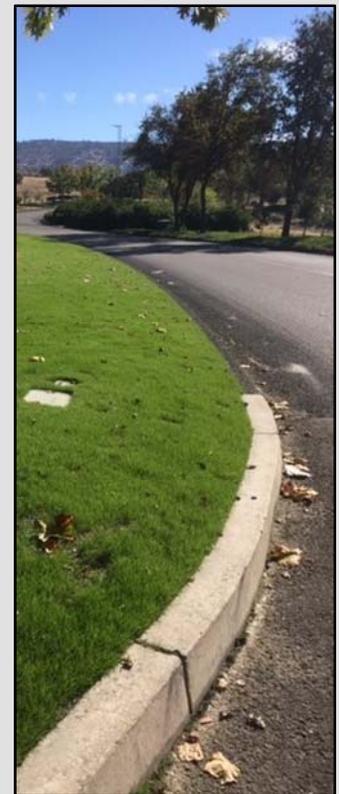


Saddle Creek Community Services District



2019 Five Year Capital Improvement Program Street Repaving





Saddle Creek Community Services District
Five Year Capital Improvement Program – Street Repaving

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Table of Contents

Title Page	1
Table of Contents	2
Executive Summary	3
Introduction	4
2016 Pavement Condition Ratings	4
2018 Repaving Project	5
Comparison of Estimated costs from the 2016 Report	6
Methods of Selecting Candidate Projects	7
Recommended Project Selection Method	8
Funding Available	9
Five-Year 2019 Capital Improvement Program Recommendations	
2019 (Year 1)	10
2020 (Year 2)	11
2021 (Year 3)	12
2022 (Year 4)	13
2023 (Year 5)	14
Remaining Roadways for future years	15
Summary of Plan Recommendations	16
Attachments	17
1. Spreadsheet - Saddle Creek Subdivision, All Road Segments	
2. Spreadsheet – Saddle Creek Subdivision, Roadways by Neighborhood	
References	19
1. Pavement Condition Assessment for Saddle Creek Community Services District, June 2016, Peter Rei, PE	
2. Technical Memorandum – Pavement Evaluation for Saddle Creek Resort, August 2006, Jon K Lynch, PE	



Executive Summary

This Capital Improvement Program is a further refinement of the Pavement Condition Assessment Report prepared for the District by Peter Rei in June 2016 and the Technical Memorandum entitled Pavement Evaluation for Saddle Creek Resort prepared by Jon W. Lynch in 2006.

The 2016 report was compiled from field Pavement Condition surveys of all Saddle Creek Community Services District subdivision roads performed in Spring 2016. This Five-Year Capital Improvement Program uses the results of the Spring 2016 field observations of roadway condition and is intended to provide recommendations for future pavement improvements beginning in 2019 and beyond.

The 2016 Pavement Condition survey results indicated that the average PCI of the Saddle Creek Community Services District roadways at that time was 62 with 31.4 % of the roadways determined to be in Poor or Very Poor condition at the time of the field surveys in Spring 2016. This indicates that the District's roadways are well below the desired average PCI of 80 to ensure that yearly maintenance costs are kept to a manageable level.

In Summer 2018 the District advertised a project which included the grinding and repaving of the Resort Entrance Road, the Resort Roundabout, the entire length of Saddle Creek Drive and a majority of Oak Creek Drive. Important takeaways from the 2018 project are:

- Only 3 contractors submitted bids for the 2018 project.
- Based on the pricing of the construction bids received by the District for the 2018 project it appears that the District can anticipate roadway construction costs at Saddle Creek being significantly higher than they are for similar projects in the Modesto/Stockton area.
- Future project construction cost estimates are recommended to be based on the actual bid prices received in 2018 as these costs more accurately forecast what the District will likely pay for future pavement projects.

