Attachment B

2022



Monterey County

10 Year Local Road Rehabilitation Program



SUMMARY REPORT SEPTEMBER 16, 2022



TABLE OF CONTENTS

I. Executive Summary

II. Pavement Network

- Table 1 Network Summary Statistics for Monterey County
- o Table 2 Network Summary Statistics for Bond Measure Program

III. Decision Tree Updates

○ Table 3 – Decision Tree

IV. Limits of Study

o Table 4 – District Breakdown

V. 10 Year Plan Scenario

- o Table 5 District Budget Breakdown
- o Table 6 Neighborhood Costs
- o Table 7 Projected Average PCI By Year

Appendix A

I. EXECUTIVE SUMMARY

In March 2020, the Monterey County Board of Supervisors (Board) directed staff to evaluate funding options that would support an accelerated program of road repair to improve the overall condition of County roads. Staff consulted with the County's municipal finance advisor to evaluate potential revenue measures and financing tools. Since February 8, 2021, the County has been pursuing a pilot program approach that will use one or more bonds, supported by various County Road Fund revenues, to implement an accelerated road repair program for communities. The County continues to develop the details of the proposed financing approach, which the Board is expected to consider in Fall 2022.

The purpose of this report is to provide the basis for and outline of the proposed accelerated road repair program for communities. For this effort it was assumed that a bond financing approach would provide \$100 million over a 10-year period, although it is acknowledged that the actual approach being finalized may generate a different amount. The County has over \$600 million in deferred road repair needs and road repair funding is typically directed toward County roads with higher traffic volumes, greater proportion of truck traffic and roads on key transportation, agriculture or tourism corridors. Per coordination with the Board and its Capital Improvement and Budget Committees, this accelerated program is intended to focus on local roads that service primarily residential areas and communities. This program will help improve pavement quality on local County roads for which grants or other State and Federal supplemental road funding sources are typically not available.

The County engaged Harris & Associates (Harris) to develop a proposed 10-year Bond Measure Plan to show how and where bond financing proceeds could be applied to improve local County roads. Harris used the Metropolitan Transportation Commission's (MTC) StreetSaver Online Edition for this analysis and plan development. This software is used to help make cost-effective decisions related to the road network, maximizing the County's return on investment from available maintenance and rehabilitation funds; generating a prioritized plan and identifying specific areas in need of maintenance and rehabilitation.

II. PAVEMENT NETWORK

Based on the County's latest StreetSaver database, the County's entire road network is comprised of approximately 1,098 centerline miles of paved roads and is divided into 2,337 pavement management sections. To assist in planning maintenance needs, the County's roads are grouped according to functional class. Table 1 below shows the County's pavement mileage by functional class for the entire road network along with the Pavement Condition Index (PCI). PCIs are expressed as a number between 0 and 100, a PCI of 0 would correspond to a badly deteriorated pavement with virtually no remaining life. A PCI of 100 would correspond to a new pavement with proper engineering design and construction at the beginning of its life cycle.

Table 1

Network Summary Statistics for Monterey County					
Classification	Total Sections	Total Centerline Miles	Total Lane Miles	PCI	
Minor Collector	197	163.97	327.99	32	
Other Principal Arterial	21	5.16	14.46	72	
Major Collector	346	209.66	454.48	52	
Minor Arterial	19	11.66	28.01	55	
Local	1,754	707.62	1,350.72	36	
Total	2,337	1,098.07	2,175.66	40	

The County selected 124 centerline miles of local roads, which are divided into about 618 pavement management sections, to be part of the Bond Measure Program. The County selected local roads in areas to make meaningful improvements to entire communities or neighborhoods and address needed deferred maintenance. The list of selected roads was provided to Harris in order to create a unique identifier of these roads in the StreetSaver database. The table below shows the County's pavement mileage by functional class of the selection of roads included in the Bond Measure Program. As shown in Table 2 below, the vast majority of roads selected fall into the "Local" functional class. To the extent that some selected areas include a minor or major collector through the community, those road segments were also included in the program (e.g. a "main" street in an otherwise small residential community).

Table 2

Network Summary Statistics for Bond Measure Program					
Classification	Total Sections	Total Centerline Miles	Total Lane Miles	PCI	
Major Collector	21	6.98	15.51	45	
Minor Collector	2	0.64	1.28	14	
Local	595	116.73	231.59	31	
Total	618	124.35	248.38	32	

III. DECISION TREE UPDATES

A Decision Tree is used to model the decision-making process that the County can follow to select a maintenance or rehabilitation strategy. The decision tree contains "branches" for each functional classification, surface type, and condition category. The County is able to outline its Maintenance and Rehabilitation (M&R) strategy, choosing a treatment for each branch.

Harris worked with the County to update the treatments and unit costs in the Decision Tree. The treatments and unit costs were based on similar completed projects in the region. The unit costs consist of hard cost, soft costs, and total improvement costs (on a per square yard basis).

Hard costs consist of paving and non-paving cost. Paving hard costs include material, labor, and equipment, while non-paving hard cost include traffic control, curb & gutter, curb ramps, striping, and signal loops. Non-paving hard costs are typically 25% of the paving hard costs. Soft Cost include design, construction inspection, construction management, and contingencies. This is an assumed 30% markup of the total hard costs. The total costs include all hard and soft costs. This fully loaded program cost was ultimately used for the Decision Tree in the Streetsaver Program.

The pavement conditions of the roads in the Bond Measure program include those in Good, Poor, and Very Poor condition categories, however, most of the identified roads are in the Poor and Very Poor categories. Roads in the Good condition category are roads with PCIs ranging from 50-69 and are typically in need of rehab or a surface seal with dig outs depending on the type of distresses found in those sections. The Poor condition category are roads with PCIs ranging from 25-49 and are typically in need of rehab treatments. The roads in the Very Poor condition category have PCIs that range from 0-24 and are typically in need of reconstruction. Because of this, it was decided that preventive maintenance treatments like slurry seal and cracks seal be removed from the Collected and Residential branches of the decision tree. Table 3 below summarizes the treatment and cost for each functional class and condition category (on a per square yard basis). The few roads on the Bond Measure list that are in need of preventative maintenance will be handled separately and will be covered in more detail in Section V – 10 Year Plan Scenario of this report.

Table 3

Decision Tree								
Surface					Hard Costs		(c) Soft	Total Cost
PCI Ranges	Type	Condition Category	Treatment Type	Proposed Pavement Treatment	(a) Paving	(b) Other Non-Paving 25% of (a)	Costs	(Hard + Soft Costs)
(70-90)	AC	I - Very Good	Crack Treatment	Do Nothing	N/A	N/A	N/A	N/A
(70-90)	AC	I - Very Good	Surface Treatment	Do Nothing	N/A	N/A	N/A	N/A
(70-90)	AC	I - Very Good	Restoration Treatment	Do Nothing	N/A	N/A	N/A	N/A
(60-69)	AC	II - Good, Non-Load Related	Rehab	Thin AC OL or Type 1 SS W/DO	\$17.00	\$4.25	\$6.38	\$27.63
(50-59)	AC	III - Good, Load Related	Rehab	Thin AC OL (1.5") W/ Digouts	\$20.00	\$5.00	\$7.50	\$32.50
(25-49)	AC	IV - Poor	Rehab	Thick AC OL (2.5") or CIR	\$35.00	\$8.75	\$13.13	\$56.88
(0-24)	AC	V - Very Poor	Rehab	Reconstruct Structure/FDR	\$70.00	\$17.50	\$26.25	\$113.75

IV. LIMITS OF STUDY

It must be recognized that this report is limited to the existing road pavement repairs. It does not include existing deficiencies for right-of-way concrete sidewalks, drainage, trees, bus pads and non-structural improvements such as decorative crosswalks, medians, lighting and street furniture. Costs for these right-of-way repairs and improvements throughout the County would easily exceed the deferred maintenance costs (the cost of crucial maintenance work not performed in a specific year) identified in this report and can be identified and estimated separately in future reports. To the extent that deficiencies noted impact the ability to repair selected road segments, the County will pursue repairs in advance of the planned road work under other Road Fund maintenance programs. Also, for communities with existing sidewalks, this program will include upgrades to existing or installation of new curb ramps where necessary to comply with current ADA requirements to the maximum extent practicable.

The County currently uses MTC's Pavement Management Program (PMP). The PMP provides a management tool to inventory street pavement, assess pavement condition, record historical maintenance, forecast budget needs, and view impacts of funding on network pavement condition over time. The following recommendations generated by the PMP are <u>for planning purposes only</u>. The resulting general recommendations are not intended to replace sound engineering judgment, which should dictate specific needs for an individual project. Maintenance and rehabilitation projects should be based on a combination of the system's recommendations weighed against the County's preferences, budget constraints, and other contributing factors. In addition, further refinements may be warranted from an engineering staff review of the pavement condition. For example, a particular pavement section may require treatment earlier (or later) than the rest of the roads in its localized area. Also, this plan is intended to be a living document that will necessarily need to be updated over the course of the 10-year program.

District Breakdown

The County is divided into five supervisorial districts, but there are no County roads in District 1 (which is entirely comprised of the City of Salinas) and the relatively few County roads in District 4 are not local roads targeted under this program. Therefore, the road sections in the Bond Program are contained only in Supervisorial Districts 2, 3, and 5. Table 4 below lists the number of road segments targeted within each district, as well as the corresponding centerline miles and percentage of each. Over the 10-year road program, it is the County's goal to implement local repair projects generally in proportion to the relative amount of centerline road miles within each of the three target supervisorial districts. Many of the targeted roads are located in County Service Areas (CSAs), and District 5 has many large CSA areas. Therefore, District 5 has the highest percentage of roads targeted under this bond-financed program.

