TSMO & TOAST PROGRAM

Tony Toth, P.E. - District 12 TSMO Coordinator
Scott Ockunzzi, P.E. - District 3 TSMO Coordinator
WHAT IS TSMO?

Transportation Systems Management & Operations
WHAT IS TSMO?

- Increase Safety, Capacity, & Reliability
- Innovative Practices
- Use Technology
- Cross-Disciplined
- Cost-Effective

- WE CAN’T CONTINUE TO BUILD OUR WAY OUT OF CONGESTION!
WHAT IS TSMO?
WHAT IS TSMO?

Planning for Operations

Project Initiation Package

<table>
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<th>TSMO CONSIDERATIONS:</th>
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<tr>
<td>Briefly describe the opportunities for managing congestion or traffic issues using TSMO strategies or improvements. Consider opportunities to upgrade or install systems management and operations infrastructure.</td>
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<td>TSMO infrastructure includes communications equipment, travel time signs, signals, changeable message signs, traffic cameras, traffic signal systems, other remote field devices and data collection equipment, conduit and any supporting fiber optics.</td>
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<td>TOAST is the Traffic Operations Assessment System Tool</td>
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<td>For additional TSMO Information see</td>
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<td><a href="http://www.dot.state.oh.us/Divisions/Operations/Traffic/miscellaneous/Pages/TSMO.aspx">http://www.dot.state.oh.us/Divisions/Operations/Traffic/miscellaneous/Pages/TSMO.aspx</a></td>
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<td>What existing TSMO infrastructure is in place? Will it need to be moved or maintained in place?</td>
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<td>Are there any local TSMO infrastructure recommendations in the project area? (ex. Include emergency or transit traffic signal pre-emption, dynamic message signs or signal coordination)</td>
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<td>What MPO ITS architecture is already in place or planned? Consult the MPO ITS architecture plan, if applicable.</td>
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<td>Categories of potential ITS for this study area/project include: Exempt, Low, or High risk? Ref: TEM, 1-pager for CFR 940.</td>
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<td>Could this project expand an existing device or communications system?</td>
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WHAT IS TOAST?

Traffic Operations Assessment Systems Tool
WHAT IS TOAST?

- Travel Time Performance
- Bottlenecks
- Incident Clearance
- Secondary Crashes
- Safety Performance
- Volume per Lane
- Freight Percent
WHAT IS TOAST?

Traffic Operations Assessment Systems Tool (TOAST)

Ohio's mission is to provide easy movement of people and goods from place to place. In order to continue this mission, Ohio is currently undergoing a shift in focus toward a more operationally centered mindset for our transportation system. Through our new Transportation Systems Management and Operations (TSMO) plan and program, we are working to maximize the efficiency and safety of our current transportation network.

In an effort to make data-driven decisions and determine operationally sensitive corridors throughout the state, we have developed the Traffic Operations Assessment Systems Tool (TOAST).

**Reports**

- Statewide
  - Statewide (map)
- Districts
  - District 01 (map)
  - District 02 (map)
  - District 03 (map)
  - District 04 (map)
  - District 05 (map)
  - District 06 (map)
  - District 07 (map)
  - District 08 (map)
  - District 09 (map)
  - District 10 (map)
  - District 11 (map)
  - District 12 (map)

**TOAST Tool**

The TOAST Tool itself is an interactive spreadsheet where categories can be selected and unselected. Additionally, routes can be sorted or filtered by a number of attributes.

**Resources**

- TOAST One-Pager
- Categories Info
- 2019 TOAST Updates
- Draft Countermeasures
- 2019 TSMO Capital Improvement Program Plan

http://www.dot.state.oh.us/Divisions/Operations/Traffic-Management/Pages/TOAST.aspx

https://gis3.dot.state.oh.us/TOAST
WHAT IS TOAST?

NOACA Safety & Operations Council
## WHAT IS TOAST?

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WHAT IS TOAST?

Ohio Department of Transportation, District 3
Traffic Operations Assessment Systems Tool

A bottleneck is defined as an occurrence when speeds drop to 65 percent of the free

time. This metric is used to measure the impact of

called the Impact Factor, which is calculated by taking the sum of all bottlenecks that

time. This formula states the Impact Factor, which is expressed in minutes/miles per

year.

Traffic Operations, the highest occurrence of bottlenecks on this segment of I-71 was in

direction, which had an Impact Factor of 7,622 minutes/miles/year. However, upon a

time data, the beginning point of many of these bottlenecks was outside the study

was aggregated to include only bottlenecks which began within the segment, the

was 4.273 minutes/mile/year. There was a total of 43 bottleneck occurrences on I-71.

Of the 43 occurrences, 38 occurred between November and March, indicating that a

of the bottleneck was weather-related. These bottlenecks would not be

occurrence. The chart below shows the length and duration of each bottleneck (three

on the chart because they had a duration longer than 50 minutes).

Richland I-71, SLM 0.00 - 7.14
Morrow County to SR 97
Rural Freeway #57

Scott Ockunzzl, P.E. | December 2018

Figure 6. Crash Diagram 2015 - 2017, I-71 at I-490 - I-71

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WHAT IS TOAST?

District 12 – 2018 TOAST Summary
CUP 480 14.32 Urban Freeway TOAST #43 Functional Class 1

Current Situation and Issue

Interstate 480 in central Cuyahoga County is an interstate urban freeway with relatively level terrain. There are four lanes along I-480 eastbound with an auxiliary lane between State Rd. (SR 94) and SR 176. The lanes are 12-foot in width and full shoulders for all of the eastbound direction. There are four lanes westbound between State Rd. (SR 94) and SR 176. The median of I-480 in this section is a concrete barrier wall.

Currently, the southbound traffic from SR-176 has an acceleration lane into a merge condition to enter I-480 westbound. The State Road (SR 94) exit westbound is a deceleration lane. The speed limit on this section of I-480 is 60 miles per hour. Between the lane configurations and the traffic volume, this corridor becomes congested and slow during peak hours of traffic.

The two TOAST categories that are of the biggest concern are Bottlenecks and Volume per Lane. These categories lead to daily congestion and queuing that affect other routes within the area. Specifically, two sections of SR 176 southbound to I-480 westbound.

These sections of SR 176 are two of the top 10 sections in our TOAST list for functional classification 2 (non-interstate/other freeways or expressways). Therefore, correcting bottlenecks in one area should help alleviate some of the bottlenecking traffic attempting to enter the corridor.

countermeasure

The Countermeasure chosen to alleviate the congestion issue associated with this corridor is using Performance Based Practical Design to repurpose lanes and narrow lanes and shoulders. The acceleration lane from SR 176 and the deceleration lane from WB I-480 ramps to State Rd. will be converted into an auxiliary lane and an extended weaving area.

Funding Request

Estimated Costs

Design:
- IES $15,000 use D1.2 GEC
- Survey $10,000 use D1.2 GEC
- Noise $20,000 use D1.2 GEC
- Geotech $10,000 use D1.2 GEC
- Plan Design $140,000 use D1.2 GEC

Construction:
- Bid Cost $1,500,000 State funded
- Construction Insu. and Ens. $150,000 State funded
- Noise Wall (if needed) $560,000 State funded
- Total cost $1,565,000