



Office of the City Manager

ACTION CALENDAR

January 21, 2020

(Continued from December 10, 2019)

To: Honorable Mayor and Members of the City Council

From: Dee Williams-Ridley, City Manager

Submitted by: Phillip L. Harrington, Director, Department of Public Works

Subject: Companion Report: Public Works Commission Recommendation for the Five-Year Street Rehabilitation Plan

RECOMMENDATION

Adopt a Resolution updating the City's Five-Year Street Rehabilitation Plan for FY 2020 to FY 2024 and refer to the City Manager consideration of a Long-Term Paving Master Plan to be started after the completion of the public process of T1 Phase 2. The City Council may consider the information put forth by the Public Works Commission relevant to adoption of the recommended plan.

SUMMARY

In Part A, Section 1, the City of Berkeley's Street Rehabilitation Policy¹ (Policy) states, "It is the policy of the City of Berkeley that there shall be a Five-Year Street Rehabilitation Plan (Rehabilitation Plan, otherwise referred to as the "Paving Plan") for the entire City to be adopted by the City Council." The Public Works Commission (PWC) is charged by the Policy with reviewing and advising on that Rehabilitation Plan. Staff has carefully considered the PWC's advice, and recommends the City Council: 1.) approve the Five Year Street Rehabilitation Plan, and 2.) postpone the preparation of a Long-Term Paving Master Plan.

The City updates its Pavement Management System every two years providing the most current information for the City's pavement condition which staff bases decisions for development of the Rehabilitation Plan. The PWC is recommending addressing the pavement condition through the creation and implementation of a long-term paving plan. Staff believes that until additional funding, potentially from the second phase of Measure T1, can be identified to address the significant funding shortfall, consideration of the development of a longer term paving plan should be deferred until after the community process for selecting projects for the second phase of T1. The public process and community outreach as part of the second phase of the T1 bond measure will provide information and input on what is most important to the residents of Berkeley. This information is an essential first step before starting the development of a longer term paving plan. The input will help prioritize selection of improvements and define possible revisions to the Policy about the distribution of funds to bicycle routes, residential streets,

¹ https://www.cityofberkeley.info/Public_Works/Sidewalks-Streets-Utility/Street_Rehabilitation_and_Repair_Policy_updated_March_2009.aspx

green infrastructure and Vision Zero improvements. The City's PCI has been declining and was projected to be 57. The current PCI of 59.7 reflects a slight increase, and with increased funding support, the City could see additional improvement.

FISCAL IMPACTS OF RECOMMENDATION

This Rehabilitation Plan is based on the adopted biennial budget for Fiscal Years 2020 and 2021, and the estimated available funding levels from all sources, including State Transportation (Gas) Taxes, Measure B, Measure BB, County Measure F, and the General Fund. Similarly, the street rehabilitation programs for future years are based on projected budgets and estimated available funding levels. The funding allocations for street rehabilitation in the next five fiscal years FY 2020 - 2024 are provided in the Table below.

Table 1: Current Year and Five-Year Paving Program Funding Source Allocations by Year, in \$					
Fund Description	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
State Transportation Tax	495,303	495,303	495,303	495,303	495,303
Measure B - Local Streets & Roads	700,000	1,000,000	700,000	0	0
Measure BB – Local Streets & Roads	2,200,000	1,700,000	2,000,000	2,700,000	2,700,000
Measure F Vehicle - Registration Fee	155,000	155,000	155,000	155,000	155,000
Capital Improvement Fund	1,925,000	1,925,000	1,925,000	1,925,000	1,925,000
Road Repair and Accountability Act of 2017	1,500,000	1,700,000	1,700,000	2,000,000	2,000,000
TOTAL	6,975,303	6,975,303	6,975,303	7,275,303	7,275,303

City bond measures and grants shown in the table below have also been sources of funding for the street rehabilitation program. However, these funds are not guaranteed annual fund sources. Approximately \$8.5 million of Phase 1 Measure T1 bond funds will be spent on street improvements in Fiscal Years 2020 and 2021. An extensive community process to identify and vet potential projects to be delivered with Phase 2 of T1 bond funds is scheduled to start in early 2020. Phase 2 of T1 bond funds will not be available until after Council approves the Phase 2 Measure T1 projects, which is anticipated to occur in March 2021. Federal grant funds were secured for the Shattuck Reconfiguration Project in the amount of \$2.78 million dollars, and the funds will be spent in Fiscal Year 2020. Federal grant funds in the amount of \$1.2 million were also secured for street rehabilitation in association with the Southside Complete Streets project to be spent in Fiscal Year 2021.

Table 2: Other Funding Source Allocations by Year, in \$					
Fund Description	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Measure T1	7,500,000	1,000,000	0	0	0
Grants	2,777,000	1,200,000	0	0	0

CURRENT SITUATION AND ITS EFFECTS

The City has performed a significant amount of street paving this past year. With all of the recent work, the City street network Pavement Condition Index (PCI) has increased slightly from a PCI of 57 in 2017 to a PCI of 59.7. Even though this represents a slight change, it is a positive change in the right direction.

The current PCI is a result of historical funding levels appropriated to the City's street rehabilitation program and decades of deferred maintenance. In addition to pavement maintenance and rehabilitation, street paving projects incorporate many other improvements as part of a "complete streets" approach that repairs or replaces street infrastructure such as curb ramps, curbs, gutters, sidewalks, drainage inlets and pipes, signage and striping. These non-pavement construction costs average about 35% of the available funding levels. Projects soft costs such as design, construction management and inspection, survey, and material testing average about 15% of the available funding levels. Together, these non-pavement related expenses represent approximately 50% of the available funding levels for the Rehabilitation Plan.

City maintenance forces have also significantly increased pavement maintenance efforts in recent years to include a robust crack sealing program and an expanded program to address potholes, localized base failure repairs, thermoplastic striping, and sidewalk repairs.

Per the Policy, funds allocated for street rehabilitation are recommended to be used as follows:

- 10% for Arterial Streets
- 50% for Collector Streets
- 25% for Residential Streets
- 15% for Discretionary and Demonstration Projects

Per the above distribution guidelines, residential streets (generally low speed, low traffic volume streets serving neighborhoods) have historically received lower funding levels, and as a result, have more pavement rehabilitation needs than arterials (serve major activity centers with highest traffic volumes) and collectors (transfer traffic from residential streets to arterials).

For this Rehabilitation Plan, staff and the PWC collectively agreed to propose a greater distribution toward residential streets as follows:

- Approximately 3% to Arterial Streets
- Approximately 24% for Collector Streets
- Approximately 60% for Residential Streets

The PWC is in the process of developing a recommendation for criteria to assist with prioritizing projects to be funded with the approximately 15% of funding discretionary reserve. Previously funding for discretionary and demonstration projects have been spent on projects such as the Allston Way Permeable Paver project. However, consideration could also be given to using these funds on other beneficial improvements related to vision zero or bicycle master plans. Staff concurs with the PWC that the Policy should be reviewed and updated to reflect changes since the last update in 2009.

