

# Durham - Chapel Hill - Carrboro Metropolitan Planning Organization

---

## Strategic Assessment for the Durham - Chapel Hill - Carrboro MPO Traffic Incident Management Program

KoSok (KC) Chae, Ph.D. – DCHC MPO  
David Graham – Gannett Fleming, Inc.



# Why do this project?

---



To improve

- Mobility (by reduce incident duration) and
- Safety (by reduce secondary incident)



Create a strong relationship

- Traffic Incident Management (TIM) and
- Transportation Planning

DURHAM - CHAPEL HILL - CARRBORO

**DCHC**

Metropolitan Planning Organization  
Planning Tomorrow Today

# Regulatory Background

## FHWA Requirement

- TRANSPORTATION PLAN...shall contain, at a minimum, the following:
- OPERATIONAL AND MANAGEMENT STRATEGIES to improve the performance of existing transportation facilities to relieve vehicular congestion and maximize the safety and mobility of people and goods.

## MTP2040 DCHC MPO

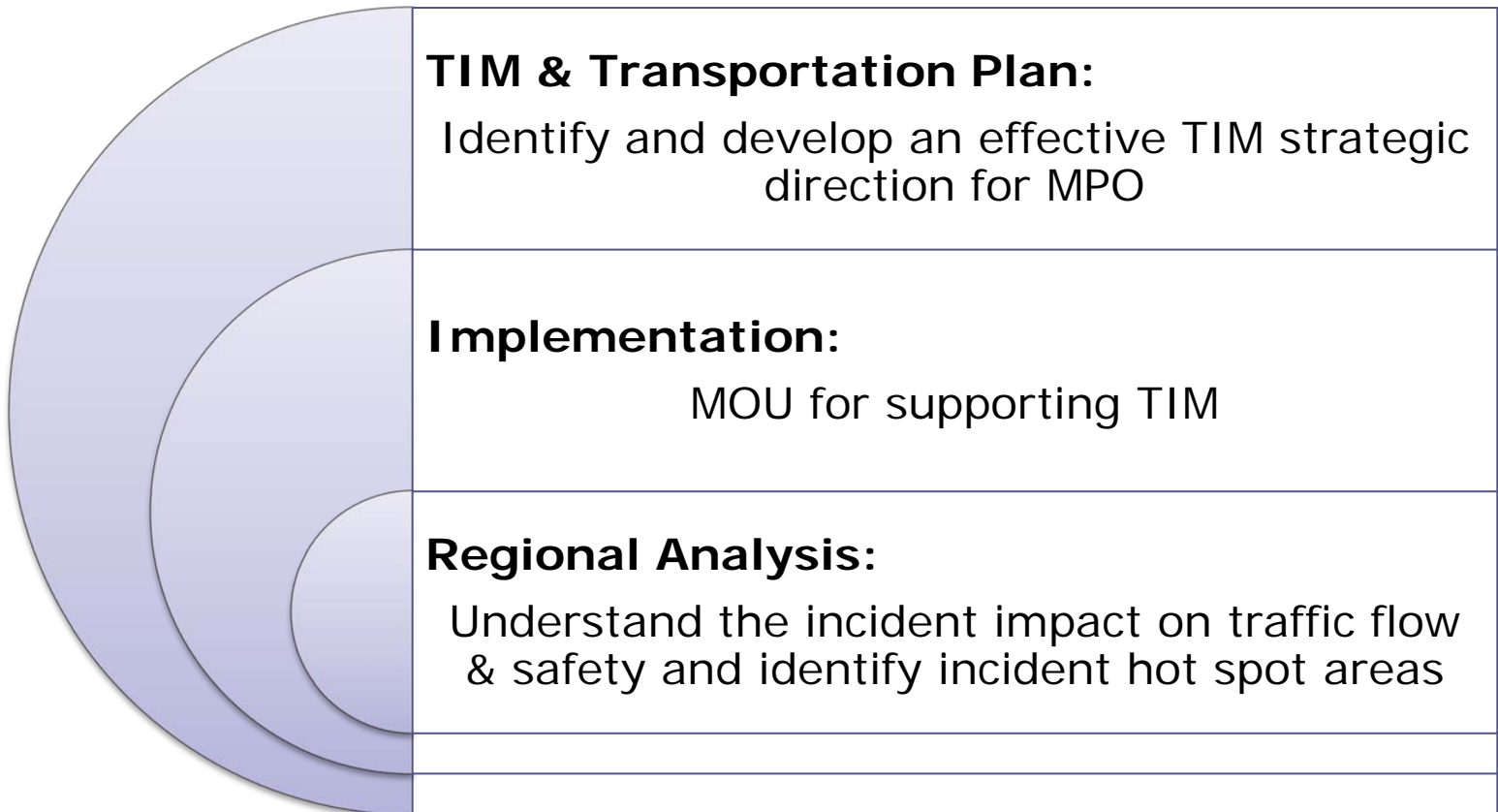
- **Safety and Security**
- Goal: - **Continue to improve transportation safety and ensure the security of the transportation system.**
- Objectives:
  - a) Reduce fatality, injury, and crash/incident rates on all modes.
  - b) Reduce vulnerability of transportation facilities/users to terrorists, natural disasters and risks.
  - c) Reduce economic losses due to transportation crashes and incidents.
  - d) Improve the ability to identify high accident locations, and evaluate their impacts.

