal or Patch	$ 412	72
			26,107			**$ 498,986**	

6/30/2013

BISHOP DRIVE SOUTH	KING ST SOUTH	VILLAGE LINE	421	99	Mill and Pave - Local	$ 18,197	47
BONWIT ROAD	650' S OF MOHEGAN LA	TALCOTT RD	1,086	99	Mill and Pave - Local	$ 48,715	44
BONWIT ROAD	TALCOTT RD	OLD OAK RD	1,019	99	Mill and Pave - Local	$ 45,713	46
CANDY LANE	BETSY BROWN RD	SYLVAN RD	698	99	Mill and Pave - Local	$ 30,153	47
COUNTRY RIDGE DRIV	ROCKINGHORSE TR S	ROCKINGHORSE TR N	2,564	99	Mill and Pave - Local	$ 112,905	45
CRESCENT PLACE	RIDGE ST NORTH	HIGHVIEW AV NORTH	246	99	Mill and Pave - Local	$ 10,643	45
DIVISION STREET	BOWMAN AV	WESTCHESTER AV	661	99	Mill and Pave - Local	$ 25,256	45
DIXON STREET	RIDGE ST SOUTH	HIGHVIEW AV SOUTH	262	99	Mill and Pave - Local	$ 11,300	46
LAWRIDGE DRIVE	SLEEPY HOLLOW RD	BOXWOOD PL	1,609	99	Mill and Pave - Local	$ 72,216	44
LAWRIDGE DRIVE LOC	LAWRIDGE DR S	LAWRIDGE DR N	189	99	Mill and Pave - Local	$ 11,924	45
ROANOKE AVENUE (N	72' N OF WESTVIEW AV	PARKING LOT	58	99	Crackseal and Patch	$ 701	33
ROCK RIDGE DRIVE	ROCK RIDGE DR EXT	800' W OF RICK RIDGE DR	800	99	Mill and Pave - Local	$ 35,908	45

Appendix D: Pavement Plan and Budget Report

ScenarioName: **2007 $500,000/Year**

Street Name	From Segment	To Segment	Length	Repaired PCI	Repair Alternative	Repair Cost	Benefit Value
WINDSOR ROAD	COLLEGE AV	RIDGE BLVD	663	99	Mill and Pave - Local	$ 31,946	43
WOODLAND DRIVE	300' S OF BEECHWOOD CI	1217' S OF BEECHWOOD C	917	99	Mill and Pave - Local	$ 42,692	47
			11,191			**$ 498,271**	

