



Final Report
2021/2022 Pavement Management Program Update
Trinidad Rancheria

February 2023



Richmond, CA

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Trinidad Rancheria

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Final Report
2022 Pavement Management Program Update
Trinidad Rancheria

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Prepared for:

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Executive Summary

The Humboldt County Association of Governments (HCAOG) is a Joint Powers Agency composed of the seven incorporated cities (Arcata, Blue Lake, Eureka, Ferndale, Fortuna, Rio Dell, Trinidad), and the County of Humboldt along with some tribes and rancherias. It is the designated Regional Transportation Planning Agency (RTPA) as well as the Service Authority for Freeway Emergencies (SAFE). As a part of this process, in 2021, HCAOG acquired the services of an engineering consultant, Nichols Consulting Engineers, Chtd. (NCE), to provide professional and technical services preparing pavement management program (PMP) updates for the county, the cities and tribes/rancherias under HCOAG.

This report summarizes the results of the 2022 update for the Trinidad Rancheria and its purpose is to help educate policy makers about the current condition of the pavement network and the impact of various funding scenarios on future network condition.

The Trinidad Rancheria's pavement network consists of 22.9 centerline miles of roads, which represents an investment of approximately \$30.5 million. In 2022, NCE collected pavement condition data using the Metropolitan Transportation Commission's (MTC) modified ASTM survey procedures. The survey data were entered into the StreetSaver[®] database, which Trinidad Rancheria uses as a PMP decision-support tool.

Overall, the rancheria's pavement network is currently in the "Fair" condition limit with an average pavement condition index (PCI) of 50. Approximately 20.6 percent of the network is in "Good" condition while 44.7 percent is in "Poor" or "Failed" condition.

Table of Contents

1	Introduction and Background	1
2	Pavement Condition	3
3	Network Summary	5
3.1	Rancheria’s Pavement Condition Index	6
3.2	Rancheria’s Network Condition Breakdown	6
3.3	PCI Comparison with Neighboring Agencies	7
4	Maintenance and Rehabilitation Strategies	9
5	Budget Analyses	10
5.1	Budget Needs Analysis	11
6	Conclusion and Recommendations	12

List of Figures

Figure 1.	Examples of Roads with Different PCIs	3
Figure 2.	Network Condition Breakdown by Functional Classification.....	6
Figure 3.	Comparison of Network PCI to Other HCAOG Agencies.....	7
Figure 4.	Comparison of Network PCI to Other HCAOG Tribes/Rancherias	8
Figure 5.	Costs of Maintaining Pavements Over Time	9

List of Tables

Table 1.	Network Summary Statistics	5
Table 2.	Pavement Condition Breakdown by Functional Class	7
Table 3.	Summary Results for Budget Needs Analysis	11

List of Appendices

Appendix A

Section Description Inventory

Appendix B

Maintenance and Rehabilitation Decision Tree

Appendix C

Budget Need Analysis Results

1 Introduction and Background

In 2021, the Humboldt County Association of Governments (HCAOG) solicited interest among its member agencies in participating in a collaborative region-wide pavement management program (PMP) update for the cities and the county. During North Coast Tribal Transportation Commission meeting in July 2022, the agencies have agreed to move forward with additional work of creating a separate database of tribal network system which would have the inventory of roads maintained by the tribes and rancherias. To complete the PMS update of tribal network, the scope of work included creating new StreetSaver[®] database, conducting inspections, updating decision tree, running budget need analysis and summarizing results.

The engineering consultant acquired to provide professional and technical services for the PMP updates in the Humboldt region was Nichols Consulting Engineers, Chtd. (NCE). The participating member agencies included the Cities of Arcata, Blue Lake, Eureka, Ferndale, Fortuna, Rio Dell, Trinidad, and the County of Humboldt and tribes/rancherias under HCAOG.

In general, PMPs are “designed to provide objective information and useful data for analysis so that managers can make more consistent, cost effective, and defensible decisions related to the preservation of a pavement network.”¹

The goals of the 2022 update were to:

- Create new StreetSaver^(R) Database
- Perform pavement condition surveys,
- Update the maintenance and rehabilitation decision tree and associated costs,
- Perform analyses and determine funding needs, and
- Prepare a final PMP report documenting the results of the update.

NCE worked with MTC to create a new StreetSaver^(R) database for all tribes/rancherias. Information related to tribal roads which are overlapped in the County’s database was extracted to the new database. The overlapped tribal roads in the County’s database were not further inspected as they were surveyed in June 2022 as a part of 2022 HCAOG PMP update. To update the remaining network of the tribes/rancherias, NCE performed walking surveys using the Metropolitan

¹ AASHTO “Guidelines for Pavement Management Systems”. American Association of State Highway and Transportation Officials, Washington, DC, July 1990.

Transportation Commission's (MTC) modified² ASTM D6433³ survey procedures. Walking surveys were performed by one or two-person crews to record all pavement distresses on all residential/local roads. The surveys did not include non-pavement issues such as traffic, safety and road hazards, geometric issues, shoulders, sidewalks, curb and gutters, drainage issues, or immediate maintenance needs. All survey data were entered into the Tribe's StreetSaver[®] database, and pavement condition index (PCI) calculations were performed. NCE then met with agency staff and reviewed and updated the decision tree including maintenance and rehabilitation (M&R) strategies and treatment unit costs. A budget needs analysis was then performed for the road network.

This report answers the following questions for the Trinidad Rancheria:

- What does the tribal pavement network include?
- What is the current condition of the pavement network?
- What are the current M&R strategies?
- How much funding is required to perform all needed M&R treatments over the next ten years?

² PCI Distress Identification Manuals (AC 4th Edition, PCC 3rd Edition), Metropolitan Transportation Commission, San Francisco, CA March 2016.

³ ASTM D6433-18 Standard Practice for Roads and Parking Lots Pavement Condition Index Surveys, ASTM International, West Conshohocken, PA, 2018, www.astm.org.

2 Pavement Condition

Pavement condition is typically quantified using the pavement condition index (PCI), which ranges from 100 (best) to 0 (worst). Pavement condition is affected by the environment, traffic loads and volumes, construction materials, and age. Figure 1 shows examples of roads with varying PCIs.

The PCI scale is divided into four general condition categories. Pavements in "Good" condition have a PCI above 70, pavements in "Fair" condition have a PCI between 50 and 69, pavements in "Poor" condition have a PCI between 25 and 49, and finally pavements in "Failed" condition have a PCI below 25.



Figure 1. Examples of Roads with Different PCIs

A list of all sections in the network along with their attributes, including the PCI at the time of last inspection, is provided in Appendix A. For convenience, two versions are provided – one sorted alphabetically by road name and the other sorted by descending PCI.

3 Network Summary

The Trinidad Rancheria is responsible for maintaining approximately 22.9 centerline miles of roads (or 38 pavement sections) which includes 20.6 centerline miles under County's Indian Road Reservation (IRR) list. The network is composed mostly of asphalt concrete (AC) pavement and surface treated pavements. Table 1 summarizes the road network by functional classification.

Table 1. Network Summary Statistics

Functional Class	Number of Sections	Centerline Miles	Lane Miles	Network Area (%)
Collectors	5	4.9	9.9	22.2
Rural Major Collector	2	2.7	5.3	11.9
Rural Minor Collector	7	6.1	12.1	29.1
Residential	24	9.2	18.3	36.8
Total	38	22.9	45.6	100

The road network replacement cost is estimated to be approximately \$30.5 million. This can be viewed as the value of the pavement network and is the amount needed to fund a reconstruction of the entire paved network.

It does not include related infrastructure assets such as sidewalks, signals, markings, signs, or storm drains.

3.1 RANCHERIA'S PAVEMENT CONDITION INDEX

The current average PCI for Trinidad Rancheria's network is 50. This value is an area-weighted calculation performed in StreetSaver® and is based on the condition survey performed in 2022.