Table 4

District Breakdown				
	# Road Segments	Centerline Miles	% of Total	
District 2	145	23	18%	
District 3	85	31	25%	
District 5	388	71	57%	
TOTAL	618	124	100%	

V. 10 YEAR PLAN SCENARIO

Budget Scenario Criteria

For the development of this initial plan, it was assumed that a bond financing approach would provide \$100 million over a 10-year period, although the actual approach being finalized may generate a different amount. If the actual total is lower, then roads planned in the later years of the program may need to be removed. If the amount is higher, then additional roads could be added. These adjustments would be reflected in periodic plan updates over the life of the program. The program is intended for a 10-year period, beginning with the County's current Fiscal Year 2022-23 period. An annual inflation rate of 4% was assumed to aid with estimates of future project costs. Based on the percentage of target roads within each supervisorial district, the program will strive to allocate total program funds in proportion to those percentages over the life of the program as shown in Table 5 below. Note that the budget percentages shown below differ from the road segment percentages shown in Table 4. This is because of the differing proposed pavement treatments for the road segments (e.g. some will require less costly pavement repair than others).

Table 5

District Budget Breakdown			
	% of Total Approximate Total Spending		
District 2	29%	\$29,001,872	
District 3	25%	\$24,475,095	
District 5	46%	\$44,968,089	
TOTAL	100%	\$98,445,056	

Preventative Maintenance

Within the program there are about \$350,000 worth of local roads needing improvements for which relatively lower cost preventive maintenance could be implemented because the condition of these roads does not require the greater level of treatment then roads with worse pavement conditions. Typically, for these roads a preventative treatment such as a slurry seal would suffice to help maintain the road in a good condition. Since this level of treatment may not be considered a capital project eligible for bond financing, these roads are not included in the bond program per se, but

the County will pursue preventative treatments (using another source of road funding) in parallel with this bond program to address these road segments. Once a road is re-paved, it should be considered for a preventative treatment again (such as a slurry seal) within five to eight years to re-seal the asphalt surface to slow pavement deterioration and extend its life. For roads addressed in the early years of this program, preventative treatments would be needed before the end of this repair program. For the reason noted above, when that time comes, the County will implement preventative treatments on roads completed under this program using other road funding sources. This strategy would allow more sections within the Bond Program to be touched at least once during the 10-year analysis period as opposed to the roads in need of preventive maintenance to be revisited later in the analysis period, freeing up more of the budget in later years for roads in need of more major treatments that haven't yet been treated.

Neighborhood Grouping

Roads included in the program were grouped into "neighborhoods," so that roads located in relatively close geographic proximity were included in the same neighborhood. This was done to assist with tracking, and as an initial method for assigning actual construction repairs. The intent is to complete repairs on selected roads in the same geographic area to avoid returning to the same area multiple times over the life of the program. This should help improve cost efficiency as contractors working on this program can address multiple roads in the same area at the same time, and minimize disruption to residents by impacting them with construction activity only once. Neighborhood groupings were identified with the aid of County staff to ensure logical groupings, and were assigned a two part number in this format: X-Y, where the first number represents the supervisorial district and the second the neighborhood in that district. A map depicting all of the neighborhood groupings throughout the County is provided in Appendix A.

10-Year Program List

Table 6 below lists the neighborhoods selected for each year of the ten-year program, along with estimated cost. Maps depicting the roads included within each neighborhood are provided in Appendix A.

Table 6

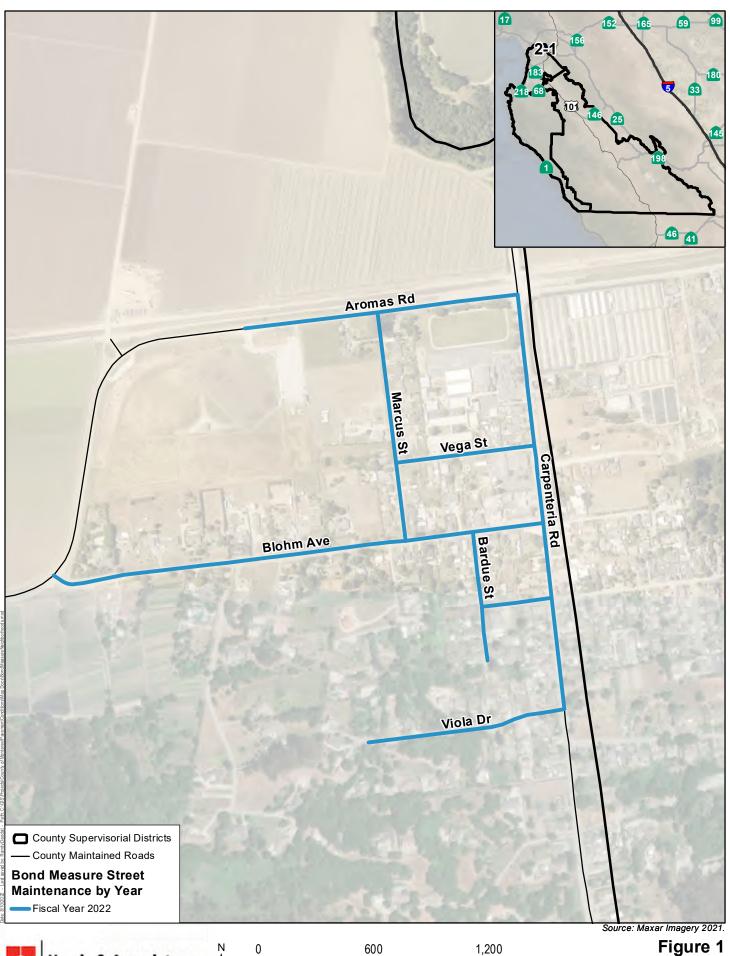
Neighborhood Costs			
District		Neighborhood	Est. Cost
2	2-1	Aromas	\$2,515,629
5	5-1	CSA 66	\$535,890
5	5-3	CSA25	\$5,785,567
		Total FY23	\$8,837,086
3	3-1	San Ardo	\$6,058,460
5	5-7	Tierra Grande	\$4,342,287
		Total FY24	\$10,400,747
2	2-2	Moss Landing Residential	\$1,867,464
3	3-4	Spreckels	\$5,115,192
5	5-6	Carmel Hills Dr. Area	\$2,591,797
		Total FY25	\$9,574,453
3	3-3	Bradley	\$2,289,845
5	5-12	Carmel Knolls (CSA 34)	\$2,478,452
5	5-13	Rio Vista (CSA 34)	\$5,156,482
5	5-5	Part CSA 51	\$1,103,836
		Total FY26	\$11,028,615
2	2-16	Oak Tree Hills	\$9,387,375
5	5-20	Brookdale	\$3,001,877
		Total FY27	\$12,389,252
5	5-19	Ribera Rd Carmel	\$1,283,962
5	5-8	Carmel Valley Village	\$11,182,376
		Total FY28	\$12,466,338
2	2-3	CSA 37	\$633,093
2	2-4	Portion CSA 32	\$406,377
3	3-		
	5.2	Bryson Hesperia Rd.	\$7,397,345
	2	Total FY29	\$8,436,815
2	2- 12.1	Portion of CSA 9	\$7,571,007
2	2-17	Portion of CSA 9	\$1,645,533
Total FY30 \$9,216,540			
2	2-	D i aggi s	Ф.4.0.
	12.2	Portion of CSA 9	\$4,975,394
3	3-6	CSA 20	\$3,614,253
		Total FY31	\$8,589,647
5	5-11	Viejo & Valenzuela Roads	\$1,736,766
5	5-16	CSA 58 and Portion of CSA 44	\$5,768,797
Total FY32 \$7,505,563			
	GRAN	D TOTAL PROGRAM	\$98,445,056

Table 7 below summarizes the PCI trend by year. The "Never Treated" PCI is what the PCI is expected to deteriorate to if the program treatment is not applied. If no sections in the Bond Measure program are treated, the overall PCI of the target Bond Measure roads would decrease from 34 to 11 over the next 10 years. Based on the planned annual budgets and treatments for the selected roads, the overall pavement condition for the selected Bond Measure roads will improve from 36 to 86 over the 10-year program as shown below.