6/29/2014

BELLEFAIR BOULEVAI	NORTH END OF LOOP (W	NORTH END OF LOOP (E)	656	99	Crackseal or Patch	$ 2,832	73
BETSY BROWN ROAD	30' E OF CANDY LANE	RIDGE ST NORTH	579	99	Crackseal or Patch	$ 4,504	184
BLUEBIRD HOLLOW	ROCK RIDGE DR EXT	MEADOWLARK RD	205	99	Mill and Pave - Local	$ 9,897	42
CHURCHILL ROAD Y-II	WINDING WOOD RD	CHURCHILL RD	101	99	Crackseal and Patch	$ 944	33
COLLEGE AVENUE	TAMARACK RD	VILLAGE LINE	414	99	Crackseal or Patch	$ 3,402	73
CONCORD PLACE	ARLINGTON PL	ACKER DR	429	99	Mill and Pave - Local	$ 20,002	44
COUNTRY RIDGE CIRC	COUNTRY RIDGE DR W	COUNTRY RIDGE DR E	1,495	99	Mill and Pave - Local	$ 64,609	45
COUNTRY RIDGE DRIV	FAIRLAWN PKWY W	HOLLY LANE	1,611	99	Crackseal or Patch	$ 9,397	72
ELM HILL DRIVE	OLD OAK RD	BETSY BROWN RD	210	99	Crackseal or Patch	$ 1,227	73
HUNTER DRIVE	PINE RIDGE RD	LATONIA RD	577	99	Crackseal or Patch	$ 3,363	72
IRENHYL AVENUE	HAWTHORNE AV	VILLAGE LINE	1,081	99	Crackseal or Patch	$ 7,009	73
LEGENDARY CIRCLE	BELLEFAIR BLVD S	BELLEFAIR BLVD N	1,283	99	Mill and Pave - Local	$ 51,009	43
MAGNOLIA DRIVE	KING ST SOUTH	COMLY AV	1,287	99	Crackseal or Patch	$ 7,786	72
MAYWOOD AVENUE	RIDGE ST NORTH	HILLCREST AV	953	99	Mill and Pave - Local	$ 56,011	47
MOHEGAN LANE	BONWIT RD	LATONIA RD	789	99	Mill and Pave - Local	$ 36,830	45
NEUTON AVENUE	RIDGE ST SOUTH	VILLAGE LINE	1,037	99	Crackseal or Patch	$ 8,517	73
OLD OAK ROAD	ELMHILL DR	BONWIT RD	689	99	Crackseal or Patch	$ 4,018	73
OLD OAK ROAD	BONWIT RD	RED ROOF DR	290	99	Crackseal or Patch	$ 1,690	72
OLD ORCHARD ROAD	BERKLEY DR W	WINDING WOOD RD	1,884	99	Crackseal or Patch	$ 9,363	73
PADDOCK ROAD	WINDING WOOD RD S	WINDING WOOD RD N	1,438	99	Crackseal or Patch	$ 7,769	73
ROANOKE AVENUE (N	DIXON ST	72' N OF WESTVIEW AV	964	99	Mill and Pave - Local	$ 43,313	45
ROCK RIDGE DRIVE EX	ROCK RIDGE DR	BLUEBIRD HOLLOW	152	99	Crackseal or Patch	$ 887	72
SUNSET ROAD	BROOK LA	LINCOLN AV SOUTH	873	99	Mill and Pave - Local	$ 33,196	41
SYLVAN ROAD	BETSY BROWN RD	CANDY LA	264	99	Crackseal or Patch	$ 1,310	72
TAMARACK ROAD	NEUTON AV	RIDGE BLVD	1,316	99	Crackseal or Patch	$ 8,527	73
VALLEY TERRACE	NEUTON AVE	RIDGE BLVD	1,074	99	Crackseal or Patch	$ 6,727	73
WEST STREET	GRANT ST	TOWNLINE	352	99	Crackseal or Patch	$ 2,053	72

Appendix D: Pavement Plan and Budget Report

ScenarioName: **2007 $500,000/Year**

Street Name	From Segment	To Segment	Length	Repaired PCI	Repair Alternative	Repair Cost	Benefit Value
WESTERLEIGH ROAD	LINCOLN AV EXT	WESTERLEIGH CT	179	99	Crackseal and Patch	$ 2,181	33
WESTERLEIGH ROAD	WESTERLEIGH CT	280' W OF WESTERLEIGH (	102	99	Crackseal or Patch	$ 442	73
WESTVIEW AVENUE	DIXON ST	ROANOKE AV SOUTH	813	99	Mill and Pave - Local	$ 36,531	42
WHIPPORWILL ROAD	FAIRLAWN PKWY	COUNTRY RIDGE DR	938	99	Mill and Pave - Local	$ 43,779	45
WHITTEMORE PLACE	WOODLAND AV	IRENHYL AV	531	99	Crackseal or Patch	$ 3,444	73
WOODLAND AVENUE	IRENHYL AV	VILLAGE LINE	1,129	99	Crackseal or Patch	$ 7,315	73
			25,694			**$ 499,884**	

