



Best Practices for Sustainable Road & Bridge Funding



Tom Peterson, PE
Executive Director

Mike Skinner, PE
Director of Engineering



CAPA MISSION
TO ADVANCE THE
USE AND QUALITY OF
ASPHALT PAVEMENTS
IN COLORADO.



ECONOMICAL



SUSTAINABLE



DURABLE





Industry Advocacy
Training & Education
Technical Assistance
Transportation Funding

Representing
90% of the
asphalt industry in
Colorado

270 members
including **80** local
agencies





DOUGLAS COUNTY
BOARD OF COUNTY COMMISSIONERS



2021 Partner Organization of the Year



Local Agency - New or Reconstruction
Owl Canyon Reconstruction (CR-72)



Value of Paved Road System (Elbert County):

100 miles (centerline) x \$1M/mile = **\$100 Million**



Value of Road System

47,000 miles (centerline) x \$5M/mile

\$235 Billion

**Over 90% of all
pavements are
ASPHALT**



**Available
Funding**

**Roadway
Needs**



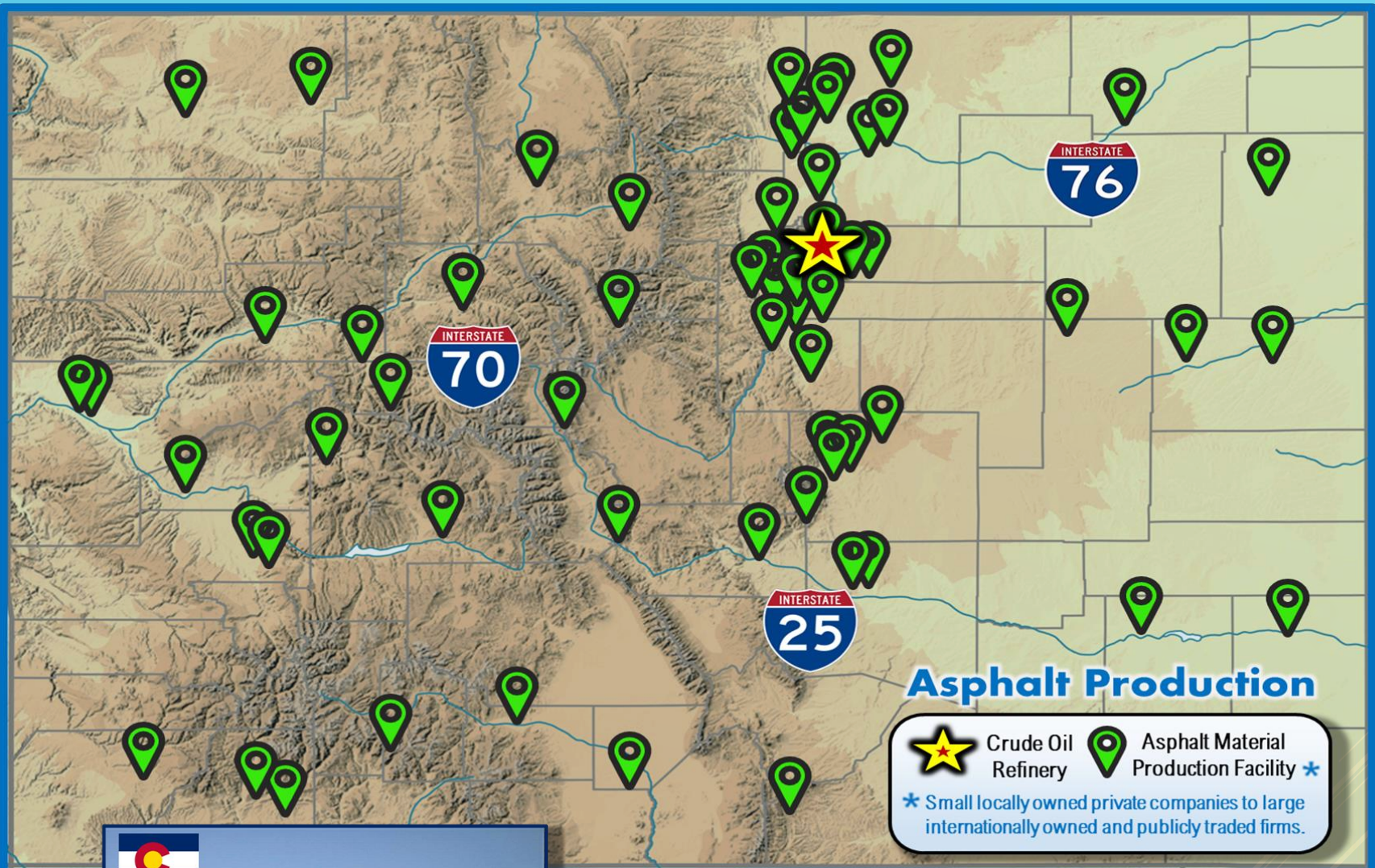
No paving or chip work in 2021 and none planned for 2022

OPERATIONS (ROAD & BRIDGE) VS. POLICY (COMMISSIONERS)



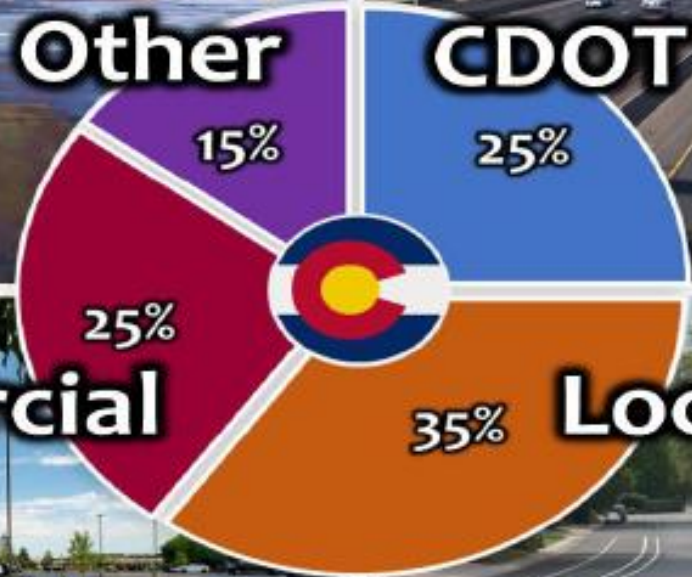
- When to Pave a Gravel Road?
- Design and Construction Guidelines for Asphalt Pavements
- Cold Weather Paving
- Pothole Patching
- Best Practices for using Recycled Asphalt Pavement

