

PIMA COUNTY TRANSPORTATION ADVISORY COMMITTEE
Sub-Committee Meeting

FY19-20 Pavement Program Roadway Prioritization

April 23

SCENARIO CRITERIA & RECOMMENDATION



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PIMA COUNTY

StreetSaver

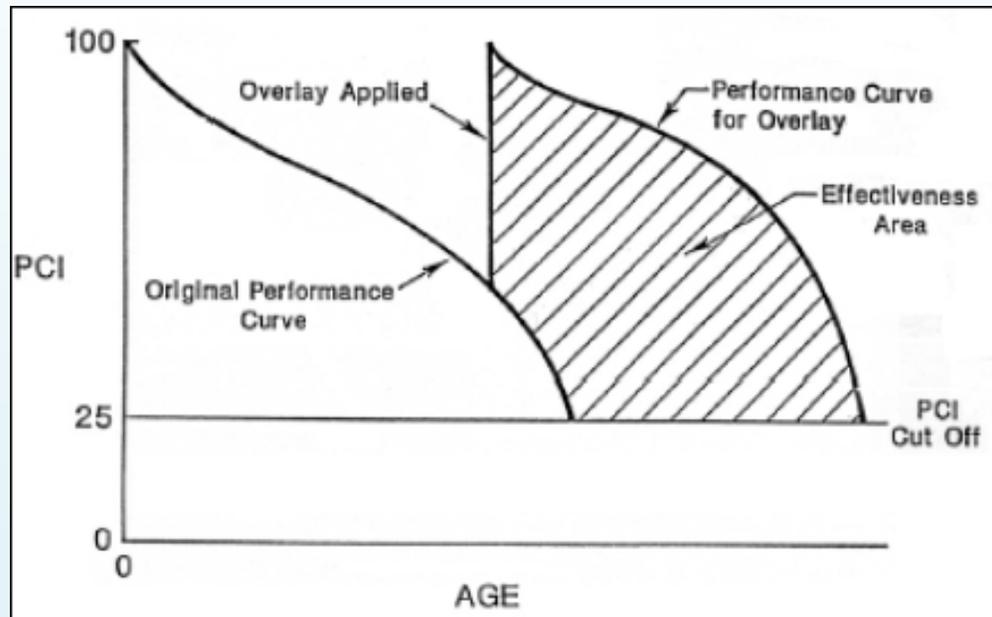
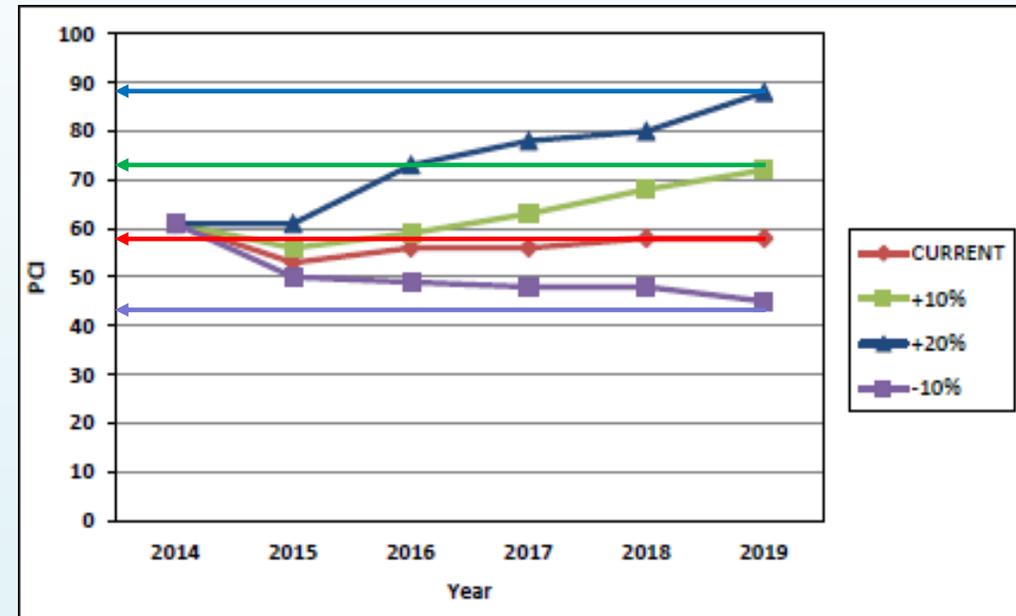
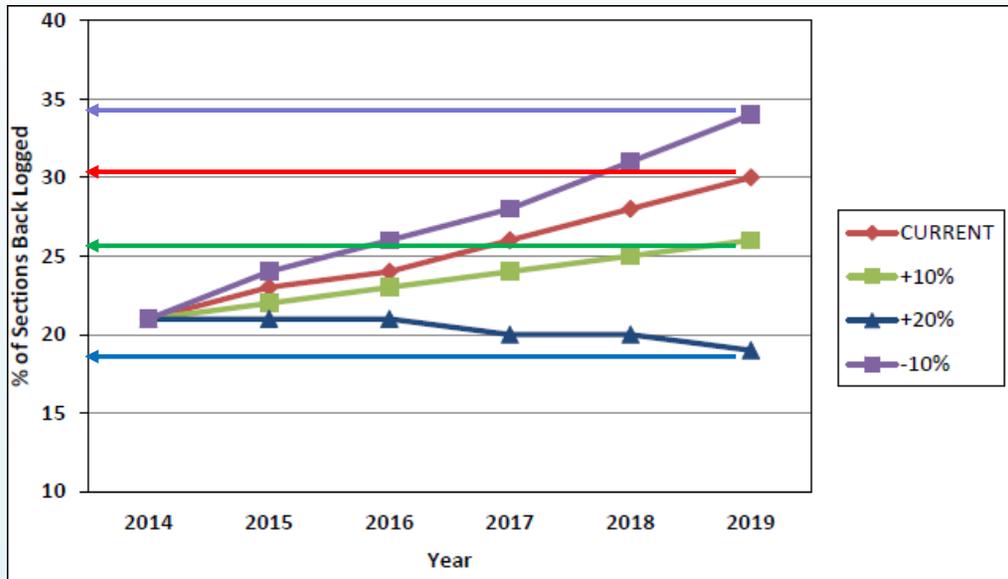


