Pavement Management Taskforce Report

2016

Pavement Management Taskforce

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Pavement Management Taskforce

Chapter 1 - Introduction

Summary

City of WOODSTOCK

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To: Mayor & City Council

From: Pavement Management Taskforce Members

Date: July 27, 2016

Re: Transmittal of Pavement Management Taskforce Report

Attached is the final report developed and forwarded by the Pavement Management Taskforce for your review. The Mayor & City Council authorized the creation of a separate Taskforce to review the *Pavement Management Report* prepared by Baxter & Woodman, and to analyze and offer recommendations to address the City's infrastructure needs. A copy of the abridged minutes has been attached, which highlights the Council's discussions at the November 17th meeting regarding the *Pavement Management Report*.

The Taskforce was appointed by the City Manager as directed by the City Council at their November 17, 2015 meeting. A membership list of the Pavement Management Taskforce has been included within this introductory section for your review. Overall, the members of the Taskforce represented a diverse group of professionals, with many members having direct experience in the design, management, maintenance and/or construction of local roadways.

The Taskforce initially met on a biweekly basis to devote significant time to understanding, researching and deliberating the issues. This Taskforce has now metamorphosed into a separate Public Works group that will focus on future collaborative initiatives between the member municipalities.

City staff has attempted to collect and disseminate the Taskforce discussions and suggestions within this report to ultimately address the underlying mission assigned by the Mayor and City Council. Specifically, the Taskforce was charged with reviewing opportunities and challenges with pavement management in a number of areas including:

1) New technology;
2) Additional lobbying efforts;
3) Bonding/Debt opportunities;
4) New revenues; and
5) Collaborative efforts.

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The City Administration would like to extend our sincere appreciation to the Taskforce members and all of their efforts in the research and development required to prepare this report, as well as their participation at numerous meetings. The ongoing efforts of the new Public Works group will continue to expand our region's collaborative efforts, and will result in benefits and cost reductions to all associated taxpayers.

Special thanks to Alan Wilson, City Engineer who coordinated the efforts of the Taskforce, chaired the meetings and contributed to the creation of this report. In addition, thanks to Jeff Van Landuyt, Paul Christensen, and Roscoe Stelford who also authored various sections of the report. Finally, thanks to Andrew Celentano and Diane Lukas for their numerous and extensive reviews of the report as well as their suggestions for improvements and associated "wordsmithing."

Pavement Management Taskforce

Chapter 1 - Introduction

Abridged City Council Minutes

MINUTES
WOODSTOCK CITY COUNCIL
November 17, 2015
City Council Chambers

The regular meeting of the Woodstock City Council was called to order at 7:00 PM by Mayor Brian Sager on Tuesday, November 17, 2015 in the Council Chambers at City Hall. Mayor Sager explained the consent agenda process and invited public participation.

A roll call was taken.

COUNCIL MEMBERS PRESENT: Daniel Hart, Maureen Larson, Mark Saladin, Joseph Starzynski, RB Thompson, Michael Turner, and Mayor Sager

COUNCIL MEMBERS ABSENT: None

STAFF PRESENT: City Manager Roscoe Stelford, City Attorney Ruth Schlossberg, Finance Director Paul Christensen, Public Works Director Jeff Van Landuyt, Economic Development Director Garrett Anderson, Chief Robert Lowen, Assistant Public Works Director Tom Migatz, Sgt. Tino Cipolla, Officer Andy Reitz, and Officer Sharon Freund and K-9 Blue.

OTHERS PRESENT: City Clerk Cindy Smiley

2. Pavement Management Report

Mayor Sager invited Jason Fluhr of Baxter & Woodman to approach the body to discuss the Pavement Management Report included in Council's packet.

Mr. Fluhr noted that all City streets were evaluated and the report detailed the standard used. He reviewed the study's findings with the overall condition of the City's streets rated as poor, with 70% in fair or failing condition. He stated the cost to complete all necessary improvements is estimated at $69 million dollars. Mr. Fluhr then discussed a five-year plan with the goal being to resurface/maintain streets which fall in the 50-80 pavement condition index (PCI) range rather than the current worst-to-first approach. He noted pavement deteriorates much more quickly as it ages and moves from fair to poor very quickly. He stated it is much better to address pavement issues when it is in fair condition. He acknowledged this would be a change to conventional thinking. He stated this assumes a $1 million annual budget, but that the City would need to expend $5 million per year to just maintain the current PCI, which demonstrates that the City's streets are deteriorating rapidly.

Mr. Fluhr then stated that while many of the streets are in failed condition which needs to be addressed, this should not be at the expense of the maintenance budget which keeps the other streets from becoming failed also. He suggested possibly identifying failed streets as a different line item within the City's budget.

Mayor Sager expressed appreciation to Mr. Fluhr for the comprehensive, well done report. He stated it helps the City grasp the difference between a good street and a failed street and is grateful for the approach taken with the pavement condition index.

Mayor Sager stated the City has recognized that it is behind the eight ball in this infrastructure which is the reason it has risen as an important priority within the budget. He noted the Council and the Administration have significant concerns regarding this item and stated this report will help Council to understand the factors that must be considered.

Mayor Sager then expressed shock and concern about 1) the overall rating of the streets; 2) the high costs associated with their associated repair; 3) the fact that this is expressed in current dollars, but represents future costs so is even more costly; and 4) how can the streets be maintained once we manage to rehabilitate them.

Mayor Sager noted the City of Woodstock has tried very hard to provide for maintenance within the budget constraints, but this is not really dealing with the ultimate problem. Further, he noted the City does not have $5 million to put into streets every year. He asked how the City could finance $69 million of local dollars needed for improvements to bring streets to good condition and then continue a maintenance program.

Mr. Fluhr expressed the opinion that it would not be wise to spend $69 million to fix all streets because this would be needed again in five years. Rather, he said the idea of the plan is to change the mindset from worst to first. He stated these "worst" streets do need to be taken care of, but from a dollars and cents approach, it would be better to spend the money in crack sealing, for example.

In response to a question from RB Thompson, Mr. Fluhr stated there may be an opportunity to secure federal funding on the FAU (Federal Aid – Urban) route system. In addition, streets identified as such would be eligible to apply for other funding. Also, some streets could be classified as collector streets which would qualify them as FAU eligible. Mayor Sager noted that other communities are doing exactly the same thing and competition for available funds is fierce.

In response to a question from M. Turner, Mr. Fluhr stated while there is no set ratio, probably 25% of the budget could be allocated to the streets that need to be reconstructed and the remainder to maintenance activities such as crack sealing.

Mayor Sager noted over the past few years, the City has dedicated $1 million per year to streets. He noted this is not even to dedicate 25% in dealing with worst to first and 75% to try to keep the other streets from going from fair to poor. He asked where the City is going to get more dollars aside from the federal government.

Mr. Fluhr stated he does not have the answer and every community is facing this challenge. He noted the first step was investing in this report, which objectively analyzed the streets and identified the best way to use the limited funds.

In response to a question from J. Starzynski, Mr. Fluhr stated that while it may be a good idea to look at alternative transportation ideas on streets with a lot of truck traffic, in reality this would not have much effect on other roads as the primary factors in street deterioration are weather and age.

In response to a question from Mayor Sager as to how the City might pay for this, R. Stelford stated the only way to generate more revenue is through taxes. He stated the City could look at alternate taxes and invest the revenue in streets. He stated the other way would be to reduce spending in other areas.

Mr. Stelford noted he has discussed with Public Works looking at other ways to reconstruct and maintain streets and instructed them to think outside the box. He has asked them to find more cost-effective and efficient ways to do this, encouraging them to find a new approach. He noted, however, moving from expending 1/30 of the City's budget to expending 1/6 of the budget on streets is a huge challenge. Again, he stated the City must find additional revenues or prioritize where the money is being spent.

M. Turner noted he does hear from people that the roads are bad. He stated the City has not seen growth here and that growth does fund things. He expressed his opinion that sales tax is an option that warrants consideration, providing it contains a sunset provision and is used only for roads. He also stated this is the reason he supported the Governor's agenda addressing Prevailing Wage because he wants the $1 million the City spends to go as far as possible.

R. Stelford called Council's attention to the map provided in the report illustrating how far $5 million will go toward street resurfacing, noting it is not a lot of streets.

In response to Mayor Sager's question concerning the possibility of bonding, R. Stelford stated the concerns would be that the City must be able to pay the bonds off and can only bond what we are currently spending. He also noted the rule of thumb is that the life of the bond cannot exceed the life expectancy of what is being bonded. He then stated that underwriting companies do not like dealing with maintenance projects. All of these factors could mean the City's debt rating could go down. He then discussed the bonding that was done for other roads and why these cases were different.

P. Christensen stated this would also increase the cost of the projects as the City would have to pay interest and so, long-term, could do less.

In response to comments by M. Larson concerning new technology, J. Fluhr stated there is new technology developing all the time regarding pavement mixes and thickness and how to make residential roads last longer. He discussed some of these new technologies.

Noting the budget has been increased to $1 million, M. Larson asked where Woodstock falls in expenditures for roads compared to other communities. R. Stelford stated this can be investigated, but the comparison should be made to communities that have similar weather, with many freeze and thaw cycles.

A brief discussion ensued of the Rt. 14 project and how long those roads will last, with J. Fluhr noting a completely different process is used for highways than for residential roads.

Mayor Sager stated he would like R. Stelford to form a taskforce to look at a five-year plan to address the Pavement Management Report, with the plan then being presented to Council. He suggested that the plan address the following items:

1) New technology
2) Identification of opportunities for additional lobbying efforts
3) Concerns regarding bonding opportunities
4) Future revenues and approaches such as Home Rule sales taxes that would be dedicated to roads, and the positives and negatives of these approaches
5) What types of collaborative efforts can be taken with other governmental bodies, perhaps using labor, expertise, and equipment
6) Extension of the contract with Baxter & Woodman to use their expertise

In response to a question from M. Turner concerning what percentage of a $2 million budget for roads would go to labor vs. material, J. Fluhr stated he would guess 60% would be material and 40% labor.

In response to a question from M. Turner about whether joining with another community to complete

joint projects at the time would save money or allow more roads to be completed for the same money, J. Fluhr stated that theoretically this would be the case, but that some significant challenges would be introduced to the projects. M. Turner asked that R. Stelford investigate this as well.

In response to a question from M. Larson concerning whether the City could complete this work in-house, R. Stelford stated this has been investigated and was not found to be feasible as a single municipality, but that it may work through an organization like MCOG. He stated he has already spoken with Dorr Township about this possibility, but noted this is more complicated than some of the other partnerships in which the City has entered with other governmental bodies.

In response to a question from M. Larson, J. Fluhr stated the road construction season general runs from April through November, although IDOT projects run from May 1 through November 15.

Mayor Sager opened the floor to public comment.

Lydia Baltalbos, 621 Dean Street, speaking from the audience, stated when the solution to our stalled City was growth, she had a negative reaction because the City would have the obligation to put in the infrastructure. She stated her opinion that current roads would suffer. She noted the city depends on the Square as its identity and asked for a commitment that work would be done on roads near the Square such as the street the Groundhog Day house is on. She expressed the opinion that the condition of this road makes one wonder about the City's commitment. She asked Council when they consider future growth as the answer to the problem, does that mean the current roads will move farther down the list.

It was the consensus of Council that staff would advance this to another level as indicated previously by Mayor Sager and report back to Council. Following further discussion, it was the consensus that staff would attempt to report back to Council in March, but should that not be possible due to other projects such as formulation of the CIP and Budget, it would report back in May.

It was the consensus of Council that staff may continue discussions with Baxter and Woodman during its investigation of this issue and development of the report.

Pavement Management Taskforce

Chapter 1 - Introduction

Taskforce Membership

Taskforce Membership List

Name	Title	Agency
Steve Carruthers	Civil Engineer	City of Crystal Lake
Andrew Celentano	Chairman, Transportation	City of Woodstock
Paul Christensen	Finance Director	City of Woodstock
Timothy Farrell	Village Engineer	Village of Huntley
Diane Lukas	Past President/Retiree	HLR Engineering/Citizen
Erik Morimoto	Public Works Director	Village of Cary
Fred Mullard	Public Works Director	Village of Lake in the Hills
John Schmitt	Public Works Director	City of McHenry
Scott Schweda	Streets Superintendent	City of McHenry
Joe Starzynski	Council Member	City of Woodstock
Roscoe Stelford	City Manager	City of Woodstock
Jeff Van Landuyt	Public Works Director	City of Woodstock
Abigail Wilgreen	City Engineer	City of Crystal Lake
Alan Wilson	City Engineer	City of Woodstock
Michele Zimmerman	Assistant Public Works Director	Village of Algonquin

Pavement Management Taskforce

Chapter 2 - Executive Summary

Executive Summary

City of WOODSTOCK

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Executive Summary

To: Mayor & City Council

From: Pavement Management Taskforce Members

Date: July 27, 2016

Re: Executive Summary of Findings

The Mayor & City Council authorized the creation of a separate Taskforce to review the *Pavement Management Report* prepared by Baxter & Woodman, and to analyze and offer recommendations to address the City's infrastructure needs. The Taskforce was appointed by the City Manager as directed by the City Council.

City staff has attempted to collect and disseminate the Taskforce discussions and suggestions within this report to ultimately address the underlying mission assigned by the Mayor and City Council. Specifically, the Taskforce was charged with reviewing opportunities and challenges with pavement management in a number of areas including:

1) New technology;
2) Additional lobbying efforts;
3) Bonding/Debt opportunities;
4) New revenues; and
5) Collaborative efforts.

A brief review regarding each area is provided below. Additional information can be obtained by reviewing the appropriate chapters of this report.

Maintenance & Technology (Chapter 3)

This area was expanded by the Taskforce to address maintenance techniques as well as potential new technologies. After reviewing a number of potential solutions, two technologies were

deemed to be proven and effective in extending the life of pavement. CRF Restorative Seal is applied to older roads that have experienced years of natural wear and tear. The product can be applied multiple times and is estimated to extend the service life of treated pavement by 5 to 10 years. Roller-Compacted Concrete involves the installation of a specialized concreate mix that achieves higher strength more quickly than conventional concrete mixers. This process has been approved by IDOT and can be funded from MFT tax collections.

Lobbying and Education (Chapter 4)

Over the last three years, the City has taken a more proactive approach towards utilizing lobbying services. The most recent efforts have been related to infrastructure improvements, specifically, targeting the expansion of Routes 14 and 47 to address the demands of a growing community. While discussions have been ongoing concerning pavement maintenance, to date they have been limited to reviewing other funding mechanisms to either increase or supplement State and local funding for the maintenance of roadways.

The Taskforce has identified a number of areas that the City Council may want to consider for potential lobbying efforts. Several of these areas are recommended within the CMAP's GO TO 2040 agenda and are highlighted in the attached Summary of Recommendations.

As a result of this process, the City will have a number of decisions to make regarding the appropriate strategies to employ for the future maintenance and improvement of our transportation infrastructure. Ultimately, the research and recommendations identified within this report and moved forward by the City Council will need to be disseminated and communicated with the City's residents. In addition, information concerning the process and evaluation techniques will require some form of distribution to our residents. An article in the next edition of *City Scenes* explaining the actions/decisions made by the City Council and the future impact on the maintenance of City streets may also be warranted.

Furthermore, the Taskforce members ultimately preferred a **balanced approach** for determining future prioritization of roadway improvements. This approach would utilize the existing data of PCI ratings and maintenance costs combined with other factors. The most relevant in the Taskforce's deliberations would include the development of estimated traffic utilization, with higher traffic utilization receiving priority. Additionally, areas being served would also factor into determining priority, with some form of urgency placed on roads that support jobs/businesses and "gateway" roadways. However, in order to move forward, the City would need to develop methods to estimate or determine the additional information that would be factored into the prioritization.

Bonding of Road Improvements (Chapter 5)

While the City has utilized bonding and debt management to enhance our funding for infrastructure improvements, the previous debt was issued to support new revenue opportunities and funded via development. Issuing additional debt without first establishing an associated revenue source is not recommended. In addition, based on the limited life of roadway pavement maintenance, debt financing may not be the best option for the community to address these needs. However, debt funding can be useful to "pave the way" for new retail or industrial opportunities that will generate significant local taxes to offset the future debt service costs.

Revenue Enhancements (Chapter 6)

In order to supplement road resurfacing efforts, the Council may want to review potential revenue sources that may be available to provide additional funding. If initiated, any future revenues should be restricted for these purposes and may involve a sunset clause to allow for a mandatory future evaluation. Furthermore, with the recent Revenue Policy adopted by the City Council, additional efforts will be required to seek residents' input into the imposition of any new taxes and/or fees.

The City does have the ability to currently levy additional utility taxes; however, these taxes are viewed to be unfriendly to industrial and manufacturing businesses and were not recommended by the Taskforce. Other revenues considered included resident's ability to join a Special Service Area that would generate specific revenues for the defined boundaries that could be utilized by a given area if it was interested in moving to "the front of the line." Creating a Business District could be beneficial in providing funding for various retail areas within the community. Overweight truck fines and fees could also be increased and dedicated to fund road infrastructure maintenance. Finally, many of our neighboring communities have imposed a Home Rule Sales Tax and dedicated a portion of these revenues to supplement their ongoing infrastructure maintenance needs.

Collaborative Efforts (Chapter 7)

Unfortunately, in response to a downturn in the economy, the City reduced, and in some years even eliminated, funding for preventative maintenance to enhance our resurfacing efforts. Additional funding has been identified as road repairs and ongoing maintenance have been elevated to a higher priority.

Furthermore, additional efforts are already ongoing to expand efforts to collaborate and jointly bid maintenance-related functions to benefit from economies of scale. The recent undertakings have benefited and in some cases directly resulted in the recent joint-bidding being undertaken by member representatives.

Shared service agreements allow communities to offset costs when assets are underutilized. They can include agreements to share equipment, staff, programs, etc. Shared services can provide the following benefits:

- Reduced costs of service delivery by achieving economies of scale
- Administer existing services at a higher level by sharing costs and labor of service delivery
- Allow for the provision of more services or a higher service level than that which an individual community can achieve individually
- Increase regional cooperation and build public trust and relationships with other municipalities

Other Suggestions (Chapter 8)

A number of other areas focusing on managing the utilization of the City's transportation infrastructure were discussed by the Taskforce. Weight restrictions of certain "key" streets was determined to offer some potential benefits as removing truck traffic and the associated wear and

tear could extend the useful life of the roads. In addition, the Taskforce did review the ability to impose a franchise agreement for refuse collection related to commercial businesses. Benefits could be derived from limiting the amount of truck traffic required to support multiple vendors. However, the current statutory requirements limit the City's ability to be able to move forward with this process.

