

Performance Reporting and Asset Management at CDOT



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Scott Richrath

Transportation Performance Branch
Division of Transportation Development

Performance Reporting and Asset Management at CDOT

- Overview of MAP-21
- Asset Management at CDOT
- Performance Reporting at CDOT

MAP-21 Timetable

July 6, 2012	MAP-21 signed into law
October 1, 2012	MAP-21 enactment (coincides with the federal fiscal year)
October 1, 2013	Federal requirements for Strategic Highway Safety Plan
April 1, 2014	Final rulemaking on performance measures
April 1, 2014	Final rulemaking on Transportation Asset Management Plans
April 1, 2015	State performance targets established
October 1, 2015	Metropolitan Planning Organization (MPO) performance targets established
October 1, 2015	First state Transportation Asset Management Plans due
October 1, 2015	Consequences for lack of progress in meeting certain minimum National Highway Performance Program condition levels
October 1, 2016	First biennial performance reports due

National Goals/Measures

MAP-21 National Goal Areas	Safety	Infrastructure Condition	Congestion Reduction	Freight Movement and Economic Vitality	System Reliability	Environment Sustainability	Reduced Project Delivery Delays
MAP-21 Perform. Measures	<ul style="list-style-type: none"> • Serious injuries per VMT • Fatalities per VMT • Number of serious injuries • Number of fatalities 	<ul style="list-style-type: none"> • Pavement condition of the Interstate system • Pavement condition of the NHS (excluding Interstates) • Bridge condition on the NHS • Transit State of Good Repair 	<ul style="list-style-type: none"> • Traffic congestion 	<ul style="list-style-type: none"> • Freight movement on the Interstate system 	<ul style="list-style-type: none"> • Performance of Interstate system • Performance of the NHS (excluding Interstate system) 	<ul style="list-style-type: none"> • On-road mobile source emissions 	None

USDOT Oversight

- Shall establish criteria to evaluate the ‘effectiveness’ of the performance based planning processes considering:
 - The progress toward targets
 - The extent to which investments are effective and cost –efficient
 - Extent of public involvement and awareness, and transparency and accountability
 - Overall effectiveness of performance based planning as a tool for investment decisions



Transportation Asset Management



MAP-21

Risk-based Asset Management Plan:

- As part of the NHPP, states are required to develop “risk-based asset management plans” for the National Highway System. The purpose of the plan is to improve or preserve the condition of the assets and the performance of the highway system. The plan must, at a minimum, include:
 - a summary **listing of the pavement and bridge assets** on the National Highway System within the state, including a description of the **condition of those assets**;
 - asset management **objectives and measures**;
 - performance **gap identification**;
 - **lifecycle cost and risk management analysis**;
 - a **financial plan**; and
 - **investment strategies**.

If a state fails to develop and implement a state asset management plan, that state’s federal transportation **funding will be reduced by 35 percent**.



Asset Mgmt at CDOT

Components of Transportation Asset Management (TAM):

Performance and Risk Based Resource Allocation

- Transportation Commission Policy (goals, objectives)
- Financial (revenue, budget, ROI)
- Risk Assessment (critical assets, threats, mitigation plan)
- Trade off tool: Multi-Asset Management System
- Risk-based Asset Management Plan and Program

Asset Inventory and Condition

- Location
- Age
- Initial Cost
- Forecasted Condition
- Treatment Strategies

Data Management and Governance

- Business and Data Stewards
- Data Quality and Accuracy
- Hardware and Software
- Reporting and Communication (website, reports, dashboards)

