2021 Pavement Management Plan (PMP) Report

Covenant Hills Homeowners Association

May 26, 2021

GMU Pavement Engineering
23241 Arroyo Vista
Rancho Santa Margarita, CA 92688

GMU Project No. 21-101-00

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May 26, 2021

Mr. Michael D. Healy
First Service Residential
c/o Covenant Hills Homeowners Association
1 Covenant Hills Drive
Ladera Ranch CA 92694

GMU Project 21-101-00

Subject: 2021 Pavement Management Plan (PMP) Report for Covenant Hills Homeowners Association, Ladera Ranch, Orange County, California

Reference: GMU Proposal to provide "Proposal and Budget Estimate to Provide Pavement Reserve Budget Review Services," dated March 15, 2019.

Dear Mr. Michael D. Healy:,

GMU is pleased to submit this 2021 Pavement Management Plan (PMP) Report for the Covenant Hills Community.

A PMP study was performed per Phase 1 of the referenced proposal to assess the current condition of the community's roadway network and to evaluate funding needs to optimize the streets maintained by the community.

The following scope of work was performed per the referenced document:

- Inventory segmentation and network development
- Pavement surface condition assessments
- Pavement Condition Index (PCI) analysis
- M&R prioritization, scheduling, and budget analysis
- Report preparation to summarize our work, findings, and recommendations

Streets are one of the costliest assets a community manages. Implementing the the pavement funding recommendations provided in this report will help optimize the roadway network condition and reduce the overall life cycle cost of the community's streets.

Please note that a PMP report should be considered a "network-level" study. Over time, updates to the pavement asset management plan will be necessary to re-calibrate the predictions with actual pavement performance and project cost information. A project-level study, including preparation of plans & specifications per Phase 2 and Phase 3 of the referenced proposal, is required to be performed to identify the actual pavement repair scope for the first year's pavement improvement project.

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We appreciate the opportunity to provide our services on this project. Should there be any questions, please do not hesitate to contact us at 949-888-6513.

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TABLE OF CONTENTS

Attachments:

1. INTRODUCTION

1.1 Purpose & Background

Streets are one of the costliest assets a homeowner's association is responsible for managing. A pavement management plan (PMP) provides essential information to help optimize a community's roadway network condition and the estimated construction costs in order to do so. Implementing the pavement management plan recommendation will extend pavement life and reduce the overall life cycle cost of the community's streets. This report presents the results of our pavement management plan study for the of streets maintained by the Covenant Hills Homeowners Association (HOA).

The roadway network is comprised of a total of approximately 2,315,861 square feet of pavement surface area or approximately 14 centerline miles of streets. The edges of the streets within the community are bounded by concrete curbs and gutters.

1.2 Scope

As described in our proposal dated March 19, 2021, GMU's scope of work for this project includes:

- Verifying the community's roadway network inventory
- Performing pavement surface condition assessments
- Conducting pavement condition index (PCI) analysis
- Planning Maintenance & Rehabilitation (M&R) work and performing budgetary analysis
- Preparing this Pavement Management Plan (PMP) report

2. PAVEMENT MANAGEMENT PLAN (PMP) PROCESS

Pavement management planning is a multi-step and iterative process. The following sections describe the PMP process to outline how it is methodological approached.

2.1 Street Network Inventory and Database Setup

To evaluate the vast amount of pavement management plan information in an efficient and organized manner, a street network inventory (i.e., database) is first established. This process starts with subdividing the entire roadway network into individual segments or areas, called "sections". A section typically represents a street segment (or individual parking lots), with limits defined by intersections. Additional relevant information is added to each section within the database, such as surface area (square feet), work history (last date of sealcoating or mill/overlay), and last pavement inspection date. For this project, the Covenant Hills HOA roadway inventory was created by the HOA and provided to GMU for review and updating.

Over time, as pavement constructions projects are carried out and the pavement's condition changes due to traffic and environmental influences, the database is updated with the additional

information. The additional information, such as changes to pavement condition index and actual construction costs, helps to further calibrate future pavement condition predictions and construction repair cost estimates.

2.2 Pavement Surface Condition Assessments and Pavement Condition Index

To objectively rate the current condition of the streets and parking lots managed by the community, GMU performed pavement surface condition assessments in general accordance with American Society of Testing and Materials (ASTM) D6433 "Standard Practice for Roads and Parking Lots Pavement Condition Index Surveys". Additionally, GMU personnel that performed the pavement surface condition assessments are certified by Orange County Transportation Authority (OCTA).

To summarize ASTM D6433, this standard test method defines 20 different asphalt concrete pavement distress types, how to rate and measure them, and how to calculate the Pavement Condition Index (PCI). For asphalt concrete pavements, the 20 different asphalt concrete pavement distress types defined by the test method is summarized as follows:

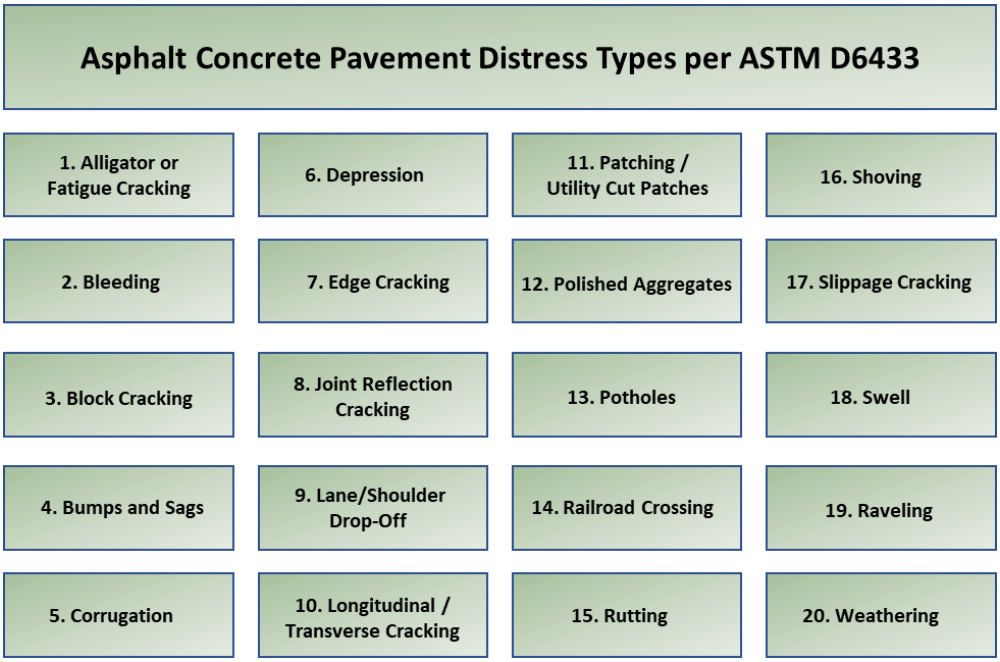


Figure 1. Summary of Pavement Distress Types Defined by ASTM D6433.

Distress types are typically categorized as either load-related or aging-related. Load-related distresses typically develop due to the pavement being inadequately thick for the given traffic loads or excess deformation of the underlying subgrade soil. Examples of load-related distresses include alligator cracking, depressions, and potholes. Aging-related distresses typically develop due to oxidation and stiffening of the asphalt pavement, which leads to increased brittleness and tendency to cracking. Examples of typical aging-related distresses include longitudinal/transverse cracking and block cracking. Some distresses develop due to a combination of both load- and aging-related

factors. Additionally, some distress types can worsen and turn into other, more severe distress types. For example, aging- or materials-related distresses, such as longitudinal cracking, can lead to load-related distress types, such as alligator cracking.

In addition to identifying the distress type, the severity level of the given distress type is also considered (i.e., low, medium, or high typically), as well as the quantity of each distress type (i.e., square foot or linear foot typically).

The type, extent, and severity level of the distresses identified and measured is used to calculate the Pavement Condition Index (PCI). The PCI is on a 0 to 100 rating scale, where new and properly constructed pavements have a PCI of 100 or close to 100. In general, a street with more distresses, greater quantity of distresses, and higher severity level of distresses will have a lower PCI.

