

EXECUTIVE SUMMARY

JG3 CONSULTING, LLC. (JG3) was contracted through the Metropolitan Transportation Commission's (MTC) P-TAP program to provide an update to the Town's pavement management program (PMP). This update involved the following 4 main tasks:

- Task 1 - Establish the work scope, schedule and budget for the project.
- Task 2 – Provide visual inspection of all streets to determine current condition.
- Task 3 - Establish the budget needs of the roadway network and create 3 budget scenarios.
- Task 4 - Create a final report to present the condition and budget scenario results.

The Town of Fairfax is responsible for the maintenance of 201 pavement sections totaling 27.5 centerline miles. In August of 2016 an inspection was performed on the roadway network following ASTM D6433 and MTC's PMP (Street Saver) standards. The distress data was entered into the PMP to produce a Pavement Condition Index (PCI) score for each section as well as the overall roadway network. The PCI is a condition scale ranging from 0 – 100 with 0 considered to be of failed condition and 100 considered to be of excellent condition.

Through the ASTM D6433 inspection performed by JG3 and updated maintenance improvements completed for the year, the current average PCI score of the Town's roadway network is a 63. Historical records and reports show that the network average PCI in 2014 was an 65 resulting in a 2 point PCI decrease from the previous P-TAP 15 program.

As part of task 4 of the project, JG3 ran 7 different budget scenarios to identify the impact of various budgets:

- Scenario 1 – Do Nothing over the Next Five Years
- Scenario 2 - Estimated Annual Budget of \$100 thousand over the Next Five Years
- Scenario 3 - Estimated Annual Budget of \$150 thousand over the Next Five Years
- Scenario 4 - Estimated Annual Budget of \$200 thousand over the Next Five Years
- Scenario 3 – Maintain the Network at the Current PCI Level of 63 over the Next 5 Years
- Scenario 4 – Increase the PCI Five Points from the Current PCI 63 to a PCI of 68 in Five Years
- Scenario 7 – Average Annual Budget of the PMP Determined Needs over the Next Five Years

In the case of the current funding level of \$100 thousand over the next 5 years, the condition of the roadway network is projected to drop 8 PCI point from the current 63 down to a 55 with an estimated \$7.6 million of backlog at the end of five years (2021).

JG3's budgetary recommendation is to increase the current expected annual budget from \$100 thousand annually to \$600 thousand, while continuing the existing program of preventive maintenance, crack seals, surface seals, overlays and surface construction as maintenance and rehabilitation strategies over the next 5 years. This will provide for a maintained annual average PCI of a 63 each year, while reducing the expected backlog of \$7.6 million under the current funding scenario to \$6.0 million.

In addition to the recommended program mentioned above, JG3 also recommends maintaining the dedication toward periodic PMP updates. These updates provide the necessary pavement management distress, condition,

maintenance and budget data required to analyze, forecast and model the state of the network. The PMP update also adjusts variables such as inflation rates, interest rates and maintenance costs that are critical to establishing a successful, accurate and objective long term pavement management plan.

PURPOSE

The purpose of this report is to assist Town staff and decision makers in utilizing the results of the MTC's PMP. Specifically, this report links the PMP recommended repair program costs to the Town of Fairfax's current and projected budget alternatives to improve overall maintenance and rehabilitation strategies. This report assesses the adequacy of ideal and projected revenues to meet the maintenance needs recommended by the PMP program. It also maximizes the return from expenditures by:

- (1) Implementing a multi-year road rehabilitation and maintenance program;
- (2) Developing a preventative maintenance program; and
- (3) Selecting the most cost effective repairs.

This report assists the Town of Fairfax with identifying maintenance priorities specific to its needs. This study examines the overall condition of the road network and highlights options for improving the current network level pavement condition index (PCI). These options are developed by conducting various budget and/or target driven scenarios. By varying the budget amounts available for pavement maintenance and repair, one can show how different funding strategies can impact the Town's roads over time.

PAVEMENT MANAGEMENT STRATEGY

Pavement Management is a system of tools, criteria and methodologies designed to manage the maintenance and rehabilitation activities Asphalt Concrete and Portland Concrete pavements. Through historical condition data, pavement models and a decision-making process the pavement management system identifies the most cost effective maintenance strategy for each section over time to optimize the conditions of the network.

All too often many public works and street department agencies utilize the conventional "worst to first" approach to fixing their streets. Under this approach, streets deteriorate to a near failed condition before rehabilitation is scheduled. Typically, these involve expensive repairs such as Overlays and Reconstruction while the road is in a state of poor condition for a considerable period of time.

The Pavement Management strategy focuses on cost effective treatments to good roads to maintain their condition and serviceability throughout their lifespan. The emphasis on this strategy is to use preventive maintenance treatments such as Slurry Seals, Chip Seals and Crack Seal to ultimately extend the life cycle of the street, while stabilizing the overall condition at the same time.

MAINTENANCE AND REHABILITATION

Historically, the Town has utilized a program of surface seals, overlays and surface reconstruction as maintenance and rehabilitation strategies. All available data from past historical records were entered into the PMP database and the new PCI's calculated. Surface treatments, such as slurry seals, have been usually utilized as a preventive maintenance technique when the pavements are in "Good" condition or above. When the pavement condition deteriorates to lower levels, asphalt concrete overlays have been placed. Base repairs and milling are typical surface preparation prior to overlays. These treatments are formalized in the maintenance and rehabilitation decision tree shown in Appendix B.

Figure 1 below demonstrates that pavement maintenance follows the old colloquial saying of "pay me now, or pay me more later." History has shown that it costs much less to maintain roads in good condition than to repair roads that have failed. By allowing pavements to deteriorate, roads that once cost \$4.00-\$7.00 Sq Yd to seal may soon cost \$24.00-\$40.00 Sq Yd to overlay or even \$30 - \$80.00 Sq Yd to reconstruct. In other words, delays in repair can result in rehabilitation costs that are several times more.

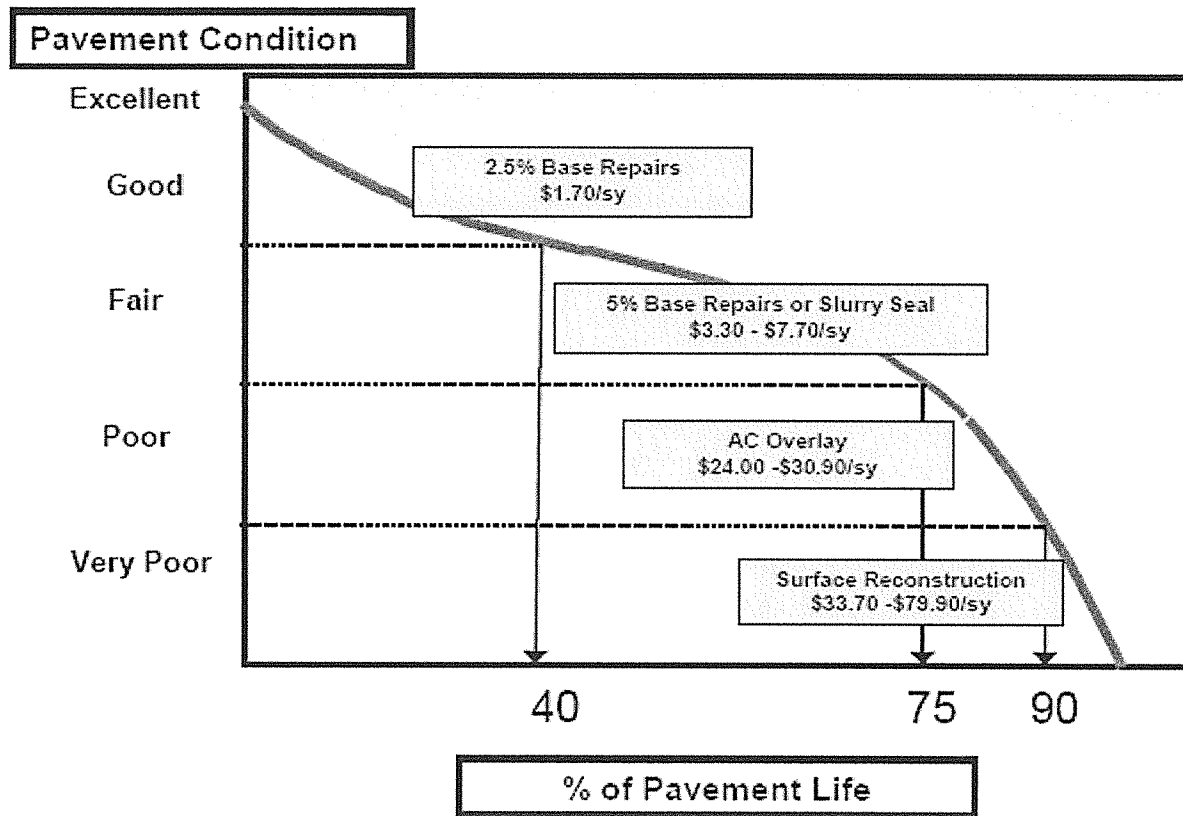


Figure1. Costs of Maintaining Pavements over Time

NETWORK DESCRIPTION

The Town of Fairfax is responsible for the maintenance and repair of approximately 27.5 centerline miles of streets (201 sections) within the Town corporation limits. A detailed street inventory can be found in Appendix E. Table 1 summarizes the network by functional class. Figure 1 illustrates the total lane miles and condition by functional class.

Printed: 02/03/2017

	Total Sections	Total Center Miles	Total Lane Miles	PCI
Arterial	29	4.79	9.57	61
Collector	65	10.05	20.02	65
Residential/Local	107	12.71	25.09	62
** Combined	0	0.00	0.00	N/A
Total	201	27.55	54.69	

Overall Network PCI as of 2/3/2017: 63

Table 1. Network Summary by Functional Class

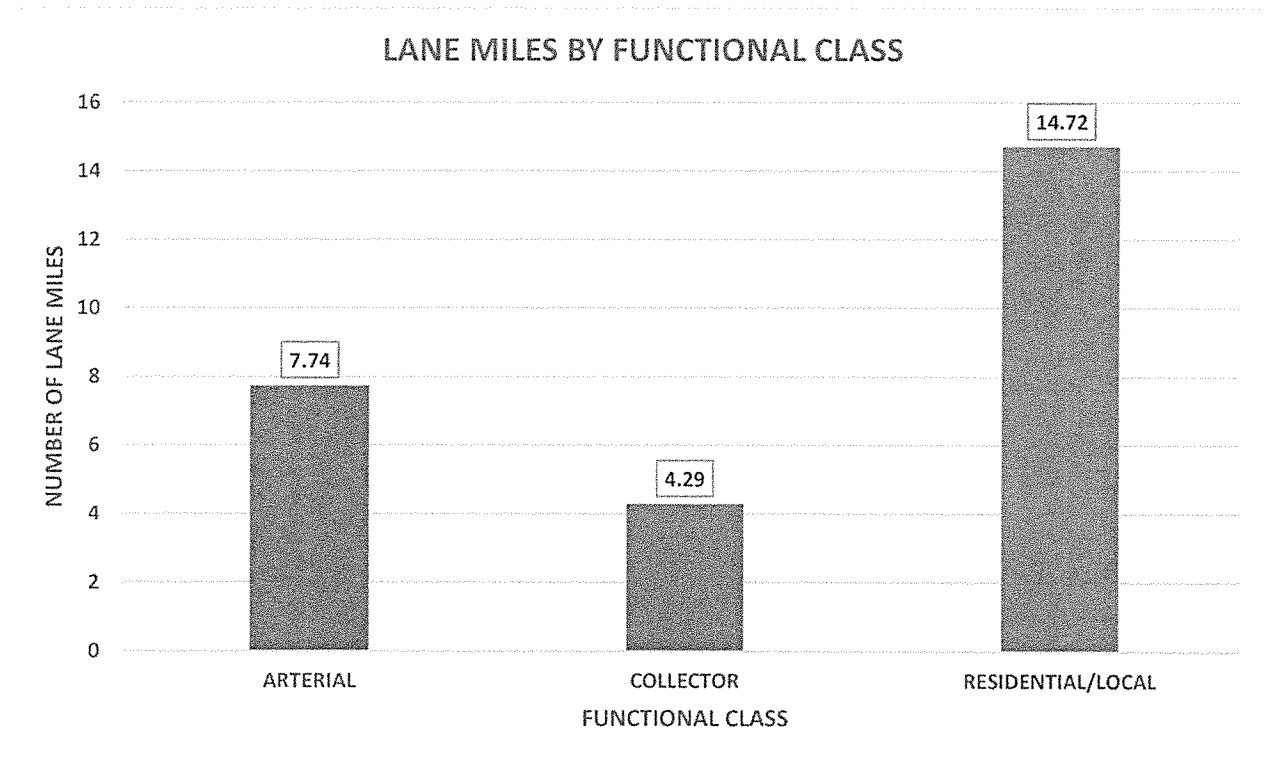


Figure 2 Lane Miles by Functional Class

The network replacement cost is defined as the reconstruction of all the pavement sections in the Town. The network replacement cost of the Town's roadways is estimated at \$27.3 million. Table 2 summarizes the network replacement cost by functional class.

