

ROADWAY ASSESSMENT REPORT
FOR THE
VILLAGE OF IRVINGTON
PUBLIC WORKS DEPARTMENT

PREPARED BY
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Table of Contents

EXECUTIVE SUMMARY 3

INTRODUCTION 4

GENERAL ROADWAY INFORMATION 4

MAINTENANCE OF ROADWAYS 5

CLASSIFICATION SYSTEM 7

 Field Evaluation Procedure 7

 Rating Methods 8

 I. Usage Rating 8

 II. Ride Quality Rating..... 8

 III. Distress Rating 9

CALCULATING THE RATING 9

FIELD EVALUATION 10

COMPREHENSIVE PLAN..... 10

 Sequencing Strategy 10

 Sequencing Plan 11

RECOMMENDATIONS 12

CONCLUSION..... 12

APPENDICES

A –ROADWAY LIST

B – ROADWAY RATING TABLE

C – ROADWAY DISTRESS TYPES

D – FIELD EVALUATION FORM

E – FLEXIBLE DISTRESS RATING

F – RIGID DISTRESS RATING

G – DISTRESS RATING TABLES

H – ANNUAL CHECKLIST

I – ESTIMATED COSTS

J – SEQUENCING PLAN

K – 2023 PAVING PLAN

L – FIVE-YEAR ROADWAY IMPROVEMENT PLAN

M – COMPLETED IMPROVEMENTS 2016-2023

ATTACHMENTS

ROADWAY MAP

EXECUTIVE SUMMARY

In March of 2016, a Roadway Assessment Report was developed and used to sequence the roadway paving for the Village of Irvington (Village). The report was updated in 2019 for roadways that were not recently paved or were not previously noted as to require resurfacing. This report in March of 2023 re-evaluated all roadways and provides new recommendations for the upcoming five years.

This comprehensive roadway assessment report was completed for the Village specifically to be used by the Department of Public Works to develop a multi-year rehabilitation plan. This report provides general roadway information, roadway maintenance information, a road classification system, field evaluation procedures, a comprehensive plan including a sequencing strategy and a sequencing plan, and recommendations for the Village staff to use for future assessments. It also includes an as-built of the roadways paved since 2015.

The Village has 105 separate roadways that they maintain which have been evaluated for this report. A classification system has been developed based on the system used by the NYSDOT, which has been modified to meet the needs of the Village. Each roadway was evaluated on its usage, ride quality, and distress. The evaluation criteria includes a rating method that allows the roadways to be scored on a scale of 0 to 10, and subsequently ranked in order of lowest to highest. The higher the road score value, the better the condition of the road. The goal was to create a system that will make evaluating each roadway consistent between employees. Overall, the conditions of the roadways were good with the majority of the roadways scoring above a 5.

Following the ranking of the entire list of roadways, a multi-year comprehensive rehabilitation plan was created to give the Village's Department of Public Works a sequence strategy and sequencing plan. The goal of the sequencing strategy and sequencing plan is to bring all the roadways within the Village up to an average score of an 8. This can be accomplished by the comprehensive plan outlined in this report. This includes a yearly plan to mill and pave, which lists the roadways that are in need of repair along with the cost associated to resurface each roadway. A list of roads to be repaired on an annual basis has been developed and is listed in Appendix J. The annual budget used in this evaluation is between \$200,000.00 and \$250,000.00. This plan has been extended for a 5 year period and includes approximately 2 to +4 roadways per year that can be re-surfaced.

The cost provided in this report are to mill and pave the roadways. Additional costs for curbs, striping, adjusting valve boxes, manholes, drainage structures, or other improvements are to be determined separately. To assist with determining these costs, an annual checklist is provided in Appendix H.

INTRODUCTION

James J. Hahn Engineering, P.C., was tasked with assessing the condition of the roadways within the Village. This report is based on the original Roadway Assessment Report completed in March of 2016. This report includes the roadways that have been paved since 2015, the classification system created in 2016, a multi-year comprehensive rehabilitation plan, and the proposed roadways to be paved in 2023.

The classification system is based on the NYSDOT road evaluation system and has been customized to meet the Village's needs. The classification system includes a map of the Village's roadways, a list of all roadway names, identification numbers, lengths and average widths.

The multi-year comprehensive rehabilitation plan ranks and rates the roadways in the order which we recommend roadway re-surfacing. Recommendations and costs for the roadways that require the most work have been provided. The rating system is described in detail in this report and will be reviewed with Village staff so that future roadway evaluations can be conducted by the Village staff. A list of all the roadways with their corresponding rankings is included in Appendix A and B.

GENERAL ROADWAY INFORMATION

Asphalt roadways can last up to 30 years, however, durability decreases significantly after about 20 years. The lifespan is directly related to its construction, foundation, climate, and traffic. Depending on these factors a roadway may only last a few years.

Roadways consist of various elements including the surface type, subbase materials, cross slope, crown, width, shoulders, curbs, and drainage. This section of the report will briefly discuss the general elements of typical roadways and which were used in our evaluation.

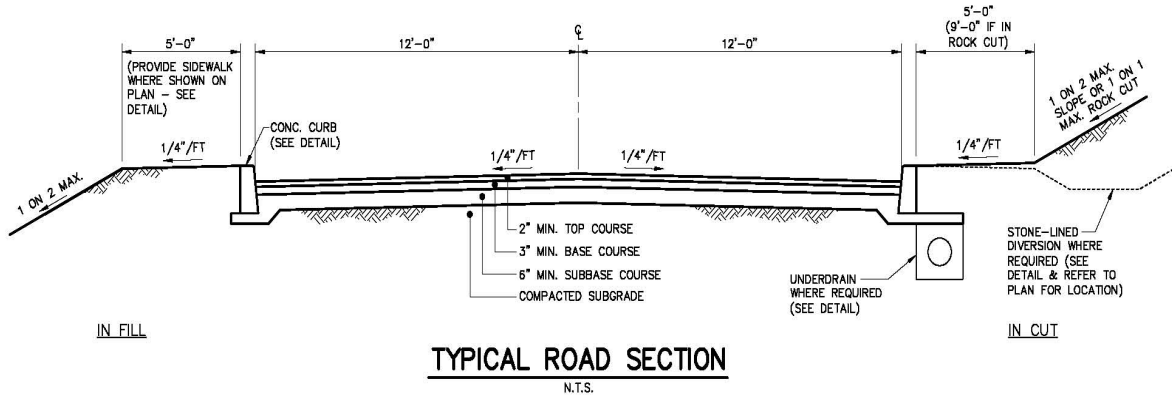
Surface types are either rigid or flexible. Concrete roads are considered rigid, asphalt roads or concrete roads with an asphalt overlay are considered flexible. Road surface material is typically selected based on traffic volume, soil characteristics, weather, initial cost, overall annual maintenance and service-life cost. The majority of the Village roads are asphalt which is typical for areas that experience extreme climate changes. Due to the age and history of the communities along the Hudson River, it is not uncommon to find cobble or other types of material below the existing roadway. In some cases unsuitable material below the roadway causes failure of the roadway.