Actual per square foot prices from the District's 2018 Paving Project were used to calculate expected costs for future paving projects. These 2018 prices are then factored up by the following amounts to account for all costs that are included in the total construction cost:

- 20% for the cost of Traffic Control, Signing/Striping, Contractor Mobilization/Demobilization, Water Pollution Control requirements, Insurance, Bonding costs, etc.
- 15% for project engineering including design and construction management.
- 5% per year to account for inflation

Using this approach, this report calculates that \$1,330,242 (2019 dollars) is the total cost that would be expected if the entire project to repave all of the remaining roadways in the subdivision was planned to be done in 2019.

Yearly project recommendations can be found in the body of the report starting at page 10, with a Five Year Summary on page 16.

Spreadsheets listing the Pavement Condition Index for each roadway within the subdivision, and total estimates by neighborhood can be found in the attachments..



Introduction

At the request of the Saddle Creek Community Services District Board of Directors Willdan Engineering is pleased to provide the District with this Five-Year Capital Improvement Program for the resurfacing of the District's roadways. This Capital Improvement Program is a further refinement of the Pavement Condition Assessment Report prepared for the District by Peter Rei in June 2016 and the Technical Memorandum entitled Pavement Evaluation for Saddle Creek Resort prepared by Jon W. Lynch in 2006.

The 2016 report was compiled from field Pavement Condition surveys of all Saddle Creek Community Services District subdivision roads performed in Spring 2016. The goal of the 2016 Report was to provide the District Board of Directors with estimates of the cost to bring all of the District's roadways up to a minimum Pavement Condition Index (PCI) of 80.

The results of the 2016 Report were then used by District staff to create Roadway Assessment, to be voted upon by the residents, in order to raise the funds to pay for the anticipated costs. That Assessment was approved by the residents in November 2016.

Following the approval of the Assessment Willdan Engineering was retained to assist the District in the design and construction of pavement improvements for the first year of the Assessment. Those improvements included the grinding and repaving of the Resort Entrance Road, the Resort Roundabout, the entire length of Saddle Creek Drive and a majority of Oak Creek Drive in Summer 2018. This Five-Year Capital Improvement Program is intended to provide recommendations for future pavement improvements beginning in 2019 and beyond.

2016 Pavement Condition Ratings

The 2016 Pavement Condition survey results indicated that the average PCI of the Saddle Creek Community Services District roadways at that time was 62 with 31.4 % of the roadways determined to be in Poor or Very Poor condition at the time of the field surveys in Spring 2016. This indicates that the District's roadways are well below the desired average PCI of 80 to ensure that yearly maintenance costs are kept to a manageable level. The primary reason for the lower average PCI score was the lack of routine maintenance of the District's roadways since they were originally constructed beginning with the construction of Resort Entrance Road, the Resort Roundabout, the entire length of Saddle Creek Drive and Oak Creek Drive in 1995. Various phases of the subdivision have continued to be built since 1995 with the most recent roadway construction being the Quail Ridge neighborhood in 2014.

The 2016 Report utilized the Metropolitan Transportation Commission (MTC) Pavement Analysis tool to calculate the expected cost to improve the average PCI score for the District's roadways from 62 to a minimum of 80. The estimate determined that it will require approximately \$560,000 in 2016 dollars to result in the desired improvement in the average PCI. The \$560,000 estimate was based on the cost of construction for the actual pavements and did not include the additional costs of engineering, contractor mobilization and profit, restriping and other associated costs.



2018 Repaving Project

In Summer 2018 the District advertised a project which included the grinding and repaving of the Resort Entrance Road, the Resort Roundabout, the entire length of Saddle Creek Drive and a majority of Oak Creek Drive. In addition, the remaining portion of Oak Creek Drive was selected to receive a Microsurfacing treatment. The estimated cost by Willdan Engineering of the project was \$533,130.00. This estimate was based on recent projects of a similar nature constructed in the San Joaquin Valley area. The District received three bids. The lowest bid was submitted by T&S West out of Stockton at \$726,330.00. Following receipt of that bid Willdan Staff and representatives of T&S performed a value engineering effort to reduce the cost of the project. Using the results of the value engineering effort the contractor and the District were able to agree on a plan to reduce the project cost to \$602,790 and the contract was awarded by the District.