3.2 RANCHERIA'S NETWORK CONDITION BREAKDOWN

Figure 2 breaks down the current road network PCI by functional classification. The average pavement condition for arterials is a PCI of 45, rural major collectors have a PCI of 60, rural minor collectors have a PCI of 45, while the average PCIs for residential is 55. Table 2 summarizes the road network by condition category and functional classification. Approximately, 55.3 percent of the network is under "Good" to "Fair" condition.

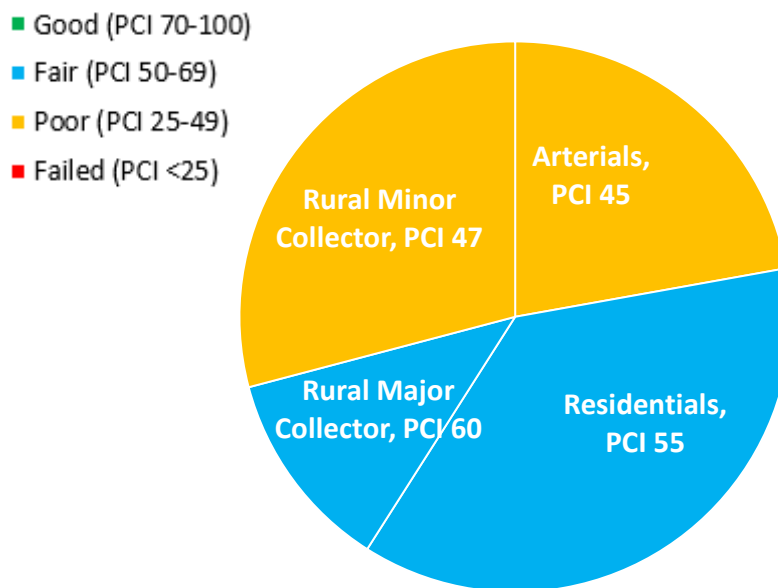


Figure 2. Network Condition Breakdown by Functional Classification

Table 2. Pavement Condition Breakdown by Functional Class

Condition Category	PCI Range	Arterials (%)	Rural Major Collector (%)	Rural Minor Collector (%)	Residentials (%)	Entire Network (%)
Good	70-100	0.0	1.7	0.0	18.9	20.6
Fair	50-69	4.7	10.2	17.1	2.7	34.7
Poor	25-49	12.3	0.0	11.0	9.4	32.7
Failed	<25	5.2	0.0	1.0	5.8	12.0
Total	-	22.2	11.9	29.1	36.8	100.0

3.3 PCI COMPARISON WITH NEIGHBORING AGENCIES

Figure 3 shows the average network PCI of all cities and county, and Figure 4 shows a comparison of Trinidad Rancheria to the other HCAOG tribes as well as the statewide average PCI from the 2020 California Statewide Local Streets and Roads Needs Assessment⁴. As illustrated, the Rancherias’s average network PCI is the second lowest compared to other HCAOG tribes.

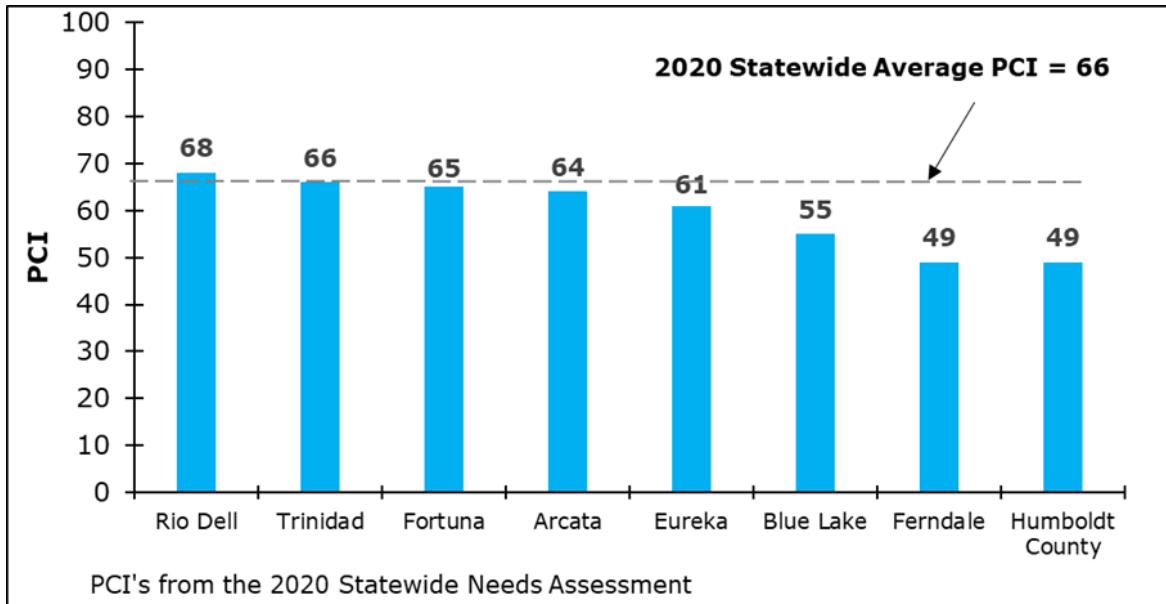


Figure 3. Comparison of Network PCI to Other HCAOG Agencies

⁴ "California Statewide Local Streets and Roads Needs Assessment 2020 Update". Nichols Consulting Engineers, Chtd., CA, 2021.

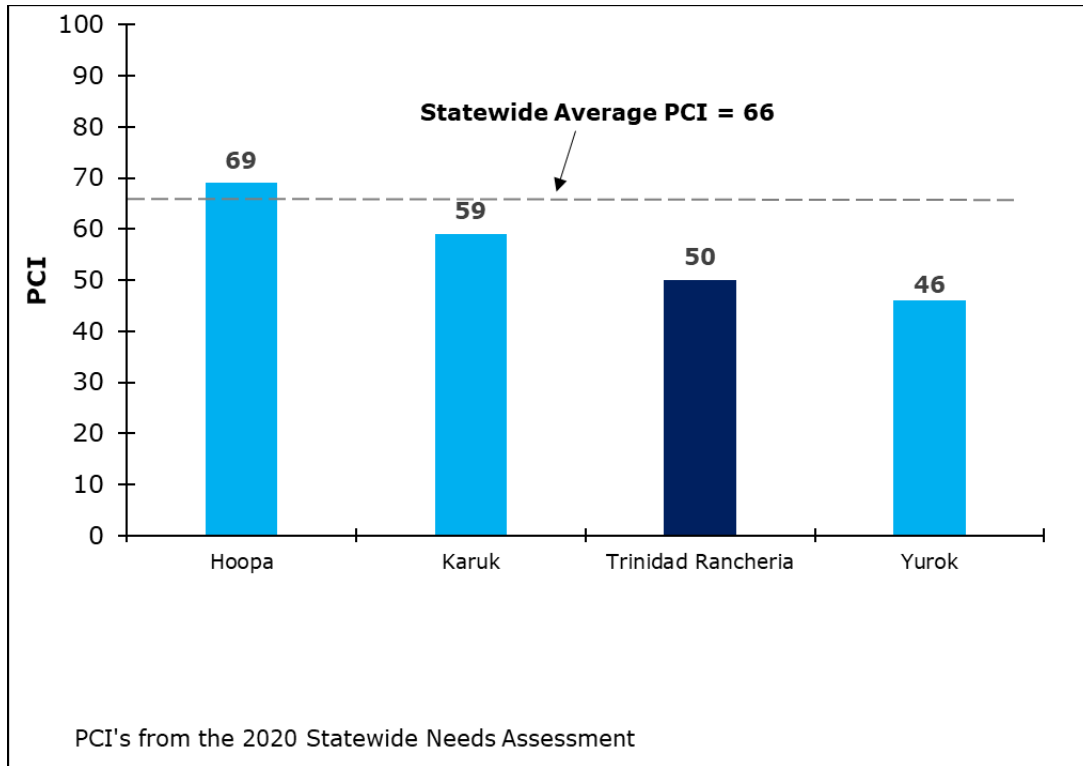


Figure 4. Comparison of Network PCI to Other HCAOG Tribes/Rancherias

4 Maintenance and Rehabilitation Strategies

The Rancheria’s current M&R strategies include cost-effective preventive treatments. In general, crack seals or slurry seals will be applied to pavements in “Good” condition; pavements in “Fair” condition will receive a slurry seal or a chip seal; pavements in “Poor” and “Failed” condition will receive thick mill and HMA overlay. The Rancheria’s M&R strategies are formalized into a decision tree⁵ (presented in Appendix B), which is instrumental in performing the budget needs analysis and budget scenarios.