Finally, the Taskforce considered several beneficial modifications to residential garbage collection, including reversing the routes of the City's contractor on a regular basis and possibly requiring garbage collection on a single side of the street, versus operating trucks each week on both sides of the street. Additional review would be required to determine if the related community education and associated acceptance by residents would outweigh the benefits from less utilization of the City's streets. A new subdivision may best serve as a future pilot program to determine the success of these proposed program modifications.

Recommendations/Conclusions

Attached for your review is a Summary of Recommendations presented by the Pavement Management Taskforce. Specific supporting data and discussions for the recommendations can be found by reviewing each of the respective chapters.

In addition, a comparison of current funding being provided by municipalities has also been attached for your review. While presented as a simple comparison, the underlying information may have discrepancies that account for the significant variations between communities. For example, the Villages of Algonquin and Mundelein are reporting the largest dollar amounts spent; however, this may include funding for the installation of underlying utilities, total reconstruction, and/or bridge improvements, which would significantly increase the price spent per mile of resurfacing.

Furthermore, the majority of communities were unable to provide an average Pavement Condition Index (PCI); however, the vast majority of communities which were able to provide this information also indicated the utilization of a self-assessment process completed by inhouse staff versus Woodstock's independent analysis completed by professional engineers.

Pavement Management Taskforce

Chapter 2 - Executive Summary

Taskforce Recommendations

Pavement Management Taskforce

Summary of Recommendations

Provided below are the recommendations outlined within the report. Specific information, supporting data and the underlying Taskforce discussions are outlined within each of the respective sections.

Chapter 3 – Maintenance and Technology:

CRF- Restorative Seal – This technology utilizes a petroleum oil and water emulsion sand seal product that is heated slightly and sprayed on the surface of the road. The material is brushed over the pavement into the cracks and voids. Once the material has penetrated thru the surface, a heavier application of sand is applied and swept into the product. Some of the sand becomes part of the pavement and adds additional binder strength. Excess sand is swept up a few days after the initial application. The product seals out water and resists oxidation which causes the asphalt to become brittle.

Roller-Compacted Concrete (RCC) – This technology involves the placement of a very dry concrete mix (approximately 6" thick) that is delivered by dump trucks, placed with an asphalt paver, and compacted with a vibratory roller. It achieves high strength more quickly than conventional concrete mixtures. RCC is often topped with a thin (2") layer of asphalt. Because IDOT has approved this material, MFT funds can be used to pay for its installation.

Chapter 4 – Lobbying and Education:

The Taskforce has identified a number of areas that the City Council may want to consider for potential lobbying efforts. Several of these areas are recommended within the CMAP's GO TO 2040 agenda.

- Revise the current allocation formula to address the inequities from the existing 45% share apportioned to District 1 and Northeastern IL;
- Increase the Motor Fuel Tax by $0.08 per gallon and index it to inflation;
- Modify the Prevailing Wage Act, at a minimum, to exempt certain activities and/or establish a dollar threshold for projects;
- Oppose the inclusion of Responsible Bidder provisions within Prevailing Wage;
- Support other forms of revenue or changes to the existing revenue mix to provide for a more consistent stream of dedicated resources to meet future transportation needs; and
- Revise the current process required to regulate commercial garbage pickup and promote shared garbage service to limit the number of garbage trucks utilizing City streets.

In regards to the appropriate methodology for determining priority of streets scheduled for improvement, even absent necessary data, the Taskforce members ultimately preferred a **balanced approach**. This approach would utilize the existing data of PCI ratings and

maintenance costs combined with other factors. The most relevant in the Taskforce's deliberations would include the development of estimated traffic utilization, with higher traffic utilization receiving priority and areas being served, with higher demand roads for jobs/businesses and "gateway" roadways receiving some form of priority consideration. However, in order to move forward, the City would need to develop methods to estimate or determine the additional information that would be factored into the prioritization.

Chapter 5 – Bonding of Road Improvements:

For reasons described above, it is recommended the City only issue debt for road projects if a new revenue source can be identified and dedicated to funding its payments. This could, however, be accomplished if cash currently used to pay existing debt is no longer needed due to debt maturing. This cash may then be reallocated and pledged to pay for road improvement bonds.

Chapter 6 – Revenue Enhancements:

It is clear that the City must secure some type of additional revenue to meet the documented road paving needs. While growing the City's tax base through economic development will help in securing this additional revenue, it is unlikely this amount will be sufficient to accomplish the level of paving outlined in the recent study. Therefore, based on weighing the pros and cons for each revenue source listed above, the Pavement Task Force recommends that the City Council strongly consider the following revenue sources for essential paving services:

- Increase Individual Overweight Truck Fines
- Dedicated Home Rule/Non-Home Rule Sales Tax
- Raise Annual Overweight Truck Fees Charged to Businesses

Chapter 7 – Collaborative Efforts:

- When the City sets a plan for resurfacing it should choose streets that are located in the same geographical area as much as possible in order to prevent added contract costs resulting from frequent remobilization of employees and equipment.
- It does not appear as though contractors have met the requirements for road construction as specified by our City Code. In the future it will be important to have a representative from the City on site for the duration of the paving portion of the project to ensure final specifications are in compliance.
- When time allows, the Public Works Department should focus on trimming those trees located in the public rights-of-ways to allow the road and its base material to dry out.
- The City should continue to meet with representatives from other municipalities, townships, and county agencies to discuss the possibilities of joint bidding, new techniques and technology, and the sharing of equipment, knowledge, and resources.
- The City should consistently complete follow-up visits for all work within the public rights-of-way in order to protect the City's infrastructure being affected by the work.

Chapter 8 – Other Suggestions:

- Institute weight restrictions on the following City streets:
  - Irving Avenue between RT 120 & RT 47 – this would be a good initial location to test out the impact from a weight restriction. This would significantly reduce the number of trucks traveling on this road and the resulting damage they are causing; and
  - Lake Avenue from South Street to RT 47 would be another good candidate for weight restriction designation.
- Direct Staff to investigate any other applicable roadways to determine those areas where truck traffic and resulting damage could be decreased by adding weight restrictions.

Pavement Management Taskforce

Chapter 2 - Executive Summary

Community Comparison

COMMUNITY COMPARISON

MUNICIPALITY	CENTERLINE MILES	APPROX. BUDGET ALLOCATED TO STREET RESURFACING	$ SPENT/ PER CENTERLINE MILE / YEAR	POPULATION	$ SPENT PER CAPITA / PER YEAR	AVERAGE PCI	CENTERLINE MILES RESURFACED	$ SPENT/ MILE RESURFACED
ALGONQUIN	146	$ 3,500,000	$23,972	30,500	$115	N/A	3.0	$ 1,166,667*
BENSENVILLE	56	1,000,000	17,857	18,535	54	73	N/A	N/A
BUFFALO GROVE	117	2,600,000	22,222	41,778	62	N/A	N/A	N/A
CARPENTERSVILLE	95	2,000,000	21,053	38,241	52	N/A	N/A	N/A
CARY	78	1,046,000	13,410	18,271	57	79	N/A	N/A
CRYSTAL LAKE	160	2,000,000	12,500	40,388	50	N/A	6.01	332,779
GILBERTS	23	500,000	21,739	7,493	67	68	N/A	N/A
HUNTLEY	128	1,050,000	8,203	26,000	41	N/A	3.35	313,433
LAKE IN THE HILLS	91	765,826	8,416	28,965	25	N/A	3.1	247,041
MCHENRY	125	500,000	4,000	27,984	18	N/A	1.0	500,000
MUNDELEIN	83	3,000,000	36,145	31,395	96	N/A	N/A	N/A
ROUND LAKE	52	950,000	18,269	18,481	51	49	N/A	N/A
SOUTH BARRINGTON	32	720,000	22,500	4,713	153	66	N/A	N/A
SOUTH ELGIN	72	1,700,000	23,611	22,201	77	N/A	N/A	N/A
WOOD DALE	47	1,950,000	41,489	13,969	140	77	N/A	N/A
WOODSTOCK	117	1,092,416	9,337	24,770	44	47	3.8	287,478
AVERAGES	88.9	$ 1,523,390.13	$ 19,045.19	24,605	$ 68.88	65.4	3.38	$ 474,566

*Algonquin cost is higher because of a complete reconstruction of a road.

Pavment Management Taskforce

Chapter 3 - Maintenance & Technology

Maintenance & Technology

With today's ever increasing budget constraints, state and local agencies are required to perform more work with less money. Because of this, the focus of each highway/street department is more on preserving and maintaining existing pavement surfaces rather than rehabilitation and reconstruction. Pavement preservation and maintenance can generally be grouped into three (3) separate categories:

Preventative Maintenance: This work is intended to extend the functional life of a pavement by performing various surface treatments which slow the natural degradation of the asphalt and reduce the need for routine maintenance.

Corrective Maintenance: This work is performed after a deficiency occurs in the pavement surface such as pot holing and extensive cracking.

Emergency Maintenance: This work is performed during an emergency situation such as a severe pothole or a blowout. This work includes temporary treatments designed to hold the surface together until a more permanent repair can be made.

All three (3) types of maintenance are utilized at one time or another in a comprehensive maintenance program, but emphasizing preventative maintenance can extend pavement longevity and reduce the need for corrective maintenance in the future. The main difference between the three types of maintenance is the condition of the pavement when the treatment is applied. Preventative maintenance is the most cost-effective and offers the best opportunity to prolong pavement service life.

The goal of a successful pavement maintenance program is to rehabilitate streets on a schedule before their condition rapidly declines and becomes far more expensive. Traditionally, a "worst-first" approach has been applied to how the City addresses pavement maintenance. Corrective maintenance results in more "severe" rehabilitation projects that are more expensive, cause significant traffic delays and create unsafe road conditions during the repair process. The City should adopt the approach of prolonging the "investments" that have already made in the road system and be willing to forgo criticism from the public who demand that their streets are the worst and therefore must be rehabilitated first. Allocating most, or all of the budgeted dollars to repair the streets that are judged to be in the worst condition is not the most effective use of the maintenance budget. The goal should be to provide yearly, scheduled maintenance to as many streets as possible, in order to prevent rapid deterioration and premature failure.

Traditionally, corrective maintenance has included milling of the failed surface followed by placement of a new asphalt overlay. The result is a band-aid approach and does not provide a long term solution to the problem. It does not address the cause of the surface failure, which is typically a substandard base thickness or a substandard sub-base material. These problems can only be addressed through a full reconstruction of the road including removal of the base material, correcting any underlying drainage issues and then increasing the thickness of the new base and asphalt surface.

Most pavement failures are typically caused by water infiltration into the base and sub-base material. If you can successfully keep the water out of the base, the base will last longer. Crack sealing has been used for decades to prevent water from entering the base and subbase. Keeping water out of the base prevents premature cracking of the pavement, helps maintain the pavement structural capacity and limits future pavement degradation due to the effects of freeze/thaw cycles. Sealing the cracks with a flexible rubberized asphalt that bonds to the crack walls and moves with the pavement will prevent water intrusion.

The City was without a crack sealing program for several years; however, funding was resumed two years ago. All of the communities participating in the Taskforce meetings have an annual crack sealing program and agree that crack sealing is an effective, economical maintenance procedure that is generally a lower cost when compared to other maintenance techniques. The pavement management report recommended that the City allocate approximately $165,000 annually toward preventive maintenance including crack sealing. Staff believes the crack sealing program should continue to be funded on an annual basis.

NEWER TECHNOLOGY

One of the goals of the Taskforce was to investigate and evaluate what is deemed to be "newer technology" that is currently being used in the paving industry to extend the life of existing pavements. This technology evolves from the development of new materials and processes used in the roadbuilding industry to effect a longer pavement life. This technology is currently being tested in communities with a similar demographic make-up, similar growth patterns and geological and climatic characteristics.

The Taskforce discussed a variety of methods to rehabilitate, repair, reconstruct and maintain our existing pavements. Most of the technology that was discussed could not be considered on Woodstock's streets because our roads were not built to standards that allow for much less than total reconstruction once they have failed. The majority of our roads were built many decades ago when roadbuilding standards were less stringent. The effects of car and truck traffic on road design and construction were not known or studied. Trucks and commercial vehicles were smaller, lighter and the roads were less travelled Many of the newer roadbuilding standards require 2-3 times the thicknesses of base and asphalt surface that were required when our roads were constructed. In 2009, the City increased the road building standards for new minor and collector roads. As a result, roads built since 2009 should see less pavement failures than our older roads. The following are "newer technologies" that the City may consider using on new roads, roads that have been rebuilt recently, or roads that do not yet exhibit extensive pavement cracking.

CRF- Restorative Seal – This technology utilizes a petroleum oil and water emulsion sand seal product that is heated slightly and sprayed on the surface of the road. The material is brushed over the pavement into the cracks and voids. Once the material has penetrated thru the surface, a heavier application of sand is applied and swept into the product. Some of the sand becomes part

of the pavement and adds additional binder strength. Excess sand is swept up a few days after the initial application. The product seals out water and resists oxidation which causes the asphalt to become brittle.

This product is used to "restore" older roads that have experienced years of natural wear and tear, and are showing some surface cracking and brittleness. The product is not affected by freeze/thaw cycles and will not delaminate or peel from the surface since the material penetrates the cracks and voids and improves the aggregate to asphalt bond. Typically, the lane closure time is generally around 60 minutes. The Village of Streamwood has used this product since 2008 and the Village of Algonquin has recently started utilizing this product on various roadway "restoration" projects and both are very satisfied with its results. The product can be applied multiple times over several years and is estimated to provide 5-10 years of additional service life to an asphalt pavement.

Roller-Compacted Concrete (RCC) – This technology involves the placement of a very dry concrete mix (approximately 6" thick) that is delivered by dump trucks, placed with an asphalt paver, and compacted with a vibratory roller. It achieves high strength more quickly than conventional concrete mixtures. RCC is often topped with a thin (2") layer of asphalt. Because IDOT has approved this material, MFT funds can be used to pay for its installation.

The biggest challenge with utilizing this technology is finding a local concrete producer who can supply this specific type of concrete. For over 20 years, the Village of Streamwood has had an aggressive road rehabilitation program that has used this technology. In addition, they have increased the full depth asphalt street standards to supplement use of newer technologies.

Roller-compacted concrete can be used in newer residential developments because it provides a stronger working surface during site work and construction. The final asphalt surface does not need to be installed until development nears completion. It can also be used in reconstruction of older roads where savings can be realized when constructing a thinner stone base under the roller compacted concrete and asphalt surface.

Pavement Management Taskforce

Chapter 4 - Lobbying and Education

Lobbying and Education

Over the last three years, the City has taken a more proactive approach towards utilizing legislative advocacy services to address a number of community needs. The most recent efforts have been to target the expansion of Routes 14 and 47 to address the demands of a growing community and provide needed relief to traffic congestion along with promoting economic development. While discussions have been ongoing concerning pavement maintenance, to date they have been limited to reviewing other funding mechanisms to either increase or supplement State and local funding for the maintenance of roadways.

Potential Partners:

On a positive note, the City's lobbying efforts could benefit from the foundation of a number of natural partnerships, in some cases, in unconventional areas that would prove to be beneficial to all involved. For instance, increased revenues allocated to the maintenance of roadway infrastructure would not only benefit our local residents, but would also be beneficial to aggregate suppliers, labor unions, private-sector paving companies, and local governments. One interesting observation made clear by this process is that Woodstock does not stand alone in regards to the need for additional pavement maintenance; in reality this is a regional need, regardless of the age of the community, population size, and the availability of local resources.

County/State/Federal Funding:

Ultimately, successful lobbying efforts are inherently tied to the ability to influence decision makers to take specific courses of action, in many cases, involving the utilization of limited resources. In order to properly maximize our lobbying efforts it is important to identify the appropriate decision makers and review the associated revenue allocation processes. In addition, strategic lobbying may also be more cost efficient as the current funding methodology is being negatively impacted by underlying changes occurring within the marketplace, causing historical revenue sources to fall woefully below levels required to properly maintain roadway infrastructure. The aforementioned reduction in revenues is further exacerbated by the loss in purchasing power as the costs to maintain roads significantly outpace inflation.

The Chicago Metropolitan Agency for Planning (CMAP) has identified a number of initiatives for changes in policy at the State level within their GO TO 2040 campaign. They are currently in the process of developing the ON TO 2050 strategy. The GO TO 2040 documentation has specific information concerning the allocation of Federal funding to the State and local partners, which is excerpted below for your review.

> "The most recent federal transportation act (SAFETEA-LU, Safe Accountable Flexible Efficient Transportation Equity Act: A Legacy for Users), like its predecessors, allocates federal dollars via a multitude of different programs. Most highway funding is allocated to state Departments of Transportation based on formula, which differs by program, but typically includes criteria like total lane miles, vehicle miles traveled, and fuel use. The Illinois Department of Transportation (IDOT) is the primary recipient of the funds and generally holds the most responsibility for programming, financing, and implementation.

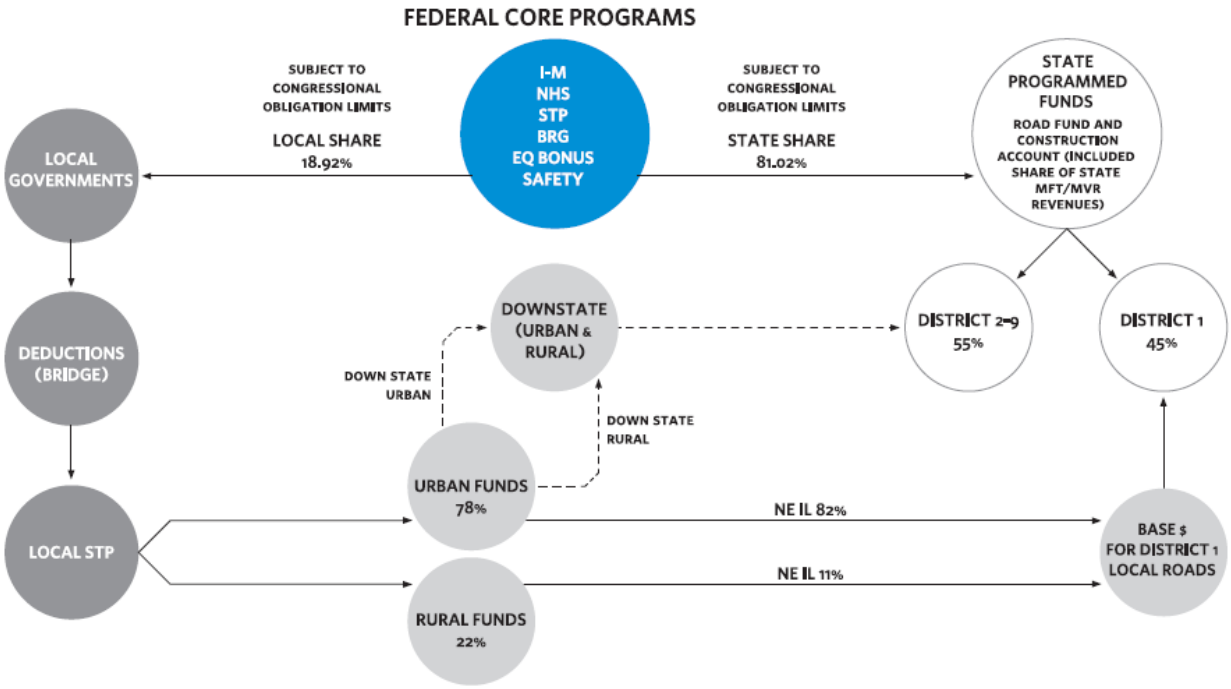
Illinois, like other states, is given wide latitude in how the different funds are used. While this flexibility would allow for allocating this funding based on cost/benefit or other metrics of performance or impact, the federal government has few restrictions for states in terms of how projects are selected or what outcomes are being achieved. The State sends roughly 81 percent of these Federal Highway Administration (FHWA)-sourced program funds to the IDOT Road Fund and State Construction Account, while the remaining federal funds are allocated to local governments, primarily via the Local STP program.

