20 August 2009

# ADMINISTRATOR'S MONTHLY REPORT

## Brief Outline of Activities

**FY 2008 EMS Vehicle Replacement Grant and Hospital Capital Grant awards:**
08 August 2009 dispersal report update- Attachment A.

**EMS Vehicle Replacement Decals:**
On 10 August, Ben Hinson and I traveled to 5 counties to meet with EMS providers and local state representatives and distribute the GTCNC ambulance decals. The five counties were: Seminole, Baker, Randolph, Crisp and Wilcox. Attachment B captures all five ceremonies in photos.

**Grant Development for GTCNC Funding:**
Dr. Robinson met with Joe Binns from National Strategies on July 29th. The NSI "Stimulus Opportunity Roadmap" is attached as Attachment C. Dr. Robinson has asked Mr. Binns to come up with a proposal for the GTCNC to consider and me to work with Mr. Binns to schedule a presentation of that proposal to the full Commission. Date to be determined.

**Safe Speeds Law Campaign Report:**
On 31 July, the Governor's Office of Highway Safety released its draft of the Safe Speeds Law (Super Speeder) Campaign Report to be presented to the Governor. The report provides for a public information and education campaign to begin in November 2009 in advance of the 01 January 2010 implementation date of HB160. Attachment D.

**Georgia Trauma Care Economic Profile Development:**
First committee meeting on this project meets on Wednesday 19 August 2009. Kelli Vaughn, GTCNC representative and lead on this activity, will update full Commission at 20 August GTCNC meeting.

**Trauma System Development and Integration with State Highway Safety Planning:**
Attachment E is a report from University of Minnesota, which examines the linkages between intelligent transportation systems (ITS) and State Highway Safety Plans: "focusing on the role of ITS, 911, Emergency Medical Services (EMS) and Trauma systems to provide timely and clinically oriented safety data for system performance improvement and informed decision making." The Georgia Trauma Communication Center could be viewed as the genesis for an Integrated Crash Trauma Information Network (ITCN) in Georgia and as described in the report.

Randy Clayton from The Governor's Office of Highway Safety provided the report and is interested in coordinating our trauma system development efforts with the GOHS State Highway Safety Plan.

**Article for Georgia College of Emergency Physicians Newsletter:**
Collaboration with Linda Cole: Attachment F.

20 August 2009

**GTRI AVL- GTCC Project update:**
Attachment G.

**Activities 30 June through 17 August:**

- GTCNC administration and operations management
- FY 2010 and FY 2011 Budget development
- FY 2010 GTCNC contracts development
- FY 2009 GTCNC funds dispersal and the point of contact for recipients re system interface difficulties and rumor control
- GTCC operations development
- Five-Year Strategic Plan revision process
- Direct liaison with Bishop +Associates
- Documents under development:
  - Pilot Project plan (white paper) describing goals and objectives, timeframe, oversight, relationships of stakeholders, metrics of success and process for review and improvement to include next steps to roll out the GTCC statewide
  - Georgia Regional Trauma Planning Framework: will serve as a guide for each Regional Trauma Advisory Council to develop a Regional Trauma System Plan. The Framework is designed to address the Georgia Trauma Care Network Commission's strategic plan: "Our Emerging Vision—A New Public Service for Georgians" and shortcomings recognized by trauma system review by the American College of Surgeon's Trauma System Consultation Program in January 2009.
  - Outline development for the Georgia Trauma Rules and Regulations.

**Attachment A:** **Trauma Commission Money Payments**

| Equipment | Amount | Date Paid out | Ref # |
|---|---|---|---|
| MCG | $ 150,000.00 | 6/12/09 | 154981 |
| Grady | $ 2,600,000.00 | 6/22/09 | 155819 |
| John D Archbold | $ 74,767.00 | 6/25/09 | 156039 |
| Floyd Medical | $ 74,767.00 | 7/10/09 | 998105 |

| Ambulance | Amount | Date Paid out | Ref # |
|---|---|---|---|
| Mid Georgia Ambulance | $ 71,428.57 | 6/25/09 | 994631 |
| Mid Georgia Ambulance | $ 71,428.57 | 6/25/09 | 994631 |
| Mid Georgia Ambulance | $ 71,428.57 | 6/25/09 | 994631 |
| Seminole County | $ 71,428.57 | 6/25/09 | 156048 |
| Irwin County | $ 71,428.57 | 6/25/09 | 994627 |
| Wilcox County | $ 71,428.57 | 6/25/09 | 994918 |
| Ogelthropre County | $ 71,428.57 | 6/25/09 | 994634 |
| Meriwether County | $ 71,428.57 | 6/25/09 | 994630 |
| Crisp County | $ 71,428.57 | 6/25/09 | 994633 |
| Montgomery | $ 71,428.57 | 6/25/09 | 994632 |
| Telfair County | $ 71,428.57 | 7/1/09 | 996151 |
| Randolph County | $ 71,428.57 | 7/1/09 | 156460 |
| coweta county | $ 71,428.57 | 7/10/09 | 998104 |
| screven county | $ 71,428.57 | 7/10/09 | 998113 |
| Bacon County | $ 71,428.57 | 7/10/09 | 157433 |
| Regional EMS | $ 71,428.57 | 7/10/09 | 998112 |
| Talbot County | $ 71,428.57 | 7/10/09 | 998116 |
| Toombs County | $ 71,428.57 | 7/10/09 | 998117 |
| Warren County | $ 71,428.57 | 7/24/09 | 999732 |
| Mitchell County | $ 71,428.57 | 7/24/09 | 999727 |
| Atkinson Board | $ 71,428.57 | 8/7/09 | 1003144 |
| National EMS | $ 71,428.57 | 8/7/09 | 1003154 |
| National EMS | $ 71,428.57 | 8/7/09 | 1003154 |
| Charlton County | $ 71,428.57 | 8/7/09 | 1003148 |
| Tattnall county | $ 71,428.57 | 8/7/09 | 1003155 |
| Taylor County | $ 71,428.57 | 8/7/09 | 1003156 |

**Attachment B GTCNC EMS Vehicle Decal Distribution Day: 10 August 2009**


**Seminole County; 8:30 am, 10 August 2009, Donalsonville Georgia**

**Baker County; 10:30 am, 10 August 2009, Newton, Georgia**

**Attachment B GTCNC EMS Vehicle Decal Distribution Day: 10 August 2009**


**Randolph County; 12:00 noon, 10 August 2009 Cuthbert, Georgia**

**Crisp County; 3:30 pm, 10 August 2009, Cordele, Georgia**

**Attachment B GTCNC EMS Vehicle Decal Distribution Day: 10 August 2009**


**Wilcox County, 5:00 PM, 10 August 2009, Rochelle, Georgia**

Attachment C


# Stimulus Opportunity Roadmap

# Stimulus Opportunity Roadmap
# What it is?


NSI will provide a custom analysis and comprehensive roadmap tailored specifically for your organization providing you with an understanding of how the stimulus impacts your company and how to leverage specific opportunities that best fit your portfolio of products and services.

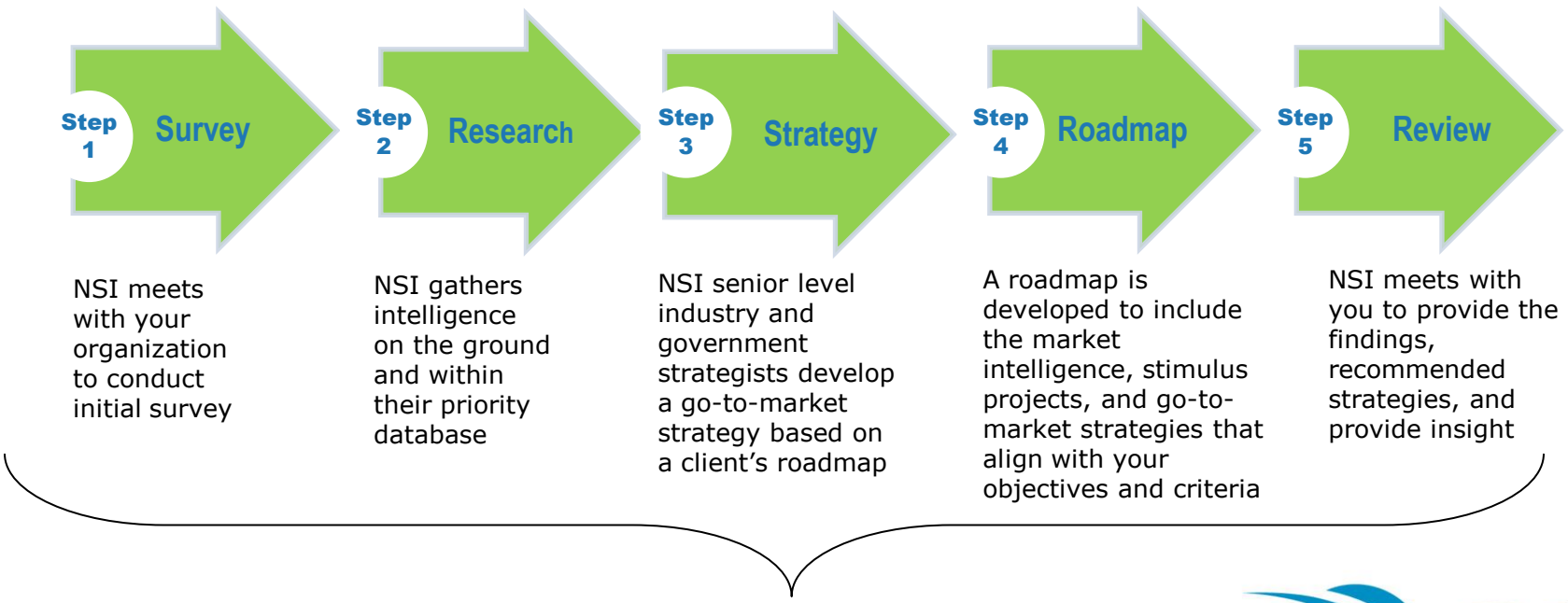
nsi
Strategy. Insight. Results.

# Why your organization should invest in the Stimulus Opportunity Roadmap?

- Understand the backdrop for the stimulus (budget deficits, politics, etc.)
- Understand the basic workings of the stimulus as it currently stands and the open issues
- Understand the elements of the stimulus that are relevant to your company's industry and product lines
- Identify the overall opportunities presented by the Stimulus package as it relates to the lines of business your company is in
- Get a custom list of the specific projects that are likely to be funded and the potential for your company's products and services in these arenas.
- Understand potential strategies for leveraging the opportunities
- Have a consultative session with senior government experts to strategize go-forward action plans for fully leveraging the stimulus opportunity
- Obtain an advantage over competition by having direct access and knowledge of funding requests and available funds

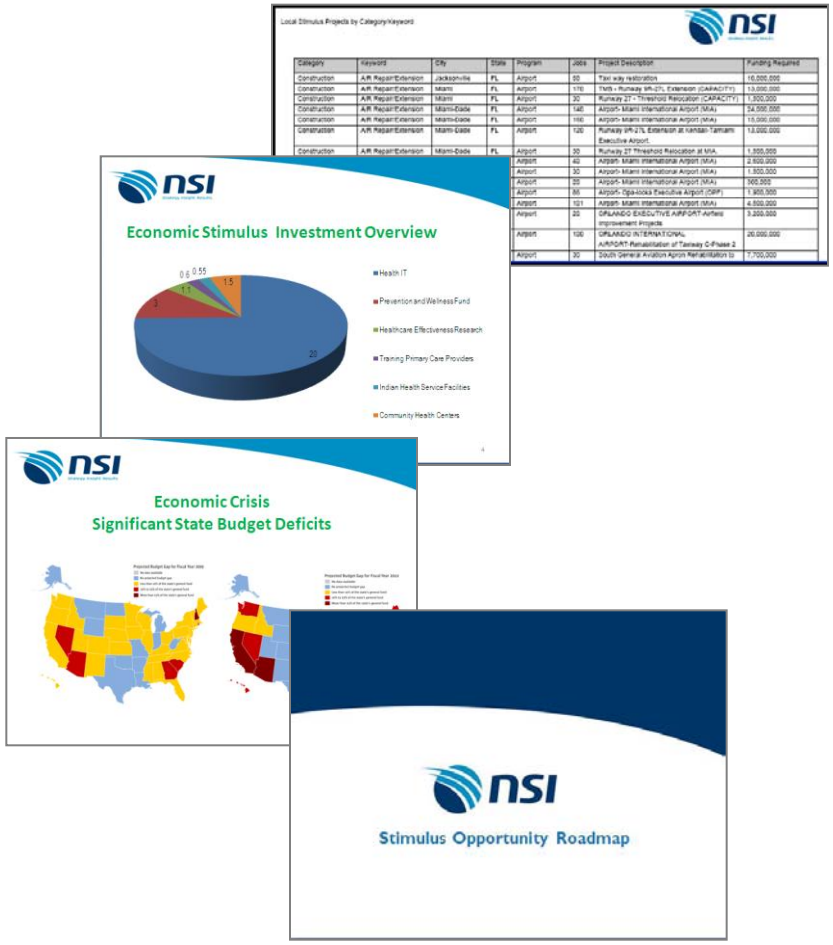
nsi
Strategy. Insight. Results.

# What is the methodology and timeframe for delivering the “Stimulus Opportunity Roadmap”?




NSI
Strategy. Insight. Results.

# What are the Deliverables?




Stimulus Opportunity Roadmap including targeted projects that align with your products, services and fit your criteria.

Opportunity assessment, strategies for investing your marketing and sales resources, and recommended go-to-market strategies customized for your organization.

Strategy session with NSI's senior level team bringing several years of executive experience within government and business.

Strategy. Insight. Results.

**For more information contact**
**Joe Binns**
**jbinns@nationalstrategies.com**
**(404) 388-2097**

**NSI**
**www.nationalstrategies.com**

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Attachment D

# Safe Speeds Law Campaign Report


Safe Speeds Law

Implementation Committee

This report was prepared for the Governor's Office at the request of Governor's Office of Highway Safety Director Bob Dallas.

