COBRA SINKS ITS TEETH INTO (BOTTLE)NECKS
Corridor Operations & Bottleneck Reduction Assistance
PRESENTERS

David Millar
Traffic Engineering
Program Manager

Keith Borsheim
Transportation Planner
01 Program Overview
02 Program Status
03 HDR Role
04 Projects
05 Takeaway
01 Program Overview
FIRST- WHAT IS TSMO?

Transportation Systems Management & Operations
CDOT Division – 2013
Moving from Design, Build, Maintain Towards Better Operations
WHAT IS TSMO?

Technology

Active Traffic Management & Operations

Safety

Corridor Mgmt & Incident Command

Planning & Performance Metrics
WHAT IS COBRA?

Localized Bottlenecks

Corridor Operations
Program
Overview

Goals:
- Efficiency
- Reliability
- Accessibility
- Safety

COBRA?

Program Mission

Reduce traffic delay through cost-effective spot-location bottleneck improvements and through policies that encourage innovative traffic solutions.
Program Overview

PROCESS

START

Issue Identification

Solution Identification

Qualitative Assessment

Initial Prioritization

Evaluate

Implement

Design

Further Study & Reprioritize

Early Action Projects
02 Status
Overall Status

- 100+ Statewide Projects
- $20K - $20M each
- $90M Program Potential
- 26 Active Projects
- 6 Consultant Teams
FY17 – FUNDING
$3.0 Million for FY17 (…maybe…)
Potential Projects identified - $90 Million
03 HDR Role
CDOT established TSMO – 2013
HDR was pushing operations innovation
  o Trusted Advisor through individual projects
  o Focus on spot locations/operations
  o I-70 Winter Operations Plan
CDOT tasked HDR with Program Development & Management
  o 10 Task Orders - $900,000 – 2-1/2 years
  o Oversight of 6 Consultant Teams
HDR Role

- Presentations & Trainings
  - FHWA workshops
  - ITE Conferences
  - CDOT Traffic Engineers
  - WASHTO Alaska 2017
  - Kansas DOT - TSMO Scan Tour
Program Management

HDR Role

Individual Projects
Identify bottleneck location, root cause, and potential solution(s) for 100+ Projects
### Program Management

### Individual Projects

#### Qualitative Evaluation according to COBRA Program Goals
**Program Management**

**Individual Projects**

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### Prioritization of Tier 1 Projects

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<tbody>
<tr>
<td>5 US 900 Burgers to Temple</td>
<td>Passing lane</td>
<td>Potential for</td>
<td>Study Design</td>
<td>Construction</td>
<td>3 4</td>
<td>$7,000,000</td>
<td>$4,000,000</td>
<td>$5,000,000</td>
<td>$75,000</td>
<td>$150,000</td>
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<td>1 I-25 N EB - Champa at Parker Road</td>
<td>Heavy Right Turn</td>
<td>Limited</td>
<td>Study Design</td>
<td>Construction</td>
<td>4 4</td>
<td>$8,300,000</td>
<td>$150,000</td>
<td>$200,000</td>
<td>$75,000</td>
<td>$150,000</td>
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<tr>
<td>2 US 361/355 Fiber/2008</td>
<td>Heavy Right Turn</td>
<td>Limited</td>
<td>Study Design</td>
<td>Construction</td>
<td>4 4</td>
<td>$1,700,000</td>
<td>$100,000</td>
<td>$125,000</td>
<td>$200,000</td>
<td>$400,000</td>
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<tr>
<td>6 US 341 US 36</td>
<td>Pedestrian crossing</td>
<td>Limited</td>
<td>Study Design</td>
<td>Construction</td>
<td>3 4</td>
<td>$1,000,000</td>
<td>$75,000</td>
<td>$100,000</td>
<td>$125,000</td>
<td>$200,000</td>
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**SME Estimate of User Costs (delay) – Use Big Data**
## SME Estimate of Range of Probable Construction Costs and Benefits

