



# COLORADO

## Department of Transportation

Division of Transportation Development  
Performance and Asset Management Branch  
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TO: COLORADO TRANSPORTATION COMMISSION  
FROM: REBECCA WHITE - DIRECTOR, DIVISION OF TRANSPORTATION DEVELOPMENT  
MANJARI BHAT - PERFORMANCE & ASSET MANAGEMENT BRANCH MANAGER  
TOBY MANTHEY - TRANSPORTATION ASSET MANAGEMENT ANALYST  
DATE: OCT. 14, 2020  
RE: OVERVIEW OF REFINEMENTS TO TRANSPORTATION ASSET MANAGEMENT (TAM) PROGRAM

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### Purpose

This memorandum provides updates to potential changes to CDOT's Transportation Asset Management (TAM) program, which were first discussed at July's Transportation Commission meeting. These changes have resulted in part from staff's recent review of FY21 TAM projects and processes in light of the current economic climate.

### Action

Informational only.

### Background

#### FY21 TAM Review

Under direction of the Executive Director, CDOT staff in June and July 2020 conducted a comprehensive review of the Fiscal Year 2020-21 (FY21) transportation asset management (TAM) program. As part of this review, Division of Transportation Development staff and asset managers presented various information on the TAM program for the Executive Director and other executives, including:

- The budget distribution across asset classes.
- FY21 project lists for each asset, tiered into high, medium and low priorities.
- Program trends for each asset (e.g., percentage of projects on the Interstate vs. other highways).
- Business case for each asset class.
- Performance measures, targets, and historical performance.
- Use of models and cost/benefit data to inform project selection.

As a result of this review, CDOT identified several strategic opportunities for efficiencies. The Department is considering several changes in the administration of the overall TAM program, as well as potential opportunities at the asset class level. *It should be emphasized that these opportunities remain in development, as staff continue to evaluate the feasibility of each potential change.*

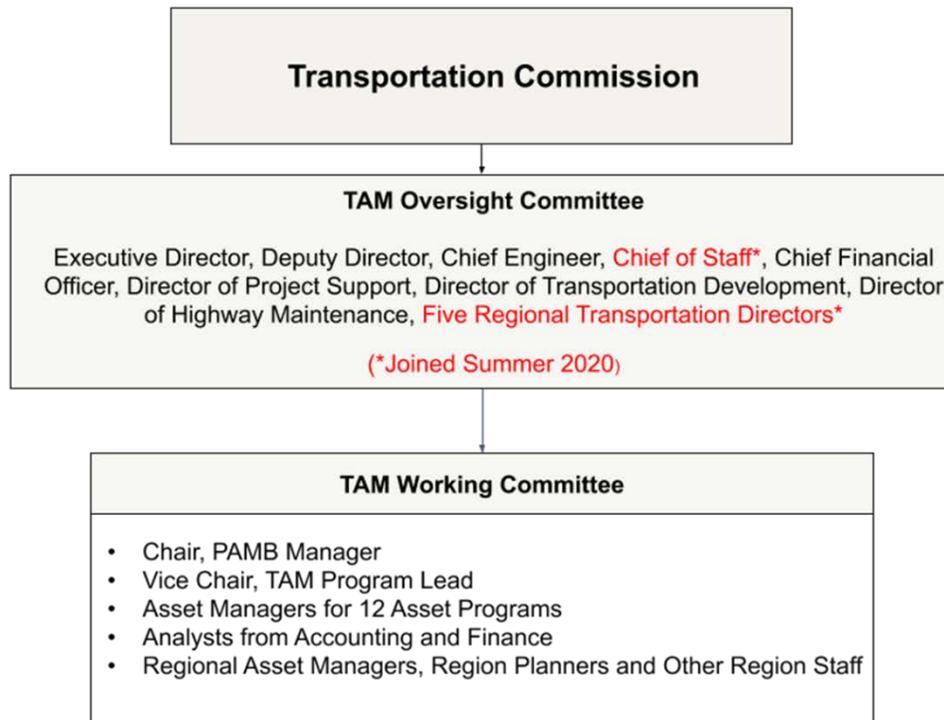
What follows is a summary of potential changes to the TAM program and their current status as of October 2020:

#### I. Program Structure



The governance structure of the TAM program includes a Transportation Asset Management (TAM) Oversight Committee and a TAM Working Committee.

