ROADWAY ASSESSMENT REPORT

FOR THE

VILLAGE OF IRVINGTON
PUBLIC WORKS DEPARTMENT

PREPARED BY

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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 from 2016 through 2019. This report re-evaluated the roadways that received lower ratings and provides new recommendations for the upcoming five years.

This comprehensive roadway assessment report was completed for the Village of Irvington 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, and the roadways scheduled to be paved in 2019.

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 and $230,000. This plan has been extended for a 10 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, 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 of Irvington. This report is based on the original Roadway Assessment Report completed in March of 2016. This report includes classification system created in 2016, a multi-year comprehensive rehabilitation plan, roadways to be paved in 2019, and the roadways that have been paved since 2015.

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.

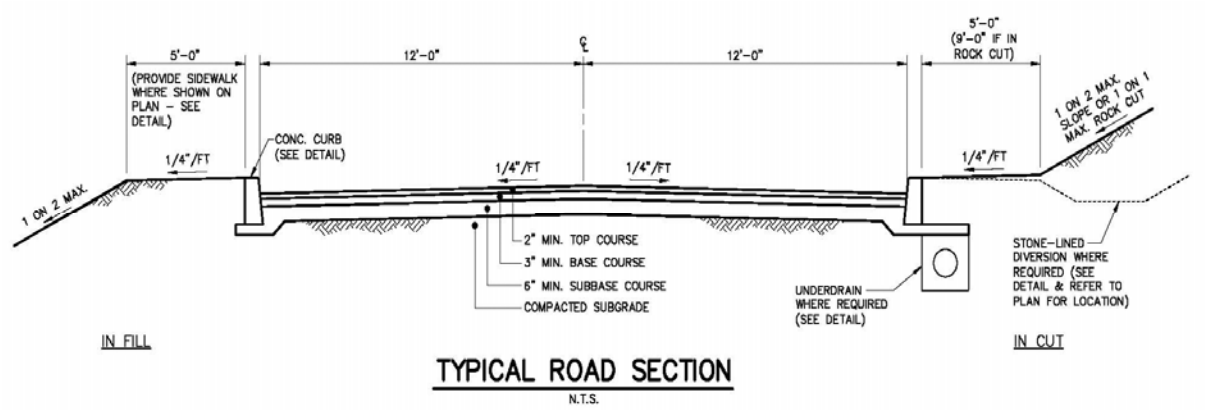
Surface types are either rigid or flexible. Concrete roads are considered rigid, asphalt roads or concrete roads with an asphalt overlay are considered flexible. Road surface material is typically selected based on traffic volume, soil characteristics, weather, initial cost, overall annual maintenance and service-life cost. All 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.



TYPICAL ROAD SECTION

N.T.S.

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.

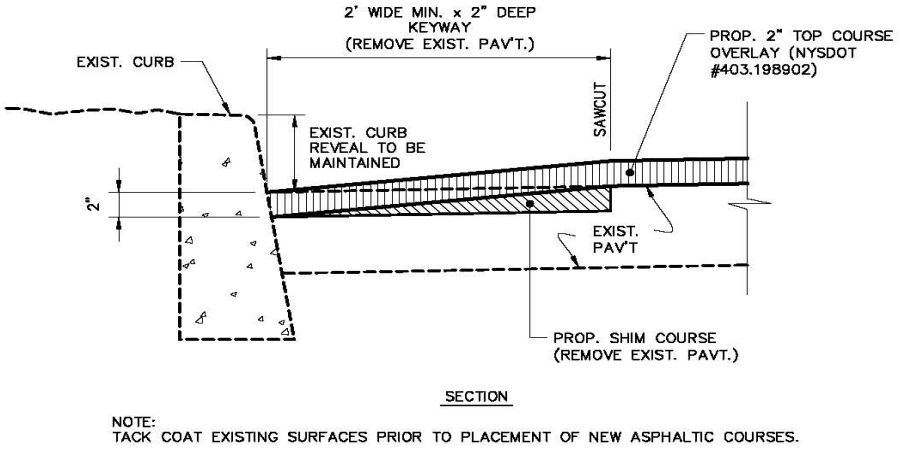
Periodic repairs should be performed as needed to preserve the structural integrity of the road. Roadway repair work can be grouped into categories that include preventative measures, surface overlay, re-surfacing, and pavement reconstruction.

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, 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.

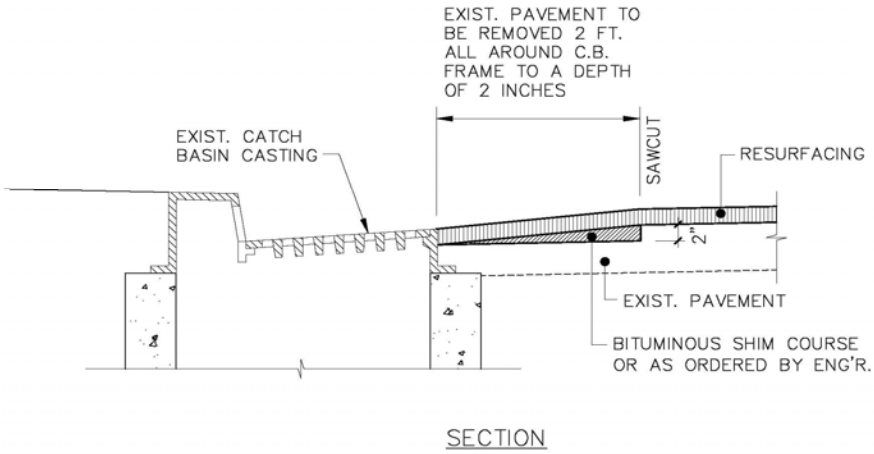
Pavement reconstruction may be needed when the structural integrity of the road is compromised. Prior to reconstructing the roadway, an engineer should determine the extent of work required and the type of repairs needed.



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.



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%
Usage:	15%
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. The roads were ranked and listed in order from the lowest to the highest; the lowest being in the worst condition (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, there is no need 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 3 or 4, which are listed on a spreadsheet. The next roadways that are added to the list have an overall rating of 5, which have been grouped by location. Grouping roadways allows a contractor to work faster and may lead to a lower repair cost. The roadways with an overall rating of 6 are added next, followed by 7 through 10.

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 $230,000, 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, 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 $5.5 million. Using a budget of $230,000 per year, it would take approximately 24 years to re-surface all of the roads in the Village (using present worth value).

The roadways to be resurfaced in 2019 are West Clinton Avenue, Cedar Lawn Road, Dunham Place, Peter Bont Road (a.k.a. Mountain Road). The project is currently out to bid.

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.

Cyrus Field Road is a concrete roadway that has an asphalt overlay for approximately two-thirds the length of the roadway. This road is in poor condition and should be restored. The concrete portion of the roadway is not included in the paving sequence. Further evaluation to restore the roadway is required.

Meadow Way is relatively flat and the roadway has drainage issues. Further evaluation to address the drainage is required and therefore not included in the sequencing.

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 ($125/ton, $6.50/SY)	CUM. COST	NOTES
2020					
BUCKHOUT STREET SOUTH*[2]	12	5	$123,421	$123,421	South of Station Road
HUDSON AVENUE	62	6	$70,228	$193,649	Culvert installation to be completed prior to mill and pave.
CENTER STREET	18	6	$25,826	$219,475	
PARK AVENUE	87	6	$24,319	$243,794	
HUDSON VIEW PARK	65	5	$9,968	$253,762	Culvert installation to be completed prior to mill and pave.

ROAD NAME	#	OVERALL RATING	COST MILL AND PAVE ($125/ton, $6.50/SY)	CUM. COST	NOTES
2021					
PARK ROAD	88	5	$33,483	$33,483	
PARKSIDE WAY	89	4	$32,282	$65,765	
DEARMAN STREET NORTH	27	5	$11,683	$77,448	
DEARMAN STREET SOUTH	28	5	$10,398	$87,847	
2022					
CYRUS FIELD ROAD (0-3,200 ft.)	25	3	$144,988	$144,988	Overlay portion of roadway from Harriman to Legend Hollow.
HANCOCK PLACE	53	6	$29,924	$174,912	
CLIFTON PLACE	21	5	$27,770	$202,681	Curbs or drainage required as per Village DPW.
2023					
NORTH ASTOR STREET	82	5	$36,247	$36,247	Con Edison utility work required. Date unknown. Con Edison portion of paving unknown.
SOUTH ASTOR STREET	98	5	$63,314	$99,561	Con Edison utility work required. Date unknown. Con Edison portion of paving unknown.
BUCKHOUT STREET NORTH	11	5	$26,324	$125,886	Con Edison utility work required. Date unknown. Con Edison portion of paving unknown.
BUCKHOUT STREET SOUTH*[2]	12	5	$48,390	$174,275	North of Station Road. Con Edison utility work anticipated.
FERRIS STREET NORTH	42	5	$26,016	$200,291	
FERRIS STREET SOUTH	43	5	$33,637	$233,929	Con Edison utility work required. Date unknown. Con Edison portion of paving unknown.
2024					
BELMONT DRIVE NORTH	6	5	$23,606	$23,606	
ARDSLEY AVE. EAST	2	5	$40,098	$63,704	Curbs or drainage required as per Village DPW.
ERIE STREET	39	5	$53,464	$117,168	Curbs or drainage required as per Village DPW.
LANGDON AVENUE	72	5	$70,138	$187,306	
HUDSON ROAD EAST	63	6	$44,289	$231,595	

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 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.