- ▶ Asset Management
- ▶ Pavement Management
- ▶ Using the Right Treatment at the Right Time with the Right Investment Level
- ▶ Sustainable Funding for Roads and Bridges





- **65** asphalt material facilities in **42** counties
- **1** crude oil refinery - Commerce City
- **5 to 8** portable facilities for remote projects



9M tons of asphalt produced annually

Supply & Demand

\$1.3 Billion

Annual Revenue into Colorado's Economy



Industry includes 5,000 direct + 2,500 indirect employees statewide.

Industry payroll greater than \$350M with average salary of \$75,000.

Asphalt Industry purchases and uses

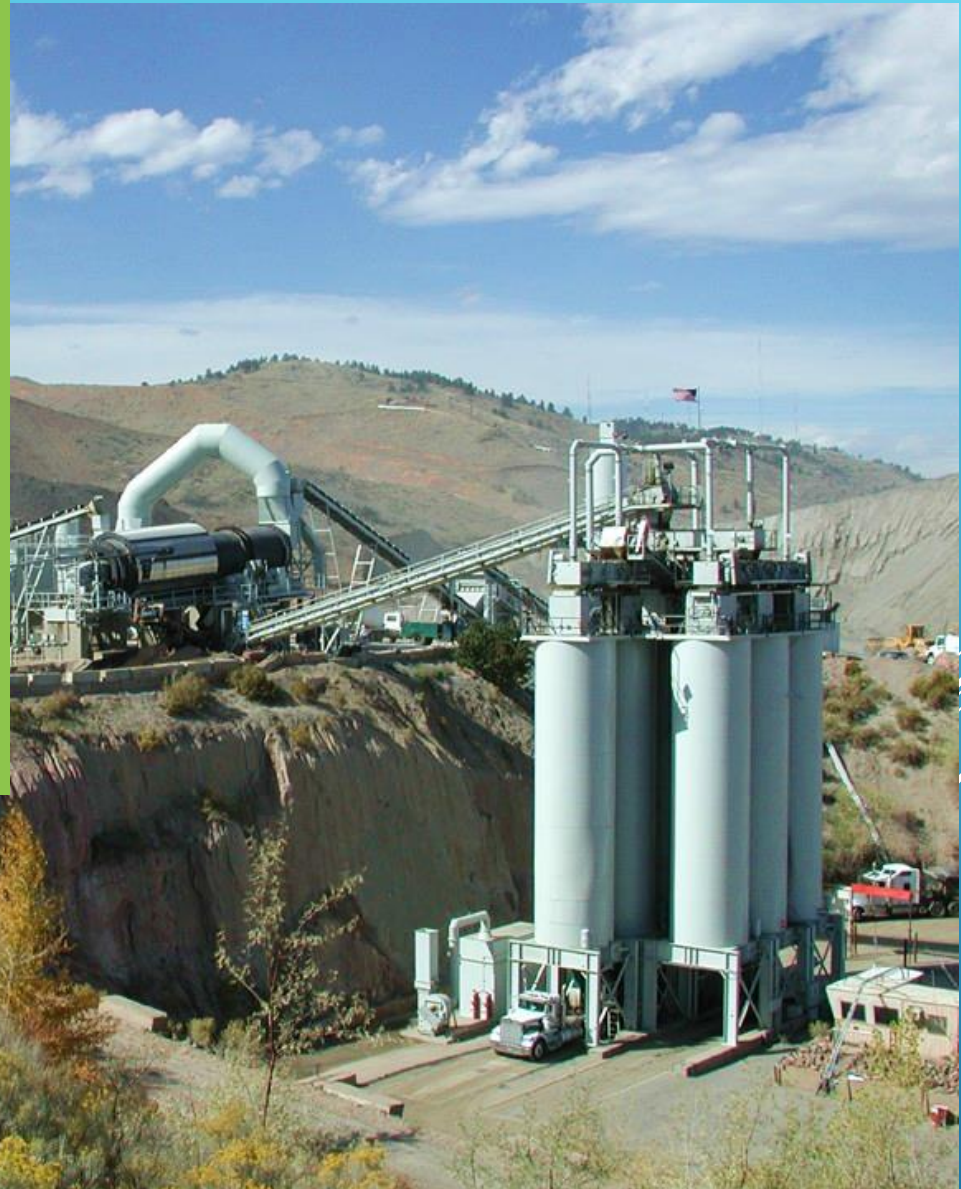




Asphalt is the **#1 Recycled Material**.

While asphalt production has increased by over 250% in the past 40 years, **emissions from asphalt material production facilities has decreased by 97%**.

Asphalt material production facilities have been **delisted** by the EPA/CDHPE from the list of major polluters.





