



FINAL REPORT

PAVEMENT MANAGEMENT PROGRAM CITIZEN TASK FORCE

CITY OF INVER GROVE HEIGHTS | DAKOTA COUNTY | MINNESOTA

June 13, 2022

Prepared for:
City of Inver Grove Heights
8150 Barbara Avenue
Inver Grove Heights, MN 55077

CITY PROJECT NO. 1998-07
WSB PROJECT NO. 019132-000

FINAL REPORT

PAVEMENT MANAGEMENT PROGRAM CITIZEN TASK FORCE



FOR THE
CITY OF INVER GROVE HEIGHTS, MINNESOTA

June 13, 2022

Prepared By:





June 13, 2022

Honorable Mayor and City Council
City of Inver Grove Heights
8150 Barbara Avenue
Inver Grove Heights, MN 55077

Re: Pavement Management Program Citizen Task Force
City of Inver Grove Heights | Dakota County, Minnesota
WSB Project No. 019132-000

Dear Honorable Mayor and City Council Members:

On June 14, 2021, City Council passed a resolution (2021-161) establishing a Citizens Task Force for the purpose of fully exploring the City's Pavement Management Program and identify ways to make it more effective. WSB worked closely with City Staff and members of the Citizens Task Force over the last 8 months to complete the attached report.

The report yields many recommendations for how to improve the program. It also finds that the City can likely achieve city-wide pavement goals using current funding sources, with some annual adjustments for inflation as well as some bonding. To succeed the report finds that a major change is needed in the management of the program, with rigorous attention to what is most cost-effective in moving the entire program forward, while making individual project goals secondary to the overall PMP goals.

If WSB can provide any further assistance on the path to reaching your pavement management goals, we would welcome the opportunity to continue down the road to success in this mission critical effort.

Sincerely,

WSB


Klay Eckles, PE
Senior Project Manager


Alex Mollenkamp
Project Engineer

Attachment: Pavement Management Citizen Task Force Final Report

kkp

TABLE OF CONTENTS

| | |
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| TITLE SHEET | |
| LETTER OF TRANSMITTAL | |
| TABLE OF CONTENTS | |
| EXECUTIVE SUMMARY | 1 |
| CHAPTER 1 INTRODUCTION | 2 |
| 1.1 Preface..... | 2 |
| 1.2 Background..... | 2 |
| 1.3 Task Force Charge | 3 |
| 1.4 Task Force Recommendations | 3 |
| CHAPTER 2 MEASURING SUCCESS, PROJECT SOLUTIONS, AND SELECTION PROCESS | 4 |
| 2.1 Background..... | 4 |
| 2.2 Task Force Charge | 5 |
| 2.3 Defining Success and Measuring Progress | 5 |
| 2.4 Project Solutions—Choosing the Most Cost-effective Rehabilitation Techniques | 7 |
| 2.5 Selecting Candidate Streets for Rehabilitation | 8 |
| 2.6 CTF Recommendations on Measuring Success, Project Solutions and Selection..... | 10 |
| CHAPTER 3 UTILITY REHABILITATION AND FUNDING | 11 |
| 3.1 Background..... | 11 |
| 3.2 Task Force Charge | 11 |
| 3.3 Task Force Analysis and Findings | 11 |
| 3.3.1. Public Utilities and PMP progress | 11 |
| 3.3.2. Storm Water Utility Concerns | 12 |
| 3.3.3. Private Utilities and PMP progress..... | 13 |
| 3.4 CTF Recommendations Regarding Utilities..... | 13 |
| CHAPTER 4 PAVEMENT MANAGEMENT FINANCING | 14 |
| 4.1 Background..... | 14 |
| 4.2 Task Force Charge | 14 |
| 4.3 Task Force Analysis and Findings | 14 |
| 4.3.1. Overall funding levels..... | 14 |
| 4.3.2. Examination of Funding sources..... | 15 |
| 4.4 CTF Recommendations Regarding Financing..... | 18 |
| CHAPTER 5 RURAL ROADWAY REHABILITATION METHODS AND FUNDING | 19 |
| 5.1 Background..... | 19 |
| 5.2 Task Force Charge | 20 |
| 5.3 Rural Roadway Rehabilitation..... | 20 |
| 5.4 CTF Recommendations on Rural Road Rehabilitation | 21 |
| CHAPTER 6 STANDARDS FOR ROADWAY WIDTH AND POTENTIAL ROAD DIETS | 22 |
| 6.1 Background..... | 22 |
| 6.2 Task Force Charge | 22 |
| 6.3 City Road Width Standards and Road Diets..... | 23 |
| 6.4 CTF Recommendations on Road Standards and Road Diets | 24 |
| CHAPTER 7 PAVEMENT MANAGEMENT PROGRAM COMMUNICATIONS | 25 |

TABLE OF CONTENTS

| | | |
|------------------|---|-----------|
| 7.1 | Background | 25 |
| 7.2 | Task Force Review of Communications Efforts | 25 |
| 7.3 | General City-wide Communications | 26 |
| 7.4 | Project-Specific Communications | 26 |
| 7.5 | CTF Recommendations on Pavement Management Program Communications | 27 |
| CHAPTER 8 | SUMMARY OF RECOMMENDATIONS | 28 |

APPENDIX A

Citizen Task Force Charter

APPENDIX B

Cost Projections to Reach Goal

APPENDIX C

Cost Recovery Analysis

EXECUTIVE SUMMARY

Inver Grove Heights has had a Pavement Management Program (PMP) for two decades. The program saw many projects and significant financial support over the years, but the overall pavement condition across the city has steadily declined since the program started. A recent study completed by Staff suggested that major increases in expenditures would be needed to move the overall pavement condition to the goal. City Council determined a thorough review of the entire program and funding should occur, so it instituted the Citizens Task Force (CTF) and hired Engineering Consultant WSB to study the current program, explore other options, and make recommendations on how to improve the PMP.

The CTF met over a period of 8 months, holding 11 meetings. The first several meetings concentrated on understanding the current situation, city finances and the theory and concepts of pavement management. Then the CTF began dissecting the current program and developing recommendations for change. Decisions by the CTF were made by consensus and covered many areas. The CTF final report has over 2 dozen recommendations on how to improve the PMP. Some of these recommendations could be transformative, resulting in major changes in how the program is managed, dollars are spent, information is communicated, and project solutions are determined.

As part of the effort scenarios were developed for annual project schedules that could ultimately result in achieving the pavement condition goals. A financial analysis was also completed based on the most successful scenario, and the results are encouraging. The analysis found that by refocusing the PMP on the goal of maximizing the number of rehabilitated pavement miles instead of maximizing the life of each individual project, the current funding levels may be adequate to meet the goals over a 15-year period. This is dramatically different than earlier findings that suggested the pavement condition would significantly deteriorate in the same timeframe.

To accomplish the pavement condition goals the CTF has several recommendations that are key to the success. The most major of the findings and recommendations are as follows:

1. The overall goal needs to be to rehabilitate the most miles for the dollar, while considering the life cycle of ALL infrastructure. Individual project solutions must be chosen that effectively meet the overall program objectives. This may require project engineers to set aside geotechnical recommendations. Rehabilitating all city infrastructure as cost-effectively as possible is what the CTF members value most, even if an individual project does not fix all underlying issues.
2. The City's current financing and assessment levels related to the PMP are significant, and if the City keeps pace with inflation by continuing to make annual adjustments to the general levy for PMP the City should be able to complete \$7-9 Million a year in rehabilitation work. This should bring the city near its PMP goal in about 15 years. Significant bonding may be needed to cover the lag in assessment collections in the early years. The CTF supports all utilities being self-funded by utility fees allowing more assessment capacity for street improvements.
3. Rural roads need a better accounting, and the City should look into using simple overlays similar to the Broad Area Patching program, with the addition of thicker pavement overlays and accompanying assessments.
4. Communication surrounding the PMP has been improved in recent times, but the CTF recommends additional efforts in the area of communication. The average citizen does not understand the program, and early notification of two or more years of an upcoming project and what to expect is seen as a high priority.

Many more recommendations are included in the report that get into more detail on where improvements and policy changes may be warranted to succeed in the PMP. The CTF recognizes that it will take additional time and analysis to determine how best to go forward with the recommendations. The last recommendation discussed by the CTF was the recommendation to reconvene the CTF in 10 years, to gauge progress and provide feedback on possible additional changes to the program.

CHAPTER 1 INTRODUCTION

1.1 Preface

In June of 2021 the Council initiated the “Pavement Management Initiative” and authorized the creation of the Pavement Management Citizen Task Force (CTF). The mission of the CTF was to explore options for altering the course of the City’s faltering Pavement Management Program (PMP). It included the following members:

| | |
|-----------------------------|-----------------------|
| Kelly Kayser (Chair) | Rick Ellis |
| Cassie McKenna (Vice Chair) | Mary T’Kach |
| Kerry Karinen (Vice Chair) | Lisa Snell |
| Dan Haak | Kelton Glewwe |
| Paul Mandell | Ted Zochert |
| Craig Kromrey | Kevin Sethre |
| Brenda Dietrich (Council) | John Murphy (Council) |

The CTF was supported by City staff as well as consultants from WSB. The effort spanned 11 meetings beginning in October and ending in May. The first meeting established the CTF leadership and Charter (See Appendix A). Early on the CTF spent significant time viewing presentations, reading literature in the form of “homework”, and asking questions. As the process continued the CTF switched into a discussion mode, where options and alternatives were presented and CTF members debated and ultimately came to consensus on the content of this report and all the recommendations.

The result is a final report that explores every aspect of the PMP. It covers the overall goals of the program, selecting rehabilitation strategies and project candidates, financing of the program, how to address rural roads, and standards for new and reconstructed roads in a chapter on “road diets”.

The final product includes a gamut of recommendations for improving and re-focusing the PMP. Each chapter ends with its own set of CTF findings on how the City might improve the program. Most notably, the report finds that if the recommendations are implemented and a change of focus is addressed, meeting the stated goal of the PMP is possible at current funding levels and under current policies; a surprising conclusion, considering the City has fallen further behind every year for at least the last 10 years.

1.2 Background

For 20 years the City of Inver Grove Heights has operated a Pavement Management Program. The goal has been to keep the overall average pavement condition at a level that minimizes costs. As part of this program geotechnical studies have been completed to determine the suitability of underlying soils for roads that are rehabilitated. The studies have indicated that many roads built 20 to 50 years ago, were built on poor soils.

In the early days of the City, developers built the roads associated with new development and the city provided very little oversight. They used the soils located on site, and many of these soils turned out to be poor for long lived roads. The soils reports recommend that when one of these older streets with suspect soils is rehabilitated, the underlying soils be removed and replaced. Replacing the poor soils requires that a street be completely removed and reconstructed.

From 2001 to 2020 most of the rehabilitation projects have fallen into this category—requiring total reconstruction. Total reconstruction projects are very expensive, and a lower percentage of the project costs can be assessed. During this same timeframe, although the city budget for street rehabilitation work increased substantially over time, the condition of city streets steadily deteriorated as more miles have decayed compared to the miles rehabilitated.

In 2020 Staff presented a report to Council that showed the declining street quality. The report was corroborated by citizen feedback, a chorus of dissatisfaction with the condition of the street network. The report went on to explain that to halt the decline and then bring the condition of streets back up to the goal established when the PMP was initiated a major increase in funding would be required. The report indicated that current total spending of less than \$5 million per year needed to be raised to about \$16 million a year to reverse the trend. Council set about a gradual increase in funding to the program, but the increases contemplated in the report were unattainable in the context of all other city goals and financial obligations.