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	
ARDSLEY AVE. EAST	2	885	20	17700	1966.67	Sept. 1994	
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	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	
BELMONT DRIVE SOUTH	7	527	20	10540	1171.11	Aug. 2000/2010	
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	
BUCKHOUT STREET SOUTH	12	3160	24	75840	8426.67	Aug. 15 1996 + July 1997	
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	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	
CENTER STREET	18	600	19	11400	1266.67	2002	
CINDY LANE	19	231	26	6006	667.33	Aug. 2001	
CIRCLE DRIVE	20	809	21	16989	1887.67	Sept. 2009	
CLIFTON PLACE	21	681	18	12258	1362.00	July 1998 micro	
COTTONET STREET NORTH	22	312	27	8424	936.00	Jul. 1999	
COTTONET STREET SOUTH	23	460	28	12880	1431.11	Jul. 1999	
CROTON PLACE	24	259	18	4662	518.00	Nov. 1992	
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	
DEARMAN STREET NORTH	27	191	27	5157	573.00	1992	
DEARMAN STREET SOUTH	28	170	27	4590	510.00	1992	
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	83' Dia in Circle=600 sq. yds.
DUTCHER STREET NORTH	33	418	28	11704	1300.44	Jul. 1999	
DUTCHER STREET SOUTH	34	447	29	12963	1440.33	Jul. 1999	
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	
ECKAR STREET SOUTH	38	428	30	12840	1426.67	Jul. 1999	
ERIE STREET	39	1180	20	23600	2622.22	Jul. 1998	
EMORY ROAD	40	550	16	8800	977.78		Private
FARGO LANE	41	3238	18	58284	6476.00	Sept. 1991+Jul. 2000, 2018	Fix portion near Rt. 9 to improve quality
FERRIS STREET NORTH	42	396	29	11484	1276.00	Jul. 1999	
FERRIS STREET SOUTH	43	512	29	14848	1649.78	Jul. 1999	
FIELDPOINT DRIVE (0-800 ft.)	44	800	20	16000	1777.78	198,920,102,017	
FIELDPOINT DRIVE (800-4,500 ft.)	45	3700	20	74000	8222.22	198,920,102,017	
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	
GRINNEL STREET	49	381	18	6858	762.00	Nov. 1992	
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	
HAVERMEYER 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	
HOME PLACE EAST	60	168	16	2688	298.67	Nov. 1992	
HOME PLACE WEST	61	218	18	3924	436.00	Nov. 1992	
HUDSON AVENUE	62	1550	20	31000	3444.44	Jul. 2000	
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		
HUGH HILL LANE*	66	710	24	17040	1893.33		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	
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	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	
MAIN STREET	75	2192	44	96448	10716.44	Sept. 1994	
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		
MEADOW BROOK ROAD	80	1087	20	21740	2415.56	Jul. 1997	
MEADOW WAY	81	917	20	18340	2037.78	1992	
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	
PARK ROAD	88	739	20	14780	1642.22	Sept. 2009	
PARKSIDE WAY	89	750	19	14250	1583.33	1990	
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	
RIVERVIEW TERRACE	94	555	20	11100	1233.33	1993	
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	
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	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	Add 173' to length for parking lot(1994)
WEST SUNNYSIDE LANE	104	2036	10	20360	2262.22	Aug. 1997	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 in included in the length of each roadway.

B – ROADWAY RANKING

ROADWAY RATING TABLE
VILLAGE OF IRVINGTON

ROAD NAME	#	LENGTH (FT)	TOTAL	OVERALL RATING	NOTES
AQUEDUCT LANE	1	215	9.35	9	Not re-evaluated in 2019.
ARDSLEY AVE. EAST	2	885	4.5	5	Curbs or drainage required as per Village DPW.
ARDSLEY AVE. WEST*	3	2764	6.8	7	Not re-evaluated in 2019.
BARBARA LANE*	4	591	8.3	8	Not re-evaluated in 2019.
BEECHWOOD LANE*	5	1636	8.3	8	Not re-evaluated in 2019.
BELMONT DRIVE NORTH	6	521	4.9	5	
BELMONT DRIVE SOUTH	7	527	6.9	7	Not re-evaluated in 2019.
BERTHA PLACE	8	855	6.5	7	Not re-evaluated in 2019.
BRIDGE STREET	9	844	6.8	7	
BROOK PLACE	10	104	8.3	8	Not re-evaluated in 2019.
BUCKHOUT STREET NORTH	11	415	5.1	5	Con Edison utility work required. Date unknown. Con Edison portion of paving unknown.
BUCKHOUT STREET SOUTH*[2]	12	2270	4.9	5	South of Station Road
BUCKHOUT STREET SOUTH*[2]	12	890	4.9	5	North of Station Road. Con Edison utility work anticipated.
BUTTERWOOD EAST*	13	660	6.6	7	Not re-evaluated in 2019.
BUTTERWOOD WEST*	14	740	6.6	7	
CARLA LANE*	15	434	0		Paved in 2018. Not re-evaluated in 2019.
CASTLE ROAD*	16	1017	8.3	8	Not re-evaluated in 2019.
CEDAR LAWN ROAD	17	1400	3.75	4	
CENTER STREET	18	600	6.9	6	
CINDY LANE	19	231	8.3	8	Not re-evaluated in 2019.
CIRCLE DRIVE	20	809	6.9	7	Not re-evaluated in 2019.
CLIFTON PLACE	21	681	5	5	Curbs or drainage required as per Village DPW.
COTTONET STREET NORTH	22	312	8.3	8	Not re-evaluated in 2019.
COTTONET STREET SOUTH	23	460	7.65	8	Not re-evaluated in 2019.
CROTON PLACE	24	259	7.25	7	Not re-evaluated in 2019.
CYRUS FIELD ROAD (0-3,200 ft.)	25	3200	3	3	Overlay portion of roadway from Harriman to Legend Hollow.
CYRUS FIELD ROAD (3,200-5,744 ft.)	26	2544	3	3	Concrete portion from Legend Hollow to Dobbs Ferry.
DEARMAN STREET NORTH	27	191	5	5	
DEARMAN STREET SOUTH	28	170	5	5	
DEEP HOLLOW CLOSE	29	460	7.65	8	Not re-evaluated in 2019.
DOGWOOD LANE*	30	1309	8.3	8	Not re-evaluated in 2019.
DOWS LANE	31	556	6.8	7	Not re-evaluated in 2019.
DUNHAM PLACE*[1]	32	246	4.25	4	
DUTCHER STREET NORTH	33	418	7.65	8	Not re-evaluated in 2019.
DUTCHER STREET SOUTH	34	447	6.6	7	Not re-evaluated in 2019.
EAST CLINTON AVE.	35	550	6.6	7	Not re-evaluated in 2019.
EAST SUNNYSIDE LANE	36	3231	0		Paved in 2018. Not re-evaluated in 2019.
ECKAR STREET NORTH	37	407	7.65	8	Not re-evaluated in 2019.
ECKAR STREET SOUTH	38	428	7	7	Not re-evaluated in 2019.
ERIE STREET	39	1180	5	5	Curbs or drainage required as per Village DPW.
EMORY ROAD	40	550	0	Private	
FARGO LANE	41	3238	0		Paved in 2018. Not re-evaluated in 2019.
FERRIS STREET NORTH	42	396	5	5	

ROADWAY RATING TABLE
VILLAGE OF IRVINGTON

ROAD NAME	#	LENGTH (FT)	TOTAL	OVERALL RATING	NOTES
FERRIS STREET SOUTH	43	512	5	5	Con Edison utility work required. Date unknown. Con Edison portion of paving unknown.
FIELDPOINT DRIVE (0-800 ft.)	44	800	7.65	8	Not re-evaluated in 2019.
FIELDPOINT DRIVE (800-4,500 ft.)	45	3700	0		Paved in 2017. Not re-evaluated in 2019.
FIELDPOINT DRIVE PARKING LOT	46	300	0		To be paved by developer
FIELD TERRACE	47	1275	7.25	7	Not re-evaluated in 2019.
GREY ROCK TERRACE	48	720	6.6	7	Not re-evaluated in 2019.
GRINNEL STREET	49	381	6.6	7	Not re-evaluated in 2019.
HALFMOON LANE	50	935	7.55	8	Not re-evaluated in 2019.
HALSEY POND ROAD	51	820	6.6	7	
HAMILTON ROAD	52	1510	7.55	8	Not re-evaluated in 2019.
HANCOCK PLACE	53	777	5.85	6	
HARRIMAN ROAD	54	3750	0		Paved in 2016. Not re-evaluated in 2019.
HAVERMEYER ROAD*	55	1509	5.85	6	
HENDRICK NORTH *	56	370	7.65	8	Not re-evaluated in 2019.
HENDRICK SOUTH*	57	295	8.3	8	Not re-evaluated in 2019.
HERMITS ROAD	58	800	7.65	8	Not re-evaluated in 2019.
HILLSIDE TERRACE	59	812	6.6	7	Not re-evaluated in 2019.
HOME PLACE EAST	60	168	6.6	7	Not re-evaluated in 2019.
HOME PLACE WEST	61	218	7	7	Not re-evaluated in 2019.
HUDSON AVENUE	62	1550	5.85	6	Culvert installation to be completed prior to mill and pave.
HUDSON ROAD EAST	63	1150	5.85	6	
HUDSON ROAD WEST	64	2630	5.95	6	Curbs or drainage required as per Village DPW.
HUDSON VIEW PARK	65	220	4.8	5	Culvert installation to be completed prior to mill and pave.
HUGH HILL LANE*	66	710	8.3	8	Not re-evaluated in 2019.
ILINKA LANE	67	250	8.3	8	Not re-evaluated in 2019.
IRVING PLACE	68	215	6.6	7	Not re-evaluated in 2019.
IRVINGTON MANOR DRIVE	69	525	7.55	8	Not re-evaluated in 2019.
JAFFREY PARK	70	1064	8.3	8	Not re-evaluated in 2019.
JANET TERRACE*	71	570	8.3	8	Not re-evaluated in 2019.
LANGDON AVENUE	72	1720	5.1	5	
LEAFWOOD TERRACE*	73	627	8.3	8	Not re-evaluated in 2019.
LEWIS ROAD	74	1527	5.85	6	
MAIN STREET	75	2192	0		To be paved by Con Ed
MAIN STREET WEST	76	341	8.3	8	Not re-evaluated in 2019.
MANOR POND LANE	77	2660	6.9	7	Not re-evaluated in 2019.
MAPLE STREET	78	526	8.3	8	Not re-evaluated in 2019.
MATHIESSEN PARK	79	2050	7.65	8	Not re-evaluated in 2019.
MEADOW BROOK ROAD	80	1087	5.85	6	
MEADOW WAY	81	917	4.15	4	Drainage work needed. No design at this time.
NORTH ASTOR STREET	82	400	5.1	5	Con Edison utility work required. Date unknown. Con Edison portion of paving unknown.
NORTH BROOK LANE	83	1700	6.9	7	Not re-evaluated in 2019.
OAK STREET	84	524	8.95	9	Not re-evaluated in 2019.
OSCEOLA AVENUE	85	1935	5.85	6	
PALLISER ROAD	86	929	6.9	7	Not re-evaluated in 2019.

ROADWAY RATING TABLE
VILLAGE OF IRVINGTON

ROAD NAME	#	LENGTH (FT)	TOTAL	OVERALL RATING	NOTES
PARK AVENUE	87	565	7.55	6	
PARK ROAD	88	739	4.8	5	
PARKSIDE WAY	89	750	4.15	4	
PETER BONT ROAD (0-2,000 ft.)	90	2000	3.5	4	Utility work for water and sewer to be completed. Date unknown.
PETER BONT ROAD (2,000-4,799 ft.)	91	2799	3.5	4	Utility work for water and sewer to be completed. Date unknown.
RIVER ROAD	92	750	7.55	8	Not re-evaluated in 2019.
RIVERVIEW ROAD	93	3344	6.9	7	Not re-evaluated in 2019.
RIVERVIEW TERRACE	94	555	6.6	7	Not re-evaluated in 2019.
ROLAND ROAD	95	1063	6.9	7	Not re-evaluated in 2019.
SCENIC HUDSON PARKING LOT	96	190	7.65	8	Not re-evaluated in 2019.
SCENIC HUDSON ROADWAY	97	1400	6.9	7	Not re-evaluated in 2019.
SOUTH ASTOR STREET	98	822	5.1	5	Con Edison utility work required. Date unknown. Con Edison portion of paving unknown.
STATION ROAD	99	2480	6.8	7	Not re-evaluated in 2019.
SYCAMORE LANE	100	1987	6.9	7	Not re-evaluated in 2019.
VICTOR DRIVE*	101	585	0		Paved in 2018. Not re-evaluated in 2019.
WASHINGTON AVENUE	102	1070	6.6	7	
WEST CLINTON AVENUE*	103	2440	3.4	3	
WEST SUNNYSIDE LANE	104	2036	5.85	6	
WILLOW STREET	105	541	8.95	9	Not re-evaluated in 2019.
WOODBINE ROAD*	106	418	7.65	8	Not re-evaluated in 2019.

