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16. Abstract This report summarizes the delivery and outcome of a series of workshops conducted in 13 cities across the state on performing mobility monitoring in small to medium-sized communities. The workshops served as implementation for research project 0-5571, "Congestion Monitoring Measures and Procedures for Small to Medium-Sized Communities." This report summarizes the workshop locations and attendance, workshop agenda and materials, and workshop evaluations and participant feedback.					
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**DELIVERY OF WORKSHOPS ON MOBILITY MONITORING IN
SMALL TO MEDIUM-SIZED COMMUNITIES**

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DISCLAIMER

The contents of this report reflect the views of the authors, who are responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official view or policies of the Federal Highway Administration (FHWA) or the Texas Department of Transportation (TxDOT). This report does not constitute a standard, specification, or regulation. The engineer in charge of the project was William L. Eisele, P.E. #85445 (Texas).

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- Mr. Blair Haynie, P.E., Director of Transportation Planning and Development, TxDOT Abilene District;
- Mr. Alfredo Marquez, TxDOT Transportation Planning and Programming Division;
- Mr. Troy Rother, P.E., City of College Station Traffic Engineer; and
- Mr. Robert Stuard, P.E., Deputy District Engineer of the Austin TxDOT District.

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INTRODUCTION

The “Mobility Monitoring in Your Community: Interactive Workshop” was developed to instruct and inform staff from the Texas Department of Transportation (TxDOT) as well as local agencies (e.g., metropolitan planning organizations [MPOs], cities, counties) on how to monitor mobility, identify transportation needs, and communicate the results to technical and non-technical audiences. The target audience for the workshop was transportation professionals responsible for prioritizing transportation improvements in communities of 5,000 to 200,000 population. The series of 13 workshops served as a follow-up implementation project to research project 0-5571-1, “Congestion Monitoring Measures and Procedures for Small to Medium-Sized Communities.” The research project 0-5571-1 was sponsored by TxDOT and completed by the Texas Transportation Institute (TTI) in 2007 (1, 2). The research team also produced a full-color “Guidebook for Mobility Monitoring in Small to Medium-Sized Communities: A How-To Guide” (3). The Guidebook was distributed as part of the implementation project documented here.

Through the one-day workshop, a team of two instructors had the following primary objectives when instructing all participants:

- describe causes of congestion in small to medium-sized communities;
- list and describe the six steps of the mobility monitoring framework;
- identify a range of mobility performance measures and their application;
- describe the development and application of performance targets;
- develop a mobility monitoring plan;
- calculate basic mobility performance measures;
- describe reader-friendly communication techniques;
- describe benefits of improving the monitoring process; and
- describe contents and application of the Guidebook.

The objectives were satisfied through instruction and hands-on (interactive) exercises. The workshops solicited feedback on the instruction through an evaluation form.

WORKSHOP LOCATIONS AND ATTENDANCE

There were 13 workshops held throughout Texas between August 2008 and August 2009. The first (pilot) workshop was held in Huntsville, Texas. During the research project, the research team performed baseline mobility monitoring in Huntsville and Bryan-College Station as a demonstration of the procedures and measures identified in the research. Therefore, it was fitting to conduct the first workshop in Huntsville, and Bryan-College Station transportation agencies were also invited. Because the focus of the workshops was monitoring in relatively smaller communities, the project team sought to conduct the workshops at local transportation agency sites. The Huntsville workshop was conducted at the City of Huntsville Fire Department Training Facility. The last workshop was held on August 21, 2009, in Texarkana at the Texarkana Public Library.

Table 1 shows selected characteristics of the workshops including the date, city, location, TxDOT districts, agencies in attendance, number of participants, and number of materials distributed. An average of 12 persons attended each workshop for a total of 156 participants.

Table 1. Selected Characteristics of Workshops.

Date	City	Location	TxDOT Districts¹	Agencies in Attendance	Number of Participants	Total Number of Materials Distributed
August 28, 2008	Huntsville	City of Huntsville Fire Department Training Facility	BRY, LFK, HOU	City of Huntsville, City of Conroe, City of College Station, City of Bryan, City of Brenham, City of Livingston, Montgomery County, Brazos Valley Council of Governments, and Bryan-College Station MPO	27	28 (Sent extra set with LFK)
November 10, 2008	Waco	Waco Convention Center	WAC, FTW, RTI, HR	City of Waco, City of Cleburne, City of Copperas Cove, City of Mexia, City of Harker Heights, McLennan County, Waco MPO, and Killeen-Temple MPO	16	17 (Sent extra set with WAC)
November 14, 2008	Brownwood	Brownwood Coliseum Annex	BWD, ABL, SJT	City of Big Spring, City of San Angelo, City of Brownwood, City of Early, Senora Economic Development Commission (Transportation Committee), San Angelo MPO, and Abilene MPO	24	27 (Sent one extra set with each district)
March 2, 2009	Odessa	Atmos Energy Building	ODA, ABL, SJT	City of Odessa, City of Andrews, and Midland-Odessa MPO	10	16 (Left two sets delivered to City of Midland; sent four with ODA)