A review of the Allston Way project showed that project costs were approximately \$1,500,000 or about \$485/square yard (SY). The estimated cost of an asphalt surface reconstruction would have been approximately \$150,000 or about \$49/SY. In April of 2019, approximately 4-1/2 years after the initial paver installation, City maintenance workers had to replenish the gravel joint filler material that helps holds the pavers in place. Replenishment of bedding material was originally projected to be required at year 10 (2024). The cost to replenish the joint filler was approximately \$42,000 or about \$14/SY. The recommended maintenance treatment for the asphalt pavement would be an \$8/SY slurry seal at year 8 (2022) at an estimated cost of \$25,000. It is expected that regular replenishment of the filler material will be required along with a more significant effort to relevel several areas that have experienced excessive settlement. The Allston project also involved a full road closure for nearly 4 months. The asphalt pavement option limits construction impacts to normal working hours for a few weeks.

In addition to the distribution of funding by street classification, the Policy requires consideration of other items in street selection process for the Rehabilitation Plan which are depicted in the 5-Year Paving Plan Process Flow Diagram (Attachment 3).

Bikeways / Bus Route: Staff coordinated with Bike East Bay and also considered comments from Walk Bike Berkeley. Staff also reviewed the City's Bicycle Plan and the Pedestrian Plan to incorporate pedestrian mobility improvements and improvements to bicycle routes into the Rehabilitation Plan. The Rehabilitation Plan includes several streets in the bicycle plan, including Milvia Street, Cedar Street, Santa Fe Avenue, and Hopkins Street, and several streets that are also bus routes including Monterey Avenue, Bancroft Way, Center Street, Dana Street and Telegraph Avenue.

Utility Coordination: The Rehabilitation Plan has also been coordinated with future sewer projects, with East Bay Municipal Utility District (EBMUD) pipeline replacement, and with planned gas and electric line relocations by Pacific Gas and Electric. The City is currently working with EBMUD to have Ellsworth Street from Bancroft Way to Ashby Avenue and Stuart Street from Fulton to Hillegass Avenue pavement rehabilitation in FY 2022 incorporated into their Wildcat Aqueduct Pipeline Improvement Project construction.

Equity: Although not explicitly relayed in the Street Rehabilitation Policy staff tries to balance equity among the districts and to rehabilitate contiguous streets.

From Fiscal Years 2020 to 2024 the City will pave a total of 16.11 miles of streets, as described in Exhibit A, at a cost of \$27.6 million. The total includes 11.40 miles of residential streets, 0.77 miles of arterials, and 3.04 miles of collectors.

Pavement Engineering Inc. (PEI) updated the City's Pavement Management System using the Metropolitan Transportation Commission's (MTC) Streetsaver® program. The purpose of the Pavement Management System, a pavement assessment of the entire City's street network, is to track inventory, store work history, and furnish budget estimates to optimize funding for improving the City's pavement system.

The updated Pavement Management System showed that the City's current overall average PCI is 59.7. The breakdown by functional classification of street is provided in the table below. Residential streets which are the largest category of streets in the City, have the lowest PCI of 56.

FUNCTIONAL CLASS	CENTERLINE MILES (CL)	AREA (SQUARE FEET)	PERCENT OF SYSTEM	AVERAGE PCI
Arterial	22	5,688,148	14%	67.9
Collector	37	6,966,432	18%	65.4
Residential	156	26,385,401	68%	56.4
TOTAL	215	39,039,981	100%	59.7

The breakdown by mileage and PCI by Council District for the entire street network is provided in Table 4. It shows that the percent of pavement area per District ranges from 5.1% to 18.4%, and the PCI ranges from 50 to 62. The centerline miles in each District varies as well, from 9.4 to 36.5 miles.

The Rehabilitation Plan proposes to rehabilitate pavement such that the percentage of funds are distributed among the Districts as shown in the far right two columns of Table 4. The percentage of funds spent on rehabilitation per District ranges from 8% to 14%. The centerline miles of pavement rehabilitated per District ranges from 1.50 to 2.41 miles. The percentage of funds to be spent in each district is based on the total estimated street rehabilitation costs.

Table 4: Council District Mileage, PCI, Rehabilitation Plan						
Mileage & PCI By District					Rehabilitation Plan	
	Area (SF)	Mileage	% of area	PCI	% Funds*	Mileage*
District 1	7,189,018	36.5	18.4%	57	9%	1.50
District 2	5,923,823	31.5	15.2%	50	11%	1.78
District 3	4,987,344	23.7	12.8%	58	14%	2.33
District 4	3,510,446	16.1	9.0%	55	9%	1.38
District 5	6,313,826	37.3	16.2%	62	8%	1.32
District 6	4,946,098	36.6	12.7%	60	15%	2.41
District 7	1,997,809	9.4	5.1%	62	13%	1.52
District 8	4,179,713	23.6	10.7%	60	9%	1.78

* does not include arterial or waterfront streets or discretionary funding.

The breakdown by mileage and PCI for bikeways and bus routes is provided in Table 5 below. It shows that bikeways and bus routes are a significant portion the City's roadways. The PCI is 66 for bus routes, which is higher than the system wide average PCI of 59.7. This is a reflection of focus and funding spent on arterials and collectors.

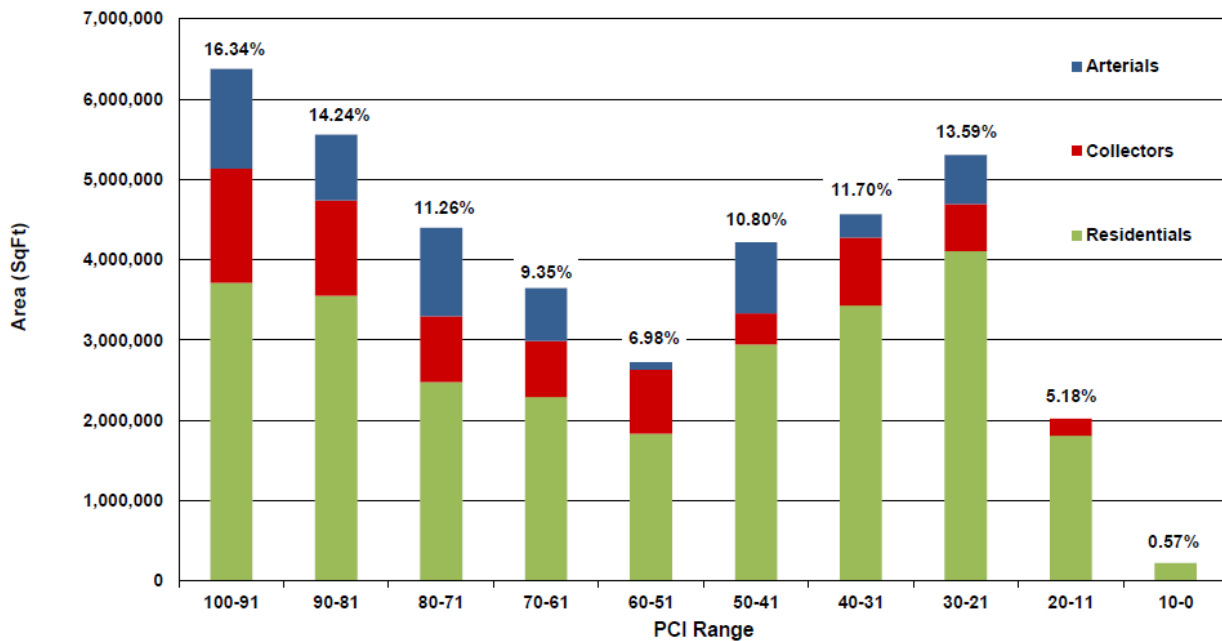
Table 5: Bikeway / Bus Route Mileage and PCI				
	Area (SF)	Mileage	%	PCI
Bikeway	13,415,581	65	34%	61
Bus Route	9,167,372	40	23%	66

The table below shows the breakdown of the system into PCI Condition Categories.

