

Proposed 2015-2019 Road Program Executive Summary

Option 1 – Maintain Current Pavement Condition

Year	Preliminary Budget (2015 dollars)*	Adjusted Preliminary Budget
2015	\$1,064,000	\$1,064,000
	<i>Haegers Bend Road</i>	<i>(County Line Road to Chapel Road)</i>
	<i>Plum Tree Road</i>	<i>(Ridge Road to Village Limits)</i>
	<i>Cuba Road</i>	<i>(Buckley Road to Merri Oaks Road)</i>
	<i>Cuba Road Bridge (Local Share)</i>	
2016	\$1,123,000	\$1,179,000
	<i>Woodcreek Road</i>	<i>(Dundee Road to End)</i>
	<i>Rebecca Drive</i>	<i>(Old Sutton to End)</i>
	<i>Helm Road</i>	<i>(Algonquin Road to Village Limits)</i>
	<i>Healy Road</i>	<i>(Dundee Road to Penny Road)</i>
	<i>Tamarack Lane</i>	<i>(Old Sutton Road to End)</i>
	<i>Lakeview Lane</i>	<i>(Dundee Road to End)</i>
	<i>Hawthorne Lane</i>	<i>(Route 59 to Otis Road)</i>
	<i>Tricia Lane</i>	<i>(Old Sutton Road to End)</i>
	<i>VH Asphalt Parking Lots</i>	
	<i>Spring Creek Road (Local Share)</i>	<i>W. of Haegers Bend</i>
2017	\$1,162,000	\$1,281,000
	<i>Chapel Road</i>	<i>(Church Road to Haegers Bend)</i>
	<i>Church Road</i>	<i>(Chapel Road to Algonquin Road)</i>
	<i>Haegers Bend Road</i>	<i>(Chapel Road to Algonquin Road)</i>
	<i>River Road</i>	<i>(W. of Haegers Bend to Village Limits)</i>
	<i>River/Algonquin Road</i>	<i>(E. of Braeburn to W. of Church)</i>
2018	\$956,000	\$1,106,000
	<i>Hickory Lane</i>	<i>(Merri Oaks Road to End)</i>
	<i>Ridge Road</i>	<i>(County Line Road to Merri Oaks Road)</i>
	<i>Merri Oaks Road</i>	<i>(Ridge Road to Cuba Road)</i>
	<i>Old Hart Road</i>	<i>(County Line Road to End)</i>
2019	\$998,000	\$1,213,000
	<i>Spring Lane</i>	<i>(Spring Creek Road to End)</i>
	<i>Little Bend Road</i>	<i>(Spring Lane to End)</i>
	<i>Creekside Lane</i>	<i>(Old Sutton Road to End)</i>
	<i>Springwood Lane</i>	<i>(Algonquin Road to End)</i>
Total Expenditure (2015 dollars)- \$5.3 million		
2015-2019 Mileage Resurfaced- 16.99 Miles (3.40 Miles/Year)		
Backlog Reduction- 0.99 Miles		

**Option 2 – Maintain Current Pavement Condition &
Eliminate Backlog in 5 Years**

Year	Preliminary Budget (2015 dollars)*	Adjusted Preliminary Budget
2015	\$1,539,000	\$1,539,000
	<i>Haegers Bend Road</i>	<i>(County Line Road to Chapel Road)</i>
	<i>Plum Tree Road</i>	<i>(Ridge Road to Village Limits)</i>
	<i>Chapel Road</i>	<i>(Church Road to Haegers Bend)</i>
	<i>Church Road</i>	<i>(Chapel Road to Algonquin Road)</i>
	<i>Cuba Road</i>	<i>(Buckley Road to Merri Oaks Road)</i>
	<i>Cuba Road Bridge (Local Share)</i>	
2016	\$1,283,000	\$1,347,000
	<i>Woodcreek Road</i>	<i>(Dundee Road to End)</i>
	<i>Rebecca Drive</i>	<i>(Old Sutton to End)</i>
	<i>Helm Road</i>	<i>(Algonquin Road to Village Limits)</i>
	<i>Healy Road</i>	<i>(Dundee Road to Penny Road)</i>
	<i>Tamarack Lane</i>	<i>(Old Sutton Road to End)</i>
	<i>Lakeview Lane</i>	<i>(Dundee Road to End)</i>
	<i>Hawthorne Lane</i>	<i>(Route 59 to Otis Road)</i>
	<i>Tricia Lane</i>	<i>(Old Sutton Road to End)</i>
	<i>Haegers Bend Road</i>	<i>(Chapel Road to Algonquin Road)</i>
	<i>River Road</i>	<i>(W. of Haegers Bend to Village Limits)</i>
	<i>Spring Creek Road (Local Share)</i>	<i>W. of Haeger's Bend</i>
2017	\$1,319,000	\$1,454,000
	<i>Hickory Lane</i>	<i>(Merri Oaks Road to End)</i>
	<i>Ridge Road</i>	<i>(County Line Road to Merri Oaks Road)</i>
	<i>River/Algonquin Road</i>	<i>(E. of Braeburn to W. of Church)</i>
	<i>Merri Oaks Road</i>	<i>(Ridge Road to Cuba Road)</i>
	<i>Old Hart Road</i>	<i>(County Line Road to End)</i>
2018	\$1,220,000	\$1,412,000
	<i>Spring Lane</i>	<i>(Spring Creek Road to End)</i>
	<i>Little Bend Road</i>	<i>(Spring Lane to End)</i>
	<i>Creekside Lane</i>	<i>(Old Sutton Road to End)</i>
	<i>Springwood Lane</i>	<i>(Algonquin Road to End)</i>
	<i>Butternut Road</i>	<i>(Donlea Road to End)</i>
	<i>VH Asphalt Parking Lots</i>	
2019	\$929,000	\$1,129,000
	<i>Hills & Dales Road</i>	<i>(Brinker Road to Otis Road)</i>
	<i>Cuba Road</i>	<i>(Merri Oaks Road to Plum Tree Road)</i>
	<i>Healy Road</i>	<i>(Penny Road to End)</i>
	<i>Honeycutt Road</i>	<i>(Hills & Dales Road to End)</i>
	<i>Country Oaks Lane</i>	<i>(Country Oaks Drive to End)</i>
	<i>Country Oaks Drive</i>	<i>(County Line Road to End)</i>
	<i>Cross Timbers Road</i>	<i>(Braeburn Road to End)</i>
Total Expenditure (2015 dollars)- \$6.29 million		
2015-2019 Mileage Resurfaced- 20.69 Miles (4.14 Miles/Year)		
Backlog Reduction- 4.69 Miles		

Village of Barrington Hills

Pavement Condition Study and Proposed 2015-2019 Road Program

Prepared for:



**Village of Barrington Hills
112 Algonquin Road
Barrington Hills, Illinois 60010
(847) 551-3000**

Prepared by:



**820 Lakeside Drive
Gurnee, Illinois 60031
(847) 855-1100**

**GHA Project #9355.136
August 2014**

Table of Contents

Report	Page
– Project Background	3
– Current Study	5
– Summary of Observations	5
– Recommendations	6
– Regional Transportation Planning & Roadway Maintenance	8
– Conclusion	10

Exhibits

- Proposed Five-Year Road Maintenance Program & Map-
Option 1 (2015-2019 with Opinion of Probable Cost)
- Proposed Five-Year Road Maintenance Program & Map-
Option 2 (2015-2019 with Opinion of Probable Cost)
- Village Map
(With PCI Rankings)
- Pavement Condition Index (PCI) Reports
(Alphabetical Order, Increasing PCI Order, &
Chronological Order)
- PAVER System Information



Project Background

The Village of Barrington Hills requested that GHA perform a pavement condition evaluation and prepare a long term road program and rehabilitation plan. The benefit of this type of study is to help the Village budget the necessary funds to patch and resurface the existing roadway network in a logical order, thus minimizing the necessity of much more costly full depth reconstruction. The evaluation provides a quantitative assessment of the roadway condition and allows for the prioritization of the roads most in need of rehabilitation in preparing an improvement program.

The evaluation was completed by surveying 38.52 miles of Village maintained streets to evaluate the distress using a Pavement Condition Index (PCI) system developed by PAVER™. This pavement management software was developed by the US Army Corps of Engineers and sponsored by the Federal Highway Administration, among other agencies. PAVER™ provides pavement management capabilities designed for the following functions: (1) develop and organize the pavement inventory, (2) assess the current condition of pavements, (3) develop models to predict future conditions; (4) report on past and future pavement performance; (5) develop scenarios for M&R based on budget or condition requirements; and (6) plan projects.

Past pavement inventories were conducted in 1994 and again in 2005 with slightly different criteria, which utilized a Pavement Condition Rating (PCR) system. While both the PCR and PCI utilize a scale of 0 to 100 to categorize pavement condition, the rating calculations and characterizations are slightly different. The figure below characterizes the differences between the two rating systems:

PCR Rating		PCI Rating	
Very Good	91-100	86-100	Good
Good	81-90		Satisfactory
Fair	66-80	71-85	Fair
Poor	51-65	56-70	Poor
Very Poor	0-50	41-55	Poor
		26-40	Very Poor
		11-25	Serious
		0-10	Failed

The PCI system utilized in this study has been adopted as a standard practice by ASTM (D-6433-10) and is increasingly the predominant methodology used in the industry. Due to its standardization and the development of a number of software tools to support the methodology, Village staff accepted the recommendation by GHA to utilize the PCI system for this study.



Tricia Lane (PCI = 25)

Both previous pavement condition studies were utilized to prepare a 10-year road program which planned for the resurfacing of every roadway in the Village. Two observations have led us to recommend that the Village develop a 5-year road program. First, there is a tremendous range of traffic loadings, drainage conditions, and subsurface strengths represented on Village roadways. While it is essential that some roads be resurfaced every ten years, other roadways have maintained a satisfactory condition for 15 years or more. As a result, over the past several years the road program has been based on an assumed surface life of 10 years for high-volume (>2000 ADT) thru roads, 12 years for lower volume thru roads, and 15 years for cul-de-sac roads. Based on the various lengths of each type of road in the Village, the average surface life for roads in the Village is roughly 12 years, which indicates approximately 3.2 miles of resurfacing is needed annually to maintain current pavement conditions.

Secondly, it has also been noted that in the final years of each of the last two 10-year road programs roads were shuffled and reanalyzed as some roads were deferred due to budget or other constraints and the pavement condition of other roads became serious due to a more rapid rate of deterioration. This shuffling can be frustrating to Village residents as expectations are set based upon published 10-year road programs that end up being modified several years later. Targeting a 5-year road program will allow for a more regular and systematic approach to evaluating which roads need attention in any given year.