Illustration:
Effectiveness Based on PCI-Time Curve

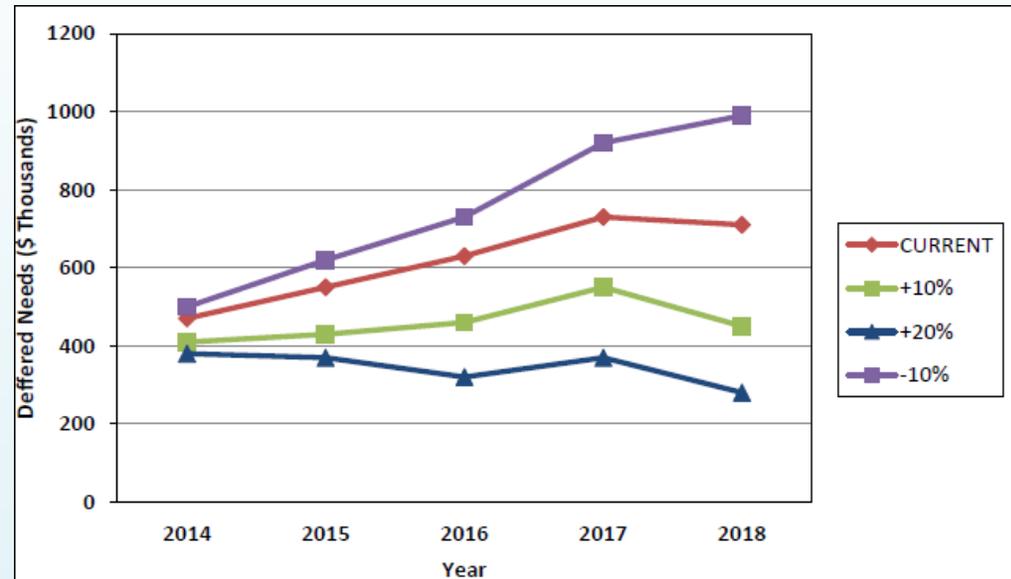


Example Graph:
Impact of Funding Levels on Condition

StreetSaver



Example Graph:
Effect of Funding Levels on Backlog



Example Graph:
Impact of Funding Levels on Deferred Need

Current Network Dashboard

StreetSaver
File Windows Graph Colors Help

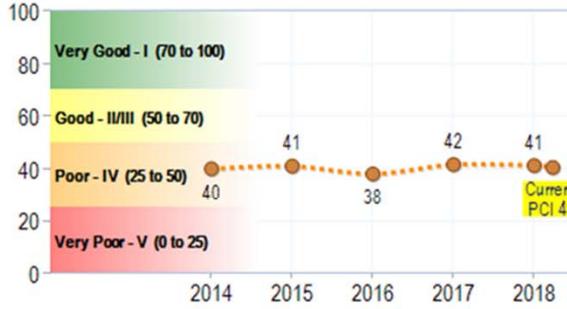
Pavement Sections

- View Sections
- Create Section
- Edit Section
- Duplicate Section
- Section Summary
- PCI Information
- Deterioration Curve
- Events History
- View Documents
- Attach a Document
- Deleted Section Log
- Road Names