The width of a roadway is important since it influences the safety and comfort of driving. The road width includes the lane as well as the shoulders. Lane widths generally vary between 9 to 12 feet. Most of the Village's lane widths were found to be approximately 9 feet. Roadway shoulders also vary in width and can vary from a few inches to 9 feet. The shoulder provides an area for vehicles to stop, use in emergencies, and for lateral support of the subbase material.

Curbs are a raised or vertical element that are typically constructed of concrete, asphalt, or stone and are an important part of a roadway system. Curbs provide drainage control, roadway edge

delineation and protection, aesthetics, delineation of pedestrian walkways and can reduce maintenance operations. The standard height of a curb should be 4 to 6 inches. The majority of the roadways have a curb of some type.

A working drainage system is important to maintaining a safe roadway. Drainage design should incorporate safety, good appearance, control pollutants and be economical to maintain. Drainage systems are either open or closed. In an open system, the runoff is conveyed in a swale or open gutter and a closed system is piped. The majority of roadways in the Village use a closed drainage system or combination of the two.



The detail above is a typical cross section of a road that includes curbs, asphalt surface, subbase material and an under drain. The typical cross pitch is ¼ inch per foot. The crown of the roadway is at the center line where water pitches to either side. An underdrain may be used in high groundwater table conditions or excessive runoff from an uphill slope.

MAINTENANCE OF ROADWAYS

Proper road maintenance improves ease of transportation and reduces costs for the Village. An improperly maintained road could also lead to an increased number of accidents. This assessment and report was developed for the Village staff to evaluate periodic repairs for the roadways.

Roadways can display various types of distress, including cracking, delamination, raveling, patching, sealing, rutting, and more. Descriptions and photographs of various types of distresses are shown in Appendix C.

Periodic repairs should be performed as needed to preserve the structural integrity of the road. Roadway repair work can be grouped into categories that include preventative measures, surface overlay, re-surfacing, and pavement reconstruction.

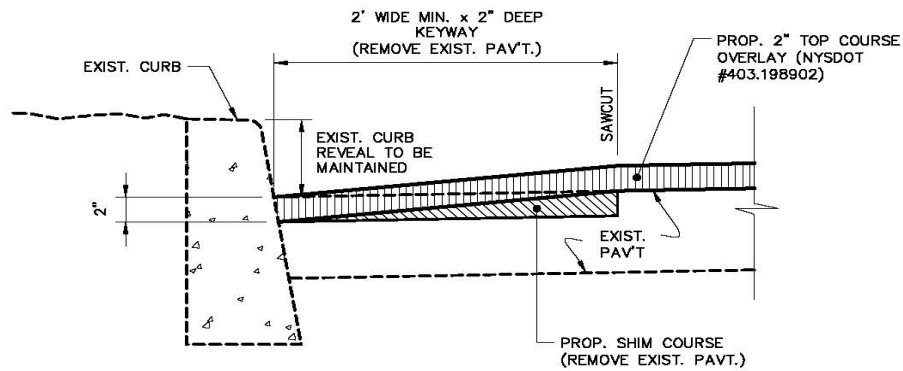
Preventative measures are minor repairs which include joint and crack sealing, temporary and permanent patching, other miscellaneous paving, drainage improvements, or curb installation.

Pavement overlay work consists of paving over the existing roadway to cover cracks, fill potholes and increase the strength of the roadway. Various items should be reviewed prior to placing an overlay on a road, including curb reveal and structures that may need adjusting (valve boxes, catch

basins, manholes, etc.). The pavement along the curb will need to be removed prior to paving, if the curb reveal is limited.

Re-surfacing work includes removing the existing pavement (milling), generally between 1 ½ and 2 inches, and then paving the area that was milled. Ideally no additional work is required (such as adjusting valve boxes or manholes), since the existing grade is usually the same. However frequent adjustments may be required, which should be verified prior to bidding any road improvements.

Pavement reconstruction may be needed when the structural integrity of the road is compromised. Prior to reconstructing the roadway, an engineer should determine the extent of work required and the type of repairs needed.



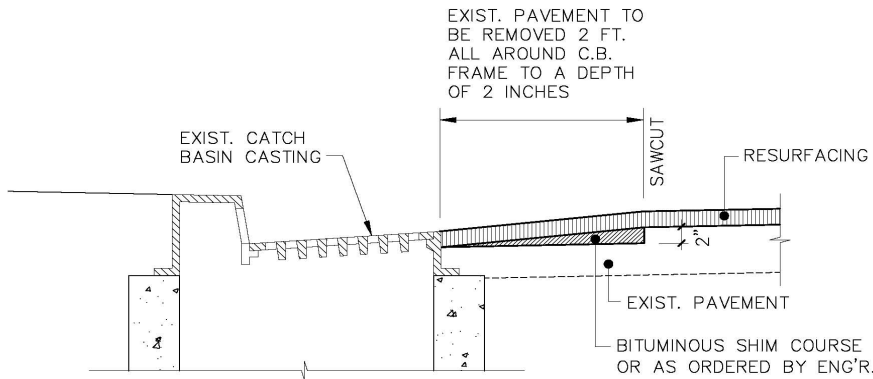
SECTION

NOTE:
TACK COAT EXISTING SURFACES PRIOR TO PLACEMENT OF NEW ASPHALTIC COURSES.

PAVEMENT KEYWAY AT EXISTING CURB

N.T.S.

The detail above is a typical cross section of a pavement keyway used to maintain proper curb reveal during pavement overlaying.



SECTION

PAVEMENT KEY AT EXISTING CATCH BASIN

N.T.S.

The pavement keyway detail above is typical for maintaining the proper catch basin reveal during pavement overlaying.

It is important to track the maintenance of a roadway. Some roads need to be resurfaced, or repaired, more frequently than others, which may be due to an underlining issue.

CLASSIFICATION SYSTEM

The classification system in this report has been derived from the NYSDOT classification system and refined to meet the needs of the Village.

The classification system consists of an evaluation procedure, roadway map, and road inventory list. A Field Evaluation Form (Appendix D) was created to analyze the roadways, calculate a road rating, and to compare roads to one another in the Village.

The roadway map identifies which roads are owned by the Village, the State, the County, or privately owned. It also includes dimensional information including length, width, and area.