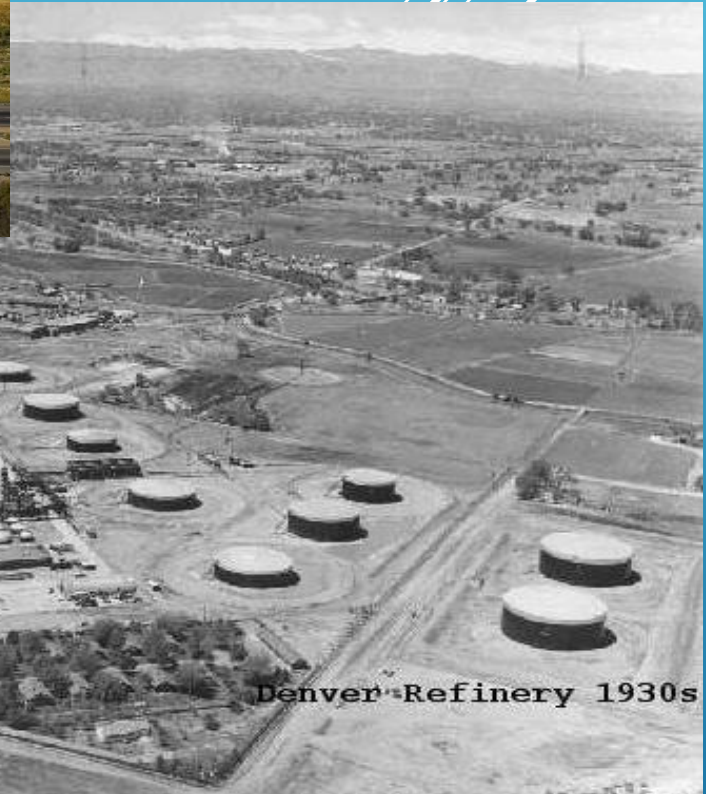
Recycled Products in Pavements

- Ground Tire Rubber
- Roofing Shingles
- Recycled Glass
- Plastics

Asphalt pavements are designed and engineered for quality and performance.

They are not linear landfills.





Denver Refinery 1930s

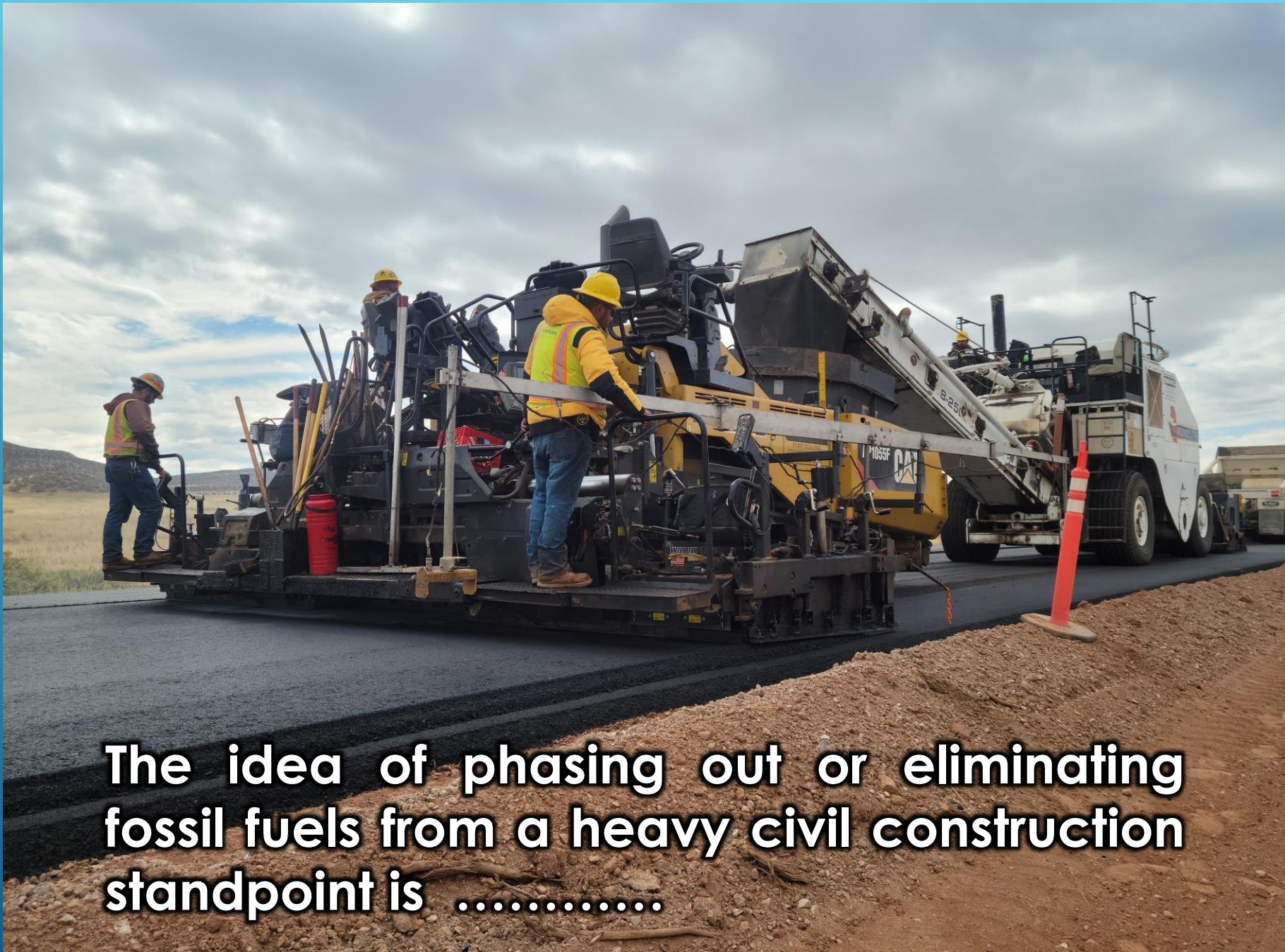
***“...we need to accelerate the transition to
Clean Energy.”***

***“I Guarantee You We’re Going to
End Fossil Fuel”***

THE BIDEN PLAN FOR
A CLEAN ENERGY
REVOLUTION AND
ENVIRONMENTAL
JUSTICE







The idea of phasing out or eliminating fossil fuels from a heavy civil construction standpoint is

Environmental Mandates

HB 21-1303 Global Warming Potential of Construction Materials Used of Publicly Funded Projects

HB 22-1244 Concerning Measures to Increase Public Protection from Toxic Air Contaminants

- ▶ COST IMPACTS
- ▶ IMPACTS ON COMPETITION (# OF BIDDERS)
- ▶ VALUE/BENEFIT (What is the reduction in emissions, VOCs, etc.)