Inspections

- Maintenance Treatments
- GIS Toolbox
- Budgeting
- Asset Management
- Table Maintenance
- Reports and Graphs
- System Administration
- Utilities

*Historical Pavement Condition Trends



Year	PCI Value
2014	40
2015	41
2016	38
2017	42
2018	41
Current	41

*Current PCI

As of 3/22/2019



From 12/31/2018: +0

Current PCI: 41

Executive Performance Summary

- Refresh Summary
- Print Summary
- Copy Summary to Clipboard

DISCLAIMER: For display purposes only, graphs with an asterisk () show Condition Category colors based on default PCI Breakpoint values of 70, 50 and 25.

Network Inventory

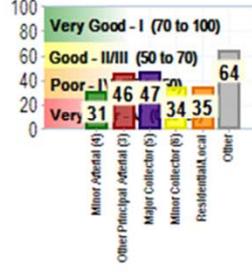
Area: **11.35**
(square miles)

Miles: **1,896.22**

Lane Miles: **3,941.38**

Sections: **6,431**

*Current PCI by Function



Function	Count
Minor Arterial (6)	6
Other Principal Arterial (2)	2
Major Collector (6)	6
Minor Collector (6)	6
Residential/Local	64
Other	64

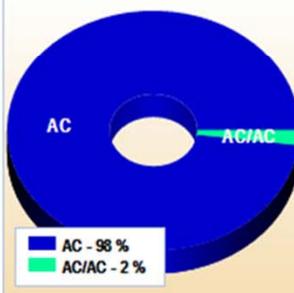
Remaining Service Life (years)



From 12/31/2018: -0.2

RSL: 7.3

Surface Type

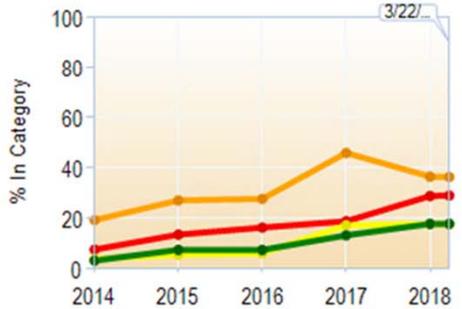


Surface Type	Percentage
AC	98%
AC/AC	2%

Historical Network Condition Trends

From 12/31/2018

Condition	Percentage	Change
Very Good	18%	0
Good	17%	-1
Poor	36%	0
Very Poor	29%	0



E1STAV - 10

Pima County DOT

Current PCI Breakpoints

PCI Breakpoints
— □ ×

File Windows

Edit PCI Values:

(Unused combinations of FC/Surface Type not shown.)

Functional Class	Surface Type	PCI Cap	Breakpoint I	Breakpoint II/III	Breakpoint IV/V
Arterial	AC	90	60	50	25
Arterial	AC/PCC	90	60	50	25
Arterial	AC/AC	90	60	50	25
Arterial	PCC	90	60	50	25
Arterial	ST	90	60	50	25
Collector	AC	90	50	40	25
Collector	AC/PCC	90	50	40	25
Collector	AC/AC	90	50	40	25
Collector	PCC	90	50	40	25
Collector	ST	90	50	40	25
Residential/Local	AC	90	70	50	25
Residential/Local	AC/PCC	90	70	50	25
Residential/Local	AC/AC	90	70	50	25
Residential/Local	PCC	90	70	50	25
Residential/Local	ST	90	70	50	25
Other	AC	90	70	50	25
Other	AC/PCC	90	70	50	25
Other	AC/AC	90	70	50	25
Other	PCC	90	70	50	25
Other	ST	90	70	50	25

Use these fields to enter a PCI value and apply it to the whole column.

Apply	Apply	Apply	Apply

Selected PCI Display:

Functional Class	Surface Type
Arterial	AC

Condition Category

PCI Cap
100
90
60
50
25

Very Good

Non Load
II
III

Non Load
Good
Load

Using Transitional Windows

Poor

Using Transitional Windows

Very Poor

Use Transitional Windows for Deferred Maintenance in Calculations?