Table 1. Selected Characteristics of Workshops, continued

Date	City	Location	TxDOT Districts¹	Agencies in Attendance	Number of Participants	Total Number of Materials Distributed
March 4, 2009	Plainview	Unger Public Library	LBB, AMA, CHD	City of Plainview, City of Pampa, City of Amarillo, City of Lubbock, City of Borger, Lubbock MPO, and Amarillo MPO	27	33 (Left two sets with each district)
April 8, 2009	Longview	Maude Cobb Activity Center	TYL, (ATL)	City of Longview, Longview MPO, and Tyler Area MPO	7	9 (Left two sets with TYL)
June 17, 2009	Gainesville	Gainesville Civic Center	WFS, PAR	Sherman Denison MPO, and Wichita Falls MPO	8	11 (Left two sets with each district)
July 30, 2009	Beaumont	Beaumont Civic Center	BMT	City of Beaumont, City of Orange, and Southeast Transportation Regional Planning Commission	7	8 (District Engineer attended beginning and received materials)
August 5, 2009	New Braunfels	New Braunfels Civic and Conference Center	SAT, AUS	City of Marble Falls, City of San Marcos, and City of New Braunfels	8	24 (Left two sets with New Braunfels; Left two sets with SAT; Left five sets with AUS; Sent one to Bastrop also; TxDOT area office staff took three for Kerrville, Uvalde, and an extra; TxDOT area office staff took three for Burnet County, Burnet, and an extra)

Table 1. Selected Characteristics of Workshops, continued

Date	City	Location	TxDOT Districts¹	Agencies in Attendance	Number of Participants	Total Number of Materials Distributed
August 10, 2009	Victoria	City of Victoria Annex	(YKM), (CRP)	City of Seguin, Corpus Christi MPO, and Victoria MPO	3	8 (Left two sets with Victoria MPO for City of Victoria; Left one additional set with Seguin; Left two sets with Corpus Christi MPO)
August 11, 2009	Weslaco	Hidalgo County MPO	PHR	City of McAllen, and Hidalgo County MPO	8	18 (Left seven sets with PHR for district staff and Harlingen-San Benito MPO and Brownsville MPO; Left two additional sets with Hidalgo County MPO; Left one additional set with McAllen)
August 12, 2009	Laredo	City of Laredo Annex	(LRD)	City of Eagle Pass, City of Laredo, and Laredo MPO	5	13 (Left four sets at the TxDOT district; Left one additional set with the Laredo MPO; Left one additional set with the City of Laredo; Left two extra sets with the City of Eagle Pass)
August 21, 2009	Texarkana	Texarkana Public Library	ATL, PAR	City of Texarkana, Texarkana MPO, and Arkansas Highway and Transportation Department	6	11 (Left 2 sets for the TxDOT ATL district; left 2 sets for AHTD; Left 2 sets for the Texarkana MPO)

¹Includes TxDOT districts and divisions invited and/or in attendance at the workshop. If staff from the TxDOT district did not attend the workshop, the district name is shown in parentheses.

A total of 223 sets of materials were distributed through the workshops. This is the sum of the last column in [Table 1](#). The materials for the workshop included a copy of the Guidebook as well as a three-ring binder (participant’s notebook). The instructor team sent at least one set of workshop materials to the director of Transportation Planning and Development and one set to the district engineer when possible (i.e., other district staff were present). The last column shows to whom the additional sets of materials were provided.

To strategically set the workshops as efficiently as possible, the instructor team consulted a State of Texas map and defined 13 regional workshops with the goal of potential participants not having to travel over two hours to attend the workshop. Potential participants included staff at all communities over 5,000 in population. The project team invited staff from all cities with over 5,000 that were not in an MPO. The project team invited, or with MPO assistance invited, staff from all cities over 5,000 in population within MPOs that are non-transportation management areas (non-TMA). The goal of two hours of travel time or less was satisfied with all potential participants except the City of Alpine. However, they indicated they were not interested due to a lack of congestion concerns. [Table 1](#) indicates that transportation professionals from nearly 40 cities, counties, and other non-TxDOT agencies attended the workshops. This represents effective implementation and distribution of the materials to many of TxDOT’s partnering agencies. In many cases, there were additional cities or counties that expressed interest in the workshops, and confirmed attendance, but did not make it to the workshops.