The Road Fund is used to pay for IDOT's operating expenses, debt service on highway bonds, other agency operations, and highway construction. The Construction Account is restricted by law to paying for highway construction expenses on the state system. In addition to federal funds, state revenues are also utilized for state and local transportation needs. The two primary state funding sources are the MFT and motor vehicle registration fees. After a variety of deductions, 45.6% of MFT revenues are allocated to the IDOT Road Fund and State Construction Account, and the remainder is disbursed to local governments.

Motor vehicle registration fees vary according to vehicle type and weight. Unlike the MFT, these revenues are not shared with local governments by formula. They accrue directly to the Road Fund and Construction Account. In 2010, motor vehicle registration fees generated $1.9 billion statewide. For the Local STP program, which differs from the state STP funds deposited into the Road Fund and Construction Account for state highway projects, project selection is accomplished through the Council of Mayors process, which is administered through CMAP, as the region's federally designated metropolitan planning organization (MPO).

Each of the 11 subregional councils and the City of Chicago receive individual funding and each council has a self-determined methodology for selecting the most beneficial projects. CMAP also manages and monitors the federal Congestion Mitigation and Air Quality Improvement (CMAQ) program through the CMAQ Project Selection Committee, which recommends CMAQ projects in northeastern Illinois.

Distribution of both the local and state program funds to projects is determined through a "55-45" split, where northeastern Illinois ("District 1") receives 45 percent of the federal and state allocation, while downstate Illinois ("Districts 2-9") receives 55 percent. In addition, CMAQ funds are included in District 1's 45 percent. Thus, the current system works in some respects as a "zero-sum game"—for example, if state or local road projects are programmed through the CMAQ process, dollar-equivalent projects are removed from other programs to maintain balance in the state funding split. It is important to note that local allocation of MFT funds as well as FTA-sourced funds for public transit are not included in the 55-45 split. The following chart illustrates transportation funding streams in Illinois."



Lobbying Considerations:

While the State of Illinois has a great deal of flexibility in how federal and state funds are used, the State continues to employ a non-statutory funding split which allocates 55 percent of road funding to downstate districts and 45 percent to northeastern Illinois. CMAP has recommended ending the 55/45 funding split and to make future investment decisions based on metrics of need. Transparent performance-driven criteria should be used to drive investments rather than an arbitrary split.

Based on existing data, a number of factors would support additional funding being allocated to the northeastern Illinois region. Specifically, CMAP identifies the following data points that would be appropriate to consider for a formula-based allocation on behalf of District 1. The data presented below is for 2009, unless otherwise indicated. This information has been obtained from a number of agencies (i.e., IDOT, IL Department of Revenue, Illinois Secretary of State and the US Census):

- 65.7% of the population (2010);
- 60.6% of motor vehicle fees (2010);
- 60.1% of gasoline sales;
- 66.1% of taxable sales;
- 70.9% of taxable individual income (2008);
- 55.9% of vehicle miles traveled; and
- 45.0% District 1 share of State-programmed funds.

In addition, other inequities are also inherent within the current funding system. As indicated within the CMAP report, "Because Cook County received the entire $96.9 million of the statewide allocation for counties with more than 1 million residents, Cook County received more

than a quarter of the revenues disbursed to northeastern Illinois. For the 564-mile Cook County road system, this equates to $171,678 per road mile. The six collar counties received a total of $41.3 million or 11.9 percent of the $347.0 million disbursed to northeastern Illinois. The collar counties have jurisdiction over 1,400 miles of road. This equates to between $17,595 and $56,766 per road mile for each of the six collar counties."

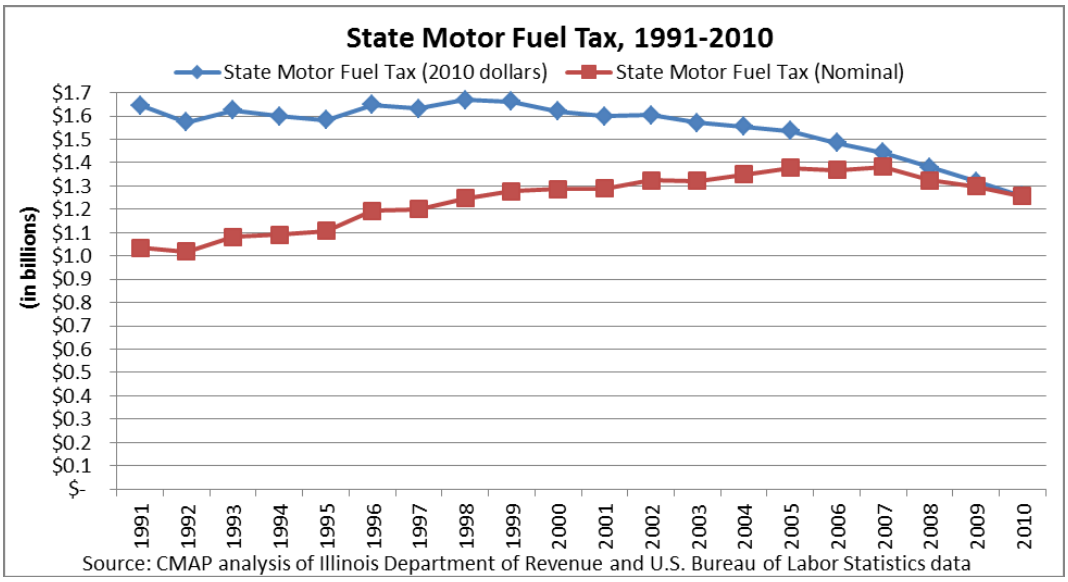
Motor Fuel Tax – Gas Tax:

The Motor Fuel Tax (MFT) is Illinois' primary state source of transportation funding, along with motor vehicle registration fees. Illinois established a 3¢ per gallon Motor Fuel Tax in 1929. Over time, the tax rate has been increased nine times, with the last increase imposed on January 1st, 1990. The MFT revenues are primarily used for road construction and maintenance costs at both the State and local levels. The current MFT rates are 19¢ per gallon for gasoline and gasohol, and 21.5¢ per gallon for diesel and combustible gases.

Furthermore, Illinois imposes a .3¢ per gallon tax for the Illinois Leaking Underground Storage Tank (LUST) Fund and .8¢ per gallon in an Illinois Environmental Impact Fee. Illinois is only one of ten states that also charges sales tax on gasoline. Unfortunately, these sales tax dollars are not separately accounted for and dedicated toward infrastructure maintenance expenditures. Similar to the federal excise tax on gasoline, Illinois' MFT is applied on a per-gallon rather than a per-dollar basis. As a result, if the total consumption by the consumers remains constant, MFT collections will not vary and are not subject to market fluctuations in the prices for fuel.

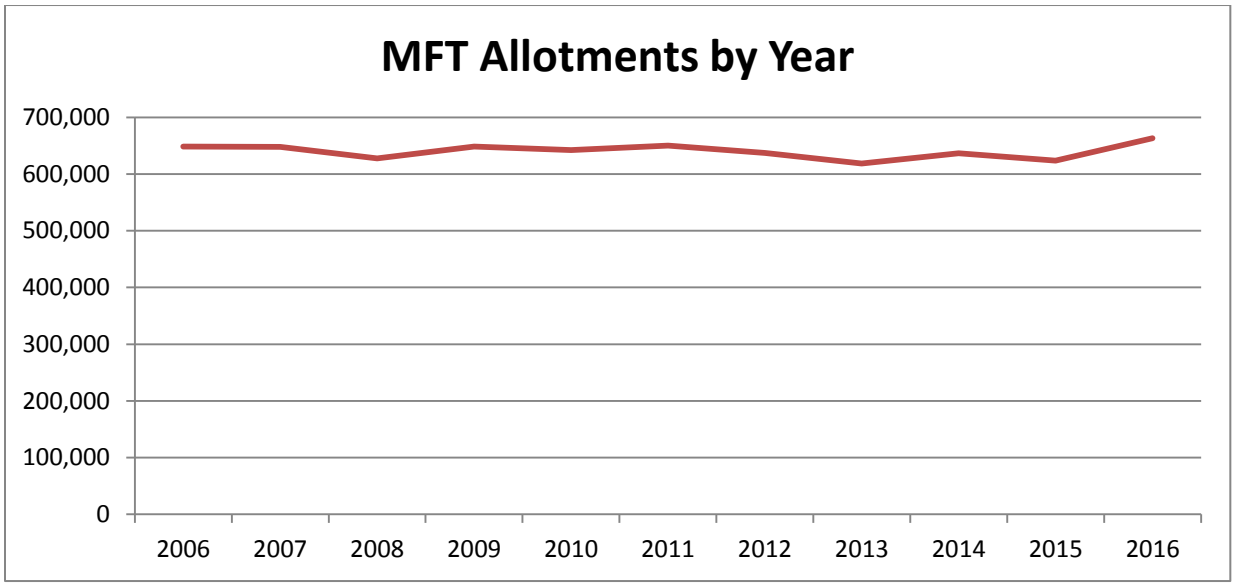
CMAP includes a number of useful statistics in its GO TO 2040 report. This additional information has been excerpted below for your review:

> "The State collected $1.3 billion in gross collections in 2010. When adjusted for inflation, State collections of the motor fuel tax have varied considerably over time. At a level of 7.5 cents per gallon in 1972, the State collected $376 million in motor fuel tax, which equates to $2 billion in 2010 dollars. By 1983, MFT collections had fallen to $371.4 million in nominal dollars ($803.6 million in 2010 dollars). The State raised the MFT per gallon rate five times in the 1980s, beginning with a 3.5-cent increase in 1983. By 1990, MFT collections grew to $906 million in nominal dollars (nearly $1.6 billion in 2010 dollars). On January 1, 1990, the MFT was raised to its current rate of 19 cents per gallon.
>
> In real terms, gross state MFT revenues have fallen dramatically since 1991. The fall from 1991 ($1.7 billion) to 2010 ($1.3 billion) equates to a 23.6 percent drop in revenues. In terms of average annual change, MFT revenue has fallen roughly 1.4% per year between 1991 and 2010. The following chart illustrates gross MFT revenues in nominal dollars and in 2010 dollars."



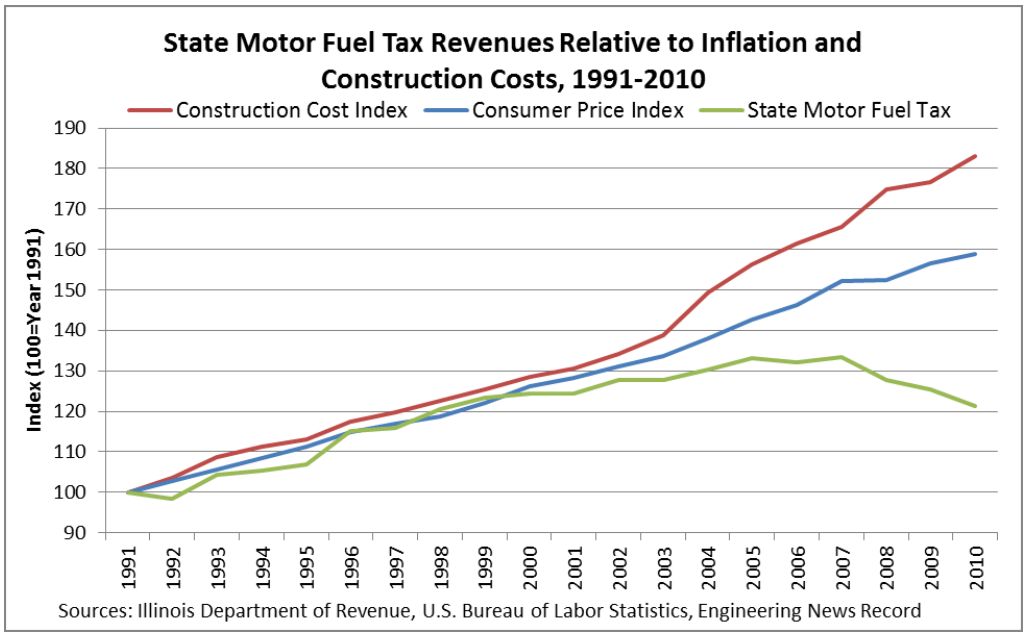
MFT Tax Revenue Received by the City of Woodstock:

As illustrated by the graph presented below, MFT revenue for the last ten years have fluctuated slightly from year-to-year, generally following the price of gasoline, but over the period has basically remained flat. This creates an increased funding problem for the City since it is unlikely that the City can rely upon an increase in MFT revenue to counter inflation, unless the State of Illinois raises the tax charged per gallon of gasoline, and elects to share a portion of these new revenues with local governments.



MFT Purchasing Power:

As previously demonstrated, since MFT was last increased over 20 years ago, revenues have greatly declined in their purchasing power. In addition, the lack of any form of inflation indexing greatly impacts the ability of the State and local governments to maintain and enhance the transportation system. Furthermore, the costs to maintain and resurface roads are subject to market prices for asphalt and labor. Starting in 2003, construction costs began to outpace MFT revenues. The following chart prepared by CMAP illustrates construction costs and the consumer price index compared with MFT revenue collections since 1991.



MFT State Comparisons:

The American Petroleum Institute (API) reported that in April 2016, the national average of state and local motor fuel taxes, weighted by the amount consumed at each rate, was 29.64¢ per gallon on gasoline and 29.12¢ on diesel fuel. The table presented below lists statewide motor fuel taxes and the unweighted averages of state rates (in which each state's rate counts equally). The numbers include basic state rates, any statewide fees on motor fuels, and any sales taxes.

Statewide Motor Fuel Taxes Per Gallon (ranked by gasoline tax)

State	Gasoline	Diesel fuel	State	Gasoline	Diesel fuel
1 Pennsylvania	50.30¢	64.00¢	9 Rhode Island	34.00¢	34.00¢
2 Washington	44.50	44.50	10 Nevada	33.85	28.56
3 New York *	42.32	41.12	11 West Virginia *	33.20	33.20
4 Hawaii *	41.99	39.56	12 Wisconsin	32.90	32.90
5 California *	40.43	33.08	13 Maryland	32.60	33.35
6 Connecticut	37.86	50.30	14 Idaho	32.00	32.00
7 Florida *	36.58	33.77	15 Iowa	32.00	33.50
8 North Carolina	35.25	35.25	16 Michigan *	31.51	27.36

State	Gasoline	Diesel fuel	State	Gasoline	Diesel fuel
17 Oregon	31.10¢	30.35¢	35 North Dakota	23.00¢	23.00¢
18 Illinois *	**31.08**	**32.58**	36 Virginia *	22.33	26.03
19 Georgia *	31.02	34.66	37 Colorado	22.00	20.50
20 Indiana *	30.73	38.35	38 Arkansas	21.80	22.80
21 Vermont	30.46	32.00	39 Tennessee	21.40	18.40
22 Maine	30.01	31.21	40 Alabama	20.87	21.85
23 South Dakota	30.00	30.00	41 Louisiana	20.01	20.01
24 Utah	29.41	29.41	42 Texas	20.00	20.00
25 Minnesota	28.60	28.60	43 Arizona	19.00	27.00
26 Ohio	28.00	28.00	44 New Mexico	18.88	22.88
27 Montana	27.75	28.50	45 Mississippi	18.79	18.40
28 Nebraska	27.70	27.10	46 Missouri	17.30	17.30
29 Massachusetts	26.54	26.54	47 Oklahoma	17.00	14.00
30 Kentucky	26.00	23.00	48 South Carolina	16.75	16.75
31 Kansas	24.03	26.03	49 New Jersey	14.50	17.50
32 Wyoming	24.00	24.00	50 Alaska	12.25	12.75
33 New Hampshire	23.83	23.83	State Averages	28.01¢	28.64¢
34 Delaware	23.00	22.00	(unweighted)		

* Illinois is among ten (10) states that also impose sales taxes on motor fuels: California, Florida, Georgia, Hawaii, Indiana, Michigan, New York, Virginia, and West Virginia.

Based on the information presented above, the State of Illinois ranks 18th in comparison with other States and this takes into account the impact from imposing a sales tax on motor fuel. This is significant considering the high-cost of living index for the Chicagoland area (i.e., around double the Nation's rate) and the associated costs for the maintenance of the roadway infrastructure.

CMAP is recommending the State consider an 8 ¢ per gallon increase to the Motor Fuel Tax and index it to inflation. An increase in the MFT is the best option for a short-term influx in funding to address transportation needs. By automatically indexing this fee to inflation, the tax would increase to generate additional funding to offset the decrease in purchasing power that naturally occurs over time. However, this would not address the anticipated decline in consumption as vehicles continue to improve fuel efficiencies and alternative fuels become more prevalent. Furthermore, these taxes are generally reviewed as regressive taxes, creating a larger obligation for low-income families. CMAP estimates that the proposed increase indexed to inflation would generate $19.4 billion in additional revenues for northeastern Illinois over a 28-year period.

Prevailing Wage:

The Prevailing Wage Act requires contractors and subcontractors to pay laborers, workers and mechanics employed on "Public Works" construction projects no less than the general prevailing rate of wages (consisting of hourly cash wages plus fringe benefits) for work of a similar character in the county where the work is performed. In essence, this Act sets a floor for the wages paid to employees who are working on projects being conducted by local governments.