The Transportation Commission sets the strategic direction for the asset-management program by approving performance metrics, targets, and annual planning budgets for all asset programs. Meanwhile, the TAM Oversight Committee includes the Department’s Executive Director, Deputy Director, Chief Engineer, Chief Financial Officer, Director of Asset Management and Planning, Director of Project Support. The Oversight Committee advises the Department on the size of the overall annual asset management budget, what assets should be included in the asset-management program, and other issues. The Transportation Commission typically reviews these recommendations and approves, modifies or rejects them. In summer 2020, all Regional Transportation Directors and CDOT’s Chief of Staff were added to the Oversight Committee.



Meanwhile, The TAM Working Committee assists CDOT in ways including developing new processes and prioritized project lists and by communicating policies, procedures and deadlines to asset managers, the Regions and other work units.

## II. TAM Budget-Setting Process

For the overall TAM program, discussions of potential changes have focused particularly on the budget-setting process and, most significantly, a refocus of the annual workshop from a budget “setting” meeting to a review and progress assessment. DTD is developing a proposal for an updated budget-setting process that includes several key steps. This remains a work in progress and will be under development throughout the summer and early fall. The TAM Oversight Committee and TAM Working Committee were presented with initial concepts in August 2020 for feedback.

The proposed steps are:



- The TAMOC will recommend a total “TAM cap” (total dollars dedicated to the TAM program).
- DTD, asset managers, and consultants perform annual model runs to show the latest “need” estimate for each asset.
- Asset managers will submit their budget request and a one-page justification to DTD for FY25. This will include a base-budget request and possibly any needed large projects.
- DTD will develop a rough draft of the FY25 TAM planning budgets for all assets.
- DTD will host an annual TAM workshop (Informational only. No voting on budgets.)
- DTD will then host a smaller meeting with the TAMOC to refine DTD’s draft budget in light of the annual TAM workshop and asset managers’ budget requests and justifications. Changes are recorded by DTD.
- TAMOC changes will be routed for sign off on planning budgets by ED, Chief Engineer and CFO.
- The TAM cap and planning budget distributions will be adopted or modified by TC.

Other potential changes include:

- Removing the Maintenance Levels of Service (MLOS) program, or the salaries component, from the TAM budget-setting process.
- Developing a major TAM project list that includes projects too large to be funded via annual program budgets. This list may be used to prioritize redistribution funds or other additional funding that CDOT may receive.

### III. TAM Policy and Procedural Directives

Another refinement of the TAM program is developing standalone policy and procedural directives for the program. Staff is working to deliver a policy directive for the Transportation Commission’s approval as early as winter 2020-21.

The policy directive will include certain TAM processes formerly in Policy Directive 703, including processes describing how TAM treatment lists are approved and modified. Policies for how treatment lists can be modified were presented at the monthly RTD meeting earlier this summer.

Other potential topics for the policy and procedural directives are: Requirements for how an asset becomes an official asset class; TAM org chart/governance structure; processes for approving planning budgets, CDOT’s overall TAM philosophy, a list of official asset classes and more.

### IV. Potential Efficiencies for Individual Asset Classes

As mentioned, the FY21 TAM review also included identifying potential opportunities for efficiencies at the asset class level. A summary of a few of those opportunities is provided below.