In 2021 a second analysis of the PMP was conducted by the Interim Public Works Director. Though his evaluation was not a deep analysis, his findings differed significantly with the earlier study. His report suggested that if a “Minimalist Approach” was taken, where only the very worst streets were reconstructed while most others were rehabilitated via less extensive methods that the city might be able to reach its goal given enough time and discipline.

Given the very different findings, and the \$100 million differential in expenditures over 10 years, Council determined that further investigation was warranted. The Consulting firm of WSB was engaged to facilitate a full exploration. The CTF was established to gain the perspective of those directly impacted by the success and implementation of PMP.

1.3 Task Force Charge

The Citizens Task Force has a Charter that spells out its objectives. It is included in the appendix, and those objectives are spelled out here as well:

1. A citizen perspective on past PMP projects and efforts, and input on what rehabilitation strategies hold the most promise for helping move the city toward meeting its PMP goals quickly.
2. What factors should be considered and how should they be weighted when choosing the appropriate rehabilitation technique for a given roadway.
3. Overall current funding levels—is the city providing enough funding to the program.
4. Whether the assessment policy is fair, effective, and comparable to other cities.
5. How specific streets are chosen for inclusion in a project.
6. Should the city consider “road diets” when a road requires reconstruction.
7. How the PMP program should be applied toward rural areas.
8. How the City best communicates information about the city PMP program to the general public, and how it specifically engages neighborhoods that might be impacted by a future project.
9. How the city defines success and measures progress in the program.

The chapters of this report address all these charges, though they are sometimes grouped together due to their interplay or association. Each chapter has a section titled “Task Force Charge”, which spells out which elements of the Charter the chapter will address.

1.4 Task Force Recommendations

At the end of each chapter a set of recommendations is listed. Only those areas where the CTF had broad consensus resulted in a recommendation. Consensus was determined by small group discussion followed by full CTF discussion. In some cases, a minority viewpoint existed that was sufficiently different from the group opinion that it was spelled out in the discussion or recommendation itself. Often the differences were when an issue was discussed in more detail, where special cases and anomalies became a concern. In these instances the differences among the members often diminished or disappeared when a broader perspective was applied.

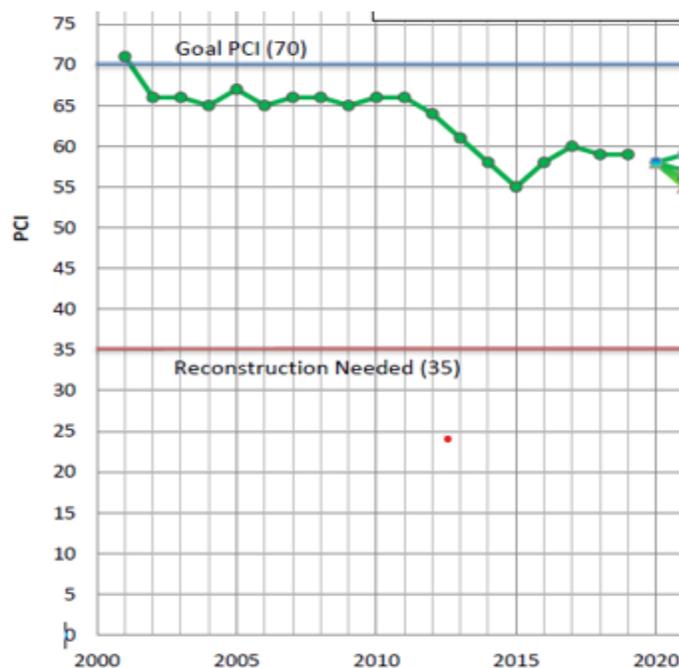
The CTF realizes that some challenges may surface when recommendations are fully fleshed out into program procedures or policies. Such detailed work was beyond the capacity and charge of this CTF. Staff will invariably be left with some challenges in bringing a few of these recommendations to reality.

CHAPTER 2 MEASURING SUCCESS, PROJECT SOLUTIONS, AND SELECTION PROCESS

2.1 Background

To have a successful Pavement Management Program it is imperative to know the definition of success. This is not the same as a successful pavement rehabilitation project. Choosing the “best” solution for an individual street or neighborhood could be at odds with the overall PMP goals, so the solutions that are open to consideration for individual projects need to be thought of in the overall context of the PMP and available resources.

Inver Grove Heights has been measuring the condition of pavement throughout the city for over 20 years. The measurement of each segment of road rates the pavement on a scale of 1 to 100 called the Pavement Condition Index, or PCI. A street with a 100 rating would have a perfect surface, where a street with a 50 rating would need rehabilitation and a 20 rating would be in very poor condition, possibly calling for total reconstruction. The City then uses the ICON software program to get an overall city-wide average PCI and to project the future condition of the streets based on expected rehabilitation activity. The City has set the goal for the city-wide PCI at 70.



The overall average PCI is shown here. At any given time, some streets will be well below the average, while newly constructed streets will have a score of 100.

The City began using the Pavement Condition Index system in 2001 when the goal was set at 70. Since then, the overall average PCI rating has continued to decline.

Extensive use of the PCI rating system around the country suggests that an average score of 70 provides a road network with generally acceptable roads, and maintenance efforts are optimized.

The results of the City’s PCI tracking efforts show that the overall average PCI is on the decline. The estimated system-wide PCI in 2021 was under 60 compared to an average of roughly 70 in 2001. An analysis completed in 2020 showed that not only has the city-wide PCI been dropping, but that the PCI will continue to drop unless major changes occur. The ICON projections showed the PCI on a downward trend to around 35 over the next two decades. At the time of the analysis, the recommendation was to increase spending dramatically - tripling the overall budget to over \$15 million a year.

The analysis and accompanying recommendations were based on the assumptions that roadways would be rehabilitated according to the recommendations of geotechnical engineering reports that have looked at the condition of the soils underlying the roads. The geotechnical reports suggest that a large majority of older streets in IGH are built on poor soils that should be replaced. If the report recommendations are followed, most roads will need a total reconstruction.

Total reconstruction projects are very expensive, requiring significant funding above and beyond the assessments. Their high costs result in the completion of very few projects each year, so each year one or two miles would be reconstructed, but about 10 new miles of roads would be added to the list of those needing rehabilitation. This has been the experience of the City PMP program over the last decade; each year streets are rehabilitated based recommendations of the engineers on how to meet the project goals and each year the city falls a little further behind on the PMP goals.

With a tremendous backlog of potential projects, it has become a challenge in deciding where to spend the limited dollars each year. Criteria for choosing the next slate of projects has been varied, with citizen petitions and Council directives becoming primary drivers. Citizen activism has often been driven by roads that have deteriorated to a point of becoming a blight on the neighborhood. Yet, the very high cost of the assessments associated with total reconstruction projects sometimes energizes residents to vigorously oppose projects.

This chapter looks at the three elements of a successful PMP: how to measure success, how to choose the right projects for success, and what types of rehabilitation strategies will lead to success. They are looked at together because the interplay between them is critical to a successful program, as well as a successful project.

2.2 Task Force Charge

The CTF charter has four specific elements addressed in this chapter:

- How the city defines success and measures progress in the program
- Provide a citizen perspective on past PMP projects and efforts, and input on what rehabilitation strategies hold the most promise for helping move the city toward meeting its PMP goals quickly
- What factors should be considered and how should they be weighted when choosing the appropriate rehabilitation technique for a given roadway
- How specific streets are chosen for inclusion in a project

Because of the interplay and relatedness of these issues they are all being addressed in one chapter.

2.3 Defining Success and Measuring Progress

In reviewing the City's PMP program the CTF came to see that the definition of success and how that definition is applied has major implications. In thinking about PMP success, an important distinction is that success pertains to the entire system of roads, not to specific road projects. Thus, a system of measuring the overall state of city streets would be the appropriate approach. The City has employed the concept of Pavement Condition Index to accomplish an overall system rating. This methodology allows the City to track the condition of every street segment, determine estimated rates of decay, track the overall average condition of streets, and even project future conditions using the ICON software.

The PMP program was initially established with a system-wide average PCI goal of 70. There has been research on the topic of optimum average PCI ratings, and 70 is in the accepted range of the most efficient PCI rating in terms of overall effort and expense of maintaining an entire transportation network. For roads of regional significance that have high traffic volumes a higher average around 75 is sometimes used, because with an *average* of 70 some roads might have ratings below 50, which could create a hazard for very high volume and/or high-speed roads.

The CTF did consider merits of the PCI rating system and the established goal of an overall average PCI of 70. There was some concern about the accuracy of the data provided because much of the data associated with rural roads was not included. The CTF and city staff agreed that this should be rectified in the future. CTF members debated the merits of 70 as a goal and there was no strong feeling that the current goal should be changed. Given that achieving the goal will likely take over 10 years, the CTF saw that keeping the current goal but then examining progress, ongoing maintenance costs, and overall community satisfaction later was more important than the numerical score. So the CTF supports the

continued use of PCI as a measure of success, and recommends that the City re-examine the state of the PMP in 10 years—via reconvening the CTF.

The CTF did have concerns about how the city has put “measuring success” in the PMP into practice. The consultant reviewed past practices and past PMP efforts and found that whereas the PCI has been used to track pavement condition, pavement management goals have generally been about delivering individual pavement projects that have the longest life that can practically be achieved. This has resulted in most projects following geotechnical recommendations concerning pavement life. The resulting projects invariably end up as full reconstruction of the street section.

Two significant issues have resulted from the historic approach of striving to deliver *individual projects* that are high quality and long lasting. First, looking at individual project needs, means that the overall PCI goal is ignored. To meet the overall city-wide goal of an average PCI of 70, it will be necessary to sometimes choose project solutions that do not address the recommendations of the geotechnical engineer. Correcting underlying soils that are less than optimum requires complete removal and reconstruction of the road. This is very costly. The assessments are much higher for the property owners, and the city must subsidize much more of the total project cost.

This is a key factor in the slow decline in overall road conditions. Total reconstruction projects cost about \$500 lineal foot of suburban street, and only about \$150 per foot can be assessed. Compare this to a mill and overlay where the cost per foot is about \$100 and about \$75 can be assessed. With a finite funding source, the mileage that can be completed using less expensive and less intrusive strategies becomes pivotal to staying on track to meeting the city-wide goal. The following chart illustrates the differences between an approach that attempts to build the best road with an approach that attempts to maximize the mileage rehabilitated:

| Criteria | Full Reconstruct | Mill and Overlay |
|-------------------------------|------------------|------------------|
| Total annual city funding | \$2.5 million | \$2.5 million |
| Cost per lineal foot | \$500 | \$100 |
| Amount assessed per ft | \$150 | \$75 |
| Total mileage completed | 1.4 miles | 18.9 miles |
| Average life until next rehab | 25 years | 15 years |
| City cost per mile/year | \$71,000 | \$8,800 |

This is only an illustration using current city policies and rough project costs, but it demonstrates there is an order of magnitude of difference in both the mileage that can be completed each year and the rough cost per mile of roadway life per year. This comes about because simple surface repairs are much cheaper, and the city assessment policy shares a larger proportion of the project costs via assessments with the property owners. Ignoring the geotechnical engineer recommendations will result in a final product that has a shorter life, but if the focus is on the overall PMP goals not just the project-specific goals, then using a less extensive and expensive rehabilitation technique is likely the most cost-effective option.