The General Assembly should reform the Prevailing Wage Act so that it reduces the negative impact on local taxpayers. The Prevailing Wage Act has served to increase the cost of public works related projects oftentimes with no clear measureable benefit. Prevailing Wage rates, when compared with similar occupation labor rates posted by the Bureau of Labor Statistics are normally in the 95th percentile and relate to wage rates paid in extremely high cost of living settings like Hawaii. The Act replaces unfettered competition by imposing an artificial floor on labor costs.

By exempting activities such as landscaping or setting a dollar threshold for the Prevailing Wage Act will save taxpayers money without jeopardizing the work. In addition, Illinois Legislators should reject further expansion of this law through the imposition of a Responsible Bidder requirement within the Prevailing Wage Act.

Responsible Bidder language normally includes requirements that all bidders must comply with all laws within the State, provide evidence of a Federal Employer Identification Number (FEIN) or social security number, appropriate insurance, and compliance with prevailing wage. In addition, by adopting responsible bidder legislation, contractors must also participate in a US Department of Labor (USDOL) approved and registered apprenticeship program.

The aforementioned last requirement, while offering a potential benefit of a better trained workforce, would significantly limit the ability for small businesses and non-union contractors to compete for local government construction projects. This could further limit the pool of potential bidders and reduce the competition for City projects. Therefore, local governments have been opposed to any legislation that further limits the marketplace for the bidding of public projects.

Other Potential Funding Sources:

As indicated in the City's meetings with top legislators, currently electric cars are not paying for the costs of the roads that they drive on, as the only dedicated revenue is based on the sale of traditional fuels. Furthermore, IDOT is reviewing a number of potential taxes/fees to address the deficiency in funding for transportation. Changes to the dedicated fee/tax structure for transportation will be required as the market continues to evolve. In addition, while increases to fuel efficiency are positive for our environment, these measures are inherently reducing the revenue streams utilized to fund the maintenance and improvements to our roadways. As a result, the State is looking at a number of potential options for future funding methods to address the needs of the transportation infrastructure. These methods include such items as the following:

- ✓ Increasing the existing taxes and user fees;
- ✓ Vehicle Miles of Travel (VMT) User Fee;
- ✓ Impact Fees;
- ✓ Congestion Pricing; and
- ✓ Expanding tolling to other roadways and/or specific lanes.

Potential Lobbying Agenda Items:

The Taskforce has identified a number of areas that the City Council may want to consider for potential lobbying efforts. Several of these areas are recommended within the CMAP's GO TO 2040 agenda.

- Revise the current allocation formula to address the inequities from the existing 45% share apportioned to District 1 and Northeastern IL;
- Increase the Motor Fuel Tax by $0.08 per gallon and index it to inflation;
- Modify the Prevailing Wage Act, at a minimum, to exempt certain activities and/or establish a dollar threshold for projects;
- Oppose the inclusion of Responsible Bidder provisions within Prevailing Wage;
- Support other forms of revenue or changes to the existing revenue mix to provide for a more consistent stream of dedicated resources to meet future transportation needs; and
- Revise the current process required to regulate commercial garbage pickup and promote shared garbage service to limit the number of garbage trucks utilizing City streets.

Education:

As a result of this process, the City will have a number of decisions to make regarding the appropriate strategies to employ for the future maintenance and improvement of our transportation infrastructure. Ultimately, the research and recommendations identified within this report and moved forward by the City Council will need to be disseminated and communicated with the City's residents. In addition, information concerning the process and evaluation techniques will require some form of distribution to our residents. An article in the next edition of *City Scenes* explaining the actions/decisions made by the City Council and the future impact on the maintenance of City streets may also be warranted.

PCI System – Engineer Ratings Versus School Grading:

The system most widely used by local governments is called the Pavement Condition Index (PCI). It measures pavement conditions on a numerical scale from 0 to 100. This numerical rating scale gives an indication of a pavement's structural integrity and operational condition. The higher the number, the better the condition of the pavement. In optimal conditions, the PCI ratings provide valuable insight for determining the priority for repairs when combined with a balanced policy.

The rating system should be designed to produce the same results independent of the observer. The majority of communities self-grade their own pavements. In this case, it is important to have the same observer conducting the analysis; otherwise, the grading may significantly fluctuate from year-to-year and some of the pavement's conditions will somehow improve from prior years.

While the vast majority of residents are accustomed to the conventional letter grades provided through the educational system of 90+ is an A, 80+ is a B and so forth, the reality is that engineers do not follow this same grading standard when evaluating pavement condition. As

indicated within the B&W Report, the PCI ratings were broken down into the following categories:

PCI Rating	Condition	Maintenance/Repairs
85-100	Excellent	No maintenance required
75-84	Very Good	Minimal Maintenance - Crack Seal
65-74	Good	Minimal Maintenance - Spot Patch, Crack Seal
50-64	Fair	Edge Grind and Resurface w/minimal patching & curb repair
35-49	Poor	Mill and Resurface w/ minor patching & curb repair
20-34	Very Poor	Full-depth asphalt replacement w/ moderate curb repair
< 20	Failed	Full-depth asphalt replacement w/ complete curb replacement

The previous table's focus is on the maintenance needs for our roadways, and does not necessarily translate easily into a letter grading system. Additional research was conducted to determine the PCI rating levels and corresponding letter grades based on the results experienced by other communities.

The City of Champaign is one of many communities that also utilize the PCI system for inventorying the condition of roadways and prioritizing improvements. They incorporate their PCI rating scale into a letter grading system of A through F, similar to grades provided by schools. Grade "A" represents a new pavement in excellent condition and a grade "F" represents a failed pavement. The table presented below represents the relationship between the PCI rating system and pavement grades, as presented by the City of Champaign:

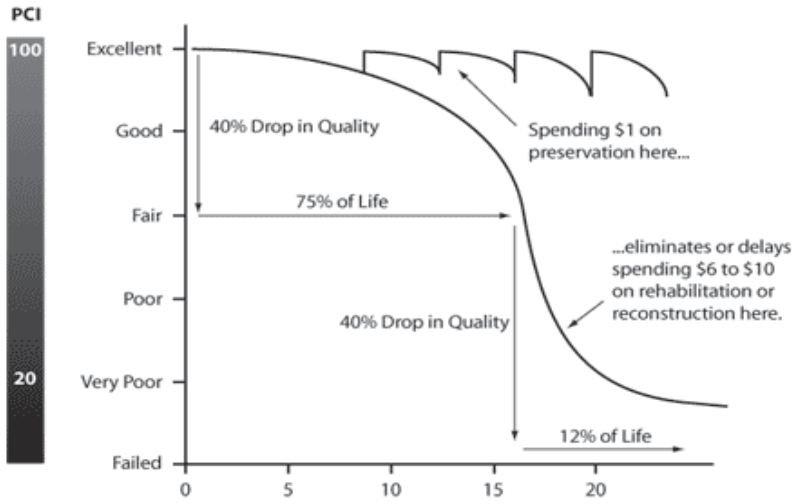
PCI	Grade	Condition
100		
	A	Excellent
80		
	B	Good
60		
	C	Fair
40		
	D	Poor
20		
	F	Failed
0		

Figure 1. Pavement Condition Ratings

Based on the table presented above, the City's average PCI score of 46 would be considered in the C/C- range. This rating would exceed the National roadway grade (i.e., D), and the IL roadway grade (i.e., D+) assessed by the American Society of Civil Engineers' (ASCE) Report Card for America's Infrastructure.

Change in Philosophy:

One of the main recommendations presented in the Baxter & Woodman (B&W) *Pavement Management Report* is to modify the City's current policy, which targets spending to address the pavement in the worst condition (i.e., worst is first), to instead spend a significant percentage of funds at the preservation level, (i.e., pavement in much better condition), to prevent it from falling to the more expensive rehabilitation levels.



This will raise its own set of challenges and require the City to disseminate and educate the residents regarding the benefits from adopting changes to our strategies. This could include the following challenges:

- *Understanding the shift from repairing the worst pavements first to the most cost-effective pavements first*. The public does not understand why agencies would be working on good roads, but letting the bad roads continue to decline. Most residents understand the importance of maintaining a car or a house to prevent major repairs. Pavement preservation engineers should be able to explain the value of preventive maintenance treatments now compared with the cost of major repairs later.
- *Understanding the effects of the various maintenance and rehabilitation strategies on delays and vehicle costs*. Primary benefits of pavement preservation include the potential for reducing traffic delays by using faster repair techniques and for reducing overall user costs by maintaining pavement networks in better condition. Although widely acclaimed, these benefits still lack data-driven support from national studies.
- *Understanding safety issues*. Increased safety for the traveling public and for workers in the work zone are other potential benefits from keeping roads in good condition through pavement preservation treatments; these benefits also need to be documented and communicated.

Best Practices/Methodologies:

A number of different approaches can be analyzed to determine the overall best approach for a given situation. The Taskforce has reviewed the following as possible methodologies for determining priorities:

- ✓ **Bottom Up**
- ✓ **Top Down**
- ✓ **PCI Rating Declines**
- ✓ **Cost Differential**

In addition, a **balanced approach** was also discussed as a possible option, and was viewed favorably by the Taskforce members. This approach would try to balance the PCI ratings and maintenance costs (i.e., both known factors), with other factors such as traffic utilization, age of the pavement, service provided to major areas or public buildings, geographic location, and other priority factors determined by the City Council. However, in order for this method to be implemented, the City would need to acquire additional information that would address any of the factors determined to be necessary for the purposes of prioritization.

All scenarios provided below are based on certain assumptions.

- The City will spend $1.0 million in road maintenance/reconstruction in 2016, with this amount increasing by $100,000 each year.
- Improvements made to PCI-rated pavement of 65-84 will elevate the PCI rating for the next year to 95, since this represents mostly maintenance work.
- Improvements made to PCI-rated pavement of 0-64 will elevate the PCI rating for the next year to 99, since this represents some form of resurfacing and/or reconstruction.
- The future rate of decline for PCI is reset to 3.0 for all pavement, which has been improved.
- Based on the completion of the 2015 roadway resurfacing program, ***the average PCI rating for all road segments is 47.2*** at the beginning of the 2016 construction season.
- No additional street infrastructure is added to the City's pavement inventory over the next five years.

Starting Data Set:

PCI Rating	Square Feet	Percent	Costs	Percent
85-100	1,964,358	11.4%	$ 0	0.0%
75-84	1,753,846	10.2%	167,713	0.2%
65-74	1,542,464	9.0%	954,589	1.4%
50-64	2,841,687	16.6%	7,507,490	10.9%
35-49	2,337,639	13.6%	10,481,685	15.3%
20-34	2,864,674	16.7%	18,240,003	26.5%
< 20	3,864,745	22.5%	31,416,123	45.7%
Totals	17,169,413	100.0%	$68,767,603	100.0%

The table presented above illustrates the square footage that would fall into each category at the conclusion of the 2020 construction season and anticipated engineers' costs for improvements.

Bottom Up Approach:

In this approach, the City prioritizes the streets with the worst overall PCI ratings (i.e., starting with a PCI factor of 0) and spends 100% of available funding for reconstruction, until all available funding is depleted. Initial values going into the 2016 year for roadways with a PCI rating of 0 would be 280,706 square feet, 23 road segments and a total cost of $1,976,303.40. Thus, only 50.6% of the current PCI pavement could be reconstructed in 2016.

Advantages:

- Addresses the very worst pavement, which corresponds with the majority of residents' expectations.
- Most defensible position, requiring the least amount of dissemination and education to residents concerning the final policy.
- Of the four methodologies, this approach results in the second lowest square footage of pavement rated in the PCI < 20 category at the end of 2020.

Disadvantages:

- Most expensive pavement is treated first.
- Least amount of pavement can be afforded for improvements.
- Does not slow the velocity of pavement reaching a Zero PCI rating.
- Rate of PCI loss increases later in pavement life, which results in increased velocity.
- Represents the least cost effective approach.
- Results in the highest overall costs for pavement restoration at the end of 2020.

Final 2020 Results – Bottom Up:

PCI Rating	Square Feet	Percent	Costs	Percent
85-100	1,641,932	9.6%	$ 0	0.0%
75-84	1,226,307	7.1%	96,615	0.1%
65-74	1,862,426	10.8%	293,465	0.3%
50-64	1,637,678	9.5%	4,146,700	4.5%
35-49	2,358,841	13.7%	11,014,305	12.1%
20-34	1,684,345	9.8%	10,214,995	11.2%
< 20	6,757,884	39.5%	65,582,167	71.8%
Totals	17,169,413	100.0%	$91,348,247	100.0%

The table presented above illustrates the square footage that would fall into each category at the conclusion of the 2020 construction season and anticipated engineers' costs for improvements. **Furthermore, the velocity of existing pavement that falls into the Zero-Rated PCI level each year, even when utilizing this method that specifically targets this area, significantly outpaces the level of resources dedicated to address these improvements.** A significant increase in funding would be required if this approach is to be successful and allow the City to target roadways before they fall below a rating of 20 and cost the most for reconstruction.

Top Down Approach:

This scenario focuses solely on the short–term cost factors and prioritizes the most affordable improvements first. Unlike the previous strategy, this method instead places emphasis on the lowest cost improvements, which tend to be more maintenance oriented versus resurfacing or reconstruction. In essence, this strategy prioritizes pavements with a PCI factor between 75-84, since these improvements require the lowest cost on a per square foot basis. Remaining funds are then utilized to complete improvements in the next category (i.e., 65-74) starting at the bottom of the category and so forth.

Advantages:

- Least expensive pavement is treated first.
- Most amount of pavement can be treated/improved on a per square foot basis.
- Will eventually slow the velocity of pavement reaching a 0 rating, but will require a number of years.
- Significantly lifts the overall average PCI rating for the community in the first year.
- Most cost-effective approach, in the short-term.

Disadvantages:

- Work being completed is targeting pavement in the best condition.
- This strategy would be difficult to disseminate to the public.
- Does not slow the velocity of pavement reaching a 0 rating in the lowest two categories for a number of years.
- Rate of PCI loss increases later in pavement life.
- Resetting the PCI factor to 95 based on maintenance is not realistic on an ongoing basis.
- May not be the most cost effective approach in the long-term.
- Creates a “donut hole” within the ratings matrix.

Final 2020 Results – Top Down

PCI Rating	Square Feet	Percent	Costs	Percent
85-100	3,863,200	22.5%	$ 0	0.0%
75-84	3,752,235	21.9%	287,012	0.4%
65-74	0	0.0%	0	0.0%
50-64	0	0.0%	0	0.0%
35-49	420,984	2.5%	1,925,993	2.4%
20-34	1,495,880	8.7%	8,807,072	10.9%
< 20	7,637,114	44.5%	69,779,948	86.4%
Totals	17,169,413	100.0%	$80,800,025	100.0%

PCI Rating Declines:

With this approach, the focus shifts to the road segments that have the highest projected decline in any given year. In essence, if successful, this approach would be best at slowing the overall velocity and rate of decline, but would possibly appear to residents as a haphazard approach to pavement maintenance.

Advantages:

- Best at slowing velocity of pavement decline.
- Focus tends to be on lowest PCI-rated pavement.

Disadvantages:

- More expensive than other methodologies as velocity, in general, appears to increase as the pavement ages, placing more focus on the higher cost pavement reconstruction.
- Once pavement reaches a PCI rating of 0, no longer factors into consideration by this methodology.
- Minimal maintenance dollars are expended under this approach.
- Of the four methodologies, this approach results in the second highest overall costs at the end of 2020.

Final 2020 Results – PCI Rating Declines

PCI Rating	Square Feet	Percent	Costs	Percent
85-100	1,629,977	9.5%	$ 0	0.0%
75-84	1,284,433	7.5%	98,247	0.1%
65-74	1,862,426	10.8%	284,917	0.3%
50-64	1,604,828	9.3%	3,947,334	4.5%
35-49	2,320,251	13.5%	10,510,911	12.0%
20-34	1,664,809	9.7%	9,800,273	11.2%
< 20	6,802,689	39.6%	63,105,137	71.9%
Totals	17,169,413	100.0%	$87,746,819	100.0%

Cost Differential:

The final methodology, which was analyzed based on the information available, is to focus on the increase costs expected in the following year, based on the transition to a new PCI tier. In this case, the City would prioritize roadways that were expected to transition to the next tier in the following year, to take advantage of the lower costs by completing the repairs in the current year. With sufficient funding, this approach would distribute the pavement work with a portion dedicated to the bottom of each category, representing a more balanced solution. However, this methodology would require a significant increase in funding to fully meet the needs required by

each tier. In addition, any roadway rated below 20 PCI would likely not be addressed for a number of years, as no cost savings are available once pavement enters this tier.

Advantages:

- Slows velocity of pavement decline.
- Most cost effective on a long–term basis.
- Lowest growth in overall costs at the end of 2020.
- Lowest percentage of pavement in the below 20 category at end of 2020.

Disadvantages:

- Does not allocate any funding to PCI-rated infrastructure already below 20.
- Minimal maintenance dollars are expended under this approach.

Final 2020 Results – Cost Differential

PCI Rating	Square Feet	Percent	Costs	Percent
85-100	1,912,927	11.1%	$ 0	0.0%
75-84	1,226,307	7.1%	93,801	0.1%
65-74	1,862,426	10.8%	284,917	0.4%
50-64	1,535,445	8.9%	3,768,983	4.7%
35-49	2,358,841	13.7%	10,693,500	13.4%
20-34	1,684,345	9.8%	9,917,471	12.4%
< 20	6,589,122	38.4%	54,962,658	68.9%
Totals	17,169,413	100.0%	$79,721,330	100.0%

Comparisons:

Starting Data Set:

The table provided below represents the starting data set based on the information presented within the Baxter & Woodman study and adjusted to reflect the impact from the City's 2015 Street Resurfacing Program.

PCI Rating	Square Feet	Percent	Costs	Percent
85-100	1,964,358	11.4%	$ 0	0.0%
75-84	1,753,846	10.2%	167,713	0.2%
65-74	1,542,464	9.0%	954,589	1.4%
50-64	2,841,687	16.6%	7,507,490	10.9%
35-49	2,337,639	13.6%	10,481,685	15.3%
20-34	2,864,674	16.7%	18,240,003	26.5%
< 20	3,864,745	22.5%	31,416,123	45.7%
Totals	17,169,413	100.0%	$68,767,603	100.0%

Final 2020 Results – Square Feet Comparison:

Provided below is a table presenting a comparison of all four methodologies based on the final results at the end of 2020, illustrating the square feet broken down by the various PCI categories.