DURHAM - CHAPEL HILL - CARRBORO

**DCHC**

Metropolitan Planning Organization  
Planning Tomorrow Today

# What is expected / learned?

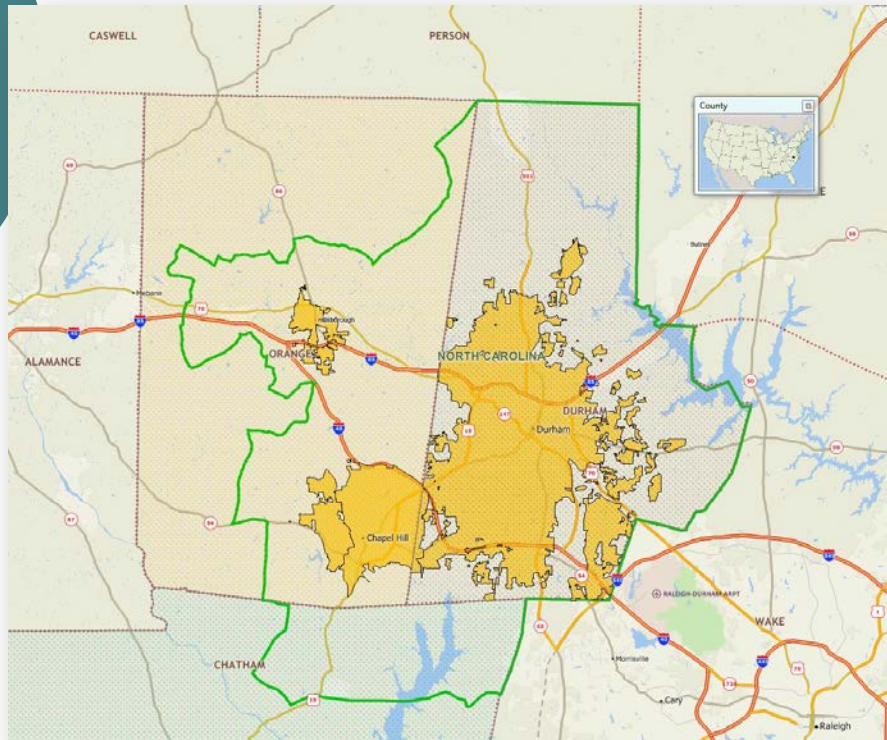


DURHAM - CHAPEL HILL - CARRBORO

**DCHC**

Metropolitan Planning Organization  
Planning Tomorrow Today

# DCHC MPO



- The DCHC-MPO is the regional organization responsible for transportation planning for the western part of the Research Triangle area in North Carolina.
- The major requirement of the DCHC MPO is to fulfill Federal Transportation legislation; These regulations require to conduct a 3-C transportation planning process - the Continuing, Comprehensive, and Cooperative (3-C) planning.

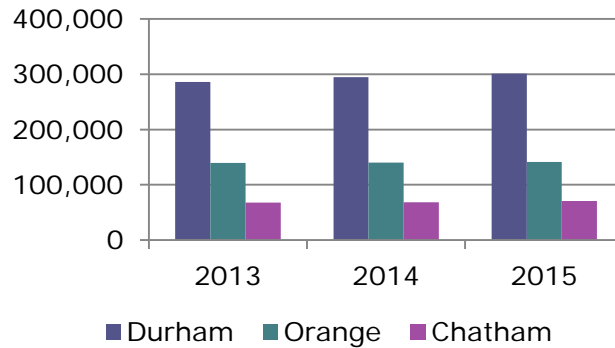
DURHAM - CHAPEL HILL - CARRBORO

**DCHC**

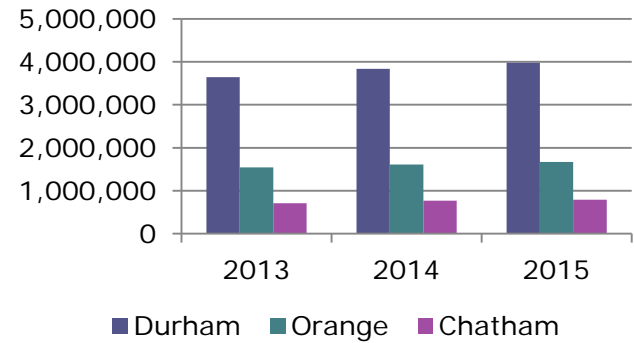
Metropolitan Planning Organization  
Planning Tomorrow Today