FUNCTIONAL CLASS	SURFACE TYPE	LANE MILES	COST/SQ FT	AREA/SQ FT	COST TO REPLACE
Arterial	AC	4.7	\$8.89	336,517	\$2,991,000.00
	AC/AC	4.8	\$8.89	357,145	\$3,175,000.00
Collector	AC	6.3	\$8.89	372,648	\$3,312,000.00
	AC/AC	12.6	\$8.89	684,460	\$6,081,000.00
	AC/PCC	1.2	\$8.89	43,120	\$383,000.00
Residenital/local	AC	10.6	\$8.89	554,455	\$4,928,000.00
Residenital/local	AC/AC	14.5	\$8.89	719,276	\$6,394,000.00
TOTAL NETWORK REPLACEMENT COST					\$27,264,000

Table 2. Network Replacement Cost by Functional Class

CURRENT PAVEMENT CONDITION

The PCI is a measurement of the pavement condition, and ranges from 0 to 100 with 0 considered “Failed” and 100 considered “Excellent”. A newly constructed road would have a PCI of 100, while a failed road would have a PCI of 25 or less. The average PCI of the entire roadway network of the Town is 63. The network average PCI has decreased two points since the last inspection through P-TAP 15.

Figure 3 illustrates the definitions of the pavement condition categories.

Figure 4 illustrates the weighted average PCI over the last 5 years.

Figure 5 illustrates the current weighted PCI by functional class.

Figure 6 illustrates the current condition summary by category.

Condition Category		PCI
I	Excellent	100
	Good	90
II/III	Fair	70
	Poor	50
IV	Poor	25
V	Very Poor/Failed	0