Experience and research have shown that it costs much less to maintain pavement in good condition than to repair pavement that has already failed. Figure 5 shows treatment unit cost for residential. As shown in Figure 5, by allowing pavements to deteriorate, roads that once cost \$5.25/square yard (SY) to seal may soon cost \$49 to overlay. In other words, delaying repairs can significantly increase M&R costs. Note that a slurry seal can be placed on approximately 9 times as many lane miles as those requiring reconstruction.

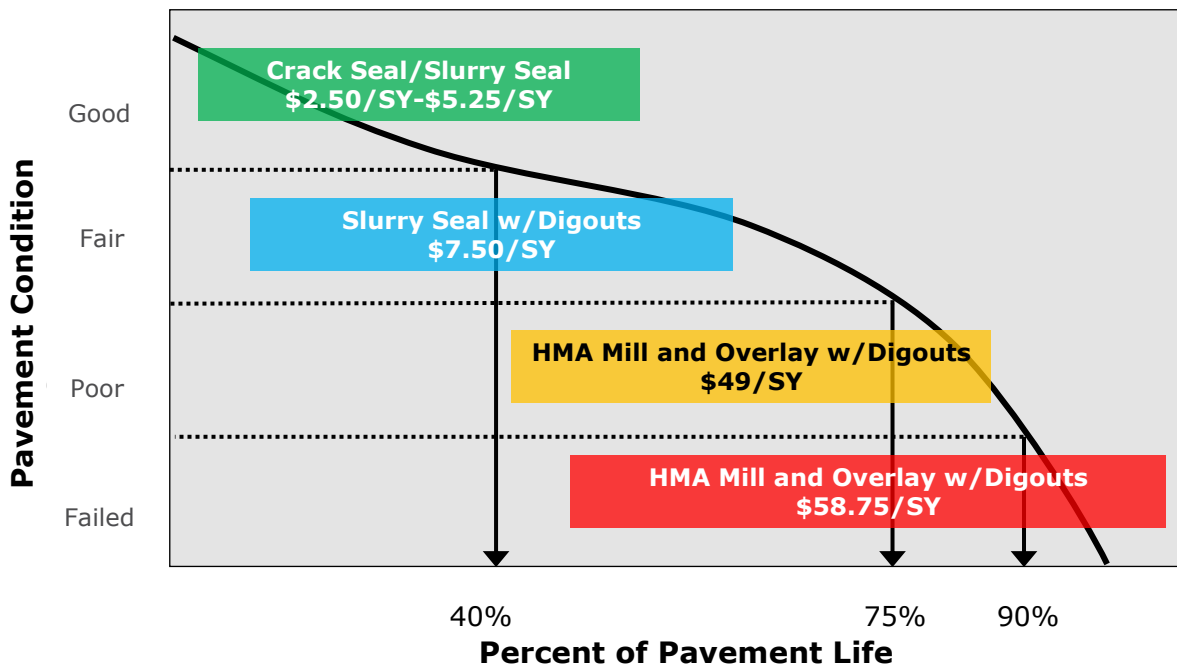


Figure 5. Costs of Maintaining Pavements Over Time

⁵ Note: The StreetSaver® “Maintenance and Rehabilitation Decision Tree” divides the “Fair” condition category to separate pavements with primarily non-load-related distresses (e.g., longitudinal cracking) from those with load-related distresses (e.g., fatigue cracking).

5 Budget Analyses

Based on the principle that it costs less to maintain roads in good condition than it does to repair those that have failed, cost-effective PMPs employ strategies that eliminate the deferred maintenance⁶ and then maintain the network with on-going preventive maintenance. Such strategies bring the network condition to an optimal PCI that can be maintained over time.

The first step in developing such a cost-effective strategy is to determine the total maintenance budget needs of the network.

The budget needs analysis in the following subsections. The detailed results of the budget needs analysis are provided in Appendix C.

⁶ Deferred maintenance is M&R not performed due to insufficient funding.

5.1 BUDGET NEEDS ANALYSIS

The total budget needs for the network represents the cost associated with performing M&R treatments at the optimal time – optimal meaning the PCI is maximized and the cost is minimized – over the analysis period. This was done by performing a budget needs analysis in StreetSaver® with an inflation rate of four percent for an analysis period of ten years.

The results of the budget needs analysis are presented in Table 3. The total budget needs for Trinidad Rancheria for the next ten years is estimated to be \$15.4 million. Of the total budget needs, approximately \$3.9 million (25.4 percent) is devoted to preventive maintenance, while the rest is allocated for more costly rehabilitation and reconstruction treatments.

Table 3. Summary Results for Budget Needs Analysis

Year	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	Total
Budget Needs (\$M)	6.1	0.7	2.5	2.0	1.6	0.0	0.3	0.5	1.2	0.5	15.4
Treated PCI	73	75	75	82	81	78	77	79	84	79	NA
Untreated PCI	50	47	43	40	37	33	30	27	24	21	NA

If Trinidad Rancheria follows this ideal, cost-effective strategy, the average network PCI will immediately increase as a large amount of deferred maintenance is addressed in the first year, and then stabilize in the high-70s low 80s. This type of budget, that addresses all the deferred maintenance in the first year, is known as front-loaded. Alternatively, if no maintenance is performed over the next ten years, the network PCI will drop to 21 by 2032.

6 Conclusion and Recommendations

In summary, the Trinidad Rancheria has a substantial investment of \$30.5 million in the pavement network. Overall, the Rancheria's roads are within the limit of "Fair" bordering "Poor" condition with a 2022 average network PCI of 50. Approximately 20.6 percent of the road network is in "Good" condition and 44.7 percent is in "Poor" or "Failed" condition.

The analyses indicate that the Rancheria needs to spend approximately \$15.4 million on maintenance and rehabilitation over the next ten years to optimally repair all pavement sections, thus bringing the network into a condition that can be maintained with on-going preventive maintenance. In the long run, this strategy will save the Rancheria money by preventing future pavement deterioration to levels requiring rehabilitation or reconstruction.

Based on the data collected and the scenarios analyzed and presented in this report, NCE offers the following recommendations.

1. **Funding** - The primary goal of PMPs should be to offer users a safe and functional pavement network without unduly increasing the maintenance burden in the future. With that in mind, the recommended scenario for the Trinidad Rancheria is to allocate enough funding to reduce deferred maintenance and preserve the pavements in good condition. Having a strategy to balance preventive maintenance and rehabilitation will gradually improve the overall network PCI, increase the portion of the network in "Good" condition, decrease the portion of the network in "Poor" and "Failed" condition, and decrease to deferred.