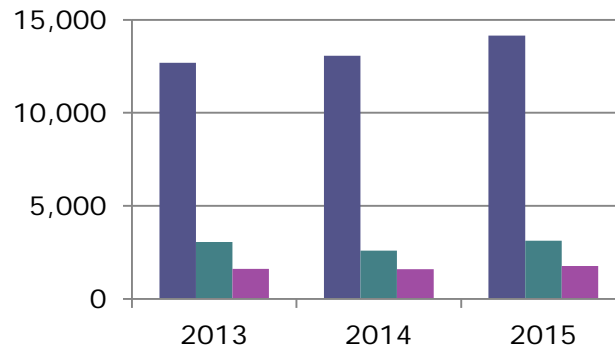
## POPULATION



## AVMT(1000)



## INCIDENT



## FATAL INJURIES



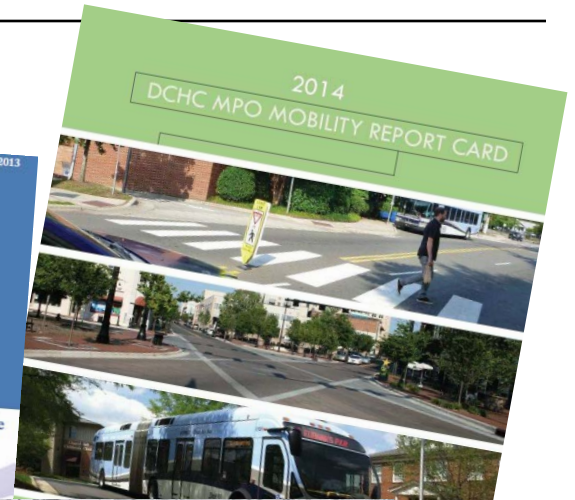
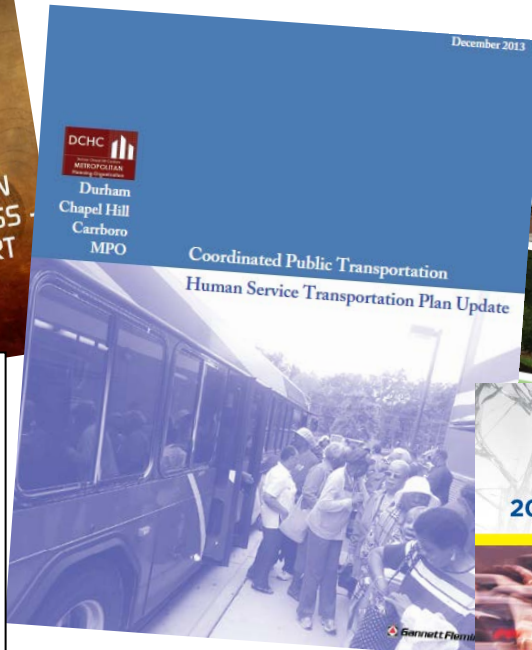
DURHAM - CHAPEL HILL - CARRBORO

**DCHC**

Metropolitan Planning Organization  
Planning Tomorrow Today



# Traffic Incident Management (TIM) Assessment



FHWA Traffic Incident Management (TIM) Self-Assessment Summary Report with Actions - 2015

SUMMARY REPORT FOR NC, RALEIGH DURHAM - OVERALL SCORE 76.7%

**SECTION 1: STRATEGIC SCORE OF 40% - 23.4%**

**Formal TIM Programs**

1a. Is there a formal TIM program that is supported by a multidisciplinary, multi-agency team or task force, which meets regularly to discuss and plan for TIM activities? **Score: 3**

**Comments:** Raleigh and Durham are both represented in individual county TIM meetings, county agencies and responders are included as well.

Actions to Progress from Level 1 to 2	Actions to Progress from Level 2 to 3	Actions to Progress from Level 3 to 4
1. Initiate routine TIM-focused discussions within an individual agency.	2. Establish a multidisciplinary TIM committee or task force with a clearly defined organizational structure that meets on a regular basis (quarterly minimum).	3. Develop TIM program vision, mission statement, and goals and objectives. Routinely review and update.
1a. How frequently does the team or task force meet? <b>Quarterly.</b>		4. Dedicate staff for sustain TIM program activities (i.e., responsible TIM role position descriptions, role support staff, etc.).

2. Are all disciplines and agencies participating in on-going TIM enhancement activities/efforts? **Score: 3**

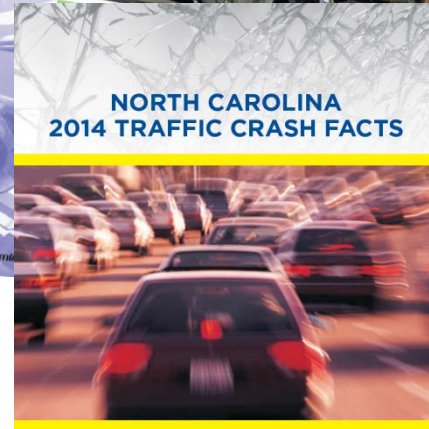
**Comments:** Most disciplines are represented during TIM enhancement activities, but not all agencies within the region attend regularly.

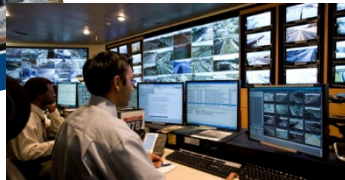
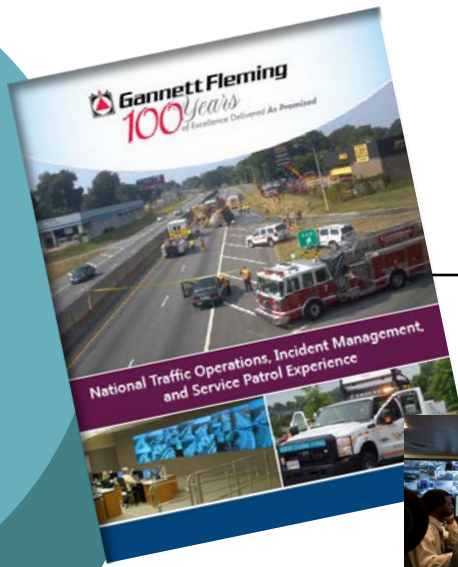
Actions to Progress from Level 1 to 2	Actions to Progress from Level 2 to 3	Actions to Progress from Level 3 to 4
1. Develop a comprehensive list of disciplines involved in TIM planning, coordination and response.	2. For each TIM initiative, identify agencies, organizations and individuals that should be included in TIM planning, coordination, response and enhancement activities.	3. Conduct one-on-one meetings with agencies and organizations that are not currently participating in TIM enhancement activities.
	3a. Utilize executive/leadership level to reach out to agencies and organizations not participating.	

3. Is the importance of TIM understood by all TIM stakeholders and supported by multidisciplinary, multi-agency agreements or memorandums of understanding (MOUs)? **Score: 3**

**Comments:** There are currently two (2) MOUs that are in effect in this area. First, there is a MOU between I-85 and I-95 for quick clearance. Second, there is a TIM MOU in Wake County between NC9007 and multiple municipalities and state agencies. Currently, NC9007 is still planning municipalities to sign this agreement.