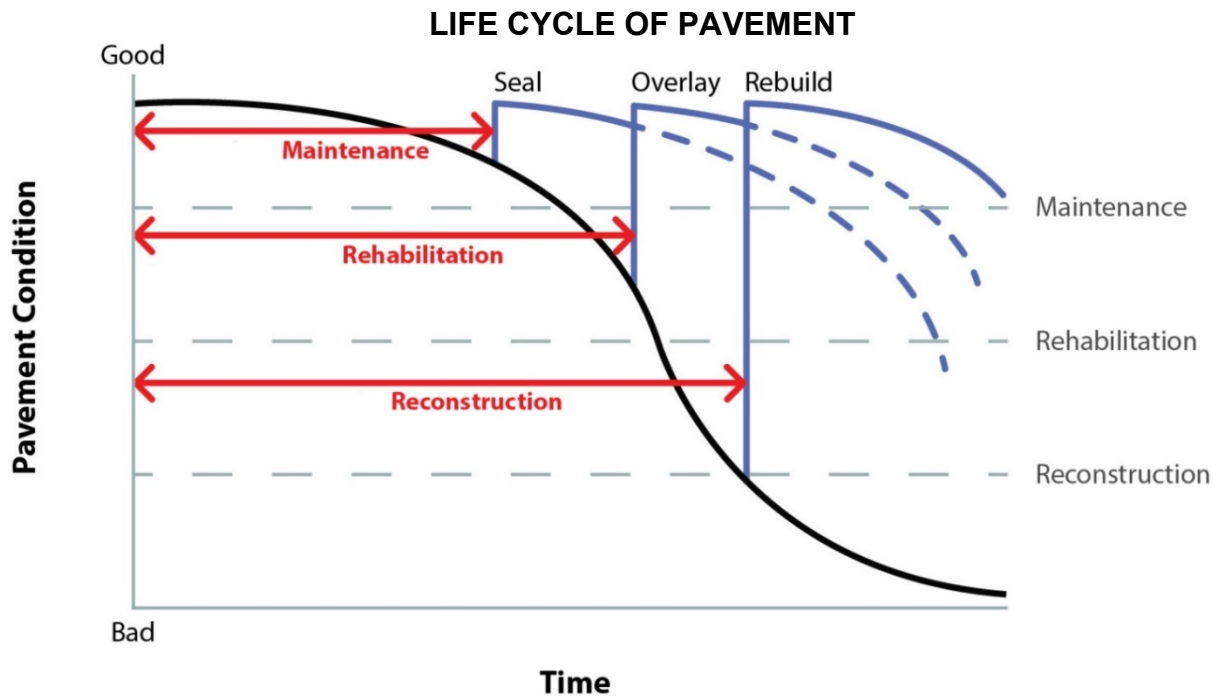
Table 6: PCI Condition Categories				
CONDITION	PCI RANGE	% OF TOTAL	SQUARE FEET	CL MILES
EXCELLENT	100-91	16%	6,378,721	34
GOOD	90-71	26%	9,957,142	53
FAIR	70-51	16%	6,373,028	37
POOR	50-31	23%	8,784,629	48
FAILED	30-0	19%	7,546,461	43
		100%	39,039,981	215

The analysis shows that **42%** of the City's pavement is in **Excellent to Good** condition and that **39%** of the City's pavement is in **Fair to Poor** condition. This is further illustrated in the bar graph below shows a breakdown of the system into 10pt PCI ranges, by Functional Classification. This shows that while the overall PCI is 59.7, the pavement system needs require a mix of both maintenance treatments and rehabilitation treatments. Maintenance treatments include slurry and cape seals, and thin overlays. Costs for these treatments range from \$8 to \$27 per square yard. Rehabilitation treatments include thick overlays, pavement milling/filling, and full depth reclamation. Costs for these treatments range from \$52 to \$104 per square yard.

Berkeley Total System by Functional Class by PCI

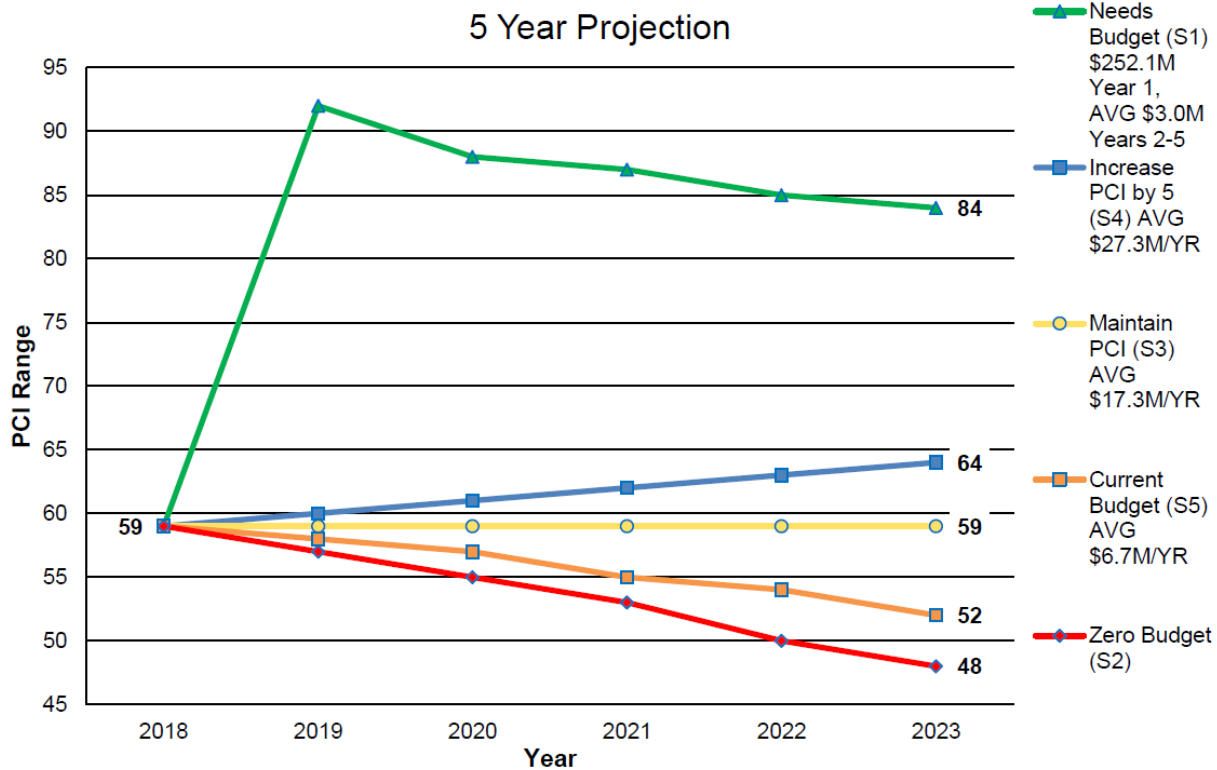


The graph below shows the life cycle or deterioration curve of pavement over time. The City's overall PCI of 59.7 is in the steepest part of the curve. This shows that the pavement can progress from good (able to be rehabilitated) to bad (in need of a total reconstruction) in a short period of time. The treatment (blue) lines on the graph show this, the importance of applying the right treatment at the right time to maximize the service life of the road.