Table 7

Projected Average PCI By Year				
FY	Bond Measure Roads Never Treated PCI	Bond Measure Roads Average Treated PCI		
2022	34	36		
2023	31	43		
2024	28	48		
2025	25	54		
2026	22	64		
2027	19	71		
2028	17	74		
2029	15	78		
2030	12	82		
2031	11	86		

APPENDIX A



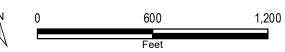
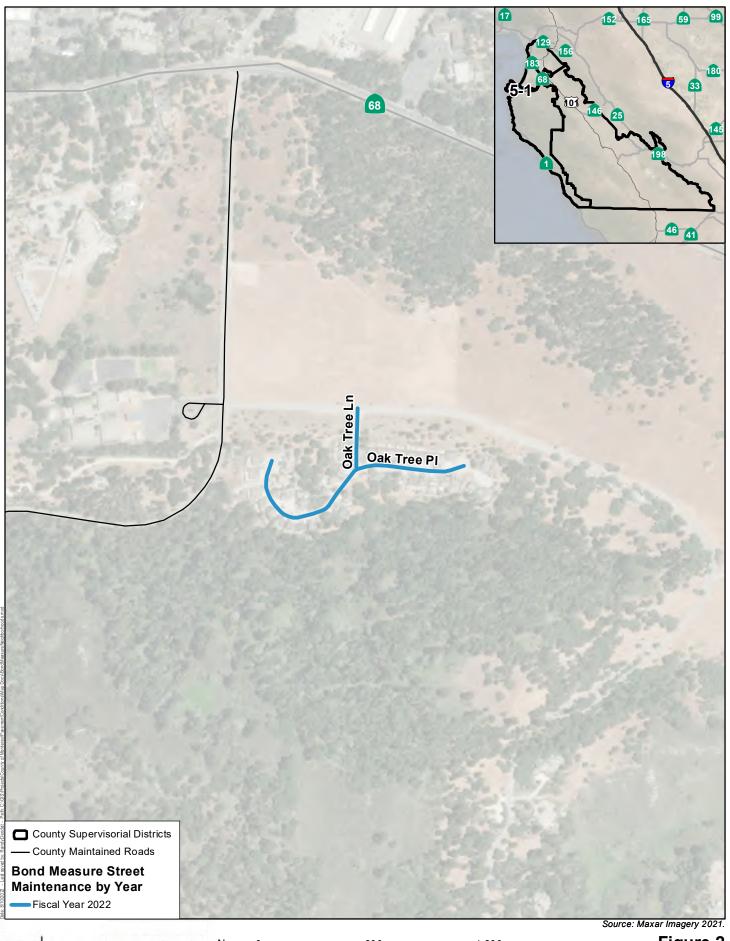
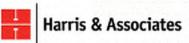


Figure 1
2022 - Neighborhood 2-1

Monterey County





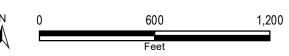


Figure 2 2022 - Neighborhood 5-1

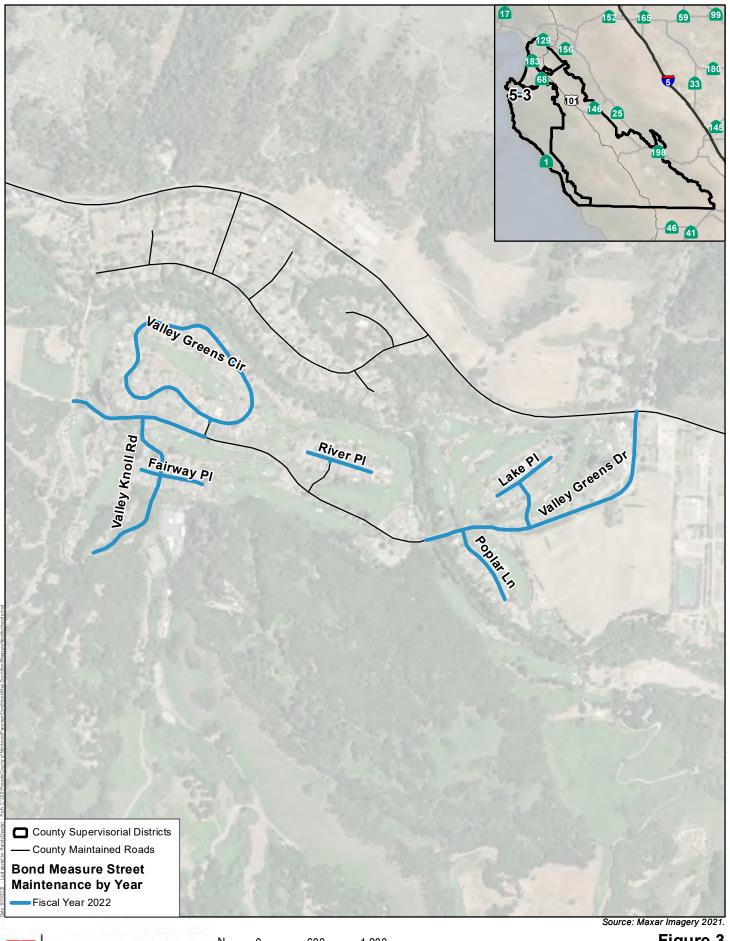
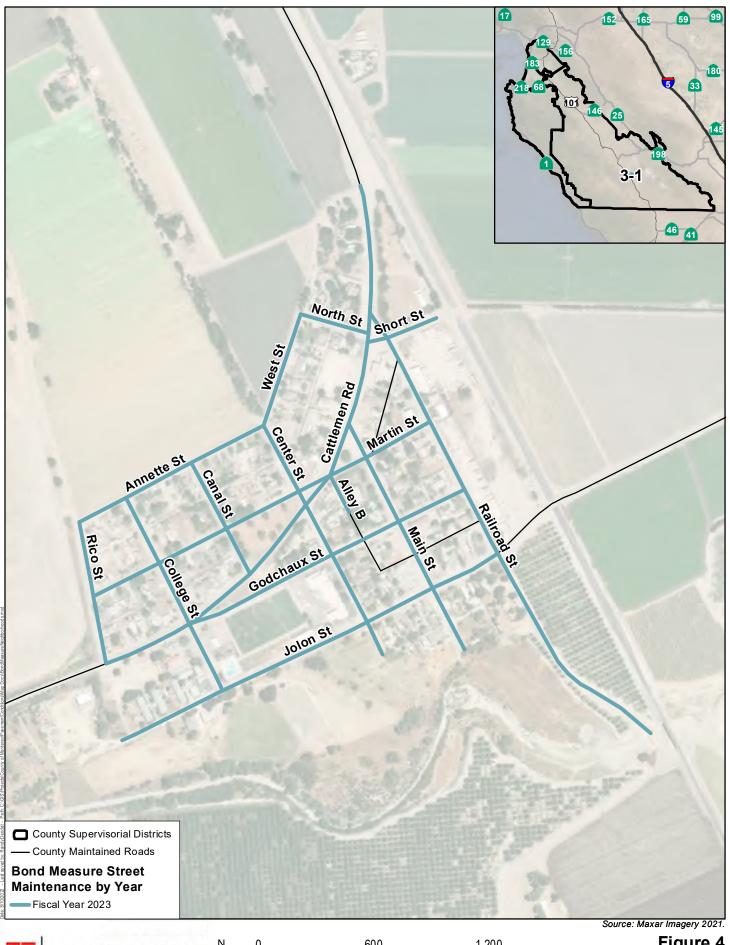




Figure 3

2022 - Neighborhood 5-3

Monterey County



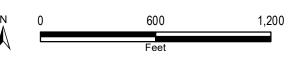
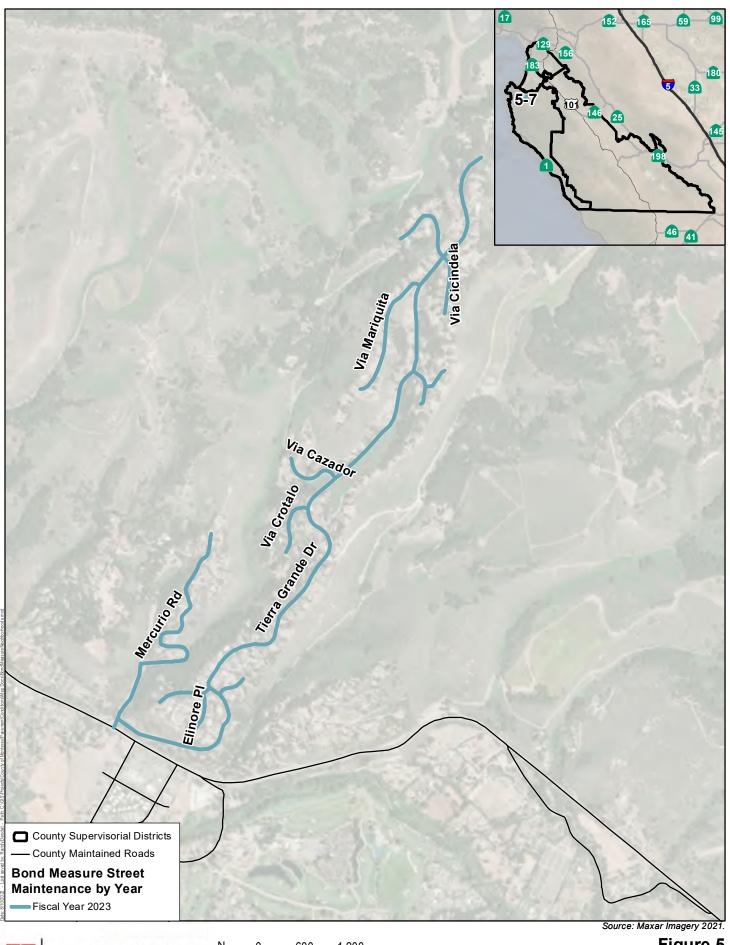
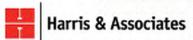