Current Study

GHA conducted a field study of 38.52 miles of Village maintained roadways in March and April of 2014. Each roadway section was judged on its structural condition using various distress characteristics (cracking, rutting, etc.) to identify pavement failure and thereafter applying a “severity” and “quantity” factor to each. The resulting weighted ratings, or more specifically Pavement Condition Index (PCI) numbers, were assembled and ranked in ascending order of worst to best. Segments were assigned a rehabilitation year prioritized by severity of distress. Finally, construction cost and inflation factors were applied to develop an annual road program budget.

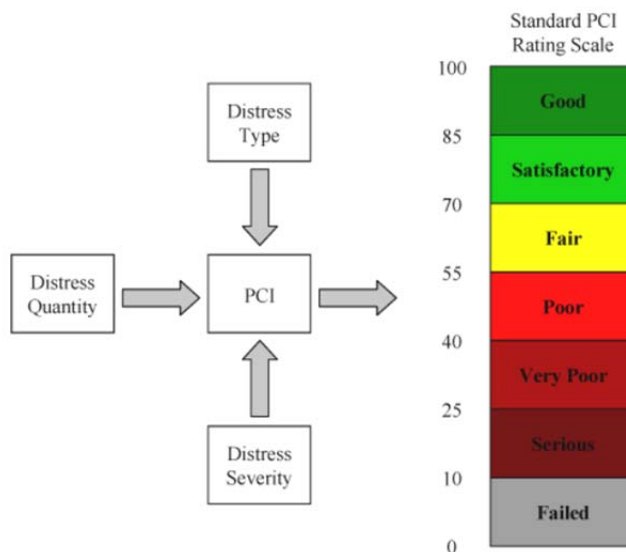
The pavement condition and road program data were also integrated into a GIS application using Lake County GIS Data. The PCI reports and annual road program summaries are attached, along with maps for the 2015 through 2019 programs, and a map of the entire roadway network indicating the PCI.

This pavement study does not include a review of existing culverts and other drainage structures, review of open ditches in the Village right-of-way, or bridge inspections. A comprehensive study of all existing culverts was completed in 2010. At that time GHA evaluated the condition of 210 culverts on Village-maintained roadways and recommended replacement at 24 locations.

There are four (4) bridges on Village roadways that require bi-annual inspections to comply with the National Bridge Inspection Standard (NBIS) requirements maintained by IDOT. These include the Cuba Road Bridge, the Green Rail Bridge and Porter Bridge (both on Oak Knoll Road), and the metal arch culverts that carry Spring Creek across Spring Creek Road. Bridge condition does not factor into the PCI ratings calculated in this report.

Summary of Observations

The PCI numbers presented in the attached reports can be used in conjunction with the attached bar chart to interpret the condition of the Village pavements on a subjective scale.



As noted previously, the internal calculations of PCI are different from those associated with the PCR system, as are the characterizations of the numerical scale. Assessing the four roadway sections that rated as “Failed”, subjectively we would only assess Haeger’s Bend Road as a failed roadway section, which has been supported by geotechnical reports. In addition, we would consider many of the roadway sections characterized as “Serious” or “Very Poor” by the PAVER™ system to be in fair condition. However, the PCI ratings do provide an objective measure to utilize for comparison of the pavements and prioritization of future roadway improvements. The current average PCI of Village roadways from the 2014 inspection is 48.7, with a range of 1 to 100. Longitudinal cracking and alligator cracking were common deficiencies observed on the Village roadways.

The 2005 Pavement Study noted an average PCR of 87.7, at the high end of the “Good” range. While direct comparisons between PCR and PCI are difficult, the average PCI of 48.7 does reflect a lower overall pavement condition observed in 2014 compared to 2005. This decrease is likely due to deferred work and several extreme winters following the 2005 study.

Weather and material related distresses, such as material aging, loss of surface aggregate, oxidation of the asphalt binder, and weather related contraction and expansion with water (ice) intrusion into cracks, often manifest themselves in the form of surface cracking and shallow potholes. Intermediate repairs, such as cold patching or crack sealing, can limit the impact of such distresses and improve the overall life of the pavement. This type of repair is completed on an “as-needed” basis.

Road Program History

As noted above, a target of 3.2 miles of resurfacing has been established in order to keep pace with resurfacing. Due to budget limitations and other factors, the annual road program fell significantly short of this target for several years starting in 2008, resulting in growing backlog of deferred resurfacing projects. The table below includes the resurfacing history in the Village since 2006, with a calculation of the cumulative backlog based on the target of 3.2 miles per year:

Year	Roads Resurfaced	Miles Resurfaced	Backlog	Cumulative Backlog
2006	Ridge Road (South 1900’); Honeycutt Road; Spring Lane; Little Bend; Haeger’s Bend (Chapel to River)	2.87	0.33	0.33
2007	Merri Oaks Road; Hickory Lane; Hills & Dales Road; Longmeadow Court; Longmeadow Drive; Rolling Hills Drive	2.70	0.5	0.83
2008	Oak Knoll Road	2.42	0.78	1.61
2009	Rock Ridge Road; Surrey Lane; Wagon Wheel Lane; Surrey Court	1.55	1.65	3.26
2010	Hawley Woods Road; Round Barn Lane; Old Dundee Road; Old Bartlett Road	2.66	0.54	3.8
2011	Aberdeen Drive; Barrington Hills Road; Butternut Road; Crabapple Road; Leeds Drive; Buckley Road	2.27	0.93	4.73
2012	Braeburn Road; Dundee Lane; Caesar Drive; Dana Lane	3.19	0.01	4.74
2013	Spring Creek Road; Three Lakes Road	3.15	0.05	4.79

Recommendations

Upon completion of the pavement inventory, all of the roadways were organized in order of ascending PCI. It was recognized that Plum Tree Road (east of Ridge), Ridge Road (North of Merri Oaks), Steeplechase Road and Meadow Hill Road are planned to be resurfaced as part of the 2014 Road Program. As a result these roadway sections were not included in the 2015-2019 Road Program.

We have prepared two options for the proposed 2015-2019 Road Program. Option 1 has been prepared using a target of 3.2 miles of roadway resurfacing per year. In grouping the roadways for the proposed Five-Year Road Maintenance Program, the PCI ratings were used as the starting point to group the roads into yearly programs of roughly equal size. In some cases roads were shuffled slightly in order to group roads that are geographically in the same proximity, which helps to lower costs as well as limit the number of residents burdened by construction in any given year (as a result the average resurfacing for Option 1 is slightly higher than 3.2 miles per year).

The estimated dollar amount of each year’s recommendation is shown in the attached yearly program schedule for each option, and is summarized below. The cost is shown in 2015 dollars as well as an “adjusted” future cost based on an assumed 5% inflation rate.

Option 1 – Maintain Current Pavement Condition

Year	Preliminary Budget (2015 dollars)*	Adjusted Preliminary Budget
2015	\$1,064,000	\$1,064,000
2016	\$1,123,000	\$1,179,000
2017	\$1,162,000	\$1,281,000
2018	\$956,000	\$1,106,000
2019	\$998,000	\$1,213,000
Total Expenditure (2015 dollars)- \$5.3 million 2015-2019 Mileage Resurfaced- 16.99 Miles (3.40 Miles/Year) Backlog Reduction- 0.99 Miles		

Option 2 was prepared with a target of approximately 4.2 miles of resurfacing per year with the intent of eliminating the current 4.7 mile backlog over the next 5 years. As roads were grouped together based on geographic proximity, the backlog reduction was achieved over four years instead of five, with a more typical resurfacing program of 3.2 miles for the fifth year.

**Option 2 – Maintain Current Pavement Condition &
Eliminate Backlog in 5 Years**

Year	Preliminary Budget (2015 dollars)*	Adjusted Preliminary Budget
2015	\$1,539,000	\$1,539,000
2016	\$1,283,000	\$1,347,000
2017	\$1,319,000	\$1,454,000
2018	\$1,220,000	\$1,412,000
2019	\$929,000	\$1,129,000
Total Expenditure (2015 dollars)- \$6.29 million		
2015-2019 Mileage Resurfaced- 20.69 Miles (4.14 Miles/Year)		
Backlog Reduction- 4.69 Miles		

* It should be noted that the budgetary amount shown does not describe the full budgetary need of the Roads & Bridges line item, but is rather only reflective of pavement rehabilitation costs. This number does not take into account drainage improvements, bridge maintenance, snow plowing, design and construction engineering, etc.

We recommend a typical roadway maintenance program of patching (4”-6”), leveling binder (1” average thickness), and a surface overlay (2” thickness). For roadways with a significant amount of patching, pulverization of the existing pavement followed by a 4” overlay has been found to be competitive with patching and resurfacing costs, and could be considered on a case by case basis. The cost structure of the 2015-2019 Road Program is based on costs of overlay projects that GHA has managed for Barrington Hills and other municipalities and townships in the past few years, using the recommended typical roadway maintenance cross-section. These costs are estimated at \$25/square yard based on recent bid result averages and observed increases in unit prices. (It is noted that the low bid for the 2014 Road Program came in at approximately \$27.90/SY; however, this was significantly higher than expected and a portion of the increase is believed to be due to the timing of the bid). Typically existing shoulders will be maintained in kind, either with topsoil, seed, and blanket or with stone. Once a roadway is selected for improvements, specific drainage improvements will be considered.

In areas where frequent and wide transverse cracks are encountered, we recommend special treatment to prevent or at least minimize their recurrence on the new surface. A crack-filling program could be conducted in areas not needing immediate resurfacing to extend the life of the existing pavement.

We have organized the road data and have prepared the pavement condition inventory shown in the exhibits. The following exhibits are attached to the end of this section:

- Exhibit 1 – Proposed 2015-2019 Road Program & Map – Option 1
- Exhibit 2 – Proposed 2015-2019 Road Program & Map – Option 2
- Exhibit 3 – Village Map PCI Rankings
- Exhibit 4 – PCI Summary Reports (alphabetical order and increasing PCI order)
- Exhibit 5 – PCI Rating System Methodology

Specific details of road repairs such as curb and gutter removal and replacement, pavement patching, and culvert replacements were not noted in our inventory report. Once the specific roadway sections are selected for improvements, a more thorough review of resurfacing needs will be evaluated, which will include pavement cores to determine the condition of the pavement subgrade. A detailed opinion of probable cost will be established with

each annual maintenance program, and the actual road program chosen each year will depend upon the available budget.

It should be noted that all of the estimated costs are based on inflation of 2015 construction dollars and may have to be updated each year as segments of the program are selected for improvement. The proposed Five-Year Road Maintenance Program should be used as a budgetary and planning tool for the Village. We understand that roads may be moved from one year's program to another year's program based on available funding.