Figure 3 Pavement Condition Categories by PCI

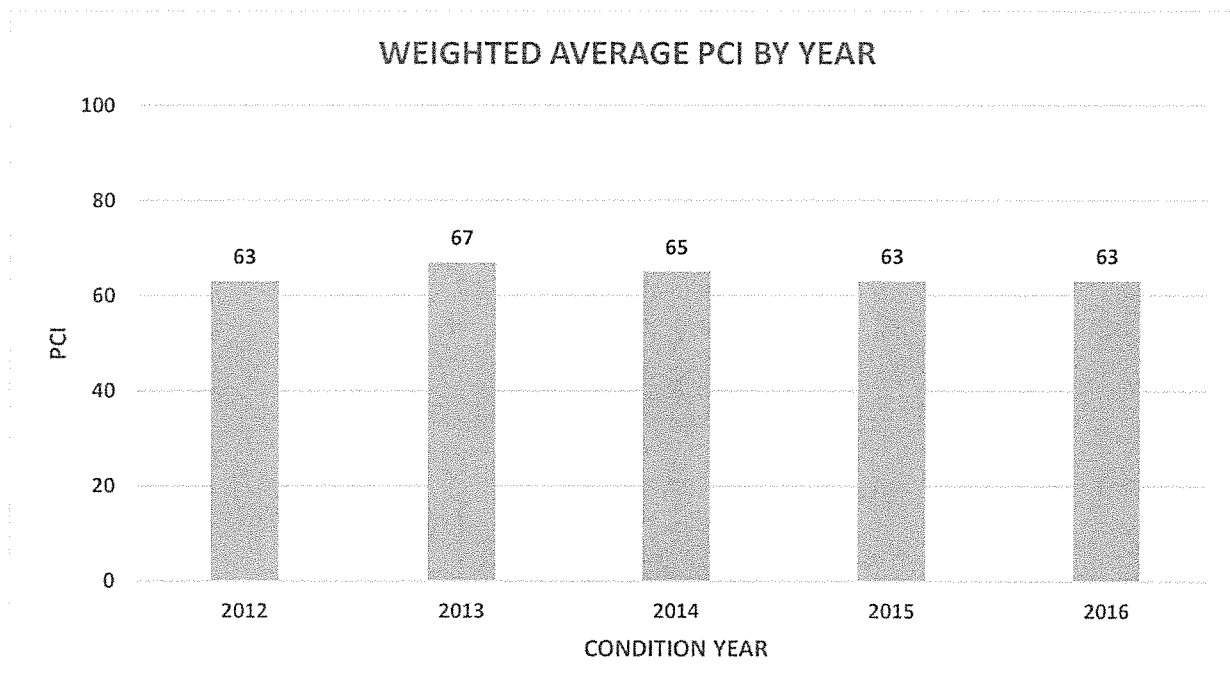


Figure 4 Weighted Average PCI over the 5 Years

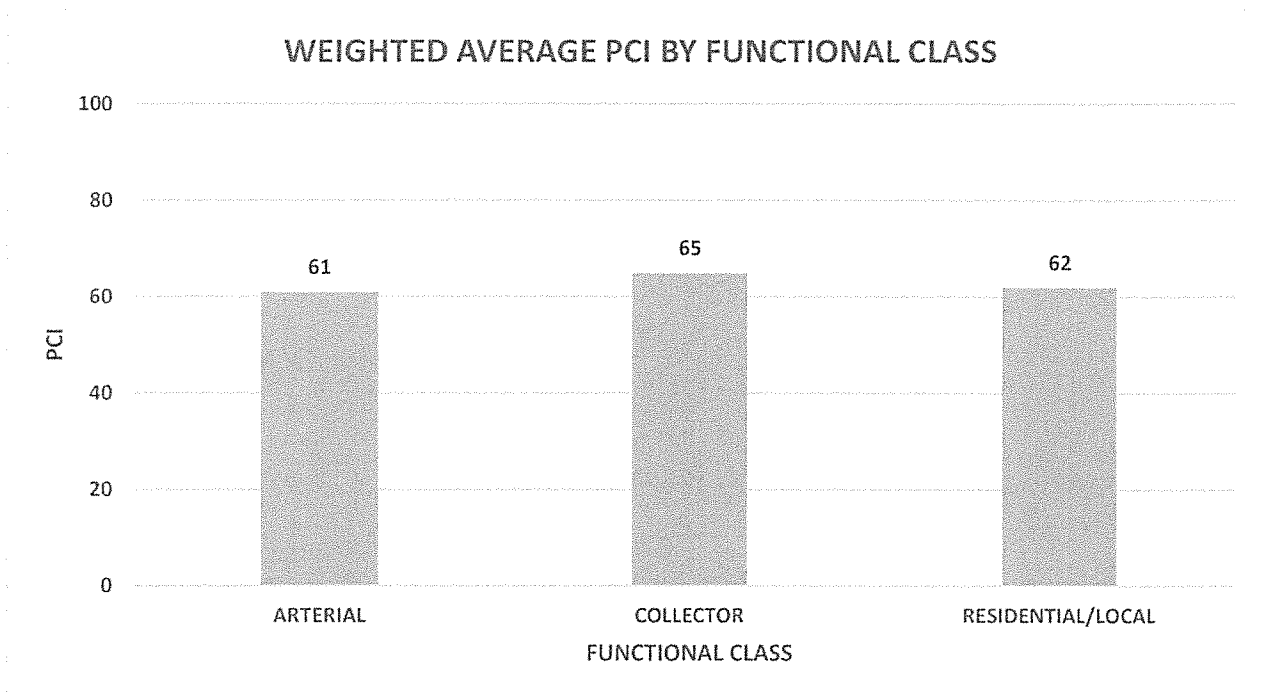


Figure 5 Current Weighted PCI by Functional Class

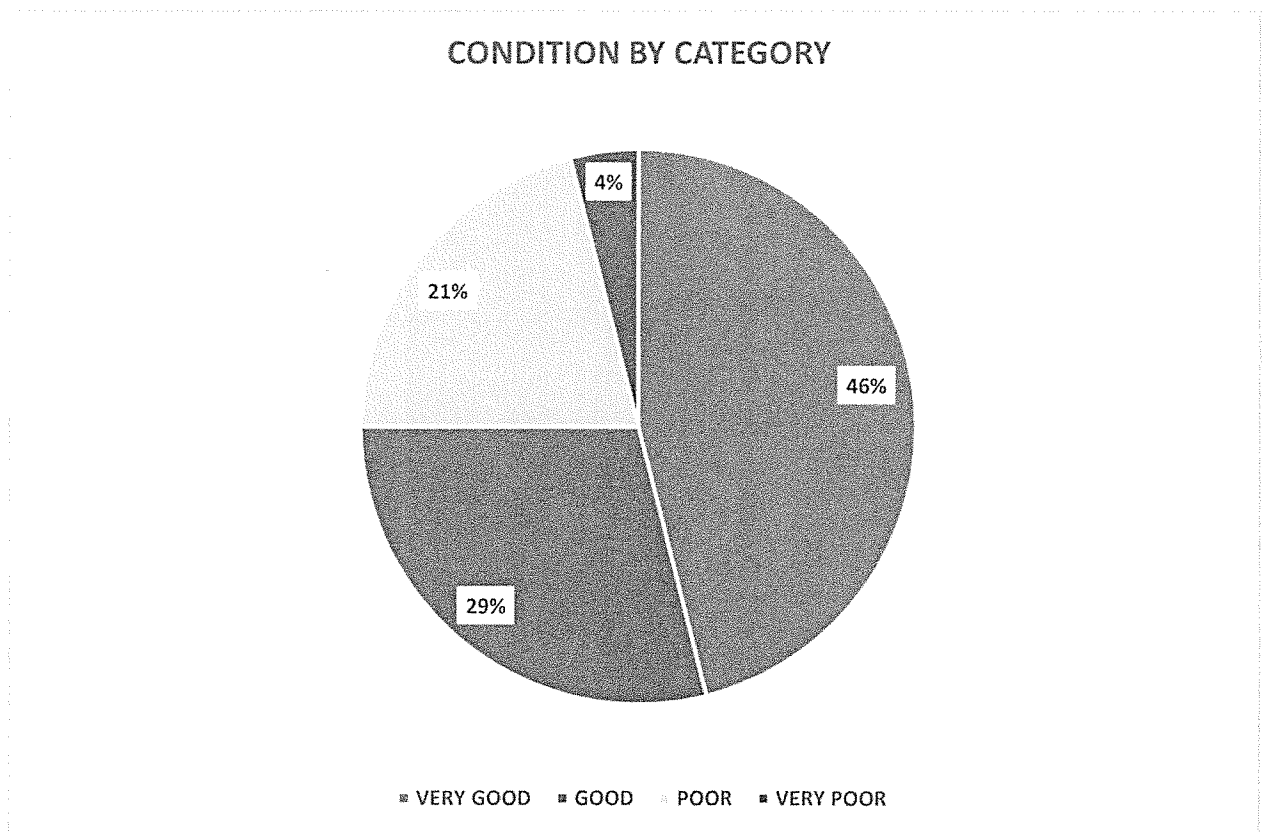


Figure6. Current Condition Summary by Category

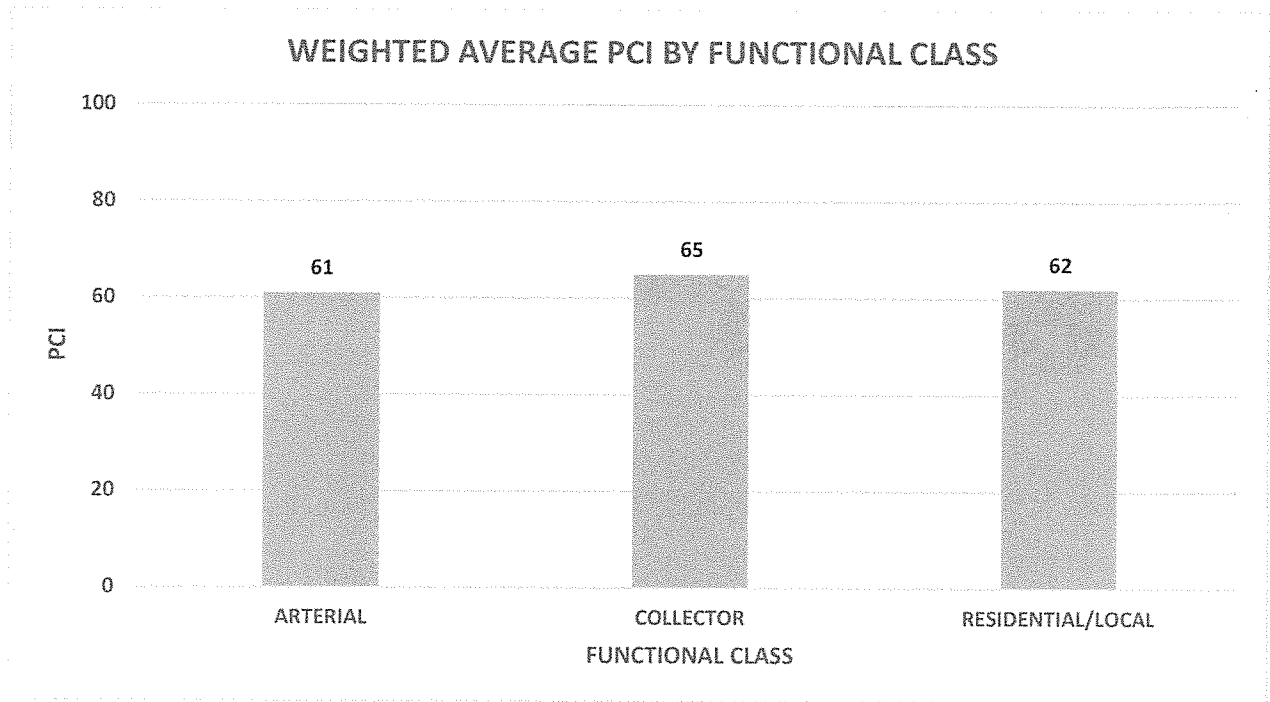


Figure 5 Current Weighted PCI by Functional Class

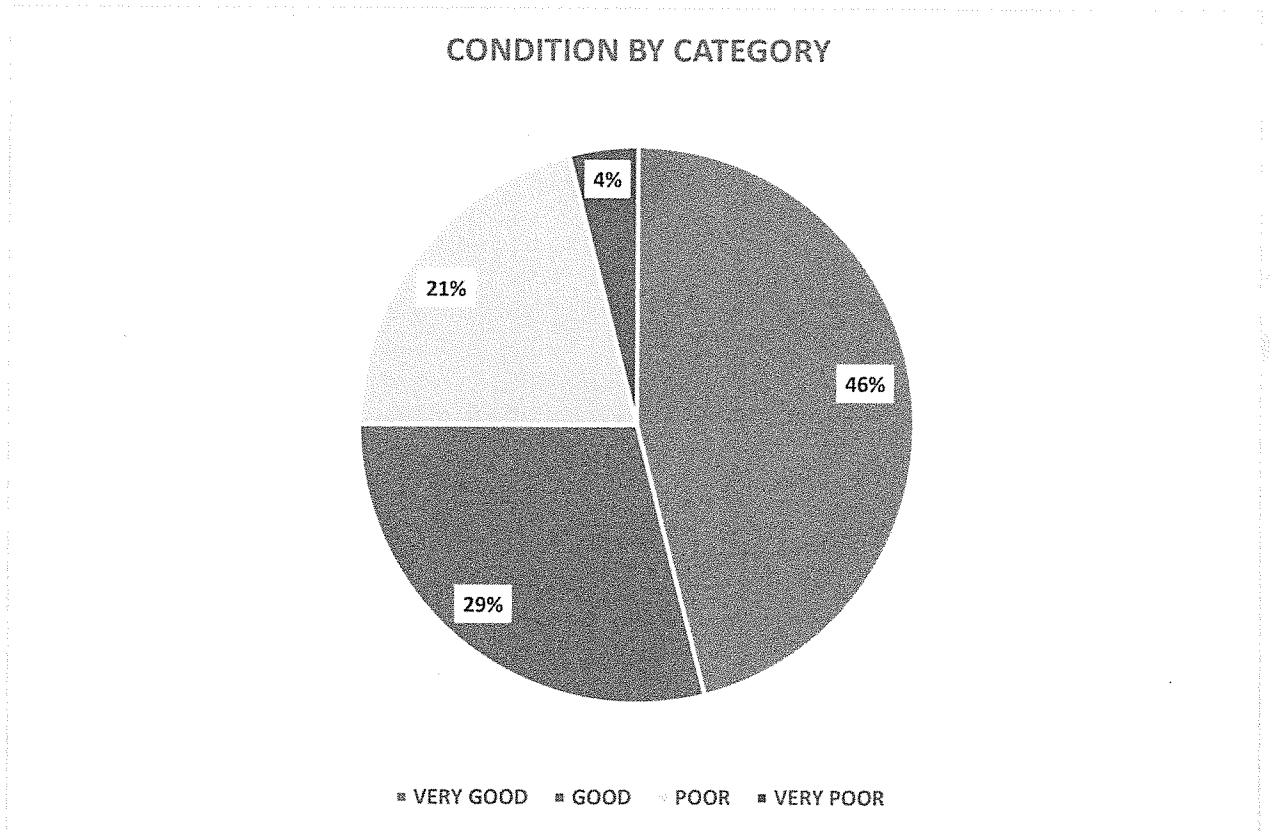


Figure6. Current Condition Summary by Category

UNCONSTRAINED BUDGET NEEDS

Based on the principle that it costs less to maintain roadways in good condition than those in bad conditions, the PMP strives to develop a maintenance strategy that will improve the overall condition of the network to an optimal PCI and then sustain it at that level. The optimal PCI is determined by StreetSaver and has been calculated to be an 84. The first step in developing a cost-effective maintenance and rehabilitation strategy is to determine the maintenance "needs" of the roadway network. Using the StreetSaver budget needs module, maintenance needs over the next five years were estimated at approximately \$10.0 million for the entire Town network. If the Town of Fairfax follows the strategy recommended by the program, the average network PCI will increase to a 79 in year one and ultimately land at an 84 by year five. If, however, no maintenance is applied over the next five years, already distressed roads will continue to deteriorate, and the network PCI Will drop to 53. The results of the budget needs analysis are summarized in table 3 below.

YEAR	2017	2018	2019	2020	2021	TOTAL
PCI TREATED	79	80	83	84	84	
PCI UNTREATED	63	60	58	56	53	
PREVENTATIVE COSTS	\$379,898	\$12,473	\$8,514	\$35,827	\$714	\$437,426
REHAB COSTS	\$4,324,243	\$1,611,222	\$1,853,232	\$1,046,509	\$779,733	\$9,614,939
TOTAL NEEDS	\$4,704,141	\$1,623,695	\$1,861,746	\$1,082,336	\$780,447	\$10,052,365

Table 3 Summary of 5 Year Needs Analysis

Table 3 illustrates the level of expenditures required to raise the pavement condition to a network PCI goal of 84 and eliminate the current maintenance backlog. The results of the budget needs analysis represent the ideal funding strategy recommended by the StreetSaver PMP. Of the \$10.0 million in maintenance needs shown, approximately \$437 Thousand (4.3%) is earmarked for preventative maintenance or life-extending treatments, while approximately 9.6 million (95.7%) is allocated for the more costly rehabilitation and reconstruction treatments.

BUDGET SCENARIOS – RESULTS SUMMARY

Having determined the maintenance needs of the road network, the next step in developing a cost-effective maintenance and rehabilitation strategy is to conduct various budget scenarios. Using MTC's PMP budget scenario module, the impacts or consequences of various budgets can be evaluated. The program projects the effects of the different scenarios on pavement condition index (PCI) and deferred maintenance (backlog). By examining the effects on these indicators, the advantages and disadvantages of different funding levels and maintenance strategies become clear. The following budget scenarios were examined for the purposes of this report, and are summarized in Table 4.

1. Do Nothing (5 Years)

An average annual budget of \$0 was used to determine the effects of not funding the pavement network over the next five years. The network average PCI is expected to drop a total of 10 points in five years (2021) from the current 63 to 53 under this scenario.

2. Estimated Funding Level of \$100,000 (5 Years)

An average annual budget of \$100 thousand was evaluated over the next five years, for a total of \$500 thousand, to determine the effects of continuing pavement maintenance at the current budget level. The network average PCI is expected to drop a total of 8 points in five years (2021) from the current 63 to 55 under this scenario.

3. Estimated Funding Level of \$150,000 (5 Years)

An average annual budget of \$150 thousand was evaluated over the next five years, for a total of \$750 thousand, to determine the effects of continuing pavement maintenance at the current budget level. The network average PCI is expected to drop a total of 7 points in five years (2021) from the current 63 to 56 under this scenario.

4. Estimated Funding Level of \$200,000 (5 Years)

An average annual budget of \$200 thousand was evaluated over the next five years, for a total of \$1.0 million, to determine the effects of continuing pavement maintenance at the current budget level. The network average PCI is expected to drop a total of 6 points in five years (2021) from the current 63 to 57 under this scenario.

5. Maintain Current Network Condition (5 Years)

An annual funding level of \$600 thousand per year over 5 years, for a total of \$3.0 million, was deemed necessary by the PMP to maintain the current network average PCI of 63 over the next five years (2021).

6. Increase Network Condition Five Points (5 Years)

An annual funding level of \$900 thousand per year over 5 years, for a total of \$4.5 million, was deemed necessary by the PMP to increase the current network average PCI of 63 five points to 68 over the next five years (2021).

7. Average of PMP Determined Needs (5 Years)

The PMP determined a total budget of \$10.0 million necessary to achieve the optimal PCI over the next five years. A scenario of the average needs budget annually (2.0 million), was evaluated to determine the effects at this investment level. The results show that the current network condition of 63 increases 21 points to 84 by year 2021 over the five-year period at this investment level.