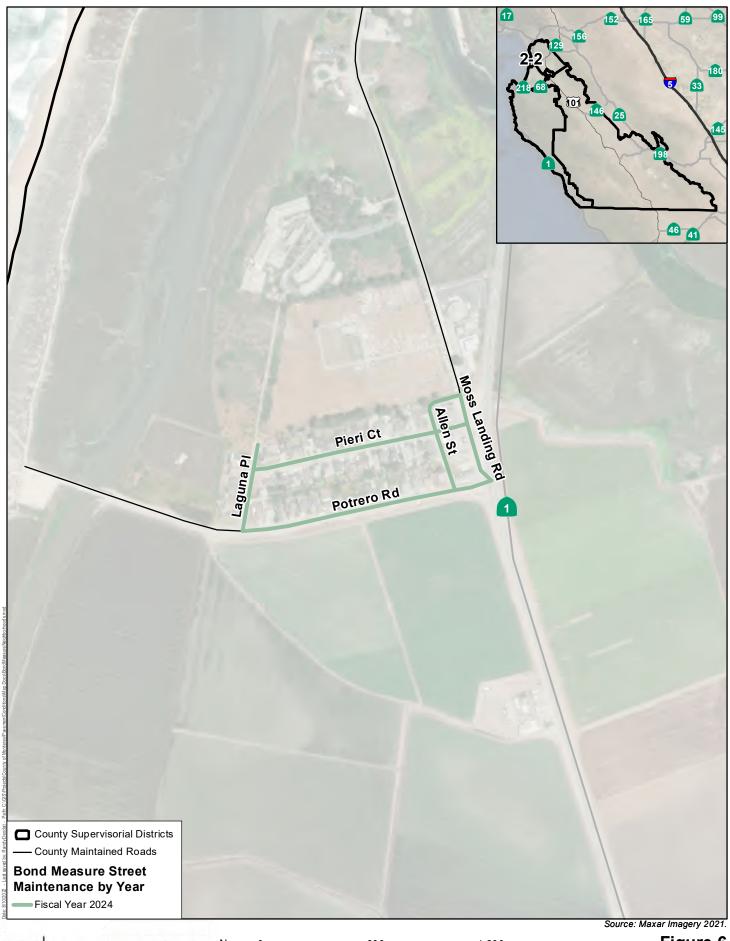
Figure 4 2023 - Neighborhood 3-1

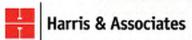






2023 - Neighborhood 5-7

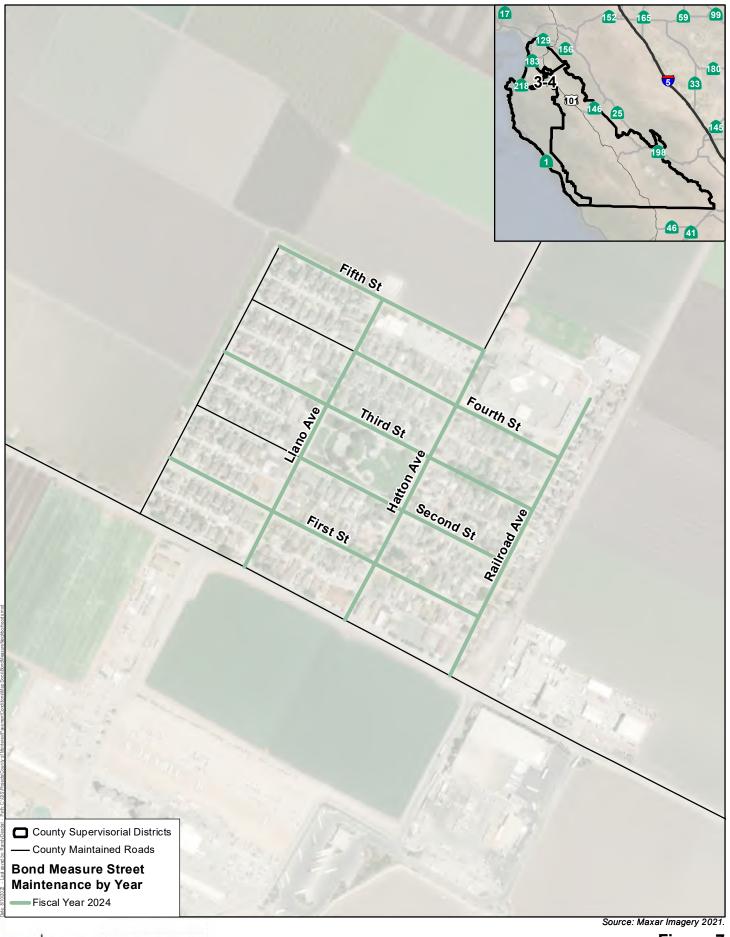






2024 - Neighborhood 2-2

Monterey County





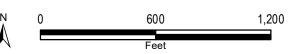
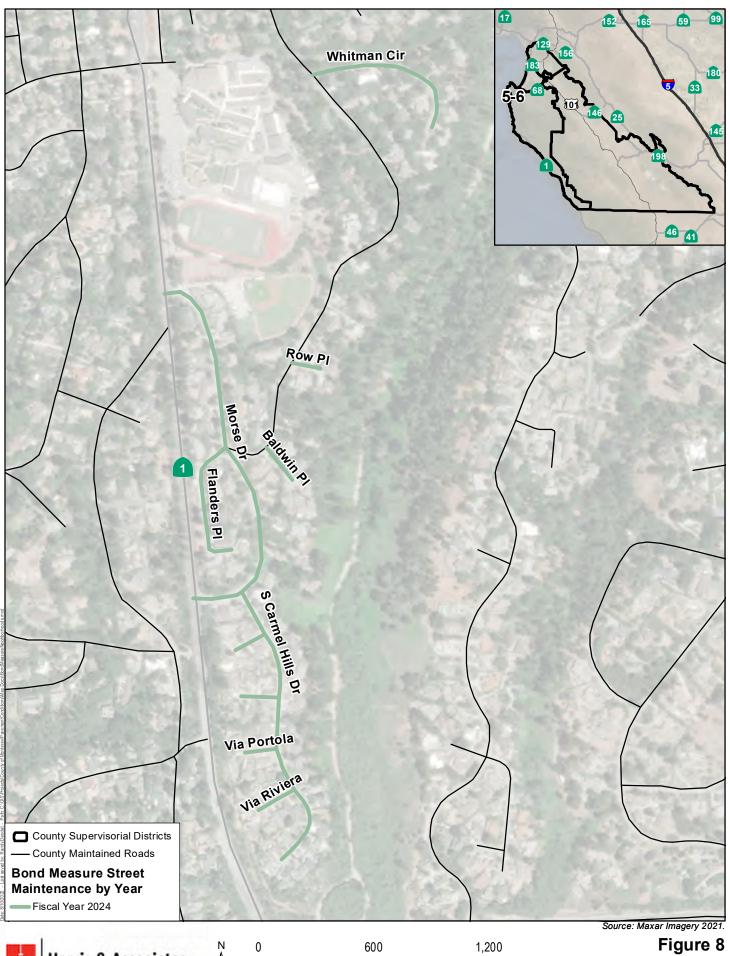


Figure 7 2024 - Neighborhood 3-4





2024 - Neighborhood 5-6

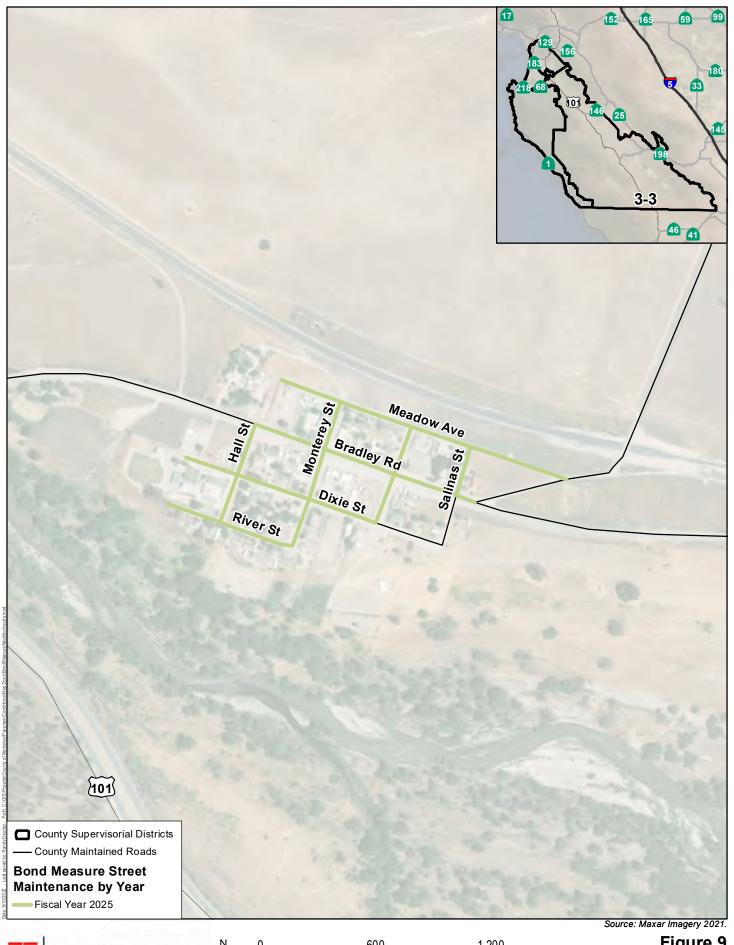
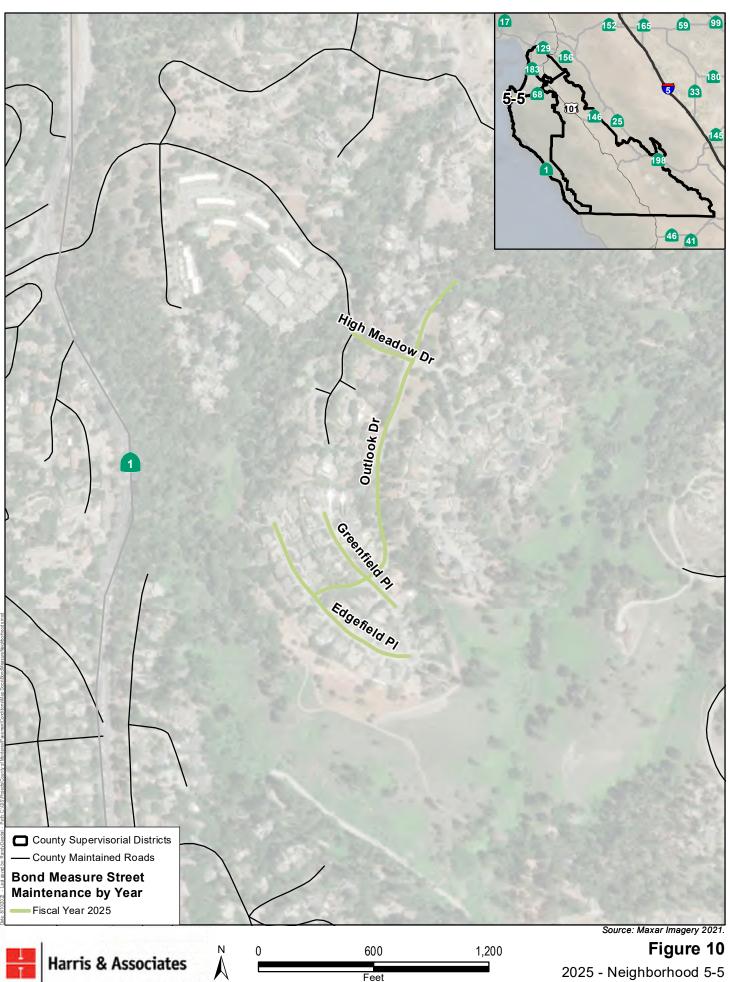