6/28/2015

ARGYLE ROAD	RIDGE ST NORTH	TOWNLINE	1,130	99	Crackseal or Patch	$ 7,107	72
BEECHWOOD CIRCLE	LOCH LA	LOCH LA	751	99	Crackseal or Patch	$ 5,060	72
BELLEFAIR BOULEVAI	KING ST NORTH	TOP END OF LOOP (W)	1,726	99	Mill and Pave - Local	$ 55,859	43
BELLEFAIR BOULEVAI	TOP END OF LOOP (E)	KING ST NORTH	1,688	99	Mill and Pave - Local	$ 54,629	44
BOXWOOD PLACE	DORCHESTER DR	FAIRLAWN PKWY	926	99	Crackseal or Patch	$ 5,615	72
COUNTRY RIDGE DRIV	ROCKINGHORSE TR N	FAIRLAWN PKWY W	1,902	99	Crackseal or Patch	$ 11,968	72
CROSSWAY DRIVE	PADDOCK RD	OLD ORCHARD RD	351	99	Crackseal and Patch	$ 3,929	34
DIXON STREET	HIGHVIEW AV SOUTH	ROANOKE AV	246	99	Mill and Pave - Local	$ 11,488	44
FAIRLAWN PARKWAY	COUNTRY RIDGE DR	DEAD END	133	99	Crackseal or Patch	$ 1,079	19
FELLOWSHIP LANE	BELLEFAIR RD S	BELLEFAIR RD N	889	99	Mill and Pave - Local	$ 31,971	43
FRANKLIN STREET	RIDGE ST SOUTH	VILLAGE LINE	715	99	Mill and Pave - Local	$ 35,982	44
GARIBALDI PLACE	RIDGE ST SOUTH	WEST ST	629	99	Crackseal or Patch	$ 3,817	72
HAWTHORNE AVENUE	WESTCHESTER AV	RIDGE ST NORTH	1,600	99	Mill and Pave - Local	$ 86,260	44
HOLLY LANE	FAIRLAWN PARKWAY	COUNTRY RIDGE DR	1,246	99	Crackseal or Patch	$ 7,841	72
HORSESHOE LANE	ELM HILL DR W	ELM HILL DR E	283	99	Crackseal or Patch	$ 1,528	72
JEAN LANE	SUNSET RD	PHYLLIS PL	970	99	Mill and Pave - Local	$ 38,355	44
LATONIA ROAD	WINDING WOOD RD S	WINDING WOOD RD N	814	99	Crackseal or Patch	$ 4,572	72
LINCOLN AVENUE NOI	KING ST NORTH	500' W OF KING ST N	569	99	Crackseal or Patch	$ 4,215	72
MILLENIUM PLACE	LEGENDARY CIR	BELLEFAIR RD	523	99	Mill and Pave - Local	$ 22,541	43
OLD ORCHARD ROAD	BIRCH LA	250' N OF BIRCH LA	251	99	Mill and Pave - Local	$ 11,707	43
OLD ORCHARD ROAD	250' N OF BIRCH LA	BERKLEY DR W	520	99	Mill and Pave - Local	$ 24,279	44
PHYLLIS PLACE	SUNSET RD	JEAN LA	721	99	Mill and Pave - Local	$ 28,512	44
PINE RIDGE ROAD	MOHEGAN LA	LACONIA RD	1,016	99	Crackseal or Patch	$ 6,162	72

Appendix D: Pavement Plan and Budget Report

ScenarioName: **2007 $500,000/Year**

Street Name	From Segment	To Segment	Length	Repaired PCI	Repair Alternative	Repair Cost	Benefit Value
ROANOKE AVENUE (S(	WYMAN ST	DEAD END	318	99	Mill and Pave - Local	$ 14,295	43
ROCK RIDGE DRIVE	800' W OF RICK RIDGE DR	BOBBIE LA	525	99	Crackseal or Patch	$ 3,303	72
ROCKINGHORSE TRAII	ROCKINGHORSE TR	RIDGE ST NORTH	119	99	Crackseal or Patch	$ 507	72
SLEEPY HOLLOW ROA	RIDGE ST NORTH	DORCHESTER DR	1,070	99	Crackseal or Patch	$ 6,493	72
WEST WILLIAM STREE	RISGE ST SOUTH	VILLAGE LINE	514	99	Crackseal or Patch	$ 3,463	72
WINDSOR ROAD	RIDGE BLVD	ARGYLE RD	1,111	99	Crackseal or Patch	$ 6,739	72
			23,254			**$ 499,278**	