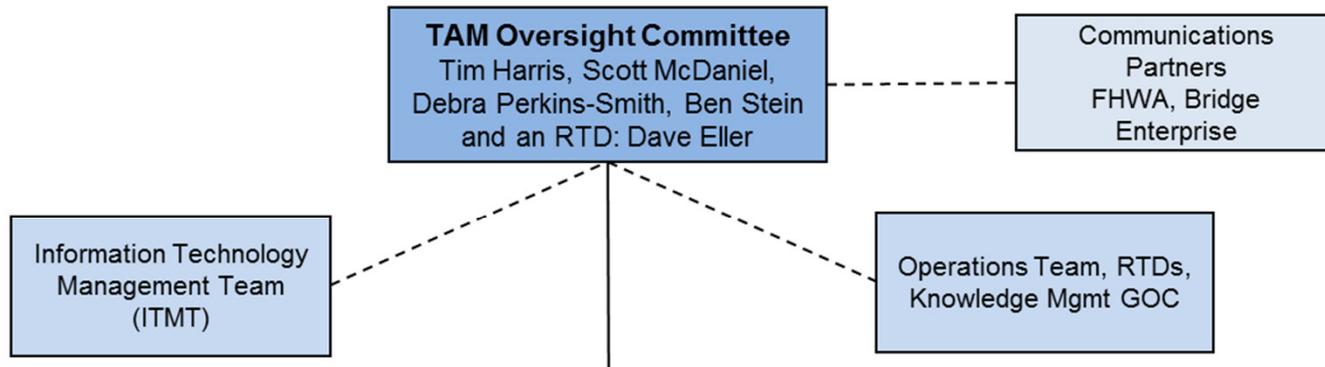
System
Performance

Levels of Service

Project
Selection

Performance
Monitoring

CDOT Transportation Asset Management (TAM) Structure



TAM Working Committee

- Scott Richrath, Committee Chair
- JoAnn Mattson, Committee Vice Chair
- Sandi Kohrs, DTD Planning Branch
- PE II new hire
- William Johnson, GIS
- Lou Henefeld, GIS
- Bridge Engineer, Staff Bridge
- Mark Nord, Staff Bridge
- Cole Richards, Staff Bridge
- Stephen Henry, Pavement
- Bill Schiebel, Pavement
- Dave Wieder, Maintenance & Operations
- Roy Smith/Karen Neuschwanger, Fleet
- David Fox, Real Property Building Assets
- Ken DePinto/Bruce Coltharp, ITS
- TAM Consultant, TBD
- Charles Meyer, Traffic
- Laurie Freedle, OFMB
- Region 1 Rep, TBD
- Doug Lollar, R2 Program Engineer
- Jason Ahrens, R2 Business Manager
- Zane Znamenacek, R3 Traffic Engineer
- Mike Goolsby, R3 Deputy Superintendent
- Myron Hora, R4 Plng and Env. Manager
- Mike McVaugh, R5 Traffic and Safety Engr
- Steve Pineiro, R6 Bridge Maintenance

Multi Asset Management Task Force	Asset Management Pilot Selection Task Force	Risk Task Force	Colorado Const. Cost Forecast Task Force
DTD Maintenance Staff Bridge Fleet Pavement ITS	DTD IMB Region 4 DTD TPB Region 5 Region 2	Staff Branches Region 4 DTD TPB Region 5 OFMB	Staff Branches Consultant DTD TPB OFMB
Task Force on Bridge Deterioration & Treatment Analysis Task Force	Real Estate Task Force	Tunnels Task Force	Traffic Services Task Force
Staff Bridge Region 6 DTD TPB TAM Consultant AECOM	HQ ROW Region 1 ROW HQ Properties GIS Unit DTD TPB TAM Consultant	Staff Branches Region 5 DTD TPB Region 3	MLOS Region rep HQ Traffic Ops GIS Unit DTD TPB TAM Consultant