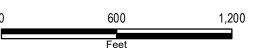


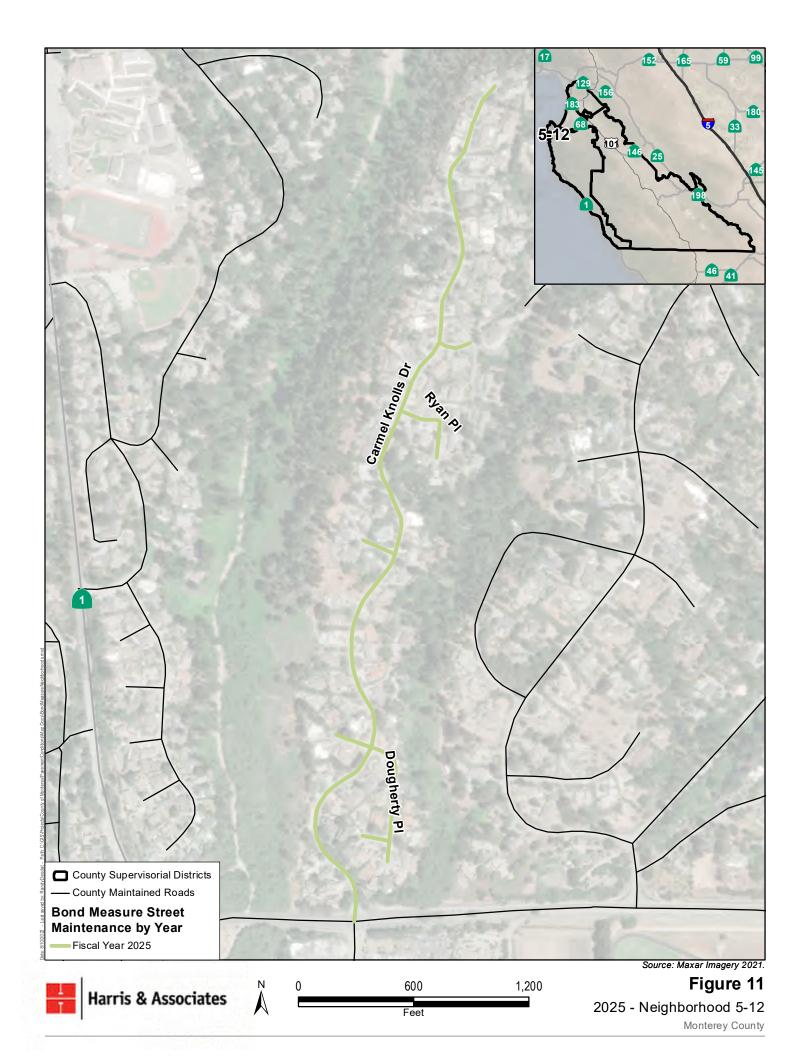
Figure 9

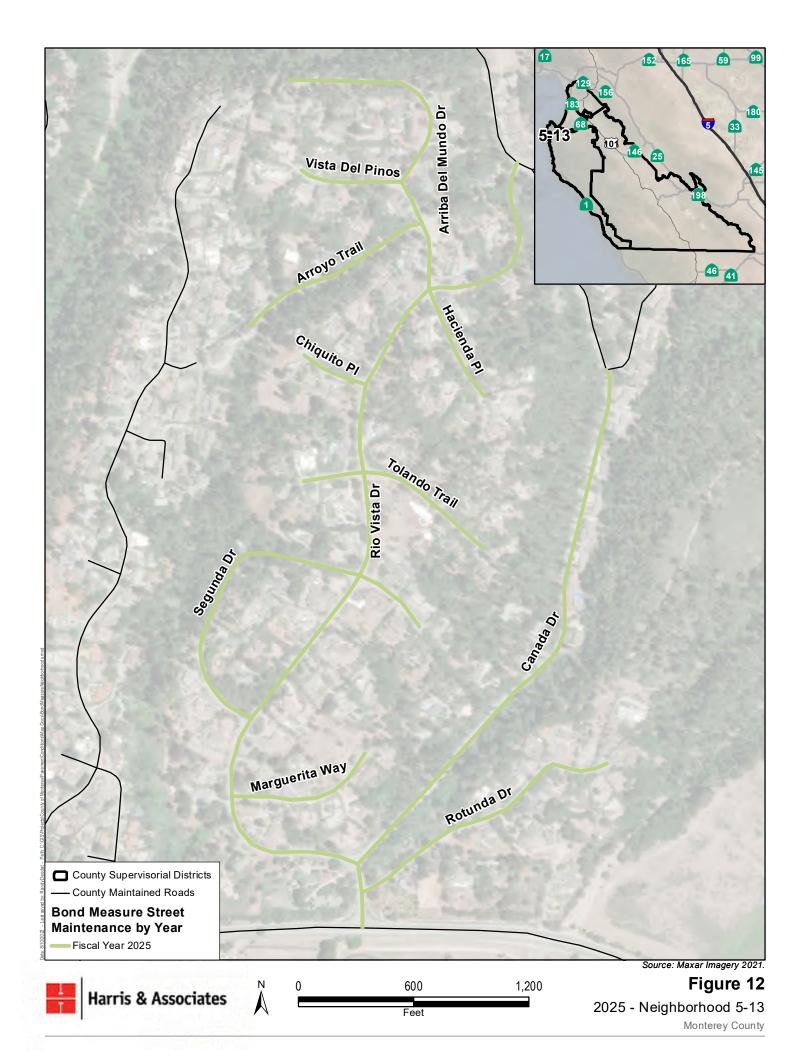
2025 - Neighborhood 3-3

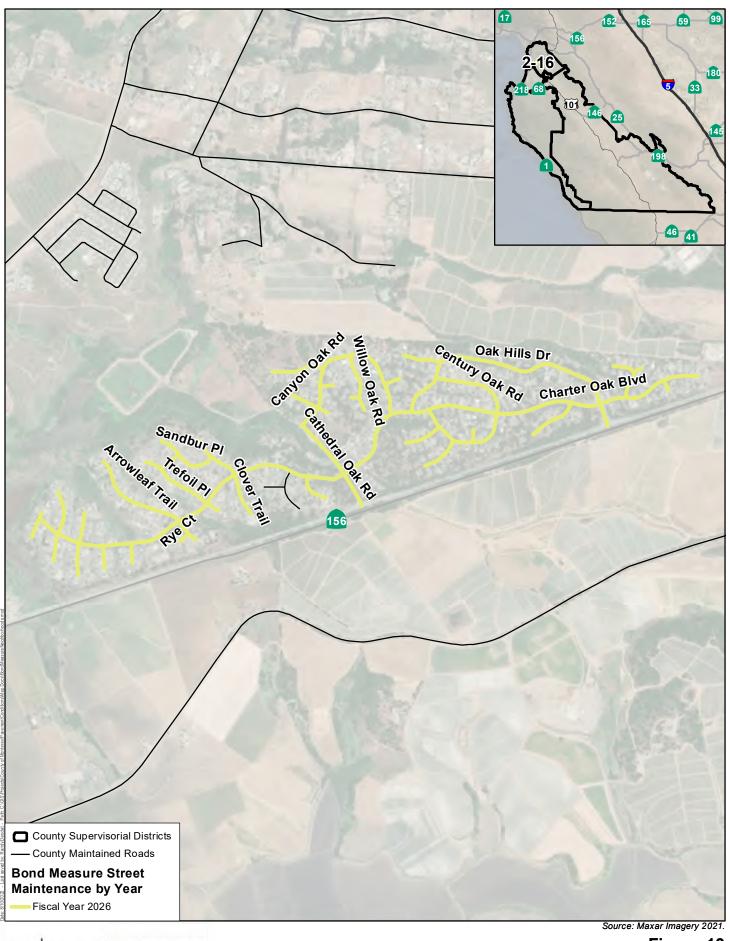
Monterey County





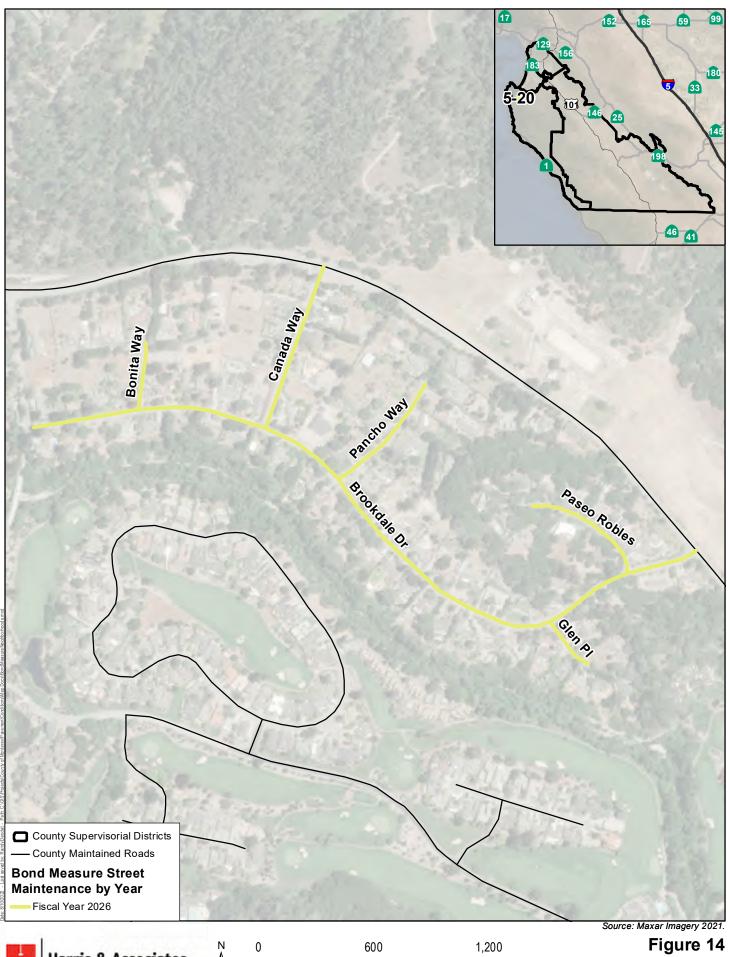