PCI Rating	Bottom Up		Top Down		PCI Rating Decline		Cost Differential	
	Square Feet	Percent	Square Feet	Percent	Square Feet	Percent	Square Feet	Percent
85-100	1,641,932	9.6%	3,863,200	22.5%	1,629,977	9.5%	1,912,927	11.1%
75-84	1,226,307	7.1%	3,752,235	21.9%	1,284,433	7.5%	1,226,307	7.1%
65-74	1,862,426	10.8%	0	0.0%	1,862,426	10.8%	1,862,426	10.8%
50-64	1,637,678	9.5%	0	0.0%	1,604,828	9.3%	1,535,445	8.9%
35-49	2,358,841	13.7%	420,984	2.5%	2,320,251	13.5%	2,358,841	13.7%
20-34	1,684,345	9.8%	1,495,880	8.7%	1,664,809	9.7%	1,684,345	9.8%
< 20	6,757,884	39.5%	7,637,114	44.5%	6,802,689	39.6%	6,589,122	38.4%
Totals	17,169,413	100.0%	17,169,413	100.0%	17,169,413	100.0%	17,169,413	100.0%

Final 2020 Results – Dollar Comparison:

The table presented below provides a comparison of all four methodologies based on the final results at the end of 2020, focusing on the estimated costs to address the City's pavement needs.

PCI Rating	Bottom Up		Top Down		PCI Rating Decline		Cost Differential	
	Costs	Percent	Costs	Percent	Costs	Percent	Costs	Percent
85-100	$ 0	0.0%	$ 0	0.0%	$ 0	0.0%	$ 0	0.0%
75-84	96,615	0.1%	287,012	0.4%	98,247	0.1%	93,801	0.1%
65-74	293,465	0.3%	0	0.0%	284,917	0.3%	284,917	0.4%
50-64	4,146,700	4.5%	0	0.0%	3,947,334	4.5%	3,768,983	4.7%
35-49	11,014,305	12.1%	1,925,993	2.4%	10,510,911	12.0%	10,693,500	13.4%
20-34	10,214,995	11.2%	8,807,072	10.9%	9,800,273	11.2%	9,917,471	12.4%
< 20	65,582,167	71.8%	69,779,948	86.4%	63,105,137	71.9%	54,962,658	68.9%
Totals	$91,348,247	100.0%	$80,800,025	100.0%	$87,746,819	100.0%	$79,721,330	100.0%

Final Results – PCI Rating Comparison:

The table presented below provides a comparison between the four methodologies, reviewing the overall change in the average PCI Rating for each year of the five-year program.

Year	Bottom Up	Top Down	PCI Rating Decline	Cost Differential
2015	47.2	47.2	47.2	47.2
2016	46.2	49.6	45.3	45.2
2017	44.7	47.7	43.7	43.0
2018	44.5	46.5	41.5	41.6
2019	44.7	45.5	39.9	39.6
2020	44.2	44.8	38.4	38.8

Final 2020 Results – Rankings by PCI Category:

The final table presented below compares the rankings for each methodology in both square feet and costs, reviewing the overall change in the average PCI Rating for each year of the five-year program. A one represents the option which generated the most favorable result within a given PCI rating category, while a four represents the weakest result.

PCI	Bottom Up		Top Down		PCI Rating Decline		Cost Differential	
Rating	Square Feet	Costs	Square Feet	Costs	Square Feet	Costs	Square Feet	Costs
85-100	3.0	1.0	1.0	1.0	4.0	1.0	2.0	1.0
75-84	3.0	2.0	1.0	4.0	2.0	3.0	3.0	1.0
65-74	2.0	3.0	1.0	1.0	2.0	2.0	2.0	2.0
50-64	4.0	4.0	1.0	1.0	3.0	3.0	2.0	2.0
35-49	3.0	4.0	1.0	1.0	2.0	2.0	3.0	3.0
20-34	3.0	4.0	1.0	1.0	2.0	2.0	3.0	3.0
< 20	2.0	3.0	4.0	4.0	3.0	2.0	1.0	1.0
Average	2.9	3.0	1.4	1.9	2.6	2.1	2.3	1.9

Additional information and tables concerning the four methodologies have been included in the attached Appendix A.

Recommendations – Prioritization:

Even absent available data, the Taskforce members ultimately preferred a **balanced approach**. This approach would utilize the existing data of PCI ratings and maintenance costs combined with other factors. The most relevant in the Taskforce's deliberations would include the development of estimated traffic utilization, with higher traffic utilization receiving priority and areas being served, with higher demand roads for jobs/businesses and "gateway" roadways receiving some form of priority consideration. However, in order to move forward, the City would need to develop methods to estimate or determine the additional information that would be factored into the prioritization.

The City's Transportation Commission's *Sidewalk Prioritization Assessment* has been included in Appendix A as an example of refining the prioritization methodology to allow for a weighting system that takes into account a number of data points. A similar methodology could be developed for road infrastructure improvements, but would likely require some form of estimates.

For instance, if traffic utilization was incorporated as suggested by the Taskforce, a simplistic estimate could be developed for each road segment based on the number of homes served and sizes of businesses serviced by each given roadway. Collector streets could be assessed increased traffic volumes based on the anticipated traffic of the connected local streets. This would result in an inherent advantage for arterial streets, followed by collector streets, with local streets falling to the lowest level, but would also follow traffic patterns and associated community needs.

Pavement Management Taskforce

Chapter 5 - Bonding of Road Improvements

Bonding of Road Improvements

As part of the pavement management report, it is important to discuss the advantages and disadvantages of issuing debt for all or a portion of future road improvements.

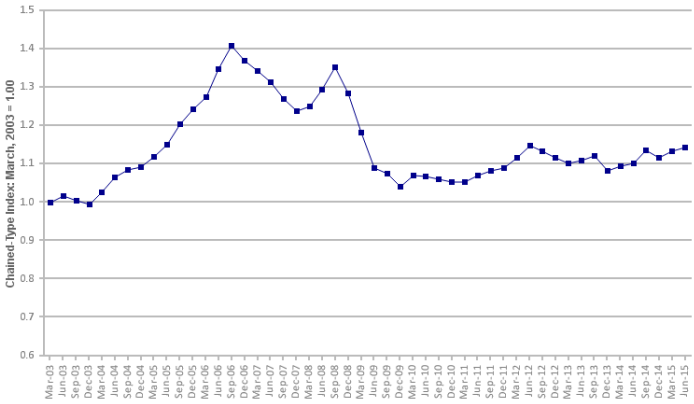
The majority of the City's current road projects are funded on a pay-as-you-go basis. The City has selected this method since a vast majority of road work completed each year involves repaving projects. The pay-as-you-go system typically works well, as repaving of roads can in many ways be considered a maintenance function. Furthermore, the majority of individual road projects typically will not cost more than one year's revenue.

While paving roads is expensive, it is not so expensive that more than a year of revenue needs to be accumulated to pave a certain street.

However, this is not to say that issuing debt to conduct road improvements, including the repaving of roads, would be inappropriate; in fact, there are several arguments for considering this fiscal strategy. Major road improvements are often paid utilizing the issuance of debt. Such large infrastructure projects often require years of savings to generate adequate funds under a pay-as-you-go system. This scenario allocates the costs of a project to current, or previous, residents who may not receive the benefit from the project completed in future years. Issuing debt solves this problem by allowing the current population to benefit from repairs and improvements as they also help pay for those services through the debt payment.

Another positive outcome of issuing debt is receiving economies of scale on costs for the resulting work. If a significant number of City streets can be repaved instead of just one street, the contractors bidding on the work can offer a substantially lower price per unit. In addition, debt issuance is a great tool and strongly supported if the road improvement will provide a revenue-producing benefit, such as generating additional sales tax. Lastly, a grant may be available for a project that requires the improvement be completed within a specified time period or requires a significant dollar match. In such cases, waiting to accumulate the project budget in cash before starting the project could mean the lost opportunity to acquire essential grant funding.

Debt issuance is also a wise choice in rising cost environments. For instance, if road construction costs are increasing annually at a 10% rate, and the interest cost of the debt is only 2.6% per year, the City would not only be saving money, but also getting the benefit of the asset earlier, an obvious "win – win" strategy. Unfortunately, construction costs may be very hard to predict. For instance, using a base line of



1.000 in 2003, the National Highway Construction Cost Index (NHCCI) increased to 1.1436 through June 2015, which is the latest data figures are available. However, this does not reflect a steady increase. In September 2006 the price of paving peaked at 1.4084, or a 40% cost increase over 2003. In 2006, issuance of road debt would have seemed to made sense, since construction costs were increasing at an alarming rate. But, this would have ultimately been a costly decision, as road construction costs have since decreased 25%. A chart showing the NHCCI from 2003 to 2015 is presented on the previous page.

Issuing debt, as opposed to pay-as-you-go, can also have serious disadvantages. A primary disadvantage is the cost of issuance, along with subsequent interest costs. This can significantly raise the cost of overall construction, or substantially reduce the amount of roads that can be paved. As an example, if the City of Woodstock would issue $1,000,000 of bonds to be paid back over the next 15 years, it would cost an additional $300,000 in interest and issuance costs, which is a 30% increase in cost. If the City soon receives Home Rule status offering a credit rating upgrade, there would, however, be a $6,000 savings on these bond issuance costs.

Issuing road bonds also has the potential to lower the City's credit rating yet it is difficult to predict how credit rating agencies would react, but usually carrying more debt is considered a negative point. The question is would this be considered negative enough to lower the City's credit rating. One way to mitigate this negative aspect would be to pledge a new revenue source to pay the debt. An example of this occurred when the City issued new debt to improve Lake Street to facilitate Walmart's opening. In this case, new sales tax generated from Walmart was successfully pledged to pay the road debt.

Issuing debt also creates less financial flexibility for the City in the future. Funds that must be allocated to paying future debt become an inescapable priority. Unless an additional revenue source is identified to pledge towards the bond payment, the costs of carrying debt will decrease the number of future road projects that can be funded. Decreased activity for road projects can have a negative effect on residents' perspectives of City management. While the benefits of immediate road improvements seem obvious now, in ten years most residents will have forgotten about these projects, while the City will still be paying on the debt incurred. And, when in the future additional funding is not available for new road improvements, residents could easily be upset by the lack of new paving the City would be able to offer.

A potential source of funds that could be used to pay for road bonds is cash currently being used to pay debt that matures. Since these funds are already allocated to debt service, and used to pay current expenditures, the number of projects that could be completed each year would not need to decrease. However, prior to redirecting funds that are currently allocated to debt, a careful analysis should be made to ensure this money is not needed more in other areas.

Recommendations:

For reasons described above, it is recommended the City only issue debt for road projects if a new revenue source can be identified and dedicated to funding its payments. This could, however, be accomplished if cash currently used to pay existing debt is no longer needed due to debt maturing. This cash may then be reallocated and pledged to pay for road improvement bonds.

Pavement Management Taskforce

Chapter 6 - Revenue Enhancements

Revenue Enhancements

At the present time, the City's annual budget for road resurfacing is $1,000,000. This amount improves the surface on a portion of the 117 miles of roadway that the City of Woodstock is responsible to maintain. Over the past five years, the City has resurfaced an average of 2.3 miles annually at an average annual cost of $687,000. The 2015 Pavement Management Report recommends that the City pave 7 miles of road each year. While exploring new technology and working with other government agencies should allow these funds to go farther, it is very unlikely these efforts alone will bridge this gap.

The City Administration and Staff have continually considered a variety of ways to ensure more efficient use of funds allocated to road repaving. For example, in the past most road projects were paid for using the Motor Fuel Tax (MFT) Fund. Last year it was instead decided to use MFT Funds, instead of General Funds, for Street Division projects such as street lighting and salt. The reasoning behind this change is that when MFT funds are used for road improvements, the State, who controls these funds closely, requires costly engineering reports and studies, often exceeding what the City would regularly need to produce if the project was paid with non-MFT dollars. Also, when MFT funds are used, road projects must meet the State's construction requirements, which often do not reflect cost efficiencies the City is able to achieve for projects it controls. Therefore, by using the City's General Funds to pave roads, these additional administrative and construction costs can be saved. A further analysis of the MFT tax has been included in the Lobbying section (i.e., Chapter 4) of this report.

The use of new technology alone is not likely to resolve the current gap in the number of miles of streets paved annually versus what is recommended. This program expansion can only be achieved if new revenue sources are successfully identified and secured. Certainly, the most desirable method to increase revenue for the City is through increased economic growth. For instance, if a retail business doubles its sales, the City will receive twice the sales tax dollars. This type of growth is a win-win situation, with successful businesses drawing more shoppers and residents to the area, while providing additional revenue for the City to serve its citizens. This is the fundamental rationale for the City to allocate significant resources to the Economic Development Department to promote business attraction and growth.

While growing the economy of the City is seen as the optimal solution for increased road improvements, the needed funding level may not be achievable without additional revenue sources. A list of additional revenue sources is outlined below with pros and cons for each:

- **Utility Tax**
    - Background--The City has the ability to impose a utility tax on usage of either natural gas or electricity, or both. The maximum rate the City can implement for each tax is approximately 5% of the total delivery and natural gas cost. This tax

does not reflect a set maximum rate, since customers may purchase their electricity and natural gas through a third-party supplier, and the tax is often implemented on a per kwh (electricity), or therm (natural gas) basis.

It is hard to approximate the exact amount of revenue that this type of tax could generate without requesting a report from either NICOR or ComEd. However, it is estimated that each tax could generate at least $500,000 each year.

- Pros—This would create a stable, substantial revenue source that could be allocated directly to road repaving. Funding would naturally increase as residential and commercial population increases.

- Cons—This type of new revenue could potentially be unpopular with businesses and residents as it would disproportionally impact high-use businesses in town. This could result in affected businesses either reducing their operations or closing down entirely as a result of a new utility tax. This could also make it difficult to recruit new business to the City, especially high-energy use industrial facilities.

- **Special Service Area (SSA)**
  - Background--A Special Service Area (SSA) is a taxing mechanism that can be used to fund a wide range of special or additional services and/or physical improvements (e.g. paving of roads) in a defined geographic area. Once the SSA is established, a special property tax is then levied on the property within the area. This tax revenue can then only be used to support additional services and/or physical improvements within the SSA.

    In order to create the SSA, the City would need to pass an Ordinance proposing its creation. Within 60 days of adopting this Ordinance, the City would be required to conduct at least one Public Hearing to discuss the SSA's establishment, which would include such items as the proposed geographic area, budget, use of funds, and tax levy.

    The City must then wait at least 60 days from the date of the last Hearing before it can pass an Ordinance establishing the SSA. During this waiting period, if at least 51% of registered voters residing in the proposed SSA area, and at least 51% of property owners of record in the area, file an opposing petition with the City or County Clerk, the proposed SSA cannot be established. In addition, the City Council cannot try to establish this same SSA for at least two years.

  - Pro--This proposal would allow a mechanism for residents and businesses in certain parts of town to have their roads repaved on a more rapid schedule than the City would be able to offer normally.

- Cons--Creating an additional tax, which would raise the property tax bill for residents and businesses located within the SSA, may be viewed as unfair to those affected. There may be a perception that those within the SSA are being asked to pay extra, while roads in other neighborhoods are repaved as part of regular City services.

- **Business District (BD)**
  - Background--Establishing a Business District is a development tool, similar to a Tax Increment Financing (TIF) District, that allows communities to pledge tax revenues toward redevelopment in a blighted area. However, unlike a TIF, this tool allows the City to increase sales and/or hotel-motel tax levies within the boundaries of the Business District. An additional hotel tax would be collected by the City within the defined area. An increased sales tax would also be imposed and collected by the Illinois Department of Revenue, and may be raised an additional 1%, in 0.25% increments. Exemptions from the additional tax apply to certain products, such as medicines and qualifying food usually purchased at grocery stores. If the Business District boundaries are identical or overlay the defined area of a TIF, the revenue funds can be used for similar services in conjunction with each other. Also, unlike the TIF structure, the Business District involves only municipal revenues, so other taxing bodies such as schools are not impacted.

    Creating a Business District requires the City Council pass an Ordinance proposing the approval of a Business District. Within this Ordinance, the City is required to establish the time of a minimum of two Public Hearings. In addition, a Business District Plan must be created that includes a formal finding that the area is blighted. The "blight" definition is similar to that used to create a TIF area, with slight variations. Additional rationale includes the "but/for" provision, indicating that "but/for" the establishment of a Business District, redevelopment of the blighted area would not occur. Once all this criteria has been met, the City could create the Business District, which would be in effect for a period of 23 years.

  - Pros--This would create a revenue source that could be dedicated to maintain downtown streets. Due to their historical nature, our downtown streets require costly maintenance that is currently being paid through a combination of general paving money along with TIF funds. If a Business District sales tax was enacted, this revenue, or part of it, could be earmarked for downtown roads, which would free up general paving money that could be used in other parts of the City.

Also, since a significant percentage of sales tax generated downtown comes from visitors who live outside the community, this creates a revenue stream that would be paid largely by non-residents. Studies have shown that small increases in sales tax generally do not affect consumers' shopping habits, and should therefore not have any effect on downtown businesses' sales levels.

- Cons--While studies have shown that these types of taxes have little effect on businesses, Business District stores may still oppose the tax due to perceived fear of reduced sales. Also, while a portion of this tax would be paid by people who reside outside of Woodstock, a certain portion would still be paid by City residents who enjoy shopping and eating on the Square.

- **Overweight Truck Fines**
  - Background--The City has the ability to ticket and fine trucks that are overweight and using City roads. These tickets would be issued from the Police Department. In order to issue these tickets, the City would need to have a method to weigh each wheel of the suspected overweight truck, along with having a Police Officer specially-trained for this enforcement.

    It is estimated that $100,000 a year could be generated in revenue from this program. However, as the program matures, this revenue would likely decrease. Awareness would mean fewer overweight trucks would use our roads resulting in less tickets being written.

  - Pros--Overweight trucks cause significant wear and tear on a roadway and, over time, will significantly shorten its life. Therefore, a dedicated enforcement process for identifying and fining these trucks will likely have two results. First, additional revenue will be generated that can be put back into the road repaving program. Second, it is hoped the threat of receiving a fine will reduce the number of overweight trucks using and damaging City roads. This will not only increase the life of these roads but will also make the roads safer by reducing accidents.

  - Cons--Setting up the program could be expensive, based on the need to buy portable scales, unless suitable scales can be found and rented. In addition, a Police Officer would need to be trained to run this program. This program could potentially have a negative impact on economic development efforts, as issuing fines to trucking operators that may be servicing companies in town could result in increased shipping costs for our local businesses.

- **Home Rule/Non-Home Rule Sales Tax**
  - Background--The City has the ability to institute an additional sales tax, assessed at the time of purchase, which is collected and distributed to the City by the Illinois Department of Revenue. This tax is imposed on the same general merchandise base as the State sales tax, with the exception of titled or registered tangible personal property (such as vehicles, watercraft, aircraft, trailers, and mobile homes). It would also provide exemptions for qualifying food, drugs, and medical appliances. This additional sales tax may be implemented in 0.25% increments.