The second significant issue that has resulted from the historic approach of striving to deliver *individual projects* that are high quality and long-lasting concerns the lack of synergy that can result. As part of the effort to understand the inter-relationships of all public infrastructure the CTF looked at the life cycle of city owned infrastructure. Examining sanitary sewer, water, and storm sewer, the CTF saw that each has a different life expectancy, but all have a longer expected life than the surface of the street. Even elements of the street itself have different life cycles. Concrete curb is expected to last 50 years or more with only minor rehabilitation work along the way. Modern blacktop generally lasts about 25 years. Finding synergy in the timing of major infrastructure replacement is essential if overall cost effectiveness is a community goal.

Presentations by the consultant demonstrated that timing of a complete street reconstruction needs to consider other things besides maximum pavement life. Timing a complete reconstruction should make every effort to be in sync with the timing of other major infrastructure replacement. The CTF saw and

agreed that there are many circumstances where the most cost-effective rehabilitation project might not yield the longest lasting pavement. Often a rehabilitation project may need to set the geotechnical engineering recommendations aside, and plan to correct soils deficiencies as part of some future project that involves complete replacement of other city infrastructure.

In conclusion, on the topic of how to measure success, the CTF found the current methodology satisfactory for the near term, with the caveat that a better understanding of rural road condition is needed. What the CTF did see as an area of significant, and perhaps critical impact on the success of the PMP was in how the definition of success is applied. Instead of using it as just a measuring tool, the CTF saw that the goal of an overall PCI of 70 needs to be the basis for decisions surrounding the PMP. Thus, the question for project engineers cannot just be “how do we deliver the best, longest lasting project”, but instead needs to center on “how do we meet the overall PCI goal with the available funds?”

In discussions surrounding this issue of setting aside engineering recommendations, CTF members saw that without a concerted and continual effort to avoid it, there would be a tendency for project managers to take the conservative approach and follow the geotechnical recommendations. There is little incentive for project engineers, whether in-house or consultant, to go against engineer recommendations and deliver a less than ideal project. Project engineers likely see potential for criticism when delivering a project that won't have longevity that is typically expected. Therefore, addressing this issue by setting clear goals and communicating them to all will be needed to set proper expectations.

As the CTF discussed what they saw as the most important element to moving toward a successful PMP the over-riding issue that came out of the discussions was the need for cost effectiveness. The CTF saw this both in pavement decisions and also related to getting maximum life out of all existing infrastructure. Funding is limited, and there are over 50 miles of roads needing immediate attention. Being very effective in how money is spent and leveraged through assessments is a key to reaching the PMP goals. This leads to the question of what rehabilitation strategies are most cost-effective.

2.4 Project Solutions—Choosing the Most Cost-effective Rehabilitation Techniques

Summer of 2021 the City Council held a workshop discussion on how to make the PMP more effective. In the associated presentation the concept of the “Minimalist Approach” was described. A comparison like the table provided above, examining the primary three strategies of Total Reconstruction, Full Depth Reclamation, and Mill and Overlay was presented to the Council. Based on the Council's input the 2022 project list focused on projects that could result in significant mileage with lower City financial contributions. The resulting project list for 2022 therefore evolved into project areas where Mill and Overlay projects would likely be successful.

In the Financial chapter an analysis is presented that looked in more detail at cost effectiveness. That analysis found that if roughly 2/3rds of the streets needing rehabilitation now and in the next 10 years are treated with simple overlays (rural roads) or Mill and Overlays, the PCI goal may be achievable within about 15 years.

If cost-effectiveness is the overarching criteria for selection of project solutions, there is concern on the part of project designers that some projects may not have the life expectancy, or “curb appeal” that has become the norm. This concern already showed itself when discussing possible project solutions for 2022 projects—the consulting engineers tasked with delivering a successful project became uncomfortable that Mill and Overlay solutions may not meet the expectations of the neighborhoods, or the client (the City).

The CTF explored the issue of what they would consider a successful project. Here is the feedback from the CTF:

- Getting new blacktop that is smooth and free of potholes is preferred over a brand-new street with new curb and maximum life, if it is more economical and cost-effective.
- Getting a finished street rehabilitation project that is less than ideal is acceptable if it means getting the maximum life out of all infrastructure.

- Getting all roads in the city in acceptable driving condition is more important than getting the absolute best street in one’s own neighborhood.
- Overall getting a “decent” rather than “perfect” street is preferred if it means paying a lower assessment and getting good value.
- Getting maximum life out of all infrastructure should be part of the decision process.

The CTF was united in the idea that choosing projects that are shorter lived and less than perfect is acceptable and preferred if it results in lower costs and improvement in the overall system. The CTF recognized that the streets are used by all, and improving the entire system is key to a successful PMP. These findings lend credence to what was referred to as the Minimalist Approach and suggest that less extensive strategies are acceptable to the public even if they have a shorter lifespan.

Mill and Overlay involves grinding off the upper layer of existing blacktop then adding a new surface layer.

This process has several advantages:

- *Less disruption—saving yards, driveways, and curb*
- *Very cost effective in terms of dollars/mile/year of life*
- *Ground up material is recycled into new blacktop*

Note that it does not correct underlying soils issues and may not be appropriate if pavement has completely failed



With the strong inherent incentives for project managers and designers to lean toward longer lasting higher quality solutions, it will be important to view proposed project solutions with a critical eye. The CTF did recognize that some roads may be in such distress that a simple Mill and Overlay may not be practical. Still, the CTF was not overly concerned about a project that might only add 15 years of life. The CTF also saw that part of the decision process for choosing a project solution should include analysis of the potential life expectancy of other infrastructure, using project solution life expectancies to work toward timing future projects with other infrastructure replacement.

As a final thought on selection successful projects, the CTF also liked the idea of bundling projects into larger sized projects and bidding early. These practices might entice larger contractors and garner more competitive bidding if contractors haven't already lined up work for the season.

2.5 Selecting Candidate Streets for Rehabilitation

With the backlog of potential projects and previous determinations that most streets would need full reconstruction, the list of potential and requested projects has grown. The process for determining which area to serve first has evolved into moving projects forward based on which neighborhoods support a project to the point of petitioning for it or even lobbying City Council directly. The CTF has a charge to look at "How specific streets are chosen for inclusion in a project", so this section provides the CTF discussion and findings.

The CTF considered several factors to weigh when deciding when and whether a street should be included in a rehabilitation project. These included resident support (petitions), traffic volume, road condition, timing with other infrastructure needs, and cost-efficiency. The following is a discussion of the importance of each of these factors. The CTF saw that the factors won't always have a strict hierarchy, but they are presented in what the CTF saw as approximate order of least important to most important.



Full Depth Reclamation is an intermediate step between M&O and full reconstruction. It involves grinding all the pavement and mixing it with the existing gravel, creating a stronger base.

It has a longer life than M&O but at a higher cost and is assessed at a rate between M&O and full reconstruction

Neighborhood Support and Pressure: This is what has been the main factor moving specific projects forward in recent years. It is a reactive approach; the CTF saw that a successful PMP needs to be looking ahead and planning projects to be completed when most cost-effective. The idea that political engagement is the primary factor determining project priorities was concerning to the CTF. Members had strong consensus that this should not be a priority selection tool. The CTF did see that it can be helpful to know that a neighborhood will support a project and thus might help as a "tie-breaker", but overall, the CTF did not support project selection being based on political engagement.

Traffic Volume: The CTF did see that higher volume streets impact more drivers, and that traffic volume is a factor to consider. They noted that when a high-volume road reaches very poor condition it can become a safety issue for many more drivers, and therefore vehicle counts was viewed as a factor in the case of very poor roads. The CTF did not see traffic volume as one of the priority factors for determining the timing of most projects.

Road Condition: The condition of the road in question is a factor that must be considered, as it is what the PMP is addressing. The question becomes, does a road in worse condition automatically rate higher on the priority list? The CTF concluded that it is a factor, but there may be other factors that raise another street higher on the list. Completing a rehabilitation on a less deteriorated road sooner, before it has completely failed may be a better use of PMP dollars. Also, a road that is in very poor condition may just need to wait or get temporary patching to be part of another project, either a nearby road project, or a

utility replacement. So although road condition is an obvious factor, the CTF saw other factors as taking precedence.

Cost Efficiency: The CTF saw that cost efficiency is among the most critical factors in terms of delivering a successful PMP program. Therefore, choosing projects that can get the most mileage out of the limited City dollars was rated very high. Timing with other utility work was rated higher, but only because the CTF saw how cost-effectiveness is such a major factor in how utility life cycles line up or fail to do so.

Timing with Other Infrastructure Needs: CTF members discussed how painful it would be to have a road that is recently rehabilitated, torn up and rebuilt to accommodate the replacement of other infrastructure. So even though the PMP is all about pavement, the CTF saw planning the long-term care and replacement of all infrastructure a critical duty of the PMP implementor. Throughout the CTF process members have been clear that getting the most for their expenditure of tax dollars, assessments, fees, and other contributions is what they see as effective pavement management and governance. Rehabilitating all city infrastructure as cost-effectively as possible is what the CTF members value most.

2.6 CTF Recommendations on Measuring Success, Project Solutions and Selection

Based on presentations, review of literature, and group discussion, the CTF has the following recommendations:

1. The CTF saw the PCI methodology for measuring the condition of roads in the system and setting a goal of 70 as useful but imperfect. The PCI rating system should be continued, but the rural road PCIs need to be updated and included in the effort. The CTF recommends reconvening in 10 years to look at progress and future PCI goal setting.
2. The CTF recommends that the overall goal must focus on improving the entire system instead of delivering premium individual projects. This will mean maximizing the mileage of streets addressed each year, and sometimes choosing rehabilitation strategies that don't deliver the ideal new street.
3. To achieve the overall goal, the CTF recommends adopting what has been referred to as the Minimalist Approach when selecting project solutions. CTF members had consensus that less extensive strategies are acceptable even if they have a shorter lifespan. And CTF members agreed that a project that is not perfect but addresses pavement issues and adds life with lower assessments is preferable to a full project reconstruction and all the associated disruptions and higher assessments.
4. When deciding which neighborhood project to complete the CTF strongly supports using cost-effectiveness as the main criteria selection. Aligning other infrastructure rehabilitation with pavement repairs should be part of this analysis of long-term cost-effectiveness. Traffic levels and road condition should be secondary considerations. Political engagement on the part of neighborhoods in the form of petitions and Council interactions should have little sway on the decision process.

CHAPTER 3 UTILITY REHABILITATION AND FUNDING

3.1 Background

Pavement rehabilitation inevitably results in disruption or repairs to other infrastructure, both public and private. Public utilities operated by the city include sanitary sewer, water, and storm sewer systems. These utilities have different life cycles than roads, but coordination of repair work on these systems is important to minimize future disruption of new pavement and associated costs. Private utilities including electric, gas, and communications, use the right of way and may require relocation on city projects; also, private utility companies may need to coordinate their own repair and replacement work in conjunction with a city road improvement project.