Overview of 5 Assets

Current TC Goals in Policy Directive 14

Pavement: Achieve 60% good/fair pavement condition system-wide

Bridge: Achieve 95% good/fair bridge deck area condition system-wide

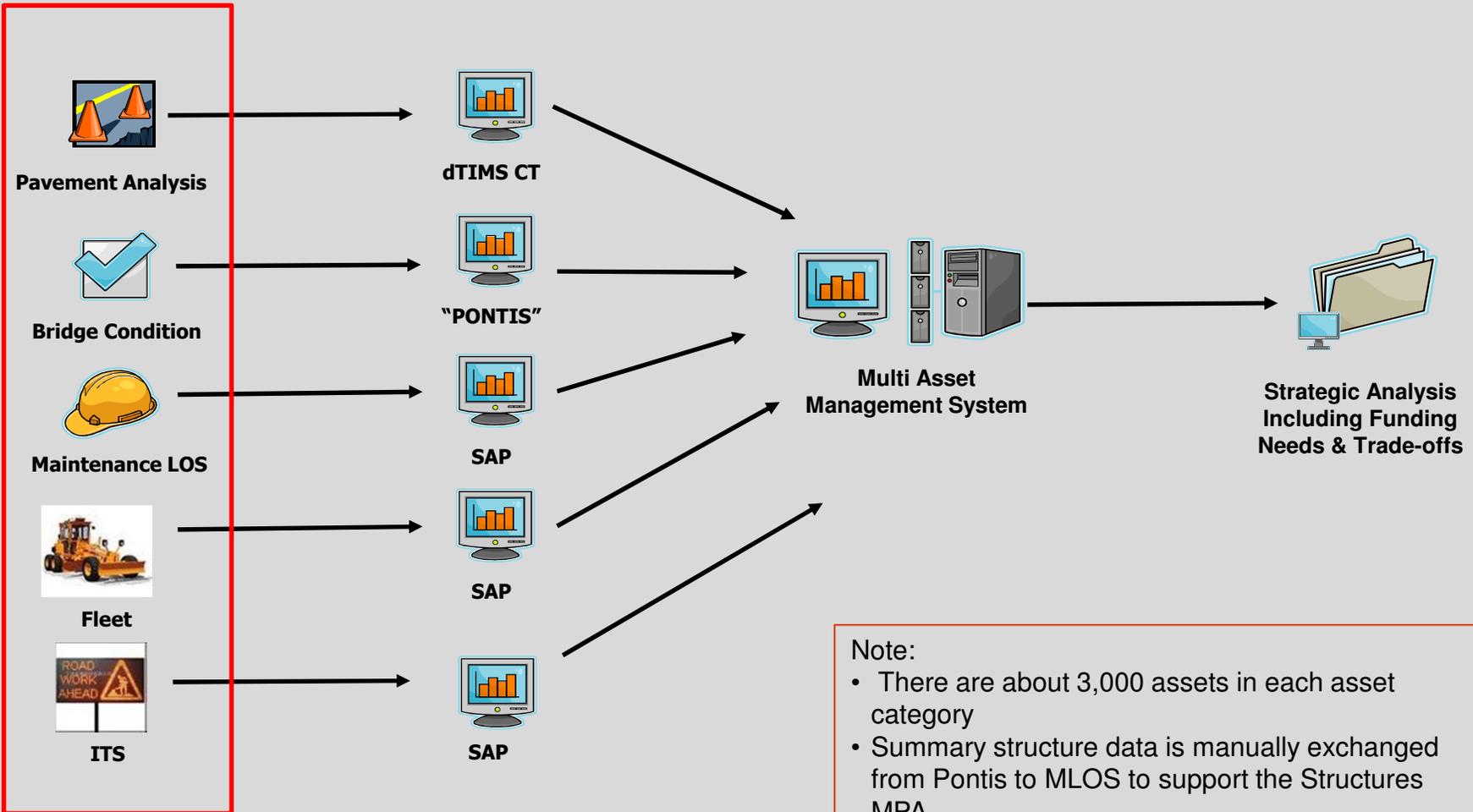
Maintenance: Achieve a B maintenance level of service grade for system quality measures

Fleet: New asset, no PD 14 goal

ITS: New asset, no PD 14 goal



Overview of 5 Assets



Overview of 5 Assets

Asset Budget CALCULATOR

7/1/2013

Start of Fiscal Year 2014

Baseline Budget		Committee Recommended Budget	Performance		
CDOT Asset	Baseline Budget:	Recommended Budget:	Results in 2014	Results in 2024	Results in 2034
Surface Treatment	\$200,000,000	\$200,000,000			
Bridge + Bridge Enterprise	\$139,000,000	\$0			
Maintenance Levels of Service	\$249,000,000	\$0			
Fleet Equipment	\$19,200,000	\$19,200,000			
ITS	\$14,000,000	\$0			
Total	\$621,200,000	\$219,200,000			

FY14 Dollars for the 5 Assets 11-15-12 Budget:	\$565,000,000
Funding Needed from Alternative Sources:	\$0



Performance Reporting at CDOT

SMART and FASTER Legislation in Colorado:

- Strategic Plan
- Annual Performance Report
- Transportation Deficit Report
- Your CDOT Dollar and OTIS



SMART Legislation in Colorado

SState

MMeasurement for

AAccountable

RResponsive and

TTransparent Government

Specific

MMeasureable

AAchievable

RRelevant

TTime-Focused

SMART Legislation in Colorado

5-Year Strategic Plan

Key Program Areas Move

from **investment categories:**

- Safety
- System Quality
- Mobility
- Program Delivery

SMART Legislation in Colorado

5-Year Strategic Plan

Key Program Areas Move

to **National Performance Areas:**

- Transportation Commission revisits Policy Directives 13/14

MAP-21 Performance Measure Areas (1 of 3)