# Committee Members

Bob Dallas, Governor's Office of Highway Safety
Randy Clayton, Governor's Office of Highway Safety
Jim Shuler, Governor's Office of Highway Safety
Katie Fallon, Governor's Office of Highway Safety
Matt Montgomery, Governor's Office of Highway Safety
Franka Young, Department of Public Safety
Gordy Wright, Department of Public Safety
Steve Carey, Georgia Public Broadcasting
Amy Cooper, Georgia Public Broadcasting
Susan Sports , Department of Driver Services
Ray Higgins, Department of Driver Services
Brian Carr, Clean Air Campaign
Erica Fatima, Department of Transportation
Patrick Allen, Department of Transportation
Cedric Mohr, Department of Transportation
Kathy Zahul, Department of Transportation
Jim Pettyjohn, Georgia Trauma Care Network Commission
Chris Patterson, Administrative Office of the Courts
Vince Harris, Administrative Office of the Courts
Beth Brown, Association County Commissioners of Georgia

# Table of Contents

# Section 1: Introduction

The Safe Speeds Law was introduced as HB160, or the "super speeder bill," in the 2009 session of the Georgia General Assembly. The legislation was introduced by Representative Jim Cole (R-Forsyth) to help reduce traumatic automobile crashes and provide funds for trauma care in the state. Senator Bill Heath (R-Bremen) presented HB 160 in the Senate.

The Safe Speeds legislation discourages trauma-causing behavior by increasing fines for dangerous drivers. The legislation adds an additional $200 fee for driving over 85 mph anywhere in the state and for driving 75 mph or more on a two lane road. The law also will increase driver's license reinstatement fees for drivers committing a second and third offense for violations that result in a suspended license and for other negligent behaviors. The new reinstatement fees went into effect on July 1, 2009 and the $200 administrative fee will go into effect on January 1, 2010.

Each year, traffic crashes on Georgia's roadways cause more than 1,600 fatalities, about a quarter of them caused by excessive speeds. This legislation will generate approximately $23 million in Fiscal Year 2010. It has been recommended these funds be spent to improve the state's trauma care network via the Georgia Trauma Care Network Commission. **(See Appendix A)**

GOHS Director Bob Dallas appointed a committee to develop the public information and education campaign for the Safe Speeds Law. The campaign will include a media plan for earned and paid media exposure, as well as a permanent highway signage program.

In order to inform the motoring public of this law, the Safe Speeds Law committee has developed the following report in advance of the January 1st effective date for the $200 administrative fine.

Funding for the Safe Speeds Law campaign will be determined solely by Governor Sonny Perdue and/or designee.

## Section 2: Objective

Subject to funding approval, the goal of this public information and education campaign is to kick off in November in advance of the January 1st implementation date of the remainder of HB160. The kick off news conference should be held in the metro Atlanta area, followed by smaller news conferences in each of the seven Georgia Department of Transportation (GDOT) districts across the state.

This time frame will allow Georgia residents and motorists to receive maximum exposure to the upcoming implementation of the new $200 administrative fee before it goes into effect. Warning motorists beforehand hopefully will cause them to adjust their driving speeds early and permanently.

The campaign will include both radio and video public service ads (PSAs) that will be web-ready and adaptable to television if the funding becomes available. In addition, the Safe Speeds Law committee and its partners will compile a series of news releases, media advisories and letters to the editor to help ensure the greatest amount of earned media as possible.

This media plan must reach a wide, general driving audience in Georgia. Both primary and secondary audiences should be targeted. The more specific the target, the more expensive the effort. GOHS data show the primary audience for a speeding message is males ages 18 to 35. Our secondary audience is all other drivers ages 18 to 55.

The committee recognizes, however, that the earned media market in Atlanta and throughout the state has increasingly become difficult to access due to changing market forces. As a result, this media campaign includes stand-alone, paid and earned media aspects. Web-based and social media must play an increasing role to offset diminished local news media coverage.

Campaign timing will begin during the weeks leading up to January 1, 2010, and continue to follow up after the implementation date to make sure the motoring public is properly warned both in advance and after the Safe Speeds Law takes effect.

## Section 3: Statistical Analysis

In 2008, nearly 21 percent (309 out of 1,149) of all Georgia motor vehicle fatalities were related to speed. In 2005, 46 percent (309 out of 89,101) of all speed-related convictions in Georgia occurred for violations between 15 and 20 miles per hour over the speed limit. Thirteen percent (13%) of the speed convictions occurred for violations more than 20 miles per hour above the speed limit and another 11 percent occurred at speeds between 21 and 40 miles per hour above the speed limit.

| MPH Over the Speed Limit | Total Number of Convictions | % of All Speed Convictions |
|---|---|---|
| 15 - 20 | 41,300 | 46% |
| 21 - 25 | 26,632 | 30% |
| 26 - 30 | 9,694 | 11% |
| 31 - 35 | 7,674 | 9% |
| 36 - 40 | 2,262 | 3% |
| 41 - 45 | 836 | 1% |
| 46 - 50 | 359 | 0% |
| 51 - 55 | 151 | 0% |
| 56 - 60 | 69 | 0% |
| 61 - 65 | 55 | 0% |
| 66 - 70 | 30 | 0% |
| 71 - 75 | 18 | 0% |
| 76 - 80 | 7 | 0% |
| 81 + | 14 | 0% |
| *TOTAL* | *89,101* | *100%* |

## Section 4: Campaign

The committee recognized the initial familiarity both the public and media had with the "super speeder" phrasing during HB160's movement through the 2009 legislative session. While acknowledging the ear-catching nature of the legislation's de facto identity, the committee decided to focus on the constructive aspects of the law's intended effect. To capitalize on this theme, the committee agreed to re-name the enforcement initiative the "Safe Speeds" campaign.

Overall, the committee felt the Safe Speeds phrasing brought a more positive spin to the campaign name, while allowing potential secondary slogans such as "Speed will cost you" or "Obey the sign or pay the fine" to highlight the punitive aspect of the new law.

As will be described later in this report, campaign materials such as radio PSAs **(see Appendix B)** will include the "Safe Speeds" terminology as a dominant element, while the phrase "super speeder" is still included to retain pre-existing familiarity with the media and public.

The committee also considered logos and slogans correlating with the new campaign name. Variations included highlighting both the speed and monetary aspects of the law, as well as the alliterative qualities of the campaign name to create a memorable identity for the Safe Speeds Law.

Please see **Appendix C** for suggested logos. Below are the committee's top 3 logo choices:


Below are the committee's top 3 slogan choices:

1) ***Speeding will cost you.***

2) ***Obey the sign or pay the fine.***

3) ***Higher speeds. Higher fines.***

## Section 5: Marketing Plan

The marketing plan for the Safe Speeds Law includes a wide variety of earned media avenues. In addition to media coverage generated by news releases, media advisories, letters to the editor and press events, the committee noted that depending upon funding availability, other media can be utilized successfully. Billboards, pushcards, GDOT fixed signage and GDOT electronic changeable message highway signs are all possibilities for campaign promotion. The Office of Economic Development authorizes the use of plasma screens at both the Hartsfield Jackson International Airport and Georgia state line Welcome Centers to run Safe Speeds PSAs. Brochures and informational pushcards will be placed at Welcome Centers.

The committee has pre-purchased the domain name www.safespeedsgeorgia.org as the main website **(see Appendix D)** for the campaign. The website will be an online resource for all Safe Speeds-related information and the web address will be highlighted on all campaign materials. The website also will be a key tool for the public to include more in-depth information about the Safe Speeds Law. Similar domain names including the terms "super speeder" and "safe speeds" have also been purchased to automatically redirect internet visitors to the primary campaign site.

Though the official kick off of the public information and education campaign is planned for November 2009, GOHS will work Safe Speeds information into press events for two of its existing enforcement campaigns. On August 21st, GOHS will hold a kickoff news conference in Savannah for the statewide Labor Day enforcement campaign of Operation Zero Tolerance (OZT): Over the Limit, Under Arrest. While OZT is an impaired driving program, the speeding theme easily can be worked into news materials. The campaign lasts from August 21st through September 7, 2009.

GOHS also will be initiating its annual Hand Across the Border (HATB) campaign on August 30, 2009. Two teams of GOHS staff and its law enforcement partners will begin simultaneous tours in Columbus and Savannah, hosting daily news conferences and nightly sobriety checkpoints at all five Georgia state borders with Alabama, Tennessee, North Carolina, South Carolina and Florida. HATB is a six-day campaign to remind southeastern motorists that Georgia traffic enforcement officers remain vigilant at every border to rid highways of impaired drivers.

While HATB also focuses primarily on drunk driving, the new Safe Speeds Law can be included in news materials and related interviews. The effort gives Georgia the opportunity to warn visitors and law enforcement partners of the new law's fast approach prior to installation of GDOT signage at state lines.

In the event funding is procured for a Paid Media buy, the following should be taken into consideration. Georgia markets covered are Atlanta, Albany, Augusta, Savannah, Columbus & Macon. GOHS often makes additional fringe market buys in overlapping Chattanooga, Jacksonville, and Tallahassee markets for greater penetration into these areas underserved by Georgia broadcast media.

The objective of the Paid Media campaign is to provide for the procurement of a "speed reduction message" delivered through a statewide Paid Media campaign conducted in the months leading up to and after the new Safe Speeds Law takes effect. Also, to reach Georgia's primary and secondary target audiences in order to foster lifesaving highway safety awareness by promoting safe operation of motor vehicles within Georgia's posted lawful speed limits.

Years of NHTSA research based on focus group surveys have produced data-driven paid media campaigns that produce consistently positive results when reaching our target audience. Using these best practices, ***the single most effective highway safety message to reduce illegal speeds is one that emphasizes a warning of high visibility enforcement countermeasures for speed and the guaranteed consequence of being stopped by law enforcement officers and issued a ticket accompanied by conviction and high fines for the infraction.*** That same research shows that using an altruistic approach to messaging fails to change high-risk driving behavior in this target audience because of their widely held (and

mistaken)belief that it's always "the other guy" who is a "bad driver" and similarly that crashes, injuries and death as a result of illegal speed, unbelted driving, and DUI also only happen to "the other guy."

***The Safe Speeds Law paid media campaign message condenses to these slogans: "Speeding Will Cost You." .. "Obey The Sign Or Pay The Fine." .. "Higher Speeds. Higher Fines."***

See **Appendix E** for an example of a one-week statewide paid media campaign with a highway safety message.

## Section 6: Partnering Agencies

In the initial planning phase, Safe Speeds outreach commitments have been indicated by Governor's Office of Highway Safety (GOHS), Department of Driver Services (DDS), Department of Public Safety (DPS), Department of Transportation (GDOT), Georgia Public Broadcasting (GPB), Administrative Office of the Courts (AOC), Association County Commissioners of Georgia (ACCG), the Georgia Trauma Care Network Commission, the Outdoor Advertising Association of Georgia (OAAG) and the Clean Air Campaign.

Beginning the summer of 2009, DDS began publicizing **(see Appendix F)** the reinstatement fees of the Safe Speeds Law that went into effect on July 1. DDS also will maintain notification procedures when motorists are found in violation of any aspect of the law. New uniform citation forms **(see Appendix G)** are being developed this summer to address the change in law. If the citation indicates that the person was convicted of an offense that makes him/her subject to an additional fee required by the law due to exceeding speeding at more than 75 miles per hour on a two-lane road or 85 miles per hour on any other road, DDS will mail a notice to the customer at the address on his/her driving record. The notice will inform them of the additional fee and how to pay. If payment is not made within 90 days, DDS will suspend the driver's license. To reinstate the license, the customer must pay the Safe Speeds fee plus a reinstatement fee of $50. The payment process will be the same for out of state drivers and DDS will notify their home state should their driving privileges be suspended.

Pushcards, brochures and other literature should be developed to highlight the separate $200 Safe Speeds fee to avoid confusion when motorists pay their separate citation fine.

DPS, other traffic enforcement agencies across the state and the general public will be able to obtain Safe Speeds literature through the GOHS Online Safety Store at www.gahighwaysafety.org/gohsstore.

DPS will distribute pushcards to their troopers and state officers to pass out to motorists in advance of the law's implementation. For example, if a motorist is warned or cited for speeding before January 1st, troopers and state officers can distribute pushcards to warn motorists of the consequences associated with excessive speeding in Georgia and direct them to the Safe Speeds website.

Georgia Public Broadcasting agrees to produce all Safe Speeds PSAs for distribution on radio, television and the web. Audio files are currently available for examples of radio PSAs.

GDOT will assist with both fixed signage and Safe Speeds messaging on variable message boards. GDOT indicates permanent sign placement at Georgia state lines, the Atlanta airport and some metro Atlanta interstate locations are all possible depending on funding. See **Appendix H** for GDOT signage specifications and language examples.

ACCG will provide outreach via their semi-monthly magazine published 10 times per year, as well as in their weekly online newsletter. They informed the committee of a two-month lead time to include Safe Speeds information in any magazine and one-week lead time for the e-newsletter. The committee would need to meet an October deadline for inclusion in ACCG's January magazine.

The OAAG will provide available, unused billboard space at a reduced, "public service" rate. Costs will only be for production. Space rental is free. **(See Appendix I for a billboard policy guide from http://www.oaag.net/publicservice.asp)**

The AOC will assist in maintaining a smooth transition in the courts.

All partners have committed to providing links to the Safe Speeds Law website and providing Safe Speeds content within their own online communities.

## Section 7: Ongoing Education

An ongoing public information and education campaign should be maintained both before and after the law's full implementation.

DDS will incorporate the Safe Speeds message, including collateral materials into community outreach presentations and mass marketing planned for the new driver's license process. The Safe Speeds Law will be included in driver training instruction, future driving manuals, driver training classroom curriculum, driver exams and on the DDS website. DDS indicates the possibility of including a Safe Speeds Law pushcard in new driver's license mailings, pending funding.

## Section 8: Recommendations

1) In order to maximize public information and education, the committee recommends the adoption and implementation of a Safe Speeds media campaign to begin no later than September 2009, to ensure timely and effective statewide delivery by November 2009.

2) The committee requests Governor Sonny Perdue to consider an on-camera role in television PSAs or voiceover participation in radio messaging.

3) The committee recommends Governor Sonny Perdue's participation to kick off the statewide Safe Speeds news conference.

4) Apart from traditional sources, the committee suggests examining the possibility of a public/private partnership to secure funding for the Safe Speeds Law's public information and education campaign. Possibilities include approaching partner organizations such as the Georgia Motor Trucking Association or the Network of Employers for Traffic Safety (NETS) to access existing relationships within their organization. Insurance company partnerships (i.e. State Farm and GDOT HERO Units) are another option.