Regional Transportation Planning & Roadway Maintenance

The residents of Barrington Hills are affected by county and state roadway construction projects as much as, if not more than, local road projects. Improvements to county and state roads in the area have an impact on traffic flows through and around the Village, and indirectly on the Village roads themselves.

Kane County Division of Transportation (Longmeadow Parkway)

One of the primary projects potentially affecting transportation within the Village is the proposed Longmeadow Parkway project being pursued by the Kane County Division of Transportation. The Longmeadow Parkway project is a 5.6 mile corridor intended to provide a new bridge crossing over the Fox River, reaching from IL Rte. 62 near Autumn Trail in Barrington Hills to Huntley Road. Preliminary feasibility studies by the County have identified a toll bridge as a mechanism to help fund construction costs. The overall cost of the project is currently estimated at \$135 million.

Approximately 3700 linear feet of the Longmeadow Corridor is located in the Village of Barrington Hills. While no homes are proposed to be displaced by the roadway, right-of-way will be required from several properties along Autumn Trail and IL Rte. 62, and the alignment of Autumn Trail is proposed to be modified.

Kane County received Phase One engineering approval in December of 2013 after nearly 20 years of environmental studies and planning. Phase II engineering and land acquisition is currently underway and construction is anticipated to begin as early as fall of 2015.

Lake County Division of Transportation (Hart Road & US Route 14 Intersection Improvements)

Lake County Division of Transportation (LCDOT) is currently involved in Phase Two engineering for improvements to the intersection of Hart Road and US Route 14. The Village of Barrington was the lead agency for the Phase One engineering process, which received final approval in 2013. The project calls for additional turn lanes and thru lanes at the intersection and will require right-of-way from multiple residents in Barrington Hills. It is anticipated that congestion relief at this intersection may result in a slight reduction of cut-through traffic on Village roadways in this area. Construction of the improvements is anticipated in 2015.

Cook County Department of Transportation and Highways

In December of 2012, the Cook County Highway Department changed its name to the Cook County Department of Transportation and Highways, reflecting an expansion in focus to include regional transportation planning. In March of 2014 the Department undertook development of a long-range transportation plan, the first such county-wide effort since its 1940 highway plan. The planning process is expected to be completed in 2015.

Illinois Department of Transportation

The Illinois Department of Transportation (IDOT) has released their proposed Highway Improvement Program for Fiscal Years 2012-2017. Proposed highway improvements for 2014-2017 include the following: resurfacing on Dundee Road from Prairie Lakes Road to Illinois Route 62 and from Illinois Route 59 (Hawthorne Road) to US 12 (Rand Road).

In light of the planned improvements on Longmeadow Parkway that are anticipated to increase traffic volumes to IL Rte. 62, the Village initiated discussions with IDOT in January of 2014 to determine their schedule for improvements/widening of IL Rte. 62. IDOT indicated they would be interested in initiating a Phase One design study and that it may be possible to expedite funding for the project if the Village support widening IL Rte. 62 to four lanes. The Village held an Open House on March 12, 2104 to gather comment on the Longmeadow Parkway project as well as the potential improvements to IL Rte. 62.

The Village Board ultimately requested that IDOT undertake a study to examine and pursue capacity and safety improvements along IL Rte. 62, citing the following factors that would result from increased traffic volumes on IL Rte. 62:

- As congestion increases, motorists increasingly utilize the local roadway network to beat traffic, increasing traffic loads on county, village, and private roads which were constructed with the intention of serving only local traffic loads.
- Increased traffic loadings will further increase the risk associated with crossing IL Rte. 62 at Old Sutton Road, Bateman Road, and Helm Road, which some motorists avoid already due to limited gaps in traffic during peak hours. The Village has seen numerous accidents and fatalities in the past at these intersections.
- Existing equestrian and pedestrian crossing locations would also be jeopardized by increased traffic volumes. These impacts will result in IL Rte. 62 bisecting the Village, impacting the quality of life for those living or traveling in this area of the Village.

To date no official response has been received from IDOT regarding their schedule to pursue these improvements.

Conclusion

The attached PCI reports provide the Village with a comparative assessment of each Village-maintained roadway. The roads with low PCI's are in most need of repair and are scheduled for maintenance in the proposed 5-year maintenance program. Roads with higher PCI's are in better condition and maintenance can be deferred to the later years and future roadway programs.

Each year's road program is summarized, with a cost in 2015 dollars and an estimated cost in the proposed year of maintenance. A map highlighting the roadway segments that are proposed in each year's maintenance program is also included for quick reference.

We believe the proposed Five-Year Road Maintenance Program will be a helpful tool for the Village in planning for future road maintenance and preparing budgets.

Exhibit 1

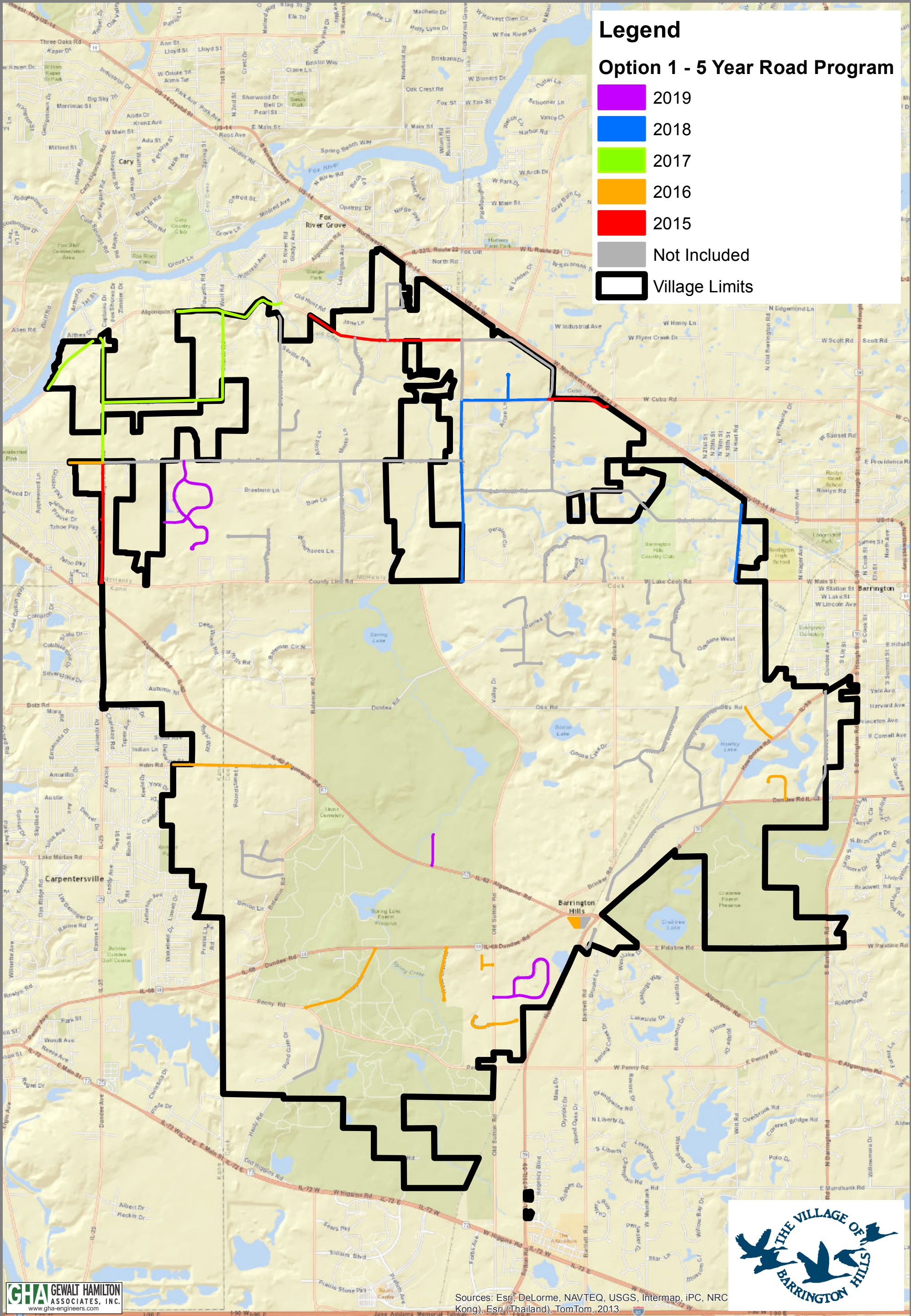
Proposed Five-Year Road Maintenance Program & Map

Option 1

Legend

Option 1 - 5 Year Road Program

-  2019
-  2018
-  2017
-  2016
-  2015
-  Not Included
-  Village Limits



Sources:
GHA GEWALT HAMILTON ASSOCIATES, INC.
www.gha-engineers.com

Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, IPC, NRC Kong, Esri (Thailand), TomTom, 2013



1 inch = 4,000 Feet

Option 1 - 5 Year Road Program

Village of Barrington Hills

File: P:\01-9499\9355 Barrington Hills\356 2014 Pavement Inventory\ReportRd Program Map.mxd
Drawn By: mhansen

PROGRAMMED IMPROVEMENTS
VILLAGE OF BARRINGTON HILLS
2015 ROAD PROGRAM



Street	From	To	Length (ft)	Width (ft)	Area (sy)	PCI	2015 Rehabilitation Cost	2015 Rehabilitation Cost
HaegersBnd	Countyline Road	Chapel Road	7,875.00	22	19250	9	\$481,250.00	\$481,250.00
PlumTreeRd	Ridge Road	Village Limits	6,877.00	22	16505	8	\$412,619.44	\$412,619.44
CubaRd	Buckley Road	Merri Oaks Road	164	22	401	30	\$10,025.00	\$10,025.00
Cuba Road Bridge (Local Share)							\$160,000.00	\$160,000.00

5% Annual Inflation Compounded: \$0.00
Total: \$1,064,000.00 \$1,064,000.00
(Note: Totals Rounded to nearest \$1,000)

Total Length (FT) 14916
Total Length (Miles) 2.83

PROGRAMMED IMPROVEMENTS
VILLAGE OF BARRINGTON HILLS
2016 ROAD PROGRAM



Street	From	To	Length (ft)	Width (ft)	Area (sy)	PCI	2016 Rehabilitation Cost	2015 Rehabilitation Cost
WoodcreekR	Dundee Road	Terminus	2,494	19	5293	8	\$138,935.42	\$132,319.44
RebeccaDr	Old Sutton Road	Dead End	1,535	16	2797	14	\$73,424.17	\$69,927.78
HelmRd	Algonquin Road	Village Limits	4,249	23	11000	15	\$288,755.83	\$275,005.56
HealyRd	Dundee Road	Penny Road	4,263	18	8715	19	\$228,780.42	\$217,886.11
TamarackLn	Old Sutton Road	Terminus	1,081	12	1489	19	\$39,095.00	\$37,233.33
LakeViewLn	Dundee Road	Terminus	1,960	16	3593	20	\$94,325.00	\$89,833.33
HawthorneL	Route 59	Otis Rd	1,124	16	2011	22	\$52,780.00	\$50,266.67
TriciaLn	Old Sutton Road	Terminus	1,195	17	2231	25	\$58,555.00	\$55,766.67
VH Asphalt	Village Hall	Village Hall	* 2950	* 20	6555	15	\$172,068.75	\$163,875.00
Spring Creek west of Haeger's Bend (Village Share)			1319				\$32,550.00	\$31,000.00