**Buildings:** Property management staff in August 2020 presented four options for reducing the FY21 buildings budget. The Executive Director directed staff to pursue an option that potentially reduces the buildings asset-management budget based on line-item costs savings (e.g., reducing bollard size, cutting the number of hose bibs by half, reducing site paving quantities, and potentially implementing three sided-bays where allowed by climate zones and when operational efficiencies are minimally impacted). Property Management will also continue to work with the Maintenance and Operations Branch to find ways to gain economies of scale by combining patrols on co-located sites, which helps reduce overhead, operating and infrastructure costs. These proposed cost saving measures will largely preserve the planned FY21 buildings program. Cost savings would be developed based on a detailed assessment of each site. This may reduce the buildings budget by about \$800,000 to \$3 million for FY21, however, the range is dependent on current volatile market and bidding conditions. Property Management will present the current status of the cost saving measure implementations to EMT in person at a December 2020 meeting and again after project bidding is complete.



**Tunnels:** The tunnels asset program and other CDOT staff are preparing a package of projects to improve the Eisenhower-Johnson Memorial Tunnel (EJMT) outside of the base asset-management program. This package is intended to create much of the framework for future grant applications (e.g. INFRA/BUILD). CDOT also is working on a possible proposal for FEMA’s Building Resilient Infrastructure and Communities (BRIC). BRIC supports hazard mitigation projects, reducing risks from disasters and natural hazards. This proposal would seek funding for a new tunnels generator(s). A kickoff meeting for the tunnels grant proposals occurred on August 12.

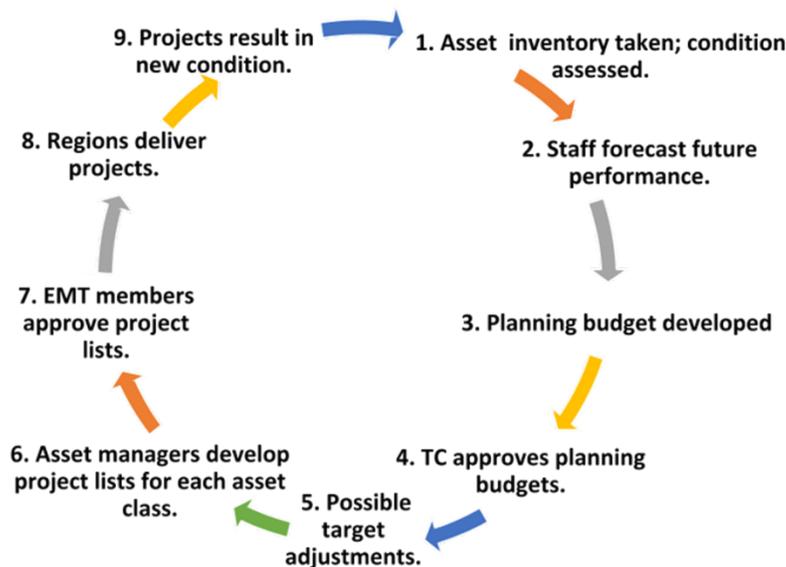
**Overview of Transportation Asset Management (TAM) Program**

CDOT maintains an asset management program that comprises 12 asset classes. The asset classes are bridges, pavement, culverts, walls, tunnels, road equipment, geohazards, traffic signals, buildings, rest areas, ITS (Intelligent Transportation Systems) devices, and Maintenance Levels of Service (MLOS).

The asset-management program focuses on asset preservation and replacement and does not fund projects that increase the capacity of Colorado’s transportation system. To qualify for asset-management funding, individual asset programs must be able to demonstrate, with a quantified performance measure, the benefit of additional investment.

The Department each year decides how to allocate about \$645 million among the asset classes for the final year of a rolling, four-year asset management program. To provide predictability to CDOT’s Transportation Regions and to construction stakeholders, “planning” budgets for the assets are typically set four years in advance, so that the final year of CDOT’s four-year program of asset management projects can be developed. In other words, knowing the planning budgets four years in advance gives CDOT staff the time to plan, develop, and design projects, so that when the year arrives for construction funding to be allocated, projects are ready to go.

The asset-management investment process begins each year with the cycle shown below.



Next Steps



- Staff will continue to evaluate the feasibility of the potential efficiencies identified above and implement them where appropriate.

