

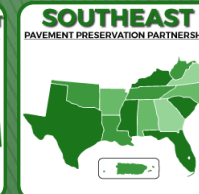
Proactive Performance Management: Key Performance Indicators (KPIs)

Sui Tan, PE

Program Lead

Metropolitan Transportation Commission

stan@bayareametro.gov





San Francisco Metropolitan Region

POPULATION = 7.5 MILLION

9 COUNTIES

100 CITIES

44,000 LANE-MILES OF LOCAL STREETS & ROADS

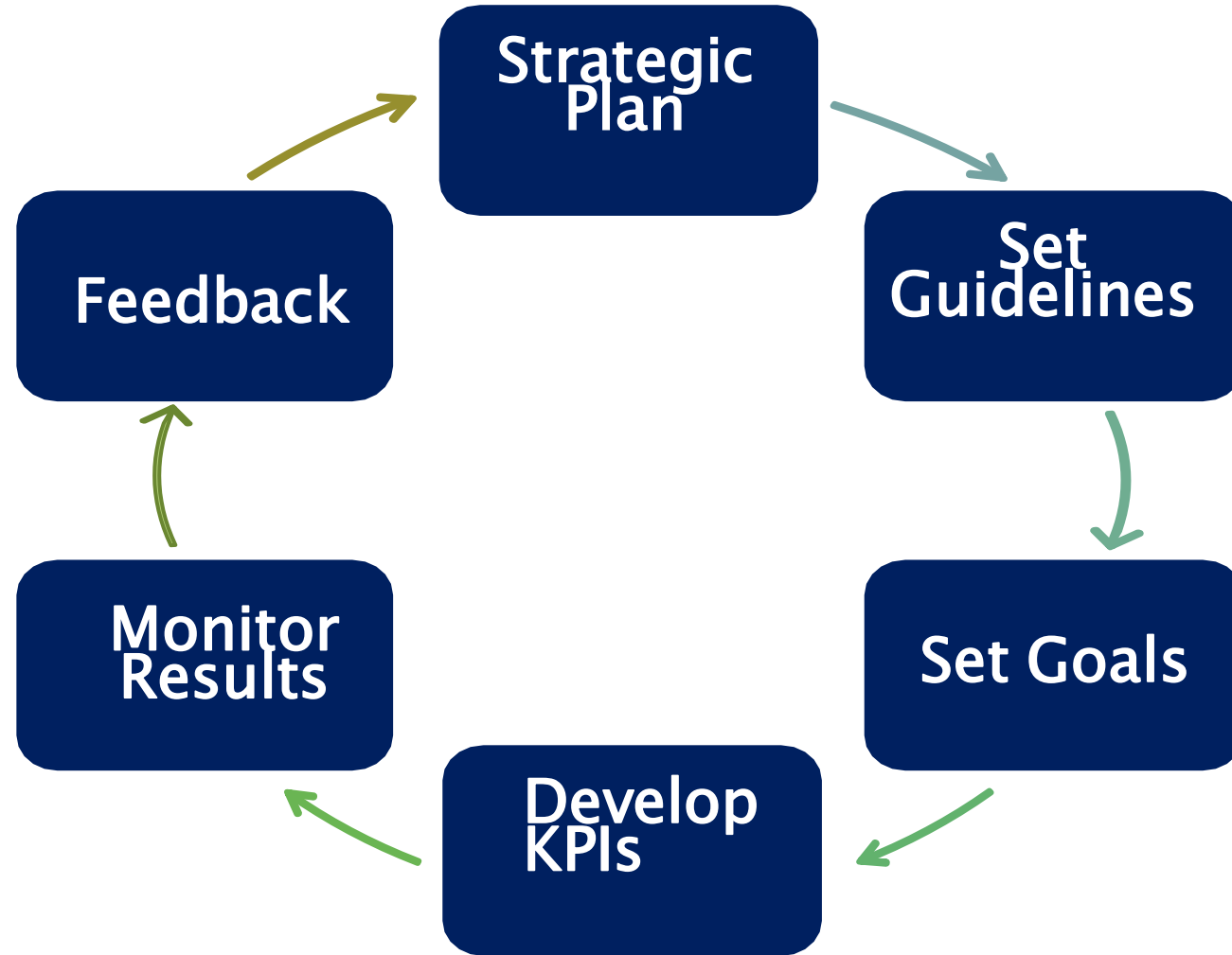
6,850 LANE-MILES OF STATE HIGHWAY
(CALTRANS)