### Program Management

#### Individual Projects

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<tr>
<td>5</td>
<td>US 601 Duronia to Temple</td>
<td>Passing lane in NB direction only limited passing lane</td>
<td>8900 feet in</td>
<td>Design, Construct</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>5</td>
<td>170</td>
<td>$7,000,000</td>
<td>20%</td>
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<tr>
<td>1</td>
<td>I-220 NE CR-205</td>
<td>Heavy Right Turn Volume</td>
<td>100</td>
<td>Design, Construct</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>180</td>
<td>$8,300,000</td>
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<td>2</td>
<td>US 1310</td>
<td>Heavy Right Turn Volume</td>
<td>100</td>
<td>Design, Construct</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>180</td>
<td>$1,780,000</td>
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<td>4</td>
<td>US 31</td>
<td>Potential for double traffic</td>
<td>100</td>
<td>Design, Construct</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>180</td>
<td>$1,500,000</td>
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Program Management
Individual Projects

Prioritization of Tier 1 Projects

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<tr>
<th>Program</th>
<th>Facility</th>
<th>Issue</th>
<th>Migration</th>
<th>Plan</th>
<th>Goals</th>
<th>User Costs</th>
<th>Project Costs</th>
<th>Project Benefits</th>
<th>B.C. Ratio</th>
<th>SME Delay Estimates</th>
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<tbody>
<tr>
<td>US 99 NB Direct to Temple</td>
<td></td>
<td></td>
<td></td>
<td>Study Design</td>
<td>3</td>
<td>10</td>
<td>7,200,000</td>
<td>100,000</td>
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<td>100</td>
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<tr>
<td>I-22 NB Off-Detour at Center Road</td>
<td></td>
<td></td>
<td></td>
<td>Design Complete</td>
<td>4</td>
<td>10</td>
<td>8,390,000</td>
<td>100,000</td>
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<td>100</td>
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<tr>
<td>US 99 NB Off-Detour at Center Road</td>
<td></td>
<td></td>
<td></td>
<td>Study Design</td>
<td>4</td>
<td>10</td>
<td>1,780,000</td>
<td>100,000</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>US 99 NB Off-Detour at Center Road</td>
<td></td>
<td></td>
<td></td>
<td>Study Design</td>
<td>3</td>
<td>10</td>
<td>8,900,000</td>
<td>100,000</td>
<td></td>
<td>100</td>
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Range (15%, 50%, 85%) of Probable Costs and Benefits
## Program Management

### Individual Projects

**Prioritize based on Benefit:Cost Ratio and Timeline to Implement**

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<tbody>
<tr>
<td>US 59/65</td>
<td>drowning in</td>
<td>limited</td>
<td>STUDREH</td>
<td>Study</td>
<td>Design</td>
<td>4</td>
<td>8,300,000</td>
<td>$460,000</td>
<td>$450,000</td>
<td>100%</td>
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<tr>
<td>H-22</td>
<td>NB CR</td>
<td>CR</td>
<td>CR</td>
<td>Study</td>
<td>Design</td>
<td>4</td>
<td>8,300,000</td>
<td>$460,000</td>
<td>$450,000</td>
<td>100%</td>
</tr>
<tr>
<td>US 55</td>
<td>NB CR</td>
<td>CR</td>
<td>CR</td>
<td>Study</td>
<td>Design</td>
<td>4</td>
<td>8,300,000</td>
<td>$460,000</td>
<td>$450,000</td>
<td>100%</td>
</tr>
<tr>
<td>US 241/US 38</td>
<td>Pedestrian crossing in</td>
<td></td>
<td></td>
<td>Study</td>
<td>Design</td>
<td>4</td>
<td>8,300,000</td>
<td>$460,000</td>
<td>$450,000</td>
<td>100%</td>
</tr>
</tbody>
</table>
04 Projects
Queues from ramp signal spill onto I-225
Queues over a mile long
$6M/yr User Delay Costs

I-225 & Parker Road
Aurora, CO
I-225 & Parker Road
Aurora, CO

Cost: $150K to $200K
85% shorter queue
+$1M User Delay Savings
Before

From I-70

Lane Drop

From I-225

To Chambers

To Pena Blvd

I-70 & Pena Blvd
Denver, CO
I-70 & Pena Blvd
Denver, CO

Signs & Stripes Only Cost: $60,000
I-70 & Pena Blvd
Denver, CO
- Classic Bottleneck
- Chance to restripe for $5,000
- Failed to gain traction internally at CDOT

C-470 & Morrison Road
Morrison, CO
Takeaway

- FHWA
- DOT’s
- MPO’s
- RTA’s
- Still early in the game
- We are here for you
- Expertise is attainable
QUESTIONS