Apply PCIs to All Surface Types in FC

Apply PCIs to All

Restore Defaults
Save | Save & Close | Close

Decision Tree

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	\$1.00	3				
			Surface Treatment	FOG SEAL	\$1.50		4			
			Restoration Treatment	MILL AND THICK OVERLAY	\$15.45			2		
		II - Good, Non-Load Related		MICRO SEAL	\$8.00			8		
			III - Good, Load Related		MICRO SEAL	\$8.00			8	
				IV - Poor		MICRO SEAL	\$8.00			4
	V - Very Poor		MILL AND THICK OVERLAY	\$15.45			8			
	AC/AC	I - Very Good	Crack Treatment	SEAL CRACKS	\$1.00	3				
			Surface Treatment	FOG SEAL	\$1.50		4			
			Restoration Treatment	MILL AND THICK OVERLAY	\$15.45			2		
		II - Good, Non-Load Related		MICRO SEAL	\$8.00			8		
			III - Good, Load Related		MICRO SEAL	\$8.00			8	
				IV - Poor		MICRO SEAL	\$8.00			4
		V - Very Poor		MILL AND THICK OVERLAY	\$15.45			8		
		Residential	AC	I - Very Good	Crack Treatment	SEAL CRACKS	\$1.00	4		
Surface Treatment					DOUBLE CHIP SEAL	\$6.00		8		
Restoration Treatment	DO NOTHING				\$0.00			3		
II - Good, Non-Load Related				SINGLE CHIP SEAL	\$6.00			4		
	III - Good, Load Related				MICRO SEAL	\$8.00			8	
				IV - Poor		DOUBLE CHIP SEAL	\$6.00			4
V - Very Poor			MILL AND THICK OVERLAY	\$15.45			8			
AC/AC	I - Very Good		Crack Treatment	SEAL CRACKS	\$1.00	4				
			Surface Treatment	DOUBLE CHIP SEAL	\$6.00		8			
			Restoration Treatment	DO NOTHING	\$0.00			3		
	II - Good, Non-Load Related			SINGLE CHIP SEAL	\$6.00			4		
			III - Good, Load Related		MICRO SEAL	\$8.00			8	
				IV - Poor		DOUBLE CHIP SEAL	\$6.00			4
	V - Very Poor			MILL AND THICK OVERLAY	\$15.45			8		

3/26 Scenarios

- Ran 5 different scenarios of the projected 5-year pavement preservation contracts allocations
 - Scenario 1 – Arterials & Collectors
 - Scenario 2 – Arterials & Collectors, Split by BOS District
 - Scenario 3 – All Roads, Split by Classification
 - Scenario 4 – All Roads, Split by BOS District & Classification
 - Scenario 5 – All Roads StreetSaver Standard

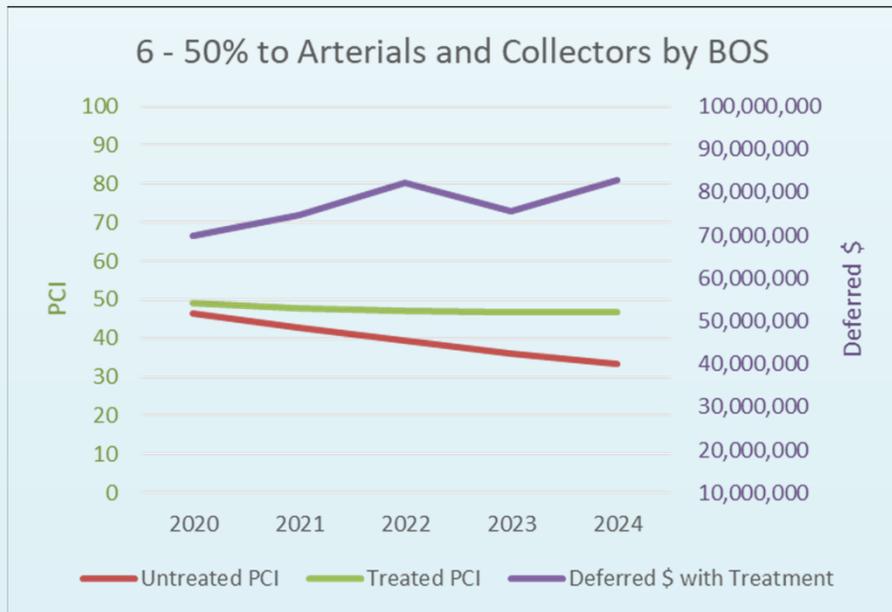
4/11 Scenarios at Subcommittee

- 6 – Split Available Budget 50% to Arterials and Collectors and 50% to Locals; Allocate budget equally to BOS District
 - Two sets of charts are presented
 - 1 for Arterials/Collectors
 - Locals
- 7 – Split Available Budget 75% to Arterials and Collectors and 25% to Locals; Allocate budget equally to BOS District
 - Two sets of charts are presented
 - 1 for Arterials/Collectors
 - Locals

