CITY OF HIGHWOOD

STREET MAINTENANCE IMPROVEMENT REPORT

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Submitted To:

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CITY OF HIGHWOOD
STREET MAINTENANCE IMPROVEMENT PROGRAM

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Summary of Exhibits

EXECUTIVE SUMMARY

Christopher B. Burke Engineering, Ltd. organized an extensive pavement maintenance program for the City of Highwood and has scheduled a program of various construction maintenance techniques to most efficiently maintain the integrity of the City Streets.

As part of this program, annual pavement evaluations and adjustments to the program will be required. Maintenance strategies will need to be reviewed and evaluated with the possible elimination or addition of different strategies. Pavement maintenance is a dynamic, but essential, part of maintaining one of the largest City investments. With the data collected, the database developed, and a 10-Year proposed program the City is well on its way to a cost-effective pavement maintenance program for many years to come.

The City's current pavement condition index (PCI) value of 7.2 (Very Good) emphasizes the dedication and attention the City has made to their street network investment to this point. The City of Highwood should institute a number of pavement maintenance strategies recommended by CBBEL described within this report. The willingness to implement various maintenance techniques illustrates the City's dedication to their street network and the importance of a high level of service of City streets.

In order for the City to keep the high standard of roadway conditions the community has come to expect and keep costs down, preventive maintenance is a must. Without preventive maintenance, the City will not extend the full life of the pavement and costly rehabilitation treatments, such as resurfacing or reconstruction, will be necessary before the pavement's useful life has been met. A pavement management program will allow City staff to manage and protect a valuable asset and prolong the street system's useful life. The City will be able to budget for the future and analyze its street system on an annual basis and make the necessary appropriations and adjustments. A proactive pavement management program will provide the residents of the City with a high level of service and safety that they have come to expect.

Pavement maintenance can be summarized as the application of the right procedures and materials, at the right time, using the appropriate construction practices. Cost-effective preventative maintenance is largely dependant on the timing of the activity and the quality of the work performed. For a preventative maintenance strategy to be successful, it must be recognized that it is cyclic and requires scheduling. It must be properly funded over a period of years to be effective. Deferring preventive maintenance only increases reactive (or routine) maintenance and accelerates deterioration. "Do it right" performance on routine and preventive maintenance activities is a key element in the durability of repairs and their cost effectiveness.

The following are key items for consideration:

1. Several pavement distresses were observed, including alligator cracking, clock cracking, edge cracking, joint reflective cracking, weathering, and base failure.
2. The City's average Pavement Condition Index (PCI) equals 7.2. The PCI value of 7.2 represents a pavement that is showing signs of aging, but still is maintaining a sound structural condition. Even with this 7.2 pavement rating and good condition, it still is necessary to continue some type of routine preventive pavement maintenance to maximize the pavement's useful life.
3. As with any investment a community makes, whether it is vehicles, office equipment, or buildings, preventive maintenance becomes a key component of extending the life of the investment. The same holds true for pavements. Preventive maintenance will extend the life of the pavement and be less extensive and disruptive to the community if performed within the early stages of the life cycle curve. If properly scheduled and implemented, preventative maintenance can extend the pavement's useful life and maintain the level of service that the City has come to expect.
4. The physical and environmental forces at work on the pavements and our geographical region are dynamic. The need to maintain safety on the City's roadways during inclement weather, influencing the use of de-icing materials, compounded by other factors of nature, promote the deterioration of the roadways. It is for these reasons that the City must employ a comprehensive street maintenance program annually.
5. Thirty-Eight percent of the total street pavement area has a PCI value of 6 or 7. Without a preventive maintenance program, these streets will come due for pavement resurfacing at approximately the same time, which will cause a tremendous cost spike in the City's Pavement Maintenance Program. CBBEL and the City estimate these streets will deteriorate to a condition in which resurfacing will be the recommended treatment in approximately 6 years. The pavement management program will help flatten out this potential spike and extend the life of the pavement.
6. The total cost to the City of Highwood for a pavement management program of this magnitude averages approximately 780 thousand dollars annually in 2021 dollars and inflation for future years has not been added. However, it should be noted that the City has budgeted 500 thousand dollar programs for Year 1, 400 thousand dollar programs for Years 2-9, and the remainder of the streets have been lumped into Year 10 under the assumption bonds will be available then as additional.

7. Without this funding and the opportunity to maintain a valuable City investment, the City will begin experiencing a drop in the pavement's condition sooner and the deterioration rate will become increasingly faster as each year passes. A well-maintained management program will help prevent the commonly used "worst first" or reactive approach to pavement maintenance.
8. CBBEL recommends that the City submit resurfacing projects to the Lake County Council of Managers. These projects could be simple grind and overlay or full reconstruction at a 20% local match. The construction costs and Phase III Engineering are eligible for funding.

Conclusion: We recommend that the City move from a reactive mode to a proactive approach and adopt a road maintenance program, a cost-effective way of protecting the City's major investment in streets and pavement.

INTRODUCTION

The City of Highwood has requested that Christopher B. Burke Engineering, Ltd. (CBBEL) to complete a City-wide street database and maintenance improvement program. As part of this program, a pavement evaluation rating system was created to determine the condition of each street segment. This document will give the measurements of streets in the program, provide the existing pavement condition, give the year of previous construction maintenance, and define various pavement maintenance strategies and costs associated with each segment. Finally, this report will summarize the anticipated costs to maintain the City's street system and extend the pavement life.

The City's system is a major community investment. To protect this investment and maximize its performance, pavement maintenance plays a crucial role in the City's annual program. Pavements in this part of the country are exposed to extreme weather conditions. These weather conditions coupled with the pavement being exposed to more and more loads over time, necessitate the need for a pavement management program. This program will allow the pavement system to perform at acceptable levels of service and maximize the useful life of the pavement.

Routine pavement maintenance postpones the need for more costly pavement rehabilitation and reconstruction. One example of how routine pavement maintenance can alleviate the need for expensive pavement repairs is crack filling. Routine crack fill treatments to the City's street system will reduce the moisture infiltration that is typically experienced and postpone the need for pothole repairs through pavement patching. In general, failure to perform routine maintenance results in a pavement that deteriorates faster and requires expensive pavement repairs.

Another effect of routine pavement maintenance is an increase in the pavement's level of service to the motoring public. A well-maintained pavement has fewer problems noticed by the motorist and a better skid resistance contributing to a safer roadway. Some of these factors do not directly measure into the pavement's overall rating, but do not go unnoticed by the motoring public.

The benefits of developing, programming and performing a routine pavement maintenance program may be summarized as follows:

- Maximizing the pavements' useful life.
- Postponing expensive pavement rehabilitation and reconstruction.
- Improving the ride quality and safety of the motoring public.
- Developing a cost-effective way of protecting the City's pavement investment.

PAVEMENT HISTORY

The City's street system, as shown in Exhibit 1 – PCI Map, consists of approximately 13.2 centerline miles of streets currently maintained by the City. In addition to the 13.2 miles in the street system, the City's pavement maintenance program also includes maintaining five parking lots with a total area of 23,000 Square Yards and four alleys with a total area of 3,500 Square Yards. The street system has been broken up into individual segments as listed in Exhibit 3, 3A, 3B – Pavement Evaluation Database Spreadsheet. The pavement database lists each segment in alphabetical order and includes its location, length, width, area, and the Pavement Condition Index (PCI) value identified by CBBEL per the field reconnaissance performed on March 19, 2021.

Maximizing the City's funds allocated to street maintenance and postponing the high cost of street reconstruction is the base to a solid pavement maintenance program. A high level of service and budgetary constraints also factors in a pavement management program.

Throughout this report the theme is to extend the pavement's useful life through the use of routine pavement maintenance techniques. The Life Cycle Curve illustrates the need for preventive maintenance. As shown on Exhibit 5 – Typical Pavement Life Cycle Curve the City will continue to experience a gradual drop in an individual street's quality until approximately year 12 (60% of the pavement's useful life). The quality of the street at this point drops significantly the next 3-5 years reducing the pavement's useful life.

PAVEMENT CONDITION INDEX

The Pavement Condition Index (PCI) can be defined as the current condition of each individual street segment. This index has been developed as a number between 1 and 10, with 10 as the best condition. The rating system is a modified version of the current PASER rating system as developed by the Transportation Information Center at the University of Wisconsin – Madison. A PCI value of 10 denotes a distress free pavement, where as a 1 implies a failed pavement. The following is a chart that defines the PCI value, visible pavement distress and general pavement treatment associated with the PCI value.

PCI	Visible Distress	General Condition/ Treatment Measures
10 New	• None	New or current construction. New overlay.
9 Excellent	• Little to none	Recent construction.
8 Very Good	• No longitudinal crack, expect reflection of paving joints. • Occasional transverse cracks, widely spaced (40' or greater).	Recent overlay. Little or no maintenance required.
7 Good	• Very slight or no raveling, surface shows some traffic wear. • Longitudinal cracks (open 1/4") spaced due to reflection or paving joints. • Transverse crack (open 1/4") spaced 10 feet or more apart, little or slight crack raveling. • No patching or very few patches in excellent condition.	First signs of aging. Maintain with routine crack filling.
6 Fair	• Slight raveling (loss of lines) and traffic wear. • Longitudinal cracks (open 1/4" – ½") due to reflection and paving joints. • Transverse cracking (open 1/4"-1/2") some spaced less than 10 feet. • Slight to moderate flushing or polishing. • Occasional patching in good condition.	Show signs of aging, sound structural condition. Could extend life with rejuvenators, micro surfacing or overlay.
5 Fair	• Moderate to severe raveling (loss of lines and coarse aggregate). • Longitudinal cracks (open 1/2:") show some slight raveling and secondary cracks. First signs of longitudinal cracks near wheel path or edge. • Transverse cracking and first signs of block cracking. Slight crack raveling (open 1/2"). • Extensive to severe flushing or polishing. • Some patching or edge wedging in good condition.	Surface aging. Needs micro surfacing or overlay. May need strengthening from patching or overlay.

PCI	Visible Distress	General Condition/ Treatment Measures
4 Poor	• Severe surface raveling. • Multiple longitudinal and transverse cracking with slight raveling. • Block cracking (over 25 – 50%) of surface). • Patching in fair condition. • Slight rutting or distortions (1" deep or less).	Significant aging and first signs of need for strengthening. Would benefit from patching and overlay. Consider partial reconstruction.
3 Poor	• Closely spaced longitudinal and transverse cracks often showing raveling and crack erosion. • Block cracking over 50% of surface. • Some alligator cracking (less than 25% or surface). • Patches in fair to poor condition. • Moderate rutting or distortion. • Occasional potholes.	Need patching and overlay. Consider partial reconstruction.
2 Very Poor	• Alligator cracking (over 25% of surface). • Severe distortions (over 2" deep). • Extensive patching in poor condition. • Potholes.	Severe deterioration. Need partial reconstruction with extensive base repair.
1 Failed	• Severe distress with extensive loss of surface integrity.	Failed. Needs total reconstruction.

This chart describes the rating system in detail and provides a description of all the rating levels from 1 to 10 and what can be expected for each rating level. Note that individual pavements sections will not have all of the types of distress listed for any particular rating, but one or more examples of distress associated with that rating.

Exhibit 6 provides visual examples of the ratings. This type of rating system has been utilized by other local communities and has proven to be a simple way to evaluate, plan, budget and implement a pavement management system that fits the communities' needs and expectations.

The pavement evaluation process was made up of three distinctive features:

1. Visual inspection.
2. Performance.
3. Pavement type and history.

CBBEL's evaluators first reviewed the various pavement stresses that would be encountered in the field and assigned a rating to these stresses and pavement conditions. CBBEL calibrated itself in the field by taking a sample of each pavement distress and assigning to it the appropriate rating. Several pavement

distresses were observed, including alligator cracking, block cracking, edge cracking, joint reflective cracking, weathering, and base failure.

Alligator cracking is a series of interconnecting cracks caused by failure of the asphalt surface under repeated traffic loadings or poor drainage conditions. The interconnecting cracks form many-sided, sharp angled pieces which develop a pattern similar to chicken wire or alligator skin. These areas need to be excavated and have their base and surface replaced. Large areas require reconstruction.