The Field Evaluation Form is used to record information known about each roadway, record details of each evaluation, and rate each roadway.

To classify the roadways, a roadway map, list of roadways, and evaluation procedure was developed. The roadway map identifies all the roadways the Village maintains and identifies the usage, which is described later in this section. The roadway list provides information on the roadways including the length, width, and asphalt tonnage. The field evaluation form provides information on the roadway features, usage, ride quality, pavement distress, and overall rating.

This section of the report describes the evaluation procedure, rating methods, and rating calculations.

Field Evaluation Procedure

The steps used to evaluate each roadway in the field are as follows:

- 1) Drive the length of each roadway at the posted speed limit to assess the ride quality and identify general areas of distress.
- 2) Drive the length of the roadway slowly, noting each distress.
- 3) Photograph every 1,000 to 2,000 feet of road and recording areas showing significant signs of distress.
- 4) Record data on Field Evaluation Form. Complete and score roadway in the field.

Each roadway pavement evaluation form should detail the roadway attributes and condition. Sample forms have been included in Appendix D. The first section describes all the main details of roadway. The subsequent sections have been used to determine the overall rating of each road. These sections are listed below in more detail.

A roadway inventory map has been created, which lists the roadways with their name, ID#, length, average width and area. Field evaluation forms are used to rate each roadway based on three types

of criteria, usage, ride quality and distress. This system will then be used to evaluate each roadway annually and assess the condition of each roadway and the need for repair.

Rating Methods

The rating methods used for each individual roadways will evaluate the usage, ride quality, and visible signs of distress. It is important to conduct the evaluations of a roadway prior to ground frost which may intensify the distress that is visible.

I. Usage Rating

The usage rating is determined by the amount of traffic, or use, a roadway experiences. This is categorized as either low, medium, or high. A low usage road is typically a road that does not have an outlet, or connects to a few homes. A high usage road experiences the most traffic and use. It typically includes main roads, roads that share traffic with state or county roads, or roads that connect to populated or popular areas. A medium usage road connects the high usage roads to the low usage roads. The amount of use is important in ranking the roadways, since a more traveled roadway will impact more people. In addition, a roadway with less use should require less maintenance.

Higher use roads have the lowest assigned value in the ranking system. The scoring used is as follows: 10 for low usage, 5 for medium usage, and 0 for high usage. A roadway map has been attached to this report.

II. Ride Quality Rating

This section uses three parameters to rate the ride quality, which are listed on the field evaluation form and described below.

The main parameter is the overall ride quality, which is determined by the driver during step 1 of the evaluation procedure. This assessment is conducted while driving over each road at the posted speed limit and noting the “seat feel” of the ride. The scores range from a low of 2 and high of 10.

The second parameter is determining the presence of corrugations in the road, which is defined as a series of closely spaced ridges and valleys (ripples) occurring at fairly regular intervals, usually less than 10’ along the pavement. The ridges are perpendicular to the traffic direction. This type of distress is usually caused by traffic action combined with an unstable pavement surface or base.

The last parameter is the presence of settlements or heaves, which is described as localized pavement surface areas having elevations slightly lower than surrounding pavement or localized upward displacements of the pavement surface.

Generally, when assessing ride quality the Department of Transportation uses a high speed profiler system attached to their vehicles to rate the ride quality on a score from 1 being the worst to 100 being the best. For the purposes of this study due to certain limitations the ride

quality will be assessed by the driver. It is important the field evaluations are consistent, therefore drivers should also be consistent.

III. Distress Rating

The distress rating is a score given that reflects the distress type, severity, and frequency of a roadway. Types of distress may vary depending if the pavement is flexible or rigid.

Flexible distresses include cracking, raveling, wheel path rutting, delamination, patching crack filling, and overlays. A description and photograph of these distresses is shown in Appendix E.

Rigid distresses include spalling, delamination, patching, settlements and heaves, blowups, joint failure, faulting, cracking, scaling, and rutting. A description and photographs of these distresses is shown in Appendix F.

The distress rating is determined in the field at the end of evaluating the roadway. The pavement rating charts in Appendix G are used to rate the roads based on frequency, severity, and appearance. The field evaluation form is completed and a score is determined.

CALCULATING THE RATING

The overall rating of each roadway is based on the scores that were determined for usage, ride quality, and distress. The scores are not equally weighted as shown below.

| | |
|---------------|------------|
| Distress: | 65% |
| Ride Quality: | 20% |
| <u>Usage:</u> | <u>15%</u> |
| Total: | 100% |

Distress measures the condition of the roadway and is the most important variable, therefore determines most of the overall rating. Ride quality is important and is dependent on the distress, however it is evaluated separately since a high ride quality is desirable for vehicles.

Usage is not directly related to the quality of the roadway; however the amount a road is used does affect the lifespan of the roadway. Usage is also important since higher traveled roadways affect more people. Therefore, all conditions of a roadway being equal, a more used roadway should generally be re-paved before a low use roadway. It is important to note that a roadway identified as low usage can have a maximum rating of 10, medium usage road can have a maximum rating of 9.25, and a high usage road can have a maximum rating of 8.5.

FIELD EVALUATION

A field evaluation for the Village-owned roadways that received less than a 7 rating in 2016 was performed in May of 2019. All roadways were evaluated in January of 2023. The roads were ranked and listed in Appendix B.

Ideally field evaluations should be performed annually, or at the least every few years. This will allow the Village to identify problematic areas fairly and possibly reduce the cost of repair or maintenance.

COMPREHENSIVE PLAN

A comprehensive plan is to improve the overall quality of all the roads in the Village cost effectively by developing a sequencing strategy and sequencing plan.

Sequencing Strategy

The recommended sequencing strategy is to improve the roads in the most need first. The goal is to increase each roadway's rating above an 8. Therefore, in some cases the entire road may not need to be resurfaced; it may only require a portion of the road be resurfaced to bring the overall rating of the roadway to an acceptable quality. For example, if a road is rated at 4, and re-surfacing one-third of the road would bring the overall rating to an 8, it may not be necessary to pave the entire road. The savings on the portion of road not paved, can be used for other roads in the Village.

The roadways with the lowest overall rating are the first roadways that are recommended to be resurfaced. The first roadways recommended to be resurfaced had an overall rating of 4 or 5, which are listed on the spreadsheet. The next roadways that are added to the list have an overall rating of 6 or 7. Grouping roadways minimizes the time and resources required to remobilize equipment, therefore increases efficiency and reduces costs.

An estimated cost to resurface each roadway based on the area of the roads was calculated and was added to the spreadsheet. The cost to resurface the grouped sets of roadways was calculated and if the group exceeded \$250,000, some of the roads were placed in the following year. The groups were reevaluated until the cost was approximately within 10 percent of the annual budget. A summary sheet of the road sequence has been provided in Appendix J.