- PEI analyzed the following pavement rehabilitation scenarios: Unconstrained budget needs for next 5 years
- Amount of funds needed to maintain current PCI
- Impact of the current funding amount (5 Year Plan)
- Budget needed to increase the overall PCI level by 5 points
- Result if zero dollars are spent on the City's street system

For each of these scenarios, PEI performed 5-year projections, represented by the graph below.



An explanation of the 5-year scenarios and their result are as follows:

- Scenario 1 (S1):** Represents the budget required based on the “Needs” of the system. Assumes all pavements are treated at their optimum timing. With an initial investment of \$252.1M in year one and an average of \$3.0M in years 2-5, the PCI increases from 59 to 84.
- Scenario 2 (S2):** Represents the impact to the PCI if Zero dollars are spent.
- Scenario 3 (S3):** Amount of funding to maintain the current PCI of 59 - \$17.3M/Yr. (Avg.)
- Scenario 4 (S4):** Budget to increase overall PCI by 5 points – \$27.3M/Yr. Avg. (Raises the PCI from 59 to 64).
- Scenario 5 (S5):** Impact of the current 5 Year Plan (averaging \$6.7M/Yr.) The overall system PCI would be 52.

The City is currently budgeting an average of \$7 million of baseline funding annually. At this funding level, the PCI is expected to drop to 52 by the year 2023. If the City would like to maintain the current PCI of 59, it needs to invest an additional \$10 million annually into the street Capital Improvement Program. If the City would like increase the PCI 5 points to a PCI of 64, it will need to invest \$27 million each year, an increase of \$20 million over

current funding levels. In order to improve the PCI from the “at risk” category to the “good” category (PCI 70 to 79) the City will need to invest over \$30 million annually.

This resolution updating the Five Year Street Rehabilitation Plan for FY 2020 – FY2024 advances the City’s strategic goal of providing state-of-the-art, well-maintained infrastructure, amenities, and facilities.

BACKGROUND

It is the policy of the City of Berkeley that there shall be a Five-Year Street Rehabilitation Plan for the entire City to be adopted by the City Council. To the extent practicable, this Rehabilitation Plan shall be consistent with the priorities of the City’s Street Rehabilitation Policy. The primary purpose of the Policy is to maintain a safe surface conveyance system in the public right-of-way for vehicles, bicycles, transit, and pedestrians alike. Per the Policy, the Rehabilitation Plan shall strive to identify and implement integrated solutions that address the multiple demands on the street infrastructure, that are designed for safety, environmental sustainability and economic efficiency over the long run.

Each year, the PWC reviews the Rehabilitation Plan for consistency with the City’s current Policy, and the Plan is subsequently presented to the City Council for adoption.

ENVIRONMENTAL SUSTAINABILITY

The City includes environmental sustainability in the development of its Rehabilitation Plan. In accordance with the street rehabilitation policy, the City set asides 15% of its funds towards demonstration or discretionary projects such as street rehabilitation which provides environmental benefits. In Fiscal Year 2020, a demonstration project the City plans to construct includes the use of permeable concrete in the parking lanes. The Public Works Commission is currently identifying additional green infrastructure projects in FY 2021 to 2024 to be funded by the discretionary and demonstration funds.

In addition, environmentally conscious pavement treatments are incorporated in the paving projects such as Full Depth Reclamation (FDR). FDR is being used as a cost-effective alternative to traditional street reconstruction methods. It recycles much of the existing pavement on site, and incorporates it into the pavement subgrade, thereby reducing truck trips to and from construction sites.

The Rehabilitation Plan also includes repair of the City’s deteriorating storm drain infrastructure that minimizes degradation of water quality in local creeks and the Bay. These repairs are consistent with the City of Berkeley’s 2011 Watershed Management Plan. Furthermore, the Plan also proposes approximately 5.8 miles of improvements to bicycle routes, and improvements to sidewalk and curb ramps adopted from the Bicycle and Pedestrian Plans. These steps result in lower emissions of greenhouse gases into the environment, which is consistent with the goals of the 2009 Berkeley Climate Action Plan.

RATIONALE FOR RECOMMENDATION

It is the policy of the City of Berkeley that there shall be a Five-year Street Rehabilitation Plan for the entire City to be adopted by the City Council. Further, the proposed plan

provides for much needed street infrastructure improvements that are consistent with the City's Street Rehabilitation Policy.

ALTERNATIVE ACTIONS CONSIDERED

No alternative actions were considered.

CONTACT PERSON

Phillip L. Harrington, Director, Public Works, (510) 981-6303
Andrew Brozyna, Deputy Director, Public Works, (510) 981-6496
Nisha Patel, Manager of Engineering, Public Works (510) 981-6406
Joe Enke, Supervising Civil Engineer, Public Works (510) 981-6411

Attachments:

1. Resolution
Exhibit A: 5-Year Street Rehabilitation Plan for FY 2020 to FY 2024
2. Map of the 5-Year Street Rehabilitation Plan, FY 2020 to FY 2024
3. 5-Year Paving Plan Process Flow Diagram

RESOLUTION NO. ##,###-N.S.

APPROVAL OF THE FIVE-YEAR STREET REHABILITATION PLAN FOR FY 2020 TO
FY 2024

WHEREAS, the Street Rehabilitation Policy, Resolution No. 55,384-N.S. approved on May 22, 1990, requires a Five-Year Street Rehabilitation Plan for the entire City be adopted by the City Council; and

WHEREAS, the Five-Year Street Rehabilitation Plan shall be reviewed and updated annually by the City Council, with advice from the Public Works Commission; and

WHEREAS, the Street Rehabilitation Policy, proposes distribution of funds to be used for street rehabilitation as follows: 10% for arterial streets; 50% for collector streets; 25% for residential streets; 15% for discretionary and demonstration projects; and

WHEREAS, residential streets have historically received lower funding levels and as a result have more pavement rehabilitation needs than the other street classifications; and

WHEREAS, Department of Public Works staff recommends more funding to be distributed to residential streets and less to the other street classifications as proposed in the FY 2020 to FY 2024 Five-Year Street Rehabilitation Plan, attached as Exhibit A; and

WHEREAS, Department of Public Works staff recommends Council adopt the FY 2020 to FY 2024 Five-Year Street Rehabilitation Plan.

NOW THEREFORE, BE IT RESOLVED by the Council of the City of Berkeley that the FY 2020 to FY 2024 Five-Year Street Rehabilitation Plan, attached as Exhibit A hereof, is hereby adopted.