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

Alligator Cracking

Typical alligator cracking is composed of frequent inter-connected cracks. The distress is load-related, so it is identified only when present in the wheelpath of a full-depth asphalt pavement.

Alligator cracking is identified as "isolated" when it occurs over less than 20% of the length of the segment, and "general" when it occurs over more than 20% of the segment.

The longitudinal crack in this photo qualifies as alligator cracking even though it lacks the interconnected cracking. The crack is in the early stages of development, but still represents a load-related distress because it occurs in the wheelpath.

Spalling

Two types of spalling can occur on concrete pavement: mid-slab when the mesh reinforcement is close to the surface and corrosion causes popouts; and at the joints, when incompressible material prevents the joint from moving and the compressive stresses in the slab fracture the concrete.

Spalling is identified as "isolated" when it occurs on less then 20% of the slabs, and "general" when it occurs on more than 20% of the slabs.

Delamination

Delamination occurs when an overlaid pavement looses the bond to the underlying layers and becomes dislodged. This distress is not identified directly in the NYSDOT survey, so when it is observed, the delaminated areas should be considered the same as cracking distress.

Widening Dropoff

Widening dropoff occurs when an old concrete pavement is widened with an asphalt overlay. The dissimilar base materials settle relative to each other, causing a dropoff at the edge of the underlying slab.

The widening dropoff dominant distress is identified as "low" severity (photo at right) when the cracking at the drop becomes well developed.

The distress is identified as "high" severity (photo at right) when the effect of the height difference can be detected when driving across the drop, or has the potential to influence the track of a vehicle.

Permanent Patching

Patches with straight, saw-cut edges are assumed to be permanent repairs to the pavement and are expected to perform as original pavement. These areas are not counted as distress until the patch itself begins to show signs of distress.

Temporary Patching

Temporary patching, such as "throw and go" patches, do not repair the structural damage in the pavement and therefore are counted as distress. These patches can be identified by their rounded, random shapes.

Crack Seal

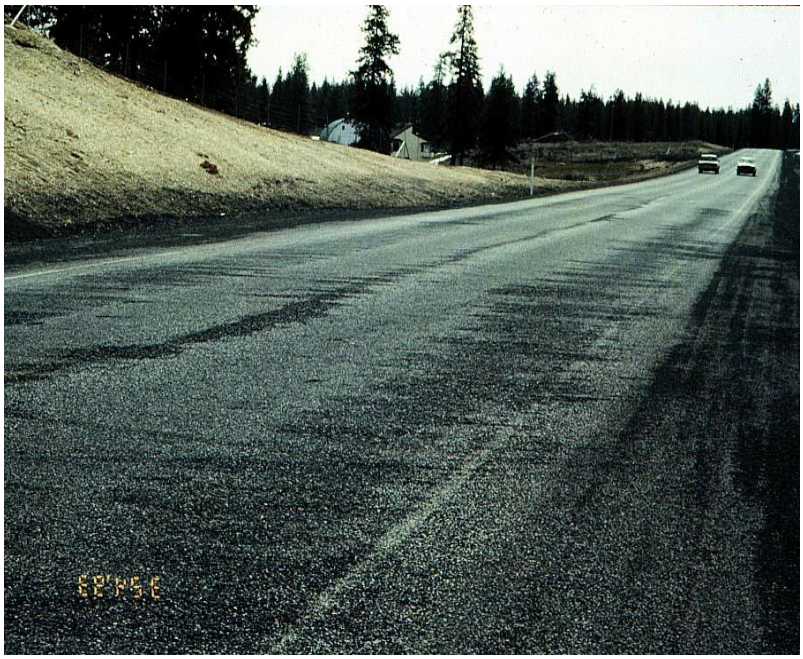
Crack seal is an effective preventive maintenance activity that helps keep water out of the pavement structure. When a pavement is crack sealed, the sealant tends to highlight the cracks, which could make the pavement look worse and cause a decrease in the rating. Roads that are crack sealed should be given the same rating as the prior year until the continued development of the cracking extends beyond the sealed areas.

Flushing

Flushing occurs when excess liquid asphalt material rises to the surface of the pavement. This distress is not identified directly in the NYSDOT survey, but should be reported separately to the Resident Engineer and/or the Regional Materials Engineer, as it may present an urgent safety condition.

Raveling

Raveling is caused by the action of traffic on a weak surface. Raveling of a weak surface course is generally due to insufficient binder in the mix. Raveling is different than weathering, which is caused by climatic conditions that result in a drying out of the pavement surface. Raveling is the wearing away of the pavement surface, resulting in a roughened surface texture. This rough surface texture is due to the dislodging of coarse aggregate and loss of the asphalt binder.



Wheel Path Rutting

Wheel path rutting is caused by Heavy trucks, slow traffic, stopping and standing traffic and poor aggregate. This causes permanent deformations of the pavement (indentations) in the wheel paths, which can lead to cracking and further deterioration. Most common in intersections, where there is braking and stopping traffic.

Settlements and Heaves

This is described as localized pavement surface areas having elevations slightly lower than surrounding pavement or localized upward displacements of the pavement surface. Settlements are caused by failure in the lower pavement layers will heaving is caused by expansive soils, typically from water freezing within the soils during winter months.

Blowups

Blowups are caused by compression stresses resulting from heat and water, and they generally occur at a joint or crack. It is known that intrusion of foreign material, water, and chemical deicing solution into joints and cracks causes extensive damage to rigid pavements. The intrusion of incompressible soils into the joint space causes even greater problems.

Joint Sealer Failure

Liquid sealer failure is characterized by loss of bond between the sealer and the joint faces, internal tearing within the sealer itself and /or entrapment of incompressibles within the sealer matrix and/or loss of sealer from the joint. Preformed neoprene sealer failure is characterized by loss of recovery from a compressed state and/or internal web sticking allowing the infiltration of water or incompressibles into the joint.

Transverse/ Logitudinal Joint Faulting/ Separation/ Distress

Transverse joint faulting is caused by a differential vertical displacement of abutting slabs at joints or slab cracks creating a step deformation on the pavement surface. Faulting is caused by the loss of fine material under a slab and the increase in fine material under nearby slabs. This flow of fine material is called pumping, and is caused by the presence of high levels of free moisture under a slab carrying heavy traffic loading

Slab Cracking

A crack or cracks within a pavement slab that propagate in any direction. Cracks may vary from hairline to more than one inch in width. Slab cracks are caused by shrinkage or curing stresses early on in the life of the slab. Cracks later in the slabs life can be caused by environmental and load bearing stresses. The loss of the sub base support along with excessive loading can cause slab cracking.

Scaling non-Joint Spalling

Scaling are irregularities in the pavement slab surface other than those occurring at joints and characterized by popouts and/or spalling. These distress types may be patched with asphalt. Scaling is caused by excessive water used in finishing the concretes surface or lack of proper amount of entrained air, in combination with freezing and thawing.

D – FIELD EVALUATION FORM

PAVEMENT FIELD EVALUATION FORM
VILLAGE OF IRVINGTON, NY

General

Name of Roadway: _____ Inspection Date: _____
Roadway I.D.#: _____ Usage (H-0,M-5,L-10): _____ Inspected by: _____
Length of Roadway: _____ Width (avg.): _____ Type (A,O,C): _____
Start of roadway: _____ End of roadway: _____
Last paved/rehabilitated: _____
Known issue(s): _____

Roadway Features

Lanes: _____
Shoulder / Side Parking: _____
Curbs (N/A, partial, entire) _____ Curb reveal (avg): _____ Curb Type: _____
Sidewalks (N/A, partial, entire): _____ Replace curbs (Y/N/P): _____
Road crown (acceptable, required): _____
Drainage type (open system, closed system): _____
Traffic light/sensor: _____
Notes: _____

Ride Quality

Corrugations effecting ride quality (Y,N) _____
Settlements and heaves effecting ride quality (Y,N) _____
Overall ride quality (very good-10, good-8, fair-6, mediocre-4, poor-2) _____

Distress Rating

Pavement: Flexible (asphalt, asphalt overlay)

Section / Type	ROADWAY REPAIR LENGTH PER SECTION (ft) 0 - 1,000 ft	1,000 - 2,000 ft	2,000 - 3,000 ft	3,000 - 4,000 ft	Severity	Notes
Alligator cracking						
Wheel path cracking						
Transverse cracking						
Longitudinal cracking						
Edge cracking						
Slippage cracking						
Cracking (other)						
Raveling						
Wheel path rutting						
Delamination						
Widening drop-off						
Pavement patching (temporary)						
Pavement patching (permanent)						
Crack seal						
Thin overlays						
Flushing						

Score _____

Pavement: Rigid (concrete) Section Type	ROADWAY REPAIR LENGTH PER SECTION (ft) 0 - 1,000 ft	1,000 - 2,000 ft	2,000 - 3,000 ft	3,000 - 4,000 ft	Severity	Notes
Spalling						
Delamination						
Pavement patching (temporary)						
Pavement patching (permanent)						
Settlements and heaves						
Blowups						
Asphalt concrete overlay						
Joint sealer failure						
Trans. joint faulting/sep./distress						
Long. joint faulting/sep./distress						
Slab cracking						
Wheelpath rutting						
Scaling non-joint spalling						