The project team reached out to all appropriate MPOs as well. Seventeen of the 25 MPOs in Texas are in metropolitan areas under 200,000. Fifteen of these 17 MPOs were able to attend one of the workshops. All 17 MPOs received the workshop materials. The project team also invited the Lubbock MPO, Corpus Christi MPO, and the Hidalgo County MPO to the workshops held near or in their regions. The Lubbock MPO was invited because they are just over 200,000 population, but the City of Lubbock is under 200,000. The Corpus Christi MPO was invited because they expressed interest. The Hidalgo County MPO was invited because it is comprised completely of cities with less than 200,000 population, and the MPO Director was on the project monitoring committee of the 0-5571 research project. The Hidalgo County MPO hosted that workshop.

Another goal of scheduling the workshops was to hold the workshops in non-TxDOT facilities that were in the small to medium-sized communities that the project intended to target. In all cases, the project team was able to secure meeting space in these communities at no cost to the project. The meeting locations are also identified in [Table 1](#).

WORKSHOP AGENDA AND MATERIALS

The workshops began with the instructors introducing themselves and then the participants introducing themselves. The instructors then followed the agenda shown in [Table 2](#). To facilitate instruction, two instructors were present at each workshop, and the two instructors alternated after each break and lunch.

As shown in [Table 2](#), the workshops began at 9:15 a.m. and concluded before 4:00 p.m. Beginning at 9:15 a.m. and concluding by 4:00 p.m. allowed for travel time of workshop

participants. After sessions on congestion trends, introduction to performance measures, and the importance of monitoring, instruction began on the six steps of the mobility monitoring framework developed in the 0-5571 research.

Lesson 4 (Step 1: Identify the Needs and Opportunities) included a substantial interactive exercise in which the participants were provided with roll-out laminated maps of either a small community (with or without a relief route present) or a medium-sized community. The laminated roll-out maps afforded the participants the opportunity to write on them and erase. The instructors provided each group with dry-erase markers and erasers. The participants worked in small groups, and they were provided with a one-page summary of recent concerns and complaints from the community related to mobility issues. The interactive exercise allowed the participants an opportunity to begin to understand the needs for monitoring and opportunities that might be available.

Table 2. Workshop Agenda.

Time	Lesson Number	Description
9:15 – 9:40 a.m.		Workshop Introduction
9:40 – 9:55 a.m.	Lesson 1	Congestion Trends
9:55 – 10:15 a.m.	Lesson 2	Introduction to Performance Measures
10:15 – 10:30 a.m.		<i>Break</i>
10:30 – 10:45 a.m.	Lesson 3	Importance of Monitoring
10:45 – 11:30 a.m.	Lesson 4	Step 1: Identify the Needs and Opportunities
11:30 – 12:45 p.m.		<i>Lunch</i>
12:45 – 1:30 p.m.	Lesson 5	Step 2: Make the Monitoring Plan
1:30 – 1:45 p.m.	Lesson 6	Step 3: Monitor the System
1:45 – 2:40 p.m.	Lesson 7	Step 4: Analyze the Data
2:40 – 2:55 p.m.		<i>Break</i>
2:55 – 3:30 p.m.	Lesson 8	Step 5: Package and Distribute the Results
3:30 – 3:40 p.m.	Lesson 9	Step 6: Move Forward with Improvements and Continue the Monitoring
3:40 – 3:50 p.m.		Final Comments and Evaluation

The next substantial interactive exercise was immediately after lunch during Lesson 5 (Step 2: Make the Monitoring Plan). During this lesson, the participants returned to work in their groups and developed a monitoring plan for their community. The monitoring plans incorporated performance measures and data collection techniques discussed in the workshop.

To facilitate instruction, the instructors provided each participant with a three-ring binder that included the agenda, instructor bios, and all slides tabbed by lesson. The slides were copied three to a page with room on the right-hand side of the page for notes. An appendix tab to the binders included full-page color figures of selected slides where color was important to communicate the essential points and/or the slides were simply too small to effectively communicate their message when shown three per page. The instructors also had instructor notebooks that included slides one per page with speaker notes.

Each participant also received a copy of the full-color “Guidebook for Mobility Monitoring in Small to Medium-Sized Communities: A How-To Guide.” The instructors referred to the Guidebook on numerous occasions throughout the workshop.