Exhibit A: Five-Year Street Rehabilitation Plan for FY 2020 to FY 2024

EXHIBIT A
5-YEAR STREET REHABILITATION PLAN FOR FY 2020 TO FY 2024

Revised: 05/22/2019

Fiscal Year	Street ID	Section ID	Street Name	From	To	Class	Treatment (from StreetSaver)	Updated Total Cost	District	P	Mileage	Current PCI	Last M&R Date	Last M&R	Last Paved
2020	321100	30	CEDAR ST	6TH ST	SAN PABLO AVE	C	Reconstruct	\$ 1,239,036	1	3C*	0.31	23	10/1/1994	O -	MILL AND OVERLAY W/FABRIC
2020	320685	10	MARINA BLVD	SPINNAKER WAY	UNIVERSITY AVE	C	Heavy Mtce		1	N	0.43	56	9/1/1986	A - AC	OVERLAY
2020	735382	60	MILVIA ST	BLAKE ST	RUSSELL ST	R	Heavy Rehab	\$ 764,300	3	3E	0.44	26	9/1/1993	A - AC	RECONSTRUCT SURFACE (AC)
2020	516492	75	ROSE ST	LE ROY AVE	EAST END	R	Reconstruct	\$ 205,000	6	N	0.14	8		A - AC	
2020	319525	35	SANTA FE AVE	GILMAN ST	CORNELL AVE & PAGE	R	Heavy Rehab	\$ 409,600	1	3C*	0.27	41	7/1/1995	A - AC	RECONSTRUCT STRUCTURE (AC)
2020	319525	30	SANTA FE AVE	NORTH CITY LIMIT	GILMAN ST	R	Light Mtce	\$ 37,355	1	3C*	0.11	93	8/31/2004	O -	MILL AND THIN OVERLAY
2020	115532	77	SHASTA RD	GRIZZLY PEAK BLVD	PARK GATE	C	Heavy Rehab	\$ 86,667	6	N	0.05	28	11/1/1988	A - AC	RECONSTRUCT SURFACE (AC)
2020	115532	79	SHASTA RD	PARK GATE	EAST CITY LIMIT	C	Reconstruct	\$ 234,789	6	N	0.11	26	11/1/1988	A - AC	RECONSTRUCT SURFACE (AC)
2020	320686	10	SPINNAKER WAY	BREAKWATER DR	MARINA BLVD	R	Reconstruct	\$ 1,000,000	1	N	0.28	22	8/1/1991	A - AC	OVERLAY
2020	213386	22	MONTEREY AVE	THE ALAMEDA	HOPKINS ST	C	Heavy Rehab	\$ 960,667	5	2A	0.57	47	11/30/2011	A - AC	MILL AND OVERLAY
2020	933653	40	WARD ST	SAN PABLO AVE	ACTON ST	R	Reconstruct	\$ 1,328,400	2	N	0.31	21	9/1/1991	A - AC	MILL AND OVERLAY W/FABRIC
2020	320620	15	UNIVERSITY AVE	MARINA BLVD	WEST FRONTAGE RD	C	Reconstruct		1, 2	N	0.30	9	12/1/1989	A - AC	OVERLAY
2020	729533	55	SHATTUCK AVE	CENTER ST	ALLSTON WAY	A	Reconstruct		4		0.06	18	7/1/1994	O -	MILL AND OVERLAY W/FABRIC
2020	729533	57	SHATTUCK AVE (SB)	CENTER ST	UNIVERSITY AVE	A	Reconstruct		4		0.13	25	7/1/1994	O -	MILL AND OVERLAY W/FABRIC
2020	729007	64	ADDISON ST	SHATTUCK AVE	SHATTUCK AVE	R	Heavy Rehab		4		0.03	48	7/1/1994	O -	MILL AND OVERLAY W/FABRIC
2020	729051	52	BERKELEY SQUARE	ADDISON ST	CENTER ST	A	Heavy Rehab		4		0.06	34	7/1/1994	O -	MILL AND OVERLAY W/FABRIC
2020	729535	50	SHATTUCK SQUARE	UNIVERSITY AVE	ADDISON	A	Heavy Rehab		4		0.07	30	7/1/1994	O -	MILL AND OVERLAY W/FABRIC
								\$ 6,265,814			3.69				

Note: Column P denotes presence of bike facility type (1 paved path, 2A 2B bike lane, 3A sign-only, 3C Sharrows, 3E bike blvd, 4 cycle track); C for bus route; and N for none.

*Proposed bike facilities from 2017 Bike Plan.

EXHIBIT A
5-YEAR STREET REHABILITATION PLAN FOR FY 2020 TO FY 2024

Revised: 05/22/2019

Fiscal Year	Street ID	Section ID	Street Name	From	To	Class	Treatment (from StreetSaver)	Updated Total Cost	District	P	Mileage	Current PCI	Last M&R Date	Last M&R	Last Paved
2021	940005	70	ACTON ST	ASHBY ST	66TH ST	R	Light Mtce	\$ 83,640	2	N	0.23	79	8/29/2007	A - AC	RECONSTRUCT STRUCTURE (AC)
2021	516020	30	ARCADE AVE	GRIZZLY PEAK BLVD	FAIRLAWN DR	R	Heavy Rehab	\$ 63,378	6	N	0.06	27	6/1/1995	O -	MILL AND OVERLAY W/FABRIC
2021	628042	78	BANCROFT WAY	BOWDITCH ST	COLLEGE AVE	C	Heavy Mtce	\$ 161,036	7	3C*	0.13	56	12/1/1990	O -	MILL AND OVERLAY W/FABRIC
2021	627042	80	BANCROFT WAY	COLLEGE AVE	PIEDMONT AVE	C	Heavy Rehab	\$ 254,076	7	3C*	0.13	28	12/1/1990	O -	MILL AND OVERLAY W/FABRIC
2021	829102	60	CENTER ST	MARTIN LUTHER KING	MILVIA ST	R	Heavy Rehab	\$ 315,645	4		0.13	49	7/1/1991	A - AC	RECONSTRUCT SURFACE (AC)
2021	729102	63	CENTER ST	MILVIA ST	SHATTUCK	R	Heavy Rehab	\$ 564,000	4	2A*	0.13	49	7/1/1991	A - AC	RECONSTRUCT SURFACE (AC)
2021	111127	10	CRESTON RD	GRIZZLY PEAK BLVD	SUNSET LANE	R	Heavy Mtce	\$ 93,378	6	N	0.36	63	6/1/1995	A - AC	RECONSTRUCT STRUCTURE (AC)
2021	115127	20	CRESTON RD	SUNSET LANE	GRIZZLY PEAK BLVD	R	Heavy Mtce	\$ 116,258	6	N	0.36	64	11/1/1988	A - AC	RECONSTRUCT SURFACE (AC)
2021	728140	50	DANA ST	BANCROFT WAY	DWIGHT WAY	R	Heavy Rehab	\$ 467,400	7	2A to 2B*	0.25	45	12/1/1989	O -	MILL AND OVERLAY W/FABRIC
2021	739141	70	DEAKIN ST	ASHBY AVE	PRINCE ST	R	Light Mtce	\$ 45,920	3	N	0.16	79	4/3/2008	A - AC	RECONSTRUCT STRUCTURE (AC)
2021	736141	68	DEAKIN ST	RUSSELL ST	ASHBY AVE	R	Light Rehab	\$ 109,200	3	N	0.10	55	7/1/1988	O -	MILL AND OVERLAY W/FABRIC
2021	940148	70	DOHR ST	ASHBY AVE	PRINCE ST	R	Heavy Rehab	\$ 176,569	2	N	0.14	41	10/1/1992	A - AC	RECONSTRUCT STRUCTURE (AC)
2021	115344	80	LATHAM LANE	MILLER AVE	GRIZZLY PEAK	R	Heavy Mtce	\$ 38,500	6	N	0.10	59	6/1/1994	A - AC	RECONSTRUCT STRUCTURE (AC)
2021	115380	70	MILLER AVE	HILLDALE AVE	SHASTA RD	R	Light Rehab	\$ 425,880	6	N	0.66	53	6/1/1994	A - AC	RECONSTRUCT STRUCTURE (AC)
2021	830491	58	ROOSEVELT AVE	CHANNING WAY	DWIGHT WAY	R	Light Rehab	\$ 172,480	4	N	0.13	52	12/1/1989	A - AC	RECONSTRUCT SURFACE (AC)
2021	728584	50	TELEGRAPH AVE	BANCROFT WAY	DWIGHT WAY	C	Heavy Rehab	\$ 473,060	7	3C*	0.25	39	7/1/1988	O -	MILL AND OVERLAY W/FABRIC
2021	931657	55	WEST ST	BANCROFT WAY	DWIGHT WAY	R	Heavy Mtce	\$ 263,822	2	N	0.25	55	10/1/1994	O -	MILL AND OVERLAY W/FABRIC
2021	320528	47	2ND ST	DELAWARE ST	HEARST AVE	R	Reconstruct	\$ 775,833	1	N	0.09	9	NA		
2021	320528	48	2ND ST	HEARST AVE	UNIVERSITY AVE	R	Heavy Rehab	\$ 762,222	1	N	0.09	33	NA		
2021	920528	50	2ND ST	UNIVERSITY AVE	ADDISON ST	R	Heavy Rehab	\$ 560,000	2	N	0.09	32	8/27/1997		MILL AND OVERLAY W/FABRIC
2021			15% DISCRETIONARY					\$ 1,046,295							
								\$ 6,968,593			3.84				