During the construction of the 2018 project a major drainage issue was discovered on Oak Creek Drive which involved a failed storm drain pipe. During the original construction of the subdivision it appears that the pipe was crushed, causing frequent flooding problems in the immediate area during heavy rainstorms. The replacement of this crushed drainage pipe ultimately added \$146,373.00 to the cost of the project. Due to the large increase in cost a second value engineering effort was initiated with T&S to find an acceptable way to reduce the cost closer to the District's budgeted resources. That second value engineering effort further modified the original scope of the project by removing paving fabric from the Resort Roundabout, removing the Microsurfacing for a portion of Oak Creek Drive, and reducing the amount of dig-outs of failed pavement in some areas.

Important takeaways from the 2018 project are:

- Only 3 contractors submitted bids for the 2018 project. This is likely due to the strong economy resulting in many paving contractors being very busy and the fact that the project was advertised during the busy summer construction season when most contractors already had a full program of projects for the year.
- Based on the pricing of the construction bids received by the District for the 2018 project it appears that the District can anticipate roadway construction costs at Saddle Creek being significantly higher than they are for similar projects in the Modesto/Stockton area.
- Unanticipated storm drain repairs diverted a large amount of funding originally slated for roadway resurfacing to repair the drainage problems.
- The reduction of pavement fabric and the reduction in the amount of failed pavement to be dug out prior to the new pavement being constructed, in order to help reduce the cost of the project may have contributed to some premature pavement cracking in the Resort Roundabout area.
- Future project construction cost estimates are recommended to be based on the actual bid prices received in 2018 as these costs more accurately forecast what the District will likely pay for future pavement projects, and not on MTC program estimates.



Comparison of the Estimated costs from the 2016 Report and the 2019 Five Year Capital Improvement Program

Estimated Construction Costs

Based on the lessons learned from the 2018 Pavement contract Willdan staff revised the method used to estimate the construction costs for future pavement restoration projects. The revised approach continues to utilize the Pavement Condition ratings observed from the field investigations performed in Spring 2016 as the basis for what the appropriate treatment for each individual roadway segment should be. However, instead of using the MTC program estimates of cost as was done in the 2016 Pavement Report, the Five-Year Capital Improvement Program uses actual per square foot bid prices received by the District for the resurfacing project on Saddle Creek Drive and Oak Creek Drive in Summer 2018. These actual per square foot prices are then factored up by the following amounts to account for all costs that are included in the total construction cost:

- 20% for the cost of Traffic Control, Signing/Striping, Contractor Mobilization/Demobilization, Water Pollution Control requirements, Insurance, Bonding costs, etc.
- 15% for project engineering including design and construction management.
- 5% per year to account for inflation

Using this approach, \$1,330,242 (2019 dollars) is the total cost that would be expected if the entire project to repave all of the remaining roadways in the subdivision was planned to be done in 2019.

It is important to note that this 2019 estimate cannot be directly compared to the \$560,000 estimate in the 2016 report. The 2016 Report Estimate was aimed at determining how much funding would be necessary to improve the PCI from an average of 62 in 2016 to an average of 80 at some point in the future. By contrast, the 2019 estimate is the total cost that would be expected if the entire project to repave all of the roadways in the subdivision was done this year. If that were to actually occur the average PCI for the subdivision would be very close to 100 due to all of the roadways being newly resurfaced, as opposed to the average PCI of 80 in the 2016 Report.

It is not anticipated that construction of all roads in this year will actually occur. However, the \$1,315,432 figure is a useful measure, using 2018 actual bid prices as the basis, to better estimate the total amount of deferred maintenance for all roadways within the subdivision.