BUDGET SCENARIO	TERM BUDGET	2021 PCI (CHANGE FROM CURRENT PCI)	2021 DEFERRED MAINT	2021 % GOOD CONDITION & ABOVE	2021 % POOR CONDITION & BELOW
DO NOTHING (5 YEARS)	\$0 MIL	53 (-10)	\$7.9 MIL	60.2%	39.8%
ESTIMATED FUNDING \$100K (5 YEARS)	\$0.5 MIL	55 (-8)	\$7.6 MIL	60.2%	39.8%
ESTIMATED FUNDING \$150K (5 YEARS)	\$0.75 MIL	56 (-7)	\$7.5 MIL	60.2%	39.8%
ESTIMATED FUNDING \$200K (5 YEARS)	\$1.0 MIL	57 (-6)	\$7.4 MIL	60.2%	39.8%
MAINTAIN CURRENT PCI (5 YEARS)	\$3.0 MIL	63 (+0)	\$6.0 MIL	66.2%	33.8%
INCREASE PCI 5 POINTS (5 YEARS)	\$4.5 MIL	68 (+5)	\$5.4 MIL	73.2%	26.8%
AVERAGE OF BUDGET NEEDS (5 YEARS)	\$10.0 MIL	84 (+21)	\$7.4 MIL	94.8%	5.2%

Table 4 Budget Scenario Summary

Budget Scenario 1. Do Nothing (5 Years)

This scenario shows the effects of spending nothing (\$0) annually for maintenance and rehabilitation over a five-year period. Under this scenario, the PCI is expected to decrease a total of 10 points from the current 63 PCI to a 53 PCI by year five. The expected deferred maintenance amount at the end of year five is \$7.9 million. The scenario results are displayed below in Table 5, Figure 7 and Figure 8.

YEAR	2017	2018	2019	2020	2021	TOTAL
PCI UNTREATED	63	60	58	56	53	
PCI TREATED	63	60	58	56	53	
PREVENTIVE COSTS	\$0	\$0	\$0	\$0	\$0	\$0
REHAB COSTS	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL COSTS	\$0	\$0	\$0	\$0	\$0	\$0

Table5. Budget Scenario Summary

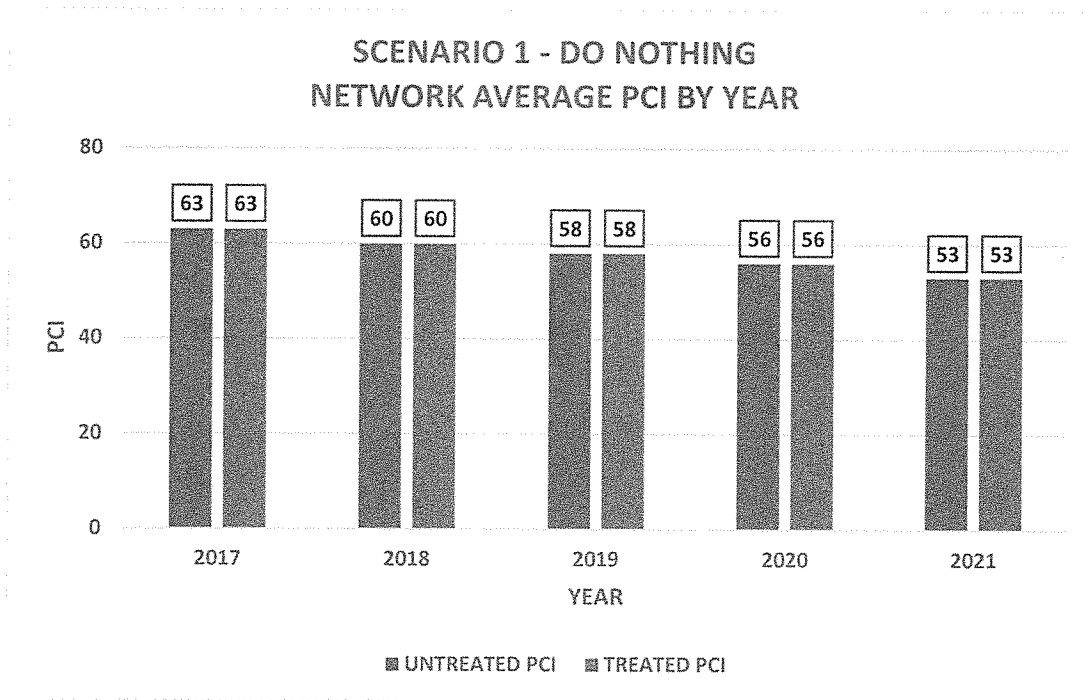


Figure7. Scenario 1 Average Treated and Untreated PCI

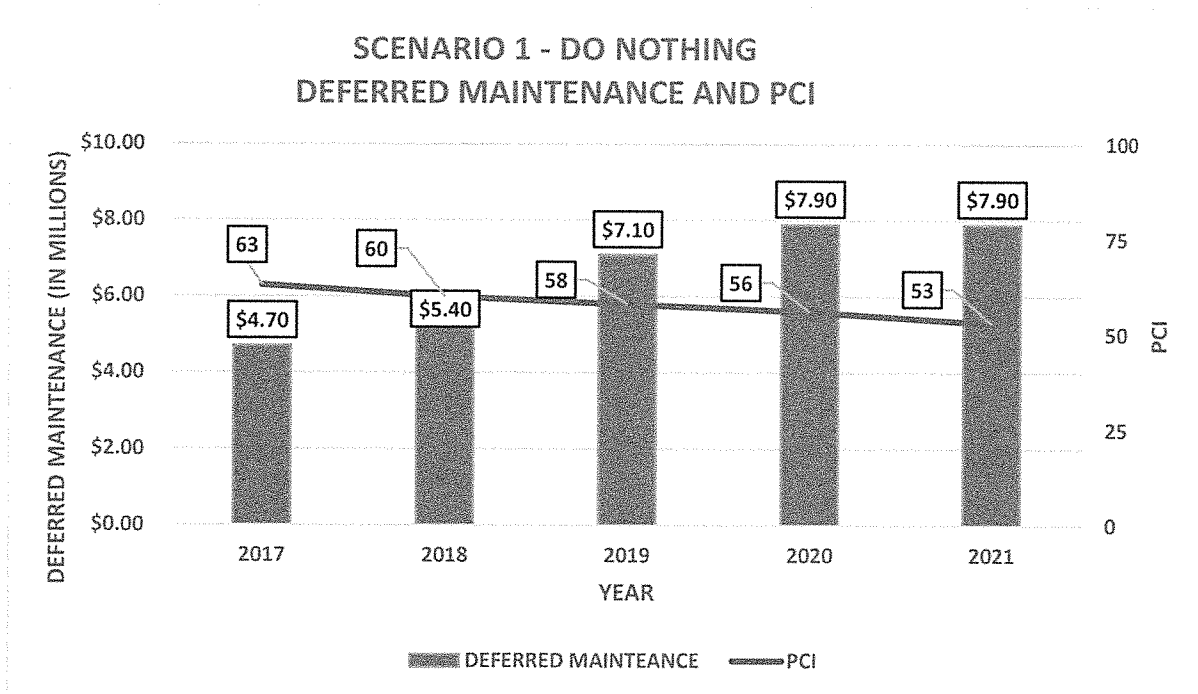


Figure8. Scenario 1 Average Treated and Untreated PCI

Budget Scenario 2. Estimated Annual budget of \$100,000 (5 Years)

This scenario shows the effects of Town spending an estimated annual budget of \$100 thousand for maintenance and rehabilitation over a five-year period, totaling \$500 thousand. Under this scenario, the PCI is expected to remain a 63 in year one, while ultimately decreasing 8 points overall by year five to a 55. The expected deferred maintenance amount at the end of year five is \$7.6 million. The scenario results are displayed below in Table 6, Figure 9 and Figure 10.

YEAR	2017	2018	2019	2020	2021	TOTAL
PCI UNTREATED	63	60	58	56	53	
PCI TREATED	63	61	59	57	55	
PREVENTIVE COSTS	\$11,681	\$16,045	\$19,585	\$15,246	\$10,657	\$73,214
REHAB COSTS	\$88,322	\$83,855	\$79,915	\$84,583	\$88,703	\$425,378
TOTAL COSTS	\$100,003	\$99,900	\$99,500	\$99,829	\$99,360	\$498,592