It is important to note that numerous roadways have overall ratings that vary only slightly, and that the logistics of the roadway paving should be considered. In this case, the features that should be considered are the need for additional drainage, utility projects, or other projects that may impact a roadway. If a utility project will be completed in a few years, the Village may consider waiting to re-surface the roadway.

It is also important to note that the costs to re-surface each roadway does not include miscellaneous items such as pavement markings, curbs, adjusting valve boxes, manholes, drainage structures or other items that should be reviewed prior to finalizing the budget. These items are included on the annual check list provided in Appendix H.

Sequencing Plan

The sequencing plan is the order in which the roadways are recommended to be re-surfaced. As described above, they are grouped according to cumulative cost and logistical location. The estimated cost of re-surfacing each road is calculated, and a cumulative cost is totaled, as shown in Appendix I. As the estimate shows, to re-surface all of the roadways in the Village would cost approximately \$7.4 million. The overall costs have increased due to material and labor price increases. Using a budget of \$250,000 per year, it would take approximately 30 years to re-surface all of the roads in the Village (using present worth value).

While the roadway sequence starts with the lowest ranked roadways, with an attempt to have the roadways grouped in close proximity, a number of the roadways require improvements prior to resurfacing. This recommended sequence identifies improvements that may be required and anticipates a period of time which the roadways can be resurfaced.

Our office worked with the Village’s Department of Public Works to coordinate the sequencing of roadway improvements. The phasing plan provided in this report should not be assumed as final, or exact. It provides a basis for the Village to understand which roadways we considered most in need of repair. The entire recommended sequencing plan is provided in Appendix J. A summary of the first five (5) years is shown below, and a map showing these roads is in Appendix L.

| ROAD NAME | # | OVERALL RATING | COST MILL AND PAVE (\$165/ton, \$9.00/SY) | CUMU. COST | NOTES |
|------------------|----|----------------|---|------------|--|
| 2023 | | | | | |
| BUTTERWOOD EAST* | 13 | 6 | \$40,089 | \$40,089 | |
| BUTTERWOOD WEST* | 14 | 7 | \$44,948 | \$85,037 | |
| CLIFTON PLACE | 21 | 5 | \$37,228 | \$122,265 | Curbs or drainage required as per Village DPW. |
| HAMILTON ROAD | 52 | 4 | \$110,062 | \$232,327 | |
| ILINKA LANE | 67 | 7 | \$15,185 | \$247,512 | |
| 2024 | | | | | |
| BERTHA PLACE | 8 | 5 | \$46,740 | \$46,740 | |
| FIELD TERRACE | 47 | 7 | \$65,828 | \$112,568 | |
| OSCEOLA AVENUE | 85 | 4 | \$111,657 | \$224,224 | |

| ROAD NAME | # | OVERALL RATING | COST MILL AND PAVE (\$165/ton, \$9.00/SY) | CUMU. COST | NOTES |
|------------------|-----|----------------|---|------------|--|
| 2025 | | | | | |
| ERIE STREET | 39 | 5 | \$71,674 | \$71,674 | Curbs or drainage required as per Village DPW. |
| HUDSON ROAD EAST | 63 | 4 | \$59,374 | \$131,048 | |
| ROLAND ROAD | 95 | 4 | \$54,882 | \$185,930 | |
| 2026 | | | | | |
| HUDSON ROAD WEST | 64 | 6 | \$151,761 | \$151,761 | Curbs or drainage required as per Village DPW. |
| LANGDON AVENUE | 72 | 6 | \$94,027 | \$245,787 | |
| 2027 | | | | | |
| PALLISER ROAD | 86 | 6 | \$53,607 | \$53,607 | |
| PARKSIDE WAY | 89 | 7 | \$23,081 | \$76,688 | Eastern portion was paved in 2022. |
| SYCAMORE LANE | 100 | 6 | \$175,003 | \$251,691 | |

The quantities provided in this report must be verified prior to bid. Miscellaneous items such as pavement markings, curbs, adjusting manholes, adjusting valves, or other are not included in these costs. Some roadway lengths shown above do not reflect the entire roadway, only the section in need of repair. The roadways have been identified in Appendix J.

RECOMMENDATIONS

Based on our field evaluations and cost analysis, we recommend using the strategy and plan described in this report. The annual cost should be re-evaluated by the Village. James J. Hahn Engineering would work with the Village to further customize the road re-surfacing plan based on specific concerns of the Village.

We also recommend identifying any work needed to be completed before a road is resurfaced. Therefore, the work can be scheduled and completed prior to paving.

CONCLUSION

This roadway classification report and assessment for the Village of Irvington was conducted to be used by the Public Works Department as a tool to quantify the various states of condition that each roadway is in within the Village. The Village staff will be able to use the methods explained in this report in the future to conduct roadway assessments on their own and develop an ongoing multiyear comprehensive plan. Additionally, any existing records that the Village has on file regarding past roadway repavement projects will improve future assessments. For example, if a roadway was recently repaved but already showing signs of deterioration further investigation

should be conducted, such as evaluating the subbase for replacement rather than simply milling and repaving a roadway.