27 TRANSIT AGENCIES

7 TOLL BRIDGES

One
MPO –
Metropolitan
Transportati
on
Commission

What is Performance Management?



Why is it Important?

- Federal Requirements
 - ✓ MAP-21, FAST Act, BIL
 - ✓ Set Performance Targets for Non-State (locally owned) NHS
- Yes, but what's in it for me?



Funding



Keeping good roads good



Performance Indicators

Qualitative

Quantitative

What is the outcome?

What is the amount?



Provides insights and understanding of an issue



Can be computed and measured

Types of Performance Indicator

Leading Indicator

Activities you must undertake to achieve the desired outcome

Lagging Indicator

“Output” oriented, easy to measure but hard to improve

My Daily Food Plan SAMPLE

Based on the information you provided, this is your daily recommended amount for each food group.

GRAINS 9 ounces	VEGETABLES 3 1/2 cups	FRUITS 2 cups	DAIRY 3 cups	PROTEIN FOODS 6 1/2 ounces
Make half your grains whole Aim for at least 4 1/2 ounces of whole grains a day	Vary your veggies Aim for these amounts each week : Dark green veggies = 2 1/2 cups Red & orange veggies = 7 cups Beans & peas = 2 1/2 cups Starchy veggies = 7 cups Other veggies = 5 1/2 cups	Focus on fruits Eat a variety of fruit. Choose whole or cut-up fruits more often than fruit juice.	Get your calcium-rich foods Drink fat-free or low-fat (1%) milk, for the same amount of calcium and other nutrients as whole milk, but less fat and calories. Select fat-free or low-fat yogurt and cheese, or try calcium-fortified soy products.	Go lean with protein Twice a week, make seafood the protein on your plate. Vary your protein routine—choose beans, peas, nuts, and seeds more often. Keep meat and poultry portions small and lean.
Find your balance between food and physical activity Be physically active for at least 150 minutes each week.		Know your limits on fats, sugars, and sodium Your allowance for oils is 8 teaspoons a day. Limit Calories from solid fats and added sugars to 360 Calories a day. Reduce sodium intake to less than 2300 mg a day.		
Your results are based on a 2600 Calorie pattern.		Name: _____		

This Calorie level is only an estimate of your needs. Monitor your body weight to see if you need to adjust your Calorie intake.

VS



Performance Indicators

Leading Indicator

PCI



Detect low-severity cracks early

Lagging Indicator

IRI



Will only detect cracks when they are visible

KPIs in StreetSaver



Pavement Preservation Decision Tree

	Edit	PM Category Name	Treatment Name	Cost/Sq Yd, except Seal Cracks in LF	Years Between Crack Seals	Years Between Surface Seals	# of Surface Seals before Overlay
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Arterial

▼ AC

Condition Category I - Very Good							
	Crack Treatment	SEAL CRACKS		\$2.60	3		
	Surface Treatment	SLURRY SEAL		\$6.50			
	Restoration Treatment	ULTRA THIN LIFT HMA		\$25.00			
Condition Category II - Good, Non-Load Related							
		CAPE SEAL		\$20.00			
Condition Category III - Good, Load Related							