Table 6 Budget Scenario Summary

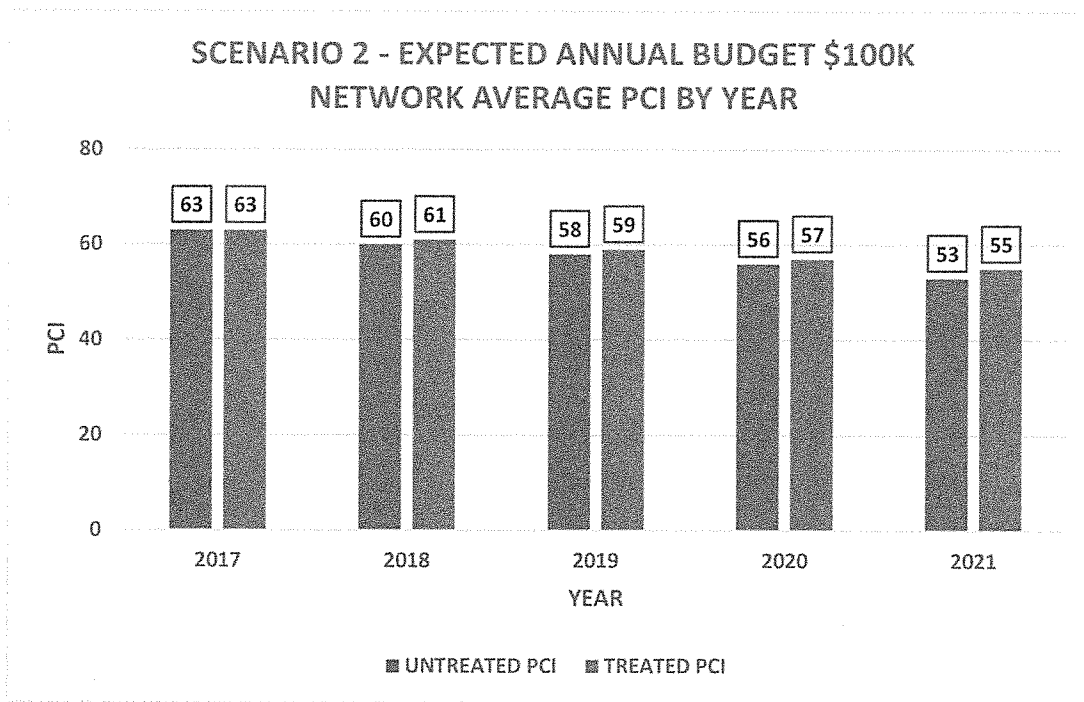


Figure9. Scenario 2 Average Treated and Untreated PCI

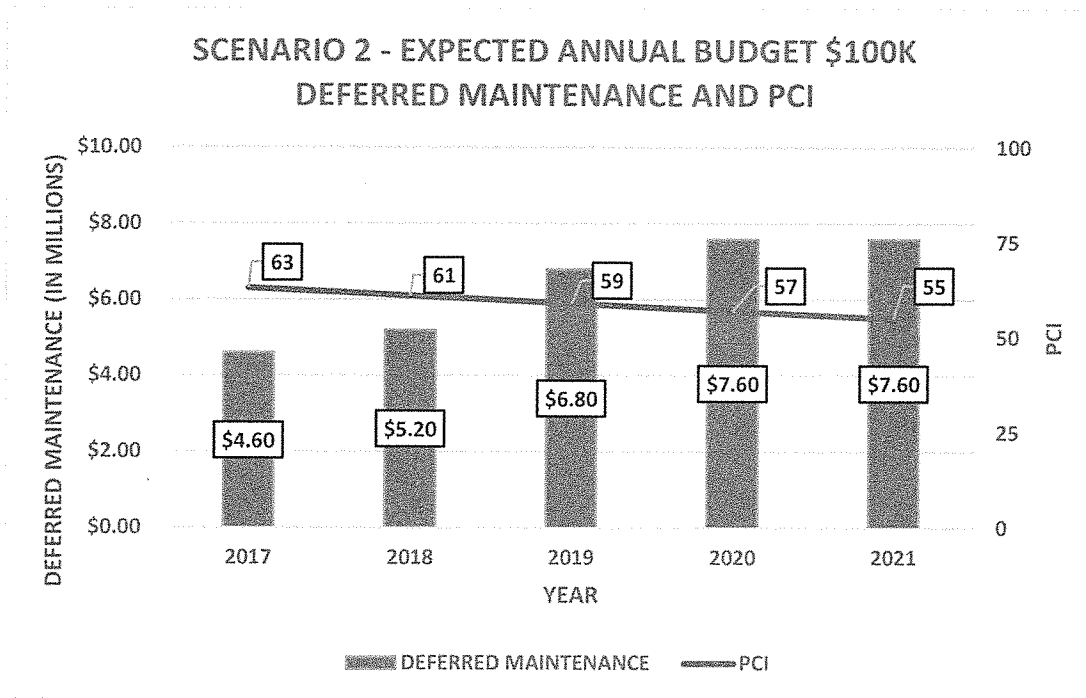


Figure10. Scenario 2 treated PCI and Deferred Maintenance

Budget Scenario 3. Estimated Annual budget of \$150,000 (5 Years)

This scenario shows the effects of Town spending an estimated annual budget of \$150 thousand for maintenance and rehabilitation over a five-year period, totaling \$750 thousand. Under this scenario, the PCI is expected to remain a 63 in year one, while ultimately decreasing 7 points overall by year five to a 56. The expected deferred maintenance amount at the end of year five is \$7.5 million. The scenario results are displayed below in Table 7, Figure 11 and Figure 12.

YEAR	2017	2018	2019	2020	2021	TOTAL
PCI UNTREATED	63	60	58	56	53	
PCI TREATED	63	62	60	58	56	
PREVENTIVE COSTS	\$23,849	\$21,503	\$16,984	\$25,503	\$16,797	\$104,636
REHAB COSTS	\$126,154	\$128,413	\$132,574	\$124,058	\$133,139	\$644,338
TOTAL COSTS	\$150,003	\$149,916	\$149,558	\$149,561	\$149,936	\$748,974

Table 7. Budget Scenario Summary

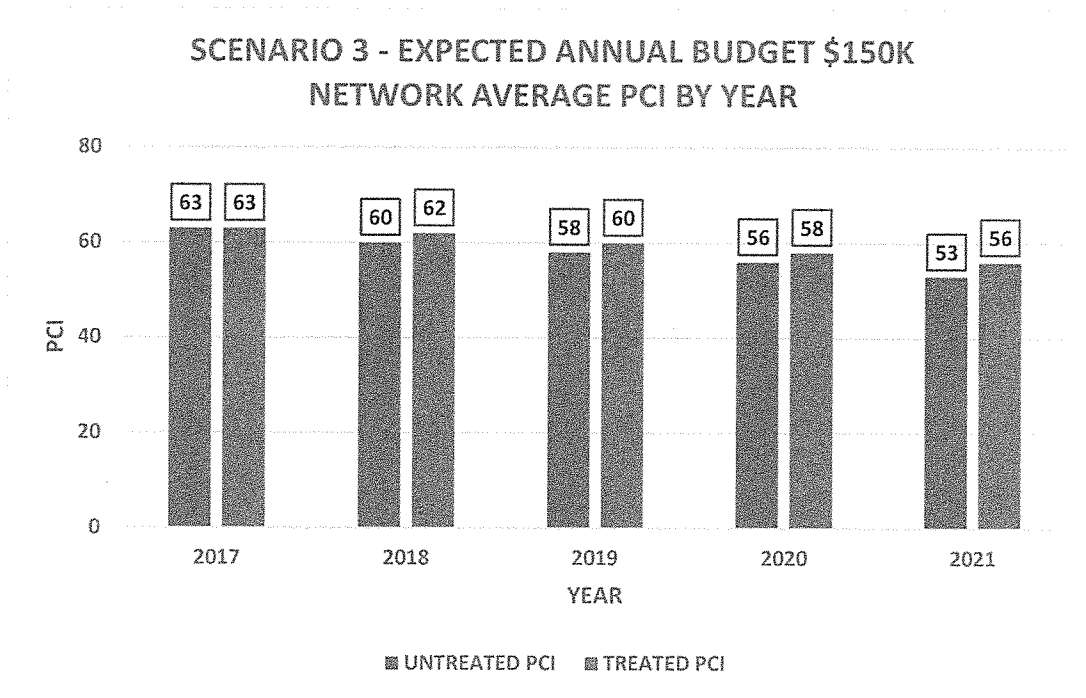


Figure11. Scenario 3 Average Treated and Untreated PCI

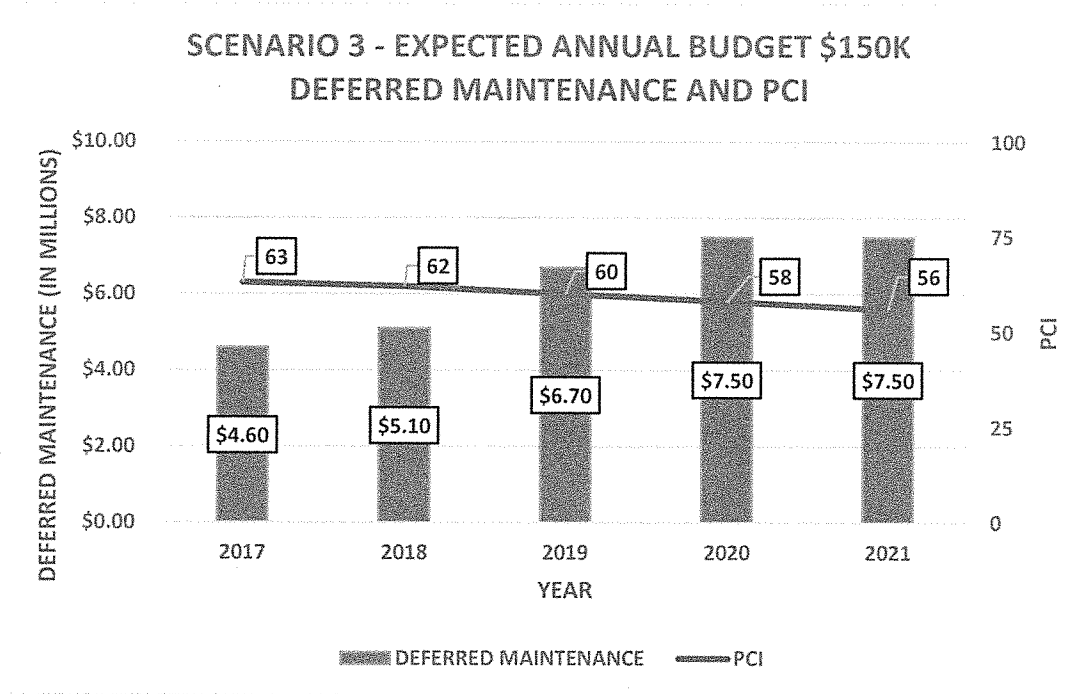


Figure12. Scenario 3 Treated PCI and Deferred Maintenance

Budget Scenario 4. Estimated Annual budget of \$200,000 (5 Years)

This scenario shows the effects of Town spending an estimated annual budget of \$200 thousand for maintenance and rehabilitation over a five-year period, totaling \$1 million. Under this scenario, the PCI is expected to increase one point to a 64 in year one, while ultimately decreasing 6 points overall by year five to a 57. The expected deferred maintenance amount at the end of year five is \$7.4 million. The scenario results are displayed below in Table 8, Figure 13 and Figure 14.

YEAR	2017	2018	2019	2020	2021	TOTAL
PCI UNTREATED	63	60	58	56	53	
PCI TREATED	64	62	60	59	57	
PREVENTIVE COSTS	\$20,516	\$26,690	\$25,799	\$19,636	\$29,021	\$121,662
REHAB COSTS	\$179,488	\$173,128	\$173,750	\$179,997	\$170,789	\$877,152
TOTAL COSTS	\$200,004	\$199,818	\$199,549	\$199,633	\$199,810	\$998,814

