



# AIM Innovation Showcase Application

## Sponsor

Nominations must be submitted by an AASHTO member DOT willing to help promote the innovation. If selected, the sponsoring DOT will be asked to present the innovation at the Innovation Showcase during the AASHTO Spring Meeting.

1. Sponsoring DOT (State): TxDOT Odessa District

2. Name and Title: Basin 20

Organization: Odessa District

Street Address: 3901 E HWY 80

City: Odessa

State: TX

Zip Code: 79761

Email: Eric.Lykins@txdot.gov

Phone: 423-498-4697

## Innovation Description (30 points)

The term “innovation” may include processes, products, techniques, procedures, and practices.

3. Name of the innovation:

Basin 20

4. Please describe the innovation.

The reconstruction of the I-20 corridor in the TxDOT Odessa District poses significant challenges due to its critical role in freight and passenger movement, with truck traffic at approximately 40% and limited alternative routes in the Permian Basin. The lengthy work zones, ranging from 5 to 10 miles, further complicate standard traffic management. In response, the Odessa District has developed innovative strategies for the decade-long construction project aimed at enhancing traffic safety, improving communication, and increasing operational efficiency. This includes installing portable changeable message signs (PCMS) at 5-mile intervals along a 40-mile stretch of I-20. These signs display normal travel times and automatically alert motorists to slow or stopped traffic, providing destination information for interchanges two exits downstream to help drivers select alternate routes based on real-time data.

5. What is the existing baseline practice that the innovation intends to replace/improve?

The Waco District faced a similar long-term construction challenge on I-35 through Waco. Building on the successful strategies developed there, District Engineer, Eric Lykins collaborated with District staff and researchers at TTI to innovate for the Basin 20 project on I-20.

6. What problems associated with the baseline practice does the innovation propose to solve?

A key challenge in this corridor involves the addition of multiple bridges and crossovers. Although the traffic control plan preserves two lanes in each direction, the narrower cross-section and reduction of most shoulders restrict maneuverability around crashes or exits, allowing for safe navigation only at a limited number of locations. Unlike a typical lane drop scenario, where queues form consistently, the extended construction zone—spanning up to 10 miles—can experience queuing from incidents at any point within the work area. Consequently, monitoring speeds throughout the entire zone became essential. Utilizing third-party data from INRIX enabled this capability while minimizing the need for extensive on-road infrastructure that would require frequent maintenance and relocation throughout the various phases of construction.

7. Briefly describe the history of its development.

**Hybrid System Implementation:** The Odessa District has introduced a groundbreaking hybrid system that combines travel time information with end-of-queue warnings for the first time nationally. **Use of Third-Party Data:** By utilizing INRIX data for traffic messages. **Adaptation to Work Zone Real-Time Queue Information:** Reduces driver frustration, the system includes dynamic messages like “TRAFFIC CLEARS XX MILES,” informing motorists about the extent of traffic backups. **Incident Notification:** The system automatically notifies TxDOT personnel when wait times exceed a set threshold, facilitating

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# INNOVATION

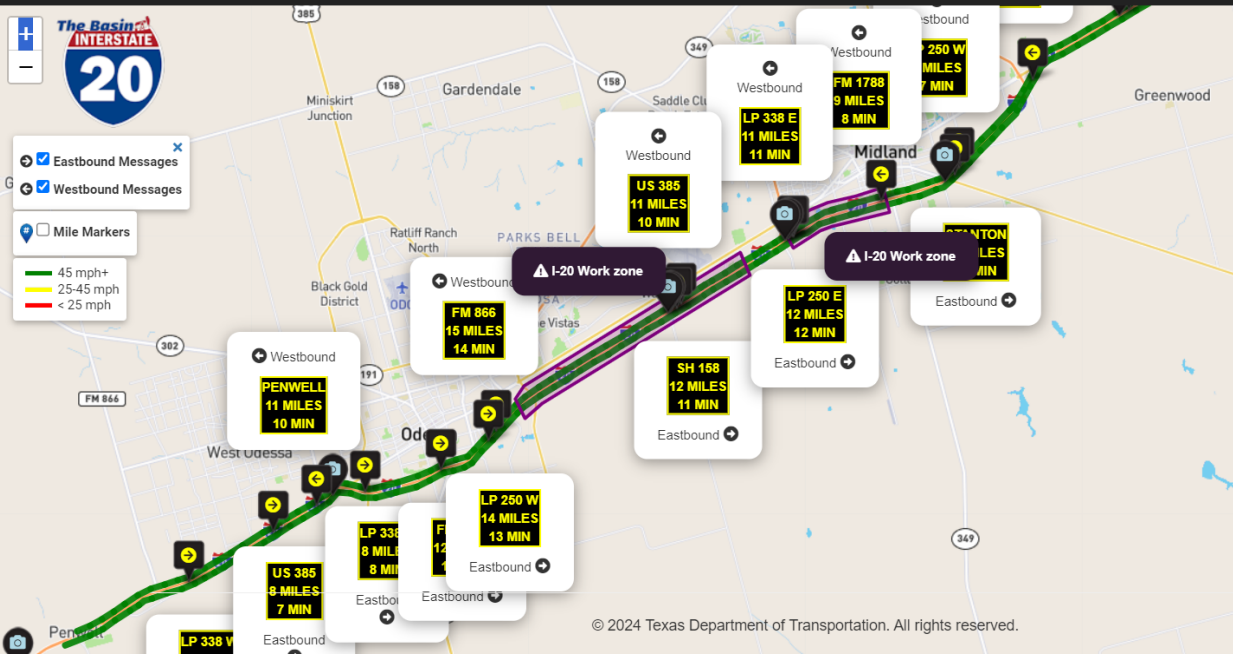
prompt public alerts and efficient incident management. **Collaborative Innovation:** Building on the Waco District's success, various TxDOT departments worked together.