The workshops afforded the opportunity for extensive interaction between participants and the instructors. The hands-on exercises facilitated the interactive nature of the instruction. In an adult-learning environment, it is often during these interactive exercises that the most successful and efficient instruction occurs. [Figure 1](#) shows a group of participants working on an interactive exercise.



Figure 1. Participants Engaged in an Interactive Exercise.

SUMMARY OF WORKSHOP EVALUATIONS AND PARTICIPANT FEEDBACK

At the end of each workshop, the instructors asked for feedback via an evaluation form. The evaluation form asked for feedback on the instructor’s delivery, organization, and subject knowledge on a five-point scale from “poor” to “excellent.” The instructors scored above average in all of these categories.

After updates to the evaluation form based upon TxDOT feedback, the same five-point scale was used to identify how well specific learning objectives were satisfied. The participants indicated an above average competence in satisfying all of the objectives.

Finally, the evaluation form asked numerous open-ended questions to the participants. First it asked if the workshop was useful to the participant, and over 80 percent indicated it was. Next the evaluation form asked if the participant would do something different as a result of the workshop and 85 percent of participants indicated they would.

Additional open-ended questions included: Please tell us the most important point(s) made in this workshop? What questions do you still have? How could the workshop be improved? The instructors received constructive feedback on all of these elements. Highlights of participant responses to these questions are in the next section.

Participant Feedback

Responses to the open-ended questions presented at the end of the prior section, as well as other discussions throughout the workshops, revealed the following highlights by workshop attendees:

1. Congestion, particularly recurring congestion, is a problem in some growing small to medium-sized communities. Identified and common causes of congestion include (in no particular order): limited access management, development (unplanned and/or rapid), limited alternative routes, large traffic generators, schools and school zones, truck traffic, sporting events, special events, and traffic control.
2. “Congestion” is a relative term. The definition of congestion varies by city size. Participants from small to medium-sized communities indicated the following as possible definitions of congestion (in no particular order): having to wait for more than one or two signal cycles, going slower than posted speeds, or not being able to go as fast as desired.
3. There are a large number of cities and MPOs interested in implementing mobility monitoring in small to medium-sized communities. Selected examples discovered through the workshops include:
 - a. City of Seguin: A new industrial equipment and assembly plant along with ancillary plants are moving to the area. Estimated employment at full build-out is approximately 4,500. There is interest in beginning an on-going mobility monitoring process before this development begins.
 - b. City of Eagle Pass: A relief route is breaking ground in the near future. There is interest in collecting “before” data and starting mobility monitoring prior to the relief route construction.
 - c. Corpus Christi MPO: Expressed interested in beginning mobility monitoring prior to a new steel plant being built.
 - d. Senora: Truck traffic through the community is a concern, and they were interested in the monitoring techniques because they have had community members volunteer to perform counts of large trucks on primary routes through the town.
4. There is a strong desire by MPOs/TxDOT to work with smaller communities to begin monitoring mobility. Working through the MPO was often cited as a way to facilitate the monitoring process using the Guidebook steps. Most participants were interested in finding ways to take a more proactive role in small to medium-sized communities with regard to mobility preservation.

5. There is interest in using the communication tools and techniques for informing the public about performance trends in their communities. Participants indicated the importance of the ways to visualize the problem areas on the roadway network. Improved use of graphs and presentation methods were highlighted by participants as valuable for communicating to both technical and non-technical audiences.
6. There is a reasonable process that can be implemented. Many transportation professionals appreciated that there is a reasonable process that can be implemented. They understood that low-cost monitoring can be performed to begin establishing mobility trends.
7. There is a concern about limited resources to implement mobility monitoring. Numerous participants were excited by the possibility of implementing the six-step mobility monitoring framework discussed in the workshop; however, they often asked if there were funds available to support the monitoring efforts. Existing staff at the MPOs, cities, and TxDOT are already doing much more with less, and existing time and personnel for monitoring are limited.

CONCLUDING REMARKS

The implementation project, upon which this report is based, was successful in the objectives described in the [first section](#) of this report. The 13 workshops not only satisfied the previously-stated objectives, but provided participants from TxDOT and TxDOT's partnering agencies (e.g., MPOs, cities, counties) an opportunity for peer exchange among participants on mobility monitoring opportunities. There was interest in many communities to begin mobility monitoring in some fashion; however, a lack of resources (time and personnel) was often indicated as a hurdle for beginning the process. The instructor team encouraged the participants to let them know if or when they develop and/or implement any mobility monitoring.

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