6/26/2016

ACKER DRIVE	KNOLLWOOD DR	ROCK RIDGE DR	171	99	Crackseal or Patch	$ 1,119	72
ACKER DRIVE	RICK RIDGE DR	ARLINGTON PL	437	99	Crackseal or Patch	$ 2,757	72
ANDERSON HILL ROAI	NEW YORK STATE LINE	440 FT WEST OF GOLF CO	2,271	99	Crackseal or Patch	$ 13,268	182
ANDERSON HILL ROAI	440 FT WEST OF GOLF CO	VILLAGE LINE	844	99	Mill and Pave - Arterial	$ 49,281	43
ARLINGTON PLACE	ACKER DR	CONCORD PL	636	99	Crackseal and Patch	$ 8,692	34
BARBER PLACE	FRANKLIN ST	BOWMAN AV	406	99	Mill and Pave - Local	$ 14,404	45
BEECHWOOD BOULEV	BEECHWOOD CIR	VILLAGE LINE	983	99	Crackseal or Patch	$ 4,595	72
BERKELEY DRIVE (EA	OLD ORCHARD RD	RIDGE ST N	645	99	Crackseal or Patch	$ 4,069	72
BERKELEY DRIVE (WE	LATONIA RD	OLD ORCHARD RD	1,222	99	Crackseal and Patch	$ 16,709	34
BETSY BROWN ROAD	VILLAGE LINE	30' E OF CANDY LANE	814	99	Crackseal or Patch	$ 6,848	182
BISHOP DRIVE NORTH	KING ST NORTH	VILLAGE LINE	216	99	Crackseal or Patch	$ 1,311	72
BONWIT ROAD	MOHEGAN LA	650' S OF MOHEGAN LA	651	99	Crackseal or Patch	$ 4,106	72
BROOK LANE	WESTCHESTER AV	PHYLLIS PL	1,248	99	Crackseal or Patch	$ 6,415	72
CARLTON LANE	BONWIT RD N	BONWIT RD S	812	99	Mill and Pave - Local	$ 40,994	45
COMLY AVENUE	KING ST SOUTH	VILLAGE LINE	1,329	99	Crackseal and Patch	$ 17,160	84
COUNTRY RIDGE DRIV	HOLLY LANE	FAIRLAWN PKWY E	1,322	99	Crackseal or Patch	$ 8,342	72
DORCHESTER DRIVE	ROCKINGHORSE TR	COUNTRY RIDGE DR	1,332	99	Crackseal or Patch	$ 8,403	72
ELLENDALE AVENUE	RISGE ST SOUTH	VILLAGE LINE	612	99	Crackseal and Patch	$ 8,987	34
FAIRLAWN PARKWAY	RIDGE ST NORTH	COUNTRY RIDGE DR	1,510	99	Crackseal or Patch	$ 12,700	72
HAWTHORNE AVENUE	HAWTHORN AV	WESTCHESTER AV	173	99	Crackseal or Patch	$ 890	72
HIGH POINT CIRCLE	BELLEVFAIR BLVD	BELLEVFAIR BLVD	2,593	99	Mill and Pave - Local	$ 116,339	45
HIGH STREET	RIDGE ST SOUTH	VILLAGE LINE	1,183	99	Crackseal or Patch	$ 8,295	72
HILLCREST AVENUE	WOODLAND AV	NEUTON AV	1,380	99	Crackseal or Patch	$ 9,674	72