Table 1 summarizes the various condition categories and corresponding PCI ranges and condition descriptions per ASTM D6433 definitions.

Table 1. PCI Condition Categories and Description.

Condition Category	PCI Range	Pavement Condition Description
Good	86-100	Pavement has little or no surface distress.
Satisfactory	71-85	Pavement has some distresses, with aging-related distresses being dominant.
Fair	56-70	Pavement has significant level of distresses, including both load- and aging-related distresses.
Poor	41-55	Pavement has major distresses, including both significant load- and materials-related distresses.
Very Poor	26-40	Pavement has significant amount of major distresses and is at the end of its service life.
Serious	11-25	Pavement has nearly disintegrated and is at or beyond the end of its service life.
Failed	0-10	Pavement has entirely disintegrated and is beyond the end of its service life.

The following photos depict varying levels of pavement surface condition and corresponding PCI. The Broken Area Street photo shows significant alligator cracking, which is a primary driver for the low PCI measured. The Buckaroo Road photo shows pavement that is generally in good condition, containing primarily low-severity weathering and little to no cracking.

Broken Arrow St (PCI = 50, Poor)

Portalon Ct (PCI = 61, Fair)

Oberon Rd (PCI = 74, Satisfactory)

Buckaroo Rd (PCI = 90, Good)

Figure 2. Examples of Covenant Hills streets and their PCI.

2.3 Maintenance and Rehabilitation Strategy Overview

Maintaining pavement networks at a high level of serviceability (i.e., "satisfactory" or "good" condition) reduces the overall life cycle cost of streets. Pavement maintenance treatments (i.e., crack repairs and seal coating) generally cost approximately $0.10 to $0.50 per square foot to perform and helps to preserve the pavement condition by functioning as a "sunblock" for the roadway, resulting in pavement life extension. In contrast, not performing pavement maintenance and instead allowing the pavement to deteriorate to a worse condition leads to more rapid deterioration and shortening of the pavement's life, at which point it will require more robust and

costly repairs. A severely deteriorated roadway typically requires complete replacement (i.e., reconstruction) which typically costs approximately $6 to $12 per square foot to replace. The following figure illustrates this concept.

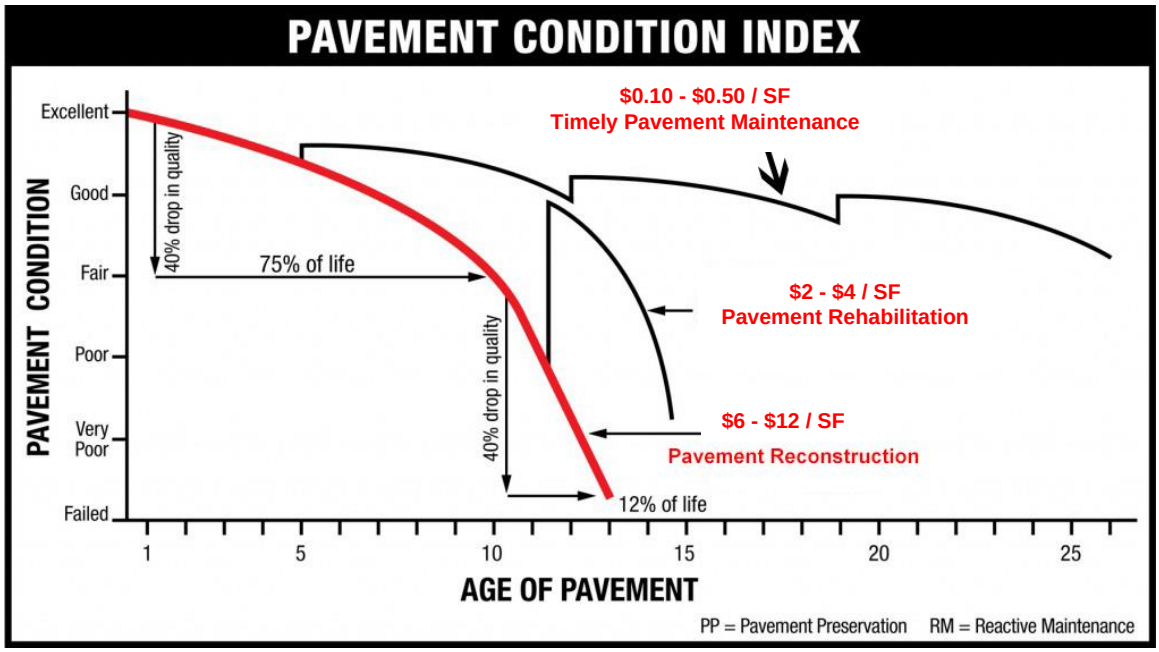


Figure 3. Effect of Applying Maintenance on the Service Life of the Pavement. (NOT TO SCALE)

As shown by the above figure, performing appropriate and timely pavement maintenance can extend the life of the pavement while also reducing the life cycle cost of the pavement network.

3. PAST MAINTENANCE & REHABILITATION ACTIVITIES

Based on a review of historical satellite images, the streets within Covenant Hills HOA were originally constructed between 2004 and 2006, making them approximately 14 to 16 years old. It should be noted that streets are typically designed to offer a 20-year design life, therefore, from an age standpoint, many streets within the community are approaching the end of their original design life period.

Based on our review of the HOA's past pavement project bids, the pavement maintenance work over the years generally included localized pavement patch repairs, crack repairs, and seal coating.

4. CURRENT PAVEMENT CONDITION INDEX (PCI) RESULTS

Pavement surface condition assessments were conducted in April 2021. After completing the inspections, the collected data was entered into PAVER software, and the PCI was calculated for each section.

Table 2 summarizes the current PCI results and other pertinent information, such as surface area and street segments (sections). Additional current PCI data is presented in **Appendix B**.

Table 2. Pavement Network Information Overview.

Network ID	Pavement Area (SF)	Sections (Streets)	PCI (area-weighted average)
Covenant Hills	**2,315,861**	**178**	**71**

A breakdown of the overall Covenant Hills pavement network by condition category is summarized in **Table 3**.

Table 3. A Breakdown of the Overall Pavement Network by Condition Category.

Condition Category	Pavement Area		Sections (Streets)		PCI (area-weighted average)
	Surf. Area (SF)	Percentage	No. of Sections	Percentage	
Good	229,744	9.9	20	11	**90**
Satisfactory	990,961	42.8	77	43	**77**
Fair	909,128	39.3	67	38	**64**
Poor	186,028	8.0	14	8	**52**
Very Poor	0	0	0	0	-
Serious	0	0	0	0	-
Failed	0	0	0	0	-

A graphical representation of the pavement condition breakdown by PCI condition category is shown in **Figure 4**.

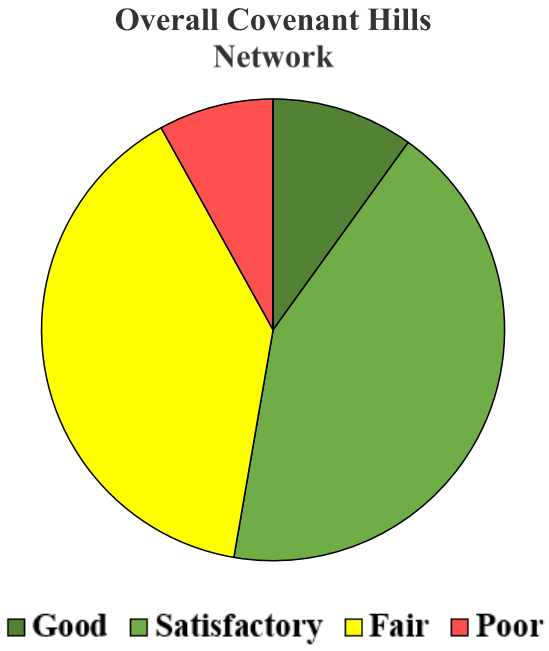


Figure 4. Pavement Condition Breakdown (by surface area).