Methods of Selecting Candidate Projects

There is no one correct way to address the process of selecting roadways for the first five years of the Capital Improvement Program. Listed below are a few of the most common approaches that are commonly used:

1. “Worst First” Project Selection

This approach favors spending the majority of available yearly financial resources to repair the roadways with the most severe damage and the lowest PCI ratings.

Advantages of this approach

The primary advantage of this approach is the long overdue repair of badly deteriorated roadways.



Disadvantages of this approach

Due to the advanced deterioration of older, heavily damaged roadways the cost per square foot to reconstruct these roadways is very high. Focusing all, or a large amount, of available yearly paving resources on heavily damaged roadways results in a much lower amount of square footage of roadways repaired as compared with allocating the same amount of available yearly paving resources for a preventative treatment on a much larger amount of square footage for roadways with less severe problems.

At the same time, when less severely damaged roadways are made to wait longer for life-extending treatments the slow deterioration of those roadways will continue. This delay leads to higher future costs to repair those less damaged roadways as compared to current costs, due to the advanced level of deterioration over time.

By contrast, a severely damaged roadway costs essentially the same amount to repair now as it will in the future as the deterioration has already progressed to a point where much greater (and more expensive) repavement treatments are required to bring the surface back up to desired standards.

A useful analogy is to consider is the life expectancy of a vehicle which receives regular maintenance as compared to a vehicle which does not. The cost of repairing, or completely replacing, the vehicle that does not receive regular maintenance is very high. By contrast, the cost to perform regular maintenance of a vehicle keeps the vehicle in good operating condition for a much longer period of time and at a reduced overall long-term cost. The same principle applies to roadways.

2. “Most Long-Term Cost-Effective” Project Selection

Advantages of this approach

This approach to project selection relies on the savings experienced by fixing a roadway in fair to good condition before it deteriorates to a point where more costly repairs are necessary. Rigid application of this method of project selection reduces the long-term overall cost of projects constructed to the lowest possible amount.

Disadvantages of this approach

Due to the focus on reducing long-term maintenance costs the roadway projects selected using this approach will often not address badly damaged roadways as the best use of funding, particularly if there are roadways that are other roadways that are just beginning to show deterioration. These roadways can be improved with seal coat and Microsurfacing projects which will extend their life for a much lower per square foot cost. This allows the same amount of funding to treat a much larger surface area for any given yearly project.

However, this approach may also be difficult politically for residents who have badly damaged roadways who have to wait longer for repairs to their roadway to understand and accept if the selected treatment for that particular year is not complete reconstruction of badly damaged roadways.



3. “Similar Treatment” Project Selection

Advantages of this approach

This method of project selection favors the grouping of multiple roadway locations that need the same type of roadway treatment into a combined project for a specific yearly project. Doing so reduces the variety of the work that the contractor is required to perform, and also helps to reduce the contractor’s mobilization costs by focusing on one type of roadway treatment for an entire project for that particular year.

Disadvantages of this approach

This approach may also be difficult politically for residents who have badly damaged roadways who have to wait longer for repairs to their roadway to understand and accept if the selected treatment for that particular year is not complete reconstruction of badly damaged roadways.

4. “Specified Yearly Percentage Combination” of the other Project Selection Methods

Advantages of this approach

Many agencies opt to combine several of the above approaches to Project Selection in order to provide a good overall cost-effective program, but also make some progress on the most damaged roadways at the same time. It is common to split the funding using 60% of available yearly funding for pavement maintenance treatments (seals and microsurfacing projects which prolong the life of roadways that are in good shape overall but need a treatment to prolong their life) and 40% for pavement reconstruction treatments for badly damaged roadways (grind, dig-out and replace projects). Each agency may have a different ratio between the two objectives, but the intent is to try to make progress on both needs simultaneously.

Disadvantages of this approach

As with some of the other approaches this method of project selection may delay needed reconstruction efforts on badly damaged roadways in favor of spending some of the resources on life-extending treatments for roadways that are less damaged.