Note: Column P denotes presence of bike facility type (1 paved path, 2A 2B bike lane, 3A sign-only, 3C Sharrows, 3E bike blvd, 4 cycle track); C for bus route; and N for none.

*Proposed bike facilities from 2017 Bike Plan.

EXHIBIT A
5-YEAR STREET REHABILITATION PLAN FOR FY 2020 TO FY 2024

Revised: 05/22/2019

Fiscal Year	Street ID	Section ID	Street Name	From	To	Class	Treatment (from StreetSaver)	Updated Total Cost	District	P	Mileage	Current PCI	Last M&R Date	Last M&R	Last Paved
2022	931073	50	BROWNING ST	ADDISON ST	DWIGHT WAY	R	Heavy Rehab	\$ 911,600	2	N	0.50	35	10/1/1995	O -	MILL AND OVERLAY W/FABRIC
2022	638115	70	COLLEGE AVE	ASHBY AVE	SOUTH CITY LIMIT	A	Heavy Rehab	\$ 896,480	8	N	0.41	42	8/23/2000	A - AC	RECONSTRUCT STRUCTURE (AC)
2022	729152	60	DURANT AVE	MILVIA ST	SHATTUCK AVE	C	Reconstruct	\$ 693,355	4	N	0.13	11	11/1/1992	O -	MILL AND OVERLAY W/FABRIC
2022	729152	64	DURANT AVE	SHATTUCK AVE	FULTON ST	C	Heavy Rehab	\$ 262,880	4	N	0.10	32	8/12/1997	O -	MILL AND OVERLAY W/FABRIC
2022	728180	50	ELLSWORTH ST	BANCROFT WAY	DWIGHT WAY	R	Reconstruct	\$ 422,400	7	N	0.25	22	11/1/1992	O -	MILL AND OVERLAY W/FABRIC
2022	736180	60	ELLSWORTH ST	DWIGHT WAY	WARD ST	R	Light Mtce	\$ 129,360	7	N	0.38	92	5/11/2011	A - AC	RECONSTRUCT SURFACE (AC)
2022	736180	65	ELLSWORTH ST	WARD ST	ASHBY AVE	R	Light Mtce	\$ 99,307	3	N	0.29	92	5/11/2011	A - AC	RECONSTRUCT SURFACE (AC)
2022	736227	60	FULTON ST	DWIGHT WAY	BLAKE ST	R	Heavy Mtce	\$ 76,128	3	3E*	0.06	60	6/1/1993	O -	MEDIUM AC OVERLAY (2 INCHES)
2022	736227	61	FULTON ST	BLAKE ST	PARKER ST	R	Heavy Mtce	\$ 27,840	3	3E*	0.07	69	6/1/1993	O -	MEDIUM AC OVERLAY (2 INCHES)
2022	736227	63	FULTON ST	PARKER ST	STUART ST	R	Heavy Mtce	\$ 321,592	3	3E*	0.25	58	2/1/1992	O -	THIN AC OVERLAY(1.5 INCHES)
2022	835431	65	OTIS ST	RUSSELL ST	ASHBY AVE	R	Heavy Rehab	\$ 224,000	3	N	0.13	49	4/1/2001	A - AC	RECONSTRUCT STRUCTURE (AC)
2022	736561	70	STUART ST	FULTON ST	HILLEGASS AVE	R	Heavy Rehab	\$ 784,000	7	N	0.46	39	11/13/1998	A - AC	RECONSTRUCT STRUCTURE (AC)
2022			15% DISCRETIONARY					\$ 1,046,295							
								\$ 5,895,237			3.03				

Note: Column P denotes presence of bike facility type (1 paved path, 2A 2B bike lane, 3A sign-only, 3C Sharrows, 3E bike blvd, 4 cycle track); C for bus route; and N for none.

*Proposed bike facilities from 2017 Bike Plan.