Block cracking is a series of interconnecting cracks, which divide the pavement into approximately rectangular pieces. Block cracking is not load related; it is caused primarily by shrinkage of the asphalt concrete and daily temperature cycling. Repair with sealcoat or overlay. In severe cases, reconstruction may be necessary.

Edge cracks are parallel to and adjacent to the outer edge of the pavement. Edge cracking is caused by frost weakened base or subgrade near the pavement edge, and can be accelerated by traffic loadings. In the advanced stage, edge cracking causes breakup of the pavement along the edge. Crack fill to prevent further deterioration. Overlay or reconstruction may be required.

Rutting, due to garbage trucks, is the displacement of roadway material creating channels in wheel paths. It is caused by traffic compaction or displacement of unsuitable material. Minor ruttings can be repaired with overlay. Severe Rutting (2” or greater) spots must have the old surface milled or reconstructed before resurfacing.

Raveling is progressive loss of pavement from the surface down. This is caused by stripping of the bituminous film from the aggregate, asphalt hardening from aging, poor compaction in cold weather construction, or inadequate asphalt content. Protect with sealcoat or thin overlay when required.

Weathering is the wearing away of the pavement surface due to the loss of bitumin. Weathering tends to occur over time as the bitumin in the surface oxidizes, the aggregate becomes loose, and the pavement becomes brittle. Protect with sealcoat or thin overlay when required.

Joint reflective cracking occurs in asphalt pavements which have been laid over portland cement concrete pavements. Such cracks are a reflection of the joints in the underlying concrete pavement and are caused by thermal and moisture induced movements of the concrete slab. Thick overlay or reconstruction may be necessary.

Base failure is the structural damage to the pavement base and sub-base caused by continuous traffic loadings and temperature change cycles over time. Poor drainage, inadequate base materials and sub-standard design can also cause base failures.

Once the calibration process was complete, the evaluation process was performed throughout the City until the entire street system was evaluated and ultimately given a PCI value. As part of the PCI value, performance, pavement type and expectant pavement life was included in the rating process. Performance, pavement type and history are critical elements to the pavement's overall ratings. The pavement may appear to be in satisfactory condition on the surface (Visual inspection); but through CBBEL's use of pavement cores on some of the streets provided by the City, data from the previous City road programs, and previous construction information, knowledge of the pavement type, performance, and pavement history are used to get a true rating of the pavement.

Upon the completion of this evaluation process the PCI ratings were entered into the pavement database, Exhibit 3, 3A, 3B – Pavement Evaluation Database Spreadsheet. The City's average Pavement Condition Index (PCI) equals 7.2. This PCI value is considered good and illustrates the City's diligence to their street system, the City's commitment to pavement maintenance and up keeping the Level of Service (LOS) the community has come to expect. Shown on Exhibit 1 – Pavement Condition Index Map are each individual PCI values for the City's roadway network. The PCI value of 7.2 represents a pavement that is showing signs of aging, but still is maintaining a sound structural condition. Even with this 7.2 pavement rating and very good condition it still is necessary to continue some type of routine preventive pavement maintenance to maximize the pavement's useful life.

As with any investment a community makes, whether it is vehicles, office equipment, or buildings, preventive maintenance becomes a key component of extending the life of the investment. The same holds true for pavements. Preventive maintenance will extend the life of the pavement and be less extensive and disruptive to the community if performed within the early stages of the life cycle curve. If properly scheduled and implemented, preventive maintenance can extend the pavement's useful life and maintain the level of service that the City has come to expect. Once the pavement reaches 75% of its useful life the quality of the pavement rapidly decreases and pavement treatments become more expensive, severe, and disruptive. One aspect that is typically forgotten when discussing pavement maintenance is the disruption to the motoring public and homeowners. Typically, the more expensive pavement treatments cause major disruption with road closures, travel delays, etc. Preventive maintenance prolongs the pavement life, ultimately reducing the overall disturbance to the motoring public and homeowners.

PAVEMENT MAINTENANCE TECHNIQUES

The City of Highwood pavement management program consists of different categories of work intended to address a variety of maintenance considerations on different pavement types, ages and conditions. These programs generally fall into four major forms of work, 1) preventive maintenance, 2) resurfacing, 3) partial reconstruction, or 4) reconstruction. The method selected to be utilized on individual portions or sections of street within the City are tailored to implement the most cost-effective treatment, which will gain the greatest enhancement and extension of the useful life of the pavement.

The physical and environmental forces at work on the pavements and our geographical region are dynamic. The need to maintain safety on the City's roadways during inclement weather, influencing the use of de-icing materials, compounded by other factors of nature, promote the deterioration of the roadways. It is for these reasons that the City must employ a comprehensive street maintenance program annually.

The following is a brief summary of each of the programs involved in the maintenance improvement program, the phases of work involved in each of these programs, and discussion on the positive benefits gained by using a particular technique.

Preventive Maintenance Projects:

Preventive maintenance treatment options are intended to preserve a City's asphalt roadways. The preventive maintenance treatments work to extend the service life of bituminous pavements beyond the normal life expectancy of an untreated pavement. The various maintenance treatments serve to lengthen the intervals between the replacements of the deteriorated pavement. The treatment selected will depend on the age, volume of traffic, and condition of the pavement. Preventive maintenance has proven to be an extremely cost-effective way of preserving the City's roadway network.

Years 1-3
Preservative Rejuvenating Agent:
$1.10 / Square Yard

A Preservative Rejuvenating Agent Program (i.e. GSB88) involves the application of a sprayed-on petroleum base product which provides an environmental seal of existing asphalt pavements in order to improve the durability and thus achieve longer service life between more extensive rehabilitation projects. The function of the rejuvenating agent is to replace the volatile components of the asphalt cement that are lost during the manufacturing process of the aggregate asphalt mixture and through the normal aging and oxidation processes caused by nature.

Years 3-8
Joint and Crack Filling Program:
$1.50 / Square Yard

The Joint and Crackfilling Program involves the cleaning and sealing of any cracks, voids or joints in the street pavement two inches (2") in width or less, with asphalt cement reinforced by polypropylene fibers. A companion contract to this work is the cleaning and sealing of selected pavement, utilizing a rubberized crackfilling product. The use of the rubberized product allows greater flexibility in managing cracks and joints on sections of pavement that experience a high degree of vehicular turning movement or pedestrian traffic. Crackfilling is a very cost-effective measure and is performed routinely to keep water from getting into the pavement. It helps to keep pavement in good condition and interrupts the propagation of more cracking.

Years 6-10
15% Bituminous Surface Patching (2”):
$12.50 / Square Yard

This program will provide various size and 2” thick finished contracted patches on various asphalt streets. Some streets have a moderate condition rating due to isolated defects on an otherwise good pavement. They do not warrant resurfacing but can be substantially up-graded by patching the problem areas. Additional life expectancy and a better ride will be the result.

Years 9-12
Micro-Surfacing:
$7.00 / Square Yard

A Micro-Surfacing Program involves the installation of a thin, latex modified, asphalt wearing course. The use of this product involves greater flexibility addressing pavement defects on streets which conventional overlays would not be cost effective at the time. This method is also beneficial on pavements which require work due to surface imperfections without causing excessive build up of additional material on the pavement cross section.

Resurfacing Projects:

When a pavement has deteriorated beyond the point of preventive maintenance, the pavement will then need to be resurfaced. Pavements beyond their service life without signs of extensive roadway base failure will fall into the resurfacing category. With any of the resurfacing programs curb and gutter repairs, and sidewalk repairs (if applicable) are included as part of the improvements. Resurfacing projects are used to compliment the preventive maintenance type projects. Programs in the resurfacing category generally serve to extend the life of the pavement by repairing and rehabilitating the top layers of the existing asphalt pavements. By repairing and resurfacing the existing pavement the service life is extended and thus postponing the costly replacement of that pavement.

Years 12-15
Mill and Overlay:
$25.00 - $30.00 / Square Yard

In general, the mill and overlay program involves the renovation of streets by grinding off the top layer of pavement and relaying a new asphalt surface. The mill and overlay programs include a percentage of the existing roadway base to be patched with a more substantial asphalt base patch. The amount of the patching will depend on the depth of the existing pavement structure, the condition of the existing pavement and the roadway base. The grind and overlay program would include spot repairs to the curb and gutter. Spot repair of sidewalks would also be included to repair trip hazards and upgrade the crosswalk sidewalk ramps to current ADA requirements (if applicable). Spot repairs of driveways have not been included in the cost of this work.

Years 15+
Full Depth Pavement Removal & Replacement
$40.00 – $50.00 / Square Yard

The full depth asphalt removal and replacement include the removing all existing hot-mix asphalt, aggregate base repair and preparation of base (to improve the cross slope of the roadway where needed), and resurfacing the roadway with 2 ½ inches of binder course and 1 ½ inches of surface course. The full depth rehabilitation would include spot repairs to the curb and gutter. Spot repair of sidewalks would also be included to repair trip hazards and upgrade the crosswalk sidewalk ramps to current ADA requirements (if applicable). Lastly a percentage of the pavement area will require undercutting and replacement with porous granular embankment to repair areas of unsuitable stone and/or soil bases beneath the asphalt pavement. Spot repairs of driveways have not been included in the cost of this work.

Years 20+
Reconstruction Projects
$120.00 - $150.00 / Square Yard

Pavements beyond their service life showing signs of extensive roadway base failure or those requiring the complete replacement of the asphalt or concrete pavement will fall into the reconstructive project category. This is the most costly and disruptive form of roadway maintenance. These projects will include the complete removal of the existing roadway and the construction of a new curb and gutter, aggregate base and asphalt layers, extensive sidewalk replacements, and parkway restoration. Repairs of driveways have not been included in the cost of this work.

TYPICAL PAVEMENT MANAGEMENT PROGRAM

The City's pavement management program has been developed with every street evaluated and appropriately programmed for various pavement maintenance techniques. These programs extend the useful life of the pavement. For budgeting, planning and discussion purposes this report will derive a typical 10-Year pavement maintenance program. Exhibit 2 – 10-Year Plan Map shows the 10-Year program broken-up year-by-year on the City Map. Since conditions in this region are extreme it will be necessary to evaluate and verify the street maintenance program annually. This annual inspection will move streets up and push streets back for the more extensive pavement treatments creating a dynamic pavement management program.

Exhibit 7 – 2018 Area Percentages of PCI Values, shows approximately 38% of the total street pavement area has a PCI value of 6 or 7. These are significant numbers due to the fact that without a preventive maintenance program these large areas of streets will all come due for pavement resurfacing at approximately the same time, which will cause a tremendous cost spike in the City's Pavement Maintenance Program. CBBEL and the City estimate these streets will deteriorate to a condition in which resurfacing will be the recommended treatment in approximately 6 years. The pavement management program will help flatten out this potential spike and extend the life of the pavement.

The total cost to the City of Highwood for a pavement management program of this magnitude averages 778 thousand dollars annually; However, it is our understanding that the City's budget would be 500 thousand dollars for Year 1, 400 thousand dollars annually in Years 2-9 (in 2021 dollars and inflation for future years has not been added). The remainder of the streets will be lumped into the Year 10. The 10-Year Plan was developed per the budget provided by the City and the 2021 pavement condition inventory, rating, history, number of miles of pavements to be maintained, type of maintenance construction, and maintaining a level of service that the residents of the City have come to expect – minimum PCI of 7.2. Considerations in scheduling the streets in the 10-Year included their PCI value based on visual inspection, historic data, and pavement information, grouping of close by locations to cut down construction costs associated with transportation, minimizing traffic disturbance, and minimizing construction traffic over repaired streets.

With any pavement management program, the need to balance the program years as it pertains to both amount of pavement and dollars spent is a key element to the program's success. Every program will experience fluctuations in dollars, maintenance techniques and number of pavements maintained. If the pavements perform better than expected, the program can expect to have less reconstruction projects and more preventive maintenance and light resurface projects. The goal is to maximize the pavement life without compromising the level of service and safety of the roadway network.

A 167 thousand dollar annual maintenance program will maintain the level of surface to an approximately pavement condition index of 7.2, but most importantly, it will extend the life of each pavement allowing the City to maintain its street network of 13.2 miles annually. Without this funding and the opportunity to maintain a valuable City investment, the City will begin experiencing a drop in the pavements condition sooner and the deterioration rate will become increasingly faster as each year passes. A well-maintained management program will help prevent the commonly used "worst first" or reactive approach to pavement maintenance. The reactive approach to pavement maintenance limits the number of pavements that can be maintained annually. This approach typically requires more expensive pavement treatments such as partial reconstruction or reconstruction before the useful life of the pavement is maximized.