**Appendix A**

## It's About Time...

## You Knew the Facts.


## Trauma Care in Georgia

- In Georgia, only 15 of the state's 152 acute-care hospitals are designated trauma centers.
- Georgia should have approximately 30 designated trauma centers in strategic locations to adequately address trauma and emergency preparedness needs, according to state health officials.
- The 15 current centers are dispersed among ten counties and large areas are not adequately served. Millions of Georgians live and work at least two hours away from timely trauma care, even in urban and suburban areas.
- Several Georgia counties still do not have a 911 emergency system.
- Of the estimated 40,000 cases of major trauma each year in Georgia, only about 10,000 are treated in designated trauma centers.
- Georgia's trauma death rate, as currently reported using 2005 data, is significantly higher than the national average: 63 of every 100,000 people compared to the national average of 56 per 100,000.
- If Georgia's trauma death rate improved to the national average, it could mean the difference of as many as 700 more lives saved every year.
- Georgians are four times more likely to die if involved in a vehicular crash in a rural area, than in an urban area, according to Georgia Department of Transportation statistics. State health officials say poor access to trauma centers in rural areas is a major factor.
- The state's first trauma center, Floyd Medical Center, opened in 1981.
- In Georgia a "designated" trauma center must voluntarily meet guidelines established by the state and the American College of Surgeons' Committee on Trauma.
- The movement to establish a statewide trauma system in Georgia began 30 years ago. In 2006, the state legislature began a study of the infrastructure and funding mechanisms needed and in 2007 lawmakers passed Senate Bill 60 and created the Georgia Trauma Care Network Commission to continue the work.
- Existing payment mechanisms do not come close to reimbursing Georgia providers – hospitals, physicians and EMS providers – for the trauma care they provide. State health officials estimate the cost of uncompensated care by hospitals, physicians and EMS providers at about $275 million a year.
- About two-thirds of Georgia's hospitals are operating in the red because of an increase in uninsured patients, reductions in Medicare/Medicaid reimbursement and increases in the cost of malpractice coverage.
- Many of the current 15 hospitals that are designated trauma centers find it increasingly difficult to make the costly commitment that trauma center designation requires.
- In Georgia, nine main causes, or "mechanisms", account for 92.1% of trauma. The leading causes are motor vehicle crashes (37.7%); falls (22.2%); gunshot wounds (8.0%); motorcycle crashes (5.4%); pedestrian incidents (5.2%); assaults (4.3%); accidents (4.0%); stab wounds (2.9%) and all-terrain vehicle crashes (2.4%).

- Men make up 68.4% of the trauma victims in Georgia, women 31.6%.
- Trauma in Georgia impacts all ethnic groups: Caucasian (54.4%); African American (33.6%); Hispanic/Latino (8.8%); and, Asian (.8%)
- Most patients – 72% – reach trauma centers in Georgia by ground ambulance; 19% reach a trauma center by helicopter and 9% walk in.
- There are approximately 15,500 licensed EMS professionals in Georgia.
- Georgia has 206 licensed ambulance providers and approximately 1,500 vehicles licensed as ambulances.
- There are five air ambulance services based in Georgia.
- Of Georgia's trauma centers, four are Level I centers, nine are Level II centers and two are Level IV centers. There are no Level III centers.
- Georgia's four Level I trauma centers are Grady Memorial Hospital (Atlanta); Medical Center of Central Georgia (Macon); Medical College of Georgia Hospitals (Augusta); and, Memorial Health University Medical Center (Savannah).
- Georgia's nine Level II trauma centers are John D. Archbold Memorial Hospital (Thomasville); Atlanta Medical Center (Atlanta); Children's Healthcare of Atlanta – Egleston, Pediatric Level II (Atlanta); Children's Healthcare of Atlanta - Scottish Rite, Pediatric Level II (Atlanta); Floyd Medical Center (Rome); Gwinnett Medical Center (Lawrenceville); Hamilton Medical Center (Dalton); North Fulton Regional Hospital (Alpharetta); and The Medical Center (Columbus).
- Morgan Memorial Hospital (Madison) and Walton Regional Medical Center (Monroe) are Level IV trauma centers.

# 2009 RADIO PSA SCRIPT (1:00)(:30)(:15)(:10)

## Safe Speeds Law/SuperSpeeder Radio Campaign

## Georgia Governor's Office of Highway Safety

**RADIO PSA SCRIPT (1:00) *#1***

**There's a speeding-death-a-day in Georgia..**
**Because some drivers are just *dying***
**to get *somewhere* in a hurry..**

**But Georgia's new '*Safe Speeds Law'* is coming soon..**

**And it's designed to *change* the way *you* drive.**

**The *Safe Speeds Law* is *tough* on super-speeders**

**who've been ignoring *all* the warnings to slow down.**

**Georgia's *new* law tacks-on**

**two-hundred-dollar *state*-fines**

***each* time speeders are caught**

**running seventy-five on *two-lane* roads..**

**..Or speeding 85-and-over *anywhere* in Georgia.**

**So here's advice to save super-speeders**

**from a *deadly* crash..**

**..or a *really* expensive speeding ticket.**

**As of January-first, speeding will cost you.**

**Because *Safe Speed*-enforcement is coming to Georgia..**

**And the message is clear:**

**'*Obey the sign or pay the fine'*.**

**So don't say we didn't warn you!**

**Go to safe-speeds-georgia-dot-org to find out more.**

**Put the brakes on speeding! Because life in the fast lane**

**just got more expensive in Georgia!**

## Safe Speeds Law/SuperSpeeder Radio Campaign

**RADIO PSA SCRIPT (1:00) #2**

**Super-Speeders Beware!**

**This advice can save you**

**from a *deadly* crash..**

**..or a *really* expensive speeding ticket.**

**If you're a die-hard speeder**

**Georgia's new *'Safe Speeds Law'***

**is coming soon and it will change the way *you* drive.**

**Georgia's *new* law tacks-on**

**two-hundred-dollar *state*-fines**

**each time speeders are caught**

**running seventy-five on *two-lane* roads..**

**..Or speeding 85-and-over *anywhere* in Georgia.**

**The fees from those speeding fines**

**will help fund Georgia's trauma hospitals..**

**Because 60-percent of all trauma-care-patients**

**are victims of high-speed car-crashes.**

**Now for the first time, Georgia speeders**

**will help pay for the hospital beds**

**where their crash-victims are being treated.**

**So don't say we didn't warn you!**

***Safe Speed*-enforcement is coming January-first**

**and the message for Georgia super-speeders is clear:**

**'*Higher speeds. Higher fines.*'**

**Go to safe-speeds-georgia-dot-org to find out more..**

**Because speeding will cost you in Georgia!**

## Safe Speeds Law / SuperSpeeder Radio Campaign

**<u>RADIO PSA SCRIPT</u> (:30) #3**

**Super-Speeders Beware!**

**Here's advice to save you from**

**a *really* expensive speeding ticket.**

**Georgia's new *'Safe Speeds Law'***

**will *change* the way *you* drive.**

**Starting January first, the *new* law tacks-on**

**two-hundred-dollar *state*-fines**

**for speeding seventy-five-or-more on *two-lane* roads..**

**..Or speeding 85-and-over *anywhere* in Georgia.**

**So don't say we didn't warn you!**

***Safe Speed*-enforcement means**

**'Higher speeds. Higher fines.'**

**Speeding will cost you in Georgia!**

**Visit safe-speeds-georgia-dot-org to learn more..**

## Safe Speeds Law / SuperSpeeder Radio Campaign

**RADIO PSA SCRIPT (:30) #4**

**Georgia Drivers.. Stand-by for news that could save you a ticket.. or maybe save your life!**

**There's a speeding-death-a-day in Georgia**
**and it's time to put the brakes on this *deadly* driving.**

**Georgia's new *'Safe Speeds Law'***

**is coming January-first to *change* the way *you* drive.**

**The new law tacks-on**

**two-hundred-dollar *state*-fines**

**for speeding seventy-five-or-more on *<u>two-lane</u>* roads..**

**..Or speeding 85-and-over *<u>anywhere</u>* in Georgia.**

**So don't say we didn't warn you!**

***Safe Speed*-enforcement is coming..**

**And it's time to '*Obey the sign or pay the fine'*.**

## Safe Speeds Law / SuperSpeeder Radio Campaign

**<u>RADIO PSA SCRIPT</u> (:30) #5**

**Some speeders think they're killing nothing but time when they ignore the speed limits..**

**They're not just wrong, they're *dead* wrong:**

**One-out-of-four Georgia crash deaths**

**involve motorists who drive at *deadly* speeds.**

**But Georgia's new *'Safe Speeds Law'***

**is coming January-first**

**to change the way *you* drive.**

**The new law tacks-on**

**two-hundred-dollar *state*-fines**

**for speeding seventy-five-or-more on *<u>two-lane</u>* roads..**

**..Or speeding 85-and-over *<u>anywhere</u>* in Georgia.**

***Safe Speed*-enforcement is coming**

**And it's going to cost you..**

**Visit safe-speeds-georgia-dot-org to learn more..**

## Safe Speeds Law / SuperSpeeder Radio Campaign

**<u>RADIO PSA SCRIPT</u> (:15)**

**Georgia drivers..**

**Slow Down or face high-fines for speeding**

***anywhere* in Georgia!**

**The new *'Safe Speeds Law'* is coming January-first**

**and speeding *will* cost you.**

**Don't say we didn't warn you!**

**'*Obey the sign or pay the fine'*.**

## Safe Speeds Law / SuperSpeeder Radio Campaign

**<u>RADIO PSA SCRIPT</u> (:10)**

**Georgia drivers.. It's time for Super Speeders to**

**'*Obey the sign or pay the fine'*.**

**Georgia's new *'Safe Speeds Law'* is coming January-first.**

**And speeding *will* cost you.**

**Appendix C**


SAFE
SPEEDS
LAW
Speeding will cost you.


SAFE
SPEEDS
LAW
Speeding will cost you.


$AFE
$PEEDS
LAW
Speeding Costs.


SAFE
SPEEDS
LAW
Speeding Costs.


SAFE
SPEEDS
LAW
Speeding Costs.


SAFE
SPEEDS
LAW
Speeding Costs.


SAFE
SPEEDS
LAW
Speeding will cost you.


SAFE
SPEEDS
LAW
Speeding will cost you.


Safe Speeds Law
Speeding Will Cost You.


Safe Speeds Law
Speeding Will Cost You.


Safe Speeds Law
Speeding Will Cost You.


Safe Speeds Law
Speeding Will Cost You.

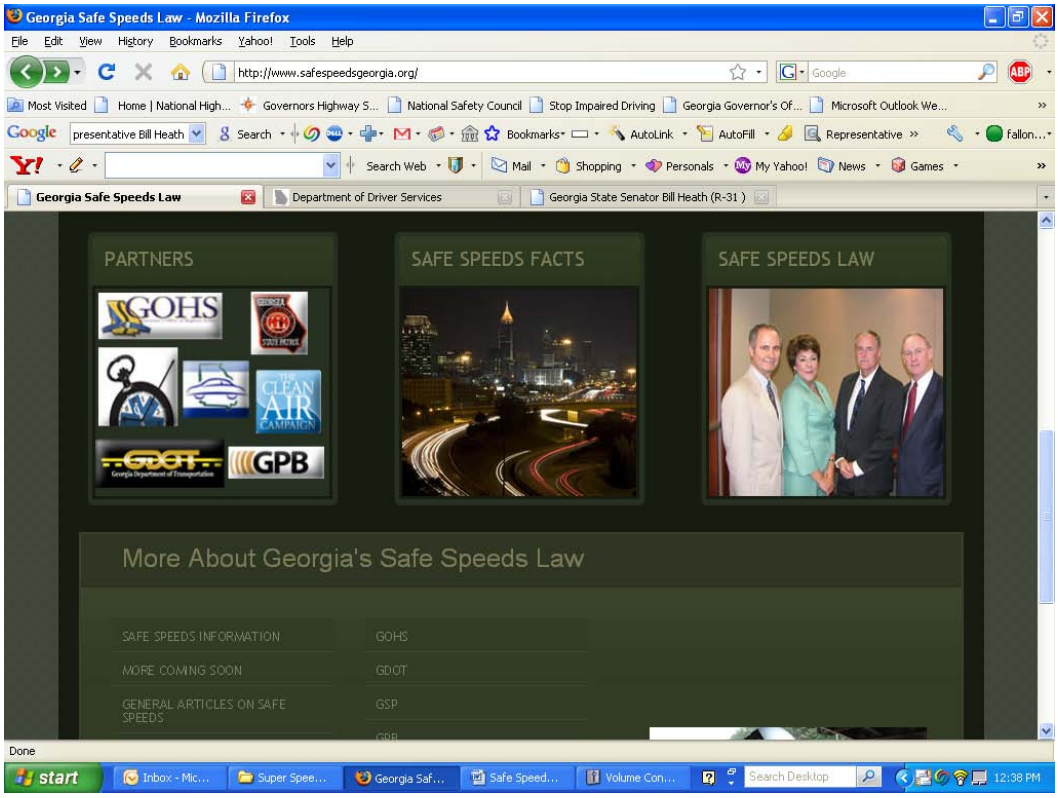

Safe Speeds Law
Speeding Will Cost You.


SPEED
Obey The Sign
or Pay The Fine


SPEED
Obey The Sign
or Pay The Fine

# Appendix D


Georgia Safe Speeds Law - Mozilla Firefox
http://www.safespeedsgeorgia.org/
Georgia Safe Speeds Law
Department of Driver Services
Georgia State Senator Bill Heath (R-31 )
SAFE SPEEDS LAW- GA
GOHS GDOT DPS GPB DDS AOC ACCG Clean Air Campaign Georgia Trauma
SAFE SPEEDS LAW
Speeding will cost you.
Done
start
12:42 PM


Georgia Safe Speeds Law - Mozilla Firefox
http://www.safespeedsgeorgia.org/
Georgia Safe Speeds Law
Department of Driver Services
Georgia State Senator Bill Heath (R-31 )
PARTNERS
SAFE SPEEDS FACTS
SAFE SPEEDS LAW
GOHS
GDOT
GPB
CLEAN AIR CAMPAIGN
More About Georgia's Safe Speeds Law
SAFE SPEEDS INFORMATION
MORE COMING SOON
GENERAL ARTICLES ON SAFE SPEEDS
GOHS
GDOT
GSP
Done
start
12:38 PM

## Appendix E

**SAMPLE CAMPAIGN MEDIA BUY SUMMARY**

Below is a typical Media Buy summary report from the GOHS Memorial Day 2009 Click It Or Ticket (CIOT) holiday driving period campaign. Most GOHS media buys are funded for $200,000.00 for a one-week statewide highway safety campaign message. Because the May campaign is the kick-off for Georgia's summer-long traffic enforcement strategy, it begins with a $245,000.00 budget for this one-week campaign.

**TARGETED STATEWIDE MEDIA BUY MARKETS**

Georgia markets covered are Atlanta, Albany, Augusta, Savannah, Columbus & Macon. GOHS often makes additional fringe market buys in overlapping Chattanooga, Jacksonville, and Tallahassee markets for greater penetration into these areas underserved by Georgia broadcast media.

**GEORGIA'S PRIMARY AUDIENCE**

As recently as 2003 a national study conducted for the National Highway Traffic Safety Administration (NHTSA) showed that the use of paid advertising is clearly effective in raising driver safety awareness and specifically has a greater impact on "younger drivers in the 18-to-34 year-old demographic".