The costs of rehabilitating the public utilities can be very significant and the funding should be considered and accounted for in the PMP. If utility needs are not fully considered and planned for, utility costs might be borne by PMP funding and reduce overall pavement rehabilitation that can be completed. Historically sewer and water rehabilitation work has been fully funded by their own revenue streams. Storm sewer has not been fully funded by its own revenue sources and the PMP and assessments have been used to cover storm sewer costs.

3.2 Task Force Charge

The Pavement Management CTF has been charged with commenting on several elements of the PMP that relate to utilities and funding. Elements of the CTF Charter that relate to utilities include:

- Strategies that hold the most promise for helping move the city toward meeting its PMP goals more quickly.
- What factors should be considered and how should they be weighted when choosing the appropriate rehabilitation technique for a given roadway.
- Whether the city is currently providing enough funding to the program.

Although the Charter and CTF effort doesn't look at specific issues regarding utilities, the direct impact that utility conditions, life cycle, and funding situation have on pavement rehabilitation make it a topic on which the CTF wanted to provide some feedback to City Council. In particular the CTF found that storm water system rehabilitation and improvement as it relates to the PMP is a topic that warrants investigation. This chapter will cover three areas related to utilities: Utilities and progress on the PMP, issues surrounding the storm water utility, and private utility franchise fees.

3.3 Task Force Analysis and Findings

3.3.1. *Public Utilities and PMP progress*

Public Utilities can hamper progress on the PMP in two ways. First, utilities can complicate projects. If utilities need repair or replacement, it can move a project from a simple pavement project to one involving utility replacement and therefore a complete street reconstruction. This weighs in on the charter question of "what factors should be considered and how should they be weighed when choosing the appropriate rehabilitation technique". As discussed in chapter 2 on pavement rehabilitation techniques, where possible the simplest techniques should be used unless there are other over-riding issues that demand more complicated treatments. Thus, in cases where utility improvements may be under consideration the CTF recommends that rehabilitation work to utilities be carefully weighed to get synergy and maximum life out of all utility and street infrastructure whenever possible - perhaps delaying some types of rehabilitation to time utility and street improvements for maximum value and life.

Second, utility improvements can hamper progress on meeting the PMP program goals by draining money from PMP funds in cases where utilities are not fully funded. The CTF supports the City's other goals surrounding infrastructure planning, to create a long-term infrastructure replacement plan (capital improvement plan or CIP), and to conduct a utility rate study. Having a good understanding of both long-term capital needs and long-term revenues from utility rates will help determine if there is enough funding available in the utility reserves to make needed utility rehabilitations. The CTF is in support of the concept of utilities self-funding all ongoing operational and rehabilitation costs. In looking at utilities, it did appear that currently sewer and water utilities are able to fund project related costs, but storm water systems are not fully funded by the Storm Water Utility (SWU).



3.3.2. Storm Water Utility Concerns

CTF members were interested in certain aspects of the SWU as it related to funding on street projects. Examination of past projects showed that often money designated for pavement management was used to cover costs related to storm water system improvements and repairs. This is contrary to the goals of using money designated by Council for pavement rehabilitation and is not in keeping with the CTF view that utilities should self-fund themselves. CTF members had wide consensus that the SWU should self-fund the storm system improvements that occur in relation to road projects, even if this results in rate increases in the SWU.

CTF compared the city SWU rates to the rates charged by other cities. Two details of the IGH program were notable; first it was discovered that compared to cities in the region that have SWU, the IGH rates for single family SWU are low. IGH appears to be less than half the SWU average rate of 15 cities compared. The much lower SWU rates supported the feeling that the SWU is underfunded, and in need of attention.

The second item the CTF saw as a possible concern related to the SWU was that the northwest area of the city is in a different SWU district and pays a much higher rate than the rest of the city (about equal to the average of the 15 cities compared). CTF members had strong consensus that having different rates for the same class of users in the city was inconsistent, and favored bringing the fees in line with one another

3.3.3. Private Utilities and PMP progress

The CTF did not look in any detail at issues associated with private utility infrastructure, with one exception. The CTF did discuss the franchise fee related to utilities. Cities were given the ability to require private utilities (gas and electric) to pay a fee for use of the right of way. This ability was granted to cities by the legislature because private utilities do cause damage to roads. The private utilities in turn, simply collect a surcharge fee on all customer utility bills to capture the city franchise fee.

There were mixed feelings on the topic of franchise fees. There was general agreement that franchise fees are an important revenue source for road rehabilitation. Given the City has established them, and they have been put towards the PMP, the CTF saw it appropriate that the franchise fees continue. However, some comments from individuals on the CTF regarding franchise fees on private utilities that did not have full consensus include:

- Some did not like the fact that it feels like a hidden fee/tax
- Some saw it as not progressive in how it is applied
- Some thought it should be a bigger funding source if possible

Franchise fees are supported but a conclusion from the task force discussion is that additional education of the public regarding franchise fees is warranted, so that residents know why the fees exist and where the money goes.

3.4 CTF Recommendations Regarding Utilities

Based on staff and consultant input the CTF concludes and recommends the following when it comes to public and private utilities associated with the Pavement Management Program:

1. The CTF strongly supports the idea of all utilities being self-funded. The common practice of funding storm sewer work using PMP money because of the lack of SWU money was something members felt should be addressed, even if it meant an increase in the quarterly SWU bills residents receive.
2. The CTF reviewed the city SWU program and the different rates charged based on the location in the city. There was broad consensus that having a different (higher) rate charged to the northwest area should be corrected. The CTF supports equal rates across the city for similar property types. CTF members did not show great concern if the SWU rates for all residential property in the city was set at about the same rate as the NWA.
3. There is universal support on the CTF for getting the maximum life and value from each and every piece of public infrastructure. The CTF sees that long-term planning is an important element in achieving this goal. Therefore, the CTF recommends the city pursue a capital improvement planning system, and carefully weigh the need to reconstruct one piece of infrastructure if others still have life. There is understanding and appreciation by the CTF that this approach may result in some rehabilitation work being less than ideal for one specific infrastructure type, in order to get maximum benefits from all other infrastructure.

When it comes to private utilities, the CTF also supports coordinated planning with private companies wherever possible. And on the funding side of private utilities, the CTF does support the continued use of a “franchise fee” collected by private utilities and designated to pavement management. The CTF was divided on whether more franchise fee money should be raised, and some had issues with it being a “hidden” fee. To address these concerns, CTF members agreed that more education about the franchise fee for the general public is warranted.

CHAPTER 4 PAVEMENT MANAGEMENT FINANCING

4.1 Background

Perhaps the greatest challenge for any pavement management program is funding. The significant backlog of pavement rehabilitation needs in Inver Grove Heights makes the question of how to finance the PMP even more difficult. One reason the CTF exists stems from an earlier analysis of the amount of funding necessary to bring the program back in line with the City's overall goal of a satisfactory average pavement condition index rating across all streets in the city.

The issue of PMP funding has been brought before the Council several times in recent years. In 2020, the Council was presented with a report from city staff that suggested that in order to meet the PMP goals, additional revenues of approximately \$10 million per year were needed. The recommended revenue source was an increase in general funds. Given the general fund was already contributing roughly \$2.5 million each year, adding an additional \$10 million of general revenue would mean extreme adjustments to taxes collected every year. Council found the staff recommendation unrealistic and untenable.

After some initial analysis of the city PMP by the Interim Public Works Director in 2021, it was determined that the measure of success for each *individual project* was historically being set too high. During summer 2021, City Council began exploring the idea of creating a more efficient project scope that doesn't try to correct all deficiencies, but instead focuses only on improving pavement itself.

This alternative approach could significantly increase the mileage addressed each year, and more effectively leverage the city assessment policy. The combination of rehabilitating many more miles of road each year for lower cost while leveraging more assessment funds because less extensive projects are assessed at a greater proportion yields a possible path to meeting the city's PMP goals.

4.2 Task Force Charge

The Pavement Management CTF Charter has two specific areas to investigate related to financing:

- Overall funding levels—is the city providing enough funding for the program?
- Is the assessment policy fair, effective, and comparable to other cities?

The first question of overall funding is somewhat challenging to answer; some analysis and computations are necessary to understand the larger picture. The question also requires the CTF to look at all funding sources for the program and provide comments on each. The second question involves looking at how the assessment policy is applied and the revenue it generates for IGH, as well as how other cities are assessing residents. Each of the questions will be addressed separately.

4.3 Task Force Analysis and Findings

4.3.1. Overall funding levels

Prior to looking at individual funding sources, the CTF needed to examine the overall funding needs for a successful program. Based on the discussion in chapter 2, it is assumed that the PMP will make significant adjustments in order to implement projects that fulfill the overall PMP goal of improving the entire system rather than delivering the best possible, longest-lasting individual projects. With this change in how PMP projects are selected and developed, staff completed a scenario using the Pavement Condition Index ICON software showing how the city-wide PCI might change over a 15-year period (see Appendix B). Using the data from this scenario a financial analysis has been completed. Although it must be recognized that there are many assumptions, and therefore significant uncertainty in any type of long-range financial study, the financial analysis does show some encouraging results.

In the 2020 staff report to City Council, it was conveyed that an additional \$10 million in general taxes would be needed each year to “right the ship” and bring the city average PCI back up to a prescribed goal of 70. The new financial analysis based on the projects outlined in the modified ICON analysis (See appendix B) finds that when using all the currently available funding sources and revenues dedicated to the PMP as well as applying the City’s current assessment policy there may currently be sufficient funding to bring the city average PCI close to the goal in the next 15 years. Here is a summary of the inputs, assumptions, findings, and caveats:

Inputs and Assumptions

- The PMP must be focused on delivering maximum miles of roadway rehab for minimum cost
- The General Levy of \$2,500,000 is annually adjusted to address construction cost inflation
- Other Utilities will self-fund associated costs
- Stormwater Utility funds are increased to “self-fund” storm rehabilitation and enhancements
- Franchise fees continue at \$1,000,000 per year (potentially adjusted upwards in the future)
- Host Community fund contributes a minimum of \$500,000 per year
- Municipal State Aid (gas taxes) continues to fund major roadway projects and major roadway projects and do not draw down PMP dollars
- The assessment policy in its current form is rigorously applied

Findings and Caveats

1. In order to accommodate the lag in assessment collection, bonding approximately \$20M will be necessary
2. The SWU will need additional revenues to meet the “self-fund” assumption
3. PMP money will not be used for roads related to development activity (recommend exploring a way for *developers* to fund road expansion/extensions related to new development)
4. Rural road PCIs have not been tracked in recent years and are not part of the analysis; City staff indicates that this will be corrected in coming years. Assessments for simple overlays (and BAP) may be needed to support rural road rehabilitation.

The summary finding is that if the PMP completes about \$8-9 million per year in improvements, with only roughly 5% of the mileage being full reconstruction, 30% FDR, and the rest being overlays with milling where necessary, the program will be close to reaching an overall PCI average of 70 in 15 years. Appendix C shows results of the scenario using these assumptions.

4.3.2. Examination of Funding sources

The City is currently using several funding sources to finance road projects—some that other cities don’t have access to, or have chosen not to use. The funding available to Inver Grove Heights includes state gas tax revenues (received via Municipal State Aid (MSA) program), franchise fees associated with private gas/electric utility companies, Host Community funds from operation of landfills in the community, assessments, general revenue derived from property taxes, and potential bond sales. The CTF examined and discussed each.