Below is a table depicting the cost per year for resurfacing and maintenance of the City streets.

YEAR	RESURFACING/ RECONSTRUCTION COST	ROUTINE MAINTENANCE COST	TOTAL BUDGET
1	$ 497,301	$ 166,775	$ 664,076
2	$ 372,982	$ 166,775	$ 539,757
3	$ 412,089	$ 166,775	$ 578,864
4	$ 400,823	$ 166,775	$ 567,598
5	$ 399,901	$ 166,775	$ 566,676
6	$ 406,755	$ 166,775	$ 573,530
7	$ 387,726	$ 166,775	$ 554,501
8	$ 388,998	$ 166,775	$ 555,773
9	$ 425,116	$ 166,775	$ 591,891
10	$ 7,982,885	$ 166,775	$ 8,149,660
TOTALS:	**$ 11,674,581**	**$ 1,667,750**	**$ 13,342,331**

ROUTINE MAINTENANCE TYPES	APPROXIMATE PER YEAR COST
PRESERVATIVE REJUVENATING AGENT	$ 15,950
JOINT AND CRACK FILLING	$ 21,750
BITUMINOUS SURFACE PATCHING (2")	$ 27,188
MICRO-SURFACING	$ 101,500
TOTAL =	**$ 166,388**

Notes: ** Due to the provided City budget, there were additional streets added to Year 10 which increased the amount.

** Bank Lane (Year 10) utilizes the "Local Share" portion only for this report as LCCOM funding may be eligible for this roadway.

POSSIBLE FUNDING GRANT

CBBEL recommends that the City submit resurfacing projects to the Lake County Council of Managers. These projects would be simple grind and overlay at a

20% local match. The construction costs and Phase III Engineering are eligible for funding. Projects that are eligible are as follows:

1. Current V/C – Current Volume/Capacity of a roadway/intersection on a peak-hour basis.
2. Emission Reduction – Decrease in vehicle emissions by increasing traffic speed or decreasing vehicle miles of travel.
3. Fund Source Criteria – Prioritization and selection of proposed transportation projects to receive funding from various federal sources.
4. Road Condition – Condition of the roadway surface (CRS rating).

The following streets within the City may be applicable:

- Sheridan Road (North City Limit to First Street): FAU 9-2744
- Sheridan Avenue (First Street to Washington Avenue): FAU 9-2744
- Washington Avenue (Western Avenue to Sheridan Road): FAU 9-1197
- Western Avenue (North City Limit to Washington Avenue): FAU 9-2768
- Western Avenue (Washington Avenue to Prairie Avenue): FAU 9-2768
- Western Avenue (Prairie Avenue to South City Limit): FAU 9-2768
- Walker Avenue (Waukegan Avenue to Lakeview Avenue): FAU 9-1251
- Prairie Avenue (Western Avenue to Green Bay Road): FAU 9-1253
- Bank Lane (Washington Avenue to Sheridan Road
    - Pending LCCOM and IDOT FAU Reclassification approval

CITY CODE

CBBEL understands the City does not have open land for future development, but does recommend that the City of Highwood add the following to their Municipal Code for implementation on all newly developed roadways if necessary in the future: All streets shall be constructed to meet or exceed the following material thickness standards:

STREET	PAVEMENT TYPE		SURFACE COURSE	BINDER COURSE	AGGREGATE SUBGRADE
	FLEXIBLE	RIGID			
Cul-De-Sacs and Minor Streets	✓		2” HMA	4” HMA	12”
Cul-De-Sacs and Minor Streets		✓	6” PCC	-	12”
Collector Streets	✓		2” HMA	6” HMA	12”
Collector Streets		✓	7” PCC	-	12”
Major and Nonresidential Streets	✓		2” HMA	10” HMA	12”
Major and Nonresidential Streets		✓	8” PCC	-	12”

EXHIBIT #1
PAVEMENT CONDITION INDEX MAP

City of Highwood

10-Year
Pavement Maintenance Program
Highwood, Illinois

Roadway Pavement Condition Index (PCI) Map

- PCI 1 (WORST)
- PCI 2
- PCI 3
- PCI 4
- PCI 5
- PCI 6
- PCI 7
- PCI 8
- PCI 9
- PCI 10 (BEST)

EXHIBIT 1
Date: 04/14/2021

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Base Map Source:
Lake County Department of Information & Technology, GIS Division

N:\HIGHWOOD\170196\A2001\GIS\Exhibits\Pavement Management (PCI) Streets 2021.mxd

0 250 500 1,000
Feet
1 inch = 500 feet
NORTH

Fort Sheridan Forest Preserve
GEORGE BELL DR
E OLD ELM RD
HYACINTH PL
KRENN AVE
WESTERN PL
AUDUBON PL
BROOK RD
WESTERN AVE
DATO AVE
HILL ST
HOLABIRD LOOP
HOLABIRD CIR
LEONARD WOOD W
LEONARD WOOD S
LYSTER RD
TOWER W
TOWER E
WHISTLER RD
TOWERS KEEP
LOGAN LN
BRADLEY CT
RONAN RD
JANES LOOP
STABLES CT E
STABLES CT W
STABLES CT
PRALLS LOOP
WESTOVER RD
DEROO LOOP
CARRIAGE LN
ENDICOTT RD
ENDICOTT LN
PATTEN RD
BLACKHAWK DR
SHERIDAN RD
RIENZI LN
1ST ST
B ST
2ND ST
MCKINLEY ST
NORMANDY ST
OMAHA ST
MARSHALL RD
EISENHOWER RD
MURPHY RD
MCNAIR ST
D ST
CAMP HIGHWOOD RD
3RD ST
4TH ST
9TH ST
EUCLID CT
EUCLID AVE
ASHLAND AVE
WASHINGTON AVE
SHERIDAN AVE
BURCHELL AVE
LLEWELLYN AVE
NORTH AVE
HIGHWOOD AVE
OAKRIDGE AVE
PRAIRIE AVE
LOCKARD LN
JOCELYN PL
GROVE AVE
OAK TERRACE AVE
PALMER AVE
EVOLUTION AVE
JEFFREYS PL
EVERTS PL
MEARS PL
MORGAN PL
N CENTRAL AVE
S CENTRAL AVE
FUNSTON AVE
BANK LN
CLAY AVE
LAKE VIEW AVE
H ST
10TH ST
WEBSTER AVE
G ST
11TH ST
PCC ALLEY
GREEN BAY RD
WALKER AVE
LAURETTA PL
SAINT JOHNS AVE
TEMPLE AVE
LOGAN ST
BLOOM ST
WAUKEGAN AVE
MORAINE RD
TRILLIUM LN
ORCHARD LN
NIADA TER
CHICAGO AVE
WRENDALE AVE
SUMMIT AVE
MAPLE AVE
BURTIS AVE
ELM AVE
OAK AVE
HIGH ST
SARD PL
PLEASANT AVE
MICHIGAN AVE
EXMOOR CT

EXHIBIT #2
10-YEAR PLAN MAP

City of Highwood

10-Year
Pavement Maintenance Program
Highwood, Illinois

10 YEAR ROAD PROGRAM

- YEAR-1
- YEAR-2
- YEAR-3
- YEAR-4
- YEAR-5
- YEAR-6
- YEAR-7
- YEAR-8
- YEAR-9
- YEAR-10

EXHIBIT 2
Date: 04/14/2021

CHRISTOPHER B. BURKE ENGINEERING, LTD.
9575 W. Higgins Road, Suite 600 · Rosemont, Illinois 60018 · (847) 823-0500

Base Map Source:
Lake County Department of Information & Technology, GIS Division

N:\HIGHWOOD\170196\A2001\GIS\Exhibits\Pavement Management Streets - 10 Year Overall 2021.mxd

0 250 500 1,000
Feet
1 inch = 500 feet
NORTH

Fort Sheridan Forest Preserve

EXHIBIT #2A
2021 ROAD PROGRAM MAP

City of Highwood

10-Year
Pavement Maintenance Program
Highwood, Illinois

ROAD PROGRAM

YEAR-1

EXHIBIT 3A
Date: 04/14/2021

CHRISTOPHER B. BURKE ENGINEERING LTD.
9575 West Higgins Road, Suite 600
Rosemont, Illinois 60018
(847) 823-0500

Base Map Source:
Lake County Department of Information & Technology, GIS Division

N:\HIGHWOOD\170196\A2001\GIS\Exhibits\Pavement Management Streets - 5 Year Sheets 2021.mxd

0 250 500 1,000
Feet
1 inch = 500 feet
NORTH

Fort Sheridan Forest Preserve
GEORGE BELL DR
E OLD ELM RD
HYACINTH PL
KRENN AVE
WESTERN PL
AUDUBON PL
BROOK RD
WESTERN AVE
DATO AVE
HILL ST
HOLABIRD LOOP
HOLABIRD CIR
LEONARD WOOD W
LEONARD WOOD S
LYSTER RD
TOWER W
TOWER E
WHISTLER RD
TOWERS KEEP
LOGAN LN
BRADLEY CT
RONAN RD
JANES LOOP
STABLES CT W
STABLES CT E
STABLES CT
PRALLS LOOP
WESTOVER RD
DEROO LOOP
CARRIAGE LN
ENDICOTT RD
ENDICOTT LN
BLACKHAWK DR
PATTEN RD
SHERIDAN RD
RIENZI LN
1ST ST
B ST
2ND ST
MCKINLEY ST
NORMANDY ST
OMAHA ST
MARSHALL RD
MURPHY RD
EISENHOWER RD
D ST
CAMP HIGHWOOD RD
3RD ST
4TH ST
9TH ST
MCNAIR ST
EUCLID CT
EUCLID AVE
ASHLAND AVE
WASHINGTON AVE
SHERIDAN AVE
LOCKARD LN
BURCHELL AVE
CLAY AVE
BANK LN
WEBSTER AVE
LAKE VIEW AVE
H ST
10TH ST
G ST
11TH ST
WALKER AVE
N CENTRAL AVE
LLEWELLYN AVE
FUNSTON AVE
NORTH AVE
GREEN BAY RD
JOCELYN PL
GROVE AVE
OAK TERRACE AVE
PALMER AVE
HIGHWOOD AVE
LAURETTA PL
SAINT JOHNS AVE
TEMPLE AVE
EVOLUTION AVE
OAKRIDGE AVE
JEFFREYS PL
EVERTS PL
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MORGAN PL
LOGAN ST
WAUKEGAN AVE
BLOOM ST
PRAIRIE AVE
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WRENDALE AVE
BURTIS AVE
MORAINE RD
SARD PL
PLEASANT AVE
HIGH ST
SUMMIT AVE
MAPLE AVE
ELM AVE
TRILLIUM LN
OAK AVE
MICHIGAN AVE
EXMOOR CT
ORCHARD LN
NIADA TER
CHICAGO AVE

EXHIBIT #2B
2022 ROAD PROGRAM MAP

City of Highwood

10-Year
Pavement Maintenance Program
Highwood, Illinois

ROAD PROGRAM

YEAR-2

EXHIBIT 3B
Date: 04/14/2021

CHRISTOPHER B. BURKE ENGINEERING LTD.
9575 West Higgins Road, Suite 600
Rosemont, Illinois 60018
(847) 823-0500

Base Map Source:
Lake County Department of Information & Technology, GIS Division

N:\HIGHWOOD\170196\A2001\GIS\Exhibits\Pavement Management Streets - 5 Year Sheets 2021.mxd