Based on current NHTSA audience research data, Georgia's highway safety messages are directed at two primary target audiences during the course of regularly scheduled and nationally coordinated statewide paid media campaigns. Georgia's primary audience is composed of risk-taking male drivers, age 18-to-34, in a target audience profile described in the NHTSA 2007 National Communications Plan.

**GEORGIA'S SECONDARY AUDIENCE**

GOHS seeks to reach All Georgia Drivers in its secondary audience with Occupant Safety (Safety Belt), Impaired Driving, and Speed messages. However, because Georgia is a state with a growing Hispanic population, newly arrived Latinos also represent a portion of the secondary Paid Media market target. Hispanic radio and TV will continue to represent a portion of the GOHS targeted statewide media buy. Further, because Georgia sees a growing potential for an erosion of occupant safety numbers among young Blacks, the African American Community is also a targeted secondary demographic for GOHS Paid Media highway safety campaigns.

**GOHS PAID MEDIA WEIGHT GOALS**

The measure of advertising outreach for Georgia's Occupant Protection, Impaired Driving, and Speed message paid media campaign will be within the goals and guidelines of ***"frequency and reach"*** set by NHTSA for national paid media campaigns.

- The measure for each Georgia media market purchased for Broadcast TV and Cable TV will be ***200-300 (GRP's) Gross Rating Points per week***.
- The measure for each Georgia media market purchased for Radio will be ***150-200 (GRP's) Gross Ratings Points per week.***
- These Gross Rating Point (GRP) levels will deliver sufficient ***"Reach" (the number of target male viewers and listeners age 18-34),*** and..
- ***"Frequency" (the number of times the target audience actually receives the message)*** to achieve the GOHS driver safety communications goals.

# "Rural Click It or Ticket" 2009
# Media Buy Summary
# Georgia

**Flight Dates:** May 18 -25, 2009
**Target Audience:** Men 18-34
**GOHS Budget** $245,000 **Gross** $272,222

| | Broadcast TV | | Cable TV | | Radio | | Out of home | | Online | | Alt - News Paper | | Total | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Market** | **Planned** | **Actual** | **Planned** | **Actual** | **Planned** | **Actual** | **Planned** | **Actual** | **Planned** | **Actual** | **Planned** | **Actual** | **Planned** | **Actual** |
| Atlanta | $63,000 | $66,866 | $23,400 | $22,563 | $60,000 | $68,364 | $6,500 | $6,500 | $0 | $0 | $0 | | $152,900 | $164,292 |
| Albany | $8,000 | $8,685 | $2,000 | $2,251 | $3,600 | $2,435 | $0 | | $0 | | $0 | | $13,600 | $13,370 |
| Augusta | $6,200 | $6,084 | $6,200 | $6,120 | $5,000 | $3,294 | $0 | | $0 | | $0 | | $17,400 | $15,498 |
| Savannah | $11,000 | $10,085 | $5,300 | $5,166 | $7,600 | $7,799 | $0 | | $0 | | $0 | | $23,900 | $23,049 |
| Columbus | $6,300 | $5,382 | $3,000 | $1,767 | $6,200 | $1,656 | $0 | | $0 | | $0 | | $15,500 | $8,805 |
| Macon | $9,000 | $9,450 | $0 | | $7,000 | $6,104 | $0 | | $0 | | $0 | | $16,000 | $15,554 |
| Georgia | | | $4,000 | $4,590 | | $0 | $0 | | $0 | | $0 | | $4,000 | $4,590 |
| **Total** | $103,500 | $106,551 | $43,900 | $42,457 | $89,400 | $89,651 | $6,500 | $6,500 | $0 | | $0 | | $243,300 | $245,158 |
| | | | | | | | **Additonal Budget** | | **$1,700** | | | | $1,700 | |

**Total GRPs by Market**

| | Broadcast TV | | Cable TV | | Radio | | Out of home | | Online | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Market** | **Goal** | **Actual** | **Goal** | **Actual** | **Goal** | **Actual** | **Goal** | **Actual** | **Goal** | **Actual** |
| Atlanta | 100 | 183 | 75 | 123 | 250 | 428 | | | | |
| Albany | 150 | 178 | 50 | 94 | 200 | 321 | | | | |
| Augusta | 100 | 221 | 50 | 138 | 150 | 229 | | | | |
| Savannah | 150 | 192 | 75 | 160 | 200 | 415 | | | | |
| Columbus | 100 | 154 | 50 | 96 | 200 | 192 | | | | |
| Macon | 100 | 302 | 0 | 0 | 200 | 391 | | | | |
| Georgia | 0 | 0 | 8 | 21 | 0 | 0 | | | | |

**PSAs**

| **Medium** | **#Spots** | **Value** |
|---|---|---|
| Radio | 1,110 | 14,200 |
| TV | 345 | 11,800 |
| Cable | 720 | 8,100 |

# Appendix F


June 26, 2009

**Department of Driver Services (DDS) Reminds Customers of Increases in License Reinstatement Fees**

Georgia Department of Driver Services (DDS) reminds all customers that beginning July 1st it will cost more to reinstate a Georgia Driver's License.

House Bill 160 was passed during the most recent legislative session to generate revenue to support trauma care throughout the State of Georgia. These funds will be raised in two ways, including increases to reinstatement fees for many driver license suspensions and the creation of new fees and suspension for those traveling more than 75 miles per hour on a two-lane road or more than 85 miles per hour on any road. The reinstatement fee increases and the implementation of the new traffic citation language will go into effect in two phases.

**Phase One-Driver License Reinstatement Fees Increase July 1, 2009**

The driver's license reinstatement fee increases go into effect on July 1, 2009 and apply to suspensions imposed on or after July 1, 2009. Anyone who received a license suspension prior to July 1, 2009 will not face a fee increase.

The suspensions subject to increased reinstatement fees include the following:

1. O.C.G.A. §40-5-22.1: Tiered fee structure for license suspensions imposed upon teens under age sixteen (16) who are convicted of DUI or drug offenses:

   | | |
   |---|---|
   | 1st offense: | $210.00 (or $200.00 if paid by mail) |
   | 2nd offense: | $310.00 (or $300.00 if paid by mail) |
   | 3rd or subsequent offense: | $410.00 (or $400.00 if paid by mail) |

2. O.C.G.A. §40-5-30: Imposes a new reinstatement fee of $210.00 (or $200.00 if paid by mail) for license suspensions resulting from convictions for violations of license restrictions.

3. O.C.G.A. §40-5-56: Increases the reinstatement fee for license suspensions for failure to appear to $100.00 (or $90.00 if paid by mail).

4. O.C.G.A. §40-5-57.1: Increases the reinstatement fee for a second or subsequent serious juvenile suspension to $310.00 (or $300.00 if paid by mail).

5. O.C.G.A. §40-5-62: Increases the reinstatement fee for habitual violator revocations to $410.00 (or $400.00 if paid by mail).

6. O.C.G.A. §40-5-70: Increases the reinstatement fees for license suspensions for driving without insurance. The fee for a first suspension within five (5) years will be $210.00 (or $200.00 if paid by mail), and the fee for reinstatement of a second or subsequent suspension within five (5) years will be $310.00 (or $300.00 if paid by mail).

7. O.C.G.A. §40-5-75: Tiered fee structure for controlled substance suspensions:

1st offense in five (5) years: $210.00 (or $200.00 if paid by mail)
2nd offense in five (5) years: $310.00 (or $300.00 if paid by mail)
3rd offense in five (5) years: $410.00 (or $400.00 if paid by mail)

8. O.C.G.A. §40-5-84: Tiered fee structure for points suspensions and suspensions for mandatory offenses:

1st offense in five (5) years: $210.00 (or $200.00 if paid by mail)
2nd offense in five (5) years: $310.00 (or $300.00 if paid by mail)
3rd offense in five (5) years: $410.00 (or $400.00 if paid by mail)

9. O.C.G.A. §40-5-121: Tiered fee structure for suspensions imposed for driving with a suspended license:

1st offense in five (5) years: $210.00 (or $200.00 if paid by mail)
2nd offense in five (5) years: $310.00 (or $300.00 if paid by mail)
3rd offense in five (5) years: $410.00 (or $400.00 if paid by mail)

**Phase Two-Speeding Penalty Begins January 1, 2010**

The changes include an amendment to O.C.G.A. §40-6-187 to provide that every charge of speeding must indicate whether the offense occurred on a two-lane road or highway. DDS will be making additional changes to the uniform traffic citation form used by law enforcement statewide to accommodate this requirement. This data will be used by the DDS to determine whether or not it should impose the fee and/or license suspension established in O.C.G.A. §40-6-189.

According to O.C.G.A. §40-6-189, any person who is convicted of speeding at 85 mph or more on any road or at 75 mph or more on a two-lane road is subject to the imposition of a penalty of $200.00.

DDS must send written notice to the customer within thirty (30) days of its receipt of a super-speeder citation, and if the customer does not pay the citation within ninety (90) days, he or she is subject to a license suspension of indefinite duration until he or she pays the fee plus a reinstatement fee of $50.00.

**Appendix G**

DDS-32 (05/09)

# GEORGIA
## UNIFORM TRAFFIC CITATION, SUMMONS AND ACCUSATION

Court Case Number | GADDSXXXX NCIC Number | 123321123 Citation Number

123321123

## GEORGIA DEPARTMENT OF DRIVER SERVICES

**SECTION I - VIOLATOR**

Upon ☐ A.M. ☐ P.M.
Month _____ (Day) _____ (Year) _____ at _____
Operator License No. _____
License Class or Type _____ State _____ Endorsements _____ Expires _____
Name _____ (Last) (First) (Middle)
Address _____
City _____ State _____ Zip Code _____
DOB _____ Hair _____ Hgt _____ Wgt _____ Sex _____ Eyes _____
Veh. Yr. _____ Make _____ Style _____ Color _____
Registration No. _____ Yr _____ State _____
CDL ☐ YES ☐ NO ACCIDENT ☐ YES ☐ NO INJURIES ☐ YES ☐ NO FATALITIES ☐ YES ☐ NO

**SECTION II - VIOLATION**

☐ 2-LANE ROAD ☐ DRIVER REQUESTED ACCURACY CHECK ☐ VASCAR ☐ LASER ☐ RADAR
Within the State of Georgia, did commit the following offense: SPEEDING - Clocked by ☐ PATROL VEHICLE ☐ OTHER
(Serial # _____ Calibration/Check _____) at _____ MPH in a _____ zone
☐ DUI (Test Administered: ☐ BLOOD ☐ BREATH ☐ URINE ☐ OTHER) DUI Test Results _____
TEST ADMINISTERED BY (If Applicable): _____
OFFENSE (Other than above) _____
in Violation of Code Section _____ of ☐ State Law ☐ Local Ordinance
REMARKS _____

| WEATHER | (A) ROAD | (B) | TRAFFIC | LIGHTING | COMMERCIAL VIOLATION INFORMATION |
|---|---|---|---|---|---|
| ☐ Clear | ☐ Dry | ☐ Concrete | ☐ Light | ☐ Daylight | ☐ 16+ Passengers |
| ☐ Cloudy | ☐ Wet | ☐ Blacktop | ☐ Medium | ☐ Darkness | ☐ Commercial Vehicle Violation |
| ☐ Raining | ☐ Ice | ☐ Dirt | ☐ Heavy | ☐ Other | ☐ Hazardous Material Violation |
| ☐ Other | ☐ Other | ☐ Other | | | |

**SECTION III - LOCATION**

County of _____ and at or near _____ miles _____ of (city) _____
on _____ mile post _____, or within (city) _____
at/on (secondary location) _____
OFFICER (Print) _____ Badge # _____ Div _____

NCIC NO. GADDSXXXX

**SECTION IV - SUMMONS**

You are hereby ordered to appear in Court to answer this charge on the _____ day of _____
_____ at _____ ☐ AM ☐ PM in the _____ Court
at _____
City _____, Georgia

**NOTICE: This citation shall constitute official notice to you that failure to appear in Court at the date and time stated on this citation to dispose of the cited charges against you shall cause the designated Court to forward your driver's license number to the Department of Driver Services, and your driver's license shall be suspended. (Georgia Code 17-6-11 and 40-5-56) The suspension shall remain in effect until such time as there is a satisfactory disposition in this matter or the Court notifies the Department of Driver Services.**

LICENSE DISPLAYED IN LIEU OF BAIL ☐ YES ☐ NO RELEASED TO _____
SIGNATURE ACKNOWLEDGES SERVICE OF THIS SUMMONS AND RECEIPT OF COPY OF SAME
SIGNATURE _____

123321123

**SECTION V - OFFICER CERTIFICATION**

ARRESTING OFFICERS CERTIFICATION
The undersigned has just and reasonable grounds to believe, and does believe, that the person named herein has committed the offense set forth, contrary to law.

SIGNATURE _____ Badge # _____
Signature of Arresting Officer

AUTHORIZED AND APPROVED PURSUANT TO CODE 40-13-1 - D.D.S. REG 375-3-4-.01

123321123

COURT COPY

---

DATE _____ COURT ACTION AND OTHER ORDERS

The within complaint has been examined and there is probable cause for filing the same. Leave is hereby granted to file the complaint.
Complaint filed _____

Bail fixed at $ _____ or cash deposit of $ _____
Signature of person taking bail | Signature of person giving bail received as required by court schedule
Fine in the amount of $ _____

_____
Signature of Clerk

Continuance to _____ Reason _____
Continuance to _____ Reason _____
Warrant Issued _____ Warrant Served _____
Waives Trial by Jury _____
ON ARRAIGNMENT, THE DEFENDANT PLEADS _____

### APPEARANCE, PLEA OF GUILTY AND WAIVER

I, _____ have been advised that I am being charged with _____ and that the maximum punishment that I can receive is _____ mos. imprisonment and/or a $ _____ fine.

I have been advised of my rights to be represented by counsel and have counsel appointed to represent me if I am indigent; plead not guilty and be tried by a jury or a judge; confront the witnesses against me; and, not give incriminating evidence against myself. I hereby waive these rights, state that I have no been induced by any threat or promise to enter this plea and do freely and voluntarily enter my plea of Guilty.

This _____ day of _____, _____

Accused _____

I, _____ have advised the above-named accused as indicated above of his/her rights, the nature of the case against him/her and the possible consequences of the plea as entered. I am satisfied that there is a factual basis for the guilty plea which the accused has entered and that it was entered freely and voluntarily with understanding of the nature of the charge and the consequences of the plea.