5. MAINTENANCE/REHABILITATION STRATEGY

The following conceptual pavement repair strategies are utilized for the budget-scenario analysis presented in **Section 6** of this report.

- Pavements in **"satisfactory"** or **"good"** condition category are typically identified for **maintenance**, which generally consists of **crack repairs and slurry seal or seal coat**.

  For optimal performance, slurry seals or seal coats are applied on streets in "satisfactory" or "good" condition to help preserve the condition of the roadway. These treatments help seal minor surface cracks as well as serve as a protective surface membrane, acting as "sunblock" for the roadway surface. When properly applied and on a suitable-condition pavement surface, slurry seals / seal coats typically last approximately 4 to 7 years.

  Pavement maintenance treatments applied on streets that are in unsuitable conditions (worse than "satisfactory") will result reduced performance of the treatment and protection of the underlying structural pavement section.

- Over time, as the pavement ages and deteriorates, it will deteriorate to a **"fair"** or **"satisfactory"** condition; and maintenance treatments will no longer be sufficient. At this stage, the pavement will exhibit signs of significant aging-related distresses and some load-related distresses, such as alligator cracking.

  Streets that deteriorate to this condition are typically identified for **rehabilitation**, which generally consists of performing a **2-inch or 3-inch thick mill-and-overlay, with a pavement reflective cracking limiting system** to reduce pavement reflective cracking propagation potential. Localized areas of repair (i.e., patches) may also be required to address localized areas of load-related (i.e., alligator cracked) distresses. Mill-and-overlays are typically performed once every 15 to 20 years.

- **Reconstruction**: If streets are deteriorating more rapidly than expected or if maintenance maintenance/rehabilitation is neglected, they can deteriorate to a "poor" or worse condition category.

  Streets that deteriorate to this condition are typically identified for **reconstruction**, which generally includes performing **full-depth reclamation or remove-and-replace reconstruction.**

Table 4 presents the assumed cost per square foot for each of the repair types presented above and utilized in **Section 6 Budget Scenario Analysis and Results**.

Table 4. Assumed Unit Cost of Each Treatment.

Pavement Condition Index	Treatment	Unit Cost (per SF)
>80	Slurry Seal/Sealcoat	$ 0.50
70-79	Mill and Overlay	$ 2.00 – 2.50
60-69	Mill and Overlay with some Localized Repairs	$ 2.50 – 4.50
50-59	Reconstruction/FDR	$ 4.50 – 6.00
40-49	Reconstruction/FDR	$ 6.00
30-39	Reconstruction/FDR	$ 6.00 – 6.50
20-29	Reconstruction/FDR	$ 6.50 – 7.00
10-19	Reconstruction/FDR	$ 7.00 – 7.50
0-9	Reconstruction/FDR	$ 7.50 – 8.00

When establishing the unit costs presented in Table 4, which are used for budget scenario analysis as described in Section 6 of this report, GMU reviewed and considered past pavement project costs in Covenant Hills and typical pavement repair costs from our experience with other pavement construction projects. We recommend re-calibrating the unit cost values with the actual pavement repair costs to be received when future projects are executed. Changes to the unit costs used in the analysis will influence the results of the budget scenario analysis presented in **Section 6 Budget Scenario Analysis and Results.**

6. BUDGET SCENARIOS ANALYSIS AND RESULTS

Various "what if" scenarios were analyzed to determine the resulting budget needs or resulting pavement condition for the considered budget scenario. Four (4) budget scenarios were analyzed, summarized as follows:

- Scenario 1 – Current Budget Scenario
- Scenario 2 – Maintain Network Condition at Current PCI of 71
- Scenario 3 – Improve and Maintain PCI at 75 Scenario
- Scenario 4 – Unlimited Budget Scenario

An analysis period of 15-years was considered for each scenario to help with future budgeting purposes and setting expectations for pavement performance.

All HOAs have budgets for pavement maintenance and repairs. Repairs that are required based on the roadway's condition but cannot be afforded, due to budget limitations, are referred to as deferred maintenance. The cost of the deferred maintenance that cannot be performed due to funding limitations is referred to as unfunded backlog.

Deferring more maintenance over time will eventually lead to increased frequency of additional maintenance or emergency repairs, as well as complaints from users. Deferring maintenance will also increase future repair costs because it is more costly to repair streets in poorer condition.

6.1 Scenario 1 – Current Budget Scenario

This scenario evaluates the future pavement condition based on the HOA's current funding levels and pavement repair schedule. It is our understanding that the HOA is currently planning to perform seal coating in year 2021 with an approximate budget of $410k. The following pavement project is scheduled for year 2024 and has a $492k budget. $1.3M is budgeted to be expended in year 2028 and another $1.3M in year 2032. Over a 15-year period, between years 2021 and 2035, approximately $3.5M total or **$235k per year** is currently budgeted for pavement maintenance and repair work.

The following **Figure 5** summarizes the resulting pavement condition index and the unfunded backlog.

Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Budget ($)	407K	0.0	0.0	470K	0.0	0.0	0.0	1.3M	0.0	0.0	0.0	1.3M	0.0	0.0	0
Deferred Maintenance ($)	1.2M	1.7M	2.2M	3.0M	4.0M	4.9M	6.1M	5.5M	6.9M	7.0M	7.1M	5.9M	6.8M	8.1M	9.2M
Predicted PCI	74	71	69	68	65	63	60	63	60	58	55	58	55	53	50

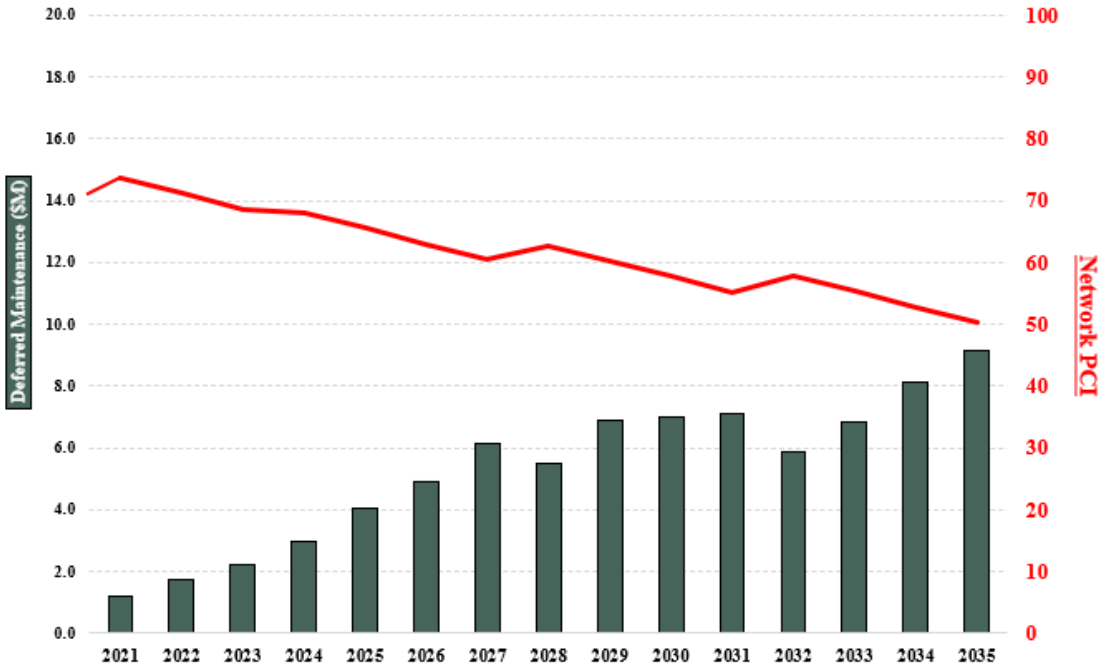


Figure 5. Scenario 1 - Current Budget Scenario.

6.2 Scenario 2 – Maintain Network Condition at Current PCI (PCI = 71)

To maintain the current network PCI at the same level (i.e. PCI of 71), the HOA would need to budget approximately $615k annually over the next fifteen years. It is important to note that the unfunded backlog grows and fluctuate from $800K to eventually $3.8M in 2035.

Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Budget ($)	623K	609K	609K	595K	611K	615K	611K	618K	617K	607K	619K	612K	620K	619K	619K
Deferred Maintenance ($)	800K	710K	500K	1.1M	1.5M	1.6M	2.3M	2.4M	3.2M	3.4M	4.2M	3.8M	3.3M	2.8M	3.8M
Predicted PCI	74	74	74	73	73	73	73	73	73	73	73	73	73	74	71

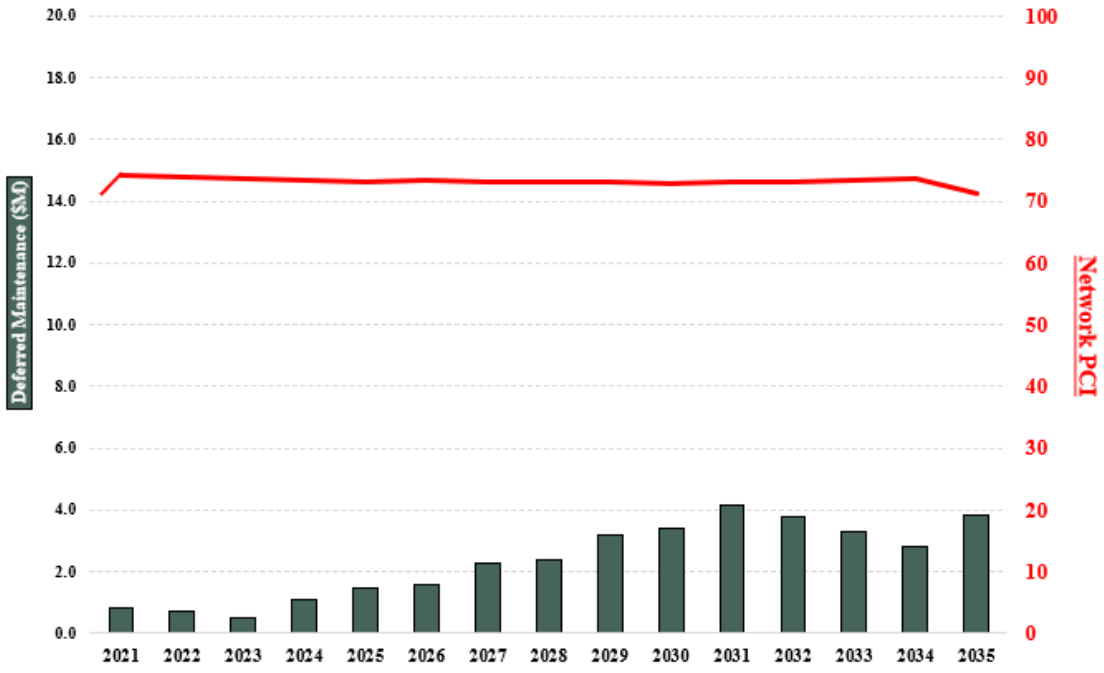


Figure 6. Scenario 2 - Maintain Network Condition at Current PCI (PCI = 71).

6.3 Scenario 3 – Improve and Maintain PCI at 75 Scenario

In order to improve and maintain the network condition to a PCI of 75, the HOA would need to budget approximately $685k annually over the next fifteen years.

Based on this funding scenario, the pavement network PCI is predicted to increase from its current PCI of 71 in year 2021 to a PCI of 75 after the year 1 project. This significant increase in network PCI is mainly due to the anticipated $ 690k spent at the first year. The unfunded backlog grows from $700K in 2021 to $2.8M in 2035.

Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Budget ($)	690K	676K	660K	692K	691K	672K	689K	691K	691K	685K	679K	688K	677K	684K	684K
Deferred Maintenance ($)	700K	570K	300K	780K	1.1M	1.2M	1.8M	1.8M	2.5M	2.7M	3.4M	2.9M	2.3M	1.8M	2.8M
Predicted PCI	74	74	74	74	74	75	75	75	76	76	76	76	77	78	75

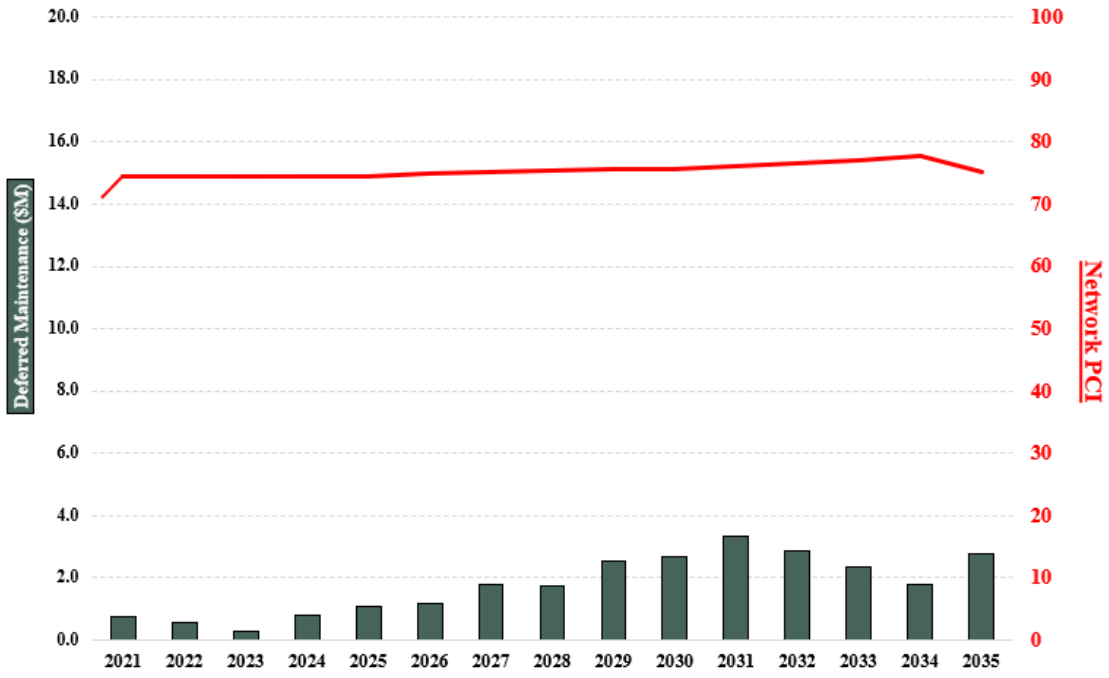


Figure 7. Scenario 3 - Improve and Maintain PCI at 75 Scenario.

6.4 Scenario 4 – Unlimited Budget Scenario

For information and comparison purposes mainly, to completely eliminate unfunded backlog (all deferred maintenance) by year 2035, an "unlimited" budget scenario was analyzed.

An anticipated pavement repair fund of approximately $820k per year would be needed to eliminate all unfunded backlog by year 2035. Eliminating all unfunded backlog would also improve the PCI from 71 in 2021 to 86 in 2035.

Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Budget ($)	973K	956K	387K	997K	957K	921K	990K	952K	988K	960K	990K	927K	116K	174K	997K
Deferred Maintenance ($)	454K	0	0	170K	182K	0	330K	0	482K	349K	738K	0	0	0	0
Predicted PCI	75	77	75	77	78	79	80	82	83	84	86	87	86	84	86

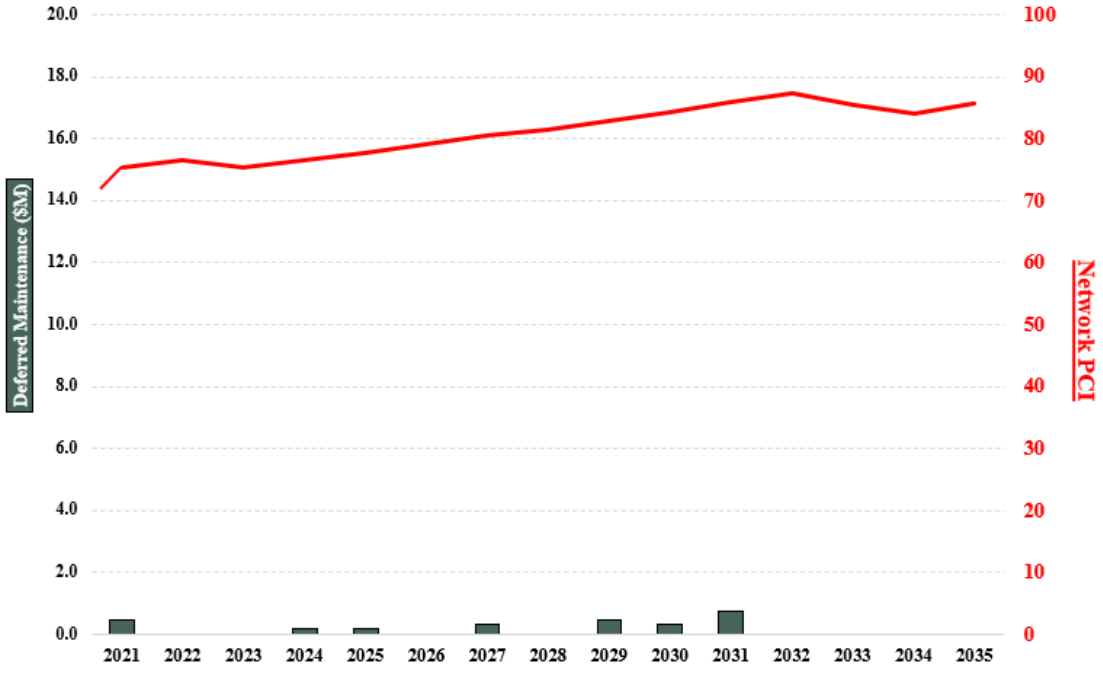


Figure 8. Scenario 4 – Unlimited Budget Scenario.

7. CONCLUSIONS AND RECOMMENDATIONS

We offer the following conclusions and recommendations:

1. Pavements typically deteriorate at a rate of 2 to 4 PCI per year. Considering that the streets are approximately 15 to 17 years old and a network PCI of 71 was assessed, overall, the community's streets are deteriorating an actual rate of approximately 2 PCI points per year. This deterioration rate represents the lower end of the typical deterioration rate spectrum, and therefore, a PCI of 71 is expected for streets of this age.

2. Although the community's roadway network has deteriorated to an overall condition that is expected for its age, nearly half of the streets have deteriorated to a condition below "good" or "satisfactory" (Table 3).

    a. "Maintenance" repairs (i.e., crack repairs and seal coating) the HOA has performed in the past are very effective at maintaining streets in "satisfactory" or better condition categories (i.e., PCI greater than approximately 75 to 80). Once the street has deteriorated below "satisfactory" condition, proceeding to perform seal coating maintenance will result in decreased life of the seal coat, as well as reduced protection of pavement structural section.

    b. To cost-effectively improve the condition of the streets in "fair" or worse condition, more robust and costly repairs are necessary (i.e., mill-and-overlay "rehabilitation" or remove-and-replace "reconstruction").

3. **Section 6** of this report presents our analysis and results of the future PCI based on available current funding or the required funding to achieve a target PCI.

    a. Based on current funding levels and pavement maintenance schedule as described in **Section 6.1 – Scenario 1 Current Budget Scenario**, our analysis indicates that the pavement network PCI is predicted to temporarily and slightly increase from the current network PCI of 71 to a network PCI of 74 in year 2021. This increase is the direct result of the $410k seal coat project scheduled to be performed in year 2021. Continuing with this scenario's funding level and pavement maintenance and repair schedule, the PCI is predicted to reduce to 50 ("poor" condition) by year 2035. The $1.3M budgeted to be expended in years 2028 and 2032 will be insufficient to reverse the significant unfunded backlog that will accumulate to $9.2M by year 2035. **In summary, the current funding level, equivalent to approximately $235k per year, is significantly inadequate, and the roadway network is predicted to deteriorate to a PCI of 50 or "poor" condition by year 2035. At which point, significant additional funding ($9.2M in unfunded backlog) will be required to address the network's "poor" overall condition.**

    b. Per **Section 6.2 Scenario 2 – Maintain Network Condition at Current PCI (PCI = 71),** the HOA would need to expend approximately $615k annually over the next 15 years to maintain its current network PCI of 71. It is important to note that the

unfunded backlog increases to $3.8M even with an $615K annual pavement budget over the next 15 years. The $615K annual budget derived from analysis of this scenario is a substantial increase from current funding levels of approximately $235k per year.

c. Per **Section 6.3 Scenario 3 – Improve and Maintain PCI at 75 Scenario,** an average annual budget of $685K is required. The $685K annual budget derived from analysis of this scenario is a substantial increase from current funding levels of approximately $235k per year.

d. Per **Section 6.4 Scenario 4 – Unlimited Budget Scenario,** for information and comparison purposes mainly, our analysis indicates an average annual budget of $820k is required to eliminate all unfunded backlog by year 2035 and improve the network level PCI to 86 ("good" condition category).

Our recommendations are summarized as follows:

- We recommend increasing the annual pavement funding levels to at least $620k. Increased funding will allow the roadway condition to be improved and sustained, with focus on the half of the community's streets that are currently in the "fair" condition category. Additionally, it will help reduce the long-term and life-cycle cost of the roadway network.
    - The actual cost per year may fluctuate depending on how the street improvement projects are grouped and scheduled for maintenance/repairs (i.e., combine multiple years of budgets into a single project to benefit from economy of scale as well as to reduce disturbance for residence).

4. A project-level evaluation of the **Year 1 (2021)** streets is recommended as outlined in Phase 2 of our proposal dated March 19, 2021. In summary, Phase 2 involves performing site-specific subsurface exploration (coring), laboratory testing, pavement structural section analysis, conclusions, and repair recommendations.

5. In 2023, we recommend performing a pavement management plan update, which will involve re-calibrating the pavement management plan budget forecasts with the actual construction costs from the 2021 and 2022 projects and additional PCI surveys of the streets at that time to monitor their performance over time.

8. LIMITATIONS

Please note, the recommendations presented within this report are based on a visual assessment of the pavement surface and a network-level evaluation (i.e., birds-eye review of the pavement condition). The actual rate of pavement deterioration may differ from the predicted rate warranting modifications and updates to the network-level conceptual pavement maintenance/rehabilitation recommendations may be necessary over time (i.e., traffic exceeding pavement design, variable and undetectable subsurface conditions, etc.).

Additional project-level analysis and preparation of project plans and specifications is recommended for each year's actual pavement maintenance/rehabilitation project.