To address the gap between the Rancheria's existing funding and the recommended scenario, NCE recommends The Rancheria pursue additional funding sources. Potential sources include:

Federal Funding Sources

- Bipartisan Infrastructure Investment and Jobs Act (IIJA)
- Regional Surface Transportation Program (RSTP)
- Surface Transportation Program (STP)
- Congestion Mitigation and Air Quality Improvement Program (CMAQ)
- Community Development Block Grants (CDBG)
- Highway Safety Improvement Program (HSIP)
- Federal Emergency Management Agency (FEMA)

State Funding Sources

- Active Transportation Program (ATP), which now includes the Bicycle Transportation Account (BTA) and Safe Routes to Schools (SR2S)
- State Transportation Improvement Program (STIP)

- AB 2766 (vehicle surcharge)
- Vehicle License Fees (VLF)
- CalRecycle grants
- State Water Resource Control Board
- Transportation Development Act (TDA)
- Traffic Safety Fund
- Transportation Uniform Mitigation Fee (TUMF)

Local/Regional Funding Sources

- Sales tax measures (Measure L)
 - Development impact fees
 - General funds
 - Various assessment districts (lighting, maintenance, flood control, community facilities)
 - Traffic impact fees
 - Utilities (e.g., stormwater, water, wastewater enterprise funds)
 - Parcel/property taxes
 - Vehicle registration fees
 - Vehicle code fines
2. **Pavement Management Strategies** – Only 20.6 percent of the Rancheria’s roads are currently in “Good” condition, it is important to maintain that condition to the extent possible. Preservation occurs when roads with PCIs higher than 70 receive treatments such as surface seals (slurry, chip, microsurfacing, etc.). Seals are relatively inexpensive treatments that prevent moisture ingress and thus preserve the integrity of the underlying base material. NCE recommends that Trinidad Rancheria balance preventive maintenance with rehabilitation and reconstruction projects to preserve pavements in “Good” condition, improve pavements in “Poor” condition, and avoid increasing the deferred maintenance.
 3. **Reinspection Strategies** – In order to make appropriate management decisions based on current data, NCE recommends that Trinidad Rancheria perform condition inspections on arterials and collectors every 2 years and on residential at least every 4 to 5 years. Additionally, since StreetSaver® and other prediction models do not yet take into account the effect of specialized materials such as asphalt-binders with rubber or polymers, the actual performance of the pavements may not be fully captured in the analysis models. For this additional reason, NCE recommends regular pavement condition surveys to ensure model accuracy and relevance.
 4. **M&R Decision Tree** – NCE recommends that Trinidad Rancheria annually review and update the M&R treatment strategies and associated unit costs to reflect current construction techniques and changing costs. This will ensure

that the results for the budget analyses are reliable and as accurate as possible.

Appendix A

SECTION DESCRIPTION INVENTORY

Section Description Inventory Report

This report lists a variety of section description information for each of the pavement sections under tribal network. It lists the road and section identifiers, limits, number of lanes, functional class, surface type, length, width, area, Inspected PCI, and PCI date.

All of the pavement sections are included in the report. Two versions of the report are provided. The first is sorted alphabetically by Road Name and Section ID and the second report is sorted by descending PCI. The field descriptions in this report are listed below:

COLUMN	DESCRIPTION
Street ID	Street Identification - A code up to ten characters/digits to identify the street. Generally, the street name is truncated to six characters. The Street ID should be unique for each street.
Section ID	Section Identification - A code up to ten characters/digits to identify the section number. The Section ID must be unique for each section of one street.
Street Name	Street Name - The name of the street as indicated by street signs in the field.
Begin Location	Beginning limit of the section.
End Location	Ending limit of the section.
# of Lanes	Number of travel lanes.
Functional Class (FC)	Functional Classification: L (Local), MaC/MiC (Major/Minor Collector), MiA/OPA (Minor/Other Principle Arterial), NCR (Non-County Road), RL/RMaC/RMiC/RMiA (Rural Local/Major Col/Minor Col/Minor Arterial)
Length (ft)	Length of the section in feet.
Width (ft)	Average width of the section in feet.
Area (sf)	Area of section in square feet.
Surface Type (ST)	Surface Type: A = Asphalt Concrete, G = Gravel, S = Surface Treated
PCI Date	The last inspection date or rehabilitation date.
PCI	Average PCI for the section. The value is based on the last inspection.

Section Description Inventory – Sorted by Road Name

Trinidad Rancheria - 2022 PMP Update
Section Description Inventory
Sorted by Road Name

Street ID	Section ID	Road Name	Begin Location	End Location	No. of Lanes	Functional Class	Surface Type	Length (ft)	Width (ft)	Area (sf)	County's IRR List	PCI Date	PCI
T-ARCHRD	010	ARCHER ROAD	DOWS PRAIRIE RD	LA RAY	2	Residential	AC	1,677	16	26,832	NO	11/22/2022	23
CENTAV	020	CENTRAL AVENUE	MM 4.25	MM 3.5	2	Arterial	AC	4,845	22	106,590	YES	5/13/2022	44
CENTAV	010	CENTRAL AVENUE	MM 5.0	MM 4.25/PAVEMENT CHANGE	2	Arterial	AC	3,864	28	108,192	YES	5/13/2022	40
T-CHERLN	010	CHERAE LANE	SCENIC DR	MA-WE-MOR LN	2	Residential	AC	788	28	22,064	NO	11/22/2022	84
CRANRD	010	CRANNEL ROAD	LITTLE RIV DR	MM 1.27	2	Residential	ST	6,723	19	127,737	YES	5/31/2022	17
DOPRRD	030	DOWS PRAIRIE ROAD	MM 1.12	STRAWBERRY CREEK	2	Rural Major Collector	ST	1,584	28	44,352	YES	5/13/2022	80
DOPRRD	010	DOWS PRAIRIE ROAD	STRAWBERRY CREK	CRANNEL RD	2	Rural Major Collector	ST	12,461	22	274,142	YES	5/13/2022	63
GRAGRD	010	GRANGE ROAD	CENTRAL AV	DOWS PRAIRIE RD	2	Residential	ST	1,280	27	34,560	YES	5/31/2022	77
GRANRD	010	GRANGE ROAD	FRESHWATER RD	END	2	Residential	ST	1,320	14	18,480	YES	6/19/2022	30
T-KAWILN	010	KAY WIN LANE	TEH PAH LANE	SOUTH END	2	Residential	AC	185	21	3,885	NO	11/22/2022	73
T-LARALN	010	LA RAY LANE	ARCHER ROAD	END	1	Residential	ST	612	12	7,344	NO	11/22/2022	28
LIRIDR	010	LITTLE RIVER DRIVE	CENTRAL AV	END	2	Residential	ST	3,612	24	86,688	YES	5/31/2022	45
T-MAWMLN	010	MA-WE-MOR LANE	CHER-AE- LANE	WEST END	2	Residential	AC	642	40	25,680	NO	11/22/2022	41
T-PAPALN	010	PA-PAH LANE	CHER-AE-LANE	NORTH END	2	Residential	AC	435	26	11,310	NO	11/22/2022	32
PAPODR	030	PATRICKS POINT	MM 2.23	TRND	2	Rural Minor Collector	ST	17,318	25	432,950	YES	5/13/2022	53
PAPODR	020A	PATRICKS POINT	MM 1.70	MM 2.0	2	Rural Minor Collector	AC	1,584	22	34,848	YES	5/13/2022	45
PAPODR	010B	PATRICKS POINT	MM 1.0	MM 1.7	2	Rural Minor Collector	AC	3,696	25	92,400	YES	5/13/2022	40
PAPODR	010A	PATRICKS POINT	SH101	MM 1.0	2	Rural Minor Collector	AC	5,280	25	132,000	YES	5/13/2022	35
PAPODR	020B	PATRICKS POINT	MM 2.0	2.23	2	Rural Minor Collector	AC	1,214	22	26,708	YES	5/13/2022	27
T-PISHCT	010	PISHKA COURT	ARCHER RD	END	2	Residential	AC	502	24	12,048	NO	11/22/2022	58
T-SCENDR	010	SCENIC DRIVE	TRIBAL LAND SIGN NORTH	TRABAL LAND SIGN SOUTH	2	Residential	AC	2,034	24	48,816	NO	11/22/2022	76
STAGRD	010B	STAGECOACH ROAD	MM 1.5	TRND	2	Residential	ST	4,805	18	86,490	YES	6/1/2022	79
STAGRD	010A	STAGECOACH ROAD	PATRICKS PT DR	MM 1.5	2	Residential	ST	7,920	18	142,560	YES	6/1/2022	78
T-TEPALN	010	TEH PAH LANE	WEST HAVEN	WEST END	2	Residential	AC	503	21	10,563	NO	11/22/2022	68
T-TEKCLN	010	TER-KER-COO LANE	CHER-AE-LANE	END	2	Residential	AC	483	15	7,245	NO	11/22/2022	46
TRSCDR	030	TRINIDAD SCENIC	END	MP 0.95	2	Residential	ST	5,016	20	100,320	YES	6/1/2022	84
TRSCDR	080	TRINIDAD SCENIC	MM 2.06	IR BDRY	2	Residential	ST	1,172	20	23,440	YES	6/1/2022	75
TRSCDR	010	TRINIDAD SCENIC	TRND	TRND	2	Rural Minor Collector	AC	1,214	22	26,708	YES	5/13/2022	68
TRSCDR	040	TRINIDAD SCENIC	MP 0.95	MM 1.54	2	Residential	ST	3,115	16	49,840	YES	6/1/2022	57
TRSCDR	020	TRINIDAD SCENIC	IR BDRY	TRND	2	Rural Minor Collector	AC	1,637	22	36,014	YES	5/13/2022	45
TRSCDR	060	TRINIDAD SCENIC	MM 1.62	MM 1.98	2	Residential	AC	1,901	20	38,020	YES	6/1/2022	38
T-TWGO	010	TWE-GOH - T-TWGO	ARCHER ROAD	END	2	Residential	AC	336	24	8,064	NO	11/22/2022	74
T-WARARD	010	WA-RAY ROAD	SCENIC DR	MA-WE-MOR LN	1	Residential	AC	246	10	2,460	NO	11/22/2022	4
T-WESHDR	010	WESTHAVEN DRIVE	RAVENRIDGE	TEH PAH	2	Residential	AC	1,282	28	35,896	NO	11/22/2022	85
T-WESHDR	020	WESTHAVEN DRIVE	TEH PAH	FOR FARM RD	2	Residential	AC	2,095	28	58,660	NO	11/22/2022	33
WESTDR	030	WESTHAVEN DRIVE	TEH PAH LN	SH 101	2	Arterial	AC	5,770	22	126,940	YES	5/13/2022	55
WESTDR	010	WESTHAVEN DRIVE	SCENIC DR	PAVE CHANGE	2	Arterial	AC	5,226	22	114,972	YES	5/13/2022	48
WESTDR	020	WESTHAVEN DRIVE	357FT NORTH OF OLD WAGON RD	TEH PAH LN	2	Arterial	AC	6,300	22	138,600	YES	5/13/2022	26