_____ JUDGE

### DISPOSITION AND SENTENCE

Court _____ City _____

**Defendant Pleads:** ☐ (3) Guilty ☐ Not Guilty ☐ (4) Nolo Cont'd
Trial: ☐ Jury ☐ Court Adjudicated ☐ (1) Guilty ☐ Not Guilty
Other Action: ☐ (2) Bond Forfeiture ☐ Nolle Prossed ☐ No Bill ☐ No Record

Sentence: Amount Fine/Forfeiture $ _____
_____ Days (Months) in jail _____ Traffic School _____ Days (Months) probation
Other order _____

Appeal Bond of $ _____ filed (for _____)
Appeal to _____ Court

As provided by law, I hereby certify that the information on this ticket is a true abstract of the record of this court or bureau in this case.

DISPOSITION DATE _____

_____
Signature of Judge or Clerk

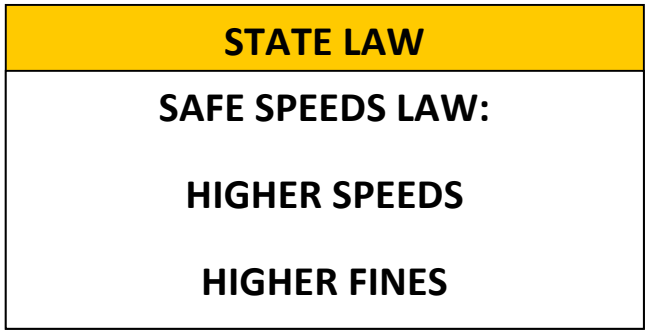
# General Design Considerations for Super Speeder/Safe Speed Law Signs

**Color/Text/Images**
- Signs should be regulatory in nature- white background with black lettering
- Special Characters/Images will require approval from FHWA and are prohibited
- The use of numbers creates conflict with existing regulatory signs, i.e. speed limit, and are not allowed

**Size**
- Size of signs will be based on approved message which shall contain no more that there lines of text

**Location**
- Priority should be given to state lines and locations near Hartsfield-Jackson Airport
- On non-interstate routes, signs shall be post mounted on the shoulder with proper spacing
- On interstate routes, consideration can be given to overhead sign structures locations where there is adequate additional sign square footage capacity
- 800' minimum spacing shall be maintained for interstate sign installations

**For Example**



## Appendix I

**Fall 2008 Public Service Update**

The PSA Program's momentum continues on a strong pace as we head into the 4th Quarter. Ann and I are working diligently to lock in pending contracts to end the year strong. Currently, we have several programs posting across the state that include Supreme Court of Georgia's "Get Married. Stay Married." Campaign, Operation Lifesaver, DHR's Mental Illness campaign and more. DHR in particular, is overwhelmed with the positive feedback they have received regarding their billboards throughout the state. They realize from comments and feedback from colleagues in the field that outdoor advertising has been an integral part of the success of getting this message out into the public. I am happy to tell you that the DHR has been extremely pleased with our program and very grateful of the service that you have provided them.

Independent Insurance Agents of Georgia and Hemophilia of Georgia are reinvesting in the program again this year due to their past success. We are glad to have them back!

As always, we are continually speaking with state agencies and non-profits about the benefits of utilizing this Public Service Program. This year is already shaping up to be our best yet!

Please remember if you know of anyone who may be interested in our Public Service Program to have them contact either Ann or myself at 478-471-1960 or email us at *psa@focusonads.com*.

Sincerely,

Lisa Orenstein
FOCUS Advertising

For a full description of OAAA public service campaigns, please visit www.oaaa.org.




Attachment E


# ITS and Transportation Safety: EMS System Data Integration to Improve Traffic Crash Emergency Response and Treatment

**Final Report**

***Prepared by:***

Benjamin Schooley
Thomas Horan
Nathan Botts
Aisha Noamani

**Hubert H. Humphrey Institute of Public Affairs**
**University of Minnesota**

***and***

**School of Information Systems and Technology**
**Claremont Graduate University**

CTS 09-02

## Technical Report Documentation Page

| 1. Report No. | 2. | 3. Recipients Accession No. |
|---|---|---|
| CTS 09-02 | | |

| 4. Title and Subtitle | 5. Report Date |
|---|---|
| ITS and Transportation Safety: EMS System Data Integration to Improve Traffic Crash Emergency Response and Treatment | January 2009 |
| | 6. |

| 7. Author(s) | 8. Performing Organization Report No. |
|---|---|
| Benjamin Schooley, Thomas Horan, Nathan Botts, Aisha Noamani | |

| 9. Performing Organization Name and Address | | 10. Project/Task/Work Unit No. |
|---|---|---|
| Hubert H. Humphrey Institute of Public Affairs<br>University of Minnesota<br>301 19th Ave S<br>Minneapolis, MN 55455 | School of Information Systems and Technology<br>Claremont Graduate University<br>130 E. 9th Street<br>Claremont, CA 91711 | CTS Project # 2008012<br>11. Contract (C) or Grant (G) No. |

| 12. Sponsoring Organization Name and Address | 13. Type of Report and Period Covered |
|---|---|
| Intelligent Transportation Systems Institute<br>Center for Transportation Studies<br>University of Minnesota<br>511 Washington Avenue SE, Suite 200<br>Minneapolis, MN 55455 | Final Report<br>14. Sponsoring Agency Code |

15. Supplementary Notes
http://www.cts.umn.edu/Publications/ResearchReports/

16. Abstract (Limit: 200 words)

This investigation is in response to the requirement for Strategic Highway Safety Plans (SHSPs), legislated by SAFETEA-LU, to address the need for data systems to allow for evidence-based safety planning. This study evaluates the use of information systems and intelligent transportation systems across the emergency response continuum of care to vehicle crash emergencies. Organizations that participate in the emergency response process often have siloed IT systems and are not able to share data with other agencies and organizations. An integrated system to produce data for real-time decision making and holistic performance and clinical analysis currently does not exist, but has the potential to improve emergency response and patient care. Proposed in this study is an Integrated Crash Trauma Information Network (ICTN) to allow for integrated information exchange. This study uses data collected from prior studies conducted in Minnesota, a literature review, case studies in Minnesota, and an in-depth analysis of the benefits of linking IT systems, the SHSP, Emergency Medical Services (EMS), 911, Trauma systems, and health information systems. A case study analysis was conducted across three overlapping dimensions to assess current challenges and potential benefits to integrated information sharing: operational, organizational, and governance. The study found potential health provision and data analysis benefits to integrated information sharing and posited a normative architecture to guide the design of systems to better use and analyze crash data. The design and development of a "proof of concept" system is recommended for the next phase of research.

| 17. Document Analysis/Descriptors | 18. Availability Statement |
|---|---|
| Standards, End-to-end emergency care, Emergency medical services (EMS), Real time data, Proof of concept, Electronic health record, Patient information hand-off, Information gaps, TechPlan<br>Integrated crash trauma information network (ICTIN), Strategic highway safety plans (SHSPs), Safe Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) | No restrictions. Document available from: National Technical Information Services, Springfield, Virginia 22161 |

| 19. Security Class (this report) | 20. Security Class (this page) | 21. No. of Pages | 22. Price |
|---|---|---|---|
| Unclassified | Unclassified | 36 | |

# ITS and Transportation Safety: EMS System Data Integration to Improve Traffic Crash Emergency Response and Treatment

## Final Report

*Prepared by*

Thomas Horan
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Claremont Graduate University
*and*
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## January 2009

*Published by*

Intelligent Transportation Systems Institute
Center for Transportation Studies
University of Minnesota
200 Transportation and Safety Building
511 Washington Ave. S.E.
Minneapolis, MN 55455

## Acknowledgements

This paper summarizes Year 1 (Jan-June, 2008) activities for the Techplan project: *ITS and Transportation Safety: EMS System Data Integration for Safety, Emergency, and Crisis Response Planning*. The research project builds on previous research by the team for both the University of Minnesota and the National Science Foundation (award number #0535273). We would like to acknowledge and very much appreciate the input and work conducted by Dr. Michael Marich on the Mayo Clinic case study work.

We wish to acknowledge those who made this research possible. The study was funded by the Intelligent Transportation Systems (ITS) Institute, a program of the University of Minnesota's Center for Transportation Studies (CTS). Financial support was provided by the United States Department of Transportation Research and Innovative Technologies Administration (RITA).

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# Executive Summary

## Purpose

The SAFETEA-LU legislation mandates Strategic Highway Safety Plans (SHSPs) that are collaborative, comprehensive and based on accurate and timely safety data. A significant challenge exists for transportation planners to identify and use a range of new information sources beyond traditional crash data systems and to identify strategies for sharing a wide range of data across multiple agencies to support evidence-based safety planning. Correspondingly, while intelligent transportation systems (ITS) have long promised safety benefits, there has not been a strong emphasis on examining the extent to which ITS is capable of providing safety related data for clinical health assessment and planning purposes. This research project examines the linkages between ITS systems and the SHSP, focusing on the role of ITS, 911, Emergency Medical Services (EMS), and Trauma systems to provide timely and clinically oriented safety data for system performance improvement and informed decision making.

This study uses multiple methods to consider, devise and examine the use of advanced information systems to improve emergency response services and outcomes. First, a literature review was performed on the use of ITS and IT systems to integrate data across crash, EMS, and trauma organizations and information systems. Next, several state strategic highway safety plans (SHSP) were analyzed to understand how EMS and trauma data and information systems are addressed within safety planning processes. A "best practices" review was then conducted to scan various innovative IT systems that have been implemented and/or tested for the purpose of providing decision tools to cross-organizational decision makers. Findings from these analyses were grounded in a case study investigation in Minnesota at the State and local (Rochester, MN) level. This led to conceptual model development and information framework development. Analysis across these various methods provided a multi-layered understanding of statewide safety performance features.

## Main Findings

Proposed in this study is an Integrated Crash Trauma Information Network (ICTN) in response to the multiple levels of analysis conducted. The proposed ICTN system forms a network of emergency responders, health care professionals, and IT/ITS systems to collect and share "real time" data to be communicated and immediately utilized to aid in the treatment of trauma victims. Such a system could also be used for retrospective analysis for performance and clinical analysis and research. Supporting the need for the ICTN system, researchers collected data from prior studies conducted in Minnesota, conducted a literature review, case studies in Minnesota, and an in-depth analysis of the benefits of linking IT systems, the SHSP, Emergency Medical Services (EMS), 911, trauma systems, and health information systems. The literature and best practices review illustrated many parallel and important technologies and initiatives for enabling an ICTN. Data standards, sensors, integration technologies, performance analysis tools, and functionality across these examples demonstrate that an ICTN could be accomplished over time. However, analysis of several state SHSP's indicates little emphasis on integrating a wide range of EMS and crash data. Likewise, the case study conducted at local and state levels in Minnesota

demonstrated current challenges and potential benefits of utilizing and sharing cross organizational information for the delivery of integrated emergency medical services to crash victims. The case study findings indicated a need to understand the range of technological, organizational, and governance (policy) challenges to sharing information to gain insight into appropriate solutions. The general approach of this research, to look from one end of service delivery (i.e., crash notification) to the other end of service delivery (i.e., definitive patient care and recovery) and to capture data across each service step, allows for holistic analysis of an incident and patient care. Through this research, we found that "real-time" crash and patient data utilized to the degree envisioned (from end-to-end) does not exist. As such, an initial ICTN concept was developed and a normative architecture designed at a high level to present what the system could be. We posit that the ICTN would not only provide a mechanism to analyze and improve patient care, but would also help improve traffic safety planning. Noting and communicating details about a car crash, such as the type of crash, injury to victim, road conditions, police officer notes, etc. develops a holistic picture of how factors play direct roles in accident prevention. Furthermore, connecting patient data with crash data allows for in-depth analysis of the "combination" of data from a variety of health care professionals, continuing with a "proof of concept" approach to improving safety on the road. On a policy-level, this approach to crash data analysis is in line with SAFETEA-LU's legislative requirement for SHSPs to perform evidence-based safety planning.

## Conclusion

In conclusion, a phased approach to further investigate the development and viability of an ICTN system was proven to be valuable to fully understand its many dimensions. Further comparative case study investigations would aid in the development of a prototype for the system. The use of a prototype would illustrate a real time, end-to-end crash trauma system, demonstrating the expected benefits for safety decision support and planning, with the aim to reduce car crashes, and improve the quality of emergency care.

# Chapter 1
# Introduction

The SAFETEA-LU legislation mandates Strategic Highway Safety Plans (SHSPs) that are collaborative, comprehensive and based on accurate and timely safety data. A significant challenge exists for transportation planners to identify and use a range of new information sources beyond traditional crash data systems and to identify strategies for sharing a wide range of data across multiple agencies to support evidence-based safety planning. Correspondingly, while intelligent transportation systems (ITS) have long promised safety benefits, there has not been a strong emphasis on examining the extent to which ITS is capable of providing safety related data for clinical health assessment and planning purposes. This research project examines the linkages between ITS systems and the SHSP, focusing on the role of ITS, 911, Emergency Medical Services (EMS), and Trauma systems to provide timely and clinically oriented safety data for system performance improvement and informed decision making.

This report presents findings from the first phase of project research (Tasks 1 and 2) including the analysis of existing information from safety reports (SHSP) and ITS, EMS, and health information systems, and a literature review and case study analysis in Minnesota. The analysis was used for conceptual model development of an integrated information system for better understanding, evaluating, and planning for multi-organizational emergency responses to automobile crashes. This research directly relates to the ITS Institute mission to "enhance the safety and mobility of road- and transit-based transportation through our focus on human-centered technology", as well as to the TechPlan theme of research aimed at the interface of transportation planning and ITS, and specifically focuses on new elements in transportation planning forwarded through the SAFETEA-LU legislation.

## Background and Prior Work

The combination of (ITS) and safety information systems can have a positive effect on the emergency preparedness, response effectiveness and overall safety of state highways (Shepherd, Baird, Abkowitz, & Wegmann, 2006). For example, information technology has been used to assist in decreasing the amount of crashes and therefore injuries experienced throughout communities (e.g., automated speed enforcement, traffic management systems). ITS has also been used to reduce the amount of time it takes for Emergency Medical Services (EMS) to respond to a crash and consequently increase the chances of patient survival (e.g., automatic crash notification, next generation 911). While these systems exist in many areas, there are still many questions about whether "crash avoidance" or "crash readiness and response" is more productive in the impacts they make. In order to better understand, answer these questions, and take advantage of these systems and the opportunities they offer, requires provision, sharing and analysis of the data they generate (T. A. Horan & Schooley, 2007).