Recommended

Scenario 6 - Arterials

Year	Budget	Spent	Untreated	Arterials and Collectors only	
			PCI	PCI	Deferred \$
2020	7,500,000	7,152,406	46	49	69,828,536
2021	8,000,000	6,952,866	43	48	74,700,521
2022	8,000,000	7,527,571	39	47	82,184,338
2023	10,500,000	9,202,099	36	47	75,618,879
2024	11,500,000	8,033,552	33	47	82,843,745
	45,500,000	38,868,494			

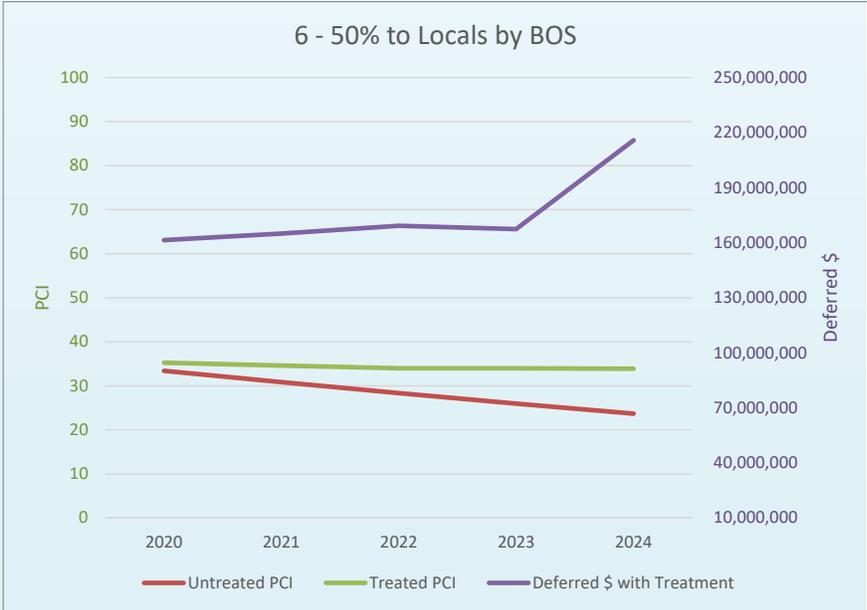


Condition in base year 2020, prior to applying treatments.					
Condition Class	Arterial	Collector	Res/Loc	Other	Total
I - Very Good	0.5%	21.8%	0.0%	12.4%	34.7%
II / III - Good	0.6%	6.3%	0.0%	11.1%	18.0%
IV - Poor	3.9%	7.6%	0.0%	6.5%	18.0%
V - Fail	4.9%	23.1%	0.0%	1.2%	29.2%
Total	9.9%	58.8%	0.0%	31.3%	100.0%
Condition in year 2024 after schedulable treatments applied.					
Condition Class	Arterial	Collector	Res/Loc	Other	Total
I - Very Good	2.6%	25.8%	0.0%	13.6%	42.0%
II / III - Good	0.4%	2.1%	0.0%	10.8%	13.3%
IV - Poor	2.6%	3.7%	0.0%	5.9%	12.2%
V - Fail	4.3%	27.3%	0.0%	0.9%	32.4%
Total	9.9%	58.8%	0.0%	31.3%	100.0%

Recommended

Scenario 6 - Locals

Scenario 6 - 50% to Locals, Budget Allocated by BOS District					
Year	Budget	Spent	Untreated	Locals only	
			PCI	PCI	Deferred \$
2020	7,500,000	7,122,501	33	35	161,431,484
2021	8,000,000	7,762,434	31	35	164,933,563
2022	8,000,000	7,783,269	28	34	169,209,158
2023	10,500,000	10,147,563	26	34	167,400,473
2024	11,500,000	10,915,559	24	34	215,787,855
	45,500,000	43,731,326			