* Equivalent Length/Width

5% Annual Inflation Compounded:

\$56,155.69

Total:

\$1,179,000.00

\$1,123,000.00

(Note: Totals Rounded to nearest \$1,000)

Total Length (FT) 20851
Total Length (Miles) 3.95

PROGRAMMED IMPROVEMENTS
VILLAGE OF BARRINGTON HILLS
2017 ROAD PROGRAM



Street	From	To	Length (ft)	Width (ft)	Area (sy)	PCI	2017 Rehabilitation Cost	2015 Rehabilitation Cost
Chapel	Church Road	Haeger's Bend Road	5,172	19	10919	17	\$300,945.75	\$272,966.67
Church	Chapel Road	Algonquin Road	3,874	19	8092	19	\$223,044.94	\$202,308.33
HaegersBnd	Chapel Road	Village Limits	2,409.00	22	5889	20	\$162,306.38	\$147,216.67
RiverRd	West of Haeger's Bend	Village Limits	2,818.00	22	7045	21	\$194,177.81	\$176,125.00
River/Algo	East of Braeburn	West of Church	5,808.00	22	14520	21	\$400,207.50	\$363,000.00

5% Annual Inflation Compounded:		\$119,065.71
Total:	\$1,281,000.00	\$1,162,000.00

(Note: Totals Rounded to nearest \$1,000)

Total Length (FT) 20081
Total Length (Miles) 3.80

PROGRAMMED IMPROVEMENTS
VILLAGE OF BARRINGTON HILLS
2018 ROAD PROGRAM



Street	From	To	Length (ft)	Width (ft)	Area (sy)	PCI	2018 Rehabilitation Cost	2015 Rehabilitation Cost
HickoryLn	Merri-Oaks	Terminus	1,260	21	2898	22	\$83,869.93	\$72,450.00
RidgeRd	County Line Road	Oak Knoll Road	3,988	23	10014	28	\$289,821.07	\$250,358.33
RidgeRd	Oak Knoll Road	Merri Oaks Road	3,952	22	9704	23	\$280,849.47	\$242,608.33
MerriOaksR	Cuba Road	Ridge Road	3,600	19	7680	31	\$222,264.00	\$192,000.00
OldHartRd	Lake Cook Road	Terminus	3,430	21	7927	34	\$229,415.55	\$198,177.78

5% Annual Inflation Compounded:	\$150,625.57
Total:	\$1,106,000.00

(Note: Totals Rounded to nearest \$1,000)

Total Length (FT)	16230
Total Length (Miles)	3.07

PROGRAMMED IMPROVEMENTS
VILLAGE OF BARRINGTON HILLS
2019 ROAD PROGRAM



Street	From	To	Length (ft)	Width (ft)	Area (sy)	PCI	2019 Rehabilitation Cost	2015 Rehabilitation Cost
SpringLn	Spring Creek Road	Terminus	5,355.00	21	12317	29	\$374,271.26	\$307,913.89
Springwood	Algonquin Road	Terminus	1,325.00	16	2429	35	\$73,818.37	\$60,730.56
CreeksideL	Old Sutton Rd	Terminus	6,453.00	21	14985	37	\$455,369.16	\$374,633.33
LittleBndR	Spring Lane	Terminus	4,475.00	20	10193	46	\$309,744.76	\$254,827.78

5% Annual Inflation Compounded: \$215,097.99

Total: **\$1,213,000.00** **\$998,000.00**

(Note: Totals Rounded to nearest \$1,000)

Total Length (FT) 17608
Total Length (Miles) 3.33

Exhibit 2

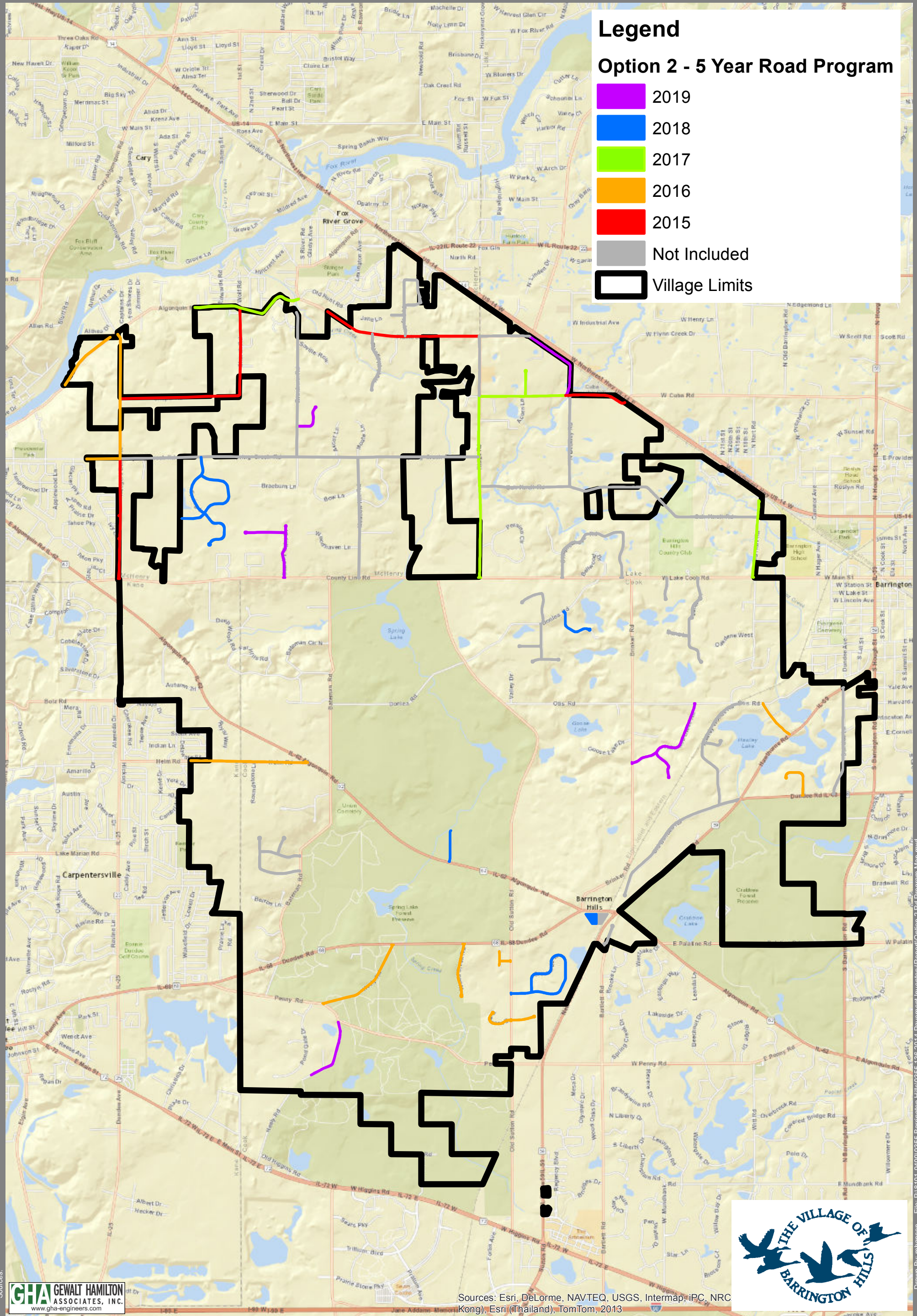
Proposed Five-Year Road Maintenance Program & Map

Option 2

Legend

Option 2 - 5 Year Road Program

- 2019
- 2018
- 2017
- 2016
- 2015
- Not Included
- Village Limits



Sources:
GHA GEWALT HAMILTON ASSOCIATES, INC.
www.gha-engineers.com

Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, IPC, NRC (Kong), Esri (Thailand), TomTom, 2013



1 inch = 4,000 Feet

Option 2 - 5 Year Road Program

Village of Barrington Hills

PROGRAMMED IMPROVEMENTS
VILLAGE OF BARRINGTON HILLS
2015 ROAD PROGRAM



Street	From	To	Length (ft)	Width (ft)	Area (sy)	PCI	2015 Rehabilitation Cost	2015 Rehabilitation Cost
HaegersBnd	Countyline Road	Chapel Road	7875	22	19250	9	\$481,250.00	\$481,250.00
PlumTreeRd	Ridge Road	Village Limits	6877	22	16505	8	\$412,619.44	\$412,619.44
Chapel	Church Road	Haeger's Bend Road	5172	19	10919	17	\$272,966.67	\$272,966.67
Church	Chapel Road	Algonquin Road	3874	19	8092	19	\$202,308.33	\$202,308.33
CubaRd	Buckley Road	Merri Oaks Road	164	22	401	30	\$10,025.00	\$10,025.00
Cuba Road Bridge (Local Share)							\$160,000.00	\$160,000.00

5% Annual Inflation Compounded:

\$0.00

Total:

\$1,539,000.00

\$1,539,000.00

(Note: Totals Rounded to nearest \$1,000)

Total Length (FT) 23962
Total Length (Miles) 4.54

PROGRAMMED IMPROVEMENTS
VILLAGE OF BARRINGTON HILLS
2016 ROAD PROGRAM



Street	From	To	Length (ft)	Width (ft)	Area (sy)	PCI	2016 Rehabilitation Cost	2015 Rehabilitation Cost
WoodcreekR	Dundee Road	Terminus	2,494	19	5293	8	\$138,935.42	\$132,319.44
RebeccaDr	Old Sutton Road	Dead End	1,535	16	2797	14	\$73,424.17	\$69,927.78
HelmRd	Algonquin Road	Village Limits	4,249	23	11000	15	\$288,755.83	\$275,005.56
HealyRd	Dundee Road	Penny Road	4,263	18	8715	19	\$228,780.42	\$217,886.11
TamarackLn	Old Sutton Road	Terminus	1,081	12	1489	19	\$39,095.00	\$37,233.33
LakeViewLn	Dundee Road	Terminus	1,960	16	3593	20	\$94,325.00	\$89,833.33
HawthorneL	Route 59	Otis Rd	1,124	16	2011	22	\$52,780.00	\$50,266.67
TriciaLn	Old Sutton Road	Terminus	1,195	17	2231	25	\$58,555.00	\$55,766.67
HaegersBnd	Chapel Road	Village Limits	2409	22	5889	20	\$154,577.50	\$147,216.67
RiverRd	West of Haeger's Bend	Village Limits	2818	22	7045	21	\$184,931.25	\$176,125.00
Spring Creek Road - West of Haeger's Bend (Local Share)			1,319				\$32,550.00	\$31,000.00