Appendix D: Pavement Plan and Budget Report

ScenarioName: **2007 $500,000/Year**

Street Name	From Segment	To Segment	Length	Repaired PCI	Repair Alternative	Repair Cost	Benefit Value
KNOLLWOOD DRIVE	BETSY BROWN RD	ACKER DR	748	99	Crackseal or Patch	$ 4,370	72
LATONIA ROAD	MOHEGAN LA	WINDING WOOD RD S	1,216	99	Crackseal or Patch	$ 7,956	72
LEGENDARY CIRCLE E	LEGENDARY CIR S	LEGENDARY CIR N	185	99	Crackseal or Patch	$ 953	72
LINCOLN AVENUE SOU	WESTCHESTER AV	SUNSET RD	436	99	Crackseal or Patch	$ 3,666	182
LINCOLN AVENUE SOU	SUNSET RD	JENNIFER LA	1,376	99	Crackseal or Patch	$ 10,608	182
LINCOLN AVENUE SOU	JENNIFER LA	TALCOTT RD	777	99	Crackseal or Patch	$ 4,539	182
LINCOLN AVENUE SOU	TALCOTT RD	300' S OF PINE RIDGE RD	894	99	Crackseal or Patch	$ 5,224	182
LINCOLN AVENUE SOU	300' S OF PINE RIDGE RD	PINE RIDGE RD	299	99	Crackseal or Patch	$ 1,745	182
LINCOLN AVENUE SOU	PINE RIDGE RD	VILLAGE LINE	838	99	Crackseal or Patch	$ 4,894	182
OSBORNE PLACE	BOWMAN AV	DEAD END	264	99	Crackseal or Patch	$ 1,479	18
OSBORNE PLACE WES	OSBORNE PL	CUL DE SAC	166	99	Crackseal or Patch	$ 961	19
ROCKINGHORSE TRAII	RIDGE ST NORTH	DEAD END	1,940	99	Crackseal or Patch	$ 16,318	72
TAMARACK ROAD	RIDGE BLVD	ARGYLE RD	1,168	99	Mill and Pave - Local	$ 58,964	45
VALLEY TERRACE	RIDGE BLVD	ARGYLE RD	1,369	99	Crackseal or Patch	$ 8,636	72
WOODLAND DRIVE Y-I	WOODLAND DR	BEECHWOOD CIR	103	99	Crackseal or Patch	$ 482	72
			34,565			**$ 496,155**	
6/25/2017							
BETSY BROWN ROAD	RIDGE ST NORTH	PARK	1,392	99	Mill and Pave - Local	$ 97,448	34
BISHOP DRIVE SOUTH	KING ST SOUTH	VILLAGE LINE	421	99	Crackseal or Patch	$ 2,661	72
BONWIT ROAD	650' S OF MOHEGAN LA	TALCOTT RD	1,086	99	Crackseal or Patch	$ 7,124	72
BONWIT ROAD	TALCOTT RD	OLD OAK RD	1,019	99	Crackseal or Patch	$ 6,685	72
CANDY LANE	BETSY BROWN RD	SYLVAN RD	698	99	Crackseal or Patch	$ 4,409	72
COUNTRY RIDGE DRIV	ROCKINGHORSE TR S	ROCKINGHORSE TR N	2,564	99	Crackseal or Patch	$ 16,510	72
CRESCENT PLACE	RIDGE ST NORTH	HIGHVIEW AV NORTH	246	99	Crackseal or Patch	$ 1,556	72
DIVISION STREET	BOWMAN AV	WESTCHESTER AV	661	99	Crackseal or Patch	$ 3,693	72
DIXON STREET	RIDGE ST SOUTH	HIGHVIEW AV SOUTH	262	99	Crackseal or Patch	$ 1,652	72
LAWRIDGE DRIVE	SLEEPY HOLLOW RD	BOXWOOD PL	1,609	99	Crackseal or Patch	$ 10,560	72
LAWRIDGE DRIVE LOC	LAWRIDGE DR S	LAWRIDGE DR N	189	99	Crackseal or Patch	$ 1,744	72
LOCH LANE	BEECHWOOD CIRCLE	KING ST SOUTH	1,010	99	Mill and Pave - Local	$ 55,007	34
MEADOWLARK ROAD	RIDGE ST NORTH	BLUEBIRD HOLLOW	1,412	99	Mill and Pave - Local	$ 74,115	32
ROANOKE AVENUE (N	72' N OF WESTVIEW AV	PARKING LOT	58	99	Crackseal and Patch	$ 820	33

Appendix D: Pavement Plan and Budget Report

ScenarioName: **2007 $500,000/Year**

Street Name	From Segment	To Segment	Length	Repaired PCI	Repair Alternative	Repair Cost	Benefit Value
ROCK RIDGE DRIVE	ROCK RIDGE DR EXT	800' W OF RICK RIDGE DR	800	99	Crackseal or Patch	$ 5,251	72
TALCOTT ROAD	1300' W OF LINCOLN AV S	BONWIT RD	1,271	99	Mill and Pave - Local	$ 69,187	32
WEST RIDGE DRIVE	RIDGE ST N	OLD ORCHARD RD	438	99	Mill and Pave - Local	$ 25,537	34
WINDINGWOOD ROAD	CHURCHILL RD (N)	RIDGE ST NORTH	1,101	99	Mill and Pave - Local	$ 51,372	32
WINDSOR ROAD	COLLEGE AV	RIDGE BLVD	663	99	Crackseal or Patch	$ 4,672	72
WINTHROP DRIVE	BERKLEY DR W	OLD ORCHARD RD	997	99	Mill and Pave - Local	$ 52,360	32
WOODLAND DRIVE	300' S OF BEECHWOOD CI	1217' S OF BEECHWOOD C	917	99	Crackseal or Patch	$ 6,243	72
			18,813			**$ 498,605**	
2007 $500,000/Ye			**203,987**			**$ 4,890,124**	

Appendix D: Pavement Plan and Budget Report

ScenarioName: **2007 $500,000/Year**

Street Name	From Segment	To Segment	Length	Repaired PCI	Repair Alternative	Repair Cost	Benefit Value

Appendix E

Repairs and Unit Costs

The repair alternatives and unit costs used by RoadManager GPMS™ for the analysis in this report are listed below. Hot mix asphalt is the only pavement type used in the Village of Rye Brook.