Section Description Inventory – Sorted by Descending PCI

Trinidad Rancheria - 2022 PMP Update
Section Description Inventory
Sorted by Descending PCI

Street ID	Section ID	Road Name	Begin Location	End Location	No. of Lanes	Functional Class	Surface Type	Length (ft)	Width (ft)	Area (sf)	County's IRR List	PCI Date	PCI
T-WESHDR	010	WESTHAVEN DRIVE	RAVENRIDGE	TEH PAH	2	Residential	AC	1,282	28	35,896	NO	11/22/2022	85
T-CHERLN	010	CHERAE LANE	SCENIC DR	MA-WE-MOR LN	2	Residential	AC	788	28	22,064	NO	11/22/2022	84
TRSCDR	030	TRINIDAD SCENIC	END	MP 0.95	2	Residential	ST	5,016	20	100,320	YES	6/1/2022	84
DOPRRD	030	DOWS PRAIRIE ROAD	MM 1.12	STRAWBERRY CREEK	2	Rural Major Collector	ST	1,584	28	44,352	YES	5/13/2022	80
STAGRD	010B	STAGECOACH ROAD	MM 1.5	TRND	2	Residential	ST	4,805	18	86,490	YES	6/1/2022	79
STAGRD	010A	STAGECOACH ROAD	PATRICKS PT DR	MM 1.5	2	Residential	ST	7,920	18	142,560	YES	6/1/2022	78
GRAGRD	010	GRANGE ROAD	CENTRAL AV	DOWS PRAIRIE RD	2	Residential	ST	1,280	27	34,560	YES	5/31/2022	77
T-SCENDR	010	SCENIC DRIVE	TRIBAL LAND SIGN NORTH	TRABAL LAND SIGN SOUTH	2	Residential	AC	2,034	24	48,816	NO	11/22/2022	76
TRSCDR	080	TRINIDAD SCENIC	MM 2.06	IR BDRY	2	Residential	ST	1,172	20	23,440	YES	6/1/2022	75
T-TWGO	010	TWE-GOH - T-TWGO	ARCHER ROAD	END	2	Residential	AC	336	24	8,064	NO	11/22/2022	74
T-KAWILN	010	KAY WIN LANE	TEH PAH LANE	SOUTH END	2	Residential	AC	185	21	3,885	NO	11/22/2022	73
T-TEPALN	010	TEH PAH LANE	WEST HAVEN	WEST END	2	Residential	AC	503	21	10,563	NO	11/22/2022	68
TRSCDR	010	TRINIDAD SCENIC	TRND	TRND	2	Rural Minor Collector	AC	1,214	22	26,708	YES	5/13/2022	68
DOPRRD	010	DOWS PRAIRIE ROAD	STRAWBERRY CREK	CRANNEL RD	2	Rural Major Collector	ST	12,461	22	274,142	YES	5/13/2022	63
T-PISHCT	010	PISHKA COURT	ARCHER RD	END	2	Residential	AC	502	24	12,048	NO	11/22/2022	58
TRSCDR	040	TRINIDAD SCENIC	MP 0.95	MM 1.54	2	Residential	ST	3,115	16	49,840	YES	6/1/2022	57
WESTDR	030	WESTHAVEN DRIVE	TEH PAH LN	SH 101	2	Arterial	AC	5,770	22	126,940	YES	5/13/2022	55
PAPODR	030	PATRICKS POINT	MM 2.23	TRND	2	Rural Minor Collector	ST	17,318	25	432,950	YES	5/13/2022	53
WESTDR	010	WESTHAVEN DRIVE	SCENIC DR	PAVE CHANGE	2	Arterial	AC	5,226	22	114,972	YES	5/13/2022	48
T-TEKCLN	010	TER-KER-COO LANE	CHER-AE-LANE	END	2	Residential	AC	483	15	7,245	NO	11/22/2022	46
LIRIDR	010	LITTLE RIVER DRIVE	CENTRAL AV	END	2	Residential	ST	3,612	24	86,688	YES	5/31/2022	45
PAPODR	020A	PATRICKS POINT	MM 1.70	MM 2.0	2	Rural Minor Collector	AC	1,584	22	34,848	YES	5/13/2022	45
TRSCDR	020	TRINIDAD SCENIC	IR BDRY	TRND	2	Rural Minor Collector	AC	1,637	22	36,014	YES	5/13/2022	45
CENTAV	020	CENTRAL AVENUE	MM 4.25	MM 3.5	2	Arterial	AC	4,845	22	106,590	YES	5/13/2022	44
T-MAWMLN	010	MA-WE-MOR LANE	CHER-AE- LANE	WEST END	2	Residential	AC	642	40	25,680	NO	11/22/2022	41
CENTAV	010	CENTRAL AVENUE	MM 5.0	MM 4.25/PAVEMENT CHANGE	2	Arterial	AC	3,864	28	108,192	YES	5/13/2022	40
PAPODR	010B	PATRICKS POINT	MM 1.0	MM 1.7	2	Rural Minor Collector	AC	3,696	25	92,400	YES	5/13/2022	40
TRSCDR	060	TRINIDAD SCENIC	MM 1.62	MM 1.98	2	Residential	AC	1,901	20	38,020	YES	6/1/2022	38
PAPODR	010A	PATRICKS POINT	SH101	MM 1.0	2	Rural Minor Collector	AC	5,280	25	132,000	YES	5/13/2022	35
T-WESHDR	020	WESTHAVEN DRIVE	TEH PAH	FOR FARM RD	2	Residential	AC	2,095	28	58,660	NO	11/22/2022	33
T-PAPALN	010	PA-PAH LANE	CHER-AE-LANE	NORTH END	2	Residential	AC	435	26	11,310	NO	11/22/2022	32
GRANRD	010	GRANGE ROAD	FRESHWATER RD	END	2	Residential	ST	1,320	14	18,480	YES	6/19/2022	30
T-LARALN	010	LA RAY LANE	ARCHER ROAD	END	1	Residential	ST	612	12	7,344	NO	11/22/2022	28
PAPODR	020B	PATRICKS POINT	MM 2.0	2.23	2	Rural Minor Collector	AC	1,214	22	26,708	YES	5/13/2022	27
WESTDR	020	WESTHAVEN DRIVE	357FT NORTH OF OLD WAGON RD	TEH PAH LN	2	Arterial	AC	6,300	22	138,600	YES	5/13/2022	26
T-ARCHRD	010	ARCHER ROAD	DOWS PRAIRIE RD	LA RAY	2	Residential	AC	1,677	16	26,832	NO	11/22/2022	23
CRANRD	010	CRANNEL ROAD	LITTLE RIV DR	MM 1.27	2	Residential	ST	6,723	19	127,737	YES	5/31/2022	17
T-WARARD	010	WA-RAY ROAD	SCENIC DR	MA-WE-MOR LN	1	Residential	AC	246	10	2,460	NO	11/22/2022	4