Recommended Project Selection Method for the Five-Year 2019 Five-Year Capital Improvement Program

Willdan Engineering recommends the District select the “Similar Treatment” project selection method described above. It is clearly important to maximize the cost-effective use of the funding that the District receives for the resident’s Roadway Assessment dollars. However, it is equally important that the type of project being constructed in any one year be the same type of treatment to reduce the increased cost of contractor mobilization which is required when multiple treatments are to be constructed as part of the same contract.

Willdan also recommends that projects be grouped by neighborhood if at all possible. Doing so provides an area-wide improvement to an entire neighborhood at one time. This approach also isolates the



disturbance to residents of other neighborhoods during construction as the work is only occurring in one neighborhood for that construction season.

Funding Available

It is Willdan's understanding that the amount of funding that the District is able to utilize on a yearly basis is approximately \$130,000 per year. This amount of funding will definitely make a positive difference in improving the conditions of the pavements within the subdivision, however it is not large enough to cover the cost of pavement replacement costs for both badly damaged roadways and the life-extending maintenance treatments for less damaged roadways in the same year unless augmented with other resources.

If possible, Willdan recommends that the District consider ways to allocate additional funding on a yearly basis. This will allow projects to be completed for an entire neighborhood in a single year. As the size and area of pavement for each neighborhood is different the costs vary considerably from neighborhood to neighborhood in order to create only one project. This will mean finding funding in an amount greater than \$130,000 for some of the yearly projects.

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Five-Year 2019 Capital Improvement Program Recommendations

2019 (Year 1)

Recommended Base Project:

Microsurfacing of the entire length of Knolls Drive (2016 PCI = 77)

Area to be Treated (base project): 139,300 square feet (11.2% of entire subdivision paved area)

Estimated Construction Cost (including supplemental, inflation and engineering): \$123,751 (2019 \$)

Recommended Expanded Project:

Recommended Base Project and addition of the following roadways:

Microsurfacing of Knolls Court (2016 PCI = 71)

Microsurfacing of Mossy Woods Court (2016 PCI = 77)

Microsurfacing of Vista Knolls Court (2016 PCI = 76)

Microsurfacing of Wildflower Court (2016 PCI = 73)

Microsurfacing of Mitchell Lake Lane (2016 PCI = 74)

Microsurfacing of Mitchell Lake Court (2016 PCI = 70)

Area to be Treated (expanded project): 246,000 square feet (17.0% of entire subdivision paved area)

Estimated Construction Cost with all Courts: \$219,340 (2019 \$)

Rationale for the selected project:

- The Knolls and The Cottages are two of the oldest neighborhoods in the Saddle Creek development. District staff indicate that they were built in 1998.
- The roadways, including courts, in the Knolls neighborhood had an average PCI of 75 in 2016.
- The roadways, including Mitchell Lane Court in the Cottages neighborhood had an average PCI of 72 in 2016. These PCI ratings have now deteriorated in the past three years somewhat. PCI's of less than 80 indicate a roadway that will begin to deteriorate at a faster pace, with an increased cost to repair that accelerated deterioration at a later date. A Microsurfacing treatment at this time will avoid additional costly repaving if the roadways continue to deteriorate.
- Completing all of the re-surfacing for both entire neighborhoods will localize the construction and reduce the inconvenience to subdivision residents who do not live in these two neighborhoods.



Five-Year 2019 Capital Improvement Street Repaving Program Recommendations

2020 (Year 2)

Recommended Base Project:

Complete Resurfacing of Hawkrige Drive from 1995 end of road to Oak Creek Drive (2016 PCI = 51)

Complete Resurfacing of Redtail Court (2016 PCI = 53)

Complete Resurfacing of Falcon Court (2016 PCI = 74)

Area to be Treated (base project): 39,860 square feet (3.2% of entire subdivision paved area)

Estimated Construction Cost (including supplemental, inflation and engineering): \$109,326 (2019 \$)

Recommended Expanded Project:

Recommended Base Project and addition of the following roadways:

Complete Resurfacing of Blue Oak Court (2016 PCI = 50)

Complete Resurfacing of White Oak Court (2016 PCI = 45)

Area to be Treated (expanded project): 62,060 square feet (5.0% of entire subdivision paved area)

Estimated Construction Cost (including supplemental, inflation and engineering): \$170,215 (2019 \$)

Rationale for the selected project:

- The portion of Hawkrige Drive, Red Tail Court, Falcon Court, Blue Oak Court and White Oak Court are some of the oldest roadways in the Saddle Creek development. District staff indicate that they were built in 1995 as part of the original construction of Oak Creek Drive.
- The portion of Hawkrige Drive, Red Tail Court and Falcon Court roadways had an average PCI of 41 in 2016.
- There is evidence of considerable “alligator cracking” on several portions of the roadway. This indicates a failure in the base layer supporting the asphalt surface above. This roadway has deteriorated to the point that a Microsurfacing is no longer the recommended treatment and a grinding of the pavement along with selected dig-outs and repaving is necessary to bring the roadway back up to desired standards.



Five-Year 2019 Capital Improvement Street Repaving Program Recommendations

2021 (Year 3)

Recommended Project:

Microsurfacing of the portion of Oak Creek Drive that was deleted from the 2018 project (2016 PCI = 80)

Microsurfacing of Oakwood Place to Old Cul-De-Sac (beginning of Hawkridge Drive) (2016 PCI = 81)

Microsurfacing of Oakwood Court (2016 PCI = 83)

Microsurfacing of Falling Leaf Lane (2016 PCI = 81)

Microsurfacing of Leaf Crest Court (2016 PCI = 82)

Area to be treated: 150,100 square feet (12.1% of entire subdivision paved area).

Estimated Total Construction Cost (including supplemental, inflation and engineering): \$133,345

Rationale for the selected project:

- The Oakwood neighborhood was constructed in 2004 according to District staff.
- The roadways, including courts, in the Oakwood neighborhood had an average PCI of 81 in 2016. A Microsurfacing treatment at this time will avoid additional costly repaving if the roadways continue to deteriorate.
- Completing all of the re-surfacing for both only this neighborhood will localize the construction and reduce the inconvenience to subdivision residents who do not live in this specific neighborhood.



Five-Year 2019 Capital Improvement Street Repaving Program Recommendations

2022 (Year 4)

Recommended Base Project:

Complete Resurfacing of the entire length of Rockridge Lane (2016 PCI = 44)

Area to be Treated (base project): 79,700 square feet (6.4% of entire subdivision paved area)

Estimated Construction Cost (including supplemental, inflation and engineering): \$218,597 (2019 \$)

Recommended Expanded Project:

Recommended Base Project and addition of the following roadways:

Complete Resurfacing of Rockridge Court (2016 PCI = 26)

Complete Resurfacing of Quail Meadows Court (2016 PCI = 53)

Microsurfacing of Quail Meadows Lane (2016 PCI = 76)

Microsurfacing of Pebble Court (2016 PCI = 85)

Area to be Treated (expanded project): 135,900 square feet (11.0% of entire subdivision paved area)

Estimated Construction Cost (including supplemental, inflation and engineering): \$313,771 (2019 \$)

Rationale for the selected project:

- The Rockridge neighborhood is one of the oldest neighborhoods in the Saddle Creek development. District staff indicate that it was built in 2001.
- The roadways, including courts, in the Rockridge neighborhood had an average PCI of 41 in 2016.
- There is evidence of considerable “alligator cracking” on several portions of the roadway. This indicates a failure in the base layer supporting the asphalt surface above. This roadway has deteriorated to the point that a Microsurfacing is no longer the recommended treatment and a grinding of the pavement along with selected dig-outs and repaving is necessary to bring the roadway back up to desired standards.