In order to act upon highway and traffic safety problems, decision and policy makers need access to accurate, timely and comprehensible information. Transportation and safety data should be accessible to the degree that it can be easily mapped throughout the lifetime of transactions that may occur between automatic crash notification systems, 911 calls, EMS response, admittance

into trauma wards and the eventual status of health outcomes (B. Schooley & Horan, 2007). Safety and traffic fatalities have long been viewed as a policy and public health issue, yet there are few systematic methods to present the full range of possible crash and emergency response information to allow for a comprehensive approach to improving crash response and health outcomes. Furthermore, there are still questions about whether "crash avoidance" or "crash readiness and response" is more productive in the impacts they make.

This research extends previous work on time-critical information services conducted by our research team (T. A. Horan & Schooley, 2007). In our prior work, we developed a conceptual model for analyzing organizational, operational, and governance dimensions of performance information sharing across multiple cooperating EMS organizations (T. A. Horan & Schooley, 2007). The framework was applied within a comparative case study in San Mateo County, CA and with the Mayo Clinic in Southeast MN (B. Schooley & Horan, 2007). A key finding of the case study work was an identified need for more focused attention on the clinical requirements of emergency care practitioners for a wide range of crash and incident information to enhance their real-time capabilities to assess patient needs, assign appropriate resources for providing care, and determine the effectiveness and efficiency of emergency care practices across the end-to-end emergency care process. This research is positioned to address this identified need in more depth and in a manner that connects to safety planning and ITS directions and possibilities.

This research project is taking place in multiple phases. This paper reports on Phase 1, which has ensued from January through May, 2008. More specifically, this report provides:

- A review of recent research on information integration for emergency response to crashes
- A review of current ITS systems and practices that address components as well as challenges and opportunities for integrated information sharing for automobile crash emergency responses
- A case study analysis of "on the ground" efforts at the State and local level to integrate and utilize cross-organizational information for EMS responses
- Identification of the underlying components that would describe the architecture for a crash trauma information network (CTIN)
- Recommendations based on the above analysis for moving forward with additional research and development of an integrated crash trauma information network (CTIN).

**Methodology**

This study uses multiple methods to consider, devise and examine the use of advanced information systems to improve emergency response services and outcomes. First, a literature review was performed on the use of ITS and IT systems to integrate data across crash, EMS, and trauma organizations and information systems. Next, several state strategic highway safety plans (SHSP) were analyzed to understand how EMS and trauma data and information systems are addressed within safety planning processes. A "best practices" review was then conducted to scan various innovative IT systems that have been implemented and/or tested for the purpose of

providing decision tools to cross-organizational decision makers. Findings from these analyses were grounded in a case study investigation in Minnesota at the State and local (Rochester, MN) level. This led to conceptual model development and information framework development. Analysis across these various methods provided a multi-layered understanding of statewide safety performance features.

# Chapter 2
# Review of Research and Best Practices: Integrated Crash, EMS, and Trauma Information Systems

Key to the development and implementation of EMS level technologies and services is understanding how pre and post EMS activities affect opportunities for EMS process improvements and related health outcomes. Our previous research identified that there are a multitude of Inter-organizational gaps in regards to data access and integration across crash notification, pre-hospital services, hospital and post-hospital health services, and post-crash assessment. It is necessary to analyze these gaps in order to provide effective patient tracking across the incident timeline and consequently assist in providing grounded recommendations for EMS strategies and increased value to organizations down the emergency response service chain (Benjamin Schooley, Marich, & Horan, 2007). In order to better understand where these opportunities reside it is important to have a firm understanding of current research and practices within each domain. Perhaps the best way to frame the review is to consider the end-to-end EMS process, from a vehicle crash through until hospital discharge (T. A. Horan & Schooley, 2007) see Figure 2.1).

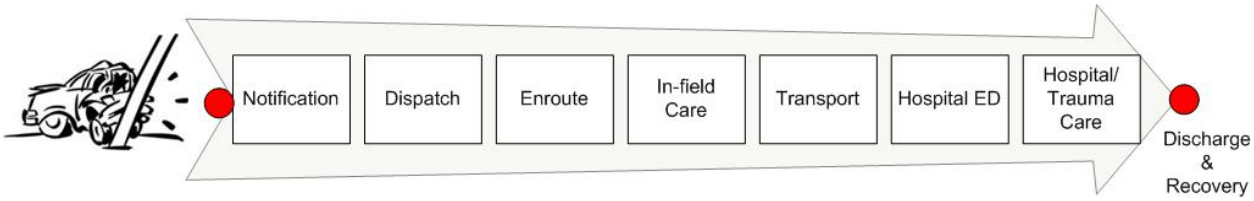


**Figure 2.1 Emergency Response Process (Adapted from Horan and Schooley, 2007)**

Across these processes, we have identified several ITS and hardware and software communication technologies commonly used in the collection, transfer, and analysis of crash incident and EMS response information from one organization to another. For the purposes of this research, it is important to understand what these technologies and processes are in order to gain an "information integration" architectural perspective. Table 2.1 describes these crash emergency response intervals and the technologies commonly used within and across them.

Looking at the overall emergency response process (Figure 2.1), our review has focused on technological advancements and current research within the fields of automatic crash notification (ACN), next generation 911 (NG911), EMS to trauma communications, electronic health record systems (EHR), and integration across each. From this effort opportunities are sought toward identifying key touch points between these systems through which a comprehensive and more integrated trauma information network can be described.

**Table 2.1 Emergency Response Process Intervals and Sample Technologies Used**

| Process Intervals | Example Information Technologies Used |
|---|---|
| Pre-Incident Preparation | Electronic Personal Health Record (PHR) for emergencies (the AAA card for personal health emergencies) |
| From “crash” to “notification” | 911, E-911, ACN technology and integration (e.g., Mayday system) |
| From “notification” to “dispatch” | Computer Aided Dispatch (CAD), traffic management systems, GPS+GIS, mobile data terminals (MDT's), decision support tools, 2-way radios, pagers, cell phones |
| From “dispatch” to “arrival on scene” (in-field care) | Computer Aided Dispatch (CAD), patient care record (PCR) systems, traffic management systems, GPS+GIS, mobile data terminals (MDT's), decision support tools, 2-way radios, pagers, cell phones, navigation systems |
| From “arrival on scene” to “departure to hospital/trauma center” (in-field care and transport) | Patient care record (PCR) systems, decision support systems, telemedicine applications (remote care), wireless data communications, hospital availability/diversion systems |
| From “departure to hospital/trauma center” to “arrival to hospital/trauma center” (transport and handoff to hospital emergency department (ED)) | Patient care record (PCR) systems, traffic management systems, GPS+GIS, navigation systems, hospital availability/diversion systems |
| From hospital “admission” to “discharge” | Hospital emergency department admissions/registry, trauma registry, electronic medical records, clinical information systems, electronic lab/radiology systems, clinical decision support |
| Post-incident evaluation | CODES, data warehouses, business intelligence, crash analysis reporting systems (e.g., FARS), other reporting and analytics |

## Automatic Crash Notification (ACN)

Advancements in Automatic Crash Notification (ACN) systems has allowed for decreasing the amount of time that occurs between the onset of a crash and the time that it is reported to 911 dispatch or other emergency services. The need for these systems are illustrated in light of data that shows average emergency response times in urban areas are significantly shorter than in rural areas, largely due to the additional time needed to respond to distant and often remote locations (T. Horan, McCabe, D., Burkhard, R., Schooley, B. , 2005). Additionally, while urban areas are impacted by more crashes on average, due to the increased length of response time, rural areas make-up 58% of fatalities (NHTSA, 2008).Further supporting the critical need for effective response are findings suggesting that survivability is increased for those cases were EMS is promptly notified and dispatched (Clark & Cushing, 2002).

While the potential for ACN systems to help save lives may be high, we have observed that in order to be of benefit ACN systems will need to be effectively integrated into the overall emergency services system, including tailoring ACN information output to the needs of physicians (B. Schooley, Horan, & Marich, 2008). On a related note, the impact of ACN on

patient health outcomes will be limited so long as penetration of the technology in vehicles, and throughout the larger marketplace, remains small (IIHS, 2002). Outside of the effort to report the time of crash and send EMS teams to the incident scene as quickly as possible, it has also been identified that there are critical elements to the crash information itself that needs to be reported so that EMS can respond effectively once on scene and then take the patient to a medical center that can properly treat their wounds. For example, Augenstein, et.al (2005) make several recommendations for priorities in transmitting crash data including aspects such as general crash severity, direction of impact, multiple impacts, age of passengers, use of seat belts and other indicators. While issues to implementation remain, there is significant evidence that ACN systems should be a critical component of a larger crash trauma information network system.

**Next Generation 911 (NG-911)**

To date, emergency 911 phone calls, whether communicated through traditional "wired" or more recent "wireless" networks, are an essential part of the public safety network. As such, 911 has been targeted as an essential component of an integrated "voice and data" emergency communications system. Toward this end the Hatfield Report (2002) provided recommendations toward upgrading 911 infrastructures while at the same time acknowledging the organizational difficulties in doing so. Due to these observations a 911 Bureau has been established and is charged with considering how to effectively develop a 911 network that can sufficiently address improvements and opportunities made available by Internet Protocol (IP) networking standards, voice over IP (VOIP) communications, location identification techniques and public safety answering point (PSAP) processes and resources (Moore, 2008).

This next generation of 911 services (NG911) will be charged with providing faster and more accurate information delivery, a broader range of information data forms (i.e. location data, multimedia), and increased elasticity and security of PSAP methods (Dodge, 2007). Importantly, the technologies that would allow us to describe such a scenario are already available to us within isolation; it is when we seek to integrate them that difficulties both technologically and organizationally are encountered. For example, advancements in VOIP technologies are providing alternative means for acquiring the physical location of emergency callers (Kim, Song, & Schulzrinne, 2006). Unless the VOIP user registers their phone number and address with their particular VOIP service provider, then their location will not be registered and sent to the appropriate PSAP that would map their location and dispatch emergency resources (Moore, 2008). NG911 is charged with developing methods to overcome such challenges.

ACN and NG911 systems must be tightly integrated into the overall emergency system in order to effectively initiate the chain of events that will increase a crash victim's chance of survival. Proof of concept demonstrations like those provided by GM's OnStar technologies, in which crash notification messages previously routed manually were routed straight to the appropriate PSAP (Battelle Company, 2006), show how data integration practices can assist in cutting crucial minutes off of EMS response times. It is these types of efforts of transportation system integration that now need to be further enacted at the next link within the EMS response chain involving communication between NG911 systems, the EMS teams that respond, and efficient routing of patients to trauma centers that can best provide therapies for patient injuries. Our discussions with GM OnStar representatives have confirmed the value of the next step in ACN integration (B. Schooley et al., 2008). On a related note, GM OnStar is currently sponsoring

work at the Center for Disease Control (CDC) to analyze how "real time crash data from OnStar's Advanced Automatic Crash Notification (AACN) vehicle telemetric system and similar systems from other companies can be used to determine whether occupants need care at a trauma center" (CDC, 2008). As such, and as illustrated here, an important element of an integrated system would be to integrate NG911 systems with ACN, EMS, and trauma systems for improved response and care delivery to crash patients.

**National Emergency Medical Services Information System (NEMSIS)**

Computer-aided 911 dispatch systems and electronic patient care record (PCR) systems used by paramedics in the field have been used and improved over the past few decades. It wasn't until very recently that data inter-operability and standards initiatives enveloped the software industry that develops these particular products. The National EMS Information System (NEMSIS) is a data standard that allows for transfer of EMS data in the "pre-hospital" setting. As of October 18th, 2007, 52 states had signed on to adopt the NEMSIS data standard, the benefit being that standardized protocols have been created for local, state, and national level information transfer to allow for "pre-hospital" research and analysis (Mears, Ornato, & Dawson, 2001; NEMSIS, 2008).

Systems prior to NEMSIS, such as the Automated Incident System (AIS) used by Utah, lacked reporting and analysis abilities. The Utah AIS has been replaced by a system that is compliant with NEMSIS called the Pre-hospital Online Active Reporting Information System (POLARIS). This system allows data analysis from many different emergency medical services organizations, as displayed in Figure 2.2 below (POLARIS, 2008). While implementations such as these are still novel, it is important to note that these are focused on integrating "pre-hospital" information and do not currently include crash, crash analysis, trauma, or other hospital information needed for more holistic evaluation of a patient. In terms of an integrated crash trauma information network, connecting NEMSIS-enabled software systems with hospital ED and trauma systems would be a next important step.

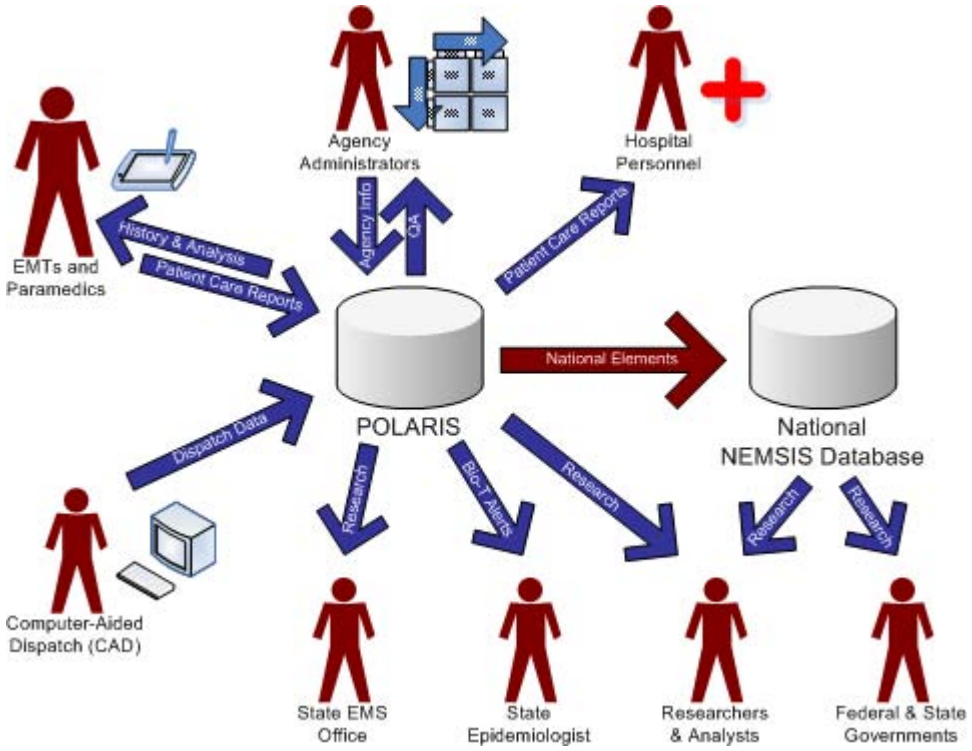


**Figure 2.2 Data Lifecycle of Pre-hospital Patient Care**
Diagram extracted from: http://health.utah.gov/ems/data/polaris/overview.html

### EMS and Trauma Communications

While NEMSIS is important and essential, little is known how that information will be used in a clinical environment such as an emergency department or trauma center setting due to the few implementations that have taken place to date. It is also unclear how NEMSIS-enabled systems will integrate with hospital and trauma center data systems – a critical issue to be understood and determined. Trauma centers themselves have long had issues with information sharing. For example, Mann, et.al (2006) note that although statewide trauma registries have been implemented since the 1970s, that data comparability across hospital registries is still of limited status and moreover that this component of trauma information integration has not been evaluated to an appropriate extent. Found within their own study was that currently, maintenance of a centralized trauma registry is happening statewide across 32 different states through which between 70-80% of them require hospitals to report data. While encouraging, it is noted that for many of the states that have implemented a statewide trauma registry there is still wide variability as to the types of hospitals that are responsible for reporting injury data and a high degree of variability as to the way in which specific trauma elements are coded and characterized within trauma registries.