The CTF was interested in funding sources beyond the borders of the City. Gas tax as a revenue source was something some members thought should be tapped further. After additional review it became clear that the MSA program is something not easily changed. Even so, members of the CTF voiced support for the City to continue to lobby the League of Minnesota Cities and City legislative representatives for regional help with road funding.

Private Utility Franchise Fees

Franchise fees were discussed at some length by the CTF, and there were varied opinions regarding their use. Initially, there were several members who saw franchise fees as a “hidden tax” with a negative connotation. Additional background information was provided about how franchise fees were approved by the legislature because private utility companies use and impact the city right of way, and the ability to collect the fees was established to address those impacts. With this additional understanding, the CTF was generally supportive of the fees. However, there is a recommendation that the City needs to better educate the public as to why the franchise fee exists and what it is used for.

The CTF did discuss the possibility of raising franchise fees. Given the number of years before the franchise agreements will be open to changes, the CTF deemed any recommendation on raising the fund as unnecessary at this time. Members were not averse to upwards adjustments, but as mentioned, better education of the purpose and benefits of the franchise fee would be pivotal to any changes.

Host Community Funds

The City receives significant monies for “hosting” landfills in the community—something not available to most communities. A portion of the Host Community funds are currently being dedicated to the PMP in the amount of \$500,000 a year. The CTF agreed with the perspective that since the trucking associated with landfills does cause damage to streets, City revenues from the landfill Host Community payments should be dedicated toward pavement rehabilitation. Some members voiced opinion that all the Host Community money should go toward PMP, but it was recognized that this would likely mean raising taxes to backfill the HCF money currently used for other purposes such as the community center.

As the CTF discussed the issue of damage from garbage haulers, the concept of organized collection was raised. Organized collection involves the city taking a role in determining which haulers can operate in the city, and what neighborhood each might serve. Organized hauling has the advantage of significantly reducing the number of heavy loads running on local roads, and instills stronger downward pricing pressure on haulers vying for large efficient service areas. CTF members recognized that this issue was not addressed in the charter, and took the issue of true organized collection no further.

However, the CTF did discuss that minimizing the impact that garbage hauling has on the City’s roads that does directly relate to the City’s effort to deliver successful and long-lasting rehabilitation projects. A recent PMP project area “self-organized” its own garbage hauling agreement for the entire neighborhood. The result was fewer trucks and competitive pricing for all in the neighborhood. As a result of this experience the CTF recommends that the City offer some education materials on the benefits of self-organizing on garbage hauling as part of the project education process. Given the City is engaging neighborhoods in understanding pavement management as part of the project process, the city might simply provide some discussion on the potential merits of self-organizing as well as “DIY how-to” instructions.

Assessments

Assessments as a funding tool was discussed at length by the CTF. Members reviewed the assessment levels for projects completed in the last 10 years as part of the PMP. Many of these project examples were full reconstruction projects, and CTF members did see the expenses and assessed amounts for some of these projects as concerning. The CTF also compared the IGH assessment policy to the policies of several other cities. Two takeaways for members were that no two policies are the same and the IGH assessment policy tends to be a bit higher on assessments compared to other cities when it comes to simpler projects such as a mill and overlay.

When the CTF debated the merits of altering the policy to make it more in-line with the average policy of other cities, it became apparent that changing the policy could have undesirable side effects. For one, CTF members were unified in the idea of consistency when it comes to assessments. If the policy were changed, it would mean future property owners would be treated differently than past property owners involved in a project. Consistency from year to year and project to project increases the credibility of whatever the assessment policy is. Secondly, CTF members saw that bringing the policy in line with the average policy of other cities could result in a loss in revenues. This would mean either a less impactful PMP or a need to find additional revenues from another source.

The CTF looked at the fairness issue of assessments. The fact that the City uses benefit appraisals to ensure that the assessments don't exceed the benefit received by the property adds a safeguard. The fact that assessments can be levied against tax-exempt non-governmental properties was seen as an advantage for assessments; the CTF generally saw that having a wide breadth of funding approaches increases the overall "fairness" of PMP funding. Thus, assessments, with a broad spectrum of properties that can be included, increased equity with regard to funding.

Ultimately, the CTF had no recommended changes to the current policy, other than recommending that BAP be listed separately in the policy if the Council decides to assess for those projects. The CTF did stress that a key to any successful and accepted assessment policy rests in the consistent application of the policy. The CTF was very clear in expressing the need for Council to apply the assessment policy as written and avoid lowering assessments for neighborhoods seeking special consideration.

The CTF discussed another issue surrounding consistency with assessments—when to hold the assessment hearing. State statute and the current assessment policy allow assessments to be levied either *before* the project begins or *after* the project is completed. The CTF felt that when possible, the City should hold the hearings after a project is complete. Holding the hearing later allows residents to see what they are getting for their assessment money and provides for any savings that occur during construction to be passed on, potentially providing residents with a modest reduction in their assessment.

Use of City Taxes

General taxation is another obvious funding source, and it was enlightening to see how clearly CTF members understood how their property taxes are spent. A full presentation on city financing and budgeting process took place early in the process. Interestingly, some members thought taxes were used to pay for all street rehabilitation costs—reinforcing that ongoing education of how city project finances work is recommended and necessary. Some CTF members saw taxes as the "best" way to finance the PMP, and when the idea of raising taxes was discussed there was little opposition to the idea *if* it would "fix" the current problem. Given that other funding sources are basically fixed, taxes were recognized as a likely place to gain needed revenue.

Borrowing Money (Bonding)

Bonding was touched on as a funding source. The financial analysis of a 15-year plan to raise the PCI to an acceptable level pointed to the need to use bonding to "float" the assessments until they were collected. Without bonding, the ramp up of projects associated with reaching the PMP goal will be much slower, further delaying achievement of the goal. CTF members generally understood the role bonding would play; however, a few CTF members were still opposed to the idea of paying interest to borrow money, thus increasing the overall cost to deliver projects. In the end, the CTF had consensus that accelerating the PMP program was more important than costs associated with bonding.

The CTF did not have any major recommendations on changes to the overall funding program the City currently uses to fund PMP. The CTF did highlight the fact that having multiple funding sources is an advantage to the program. As discussed in more detail in the Utility chapter, the CTF also saw a need for addressing issues associated with storm water funding. The CTF supports wide and varied funding methods that utilize different formulas (tax ability, property valuation, straight fees). The CTF also was clear that consistency and frequent communication are vital for acceptance by the public.

4.4 CTF Recommendations Regarding Financing

Based on a review of the PCI system for rating City streets and all the financing techniques used in conjunction with the Pavement Management Program, the CTF recommends the following:

1. The City adhere to the goals and recommendations of other chapters in this report, particularly the ones spelling out the need to focus on improving the overall PCI rating of the system and focus less on delivering optimal individual projects.
2. The City take steps to ensure that PMP dollars are used specifically for pavement management. Areas of concern that warrant effort on the part of the City include:
 - a. Stormwater utility. Currently PMP dollars are often used to offset storm system upgrades and rehabilitation. The CTF was unanimous in its recommendation that the SWU funding issue be addressed.
 - b. Street extensions and improvements associated with development. The CTF did not delve into this issue but raised concerns that some PMP dollars might be used to offset road costs related to new roads near new development.
3. As discussed in more detail in the rural roads section, the CTF recommends that the city continue overlay projects on rural roads, but for fairness, consistency and additional revenue, the city take steps to determine if assessing the benefiting properties for these improvements is practical and cost effective.
4. To jump-start the program, the CTF supports the sale of bonds in the early years of the expanded program to make up for the lagging assessment revenues.
5. The CTF supports the current overall funding program and proportion of revenues each funding source provides. More education is warranted regarding how franchise fees work and where they spent, as well as why assessments and other funding sources are used.
6. The CTF recommends the City examine ways to encourage neighborhoods to set up neighborhood organized trash collection to reduce the heavy truck traffic on local roads, including presenting the idea when projects are going forward.
7. In all aspects of the PMP the CTF urges consistency in application of funding programs and strong communication of financial implications of upcoming projects. The CTF also favors consistently holding assessment hearings after construction. Use of benefit appraisals should continue and use of different appraisal consultants should be explored.

CHAPTER 5 RURAL ROADWAY REHABILITATION METHODS AND FUNDING

5.1 Background

Rural roads around the city have been failing at an alarming rate. City Crews spend significant time each year patching potholes on rural roads, yet many roads have been found to be in such poor condition that traditional pothole patching has been ineffective (city crews were often patching the same area multiple times in the same year). Around 2013 maintenance crews began an experimental approach to address these rural roads that have complete failure of the blacktop surface. This process entails applying a thin layer of pavement over the entire portion of a failing road instead of only filling the area with a pothole(s). The moniker for the new approach was “Broad Area Patching” or BAP.

BAP involves completing a simple overlay of pavement using city crews and a city paving machine. Initially, the overlay was 1 ½ inches or less. This provided an immediate, short-term solution and added approximately 5+ years of life to the road. With some experience city crews increased the overlay thickness to 2-2 1/2-inches, which adds 10+ years of life to the road where BAP has been used. As a result, city crews made BAP a regular part of the annual maintenance budget and pavement management toolkit. Since 2013 the city has completed roughly 30 lane-miles of BAP on rural roads.



Here city crews have performed a simple overlay, referred to as a “Broad Area Patch”, right over top of existing pavement on a rural road.

Simple overlays can be very effective on rural roads where the lack of curb means milling is not required.

The BAP concept has city crews doing simple overlays using city equipment. It is for all intents a simple overlay renamed.

Whether done by city crews or private contractors, the CTF had concerns about the performing simple overlay rehabilitation on rural roads without assessing anything to the residents.

BAP is not strictly limited to rural roads...but almost all urban roads have curb and gutter where this technique won't work because of the need for milling. For the sake of discussion, we consider it a “rural” road treatment.

The price for BAP has been very competitive, with direct city costs of about \$0.50 per square foot. This compares to about \$3.00 per square foot for a contractor-completed mill and overlay project (note that these two projects are not exactly comparable, but a comparison does demonstrate the relative magnitude of costs).

Unfortunately, the rating of PCI on rural road sections was discontinued when BAP began, so a full PCI analysis can't be completed. With 10 years of experience using BAP there is a track record that demonstrates simple overlays on rural roads can provide significant life with good performance at a relatively low cost. This is true even where the pavement has completely failed, and subsoils are less than optimal. Indications are that a thicker pavement would even add more life, approaching 20 years, if the section is increased to 3 inches. Public Works maintenance crews see BAP as an important tool to catching up with the backlog of failed rural roads and wishes to continue using this technique.

One objective of the CTF is to determine whether providing this level of maintenance using 100% city resources enters the realm of “rehabilitation”, and therefore warrants consideration for assessments. Thus far no assessments or charges have been levied for this rehabilitation activity, in contrast to pavement management projects on sections of urban roadway that, by definition, involve assessments if new pavement is installed.

5.2 Task Force Charge

The CTF is charged with understanding BAP and providing recommendations on both the appropriateness of continued use of BAP as a tool in the overall pavement management program, as well as the equality of continuing to use BAP with no assessments to benefitting property owners.