Policy Approach

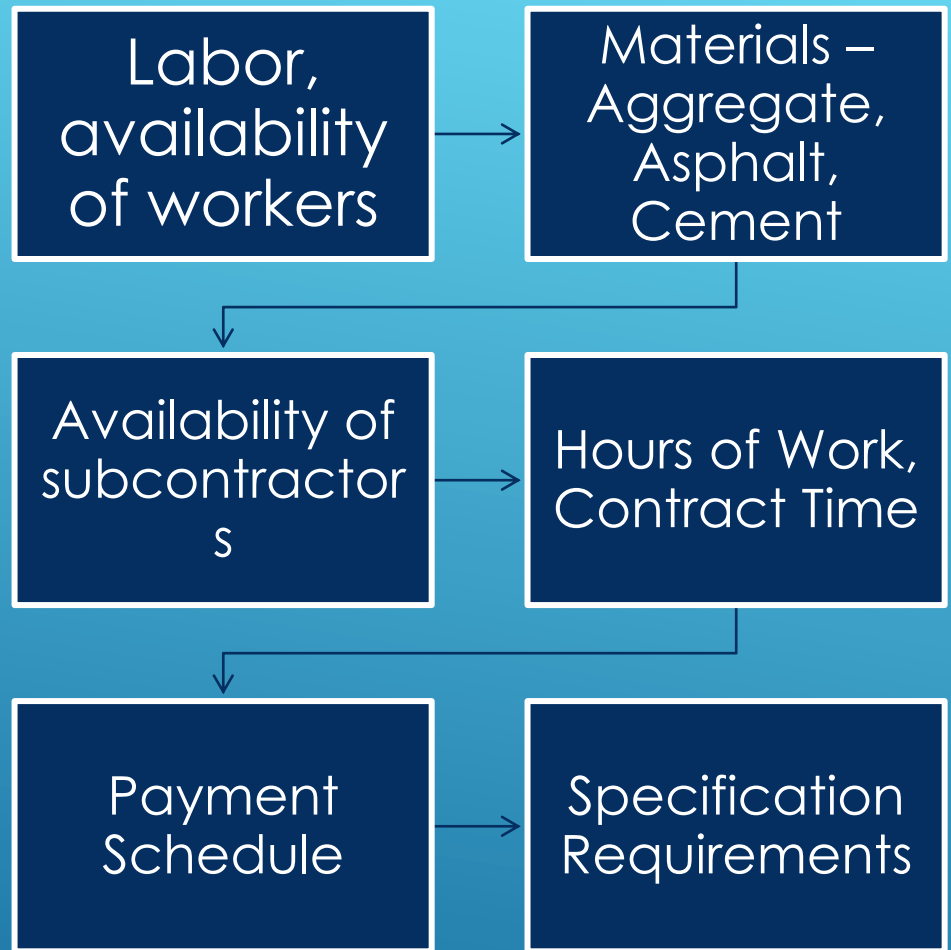
Option #1 INCENTIVES FOR ACHIEVEMENT

Option #2 MANDATE for TIGHTER REGULATIONS TO RESTRICT/MONITOR

THE AMERICAN DREAM



WHAT FACTORS IMPACT PROJECT COST?





2022 Construction Inflation Alert, April, 2022

For more than two years the U.S. construction Industry has been buffeted by

- Unprecedented increases in material costs
- Supply-Chain Bottlenecks
- Tight Labor Market

ASPHALT SUPPLY & COST

- ▶ **Crude Oil Availability**
 - ▶ Global Dynamics
 - ▶ National Policy
- ▶ **Refining Capacity**
 - ▶ Regionally – Rocky Mt. West
- ▶ **Refinery Upsets**
 - ▶ Production Problems
 - ▶ Trucking/Transport Logistics
- ▶ **Demand vs. Supply**