5% Annual Inflation Compounded:

Total: **\$1,347,000.00** **\$1,283,000.00**

(Note: Totals Rounded to nearest \$1,000)

Total Length (FT) 24447

Total Length (Miles) 4.63

PROGRAMMED IMPROVEMENTS
VILLAGE OF BARRINGTON HILLS
2017 ROAD PROGRAM



Street	From	To	Length (ft)	Width (ft)	Area (sy)	PCI	2017 Rehabilitation Cost	2015 Rehabilitation Cost
HickoryLn	Merri-Oaks	Terminus	1260	21	2898	22	\$79,876.13	\$72,450.00
RidgeRd	Oak Knoll Road	Merri Oaks Road	3952	22	9704	23	\$267,475.69	\$242,608.33
RidgeRd	County Line Road	Oak Knoll Road	3988	23	10014	28	\$276,020.06	\$250,358.33
River/Algo	East of Braeburn	West of Church	5808	22	14520	21	\$400,207.50	\$363,000.00
MerriOaksR	Cuba Road	Ridge Road	3600	19	7680	31	\$211,680.00	\$192,000.00
OldHartRd	Lake Cook Road	Terminus	3430	21	7927	34	\$218,491.00	\$198,177.78

5% Annual Inflation Compounded: \$135,155.93

Total: \$1,454,000.00 \$1,319,000.00

(Note: Totals Rounded to nearest \$1,000)

Total Length (FT) 22038

Total Length (Miles) 4.17

PROGRAMMED IMPROVEMENTS
VILLAGE OF BARRINGTON HILLS
2018 ROAD PROGRAM



Street	From	To	Length (ft)	Width (ft)	Area (sy)	PCI	2018 Rehabilitation Cost	2015 Rehabilitation Cost
VH Asphalt	Village Hall	Village Hall	* 2950	* 20	6555	15	\$189,705.80	\$163,875.00
SpringLn	Spring Creek Road	Terminus	5355	21	12317	29	\$356,448.82	\$307,913.89
Springwood	Algonquin Road	Terminus	1325	16	2429	35	\$70,303.21	\$60,730.56
Butternut	Donlea Road	End	1184	18	2302	38	\$66,627.75	\$57,555.56
CreeksideL	Old Sutton Rd	Terminus	6453	21	14985	37	\$433,684.91	\$374,633.33
LittleBndR	Spring Lane	Terminus	4475	20	10193	46	\$294,995.01	\$254,827.78

* Equivalent Length/Width

5% Annual Inflation Compounded:

\$192,229.38

Total:

\$1,412,000.00

\$1,220,000.00

(Note: Totals Rounded to nearest \$1,000)

Total Length (FT) 21742

Total Length (Miles) 4.12

PROGRAMMED IMPROVEMENTS
VILLAGE OF BARRINGTON HILLS
2019 ROAD PROGRAM



Street	From	To	Length (ft)	Width (ft)	Area (sy)	PCI	2019 Rehabilitation Cost	2015 Rehabilitation Cost
HillsDales	Brinker Road	Otis Road	4200	17	8073	46	\$245,329.68	\$201,833.33
CubaRd	Merri Oaks Road	Plum Tree Road	3475	22	8494	47	\$258,126.26	\$212,361.11
HealyRd	Penny Road	Village Limits	2165	19	4474	49	\$135,964.50	\$111,858.33
HoneycuttR	Hills & Dales Road	Terminus	1327	17	2462	57	\$74,824.54	\$61,558.33
CtryOaksLn	Country Oaks Drive	End	1893	22	4522	59	\$137,419.73	\$113,055.56
CtryOaksDr	County Line Road	End	2477	21	5670	64	\$172,284.51	\$141,738.89
CrossTmbrs	Braeburn Road	Terminus	1510	21	3473	71	\$105,536.33	\$86,825.00

5% Annual Inflation Compounded:

\$200,254.99

Total:

\$1,129,000.00

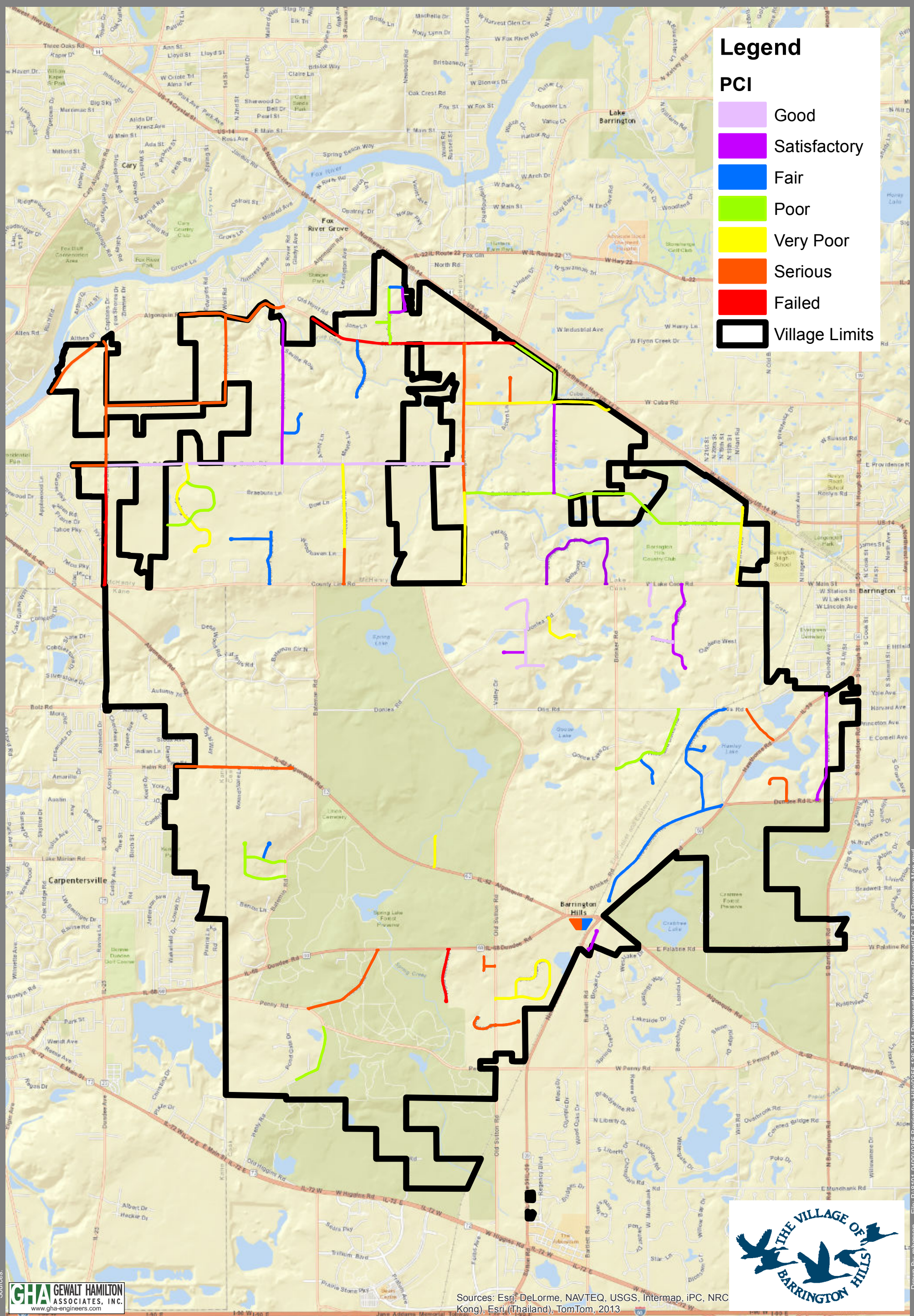
\$929,000.00

(Note: Totals Rounded to nearest \$1,000)

Total Length (FT) 17047
Total Length (Miles) 3.23

Exhibit 3

Village Map w/ PCI Rankings



Legend

PCI

- Good
- Satisfactory
- Fair
- Poor
- Very Poor
- Serious
- Failed
- Village Limits

Sources:
GHA GEWALT HAMILTON
 ASSOCIATES, INC.
 www.gha-engineers.com

Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, IPC, NRC
 Kong, Esri (Thailand), TomTom, 2013



1 inch = 4,000 Feet

Pavement Condition Index Map

Village of Barrington Hills

File: P:\8101-9499\9355 Barrington Hills\9355_136 2014 Pavement Inventory\Report\PCI & Rd Program Map.mxd
 Drawn by: mhansen