5.3 Rural Roadway Rehabilitation

The Street Maintenance Supervisor presented to the Task Force a detailed overview of the history and experience of the BAP program. Many example projects were viewed, and the condition and age of the BAP projects were also considered. The Supervisor provided his observations on the overall value of BAP citing that the program has several advantages:

- It is relatively quick and easy to undertake a project. Often multiple of miles of BAP can be completed in just a few days.
- There is little bureaucracy because there are no outside consultants, contractors, or approvals, and no assessment processes are needed.
- The cost per square foot is very affordable given the crews are already on the payroll and the equipment is already part of the city fleet.
- Since BAP has been utilized as a maintenance technique, there has been no change to the pavement condition index of roadways following BAP.
- The Street Maintenance Supervisor also indicated that with more funding, more road miles and longer-lasting projects could result.

Based on the presentation the CTF weighed the merits of BAP. There was broad consensus among members that the concept of using simple overlays (BAP) as a pavement management strategy in rural areas is a good one. The price of this simpler technique has wide appeal as does the ability to get many miles done in a short time.

Although the Street Maintenance Supervisor indicated the added bureaucracy associated with assessing benefitting properties that border a BAP project would be undesirable, the CTF felt strongly that there was a lack of consistency associated with providing BAP free of charge. The CTF views BAP as more than maintenance; BAP is actually a complete overlay improvement that yields a quality product. In an urban setting, this type of improvement would result in an assessment to area residents.

The CTF is attracted to the idea of the added mileage and greater pavement life that could be garnered if more money were available by levying assessments. The CTF recognizes that BAP, especially if enhanced by thickening the pavement section, is for all intents a full overlay, which is a pavement management technique beyond maintenance, and therefore eligible to be assessed against the nearby properties.

The CTF also discussed what costs are assessable when it comes to a project such as this. Given the city crews and equipment are being dedicated to delivering a significant benefit, they are not available to complete city-wide maintenance when performing a BAP project, so the CTF recommends these costs all be considered as part of delivering a BAP project and calculating the resulting project costs and assessments.

5.4 CTF Recommendations on Rural Road Rehabilitation

Based on staff and consultant input the CTF concludes and recommends the following when it comes to rural roads and select urban roads having unique characteristics like rural roads, and what's been referred to as Broad Area Patching (BAP):

1. The CTF recommends that the city continue to use simple overlay techniques (BAP) to maintain these classes of roads, where possible. Based on growing experience the CTF supports the idea of exploring thicker, longer lasting overlays to service these classes of roads. The CTF also recommends reimplementation of rural road PCI tracking.
2. The CTF sees the current BAP program as effective but inconsistent in how it treats benefiting properties. It provides a quality pavement rehabilitation technique to rural areas, but doesn't charge any fees or assessments, which is not in line with how more urban areas are treated where assessments are always levied for street improvements.
3. The CTF recommends that in the future these simple "BAP" style overlays be constructed for longer life (thicker), and that all costs, direct and indirect, be enumerated and then the assessment policy be applied to the benefiting area to capture all associated costs to the extent defined by the policy.

CHAPTER 6 STANDARDS FOR ROADWAY WIDTH AND POTENTIAL ROAD DIETS

6.1 Background

Roads serve different purposes and different levels of traffic. High volume roads termed collector and arterial roads are primarily concerned with providing mobility in and beyond the local community. These classes of streets have their own design standards established by state and county agencies and therefore are beyond the scope this report. The remaining roads are more local in nature serving individual neighborhoods. Local “neighborhood streets” serve many purposes, and road design standards for this class of streets can vary significantly from city to city depending on the age, density, specific needs and philosophy. The many benefits provided by roads include:

- Access to local adjoining properties
- Mobility through and beyond the local area
- On-street parking for business and residential users
- Opportunity for multi-modal forms of transportation, sometimes including pedestrians
- Emergency access for public safety
- Right of way for overhead and underground utilities

Efforts to achieve all these benefits to the maximum level can result in roads that are impractically wide—especially when one or more of the benefits are underutilized. For example, suburban roads often have very low on-street parking densities. Experience has shown that wider roads generally promote greater mobility, and therefore higher vehicle speeds. In addition to higher speeds, wider roads can have other negative factors associated with them including:

- Higher construction costs
- Higher maintenance obligations
- More storm water runoff
- Increased urban heating

Because of these negative aspects of overly wide neighborhood streets, the concept of “Road Diets” has developed in recent decades. Road diets involve the reconstruction of a street to a narrower width to better balance the actual benefits with the countering negatives.



Example of an existing 44' wide neighborhood street with speeding issues.



Same street reconstructed at 32' wide with a 5' sidewalk on one side. The speeding issue and pedestrian safety were improved.

6.2 Task Force Charge

An important aspect of the PMP is not only when to rehabilitate a road, but also to what standards a road should be rehabilitated. Rehabilitation projects that result in a total reconstruction of an existing road provide the opportunity for the city to reconsider the road width for the rebuilt road. Therefore the charter of the CTF includes the objective of having the CTF to consider the appropriateness of road diets in relation to the City's PMP.

Considering all the different services associated with neighborhood streets, the CTF recognized that there are many different perspectives and interests when it comes to street service levels for each benefit. Weighing all the benefits and negative factors quantitatively is beyond the capability of the CTF. Still, with all the education and effort put forth by the CTF, the feedback from CTF members on all these factors may be of value to the City Council and Staff when considering future standards and goals for reconstruction projects.

6.3 City Road Width Standards and Road Diets

The CTF reviewed current city standards for roadway widths. It became apparent that Inver Grove Heights has not had a uniform standard road width; many older roads were built 32' wide, while roads being built now as part of development in the Northwest Area are being built at a width of 28'. In addition, the City Staff indicated that there have been other road widths approved in the past. Also the rural roads sprinkled throughout the City have varying widths, with 24' being the most common width. The CTF realized there is no over-riding single standard that has governed neighborhood road design. The CTF also learned that although the Fire Department is a strong advocate for keeping streets free of delays, No-Parking signage and regulations across the city have not been rigorously enforced in recent years.

To better understand the possible benefits and implications of narrower streets and road diets, the CTF reviewed a presentation on road diets provided by the consultant. The CTF saw that narrow roads can have a positive impact on speeding traffic in neighborhoods. Narrow neighborhood streets can also provide for the opportunity, or even necessity for the inclusion or addition of a dedicated pedestrian feature such as sidewalk or trail. The presentation showed that as neighborhood roads become narrower, parking issues can evolve, resulting in a need for parking restrictions or changes in driver behavior where cars "take turns" navigating a heavily parked street. CTF members viewed the possible inconveniences getting through narrow neighborhood streets both positively and negatively.

The CTF learned that existing roads that need rehabilitation can be reconstructed with road diet design features. A road diet can be a significant narrowing. This allows for the addition of sidewalks or trails, which might be viewed as a benefit for some in the neighborhood. The CTF reviewed a project involving a road that was originally built at 44' width, then was reconstructed to 32' and a sidewalk added.

The other road diet alternative the CTF reviewed was the "slimming" of an existing street. This could involve adjusting the curb on one side of the road during reconstruction to narrow the street a few feet. The CTF saw that slimming of streets had a limited application in Inver Grove Heights given most projects in coming years will not involve total reconstruction.

Overall, the CTF members did not express a unified vision on the benefits of retrofitting streets to alter the width significantly, except where there was a specific issue or problem that might be addressed. The CTF did see that property owners do tend to "like what they have"; as a result, the CTF saw retrofitting streets to a narrower section as something each neighborhood should be able to consider and weigh in on at the time a project is in the planning stage.

Where the CTF did have consensus concerned new streets going forward. The CTF saw the current 28' streets with sidewalks being built in the Northwest Area as a good standard design for neighborhoods. As part of this discussion CTF members voiced concern about all the No-Parking signs being installed, then not enforced. The CTF was in agreement that most no-parking signage was unnecessary and that in cases where it is absolutely needed, it should be enforced. This raises the policy question whether the City can live with rare instances of minor delays on the part of emergency response involving large apparatus, in which case the parking restrictions and resulting enforcement might be eliminated.

6.4 CTF Recommendations on Road Standards and Road Diets

Based on staff and consultant input the CTF concludes and recommends the following when it comes to road width standards and road diets:

1. The current design standard for new neighborhood streets that has been applied to the Northwest Area should be the city-wide standard for new urban streets. This standard includes a width of 28', and sidewalk on one side of thru-streets.
2. Narrowing of existing streets should only be considered when other factors dictate that a complete street reconstruction is warranted. The CTF did not see that narrowing or slimming streets a few feet from the old standard 32' to 28' had a compelling benefit, so took no position on recommending a policy that would do so.
3. CTF did see that some neighborhoods might see advantages of a narrower street, if educated on the concept of road diets. The CTF was in agreement that when a street is up for full reconstruction, the neighborhood should be engaged in a discussion of the possibility of narrower street and given an opportunity to voice support for a narrower street design. This discussion should occur in the very early stages of the process.

CHAPTER 7 PAVEMENT MANAGEMENT PROGRAM COMMUNICATIONS

7.1 Background

Pavement Management has become a topic of increased attention at the city of Inver Grove Heights. As the city increased its focus on the strategy of managing the city's pavement repair needs, there became a need for more robust communications surrounding this topic. The city has since branded the Pavement Management Initiative and made a concerted effort to enhance the communications with the public regarding this topic. A specific brand was developed to allow readers to quickly identify the Pavement Management Initiative when viewing city communications and to show residents the effort that is behind it.

In addition to increasing the general communications regarding the Pavement Management Initiative, City Staff also regularly prepares and executes project-specific communications plans. These plans are tailored to inform residents who live within a project area of the details of the project from inception through the end of construction as well as gather feedback and input from property owners during the feasibility and design phase.

7.2 Task Force Review of Communications Efforts

The Pavement Management Program Citizen's Task Force has been charged with commenting on the city's communication efforts and providing input on ways that the city could enhance communication regarding the Pavement Management Program.

The City approaches communication on multiple levels using several avenues. First, there are the city-wide efforts to educate the public of city initiatives surrounding the PMP. These efforts are largely managed and developed by the communications manager at the City. Also the city has a project-specific communication approach. This is primarily led by the project manager leading the project. Many of the project-specific communication efforts are related to state statute requirements when it comes to assessments. These approaches are discussed separately below.



Recently the city created an interactive link that can be used to show a map where projects are anticipated and give project descriptions.

The CTF sees this as a valuable tool. Members liked the branding concept but thought a catchier name for the program would be more effective...like the Richfield "Sweet Streets" concept that was very successful both in communicating and in improving the street conditions city-wide.

7.3 General City-wide Communications

The communications manager presented to the Task Force a summary of the communications that have been published (both digitally and in print) regarding the Pavement Management Initiative. The website ighmn.gov/pavement was shared with the group and has been active for public viewing since June of 2020. Specific channels used to communicate information about the PMP city-wide include:

- City Website
- City Email Subscriber Lists
- City Social Media Profiles
 - Facebook
 - Twitter
 - Instagram
 - Nextdoor
- City Resident Quarterly Printed Newsletter (Insights)

The goal of the city-wide communications will continue to be to inform the public of overall objectives regarding pavement management and provide a longer-range snapshot of what projects are strong candidates for future inclusion in the program. One priority for 2022 includes communicating pavement project photos so that all city residents are aware of the improvements rather than just those who live on or near the project.