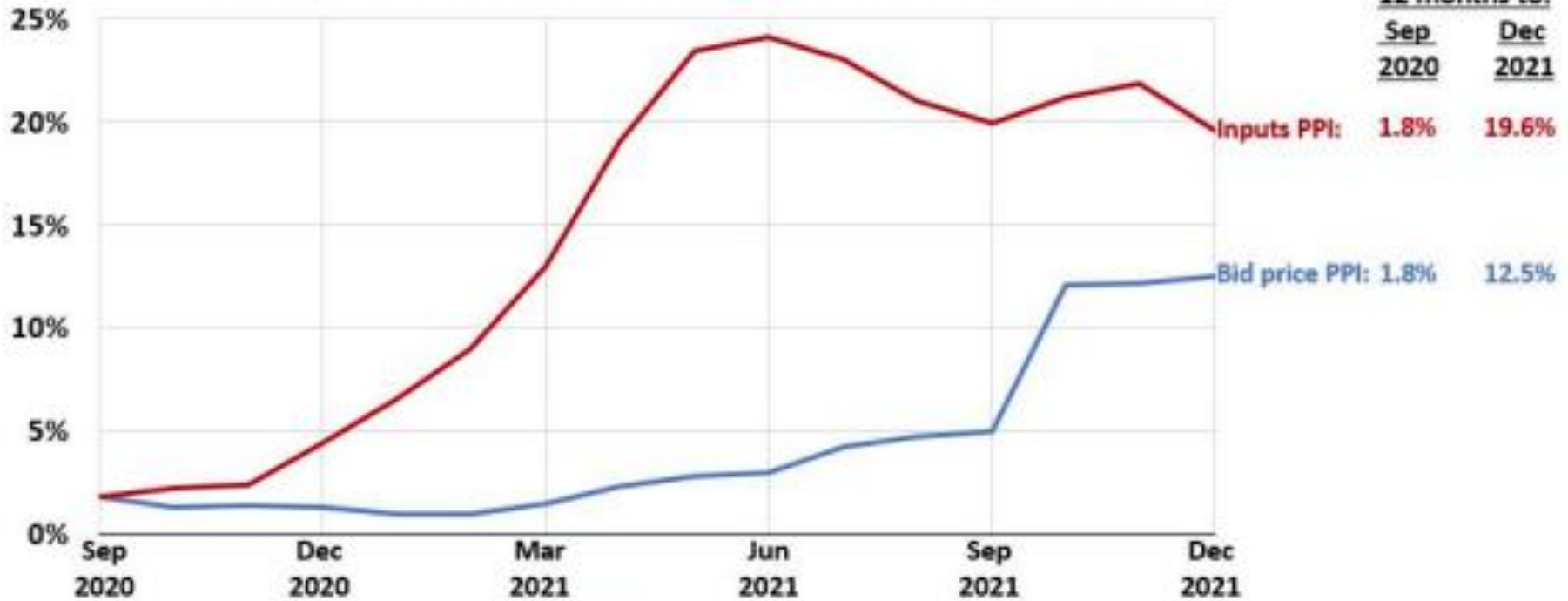


Demand – STRONG; Supply - TIGHT

Figure 2

Change in prices for new nonresidential construction inputs vs. bid prices

Year-over-year change in PPIs, Sep 2020 – Dec 2021, not seasonally adjusted



Source: Bureau of Labor Statistics, producer price indexes, www.bls.gov/iif/

“..... there is little sign that the supply chain will consistently improve in 2022.”



Conclusion:

The construction industry is in the midst of a period of exceptionally steep and fast-rising costs for a variety of materials, compounded by major supply-chain disruptions and a shortage of available workers—a combination that threatens the financial health of many contractors. **No single solution will resolve the situation**, but there are steps that government officials, owners, and contractors can take to lessen the pain.

Conclusion:



Owners need to recognize that **significant adjustments are probably appropriate regarding the price or delivery date of projects** that were awarded or commenced early in the pandemic or before, when conditions for suppliers were far different. For new and planned projects, owners should expect quite different pricing and may want to consider building in more flexibility regarding design, timing, or cost-sharing.



***How much does
asphalt cost?***

Maximizing Limited Road Improvement Funds

Get the Work Out Early!