0 250 500 1,000
Feet
1 inch = 500 feet
NORTH

Fort Sheridan Forest Preserve
GEORGE BELL DR
E OLD ELM RD
HYACINTH PL
KRENN AVE
WESTERN PL
AUDUBON PL
BROOK RD
WESTERN AVE
BROOK RD
DATO AVE
BROOK RD
HILL ST
HOLABIRD LOOP
HOLABIRD CIR
LEONARD WOOD W
LYSTER RD
LEONARD WOOD S
TOWER W
TOWER E
WHISTLER RD
TOWERS KEEP
LOGAN LN
BRADLEY CT
RONAN RD
JANES LOOP
STABLES CT E
STABLES CT W
STABLES CT
PRALLS LOOP
WESTOVER RD
DEROO LOOP
CARRIAGE LN
ENDICOTT RD
ENDICOTT LN
BLACKHAWK DR
PATTEN RD
SHERIDAN RD
RIENZI LN
LYSTER RD
1ST ST
B ST
2ND ST
2ND ST
MCKINLEY ST
NORMANDY ST
OMAHA ST
MARSHALL RD
MURPHY RD
EISENHOWER RD
D ST
CAMP HIGHWOOD RD
3RD ST
4TH ST
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9TH ST
MCNAIR ST
WESTERN AVE
EUCLID CT
EUCLID AVE
ASHLAND AVE
WASHINGTON AVE
LOCKARD LN
SHERIDAN AVE
BURCHELL AVE
BANK LN
CLAY AVE
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10TH ST
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11TH ST
WALKER AVE
LLEWELLYN AVE
N CENTRAL AVE
FUNSTON AVE
NORTH AVE
GREEN BAY RD
LAURETTA PL
SAINT JOHNS AVE
TEMPLE AVE
JOCELYN PL
GROVE AVE
OAK TERRACE AVE
PALMER AVE
HIGHWOOD AVE
EVOLUTION AVE
OAKRIDGE AVE
JEFFREYS PL
EVERTS PL
MEARS PL
MORGAN PL
LOGAN ST
WAUKEGAN AVE
BLOOM ST
BLOOM ST
MORAINE RD
PRAIRIE AVE
S CENTRAL AVE
WRENDALE AVE
SUMMIT AVE
MAPLE AVE
BURTIS AVE
ELM AVE
SARD PL
PLEASANT AVE
HIGH ST
OAK AVE
MICHIGAN AVE
MICHIGAN AVE
EXMOOR CT
TRILLIUM LN
ORCHARD LN
NIADA TER
CHICAGO AVE

EXHIBIT #2C
2023 ROAD PROGRAM MAP

City of Highwood

10-Year
Pavement Maintenance Program
Highwood, Illinois

ROAD PROGRAM

YEAR-3

EXHIBIT 3C
Date: 04/14/2021

CHRISTOPHER B. BURKE ENGINEERING LTD.
9575 West Higgins Road, Suite 600
Rosemont, Illinois 60018
(847) 823-0500

Base Map Source:
Lake County Department of Information & Technology, GIS Division

N:\HIGHWOOD\170196\A2001\GIS\Exhibits\Pavement Management Streets - 5 Year Sheets 2021.mxd

0 250 500 1,000
Feet
1 inch = 500 feet
NORTH

Fort Sheridan Forest Preserve
E OLD ELM RD
GEORGE BELL DR
LEONARD WOOD W
LEONARD WOOD S
LOGAN LN
TOWER E
TOWER W
BRADLEY CT
HYACINTH PL
HOLABIRD LOOP
HOLABIRD CIR
WHISTLER RD
TOWERS KEEP
LYSTER RD
KRENN AVE
WESTERN PL
WESTERN AVE
AUDUBON PL
BROOK RD
BROOK RD
RONAN RD
JANES LOOP
STABLES CT E
STABLES CT W
STABLES CT
PRALLS LOOP
WESTOVER RD
DEROO LOOP
CARRIAGE LN
ENDICOTT RD
ENDICOTT LN
DATO AVE
BROOK RD
PATTEN RD
BLACKHAWK DR
HILL ST
SHERIDAN RD
RIENZI LN
LYSTER RD
1ST ST
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2ND ST
MCKINLEY ST
NORMANDY ST
OMAHA ST
MARSHALL RD
MURPHY RD
EISENHOWER RD
D ST
CAMP HIGHWOOD RD
3RD ST
4TH ST
B ST
9TH ST
MCNAIR ST
WESTERN AVE
EUCLID CT
EUCLID AVE
ASHLAND AVE
WASHINGTON AVE
LOCKARD LN
SHERIDAN AVE
BURCHELL AVE
BANK LN
CLAY AVE
H ST
10TH ST
WEBSTER AVE
LAKE VIEW AVE
G ST
11TH ST
WALKER AVE
LOCKARD LN
N CENTRAL AVE
LLEWELLYN AVE
FUNSTON AVE
NORTH AVE
GREEN BAY RD
WESTERN AVE
JOCELYN PL
GROVE AVE
OAK TERRACE AVE
PALMER AVE
HIGHWOOD AVE
LAURETTA PL
SAINT JOHNS AVE
TEMPLE AVE
EVOLUTION AVE
OAKRIDGE AVE
JEFFREYS PL
EVERTS PL
MEARS PL
MORGAN PL
LOGAN ST
WAUKEGAN AVE
BLOOM ST
BLOOM ST
PRAIRIE AVE
S CENTRAL AVE
WRENDALE AVE
MAPLE AVE
BURTIS AVE
MORAINE RD
SUMMIT AVE
HIGH ST
SARD PL
PLEASANT AVE
TRILLIUM LN
ELM AVE
OAK AVE
MICHIGAN AVE
MICHIGAN AVE
EXMOOR CT
ORCHARD LN
NIADA TER
CHICAGO AVE

EXHIBIT #2D
2024 ROAD PROGRAM MAP

City of Highwood

10-Year
Pavement Maintenance Program
Highwood, Illinois

ROAD PROGRAM

YEAR-4

EXHIBIT 3D
Date: 04/14/2021

CHRISTOPHER B. BURKE ENGINEERING LTD.
9575 West Higgins Road, Suite 600
Rosemont, Illinois 60018
(847) 823-0500

Base Map Source:
Lake County Department of Information & Technology, GIS Division

N:\HIGHWOOD\170196\A2001\GIS\Exhibits\Pavement Management Streets - 5 Year Sheets 2021.mxd

0 250 500 1,000
Feet
1 inch = 500 feet
NORTH

Fort Sheridan Forest Preserve
GEORGE BELL DR
E OLD ELM RD
LEONARD WOOD W
LEONARD WOOD S
LOGAN LN
TOWER E
TOWER W
BRADLEY CT
WHISTLER RD
TOWERS KEEP
HOLABIRD LOOP
HOLABIRD CIR
LYSTER RD
HYACINTH PL
KRENN AVE
WESTERN PL
WESTERN AVE
AUDUBON PL
BROOK RD
BROOK RD
DATO AVE
BROOK RD
HILL ST
RONAN RD
JANES LOOP
STABLES CT W
STABLES CT E
STABLES CT
PRALLS LOOP
WESTOVER RD
DEROO LOOP
CARRIAGE LN
ENDICOTT RD
ENDICOTT LN
PATTEN RD
BLACKHAWK DR
SHERIDAN RD
RIENZI LN
LYSTER RD
1ST ST
B ST
2ND ST
2ND ST
MCKINLEY ST
NORMANDY ST
OMAHA ST
MARSHALL RD
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EISENHOWER RD
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CAMP HIGHWOOD RD
3RD ST
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9TH ST
MCNAIR ST
WESTERN AVE
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EUCLID AVE
ASHLAND AVE
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LOCKARD LN
SHERIDAN AVE
BURCHELL AVE
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11TH ST
WALKER AVE
LOCKARD LN
N CENTRAL AVE
LLEWELLYN AVE
FUNSTON AVE
NORTH AVE
GREEN BAY RD
JOCELYN PL
GROVE AVE
OAK TERRACE AVE
PALMER AVE
HIGHWOOD AVE
LAURETTA PL
SAINT JOHNS AVE
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EVOLUTION AVE
OAKRIDGE AVE
JEFFREYS PL
EVERTS PL
MEARS PL
MORGAN PL
LOGAN ST
WAUKEGAN AVE
BLOOM ST
BLOOM ST
PRAIRIE AVE
S CENTRAL AVE
SARD PL
PLEASANT AVE
HIGH ST
WRENDALE AVE
SUMMIT AVE
MAPLE AVE
BURTIS AVE
ELM AVE
OAK AVE
MICHIGAN AVE
MICHIGAN AVE
EXMOOR CT
MORAINE RD
TRILLIUM LN
ORCHARD LN
NIADA TER
CHICAGO AVE

EXHIBIT #2E
2025 ROAD PROGRAM MAP

City of Highwood

10-Year
Pavement Maintenance Program
Highwood, Illinois

ROAD PROGRAM

YEAR-5

EXHIBIT 3E
Date: 04/14/2021

CHRISTOPHER B. BURKE ENGINEERING LTD.
9575 West Higgins Road, Suite 600
Rosemont, Illinois 60018
(847) 823-0500

Base Map Source:
Lake County Department of Information & Technology, GIS Division

N:\HIGHWOOD\170196\A2001\GIS\Exhibits\Pavement Management Streets - 5 Year Sheets 2021.mxd

0 250 500 1,000
Feet
1 inch = 500 feet
NORTH

Fort Sheridan Forest Preserve
E OLD ELM RD
GEORGE BELL DR
LEONARD WOOD W
LEONARD WOOD S
LOGAN LN
TOWER E
TOWER W
WHISTLER RD
BRADLEY CT
HYACINTH PL
HOLABIRD LOOP
HOLABIRD CIR
LYSTER RD
TOWERS KEEP
KRENN AVE
WESTERN PL
AUDUBON PL
BROOK RD
WESTERN AVE
RONAN RD
JANES LOOP
STABLES CT E
STABLES CT W
STABLES CT
PRALLS LOOP
WESTOVER RD
DEROO LOOP
CARRIAGE LN
ENDICOTT RD
ENDICOTT LN
DATO AVE
BROOK RD
PATTEN RD
BLACKHAWK DR
HILL ST
SHERIDAN RD
RIENZI LN
1ST ST
B ST
2ND ST
MCKINLEY ST
NORMANDY ST
OMAHA ST
MARSHALL RD
MURPHY RD
EISENHOWER RD
D ST
CAMP HIGHWOOD RD
3RD ST
4TH ST
9TH ST
MCNAIR ST
EUCLID CT
EUCLID AVE
ASHLAND AVE
WASHINGTON AVE
LOCKARD LN
SHERIDAN AVE
BURCHELL AVE
CLAY AVE
BANK LN
WEBSTER AVE
LAKE VIEW AVE
H ST
10TH ST
G ST
11TH ST
WALKER AVE
LLEWELLYN AVE
N CENTRAL AVE
FUNSTON AVE
NORTH AVE
GREEN BAY RD
JOCELYN PL
GROVE AVE
OAK TERRACE AVE
PALMER AVE
HIGHWOOD AVE
LAURETTA PL
SAINT JOHNS AVE
TEMPLE AVE
EVOLUTION AVE
OAKRIDGE AVE
JEFFREYS PL
EVERTS PL
MEARS PL
MORGAN PL
LOGAN ST
WAUKEGAN AVE
BLOOM ST
PRAIRIE AVE
S CENTRAL AVE
WRENDALE AVE
BURTIS AVE
SUMMIT AVE
MAPLE AVE
MORAINE RD
SARD PL
PLEASANT AVE
HIGH ST
TRILLIUM LN
ELM AVE
OAK AVE
MICHIGAN AVE
EXMOOR CT
ORCHARD LN
NIADA TER
CHICAGO AVE

EXHIBIT #3
PAVEMENT EVALUATION DATABASE SPREADSHEET
(IN ORDER BY PROGRAM YEAR)

Christopher B. Burke Engineering, Ltd.
9575 W Higgins Road, Suite 600
Rosemont, IL 60018

EXHIBIT 3

CITY OF HIGHWOOD
UPDATED PAVEMENT MANAGEMENT REPORT
(CBBEL PROJECT NO. 17-0196.A2001)

