

STRIDE

Southeastern Transportation Research,
Innovation, Development and Education Center

Technology Transfer Final Report

STRIDE Project H

Strategies for Mitigating Congestion in Small Urban and Rural Areas

Dimitra Michalaka, Ph.D., P.E.

The Citadel

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1. Project Overview

Contrary to popular perception, traffic congestion is not only an issue in large urban areas but also in both small urban and rural areas, with populations under 50,000. Small urban and rural areas often lack the resources necessary to address traffic congestion. The objectives of this project focused on broadening the basic understanding of key congestion issues faced by rural and small urban areas and the resources available to agencies in these areas, identifying potential congestion mitigation strategies which are achievable given agency resources, and providing rural and small urban agencies with practical advice and/or tools for everyday use in reducing congestion.

After conducting a literature review on congestion in small urban and rural areas, a survey was developed for distribution to transportation agencies in ten states across the southeast: Georgia, Florida, South Carolina, Alabama, Mississippi, Arkansas, Kentucky, Louisiana, North Carolina, and Tennessee. Communities with populations under 50,000 in each state were identified through the 2017 American Community Survey five-year estimates, and a list of the cities with a population under 50,000 was compiled and sorted in descending order. In total, the survey was sent to 445 candidate respondents. Sixty-six complete responses were received, from which 51 responses self-reported populations of 50,000 or below.

The survey results were used to develop questions to solicit additional information from the responding agencies. A subset of the agencies that opted in for a follow-up call were approached for further discussions via phone calls. The overall effort highlights that there is an interest in information and training related to alleviating congestion, but the staff may not have the time or resources to invest in such endeavors. As a result, a Web-based repository of basic information on congestion management, a flyer including a summary of the information, and a webinar available on YouTube were developed.

2. Research Goals

In order to identify and mitigate traffic congestion in small urban and rural areas, the overarching objectives of this project were to:

- A. Broaden the basic understanding of key congestion issues faced by rural and small urban areas and the resources available to agencies in these areas,
- B. Identify potential congestion mitigation strategies which are achievable given agency resources, and
- C. Provide rural and small urban agencies with practical advice and/or tools for everyday use in reducing congestion.

3. Findings

An analysis of the results from the quantitative surveys and follow-up calls revealed the following key findings:

- There is no systematic data collection related to monitoring and measuring traffic congestion.
- Traveler phone calls were the primary source for identifying congestion.
- Day-to-day peak hour traffic is the biggest contributor to traffic congestion.
- Special events and tourism were the next highest traffic congestion contributors.
- Work zones, traffic crashes, and freight are not significant contributors to congestion.

- Limited tools are used to mitigate congestion due to work zones.
- Interagency interaction is needed to alleviate congestion, but it was acknowledged that such interaction is sometimes limited.
- Additional funding would help relieve congestion.
- Limited training related to congestion mitigation was reported.

Therefore, this study first recommends a systematic program for collecting traffic data to measure traffic congestion. Regarding special events, efforts should be taken to enhance coordination among various agencies such as State DOT, local DOT, the police, public works, and local government to develop strategic plans for congestion mitigation. Training sessions can also be introduced at inter-agency strategic planning meetings to inform the participants about alternate congestion management techniques. Finally, state and federal agencies should explore mechanisms to expedite infrastructure improvement projects (especially minor) so that the benefits of congestion alleviation are realized sooner.