EXHIBIT A
5-YEAR STREET REHABILITATION PLAN FOR FY 2020 TO FY 2024

Revised: 05/22/2019

Fiscal Year	Street ID	Section ID	Street Name	From	To	Class	Treatment (from StreetSaver)	Updated Total Cost	District	P	Mileage	Current PCI	Last M&R Date	Last M&R	Last Paved
2023	729042	65	BANCROFT WAY	SHATTUCK AVE	FULTON ST	C	Heavy Rehab	\$ 277,778	4	4*	0.09	41	8/7/1997	O -	MILL AND OVERLAY W/FABRIC
2023	729042	60	BANCROFT WAY	MILVIA WAY	SHATTUCK AVE	C	Heavy Rehab	\$ 359,836	4	N	0.13	34	12/1/1989		MILL AND OVERLAY W/FABRIC
2023	736140	65	DANA ST	BLAKE ST	WARD ST	R	Light Rehab	\$ 454,080	7	3E*	0.25	65	7/30/2008	A - AC	RECONSTRUCT STRUCTURE (AC)
2023	739186	60	EMERSON ST	ADELIN ST	SHATTUCK AVE	R	Light Rehab	\$ 180,320	3	N	0.15	59	4/1/2001	A - AC	RECONSTRUCT STRUCTURE (AC)
2023	839191	60	ESSEX ST	ADELIN ST	TREMONT ST	R	Heavy Mtce	\$ 76,160	3	N	0.06	68	4/1/2001	A - AC	RECONSTRUCT STRUCTURE (AC)
2023	739191	62	ESSEX ST	TREMONT ST	SHATTUCK AVE	R	Light Rehab	\$ 129,920	3	N	0.11	64	4/1/2001	A - AC	RECONSTRUCT STRUCTURE (AC)
2023	637217	80	FOREST AVE	COLLEGE AVE	CLAREMONT BLVD	R	Heavy Rehab	\$ 600,000	8	N	0.36	45	8/1/1996	A - AC	RECONSTRUCT STRUCTURE (AC)
2023	516340	36	LA LOMA AVE	ROSE ST	BUENA VISTA WAY	C	Heavy Rehab	\$ 248,827	6	N	0.16	37	6/1/1995	O -	MILL AND OVERLAY W/FABRIC
2023	516340	38	LA LOMA AVE	BUENA VISTA WAY	CEDAR ST	C	Heavy Rehab	\$ 221,340	6	N	0.14	49	6/1/1995	O -	MILL AND OVERLAY W/FABRIC
2023	834371	65	MC GEE AVE	DERBY ST	RUSSELL ST	R	Light Rehab	\$ 461,992	3	N	0.25	59	12/10/1998	A - AC	RECONSTRUCT STRUCTURE (AC)
2023	834371	60	MC GEE AVE	DWIGHT WAY	DERBY ST	R	Light Rehab	\$ 302,400	3	N	0.26	51	7/1/1988	O -	THIN OVERLAY w/FABRIC
2023	319293	47	HOPKINS ST	GILMAN ST	SACRAMENTO ST	R	Heavy Rehab	\$ 203,942	5	3A, C	0.10	32	9/13/2002		MILL AND OVERLAY W/FABRIC
2023	213293	50	HOPKINS ST	HOPKINS CT	MONTEREY AVE	C	Light Rehab	\$ 75,193	5	3A, C	0.05	59	9/13/2002		MILL AND OVERLAY W/FABRIC
2023	213293	52	HOPKINS ST	MONTEREY AVE	MC GEE AVE	C	Heavy Rehab	\$ 107,167	5	2A, C	0.05	47	12/1/1989		RECONSTRUCT STRUCTURE (AC)
2023	319293	45	HOPKINS ST	NORTHSIDE AVE	PERALTA AVE	R	Light Mtce	\$ 233,587	1	N	0.10	78	9/13/2002		MILL AND OVERLAY W/FABRIC
2023	319293	46	HOPKINS ST	PERALTA AVE	GILMAN ST	R	Heavy Mtce	\$ 433,031	1, 5	N	0.27	58	9/13/2002		MILL AND OVERLAY W/FABRIC
2023	319293	49	HOPKINS ST	SACRAMENTO ST	HOPKINS CT	A	Heavy Rehab	\$ 77,755	5	3A, C	0.04	38	9/13/2002		MILL AND OVERLAY W/FABRIC
2023	319293	40	HOPKINS ST	SAN PABLO AVE	STANNAGE AVE	R	Light Mtce	\$ 19,188	1	N	0.09	74	9/13/2002		MILL AND OVERLAY W/FABRIC
2023	319293	42	HOPKINS ST	STANNAGE AVE	NORTHSIDE AVE	R	Heavy Mtce	\$ 157,658	1	N	0.17	69	9/13/2002		MILL AND OVERLAY W/FABRIC
2023			15% DISCRETIONARY					\$ 1,091,295							
								\$ 5,711,469			2.86				

Note: Column P denotes presence of bike facility type (1 paved path, 2A 2B bike lane, 3A sign-only, 3C Sharrows, 3E bike blvd, 4 cycle track); C for bus route; and N for none.

*Proposed bike facilities from 2017 Bike Plan.

EXHIBIT A
5-YEAR STREET REHABILITATION PLAN FOR FY 2020 TO FY 2024

Revised: 05/22/2019

Fiscal Year	Street ID	Section ID	Street Name	From	To	Class	Treatment (from StreetSaver)	Updated Total Cost	District	P	Mileage	Current PCI	Last M&R Date	Last M&R	Last Paved
2024	729014	63	ALLSTON WAY	MILVIA ST	SHATTUCK AVE	R	Heavy Rehab	\$ 228,800	4	N	0.14	37	11/1/1990	O -	MILL AND THIN OVERLAY
2024	729014	65	ALLSTON WAY	SHATTUCK AVE	OXFORD ST	R	Reconstruct	\$ 344,036	4	N	0.11	12	11/1/1992	O -	MILL AND OVERLAY W/FABRIC
2024	729104	63	CHANNING WAY	MILVIA ST	SHATTUCK AVE	R	Heavy Rehab	\$ 267,640	4	2A to 2B*	0.13	34	9/1/1991	O -	MILL AND OVERLAY W/FABRIC
2024	829104	60	CHANNING WAY	MARTIN LUTHER KING	MILVIA ST	R	Reconstruct	\$ 462,920	4	2A to 2B*	0.13	15	5/1/1995	O -	THIN AC OVERLAY(1.5 INCHES)
2024	322142	48	DELAWARE ST	ACTON ST	SACRAMENTO ST	C	Heavy Mtce	\$ 78,175	1	4*	0.13	61	10/1/1992	O -	MILL AND OVERLAY W/FABRIC
2024	636146	78	DERBY ST	HILLEGASS AVE	COLLEGE AVE	R	Reconstruct	\$ 498,560	8	3E*	0.14	25	8/8/1997	O -	MILL AND OVERLAY W/FABRIC
2024	627155	85	DWIGHT WAY	HILLSIDE AVE	DEAD END ABOVE	R	Reconstruct	\$ 406,204	8	N	0.11	22	9/1/1993	A - AC	RECONSTRUCT SURFACE (AC)
2024	627155	83	DWIGHT WAY	PIEDMONT AVE	HILLSIDE AVE	R	Reconstruct	\$ 526,688	7, 8	N	0.14	12	9/1/1993	O -	MILL AND OVERLAY W/FABRIC
2024	111249	17	GRIZZLY PEAK BLVD	KEELER AVE	MARIN AVE	C	Reconstruct	\$ 843,578	6	3C*	0.27	19	10/1/1992	O -	MILL AND OVERLAY W/FABRIC
2024	920275	40	HEINZ AVE	7TH ST	SAN PABLO AVE	R	Reconstruct	\$ 897,408	2	3E	0.26	22	11/1/1992	O -	MILL AND OVERLAY W/FABRIC
2024	739285	70	HILLEGASS AVE	ASHBY AVE	CITY LIMIT (WOOLSEY	R	Light Mtce	\$ 68,400	8	3E	0.16	76	7/28/2003	A - AC	RECONSTRUCT STRUCTURE (AC)
2024	736285	60	HILLEGASS AVE	DWIGHT WAY	ASHBY AVE	R	Light Mtce	\$ 256,000	8	3E	0.61	78	5/31/2000	A - AC	RECONSTRUCT STRUCTURE (AC)
2024	213293	53	HOPKINS ST	MC GEE AVE	CARLOTTA AVE	C	Heavy Rehab	\$ 149,680	5	2A, C	0.06	45	12/1/1989		RECONSTRUCT STRUCTURE (AC)
2024	213293	55	HOPKINS ST	CARLOTTA AVE	JOSEPHINE ST	C	Heavy Rehab	\$ 874,580	5	2A, C	0.35	50	12/1/1989		MILL AND OVERLAY
2024			15% DISCRETIONARY					\$ 1,091,295							
								\$ 6,993,964			2.74				

Note: Column P denotes presence of bike facility type (1 paved path, 2A 2B bike lane, 3A sign-only, 3C Sharrows, 3E bike blvd, 4 cycle track); C for bus route; and N for none.

*Proposed bike facilities from 2017 Bike Plan.