    In order to implement this additional sales tax as a Home Rule community, a vote by the City Council would be required, along with public notice provisions. For a Non-Home Rule community, a passage of a referendum would be required.

    As can be seen from the chart below, every Home Rule Community in McHenry County, except for Prairie Grove with a limited retail base, has instituted an additional sales tax. McHenry County Home Rule communities who currently benefit from an additional sales tax rate include:

    - Algonquin 0.75%
    - Crystal Lake 0.75%
    - Lake in the Hills 0.75% (Raises to 1.00% on July 1, 2016)
    - McHenry 0.50%

    Since most of our neighboring communities already have this additional tax in place, it is unlikely that Woodstock businesses would suffer any decrease in sales, especially given that it is NOT applicable to car, truck, and motorcycle sales. Because large-ticket items are not included, the tax can only produce about 60% as much revenue per percentage-point as the base 1.0% sales tax currently generates. However, by implementing this tax, the City estimates that it would receive $565,000 per year for each 0.25% incremental increase.

  - Pros--Since a significant percentage of sales tax generated comes from visitors who live outside the community, this approach partially shifts the overall tax burden to non-residents. This tax would create a stable, substantial revenue source that could be allocated directly to road repaving. The creation of this revenue source is unlikely to have any long-term negative effect on Woodstock businesses.

  - Cons--While a portion of the additional tax would be paid by non-residents, a portion would also be paid by residents of Woodstock. As indicated above, almost all McHenry County cities already benefit from this essential revenue

resource, with little to no negative impact to those communities. However, increasing the sales tax, often considered one of the most regressive types of tax, would inevitably take a larger share of income from low and middle-income residents as compared to revenue sources such as income or property taxes.

- **Annual Overweight Truck Fees for Businesses**
  - Background--The City charges local businesses a fee if they request the right to operate oversize and/or overweight trucks on City streets. The fee structure includes limited continuous movements for local contractors at a fixed rate of $200 per year; a $50 charge for a single trip, and an $80 charge for a round trip. While the current fee does provide some revenue for Streets, the amount being received is inadequate to compensate the City for the damage these large trucks cause to City roads. The City does not currently have an exact estimate as to how high this fee should be in relation to the damage being done, but there should be a fee structure in place that provides for an increase on a regular basis to help cover the cost for improvements.

  - Pros--This fee is paid solely by businesses that are actually causing an increased level of damage to City streets. An increase in the Overweight Truck Fee would provide additional revenue that could be earmarked to street repaving.

  - Cons--This fee is paid by local Woodstock businesses and any change to the charge would raise their costs. Payment of this fee allows operation of trucks without receiving overweight tickets; however, businesses may be inclined to avoid paying an increased fee unless overweight truck enforcement is also increased.

Recommendations:

It is clear that the City must secure some type of additional revenue to meet the documented road paving needs. While growing the City's tax base through economic development will help in securing this additional revenue, it is unlikely this amount will be sufficient to accomplish the level of paving outlined in the recent study. Therefore, based on weighing the pros and cons for each revenue source listed above, the Pavement Task Force recommends that the City Council strongly consider the following revenue sources for essential paving services:

- Consider Individual Overweight Truck Enforcement/Fines
- Consider a Dedicated Home Rule/Non-Home Rule Sales Tax
- Increase Annual Overweight Truck Fees Charged to Businesses

Pavement Management Taskforce

Chapter 7 - Collaborative Efforts

Collaborative Efforts

Today's Pavement Maintenance Program

At the present time, the Public Works Department manages an annual preventive maintenance program for City streets utilizing a contractor to rout and crack seal selected streets throughout the City. This type of program has been sporadic throughout the years ranging from expenditures of **$**15,000 in 2003 all the way up to $100,000 programmed in 2016. When the recession hit on or around 2008, no funding was appropriated for preventive maintenance. This trend continued until 2014. Between 2008 and 2014, funds for pavement improvements were stretched thin and the thought process was that money would be better spent on resurfacing than preventive maintenance activity.

In addition to a preventive maintenance program, the City administers an annual corrective pavement maintenance program. This program consists almost exclusively of a mill and overlay method. In the past, pavement was milled to a depth of 2 inches, repair of suspected base failure, some curb replacement and installation of handicapped ramps. The streets to be resurfaced in 2016 will be milled to a depth of 3-4 inches. Some of the problem that the City has had in the past is that the pavement is very thin in some areas. This obviously has a lot to do with the overall problem that the City is faced with today. For instance, pavement core samples recently obtained from Applewood Lane (which has some failed areas of pavement) reveal one inch of asphalt and one inch of stone over dirt. This situation makes it very difficult to mill anything without the project turning into a total road reconstruction. As mentioned later in this report, this is an area where having a representative from the City on site when paving is being performed to ensure that developers provide what is required by ordinance, will help the City improve its overall Pavement Condition Index (PCI).

Through these two pavement maintenance programs, the city has been able to accomplish the following in recent years:

Fiscal Year	Non-TIF Miles resurfaced		TIF Miles resurfaced		Crack Sealing	
FY10/11	1.09	($306K)		($190K)	no	
FY11/12	1.67	($522K)	1.13	($142K)	no	
FY12/13	2.49	($611K)	0.42	($165K)	no	
FY13/14	2.34	($535K)	0.48	($199K)	no	
FY14/15	1.37	($410K)	0.34	($150K)	yes	($20K)
FY15/16	1.32	($600K)	0.13	($100K)	yes	($46K)
	+ 2.21 miles of final lift in Apple Creek paid by bonds ($392K)					
Proposed FY16/17	1.14 +	($950K)	0.06	($146K)	yes	(100K)

To further minimize administrative burdens, eliminate another step in the IDOT approval process and provide more flexibility, funding for the Street Resurfacing Program moved from the MFT Budget to the General – CIP Fund budget in FY15/16. This move created more efficiency, which results in a greater amount of resurfacing completed.

Through this process the City has learned that there are five critical elements of a successful pavement preservation program. They include:

- Selecting the roadway
- Determining the cause of the problem
- Identifying and applying the correct treatment(s)
- Determining the correct time to do the needed work
- Observing performance

Pavement preservation is broken into three main categories; this report will focus on only two of them because the third is ***Emergency Maintenance*** which is typically a reaction to pothole or the unanticipated failure of road surface due to a negative impact on the base of the road from groundwater, etc.

Preventative Maintenance is only performed in an effort to improve or extend the functional life of a pavement. It can be summed up as "*completing the right repair on the right road at the right time".* Studies show that preventive maintenance is six to ten times more cost-effective than a "do nothing" maintenance strategy. Waiting until after a failure occurs is not cost effective or preventive maintenance. The following are conventional preventive maintenance treatments:

- Crack repair with sealing – a treatment method used to prevent water and debris from entering a crack in the pavement which is left untreated will weaken the base material and prevent the pavement from expanding and contracting freely. This treatment is only effective for a few years and must be repeated however, this treatment is very effective at prolonging pavement life. *This is the treatment alternative currently being used here at the City of Woodstock.* If you rout and seal at the right time, it can be expected to perform for three years. Work in Ontario has shown that this treatment adds a minimum of two years of service life to a pavement, with an average of five years.

- Crack filling – differs from crack sealing mainly in the preparation given to the crack prior to treatment and the type of sealant used. This method is often used on more worn pavements with wider, more random cracking. Expected life of asphalt emulsion crack fillers range from a few months up to a year. Rubberized crack fillers typically last much longer, with an expected life of two to three years.

- Full Depth crack repair – a treatment method to repair cracks that are too deteriorated to benefit from sealing. If done correctly, mill and fill can last up to five years.

Surface Treatments - aside from crack treatments, the treatments that follow all provide a new wearing surface on the pavement:

- Chip seal – an application of one or two single seal coats. The treatment waterproofs the surface, seals small cracks, and reduces oxidation of the pavement surface. Life extension depends upon the type and amount of traffic and the roadway geometry.

Heavy commercial traffic and frequent stopping and turning movement reduce the life of this application and cause local deterioration.

- Fog seal – An application of diluted emulsion to enrich the pavement surface and delay raveling and oxidation. Considered to be a temporary treatment. The performance life of this treatment is fairly short, ranging from one to two years.

- Slurry Seal - a mixture of fine aggregate, asphalt emulsion, water, and mineral filler, used when the primary problem is excessive oxidation and hardening of the existing surface. Expected life of a slurry seal is three to five years. Factors affecting performance include traffic loading, environmental conditions, existing pavement condition, material quality and mix design, and construction quality.

- Microsurfacing – Commonly referred to as a polymer – modified slurry seal. The major difference is that the curing process is a chemically controlled process instead of a thermal process used by slurry seals and chip seals. Can also be used to fill ruts. Service life is about seven or more years for high traffic and considerably longer for low to moderate traffic. The condition of the pavement at the time of material application also impacts the service life.

- Thin overlays – mixes that improve ride quality, reduce oxidation of the pavement surface, provide surface drainage and it corrects surface irregularities. Expected life of overlays is variable but most average five to eight years.

- Seal Coat – used to waterproof the surface, seal small cracks, and reduce oxidation of the pavement surface. Anticipated life of a seal coat is three to six years.

Corrective Maintenance or "reactive maintenance" is typically performed after a deficiency occurs in the pavement. Corrective maintenance is performed when the pavement is in need of repair, and is therefore more costly than other pavement maintenance. Corrective Maintenance activities include:

- Structural overlays - Over time repeated traffic loading can weaken (fatigue) the pavement structure, and growing traffic counts require higher structural strength. When more strength is needed, it's time for a structural overlay, that is, one or more layers of new asphalt surfacing. The existing road should be in good shape, and any distresses should be fixed before the overlay is done. A good tack coat (a thin layer of asphalt applied to the old surface) is essential in bonding the old and new layers. Testing has demonstrated that firmly tacked layers improve overall pavement strength and provide better performance than untacked layers.

- Mill & overlays - A "mill & overlay" is a street maintenance technique that requires the removal of the top layer (2 inches) of a street by the grinding action of a large milling machine. After the top layer is removed, a new layer of bituminous pavement is put in its place. The "milling" portion of the project typically takes one to two days. After the milling is completed, the "overlay" is placed in one to two days depending on the width

of the roadway and traffic conditions. Before the new pavement is placed, the surface of the newly milled pavement is covered with a liquid asphalt tack coat to bond the old and new pavements.

- Pothole repair - A pothole is a type of failure in an asphalt pavement, caused by the presence of water in the underlying soil structure and the presence of traffic passing over the affected area. Introduction of water to the underlying soil structure first weakens the supporting soil. Traffic then fatigues and breaks the poorly supported asphalt surface in the affected area. Continued traffic action ejects both asphalt and the underlying soil material to create a hole in the pavement.

- Patching - All flexible pavements require patching at some time during their service life. There are two principal methods of repairing asphalt pavements:
  1. Remove and replace the defective pavement or base material.
  2. Cover the defective area with an overlay of a suitable material to renew the surface, seal the defective area, and stabilize the affected pavement.

- Pavement Reconstruction – In the Pavement Management Report, it is recommended that all streets with a PCI rating of 34 or less undergo a full-depth asphalt replacement. This rehabilitation strategy involves the complete removal of the entire existing asphalt pavement, typically 4 inches or more in total thickness. The existing aggregate base is then repaired, shaped, and prepared for an overlay of a completely new hot-mix asphalt binder and surface layers.

Taskforce

In conferring with the larger taskforce group, the problem that Woodstock faces with regard to maintaining pavements is a common one. In some form or another, representatives from each of the communities indicated that they struggle for a way to keep up with this growing issue. One thing that appears to be different is that Woodstock is an older community. Communities like Huntley, Crystal Lake, Lake in the Hills and Algonquin are older communities but a major portion of the community was developed less than 15-20 years ago. As a result, the newer pavements have not yet required attention and they are not yet competing for that same funding source for maintenance as the older streets. They all feel that at some point however, their situation will be much like Woodstock's as it relates to a lack of available funds to keep pace with pavement maintenance and replacement needs.

Many communities are moving into the same mode that Baxter & Woodman suggested the City move to; preserving the existing pavement as opposed to waiting until it is resurfaced. The group shared some of the resurfacing/replacement techniques that are being used today at their various communities.

Huntley and Algonquin have used a preventive maintenance product on their roads which is considered a "preservative seal" called Reclamite and McHenry will be trying this product on

their pavement later this year. Reclamite is applied like a fog seal. Once applied the product is allowed to penetrate the surface for 30-45 minutes. Then a light coating of sand or limestone is applied to allow traffic back onto the road. After a day or two, the screenings are swept up and the road is finished being treated. Reclamite can be reapplied every five years for best, long-lasting results. Cost is approximately $0.75/ square yard. As an example, Throop Street between Calhoun & South would cost approximately $1,500 to apply Reclamite.

It seems appropriate that some of the resurfacing dollars should be spent to preserve new or recently improved pavement. Again, it is about the right repair; for the right road; at the right time. A successful preventive maintenance program must include the following components:

- Education: The City will need to stress to residents that it is more economical to preserve pavements in good condition than to replace them when they wear out.
- Philosophy: Developing a preventative maintenance program will require a shift in thinking, from rehabilitation and reconstruction to preservation.
- Timing: treatments need to be applied at the right time to preserve the structure of the pavement.
- Funding: An effective preventive maintenance program requires the appropriation of adequate funds.

Shared Service Agreements

Shared service agreements allow communities to offset costs when assets are underutilized. They can include agreements to share equipment, staff, programs, etc. Shared services can provide the following benefits:

- Reduced costs of service delivery by achieving economies of scale
- Administer existing services at a higher level by sharing costs and labor of service delivery
- Allow for the provision of more services or a higher service level than that which an individual community can achieve individually
- Increase regional cooperation and build public trust and relationships with other municipalities

Joint Procurement

A joint procurement occurs when multiple municipal entities develop and execute a single bid to a vendor or contractor to provide a service. Communities that combine their "needs" through a single bid are often able to save money through economies of scale, rather than bid the project separately.

The Taskforce spent a considerable amount of time discussing joint procurement of bids, municipal partnering in the purchase of paving equipment, crack sealing equipment and striping equipment, sharing of existing equipment, sharing employees, etc. As with any investment of this size, the initial start-up costs are significant. The purchase of a "used" paving machine, rollers, and trailers to transport the equipment would cost hundreds of thousands of dollars. The equipment must to be stored when not in use and servicing it can be costly. City employees would need to be trained and certified in operating and maintaining this type of equipment.

Operating this type of equipment and gaining the experience to do the job takes time and years of experience. Only those trained and certified could use the equipment. Re-surfacing, striping and crack sealing our roads with City personnel would effectively remove these employees from performing other duties for the construction season. In theory, some costs could be saved by not having to pay prevailing wages to City personnel; however, their lack of professional knowledge, experience, and equipment could drive the overall cost higher than might be expected to achieve a similar quality of work. Road building and resurfacing projects would definitely take longer to complete and the finished product may not be satisfactory. Professional roadbuilding contractors have a great deal of experience and their expertise shows in the final product.

It was the consensus of the Taskforce that it would not be cost effective or efficient to put a crew together to achieve shared services for the paving of roads, at this time. Smaller projects involving pavement crack sealing, patching and striping might be a service that could be provided by City personnel as they involve less up-front costs and involve smaller crews for shorter durations.

Since 2011, a Municipal Partnering Initiative (MPI) program has been effectively partnering with 30+ communities from Lake County, Cook County, DuPage County and one (1) community from McHenry County. They have been involved in over 25 different projects generating an estimated savings of up to $2.6 million. MPI has expanded in the last three (3) years to include partnering in IT services, building inspection services and a water meter replacement program. MPI has bid several projects offering multi-year contracts with optional extensions if requested by the community. Bidding in this manner reduces staff time for rebidding, is more competitive for vendors and has made it easier for vendors to hold pricing from year-to-year in order to be awarded an extension.

While joint partnering does not guarantee reduced vendor pricing, it does provide the best opportunity to achieve economies of scale. Some contractors may find it more cumbersome to joint bid a project where prevailing wages could vary between adjoining communities in different counties while others may find it more economical and more desirable to bid one large contract with multiple communities.

As a result of our Taskforce meetings and discussions with other communities involving the potential savings thru joint partnering, the City is currently participating in a joint partnering bid with three other McHenry County communities for our crack sealing program. The final results were extremely beneficial with the bid price of $0.33 per lineal foot for the City's 2016 program compared with the $0.47 per lineal foot paid for the 2015 program, a (29.8%) savings.

Conclusion & Recommendations:

- When the City sets a plan for resurfacing it should choose streets that are located in the same geographical area as much as possible in order to prevent added contract costs resulting from frequent remobilization of employees and equipment.
- It does not appear as though contractors have met the requirements for road construction as specified by our City Code. In the future it will be important to have a representative from the City on site for the duration of the paving portion of the project to ensure final specifications are in compliance.
- When time allows, the Public Works Department should focus on trimming those trees located in the public rights-of-ways to allow the road and its base material to dry out.
- The City should continue to meet with representatives from other municipalities, townships, and county agencies to discuss the possibilities of joint bidding, new techniques and technology, and the sharing of equipment, knowledge, and resources.
- The City should consistently complete follow-up visits for all work within the public rights-of-way in order to protect the City's infrastructure being affected by the work.

Pavement Management Taskforce

Chapter 8 - Other Suggestions

Other Suggestions

Weight Restrictions:

One area that the Taskforce looked at extensively was how to extend roads' useful lives to maximize the City's road construction budget. This can be accomplished in a number of ways. One way is through preventive maintenance such as crack sealing, as was discussed in a previous chapter of this report. Another way is to reduce the amount of road traffic causing excessive wear and tear, particularly truck traffic.

According to the Government Accountability Office (GAO) study, Excessive Truck Weight: An Expensive Burden We Can No Longer Afford, road damage from only one 18-wheeler is equivalent to that caused by 9,600 cars. This study assumed a fully-loaded tractor-trailer at 80,000 pounds, and a typical passenger car at 4,000 pounds. While the truck is 20 times heavier than the car, the equivalent wear and tear caused by the truck is exponentially greater than that caused by the auto.

Throughout Woodstock there are numerous Truck Routes that have been designated by the City and filed with the Illinois Department of Transportation (IDOT). A map showing these routes is presented on the next page. Many of these routes allow for truck traffic to move in and out of our industrial areas and into downtown. There are, however, other roads being utilized as shortcuts, by drivers who are not servicing Woodstock businesses, as trucks pass through from one town to another. One prime example of this is Irving Ave, connecting RT 120 and RT 47.