DATE: April 13, 2021

CITY OF HIGHWOOD - PAVEMENT MANAGEMENT REPORT: ORDER BASED ON PROGRAM YEAR

STREET	TERMINI	TERMINI2	LENGTH (FT)	WIDTH (FT)	AREA (SY)	PCI	ESTIMATED COST	PROGRAM YEAR	SURFACE TYPE	LAST RESURFACING (PER CITY)	FAU ROUTE CLASS	FAU ROUTE #
GREEN BAY ROAD	EUCLID AVENUE	NORTH LIMIT	499	24	1,398	3	$214,456.72	1	HMA	2011		
OAK TERRACE AVENUE	NORTH AVENUE	HIGHWOOD AVENUE	509	16	951	4	$164,291.88	1	HMA			
DE ROO LOOP	NORTH LIMIT	WESTOVER ROAD	880	25	2,567	5	$118,552.64	1	HMA			
STABLES COURT EAST	RONAN ROAD	STABLES COURT	605	24	1,694	5	$81,657.02	2	HMA			
WASHINGTON AVENUE	WESTERN AVENUE	SHERIDAN ROAD	1,661	24	4,651	5	$200,919.32	2	HMA		MAJOR COLLECTOR	9-1197
JEFFREYS PLACE	HIGHWOOD AVENUE	PRAIRIE AVENUE	835	17	1,657	5	$90,406.39	2	HMA			
OAK RIDGE AVENUE	CENTRAL AVENUE	HIGH STREET	633	17	1,256	5	$74,522.42	3	HMA			
WALKER AVENUE	WAUKEGAN AVENUE	LAKEVIEW AVENUE	310	32	1,158	5	$60,474.59	3	HMA	2004	MINOR COLLECTOR	9-1251
#5 - METRA PARKING LOT (FT. SHERIDAN LOT)			--	--	8,017	6	$277,092.56	3	HMA			
STABLES WAY	STABLES COURT EAST	STABLES COURT WEST	280	24	784	6	$41,202.32	4	HMA			
WEBSTER AVENUE	WEST LIMIT	LAKEVIEW AVENUE	505	18	1,061	6	$65,311.32	4	HMA			
#4 - METRA PARKING LOT (HIGHWOOD STATION)			--	--	7,012	6	$244,524.50	4	HMA			
JOCELYN PLACE	NORTH AVENUE	WESTERN AVENUE	478	21	1,172	6	$49,785.34	4	HMA			
RONAN ROAD	LYSTER ROAD	NORTHERN LIMIT	1,440	24	4,032	6	$190,424.25	5	HMA			
CARRIAGE LANE	LYSTER ROAD	STABLES COURT WEST	725	24	2,030	6	$120,673.41	5	HMA			
STABLES COURT WEST	RONAN ROAD	STABLES COURT	600	24	1,680	6	$88,804.27	5	HMA			
PRALLS LOOP	LYSTER ROAD	WEST LIMIT	604	23	1,621	6	$88,849.17	6	HMA			
WESTERN AVENUE	PRAIRIE AVENUE	SOUTH LIMIT	994	19	2,204	6	$91,052.17	6	HMA	2013 (PARTIAL)	MAJOR COLLECTOR	9-2768
JANE'S LOOP	STABLES COURT	EAST CUL-DE-SAC	580	24	1,624	6	$67,136.08	6	HMA			
PALMER AVENUE	NORTH AVENUE	HIGHWOOD AVENUE	515	24	1,442	6	$64,594.70	6	HMA			
RIENZI LANE	WESTOVER	LYSTER ROAD	517	21	1,267	6	$60,119.76	6	HMA			
STABLES COURT	STABLES COURT EAST	STABLES COURT WEST	275	24	770	6	$35,003.82	6	HMA			
S CENTRAL AVENUE	PRAIRIE AVENUE	MICHIGAN AVENUE	1,092	21	2,676	6	$127,463.93	7	HMA			
ENDICOTT ROAD/LANE	RONAN ROAD	LYSTER ROAD	1,151	26	3,492	6	$161,066.13	7	HMA			
GREEN BAY ROAD	WASHINGTON AVENUE	EUCLID AVENUE	979	24	2,742	6	$99,196.90	7	HMA			
BURTIS AVENUE	PRAIRIE AVENUE	MORGAN PLACE	993	19	2,202	6	$96,666.24	8	HMA			
BURCHELL AVENUE	N CENTRAL AVENUE	GREEN BAY ROAD	832	19	1,845	7	$96,671.93	8	HMA	2011		
LEONARD WOOD WEST	NORTH LIMIT	LYSTER ROAD	475	29	1,608	7	$98,562.48	8	HMA			
WESTOVER ROAD	WESTERN LIMIT	EASTERN LIMIT	550	23	1,476	7	$97,097.61	8	HMA	2015		
LYSTER ROAD	LEONARD WOOD WEST	FIRST STREET	2,500	29	8,459	7	$367,164.35	9	HMA			
LLEWELLYN AVENUE	CENTRAL AVENUE	FUNSTON AVENUE	616	17	1,222	8	$57,952.18	9	HMA	2011		
#3 - REC CENTER LOT (432 GREEN BAY ROAD)			--	--	1,890	7	$66,393.53	10	HMA			
PRAIRIE AVENUE	WESTERN AVENUE	GREEN BAY ROAD	2,567	28	8,386	7	$344,480.37	10	HMA		MINOR ARTERIAL	9-1253
FIRST STREET	SHERIDAN ROAD	GATE	350	48	1,960	7	$95,146.98	10	HMA			
HOLABIRD CIRCLE	WEST CUL-DE-SAC	HOLABIRD LOOP	625	26	1,896	7	$89,858.01	10	HMA			
S CENTRAL AVENUE	HIGHWOOD AVENUE	PRAIRIE AVENUE	754	21	1,848	7	$95,804.78	10	HMA			
SHERIDAN ROAD	NORTH LIMIT	FIRST STREET	3,510	32	13,104	7	$632,155.92	10	HMA		MINOR ARTERIAL	9-2744
BURCHELL AVENUE	WESTERN AVENUE	CENTRAL AVENUE	649	22	1,666	8	$77,729.19	10	HMA	2011		
HIGHWOOD AVENUE	GREEN BAY ROAD	WAUKEGAN AVENUE	300	36	1,260	8	$62,711.11	10	HMA	2015		
LOCKARD LANE (NORTH)	WASHINGTON AVENUE	BURCHELL AVENUE	775	16	1,447	8	$58,858.55	10	HMA	2005		
SHERIDAN AVENUE	N CENTRAL AVENUE	GREEN BAY ROAD	667	16	1,246	8	$61,351.24	10	HMA			
HOLABIRD LOOP	LYSTER ROAD	WEST CUL-DE-SAC	1,050	24	2,940	8	$126,112.91	10	HMA			
WAUKEGAN AVENUE	HIGHWOOD AVENUE	FIRST STREET	3,150	45	16,538	8	$648,966.51	10	HMA	2005		
EXMOOR COURT	MICHIGAN AVENUE	SOUTH CUL-DE-SAC	390	20	910	9	$40,707.70	10	HMA			
HIGH STREET	MICHIGAN AVENUE	PRAIRIE AVENUE	923	24	2,585	9	$404,636.18	10	HMA	2015		
LAKEVIEW AVENUE	CLAY AVENUE	WALKER AVENUE	876	33	3,373	9	$140,533.28	10	HMA			
SARD PLACE	CENTRAL AVENUE	HIGH STREET	649	16	1,212	9	$229,913.75	10	HMA	2015		
CLAY AVENUE	WAUKEGAN AVENUE	LAKEVIEW AVENUE	672	33	2,588	9	$105,463.05	10	HMA			
GREEN BAY ROAD	PRAIRIE AVENUE	WASHINGTON AVENUE	2,964	25	8,645	9	$348,128.63	10	HMA	2008		
NORTH AVENUE	WESTERN AVENUE	GREEN BAY ROAD	1,861	22	4,777	9	$212,948.20	10	HMA	2015		
PLEASANT AVENUE	PRAIRIE AVENUE	MICHIGAN AVENUE	1,103	17	2,188	9	$104,650.92	10	HMA	2015		
FUNSTON AVENUE	BURCHELL AVENUE	NORTH AVENUE	610	22	1,566	9	$77,177.65	10	HMA	2011		
GROVE AVENUE	NORTH AVENUE	HIGHWOOD AVENUE	512	22	1,315	9	$53,731.51	10	HMA	2011		
HIGHWOOD AVENUE	WESTERN AVENUE	GREEN BAY ROAD	2,133	32	7,964	9	$311,284.88	10	HMA	2015		
WESTERN AVENUE	ASHLAND AVENUE	PRAIRIE AVENUE	3,150	23	8,453	9	$333,238.32	10	HMA	2013 (PARTIAL)	MAJOR COLLECTOR	9-2768
#1 - LIBRARY LOT (102 HIGHWOOD AVENUE)			--	--	3,115	9	$168,650.43	10	HMA			
EVOLUTION AVENUE	HIGHWOOD AVENUE	PRAIRIE AVENUE	770	20	1,797	9	$305,932.66	10	HMA	2015		
ALLEY BETWEEN S CENTRAL & PLEASANT			415	13	630	10	$30,528.25	10	HMA			
E/W ALLEY BETWEEN BURCHELL & LLEWELLYN			615	12	861	10	$33,843.18	10	HMA			
MICHIGAN AVENUE	EAST LIMIT	PLEASANT AVENUE	1,800	18	3,780	10	$173,488.43	10	HMA	2001		
N/S ALLEY BETWEEN WEBSTER & WALKER			450	13	683	10	$73,708.39	10	HMA	2019		
ASHLAND AVENUE	WESTERN AVENUE	GREEN BAY ROAD	880	20	2,054	10	$330,046.09	10	HMA	2019		
E/W ALLEY BETWEEN LLEWELLYN & NORTH			615	12	861	10	$33,843.18	10	HMA			
E/W ALLEY BETWEEN WASHINGTON & SHERIDAN			425	15	744	10	$31,890.02	10	HMA			
EUCLID COURT	EUCLID AVENUE	NORTH CDS	203	21	498	10	$80,609.60	10	HMA	2018		
LOCKARD LANE (SOUTH)	NORTH AVENUE	LIMIT	320	12	448	10	$25,050.80	10	HMA	2005		
MICHIGAN AVENUE	S CENTRAL AVENUE	WESTERN AVENUE	750	23	2,013	10	$91,787.77	10	HMA	2001		
N CENTRAL AVENUE	WASHINGTON AVENUE	NORTH AVENUE	1,275	16	2,380	10	$114,972.06	10	HMA		1988	
OAK AVENUE	SUMMIT AVENUE	MICHIGAN AVENUE	318	15	557	10	$26,656.71	10	HMA			
SUMMIT AVENUE	HIGH STREET	OAK AVENUE	641	17	1,272	10	$54,796.01	10	HMA			
ELM AVENUE	MICHIGAN AVENUE	MORGAN PLACE	477	17	947	10	$48,415.95	10	HMA	2001		
EUCLID AVENUE	WESTERN AVENUE	GREEN BAY ROAD	622	24	1,742	10	$259,467.31	10	HMA	2018		
HIGH STREET	PRAIRIE AVENUE	HIGHWOOD AVENUE	765	25	2,232	10	$344,803.58	10	HMA			
MAPLE AVENUE	WRENDALE AVENUE	MICHIGAN AVENUE	537	17	1,066	10	$47,242.69	10	HMA			
WRENDALE AVENUE	SUMMIT AVENUE	BURTIS AVENUE	578	16	1,079	10	$48,155.39	10	HMA			
#2 - CITY HALL LOT (17 HIGHWOOD AVENUE)			--	--	2,904	2	$299,604.50	10	HMA			
MEARS PLACE	EVERTS PLACE	GREEN BAY ROAD	398	15	697	10	$46,528.60	10	HMA			
MORGAN PLACE	MEARS PLACE	PRAIRIE AVENUE	438	16	818	10	$50,625.30	10	HMA			
EVERTS PLACE	HIGHWOOD AVENUE	PRAIRIE AVENUE	770	18	1,617	10	$79,403.42	10	HMA			
MORGAN PLACE	PRAIRIE AVENUE	ELM AVENUE	554	17	1,099	10	$63,460.62	10	HMA			
BANK LANE	WASHINGTON AVENUE	WEBSTER AVENUE	1,200	26	3,640	5	$371,275.68	10	HMA			
MORGAN PLACE	ELM AVENUE	EAST LIMIT	200	17	397	10	$26,115.29	10	HMA			

EXHIBIT #3A
PAVEMENT EVALUATION DATABASE SPREADSHEET
(IN ORDER BY PCI FROM 10-1)

Christopher B. Burke Engineering, Ltd.
9575 W Higgins Road, Suite 600
Rosemont, IL 60018

EXHIBIT 3A

CITY OF HIGHWOOD
UPDATED PAVEMENT MANAGEMENT REPORT
(CBBEL PROJECT NO. 17-0196.A2001)