FISCAL YEAR 2020 TOTALS

Total Estimated Cost and Miles

	MILEAGE
ARTERIALS	0.32
COLLECTORS	1.77
RESIDENTIALS	1.58
	3.67

	District	Miles	Cost	
\$ 6,265,814		3.67 miles		
	1	0.69	\$1,685,991	
	2	0.31	\$1,328,400	
	3	0.44	\$764,300	
	4	0.03	\$0	
	5	0.57	\$960,667	
	6	0.30	\$526,456	
	7	0.00	\$0	
	8	0.00	\$0	
	<u>Arterial/PRW</u>	1.33	\$1,000,000	
		3.67	\$6,265,814	6975303

FISCAL YEAR 2021 TOTALS

Total Estimated Cost and Miles		\$ 6,968,593	3.84 miles	
	MILEAGE	District	Miles	Cost
ARTERIALS	0.00	1	0.18	\$1,538,055
COLLECTORS	0.51	2	0.71	\$1,084,031
RESIDENTIALS	3.33	3	0.26	\$155,120
	3.84	4	0.39	\$1,052,125
		5	0.00	\$0
		6	1.54	\$737,394
		7	0.76	\$1,355,572
		8	0.00	\$0
		15%		\$1,046,295
<hr/>			3.84	\$6,968,592
				6975303

FISCAL YEAR 2022 TOTALS

Total Estimated Cost and Miles

	MILEAGE
ARTERIALS	0.41
COLLECTORS	0.23
RESIDENTIALS	2.39
	3.03

	District	Miles	Cost	
\$ 5,895,237		3.03 miles		
	1	0.00	\$0	
	2	0.50	\$911,600	
	3	0.80	\$748,867	
	4	0.23	\$956,235	
	5	0.00	\$0	
	6	0.00	\$0	
	7	1.09	\$1,335,760	
	8	0.00	\$0	
	Arterial	0.41	\$896,480	
	15%		\$1,046,295	
		3.03	\$5,895,237	6975303

FISCAL YEAR 2023 TOTALS

Total Estimated Cost and Miles

	MILEAGE
ARTERIALS	0.04
COLLECTORS	0.62
RESIDENTIALS	2.17
	2.83

	District	Miles	Cost	
	1	0.50	\$626,949	
	2	0.00	\$0	
	3	0.83	\$1,150,792	
	4	0.22	\$637,614	
	5	0.34	\$602,817	
	6	0.30	\$470,167	
	7	0.25	\$454,080	
	8	0.36	\$600,000	
	Arterial	0.04	\$77,755	
	15%		\$1,091,295	
		2.83	\$5,711,469	7275303

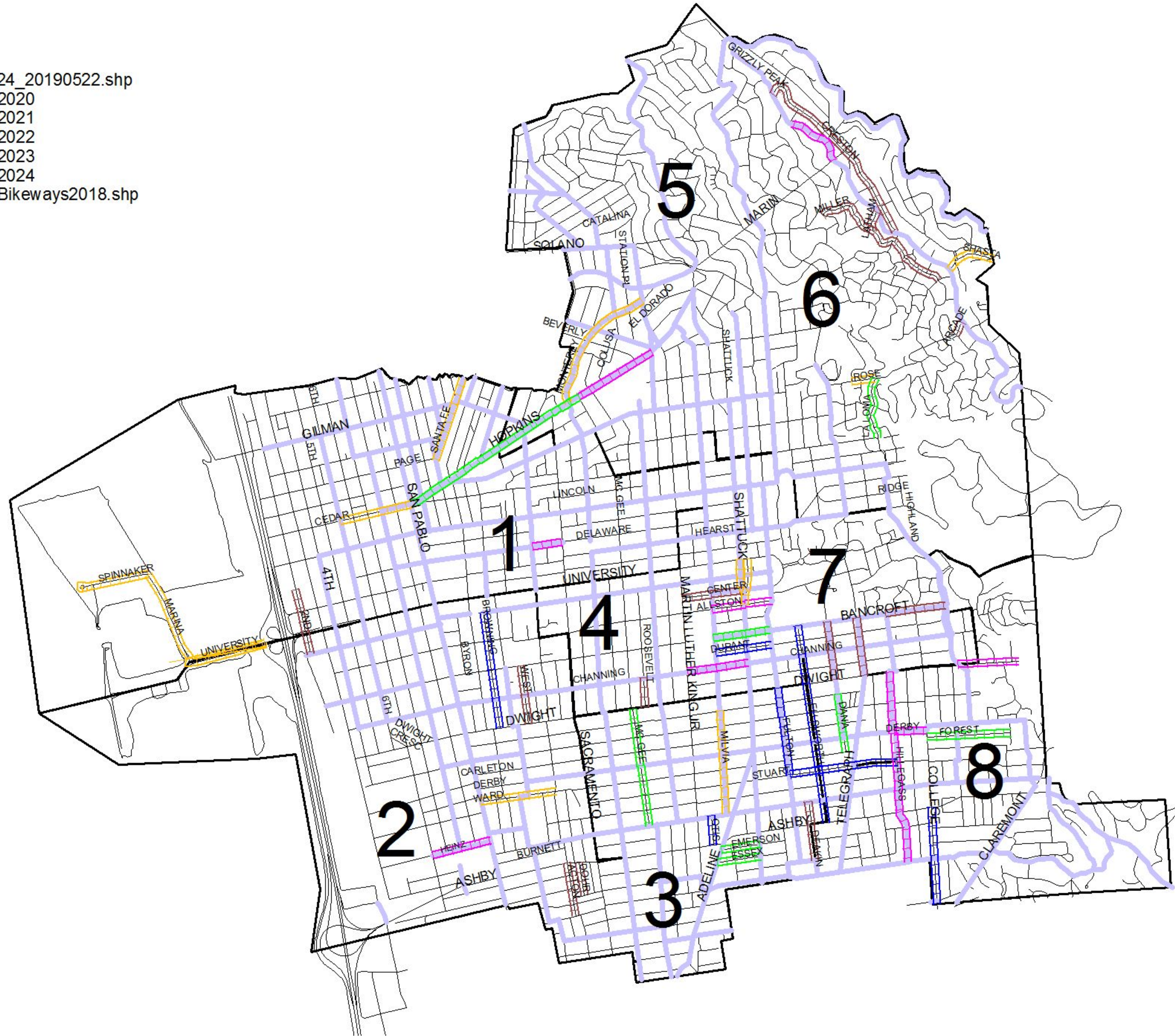
FISCAL YEAR 2024 TOTALS

Total Estimated Cost and Miles

	MILEAGE
ARTERIALS	0.00
COLLECTORS	0.81
RESIDENTIALS	1.93
	2.74

	District	Miles	Cost	
\$ 6,993,964		2.74 miles		
	1	0.13	\$78,175	
	2	0.26	\$897,408	
	3	0.00	\$0	
	4	0.51	\$1,303,396	
	5	0.41	\$1,024,260	
	6	0.27	\$843,578	
	7	0.00	\$0	
	8	1.16	\$1,755,852	
	Arterial	0.00	\$0	
	15%		\$1,091,295	
		2.74	\$6,993,964	7275303

- 5vr1924_20190522.shp
- 2020
- 2021
- 2022
- 2023
- 2024
- Bikeways2018.shp



Page 25 of 25
5-Year Paving Plan Process Flow Diagram