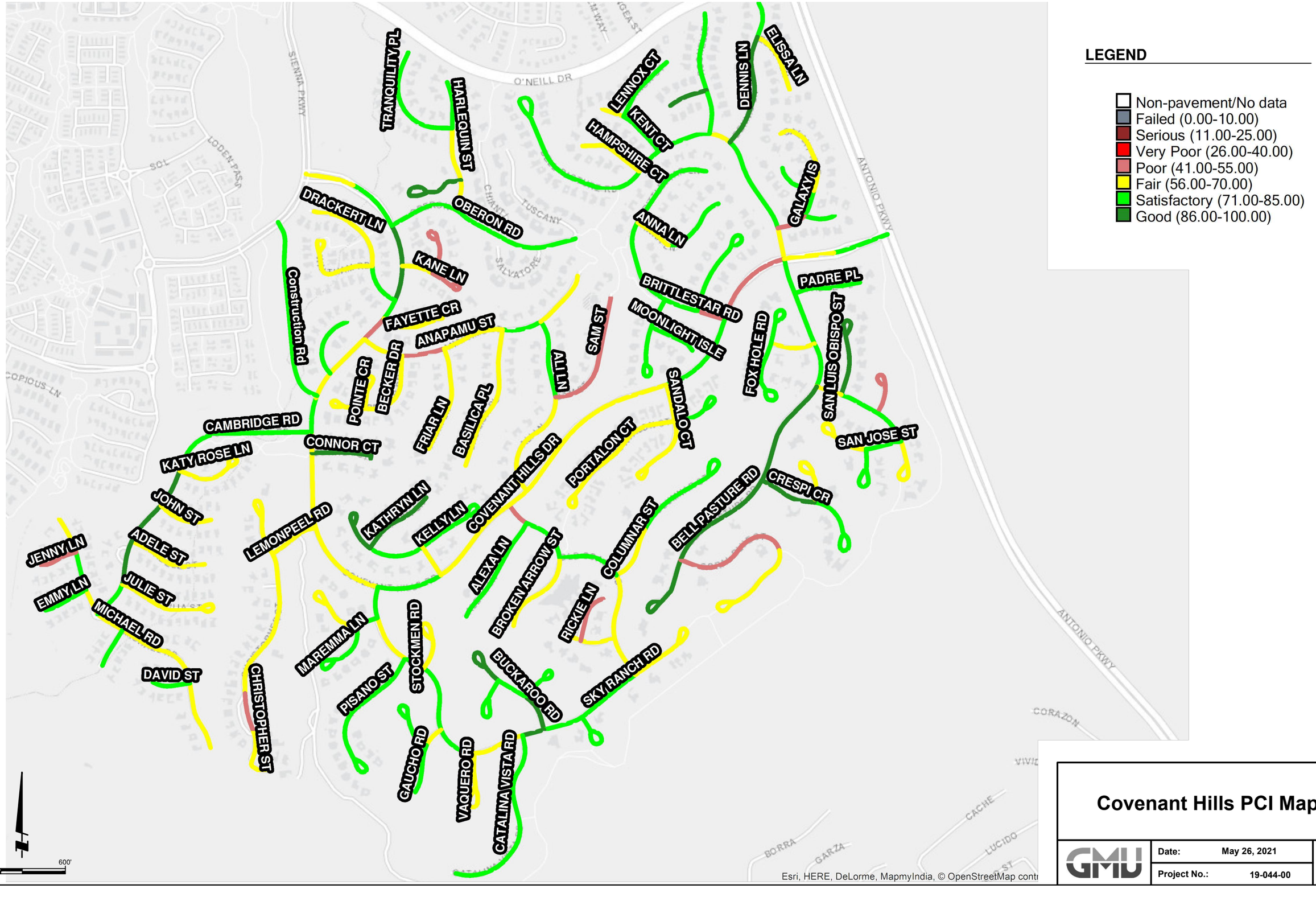
All parties reviewing or utilizing this report should recognize that the findings, conclusions, and recommendations presented represent the results of our professional engineering efforts and judgments.

No other warranty, either expressed or implied, is made as to the conclusions and recommendations contained in this letter. This report has been prepared for the exclusive use of the Covenant Hills Homeowners' Association in accordance with generally accepted pavement engineering practices.

Appendix A

Pavement Condition Index Map

GMU
PAVEMENT
ENGINEERING


LEGEND
Non-pavement/No data
Failed (0.00-10.00)
Serious (11.00-25.00)
Very Poor (26.00-40.00)
Poor (41.00-55.00)
Fair (56.00-70.00)
Satisfactory (71.00-85.00)
Good (86.00-100.00)
TRANQUILITY PL
HARLEQUIN ST
O'NEILL DR
LENNOX CT
KENT CT
HAMPSHIRE CT
DENNIS LN
ELISSA LN
GALAXY IS
ANNA LN
DRACKERT LN
OBERON RD
KANE LN
Construction Rd
FAYETTE CR
ANAPAMU ST
BECKER DR
POINTE CR
FRIAR LN
BASILICA PL
ALLEN
SAM ST
BRITTLESTAR RD
MOONLIGHT ISLE
PADRE PL
FOX HOLE RD
SAN LUIS OBISPO ST
SAN JOSE ST
SANDALO CT
PORTALON CT
COVENANT HILLS DR
CAMBRIDGE RD
CONNOR CT
KATY ROSE LN
JOHN ST
ADELE ST
JULIE ST
JENNY LN
EMMY LN
MICHAEL RD
DAVID ST
LEMONPEEL RD
KATHRYN LN
KELLY LN
ALEXA LN
BROKEN ARROW ST
COLUMNAR ST
BELL PASTURE RD
CRESPI CR
RICKIE LN
MAREMMA LN
STOCKMEN RD
PISANO ST
BUCKAROO RD
SKY RANCH RD
CHRISTOPHER ST
GAUCHO RD
VAQUERO RD
CATALINA VISTA RD
SIENNA PKWY
SOL
LODEN PASS
COPIOUS LN
CHIANTI
TUSCANY
SALVATORE
ANTONIO PKWY
CORAZON
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Covenant Hills PCI Map
GMU
Date: May 26, 2021
Project No.: 19-044-00
Plate 1
DRAWING: q:\2019\19-044-00\dwg\1904400_plate 1_cvthls_pci.dwg PLOTTED: 5/14/2021 12:16 PM BY: Jesus Meza

Appendix B

Current Pavement Condition Summary

GMU
PAVEMENT
ENGINEERING

Appendix B

Complete Street Listing Current Conditions

Street Name	From	To	Width of Segment (FT)	Area (SF)	Current PCI	Most Recent Inspection Date
Adele St	Cambridge Rd	Cul De Sac	35	20,090	57	4/19/2021
Alexa Ln	Broken Arrow St	Cul De Sac	23	18,768	79	4/22/2021
Ali Ln	Anapamu St	Sam St	33	17,589	82	4/19/2021
Ali Ln	Sam St	Covenant Hills Dr	31	23,157	70	4/19/2021
Anapamu St	Basillica Pl	Ali Ln	26	7,306	71	4/15/2021
Anapamu St	Ali Ln	Cul De Sac	27	12,204	67	4/15/2021
Anapamu St	Friar Ln	Basillica Pl	33	14,190	62	5/3/2021
Anapamu St	Covenant Hills Drive	Becker Dr	33	9,009	61	4/15/2021
Anapamu St	Becker Dr	Friar Ln	33	9,867	55	4/15/2021
Andromeda Isle	Galaxy Isle	Cul De Sac	40	9,400	80	4/19/2021
Anna Ln	Turn Out	Cul De Sac	40	18,880	76	4/19/2021
Anna Ln	Brittlestar Rd	Turn Out	28	7,728	69	4/19/2021
Basillica Pl	Anapamu St	Cul De Sac	32	32,128	59	4/19/2021
Becker Dr	Pointe Cir	Cul De Sac	40	9,960	66	4/19/2021
Becker Dr	Anapamu St	Pointe Cir	34	17,952	65	4/15/2021
Bell Pasture Rd	Coral Blue St	Cul De Sac	25	11,500	88	4/16/2021
Bell Pasture Rd	Mission Rd	Pump Station	31	5,270	87	4/16/2021
Bell Pasture Rd	Crespi Cir	Coral Blue St	21	17,010	87	4/16/2021
Bell Pasture Rd	Pump Station	Crespi Cir	31	18,600	87	4/16/2021
Bell Pasture Rd	Forest St	Misison Ridge Rd	37	11,470	83	4/16/2021
Bell Pasture Rd	Kent Ct	Hampshire Ct	25	4,850	77	4/19/2021
Bell Pasture Rd	Covenant Hills Drive	Padre Pl	37	7,918	76	4/16/2021
Bell Pasture Rd	Roshelle Ln	Kent Ct	25	9,375	75	4/19/2021
Bell Pasture Rd	Padre Pl	Forest St	37	14,060	75	4/16/2021
Bell Pasture Rd	Galaxy Isle	Dennis Ln	25	17,325	74	4/19/2021
Bell Pasture Rd	Hampshire Ct	Round About	32	39,040	73	4/19/2021
Bell Pasture Rd	Dennis Ln	Roshelle Ln	25	3,875	65	4/19/2021
Bell Pasture Rd	Covenant Hills Drive	Galaxy Isle	26	5,122	59	4/19/2021
Brittlestar Rd	Starlight Isle	Stellar Isle	28	6,608	85	4/19/2021
Brittlestar Rd	Anna Ln	Cul De Sac	35	23,450	80	4/19/2021
Brittlestar Rd	Stellar Isle	Anna Ln	32	19,840	75	4/19/2021
Brittlestar Rd	Covenant Hills Drive	Starlight Isle	33	5,973	49	4/19/2021
Broken Arrow St	Alexa Ln	Old Coach Rd	28	9,940	73	4/22/2021
Broken Arrow St	Old Coach Rd	Cul De Sac	23	14,858	69	4/22/2021
Broken Arrow St	Covenant Hills Drive	Alexa Ln	28	4,424	50	4/22/2021
Buckaroo Rd	Sky Ranch Rd	La Riata Rd	20	5,020	90	4/22/2021
Buckaroo Rd	Paniolo Rd	Cul De Sac	25	6,625	87	4/22/2021
Buckaroo Rd	La Riata Rd	Paniolo Rd	20	4,440	79	4/22/2021
Cambridge Rd	Katy Rose Ln	John St	33	9,042	93	4/19/2021
Cambridge Rd	Adele St	Julis St	35	10,780	90	4/19/2021
Cambridge Rd	John St	Adele St	33	10,362	86	4/19/2021
Cambridge Rd	Julie St	Round About	38	8,550	84	4/19/2021
Cambridge Rd	Covenant Hills Drive	Katy Rose Ln	33	33,792	78	4/19/2021
Catalina Vista Rd	Sky Ranch Rd	Cul De Sac	22	29,172	79	4/21/2021
Christopher St	Turn Out	Cul De Sac	38	20,140	63	4/19/2021
Christopher St	Lemonpeel Rd	Cul De Sac	40	9,600	59	4/19/2021