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APPENDICES

A –ROADWAY LIST

**LIST OF ROADWAYS
VILLAGE OF IRVINGTON**

| ROAD NAME | # | LENGTH (FT) | AVERAGE WIDTH (FT) | AREA (SF) | AREA (SY) | DATE RESURFACED | NOTES |
|------------------------------------|----|-------------|--------------------|-----------|-----------|----------------------------------|---|
| AQUEDUCT LANE | 1 | 215 | 21 | 4515 | 501.67 | 1993, 2022 | |
| ARDSLEY AVE. EAST | 2 | 885 | 20 | 17700 | 1966.67 | Sept. 1994, 2022 | |
| ARDSLEY AVE. WEST* | 3 | 2764 | 20 | 55280 | 6142.22 | Sept. 1992 | From Clifton to train Plaza 2010 |
| BARBARA LANE* | 4 | 591 | 23 | 13593 | 1510.33 | Sept.2009, 2022 | 77' Dia. in circle=517sq.yds |
| BEECHWOOD LANE* | 5 | 1636 | 24 | 39264 | 4362.67 | Aug. 2001 | 93' Dia. in circle=707sq.yds |
| BELMONT DRIVE NORTH | 6 | 521 | 20 | 10420 | 1157.78 | Aug. 2000/2010, 2022 | |
| BELMONT DRIVE SOUTH | 7 | 527 | 20 | 10540 | 1171.11 | Aug. 2000/2010, 2022 | |
| BERTHA PLACE | 8 | 855 | 18 | 15390 | 1710.00 | July 1998 micro | |
| BRIDGE STREET | 9 | 844 | 40 | 33760 | 3751.11 | Jul. 1997 | |
| BROOK PLACE | 10 | 104 | 18 | 1872 | 208.00 | Sept. 2010 | |
| BUCKHOUT STREET NORTH | 11 | 415 | 28 | 11620 | 1291.11 | Jul. 1999, 2022 | |
| BUCKHOUT STREET SOUTH | 12 | 3160 | 24 | 75840 | 8426.67 | Aug. 15 1996 + July 1997, 2022 | |
| BUTTERWOOD EAST* | 13 | 660 | 20 | 13200 | 1466.67 | Aug. 14 1996 | 83' Dia in Circle=601 sq. yds. |
| BUTTERWOOD WEST* | 14 | 740 | 20 | 14800 | 1644.44 | Aug. 14 1996 | 86' Dia in Circle=645 sq. yds. |
| CARLA LANE* | 15 | 434 | 29 | 12586 | 1398.44 | July 1995 micro, 2018, 2022 | 70' Dia in Circle=427 sq. yds. |
| CASTLE ROAD* | 16 | 1017 | 19 | 19323 | 2147.00 | 1990 | 93' Dia in Circle=840 sq. yds. |
| CEDAR LAWN ROAD | 17 | 1400 | 19 | 26600 | 2955.56 | Sept. 1993, 2022 | |
| CENTER STREET | 18 | 600 | 19 | 11400 | 1266.67 | 2002, 2022 | |
| CINDY LANE | 19 | 231 | 26 | 6006 | 667.33 | Aug. 2001 | |
| CIRCLE DRIVE | 20 | 809 | 21 | 16989 | 1887.67 | Sept. 2009, 2022 | |
| CLIFTON PLACE | 21 | 681 | 18 | 12258 | 1362.00 | July 1998 micro | |
| COTTONET STREET NORTH | 22 | 312 | 27 | 8424 | 936.00 | Jul. 1999, 2022 | |
| COTTONET STREET SOUTH | 23 | 460 | 28 | 12880 | 1431.11 | Jul. 1999, 2022 | |
| CROTON PLACE | 24 | 259 | 18 | 4662 | 518.00 | Nov. 1992, 2022 | |
| CYRUS FIELD ROAD (0-3,200 ft.) | 25 | 3200 | 20 | 64000 | 7111.11 | 1996, 2010 | |
| CYRUS FIELD ROAD (3,200-5,744 ft.) | 26 | 2544 | 20 | 50880 | 5653.33 | 1996, 2010, 2021 | |
| DEARMAN STREET NORTH | 27 | 191 | 27 | 5157 | 573.00 | 1992, 2022 | |
| DEARMAN STREET SOUTH | 28 | 170 | 27 | 4590 | 510.00 | 1992, 2022 | |
| DEEP HOLLOW CLOSE | 29 | 460 | 21 | 9660 | 1073.33 | Sept. 1991 | |
| DOGWOOD LANE* | 30 | 1309 | 29 | 37961 | 4217.89 | July 1997 micro | 75' Dia. In circle=491 sq. yds. |
| DOWS LANE | 31 | 556 | 20 | 11120 | 1235.56 | July 1998 micro | |
| DUNHAM PLACE* | 32 | 246 | 30 | 7380 | 820.00 | July 1997 micro, 2022 | 83' Dia in Circle=600 sq. yds. |
| DUTCHER STREET NORTH | 33 | 418 | 28 | 11704 | 1300.44 | Jul. 1999, 2022 | |
| DUTCHER STREET SOUTH | 34 | 447 | 29 | 12963 | 1440.33 | Jul. 1999, 2022 | |
| EAST CLINTON AVE. | 35 | 550 | 27 | 14850 | 1650.00 | Jul. 1997 | |
| EAST SUNNYSIDE LANE | 36 | 3231 | 10 | 32310 | 3590.00 | Nov. 1994, 2018 | Road is split with Tarrytown at 3590 |
| ECKAR STREET NORTH | 37 | 407 | 29 | 11803 | 1311.44 | Jul. 1999, 2022 | |
| ECKAR STREET SOUTH | 38 | 428 | 30 | 12840 | 1426.67 | Jul. 1999, 2022 | |
| ERIE STREET | 39 | 1180 | 20 | 23600 | 2622.22 | Jul. 1998 | |
| EMORY ROAD | 40 | 550 | 16 | 8800 | 977.78 | 2022 | Private |
| FARGO LANE | 41 | 3238 | 18 | 58284 | 6476.00 | Sept. 1991+Jul. 2000, 2018, 2022 | Fix portion near Rt. 9 to improve quality |
| FERRIS STREET NORTH | 42 | 396 | 29 | 11484 | 1276.00 | Jul. 1999, 2022 | |
| FERRIS STREET SOUTH | 43 | 512 | 29 | 14848 | 1649.78 | Jul. 1999, 2022 | |
| FIELDPOINT DRIVE (0-800 ft.) | 44 | 800 | 20 | 16000 | 1777.78 | 1998, 2010, 2017 | |
| FIELDPOINT DRIVE (800-4,500 ft.) | 45 | 3700 | 20 | 74000 | 8222.22 | 1998, 2010, 2017 | |
| FIELDPOINT DRIVE PARKING LOT | 46 | 300 | 24 | 7200 | 800.00 | | |
| FIELD TERRACE | 47 | 1275 | 17 | 21675 | 2408.33 | Sept. 2009 | |
| GREY ROCK TERRACE | 48 | 720 | 18 | 12960 | 1440.00 | Sept. 1993, 2022 | |
| GRINNEL STREET | 49 | 381 | 18 | 6858 | 762.00 | Nov. 1992, 2022 | |
| HALFMOON LANE | 50 | 935 | 24 | 22440 | 2493.33 | July 1997 micro | |
| HALSEY POND ROAD | 51 | 820 | 14 | 11480 | 1275.56 | 2002 | |
| HAMILTON ROAD | 52 | 1510 | 24 | 36240 | 4026.67 | Sept. 2009 | |
| HANCOCK PLACE | 53 | 777 | 17 | 13209 | 1467.67 | July 1998 micro | |
| HARRIMAN ROAD | 54 | 3750 | 31 | 116250 | 12916.67 | 1996, 1997, 2002, 2016 | |
| HAVEMEYER ROAD* | 55 | 1509 | 24 | 36216 | 4024.00 | 1990 | 84' Dia in Circle= 616 sq. yds |
| HENDRICK NORTH * | 56 | 370 | 20 | 7400 | 822.22 | Sept. 1993 | 65' Dia in circle= 369 sq. yds |

