

# 2017 SHOPP Ten Year Plan

## Goal Constrained Performance Targets for Asset Management

Michael B. Johnson

State Asset Management Engineer

California Transportation Commission Meeting

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# Background

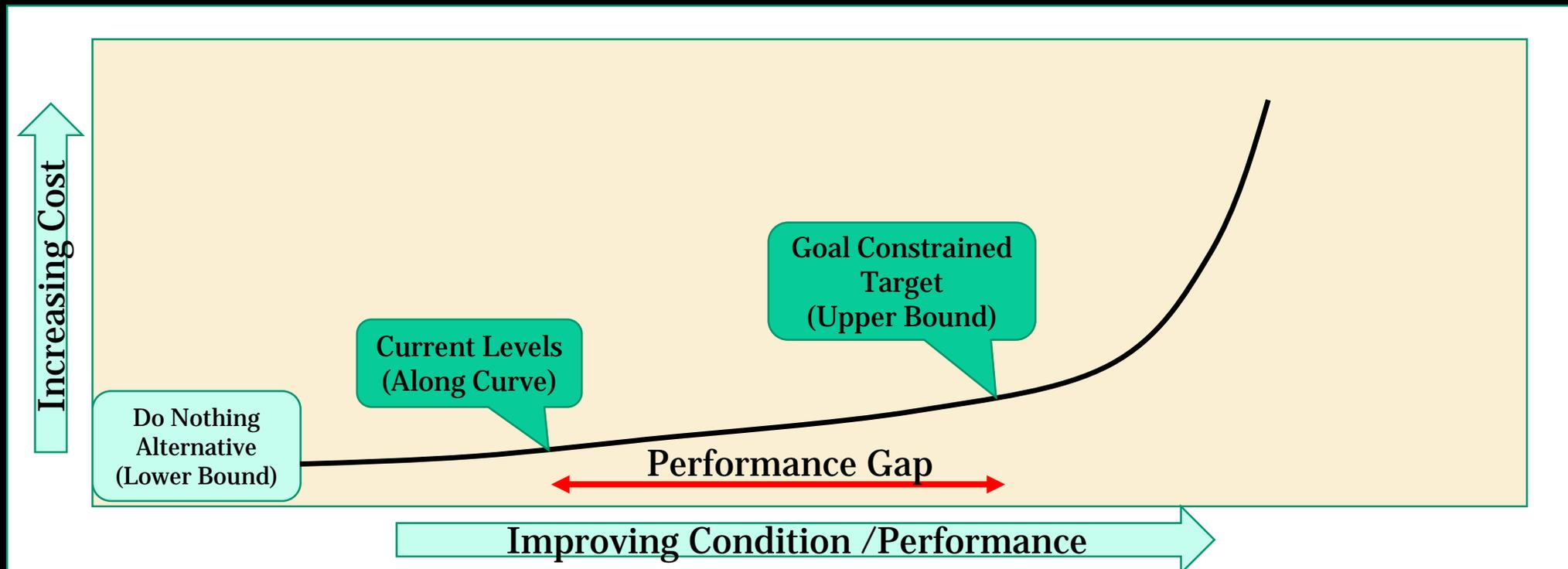
- California Streets and Highway Code (164.6) requires Caltrans to prepare a Ten Year Plan for the SHOPP and submit to the CTC in January 2017.
- Federal Regulation (MAP-21/FAST Act) requires the development of a Transportation Asset Management Plan (TAMP) with National Performance Measures for pavement and bridges.
- The TAMP Requires the implementation of Performance Management which requires performance targets to be set using the National Measures.
- Government Code requires a “robust asset management plan” with performance measures and targets approved by the CTC. Consistent with Federal Law.
- The 2017 SHOPP Ten Year Plan will implement Performance Management in the SHOPP with National Measures for pavements and bridges.
- CTC approval of performance targets prior to January 2017 necessary to build the 2017 Ten Year Plan.

# Commission's Prior Asset Management Approvals

- **Adopt Good, Fair, Poor performance measures reflecting state goals and objectives**
  - Completed March 2015
- **Define “focus areas” for Phase 1 of the Transportation Asset Management Plan**
  - Pavement, bridges, culverts and ITS Elements
  - Completed in March 2015 with the adoption of the four asset classes
- **Approve the framework of the Phase 1 Transportation Asset Management Plan**
  - Completed in March 2016

# Goal Constrained Target Purpose

- Streets and Highway Code requires that “all rehabilitation needs” be included in the Ten Year Plan. This requires the setting of the upper bound (goal constrained)
- MAP-21/FAST requires targets to establish bounds for a performance gap analysis necessary for asset management.



# Measuring Asset Condition

Asset Class	Technical Criteria	Good	Fair	Poor	
Pavements – Area in Lane Miles	GOOD = ALL CRITERIA GOOD, FAIR = ANY ONE FAIR, POOR= TWO ARE POOR*				
<b>MAP-21 Criteria</b>	Roughness**	International Roughness Index (IRI) to measure pavement roughness (in/mi)	< 95	95-170	>170
	Cracking	Measures slab cracking in concrete or wheel path cracking in asphalt (%)	< 5	5-10	>10
	Rutting	Measures the depth of depressed longitudinal channels in asphalt pavement (in)	< 0.20	0.2-0.4	>0.4
	Faulting	Measures the vertical distance on faulted joints in concrete pavements (in)	<0.05	0.05-0.15	>0.15