DATE: April 13, 2021

CITY OF HIGHWOOD - PAVEMENT MANAGEMENT REPORT: ORDER BASED ON PCI

STREET	TERMINI	TERMINI2	LENGTH (FT)	WIDTH (FT)	AREA (SY)	PCI	ESTIMATED COST	PROGRAM YEAR	SURFACE TYPE	LAST RESURFACING (PER CITY)	FAU ROUTE CLASS	FAU ROUTE #
#2 - CITY HALL LOT (17 HIGHWOOD AVENUE)			--	--	2,904	2	$299,604.50	10	HMA			
GREEN BAY ROAD	EUCLID AVENUE	NORTH LIMIT	499	24	1,398	3	$214,456.72	1	HMA	2011		
OAK TERRACE AVENUE	NORTH AVENUE	HIGHWOOD AVENUE	509	16	951	4	$164,291.88	1	HMA			
DE ROO LOOP	NORTH LIMIT	WESTOVER ROAD	880	25	2,567	5	$118,552.64	1	HMA			
STABLES COURT EAST	RONAN ROAD	STABLES COURT	605	24	1,694	5	$81,657.02	2	HMA			
WASHINGTON AVENUE	WESTERN AVENUE	SHERIDAN ROAD	1,661	24	4,651	5	$200,919.32	2	HMA		MAJOR COLLECTOR	9-1197
JEFFREYS PLACE	HIGHWOOD AVENUE	PRAIRIE AVENUE	835	17	1,657	5	$90,406.39	2	HMA			
OAK RIDGE AVENUE	CENTRAL AVENUE	HIGH STREET	633	17	1,256	5	$74,522.42	3	HMA			
WALKER AVENUE	WAUKEGAN AVENUE	LAKEVIEW AVENUE	310	32	1,158	5	$60,474.59	3	HMA	2004	MINOR COLLECTOR	9-1251
BANK LANE	WASHINGTON AVENUE	WEBSTER AVENUE	1,200	26	3,640	5	$371,275.68	10	HMA			
#5 - METRA PARKING LOT (FT. SHERIDAN LOT)			--	--	8,017	6	$277,092.56	3	HMA			
STABLES WAY	STABLES COURT EAST	STABLES COURT WEST	280	24	784	6	$41,202.32	4	HMA			
WEBSTER AVENUE	WEST LIMIT	LAKEVIEW AVENUE	505	18	1,061	6	$65,311.32	4	HMA			
#4 - METRA PARKING LOT (HIGHWOOD STATION)			--	--	7,012	6	$244,524.50	4	HMA			
JOCELYN PLACE	NORTH AVENUE	WESTERN AVENUE	478	21	1,172	6	$49,785.34	4	HMA			
RONAN ROAD	LYSTER ROAD	NORTHERN LIMIT	1,440	24	4,032	6	$190,424.25	5	HMA			
CARRIAGE LANE	LYSTER ROAD	STABLES COURT WEST	725	24	2,030	6	$120,673.41	5	HMA			
STABLES COURT WEST	RONAN ROAD	STABLES COURT	600	24	1,680	6	$88,804.27	5	HMA			
PRALLS LOOP	LYSTER ROAD	WEST LIMIT	604	23	1,621	6	$88,849.17	6	HMA			
WESTERN AVENUE	PRAIRIE AVENUE	SOUTH LIMIT	994	19	2,204	6	$91,052.17	6	HMA	2013 (PARTIAL)	MAJOR COLLECTOR	9-2768
JANE'S LOOP	STABLES COURT	EAST CUL-DE-SAC	580	24	1,624	6	$67,136.08	6	HMA			
PALMER AVENUE	NORTH AVENUE	HIGHWOOD AVENUE	515	24	1,442	6	$64,594.70	6	HMA			
RIENZI LANE	WESTOVER	LYSTER ROAD	517	21	1,267	6	$60,119.76	6	HMA			
STABLES COURT	STABLES COURT EAST	STABLES COURT WEST	275	24	770	6	$35,003.82	6	HMA			
S CENTRAL AVENUE	PRAIRIE AVENUE	MICHIGAN AVENUE	1,092	21	2,676	6	$127,463.93	7	HMA			
ENDICOTT ROAD/LANE	RONAN ROAD	LYSTER ROAD	1,151	26	3,492	6	$161,066.13	7	HMA			
GREEN BAY ROAD	WASHINGTON AVENUE	EUCLID AVENUE	979	24	2,742	6	$99,196.90	7	HMA			
BURTIS AVENUE	PRAIRIE AVENUE	MORGAN PLACE	993	19	2,202	6	$96,666.24	8	HMA			
BURCHELL AVENUE	N CENTRAL AVENUE	GREEN BAY ROAD	832	19	1,845	7	$96,671.93	8	HMA	2011		
LEONARD WOOD WEST	NORTH LIMIT	LYSTER ROAD	475	29	1,608	7	$98,562.48	8	HMA			
WESTOVER ROAD	WESTERN LIMIT	EASTERN LIMIT	550	23	1,476	7	$97,097.61	8	HMA	2015		
LYSTER ROAD	LEONARD WOOD WEST	FIRST STREET	2,500	29	8,459	7	$367,164.35	9	HMA			
#3 - REC CENTER LOT (432 GREEN BAY ROAD)			--	--	1,890	7	$66,393.53	10	HMA			
PRAIRIE AVENUE	WESTERN AVENUE	GREEN BAY ROAD	2,567	28	8,386	7	$344,480.37	10	HMA		MINOR ARTERIAL	9-1253
FIRST STREET	SHERIDAN ROAD	GATE	350	48	1,960	7	$95,146.98	10	HMA			
HOLABIRD CIRCLE	WEST CUL-DE-SAC	HOLABIRD LOOP	625	26	1,896	7	$89,858.01	10	HMA			
S CENTRAL AVENUE	HIGHWOOD AVENUE	PRAIRIE AVENUE	754	21	1,848	7	$95,804.78	10	HMA			
SHERIDAN ROAD	NORTH LIMIT	FIRST STREET	3,510	32	13,104	7	$632,155.92	10	HMA		MINOR ARTERIAL	9-2744
LLEWELLYN AVENUE	CENTRAL AVENUE	FUNSTON AVENUE	616	17	1,222	8	$57,952.18	9	HMA	2011		
BURCHELL AVENUE	WESTERN AVENUE	CENTRAL AVENUE	649	22	1,666	8	$77,729.19	10	HMA	2011		
HIGHWOOD AVENUE	GREEN BAY ROAD	WAUKEGAN AVENUE	300	36	1,260	8	$62,711.11	10	HMA	2015		
LOCKARD LANE (NORTH)	WASHINGTON AVENUE	BURCHELL AVENUE	775	16	1,447	8	$58,858.55	10	HMA	2005		
SHERIDAN AVENUE	N CENTRAL AVENUE	GREEN BAY ROAD	667	16	1,246	8	$61,351.24	10	HMA			
HOLABIRD LOOP	LYSTER ROAD	WEST CUL-DE-SAC	1,050	24	2,940	8	$126,112.91	10	HMA			
WAUKEGAN AVENUE	HIGHWOOD AVENUE	FIRST STREET	3,150	45	16,538	8	$648,966.51	10	HMA	2005		
EXMOOR COURT	MICHIGAN AVENUE	SOUTH CUL-DE-SAC	390	20	910	9	$40,707.70	10	HMA			
HIGH STREET	MICHIGAN AVENUE	PRAIRIE AVENUE	923	24	2,585	9	$404,636.18	10	HMA	2015		
LAKEVIEW AVENUE	CLAY AVENUE	WALKER AVENUE	876	33	3,373	9	$140,533.28	10	HMA			
SARD PLACE	CENTRAL AVENUE	HIGH STREET	649	16	1,212	9	$229,913.75	10	HMA	2015		
CLAY AVENUE	WAUKEGAN AVENUE	LAKEVIEW AVENUE	672	33	2,588	9	$105,463.05	10	HMA			
GREEN BAY ROAD	PRAIRIE AVENUE	WASHINGTON AVENUE	2,964	25	8,645	9	$348,128.63	10	HMA	2008		
NORTH AVENUE	WESTERN AVENUE	GREEN BAY ROAD	1,861	22	4,777	9	$212,948.20	10	HMA	2015		
PLEASANT AVENUE	PRAIRIE AVENUE	MICHIGAN AVENUE	1,103	17	2,188	9	$104,650.92	10	HMA	2015		
FUNSTON AVENUE	BURCHELL AVENUE	NORTH AVENUE	610	22	1,566	9	$77,177.65	10	HMA	2011		
GROVE AVENUE	NORTH AVENUE	HIGHWOOD AVENUE	512	22	1,315	9	$53,731.51	10	HMA	2011		
HIGHWOOD AVENUE	WESTERN AVENUE	GREEN BAY ROAD	2,133	32	7,964	9	$311,284.88	10	HMA	2015		
WESTERN AVENUE	ASHLAND AVENUE	PRAIRIE AVENUE	3,150	23	8,453	9	$333,238.32	10	HMA	2013 (PARTIAL)	MAJOR COLLECTOR	9-2768
#1 - LIBRARY LOT (102 HIGHWOOD AVENUE)			--	--	3,115	9	$168,650.43	10	HMA			
EVOLUTION AVENUE	HIGHWOOD AVENUE	PRAIRIE AVENUE	770	20	1,797	9	$305,932.66	10	HMA	2015		
ALLEY BETWEEN S CENTRAL & PLEASANT			415	13	630	10	$30,528.25	10	HMA			
E/W ALLEY BETWEEN BURCHELL & LLEWELLYN			615	12	861	10	$33,843.18	10	HMA			
MICHIGAN AVENUE	EAST LIMIT	PLEASANT AVENUE	1,800	18	3,780	10	$173,488.43	10	HMA	2001		
N/S ALLEY BETWEEN WEBSTER & WALKER			450	13	683	10	$73,708.39	10	HMA	2019		
ASHLAND AVENUE	WESTERN AVENUE	GREEN BAY ROAD	880	20	2,054	10	$330,046.09	10	HMA	2019		
E/W ALLEY BETWEEN LLEWELLYN & NORTH			615	12	861	10	$33,843.18	10	HMA			
E/W ALLEY BETWEEN WASHINGTON & SHERIDAN			425	15	744	10	$31,890.02	10	HMA			
EUCLID COURT	EUCLID AVENUE	NORTH CDS	203	21	498	10	$80,609.60	10	HMA	2018		
LOCKARD LANE (SOUTH)	NORTH AVENUE	LIMIT	320	12	448	10	$25,050.80	10	HMA	2005		
MICHIGAN AVENUE	S CENTRAL AVENUE	WESTERN AVENUE	750	23	2,013	10	$91,787.77	10	HMA	2001		
N CENTRAL AVENUE	WASHINGTON AVENUE	NORTH AVENUE	1,275	16	2,380	10	$114,972.06	10	HMA		1988	
OAK AVENUE	SUMMIT AVENUE	MICHIGAN AVENUE	318	15	557	10	$26,656.71	10	HMA			
SUMMIT AVENUE	HIGH STREET	OAK AVENUE	641	17	1,272	10	$54,796.01	10	HMA			
ELM AVENUE	MICHIGAN AVENUE	MORGAN PLACE	477	17	947	10	$48,415.95	10	HMA	2001		
EUCLID AVENUE	WESTERN AVENUE	GREEN BAY ROAD	622	24	1,742	10	$259,467.31	10	HMA	2018		
HIGH STREET	PRAIRIE AVENUE	HIGHWOOD AVENUE	765	25	2,232	10	$344,803.58	10	HMA			
MAPLE AVENUE	WRENDALE AVENUE	MICHIGAN AVENUE	537	17	1,066	10	$47,242.69	10	HMA			
WRENDALE AVENUE	SUMMIT AVENUE	BURTIS AVENUE	578	16	1,079	10	$48,155.39	10	HMA			
MEARS PLACE	EVERTS PLACE	GREEN BAY ROAD	398	15	697	10	$46,528.60	10	HMA			
MORGAN PLACE	MEARS PLACE	PRAIRIE AVENUE	438	16	818	10	$50,625.30	10	HMA			
EVERTS PLACE	HIGHWOOD AVENUE	PRAIRIE AVENUE	770	18	1,617	10	$79,403.42	10	HMA			
MORGAN PLACE	PRAIRIE AVENUE	ELM AVENUE	554	17	1,099	10	$63,460.62	10	HMA			
MORGAN PLACE	ELM AVENUE	EAST LIMIT	200	17	397	10	$26,115.29	10	HMA			

