Part Time Shoulder Use

Ryan Rice, TSM&O Director
San Lee, TSM&O Program Manager

July 14, 2016
Utilizes shoulder for travel during peak periods of congestion.

- Begin at US 40 (Empire Junction) Interchange
- End at the Veterans Memorial Tunnel (twin tunnels)
- Includes signing, ITS and ATM outside these limits
PPSL - MEXL Project Benefits

- Provide short-term eastbound operational improvements
- Relieve traffic congestion during peak periods
- Be implemented within a short time frame
- Keep construction within the existing highway footprint
- Be implemented in advance of longer-term major improvements to the I-70 Mountain Corridor
Left PPSL Design

Pre MEXL

- General Purpose Lanes
- Acceleration Lane
- Approximate Existing Edge of Travel Lane

Left Side Benefits

- Add acceleration lane
- No general purpose lanes shifts between on-peak and off-peak

Managed Lane
- Off-Peak Shoulder

Required New Acceleration Lane
- General Purpose Lanes
Typical Section

- 12-foot inside (left) shoulder
  - 11-foot managed lane and 1-foot shoulder during peak times.
- 11-foot general purpose center lane
- 12-foot general purpose right lane
- 4-foot minimum outside (right) shoulder
PPSL Construction

- Widening to accommodate a PPSL
- Replace SH 103 and Exit 241 bridges
- Construct / rehabilitate retaining walls
- Construct emergency pull outs
- Provide signage throughout corridor
- Widen on-ramps as needed
- Provide water quality treatment measures
Tolling Overview

10-mile segment

One ingress, two egresses

3 toll points

Tolls ranged from $3 - $8

Switchable, sticker or video

- 30% tags
- 70% license plates
Tolling Strategies

Trip-based

Segment-based

Zone-based
Dynamic Tolling for MEXL
Traffic Incident Management

TIM Program
- Corridor Manager and Incident Manager
- Motorist Assistance Patrol
- Heavy Tow
- Winter Operations Plan

Benefits to TIM since MEXL
- Emergency Response Lane
- Traffic Diversion for Lane Blockage
- More participation from Local Agencies and First Responders (JOA)
2016 Winter Season Summary

Data

- 32 days of operation
- Typically open 9am to 7pm
- 1 million vehicles
- 23 incidents (4 in MEXL)
- 22 minutes to clear incident

Results

- 15% more throughput
- 18% faster travel in GP lanes
- Reduced traffic on local roads
- Lessened duration of congestion
- Improved corridor conditions
Performance Highlights

March 2015 and 2016

I-70 from Georgetown to Vet Memorial Tunnels Performance

<table>
<thead>
<tr>
<th></th>
<th>Before MEXL</th>
<th>After MEXL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Delay (hours)</td>
<td>35.02</td>
<td>26.47</td>
</tr>
<tr>
<td>Average Travel Time</td>
<td>12.62</td>
<td>19.57</td>
</tr>
<tr>
<td>Number of Hours with</td>
<td>24</td>
<td>1</td>
</tr>
<tr>
<td>Greater than 30 minutes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sundays from 10 am to 10 pm
Lessons Learned and Best Practices