**LIST OF ROADWAYS
VILLAGE OF IRVINGTON**

| ROAD NAME | # | LENGTH (FT) | AVERAGE WIDTH (FT) | AREA (SF) | AREA (SY) | DATE RESURFACED | NOTES |
|--|-----|-------------|--------------------|-----------|-----------|-----------------------------|---|
| HENDRICK SOUTH* | 57 | 295 | 20 | 5900 | 655.56 | Sept. 1993 | 64' Dia in circle = 357 sq. yds |
| HERMITS ROAD | 58 | 800 | 10 | 8000 | 888.89 | Sept. 2009 | |
| HILLSIDE TERRACE | 59 | 812 | 18 | 14616 | 1624.00 | Sept. 1991, 2022 | |
| HOME PLACE EAST | 60 | 168 | 16 | 2688 | 298.67 | Nov. 1992, 2022 | |
| HOME PLACE WEST | 61 | 218 | 18 | 3924 | 436.00 | Nov. 1992, 2022 | |
| HUDSON AVENUE | 62 | 1550 | 20 | 31000 | 3444.44 | Jul. 2000, 2022 | |
| HUDSON ROAD EAST | 63 | 1150 | 17 | 19550 | 2172.22 | Sept. 2009 | |
| HUDSON ROAD WEST | 64 | 2630 | 19 | 49970 | 5552.22 | 1997 | From Train Plaza to Tennis Courts 2010 |
| HUDSON VIEW PARK | 65 | 220 | 20 | 4400 | 488.89 | 2022 | |
| HUGH HILL LANE* | 66 | 710 | 24 | 17040 | 1893.33 | 2022 | 94' Dia in Circle= 771 sq. yds |
| ILINKA LANE | 67 | 250 | 20 | 5000 | 555.56 | 1996 | |
| IRVING PLACE | 68 | 215 | 18 | 3870 | 430.00 | 1989, 2022 | |
| IRVINGTON MANOR DRIVE | 69 | 525 | 16 | 8400 | 933.33 | 2002 | |
| JAFFREY PARK | 70 | 1064 | 29 | 30856 | 3428.44 | Jun. 1993 micro | |
| JANET TERRACE* | 71 | 570 | 23 | 13110 | 1456.67 | Sept. 2009, 2022 | 81' Dia in Circle= 572 sq. yds |
| LANGDON AVENUE | 72 | 1720 | 18 | 30960 | 3440.00 | Sept. 2009 | |
| LEAFWOOD TERRACE* | 73 | 627 | 20 | 12540 | 1393.33 | 1990 | 96' Dia in circle = 856 sq. yds |
| LEWIS ROAD | 74 | 1527 | 18 | 27486 | 3054.00 | Sept. 2009, 2022 | |
| MAIN STREET | 75 | 2192 | 44 | 96448 | 10716.44 | Sept. 1994, 2021 | |
| MAIN STREET WEST | 76 | 341 | 47 | 16027 | 1780.78 | 1992 | |
| MANOR POND LANE | 77 | 2660 | 22 | 58520 | 6502.22 | 2002 | |
| MAPLE STREET | 78 | 526 | 18 | 9468 | 1052.00 | Sept. 2010 | |
| MATHIESSEN PARK | 79 | 2050 | 10 | 20500 | 2277.78 | 2020 | |
| MEADOW BROOK ROAD | 80 | 1087 | 20 | 21740 | 2415.56 | Jul. 1997 | |
| MEADOW WAY | 81 | 917 | 20 | 18340 | 2037.78 | 1992, 2022 | |
| NORTH ASTOR STREET | 82 | 400 | 40 | 16000 | 1777.78 | Sept. 2009 | |
| NORTH BROOK LANE | 83 | 1700 | 22 | 37400 | 4155.56 | 2002 | |
| OAK STREET | 84 | 524 | 17 | 8908 | 989.78 | Sept. 2010 | |
| OSCEOLA AVENUE | 85 | 1935 | 19 | 36765 | 4085.00 | Sept. 2009 | |
| PALLISER ROAD | 86 | 929 | 19 | 17651 | 1961.22 | 1990 | Roadway is split by gravel road |
| PARK AVENUE | 87 | 565 | 19 | 10735 | 1192.78 | Jul. 2000, 2022 | |
| PARK ROAD | 88 | 739 | 20 | 14780 | 1642.22 | Sept. 2009, 2022 | |
| PARKSIDE WAY | 89 | 750 | 19 | 14250 | 1583.33 | 1990, 2022 | |
| PETER BONT ROAD (0-2,000 ft.) ¹ | 90 | 2000 | 10 | 20000 | 2222.22 | Aug. 2002 | A.K.A. - Mountain Road |
| PETER BONT ROAD (2,000-4,799 ft.) ¹ | 91 | 2799 | 10 | 27990 | 3110.00 | Aug. 2002 | A.K.A. - Mountain Road |
| RIVER ROAD | 92 | 750 | 35 | 26250 | 2916.67 | | |
| RIVERVIEW ROAD | 93 | 3344 | 22 | 73568 | 8174.22 | Sept. 2009, 2022 | |
| RIVERVIEW TERRACE | 94 | 555 | 20 | 11100 | 1233.33 | 1993, 2022 | |
| ROLAND ROAD | 95 | 1063 | 17 | 18071 | 2007.89 | Sept. 2009 | |
| SCENIC HUDSON PARKING LOT | 96 | 190 | 24 | 4560 | 506.67 | | |
| SCENIC HUDSON ROADWAY | 97 | 1400 | 24 | 33600 | 3733.33 | | |
| SOUTH ASTOR STREET | 98 | 822 | 34 | 27948 | 3105.33 | Sept. 2009, 2022 | |
| STATION ROAD | 99 | 2480 | 21 | 52080 | 5786.67 | Sept. 2010 | |
| SYCAMORE LANE | 100 | 1987 | 29 | 57623 | 6402.56 | Jul. 1997 micro | |
| VICTOR DRIVE* | 101 | 585 | 28 | 16380 | 1820.00 | Jul. 1995 micro, 2018, 2022 | 70' Dia in Circle=385 sq. yds. |
| WASHINGTON AVENUE | 102 | 1070 | 23 | 24610 | 2734.44 | Sept. 2010 | |
| WEST CLINTON AVENUE* | 103 | 2440 | 28 | 68320 | 7591.11 | 1994, 2022 | Add 173' to length for parking lot(1994) |
| WEST SUNNYSIDE LANE | 104 | 2036 | 10 | 20360 | 2262.22 | Aug. 1997, 2021 | Road is split with Tarrytown at 2375 each |
| WILLOW STREET | 105 | 541 | 17 | 9197 | 1021.89 | Sept. 2010 | |
| WOODBINE ROAD* | 106 | 418 | 19 | 7942 | 882.44 | Sept. 2010 | 49' Dia in circle= 218 S.Y |

TOTAL LENGTH (ft) 113846
TOTAL LENGTH (mi) 21.5617424

NOTES:

The length of roadway was taken at the center of the intersection when applicable. The areas provided are estimates and should be re-evaluated when necessary.