EXHIBIT #3B
PAVEMENT EVALUATION DATABASE SPREADSHEET
(IN ALPHABETICAL ORDER BY STREET NAME)

Christopher B. Burke Engineering, Ltd.
9575 W Higgins Road, Suite 600
Rosemont, IL 60018

EXHIBIT 3B

CITY OF HIGHWOOD
UPDATED PAVEMENT MANAGEMENT REPORT
(CBBEL PROJECT NO. 17-0196.A2001)

DATE: April 13, 2021

CITY OF HIGHWOOD - PAVEMENT MANAGEMENT REPORT: ORDER BASED ON ALPHABETICAL ORDER

STREET	TERMINI	TERMINI2	LENGTH (FT)	WIDTH (FT)	AREA (SY)	PCI	ESTIMATED COST	PROGRAM YEAR	SURFACE TYPE	LAST RESURFACING (PER CITY)	FAU ROUTE CLASS	FAU ROUTE #
#1 - LIBRARY LOT (102 HIGHWOOD AVENUE)			--	--	3,115	9	$168,650.43	10	HMA			
#2 - CITY HALL LOT (17 HIGHWOOD AVENUE)			--	--	2,904	2	$299,604.50	10	HMA			
#3 - REC CENTER LOT (432 GREEN BAY ROAD)			--	--	1,890	7	$66,393.53	10	HMA			
#4 - METRA PARKING LOT (HIGHWOOD STATION)			--	--	7,012	6	$244,524.50	4	HMA			
#5 - METRA PARKING LOT (FT. SHERIDAN LOT)			--	--	8,017	6	$277,092.56	3	HMA			
ALLEY BETWEEN S CENTRAL & PLEASANT			415	13	630	10	$30,528.25	10	HMA			
ASHLAND AVENUE	WESTERN AVENUE	GREEN BAY ROAD	880	20	2,054	10	$330,046.09	10	HMA	2019		
BANK LANE	WASHINGTON AVENUE	WEBSTER AVENUE	1,200	26	3,640	5	$371,275.68	10	HMA			
BURCHELL AVENUE	N CENTRAL AVENUE	GREEN BAY ROAD	832	19	1,845	7	$96,671.93	8	HMA	2011		
BURCHELL AVENUE	WESTERN AVENUE	CENTRAL AVENUE	649	22	1,666	8	$77,729.19	10	HMA	2011		
BURTIS AVENUE	PRAIRIE AVENUE	MORGAN PLACE	993	19	2,202	6	$96,666.24	8	HMA			
CARRIAGE LANE	LYSTER ROAD	STABLES COURT WEST	725	24	2,030	6	$120,673.41	5	HMA			
CLAY AVENUE	WAUKEGAN AVENUE	LAKEVIEW AVENUE	672	33	2,588	9	$105,463.05	10	HMA			
DE ROO LOOP	NORTH LIMIT	WESTOVER ROAD	880	25	2,567	5	$118,552.64	1	HMA			
E/W ALLEY BETWEEN BURCHELL & LLEWELLYN			615	12	861	10	$33,843.18	10	HMA			
E/W ALLEY BETWEEN LLEWELLYN & NORTH			615	12	861	10	$33,843.18	10	HMA			
E/W ALLEY BETWEEN WASHINGTON & SHERIDAN			425	15	744	10	$31,890.02	10	HMA			
ELM AVENUE	MICHIGAN AVENUE	MORGAN PLACE	477	17	947	10	$48,415.95	10	HMA	2001		
ENDICOTT ROAD/LANE	RONAN ROAD	LYSTER ROAD	1,151	26	3,492	6	$161,066.13	7	HMA			
EUCLID AVENUE	WESTERN AVENUE	GREEN BAY ROAD	622	24	1,742	10	$259,467.31	10	HMA	2018		
EUCLID COURT	EUCLID AVENUE	NORTH CDS	203	21	498	10	$80,609.60	10	HMA	2018		
EVERTS PLACE	HIGHWOOD AVENUE	PRAIRIE AVENUE	770	18	1,617	10	$79,403.42	10	HMA			
EVOLUTION AVENUE	HIGHWOOD AVENUE	PRAIRIE AVENUE	770	20	1,797	9	$305,932.66	10	HMA	2015		
EXMOOR COURT	MICHIGAN AVENUE	SOUTH CUL-DE-SAC	390	20	910	9	$40,707.70	10	HMA			
FIRST STREET	SHERIDAN ROAD	GATE	350	48	1,960	7	$95,146.98	10	HMA			
FUNSTON AVENUE	BURCHELL AVENUE	NORTH AVENUE	610	22	1,566	9	$77,177.65	10	HMA	2011		
GREEN BAY ROAD	EUCLID AVENUE	NORTH LIMIT	499	24	1,398	3	$214,456.72	1	HMA	2011		
GREEN BAY ROAD	WASHINGTON AVENUE	EUCLID AVENUE	979	24	2,742	6	$99,196.90	7	HMA			
GREEN BAY ROAD	PRAIRIE AVENUE	WASHINGTON AVENUE	2,964	25	8,645	9	$348,128.63	10	HMA	2008		
GROVE AVENUE	NORTH AVENUE	HIGHWOOD AVENUE	512	22	1,315	9	$53,731.51	10	HMA	2011		
HIGH STREET	MICHIGAN AVENUE	PRAIRIE AVENUE	923	24	2,585	9	$404,636.18	10	HMA	2015		
HIGH STREET	PRAIRIE AVENUE	HIGHWOOD AVENUE	765	25	2,232	10	$344,803.58	10	HMA			
HIGHWOOD AVENUE	GREEN BAY ROAD	WAUKEGAN AVENUE	300	36	1,260	8	$62,711.11	10	HMA	2015		
HIGHWOOD AVENUE	WESTERN AVENUE	GREEN BAY ROAD	2,133	32	7,964	9	$311,284.88	10	HMA	2015		
HOLABIRD CIRCLE	WEST CUL-DE-SAC	HOLABIRD LOOP	625	26	1,896	7	$89,858.01	10	HMA			
HOLABIRD LOOP	LYSTER ROAD	WEST CUL-DE-SAC	1,050	24	2,940	8	$126,112.91	10	HMA			
JANE'S LOOP	STABLES COURT	EAST CUL-DE-SAC	580	24	1,624	6	$67,136.08	6	HMA			
JEFFREYS PLACE	HIGHWOOD AVENUE	PRAIRIE AVENUE	835	17	1,657	5	$90,406.39	2	HMA			
JOCELYN PLACE	NORTH AVENUE	WESTERN AVENUE	478	21	1,172	6	$49,785.34	4	HMA			
LAKEVIEW AVENUE	CLAY AVENUE	WALKER AVENUE	876	33	3,373	9	$140,533.28	10	HMA			
LEONARD WOOD WEST	NORTH LIMIT	LYSTER ROAD	475	29	1,608	7	$98,562.48	8	HMA			
LLEWELLYN AVENUE	CENTRAL AVENUE	FUNSTON AVENUE	616	17	1,222	8	$57,952.18	9	HMA	2011		
LOCKARD LANE (NORTH)	WASHINGTON AVENUE	BURCHELL AVENUE	775	16	1,447	8	$58,858.55	10	HMA	2005		
LOCKARD LANE (SOUTH)	NORTH AVENUE	LIMIT	320	12	448	10	$25,050.80	10	HMA	2005		
LYSTER ROAD	LEONARD WOOD WEST	FIRST STREET	2,500	29	8,459	7	$367,164.35	9	HMA			
MAPLE AVENUE	WRENDALE AVENUE	MICHIGAN AVENUE	537	17	1,066	10	$47,242.69	10	HMA			
MEARS PLACE	EVERTS PLACE	GREEN BAY ROAD	398	15	697	10	$46,528.60	10	HMA			
MICHIGAN AVENUE	EAST LIMIT	PLEASANT AVENUE	1,800	18	3,780	10	$173,488.43	10	HMA	2001		
MICHIGAN AVENUE	S CENTRAL AVENUE	WESTERN AVENUE	750	23	2,013	10	$91,787.77	10	HMA	2001		
MORGAN PLACE	MEARS PLACE	PRAIRIE AVENUE	438	16	818	10	$50,625.30	10	HMA			
MORGAN PLACE	PRAIRIE AVENUE	ELM AVENUE	554	17	1,099	10	$63,460.62	10	HMA			
MORGAN PLACE	ELM AVENUE	EAST LIMIT	200	17	397	10	$26,115.29	10	HMA			
N CENTRAL AVENUE	WASHINGTON AVENUE	NORTH AVENUE	1,275	16	2,380	10	$114,972.06	10	HMA		1988	
N/S ALLEY BETWEEN WEBSTER & WALKER			450	13	683	10	$73,708.39	10	HMA	2019		
NORTH AVENUE	WESTERN AVENUE	GREEN BAY ROAD	1,861	22	4,777	9	$212,948.20	10	HMA	2015		
OAK AVENUE	SUMMIT AVENUE	MICHIGAN AVENUE	318	15	557	10	$26,656.71	10	HMA			
OAK RIDGE AVENUE	CENTRAL AVENUE	HIGH STREET	633	17	1,256	5	$74,522.42	3	HMA			
OAK TERRACE AVENUE	NORTH AVENUE	HIGHWOOD AVENUE	509	16	951	4	$164,291.88	1	HMA			
PALMER AVENUE	NORTH AVENUE	HIGHWOOD AVENUE	515	24	1,442	6	$64,594.70	6	HMA			
PLEASANT AVENUE	PRAIRIE AVENUE	MICHIGAN AVENUE	1,103	17	2,188	9	$104,650.92	10	HMA	2015		
PRAIRIE AVENUE	WESTERN AVENUE	GREEN BAY ROAD	2,567	28	8,386	7	$344,480.37	10	HMA		MINOR ARTERIAL	9-1253
PRALLS LOOP	LYSTER ROAD	WEST LIMIT	604	23	1,621	6	$88,849.17	6	HMA			
RIENZI LANE	WESTOVER	LYSTER ROAD	517	21	1,267	6	$60,119.76	6	HMA			
RONAN ROAD	LYSTER ROAD	NORTHERN LIMIT	1,440	24	4,032	6	$190,424.25	5	HMA			
S CENTRAL AVENUE	PRAIRIE AVENUE	MICHIGAN AVENUE	1,092	21	2,676	6	$127,463.93	7	HMA			
S CENTRAL AVENUE	HIGHWOOD AVENUE	PRAIRIE AVENUE	754	21	1,848	7	$95,804.78	10	HMA			
SARD PLACE	CENTRAL AVENUE	HIGH STREET	649	16	1,212	9	$229,913.75	10	HMA	2015		
SHERIDAN AVENUE	N CENTRAL AVENUE	GREEN BAY ROAD	667	16	1,246	8	$61,351.24	10	HMA			
SHERIDAN ROAD	NORTH LIMIT	FIRST STREET	3,510	32	13,104	7	$632,155.92	10	HMA		MINOR ARTERIAL	9-2744
STABLES COURT	STABLES COURT EAST	STABLES COURT WEST	275	24	770	6	$35,003.82	6	HMA			
STABLES COURT EAST	RONAN ROAD	STABLES COURT	605	24	1,694	5	$81,657.02	2	HMA			
STABLES COURT WEST	RONAN ROAD	STABLES COURT	600	24	1,680	6	$88,804.27	5	HMA			
STABLES WAY	STABLES COURT EAST	STABLES COURT WEST	280	24	784	6	$41,202.32	4	HMA			
SUMMIT AVENUE	HIGH STREET	OAK AVENUE	641	17	1,272	10	$54,796.01	10	HMA			
WALKER AVENUE	WAUKEGAN AVENUE	LAKEVIEW AVENUE	310	32	1,158	5	$60,474.59	3	HMA	2004	MINOR COLLECTOR	9-1251
WASHINGTON AVENUE	WESTERN AVENUE	SHERIDAN ROAD	1,661	24	4,651	5	$200,919.32	2	HMA		MAJOR COLLECTOR	9-1197
WAUKEGAN AVENUE	HIGHWOOD AVENUE	FIRST STREET	3,150	45	16,538	8	$648,966.51	10	HMA	2005		
WEBSTER AVENUE	WEST LIMIT	LAKEVIEW AVENUE	505	18	1,061	6	$65,311.32	4	HMA			
WESTERN AVENUE	PRAIRIE AVENUE	SOUTH LIMIT	994	19	2,204	6	$91,052.17	6	HMA	2013 (PARTIAL)	MAJOR COLLECTOR	9-2768
WESTERN AVENUE	ASHLAND AVENUE	PRAIRIE AVENUE	3,150	23	8,453	9	$333,238.32	10	HMA	2013 (PARTIAL)	MAJOR COLLECTOR	9-2768
WESTOVER ROAD	WESTERN LIMIT	EASTERN LIMIT	550	23	1,476	7	$97,097.61	8	HMA	2015		
WRENDALE AVENUE	SUMMIT AVENUE	BURTIS AVENUE	578	16	1,079	10	$48,155.39	10	HMA			