PCI Cap

100

90

70

50

Condition Categories

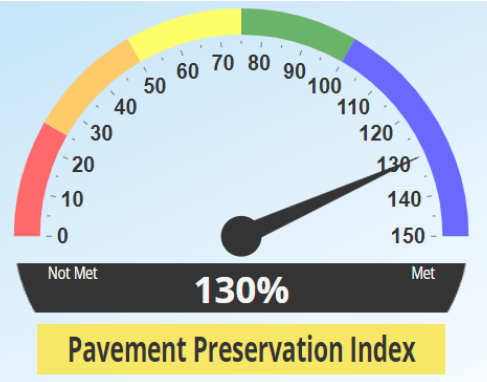
Very Good - I

Non Load - II Load - III

Good - II/III

Using Transitional Windows

Pavement Preservation Index (PPI)



$$PPI = \frac{\text{Percentage of Actual Pavement Preservation Expenditures}}{\text{Percentage of Recommended Pavement Preservation Expenditures}}$$

100 Section - KPI

Needs - Projected PCI/Cost Summary

Interest: 0.00% Inflation: 0.00% Printed: 5/24/2022

Year	PCI Treated	PCI Untreated	PM Cost	Rehab Cost	Cost
2022	83	43	\$30,970	\$1,936,170	\$1,967,140
2023	81	41	\$2,123	\$183,051	\$185,174
2024	83	39	\$1,539	\$168,096	\$169,635
2025	86	37	\$116,980	\$303,046	\$420,026
2026	85	35	\$17,542	\$0	\$17,542
2027	85	32	\$19,972	\$227,600	\$247,572
2028	89	30	\$106,263	\$62,004	\$168,267
2029	87	28	\$12,778	\$220,824	\$233,602
2030	86	27	\$21,902	\$0	\$21,902
2031	84	25	\$37,444	\$0	\$37,444
			PM Total Cost	Rehab Total Cost	Total Cost
			\$367,513	\$3,100,791	\$3,468,304
			% PM		
			10.60%		

Percentage of Recommended Pavement Preservation Expenditures

$$\frac{\$367,513}{\$3,468,304} \longrightarrow 10.593\%$$

↑
Pavement Preservation

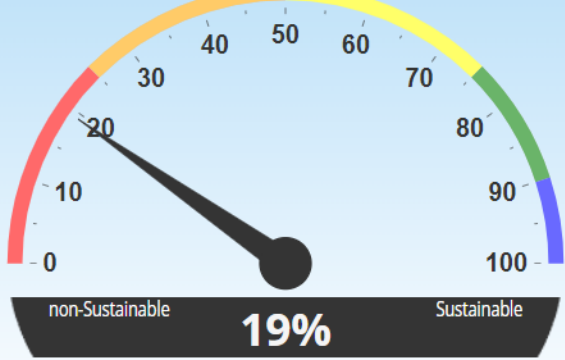
↑
Total Budget Needs

Example: Pavement Preservation Index (PPI)

What is the effort towards pavement preservation?

$$\text{PPI} = \frac{\text{Actual PM \%}}{\text{Recommended PM \%}}$$

County	Jurisdiction	Network PCI	\$PM/ Lane Mile	Actual PM%	Recom'd PM%	Pavement Preservation Index
	Regional Benchmark	68	\$1,336	17%	16%	1.06
Alameda	ALAMEDA	66	\$1,271	13%	15%	0.88
	ALAMEDA COUNTY	71	\$ 671	18%	28%	0.67
	ALBANY	58	\$1,247	10%	13%	0.78
	BERKELEY	58	\$ 263	2%	11%	0.20
	DUBLIN	87	\$3,124	50%	79%	0.62
	EMERYVILLE	75	\$ 48	100%	35%	2.87
	FREMONT	63	\$5,140	43%	16%	2.76



Asset Sustainability Index

Asset Sustainability Index (ASI)

$$ASI = \frac{\text{Average of Actual Pavement Total Expenditures}}{\text{Average of Recommended Pavement Total Expenditures}}$$

100 Section - KPI

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			% PM	PM Total Cost	Rehab Total Cost
			10.60%	\$367,513	\$3,100,791
					Total Cost
					\$3,468,304



Average of Recommended Total Expenditures



$$\frac{\$3,468,304}{10}$$



$$\text{Backlog / NAV} = \frac{\text{Budget Needs at Year 1}}{\text{Pavement Network Net Asset Value}}$$