Appendix B

MAINTENANCE AND REHABILITATION DECISION TREE

Maintenance and Rehabilitation (M&R) Decision Tree

This report presents the current maintenance and rehabilitation decision tree that exists in the database. The decision tree forms the basis for all of the budgetary computations included in this report. ***Changes to the decision tree will make the results in the budget reports invalid.*** All pavement treatment unit costs relevant to the road types in the database were updated.

The decision tree lists the treatments and costs selected for preventive maintenance and rehabilitation activities. Each line represents a specific combination of functional classification and surface type.

The preventive maintenance portion of the report is identified as Condition Category I – Very Good. All preventive maintenance treatment listings are assigned only to sections in Condition Category I where the $PCI \geq 70$. Sections with PCI values less than 70 are assigned to treatments listed in Categories II through V.

In the preventive maintenance category ($PCI \geq 70$), a time sequence is used to identify the appropriate treatment and cost. Each preventive maintenance treatment description consists of three parts: 1) a CRACK treatment, 2) a SURFACE treatment, and 3) a RESTORATION treatment. These three parts allow the user to specify one of three different preventive maintenance treatments depending on the prior maintenance history of the section.

1. The CRACK treatment part can be used to specify the most frequent type of preventive maintenance activity planned (typically crack seals).
2. The SURFACE treatment part can be used to specify more extensive and less frequent preventive maintenance activities, such as chip seals or slurry seals. For example, a crack seal can be specified on a 3-year cycle with a slurry seal specified after 5 years.
3. The RESTORATION part can be used to specify a surface restoration treatment (such as an overlay) to be performed after a specified number of surface treatments. For example, after a certain number of successive slurry seals, an overlay can be specified instead of another slurry seal.

Rehabilitation treatments are assigned to sections in Condition Categories II through V (PCI less than 70). Each line is defined by a specific combination of functional classification, surface type, and condition category.

COLUMN	DESCRIPTION
Functional Class	Functional Classification identifying the branch
Surface	Surface Type identifying the branch number.
Condition Category	Condition Category (I through V).
Treatment Type	First Row (Crack Treatment) indicates localized treatment (e.g. crack sealing). Second Row (Surface Treatment) indicates surface treatment (e.g. slurry sealing). Third Row (Restoration Treatment) indicates surface restoration (e.g. overlay).
Treatment	Name of treatments from the "Treatment Descriptions" report.
Yrs. Between Crack Seals	First Row - number of years between successive treatment applications specified in the first row (i.e. CRACK treatment).



COLUMN	DESCRIPTION
Yrs. Between Surface Seals	Second Row - number of years between successive treatment applications specified in the second row (i.e. SURFACE treatment).
Number of Sequential Seals	Number of times that the treatment application in the second row (i.e. SURFACE treatment) will be performed prior to performing the treatment application in the third row.

Note that the treatments assigned to each section should not be blindly followed in preparing a road maintenance program. Engineering judgment and project level analysis should be applied to ensure that the treatment is appropriate and cost effective for the section.



Decision Tree

Printed: 1/24/2023



Functional Class	Surface	Condition Category	Treatment Type	Treatment	Cost/Sq Yd, except Seal Cracks in LF:	Yrs Between Crack Seals	Yrs Between Surface Seals	# of Surface Seals before Overlay
Arterial	AC	I - Very Good	Crack Treatment	SEAL CRACKS	\$2.50	3		
			Surface Treatment	SLURRY SEAL	\$5.50		6	
			Restoration Treatment	DO NOTHING	\$0.00			99
		II - Good, Non-Load Related		SLURRY SEAL W/DIGOUTS	\$9.88		6	
		III - Good, Load Related		CHIP SEAL W/DIGOUTS	\$12.75		6	
		IV - Poor		2.5" MILL AND OVERLAY W/DIGOUTS	\$79.50			
		V - Very Poor		2.5" MILL AND OVERLAY W/DIGOUTS	\$86.75			
	AC/AC	I - Very Good	Crack Treatment	SEAL CRACKS	\$2.50	7		
			Surface Treatment	SLURRY SEAL	\$5.50		6	
			Restoration Treatment	DO NOTHING	\$0.00			99
		II - Good, Non-Load Related		SLURRY SEAL W/DIGOUTS	\$9.88		6	
		III - Good, Load Related		CHIP SEAL W/DIGOUTS	\$12.75		6	
		IV - Poor		2.5" MILL AND OVERLAY W/DIGOUTS	\$79.50			
		V - Very Poor		2.5" MILL AND OVERLAY W/DIGOUTS	\$86.75			
	AC/PCC	I - Very Good	Crack Treatment	SEAL CRACKS	\$0.60	3		
			Surface Treatment	SINGLE CHIP SEAL	\$0.74		6	
			Restoration Treatment	MILL AND THICK OVERLAY	\$7.23			2
		II - Good, Non-Load Related		DOUBLE CHIP SEAL	\$1.52			
		III - Good, Load Related		HEATER SCARIFY & OVERLAY	\$5.95			
		IV - Poor		HEATER SCARIFY & OVERLAY	\$6.14			
		V - Very Poor		RECONSTRUCT SURFACE (AC)	\$14.00			
	PCC	I - Very Good	Crack Treatment	DO NOTHING	\$0.00	3		
			Surface Treatment	DO NOTHING	\$0.00		15	
			Restoration Treatment	DO NOTHING	\$0.00			99
		II - Good, Non-Load Related		DO NOTHING	\$1.11			
		III - Good, Load Related		DO NOTHING	\$1.51			
		IV - Poor		THICK AC OVERLAY(2.5 INCHES)	\$1.92			
		V - Very Poor		RECONSTRUCT STRUCTURE (AC)	\$14.00			

 Functional Class and Surface combination not used
 Selected Treatment is not a Surface Seal