Actions to Progress from Level 1 to 2	Actions to Progress from Level 2 to 3	Actions to Progress from Level 3 to 4
1. Document and promote the TIM business case (i.e., need for and benefits of).	2. Develop a multidisciplinary agreement/MOU that includes goals/objectives for TIM.	3. Integrate TIM issues into quick clearance goals into the TIM agreement/MOU.
2. Develop TIM program vision, mission statement, and goals and objectives.	3. Obtain formal buy-in from all TIM stakeholders through regular meeting of TIM agreement/MOU.	4. Routinely review and update as necessary the TIM agreement/MOU.
		5. Integrate all TIM needs/enhancement strategies into existing planning processes and documents, such as the state's Strategic Highway Safety Plan (SHSP) and Transportation Improvement Plan (TIP).





# The Project is Born

**Purpose:** *Develop a TIM strategic direction that serves as the cornerstone for other TSM&O (Transportation Systems Management and Operations) activities and furthers their efforts to address federal congestion mitigation strategies.*

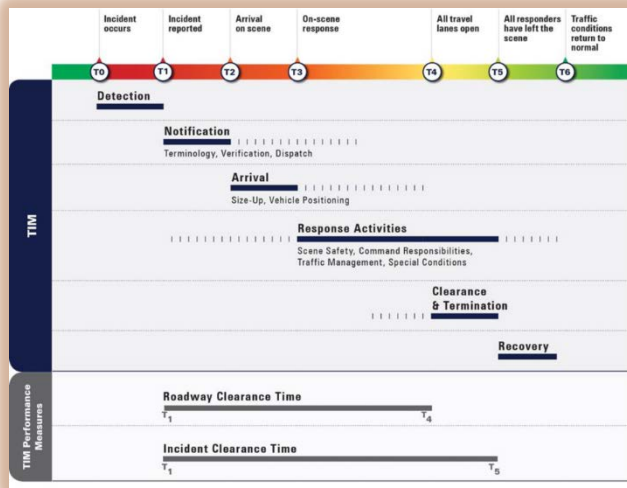
## Goals:

TIM Baseline Activities

- TIM partner levels of involvement, Comparative analysis of peer agencies and compliance to FHWA TIM Self-Assessment and regional incident analysis
- Creating a Strategic Management Plan for TIM, an Action Plan and TIM performance measures
- This project also includes a TIM practitioner workshop and day-long conference to build local relationships

## Stakeholders:

- Durham Police/Fire/EMS
- Chapel Hill Police/Fire/EMS
- Hillsborough Police/Fire/EMS
- Carrboro Police/Fire/EMS
- Durham, Orange, Chatham counties
- NCDOT
- NCSHP
- Towing and Recovery
- MPO Traffic Ops Group
- MPO Transportation Planning Group
- Media



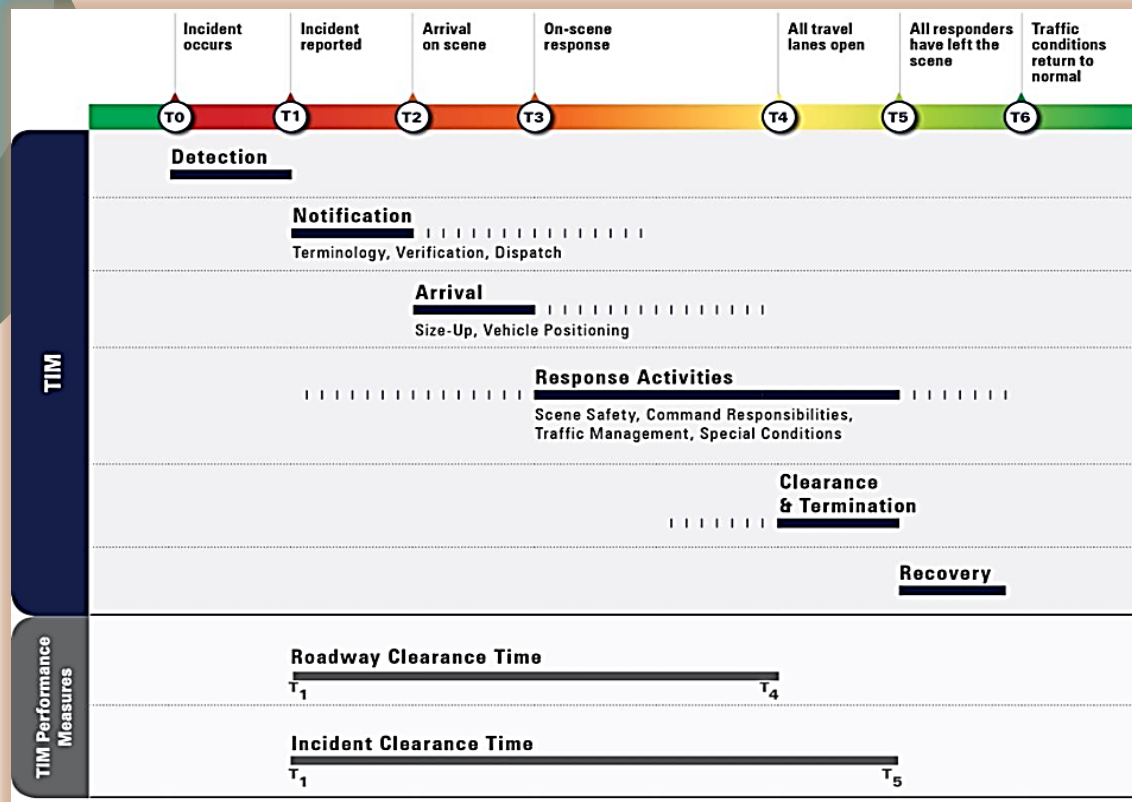
DURHAM - CHAPEL HILL - CARRBORO

**DCHC**

Metropolitan Planning Organization  
Planning Tomorrow Today



# What are we trying to do?



## Shrink the Timeline:

- Detect incidents quicker
- Report incidents quicker
- Verify incidents quicker
- Identify needs quicker
- Dispatch resources quicker
- Clear the roadway quicker
- Leave the scene quicker