Exhibit 4

Pavement Condition Index (PCI) Reports

Summary Report by Branch

Branch ID	From	To	Length	Last Major Work Date	PCI	PCI Category
Aberdeen	Terminus	Terminus	1,444.00	2011	92	Good
BarrHillRd	Donlea Road	End	2,424.00	2011	90	Good
Braeburn	Spring Creek Road	Algonquin Road	6,865.00	2012	81	Satisfactory
Buckley	Oak Knoll Road	Cuba Road	3,975.00	2011	75	Satisfactory
Butternut	Donlea Road	End	1,184.00	2011	38	Very Poor
Caesar	County Line Road	End	4,269.00	2012	85	Satisfactory
Chapel	Church Road	Haeger's Bend Road	5,172.00	2005	17	Serious
Church	Chapel Road	Algonquin Road	3,874.00	2003	19	Serious
CrabappleR	Donlea Rd	Terminus	1,551.00	2011	87	Good
CreeksideL	Old Sutton Rd	Terminus	6,453.00	1999	37	Very Poor
CrossTmbrs	Braeburn Road	Terminus	1,510.00	1999	71	Satisfactory
CtryOaksDr	County Line Road	End	2,477.00	1999	64	Fair
CtryOaksLn	Country Oaks Drive	End	1,893.00	1999	59	Fair
CubaRd	Buckley Road	Merri Oaks Road	164	2006	30	Very Poor
CubaRd	Merri Oaks Road	Plum Tree Road	3,475.00	2005	47	Poor
DanaLn	Caesar Drive	Terminus	1,020.00	2012	87	Good
DundeeLn	Dundee Road	Route 59	4,757.00	2012	84	Satisfactory
HaegersBnd	Chapel Road	Village Limits	2,409.00	2005	20	Serious
HaegersBnd	Countyline Road	Chapel Road	7,875.00	2003	9	Failed
HawleyWdsR	Otis Road	Old Dundee	5,539.00	2010	58	Fair
HawthorneL	Route 59	Otis Rd	1,124.00	1997	22	Serious
HealyRd	Dundee Road	Penny Road	4,263.00	2000	19	Serious
HealyRd	Penny Road	Village Limits	2,165.00	2005	49	Poor
HelmRd	Algonquin Road	Village Limits	4,249.00	2001	15	Serious
HickoryLn	Merri-Oaks	Terminus	1,260.00	2007	22	Serious
HillsDales	Brinker Road	Otis Road	4,200.00	2007	46	Poor
HoneycuttR	Hills & Dales Road	Terminus	1,327.00	2006	57	Fair
LakeViewLn	Dundee Road	Terminus	1,960.00	1998	20	Serious
LeedsDr	Crabapple Road	Terminus	1,186.00	2011	83	Satisfactory
LittleBndR	Spring Lane	Terminus	4,475.00	2006	46	Poor
LongmdwCt	Longmeadow Drive	Terminus	932	2007	67	Fair
LongmdwDr	Bateman Drive	Rolling Hills Drive	1,802.00	2007	54	Poor
MeadowhilR	Lake Cook Road	Top of Hill	2,619.00	2002	24	Serious
MeadowhilR	Top of Hill	Spring Creek Rd	2,640.00	2005	32	Very Poor
MerriOaksR	Cuba Road	Ridge Road	3,600.00	2007	31	Very Poor
OakKnollRd	Ridge Road	Old Hart Road	12,738.00	2008	51	Poor
OldBartlet	Bartlett Road	Cul-de-sac	1,083.00	2010	81	Satisfactory
OldDundeeR	Routes 59 & 68	Terminus	7,010.00	2010	67	Fair
OldHartRd	Lake Cook Road	Terminus	3,430.00	2001	34	Very Poor
PlumTreeRd	Cuba Road	Ridge Road	2,239.00	2000	6	Failed
PlumTreeRd	Ridge Road	Village Limits	6,877.00	2004	8	Failed
RebeccaDr	Old Sutton Road	Dead End	1,535.00	1999	14	Serious
RidgeRd	County Line Road	Oak Knoll Road	3,988.00	2006	28	Very Poor

RidgeRd	Merri Oaks Road	Plum Tree Road	2,629.00	1999	23	Serious
RidgeRd	Oak Knoll Road	Merri Oaks Road	3,952.00	2003	23	Serious
River/Algo	East of Braeburn	West of Church	5,808.00	2003	21	Serious
RiverRd	West of Haeger's Bend	Village Limits	2,818.00	2003	21	Serious
RockRdgeRd	Plum Tree Road	Terminus	2,751.00	2009	71	Satisfactory
RollingHil	Bateman Road	Longmeadow Drive	3,356.00	2007	46	Poor
RoundBarnR	Hawley Woods Road	Terminus	1,042.00	2010	67	Fair
SprgCrkRd	Haegers Bend	Village Limits	1,319.00	2002	23	Serious
SprgCrkRd	Ridge Road	Haegers Bend Road	15,581.00	2013	91	Good
SpringLn	Spring Creek Road	Terminus	5,355.00	2006	29	Very Poor
Springwood	Algonquin Road	Terminus	1,325.00	1999	35	Very Poor
Stplechase	Lake Cook Road	Lake Cook Road	6,165.00	1997	17	Serious
SurreyCt	Surrey Lane West	Terminus	575	2009	53	Poor
SurreyLnE	Plum Tree Road	Wagon Wheel	2,457.00	2009	74	Satisfactory
SurreyLnW	Plum Tree Lane	Wagon Wheel Lane	2,457.00	2009	50	Poor
TamarackLn	Old Sutton Road	Terminus	1,081.00	1999	19	Serious
ThreeLksRd	Lake Cook Road	Terminus	1,054.00	2013	89	Good
TriciaLn	Old Sutton Road	Terminus	1,195.00	1997	25	Serious
VH Asphalt	Village Hall	Village Hall	200	1996	15	Serious
VHConcrete	Fire Dept. Lot	Fire Dept. Lot	80	1994	69	Fair
WagonWhlLn	Surrey Lane East	Surrey Lane West	565	2009	71	Satisfactory

Summary Report by PCI

Branch ID	From	To	Length	Last Major Work Date	PCI	PCI Category
PlumTreeRd	Cuba Road	Ridge Road	2,239.00	2000	6	Failed
PlumTreeRd	Ridge Road	Village Limits	6,877.00	2004	8	Failed
WoodcreekR	Dundee Road	Terminus	2,494.00	1997	8	Failed
HaegersBnd	Countyline Road	Chapel Road	7,875.00	2003	9	Failed
RebeccaDr	Old Sutton Road	Dead End	1,535.00	1999	14	Serious
HelmRd	Algonquin Road	Village Limits	4,249.00	2001	15	Serious
VH Asphalt	Village Hall	Village Hall	200	1996	15	Serious
Chapel	Church Road	Haeger's Bend Road	5,172.00	2005	17	Serious
Stplechase	Lake Cook Road	Lake Cook Road	6,165.00	1997	17	Serious
Church	Chapel Road	Algonquin Road	3,874.00	2003	19	Serious
HealyRd	Dundee Road	Penny Road	4,263.00	2000	19	Serious
TamarackLn	Old Sutton Road	Terminus	1,081.00	1999	19	Serious
HaegersBnd	Chapel Road	Village Limits	2,409.00	2005	20	Serious
LakeViewLn	Dundee Road	Terminus	1,960.00	1998	20	Serious
River/Algo	East of Braeburn	West of Church	5,808.00	2003	21	Serious
RiverRd	West of Haeger's Bend	Village Limits	2,818.00	2003	21	Serious
HawthorneL	Route 59	Otis Rd	1,124.00	1997	22	Serious
HickoryLn	Merri-Oaks	Terminus	1,260.00	2007	22	Serious
RidgeRd	Merri Oaks Road	Plum Tree Road	2,629.00	1999	23	Serious
RidgeRd	Oak Knoll Road	Merri Oaks Road	3,952.00	2003	23	Serious
SprgCrkRd	Haegers Bend	Village Limits	1,319.00	2002	23	Serious
MeadowhilR	Lake Cook Road	Top of Hill	2,619.00	2002	24	Serious
TriciaLn	Old Sutton Road	Terminus	1,195.00	1997	25	Serious
RidgeRd	County Line Road	Oak Knoll Road	3,988.00	2006	28	Very Poor
SpringLn	Spring Creek Road	Terminus	5,355.00	2006	29	Very Poor
CubaRd	Buckley Road	Merri Oaks Road	164	2006	30	Very Poor
MerriOaksR	Cuba Road	Ridge Road	3,600.00	2007	31	Very Poor
MeadowhilR	Top of Hill	Spring Creek Rd	2,640.00	2005	32	Very Poor
OldHartRd	Lake Cook Road	Terminus	3,430.00	2001	34	Very Poor
Springwood	Algonquin Road	Terminus	1,325.00	1999	35	Very Poor
CreeksideL	Old Sutton Rd	Terminus	6,453.00	1999	37	Very Poor
Butternut	Donlea Road	End	1,184.00	2011	38	Very Poor
HillsDales	Brinker Road	Otis Road	4,200.00	2007	46	Poor
LittleBndR	Spring Lane	Terminus	4,475.00	2006	46	Poor
RollingHil	Bateman Road	Longmeadow Drive	3,356.00	2007	46	Poor
CubaRd	Merri Oaks Road	Plum Tree Road	3,475.00	2005	47	Poor
HealyRd	Penny Road	Village Limits	2,165.00	2005	49	Poor
SurreyLnW	Plum Tree Lane	Wagon Wheel Lane	2,457.00	2009	50	Poor
OakKnollRd	Ridge Road	Old Hart Road	12,738.00	2008	51	Poor
SurreyCt	Surrey Lane West	Terminus	575	2009	53	Poor
LongmdwDr	Bateman Drive	Rolling Hills Drive	1,802.00	2007	54	Poor

HoneycuttR	Hills & Dales Road	Terminus	1,327.00	2006	57	Fair
HawleyWdsR	Otis Road	Old Dundee	5,539.00	2010	58	Fair
CtryOaksLn	Country Oaks Drive	End	1,893.00	1999	59	Fair
CtryOaksDr	County Line Road	End	2,477.00	1999	64	Fair
LongmdwCt	Longmeadow Drive	Terminus	932	2007	67	Fair
OldDundeeR	Routes 59 & 68	Terminus	7,010.00	2010	67	Fair
RoundBarnR	Hawley Woods Road	Terminus	1,042.00	2010	67	Fair
VHConcrete	Fire Dept. Lot	Fire Dept. Lot	80	1994	69	Fair
CrossTmbrs	Braeburn Road	Terminus	1,510.00	1999	71	Satisfactory
RockRdgeRd	Plum Tree Road	Terminus	2,751.00	2009	71	Satisfactory
WagonWhlLn	Surrey Lane East	Surrey Lane West	565	2009	71	Satisfactory
SurreyLnE	Plum Tree Road	Wagon Wheel	2,457.00	2009	74	Satisfactory
Buckley	Oak Knoll Road	Cuba Road	3,975.00	2011	75	Satisfactory
Braeburn	Spring Creek Road	Algonquin Road	6,865.00	2012	81	Satisfactory
OldBartlet	Bartlett Road	Cul-de-sac	1,083.00	2010	81	Satisfactory
LeedsDr	Crabapple Road	Terminus	1,186.00	2011	83	Satisfactory
DundeeLn	Dundee Road	Route 59	4,757.00	2012	84	Satisfactory
Caesar	County Line Road	End	4,269.00	2012	85	Satisfactory
CrabappleR	Donlea Rd	Terminus	1,551.00	2011	87	Good
DanaLn	Caesar Drive	Terminus	1,020.00	2012	87	Good
ThreeLksRd	Lake Cook Road	Terminus	1,054.00	2013	89	Good
BarrHillRd	Donlea Road	End	2,424.00	2011	90	Good
SprgCrkRd	Ridge Road	Haegers Bend Road	15,581.00	2013	91	Good

Summary Report by Year (Most Recent to Oldest)