Attachments

- Attachment A: PowerPoint deck entitled "*Update on Asset Management Review.*"





# Update on Asset Management Review

Rebecca White, Director, Division of Transportation Development  
Manjari Bhat, Manager, Performance and Asset Management Branch

October 2020



# Agenda

- Asset management program overview
  - Assets and new org chart
  - Annual investment process
  - Historical and current funding
- FY21 TAM program review
  - Budget setting process
  - New policy directive
  - Major projects list
  - EJMT grant
  - Buildings savings





# CDOT's TAM Program

## Transportation Asset Management (TAM) Program

- Created in 2012.
- Absorbed asset programs with dedicated annual funding allocation (e.g., pavement, bridge, maintenance, ITS) and combined with other classes that typically requested ad hoc funding from the Transportation Commission.

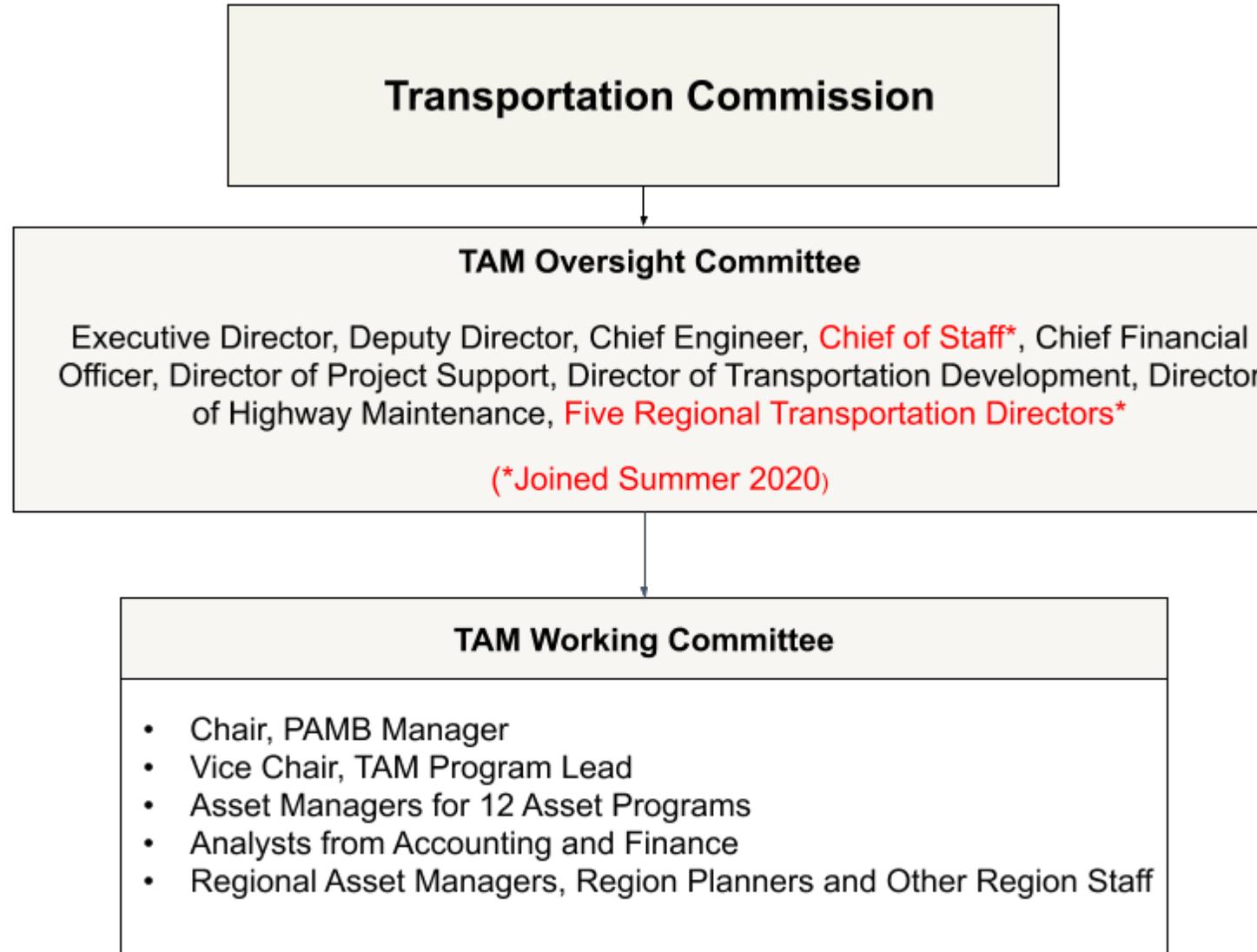
## 12 Asset Classes

- Pavement
- Bridges
- Maintenance
- Intelligent Transportation Systems (ITS)
- Road Equipment
- Buildings
- Culverts
- Tunnels
- Geohazards
- Walls
- Traffic Signals
- Rest Areas





# Current Organizational Structure





# Current Organizational Structure

## TAM Program Staff

1. DTD Director
2. Performance and Asset Management Branch Manager
3. TAM Program Lead
4. Modeling Analyst (new, to be filled)
5. 1.25 Interns

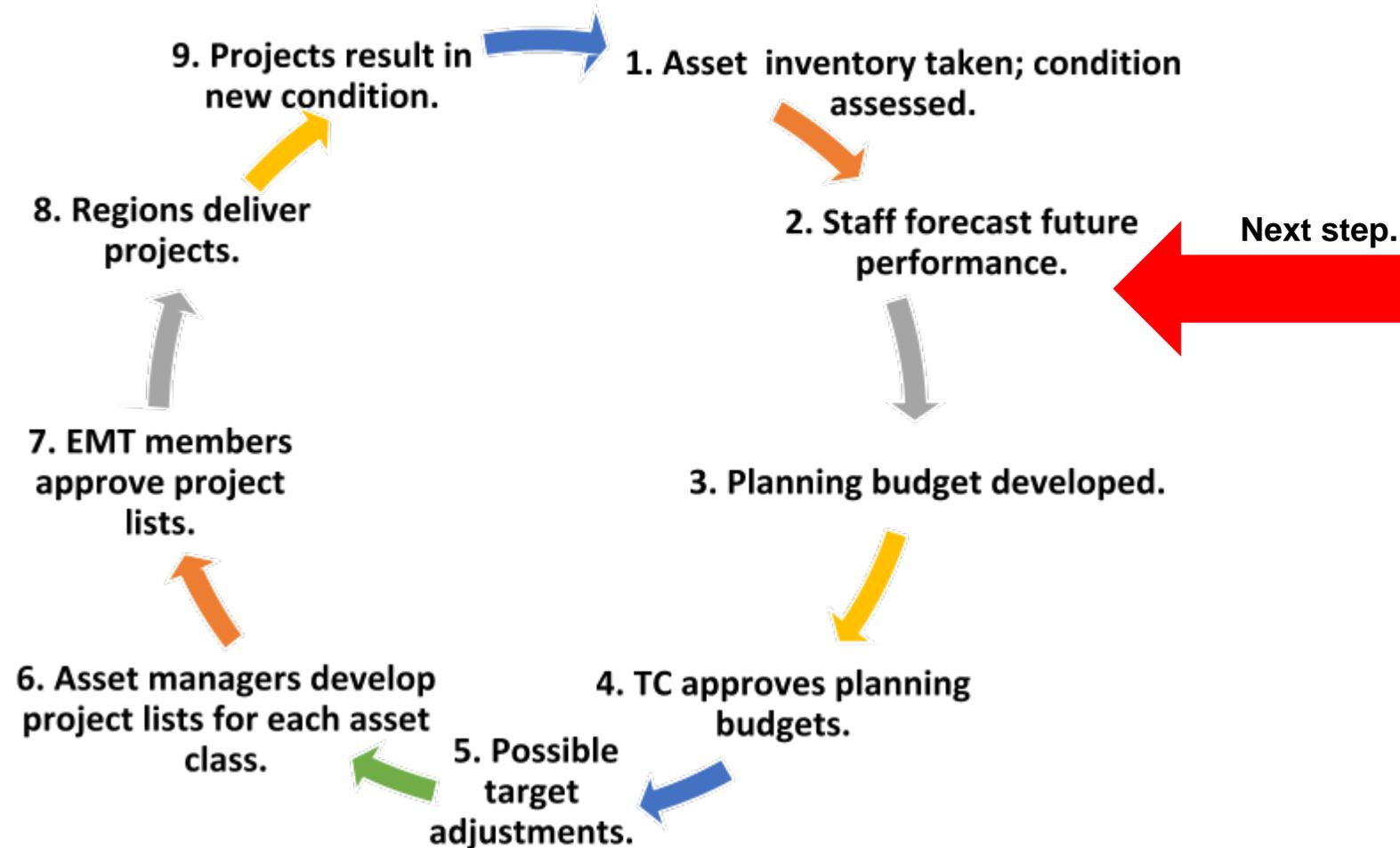
## HQ Asset Managers:

1. Craig Wieden/Laura Conroy: Pavement
2. Natasha Butler: Bridges, Culverts and Walls
3. Braporh Jacobs, Maintenance & Operations
4. Howard Ray, Road Equipment
5. Hope Wright, Buildings and Rest Areas
6. Bob Fifer, Intelligent Transportation Systems (ITS)
7. Nitin Deshpande, Traffic Signals
8. Ty Ortiz, Geohazards
9. Tyler Weldon, Tunnels



# Investment Process

## Asset Management Investment Process





# Currently Approved Planning Budgets

FY14-24 Asset Management Planning Budgets (in millions)											
Asset Class	Final Budgets								Planning		
	FY2013-14	FY2014-15	FY2015-16	FY2016-17	FY2017-18	FY2018-19	FY2019-20	FY2020-21	FY2021-22	FY2022-23	FY2023-24
Surface Treatment	\$238.8	\$235.2	\$235.9	\$252.1	\$231.4	\$225.4	\$222.0	\$223.2	\$223.3	\$224.6	\$225.6
Bridge	\$173.9	\$168.2	\$164.1	\$163.2	\$155.4	\$25.9	\$32.6	\$27.0	\$37.3	\$37.3	\$38.3
Bridge Enterprise	-	-	-	-	-	\$116.2	\$118.4	\$120.2	\$130.1	\$132.0	\$134.1
MLOS	\$249.0	\$251.3	\$254.4	\$262.6	\$263.5	\$272.8	\$265.7	\$265.2	\$263.5	\$267.8	\$269.0
Buildings	\$11.3	\$20.8	\$12.9	\$21.4	\$17.5	\$20.2	\$17.6	\$18.1	\$16.7	\$17.8	\$17.0
Culverts	\$11.5	\$9.6	\$8.2	\$11.9	\$9.1	\$7.6	\$7.5	\$8.3	\$8.6	\$8.3	\$8.2
Tunnels	\$7.4	\$12.4	\$5.2	\$10.5	\$6.4	\$8.4	\$10.3	\$10.0	\$9.4	\$9.8	\$9.8
ITS	\$21.5	\$27.6	\$21.4	\$24.5	\$23.0	\$23.5	\$29.2	\$24.9	\$30.2	\$26.2	\$25.6
Road Equipment	\$20.9	\$20.9	\$18.4	\$26.4	\$23.0	\$26.8	\$22.1	\$21.6	\$22.0	\$21.5	\$21.5
Geohazards	\$9.0	\$9.1	\$9.2	\$11.8	\$8.5	\$8.4	\$9.7	\$12.3	\$10.1	\$10.0	\$9.7
Walls	\$0.0	\$0.0	\$2.4	\$10.2	\$4.6	\$4.6	\$5.1	\$5.5	\$5.4	\$5.8	\$5.7
Traffic Signals	\$0.0	\$0.0	\$5.7	\$16.9	\$12.6	\$14.8	\$14.6	\$15.1	\$12.5	\$9.2	\$9.2
Rest Areas	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$6.9	\$5.4
<b>TOTAL</b>	<b>\$743</b>	<b>\$755</b>	<b>\$738</b>	<b>\$812</b>	<b>\$755</b>	<b>\$755</b>	<b>\$755</b>	<b>\$751</b>	<b>\$769</b>	<b>\$777</b>	<b>\$779</b>
<b>TOTAL MINUS BE (19-24 Only)</b>						<b>\$638</b>	<b>\$636</b>	<b>\$631</b>	<b>\$639</b>	<b>\$645</b>	<b>\$645</b>