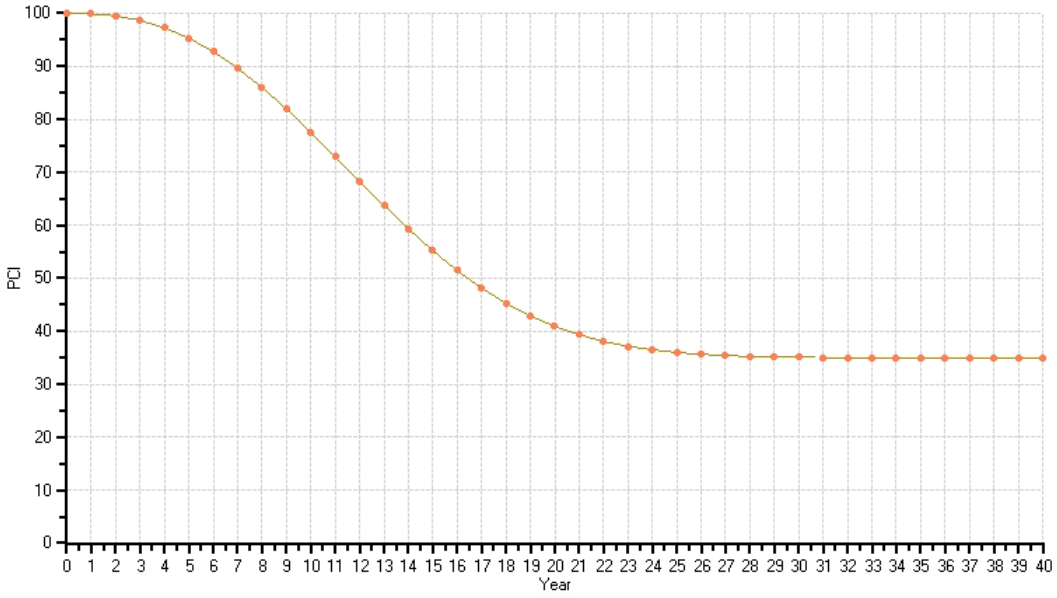
Repair	Unit Cost	Exp Life	Treatment Band
Mill and Pave – Arterial	$15.00	12	Structural Improvement
Mill and Pave – Local	$12.00	15	Structural Improvement
Thin Overlay or Surface Treatment	$4.50	6	Preventive Maintenance
Crack seal and Patch	$3.25	5	Preventive Maintenance
Crack seal or Patch	$1.50	5	Routine Maintenance