MAP-21 Program Area	National Performance Measure Area	Comments
HSIP	1. Serious Injuries per VMT 2. Fatalities per VMT 3. Number of Serious Injuries 4. Number of Fatalities	<ul style="list-style-type: none"> • NCHRP 20-24(37)G identified “Five Year Moving Average of the State Number of Fatalities” as ready for national deployment, and “Five Year Moving Average of the State Number of Serious Injuries” as a candidate national measure requiring further development. • NHTSA currently requires states to annually report 14 performance measures (established in collaboration with GHSA) - these cover three of the four MAP-21 measurement areas (Serious Injuries per VMT not included) • Fatality measure can be based on FARS data; work required to define consistent national serious injuries measure • Measures are for all public roads
NHPP	5. Bridge Condition on the NHS	<ul style="list-style-type: none"> • NCHRP 20-24(37)G identified “deck area of structurally deficient NHS bridges” as ready for deployment • Minimum NHS condition level is based on SD bridges but national performance measure can be different

MAP-21 Performance Measure Areas (2 of 3)

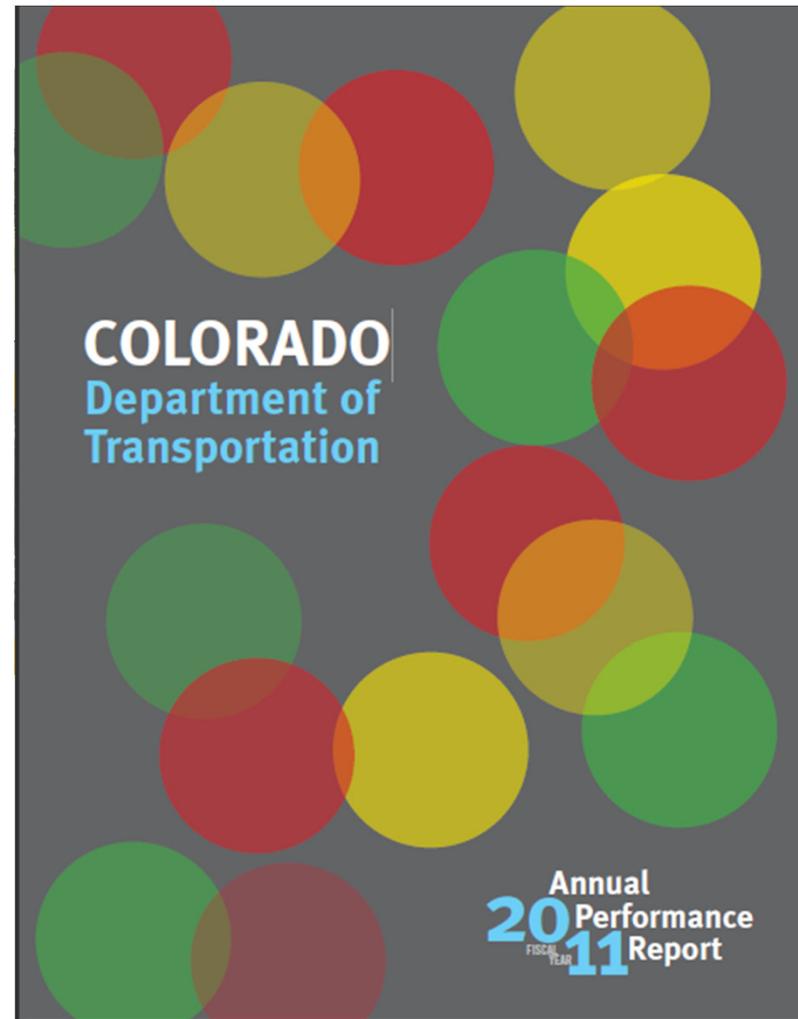
MAP-21 Program Area	National Performance Measure Area	Comments
NHPP (cont'd)	6. Pavement Condition of the Interstate System 7. Pavement Condition of the NHS	<ul style="list-style-type: none"> • NCHRP 20-24(37)G identified “ the percent of lane-miles on the NHS classified as “good”, “fair”, and “poor”, as determined by thresholds for the International Roughness Index (IRI)” as ready for national deployment. It identified “structural adequacy on NHS as a candidate national measure requiring further development. • IRI is the most consistent national measure available; additional work on network-level IRI standards may be needed.
	8. Performance of the Interstate System 9. Performance of the NHS excluding the Interstate System	<ul style="list-style-type: none"> • MAP-21 does not define “performance” but one interpretation is that the intent is to include measures of operational performance to complement the other condition based measurement areas • A range of operational performance measures can be considered – NCHRP 20-24(37)G identified “travel time-based metrics, congestion cost, and reliability on the Interstate system” as candidate operational performance measures that require further development for national deployment. • Coverage of the entire NHS may be problematic using existing data-modeling or sampling approaches may be needed.