Based on the CTF review of the overall communications efforts related to PMP communication, the CTF considered the efforts made by the city to communicate general pavement management information to the public. There was consensus among members that the level of general pavement management communications is meeting their expectations. The CTF members did stress that early communication, at least a couple years prior to a project, ought to be a priority for the overall communication program. This would allow residents to prepare and budget for an upcoming improvement. The communications manager would rely upon engineering staff to provide this information for distribution to residents.

As part of discussion of other elements of the PMP, the communication manager listed areas where there is confusion or misunderstanding among the public. These areas could make excellent topics for periodic newsletter articles. Topics that could use clarification and reinforcement include the purpose and details of franchise fees, host community funds, and responsibility of residents to participate in projects via assessments.

7.4 Project-Specific Communications

The assistant city engineer presented project-specific communications that are sent out during the duration of a pavement project and which have been reviewed and rebranded by the communications manager. The assistant city engineer highlighted the fact that the City communicates above-and-beyond what is required by state statute for projects that are funded by special assessments. The specific steps involved in communication with a neighborhood once a project area has been identified include:

- Introduction letter and possible resident questionnaire for initial contact and feedback
- Open House meeting with project staff prior to completion of the Feasibility Report
- Open House meeting with project staff prior to the Improvement Hearing
- Mailed notice and Public Improvement Hearing at City Council Meeting
- Newsletters / Updates during construction including:
 - Construction startup letter
 - Email/Text updates for those who sign up
 - Curb & Gutter letter
 - Turf Established letter

- Open House meeting with project staff regarding assessments
- Public Hearing regarding assessments at City Council meeting

The Task Force commented that when it comes to project-specific communications, they support the City’s continued use of email/text updates and thought consideration could be made to using that platform to provide regular project schedule updates to property owners. A partial example of project communications:



**Alison Way Area Street Rehabilitation
Tyne Lane Area Street Rehabilitation
Albano Trail and Albright Court Rehabilitation**
City Project Nos. 2022-09E, 2022-09F, and 2022-09G

Construction Bulletin - Mill and Overlay

| Access and Safety | Driveway Aprons, Curb and Gutter | Disturbed Boulevards |
|--|--|--|
| <ul style="list-style-type: none"> • During construction working hours there will be times when traffic delays (single lane with flaggers) or temporary detours will be required. • You will need to allow for additional travel time to accommodate the contractor’s activities. • Utility markings (flags, paint) and survey stakes are | <ul style="list-style-type: none"> • Spot replacement locations for curb and gutter will be marked with pink paint. • Some driveway aprons may be impacted. Impacted driveway aprons will be replaced with the same materials as the existing driveway. • Concrete curb and driveway pavement, if applicable, | <ul style="list-style-type: none"> • If you have an irrigation system, invisible fence and/or landscaping located within 10 feet of curb that has been marked with pink paint, it is possible it may be damaged or removed. • Neither the City nor the contractor is responsible for repairs. Contact Nick Hahn with questions. • The contractor will restore |

7.5 CTF Recommendations on Pavement Management Program Communications

Based on staff and consultant input the CTF concludes and recommends the following when it comes to communications regarding the Pavement Management Program:

1. Continue with the overall city-wide communications using the branded “Pavement Management Initiative” in order to keep this issue top-of-mind for property owners and residents and look for ways to “keep it fresh”.
2. Add articles about specific topics often misunderstood by the public like how projects are funded with franchise fees, host community funds, and assessments.
3. After incorporating other changes in the City PMP, create a long-term street rehabilitation plan (an up-to-date Capital Improvement Program) adopted by the City Council.
4. Use the information garnered from the CIP to create newsletter articles and other communication pieces in order to inform the general public as early as possible of potential projects impacting their neighborhoods.
5. Inform affected residents of upcoming improvement projects, especially those with proposed assessments. The CTF indicated property owners would appreciate a two-year minimum advanced notice if they are to be assessed so they are able to budget for the assessment.

CHAPTER 8 SUMMARY OF RECOMMENDATIONS

The CTF covered many areas in its examination of the City Pavement Management Program. In order to help City Staff and Council consider them comprehensively they are all presented here by chapter:

2. Success and Solutions

- 2.1. The CTF saw the PCI methodology for measuring the condition of roads in the system and setting a goal of 70 as useful but imperfect. The PCI rating system should be continued, but the rural road PCIs need to be updated and included in the effort. The CTF recommends reconvening in 10 years to look at progress and future PCI goal setting.
- 2.2. The CTF recommends that the overall goal must focus on improving the entire system instead of delivering premium individual projects. This will mean maximizing the mileage of streets addressed each year, and sometimes choosing rehabilitation strategies that don't deliver the ideal new street.
- 2.3. To achieve the overall goal, the CTF recommends adopting what has been referred to as the Minimalist Approach when selecting project solutions. CTF members had consensus that less extensive strategies are acceptable even if they have a shorter lifespan. And CTF members agreed that a project that is not perfect but addresses pavement issues and adds life with lower assessments is preferable to a full project reconstruction and all the associated disruptions and higher assessments.
- 2.4. When deciding which neighborhood project to complete the CTF strongly supports using cost-effectiveness as the main criteria selection. Aligning other infrastructure rehabilitation with pavement repairs should be part of this analysis of long-term cost-effectiveness. Traffic levels and road condition should be secondary considerations. Political engagement on the part of neighborhoods in the form of petitions and Council interactions should have little sway on the decision process.

3. Utilities

- 3.1. The CTF strongly supports the idea of all utilities being self-funded. The common practice of funding storm sewer work using PMP money because of the lack of SWU money was something members felt should be addressed, even if it meant an increase in the quarterly SWU bills residents receive.
- 3.2. The CTF reviewed the city SWU program and the different rates charged based on the location in the city. There was broad consensus that having a different (higher) rate charged to the northwest area should be corrected. The CTF supports equal rates across the city for similar property types. CTF members did not show great concern if the SWU rates for all residential property in the city was set at about the same rate as the NWA.
- 3.3. There is universal support on the CTF for getting the maximum life and value from each and every piece of public infrastructure. The CTF sees that long-term planning is an important element in achieving this goal. Therefore, the CTF recommends the city pursue a capital improvement planning system, and carefully weigh the need to reconstruct one piece of infrastructure if others still have life. There is understanding and appreciation on by the CTF that this approach may result in some rehabilitation work being less than ideal for one specific infrastructure type, in order to get maximum benefits from all other infrastructure.
- 3.4. CTF also supports coordinated planning with private companies wherever possible. And on the funding side of private utilities, the CTF does support the continued use of a "franchise fee" collected by private utilities and designated to pavement management. CTF members agreed that more education about the franchise fee for the general public is warranted.

4. Pavement Management Financing

- 4.1. The City adhere to the goals and recommendations of other chapters in this report, particularly the ones spelling out the need to focus on improving the overall PCI rating of the system and focus less on delivering optimal individual projects.
- 4.2. The City take steps to ensure that PMP dollars are used specifically for pavement management. Areas of concern that warrant effort on the part of the City include:
 - 4.2.1. Stormwater utility. Currently PMP dollars are often used to offset storm system upgrades and rehabilitation. The CTF was unanimous in its recommendation that the SWU funding issue be addressed.
 - 4.2.2. Street extensions and improvements associated with development. The CTF did not delve into this issue but raised concerns that some PMP dollars might be used to offset road costs related to new roads near new development. As discussed in more detail in the rural roads section, the CTF recommends that the city continue overlay projects on rural roads, but for fairness, consistency and additional revenue, the city take steps to determine if assessing the benefiting properties for these improvements is practical and cost effective.
- 4.3. To jump-start the program, the CTF supports the sale of bonds in the early years of the expanded program to make up for the lagging assessment revenues.
- 4.4. The CTF supports the current overall funding program and proportion of revenues each funding source provides. More education is warranted regarding how franchise fees work and where they spent, as well as why assessments and other funding sources are used.
- 4.5. The CTF recommends the City examine ways to encourage neighborhoods to set up neighborhood organized trash collection to reduce the heavy truck traffic on local roads, including presenting the idea when projects are going forward.
- 4.6. In all aspects of the PMP the CTF urges consistency in application of funding programs and strong communication of financial implications of upcoming projects. The CTF also favors consistently holding assessment hearings after construction.

5. Rural Roads

- 5.1. The CTF recommends that the city continue to use simple overlay techniques (BAP) to maintain these classes of roads, where possible. Based on growing experience the CTF supports the idea of exploring thicker, longer lasting overlays to service these classes of roads. The CTF also recommends reimplementation of rural road PCI tracking.
- 5.2. The CTF sees the current BAP program as effective but inconsistent in how it treats benefiting properties. It provides a quality pavement rehabilitation technique to rural areas, but doesn't charge any fees or assessments, which is not in line with how more urban areas are treated where assessments are always levied for street improvements.
- 5.3. The CTF recommends that in the future these simple "BAP" style overlays be constructed for longer life (thicker), and that all costs, direct and indirect, be enumerated and then the assessment policy be applied to the benefiting area to capture all associated costs to the extent defined by the policy.

6. Road Standards and "Diets"

- 6.1. The current design standard for new neighborhood streets that has been applied to the Northwest Area should be the city-wide standard for new urban streets. This standard includes a width of 28', and sidewalk on one side of thru-streets.
- 6.2. Narrowing of existing streets should only be considered when other factors dictate that a complete street reconstruction is warranted. The CTF did not see that narrowing or slimming streets a few feet from the old standard 32' to 28' had a compelling benefit, so took no position on recommending a policy that would do so.

- 6.3. CTF did see that some neighborhoods might see advantages of a narrower street, if educated on the concept of road diets. The CTF was in agreement that when a street is up for full reconstruction, the neighborhood should be engaged in a discussion of the possibility of narrower street and given an opportunity to voice support for a narrower street design. This discussion should occur in the very early stages of the process.

7. Communications

- 7.1. Continue with the overall city-wide communications using the branded “Pavement Management Initiative” in order to keep this issue top-of-mind for property owners and residents and look for ways to “keep it fresh”.
- 7.2. Add articles about specific topics often misunderstood by the public like franchise fees, host community funds, and assessments.
- 7.3. After incorporating other changes in the city PMP, create a long-term street rehabilitation plan (an up-to-date Capital Improvement Program) adopted by the City Council.
- 7.4. Use the information garnered from the CIP to create newsletter articles and other communication pieces in order to inform the general public as early as possible of potential projects impacting their neighborhoods.
- 7.5. Inform affected residents of upcoming improvement projects, especially those with proposed assessments. The CTF indicated property owners would appreciate a two-year minimum advanced notice if they are to be assessed so they are able to budget for the assessment.

APPENDIX A

Pavement Management Program Citizen Task Force Charter



Pavement Management Program Citizen's Taskforce Problem Definition and Charter

Inver Grove Heights has over 140 miles of roadways. Although the city has actively implemented a Pavement Management Program (PMP) over the last 10 years, the average pavement condition of city streets has declined. The city has a budget of about \$5M plus money collected via assessments to complete annual projects. An analysis of road condition, underlying soils and other factors suggested that a budget of \$16M a year would be necessary to improve city roads. The city does not have funding capabilities to proceed as per the analysis.