To address this issue, the National Trauma Data Standard (NTDS) initiative, formerly known as the National Trauma Registry, has been formed to define standardized data elements collected by the American College of Surgeons within the National Trauma Data Bank (NTDB). Its goal is to

homogenize the data in the NTDB, which contains patient information from across the nation. It has been planned for the NTDB and NTDS to be implemented in 2009. This development represents a significant component of an integrated crash trauma information network.

It will be important to understand how these efforts, will enable improved information sharing capabilities across EMS and hospital/trauma center domains. For example, one problem that needs resolution is the current general lack of coordinated systems to ensure that EMS know which facility would be most appropriate for transporting a trauma patient (Institute of Medicine (IOM), 2006). Paramedics need to know which medical centers have the equipment and staff with skills necessary to effectively treat the victim. *It has been reported recently that patients who suffer traumatic injuries have a 25% better chance of survival if taken to the appropriate trauma center according to the severity of their injuries* (Landro, 2007). As can be seen from these examples, one does not have to travel far into the trauma information systems network to identify the compound effect that a lack of standards, inconsistent reporting practices and incompatibilities between information systems will have on the health outcome of a patient. Existing projects such as the Crash Outcome Data Evaluation System (CODES) project to be described later are leading efforts toward tying information across all of the related crash data points from crash time to hospital exit in hopes of identifying opportunities for improvement and prevention (NHTSA, 2008).

**Electronic Health Record Systems**

Once the patient is transferred from the hands of the EMS staff they will be held within the care of trauma, inpatient, and outpatient and specialty care providers and consequently the patient's health information will be held within the different and various electronic health record systems used by those care provider organizations. Much of the current focus of clinical IT within the provider setting includes nursing and physician documentation systems, electronic medication administration records and computerized physician order entry (CPOE) systems. When well-implemented as part of a new healthcare infrastructure, these applications provide the foundation for more reliable, safe, and error-free care (Metzger, 2007). Conversely, while this provides the necessary information services for recording data as it relates to the in-hospital services provided, it does not describe efficiencies that could be gained through incorporation and visualization of pre-hospital data as it comes in for viewing by the physicians charged with providing immediate care to the patient. Furthermore, it is likely that there is considerable benefit and value to be found through the re-funneling of patient health outcome data back to the EMS organizations that began the original treatment of the patient. Preliminary efforts have noted that organizations are at times limited in their ability to access vital data related to end-to-end EMS services (Institute of Medicine (IOM), 2006). Although these studies have identified a need for integrating data across the spectrum of EMS and trauma services, there have been no empirically established efforts related to data integration across these domains (Benjamin Schooley et al., 2007).

**Tracking Patients across the Emergency Care Process**

An essential component of an integrated crash trauma information network is the ability of the "system" to track a patient from crash, through EMS response, hospital emergency department registration, trauma care, and rehabilitation. "Patient tracking", while originally conceptualized

as a way to locate disaster victims and reunify them with family members in the aftermath of a disaster, also provides an underlying capability to connect information and thus provide real-time and retrospective performance analysis and feedback (Joint Advisory Committee on Communications Capabilities of Emergency Medical and Public Health Care Facilities (JAC), 2008). Recently, the Virginia Hospital & Healthcare Association (VHHA), together with COMCARE, launched an Integrated Patient Tracking Initiative (IPTI). The initiative was conceptualized as a way to capture and distribute patient location information gathered by a range of EMS stakeholders in several counties in Virginia. The overall goal is to develop a national framework that can be used by communities and regions when obtaining and organizing patient tracking systems (COMCARE & Emergency Response Alliance, 2006). While the framework will describe how to track patients and the technical systems needed to do so, it does not describe the requirements or methods needed for reporting and analytics.

**Data Integration and Analysis across Domains: The Crash Outcome Data Evaluation System (CODES)**

As discussed previously, patient and crash incident data typically resides in many separate and disparate databases that are not easily integrated. CODES was funded and developed by NHTSA for the purpose of taking disparate data sets from crash, EMS, trauma, and related databases to perform a "probabilistic" linkage of data across systems. The system essentially links a crash with patient information in order to assess health and economic outcomes of crashes. Several states have utilized CODES (e.g., Utah, Minnesota, and Massachusetts). One notable example of the value of using CODES, and integrated crash trauma information more generally, was the passing of a Utah Senate Bill. In Utah, CODES has been implemented and well utilized as an important tool to analyze and interpret data collected from a variety of databases to recognize major causes for crashes. This data is then used to create State programs to improve conditions and create awareness about traffic safety. In 2001, data collected by CODES helped pass Senate Bill 48, *Passenger Limitations for Young Drivers*. This bill allows teenage drivers to have passengers in their vehicle only if they are accompanied by a licensed driver over the age of 21 years of age. To help pass this bill, CODES personnel used their database to formulate a fact sheet on the frequency, health outcomes, and costs associated with crashes involving teenage drivers. The fact sheet was distributed to legislators, CODES personnel answered questions at legislative hearings, and the data was cited in newspapers and on television. The governor signed Senate Bill 48 into law on March 15$^{th}$, 2001 and the bill went in to effect on July 1, 2001 (NHTSA, 2008; Utah Codes, 2008).

While the implementation of CODES represents a significant advancement in terms of crash trauma information integration, the limitation of CODES is that it relies on "archival", or past data. The implication is that data collection into the "integrated" database still requires a significant amount of manual human processes. Second, data analysis is primarily retrospective looking at incidents from one or several years in the past. In addition, not all crashes can be linked with EMS and trauma data due to unresolved redundancies in the information and a lack of a unique data identifier across all systems. Anecdotal evidence from practitioners described a 70-80% probability of reliable data linkage. This is a significant limitation for conducting analysis if the desire is to conduct analyses on the most recent day, week, month, or six months of data. This current research project seeks to understand how to build and enable an

information infrastructure that facilitates more “real-time” analysis, particularly from a clinical performance perspective.

**Implication of These Systems for Our Research**

This (Task 1) review provided an opportunity to review a variety of system developments that are underway for each stage of the emergency response (e.g. ACN) as well as preliminary efforts to link data elements for research and public health purposes (e.g. CODES). However, this review also confirmed a major premise of our research: the need exists to consider the value of an integrated crash trauma information network (ICTIN) for aiding in the detection, notification, response and treatment of crash victims. Moreover, while these various silo systems are in place, achieving linkages between them is not only a technological challenge, but a challenge that requires organizational and policy level attention as well. The policy-level attention begins with a review of State Highway Strategic Plans (SHSPs), as these plans represent the newly required planning vehicle for implementing new safety approaches.

# Chapter 3
# EMS Priorities within the Strategic Highway Safety Plan

Development of Strategic Highway Safety Plans (SHSP) is now a Federal requirement based on SAFETEA-LU, 23 U.S.C. § 148. Within the recommendations for creation of SHSPs is a four level framework for priority of services including Engineering, Education, Enforcement, and Emergency Medical Services (EMS) which are referred to as "the four E's. It is recognized that of the four E's, EMS is a fairly new focus and is based on the identification that improvement of EMS and surrounding services can provide opportunities for a more integrated safety effort. Furthermore it is generally understood and documented that no matter what efforts are taken to ensure strong engineering, enforcement and education programs, that effective EMS services are essential for positive patient health outcomes from traffic crashes that invariably occur (US Department of Transportation, 2006).

General guidance for SHSP includes several recommendations directed specifically as EMS related priorities. Recommendations from AASHTO (2006)for EMS related strategies included:

- Development and implementation of comprehensive models that would assist in ensuring effective response to crashes
- Increase education and involvement of EMS professionals in general traffic safety principles
- Provide for an emergency preparedness model for urban, rural and wilderness high-incident interstate highway settings
- Improve and integrate trauma systems
- Encourage and disseminate EMS/public health/public safety information and program activities

**SHSP Comparison and Current Projects**

Table 3.1 below provides a matrix briefly describing a survey of six current state SHSPs. Highlighted within are descriptions specific to safety and EMS related efforts and the demonstration or proposed project as described by the different states. These descriptions are provided by state and program-wide SHSP reports (More & Munnich, 2008) through which several (but not all) states have outlined specific plans toward addressing EMS related improvements within their state specific SHSPs. The purpose in evaluating SHSPs across different states was to identify where the majority of states focused their EMS improvement efforts and to assess the value obtained from specific project demonstrations.

**Table 3.1 Comparison of SHSPs**

| SHSP EMS Related Descriptions | SHSP Described Efforts & Demonstrations |
|---|---|
| **Minnesota**<br>Focus: Creation of a statewide system to reduce crash response times by improving patient to trauma ward routing practices. | - Improvement on ACN and 911 routing communications and development of rural intersection decision support technologies |
| **Alabama**<br>Focus: Reducing the time from crash to care by ensuring that trauma patients are transported to an appropriate facility with resources to care for patient injuries. | - Provide advanced crash victim location through GPS technologies, make efforts toward statewide EMS quality and services coordination and increase consumer education on traffic safety |
| **Maryland**<br>Focus: Improving EMS services across a range of technology, process, and program improvement. | - Improve electronic data and voice communications for emergency response and improve resource deployment for EMS response. |
| **California**<br>Focus: Reduce crash-related fatalities by at least 5 percent from 2004 levels through improvements in EMS system communications, response and safety education. | - Advance technologies for locating crash sites, improving EMS access routes, dispatching, decreasing response times and increasing overall EMS system resources and effectiveness |
| **Utah**<br>Focus: Review of current systems in order to increase opportunities for crash data use. | - Plans to advance development of technologies to analyze, and distribute crash data in a timely manner across multiple agencies with goals of increasing quality assurance standards |
| **Washington**<br>Focus: Continued efforts in developing Washington's EMS and Trauma Care System (EMSTC). | - Improve communications between response agencies, implementation of dispatch protocols, statewide implementation of GPS technology and continued efforts in partnerships to improve data |

From a preliminary analysis of state SHSPs, a handful of states such as those described in Table 3.1 have made efforts toward improving EMS and trauma data systems to help drive safety planning efforts. Looking across these plans, we found that state efforts are divided between projects focusing on crash notification, crash identification and location (GPS), and improved data and systems collaboration between EMS and trauma agencies.

To take two examples, the Minnesota SHSP emphasizes comprehensive implementation of a statewide trauma registry as the key to improving EMS, whereas the Alabama SHSP utilizes a strategy targeting several specific problem areas related to EMS (i.e., crash notification and location, education of first responders, etc.). Minnesota's use of a broad strategy is supported within the SHSP by the following statement (MnDOT, 2005):

> *"This strategy is not intended to address a particular driving population, crash type or contributing factor, but instead is meant to improve patient care after a crash has happened. A statewide trauma system reduces both time-consuming secondary patient transfers and the time patients linger in emergency rooms and ambulances before receiving definitive care. This will be of particular benefit to patients in rural areas. Hospitals participating in the trauma system will ensure that health care practitioners have specific trauma education and treatment/transfer guidelines, which enhances the level of care and efficiency in treating the trauma patient. Further, a trauma registry supports a comprehensive process improvement program that ensures participating hospitals review actions and outcomes of each trauma case, from EMS arrival to patient discharge."*

The Minnesota SHSP describes their hope is that these improvements will result in achievement of their overall goal of having 500 or less traffic crash fatalities per year by 2008. Alabama on the other hand is managing their EMS strategy through several key projects that all have an impact on crash fatalities. The SHSP of Alabama (UTCA, 2006) outlines focus areas that will address 1) collection of trauma and care data in part through use of a Patient Care Report System, 2) improvement of the capability of first responders (often police) to offer better care to trauma victims, 3) improvement of the capability to locate victims through further use of GPS technologies, 4) strengthening the overall EMS profession so that practitioners are equally represented across the state, especially in places such as rural areas where having reasonable access to EMS responders is deemed low.

The examples provided above illustrate that SHSPs are a vehicle that need to address improvement of emergency responses to crashes through collaboration and ITS efforts. It should be noted however, that for many states less tangible descriptions of specific EMS and Trauma system improvement efforts are available. Through conversations with state and federal DOT leaders it is generally recognized that while EMS priorities are included within the plan, for many there are simply no specific tactics for addressing practice and improvements. However, there is consensus and agreement that these needs are important and that a path forward needs to be articulated.

The above review and analysis, taken together, led to the need for an "on the ground" investigation of how the discussed concepts are instantiated in practice. The next section of this report discusses findings from State and local case study investigations.

# Chapter 4
# Case Study Analysis-Minnesota Findings

The previous analysis of literature and best practices review provides a basis for devising a normative architecture for integrated crash trauma information systems. To "ground" this view, an in-depth case study was conducted at the State and local level The state level analysis was conducted with decision makers at the various state level agencies involved in collecting and analyzing automobile crash incident and related emergency response and trauma care data. The local case study was conducted at the Mayo Clinic in Rochester, MN.

## State Level Stakeholder Focus Group and Evaluation

Researchers sought to understand, from the State level practitioner perspective, how crash, EMS, and trauma information is being integrated and utilized in the State of Minnesota. A series of (one) focus group discussion and (2) follow-on interviews were conducted with state level Agency decision makers to better understand how to utilize information systems for improved access and integration of data. Moreover, the discussion focused on how to conceptualize the "next-generation" system that would not only facilitate the analysis of large archival data sets, but also allow for more real-time analysis and use of information from a clinical standpoint. Organizations involved in focus group discussions included the Emergency Medical Services Regulatory Board (EMSRB), the Health Department (State Trauma System), Department of Transportation (ITS Program and Office of Traffic Safety), and Department of Public Safety (Traffic Safety).[1] In these focus group discussions, an overview of the research approach was presented. Participants responded by discussing the importance of information sharing, the need for more integrated information systems at the State level, and the value of including such an initiative as part of the statewide "Toward Zero Deaths" initiative – a statewide cooperative of numerous traffic crash related organizations with the common goal of reducing annual traffic fatalities to zero. Focus group participants validated preliminary case study findings in terms of issues and challenges for constructing a statewide integrated crash trauma information system, as well as solutions that could greatly benefit the effort to reduce traffic crashes and improve public health.