Budgets and project lists developed and approved four years in advance.



# Current Program Review

- In June of 2020, under the direction of Director Lew, staff began a comprehensive review of the asset management program.
- Staff briefed the Commission in July 2020 on the focus of this work and initial outcomes.
- While this work is still on going, today's briefing provides an update on changes underway and additional areas being analyzed.



# Key Recommendation #1: New Budget-Setting Process

Previous process involved an annual budget setting workshop whereby members of EMT and key asset staff reviewed and voted on budget amounts for each of the twelve asset categories. This “vote” was presented to TC for adoption. Review team proposing to alter this process to:

- Guarantee each asset a set floor funding amount (providing budget stability)
- Place funding decisions with the TAMOC; with final approval by the TC
- Conduct an annual review of the asset program, including how dollars were spent and condition of each asset

1. Recommend total “TAM cap” and floor for each asset.

2. Annual model runs show latest need estimate. Asset managers submit budget request.

3. Annual TAM workshop (informational only).

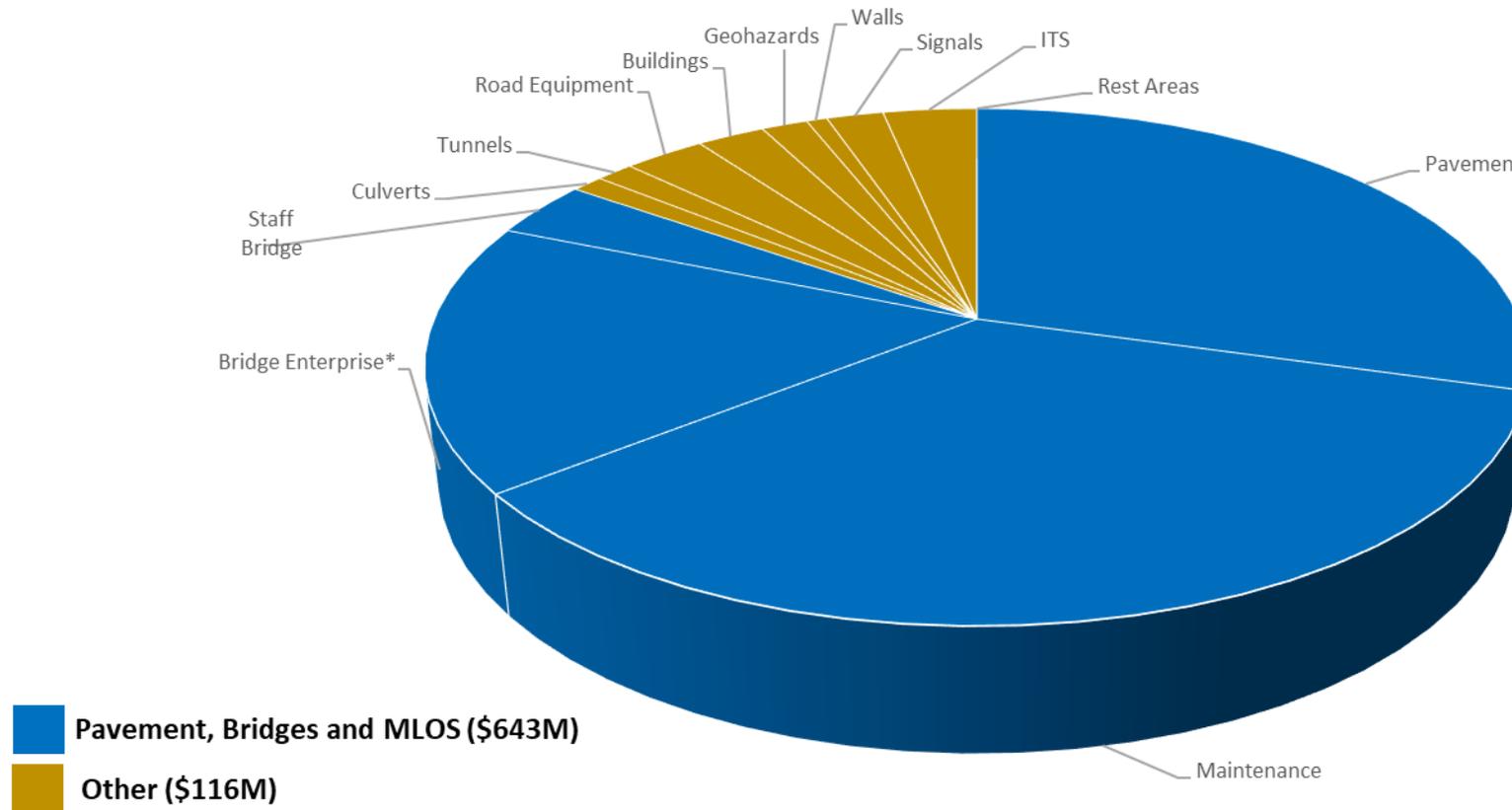
4. TAMOC establishes planning budgets for each asset. TAM cap and planning budgets adopted by TC.