The Taskforce examined whether declassifying these roads as Truck Routes would make them ineligible for future federal grant funds. This was a concern since federal CMAP and STP grant funds are used currently for repaving these roads, as they are designated collector routes. Fortunately, research indicates the City can move forward with the imposition of weight-restrictions on these roads without jeopardizing future federal grant funds.

The advantage to this proposal would be to move truck traffic to other roads, primarily state right-of-way. This would in turn extend the life of the weight-restricted roads by eliminating significant damage-causing vehicles that are currently allowed to use such thoroughfares.

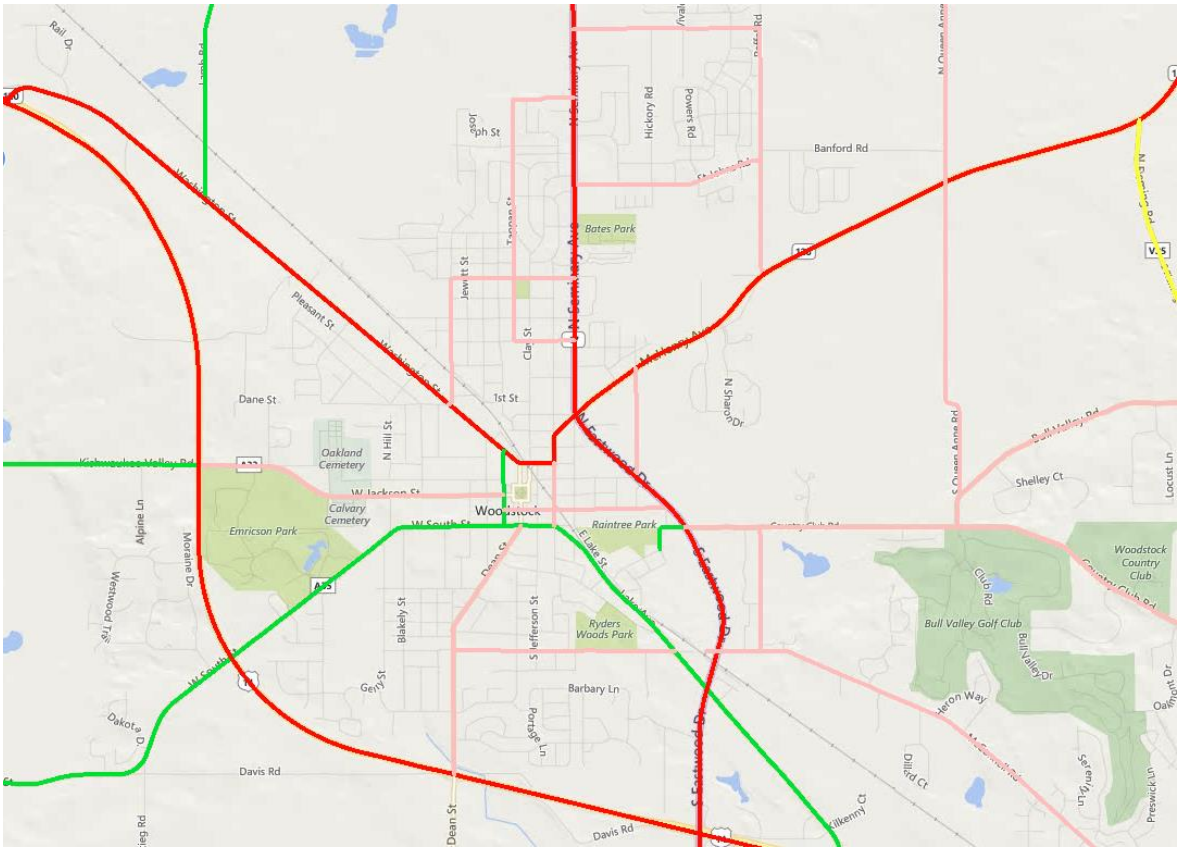
The disadvantage to closing some roads to truck traffic is the resulting unknown impact on traffic patterns throughout the City. For example, if a weight restriction is posted on Irving Ave between RT 120 and RT 47, this will cause truck traffic to proceed to the main intersection of RT 120 and RT 47 instead. Currently, this light signal is of fairly short duration, and the left turn lane is not very lengthy. Therefore without reviewing, and possibly adjusting, the left-turn time, traffic backups could result at this intersection.

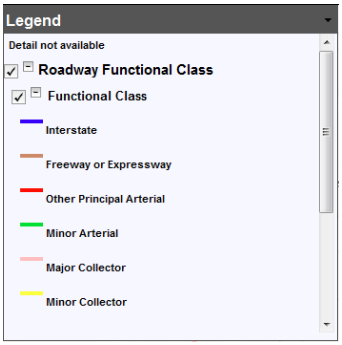
A second disadvantage to restricting truck traffic on certain roads is the potential for industry and other businesses to be affected by trucks needing to take longer routes to reach their Woodstock

destination. While weight restrictions could be waived for trucks making scheduled local deliveries, the results of any limitations placed on truck access to Woodstock businesses would need to be carefully reviewed by the City's Economic Development Department before they are enacted.

There are many roads in Woodstock where adding a weight restriction could make sense; however, the two best candidates identified by the Taskforce are Irving Ave, between RT 120 and RT 47, and Lake Avenue, from South Street to RT 14.

Road Way Function

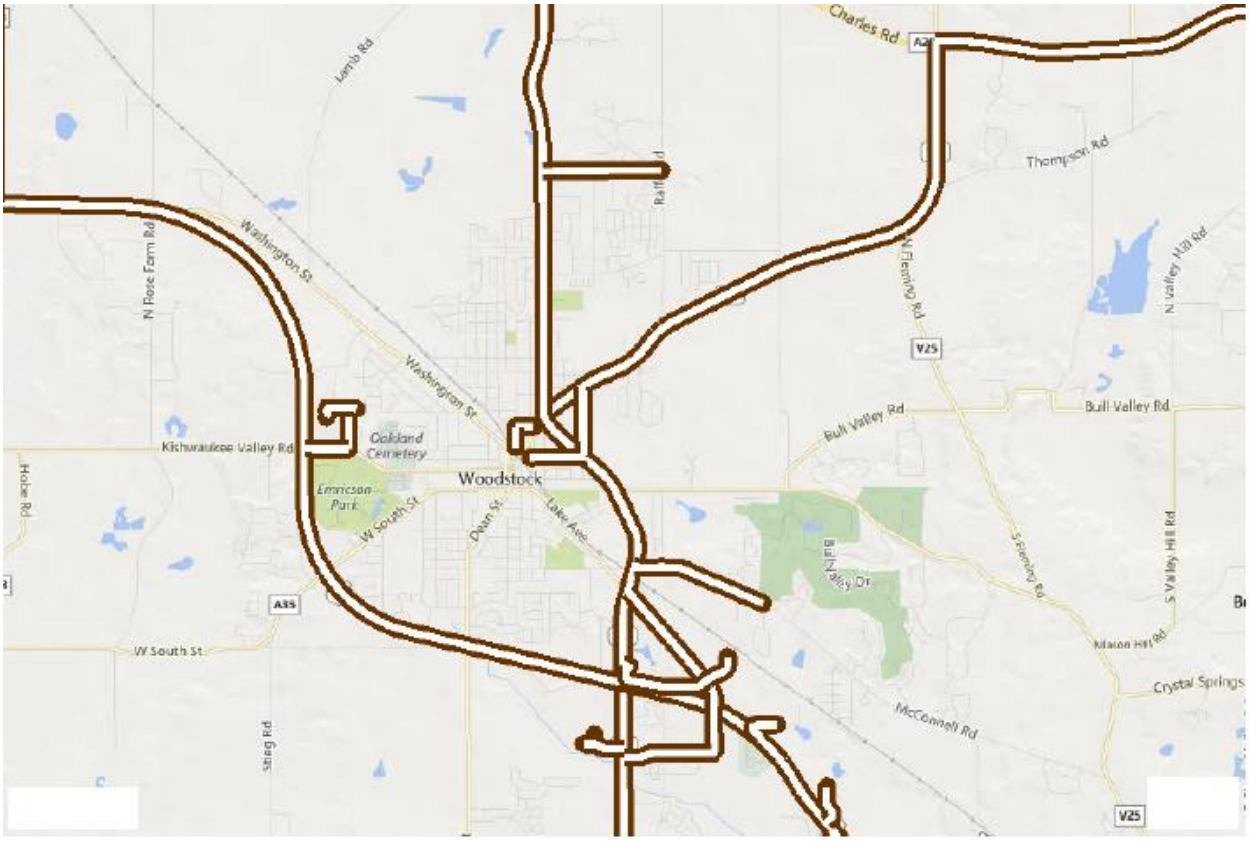




While the map on the previous page shows the roadway function, it does not actually show the Truck Routes as designated by IDOT. Therefore, if a decision is made to move forward with the weight restriction initiative, a good place to start would be with roadways IDOT has identified as major or minor arterials, but not as currently-designated Truck Routes.

In order to put weight restrictions in place on designated roads, an Ordinance would need to be developed and adopted by the City Council. The new restrictions would then be filed with IDOT who would modify their Truck Route map shown below accordingly.

Truck Routes around Woodstock



Commercial Franchise Agreement:

As mentioned above, trucks cause a significant amount of damage to Woodstock roads. One type of truck that is prevalent throughout town causing this damage is garbage trucks. Since garbage trucks need to visit every address in the City at least once a week, a roadway weight restriction as suggested above cannot be applied, and other solutions must be considered. A plan that would offer more consistency and control would be to restrict commercial garbage pickup to only one company, as is already the case with single-family residential garbage collection.

The idea would be to create a commercial franchise agreement. Under this plan, the City would bid out for commercial garbage collection and the lowest responsible bidder would be selected. Businesses then would be required to only use this vendor to pick up their garbage. There are advantages for both businesses and the City with this plan. The City's bid program could cover large sections of town, with resulting economies of scale, and money saved, from using only one truck and one collection period. The current method of using multiple trucks to pick up garbage in various parts of the City is inefficient by comparison, since the trucks only collect from their specific customers. This in turn causes unnecessary garbage trips to occur on City roads, which increases the amount of damage being done.

The communities of Deerfield, Grayslake, Gurnee, and Lake Bluff all enjoy this type of franchise contract program. However, the National Waste & Recycling Association, which claims to represent 85% of all solid waste collectors in the Chicago region, disputes the program's savings to businesses.

Unfortunately, after researching the City's ability to enter into this type of agreement, it was found that recent legislation has made it very difficult, if not impossible, to create new commercial garbage franchise agreements. Current legislation (65 ILCS 5/11-19-1) requires a lengthy study period before a commercial franchise agreement can be entered into. For a period of 36 months, a report must be submitted to the City every 6 months from every company collecting garbage. The report must indicate the number of non-residential locations served by the hauler, and the number of non-residential locations contracting with the hauler for recycling materials.

Based on these reports, the City could only move to create a commercial franchise agreement if results showed that less than 50% of the non-residential locations in the municipality contract for recyclable material collection services during two consecutive 6-month periods. It should be clear that this is not 50% of material being recycled, or even 50% of businesses using recycling, only that at least 50% of the non-residential locations must have <u>contracted</u> for recycling service. Staff believes it is likely that more than 50% of Woodstock businesses are contracting for recycling; therefore, based on this low bar for recycling that the Illinois legislature has established, the City would be prohibited from entering into a commercial franchise agreement.

While Illinois law makes it difficult, if not impossible, to implement a commercial garbage franchise agreement, it appears that the City could enter into a multi-unit residential contract with nothing more than passage of an Ordinance by the City Council. The benefits of this type of program would be the same as were identified above for a commercial garbage agreement, just on a smaller scale, as a result of there being fewer multi-unit buildings than businesses.

While Staff has made every attempt to insure that the interpretations of current Illinois laws are correct, including review by the City Attorney, extensive legal research has not been conducted

in order to minimize expenses. Should Council wish Staff to pursue this potential strategy, further legal investigations would be required.

Garbage Trucks:

While it appears that a commercial franchise agreement would not be possible for the City of Woodstock, the Taskforce did examine other avenues to limit garbage truck traffic on City roads. One suggestion discussed was for garbage trucks to travel on only one side of a roadway. Residents would then be required to place their garbage on that side of the road, regardless of which side they actually lived on. It is estimated this would result in a significant reduction of the garbage truck trips on City roads, possibly by as much as half. In addition to fewer trips, only one side of the roadway would be affected by the resulting garbage truck damage. Repaving services could potentially be required for only one side of the roadway, with the other side remaining in better condition.

New subdivisions could reap further benefits from this plan. When a new subdivision is established, the garbage truck route could be predetermined. The identified side of the road could be built to a higher standard to accommodate the weight of the garbage trucks, which would even further extend the life of the road.

While this idea could prolong the life of City roads, the inconvenience placed on current residents may outweigh the benefits. Some affected residents would be required to take their garbage across the street, instead of putting it out in front of their homes. In addition, residents on the side of the street where the garbage is being placed might also complain about the quantity of garbage being put in front of their home, along with concerns about other residents' garbage being blown onto their lawn on windy days. For these reasons, this plan is likely to succeed only in new subdivisions where residents have yet to form domestic habits.

Another idea is to reverse the garbage truck collection route. Currently, residential garbage trucks travel over City streets on a set route that they complete each week. This results in the garbage truck becoming full at the same point in the route each week, therefore causing increasing damage to the same section of road on an ongoing basis. Under this plan, the garbage route would be reversed, with the truck beginning its route at the point where the garbage truck had previously become full. This would then spread out the additional weight of the garbage collected throughout the entire route, which would result in the road damage being spread more evenly along the route.

There are two potential problems to this plan. The first is that residents who are used to having their garbage picked up at certain times may find it difficult to adjust. Residents who are used to being at the end of the route may even miss pickup times altogether if the route reversal meant their garbage was now picked up much earlier in the day.

Secondly, it is unknown if the garbage company would be open to changing their route pattern. This reluctance could be for a number of reasons, the primary one being that the route they are currently using has likely been established for efficiency. Reversing routes may lower their productivity and increase costs. If City Council would like this concept explored further, Staff would need to contact MDC Environmental Services to determine if they would be amenable to this idea.

Recommendations:

The Pavement Management Taskforce recommends that City Council:

- Institute weight restrictions on the following City streets:
    - Irving Avenue between RT 120 & RT 47 – this would be a good initial location to test out the impact from a weight restriction. This would significantly reduce the number of trucks traveling on this road and the resulting damage they are causing; and
    - Lake Avenue from South Street to RT 47 would be another good candidate for weight restriction designation.
- Direct Staff to investigate any other applicable roadways to determine those areas where truck traffic and resulting damage could be decreased by adding weight restrictions.

Pavement Management Taskforce

Appendix A

Additional Information

National/State Challenges:

According to the Federal Highway Administration (FHWA), the United States maintains nearly 3.95 million miles of public roads. The table presented below shows highway mileage by agency ownership. The problem facing highway agencies is that many roads are wearing out because of increased traffic, environmental impacts, and a lack of proper maintenance.

Public highway ownership by miles.		
Jurisdiction	**Miles (Thousands)**	**Percentage**
Federal	118	3.0%
States	775	19.6%
Local	3,055	77.4%
Total	3,948	100.0%

Every community must deal with the effects of regional environments on pavement performance, in addition to the impacts from traffic. Pavement sections originally projected to last many years can accumulate distress at an accelerated rate and fail prematurely. Most highway agencies experience and understand this problem but are daunted when budget allocations do not keep pace with the needs of highway pavement upkeep.

Pavement preservation is not about a single treatment, nor is there a simple one-size-fits-all approach. Instead, the City's ultimate philosophy should be tailored to best address the residents' needs in the most cost-effective manner. This may involve a final program that uses a variety of treatments and pavement repairs to extend pavement life, combined with a dedication to monitor technological advancements within the industry and the utilization of pilot initiatives to determine the best outcomes.

The issues facing the City of Woodstock are not unique to just our community. When forming the Taskforce, Public Works reached out to a number of neighboring communities and all showed interest in participating in these discussions. As a result of their participation, it is clear that our neighbors face similar challenges in regards to their own local streets. In response, some of these communities have levied a separate sales tax to generate additional resources and have dedicated a significant portion of these revenues to address their local infrastructure needs. Other communities are trying to address these same challenges with existing resources, However, the growth in the level of spending is outpacing the growth in existing revenues, requiring either reductions in spending in other areas to "free up" resources or the inability to maintain the needed pace to keep up with existing infrastructure.

The issues related to infrastructure maintenance goes beyond even a regional challenge as the ASCE's Report Card for America's Infrastructure indicates an overall letter grade of D+. They note that "every family, every community, and every business needs infrastructure to thrive." Furthermore, specific to roadway infrastructure, the overall letter grade issued within the last report card was a D.

Every four years, the ASCE's Report Card for America's Infrastructure depicts the condition and performance of American infrastructure in the familiar form of a school report card — assigning letter grades based on the physical condition and needed investments for improvement.

The 2013 Report Card grades show we have a significant backlog of overdue maintenance across our infrastructure systems, a pressing need for modernization, and an immense opportunity to create reliable, long-term funding, but they also show that we can improve the current condition of our nation's infrastructure — when investments are made and projects move forward, the grades rise. They estimate over $3.6 trillion in needed investment by 2020.

On a positive note, if the ASCE's estimates are broken down on a per-capita basis, the US average would be $11,124.95 and the local roadway component would be $8,610.72. For the City of Woodstock, our per-capita local roadway component, utilizing the costs outlined within the B & W report, would be $2,785.63, or 68% less than the national average. Note: this does not include necessary tax contributions required by local residents to maintain County and Township infrastructure that would be utilized to travel outside the City's corporate limits.

Best Practices/Methodologies Analysis Details

Bottom Up Approach:

This approach was discussed initially in Chapter 4, page 31. Specific details are provided below that involve inherent benefits/challenges related to this methodology. The following table illustrates each year's results as streets deteriorate or are improved.

Zero-Rated PCI Pavement Improvements						
	Square Feet				Dollar	Average
Year	Start	Improved	New	End	Value	PCI Rating
2016	224,314	(157,741)	514,205	580,778	$978,476	46.2
2017	580,778	(168,461)	1,353,258	1,765,575	$1,100,927	44.7
2018	1,765,575	(180,191)	972,104	2,557,488	$1,202,180	44.5
2019	2,557,488	(207,297)	907,585	3,257,776	$1,300,746	44.7
2020	3,257,776	(169,450)	1,142,268	4,230,594	$1,406,929	44.2

In the table presented above, the "Start" column represents the square footage of Zero-Rated PCI pavement at the start of the construction season. The "Improved" column illustrates the amount of pavement reconstructed in the current year. The "New" column represents the pavement falling into the Zero-Rated PCI category, based on the engineers' estimates, during the year, with the "End" column indicating the square footage of Zero-Rated PCI streets at the end of the year.