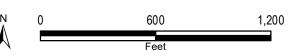




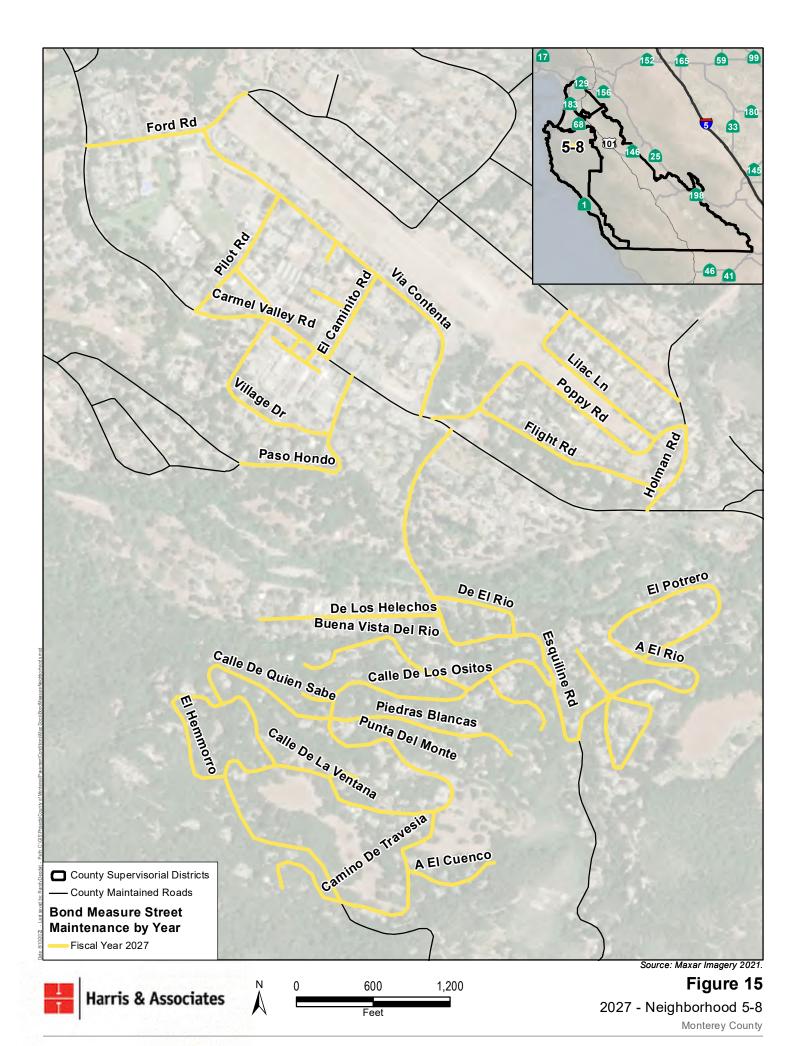


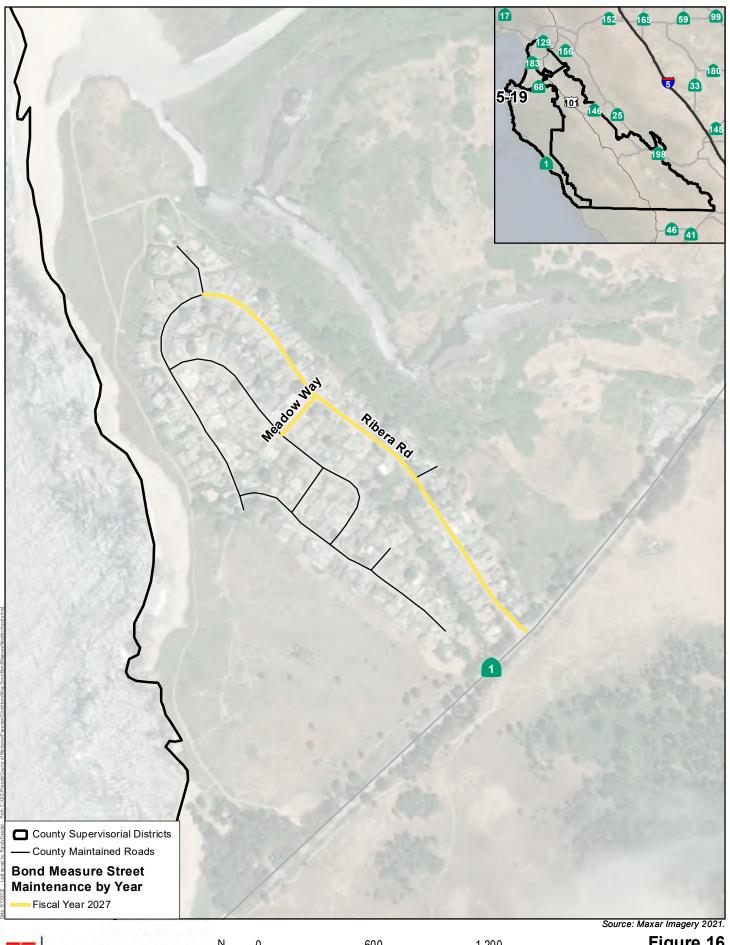






2026 - Neighborhood 5-20





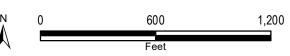
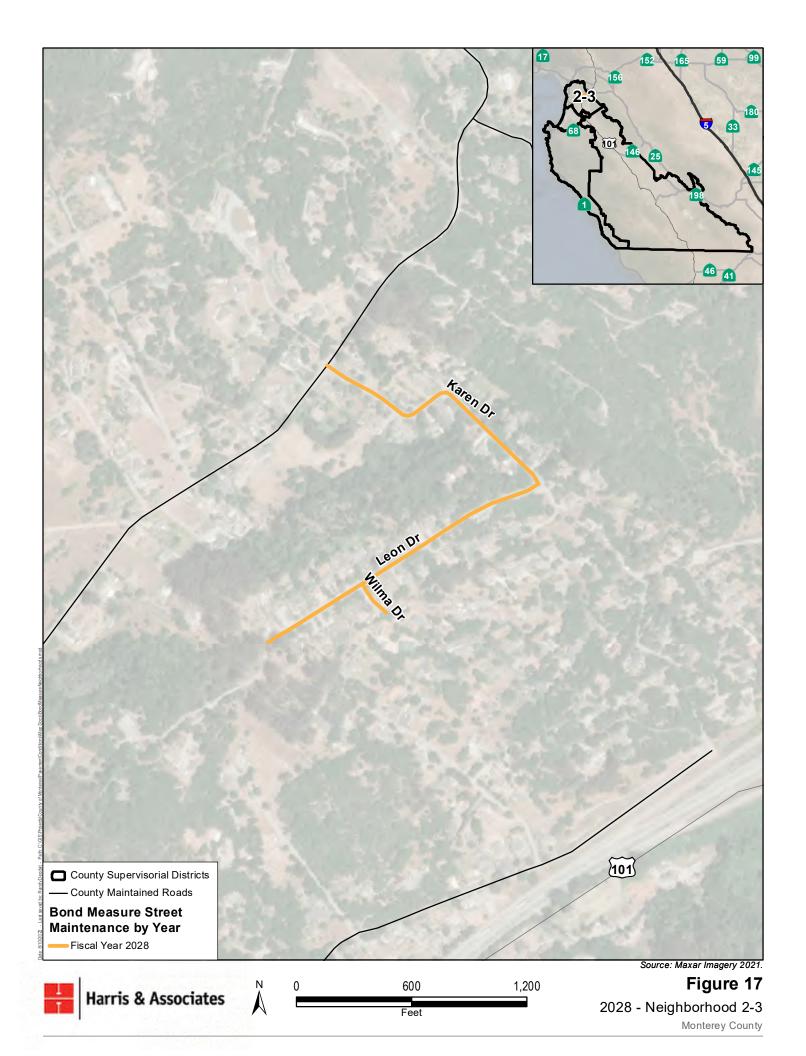
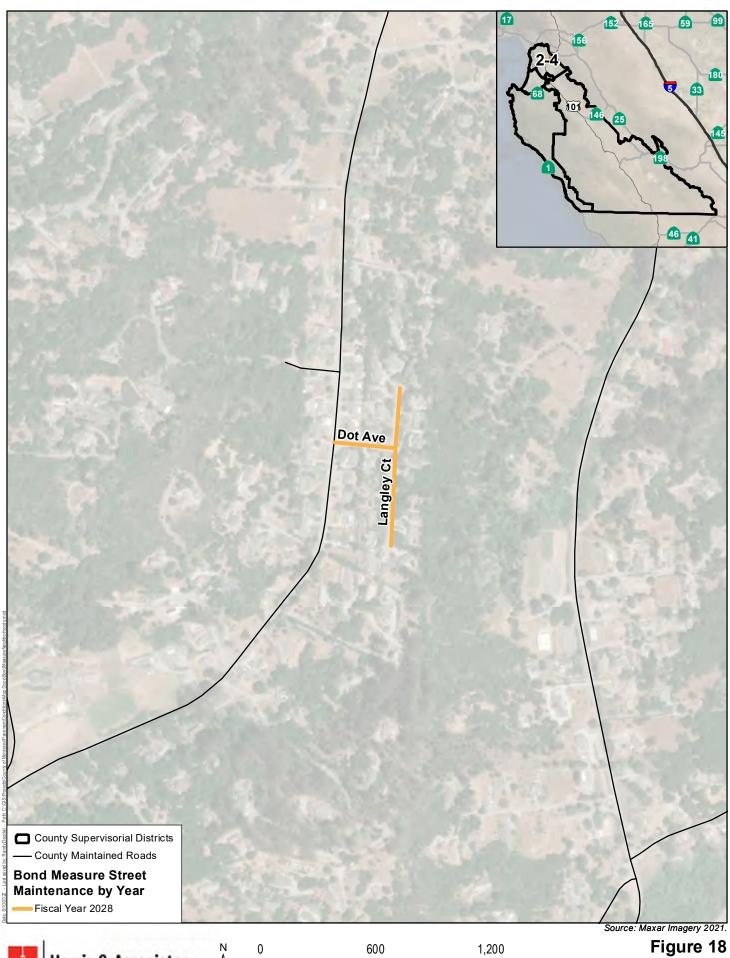