Optimize the Use of Recycled Materials

Use Standard Specification & Material Requirements

Maximize Hours of Work

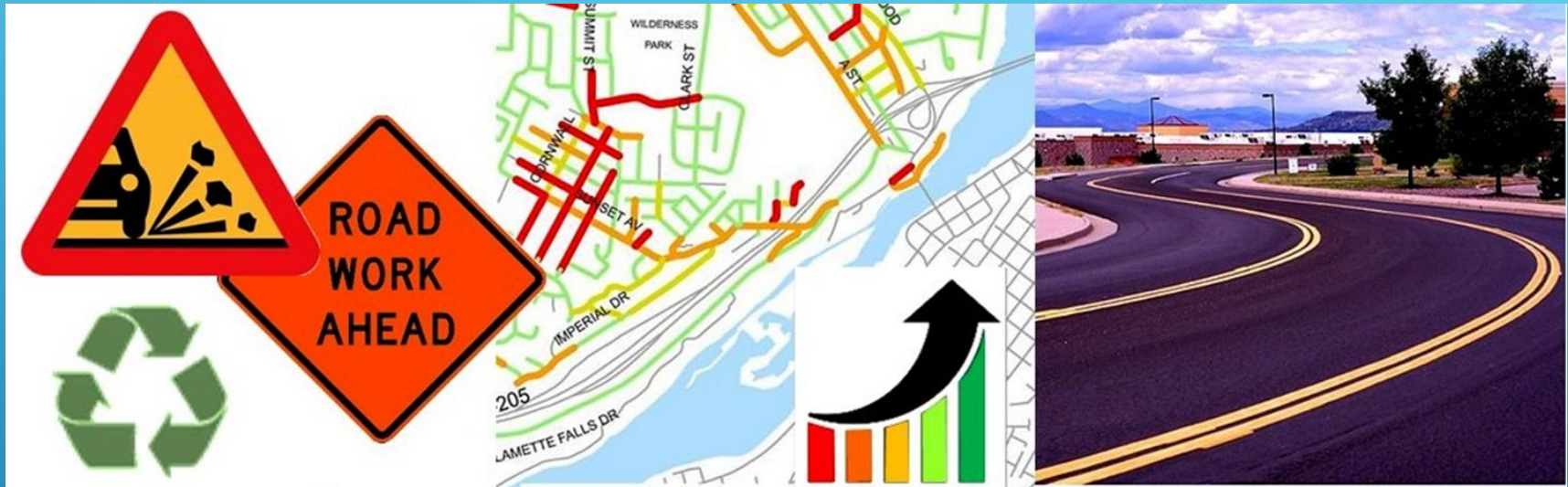
Accurate Engineer's Estimate

Flexibility in Project Scope

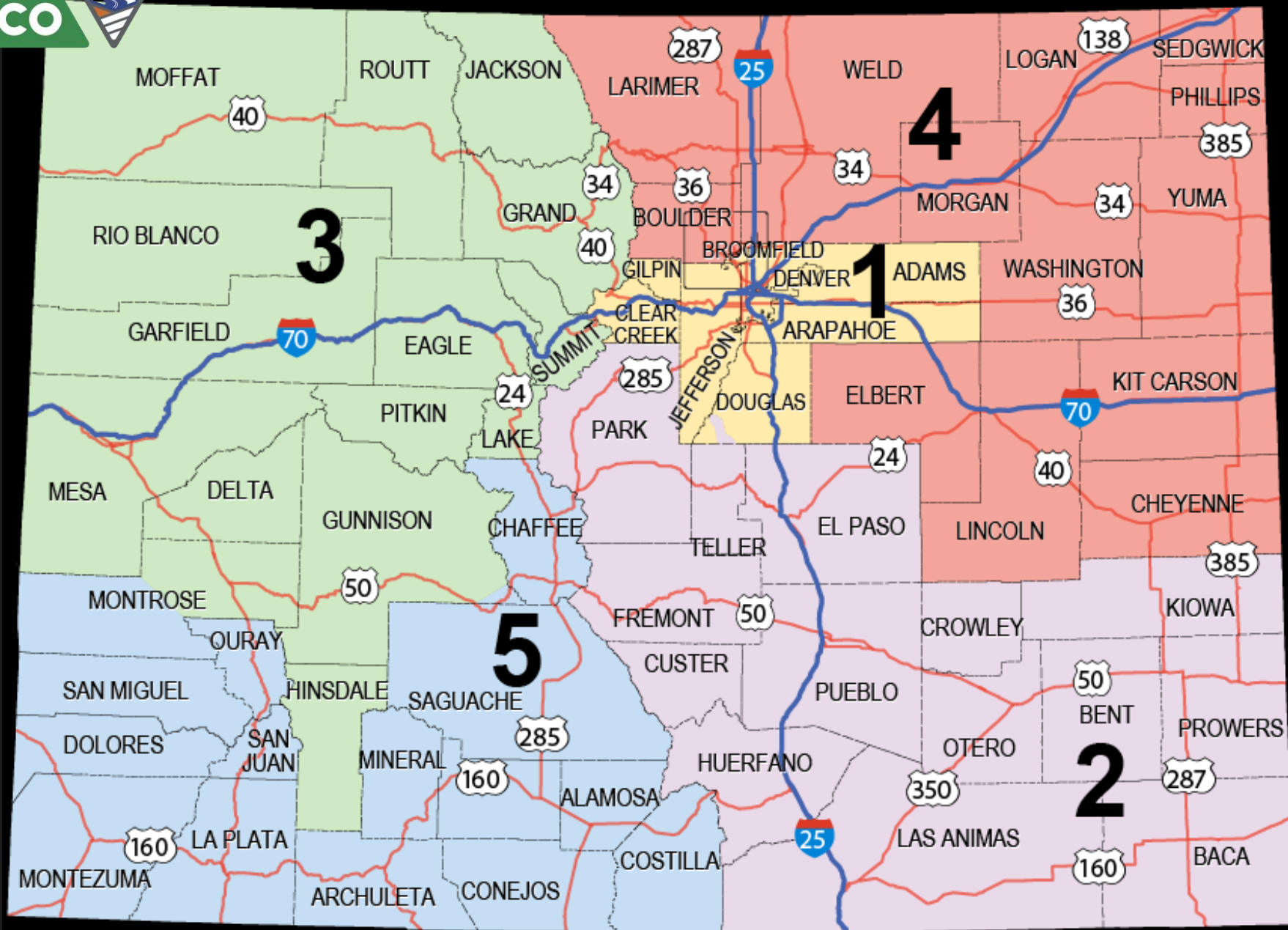
Flexibility in Contract Duration

Pre-Construction – Ordering / Purchase of Materials

Predictability in Program (avoid steep highs and lows)



“Keeping the Good Roads Good”





2,500
miles

GRAND VALLEY
MPO



**LOCAL AGENCY
ASPHALT
IN
COLORADO**

58,700 lane miles

72%

10,600
miles

NORTH FRONT
RANGE MPO

28,500
miles

FRONT RANGE MPO



7,300
miles

PIKES PEAK
REGION MPO



2,500
miles

ARKANSAS
VALLEY MPO



CDOT = 22,600 lane miles of asphalt

2022 Pavement Condition Funding & Performance



Colorado travelers were asked to prioritize where investment dollars should be spent....maintaining the existing **transportation infrastructure** was considered the **highest priority**.



Local Agency Roadway Condition/Funding Survey

Street Improvement Budget

- Capital Improvements
- Mill & Overlay
- Preventive/Crack Seal
- Concrete

Pavement Condition

- Network PCI
 - Use the available data to help with approaching your council or commissioners to increase funding





Colorado Asphalt
Pavement Association

Local Agency Roadway Condition/Funding Survey



Colorado Asphalt
Pavement Association

Pavement Condition

Funding and Performance of
Colorado  Local Agencies



2022

2022

96 Agencies

2016

27 Agencies

62,000 lane miles

92% of Local Agency miles

Local Agency	Paved Lane Miles	Year	Annual Asphalt Program		PCI	Public Works CIP
			Mill/Overlay + Preventive + Crack Seal	\$/lane mile		
Adams County	1484	2021	\$8,800,000	\$5,930	71	\$15,000,000
Alamosa	118	2020	\$221,564	\$1,878	60	\$1,357,773
Arapahoe County	1197	2022	\$4,390,000	\$3,668	68	
Arvada	1586	2019	\$6,900,000	\$4,351	68	

Funding

75th Percentile = \$10,146 lane mile
Weighted Average = \$5,838 lane mile
 25th Percentile = \$3,342 lane mile

Pavement Condition

75th Percentile = PCI 76
Weighted Average = PCI 69
 25th Percentile = PCI 62

Breckenridge	120	2017	\$750,000	\$6,250	78	
Cañon City	194	2021	\$400,000	\$21,649	37	\$3,800,000
Castle Pines	82	2021	\$2,685,070	\$32,745	82	
Castle Rock	711	2021	\$7,786,075	\$10,951	78	\$4,380,000
Centennial	979	2017	\$7,700,000	\$7,865	79	
Cherry Hills Village	90	2022	\$220,000	\$2,444	86	\$250,000

2022 Local Agency Market

\$347 M

Street/Road Maintenance

\$334 M

Public Works Capital Projects

\$681 M

Local Agency 2022 Projects

2022 Local Agency Trends

+ \$19.8 M

Street/Road Maintenance

\$\$

**16 Agencies
(70%)**

23
Agencies
2021 vs. 2022

\$\$

**7 Agencies
(30%)**

Positive growth!