- So that we...
- **MAKE ROADWAYS SAFER**
- **ENHANCE MOBILITY**
- **REDUCE CONGESTION**

DURHAM - CHAPEL HILL - CARRBORO

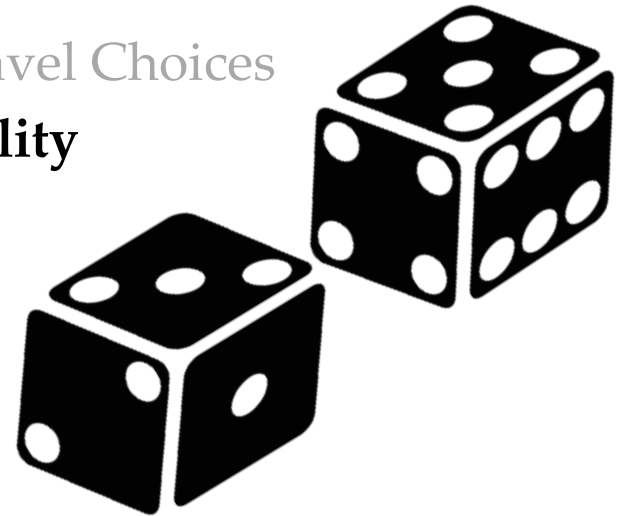
**DCHC**

Metropolitan Planning Organization  
Planning Tomorrow Today

# How does TIM align with MPO goals?

---

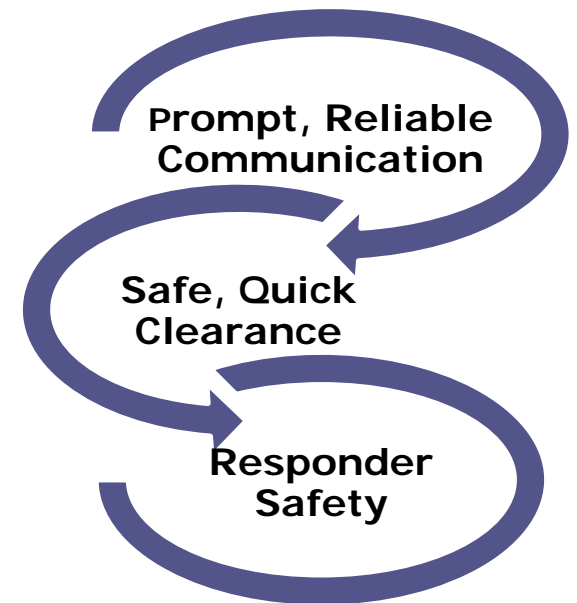
- ✓ **Protect Environment and Minimize Climate Change**
- ✓ **Connect People**
- *Promote Multimodal and Affordable Travel Choices*
- ✓ **Manage Congestion & System Reliability**
- *Improve Infrastructure Condition*
- *Ensure Equity*
- ✓ **Promote Safety and Health**
- ✓ **Stimulate Economic Vitality**



# A Standard: The National Unified Goal (NUG)

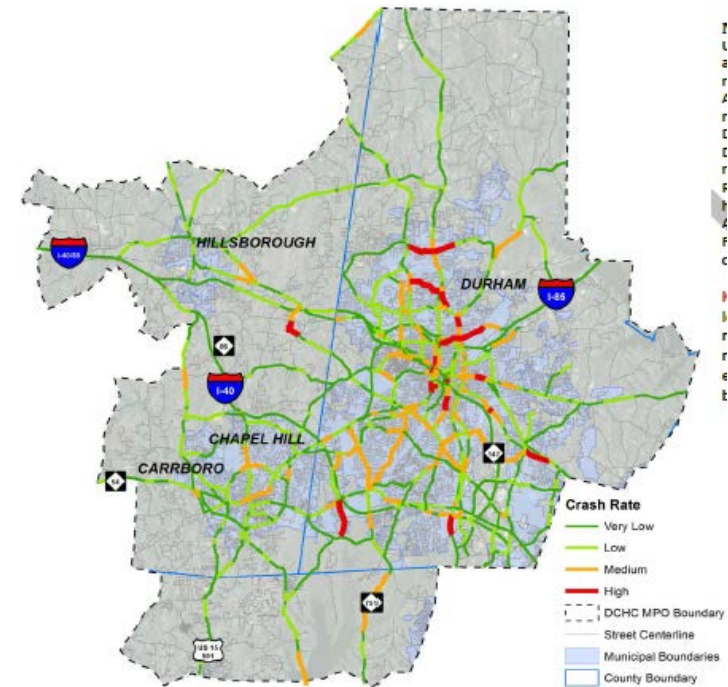
---

- The NUG was created by the National Traffic Incident Management Coalition, a group that includes every major organization representing every type of response, planning, and support unit
- Three main goals are:
  - Responder Safety
  - Safe, Quick Clearance
  - Prompt, Reliable, Interoperable Communication
- Everything we do should relate to one or more of them



# Overarching objectives for TIM from the NUG

- Establish TIM partnerships and programs
- Provide continuing multidisciplinary training
- Set goals for performance and progress and evaluate performance
- Utilize TIM Technology
- Develop effective TIM policies
- Establish awareness and education partnerships



DURHAM - CHAPEL HILL - CARRBORO

**DCHC**

Metropolitan Planning Organization  
Planning Tomorrow Today

# What's the Cost?

---



- Over the past 5 years, crashes along NC interstates involving a parked car on the shoulder have resulted in **18 fatalities** per year.
- Approximately **25%** of total motorist delay is caused by traffic incidents such as crashes, stalled vehicles, roadway debris, and spilled cargo
- **37%** of First Responder deaths are related to Traffic Incidents.