Appendix F

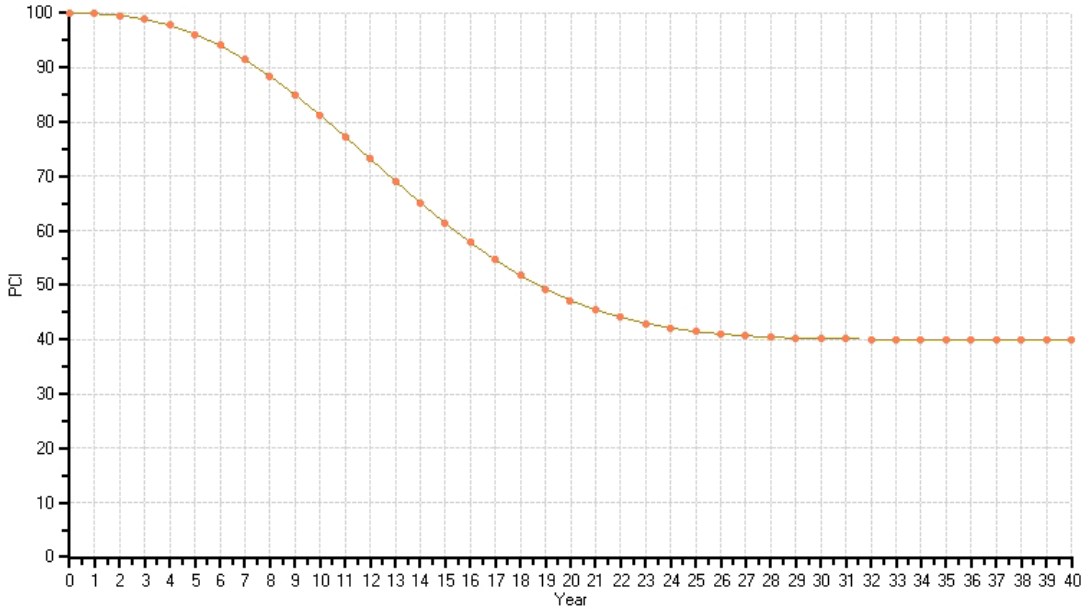
Pavement Deterioration Curves

Below are the pavement deterioration curves used by RoadManager GPMS™ to approximate the condition of pavement over time. These curves can be viewed or modified using the "Define Curves" tool in the RoadManager GPMS™ Analysis/Setup menu.

Deterioration Curve for Arterial and Collector Roadways



Deterioration Curve for Local Roadways



Appendix G

Glossary of Terms

BASE INDEX (BI): The base index is a rating established as an indicator of roadway base materials quality and performance. The base index is derived from controlled measurements and evaluations of condition survey distresses attributed to the underlying unbound base and subbase materials. Measured base-related distresses include non-utility patches, alligator cracking, distortions, and rutting. This index is rated on a scale from 0 to 100, with 100 being excellent.

BENEFIT VALUE (BV): The benefit value is a factor calculated by RoadManager GPMS™ for every pavement segment involved in a budget scenario. RoadManager GPMS™ uses this objective factor to prioritize pavement repairs. Thus, this factor plays a key role in determining which pavement segments to repair for a budget scenario. The benefit value formula is:

$$\text{Benefit Value} = \frac{\text{ADT x Estimated Repair Life}}{\text{Current Cost x Pavement Condition Index}}$$

CAPITAL REPAIRS: Capital repairs are extensive and costly repairs such as structural improvement and base rehabilitation work.

DEDUCT VALUES: A deduct value represents the penalty assessed for each identified distress and is used in the calculation of the pavement condition index (PCI). Each distress has multiple severity and extent levels, with a specific deduct value at each combination of severity and extent. Deduct values may be modified for all nine pavement distress types. The combined deduct values of recorded distresses are factored together and then ultimately subtracted from a perfect pavement condition index of 100.

DEFICIENCY: A deficiency is any indication of poor or unfavorable pavement performance or signs of impending failure; or any unsatisfactory performance of a pavement short of failure.

DETERIORATION RATE: The deterioration rate is a prediction of the anticipated change in a roadway's condition over time.

DISTRESS: Distresses are the physical defects in a pavement system which can be observed and quantified through visual inspection of the roadway surface. Broad categories include cracking, patching, depressions, and surface wear.

FUNCTIONAL CLASSIFICATION: RoadManager GPMS™ places all pavement segments in the network into one of three functional classifications - arterial, collector, or local - according to vehicular volume, roadway geometry, and traffic characteristics.

GRADE: Grade is a measure of the steepness of a slope, expressed as a percentage. A grade of 1% has one foot of elevation change for one hundred feet of horizontal distance.

MAINTENANCE: Maintenance is anything done to the pavement after original construction short of complete reconstruction, excluding shoulders and bridges.

NETWORK-LEVEL: Network-level is a term that refers to the entire roadway system (as opposed to project-level, which refers to a specific pavement segment). For example, a network-level pavement condition survey would be an assessment of conditions and/or program needs across the entire roadway system encompassed by the roadway management study.

PAVEMENT CONDITION INDEX (PCI): The pavement condition index is derived from established measurements of pavement surface condition distresses or deficiencies. The PCI is a serviceability rating established under controlled conditions having a scale of 0 to 100, with 100 being excellent.

PAVEMENT MANAGEMENT (PM): Pavement Management is the effective and efficient directing of the various activities involved in providing and sustaining pavements in a condition acceptable to the traveling public at the lowest life-cycle cost.

PAVEMENT MANAGEMENT SYSTEM (PMS): A pavement management system is an established, documented procedure treating many or all of the pavement management activities in a systematic and coordinated manner. It consists of five essential elements structured to serve decision-making responsibilities at various management levels.

1. Pavement surveys related to condition and serviceability;
2. Database containing all pavement-related information;
3. Analysis scheme;
4. Decision criteria;
5. Implementation procedures.

PAVEMENT PERFORMANCE: Pavement performance is the assessment of how well the pavement served the user over time. The engineer often associates pavement condition with an arbitrary, but quantifiable, value relating to pavement roughness, pavement distress, or pavement strength. Performance is the measured change of condition and/or serviceability over increments of time.