5. Annual review of performance and budget.



# FY21 Funding Distribution

## FY21 Asset Management Funding Distribution by Asset





# Key Recommendation #2: Develop a Standalone Policy Directive

## **Provide consolidated guidance and direction for one of CDOT's most important programs**

- CDOT TAM philosophy
- Org chart/governance
  - TAM Oversight Committee
  - TAM Working Committee
- List of asset programs
- TAM budgets: development and approval process
- Eligible activities for TAM spending
- Development, approval and change processes for TAM “treatment” lists
- Requirements for asset classes (inventory, metrics, model, etc.)
- Process to approve or remove classes from program
- TAM performance metrics and targets
- Risk and resilience in TAM program



## Key Recommendation #3: Elevate focus on Major/Large Dollar Projects

- Began development of major TAM project list with asset managers at TAM Working Committee.
- Look at overlaps with 10-Year Strategic Pipeline of Projects.
- DRCOG working with R1 to develop 2050 plan. R1 has put in lots of major asset treatments.





# Eisenhower Johnson Memorial Tunnel

## Eisenhower Johnson Memorial Tunnel (EJMT) Capital Development Plan

- The EJMT accounts for about 61% of the \$155 million in needs identified for all of CDOT's tunnels through 2034.
- The entire tunnels program is funded at just \$10 million annually. However, major EJMT improvements, including LED lighting (\$34M), extensive tunnel liner repairs, and a new water-treatment facility, are needed soon.



- Staff has developed a ready-to-go grant package to pursue Federal funding for the needed, high-cost repairs at EJMT.



# Recommendation #4: Pursue cost efficiencies within each asset program

## Example: CDOT Maintenance Buildings

Staff is working to reduce the buildings asset-management budget based on line-item costs savings.

- Reducing bollard size
- Cutting the number of hose bibs by half
- Reducing site paving quantities
- Potentially implementing three sided bays where allowed by climate zones and operational needs

Cost savings would be developed based on a detailed assessment of each site. This may reduce the buildings budget by about \$800,000 to \$3 million for FY21.





# Questions?