Score _____

Rating

	Score	Proportion	Prorated total
Distress		65%	
Ride Quality		20%	
Usage		15%	

Total _____

Overall rating score _____

General Notes

Pavement Notes

Shoulder / Parking Notes

Drainage Notes

E – FLEXIBLE DISTRESS RATING

10
Excellent

New
Pavement

No
Distress

9
Excellent

No
Distress

8
Good

Infrequent

Slight

8
Good

Infrequent

Minor

Asphalt

8
Good

Infrequent

Moderate

8
Good

Infrequent
to
Occasional

Slight

7
Good

Infrequent
to
Occasional

Minor

7
Good

Occasional
to
Frequent

Slight

7
Good

Infrequent

Moderate
to
Severe

7
Good

Infrequent

Severe

7
Good

Infrequent
to
Occasional

Moderate

7
Good

Infrequent
to
Occasional

Moderate
to
Severe

7
Good

Occasional
to
Frequent

Minor

7
Good

Occasional
to
Frequent

Minor

6
Fair

Frequent

Minor

6
Fair

Frequent

Minor

6
Fair

Frequent

Minor

6
Fair

Very
Frequent

Slight

6
Fair

Very
Frequent

Minor

6
Fair

Occasional
to
Frequent

Moderate

6
Fair

Occasional
to
Frequent

Moderate
to
Severe

6
Fair

Infrequent
to
Occasional

Severe

6
Fair

Frequent

Moderate

6
Fair

Frequent

Moderate

6
Fair

Frequent

Moderate

6
Fair

Frequent

Moderate

5
Poor

Frequent

Moderate
to
Severe

5
Poor

Frequent

Moderate
to
Severe

5
Poor

Occasional
to
Frequent

Severe

5
Poor

Very
Frequent

Moderate

5
Poor

Very
Frequent

Moderate
to
Severe

4
Poor

Frequent

Severe

4
Poor

Very
Frequent

Severe

3
Very Poor

Very
Frequent

Very
Severe

2
Very Poor

Very
Frequent

Impaired
Travel

1
Very Poor

Risk of
Damage
to Vehicle

F – RIGID DISTRESS RATING

10
Excellent

New
Pavement

No
Distress

9
Excellent

No
Distress

8
Good

Infrequent

Slight

8
Good

Infrequent

Slight

8
Good

Infrequent

Minor

8
Good

Infrequent

Moderate

7
Good

Infrequent

Severe

7
Good

Infrequent
to
Occasional

Minor

7
Good

Infrequent
to
Occasional

Minor

7
Good

Occasional
to
Frequent

Minor

7
Good

Infrequent
to
Occasional

Moderate

7
Good

Infrequent
to
Occasional

Moderate

7
Good

Infrequent
to
Occasional

Moderate

7
Good

Infrequent
to
Occasional

Moderate
to
Severe

6
Fair

Occasional
to
Frequent

Moderate

6
Fair

Occasional
to
Frequent

Moderate

6
Fair

Occasional
to
Frequent

Moderate
to
Severe

6
Fair

Occasional
to
Frequent

Moderate
to
Severe

6
Fair

Occasional
to
Frequent

Moderate
to
Severe

6
Fair

Very
Frequent

Minor

6
Fair

Frequent

Moderate

6
Fair

Frequent

Moderate

5
Poor

Frequent

Moderate
to
Severe

5
Poor

Frequent

Moderate
to
Severe

5
Poor

Frequent

Moderate
to
Severe

5
Poor

Very
Frequent

Moderate

5
Poor

Occasional
to
Frequent

Severe

5
Poor

Occasional
to
Frequent

Severe

4
Poor

Very
Frequent

Severe

3
Very Poor

Frequent

Very
Severe

2
Very Poor

Very
Frequent

Impaired
Travel

1
Very Poor

Risk of
Damage
to Vehicle

G – DISTRESS RATING TABLES

Pavement Distress Rating Warrants					
	Rating	General Description	Warrants		
			Frequency	Severity	Appearance
Flexible/Overlaid	10	No Distress Recently Constructed or Rehabilitated	No distress is present.		New pavement, dark black and neat. Typically one year old or less.
	9	No Significant Distress	All to nearly all of the pavement is free of distress; a single defect or crack per 0.10 mile is allowed.	The defect is superficial or the crack is tight.	Surface is typically oxidized to gray color. Typically one to three years old.
	8	Infrequent Distress, Slight Severity	Most of the pavement is free of cracking. Easy to count number of cracks at highway speed.	Cracks are tight and very widely spaced. No secondary cracking. No Dominant Distresses present.	Surface looks uniform and neat. May or may not be crack sealed.
	7	Infrequent to Occasional Distress with Minor Severity	Much of the pavement is free of cracking. More difficult to count number of cracks but still possible.	Cracks are mostly less than 1/8" wide. Cracks may have secondary cracking. No to very little connected cracking. May have isolated Dominant Distresses.	Looks fairly good but cracking is noticeable. Additional cracking has developed since last crack seal. Too many cracks to effectively crack seal- good candidate for single course overlay.

Pavement Distress Rating Warrants					
	Rating	General Description	Warrants		
			Frequency	Severity	Appearance
Flexible/Overlaid	6	Occasional to Frequent Distress with Moderate Severity	Much to most of the pavement is cracked. Cracks are spaced only a few feet apart or less.	Cracks vary in width from tight to greater than 1/8" wide. Most cracks have secondary cracking. Cracks extend to connect with adjacent cracks. Dominant Distresses may be common.	Condition looks "Fair." Needs work, likely more than a single course overlay.
	5	Distress is Frequent and Moderate to Severe	Nearly all the pavement or wheel paths have multiple, well developed cracks.	Cracks are wide and/or well developed with secondary cracking. Many cracks are interconnected. Pieces of pavement are dislodged or have been patched.	Condition looks "Poor." Needs major work.
	4	Distress is Frequent and Severe	Pavement is mostly cracked. Travel on the pavement is impaired.	Cracks are wide and connected. Potholes and/or patches are common. Patches on patches.	Beyond repair.

Pavement Distress Rating Warrants					
	Rating	General Description	Warrants		
			Frequency	Severity	Appearance
Rigid	10	No Distress Recently Constructed or Rehabilitated	No distress is present.		New pavement, white and neat. Typically one year old or less.
	9	No Significant Distress	All to nearly all of the pavement is free of distress; a single defect or crack per 0.10 mile is allowed.	The defect is superficial or the crack is tight.	Slight discoloration in wheel paths due to traffic. Typically one to three years old.
	8	Infrequent Distress, Slight Severity	A few slabs have minor popouts or corner breaks.	Popouts are shallow and few in number. Corner cracks, if present, are tight and not displaced. Joint distress is rare. No visible mid-slab cracking.	Slight weathered appearance on surface.
	7	Infrequent to Occasional Distress with Minor Severity	Popouts are more frequent and may be patched. Some joints show distress.	Joint spall cracks are tight and not displaced. Little or no secondary cracks. Some slabs may have a single mid-slab crack. Many slabs have mid-slab spalling and patching.	Distress is noticeable but not too severe.

Pavement Distress Rating Warrants					
	Rating	General Description	Warrants		
			Frequency	Severity	Appearance
Rigid	6	Occasional to Frequent Distress with Moderate Severity	Many slabs contain distress.	Advanced cracking at joints with some spalling and loose/displaced concrete. Mid-slab cracks are well defined. May have additional mid-slab cracks.	Distress is noticeable and needs repair.
	5	Distress is Frequent and Moderate to Severe	Most slabs contain distress. Distress covers a large portion of the slab.	Multiple cracks in the majority of slabs. Extensive cracking at joints with displaced concrete and/or patching.	Needs major work.
	4	Distress is Frequent and Severe	Most slabs are badly damaged. Extensive spalling and/or patching.	Cracks are wide. Broken concrete is common. Patches on patches.	Beyond repair.

Pavement Surface Rating Based on Frequency and Severity Descriptions

FREQUENCY		SEVERITY								
		None	Slight	Minor	Moderate	Moderate to Severe	Severe	Very Severe	Travel is Impaired	Impas-sible
No distress is present. A single random defect per 0.10 mile is allowed.	None	10 / 9	9	-	-	-	-	-	-	-
Most of the pavement is free of distress. One or two cracks or distresses are visible for the next 0.10 mile.	Infrequent	-	8	8	8	7	7	-	-	-
Much of the pavement is free of cracking. Large blocks of distress-free pavement are present.	Infrequent to Occasional	-	8	7	7	7	6	6	-	-
Much (< 1/2) to most (> 1/2) of the pavement is cracked. Uncracked or undistressed blocks of pavement range from 20-30 ft per lane to 12 ft per lane.	Occasional to Frequent	-	7	7	6	6	5	5	-	-
Nearly all the pavement is cracked. Uncracked or undistressed blocks of pavement are 12 ft square or less.	Frequent	-	7	6	6	5	4	3	2	1
Mostly cracked. Cracks or distress are continuous and spaced only a few feet apart.	Very Frequent	-	6	6	5	5	4	3	2	1

Slight	Cracks are tight, single and only a few feet long. Tight, single longitudinal joint cracks, partial or continuous, are included.
Minor	Cracks are generally < 1/8 inch wide, some with minor secondary cracks, no or very few connected cracks. May have a few small spalls (< 1 ft square).
Moderate	Cracks are generally >1/8 inch wide; secondary cracking is common, some cracks connected; may have some minor popouts or small (1-2 ft) to medium (3-4 ft) patching.
Moderate to Severe	Distresses vary from "Moderate" to "Severe."
Severe	Cracks are wide and/or have extensive interconnnected secondary cracking; holes, loose material and/or patching are common; patches may have patches.
Very Severe	Cracks are very wide, holes and/or patching is extensive; patches extend across the full lane or extend several feet along the lane; patches on patches are common.
Travel is Impaired	Holes in pavement are large and/or pavement has so many layers of patches that the section can be traveled only at reduced speed.
Impassible	Travel by ordinary car would risk damage to the vehicle.

Notes: - Ratings in blue are the definitions from the original Pavement Rating Manual c.1981.
- "Very Slight" from the original Manual = "Slight" here.
- "Slight" from the orginal Manual = "Minor" here.

3/16/2010

H – ANNUAL CHECKLIST

VILLAGE OF IRVINGTON

ANNUAL ROAD RE-SURFACING CHECK LIST

The items listed below should be reviewed by the Village prior to the inter-municipal paving agreement and bidding process.

DRAINAGE	**YES**	**NO**
Does drainage need to be replaced or is drainage required?	____	____
Are there any flooding issues that need to be resolved?	____	____
Are utility improvements planned?	____	____

PERMITS/APPROVALS		
Are any permits or approvals required?	____	____

GENERAL INFORMATION		
Do curbs need to be replaced (get length, type, cost, etc)?	____	____
Are traffic loops required?	____	____
Are pavement markings required?	____	____
Do catch basins or manhole covers need to be adjusted?	____	____
Do valve boxes need to be adjusted?	____	____
Do any other structures need to be adjusted?	____	____

BUDGET		
1. Has additional cost of items listed above been determined?	____	____

ANNUAL COST EVALUATION

ROADWAY PAVING PROCEDURE
VILLAGE OF IRVINGTON

Description	Estimated Quantity	Units	Unit Cost	Total
Top course		TONS		
Milling		SY		
Concrete curbs		LF		
Asphalt curbs		LF		
Stone curbs		LF		
Adjust MH/CB		EA		
Adjust valve box		EA		
Line Striping (4")		LF		
Traffic loop		EA		
			Total cost	

Other potential costs	(Y/N)
Does drainage need to be replaced or is drainage required?	
Are there any flooding issues that need to be resolved?	
Are utility improvements planned?	
Are any permits or approvals required?	