4. Performance Metrics

Metric	# Completed
OUTPUTS	
Product(s): Number of new or improved tools, technologies, products, methods, practices, and processes created or improved	3 educational products: a Web-based repository of basic information on congestion management, a flyer including a summary of the information, and a webinar available on YouTube
Technical Report: Number of client-based technical reports published	STRIDE Final Report
OUTCOMES	
Body of Knowledge: Number of trainings for transportation professionals	5, including 4 conference presentations and a webinar
Professionals Trained: Number of professionals participating in trainings	143 (plus 61 YouTube views)
IMPACTS	
Stakeholders: Number of stakeholders you met with to encourage adoption or implementation of product(s)	3
Adoption/Implementation: Number of incidences outputs of research have been implemented or adopted	0

5. Products

The overall research effort highlights that while congestion due to peak period traffic, crashes, and work zones are issues in small and rural communities, systematic procedures to monitor, measure, and mitigate congestion are nonexistent. There is an interest in information and training on these topics, but the staff may not have the time to invest in such endeavors. Therefore, the research team decided to develop a Web-based repository of basic information on congestion management as a “toolkit” that

may be accessed by these agencies on demand and for free to understand the basic issues, a flyer including a summary of the information, and offer a webinar.

- 1) The Web-based toolkit is hosted by the University of Florida (UF) Transportation Technology Transfer (T2) Center website at <https://techtransfer.ce.ufl.edu/tech-transfer/ufti-t2-projects/stride-projectH>.

The website includes the research team, the project objectives, the products of this project, and numerous resources categorized in the following sections and subsections:


- ❖ Resources: Topic Areas
 - ❖ Access Management
 - ❖ Parking Studies
 - ❖ Additional Capacity
 - ❖ Construction Improvements
 - ❖ Land Use Planning
 - ❖ One-way Streets
 - ❖ Intersection Improvements (turn lane, acceleration/deceleration lane)
 - ❖ Transit Improvements
 - ❖ Signal Timing
 - ❖ Bicycle & Pedestrian Facilities
 - ❖ Flexible Work Hours
 - ❖ Speed Management
 - ❖ Data
- ❖ Resources: Agencies
 - ❖ AASHTO, NCHRP
 - ❖ Denver Regional Council of Governments
 - ❖ FHWA
 - ❖ Institute of Transportation Engineers (ITE)
 - ❖ Kentucky Transportation Cabinet
 - ❖ Michigan DOT
 - ❖ National Association of Counties
 - ❖ Texas Transportation Institute
- ❖ Resources: Data and Manuals
 - ❖ South Carolina
 - ❖ Georgia

The website structure mentioned above is dynamic and may change in the future, based on the availability of resources and feedback from users.

- 2) The flyer is illustrated in the Figure below. It includes a brief introduction to the project, the survey, a summary of the survey findings, and the link to the Web toolbox.


STRATEGIES FOR MITIGATING CONGESTION IN SMALL URBAN AND RURAL AREAS

Congestion is not only an issue in large urban areas but also in both rural areas and small urban areas (under 50,000 population).



SURVEY

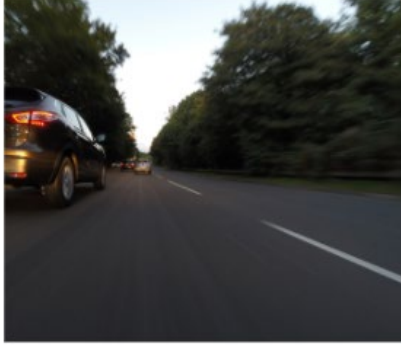
A Web-based survey was administered to agencies across the Southeast U.S. to identify key themes related to small urban and rural congestion. 51 respondents with self-reported populations of 50,000 or less gave their insights.



SURVEY FINDINGS

The majority of agencies surveyed reported the following:

- There is no systematic data collection.
- Traveler phone calls were the primary source for identifying congestion.
- Day-to-day peak hour traffic is biggest contributor of traffic congestion.
- Special events & tourism was the 2nd highest traffic congestion contributor.
- Work zones, traffic crashes, and freight are not high contributors to congestion.
- No tools are used to mitigate congestion due to work zones.
- Interagency interaction is needed to alleviate congestion.
- Additional funding would help relieve congestion.
- No training related to congestion mitigation was reported.



CONGESTION PROBLEMS BUT NO RESOURCES?