DURHAM - CHAPEL HILL - CARRBORO

**DCHC**

Metropolitan Planning Organization  
Planning Tomorrow Today

# What's the Cost?

## Cost per NC Crash – Total Crashes

### Crash Type

- **\*2013 Dollars**
  - **Fatal Crash** **\$10,133,000**
    - A Injury Crash \$564,000
    - B Injury Crash \$176,000
    - C Injury Crash \$96,000
  - **Property Damage Only Crash** **\$6,700**
  - **Average Crash** **\$99,000**



*\* 2013 Standardized Crash Cost Estimates for North Carolina*

DURHAM - CHAPEL HILL - CARRBORO

**DCHC**

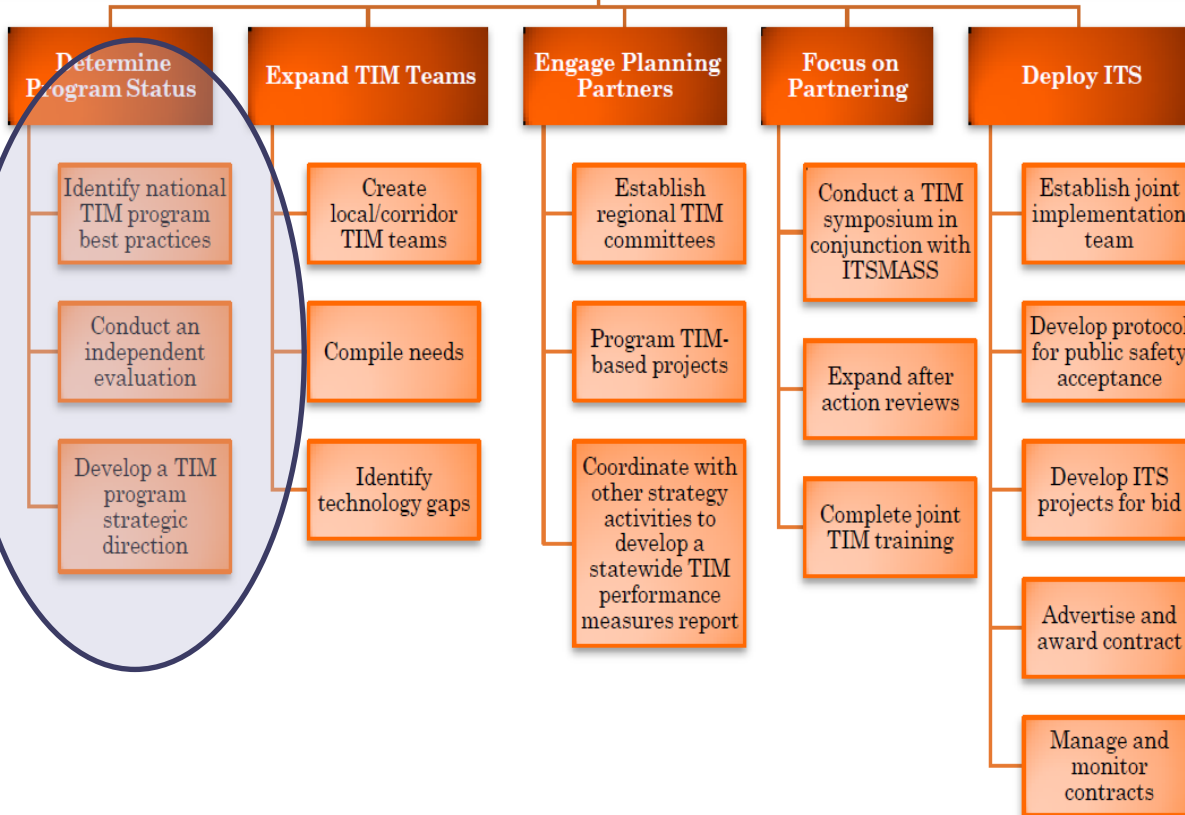
Metropolitan Planning Organization  
Planning Tomorrow Today



# What are others Doing? - Massachusetts

## Program It

### 2.1.4 Implement technology to achieve the National Unified Goal for traffic incident management.



There are many ways to fashion a sustainable program.

The chart at left was a statewide approach for Massachusetts.

We are in that first phase right now, an independent evaluation and developing a strategic direction.

DURHAM - CHAPEL HILL - CARRBORO

**DCHC**

Metropolitan Planning Organization  
Planning Tomorrow Today

## Emphasis Area 12: Traffic Incident Management



Traffic incident management (TIM) consists of a planned and coordinated multidisciplinary process to detect, respond to and clear traffic incidents to improve or restore traffic flow as safely and quickly as possible. Effective TIM reduces the duration and impact of traffic incidents, which can subsequently reduce the occurrence of secondary collisions and improve the safety of motorists, crash victims and emergency responders.

Similar efforts and tactics can be used to improve safety in work zones. Because there are many types of work zones, driving conditions within these areas will differ. Lack of driver knowledge of appropriate work-zone driving behavior; failure to obey traffic laws, signage, traffic-control devices and flaggers; and lack of awareness about work-zone conditions or workers present also contribute to work-zone crashes.

### Purpose Statement

Use the 4 E's to reduce risk and exposure, increase safety for all users and save lives in all traffic zones across Arizona.

### Goal

Reduce fatalities and the occurrence and severity of serious injuries on all public roadways in Arizona through enhanced roadway infrastructure and operations.



Trend in Work-Zone-Related Crash Fatalities and Serious Injuries

### Strategies to Achieve Goal

#### TIM/Secondary Crashes:

##### Priority 1

- Develop cross-cutting TIM programs that include training, public education, evaluation and application of technology.

##### Priority 2

- Develop and implement practices, policies and public education efforts to increase TIM responder safety.

##### Priority 3

- Develop and implement procedures that achieve safe and quick incident clearance.
- Develop and implement prompt and reliable communications systems that support TIM.