Collector	AC	I - Very Good	Crack Treatment	SEAL CRACKS	\$2.50	4					
			Surface Treatment	SLURRY SEAL	\$5.50		7				
			Restoration Treatment	DO NOTHING	\$0.00			99			
			II - Good, Non-Load Related	SLURRY SEAL W/DIGOUTS	\$8.63		7				
			III - Good, Load Related	CHIP SEAL W/DIGOUTS	\$10.75		7				
		IV - Poor		2.5" MILL AND OVERLAY W/DIGOUTS	\$77.25						
			V - Very Poor		2.5" MILL AND OVERLAY W/DIGOUTS	\$82.25					
				AC/AC	I - Very Good	Crack Treatment	SEAL CRACKS	\$2.50	4		
						Surface Treatment	SLURRY SEAL	\$5.50		7	
						Restoration Treatment	DO NOTHING	\$0.00			99
II - Good, Non-Load Related	SLURRY SEAL W/DIGOUTS	\$8.63					7				
III - Good, Load Related	CHIP SEAL W/DIGOUTS	\$10.75				7					
		IV - Poor		2.5" MILL AND OVERLAY W/DIGOUTS	\$77.25						
			V - Very Poor		2.5" MILL AND OVERLAY W/DIGOUTS	\$82.25					
				AC/PCC	I - Very Good	Crack Treatment	SEAL CRACKS	\$2.50	4		
						Surface Treatment	SLURRY SEAL	\$5.50		7	
						Restoration Treatment	DO NOTHING	\$0.00			99
II - Good, Non-Load Related	SLURRY SEAL W/DIGOUTS	\$8.63					7				
III - Good, Load Related	CHIP SEAL W/DIGOUTS	\$10.75				7					
		IV - Poor		2.5" MILL AND OVERLAY W/DIGOUTS	\$77.25						
			V - Very Poor		2.5" MILL AND OVERLAY W/DIGOUTS	\$82.25					
				PCC	I - Very Good	Crack Treatment	DO NOTHING	\$0.00	9		
						Surface Treatment	DO NOTHING	\$0.00		15	
						Restoration Treatment	DO NOTHING	\$0.00			99
II - Good, Non-Load Related	DO NOTHING	\$1.11									
III - Good, Load Related	DO NOTHING	\$1.51									
		IV - Poor		THICK AC OVERLAY(2.5 INCHES)	\$1.92						
			V - Very Poor		THIN AC OVERLAY(1.5 INCHES)	\$7.47					

 Functional Class and Surface combination not used
 Selected Treatment is not a Surface Seal



Collector	ST	I - Very Good	Crack Treatment	DO NOTHING	\$0.00	9	
			Surface Treatment	DO NOTHING	\$0.00		15
			Restoration Treatment	DO NOTHING	\$0.00		99
		II - Good, Non-Load Related		SINGLE CHIP SEAL	\$6.50		7
		III - Good, Load Related		CHIP SEAL W/DIGOUTS	\$10.75		7
		IV - Poor		CHIP SEAL W/DIGOUTS	\$10.75		7
		V - Very Poor		3" REMOVE AND REPLACE W/HMA	\$80.25		

-  Functional Class and Surface combination not used
-  Selected Treatment is not a Surface Seal

Residential/Local	AC	I - Very Good	Crack Treatment	SEAL CRACKS	\$2.50	4		
			Surface Treatment	SLURRY SEAL	\$5.25		8	
			Restoration Treatment	DO NOTHING	\$0.00			99
		II - Good, Non-Load Related		SLURRY SEAL W/DIGOUTS	\$7.50		8	
		III - Good, Load Related		SLURRY SEAL W/DIGOUTS	\$8.75		8	
		IV - Poor		1.5" MILL AND OVERLAY W/DIGOUTS	\$49.00			
	V - Very Poor		2" MILL AND OVERLAY W/DIGOUTS	\$58.75				
	AC/AC	I - Very Good	Crack Treatment	SEAL CRACKS	\$2.50	4		
			Surface Treatment	SLURRY SEAL	\$5.25		8	
			Restoration Treatment	DO NOTHING	\$0.00			99
		II - Good, Non-Load Related		SLURRY SEAL W/DIGOUTS	\$7.50		8	
		III - Good, Load Related		SLURRY SEAL W/DIGOUTS	\$8.75		8	
		IV - Poor		1.5" MILL AND OVERLAY W/DIGOUTS	\$49.00			
	V - Very Poor		2" MILL AND OVERLAY W/DIGOUTS	\$58.75				
	AC/PCC	I - Very Good	Crack Treatment	SEAL CRACKS	\$2.50	4		
			Surface Treatment	SLURRY SEAL	\$5.25		8	
			Restoration Treatment	DO NOTHING	\$0.00			99
		II - Good, Non-Load Related		SLURRY SEAL W/DIGOUTS	\$7.50		8	
		III - Good, Load Related		SLURRY SEAL W/DIGOUTS	\$8.75		8	
		IV - Poor		1.5" MILL AND OVERLAY W/DIGOUTS	\$49.00			
	V - Very Poor		2" MILL AND OVERLAY W/DIGOUTS	\$58.75				
	PCC	I - Very Good	Crack Treatment	DO NOTHING	\$0.00	4		
			Surface Treatment	DO NOTHING	\$0.00		15	
			Restoration Treatment	DO NOTHING	\$0.00			99
		II - Good, Non-Load Related		DO NOTHING	\$1.11			
		III - Good, Load Related		DO NOTHING	\$0.00			
		IV - Poor		THICK AC OVERLAY(2.5 INCHES)	\$1.92			
	V - Very Poor		THICK AC OVERLAY(2.5 INCHES)	\$7.27				

 Functional Class and Surface combination not used
 Selected Treatment is not a Surface Seal

Residential/Local	ST	I - Very Good	Crack Treatment	DO NOTHING	\$0.00	9	
			Surface Treatment	DO NOTHING	\$0.00		15
			Restoration Treatment	DO NOTHING	\$0.00		99
		II - Good, Non-Load Related		SLURRY SEAL	\$5.25		8
		III - Good, Load Related		SLURRY SEAL W/DIGOUTS	\$8.75		8
		IV - Poor		CHIP SEAL W/DIGOUTS	\$26.25		8
		V - Very Poor		2.5" REMOVE AND REPLACE W/HMA	\$60.00		

-  Functional Class and Surface combination not used
-  Selected Treatment is not a Surface Seal

Appendix C

BUDGET NEED ANALYSIS RESULTS

Budget Needs Reports

The purpose of this section is to answer the question: *If the Tribe/Rancheria had all the money in the world, what sections should be fixed and how much will it cost?* Based on the Maintenance & Rehabilitation (M&R) decision tree and the PCIs of the sections, the program will then select a maintenance or rehabilitation action and compute the total costs over the analysis period. The Budget Needs represents the "ideal world" funding levels, while the Budget Scenario reports in the next section represent the most "cost effective" prioritization possible for the actual funding levels.

A budget needs analysis has been performed. The summary results from the analysis are provided. An interest rate of 4% and an inflation factor of 4% were used to project the costs for the analysis period. This report shows the total ten-year budget that would be required to meet the Tribe/Rancherias' standards as exemplified in the M&R decision tree.

Budget Needs reports included in this appendix are listed below:

- Projected PCI/Cost Summary
- Preventive Maintenance Treatment/Cost Summary
- Rehabilitation Treatment/Cost Summary

Needs - Projected PCI/Cost Summary

This report summarizes and projects the network PCI over the ten-year analysis period, both with and without treatments applied. It also reports the associated costs, which are based on the treatment unit costs presented in the M&R decision tree.