¹ - Peter Bont Road is also know as Mountain Road.

* Pavement area for cul-de-sac is included in the length of each roadway.

B – ROADWAY RATING TABLE

**ROADWAY RATING TABLE
VILLAGE OF IRVINGTON**

| ROAD NAME | # | LENGTH (FT) | TOTAL | OVERALL RATING | NOTES |
|-------------------------------------|----|-------------|-------|----------------|--|
| AQUEDUCT LANE | 1 | 215 | 6.6 | 7 | Paved in 2022. |
| ARDSLEY AVE. EAST | 2 | 885 | 9.25 | 9 | Curbs or drainage required as per Village DPW. Paved in 2022. |
| ARDSLEY AVE. WEST* | 3 | 2764 | 6.9 | 7 | |
| BARBARA LANE* | 4 | 591 | 10 | 10 | Paved in 2022. |
| BEECHWOOD LANE* | 5 | 1636 | 6.6 | 7 | |
| BELMONT DRIVE NORTH | 6 | 521 | 10 | 10 | Paved in 2022. |
| BELMONT DRIVE SOUTH | 7 | 527 | 10 | 10 | Paved in 2022. |
| BERTHA PLACE | 8 | 855 | 4.9 | 5 | |
| BRIDGE STREET | 9 | 844 | 6.9 | 7 | |
| BROOK PLACE | 10 | 104 | 9.15 | 9 | |
| BUCKHOUT STREET NORTH | 11 | 415 | 8.6 | 9 | Con Edison utility work required. Date unknown. Con Edison portion of paving unknown. Paved in 2022. |
| BUCKHOUT STREET SOUTH* ² | 12 | 2270 | 8.4 | 8 | South of Station Road. Village Parking Lot. |
| BUCKHOUT STREET SOUTH* ² | 12 | 890 | 8.4 | 8 | North of Station Road. Con Edison utility work anticipated. |
| BUTTERWOOD EAST* | 13 | 660 | 5.75 | 6 | |
| BUTTERWOOD WEST* | 14 | 740 | 6.6 | 7 | |
| CARLA LANE* | 15 | 434 | 10 | 10 | Paved in 2018. Paved in 2022. |
| CASTLE ROAD* | 16 | 1017 | 6.6 | 7 | |
| CEDAR LAWN ROAD | 17 | 1400 | 9.25 | 9 | Paved in 2022. |
| CENTER STREET | 18 | 600 | 9.35 | 9 | Paved in 2022. |
| CINDY LANE | 19 | 231 | 7.55 | 8 | |
| CIRCLE DRIVE | 20 | 809 | 9.25 | 9 | Paved in 2022. |
| CLIFTON PLACE | 21 | 681 | 5 | 5 | Curbs or drainage required as per Village DPW. |
| COTTONET STREET NORTH | 22 | 312 | 9.15 | 9 | Paved in 2022. |
| COTTONET STREET SOUTH | 23 | 460 | 9.15 | 9 | Paved in 2022. |
| CROTON PLACE | 24 | 259 | 10 | 10 | Paved in 2022. |
| CYRUS FIELD ROAD (0-3,200 ft.) | 25 | 3200 | 7.85 | 8 | Overlay portion of roadway from Harriman to Legend Hollow. Paved in 2021. |
| CYRUS FIELD ROAD (3,200-5,744 ft.) | 26 | 2544 | 4.9 | 5 | Concrete portion from Legend Hollow to Dobbs Ferry. Identify and replace sections of concrete in kind, or install asphalt overlay. |
| DEARMAN STREET NORTH | 27 | 191 | 10 | 10 | Paved in 2022. |
| DEARMAN STREET SOUTH | 28 | 170 | 10 | 10 | Paved in 2022. |
| DEEP HOLLOW CLOSE | 29 | 460 | 6.8 | 7 | |
| DOGWOOD LANE* | 30 | 1309 | 6.6 | 7 | |
| DOWS LANE | 31 | 556 | 6.375 | 6 | |
| DUNHAM PLACE* ¹ | 32 | 246 | 9.15 | 9 | Southern portion was paved in 2022. |
| DUTCHER STREET NORTH | 33 | 418 | 9.15 | 9 | Paved in 2022. |
| DUTCHER STREET SOUTH | 34 | 447 | 9.15 | 9 | Paved in 2022. |
| EAST CLINTON AVE. | 35 | 550 | 5.85 | 6 | To be paved by Con Ed 2023-2024. |
| EAST SUNNYSIDE LANE | 36 | 3231 | 4.25 | 4 | Paved in 2018. To be paved by Con Ed 2023-2024. |
| ECKAR STREET NORTH | 37 | 407 | 9.15 | 9 | Paved in 2022. |
| ECKAR STREET SOUTH | 38 | 428 | 9.15 | 9 | Paved in 2022. |
| ERIE STREET | 39 | 1180 | 4.9 | 5 | Curbs or drainage required as per Village DPW. |
| EMORY ROAD | 40 | 550 | 3.2 | Private | Private |
| FARGO LANE | 41 | 3238 | 8.5 | 9 | Paved in 2018. Paved in 2022. |