2022 Local Agency Trends

23
Agencies
2021 vs. 2022

	2021	2022	Δ 2022	Δ 2021	Δ 2020
CIP*	\$110.3	\$104.90	-5%		
Mill & Overlay	\$75.7	\$82.90	+10%	4%	6%
Maint.	\$13.3	\$27.60	+108%	48%	-12%

Local Agencies Facing:

Situation

increased costs
less revenue
resistance to tax increases

Decision makers have chosen:

Reaction

“low profile” budget cuts
by deferring maintenance



How Did Their Roads Get So Bad?

The Cost of Deferred Maintenance
A Colorado Springs Case Study





“61% of our streets need to be completely resurfaced or reconstructed.”

“We have the 24th worst road conditions in the nation.”

Mayor John Suthers

KKTV 11

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11 Call For Action Investigation

HOW OUR ROADS GOT SO BAD

July 30, 2015



“We have continued to decrease our preventative maintenance budget over the last 9-10 years.”

“It would be in the hundreds of millions to take care of our deteriorating infrastructure now.”

Cory Farkas
Streets Division Manager

KKTV 11

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11 Call For Action Investigation

HOW OUR ROADS GOT SO BAD

July 30, 2015

“We filled 6,281 potholes in Jan/Feb this year, more than double from that period in 2014. We expect it to be at least 3-4x more than that in 2016.”

“It’s getting worse, our infrastructure is going into a nosedive at a noticeable rate.”

Cory Farkas
Streets Division Manager

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HOW OUR ROADS GOT SO BAD

July 30, 2015

How Did it Get So Bad?

This tax-averse city is about to learn what it looks and feels like when budget cuts slash services most Americans consider part of the urban fabric.

The city won't pay for any street paving, relying instead on a regional authority that can meet only about 10 percent of the need.

THE DENVER POST

Jan 31, 2010

"I guess we're going to find out what the tolerance level is for people."

**Chuck Fowler
Businessman**



How Did it Get So Bad?

“With that downturn (2008), one of things you do is reduce across the board. Every department had budget restrictions and that ultimately impacted our Capital Improvement Budget.”

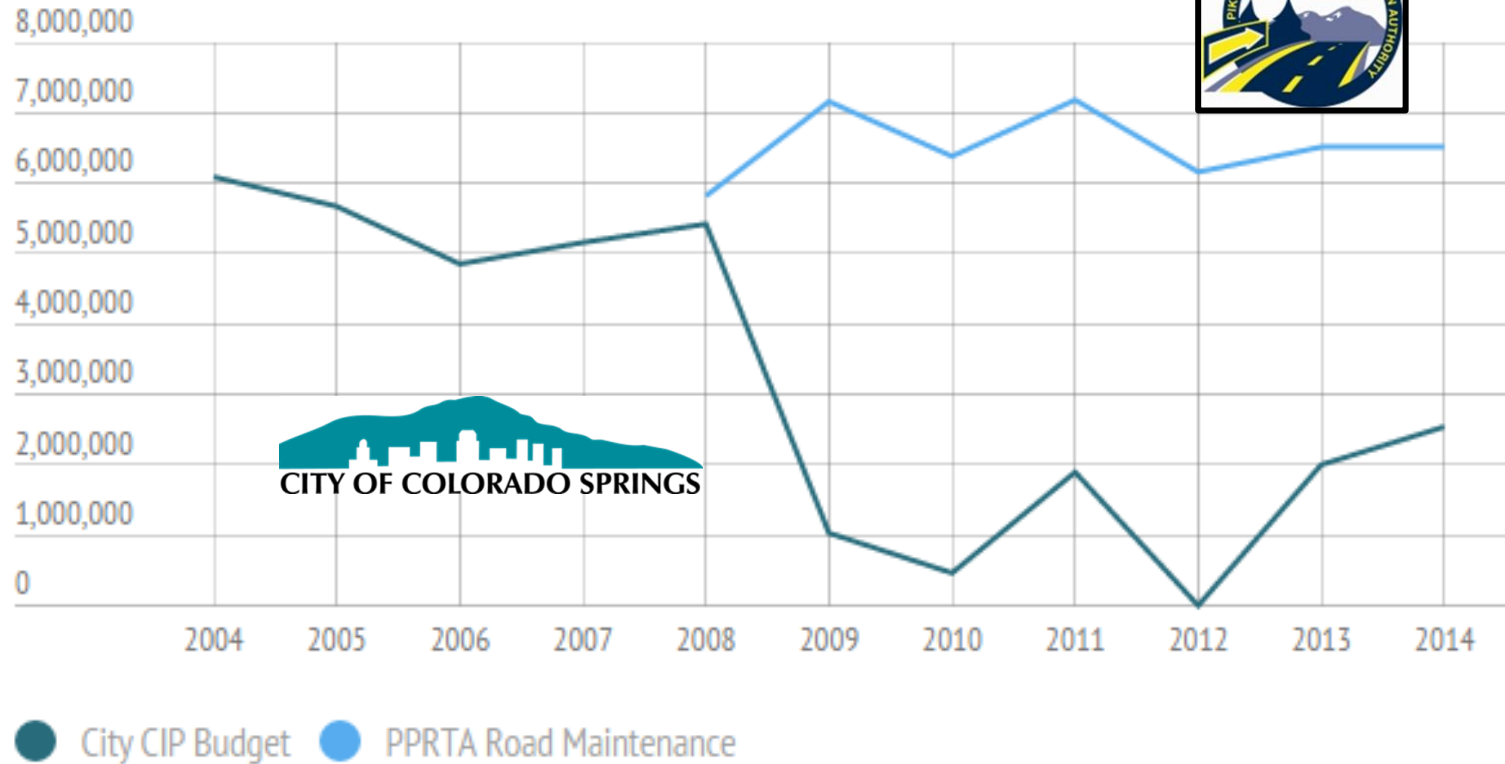
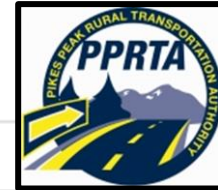
Kara Skinner
Chief Financial Officer
City of Colorado Springs



Other local agencies addressed the economic downturn in different ways. Jefferson County prioritized their departments and reduced budgets according to critical long term impacts. The Road & Bridge Department remained a top priority and has avoided the problematic issues Colorado Springs is now facing.