MAP-21 Performance Measure Areas (3 of 3)

MAP-21 Program Area	National Performance Measure Area	Comments
CMAQ	10. Traffic Congestion 11. On-Road Mobile Source Emissions	<ul style="list-style-type: none"> • Clarification needed on whether these apply to users of CMAQ funds with no non-attainment or maintenance areas • Using area-wide measures of emissions and associated outputs from travel demand models produced for air quality conformity analysis would build on existing process in place • Need for collaboration with MPOs given their central role in this area
Freight	12. Freight Movement on the Interstate System	<ul style="list-style-type: none"> • NCHRP 20-24(37)G identified “Speed/travel time on freight corridors” and “Reliability on freight corridors” as ready for national deployment. These measures could be adjusted to reflect Interstate-only travel. • Current FHWA Freight Analysis Framework provides foundation data

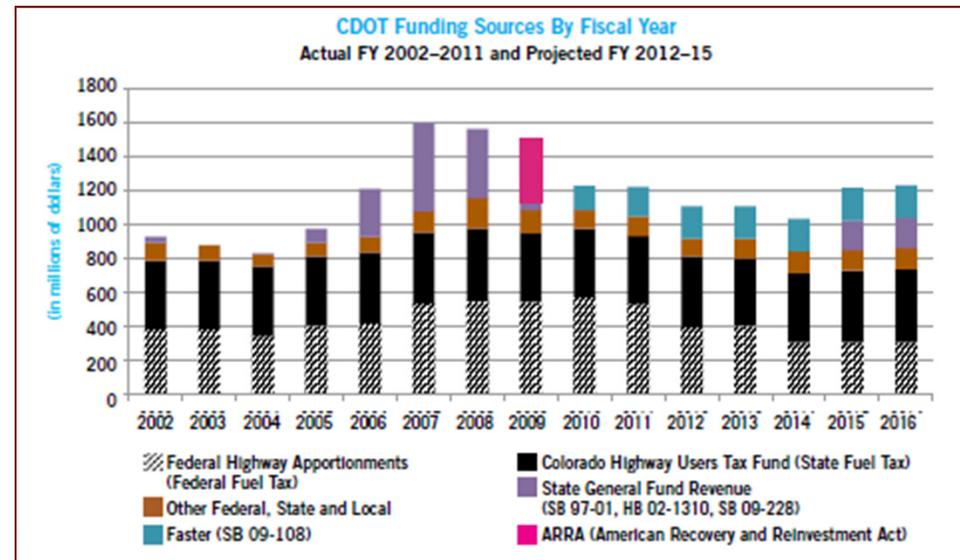
SMART Legislation in Colorado

Move *from*
traditional reports...