I – ESTIMATED COSTS

ESTIMATED COST PER ROAD
VILLAGE OF IRVINGTON

ROAD NAME	#	LENGTH (FT)	AVERAGE WIDTH (FT)	AREA (SF)	AREA (SY)	TONNAGE (per 2" mill and pave)	COST MILL AND PAVE ($125/ton, $6.50/SY)	CUMMULATIVE COSTS
AQUEDUCT LANE	1	215	21	4515	501.67	55.74	$10,228	$10,228
ARDSLEY AVE. EAST	2	885	20	17700	1966.67	218.52	$40,098	$50,327
ARDSLEY AVE. WEST*	3	2764	20	55280	6142.22	682.47	$125,233	$175,560
BARBARA LANE*	4	591	23	13593	1510.33	167.81	$30,794	$206,354
BEECHWOOD LANE*	5	1636	24	39264	4362.67	484.74	$88,950	$295,304
BELMONT DRIVE NORTH	6	521	20	10420	1157.78	128.64	$23,606	$318,909
BELMONT DRIVE SOUTH	7	527	20	10540	1171.11	130.12	$23,878	$342,787
BERTHA PLACE	8	855	18	15390	1710.00	190.00	$34,865	$377,652
BRIDGE STREET	9	844	40	33760	3751.11	416.79	$76,481	$454,133
BROOK PLACE	10	104	18	1872	208.00	23.11	$4,241	$458,374
BUCKHOUT STREET NORTH	11	415	28	11620	1291.11	143.46	$26,324	$484,698
BUCKHOUT STREET SOUTH	12	3160	24	75840	8426.67	936.30	$171,810	$656,509
BUTTERWOOD EAST*	13	660	20	13200	1466.67	162.96	$29,904	$686,412
BUTTERWOOD WEST*	14	740	20	14800	1644.44	182.72	$33,528	$719,941
CARLA LANE*	15	434	29	12586	1398.44	155.38	$28,513	$748,453
CASTLE ROAD*	16	1017	19	19323	2147.00	238.56	$43,775	$792,228
CEDAR LAWN ROAD	17	1400	19	26600	2955.56	328.40	$60,260	$852,489
CENTER STREET	18	600	19	11400	1266.67	140.74	$25,826	$878,315
CINDY LANE	19	231	26	6006	667.33	74.15	$13,606	$891,921
CIRCLE DRIVE	20	809	21	16989	1887.67	209.74	$38,487	$930,408
CLIFTON PLACE	21	681	18	12258	1362.00	151.33	$27,770	$958,178
COTTONET STREET NORTH	22	312	27	8424	936.00	104.00	$19,084	$977,262
COTTONET STREET SOUTH	23	460	28	12880	1431.11	159.01	$29,179	$1,006,441
CROTON PLACE	24	259	18	4662	518.00	57.56	$10,561	$1,017,002
CYRUS FIELD ROAD (0-3,200 ft.)	25	3200	20	64000	7111.11	790.12	$144,988	$1,161,990
CYRUS FIELD ROAD (3,200-5,744 ft.)	26	2544	20	50880	5653.33	628.15	$115,265	$1,277,255
DEARMAN STREET NORTH	27	191	27	5157	573.00	63.67	$11,683	$1,288,938
DEARMAN STREET SOUTH	28	170	27	4590	510.00	56.67	$10,398	$1,299,336
DEEP HOLLOW CLOSE	29	460	21	9660	1073.33	119.26	$21,884	$1,321,220
DOGWOOD LANE*	30	1309	29	37961	4217.89	468.65	$85,998	$1,407,218
DOWS LANE	31	556	20	11120	1235.56	137.28	$25,192	$1,432,410
DUNHAM PLACE*	32	246	30	7380	820.00	91.11	$16,719	$1,449,129
DUTCHER STREET NORTH	33	418	28	11704	1300.44	144.49	$26,515	$1,475,644
DUTCHER STREET SOUTH	34	447	29	12963	1440.33	160.04	$29,367	$1,505,010
EAST CLINTON AVE.	35	550	27	14850	1650.00	183.33	$33,642	$1,538,652
EAST SUNNYSIDE LANE	36	3231	10	32310	3590.00	398.89	$73,196	$1,611,848
ECKAR STREET NORTH	37	407	29	11803	1311.44	145.72	$26,739	$1,638,587
ECKAR STREET SOUTH	38	428	30	12840	1426.67	158.52	$29,088	$1,667,675
ERIE STREET	39	1180	20	23600	2622.22	291.36	$53,464	$1,721,139
EMORY ROAD	40	550	16	8800	977.78	108.64	$19,936	$1,741,075
FARGO LANE	41	3238	18	58284	6476.00	719.56	$132,038	$1,873,114
FERRIS STREET NORTH	42	396	29	11484	1276.00	141.78	$26,016	$1,899,130
FERRIS STREET SOUTH	43	512	29	14848	1649.78	183.31	$33,637	$1,932,767
FIELDPOINT DRIVE (0-800 ft.)	44	800	20	16000	1777.78	197.53	$36,247	$1,969,014
FIELDPOINT DRIVE (800-4,500 ft.)	45	3700	20	74000	8222.22	913.58	$167,642	$2,136,656
FIELDPOINT DRIVE PARKING LOT	46	300	24	7200	800.00	88.89	$16,311	$2,152,967
FIELD TERRACE	47	1275	17	21675	2408.33	267.59	$49,103	$2,202,070
GREY ROCK TERRACE	48	720	18	12960	1440.00	160.00	$29,360	$2,231,430
GRINNEL STREET	49	381	18	6858	762.00	84.67	$15,536	$2,246,967
HALFMOON LANE	50	935	24	22440	2493.33	277.04	$50,836	$2,297,803
HALSEY POND ROAD	51	820	14	11480	1275.56	141.73	$26,007	$2,323,810
HAMILTON ROAD	52	1510	24	36240	4026.67	447.41	$82,099	$2,405,909
HANCOCK PLACE	53	777	17	13209	1467.67	163.07	$29,924	$2,435,833
HARRIMAN ROAD	54	3750	31	116250	#######	1435.19	$263,356	$2,699,190
HAVERMEYER ROAD*	55	1509	24	36216	4024.00	447.11	$82,045	$2,781,235

ESTIMATED COST PER ROAD
VILLAGE OF IRVINGTON

HENDRICK NORTH *	56	370	20	7400	822.22	91.36	$16,764	$2,797,999
HENDRICK SOUTH*	57	295	20	5900	655.56	72.84	$13,366	$2,811,365
HERMITS ROAD	58	800	10	8000	888.89	98.77	$18,123	$2,829,488
HILLSIDE TERRACE	59	812	18	14616	1624.00	180.44	$33,112	$2,862,600
HOME PLACE EAST	60	168	16	2688	298.67	33.19	$6,089	$2,868,689
HOME PLACE WEST	61	218	18	3924	436.00	48.44	$8,890	$2,877,579
HUDSON AVENUE	62	1550	20	31000	3444.44	382.72	$70,228	$2,947,807
HUDSON ROAD EAST	63	1150	17	19550	2172.22	241.36	$44,289	$2,992,097
HUDSON ROAD WEST	64	2630	19	49970	5552.22	616.91	$113,204	$3,105,300
HUDSON VIEW PARK	65	220	20	4400	488.89	54.32	$9,968	$3,115,268
HUGH HILL LANE*	66	710	24	17040	1893.33	210.37	$38,603	$3,153,871
ILINKA LANE	67	250	20	5000	555.56	61.73	$11,327	$3,165,198
IRVING PLACE	68	215	18	3870	430.00	47.78	$8,767	$3,173,966
IRVINGTON MANOR DRIVE	69	525	16	8400	933.33	103.70	$19,030	$3,192,995
JAFFREY PARK	70	1064	29	30856	3428.44	380.94	$69,902	$3,262,897
JANET TERRACE*	71	570	23	13110	1456.67	161.85	$29,700	$3,292,597
LANGDON AVENUE	72	1720	18	30960	3440.00	382.22	$70,138	$3,362,735
LEAFWOOD TERRACE*	73	627	20	12540	1393.33	154.81	$28,409	$3,391,143
LEWIS ROAD	74	1527	18	27486	3054.00	339.33	$62,268	$3,453,411
MAIN STREET	75	2192	44	96448	#######	1190.72	$218,496	$3,671,907
MAIN STREET WEST	76	341	47	16027	1780.78	197.86	$36,308	$3,708,216
MANOR POND LANE	77	2660	22	58520	6502.22	722.47	$132,573	$3,840,789
MAPLE STREET	78	526	18	9468	1052.00	116.89	$21,449	$3,862,238
MATHIESSEN PARK	79	2050	10	20500	2277.78	253.09	$46,441	$3,908,679
MEADOW BROOK ROAD	80	1087	20	21740	2415.56	268.40	$49,250	$3,957,930
MEADOW WAY	81	917	20	18340	2037.78	226.42	$41,548	$3,999,478
NORTH ASTOR STREET	82	400	40	16000	1777.78	197.53	$36,247	$4,035,725
NORTH BROOK LANE	83	1700	22	37400	4155.56	461.73	$84,727	$4,120,452
OAK STREET	84	524	17	8908	989.78	109.98	$20,180	$4,140,632
OSCEOLA AVENUE	85	1935	19	36765	4085.00	453.89	$83,289	$4,223,921
PALLISER ROAD	86	929	19	17651	1961.22	217.91	$39,987	$4,263,908
PARK AVENUE	87	565	19	10735	1192.78	132.53	$24,319	$4,288,227
PARK ROAD	88	739	20	14780	1642.22	182.47	$33,483	$4,321,710
PARKSIDE WAY	89	750	19	14250	1583.33	175.93	$32,282	$4,353,993
PETER BONT ROAD (0-2,000 ft.)	90	2000	10	20000	2222.22	246.91	$45,309	$4,399,301
PETER BONT ROAD (2,000-4,799 ft.)	91	2799	10	27990	3110.00	345.56	$63,409	$4,462,711
RIVER ROAD	92	750	35	26250	2916.67	324.07	$59,468	$4,522,179
RIVERVIEW ROAD	93	3344	22	73568	8174.22	908.25	$166,663	$4,688,842
RIVERVIEW TERRACE	94	555	20	11100	1233.33	137.04	$25,146	$4,713,988
ROLAND ROAD	95	1063	17	18071	2007.89	223.10	$40,939	$4,754,927
SCENIC HUDSON PARKING LOT	96	190	24	4560	506.67	56.30	$10,330	$4,765,257
SCENIC HUDSON ROADWAY	97	1400	24	33600	3733.33	414.81	$76,119	$4,841,376
SOUTH ASTOR STREET	98	822	34	27948	3105.33	345.04	$63,314	$4,904,690
STATION ROAD	99	2480	21	52080	5786.67	642.96	$117,984	$5,022,674
SYCAMORE LANE	100	1987	29	57623	6402.56	711.40	$130,541	$5,153,215
VICTOR DRIVE*	101	585	28	16380	1820.00	202.22	$37,108	$5,190,322
WASHINGTON AVENUE	102	1070	23	24610	2734.44	303.83	$55,752	$5,246,075
WEST CLINTON AVENUE*	103	2440	28	68320	7591.11	843.46	$154,774	$5,400,849
WEST SUNNYSIDE LANE	104	2036	10	20360	2262.22	251.36	$46,124	$5,446,973
WILLOW STREET	105	541	17	9197	1021.89	113.54	$20,835	$5,467,808
WOODBINE ROAD*	106	418	19	7942	882.44	98.05	$17,992	$5,485,800
TOTAL LENGTH (ft)		113846						
TOTAL LENGTH (mi)		21.56174242						

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 in included in the length of each roadway.