COLUMN	DESCRIPTION
Year	Year in the analysis period.
PCI Treated	Projected network average PCI with all needed treatments applied.
PCI Untreated	Projected network average PCI without any treatments applied.
PM Cost	Total preventive maintenance treatment cost.
Rehab Cost	Total rehabilitation treatment cost.
Cost	The budget required for each year in the analysis period to meet the Tribe/Rancherias' standard as shown on the M&R decision tree.
Total Cost	Total budget required over a ten-year period.

Needs - Projected PCI/Cost Summary

Interest: 4.00%

Inflation: 4.00%

Printed: 1/26/2023

Year	PCI Treated	PCI Untreated	PM Cost	Rehab Cost	Cost
2023	73	50	\$66,990	\$5,988,436	\$6,055,426
2024	75	47	\$66,990	\$379,272	\$716,867
2025	75	43	\$66,990	\$379,272	\$2,545,722
2026	82	40	\$66,990	\$379,272	\$2,002,200
2027	81	37	\$66,990	\$379,272	\$1,589,555
2028	78	33	\$66,990	\$379,272	\$156
2029	77	30	\$66,990	\$379,272	\$279,234
2030	79	27	\$66,990	\$379,272	\$510,016
2031	84	24	\$66,990	\$379,272	\$1,184,734
2032	79	21	\$66,990	\$379,272	\$462,540
		% PM	PM Total Cost	Rehab Total Cost	Total Cost
		12.71%	\$1,950,105	\$9,401,888	\$15,346,448

Needs - Preventive Maintenance Treatment/Cost Summary

This report summarizes each preventive maintenance treatment type, quantity of pavement affected, and total costs over the analysis period. It also summarizes the total quantities and costs over the next ten years.

COLUMN	DESCRIPTION
Treatment	Type of preventive maintenance treatments needed.
Year	Year in the analysis period (i.e. 2022, 2023, 2024, etc.).
Area Treated	Quantities in linear feet (Seal Cracks) or square yard (Slurry Seal).
Cost	Maintenance treatment cost.

Needs - Preventive Maintenance Treatment/Cost Summary

Interest: 4.00%

Inflation: 4.00%

Printed:
1/26/2023

Treatment	Year	Area Treated	Cost
1.5" MILL AND OVERLAY W/DIGOUTS	2023	3,658.33 sq. yd.	\$179,258
	2027	1,338.67 sq. yd.	\$76,736
	Total	4,997	\$255,995
2" MILL AND OVERLAY W/DIGOUTS	2023	3,254.67 sq. yd.	\$191,212
	2026	7,774.44 sq. yd.	\$513,780
	Total	11,029.11	\$704,992
2.5" REMOVE AND REPLACE W/HMA	2024	816 sq. yd.	\$50,918
	Total	816	\$50,918
DO NOTHING	2023	0 sq. yd.	\$0
	2024	0 sq. yd.	\$0
	2025	0 sq. yd.	\$0
	2026	0 sq. yd.	\$0
	2027	0 sq. yd.	\$0
	2028	0 sq. yd.	\$0
	2029	0 sq. yd.	\$0
	2030	0 sq. yd.	\$0
	2031	0 sq. yd.	\$0
	2032	0 sq. yd.	\$0
Total	0	\$0	
SEAL CRACKS	2027	850.58 sq. yd.	\$2,488
	2028	51.14 sq. yd.	\$156
	2029	233.57 sq. yd.	\$739
	2030	198.7 sq. yd.	\$654
	2031	34.04 sq. yd.	\$116
Total	1,368.03	\$4,152	
SLURRY SEAL	2023	12,760 sq. yd.	\$66,990
	2029	40,018 sq. yd.	\$278,495
	2030	10,841.11 sq. yd.	\$78,464
	2031	47,970.44 sq. yd.	\$349,493
	2032	17,536 sq. yd.	\$136,255
Total	129,125.56	\$909,697	
SLURRY SEAL W/DIGOUTS	2023	1,173.67 sq. yd.	\$8,803
	2025	431.67 sq. yd.	\$3,502
	2031	1,173.67 sq. yd.	\$12,047
Total	2,779	\$24,351	
Total Quantity		150,114.69	\$1,950,105

Needs - Rehabilitation Treatment/Cost Summary

This report summarizes each rehabilitation treatment type, quantity of pavement affected, and total costs over the analysis period. It also summarizes the total quantities and costs over the next ten years.

COLUMN	DESCRIPTION
Treatment	Type of rehabilitation treatments needed.
Year	Year in the analysis period (i.e. 2022, 2023, 2024, etc.).
Area Treated	Quantities in square yard.
Cost	Rehabilitation treatment cost.

Needs - Rehabilitation Treatment/Cost Summary

Interest: 4.00%

Inflation: 4.00%

Printed: 1/26/2023

Treatment	Year	Area Treated	Cost
1.5" MILL AND OVERLAY W/DIGOUTS	2023	3,658.33 sq.yd.	\$179,258
	2027	1,338.67 sq.yd.	\$76,736
	Total	4,997 sq.yd.	\$255,995
2" MILL AND OVERLAY W/DIGOUTS	2023	3,254.67 sq.yd.	\$191,212
	2026	7,774.44 sq.yd.	\$513,780
	2027	4,224.44 sq.yd.	\$290,343
Total	15,253.56 sq.yd.	\$995,334	
2.5" MILL AND OVERLAY W/DIGOUTS	2023	50,859.11 sq.yd.	\$4,145,395
	2025	28,771.11 sq.yd.	\$2,517,572
	2026	10,266.67 sq.yd.	\$949,873
	2027	12,021.33 sq.yd.	\$1,219,988
	2032	2,967.56 sq.yd.	\$326,285
Total	104,885.78 sq.yd.	\$9,159,112	
2.5" REMOVE AND REPLACE W/HMA	2023	14,193 sq.yd.	\$851,580
	2024	2,869.33 sq.yd.	\$179,046
Total	17,062.33 sq.yd.	\$1,030,626	
CHIP SEAL W/DIGOUTS	2023	43,059.78 sq.yd.	\$612,189
	2024	48,105.56 sq.yd.	\$537,820
	2026	5,537.78 sq.yd.	\$163,518
	2030	30,460.22 sq.yd.	\$430,898
	2031	48,105.56 sq.yd.	\$707,735
Total	175,268.89 sq.yd.	\$2,452,159	
SLURRY SEAL W/DIGOUTS	2023	1,173.67 sq.yd.	\$8,803
	2025	3,036.11 sq.yd.	\$28,150
	2026	25,450 sq.yd.	\$250,493
	2031	10,805.67 sq.yd.	\$127,390
Total	40,465.44 sq.yd.	\$414,836	
SINGLE CHIP SEAL	2026	4,928 sq.yd.	\$36,032
	Total	4,928 sq.yd.	\$36,032
DO NOTHING	2023	0 sq.yd.	\$0
	2024	0 sq.yd.	\$0
	2025	0 sq.yd.	\$0
	2026	0 sq.yd.	\$0
	2027	0 sq.yd.	\$0
	2028	0 sq.yd.	\$0
	2029	0 sq.yd.	\$0
	2030	0 sq.yd.	\$0
	2031	0 sq.yd.	\$0
	2032	0 sq.yd.	\$0
	Total	0 sq.yd.	\$0
SLURRY SEAL	2023	12,760 sq.yd.	\$66,990
	2026	14,986.67 sq.yd.	\$88,504
	2031	19,673 sq.yd.	\$141,350
	2032	816 sq.yd.	\$6,097
Total	48,235.67 sq.yd.	\$302,942	
SEAL CRACKS			

Needs - Rehabilitation Treatment/Cost Summary

Interest: 4.00%

Inflation: 4.00%

Printed: 1/26/2023

2027	438.01 sq.yd.	\$1,281
2028	14.54 sq.yd.	\$44
2029	17.67 sq.yd.	\$56
2030	47.56 sq.yd.	\$156
2031	8.19 sq.yd.	\$28
Total	525.97 sq.yd.	\$1,566

Total Cost	\$14,648,602
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