Branch ID	From	To	Length	Last Major Work Date	PCI	PCI Category
SprgCrkRd	Ridge Road	Haegers Bend Road	15,581.00	2013	91	Good
ThreeLksRd	Lake Cook Road	Terminus	1,054.00	2013	89	Good
Braeburn	Spring Creek Road	Algonquin Road	6,865.00	2012	81	Satisfactory
DanaLn	Caesar Drive	Terminus	1,020.00	2012	87	Good
DundeeLn	Dundee Road	Route 59	4,757.00	2012	84	Satisfactory
Caesar	County Line Road	End	4,269.00	2012	85	Satisfactory
Aberdeen	Terminus	Terminus	1,444.00	2011	92	Good
BarrHillRd	Donlea Road	End	2,424.00	2011	90	Good
Buckley	Oak Knoll Road	Cuba Road	3,975.00	2011	75	Satisfactory
Butternut	Donlea Road	End	1,184.00	2011	38	Very Poor
CrabappleR	Donlea Rd	Terminus	1,551.00	2011	87	Good
LeedsDr	Crabapple Road	Terminus	1,186.00	2011	83	Satisfactory
HawleyWdsR	Otis Road	Old Dundee	5,539.00	2010	58	Fair
OldBartlet	Bartlett Road	Cul-de-sac	1,083.00	2010	81	Satisfactory
OldDundeeR	Routes 59 & 68	Terminus	7,010.00	2010	67	Fair
RoundBarnR	Hawley Woods Road	Terminus	1,042.00	2010	67	Fair
RockRdgeRd	Plum Tree Road	Terminus	2,751.00	2009	71	Satisfactory
SurreyCt	Surrey Lane West	Terminus	575	2009	53	Poor
SurreyLnE	Plum Tree Road	Wagon Wheel	2,457.00	2009	74	Satisfactory
SurreyLnW	Plum Tree Lane	Wagon Wheel Lane	2,457.00	2009	50	Poor
WagonWhlLn	Surrey Lane East	Surrey Lane West	565	2009	71	Satisfactory
OakKnollRd	Ridge Road	Old Hart Road	12,738.00	2008	51	Poor
HickoryLn	Merri-Oaks	Terminus	1,260.00	2007	22	Serious
HillsDales	Brinker Road	Otis Road	4,200.00	2007	46	Poor
LongmdwCt	Longmeadow Drive	Terminus	932	2007	67	Fair
LongmdwDr	Bateman Drive	Rolling Hills Drive	1,802.00	2007	54	Poor
MerriOaksR	Cuba Road	Ridge Road	3,600.00	2007	31	Very Poor
RollingHil	Bateman Road	Longmeadow Drive	3,356.00	2007	46	Poor
CubaRd	Buckley Road	Merri Oaks Road	164	2006	30	Very Poor
HoneycuttR	Hills & Dales Road	Terminus	1,327.00	2006	57	Fair
LittleBndR	Spring Lane	Terminus	4,475.00	2006	46	Poor
RidgeRd	County Line Road	Oak Knoll Road	3,988.00	2006	28	Very Poor
SpringLn	Spring Creek Road	Terminus	5,355.00	2006	29	Very Poor
CubaRd	Merri Oaks Road	Plum Tree Road	3,475.00	2005	47	Poor
HaegersBnd	Chapel Road	Village Limits	2,409.00	2005	20	Serious
HealyRd	Penny Road	Village Limits	2,165.00	2005	49	Poor
MeadowhilR	Top of Hill	Spring Creek Rd	2,640.00	2005	32	Very Poor
Chapel	Church Road	Haeger's Bend Road	5,172.00	2005	17	Serious
PlumTreeRd	Ridge Road	Village Limits	6,877.00	2004	8	Failed
HaegersBnd	Countyline Road	Chapel Road	7,875.00	2003	9	Failed
RidgeRd	Oak Knoll Road	Merri Oaks Road	3,952.00	2003	23	Serious
River/Algo	East of Braeburn	West of Church	5,808.00	2003	21	Serious
RiverRd	West of Haeger's Bend	Village Limits	2,818.00	2003	21	Serious

Church	Chapel Road	Algonquin Road	3,874.00	2003	19	Serious
MeadowhilR	Lake Cook Road	Top of Hill	2,619.00	2002	24	Serious
SprgCrkRd	Haegers Bend	Village Limits	1,319.00	2002	23	Serious
HelmRd	Algonquin Road	Village Limits	4,249.00	2001	15	Serious
OldHartRd	Lake Cook Road	Terminus	3,430.00	2001	34	Very Poor
HealyRd	Dundee Road	Penny Road	4,263.00	2000	19	Serious
PlumTreeRd	Cuba Road	Ridge Road	2,239.00	2000	6	Failed
CreeksideL	Old Sutton Rd	Terminus	6,453.00	1999	37	Very Poor
CrossTmbrs	Braeburn Road	Terminus	1,510.00	1999	71	Satisfactory
RebeccaDr	Old Sutton Road	Dead End	1,535.00	1999	14	Serious
RidgeRd	Merri Oaks Road	Plum Tree Road	2,629.00	1999	23	Serious
Springwood	Algonquin Road	Terminus	1,325.00	1999	35	Very Poor
TamarackLn	Old Sutton Road	Terminus	1,081.00	1999	19	Serious
CtryOaksLn	Country Oaks Drive	End	1,893.00	1999	59	Fair
CtryOaksDr	County Line Road	End	2,477.00	1999	64	Fair
LakeViewLn	Dundee Road	Terminus	1,960.00	1998	20	Serious
HawthorneL	Route 59	Otis Rd	1,124.00	1997	22	Serious
Stplechase	Lake Cook Road	Lake Cook Road	6,165.00	1997	17	Serious
TriciaLn	Old Sutton Road	Terminus	1,195.00	1997	25	Serious
WoodcreekR	Dundee Road	Terminus	2,494.00	1997	8	Failed
VH Asphalt	Village Hall	Village Hall	200	1996	15	Serious

Exhibit 5

PAVER System Information

PAVER™ 6.5 Brochure

PAVER™

6.5

*NEW DIMENSIONS IN PAVEMENT
MAINTENANCE MANAGEMENT*



**US Army Corps Of Engineers
Engineer Research And Development Center
Construction Engineering Research Laboratory**

Background

PAVER™ is a pavement management system developed by the US Army Corps Of Engineers, Construction Engineering Research Laboratory (CERL). PAVER™ development is supported by the following agencies: US Air Force, US Army, US Navy, Federal Aviation Administration, and the Federal Highway Administration.

PAVER™ provides pavement management capabilities to: (1) develop and organize the pavement inventory; (2) assess the current condition of pavements; (3) develop models to predict future conditions; (4) report on past and future pavement performance; (5) develop scenarios for M&R based on budget or condition requirements; and (6) plan projects.

The following is a brief overview of the PAVER™ components and capabilities.

Inventory

PAVER™ inventory management is based on a hierarchical structure composed of networks, branches, and sections, with the section being the smallest managed unit. This structure allows users to easily organize their inventory while providing numerous fields and levels for storing pavement data.

These are some of the other features included in Inventory:

- **User-defined Fields:** In addition to the standard inventory information, users can define their own fields to meet their management requirements.

- **Virtual Inventory:** Allows the user to create virtual copies of the existing inventory and group sections for easy presentation.
- **Surface Change:** Automatically calculates and updates pavement surface based on work history information.
- **Edit Historical Inventory:** Easily edit historical inventory values associated with previous inspections.

Inspection

To assess pavement condition, PAVER™ uses the Pavement Condition Index (PCI) as its primary standard. The PCI measures pavement condition on a scale from 0 to 100. ASTM has adopted the PCI as standard practice for roads (D-6433-10) and airfields (D-5340-10). PAVER™ provides users the ability to customize the PCI condition rating categories, Figure 1. PAVER™ also allows the user an interface for recording the results of an inspection and an online distress user guide, Figure 2.

In addition to the PCI, PAVER™ allows managers to use and create other condition indices, including those based on PCI distresses. A new interface has been added for easily importing inspection data from automated vehicle collection sources.

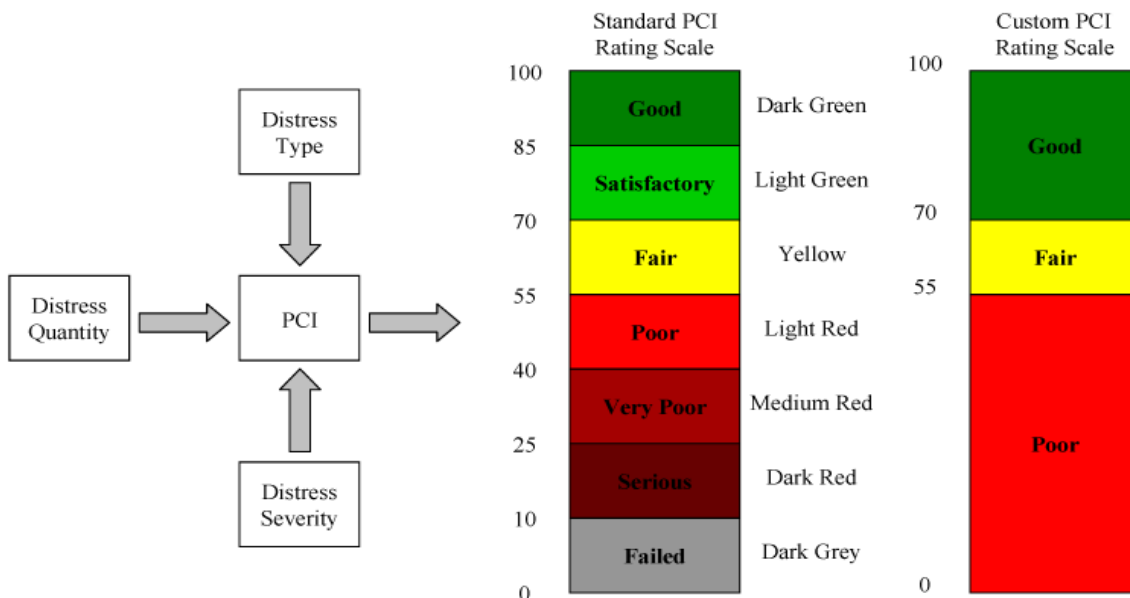


Figure 1: Pavement Condition Index (PCI) ranges may be customized and used for reporting analysis results.

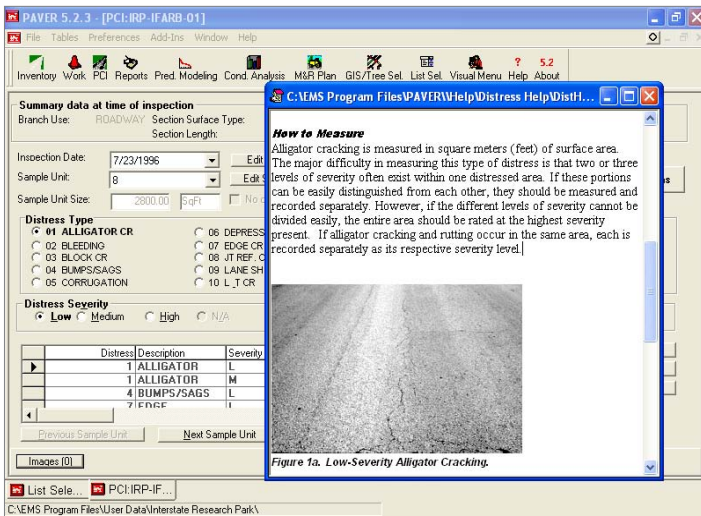


Figure 2: The online distress user guide can be opened within PAVER™ by right-clicking the distresses in the PCI inspection form.