Road Maintenance



“We have a new 5 year plan (2016-2021), but it does not include paving residential streets. At this current funding level it will take 67 years to bring everything back.”

Cory Farkas
Streets Division Manager

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HOW OUR ROADS GOT SO BAD





Implementing a Road Improvement Plan

Road Inventory & Asset Value

Inventory and identify the length of street network to determine the total centerline miles and average paved width.

Determine a full depth replacement cost (asset cost of the materials) for the network (typically \$75-\$90/sqyd.). *This is the asset value of the network.*

Road Condition Assessment & Network Preservation

A street improvement plan should consist of a *planned system* of treating pavements to maximize their useful life as cost-effectively as possible. The planned program should be proactive and progressive, *not* reactive.

The framework of the street improvement plan should be based on *treating the right road at the right time with the right treatment*. To monitor the performance of the network and being able to plan appropriate maintenance and capital improvements, the Streets Department should maintain a condition survey of the existing streets. The survey should be completed in a phased approach, collecting condition for one district annually, allowing for a three year cycle for a total network survey.



Typical Street Condition Survey District (3 year survey cycle)

Street conditions should be surveyed and categorized into three typical performance levels:



'Good' Condition' (PCI > 55)



'Fair Condition' (PCI 41-55)



'Poor' Condition (PCI < 41)

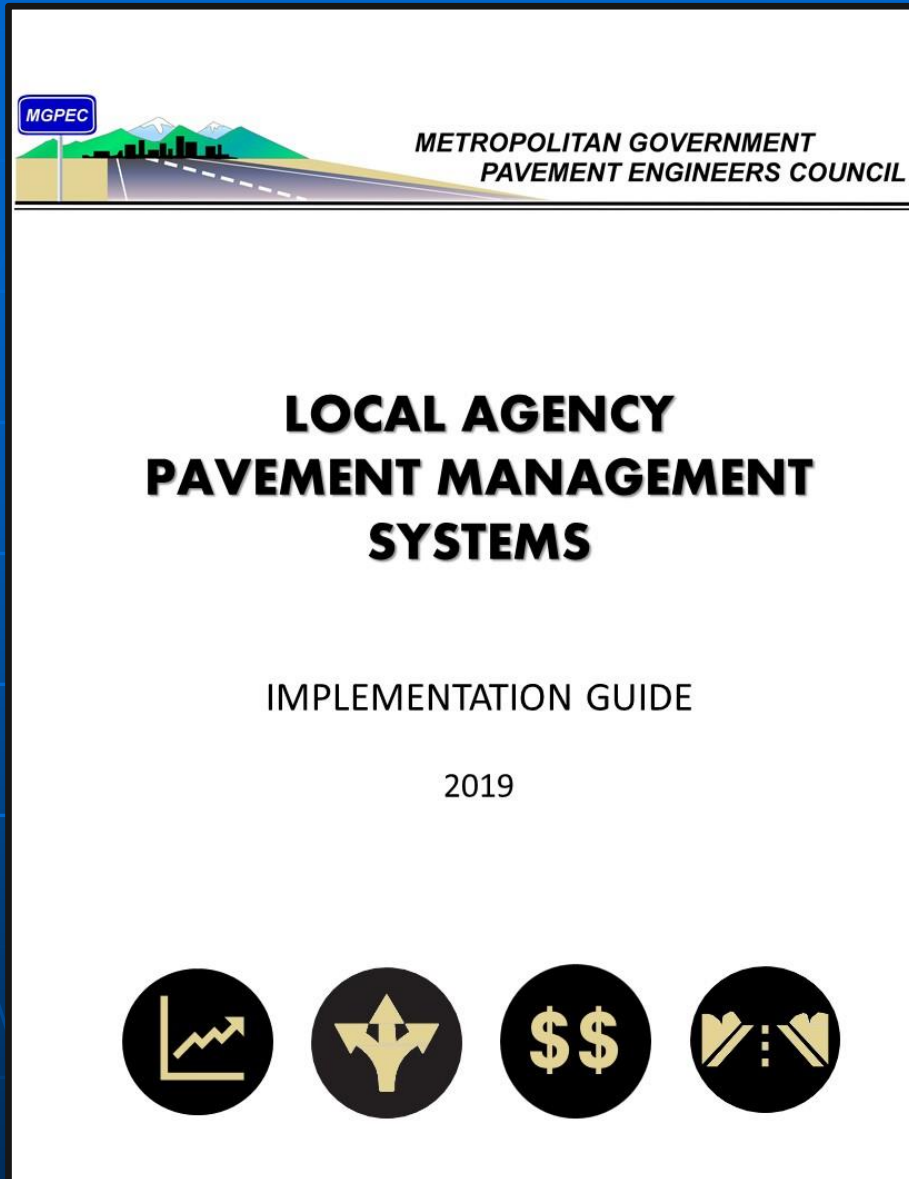
The Pavement Condition Index (PCI) is a rating system developed by the US Army Corps of Engineers objectively measure the performance of pavement on a scale of 0 to 100. Local agencies can set individual PCI categories based on their own network condition and required performance.



Arterials	70 PCI
Collectors	33 PCI
Locals	36 PCI



CHAPTERS



- Introduction to the Guide
- What is Pavement Management?
- What are the costs & benefits of a PMS?
- Why Invest in PMS?
- Designing a PMS
 - Inventory
 - Collecting Data
 - Predicting Condition
 - Selecting Treatments
 - Reporting
 - PMS Tool
 - Staying Current
- Summary

Park Avenue – August 1, 2014

Bridgeport, CT

2004: 2" Mill & Fill

Fairfield, CT

2004: 2" Mill & Fill

**2010: Crack Seal &
Microsurfacing**



Text Your Question

Tom
303.229.6710

Mike
720.588.7351

THE ASPHALT INDUSTRY OF COLORADO