Appendix B

Complete Street Listing Current Conditions

Street Name	From	To	Width of Segment (FT)	Area (SF)	Current PCI	Most Recent Inspection Date
Christopher St	Cul De Sac	Lemonpeel Rd	27	10,746	57	4/19/2021
Christopher St	Cul De Sac	Turn Out	33	31,680	55	4/19/2021
Cloister Ct	Crespi Cir	Cul De Sac	28	8,680	64	4/21/2021
Columnar St	Turn Out	Cul De Sac	25	17,750	76	4/22/2021
Columnar St	Old Coach Rd	Turn Out	26	9,880	56	4/22/2021
Connor Ct	Covenant Hills Drive	Cul De Sac	34	14,756	88	4/19/2021
Construction Rd	Covenant Hills Drive	Sienna Pkwy	30	36,540	82	4/21/2021
Coral Blue St	Trail Access Rd	Cul De Sac	23	14,628	66	4/21/2021
Coral Blue St	Bell Pasture Rd	Trail Access Rd	20	16,100	55	4/21/2021
Covenant Hills Clubhouse Parki	Harlequin St	RoundAbout	20	21,173	94	4/16/2021
Covenant Hills Dr	Drackert Ln	Kane Ln	37	9,176	91	4/20/2021
Covenant Hills Dr	Kane Ln	Oberon Rd	37	10,952	89	4/15/2021
Covenant Hills Dr	Brittlestar Rd	Sandalo Ct	37	23,606	84	4/16/2021
Covenant Hills Dr	Fayette Cir	Drackert Ln	37	5,735	82	4/15/2021
Covenant Hills Dr	Cambridge Rd	Construction Rd	37	9,583	77	4/15/2021
Covenant Hills Dr	Jack St	Sky Ranch Rd	37	17,316	73	4/16/2021
Covenant Hills Dr	Oberon Rd	Sienna Gate	60	19,560	72	4/15/2021
Covenant Hills Dr	Antonio Pkwy	Antonio Gate	55	20,680	71	4/16/2021
Covenant Hills Dr	Antonio Gate House	Bell Pasture Rd	55	15,895	70	4/16/2021
Covenant Hills Dr	Sienna Gatehouse	Sienna Pkwy	65	24,050	70	4/15/2021
Covenant Hills Dr	Ali Ln	Broken Arrow St	37	6,290	69	4/16/2021
Covenant Hills Dr	Broken Arrow St	Jack St	37	24,864	69	4/16/2021
Covenant Hills Dr	Connor Ct	Cambridge Rd	37	5,402	68	4/15/2021
Covenant Hills Dr	Lemonpeel Rd	Connor Ct	37	19,462	68	4/15/2021
Covenant Hills Dr	Shepherd Ct	Anapamu St	37	12,062	67	4/15/2021
Covenant Hills Dr	Construction Rd	Shepherd Ct	37	6,993	66	4/15/2021
Covenant Hills Dr	Sky Ranch Rd	Lemonpeel Rd	37	23,199	62	4/15/2021
Covenant Hills Dr	Sandalo Ct	Ali Ln	37	46,139	61	4/16/2021
Covenant Hills Dr	Anapamu St	Fayette Cir	37	7,326	47	4/15/2021
Covenant Hills Dr	Bell Pasture Rd	Brittlestar Rd	40	24,840	47	4/16/2021
Cowboy Rd	Gaucho Rd	Cul De Sac	27	8,964	85	4/20/2021
Crespi Cir	Bell Pasture Rd	Cloister Ct	20	7,700	89	4/21/2021
Crespi Cir	Cloister Ct	Cul De Sac	22	10,120	80	4/21/2021
David St	Michael Rd	Cul De Sac	36	10,188	75	4/19/2021
Dennis Ln	Bell Pasture Rd	Elissa Ln	27	20,628	91	4/19/2021
Dennis Ln	Elissa Ln	Cul De Sac	38	9,500	81	4/19/2021
Drackert Ln	Covenant Hills Drive	Waltham Rd	32	8,832	76	4/19/2021
Drackert Ln	Waltham Rd	Cul De Sac	34	22,406	64	4/19/2021
Elissa Ln	Dennis Ln	Cul De Sac	35	15,715	68	4/19/2021
Emmy Ln	Michael Rd	Cul De Sac	35	11,970	80	4/19/2021
Eric St	Michael Rd	Cul De Sac	35	10,780	73	4/19/2021
Fayette Cir	Covenant Hills Drive	Cul De Sac	40	16,560	64	4/15/2021
Forest St	Bell Pasture Rd	Fox Hole Rd	20	5,500	69	4/21/2021
Fox Hole Rd	Forest St	South Cul De Sac	23	10,235	76	4/19/2021
Fox Hole Rd	North Cul De Sac	Forest St	25	6,375	74	4/21/2021
Franciscan Ct	San Jose St	Cul De Sac	28	7,420	71	4/21/2021
Friar Ln	Anapamu St	Cul De Sac	32	23,424	61	4/19/2021
Galaxy Isle	Andromeda Isle	Heavenly Island	27	4,806	77	4/19/2021
Galaxy Isle	Heavenly Island	Cul De Sac	35	20,930	69	4/19/2021