Percent Network Area by Functional Classification and Condition Class

Condition in base year 2020, prior to applying treatments.					
Condition Class	Arterial	Collector	Res/Loc	Other	Total
I - Very Good	0.0%	0.0%	6.9%	0.0%	6.9%
II / III - Good	0.0%	0.0%	15.2%	0.0%	15.2%
IV - Poor	0.0%	0.0%	35.5%	0.0%	35.5%
V - Fail	0.0%	0.0%	42.4%	0.0%	42.4%
Total	0.0%	0.0%	100.0%	0.0%	100.0%

Condition in year 2024 after schedulable treatments applied.					
Condition Class	Arterial	Collector	Res/Loc	Other	Total
I - Very Good	0.0%	0.0%	17.3%	0.0%	17.3%
II / III - Good	0.0%	0.0%	7.4%	0.0%	7.4%
IV - Poor	0.0%	0.0%	24.3%	0.0%	24.3%
V - Fail	0.0%	0.0%	51.0%	0.0%	51.0%
Total	0.0%	0.0%	100.0%	0.0%	100.0%

Recommended



Scenario 6

Miles Treated by Functional Class and District	4/17/2019																		
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Scenario 6 - YEAR 2020 ONLY - 50% to Arterials and Collectors; 50% to Locals; Budget Allocated by BOS

District: Miles:	1			2			3			4			5			Total		
	Total	Treated	%	Total	Treated	%	Total	Treated	%	Total	Treated	%	Total	Treated	%	Total	Treated	%
Major Collector	60.5	0.2	0.3%	15.5	1.6	10.4%	146.9	1.1	0.8%	86.5	0.2	0.3%	23.3	8.9	38.4%	332.5	12.1	3.6%
Minor Arterial	0.5	0.5	100.0%	0.03	0.03	100.0%	22.3	3.0	13.6%	13.7	2.8	20.4%	1.0	1.0	100.0%	37.6	7.4	19.7%
Minor Collector	-	-		3.5	-	0.0%	64.6	-	0.0%	52.0	0.5	1.0%	-	-		120.1	0.5	0.4%
Other (UHV)	83.7	5.0	6.0%	19.2	4.5	23.6%	20.0	1.9	9.3%	28.8	2.3	8.1%	11.7	2.8	23.8%	163.4	16.5	10.1%
Other Principal Arterial	-	-		3.6	1.6	43.8%	-	-		10.3	-	0.0%	-	-		13.9	1.6	11.3%
Local	456.9	9.4	2.1%	55.1	5.8	10.5%	311.7	11.4	3.7%	303.9	13.9	4.6%	108.4	8.9	8.2%	1,236.1	49.4	4.0%
Total	601.6	15.1	2.5%	96.9	13.5	14.0%	565.5	17.4	3.1%	495.2	19.8	4.0%	144.4	21.6	15.0%	1,903.7	87.5	4.6%

Arterials Year 2020 Treatment	1	2	District			Grand Total
	1	2	3	4	5	
CRACK / FOG	0.13		0.38	0.34	6.47	7.32
FOG SEAL	2.00	1.86	1.85	1.80	1.67	9.19
MICRO SEAL	0.03	4.01		0.08	2.31	6.43
MILL AND THICK OVERLAY	3.57	1.86	3.79	3.64	2.28	15.15
Grand Total	5.72	7.73	6.03	5.87	12.73	38.08

Locals Year 2020 Treatment	1	2	District			Grand Total
	1	2	3	4	5	
DOUBLE CHIP SEAL	0.70	0.61	0.68	0.69	0.62	3.30
MILL AND THICK OVERLAY	5.24	5.23	5.24	5.23	5.24	26.17
SEAL CRACKS	3.45		5.46	7.96	3.03	19.91
SINGLE CHIP SEAL				0.01		0.01
Grand Total	9.39	5.85	11.38	13.90	8.89	49.39

Recommend that the proposed FY 20 \$15M department allocation for pavement repair/preservation be prioritized as following:

- Distribute funding equally by Board of Supervisor District
- Distribute 50% of funding to local roads and 50% to arterial/collectors
- Generate a road list of the above allocations using StreetSaver algorithms maximizing value
- Allow Department of Transportation staff to adjust and generate final roads list selection through:
 - Minimizing mobilization cost by strategic grouping
 - Minimizing fragmentation of work with subdivisions or along arterial/collector roadway segments
 - Selecting additional roadway segments to allocate budget remnants

Requested Additional Committee Guidance:

Should local road funding be used to maximize ROI or to prioritize the repair of failed roads first?

Discussion

Contact Information:
Robert.Lane2@pima.gov
rich.franz-under@pima.gov



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