Message from a Genie in a Bottle (neck)

2018 ITE JOINT WESTERN & TEXAS DISTRICT ANNUAL MEETING
SESSION 6C: CONGESTION MITIGATION
Introduction

- Kenneth Ryan, PE, PTOE
  - Muller Engineering Company, Inc.
  - Senior Traffic Engineer
  - Lakewood, Colorado

- CDOT – COBRA Program
  - **Corridor Operations & Bottleneck Reduction Assistance**
  - Statewide program to address localized bottlenecks and corridor operations.
  - 5-Year Plan - $5M+ per year (as of 2015)
Three Bottlenecks

- **Where** is (was) the bottleneck?

- **Why** was this bottleneck identified, and **why** microsimulation was used for the analysis?

- **How** was the bottleneck condition addressed and for how much?

- **Results**: Did it work?
Eastbound US 36 Restriping

EASTERN EDGE OF BOULDER HEADING TO DOWNTOWN DENVER
Eastbound US 36 Restriping

WHY

- Consistent pattern of weekday peak period delay.
- Long queues extend into Boulder.
- Express Lane only accessible after bottleneck.
Eastbound US 36 Restriping Microsimulation (VISSIM)
Eastbound US 36 Restriping

**HOW**

- **Total Cost:** $100,000 (20% Design, 80% Construction)
- **Construction Start:** June 25, 2017
- **Construction End:** June 27, 2017
Eastbound US 36 Restriping

RESULTS

Note: The shaded area represents the 25th and 75th percentile boundaries.

Data Source: INRIX Insights
Eastbound US 36 Restriping

RESULTS

Data Source: INRIX Insights
Southbound I-225 at I-25
BRIDGE OVER DTC PARKWAY NEAR MAJOR SYSTEM INTERCHANGE
Southbound I-225 at I-25

WHY

- Recurring congestion on I-225 approaching I-25.
- Three mile long queue between DTC Parkway and Parker Road
- Recurring congestion on northbound I-25 at Hampden Avenue
Southbound I-225 at I-25
Microsimulation (VISSIM)
Southbound I-225 at I-25

Total Cost: $735,000

Construction Start: November 13, 2017

Construction End: November 19, 2017
Southbound I-225 at I-25

RESULTS

Note: The shaded area represents the 25th and 75th percentile boundaries.
Southbound I-25 Climbing Lane
BERTHOUD/MEAD AREA, BETWEEN FORT COLLINS AND DENVER
**Southbound I-25 Climbing Lane**

**WHY**

- Atypical bottleneck
- Identified due to crash patterns.
Southbound I-25 Climbing Lane Microsimulation (VISSIM)

Data Source: Field Data Collection
Southbound I-25 Climbing Lane
Microsimulation (VISSIM)
Southbound I-25 Climbing Lane

HOW

- Cost: $10 Million
- Primary Construction: April 2016 through November 2016
- Additional Paving Work: Summer 2017
Southbound I-25 Climbing Lane

RESULTS

SOUTHBOUND I-25: SH 60 to WCR 34
PLANNING TIME INDEX

Data Source: INRIX Insights
Southbound I-25 Climbing Lane RESULTS

Data Source: CDOT
Preliminary 2017 Crash Data
Southbound I-25 Climbing Lane
Microsimulation (VISSIM)
Acknowledgements

Eastbound US 36 Restriping
CDOT Region 4
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Southbound I-225 at I-25
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Southbound I-25 Climbing Lane
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