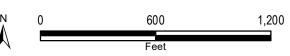
Figure 16

2027 - Neighborhood 5-19

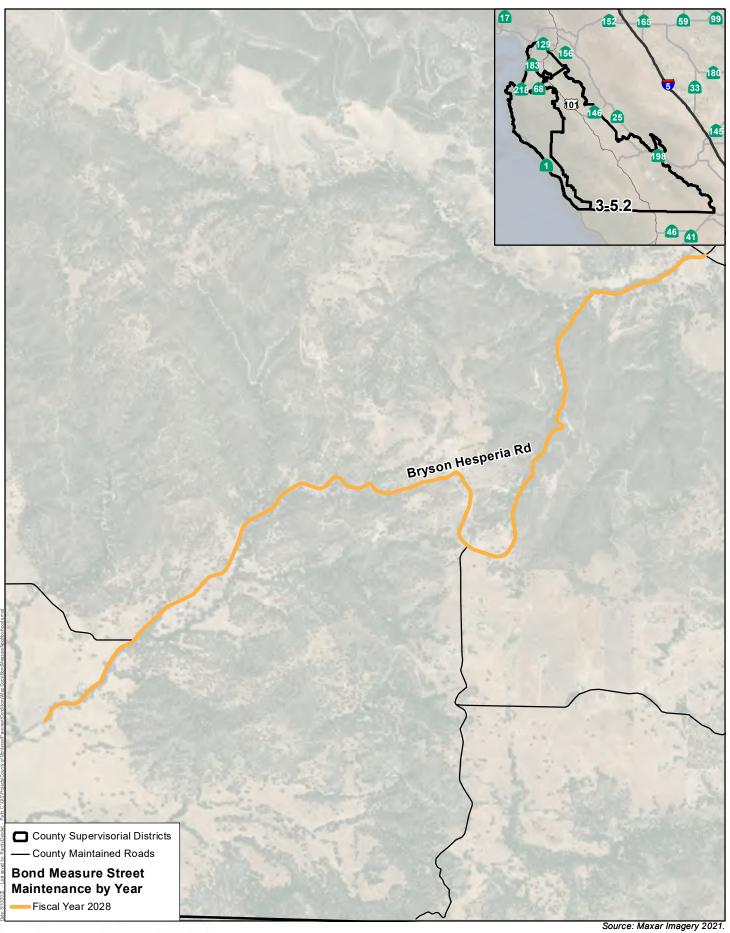
Monterey County





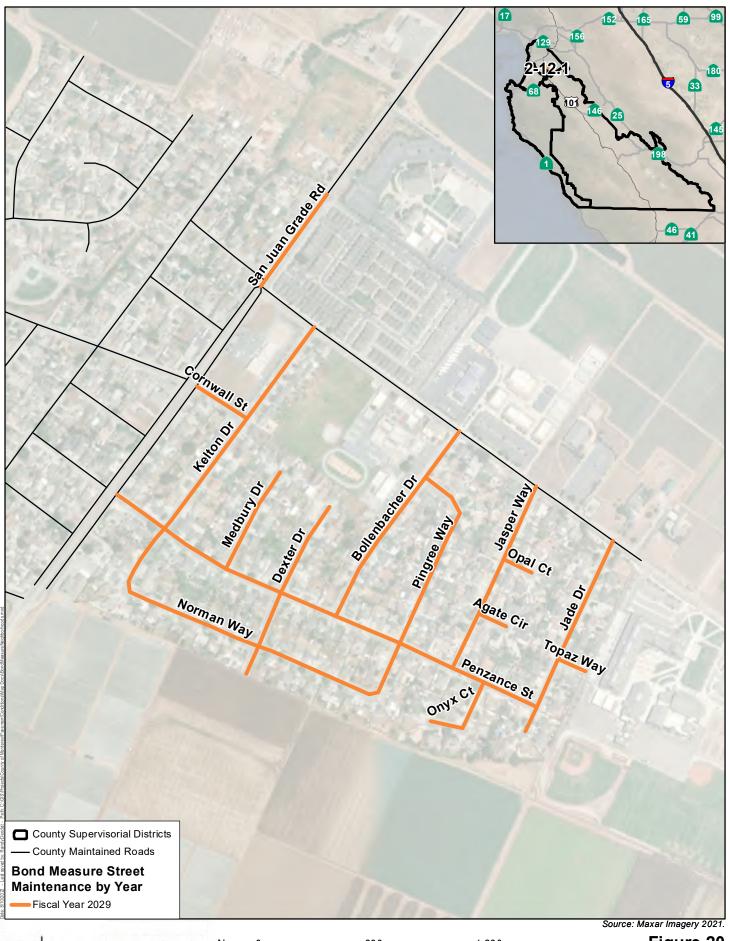


2028 - Neighborhood 2-4 Monterey County





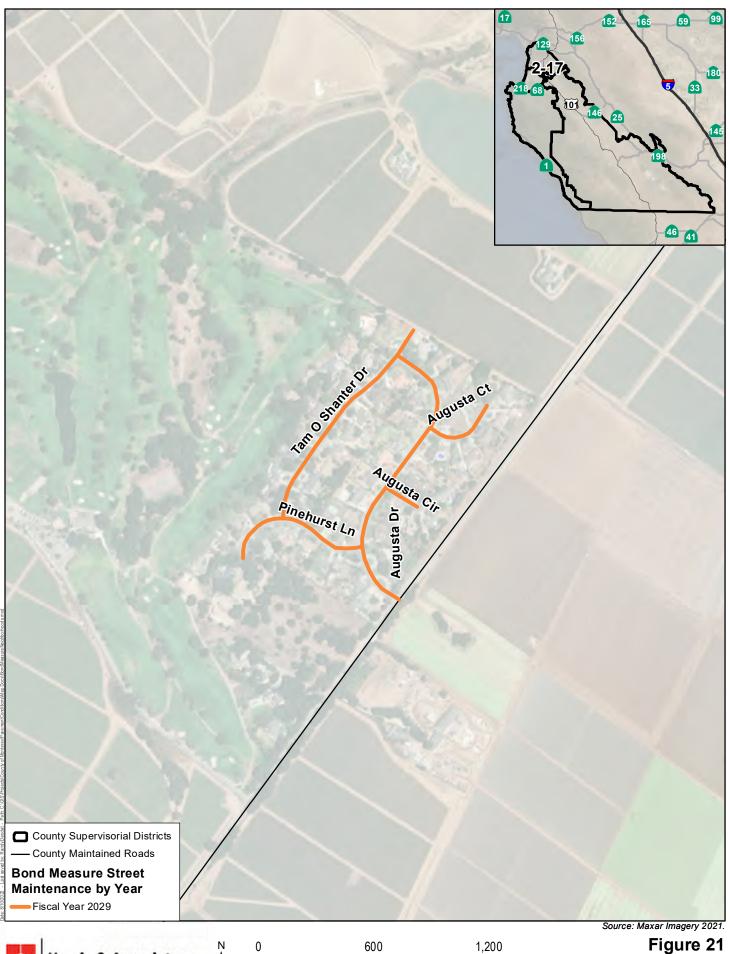


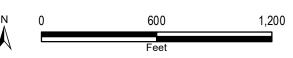




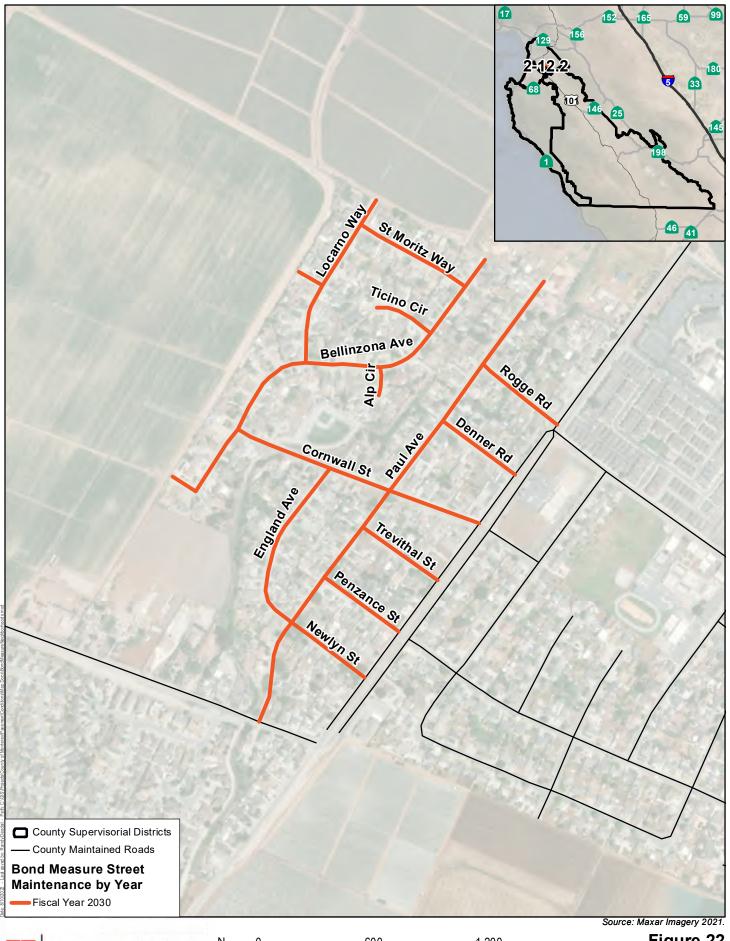


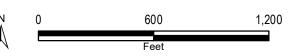