100 Section - KPI

Needs - Projected PCI/Cost Summary

Interest: 0.00% Inflation: 0.00% Printed: 5/24/2022

Year	PCI Treated	PCI Untreated	PM Cost	Rehab Cost	Cost
2022	83	43	\$30,970	\$1,936,170	\$1,967,140
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2031	84	25	\$37,444	\$0	\$37,444
% PM			PM Total Cost	Rehab Total Cost	Total Cost
10.60%			\$367,513	\$3,100,791	\$3,468,304



First Year Budget Needs

100 Section - KPI

GASB 34 - Cost Summary

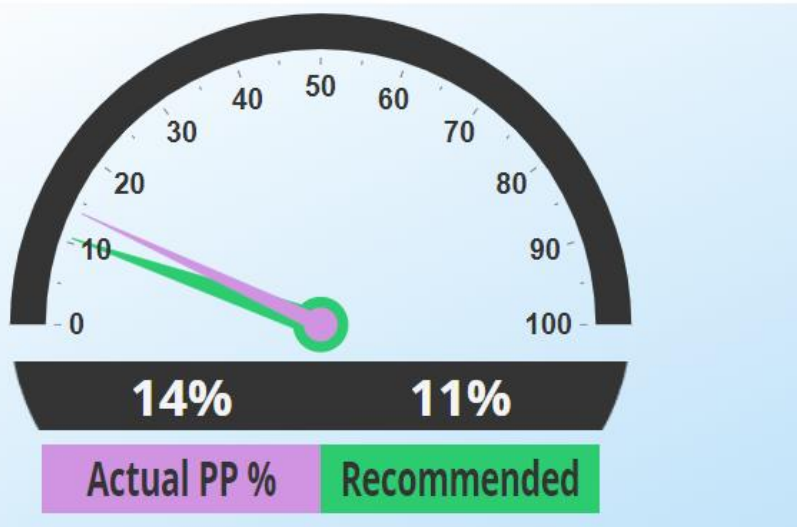
Printed: 3/21/2021

** Current Replacement Cost calculated from current Decision Tree unit costs

Effective Date	Price Index	Functional Class	Section Area (SF)	Original Cost	Current Value	Accumulated Depreciation	Current Replacement Cost
03/31/2019	ENR	A - Arterial	250,000	\$583,693	\$219,607	\$364,086	\$1,349,155
		C - Collector	250,000	\$628,844	\$281,094	\$347,750	\$1,515,380
		O - Other	250,000	\$605,316	\$270,489	\$334,827	\$1,515,380
		R - Residential/Local	250,000	\$605,316	\$270,489	\$334,827	\$1,515,380
Totals:			1,000,000	\$2,423,169	\$1,044,680	\$1,381,490	\$5,895,295
03/31/2020	ENR	A - Arterial	250,000	\$555,653	\$197,247	\$358,406	\$1,349,155
		C - Collector	250,000	\$605,316	\$224,730	\$380,586	\$1,515,380
		O - Other	250,000	\$605,316	\$258,465	\$346,851	\$1,515,380
		R - Residential/Local	250,000	\$605,316	\$258,465	\$346,851	\$1,515,380
Totals:			1,000,000	\$2,371,601	\$938,907	\$1,432,694	\$5,895,295
03/31/2021	ENR	A - Arterial	250,000	\$678,638	\$336,915	\$341,723	\$1,349,155
		C - Collector	250,000	\$605,316	\$214,663	\$390,653	\$1,515,380
		O - Other	250,000	\$605,316	\$246,820	\$358,496	\$1,515,380
		R - Residential/Local	250,000	\$605,316	\$246,820	\$358,496	\$1,515,380
Totals:			1,000,000	\$2,494,586	\$1,045,217	\$1,449,369	\$5,895,295



GASB 34 Replacement Cost



Actual PP % VS. Recommended

Actual: The percentage of the actual total expenditures allocated to pavement preservation.

$$\text{Actual PP}\% = \frac{\text{Actual Pavement Preservation Expenditures}}{\text{Actual Total Expenditures}}$$