J – SEQUENCING PLAN

ROADWAY SEQUENCING PLAN
VILLAGE OF IRVINGTON

ROAD NAME	#	OVERALL RATING	TONNAGE (per 2" mill and pave)	COST MILL AND PAVE ($125/ton, $6.50/SY)	CUMMULATIVE COST	NOTES
ROADWAYS TO BE PAVED BY OTHERS						
FIELDPOINT DRIVE PARKING LOT	46	-	-	-	-	To be paved by developer. Not evaluated in 2019.
MAIN STREET	75	-	-	-	-	To be paved by Con Ed. Not evaluated in 2019.
FURTHER EVALUATION REQUIRED						
CYRUS FIELD ROAD (3,200-5,744 ft.)	26	3	628	$115,265	-	Concrete portion from Legend Hollow to Dobbs Ferry.
MEADOW WAY	81	4	226	$41,548	-	Drainage work needed. No design at this time.
2019						
WEST CLINTON AVENUE*	103	3	843	$154,774	$154,774	
CEDAR LAWN ROAD	17	4	328	$60,260	$215,035	
DUNHAM PLACE*[1]	32	4	91	$16,719	$231,754	
PETER BONT ROAD[4] (2,000-4,799 ft.)	91	4	346	$63,409	$295,163	Utility work for water and sewer to be completed. Date unknown.
PETER BONT ROAD[4] (0-2,000 ft.)	90	4	247	$45,309	$340,472	Utility work for water and sewer to be completed. Date unknown.
2020						
BUCKHOUT STREET SOUTH*[2]	12	5	673	$123,421	$123,421	South of Station Road
HUDSON AVENUE	62	6	383	$70,228	$193,649	Culvert installation to be completed prior to mill and pave.
CENTER STREET	18	6	141	$25,826	$219,475	
PARK AVENUE	87	6	133	$24,319	$243,794	
HUDSON VIEW PARK	65	5	54	$9,968	$253,762	Culvert installation to be completed prior to mill and pave.
2021						
PARK ROAD	88	5	182	$33,483	$33,483	
PARKSIDE WAY	89	4	176	$32,282	$65,765	
DEARMAN STREET NORTH	27	5	64	$11,683	$77,448	
DEARMAN STREET SOUTH	28	5	57	$10,398	$87,847	
2022						
CYRUS FIELD ROAD (0-3,200 ft.)	25	3	790	$144,988	$144,988	Overlay portion of roadway from Harriman to Legend Hollow.
HANCOCK PLACE	53	6	163	$29,924	$174,912	
CLIFTON PLACE	21	5	151	$27,770	$202,681	Curbs or drainage required as per Village DPW.
2023						
NORTH ASTOR STREET	82	5	198	$36,247	$36,247	Con Edison utility work required. Date unknown. Con Edison portion of paving unknown.
SOUTH ASTOR STREET	98	5	345	$63,314	$99,561	Con Edison utility work required. Date unknown. Con Edison portion of paving unknown.
BUCKHOUT STREET NORTH	11	5	143	$26,324	$125,886	Con Edison utility work required. Date unknown. Con Edison portion of paving unknown.
BUCKHOUT STREET SOUTH*[2]	12	5	264	$48,390	$174,275	North of Station Road. Con Edison utility work anticipated.

ROADWAY SEQUENCING PLAN
VILLAGE OF IRVINGTON

ROAD NAME	#	OVERALL RATING	TONNAGE (per 2" mill and pave)	COST MILL AND PAVE ($125/ton, $6.50/SY)	CUMMULATIVE COST	NOTES
FERRIS STREET NORTH	42	5	142	$26,016	$200,291	
FERRIS STREET SOUTH	43	5	183	$33,637	$233,929	Con Edison utility work required. Date unknown. Con Edison portion of paving unknown.
2024						
BELMONT DRIVE NORTH	6	5	129	$23,606	$23,606	
ARDSLEY AVE. EAST	2	5	219	$40,098	$63,704	Curbs or drainage required as per Village DPW.
ERIE STREET	39	5	291	$53,464	$117,168	Curbs or drainage required as per Village DPW.
LANGDON AVENUE	72	5	382	$70,138	$187,306	
HUDSON ROAD EAST	63	6	241	$44,289	$231,595	
RE-EVALUATE IN 2024						
HAVERMEYER ROAD*	55	6	447	$82,045	-	
MEADOW BROOK ROAD	80	6	268	$49,250	-	
OSCEOLA AVENUE	85	6	454	$83,289	-	
WEST SUNNYSIDE LANE	104	6	251	$46,124	-	
LEWIS ROAD	74	6	339	$62,268	-	
HUDSON ROAD WEST	64	6	617	$113,204	-	Curbs or drainage required as per Village DPW.
BUTTERWOOD WEST*	14	7	183	$33,528	-	
HALSEY POND ROAD	51	7	142	$26,007	-	
WASHINGTON AVENUE	102	7	304	$55,752	-	
BRIDGE STREET	9	7	417	$76,481	-	
PREVIOUS RATING OF 7 OR BETTER. NOT RE-EVALUATED IN 2019. RE-EVALUATE IN 2024.						
BERTHA PLACE	8	7	190	$34,865	-	
BUTTERWOOD EAST*	13	7	163	$29,904	-	
DUTCHER STREET SOUTH	34	7	160	$29,367	-	
EAST CLINTON AVE.	35	7	183	$33,642	-	
GREY ROCK TERRACE	48	7	160	$29,360	-	
GRINNEL STREET	49	7	85	$15,536	-	
HILLSIDE TERRACE	59	7	180	$33,112	-	
HOME PLACE EAST	60	7	33	$6,089	-	
IRVING PLACE	68	7	48	$8,767	-	
RIVERVIEW TERRACE	94	7	137	$25,146	-	
ARDSLEY AVE. WEST*	3	7	682	$125,233	-	
DOWS LANE	31	7	137	$25,192	-	
STATION ROAD	99	7	643	$117,984	-	

ROADWAY SEQUENCING PLAN
VILLAGE OF IRVINGTON

ROAD NAME	#	OVERALL RATING	TONNAGE (per 2" mill and pave)	COST MILL AND PAVE ($125/ton, $6.50/SY)	CUMMULATIVE COST	NOTES
BELMONT DRIVE SOUTH	7	7	130	$23,878	-	
CIRCLE DRIVE	20	7	210	$38,487	-	
MANOR POND LANE	77	7	722	$132,573	-	
NORTH BROOK LANE	83	7	462	$84,727	-	
PALLISER ROAD	86	7	218	$39,987	-	
RIVERVIEW ROAD	93	7	908	$166,663	-	
ROLAND ROAD	95	7	223	$40,939	-	
SCENIC HUDSON ROADWAY	97	7	415	$76,119	-	
SYCAMORE LANE	100	7	711	$130,541	-	
ECKAR STREET SOUTH	38	7	159	$29,088	-	
HOME PLACE WEST	61	7	48	$8,890	-	
CROTON PLACE	24	7	58	$10,561	-	
FIELD TERRACE	47	7	268	$49,103	-	
HALFMOON LANE	50	8	277	$50,836	-	
HAMILTON ROAD	52	8	447	$82,099	-	
IRVINGTON MANOR DRIVE	69	8	104	$19,030	-	
RIVER ROAD	92	8	324	$59,468	-	
COTTONET STREET SOUTH	23	8	159	$29,179	-	
DEEP HOLLOW CLOSE	29	8	119	$21,884	-	
DUTCHER STREET NORTH	33	8	144	$26,515	-	
ECKAR STREET NORTH	37	8	146	$26,739	-	
FIELDPOINT DRIVE (0-800 ft.)	44	8	198	$36,247	-	
HENDRICK NORTH *	56	8	91	$16,764	-	
HERMITS ROAD	58	8	99	$18,123	-	
MATHIESSEN PARK	79	8	253	$46,441	-	
SCENIC HUDSON PARKING LOT	96	8	56	$10,330	-	
WOODBINE ROAD*	106	8	98	$17,992	-	
BARBARA LANE*	4	8	168	$30,794	-	
BEECHWOOD LANE*	5	8	485	$88,950	-	
BROOK PLACE	10	8	23	$4,241	-	
CASTLE ROAD*	16	8	239	$43,775	-	
CINDY LANE	19	8	74	$13,606	-	
COTTONET STREET NORTH	22	8	104	$19,084	-	

ROADWAY SEQUENCING PLAN
VILLAGE OF IRVINGTON

ROAD NAME	#	OVERALL RATING	TONNAGE (per 2" mill and pave)	COST MILL AND PAVE ($125/ton, $6.50/SY)	CUMMULATIVE COST	NOTES
DOGWOOD LANE*	30	8	469	$85,998	-	
HENDRICK SOUTH*	57	8	73	$13,366	-	
HUGH HILL LANE*	66	8	210	$38,603	-	
ILINKA LANE	67	8	62	$11,327	-	
JAFFREY PARK	70	8	381	$69,902	-	
JANET TERRACE*	71	8	162	$29,700	-	
LEAFWOOD TERRACE*	73	8	155	$28,409	-	
MAIN STREET WEST	76	8	198	$36,308	-	
MAPLE STREET	78	8	117	$21,449	-	
OAK STREET	84	9	110	$20,180	-	
WILLOW STREET	105	9	114	$20,835	-	
AQUEDUCT LANE	1	9	56	$10,228	-	
EMORY ROAD	40	Private	-	-	-	
COMPLETED 2016						
HARRIMAN ROAD	54	-	-	-	-	
COMPLETED 2017						
FIELDPOINT DRIVE (800-4,500 ft.)	45	-	-	-	-	
COMPLETED 2018						
EAST SUNNYSIDE LANE	36	-	-	-	-	
FARGO LANE	41	-	-	-	-	
CARLA LANE*	15	-	-	-	-	
VICTOR DRIVE*	101	-	-	-	-	

NOTES:
1/-Actual quantities must be verified prior to bid. Costs shown are present worth values, not projected. Miscellaneous items not included. Pavement area for cul-de-sac in included in the length of each roadway. 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.
*2-Values DO NOT reflect the entire roadway, they ONLY reflect a portion of the roadway that is to be resurfaced.
*3-Fieldpoint Parking Lot includes the entrance to Fieldpoint Drive.
*4-Peter Bont Road is also know as Mountain Road. Paving to be completed by the Town of Greenburgh. The Village will reimburse the Town.
****Due to the extensive length of the roadway, resurfacing work has been segmented and included in various years.