The Citizens Taskforce (CTF) has been created to explore improvements to the Inver Grove Heights PMP. The charge of the CTF is to examine all aspects of the PMP, then provide input and recommendations in a final report to City Council. Specific areas of the PMP that the CTF will investigate and give feedback on include:

1. How Inver Grove Heights defines success or failure in the PMP.
2. How the city measures progress in the program.
3. How specific streets are chosen for inclusion in a project.
4. What rehabilitation strategies hold the most promise for helping move the city toward meeting its PMP goals quickly.
5. What factors should be considered and how should they be weighted when choosing the appropriate rehabilitation technique for a given roadway.
6. Overall current funding levels—is the city providing enough funding to the program.
7. Whether the assessment policy is fair, effective and comparable to other cities.
8. Should the city consider "road diets" when a road requires reconstruction.
9. How the PMP program should be applied toward rural areas.
10. Are there any CTF ideas for communicating PMP issues to the public.

As a taskforce, decisions on recommendations will be made by consensus. The CTF is set to expire on December 14, 2022. Prior to that date, with the help of city Staff and the city's consultant, the CTF will provide a final report summarizing the work and recommendations of the CTF.

Adopted _____

APPENDIX B

Cost Projections to Reach Goal

This document shows the results of an City Staff ICON software analysis of the PCI changes over 15 years at current funding levels. This scenario has several important assumptions:

- Project solutions involve the least expensive strategy that is viable, with solutions focused on improving system PCI over successful project outcomes
- Rural roadways will be analyzed in the future—they were not included in the analysis because data was incomplete
- City will continue to fund the program at current levels, adjusted for inflation.

Cost Projection to Achieve 70 PCI in 15 Years on Urban Streets

| Year | Reconstruct Cost* | Reconstruct Lane Miles | FDR Cost* | FDR Lane Miles | Mill & Overlay Cost* | Mill & Overlay Lane Miles | Total Cost* | Lane Miles Improved | Average PCI** |
|---------------|---------------------|------------------------|---------------------|----------------|----------------------|---------------------------|----------------------|---------------------|---------------|
| 2022 | \$1,340,000 | 0.64 | \$7,340,000 | 8.0 | \$1,330,000 | 4.5 | \$8,670,000 | 13.1 | 63 |
| 2023 | \$1,470,000 | 0.89 | \$9,320,000 | 10.1 | \$2,840,000 | 9.6 | \$12,160,000 | 20.6 | 63 |
| 2024 | \$1,470,000 | 0.89 | \$7,760,000 | 8.2 | \$5,080,000 | 17.2 | \$12,840,000 | 26.3 | 64 |
| 2025 | \$1,470,000 | 0.89 | \$6,330,000 | 6.6 | \$6,220,000 | 21.0 | \$12,550,000 | 28.5 | 64 |
| 2026 | \$1,470,000 | 0.89 | \$8,130,000 | 8.7 | \$4,140,000 | 14.0 | \$12,270,000 | 23.6 | 65 |
| 2027 | \$1,460,000 | 0.88 | \$5,500,000 | 5.6 | \$3,380,000 | 11.4 | \$8,880,000 | 17.9 | 65 |
| 2028 | \$1,460,000 | 0.88 | \$6,880,000 | 7.2 | \$4,490,000 | 15.2 | \$11,370,000 | 23.3 | 66 |
| 2029 | \$1,460,000 | 0.88 | \$6,370,000 | 6.6 | \$3,070,000 | 10.4 | \$9,440,000 | 17.9 | 66 |
| 2030 | \$1,460,000 | 0.88 | \$5,210,000 | 5.3 | \$2,800,000 | 9.5 | \$8,010,000 | 15.6 | 67 |
| 2031 | \$1,460,000 | 0.88 | \$4,690,000 | 4.6 | \$2,560,000 | 8.7 | \$7,250,000 | 14.2 | 67 |
| 2032 | \$1,460,000 | 0.88 | \$7,990,000 | 8.5 | \$2,550,000 | 8.6 | \$10,540,000 | 18.0 | 68 |
| 2033 | \$1,460,000 | 0.88 | \$2,590,000 | 2.2 | \$1,090,000 | 3.7 | \$3,680,000 | 6.7 | 68 |
| 2034 | \$1,460,000 | 0.88 | \$6,030,000 | 6.2 | \$2,260,000 | 7.6 | \$8,290,000 | 14.7 | 69 |
| 2035 | \$1,460,000 | 0.88 | \$4,750,000 | 4.7 | \$1,470,000 | 5.0 | \$6,220,000 | 10.6 | 69 |
| 2036 | \$1,460,000 | 0.88 | \$5,120,000 | 5.1 | \$2,300,000 | 7.8 | \$7,420,000 | 13.8 | 70 |
| Totals | \$21,820,000 | 13 | \$94,010,000 | 97.7 | \$45,580,000 | 154.2 | \$161,410,000 | 264.8 | |

*2021 Dollars. Total Project Street and Storm Costs

**Average PCI of urban streets only. Not a systemwide PCI average.

APPENDIX C

Cost Recovery Analysis

This Excel spreadsheet uses the data from appendix B to examine financing levels in relation to PCI. It does not include any costs or PCI ratings for Rural roads. It is only one possible scenario, and many assumptions are incorporated in order to complete the analysis. See comments in the document for further detail.

PMP Program Cost Flow Analysis 1.3 (2x \$10M bond sales and max project size of \$9M)
12/28/2021
 Based on 12/7/2021 Icon program set to reach 70 PCI by 2036 (and assuming 5% of road projects are total reconstruct--remainder is M&O, FDR, and BAP)

ASSUMPTIONS: Funds increase to cover inflation (all calcs in 2021 \$). MSA is used for other state aid eligible projects. SWU money is available for SW upgrades (rates are increased to yield more revenue). PMP not used for development (including major roadway) costs. Assessment policy nets 51% of gross costs (existing policy remains in place).
 Additional non-PMP projects that impact funding reserves need to be added

| YEAR | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 |
|------------------------------------|-----------------|-----------------|---|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| RESERVES | \$9,000,000.00 | \$6,050,000.00 | \$1,716,000.00 | \$8,841,000.00 | \$5,375,000.00 | \$12,268,000.00 | \$8,570,000.00 | \$5,331,000.00 | \$2,551,000.00 | \$1,129,000.00 | \$1,014,000.00 | -\$542,000.00 | \$2,856,000.00 | \$2,956,000.00 | \$6,106,000.00 |
| SOURCES | | | | | | | | | | | | | | | |
| SWU | \$400,000.00 | \$400,000.00 | \$500,000.00 | \$500,000.00 | \$500,000.00 | \$500,000.00 | \$500,000.00 | \$500,000.00 | \$500,000.00 | \$500,000.00 | \$500,000.00 | \$500,000.00 | \$500,000.00 | \$500,000.00 | \$500,000.00 |
| general levy | \$2,500,000.00 | \$2,500,000.00 | \$2,500,000.00 | \$2,500,000.00 | \$2,500,000.00 | \$2,500,000.00 | \$2,500,000.00 | \$2,500,000.00 | \$2,500,000.00 | \$2,500,000.00 | \$2,500,000.00 | \$2,500,000.00 | \$2,500,000.00 | \$2,500,000.00 | \$2,500,000.00 |
| Franchise Fees | \$1,000,000.00 | \$1,000,000.00 | \$1,000,000.00 | \$1,000,000.00 | \$1,000,000.00 | \$1,000,000.00 | \$1,000,000.00 | \$1,000,000.00 | \$1,000,000.00 | \$1,000,000.00 | \$1,000,000.00 | \$1,000,000.00 | \$1,000,000.00 | \$1,000,000.00 | \$1,000,000.00 |
| Host community fnd | \$500,000.00 | \$500,000.00 | \$500,000.00 | \$500,000.00 | \$500,000.00 | \$500,000.00 | \$500,000.00 | \$500,000.00 | \$500,000.00 | \$500,000.00 | \$500,000.00 | \$500,000.00 | \$500,000.00 | \$500,000.00 | \$500,000.00 |
| Assessment Prepayment | \$350,000.00 | \$450,000.00 | \$450,000.00 | \$450,000.00 | \$450,000.00 | \$450,000.00 | \$450,000.00 | \$450,000.00 | \$400,000.00 | \$350,000.00 | \$450,000.00 | \$200,000.00 | \$400,000.00 | \$300,000.00 | \$350,000.00 |
| Assessment Revenue | \$200,000.00 | \$816,000.00 | \$1,275,000.00 | \$1,734,000.00 | \$2,193,000.00 | \$2,652,000.00 | \$3,111,000.00 | \$3,570,000.00 | \$3,978,000.00 | \$4,335,000.00 | \$4,794,000.00 | \$4,998,000.00 | \$5,500,000.00 | \$5,500,000.00 | \$5,500,000.00 |
| Municipal State Aid | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| Bond sold | | | \$10,000,000.00 | | \$10,000,000.00 | | | | | | | | | | |
| AVAILABLE FUNDS | \$13,950,000.00 | \$11,716,000.00 | \$17,941,000.00 | \$15,525,000.00 | \$22,518,000.00 | \$19,870,000.00 | \$16,631,000.00 | \$13,851,000.00 | \$11,429,000.00 | \$10,314,000.00 | \$10,758,000.00 | \$9,156,000.00 | \$13,256,000.00 | \$13,256,000.00 | \$16,456,000.00 |
| Bond Costs (int+pcpl) | \$0.00 | \$0.00 | -\$100,000.00 | -\$1,150,000.00 | -\$1,250,000.00 | -\$2,300,000.00 | -\$2,300,000.00 | -\$2,300,000.00 | -\$2,300,000.00 | -\$2,300,000.00 | -\$2,300,000.00 | -\$2,300,000.00 | -\$2,300,000.00 | -\$2,300,000.00 | -\$1,150,000.00 |
| Project construction costs: | | | | | | | | | | | | | | | |
| PMP | -\$7,000,000.00 | -\$9,000,000.00 | -\$9,000,000.00 | -\$9,000,000.00 | -\$9,000,000.00 | -\$9,000,000.00 | -\$9,000,000.00 | -\$9,000,000.00 | -\$8,000,000.00 | -\$7,000,000.00 | -\$9,000,000.00 | -\$4,000,000.00 | -\$8,000,000.00 | -\$6,000,000.00 | -\$7,000,000.00 |
| 117th | -\$600,000.00 | -\$1,000,000.00 | | | | | | | | | | | | | |
| Argenta | -\$300,000.00 | | | | | | | | | | | | | | |
| | | | 2024-2026, 2028 and 2032 all reduced to \$9M (-\$14M overall reduction). this could lower PCI results 1pt. Though more BAP and M&O may compensate | | | | | | | | | | | | |
| REMAINDER | \$6,050,000.00 | \$1,716,000.00 | \$8,841,000.00 | \$5,375,000.00 | \$12,268,000.00 | \$8,570,000.00 | \$5,331,000.00 | \$2,551,000.00 | \$1,129,000.00 | \$1,014,000.00 | -\$542,000.00 | \$2,856,000.00 | \$2,956,000.00 | \$6,106,000.00 | \$8,306,000.00 |
| PCI AT YEAR END | 63 | 63 | 64 | 64 | 65 | 65 | 66 | 66 | 67 | 67 | 68 | 68 | 69 | 69 | 70 |

Primary Takaways:
 1) Need to add other infrastructure projects that might impact PMP monies
 2) \$20M of bonding will be needed plus or minus depending on other PMP draws
 3) Setting a max at \$9M/yr dampens bonding needs and keeps yearly project size consistent
 4) Broad Area Patching and Minimalist approach (Max M&O) could also increase effectiveness of dollars spent