COBRA PROGRAM

Corridor Operations & Bottleneck Reduction Assistance

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FHWA initiative to have DOTs establish bottleneck programs
- Started as an un-named effort to address problem areas, no dedicated funding
- Now a $1M annual program
- Plan to grow
- Supports 3 peaks – embraces technology
Transportation System Management & Operations (TSM&O) Division

Statewide program to address:
1. Localized Bottlenecks
2. Corridor Operations

5-year plan - $5M+ per year
COBRA MISSION

Improve traffic operations by implementing cost-effective projects, policies, and/or procedures which address locations with recurring congestion on state routes

PROGRAM GOALS

- Achieve Optimal System Efficiency
- Achieve Optimal System Reliability
- Maintain System Accessibility
- Maintain or Improve Safety

PROGRAM TENETS

- Integration
- Benefit / Cost
- Innovation
- Testing & Proof of Concept
- Evaluation
START

Issue Identification
- Big Data - INRIX
- Solicitation

Solution Identification

Qualitative Assessment
- Benefits based on Goals
- Cost estimate

Initial Prioritization

Evaluate

Implement

Design

Further Study & Reprioritize

Early Action Projects
PROGRAM STRUCTURE

FOCUS

Bottlenecks

Corridor Operations
WHY DOES COBRA EXIST?
WE ARE WORKING IN A NEW PARADIGM

Moving from Design, Build, Maintain Towards Better Operations

Public Infrastructure Spending by Type, Index
(1960 = 100)

38%
Share of federal spending on capital expenditures

Operations and Maintenance

Capital Expenditures

Source: Congressional Budget Office, “Public Spending on Transportation and Water Infrastructure, 1956 to 2014.”
WHAT IS THE COBRA TEAM DOING NOW?
GROWING

YEAR 1
$150K

YEAR 2
$1.0M

YEAR 3
$1.5M

YEAR 4
$3.0M

Manage
Study
Design
Implement
PROGRAM STATUS

100+ Statewide Projects
$20K - $20M each
$90M Program Potential
26 Active Projects
6 Consultant Teams
Problem:

- 2 lane bridges with 3 lanes on either side
- True bottleneck
EXAMPLE

C470 at Morrison Rd

Problem:
- 2 lane bridges with 3 lanes on either side
- True bottleneck

User Delay Costs:
$5.5M per year
Traditional Solution:
- Re-build or widen the bridges - Build it big

COBRA Solution:
- Fix the localized bottleneck
- Capacity without reconstruction
- Could pay for itself in a year
EXAMPLE

C470 at Morrison Rd

Traditional Solution:
• Re-build or widen the bridges - Build it big

COBRA Solution:
• Fix the localized bottleneck
• Capacity without reconstruction
• Could pay for itself in a year
Problem:
- Queues from the signal at Parker Rd. spill onto mainline I-225
- Queues can be over a mile long

User Delay Costs:
$6M per year on I-225
EXAMPLE

I-225 / Parker Off-Ramp

Reallocate Space:
- 4 right-turn lanes, no new pavement

Low Cost:
- $150K to $200K

Potential Benefits:
- 85% reduction in queue length
- No blocking of mainline
- $1 million per year delay savings
EXAMPLE  I-225 / Parker Off-Ramp

Reallocate Space:
• 4 right-turn lanes, no new pavement

Low Cost:
$150K to $200K

Potential Benefits:
• 85% reduction in queue length
• No blocking of mainline
• $1 million per year delay savings
Problem:

- Complex weaves combined with a lane drop cause turbulence
Results:

- 4 to 10 MPH increase in average speeds during afternoon peak periods
Problem:

- Turbulence from on and off ramps creates a bottleneck
- Through traffic is negatively impacted by lane changes
- User delay costs: $7.6 million per year
I-25 Direct Lane

Pilot Project:
- “Direct Lane” for through traffic
- Access controlled to reduce turbulence

Results:
- 1-minute travel time savings
- Lane violations reduced effectiveness
WHAT OTHER TYPES OF IMPROVEMENTS?
Alternative Intersections
WHAT OTHER TYPES OF IMPROVEMENTS?

Signal Timing  |  Adaptive Signal Control
WHAT OTHER TYPES OF IMPROVEMENTS?

Peak Period Shoulder Lane
For more info

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