Visit our website at:
<https://techtransfer.ce.ufl.edu/tech-transfer/ufti-t2-projects/stride-projectH>

OR

Scan the QR code




Figure 1. Project summary flyer

- In addition to the above, a webinar was offered on November 4, 2020. The recording of the webinar is available at <https://stride.ce.ufl.edu/technology-transfer/workshops-webinars-conferences/> or <https://www.youtube.com/watch?v=8ioQV8TeW5s&feature=youtu.be>.

6. Who benefits/will benefit from your product(s)?

Professionals in agencies in areas with population of 50,000 and below that face congestion problems. Small urban and rural areas facing congestion issues.

7. Body of Knowledge & Professionals Trained

Date	Type of Activity	Detailed Description
1/14/2019	Conference Presentation	William Curran Hickey, TRB Conference, UFTI Reception, Strategies for Mitigating Congestion in Small Urban and Rural areas, Baby

		Wale, 1124 9th Street NW, Washington D.C., 20001. Approximately 35 professionals were reached.
10/8/2019	Conference Presentation	Dimitra Michalaka, 3rd annual C2M2 Conference, presentation on The Citadel and transportation engineering activities at the CEE department, Clemson University, SC Approximately 25 professionals were reached.
11/4/2020	Webinar	Dimitra Michalaka and Michael Hunter, STRIDE Webinar on the project. Available at: https://stride.ce.ufl.edu/technology-transfer/workshops-webinars-conferences/ Fifty-eight professionals attended the webinar. In addition, there were 61 views of the webinar online.
11/18/2020	Conference Presentation	Dimitra Michalaka presented at the virtual 2021 SDITE Annual Meeting to be held April 11-16, 2021. Approximately 25 professionals were reached.

8. Stakeholder Engagement

MEETING DETAILS		NARRATIVE DESCRIPTION
STRIDE Rep.		Upon completion of online surveys, a follow up one-on-one phone interviews were conducted with selected stakeholder to solicit detailed information. 13 specific questions were identified. The overall effort highlights that there is an interest in information and training on alleviating congestion topics, but staff may not have the time to invest in such endeavors.
Date of Activity	08/21/2020	
Type of Activity	phone meeting	
Location	Zoom	
Stakeholder(s)	Jeff Ricketson, Executive Director, Liberty Consolidated Planning Commission, Georgia	
STRIDE Rep.		Upon completion of online surveys, a follow up one-on-one phone interviews were conducted with selected stakeholder to solicit detailed information. 13 specific questions were identified. The overall effort highlights that there is an interest in information and training on alleviating congestion topics, but staff may not have the time to invest in such endeavors.
Date of Activity	08/21/2020	
Type of Activity	phone meeting	
Location	Zoom	
Stakeholder(s)	Barry Burke, City Engineer, City of Union, KY	
STRIDE Rep.		Upon completion of online surveys, a follow up one-on-one phone interviews were conducted with selected stakeholder to solicit detailed information. 13 specific questions were identified. The overall effort highlights
Date of Activity	08/14/2020	
Type of Activity	phone meeting	
Location	Zoom	

Stakeholder(s)	Mark Johnson, Public Works Director, Town of James Island, South Carolina	that there is an interest in information and training on alleviating congestion topics, but staff may not have the time to invest in such endeavors.
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9. Adoption/Implementation

All products are available online to anyone interested.

10. Broader Impacts

Congestion is an issue in large urban areas, but also in rural areas and small urban areas (under 50,000 population). Often rural and small urban areas lack the resources (staff, facilities, training) needed to address congestion. This research studied the key characteristics of rural and small urban congestion and resource constraints pertinent to rural and small urban communities, determined best practices to reduce and/or manage these congestion issues, and developed educational material for use by rural and small urban agencies to help in solving the congestion problems. If agencies implement some of the guidance provided, congestion can be reduced in rural and small urban areas leading to less travel delays and improved travel conditions.