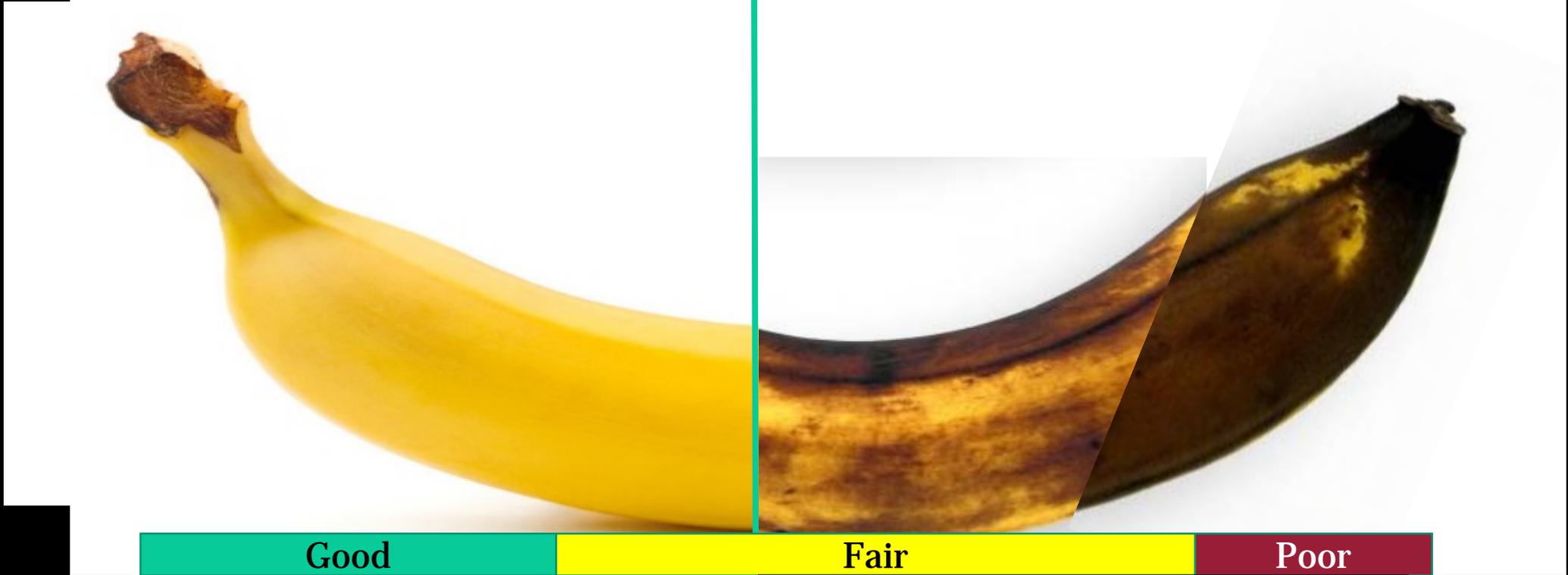
- - Full listing of criteria for the four asset classes is included as an attachment to the book item.

# Performance Measure Scales – It's The Same Banana

Legacy

Good Major Maintenance Distressed/Poor

Inventory Needing Work



Good

Major Maintenance

Distressed/Poor

Good

Fair

Poor

Inventory Needing Work

MAP-21

# Target Setting Criteria

- General – Targets consider deterioration rate, rate of inventory growth, long term costs, consequence of inaction (risks) and practical project delivery time frames.
- Poor Targets
  - We would like a zero poor target, but this is not achievable.
  - Therefore targets are set at the practical minimum percentage given the factors noted above.
- Fair Targets
  - Performance-cost curves developed to understand the relationship of these factors
  - Target evaluation considered existing conditions, rate of needs identification, performance-cost curves, deterioration rates and typical delivery timeframes to establish the recommended target condition level.

# Pavement Classes

Class 1 Routes – **Red Lines**

Class 2 Routes – **Blue Lines**

Class 3 Routes – **Green Lines**



# Recommended Performance Targets

	MAP -21 Good		MAP-21 Fair		MAP-21 Poor		Estimated Annual Costs (Billions)
	Current	Target	Current	Target	Current	Target	
Pavement (Class 1)	45%	60%	51%	39%	4%	1%	1.25
Pavement (Class 2)	35%	55%	58%	43%	7%	2%	0.49
Pavement (Class 3)	38%	45%	54%	53%	8%	2%	0.12

- Pavement area separated into classes to allow for tailoring of investment by use characteristics
  - **Class 1** routes are the busiest routes in the system and include all interstates, all principle arterial routes and urban freeways and expressways.
  - **Class 2** routes include rural freeways and expressways and minor arterials.
  - **Class 3** routes include major and minor collector routes.

# Cost Performance Curve - Example



# Recommended Performance Targets

Asset Class	MAP -21 Good		MAP-21 Fair		MAP-21 Poor		Estimated SHOPP Annual Cost (Billions)
	Current	Target	Current	Target	Current	Target	
Bridge Condition	75%	<b>83.5%</b>	21.7%	<b>15%</b>	3.3%	<b>1.5%</b>	\$ 0.548
Culvert Condition	65%	<b>80%</b>	23.5%	<b>10%</b>	11.5%	<b>10%</b>	\$ 0.261
ITS Element Health	64.5%	<b>90%</b>	NA	<b>NA</b>	35.5%	<b>10%</b>	\$ 0.194

# Next Steps

- Use the performance targets to develop the 2017 SHOPP Ten Year Plan needs
- Deliver the 2017 Ten Year Plan to the Commission in January 2017
- The 2017 Ten Year Plan will define the total goal constrained SHOPP need and recommended an investment plan for the available SHOPP funds
- The 2017 Ten Year Plan will fully implement the Performance Management requirements of MAP-21
- The 2017 Ten Year Plan will guide future planning and SHOPP programming
- Monitoring of performance relative to targets

**Thank You**