EXHIBIT #4
COST ESTIMATE AND SCHEDULE

Christopher B. Burke Engineering
9575 W. Higgins Road Suite 600
Rosemont, IL 60018

CITY OF HIGHWOOD
15-YEAR MAINTENANCE PROGRAM (GRIND & OVERLAY AND RECONSTRUCTION)
(CBBEL PROJECT NO. 17-0196.A2001)
DATE: March 26, 2020
EXHIBIT 6

				Year 1 Program					
				LENGTH = 880		LENGTH = 499		LENGTH = 509	
				AVERAGE WIDTH = 25		AVERAGE WIDTH = 24		AVERAGE WIDTH = 16	
				TOTAL SQ YD = 2,567		TOTAL SQ YD = 1,398		TOTAL SQ YD = 951	
				DE ROO LOOP		GREEN BAY ROAD (EUCLID TO LIMIT)		OAK TERRACE AVENUE	
				GRIND & OVERLAY		RECONSTRUCTION		RECONSTRUCTION	
ITEM NO.	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL COST	QUANTITY	TOTAL COST	QUANTITY	TOTAL COST
20201200	REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL	CU YD	$ 40.00	0	$ -	47	$ 1,880.00	32	$ 1,280.00
21001000	GEOTECHNICAL FABRIC FOR GROUND STABILIZATION	SQ YD	$ 2.50	0	$ -	140	$ 350.00	96	$ 240.00
30300001	AGGREGATE SUBGRADE IMPROVEMENT	CU YD	$ 55.00	0	$ -	47	$ 2,585.00	32	$ 1,760.00
35102400	AGGREGATE BASE COURSE, TYPE B 12"	SQ YD	$ 20.00	0	$ -	1,398	$ 27,960.00	951	$ 19,020.00
35800100	PREPARATION OF BASE	SQ YD	$ 2.00	0	$ -	0	$ -	0	$ -
35800200	AGGREGATE BASE REPAIR	TON	$ 30.00	0	$ -	0	$ -	0	$ -
40600290	BITUMINOUS MATERIALS (TACK COAT)	POUND	$ 1.00	1,820	$ 1,820.00	991	$ 991.00	675	$ 675.00
40600625	LEVELING BINDER (MACHINE METHOD), N50	TON	$ 100.00	108	$ 10,800.00	0	$ -	0	$ -
40603080	HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50	TON	$ 90.00	0	$ -	157	$ 14,130.00	107	$ 9,630.00
40603335	HOT MIX ASPHALT SURFACE COURSE, MIX D, N50	TON	$ 105.00	216	$ 22,680.00	235	$ 24,675.00	160	$ 16,800.00
42400200	PORTLAND CEMENT CONCRETE SIDEWALK 5 INCH	SQ FT	$ 10.00	625	$ 6,250.00	250	$ 2,500.00	0	$ -
42400800	DETECTABLE WARNINGS	SQ FT	$ 40.00	50	$ 2,000.00	20	$ 800.00	0	$ -
44000100	PAVEMENT REMOVAL	SQ YD	$ 20.00	0	$ -	1,398	$ 27,960.00	951	$ 19,020.00
44000157	HOT-MIX ASPHALT SURFACE REMOVAL, 2"	SQ YD	$ 2.50	2,567	$ 6,417.50	0	$ -	0	$ -
44000166	HOT-MIX ASPHALT SURFACE REMOVAL, 4 1/4"	SQ YD	$ 4.50	0	$ -	0	$ -	0	$ -
44000600	SIDEWALK REMOVAL	SQ FT	$ 5.00	625	$ 3,125.00	250	$ 1,250.00	0	$ -
*44201723	CLASS D PATCHES, 6" (SPECIAL)	SQ YD	$ 75.00	257	$ 19,275.00	0	$ -	0	$ -
*60603800	COMBINATION CONCRETE CURB AND GUTTER REMOVAL AND REPLACEMENT	FOOT	$ 50.00	176	$ 8,800.00	998	$ 49,900.00	1,018	$ 50,900.00
67100100	MOBILIZATION	L. SUM		1	$ 5,000.00	1	$ 6,000.00	1	$ 4,000.00
*70100100	TRAFFIC CONTROL AND PROTECTION (SPECIAL)	L. SUM		1	$ 2,500.00	1	$ 3,000.00	1	$ 2,000.00
*20013798	CONSTRUCTION LAYOUT	L. SUM		1	$ 2,500.00	1	$ 3,000.00	1	$ 2,000.00
*20018400	DRAINAGE STRUCTURES TO BE ADJUSTED	EACH	$ 850.00	3	$ 2,550.00	3	$ 2,550.00	3	$ 2,550.00
*NA	PAVEMENT STRIPING	L. SUM		0	$ -	0	$ -	0	$ -
				CONSTRUCTION SUBTOTAL =	$ 93,717.50	CONSTRUCTION SUBTOTAL =	$ 169,531.00	CONSTRUCTION SUBTOTAL =	$ 129,875.00
				CONTINGENCY (10%) =	$ 9,371.75	CONTINGENCY (10%) =	$ 16,953.10	CONTINGENCY (10%) =	$ 12,987.50
				CONSTRUCTION TOTAL =	**$ 103,089.25**	**CONSTRUCTION TOTAL =**	**$ 186,484.10**	**CONSTRUCTION TOTAL =**	**$ 142,862.50**
				ENGINEERING (10%) =	$ 10,308.93	ENGINEERING (15%) =	$ 27,972.62	ENGINEERING (15%) =	$ 21,429.38
				ROADWAY TOTAL =	**$ 113,398.18**	**ROADWAY TOTAL =**	**$ 214,456.72**	**ROADWAY TOTAL =**	**$ 164,291.88**

2021 TOTAL = $ 492,146.77

ASSUMPTIONS:
1. GRIND & OVERLAY = 0.75" LEVELING BINDER, 1.5" SURFACE, 10% PATCHING AND C&G
   FULL DEPTH = 2.5" BINDER, 2" SURFACE, 10% PATCHING AND C&G
   RECONSTRUCTION = 12" AGGREGATE, 2" BINDER, 3" SURFACE, 10% UNDERCUTTING, 100% C&G
3. ALL ADA RAMPS TO BE UPGRADED TO MEET ADA COMPLIANCE.
4. MOBILIZATION IS 6%, TC&P AND LAYOUT ARE EACH 3% (OF CONSTRUCTION TOTAL).
5. NO ENGINEERING FEES ARE INCLUDED FOR GRIND & OVERLAYS IN THE 2018-2020 PROGRAMS.

EXHIBIT #5
TYPICAL PAVEMENT LIFE CYCLE CURVE

TYPICAL LIFE CYCLE CURVE

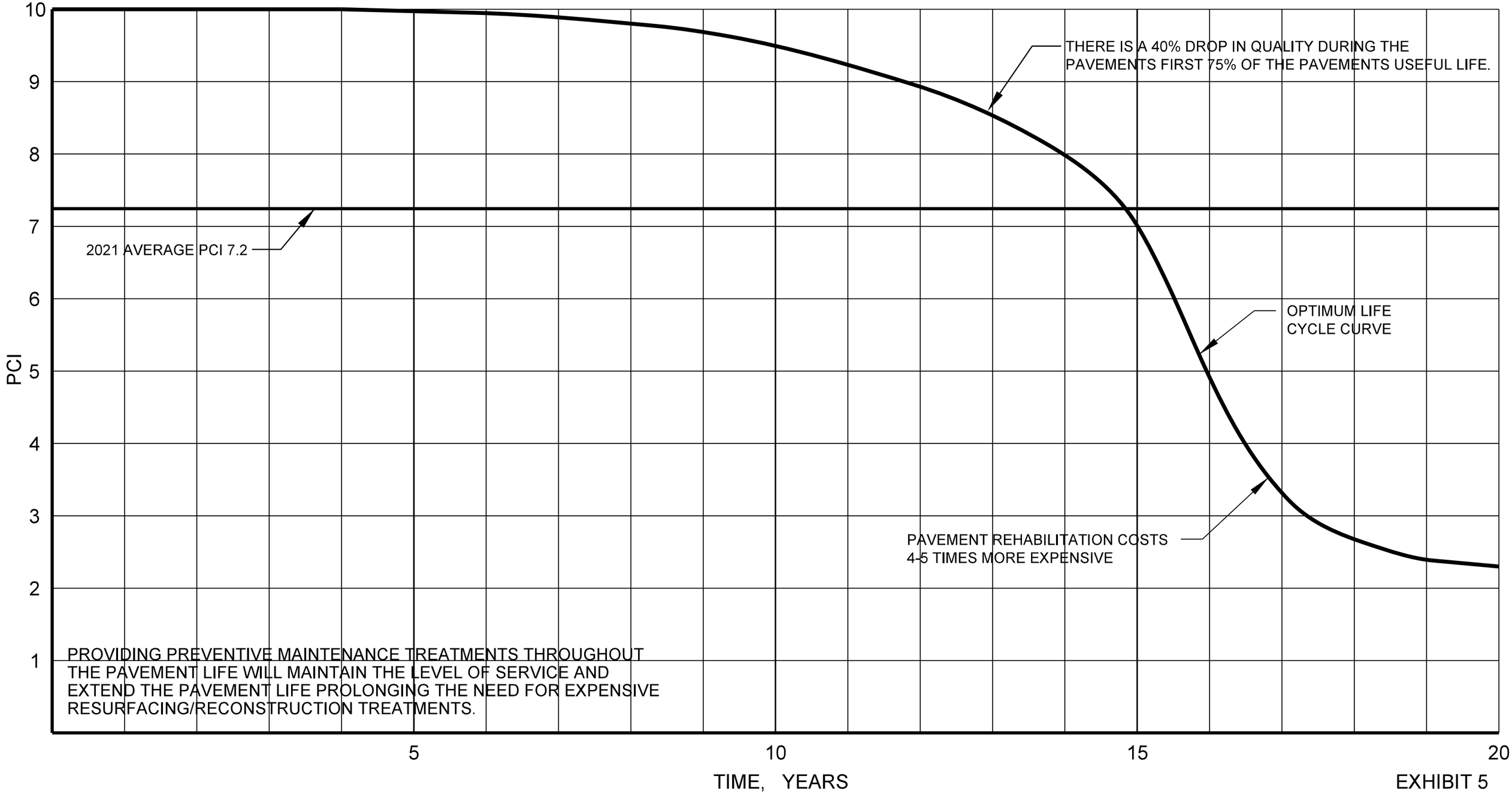

EXHIBIT 5

CITY OF HIGHWOOD

N:\HIGHWOOD\170196\A2001\Civil\Typical Life Cycle Curve.dgn

CHRISTOPHER B. BURKE ENGINEERING LTD.
9575 West Higgins Road, Suite 600
Rosemont, Illinois 60018
(847) 823-0500

EXHIBIT #6
TYPICAL VISUAL PAVEMENT DISTRESSES

PCI = 2; Village Hall Parking Lot

Exhibit 6 - Typical Visual Pavement Distresses

PCI = 5; S. Central Avenue at Oakridge Avenue

Exhibit 6 - Typical Visual Pavement Distresses

PCI = 7; Westover Road at DeRoo Loop

Exhibit 6 - Typical Visual Pavement Distresses

PCI = 10; Central Avenue near Washington Avenue

Exhibit 6 - Typical Visual Pavement Distresses

EXHIBIT #7
PCI VALUES OF ROADWAY AREA PERCENTAGES GRAPH

City of Highwood

Exhibit 7

Pavement Evaluation Report

2021 PCI Values Based on Roadway Area Percentages