SMART Legislation in Colorado

Move to
SMART-mandated
4-page report

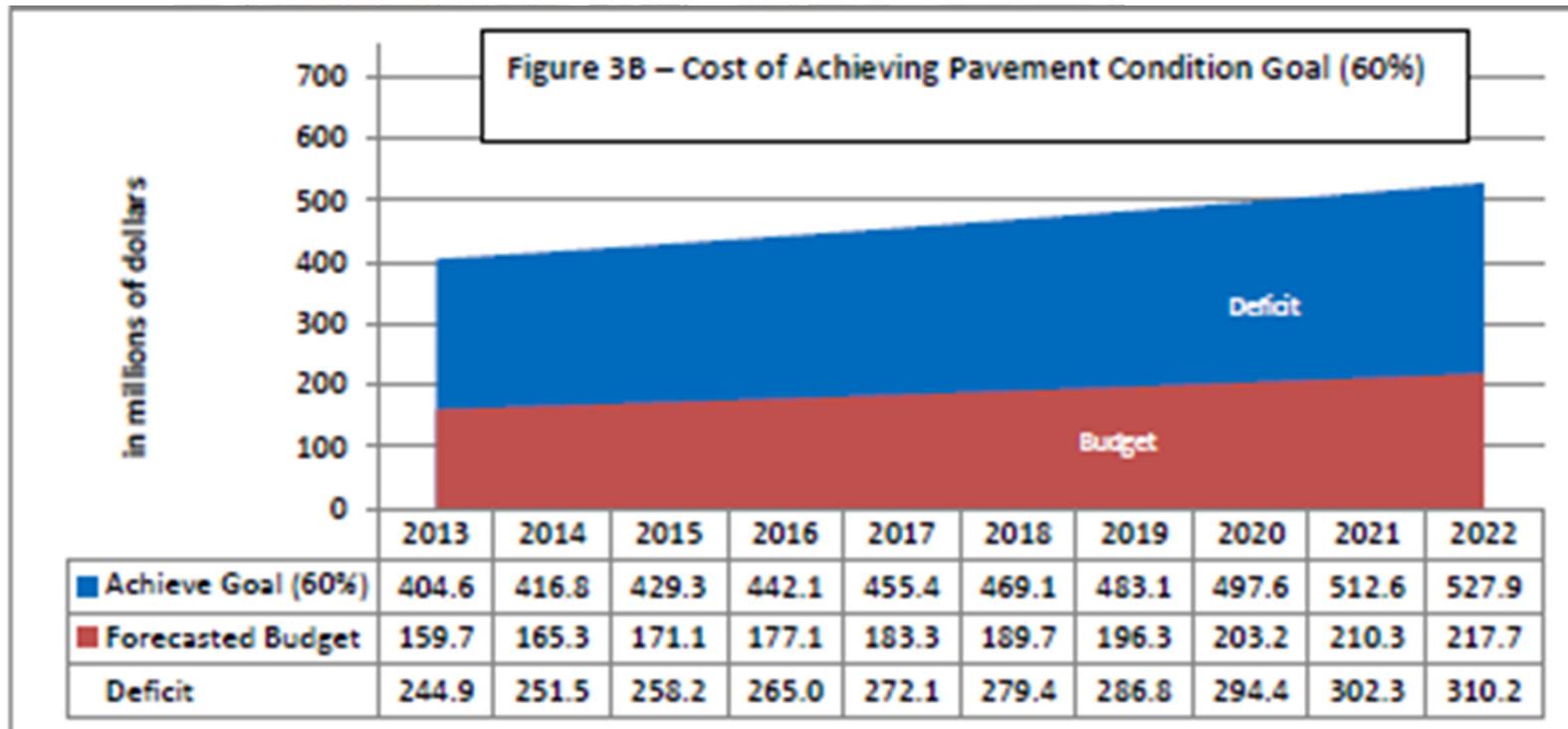


AGA's Citizen-Centric Reporting Initiative:

- Content/Design guidelines
- Certificate of Excellence

FASTER Legislation in Colorado

Transportation Deficit Report



Performance Reporting at CDOT

(Template A - Home Page)



Your CDOT Dollar

Your CDOT Dollar tracks CDOT performance and transportation expenditures.

- How CDOT Spends
- Where CDOT Spends
- Road Quality
- Bridges & Tunnels
- Mobility
- Safety

How CDOT Spends Transportation Dollars

Your CDOT Calculator Project Spending



(1.1.2 CDOT Invests text) xxxxxx xx xxxxx xxx
xxx xxxxx xxxx xxxx xxxxxxxx xxxxxxxx xxxxx
xxxx xxxxxxxxxxxxxxx xxxxx xxx >> [Learn More](#)

(Under development)

Performance Area:
Road Quality

- Highways
- Pavement
- Maintenance
- Snow & Ice
- Traffic Services

YourCDOTDollar.com

- Performance Measures
- Where CDOT Spends
- How CDOT Spends
- Launches December 31

Thanks to GIS & PM Technology Task Force

Performance Reporting at CDOT

OTIS – DTD's GIS Section



View and query Colorado transportation data and related images and documents. Create customized maps.



View highway features, traffic data, photos and documents. Export reports and data.



Traffic Data Explorer displays traffic counts and statistics including AADT, Truck AADT and VMT.



Search for spatial and tabular data, documents, metadata and glossary terms.



View and download statewide and regional maps. View, download and order the Official Colorado Travel Map.



SLD (Straight Line Diagram) application displays selected highway features along the road displayed as a straight line and map.



WINDSHIELD



REPORTS



YOUR CDOT \$