K – 2019 PAVING PLAN

ROAD TO BE MILLED & RESURFACED

REV.	DATE	DESCRIPTION

TITLE
PROJECT LOCATIONS PLAN

PROJECT
VILLAGE OF IRVINGTON
2019 MILLING & PAVING

JAMES J. HAHN ENGINEERING, P.C.
Putnam Business Park
1689 Route 22
Brewster, New York 10509
Tel: (845) 279-2220

SCALE	DATE
1" = 600'	4/15/19
DRAWING NO.	**SHEET NO.**
MAP F	1 OF 1

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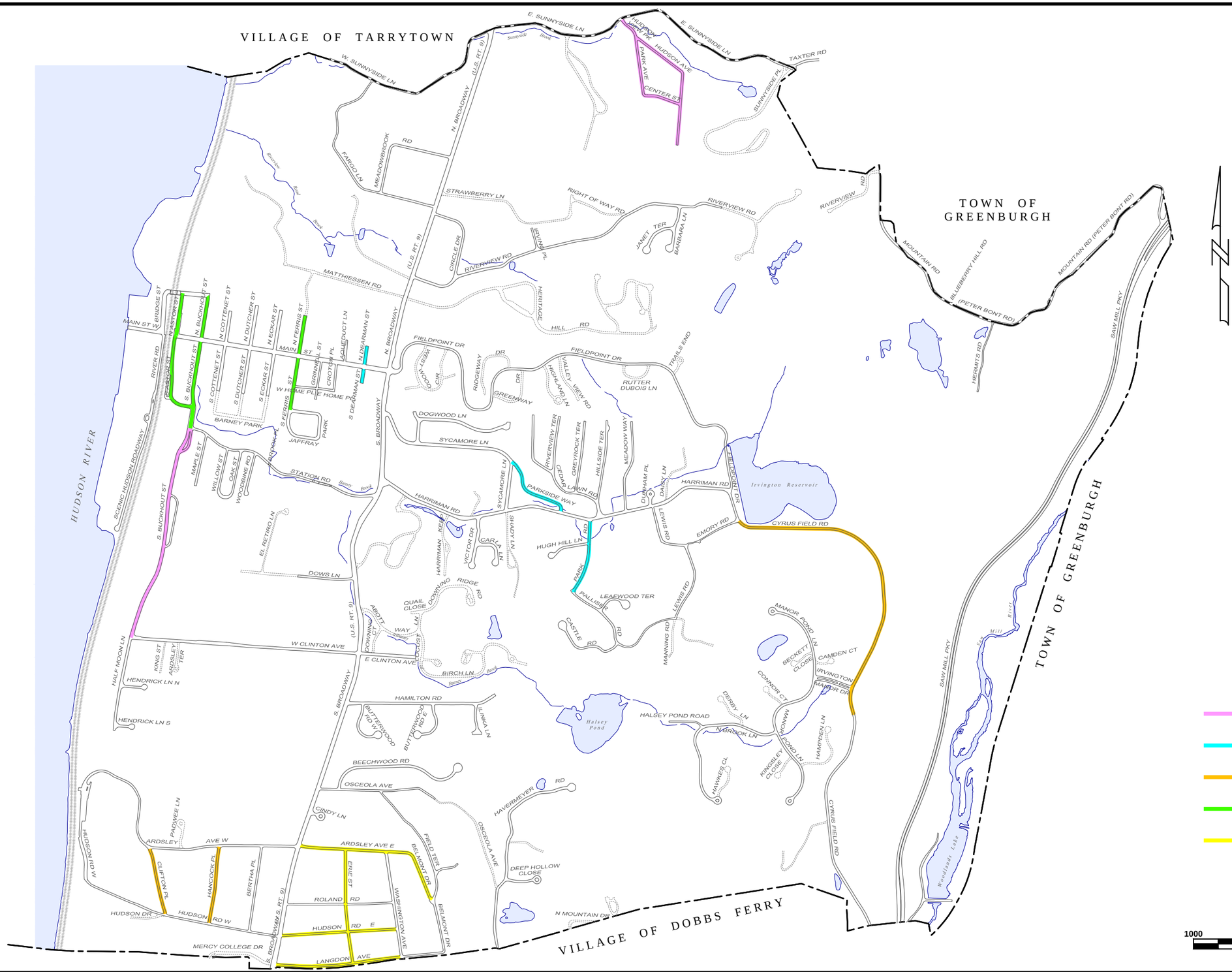
L – FIVE-YEAR ROADWAY IMPROVEMENT PLAN



JAMES J. HAHN ENGINEERING, P.C.
Putnam Business Park
1689 Route 22
Brewster, New York 10509
Tel: (845) 279-2220

REV.	DATE	DESCRIPTION

TITLE: FIVE-YEAR ROADWAY IMPROVEMENTS PLAN (2020-2024)

PROJECT: PROPOSED VILLAGE OF IRVINGTON ROADWAY IMPROVEMENTS

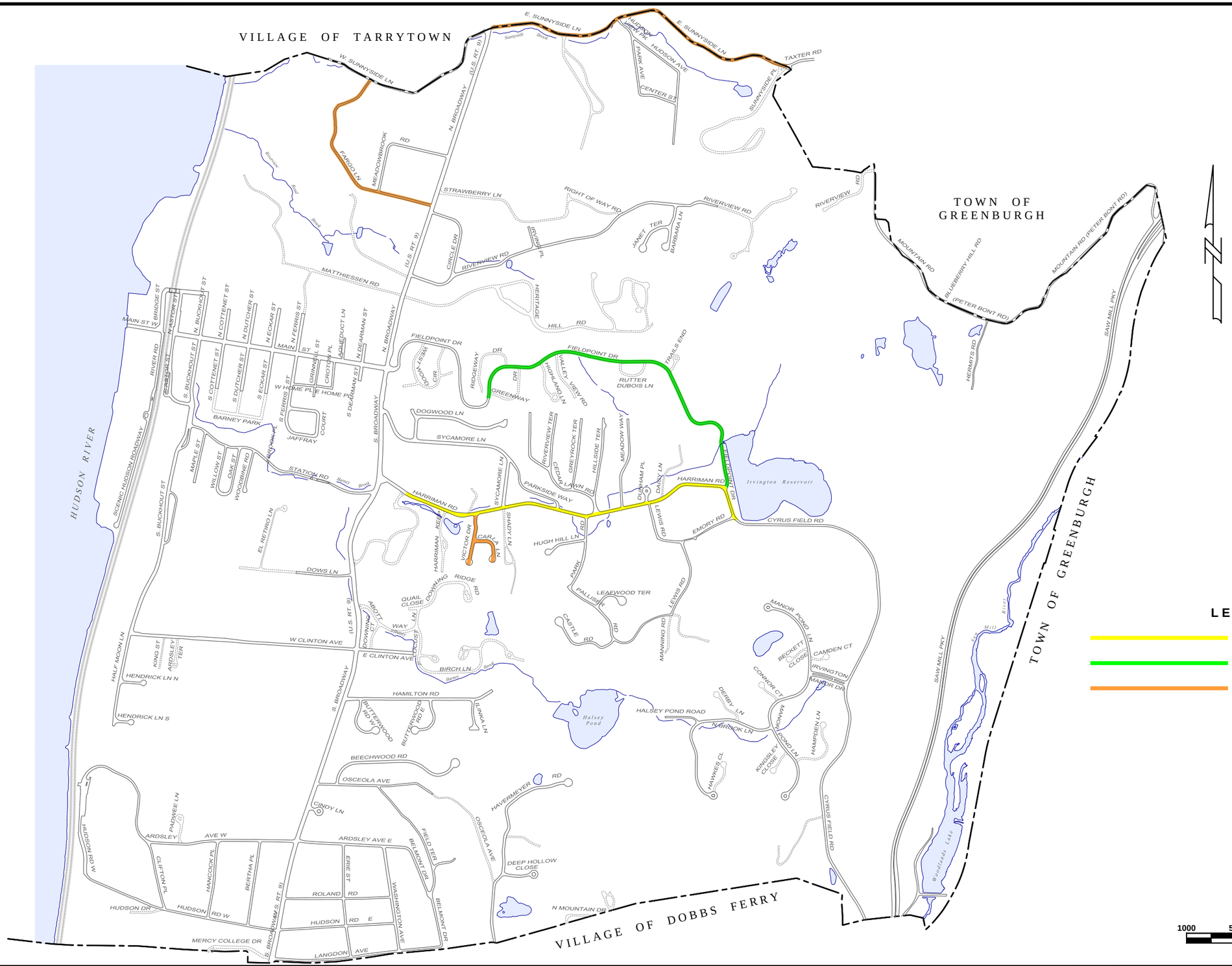
SCALE: 1" = 1000'

DATE: 9/6/19

DRAWING NO.: FY-1

SHEET NO.: 1 OF 1

M – AS-BUILT PLAN 2016-2018



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JAMES J. HAHN ENGINEERING, P.C.
Putnam Business Park
1689 Route 22
Brewster, New York 10509
Tel: (845) 279-2220