#### Work Zones:

##### Priority 1

- Develop and improve work-zone design and management practices.
- Improve driver compliance with work-zone traffic controls.

##### Priority 2

- Increase knowledge and awareness of work zones and work-zone safety.

# Strategy Arizona Style

## Strategies to Achieve Goal

### TIM/Secondary Crashes:

#### Priority 1

- Develop cross-cutting TIM programs that include training, public education, evaluation and application of technology.

#### Priority 2

- Develop and implement practices, policies and public education efforts to increase TIM responder safety.

#### Priority 3

- Develop and implement procedures that achieve safe and quick incident clearance.
- Develop and implement prompt and reliable communications systems that support TIM.

# OHIO Inclusive

## Statewide Steering Committee

	Ohio State Fire Marshalls Office		Ohio Fire Academy		Ohio Association of Broadcasters
	Ohio Environmental Protection Agency		Buckeye State Sheriff's Association		Ohio State Coroners Association
	Ohio State Highway Patrol		Ohio Fire Chiefs Association		AAA Auto Group
	Towing & Recovery Association of Ohio		Ohio Trucking Association		Ohio Emergency Medical Services
	Ohio Association of Chiefs of Police		Ohio Department of Transportation		Ohio Department of Public Safety
					Local Technical Assistance Program (LTAP)

DURHAM - CHAPEL HILL - CARRBORO

## DCHC

Metropolitan Planning Organization  
Planning Tomorrow Today

# Elements of TIM Assessment

---

- **Task 1.0 – Project Administration**
- **Task 2.0 - Baseline Current TIM Activities**
- **Task 3.0 - Determine Performance Based Objectives for the DCHC TIM Program**
- **Task 4.0 – Regional TIM Workshop/TC & MPO Meetings**





# Task 1.0 – Project Administration

---



- Monthly conference calls/WebEx meetings
- Monthly electronic progress reports
- Invoice developed and accompany each progress report.
- Six month project duration.
- Internal Kick-Off meeting



# Task 2.0 - Baseline Current TIM activities

- 2.1 *External Stakeholder Kick-Off meeting*
- 2.2 *Determine Partner Levels of TIM Involvement – (Web survey)*
- 2.3 *Compare DCHC to Peers –FHWA TIM Self Assessments*
- 2.4 *Review/Analysis of most recent regional FHWA Self-Assessment and similar national assessments*
  - Richmond, VA, Buffalo, NY, Tucson, AZ, Rochester, NY



DURHAM - CHAPEL HILL - CARRBORO

**DCHC**

Metropolitan Planning Organization  
Planning Tomorrow Today



# Task 2.0 - Baseline Current TIM Activities

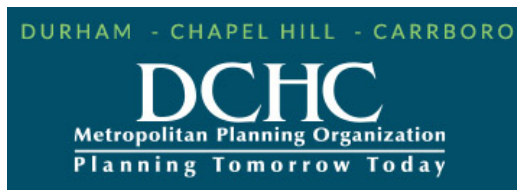
## ○ 2.5 Incident Analysis

<b>WHEN, WHERE AND HOW LONG Past 5 years 2011-2016</b>	<b>No. of Crashes</b>	<b>Avg. TIME to clear</b>	<b>AM Peak %</b>	<b>Noon %</b>	<b>PM Peak %</b>	<b>Other Hours %</b>
I-85 Durham County	419	0:63	21%	5%	26%	<b>40%</b>
I-40 Durham/Orange	2054	0:57	15%	6%	<b>44%</b>	35%
NC-147 Durham County	741	0:53	33%	5%	<b>36%</b>	26%
US 15-501 Chapel Hill	17	0:28	6%	0%	35%	<b>59%</b>

# TIM Survey Results (Task 2.0)

---

- Responders and support personnel were offered the opportunity to comment on the state of TIM at the current time
- Response was representative of the variety of disciplines

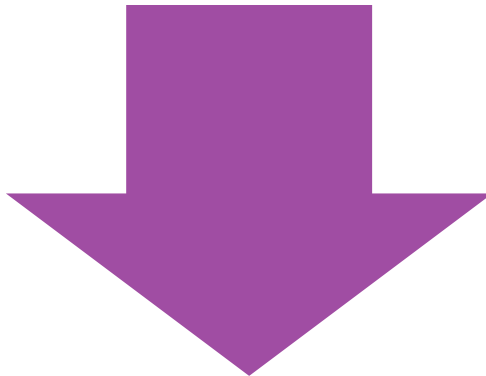


# What do we do well? Not so well?

---



Incidents detected, reported quickly  
911 dispatches correct resources  
Safe ingress and vehicle positioning important  
PPE important on scene



Planners are not engaged in support  
Little pre-planning for all responders  
Incident Command/Unified Command spotty  
TMC not updated  
Towing/Recovery not included

# Major issues? Minor issues?

---

- Lack of shared procedures for TIM
  - Lack of unified approach on scene
  - Inaccurate information from scene
- MAJOR**