**ROADWAY RATING TABLE
VILLAGE OF IRVINGTON**

| ROAD NAME | # | LENGTH (FT) | TOTAL | OVERALL RATING | NOTES |
|----------------------------------|----|-------------|-------|----------------|--|
| FERRIS STREET NORTH | 42 | 396 | 8.4 | 8 | Paved in 2022. |
| FERRIS STREET SOUTH | 43 | 512 | 8.4 | 8 | Con Edison utility work required. Date unknown. Con Edison portion of paving unknown. Paved in 2022. |
| FIELDPOINT DRIVE (0-800 ft.) | 44 | 800 | 8.4 | 8 | |
| FIELDPOINT DRIVE (800-4,500 ft.) | 45 | 3700 | 6.5 | 7 | Paved in 2017. |
| FIELDPOINT DRIVE PARKING LOT | 46 | 300 | 4.05 | 4 | To be paved by developer |
| FIELD TERRACE | 47 | 1275 | 6.6 | 7 | |
| GREY ROCK TERRACE | 48 | 720 | 10 | 10 | Paved in 2022. |
| GRINNEL STREET | 49 | 381 | 10 | 10 | Paved in 2022. |
| HALFMOON LANE | 50 | 935 | 9.35 | 9 | |
| HALSEY POND ROAD | 51 | 820 | 6.4 | 6 | |
| HAMILTON ROAD | 52 | 1510 | 4.15 | 4 | |
| HANCOCK PLACE | 53 | 777 | 9.575 | 10 | |
| HARRIMAN ROAD | 54 | 3750 | 4.25 | 4 | Paved in 2016. To be paved by Con Ed 2023-2024. |
| HAVERMEYER ROAD* | 55 | 1509 | 6.925 | 7 | |
| HENDRICK NORTH * | 56 | 370 | 5.75 | 6 | |
| HENDRICK SOUTH* | 57 | 295 | 8.5 | 9 | |
| HERMITS ROAD | 58 | 800 | 4.05 | 4 | DPW to review with Village. |
| HILLSIDE TERRACE | 59 | 812 | 10 | 10 | Paved in 2022. |
| HOME PLACE EAST | 60 | 168 | 10 | 10 | Paved in 2022. |
| HOME PLACE WEST | 61 | 218 | 10 | 10 | Paved in 2022. |
| HUDSON AVENUE | 62 | 1550 | 9.35 | 9 | Culvert installation to be completed prior to mill and pave. Paved in 2022. |
| HUDSON ROAD EAST | 63 | 1150 | 4.475 | 4 | |
| HUDSON ROAD WEST | 64 | 2630 | 6.05 | 6 | Curbs or drainage required as per Village DPW. |
| HUDSON VIEW PARK | 65 | 220 | 8.6 | 9 | Culvert installation to be completed prior to mill and pave. Paved in 2022. |
| HUGH HILL LANE* | 66 | 710 | 10 | 10 | Paved in 2022. |
| ILINKA LANE | 67 | 250 | 6.6 | 7 | |
| IRVING PLACE | 68 | 215 | 10 | 10 | Paved in 2022. |
| IRVINGTON MANOR DRIVE | 69 | 525 | 5.85 | 6 | |
| JAFFREY PARK | 70 | 1064 | 7 | 7 | |
| JANET TERRACE* | 71 | 570 | 10 | 10 | Paved in 2022. |
| LANGDON AVENUE | 72 | 1720 | 5.65 | 6 | |
| LEAFWOOD TERRACE* | 73 | 627 | 5.95 | 6 | |
| LEWIS ROAD | 74 | 1527 | 7.65 | 8 | A portion was paved in 2022. |
| MAIN STREET | 75 | 2192 | 5.95 | 6 | To be paved by Con Ed. Paved in 2021. |
| MAIN STREET WEST | 76 | 341 | 6.8 | 7 | |
| MANOR POND LANE | 77 | 2660 | 6.6 | 7 | |
| MAPLE STREET | 78 | 526 | 7.45 | 7 | |
| MATHIESSEN PARK | 79 | 2050 | 10 | 10 | Paved in 2020. |
| MEADOW BROOK ROAD | 80 | 1087 | 6.6 | 7 | |
| MEADOW WAY | 81 | 917 | 10 | 10 | Drainage work needed. No design at this time. Paved in 2022. |
| NORTH ASTOR STREET | 82 | 400 | 7.75 | 8 | Con Edison utility work required. Date unknown. Con Edison portion of paving unknown. |

**ROADWAY RATING TABLE
VILLAGE OF IRVINGTON**

| ROAD NAME | # | LENGTH (FT) | TOTAL | OVERALL RATING | NOTES |
|-----------------------------------|-----|-------------|-------|----------------|---|
| NORTH BROOK LANE | 83 | 1700 | 6.6 | 7 | |
| OAK STREET | 84 | 524 | 8.5 | 9 | |
| OSCEOLA AVENUE | 85 | 1935 | 4.15 | 4 | |
| PALLISER ROAD | 86 | 929 | 5.95 | 6 | |
| PARK AVENUE | 87 | 565 | 9.35 | 9 | Paved in 2022. |
| PARK ROAD | 88 | 739 | 9.05 | 9 | Paved in 2022. |
| PARKSIDE WAY | 89 | 750 | 7.45 | 7 | Eastern portion was paved in 2022. |
| PETER BONT ROAD (0-2,000 ft.) | 90 | 2000 | 8.4 | 8 | Utility work for water and sewer to be completed. Date unknown. |
| PETER BONT ROAD (2,000-4,799 ft.) | 91 | 2799 | 6.05 | 6 | Utility work for water and sewer to be completed. Date unknown. |
| RIVER ROAD | 92 | 750 | 7.65 | 8 | |
| RIVERVIEW ROAD | 93 | 3344 | 8.6 | 9 | Paved in 2022. |
| RIVERVIEW TERRACE | 94 | 555 | 10 | 10 | Paved in 2022. |
| ROLAND ROAD | 95 | 1063 | 4.475 | 4 | |
| SCENIC HUDSON PARKING LOT | 96 | 190 | 6.8 | 7 | |
| SCENIC HUDSON ROADWAY | 97 | 1400 | 7.65 | 8 | |
| SOUTH ASTOR STREET | 98 | 822 | 6.05 | 6 | Con Edison utility work required. Date unknown. Con Edison portion of paving unknown. Partially paved in 2022. Village Parking Lot. |
| STATION ROAD | 99 | 2480 | 5.1 | 5 | |
| SYCAMORE LANE | 100 | 1987 | 5.85 | 6 | |
| VICTOR DRIVE* | 101 | 585 | 10 | 10 | Paved in 2018. Paved in 2022. |
| WASHINGTON AVENUE | 102 | 1070 | 8.3 | 8 | |
| WEST CLINTON AVENUE* | 103 | 2440 | 9.25 | 9 | Paved in 2022. |
| WEST SUNNYSIDE LANE | 104 | 2036 | 10 | 10 | Paved in 2021. |
| WILLOW STREET | 105 | 541 | 8.5 | 9 | |
| WOODBINE ROAD* | 106 | 418 | 7.45 | 7 | |

NOTES:

applicable. The areas provided are estimates and should be re-evaluated when necessary.

¹ - Peter Bont Road is also know as Mountain Road.

* Pavement area for cul-de-sac in included in the length of each roadway.

C – ROADWAY DISTRESS TYPES

D – FIELD EVALUATION FORM

E – FLEXIBLE DISTRESS RATING

F – RIGID DISTRESS RATING

G – DISTRESS RATING TABLES

H – ANNUAL CHECKLIST

I – ESTIMATED COSTS

J – SEQUENCING PLAN

K – 2023 PAVING PLAN

L – FIVE-YEAR ROADWAY IMPROVEMENT PLAN

M – COMPLETED IMPROVEMENTS 2016-2023