PAVEMENT TYPES: Pavement type refers to the material of which the pavement is made. RoadManager GPMS™ is capable of assigning an unlimited number of pavement types. Typical pavement types include bituminous concrete, surface-treated, gravel, portland cement concrete, and composite. Pavement types serve to inform pavement engineers of the operating condition of the street, and provide a meaningful communication tool when engineering judgment is required to select possible rehabilitation alternatives.

For example, "surface treated" generally designates a road surface and pavement structure that evolved over time. This type of surface would start as a dirt road, built up over time with a series of sand seals and stone seals. Conversely, a "bituminous concrete" roadway is typically engineered with a pavement structure designed to withstand predicted traffic volumes. The roadway usually has a gravel base, a binder course, and a hot mix asphalt wearing surface. The "composite" surface type could be used to describe a portland cement concrete roadway that has received a hot mix asphalt overlay or a hot mix asphalt roadway that has received a preventive maintenance surface treatment, such as microsurfacing.

PRESERVATION MAINTENANCE: Preservation maintenance is used to describe the routine and preventive maintenance repair categories.

PREVENTIVE MAINTENANCE: Preventive maintenance activities are those which are performed at planned intervals to protect and seal the pavement. Seals are designed to provide one or more of the following benefits:

1. Prevent the intrusion of air and moisture;
2. Fill small cracks and voids;
3. Rejuvenate an oxidized binder;
4. Provide a new wearing surface.

PROJECT-LEVEL: Project-level is a term that refers to a detailed assessment or identification of needs relative to a specific roadway, or a section thereof (as opposed to network-level applications). A project-level assessment may include on-site pavement testing, lab evaluation, life-cycle cost analysis, and treatment recommendation for the particular pavement section.

RECONSTRUCTION: Reconstruction is the complete removal and replacement of a failed pavement, and might also involve widening, realignment, traffic control devices, safety hardware, and major base and drainage work.

REHABILITATION: The rehabilitation of pavements includes the work necessary to restore the pavement to a condition that will allow for satisfactory performance for several years. Rehabilitation also includes the work necessary to prepare a pavement for an overlay. The major activities involved in the rehabilitation process are:

1. Partial-depth patching;
2. Full-depth patching;
3. Joint and crack sealing.

4. Grouting and undersealing (filling voids);
5. Grinding and milling (removal of high spots in the pavement.)
6. Overlays.

REPAIR ALTERNATIVE: Repair alternatives are the various choices of treatment available for providing a solution to a pavement deficiency or problem. The associated repair alternative cost is based on local experience with similar work.

REPAIR STRATEGIES: RoadManager GPMS™ represents local repair strategies in a table of user-defined "if...then..." statements. Recommended repairs are based on the decision factors and thresholds contained in this "strategy table." Decision factors vary per community and can be any number of the recorded pavement characteristics. For the Village of Rye Brook, these decision factors are (in this order): pavement type, pavement class, PCI, base index, and average curb reveal. RoadManager GPMS™ selects a recommended repair based upon how each pavement segment's information compares to the repair strategy.

REPAIR TYPES: See "Repair Alternative."

ROADWAY MANAGEMENT SYSTEM: A roadway management system has all of the database attributes of a pavement management system as defined above. In addition, a roadway management system has the ability to record additional inventory and condition data on a range of roadside elements. Examples of roadside elements include: drainage features, utilities, traffic signs, pavement markings, sidewalks, and pedestrian ramps. A roadway management system will have common locating and identifying fields for each roadside element so its database can be comprehensively evaluated for system-wide planning and management.

ROUTINE MAINTENANCE: Routine maintenance activities are those which are taken to correct a specific pavement failure or area of distress. Routine maintenance usually addresses localized pavement defects and includes activities such as:
1. Partial-depth or full-depth patching;
2. Skim patching;
3. Crack sealing.

SURFACE INDEX (SI): The surface index is a rating established as an indicator of asphalt materials quality and performance on a scale from 0 to 100, with 100 being excellent. It is derived from controlled measurements and evaluations of the pavement condition survey distresses attributed to such asphalt mixture and material components as: surface wear/raveling, mix characteristics, and polished aggregate.

THRESHOLDS: Thresholds define the various condition index ranges used in a repair strategy to determine recommended repairs.