Table 8. Budget Scenario Summary

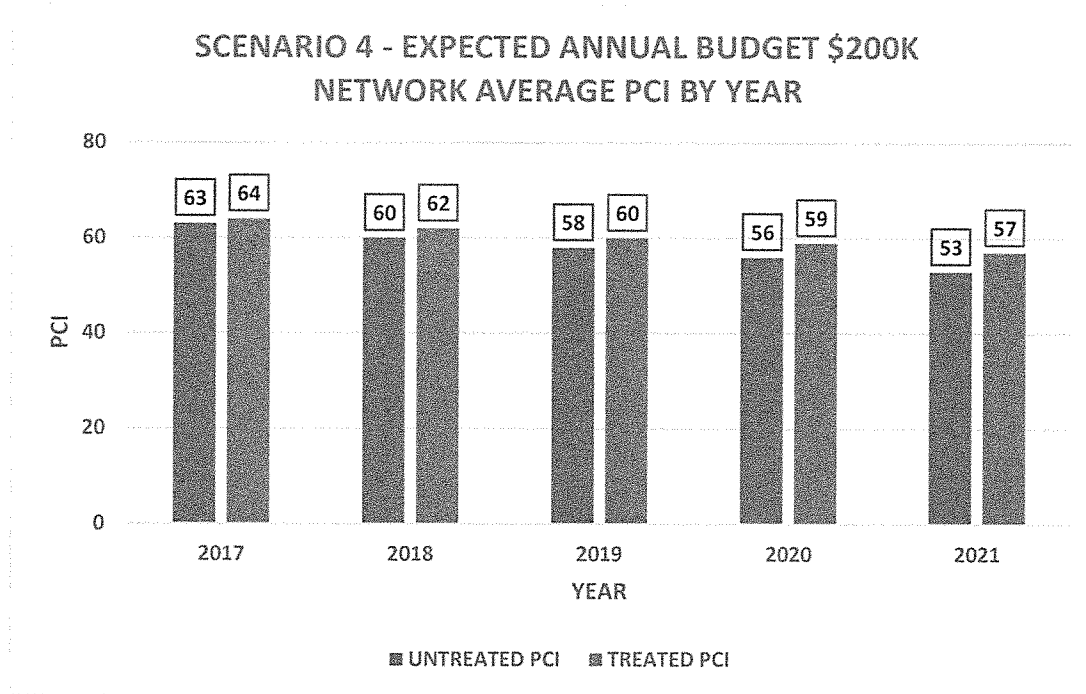


Figure13. Scenario4 Average Treated and Untreated PCI

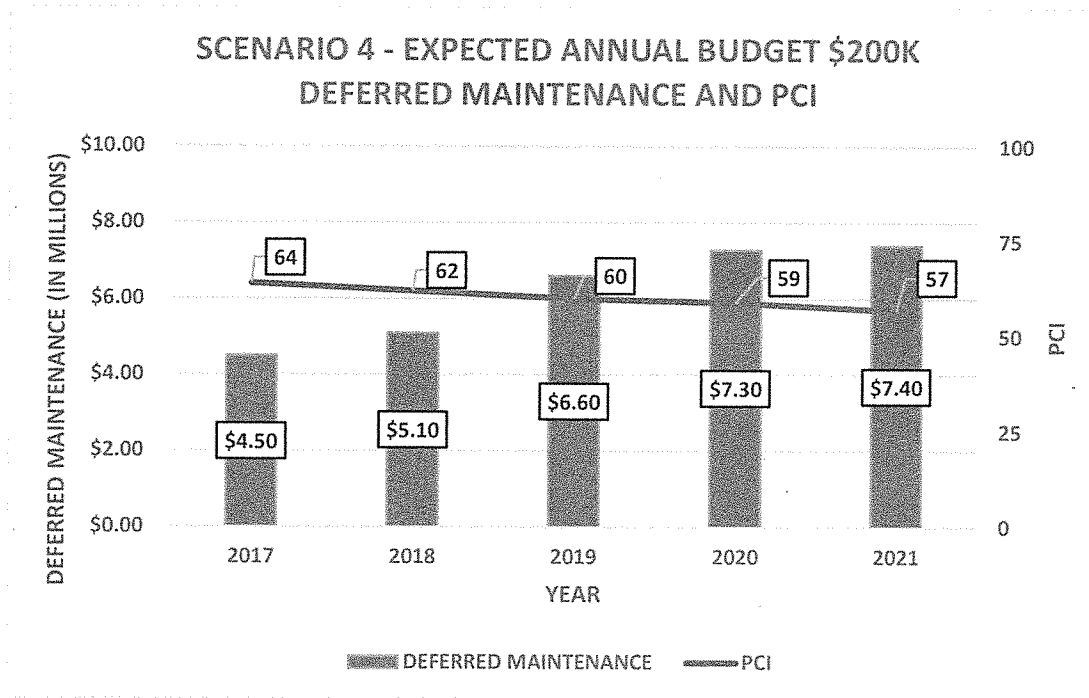


Figure14. Scenario 4Treated PCI and Deferred Maintenance

Budget Scenario 5. Maintain Current PCI (5 Years)

This scenario shows the effects of increasing the current funding level to \$600 thousand annually to effectively maintain the current PCI of 63 each year over a five-year period (through 2021). The expected deferred maintenance amount at the end of year five is \$6.0 million and the scenario results are displayed below in Table 9, Figure 15 and Figure 16.

YEAR	2017	2018	2019	2020	2021	TOTAL
PCI UNTREATED	63	60	58	56	53	
PCI TREATED	65	64	64	64	63	
PREVENTIVE COSTS	\$68,237	\$61,170	\$73,102	\$66,786	\$66,393	\$335,688
REHAB COSTS	\$531,734	\$537,458	\$526,658	\$533,160	\$533,584	\$2,662,594
TOTAL COSTS	\$599,971	\$598,628	\$599,760	\$599,946	\$599,977	\$2,998,282

Table 9. Budget Scenario Summary

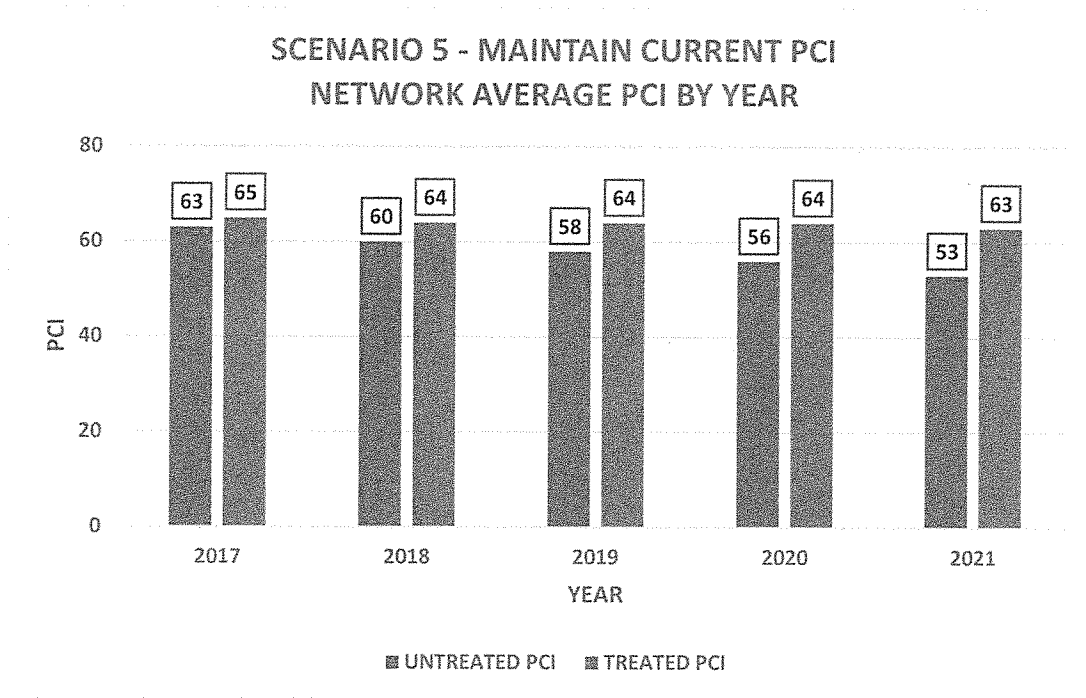


Figure11. Scenario 3 Average Treated and Untreated PCI

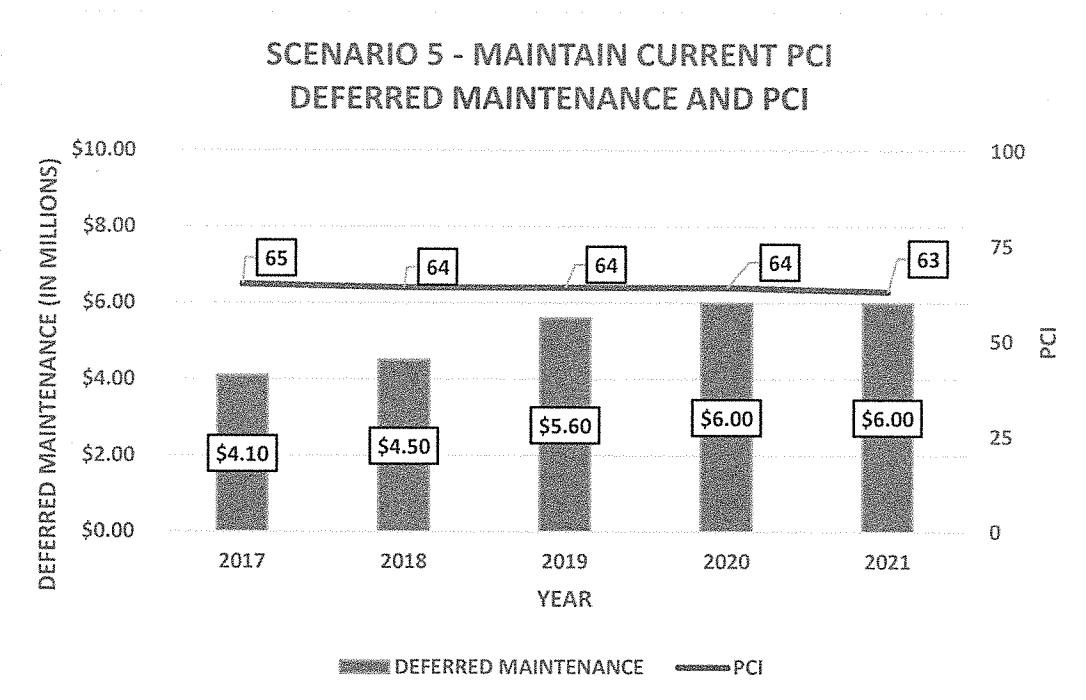


Figure12. Scenario 3 Treated PCI and Deferred Maintenance

Budget Scenario 6. Increase Network Condition Five Points (5 Years)

This scenario shows the effects of increasing the current funding level to \$900 thousand annually to effectively increase the network PCI five points from the current PCI of 63 to a PCI of 68 over a five-year period (through 2021). The expected deferred maintenance amount at the end of year five is \$5.4 million and the scenario results are displayed below in Table 10, Figure 13 and Figure 14.

YEAR	2017	2018	2019	2020	2021	TOTAL
PCI UNTREATED	63	60	58	56	53	
PCI TREATED	66	66	67	68	68	
PREVENTIVE COSTS	\$89,884	\$97,142	\$100,082	\$95,505	\$94,003	\$476,616
REHAB COSTS	\$809,937	\$802,061	\$799,491	\$804,511	\$803,441	\$4,019,441
TOTAL COSTS	\$899,821	\$899,203	\$899,573	\$900,016	\$897,444	\$4,496,057

