



Arizona Needs-Based Maintenance Budget Model

Transportation Economics Committee (ABE20)

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Outline

- Project Purpose and Goals
- Solutions
- Communications Planning
- ADOT Scorecards
- ADOT Performance Target Setting
- ADOT Budget Modeling
- Benefits/Results/Conclusion



Project Purpose and Goals

- Meet 2007 audit recommendation – develop needs-based systematic way to allocate funds at the district level
- Address gap between available resources and maintenance needs
- Identify the maintenance work backlog and develop a prioritization method



Project Purpose and Goals

- Address concerns with data credibility
- Provide compelling budget information
- Effectively communicate the impact of underinvestment
- Develop a long-term (5-year) maintenance plan



Solutions

- Needs-based funding
 - Spreadsheet-based budget modeling tool
 - Performance-driven; optimizes resources; demonstrates the impact of delayed action
 - “What-if” analysis
- District allocations
 - Based on inventory, needs, and performance goals
 - Statistically significant performance assessment
- Credible methodology
 - Data-driven; transparent; accountable



Solutions

- Five year plan
 - Aligns with MAP-21 performance-based requirements; merges with asset management plan
 - Annual plan to achieve performance targets in five years, or less
 - Flexible model allows for adding or removing specific assets or activities
 - Emphasize high priority or high visibility assets (e.g., high mast lighting)



Solutions

- Budget presentation
 - Focused first on effective internal presentation; later on external presentation
 - Implemented more reliable, transparent performance-based budgeting tool allowing “What-if” analysis
 - Developed guidelines to help improve understanding and tell the maintenance budget story



Communication Planning

- Effectively communicate budget information to decision makers
- Alabama, Mississippi, and Washington DOTs have used the data to lobby decision makers for increased funding



ADOT Scorecards

AZ - Average Condition Ratings - 2014						
Asset		A	B	C	D	F
Roadside	Fence			C+		
Roadside	Guardrail		B			
Roadside	Impact Attenuators		B			
Roadside	Length Requiring Sweeping (CL Miles)			C+		
Roadside	Length Requiring Litter Patrol (CL Miles)			C-		
Drainage	Ditch	A				
Drainage	Lined Channels (Miles)		B-			
Drainage	Pipes & Culverts (Each)		B-			
Paved Surfaces	Alligator Cracks (Maintenance Lane Miles)		B-			
Paved Surfaces	Bleeding (Maintenance Lane Miles)	A				
Paved Surfaces	Cracks > 1/4" (Maintenance Lane Miles)		B			
Paved Surfaces	Potholes (Count)			C-		
Paved Surfaces	Raveling (Maintenance Lane Miles)	A-				
Paved Surfaces	Cracks < 1/4" (Maintenance Lane Miles)	A				

AZ - Average Condition Ratings - 2014						
Asset		A	B	C	D	F
Traffic	Sign Face (Each)		B			
Traffic	Delineators (Each)	A-				
Traffic	Striping (Miles)			C		
Traffic	Markings (Sq. Ft.)	A-				



ADOT Performance Target Setting

Guardrail

<i>Unit of measure: Miles</i>					LOS Scale (Upper Limits)					
Group	Statewide Inventory	% Deficient	Statewide LOS	Target	Units	A	B	C	D	F
Roadside	1,336.0	9.7	B-	A	% Deficient	2.5	10.0	15.0	20.0	>20

Current LOS Measures & Grades by District									
District	Flag	Globe	Holb	King	Phx	Pres	Saff	Tucs	Yuma
Inventory	142.0	203.0	107.0	186.0	98.0	211.0	100.0	187.0	102.0
% Deficient	3.7	17.5	5.1	4.6	2.9	10.8	24.0	10.9	4.2
LOS Grade	B+	D	B	B+	B+	C+	F	C+	B+



ADOT Budget Modeling

Current LOS	Target LOS	Target FY	Yrs to Target	Activity	Description
B-	A	2016	1	1503	ACCIDENT GUARDRAIL REPAIR
				1512	ROUTINE GUARDRAIL REPAIR
				9153	CONTR GR INSTAL & REPAIR-ADOT FURN MATLS
				9155	CONTR GR INSTAL/RPR-CONTRACT FURN MATLS

LOE Qty	Units	% Distrib.	Factor	Annual Work Quantity	Units
1,130,026	LIN FT	10.90	1.00	58,504	LIN FT
1,130,026	LIN FT	85.33	1.00	1,026,129	LIN FT
1,130,026	LIN FT	2.59	1.00	31,172	LIN FT
1,130,026	LIN FT	1.18	1.00	14,221	LIN FT
		100.00			

Labor	Equipment	Materials	Expenditure	Total
\$ 701,987	\$ 340,740	\$ 729,172	\$ 1,532	\$1,773,431
\$ 354,242	\$ 100,945	\$ 128,903	\$ 161	\$ 584,251
\$ -	\$ -	\$ 336,198	\$ 682,493	\$1,018,691
\$ 253	\$ 112	\$ -	\$ 1,273,714	\$1,274,079
\$1,056,482	\$ 441,797	\$1,194,273	\$ 1,957,900	\$4,650,452



Benefits/Results/Conclusion

- Solution complies with the 2007 audit
- Aligns with MAP-21 performance-based requirements
 - Five year maintenance plan to achieve LOS targets
- Leverages detailed ADOT PeCoS cost and accomplishment data
- Helps prioritize maintenance backlog
- Optimizes use of resources



Questions?



QUESTIONS?



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