8. What resources—such as technical specifications, training materials, and user guides—have you developed to assist with the deployment effort? If appropriate, please attach or provide weblinks to reports, videos, photographs, diagrams, or other images illustrating the appearance or functionality of the innovation below (if electronic, please provide a separate file). Please list your attachments or weblinks here.

Webpage [www.txdot.gov/basin20](http://www.txdot.gov/basin20) , [www.basin20.org](http://www.basin20.org) , <https://youtu.be/SXZUGqSrTTc> ; subscription availability to receive traffic information



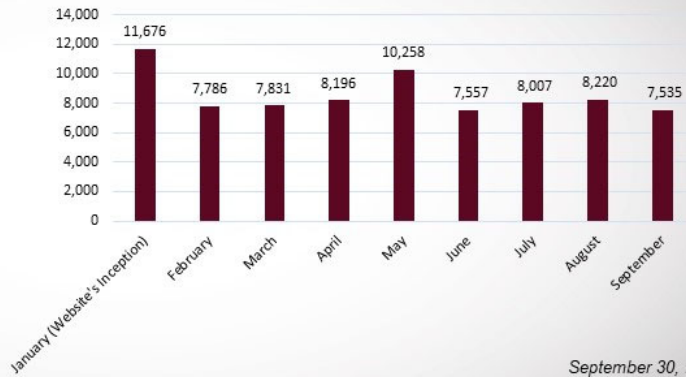
I-20 Odessa Travel Map



## Website Traffic

- **Total Page Visits:** 77,066 since website's inception
- **Avg. Page Visits per Month:** 8,563 visits/month
- **Avg. Page Visits per Day:** 278 visits/day
- **Total Users:** 17,390
- **New Users in the last 30 days:** 1,278

Page Visits by Month



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# INNOVATION

State of Development (10 points)

## MANAGEMENT

Innovations must be successfully deployed in at least one State DOT. The AIM selection process will favor innovations that have advanced beyond the research stage, at least to the pilot deployment stage, and preferably into routine use.

9. How ready is this innovation for implementation in an operational environment? Please select from the following options. Please describe.

- Innovation is fully functional and yet to be piloted.
- Innovation has been piloted successfully in an operational environment.
- Innovation has been deployed multiple times in an operational environment.
- Innovation is ready for full-scale implementation.

See You Tube Video <https://youtu.be/SXZUGqSrTTc>

10. What additional development is necessary to enable implementation of the innovation for routine use?

None. The system is fully functional today.

11. Do you have knowledge of other organizations using, currently developing, or showing interest in this innovation?  Yes  No

If so, please list organization names and contacts.

| Organization  | Name  | Phone                            | Email                   |
|---|---|----------------------------------|-------------------------|
| Texas Department of Transportation-multiple Districts | Michael Bolin (Waco District as an example) | (254) 867-2740                   | Michael.Bolin@txdot.gov |
| AWP Safety  | Scott Spencer                               | 1-800-343-2650                   | sspencer@awptraffic.com |
| Pennsylvania Department of Transportation             | Steven Schletter                            | Click or tap here to enter text. | sschettler@pa.gov       |
| Federal Highway Administration                        | Mark Hammert                                | 717-221-3716                     | mark.hammert@dot.gov    |

## Potential Payoff (30 points)

### MANAGEMENT

Payoff is defined as the combination of broad applicability and significant benefit or advantage over baseline practice.

12. Identify the top three benefits your DOT has realized from using this innovation. Describe the type and scale of benefits of using this innovation over baseline practice. Provide additional information, if available, using quantitative metrics, to describe the benefits.

| Benefit Types             | Please describe:  |
|---------------------------|---|
| Improved Safety           | Motorists are warned of stopped or slow traffic in their path as the queue is developing.   |
| Organizational Efficiency | Drivers facing congestion can decide to choose an alternate route (based on either the signs or through accessing the website)  |
| Improved Customer Service | Drivers are provided dependable information with which to make routing decisions before they are fully engaged with the traffic queue or, if using the website, drivers can plan their trips even before they depart for their destination. |

Provide any additional details below:

This project is being developed as part of TxDOT's overall Innovations program highlighting technology and process improvements from throughout the 25 Districts within the State of Texas. This program allows the rapid scaling of innovations developed by a District across the State.

## Deployability (30 points)

The AIM selection process will favor innovations that can be adopted with a reasonable amount of effort and cost, commensurate with the payoff potential.

13. What challenges and/or lessons learned should other organizations be aware of before adopting this innovation?

Sign positioning for visibility and utility is crucial. Single stroke lettering on three-line signs was often "washed out" during sunrise and sunset. The team decided to upgrade to newer signs with double stroke lettering, using two lines per message for improved legibility in all conditions. Additionally, sign placement relative to the nearest exit was critical. A leapfrog system was implemented, where each sign displays travel times for the next two portable message signs. This approach gives drivers more opportunities to exit, allowing ample time to decide their route and reducing sudden maneuvers.



# INNOVATION MANAGEMENT

14. Please provide details of cost, effort, and length of time expended to deploy the innovation in your organization.

**Cost:** \$45K - \$50K per month

**Level of Effort:** Contracted service through TTI

**Time:** Initial installation was completed in less than six months.

15. To what extent might implementation of this innovation require the involvement of third parties, including vendors, contractors, and consultants? If so, please describe. List the type of expertise required for implementation.

The project was a joint effort between the Odessa District and TTI. Key skills include ingesting large quantities of data, analyzing this data reliably, crafting the messages in a clear concise manner to minimize confusion, developing an operational process to autonomously switch between messages based on data feeds and integrity checks, and developing reliable communications between the back office and the signs.