Table 10. Budget Scenario Summary

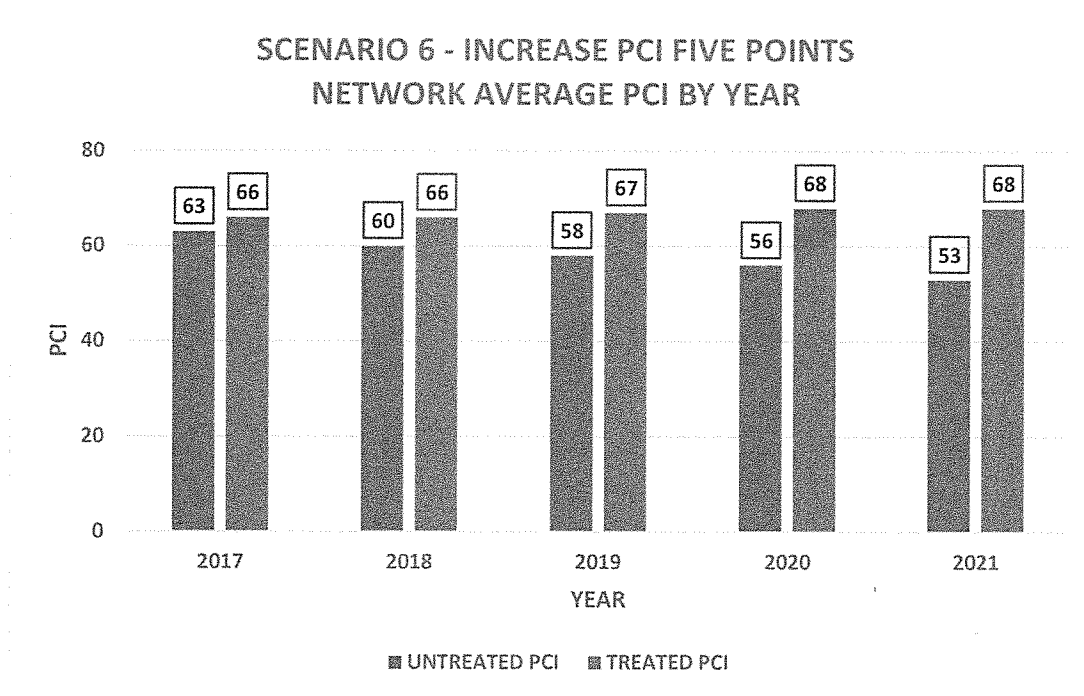


Figure 13. Scenario 6 Average Treated and Untreated PCI

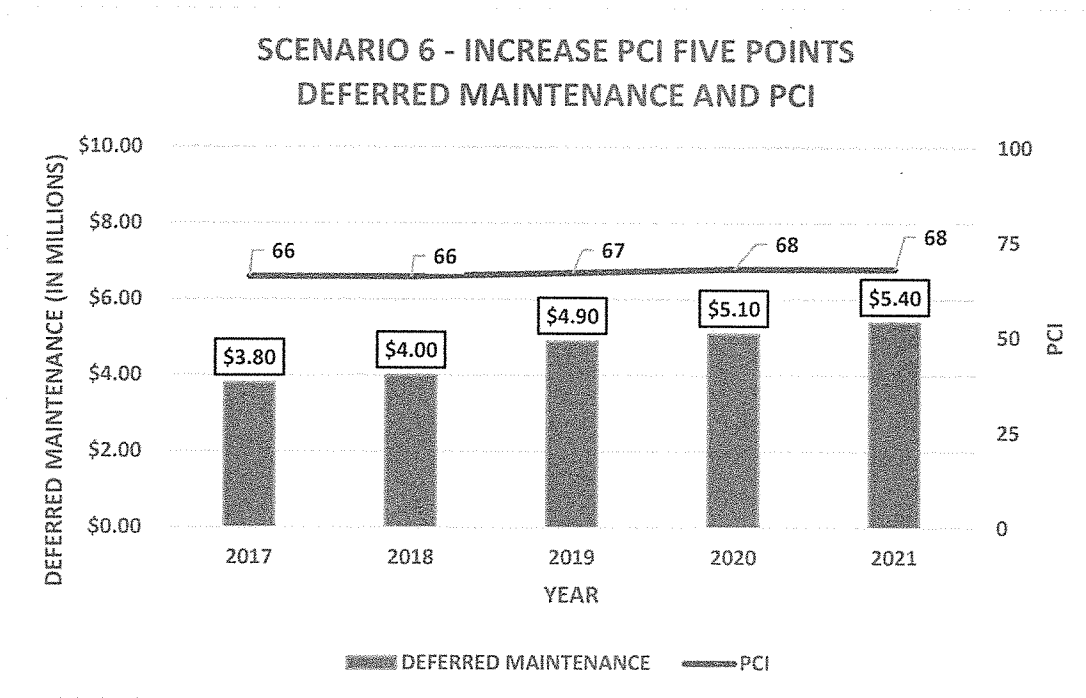


Figure14. Scenario 4 Treated PCI and Deferred Maintenance

Budget Scenario 7. Average of PMP Determined Needs (5 Years)

The PMP determined a total budget of \$10.0 million necessary to achieve the optimal PCI over the next five years. A scenario of the average needs budget annually (2.0 million), was evaluated to determine the effects at this investment level. The results show that the current network condition of 63 increases nineteen points to 82 with an expected deferred maintenance amount of just \$740 thousand million at the end of year five (through 2021). The scenario results are displayed below in Table 11, Figure 15 and Figure 16.

YEAR	2017	2018	2019	2020	2021	TOTAL
PCI UNTREATED	63	60	58	56	53	
PCI TREATED	70	74	76	79	82	
PREVENTIVE COSTS	\$209,392	\$200,184	\$200,000	\$200,000	\$200,000	\$1,009,576
REHAB COSTS	\$1,789,757	\$1,799,146	\$1,778,477	\$1,788,944	\$1,764,852	\$8,921,176
TOTAL COSTS	\$1,999,149	\$1,999,330	\$1,978,477	\$1,988,944	\$1,964,852	\$9,930,752

Table 11.Budget Scenario 7 Summary

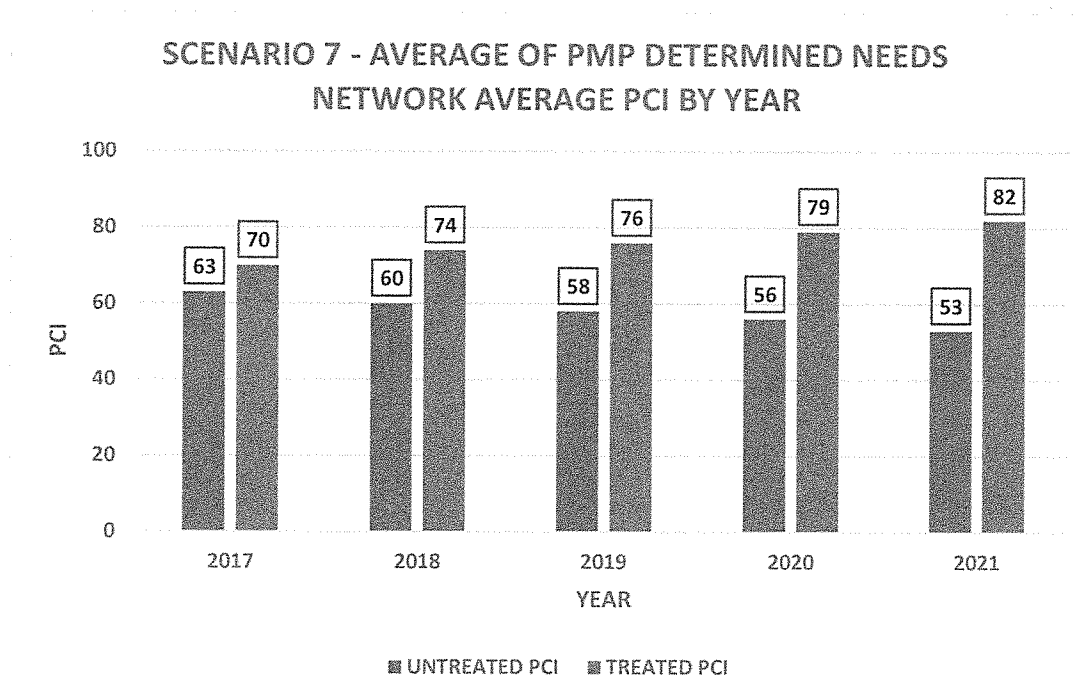


Figure15. Scenario 7 Average Treated and Untreated PCI

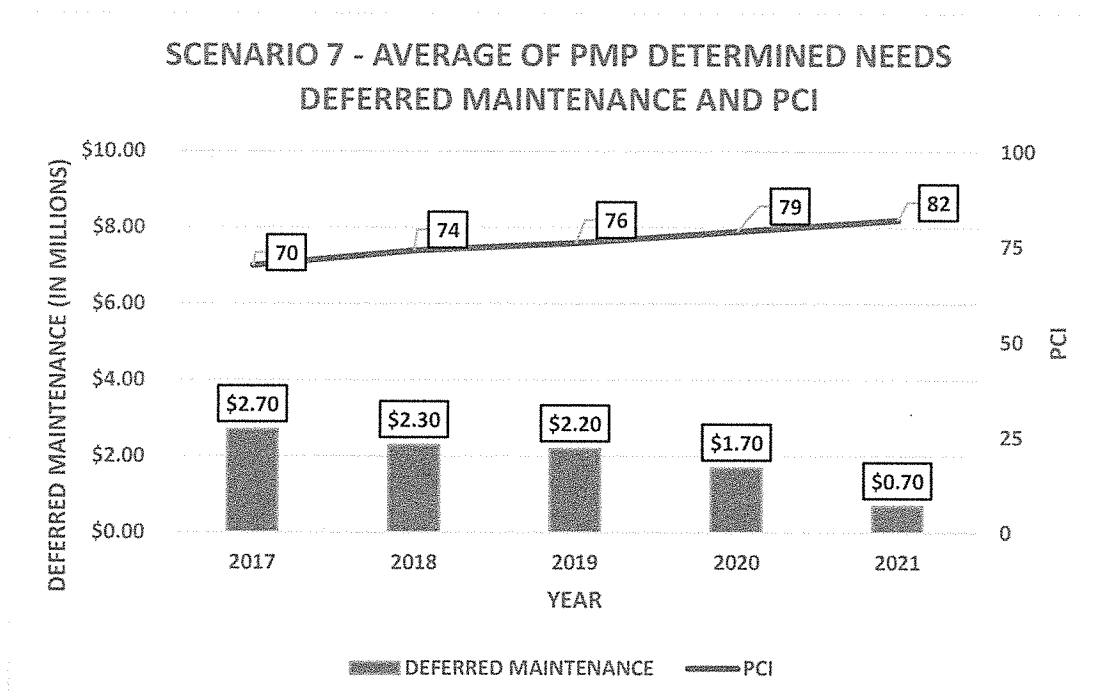


Figure 16 Scenario 7 Treated PCI and Deferred Maintenance

DISCUSSIONS

Figure 17 illustrates the change in the annual deferred maintenance backlog as while Table 13 summarizes the change in annual deferred maintenance backlog for the five-year budget scenarios.