Appendix B

Complete Street Listing Current Conditions

Street Name	From	To	Width of Segment (FT)	Area (SF)	Current PCI	Most Recent Inspection Date
Galaxy Isle	Bell Pasture Rd	Andromeda Isle	28	5,600	48	4/19/2021
Gaucho Rd	Cowboy Rd	Cul De Sac	27	10,341	73	4/20/2021
Gaucho Rd	Sky Ranch Rd	Cowboy Rd	20	2,600	68	4/20/2021
Hammond Rd	Kane Ln	Cul De Sac	40	12,760	47	4/15/2021
Hampshire Ct	Bell Pasture Rd	Cul De Sac	28	12,460	66	4/19/2021
Harlequin St	Tranquility Pl	Cul De Sac	55	18,865	77	4/20/2021
Harlequin St	Oberon Rd	Covenant Hills Clubhouse	35	6,685	65	4/15/2021
Harlequin St	Covenant Hills Clubhouse	Tranquility	35	13,265	61	4/15/2021
Heavenly Island	Galaxy Isle	Cul De Sac	30	8,220	74	4/19/2021
Jack St	Covenant Hills Drive	Kelly Ln	27	5,400	68	4/19/2021
Jenny Ln	Michael Rd	Cul De Sac	35	9,800	55	4/19/2021
Jeremiah Ln	Roshelle Ln	Cul De Sac	35	8,960	90	4/19/2021
John St	Cambridge Rd	Cul De Sac	35	14,175	61	4/21/2021
Julie St	Cambridge Rd	Cul De Sac	35	23,625	65	4/19/2021
Kane Ln	CovenantHillsDrive	Hammond Rd	30	5,970	58	4/19/2021
Kane Ln	Hammond Rd	Cul De Sac	40	9,280	54	4/19/2021
Kathryn Ln	Kelly Ln	Cul De Sac	30	16,050	91	4/19/2021
Katy Rose Ln	Cambridge Rd	Cul De Sac	35	15,400	57	4/19/2021
Kelly Ln	Kathryn Ln	Cul De Sac	30	9,090	89	4/19/2021
Kelly Ln	Cul De Sac	Jack St	30	14,460	85	4/19/2021
Kelly Ln	Jack St	Kathryn Ln	33	12,771	75	4/19/2021
Kent Ct	Bell Pasture Rd	Lennox Ct	33	11,055	83	4/19/2021
Kent Ct	Lennox Ct	Cul De Sac	50	8,600	67	4/19/2021
La Riata Rd	Buckaroo Rd	Cul De Sac	28	7,280	85	4/22/2021
Lemonpeel Rd	Covenant Hills Drive	Christopher St	27	8,532	57	4/19/2021
Lennox Ct	Kent Ct	Cul De Sac	28	13,496	82	4/19/2021
Maremma Ln	Pistoria Ln	Cul De Sac	38	16,340	82	4/20/2021
Michael Rd	Jenny Ln	Emmy Ln	28	7,728	76	4/19/2021
Michael Rd	Emmy Ln	Round About	28	4,060	64	4/19/2021
Michael Rd	Cul De Sac	Jenny Ln	40	10,720	64	4/21/2021
Michael Rd	David St	Cul De Sac	33	17,160	64	4/19/2021
Michael Rd	Round About	Eric St	28	4,760	57	4/19/2021
Michael Rd	Eric St	David St	34	21,318	56	4/19/2021
Mission Ridge Rd	San Luis Obispo St	San Juan Bautista	23	6,440	78	4/21/2021
Mission Ridge Rd	San Juan Bautista	San Jose St	20	5,200	71	4/21/2021
Mission Ridge Rd	Bell Pasture Rd	San Luis Obispo St	23	3,818	63	4/21/2021
Mission Ridge Rd	San Jose St	Cul De Sac	30	8,610	61	4/21/2021
Moonlight Isle	Stellar Isle	Cul De Sac	40	13,720	78	4/19/2021
Oberon Rd	Chianti	Salvatore	26	7,566	74	4/15/2021
Oberon Rd	Harlequin St	Chianti	26	9,594	73	4/15/2021
Oberon Rd	Salvatore	Tuscany	27	7,371	72	4/15/2021
Oberon Rd	Covenant Hills Drive	Harlequin St	33	14,718	71	4/15/2021
Old Coach Rd	Columnar St	Broken Arrow St	25	10,825	78	4/22/2021
Old Coach Rd	Thomas Rd	Columnar St	25	11,500	67	4/22/2021
Old Coach Rd	Sky Ranch Rd	Thomas Rd	24	6,600	63	4/22/2021
Overlook Dr	Sky Ranch Rd	Cul De Sac	30	6,840	82	4/21/2021
Padre Pl	Bell Pasture Rd	Cul De Sac	24	10,656	71	4/21/2021
Paniolo Rd	Buckaroo Rd	Cul De Sac	28	8,008	80	4/22/2021
Pisano St	Sky Ranch Rd	Cul De Sac	34	34,340	81	4/20/2021

Appendix B

Complete Street Listing Current Conditions

Street Name	From	To	Width of Segment (FT)	Area (SF)	Current PCI	Most Recent Inspection Date
Pistoria Ln	Sky Ranch Rd	Maremma Ln	27	3,645	78	4/20/2021
Pistoria Ln	Maremma Ln	Cul De Sac	37	14,430	61	4/20/2021
Pointe Cir	Becker Dr	Rond About	40	9,160	66	5/3/2021
Portalon Ct	Sandalo Ct	Cul De Sac	25	8,575	76	4/22/2021
Portalon Ct	Cul De Sac	Sandalo Ct	26	25,870	61	4/22/2021
Rickle Ln	Thomas Rd	Cul De Sac	24	13,368	55	4/22/2021
Roshelle Ln	Bell Pasture Rd	Jeremiah Ln	33	9,735	79	4/19/2021
Roshelle Ln	Jeremiah Ln	Cul De Sac	35	19,005	71	4/19/2021
Sam St	Ali Ln	Cul De Sac	30	27,030	53	4/19/2021
San Jose St	Mission Ridge Rd	Franciscan Ct	20	4,740	83	4/21/2021
San Jose St	Franciscan Ct	Cul De Sac	24	8,616	63	4/21/2021
San Juan Bautista	Mission Ridge Rd	Cul De Sac	28	7,980	49	4/21/2021
San Luis Obispo St	Mission Ridge Rd	Cul De Sac	25	13,125	90	4/21/2021
Sandalo Ct	Portalon Ct	Cul De Sac	27	13,122	68	4/21/2021
Sandalo Ct	Covenant Hills Drive	Portalon Ct	25	5,625	65	4/21/2021
Shepherd Ct	Covenant Hills Drive	Cul De Sac	35	15,400	80	4/19/2021
Sky Ranch Rd	Catalina Vista Rd	Buckaroo Rd	25	3,925	89	4/20/2021
Sky Ranch Rd	Buckaroo Rd	Overlook Dr	20	5,600	85	4/20/2021
Sky Ranch Rd	Stockmen Rd	Gaucho Rd	28	13,300	82	4/20/2021
Sky Ranch Rd	Covenant Hills Drive	Pistoria Ln	28	5,600	79	4/19/2021
Sky Ranch Rd	Gaucho Rd	Vaquero Rd	25	7,250	77	4/20/2021
Sky Ranch Rd	Pisano St	Stockmen Rd	28	4,144	76	4/19/2021
Sky Ranch Rd	Overlook Dr	Old Coach Rd	21	10,080	71	4/20/2021
Sky Ranch Rd	Vaquero Rd	Catilina Vista Rd	25	9,075	70	4/20/2021
Sky Ranch Rd	Pistoria Ln	Pisano St	28	9,800	70	4/19/2021
Sky Ranch Rd	Old Coach Rd	Cul De Sac	23	11,270	62	4/20/2021
Starlight Isle	Brittlestar Rd	Cul De Sac	35	21,525	73	4/19/2021
Stellar Isle	Moonlight Isle	Cul De Sac	32	11,712	84	4/19/2021
Stellar Isle	Brittlestar Rd	Moonlight Isle	22	4,488	80	4/19/2021
Stockmen Rd	Sky Ranch Rd	Cul De Sac	28	9,380	61	4/22/2021
Thomas Rd	Old Coach Rd	Cul De Sac	45	17,730	58	4/22/2021
Tranquility Pl	Harelequin St	Cul De Sac	35	28,595	75	4/15/2021
Vaquero Rd	Sky Ranch Rd	Cul De Sac	27	10,314	67	4/21/2021
Waltham Rd	Drackert Ln	Cul De Sac	45	26,640	68	4/19/2021

Appendix D

Certifications

GMU
PAVEMENT
ENGINEERING

CERTIFICATE

Of Prequalification

This certificate has been
presented to

Lucie Anderson

for successfully meeting the requirements of the
OCTA 2018-2019 Pavement Inspector Prequalification Program
using MANUAL survey techniques

EXPIRATION DATE:
6.30.2021

www.WestCoastEC.com/OCTA

WEST COAST EC

CERTIFICATE

Of Prequalification

This certificate has been
presented to

Ali Zalghout

for successfully meeting the requirements of the
OCTA 2019-2020 Pavement Inspector Prequalification Program
using MANUAL survey techniques

EXPIRATION DATE:
6.30.2022

www.WestCoastEC.com/OCTA

WEST COAST EC