The "Dollar Value" column is the level of spending required to treat the pavement indicated in the "Improved" column during the construction year. The Average PCI Rating demonstrates the anticipated change in the City's average PCI rating by improving the selected pavement.

Zero-Rated PCI Pavement Improvements				
	Road Segments			
Year	Start	Improved	New	End
2016	23	(20)	40	43
2017	43	(21)	99	121
2018	121	(29)	72	164
2019	164	(31)	42	175
2020	175	(23)	67	219

The information presented above is similar to the previous table, except this data focuses on the change in the number of road segments. Unfortunately, the size and dimensions of individual road segments can vary, but the majority represent the portion of a street that falls between two other streets, or in essence, a City block.

Top Down Approach:

This approach was discussed initially in Chapter 4, page 32. Specific details are provided below that involve inherent benefits/challenges related to the Top Down approach. The following table illustrates each year's results as streets deteriorate or are improved.

Pavement Improvements:

65-84 Rated PCI Pavement Improvements						
	Square Feet				Dollar	Average
Year	Start	Improved	New	End	Value	PCI Rating
2016	3,296,310	(3,296,310)	263,557	263,557	$338,714	49.6
2017	263,557	(263,557)	186,733	186,733	$18,449	47.7
2018	186,733	(186,733)	223,712	223,712	$13,463	46.5
2019	223,712	(223,712)	75,639	75,639	$16,614	45.5
2020	75,639	(75,639)	3,752,235	3,752,235	$5,786	44.8
50-64 Rated PCI Pavement Improvements						
	Square Feet					Dollar
Year	Start	Improved	New	PCI Drop	End	Value
2016	2,841,687	(302,658)	0	(319,953)	2,219,076	$683,308
2017	2,219,076	(482,548)	0	(253,941)	1,482,587	$1,084,642
2018	1,482,587	(520,064)	0	(0)	962,523	$1,185,123
2019	962,523	(544,295)	0	(0)	418,228	$1,283,760
2020	418,228	(418,228)	0	(0)	0	$1,001,568
35-49 Rated PCI Pavement Improvements						
	Square Feet					Dollar
Year	Start	Improved	New	PCI Drop	End	Value
2020	657,802	(86,974)	0	(149,844)	420,984	$407,724

The tables presented above are separated to illustrate the changes occurring within each category based on the underlying PCI rating factors. Work completed in each year is prioritized based on

the least expensive category. Therefore, all maintenance work (i.e., PCI ratings between 65 and 84) is completed each year. Remaining funds are then allocated to the next tier (i.e., PCI ratings between 50 and 64), with a focus on the lowest-rated pavement in the category to prevent the pavement from falling into the next category in the following year.

Similar to the previous presentation, the "Start" column represents the square footage of PCI pavement in that category at the start of the construction season. The "Improved" column illustrates the amount of pavement reconstructed in the current year. The "New" column represents the pavement falling into this category from the previous level due to anticipated wear and tear. The "PCI Drop" column indicates the square footage of pavement that is unable to be treated in the current year and is expected to fall into a lower PCI category at the end of the construction season. The "End" column indicates the square footage of PCI streets that still fall within this PCI range at the end of the year.

The "Dollar Value" column is the level of spending required to treat the pavement indicated in the "Improved" column during the construction year. The Average PCI Rating demonstrates the anticipated change in the City's average PCI rating by improving the selected pavement.

65-84 Rated PCI Pavement Improvements					
	Road Segments				Average
Year	Start	Completed	New	End	PCI Rating
2016	209	(209)	21	21	49.6
2017	21	(21)	15	15	47.7
2018	15	(15)	18	18	46.5
2019	18	(18)	3	3	45.5
2020	3	(3)	240	240	44.8
50-64 Rated PCI Pavement Improvements					
	Road Segments				
Year	Start	Completed	New	PCI Drop	End
2016	159	(25)	0	(6)	128
2017	128	(28)	0	(5)	95
2018	95	(32)	0	(0)	63
2019	63	(34)	0	(0)	29
2020	29	(29)	0	(0)	0
35-49 Rated PCI Pavement Improvements					
	Road Segments				
Year	Start	Completed	New	PCI Drop	End
2020	22	(7)	0	(4)	11

The information presented above is similar to the aforementioned methodology, with this data focusing on the change in the number of road segments. Unfortunately, the size and dimensions

of individual road segments can vary, but the majority represent the portion of a street that falls between two other streets, or in essence, a City block.

Additional Funding Required to Forgo PCI Drop			
Year	Square Feet	Road Segments	Dollar Value
2016	319,953	6	$700,579
2017	253,941	5	$571,034
2018	0	0	$0
2019	0	0	$0
2020	149,844	4	$708,988

The table presented above, provides the amount of square feet and number of road segments, as well as ***the dollar amount of additional funding required*** to prevent certain roadways from falling into the next PCI threshold, from the category currently being addressed.

PCI Rating Declines:

This methodology was presented in Chapter 4, page 33. Specific details are provided which review the inherent benefits/challenges related to this approach. The table presented below illustrates the various impacts from utilizing this methodology. Work completed in each year is prioritized based on the anticipated PCI decline determined within the Baxter & Woodman Report.

PCI Pavement Improvements						
	Improved Roadways				All Roadways	
Year	Square Feet	Average PCI Improved	Average PCI Decline	Dollar Value	Average PCI Decline	Average PCI Rating
2016	265,614	38.0	6.6	$1,003,194	2.7	45.3
2017	169,680	6.4	6.0	$1,102,704	3.1	43.7
2018	199,595	6.2	5.7	$1,211,919	2.7	41.5
2019	159,376	6.4	5.3	$1,297,984	2.5	39.9
2020	135,046	17.5	5.1	$1,412,786	2.3	38.4

This approach allocates very little funding in areas that are deemed to be maintenance levels (i.e., PCI ratings between 65 and 84) and focuses most attention on the Poor (i.e., PCI Ratings in the 20-34 category) and Failed (i.e., PCI Ratings falling in the <20 category) pavements. This methodology does not allocate any funding to zero-rated pavement, since no PCI rating declines are projected in the future.

The four columns under "Improved Roadways" represents the square feet of pavement resurfaced during the year, the Average PCI Ratings for the pavement meeting the requirements for improvement, the Average PCI Rate of Decline being experienced by the selected pavement and the Dollar Value indicates the amounts being expended to complete the roadway

improvements. The two columns under "All Roadways" provide the "Average PCI Decline" for all pavements and the Average PCI Rating for all pavements after the improvements are completed.

Cost Differential:

This approach was presented in Chapter 4, pages 33 and 34. Specific details are provided below which outline the inherent benefits/challenges related to this methodology. Similar to the previous PCI Ratings Decline methodology, the table presented below provides information regarding the roadways selected for improvements based on the anticipated increase in the per square foot costs for the next construction season.

PCI Pavement Improvements						
	Improved Roadways					All Roadways
Year	Square Feet	Average PCI Improved	Average Dollar Increase	Dollar Value	Road Segments	Average PCI Rating
2016	183,300	22.0	$8.01	$1,006,317	12	45.2
2017	200,996	20.8	$6.93	$1,103,468	13	43.0
2018	312,004	35.9	$3.30	$1,200,934	22	41.6
2019	223,225	21.5	$11.57	$1,300,139	5	39.6
2020	234,610	21.3	$4.35	$1,407,442	18	38.8

Roadways scheduled for resurfacing are prioritized based on the largest dollar increases anticipated within the Baxter & Woodman Report. This places emphasis on arterial/industrial streets that are scheduled to fall into the PCI Category of less than 20 as the cost differential is significant in this area (i.e., increases by $15.71 per square foot in urban and $13.85 per square foot in rural). The columns that are different from the prior presentation are "Average Dollar Increase," which represents the potential increase based on the following year's construction costs on a square foot basis. The "Road Segments" are the number of sections of pavement (e.g., City blocks) that would be resurfaced.

Additional Funding Required to Forgo PCI Drop Greater than $1.00 per Square Foot					
Year	Sq. Footage	Average Dollar Increase	Average PCI Rating	Road Segments	Dollar Value
2016	1,941,315	$1.95	38.4	114	$6,316,107
2017	2,041,032	$1.87	42.2	111	$6,661,868
2018	1,519,421	$1.88	45.0	83	$4,995,874
2019	1,475,494	$2.19	40.9	104	$4,814,017
2020	1,043,906	$2.04	41.2	63	$3,398,849

The table presented on the previous page identifies the additional funding required to address any pavement segments expected to experience an increase in the per square foot costs that exceeds $1.00. The "Square Footage," "Average Dollar Increase," "Average PCI Rating," "Road Segments," and "Dollar Value" are all listed for the pavement that would meet the aforementioned requirement. This approach is highly reliant on the expertise of the engineers in determining the right timing for completing pavement improvements based on cost increases.

Transportation Commission – Sidewalk Prioritization Assessment

The following spreadsheet demonstrates a proposed prioritization process developed by the Transportation Commission and forwarded for Council's consideration. This process was developed taking into account several factors to determine sidewalk scheduled for replacement or new sidewalk locations. The introduction to the spreadsheet developed by the Commission has been provided below:

Last year the Transportation Commission was tasked to look at the sidewalks in Woodstock. The focus was on connectivity to schools, parks, public buildings, and commercial sites. A square, four blocks on each side, was superimposed on all those locations. Each location was assigned a weight. The most important starting weight was given to streets with no sidewalks.

There were overlaps so a particular street that had no sidewalks was weighted at 20 and if it was within four blocks of a school was weighted an additional 10 for a total of 30. If that street was within four blocks of a park, which was assigned a 5 weight, the total would be 25. Public buildings were weighted at 2 as was commercial.

The weights could be changed to reflect certain popular destinations for persons using sidewalks.

The purpose of combining the spreadsheets was to clearly see the roads that were in bad shape and were on a route that would be popular for sidewalk users. Those sheets may get more attention in the prioritization process.

For instance, if there is no sidewalk for students to walk to school, they may ride their bikes or walk on bad pavement which could make the trip more dangerous. There may be a case for adding sidewalks on any street needing them when a road is being repaired. This does not contemplate changes to sidewalk ramps to be in compliance with the ADA. Nor does it consider what grants may be applied to make safer routes to school.

The combined spreadsheet could be configured to help the city locate the most effective places to invest in repairs or replacement.

Street Name	From	To		Length	Width	Sq feet	PCI	Side Weight no SW	School Weight	Park Weight	Public Weight	Commercial Weight	TOTAL WEIGHT
Ash			161 Ash					20					20
ASH AV	TAPPAN ST	WALNUT DR		401	30	12,026	23			5			5
AUSTIN AV	HERRINGTON PLACE	FOREST AVE		683	29	19,795	40		10				10
BIRCH RD	ROGER RD	ST. JOHNS RD		454	30	13,611	47			5			5
BLAKELY ST	**FOREST AVE**	**STEWART AVE**		**299**	**28**	**8,366**	**0**		**10**	**5**			**15**
BOBLINK CI	BULL VALLEY DR	BULL VALLEY DR		1,119	22	24,621	25	20					20
BOULDER LN	BERLTSUM LN	WHITE OAK LN		605	30	18,147	52	20					20
BRINK ST	GIDDINGS ST	WASHBURN ST		374	21	7,844	60	20		5		2	27
Brown	Giddings	Washburn		409	22	8,994	14			5		2	7
BROWN ST	**SMITH ST**	**GIDDINGS ST**		**458**	**22**	**10,070**	**0**	**20**		**5**		**2**	**27**
Bull Valley Dr.	Bobolink	Oakmont		408	22	8,981	11	20					20
BUNKER ST	HOY AVE	CHESTNUT AVE		366	21	7,688	0		10				10
Castle	Cobblestone	Pond Point		672	28	14,122	55			5			5
CASTLESHIRE DR	BORDEN ST	BORDEN ST		1,262	29	36,589	30		10	5			15
CHESTNUT AV	BUNKER ST	JEFFERSON ST		430	24	10,323	24	20	10				30
CHURCH ST	N SEMINARY AVE	MADISON ST		423	26	11,001	59			5	2	2	9
Claussen	Hillside	End						20	10	5			35
CLUB RD	COUNTRY CLUB RD	BULL VALLEY DR		329	40	13,154	35	20					20
COBBLESTONE W	POND POINT RD	CASTLE RD		806	36	29,025	42	20					20
Conway	Becking	Hill						20	10		2		32
DAVIS CT	FREMONT ST	LAKE AVE		389	15	5,838	14	20		5			25
DEAN ST	KIMBALL AVE	RIDGEWOOD DR		1,304	36	46,937	36	20		5			25
DONA CT	ARTHUR DR	END		335	19	6,373	61	20		5			25
DONOVAN AV	JEWETT ST	QUEEN ANNE ST		344	21	7,219	100			5			5
DONOVAN AV	QUEEN ANNE	WHEELER		333	21	6,986	64		10	5			15
DONOVAN AV	CLAY	MADISON		511	31	15,827	7			5		2	7
DORHAM LN	COUNTRY CLUB	END		297	22	6,543	6	20					20
DUVALL DR	SOUTH ST	SOUTH ST		1,265	31	39,217	20			5			5
DUVALL DR	SOUTH ST	GRETA AVE		696	30	20,873	10			5			5
FAIR ST	CALHOUN ST	SOUTH ST		395	36	14,218	0	20		5		2	27
FOREST AV	GERRY	BLAKELY		422	22	9,286	11	20					20
GIDDINGS ST	BROWN ST	BRINK ST		334	19	6,351	57	20		5		2	27
GRACY ST	MCHENRY AVE	END		165	12	1,981	73	20				2	22
GREENLEY ST	VINE ST	LAKE AVE		452	15	6,783	2			5			5
HAYWARD ST	**W. JUDD ST**	**W. JACKSON ST**		333	29	9,662	**6**		10	5	2	2	19
HICKORY RD	ST JOHNS RD	ROGER RD		455	17	7,730	42	20					20
HILL ST	QUINLAN LN	CONWAY ST		623	29	18,071	13	20	10				30
HILL ST	W. JACKSON ST	SOUTH ST		796	30	23,893	0		10				10
HILLSIDE TR	WESTWOOD TR	END		322	24	7,729	7	20		5			25

INFANTA CT	CASTLEBAR TR	END		460	28	18,364	60	20		5			25
JEWETT ST	GREENWOOD AVE	W. BEECH AVE		326	22	7,173	100			5			5
JEWETT ST	SUMMIT AVE	MEADOW AVE		320	29	9,279	61			5			5
JEWETT ST	**W. BEECH AVE**	**SUMMIT AVE**		322	21	6,769	**10**	**20**		**5**			**25**
KILKENNY CT	LAKE AVE	TO CUL DE SAC		1,198	30	41,736	53	20				2	22
KING ST	**E. LAKE ST**	**SMITH ST**		**373**	**22**	**8,207**	**7**	**20**		**5**			**25**
LINDA CT	TIMOTHY LN	CUL DE SAC		236	23	10,450	83	20					20
MAPLE AV	CLAY ST	MADISON ST		325	28	9,101	20	20		5			25
MARGARET DR	HILL ST	TO CUL DE SAC		765	30	28,618	22	20	10				30
MARVEL AV	OLSON ST	PARK ST		296	20	5,922	89	20					20
McCONNELL RD	RT 47 - S EASTWOOD DR	ZIMMERMAN RD		905	30	27,157	14	20		5		2	27
MEADOW AV	**QUEEN ANNE ST**	**WHEELER ST**		**332**	**22**	**7,312**	**0**			**5**			**5**
MITCHELL ST	DESMOND DR	HICKORY LN		961	30	28,822	58	20					20
MORAINE DR	CASTLEBAR	END		760	28	22,028	21			5			5
NEWELL ST	CLAY ST	WHEELER ST		363	36	13,061	73		10	5			15
OAKLAND ST	W JACKSON ST	W JUDD ST		342	27	9,243	31	20	10				30
OAKWOOD ST	ROOSEVELT ST	LAUREL AVE		324	20	6,474	36	20		5			25
OLSON ST	MARVEL AVE	IRVING AVE		395	17	6,719	100	20					20
OLSON ST	**IRVING ST**	**PINE COURT**		282	15	4,228	**3**	**20**					**20**
OSAGE WY	DAKOTA DR	TO END		172	30	5,173	59	20					20
PINE CT	OLSON ST	END		258	15	3,866	13	20					20
QUEEN ANNE ST	GREENWOOD AVE	W BEECH AVE		325	22	7,159	57	20		5			25
ROSE CT	SHARON DR	TO CUL DE SAC		393	20	7,869	89	20	10				30
SCHUETTE DR	**SHARON DR**	**MCHENRY AVE**		**1,161**	**23**	**26,706**	**13**	**20**	**10**				**30**
SOUTH ST	TARA DR	GERRY ST		1,619	27	43,707	18		20	5			25
STEWART AV	GERRY ST	BLAKELY ST		423	30	12,688	85			5			5
STEWART AV	**GOULD ST**	**DEAN ST**		310	24	7,448	**0**		**10**	**5**			**15**
SUMMIT AV	JEWETT ST	QUEEN ANNE ST		341	22	7,511	36	20		5			25
SUMMIT AV	WHEELER ST	TAPPAN ST		328	22	7,212	22	20		5			25
TAPPAN ST	BAGLEY ST	GREENWOOD AVE		424	20	8,475	58			5			5
TAURUS CT	BULL VALLEY DR	TO CUL DE SAC		288	22	6,331	15	20					20
TECH CT	DIECKMAN ST	CUL DE SAC		288	30	17,796	12	20					20
TETON DR	DAKOTA DR	TO END		154	30	4,610	40	20	10				30
WALNUT DR	ASH AVE	WILLOW AVE		556	30	16,677	78	20		5			25
WASHBURN ST	**SOUTH ST**	**BROWN ST**		457	22	10,046	**0**	**20**		**5**		**2**	**27**
WHITE FACE CT	**BULL VALLEY DR**	**TO CUL DE SAC**		260	22	9,132	**0**	**20**					20
WINTU CT	DAKOTA DR	END		208	30	12,053	13	20					20
YELLOWHEAD C	BULL VALLEY DR	NORTH TO CUL DE SAC		279	22	9,768	15	20					20

Note: The sidewalk rates may be changed and were set two years ago. The sidewalk spreadsheet is conbined with the engineering PCI data. Only streets that are in both are shown.

The all roads is the two spreadsheets combined and alphabetized. Sections in **BOLD** to show low PCI with high weight. Street section with no sidewalk is rated always at 20.

If SW rate is empty, there is a sidewalk on one or both sides. The sidewalk sheet was built for connectivity with emphasis on usage

Each street was in a four block walking distance to the noted destination: School, public, park or commercial destination.