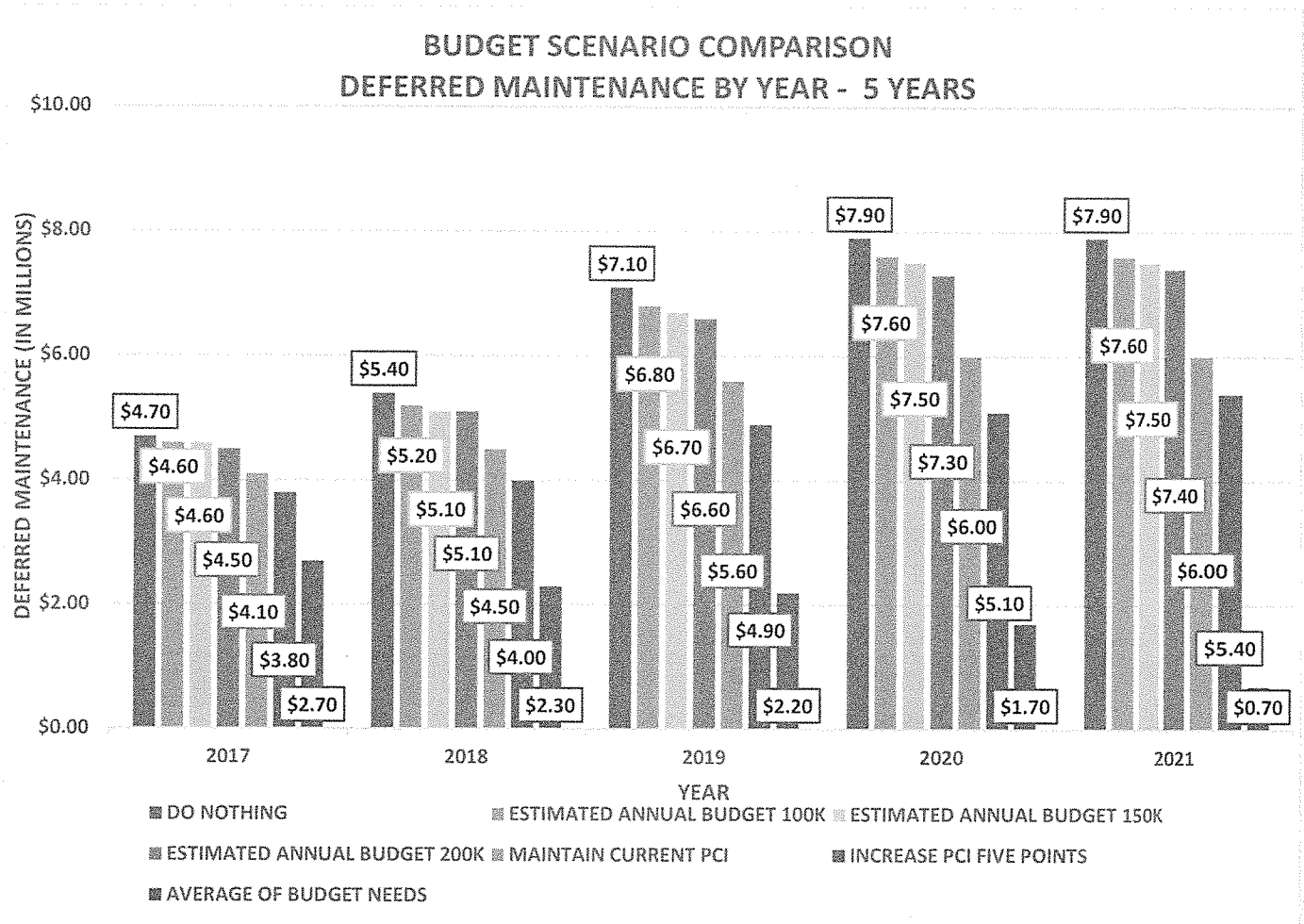


Figure 17 Annual Deferred Maintenance Backlog by Budget Scenario 5 Years

SCENARIOS	2017	2018	2019	2020	2021
DO NOTHING	\$4.70	\$5.40	\$7.10	\$7.90	\$7.90
ESTIMATED ANNUAL BUDGET 100K	\$4.60	\$5.20	\$6.80	\$7.60	\$7.60
ESTIMATED ANNUAL BUDGET 150K	\$4.60	\$5.10	\$6.70	\$7.50	\$7.50
ESTIMATED ANNUAL BUDGET 200K	\$4.50	\$5.10	\$6.60	\$7.30	\$7.40
MAINTAIN CURRENT PCI	\$4.10	\$4.50	\$5.60	\$6.00	\$6.00
INCREASE PCI FIVE POINTS	\$3.80	\$4.00	\$4.90	\$5.10	\$5.40
AVERAGE OF BUDGET NEEDS	\$2.70	\$2.30	\$2.20	\$1.70	\$0.70

Table 8. Summary of Annual Deferred Maintenance Backlog by Scenario 5 Year

Figure 18 illustrates the change in the annual PCI while Table 14 summarizes the change in annual PCI for the five-year budget scenarios.

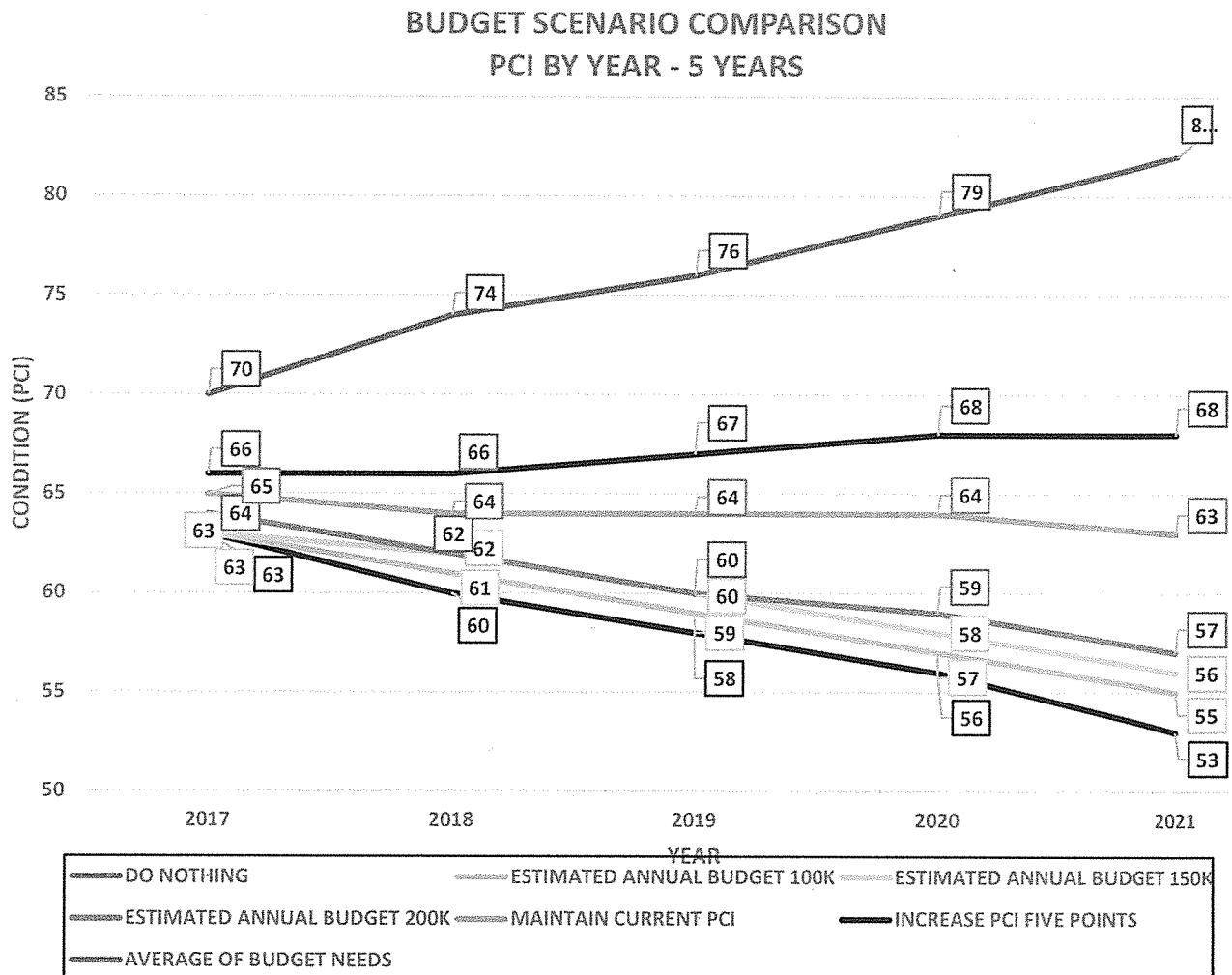


Figure 18 Annual PCI by Budget Scenario

SCENARIOS	2017	2018	2019	2020	2021
DO NOTHING	63	60	58	56	53
ESTIMATED ANNUAL BUDGET 100K	63	61	59	57	55
ESTIMATED ANNUAL BUDGET 150K	63	62	60	58	56
ESTIMATED ANNUAL BUDGET 200K	64	62	60	59	57
MAINTAIN CURRENT PCI	65	64	64	64	63
INCREASE PCI FIVE POINTS	66	66	67	68	68
AVERAGE OF BUDGET NEEDS	70	74	76	79	82

Table 14. Summary of Annual PCI by Budget Scenario

RECOMMENDATIONS

If in-sufficient funding remains available for the street maintenance determined by the PMP's budgetary Needs, the average PCI of the network is expected to stay in the "Fair" condition category with a large maintenance backlog. The analyses provided by the PMP indicates that the Town needs to spend on average \$2.0 million annually in maintenance and rehabilitation over the next five years, to essentially repair all streets. By doing so, streets can be maintained in the upper limits of the "Good" condition category with on-going preventive maintenance. This will eventually save money by avoiding reaching the level of major rehabilitation (such as reconstruction).

Pavement Budget

The Town's Current Annual Funding Level for pavement maintenance and rehabilitation is \$100 thousand. At this budget level, the network average PCI is expected to fall approximately 8 points from the current network PCI of 63 to 55 by 2021. This level of funding will not provide sufficient funding to maintain the current PCI and will result in a deferred maintenance backlog of \$7.6 million by 2021. At a minimum, we recommend that the Town of Fairfax continue with their current maintenance strategies with an increased budget of \$600 thousand annually. The following will be achieved by following this recommended pavement management strategy:

- Maintain the current network average PCI condition of 63 each year over the next five years
- Maintain overall network condition category of "Fair"
- Reduce percentage of pavements in the "Poor" and "Failed" condition categories
- Reduce the deferred maintenance costs in 2021.
- Allows for the preservation and improvement to pavements in the "Good" condition category

In light of the substantial financial commitment that is required to maintain and/or improve Town wide street conditions and the increase in construction and raw material costs, it is relevant to discuss the various possible financing alternatives to help fund pavement rehabilitation and preventative maintenance for the Town. The following examples are some of the possible ways that the Town should consider (if not already done so) to generate additional revenue to fund needed rehabilitation and maintenance of Town streets.

- Parking Enforcement Program – Generate revenue with parking violation fees.
- Truck Route Permit Fee – Leverages a surcharge fee on trucks for use of Town streets to help recoup the costs of heavy wheel loads imposed by truck traffic.
- Residential Waste Collection Fee – Surcharge is leveraged on waste companies to account for damage to pavement incurred by heavy waste collection trucks.
- Development Repairs – Fees assessed to new developments to account for increased traffic associated with new residential and commercial tenants.
- Establish Utility Cut Impact Fee – Fee is leveraged against utility to provide compensation for reduced pavement life due to utility cuts and patches.
- Pursue Local Transportation Sales Tax Measures
- Devote More Local Sales Tax/Revenues to Road Maintenance
- Establish Down and Business Improvement Districts
- Establish Town wide Assessment Districts

Pavement Maintenance Strategies

The Town's pavement maintenance strategies include surface seals, crack seals, overlays and reconstruction. Since a large percentage of pavements are in "Poor" condition, it is important to continue providing stop gap preventive maintenance such as patching of potholes and high severity alligatored areas to keep the network intact until funding increases to warrant rehabilitation. Crack sealing, one of the least expensive treatments, can help keep moisture out of pavements and prevent the underlying aggregate base from premature failures for pavements at the higher end of the "Good" condition category. Life-extending surface seals, such as slurry seal, and cape seals, are also cost-effective for pavements currently in the "Good" condition category.

Re-inspection Strategies

In order to properly maintain the pavement management database and have the pavement management program certified, it is recommended that arterial and collectors be re-inspected every two years and residential streets every 3 years.

Maintenance and Rehabilitation Decision Tree

The maintenance and rehabilitation decision tree treatments and the associated unit costs should be reviewed and updated annually to reflect new construction techniques/repairs and changing costs so the budget analysis results can be reliable and accurate.

MTC PMP Database

MTC requires cities submitting pavement maintenance and rehabilitation projects for funding to utilize a Pavement Management Program (PMP) in accordance with section 2108.1 of the Streets and Highway Code. Specifically, the minimum requirements are:

- Review and update the inventory information for all arterials and collectors every two years.
- Re-inspect arterial and collector routes every two years and residential routes every five years.
- Calculate budget needs for rehabilitating or replacing deficient pavement sections for the current year and the next four years.

We recommend that the Town of Fairfax comply with the above requirements so as not to jeopardize the loss of any federal or state transportation funds. This is particularly critical since significant funding increases are needed to improve the pavement network.

Next Steps

To summarize, we recommend that the Town undertake the following steps:

- Update the pavement management program regularly
- Maintain its current preventive maintenance strategy
- Consider rehabilitation alternatives that will "stretch the maintenance dollar"
- Direct staff to determine additional funding sources

SUMMARY

To summarize, the Town of Fairfax has a significant investment of \$27.2 million in their entire roadway network. Overall, the network is in “Fair” condition with a network PCI of 63. Of the 27.5 centerline miles, 46 percent of the streets are in “Good to Excellent” condition, 21 percent are in “Poor” condition and the remaining 33 percent are in “Very Poor” to “Failed” condition. The recommended scenario for the Town of Fairfax is presented in Scenario 5, with an annual budget of \$600 thousand over the next five years. Not only does this plan maintain the network PCI of 63 each year over the next five years and keep the overall network status in the “Fair” condition category, but the deferred maintenance costs will be reduced as well.