Recommended: The percentage of total expenditures recommended for pavement preservation.

$$\text{Recommended PP}\% = \frac{\text{Recommended Pavement Preservation Expenditures}}{\text{Recommended Total Expenditures}}$$



PP Cost per Lane Mile

Pavement Preservation Cost per Lane Mile

PP Actual Cost per Lane Mile

From Historical Treatment Costs

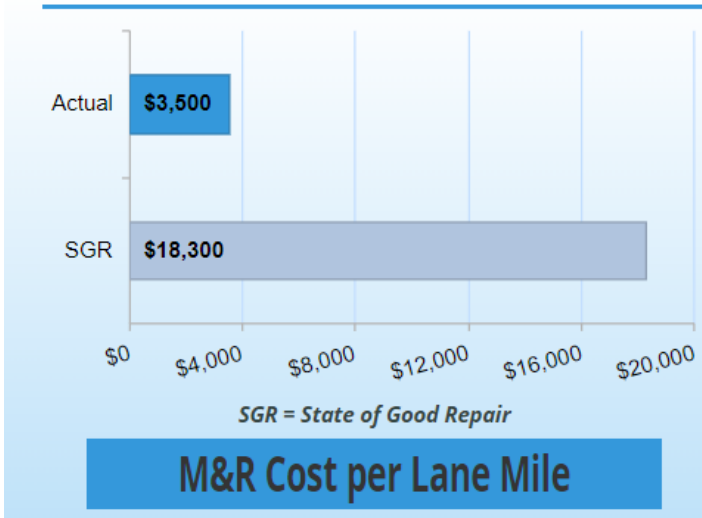
$$\text{Actual PP Cost per Lane Mile} = \frac{\text{Average of Actual Pavement Preservation Expenditures}}{\text{Total Lane Miles}}$$

PP SGR Cost per Lane Mile

From Budget Needs

$$\text{SGR PP Cost per Lane Mile} = \frac{\text{Average of Recommended Pavement Preservation Expenditures}}{\text{Total Lane Miles}}$$

M & R Cost per Lane



Actual M&R Cost per Lane Mile

From Historical
Treatment Costs

$$\text{Actual M\&R Cost per Lane Mile} = \frac{\text{Average of Actual Pavement M\&R Expenditures}}{\text{Total Lane Miles}}$$

SGR M&R Cost per Lane Mile

From Budget Needs

$$\text{SGR M\&R Cost per Lane Mile} = \frac{\text{Average of Recommended Pavement M\&R Expenditures}}{\text{Total Lane Miles}}$$

KPIs Summary

KPI	Data Sources (Std Reports)
Pavement Preservation Index (PPI)	<ul style="list-style-type: none"> • Historical M&R Costs (3 Years Prior to Analysis Period). • Needs – Projected PCI/Cost Summary.
Asset Sustainability Index (ASI)	<ul style="list-style-type: none"> • Historical M&R Costs (3 Years Prior to Analysis Period). • Needs – Projected PCI/Cost Summary.
Backlog/NAV	<ul style="list-style-type: none"> • Needs – Projected PCI/Cost Summary. • GASB 34 – Cost Summary.
PP Cost per Lane Mile (Actual)	<ul style="list-style-type: none"> • Historical Pavement Preservation Costs (3 Years Prior to Analysis Period). • Network Summary Statistics
PP Cost per Lane Mile (SGR)	<ul style="list-style-type: none"> • Needs – Preventive Maintenance Treatment/Cost Summary. • Network Summary Statistics.
M&R Cost per Lane Mile (Actual)	<ul style="list-style-type: none"> • Historical M&R Costs (3 Years Prior to Analysis Period). • Network Summary Statistics
M&R Cost per Lane Mile (SGR)	<ul style="list-style-type: none"> • Needs – Projected PCI/Cost Summary • Network Summary Statistics
Actual PP% vs. Recommended	<ul style="list-style-type: none"> • Historical M&R Costs (3 Years Prior to Analysis Period). • Needs – Projected PCI/Cost Summary