2029 - Neighborhood 2-12.1



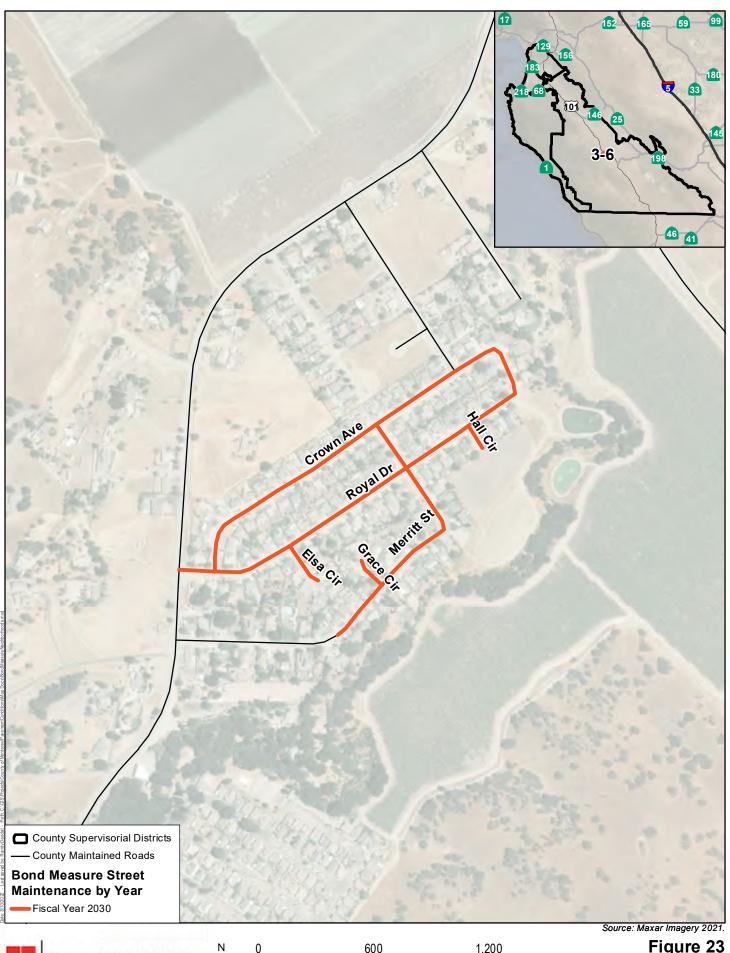


2029 - Neighborhood 2-17 Monterey County





2030 - Neighborhood 2-12.2



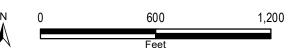
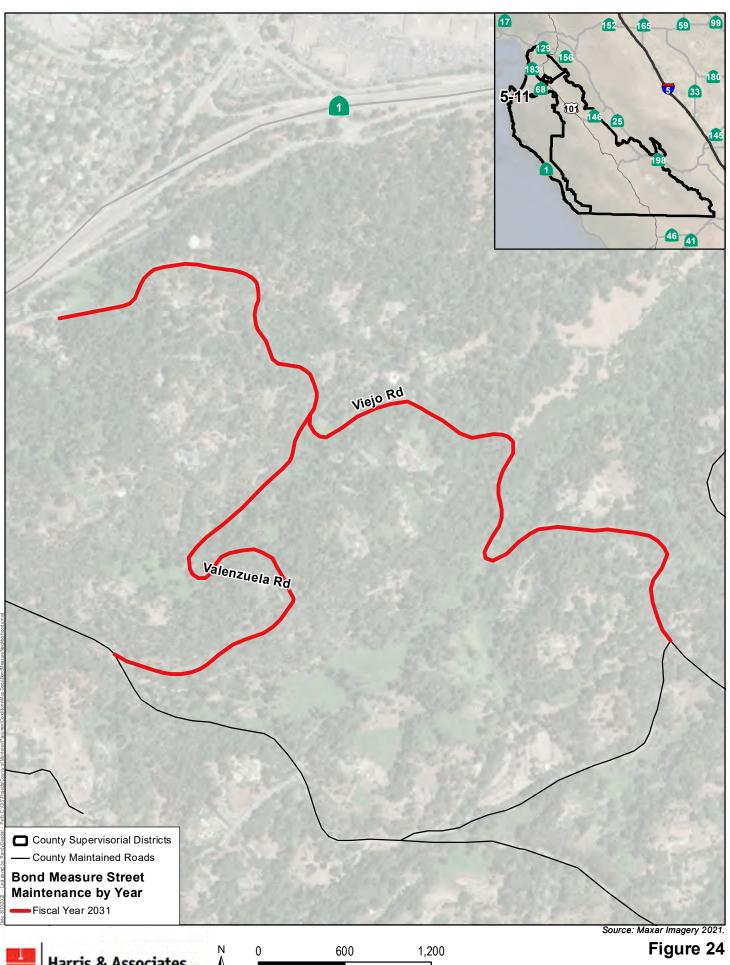


Figure 23 2030 - Neighborhood 3-6





2031 - Neighborhood 5-11

Monterey County

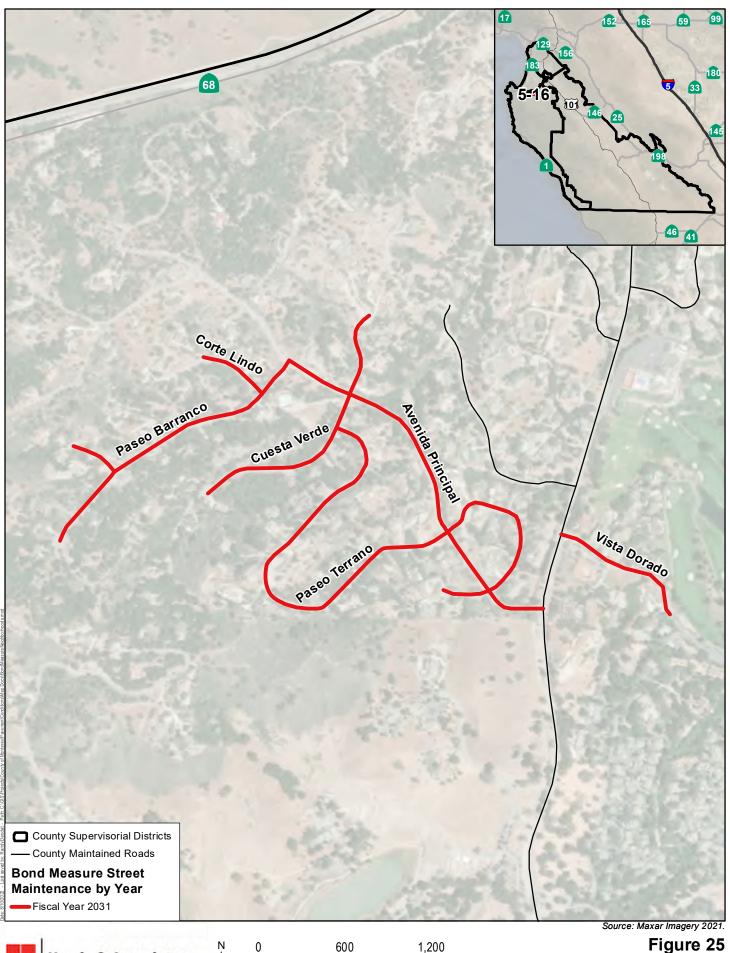




Figure 25

2031 - Neighborhood 5-16

Monterey County