REV.	DATE	DESCRIPTION

TITLE: COMPLETED IMPROVEMENTS PLAN

PROJECT: VILLAGE OF IRVINGTON ROADWAY IMPROVEMENTS

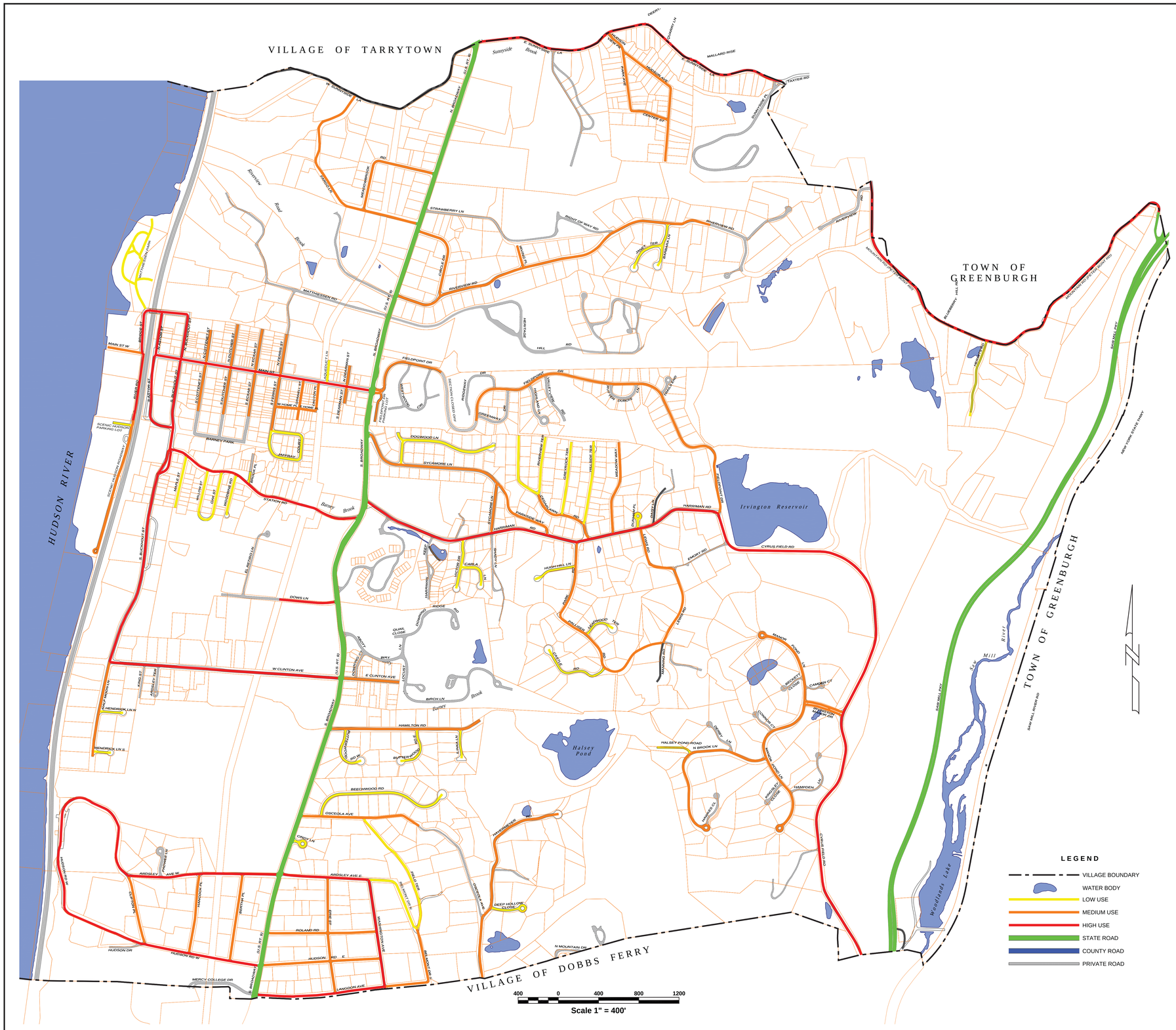
SCALE: 1" = 1000'

DATE: 6/3/19

DRAWING NO.: C-1

SHEET NO.: 1 OF 1

ATTACHMENT



LEGEND

- VILLAGE BOUNDARY
- WATER BODY
- LOW USE
- MEDIUM USE
- HIGH USE
- STATE ROAD
- COUNTY ROAD
- PRIVATE ROAD

ROAD NAME	#	LENGTH (FT)	AVERAGE WIDTH (FT)	AREA (SF)	AREA (SY)	TONNAGE PER INCH OF ASPHALT
AQUEDUCT LANE	1	215	21	4515	502	28
ARDSLEY AVE. EAST	2	885	20	17700	1967	109
ARDSLEY AVE. WEST*	3	2764	20	55280	6142	341
BARBARA LANE*	4	591	23	13593	1510	84
BEECHWOOD LANE*	5	1636	24	39264	4363	242
BELMONT DRIVE NORTH	6	521	20	10420	1158	64
BELMONT DRIVE SOUTH	7	527	20	10540	1171	65
BERTHA PLACE	8	855	18	15390	1710	95
BRIDGE STREET	9	844	40	33760	3751	208
BROOK PLACE	10	104	18	1872	208	12
BUCKHOUT STREET NORTH	11	415	28	11620	1291	72
BUCKHOUT STREET SOUTH	12	3160	24	75840	8427	468
BUTTERWOOD EAST*	13	660	20	13200	1467	81
BUTTERWOOD WEST*	14	740	20	14800	1644	91
CARLA LANE*	15	434	29	12586	1398	78
CASTLE ROAD*	16	1017	19	19323	2147	119
CEDAR LAWN ROAD	17	1400	19	26600	2956	164
CENTER STREET	18	600	19	11400	1267	70
CINDY LANE	19	231	26	6006	667	37
CIRCLE DRIVE	20	809	21	16989	1888	105
CLIFTON PLACE	21	681	18	12258	1362	76
COTTONET STREET NORTH	22	312	27	8424	936	52
COTTONET STREET SOUTH	23	460	28	12880	1431	80
CROTON PLACE	24	259	18	4662	518	29
CYRUS FIELD ROAD (0-3,200 ft.)	25	3200	20	64000	7111	395
CYRUS FIELD ROAD (3,200-5,744 ft.)	26	2544	20	50880	5653	314
DEARMAN STREET NORTH	27	191	27	5157	573	32
DEARMAN STREET SOUTH	28	170	27	4590	510	28
DEEP HOLLOW CLOSE	29	460	21	9660	1073	60
DOGWOOD LANE*	30	1309	29	37961	4218	234
DOWS LANE	31	556	20	11120	1236	69
DUNHAM PLACE*	32	246	30	7380	820	46
DUTCHER STREET NORTH	33	418	28	11704	1300	72
DUTCHER STREET SOUTH	34	447	29	12963	1440	80
EAST CLINTON AVE.	35	550	27	14850	1650	92
EAST SUNNYSIDE LANE	36	3231	10	32310	3590	199
ECKAR STREET NORTH	37	407	29	11803	1311	73
ECKAR STREET SOUTH	38	428	30	12840	1427	79
ERIE STREET	39	1180	20	23600	2622	146
EMORY ROAD	40	550	16	8800	978	54
FARGO LANE	41	3238	18	58284	6476	360
FERRIS STREET NORTH	42	396	29	11484	1276	71
FERRIS STREET SOUTH	43	512	29	14848	1650	92
FIELDPOINT DRIVE (0-800 ft.)	44	800	20	16000	1778	99
FIELDPOINT DRIVE (800-4,500 ft.)	45	3700	20	74000	8222	457
FIELDPOINT DRIVE PARKING LOT	46	300	24	7200	800	44
FIELD TERRACE	47	1275	17	21675	2408	134
GREY ROCK TERRACE	48	720	18	12960	1440	80
GRINNEL STREET	49	381	18	6858	762	42
HALFMOON LANE	50	935	24	22440	2493	139
HALSEY POND ROAD	51	820	14	11480	1276	71
HAMILTON ROAD	52	1510	24	36240	4027	224
HANCOCK PLACE	53	777	17	13209	1468	82
HARRIMAN ROAD	54	3750	31	116250	12917	718
HAVERMEYER ROAD*	55	1509	24	36216	4024	224
HENDRICK NORTH *	56	370	20	7400	822	46
HENDRICK SOUTH*	57	295	20	5900	656	36
HERMITS ROAD	58	800	10	8000	889	49
HILLSIDE TERRACE	59	812	18	14616	1624	90
HOME PLACE EAST	60	168	16	2688	299	17
HOME PLACE WEST	61	218	18	3924	436	24
HUDSON AVENUE	62	1550	20	31000	3444	191
HUDSON ROAD EAST	63	1150	17	19550	2172	121
HUDSON ROAD WEST	64	2630	19	49970	5552	308
HUDSON VIEW PARK	65	220	20	4400	489	27
HUGH HILL LANE*	66	710	24	17040	1893	105
ILINKA LANE	67	250	20	5000	556	31
IRVING PLACE	68	215	18	3870	430	24
IRVINGTON MANOR DRIVE	69	525	16	8400	933	52
JAFFREY PARK	70	1064	29	30856	3428	190
JANET TERRACE*	71	570	23	13110	1457	81
LANGDON AVENUE	72	1720	18	30960	3440	191
LEAFWOOD TERRACE*	73	627	20	12540	1393	77
LEWIS ROAD	74	1527	18	27486	3054	170
MAIN STREET	75	2192	44	96448	10716	595
MAIN STREET WEST	76	341	47	16027	1781	99
MANOR POND LANE	77	2660	22	58520	6502	361
MAPLE STREET	78	526	18	9468	1052	58
MATHIESSEN PARK	79	2050	10	20500	2278	127
MEADOW BROOK ROAD	80	1087	20	21740	2416	134
MEADOW WAY	81	917	20	18340	2038	113
NORTH ASTOR STREET	82	400	40	16000	1778	99
NORTH BROOK LANE	83	1700	22	37400	4156	231
OAK STREET	84	524	17	8908	990	55
OSCEOLA AVENUE	85	1935	19	36765	4085	227
PALLISER ROAD	86	929	19	17651	1961	109
PARK AVENUE	87	565	19	10735	1193	66
PARK ROAD	88	739	20	14780	1642	91
PARKSIDE WAY	89	750	19	14250	1583	88
PETER BONT ROAD (0-2,000 ft.)	90	2000	10	20000	2222	123
PETER BONT ROAD (2,000-4,799 ft.)	91	2799	10	27990	3110	173
RIVER ROAD	92	750	35	26250	2917	162
RIVERVIEW ROAD	93	3344	22	73568	8174	454
RIVERVIEW TERRACE	94	555	20	11100	1233	69
ROLAND ROAD	95	1063	17	18071	2008	112
SCENIC HUDSON PARKING LOT	96	190	24	4560	507	28
SCENIC HUDSON ROADWAY	97	1400	24	33600	3733	207
SOUTH ASTOR STREET	98	822	34	27948	3105	173
STATION ROAD	99	2480	21	52080	5787	321
SYCAMORE LANE	100	1987	29	57623	6403	356
VICTOR DRIVE*	101	585	28	16380	1820	101
WASHINGTON AVENUE	102	1070	23	24610	2734	152
WEST CLINTON AVENUE*	103	2440	28	68320	7591	422
WEST SUNNYSIDE LANE	104	2036	10	20360	2262	126
WILLOW STREET	105	541	17	9197	1022	57
WOODBINE ROAD*	106	418	19	7942	882	49
TOTAL LENGTH (ft)		113846				
TOTAL LENGTH (mi)		21.6				

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.

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

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

REV.	DATE	DESCRIPTION

TITLE: ROADWAY PLAN

PROJECT:

VILLAGE OF IRVINGTON ROADWAY RESURFACING

VILLAGE OF IRVINGTON, WESTCHESTER COUNTY, NEW YORK

JAMES J. HAHN ENGINEERING, P.C.
Putnam Business Park
1689 Route 22
Brewster, New York 10509
Tel: (845) 279-2220

SCALE: 1" = 400'

DATE: 03/28/16

DRAWING NO.: C-1

SHEET NO.: 1 OF 1