Five-Year 2019 Capital Improvement Street Repaving Program Recommendations

2023 (Year 5)

Recommended Base Project: Microsurfacing of Saddle Creek Lane (2016 PCI = 74)
Microsurfacing of Glen Side Court (2016 PCI = 81)
Microsurfacing of Glen View Court (2016 PCI = 68)
Complete resurfacing of Copper Glen Terrace (2016 PCI = 42)
Complete resurfacing of Copper Glen Court (2016 PCI = 55)

Area to be Treated (base project): 106,500 square feet (8.6% of entire subdivision paved area)
Estimated Construction Cost (including supplemental, inflation and engineering): \$144,495 (2019 \$)

Recommended Expanded Project:

Recommended Base Project and addition of the following roadways:

Cape Seal of Entry Road
Cape Seal of Resort Roundabout
Cape Seal of Saddle Creek Drive
Cape Seal of Oak Creek Drive

Area to be Treated (expanded project): 396,500 square feet 32.0% of entire subdivision paved area)
Estimated Construction Cost (including supplemental, inflation and engineering): \$311,245 (2019 \$)

Rationale for the selected project:

- District staff indicate that the Glens neighborhood was built in 2001. While many of the other neighborhoods are older than the Glens, the roadways are beginning to show their age.
- The Entry Road, Resort Roundabout, Saddle Creek Drive and Oak Creek Drive roadways were resurfaced in 2018. In 2013 they will have been in place for 5 years. It is strongly recommended that a seal coat be applied every 5 years on all resurfaced roadways to help prolong their useful life and prevent more costly resurfacing from being required.



Remaining Roadways for future years

<u>Year</u>	<u>Year Built</u>	<u>Area Treated</u>	<u>Estimated Cost (2019 \$)</u>
Grandview Court (2016 PCI = 75)	1995	6,800 sq. ft.	\$ 6,041
Flagstone Court (2016 PCI = 61)	1995	5,900 sq. ft.	\$ 16,182
Greenstone Court (2016 PCI = 51)	1995	11,500 sq. ft.	\$ 31,542
Wood Duck Court (2016 PCI = 51)	1995	8,100 sq. ft.	\$ 22,216
Summit Lane (2016 PCI = 54)	2001	32,900 sq. ft.	\$ 90,236
Summit Court (2016 PCI = 53)	2001	11,400 sq. ft.	\$ 31,267
Hawkridge Drive (Newer Part) (2016 PCI = 81)	2011	99,040 sq. ft.	\$ 87,985
Hawkridge Court (2016 PCI = 82)	2011	15,400 sq. ft.	\$ 13,681
Quail Creek Drive (2016 PCI = 82)	2014	50,000 sq. ft.	\$ 44,419
Quail Covey Court (2016 PCI = 82)	2014	6,200 sq. ft.	\$ 5,508
Total Roadways Untreated In first 5 Years		247,240 sq. ft. (20.0%)	\$349,077



Summary of Five-Year Capital Improvement Plan Recommendations

<u>Year</u>	<u>Neighborhood</u>	<u>Year Built</u>	<u>Area Treated</u>	<u>Estimated Cost (2019 \$)</u>
2018 (Year 0)	Main Roads	1995	290,000 sq. ft. (23.4%)	Completed
2019 (Year 1)	Knolls	1998	246,900 sq. ft. (19.9%)	\$219,340
2020 (Year 2)	Upper Hawkridge	1995	62,060 sq. ft. (5.0%)	\$170,215
2021 (Year 3)	Oakwood	2004	150,100 sq. ft. (12.1%)	\$133,345
2022 (Year 4)	Rockridge	2001	135,900 sq. ft. (11.0%)	\$313,771
2023 (year 5)	Glens	2007	106,500 sq. ft. (8.6%)	\$144,495 (base project)
Sub -Total Roadways Treated			1,017,600 sq. ft. (80.0%)	\$981,165
Sub-Total Roadways Untreated			247,240 sq. ft. (20.0%)	\$349,077
Total			1,268,740 sq. ft. (100.0%)	\$1,330,242

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Attachments

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