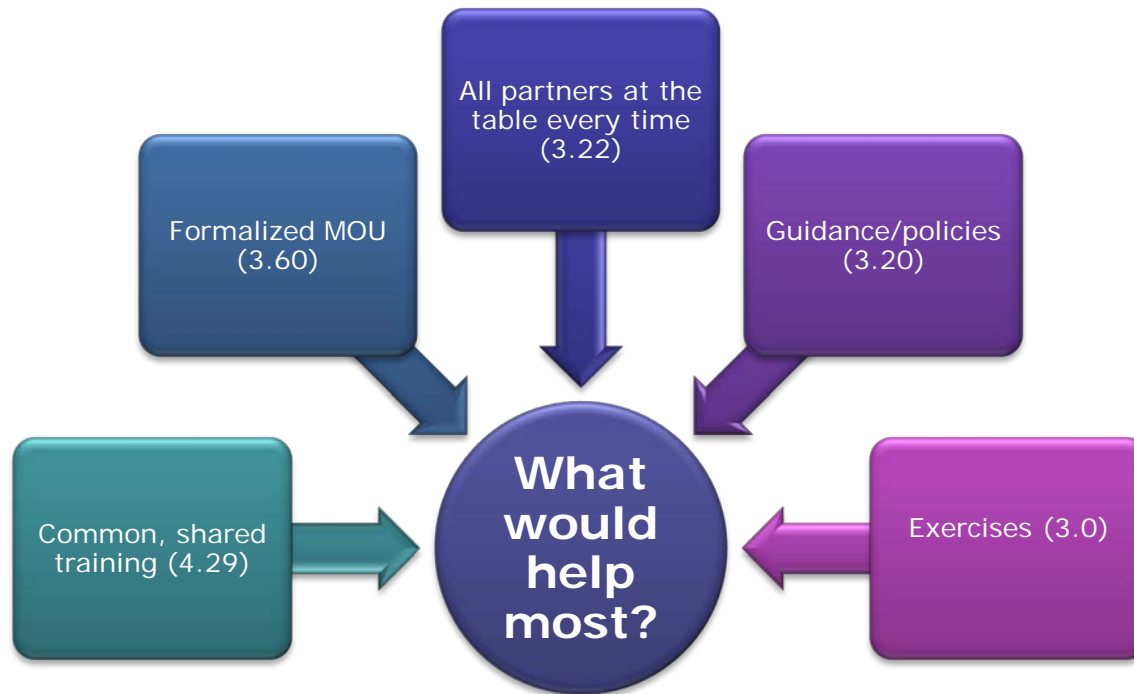
- Delays in DOT, others' response to scene
    - Scene safety is not a priority
    - Quick clearance is not a priority
  - Difficult to get all resources to scene
- MINOR**

DURHAM - CHAPEL HILL - CARRBORO

**DCHC**

Metropolitan Planning Organization  
Planning Tomorrow Today

# What would help most?



Numbers from survey rankings of what would help most to advance TIM in the MPO

# Task 3.0 - Determine Performance Based Objectives for the DCHC TIM Program

---

## *3.1 Create a Strategic Management Plan for DCHC TIM*

- *Legislative & Leadership, Institutional and Sustainability, Practitioner Capacity Building and Marketing & Outreach Focused*
  - *Action Plan/Items*
  - *Memorandum of Understanding (MOU)*
  - *TIM Performance Measures*
  - *Create a TIM Program Assessment Report*





# Task 4.0 – Regional TIM Workshop/TC & MPO Meetings

---

- 4.1. *TIM Leadership Workshop* – Conduct a one (1) day workshop with program leaders, public safety managers and MPO staff to present the findings of the Strategic Plan and Final TIM Program Assessment Plan.



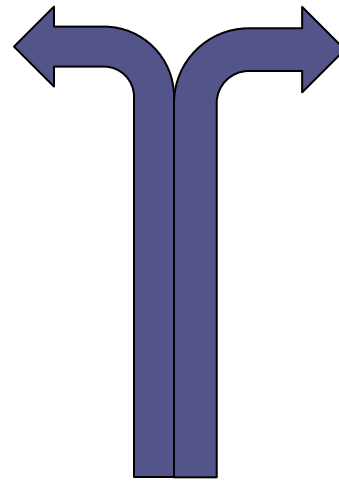
CAMPO TIM Summit 2013



# How does this Benefit?

## For TIM Professionals

- Opportunities for resources – Funding, equipment, etc.
- Forum for TIM Coordination
- Input on Transportation Projects
- Access to multi-agency training
- Elevated visibility w/decision makers



Connecting TIM to  
Transportation  
Planning

## For Transportation Planners

- Address major sources of congestion
- Lower cost mobility & safety solutions
- Expertise & recommendations on operations priorities, TIM strategies and projects
- Data to justify investments
- Meet planning goals

DURHAM - CHAPEL HILL - CARRBORO

**DCHC**

Metropolitan Planning Organization  
Planning Tomorrow Today

# What is next?

Draft Program  
Baseline Report for  
MPO approval

Develop and  
present TIM  
Program  
Strategic  
Management  
Plan (SMP)

Consult  
stakeholders on  
SMP & MOU  
content and  
scope

Present project  
findings and next  
steps in multi-  
disciplinary  
workshop setting

Program  
Management  
(Execution,  
Evaluation and  
Sustainability)

DURHAM - CHAPEL HILL - CARRBORO

**DCHC**

Metropolitan Planning Organization  
Planning Tomorrow Today

# On Going Project

---

- Finalized in June 2016



# Questions? Contacts

**KoSok (KC) Chae, Ph.D.**  
*Congestion Management Engineer*  
Department of Transportation,  
City of Durham/DCHC MPO

P 919-560-4366. ext. 36426

[KoSok.Chae@durhamnc.gov](mailto:KoSok.Chae@durhamnc.gov)

[www.DurhamNC.gov](http://www.DurhamNC.gov)

[www.dchcmpo.org](http://www.dchcmpo.org)

**David A. Graham**  
*Senior Transportation Operations  
Manager*  
Gannett Fleming, Inc.

Cell – (919) 609-9567

[dgraham@gfnet.com](mailto:dgraham@gfnet.com)

[www.gannettfleming.com](http://www.gannettfleming.com)

DURHAM - CHAPEL HILL - CARRBORO

**DCHC**

Metropolitan Planning Organization  
Planning Tomorrow Today

# Durham - Chapel Hill - Carrboro Metropolitan Planning Organization

---

## Strategic Assessment for the Durham - Chapel Hill - Carrboro MPO Traffic Incident Management Program

KoSok (KC) Chae, Ph.D. – DCHC MPO  
David Graham – Gannett Fleming, Inc.