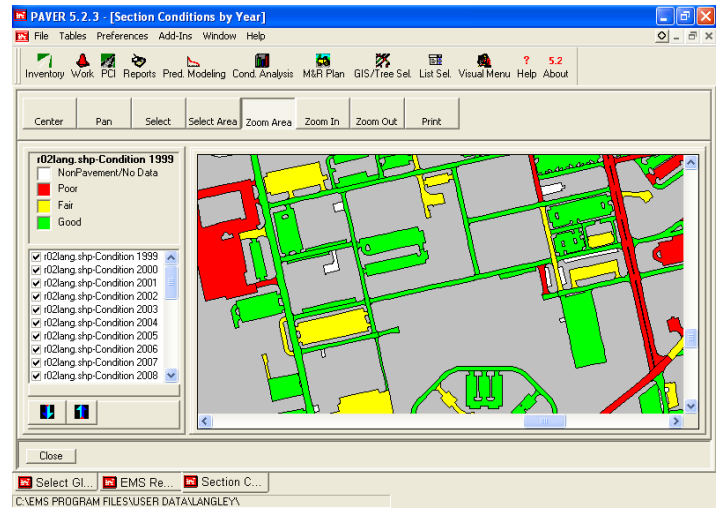


Figure 4: Internal GIS can be used to display pavement condition and analysis results. For example, Condition Analysis and Work Planning outputs are displayed in GIS.

Prediction Modeling

The Prediction Modeling function in PAVER™ helps identify and group pavements of similar construction that are subjected to similar traffic, weather, and other factors affecting pavement performance.

The pavement condition historical data are used to build a model that can accurately predict the future performance of a group of pavements with similar attributes, Figure 3.

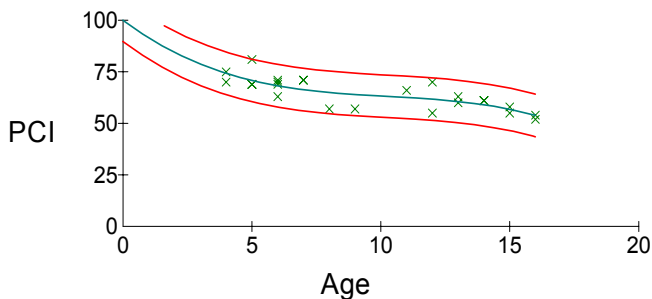


Figure 3: Pavement "family" models can be developed to predict future pavement condition.

Condition Analysis

The Condition Analysis feature allows users to view the condition of the entire pavement network or any specified subset of the network. This feature reports past conditions based on prior interpolated values between previous inspections. It reports projected conditions based on prediction models. In PAVER™, conditions can be viewed on GIS maps in addition to tables and graphs, Figure 4.

Work Planning

The PAVER™ Work Planner is a tool for planning, scheduling, budgeting, and analyzing alternative pavement maintenance and repair (M&R) activities.

A new feature in PAVER™ 6, is the use of M&R Families. Sections are assigned to M&R Families to establish groups of pavements which would use different pavement cost tables, or receive similar types of M&R work. The Work Planner uses the M&R Families along with inspection data, maintenance policies, maintenance costs, and predictions of future pavement conditions to recommend M&R activities at the section level.

Another new feature is the PCI credit given for performing Localized Preventative Maintenance. This feature is similar to the existing Major and Global surface treatment credit that is included in PAVER™ 5.0.

The PAVER™ work plan provides two ways to analyze budgets scenarios. The first way determines the consequence of a selected budget on pavement condition and the resulting backlog of Major M&R (unfunded). In addition to a single budget scenario, PAVER™ 6.5 now offers a new budget split feature. The budget split feature allows the user to split a budget based on different M&R work types. This can aid a user that has a set budget for Global work and a different set budget for Major work. The second way determines the budget requirements to meet specific management objectives, i.e. backlog elimination or PCI goal. This enables managers to develop a variety of funding scenarios to support their decisions, Figure 5.

GIS Interface

PAVER™ includes internal mapping capabilities to view GIS reports directly in PAVER™. PAVER™ also produces shapefiles of reports, such as inventory, inspection, condition analysis, and work plan that can be viewed in commercial GIS software.

Selection Tools

PAVER™ offers an improved user interface. New tools have been added to assist users in selecting pavement sections. Internal GIS-based selection has been added along with a “Windows Explorer-like” tree selection tool. A pull-down menu selection tool and a tab selection tool have been added, Figure 7.

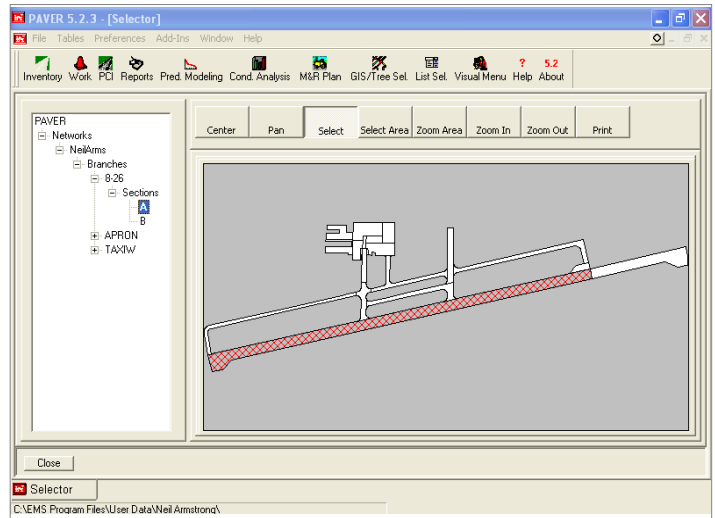


Figure 7: New GIS and tree based selection tools provide additional methods for selecting inventory items throughout PAVER™. For example, inventory and inspection screens will display the selected pavement section for data viewing or editing.

GIS Assignment Tool

The GIS Assignment tool links the PAVER™ data for individual pavement sections to GIS data. The GIS Assignment tool provides an internal “point-and-click” interface to create, remove, or change the link between pavement sections and GIS map features.

Using the same visual layout as Selectors, Figure 1, the tool dramatically reduces the time required to create or change the link between GIS and pavement data. This tool is designed to work directly with the same ESRI shapefiles that are used in

PAVER™’s internal GIS capabilities. The GIS assignment tool has been greatly improved in version 6.

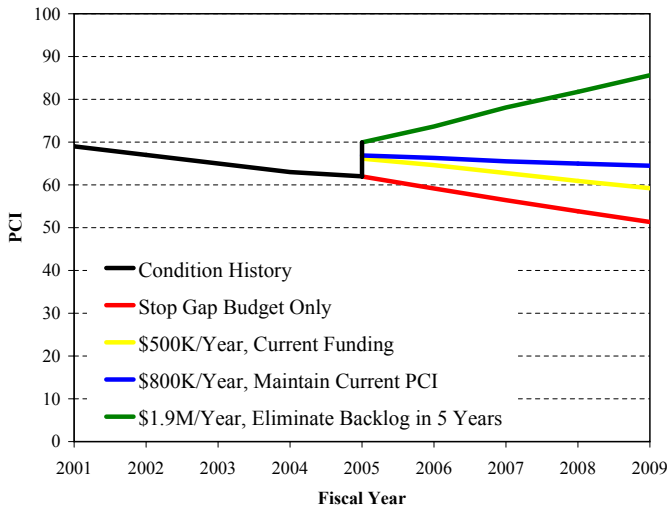


Figure 5: Work planning enables users to determine how much funding is required to meet management objectives such as maintaining current PCI or eliminating backlog in 5 years.

Project Planning

The Project Planning tool is new in PAVER™ 6. This tool, included in the M&R Plan, allows the user to develop projects based on user-specified required work and PAVER™ recommended work. This tool greatly aids the user in planning projects and, upon completion of the projects, automatically update the work history data, Figure 6.

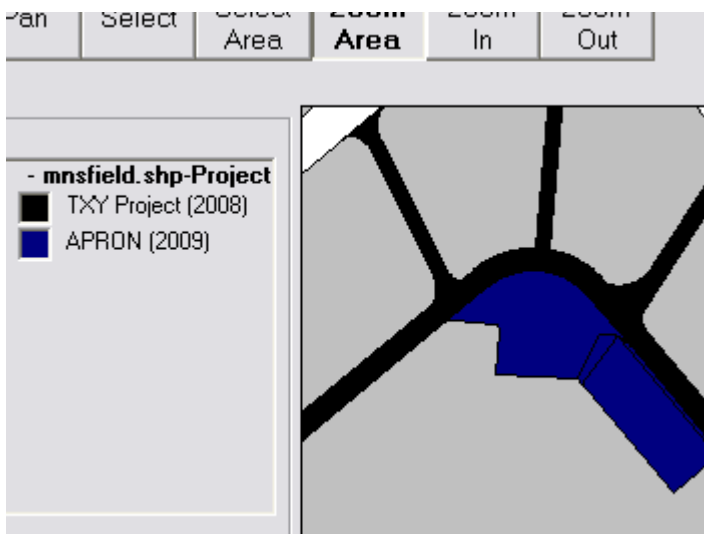


Figure 6: Project Planning allows the user to plan projects based from recommended work analysis and installation management priorities.

Wizards

Several wizards have been developed for PAVER™ 6.5. These wizards assist the user by providing a step by step process for several common tasks. These wizards are:

- Inspection Setup Wizard: Sets up field inspection forms for future pavement surveys.
- Work Entry Wizard: Enters multiple or single work history items and allows the user to create work history reports.
- Calculate Last Construction Date: Tool for estimating the last construction dates of pavements without historical construction records.
- Set Properties On Multiple Inventory Items: Tool for populating inventory items, including user-defined fields.

PAVER™ 5.3 and 6.5 will be able to reside on the same computer without conflict. A user can open the same database with either version.

Contact Information

For more information about PAVER™, contact the distribution and support centers listed below.

Non-DoD:

- Colorado State University (CSU)
Support for USA and International Users
Toll Free Phone: 855-255-8753
Website: paver.colostate.edu
Email: PAVER@colostate.edu
- American Public Works Association (APWA)
Support for USA and Canada Users
Phone: 816-472-6100
Email: PAVER@APWA.net

DoD:

- PAVER™ Team
Email: PAVERSupport@USACE.Army.mil
Website: www.cecer.army.mil/paver/
Website: www.PAVERTeam.com