In terms of operational challenges, participants described how information collection practices are typically not described or enforced at the state level. For example, real-time information sharing is difficult in part because ambulance providers are not required to input patient information into electronic systems at an emergency scene. Reporting typically takes place after a patient has been delivered to a trauma center, not providing the capability for physicians to access the information prior to even at patient arrival to a trauma center. In addition, the electronic patient information cannot be wirelessly transmitted because either the wireless infrastructure is immature, or there isn't adequate funding to pay for wireless information

[1] The focus group discussion was held on March 14, 2008 at the Minnesota Department of Public Safety. A teleconference was held with MN State EMS Board Representative on February 12, 2008 and a teleconference was held with Minnesota Department of Transportation on April 9, 2008.

services from a major wireless telecommunications carrier. Yet participants also noted potential opportunities. For example, many vehicles are equipped with a "black box" that provides a record of information about an automobile crash. These boxes could prove a valuable data source for crash analysts, state patrol officers, EMS, traffic safety, and trauma practitioners if it were accessible and utilized.

Organizational challenges also exist related to the changes taking place across the State of Minnesota, especially in regards to the consolidation of 911 dispatch centers (also referred to as PSAPs). The State is currently in the process of consolidating the over 121 individual local level PSAPs to larger county level dispatch centers. While these shifts are in transition, there is a great deal of ambiguity in roles and responsibilities and reshifting of work priorities across the local and county systems. Trying to improve information sharing in such an environment creates additional challenges that must be recognized. At the State level, participants discussed the lack of people and resources to "crunch numbers" and conduct data analysis. While there is a push towards "evidence-based" decision making and more data analysis, there is a lack of people and skills necessary to conduct the analysis that has been demanded. One participant stated that they are focusing so much on getting and linking data that they have not been able to actually conduct analysis on that data. In terms of the various hospitals in the State, participants discussed the competitive nature of hospital service areas and this often causes barriers to sharing information. For example, the hospitals do not want to give away how much they are charging patients for services to competing hospitals.

At a policy level, participants discussed how State level agencies face many legal, policy, as well as "perceived" barriers to sharing crash, EMS, and trauma information related to a crash. For example, participants noted the progressive privacy laws enacted in Minnesota that have made it difficult for agencies to conduct crash and related public health analyses. Often the privacy laws are cited as barriers to sharing information across agencies and at times even across departments within a single agency, even in cases when written privacy policies and laws allow for information sharing. For example, the Office of Traffic Safety finds it difficult to access information from the Office of Driver and Vehicle Services, even though both departments reside within the Department of Public Safety.

While many obstacles were discussed, participants agreed that there exists substantial motivation to progress towards a more integrated, yet secure and private, information sharing environment to improve patient care, reduce crashes, improve emergency care, and reduce disability consequences, fatalities, and associated costs across the State. Participants discussed the need to move ahead with data sharing agreements for research purposes in order to provide a "proof of concept". The State level participants recommended that this demonstration system be developed as a way to provide an overview and example of some of the benefits to an integrated data system. Furthermore, participants supported the notion that the process be a research oriented approach to finding a long-term solution. Participants also noted the need for a multi-phased approach and the need to define those phases through research due to the enormity of realizing such a long-term vision of integrated data sharing across the State. The research approach should include stakeholders from across the full spectrum of crash and emergency response organizations, integrate with "Toward Zero Deaths" programs, involve state trauma board of physicians to provide a "clinical" perspective on data sharing, and take a multi-phased approach

to development beginning with architecture development, prototype creation and testing, and demonstration of a "proof of concept" as a fraction of the larger system.

## Local Case Study Analysis: Mayo Clinic Rochester, MN

Researchers conducted a case study of the local Rochester Minnesota Mayo Clinic trauma information system. Building on prior collaboration with the Mayo Clinic, the goal of the case study was to explore the use of intelligent transportation systems (ITS) and information technology more generally, to support emergency response efforts from the time of automobile crash notification, through dispatch, response, and patient care at the receiving trauma center. Researchers investigated information technologies used across this emergency continuum of care and then held a series of focus group discussions with Mayo Clinic practitioners to understand how information technology could be better utilized to exchange patient information across emergency care providers.

### *Methodology*

Three focus group sessions were conducted at Saint Mary's Hospital (part of the Mayo Clinic) in Rochester, Minnesota. Participants in the focus groups represented organizations across both pre-hospital and hospital domains. The personnel included members of the Mayo Clinic Emergency Communications Center, Mayo Medical Transport (ambulance provider), Corporate Communications, Information Technology, Emergency Medicine Physicians, and a Trauma Surgeon. Overall 14 Mayo Clinic personnel participated in the focus group sessions

An interpretive approach was used to analyze the transcribed focus group discussions in order to understand the cross-organizational information processes and procedures that influence performance across an inter-organizational emergency response and medical environment. Findings were organized along operational, organizational, and governance dimensions as prescribed in Horan and Schooley (2007), who developed a framework for analyzing inter-organizational emergency response systems. This analysis resulted in twelve themes, or characteristics, that the case study participants desired from the next-generation trauma information system.

### *Findings*

These findings encompass three main dimensions – operational, organizational, and governance – resulted from the focus group sessions conducted at the Mayo Clinic. A summary of these findings is described below.

#### *Operational Linkage Issues*

Unified Patient Records – while integrated medical records and associated software to capture patient information are used by the Mayo Clinic hospitals, the pre-hospital sector (first responders, ambulance provider, 911 communications center) is not integrated into this information system. The implication is that the care providers that arrive to an automobile crash incident are not able to utilize pre-existing patient information. Nor is that information forwarded on to a receiving emergency department. Focus group participants noted how having such

information could significantly reduce data collection time on scene and also provide much needed information (e.g., medications, pre-existing medical conditions, allergies, blood type, emergency contact information, etc…) to help reduce medical errors and increase quality of care provision across the emergency response continuum of care. An integrated system should allow for identification and "pulling" of patient information from each authorized care provider.

Pre-hospital to hospital performance information sharing gap – the ability to easily share data between both pre-hospital and hospital domains inhibits a complete end-to-end perspective on performance. Focus group participants discussed the need to evaluate performance in a more holistic manner. Crash, EMS, and trauma information for the same crash incident exists in different databases in different organizations. The ability to integrate data across these "silos" would enable clinical and operational performance analysis across the entire emergency response from beginning to end. One example provided was that there currently exists no way for decision makers to know how ambulance response timeliness, for which data exists in the ambulance provider database, translates into better (or worse) patient outcomes, again for which data currently exists in the hospital database. Conducting such an analysis today would be very time consuming and error prone due to the complexities associated with data integration across disparate data systems. The "next generation" system should facilitate performance reporting across emergency response organizations.

Clinical Usability – personnel operating within a mostly bottom-up culture are eager to make requests for system improvement, including the software systems that they are required to use on a daily basis. They would like computer interfaces that are easier to use, enable automated data capture as opposed to manual data entry, and that "fit" with their emergency care processes as opposed to getting in the way of their time-critical work. However, there are many challenges associated with adopting new technology and difficulties arise in trying to determine the correct mix of technology to be used with existing data systems. Open, standardized, and interoperable software systems are key to allowing for continuous enhancements for more user friendly features.

Data Communications and Standards – personnel are acutely aware of the national movement towards data interoperability and standards development. Several participants noted their involvement in many national conferences and policy groups working to reconcile data communications and standards issues. Participants discussed the essential need to adopt standards to allow for enhanced levels of information integration across organizational boundaries.

*Organizational Linkage Issues*

End-to-end Awareness – participants discussed the existence of a great deal of performance and quality improvement activities within each organizational unit (hospital, ambulance, 911 communications, etc…). Yet, there is also a need for each unit to present a stronger business case for cross-organizational information sharing initiatives. While an advisory board exists that includes members across organizational units, participants noted that the entire multi-organizational system could benefit by devoting more attention on inter-organizational discussion and training on the importance of "end-to-end" performance, thus forwarding the system wide thinking and culture to allow for integrated information systems.

Individual and Organizational Performance Feedback – an important aspect to high quality performance at Mayo Clinic is that emergency teams receive formal feedback on their individual performance. Mayo Clinic personnel also provide informal feedback and training to outside ambulance transport service personnel in the surrounding communities. In addition, the Clinic operates a world-class simulation center to develop and enhance personnel skills with a goal toward improving patient care. As an important aspect of the Mayo culture, new and innovative ways to make feedback more far reaching and "real-time" would be a valuable system improvement. An example enhancement included the ability for a paramedic to check on the status of a patient that he or she provided care to at the scene of a crash. A data system that enabled such a "feedback loop" would allow for individuals to "self check" their individual work activities and performance.

Team Interaction – participants discussed how interaction among emergency response team members is excellent within the immediate vicinity of the Mayo Clinic (i.e., Rochester area); however, outreach activities are also necessary for outlying areas and non-Mayo organizations (e.g., State Patrol, other ambulance companies). Participants alluded to how interaction with practitioners across emergency response organizations would allow for a greater level of organizational trust and cooperation that could enhance information sharing and performance improvement.

Stakeholder Involvement – Mayo Clinic personnel discussed the benefits of working with legislative groups at all levels of government in order to find innovative ways to progress trauma care in their region. Stakeholder involvement at all levels of government, as well as with all participating emergency response organizations, is essential to improving services. Participants agreed that taking upon themselves the role of "facilitator" to involve a wide range of stakeholders had been important for Mayo's cultural focus on continuous improvement.

*Governance Linkage Issues*

Use of Contracts – within the Rochester, MN area, the Mayo Clinic controls almost the entire end-to-end provision of service, from 911 medical phone calls, to air or ground ambulance response, to trauma care. Outside of the Rochester area there is mixed control including first responders as well as sub-contracted and volunteer ambulance providers. As such, the larger, regional emergency medical services (EMS) system is similar to many other EMS systems throughout the United States, constructed of many different, loosely coupled, and sometimes competing organizations. When outside the boundaries of control, the Mayo Clinic is faced with the financial and technical aspects related to inter-organizational information sharing and the need for contracts to enforce service performance levels.

Non-contract information sharing – networks of cooperating and collaborating organizations outside of the Mayo system have been established for the purpose of infusing the Mayo Clinic's philosophy of high quality patient care. Information sharing and service cooperation often takes place without formal binding contracts in place. This is often at the expense of the Mayo Clinic. But the philosophy is that care provision at the Clinic will be enhanced if inter-connected care providers work like they do – with a focus on quality patient care.

Policy Opportunities – participants noted that opportunities to advance trauma care and information integration must be continually sought after at the state, national, and international level in order to leverage larger activities and continue to remain an innovation leader for improving trauma care to crash victims. Seeking after and leveraging related opportunities (e.g., grant funding) from a range of initiatives and programs (e.g., Homeland Security) provide added benefit and momentum to carry information integration forward.

Resources – many professional staff members are afforded the opportunity to spend a portion of their time doing research or supporting various process improvement initiatives. However, the Mayo Clinic is no different than other parts of the country in that resources will always be limited and priorities for spending must be determined. Costs for advanced inter-organizational information systems remain and individuals with highly technical skills to enable and manage such data systems remains prohibitive in many cases.

***Outcomes***

Taken together, these findings provided validation for the literature search conducted and grounded those findings through an investigation of actual service provision and related information systems to facilitate such. These findings also provide a high-level description of the characteristics of an integrated crash trauma information network system from operational, organizational, and policy perspectives of end users of the system. The pre-hospital to hospital information sharing gap was identified as a primary area that warranted further research for the likelihood of attaining performance improvement in the area of patient information hand-off. A significant approach moving forward would be to understand how to structure the implementation of these findings across the range of pre-hospital and hospital organizations in the Rochester, MN trauma service region.

# Chapter 5
# The Need for an Integrated Crash Trauma Information Network (ICTN)

Taking the literature review, best practices review, and Minnesota case study work together, findings indicated the need for a more integrated model for information system design and data sharing. Figures 5.1 and 5.2 illustrate an overview of the Integrated Crash Trauma Information Network (ICTIN) as conceptualized by researchers; taking into account the key features that should be included in the system design.

1. At the second level of Figure 5.1, there are a number of operational process considerations. These include the linear and dynamic work flows and processes of providing emergency medical care as seen through the eyes and experience of a patient. The top level of this diagram represents a linear work flow to represent the flow of a patient from emergency notification (e.g., ACN, 911 phone call), through dispatch, emergency medical care provision, and arrival and definitive care provision at an emergency department and/or trauma center. Emergency responder work processes may be dynamic or sequential, depending on how one views such work. But the sequential representation is meant to take into account the patient experience, an important system design characteristic as described by Schooley and Horan (2007).

2. As shown in the top level of Figure 5.1, a multi-organizational view of the system architecture is an essential consideration for the ICTIN concept. As described throughout this paper, and illustrated in Figure 5.2, many organizations are involved in emergency response activities, from emergency notification through care provision. Many other practitioners and organizations are involved in crash analysis, public health research, patient outcome research, and other analyses. The implication here is that the architecture needs to accommodate the information and data needs of a wide variety of organizations, including ubiquitous access to information, while maintaining the privacy and security of patient information. Fortunately, the technology exists to enable these software quality attributes. How to implement such attributes in a complex large-scale environment is a challenge yet to be resolved.

3. Dynamic information sharing considerations are represented on the third and fourth levels of Figure 5.1. From prior research, as well as through this analysis, a number of information types, or taxonomies, are captured, analyzed, and distributed across EMS organizational actors and hardware and software systems. The view represented here is one that would allow for information to be shared, distributed, and viewed by any and all authorized emergency responders (and information systems) at "downstream" points of an emergency response episode. For example, rather than waiting for a paramedic to click the "submit report" button of an electronic patient care record, patient information would be dynamically sent to physicians at a receiving emergency department or trauma center as it is entered. To enable such open communication systems web services and related information architecture standards would need to be implemented across organizations and information systems so that both "push" and "pull" functionality could exist for any and all authorized users.

4. Performance reporting capabilities are also enabled through such architecture, not only at the individual organizational level, but also across organizations and information systems. The

ability to pull any number of data elements not only benefits real-time clinical decision making, but would also allow for the creation of any number of customized reports for real-time monitoring (e.g., dashboards) or retrospective research and analysis. The idea here is that performance analysis becomes a system design consideration at the outset, as opposed to taking the traditional approach of constructing performance reports after the system has been built. As shown in Figure 5.2, reporting and analytics would be a key component of the ICTIN.

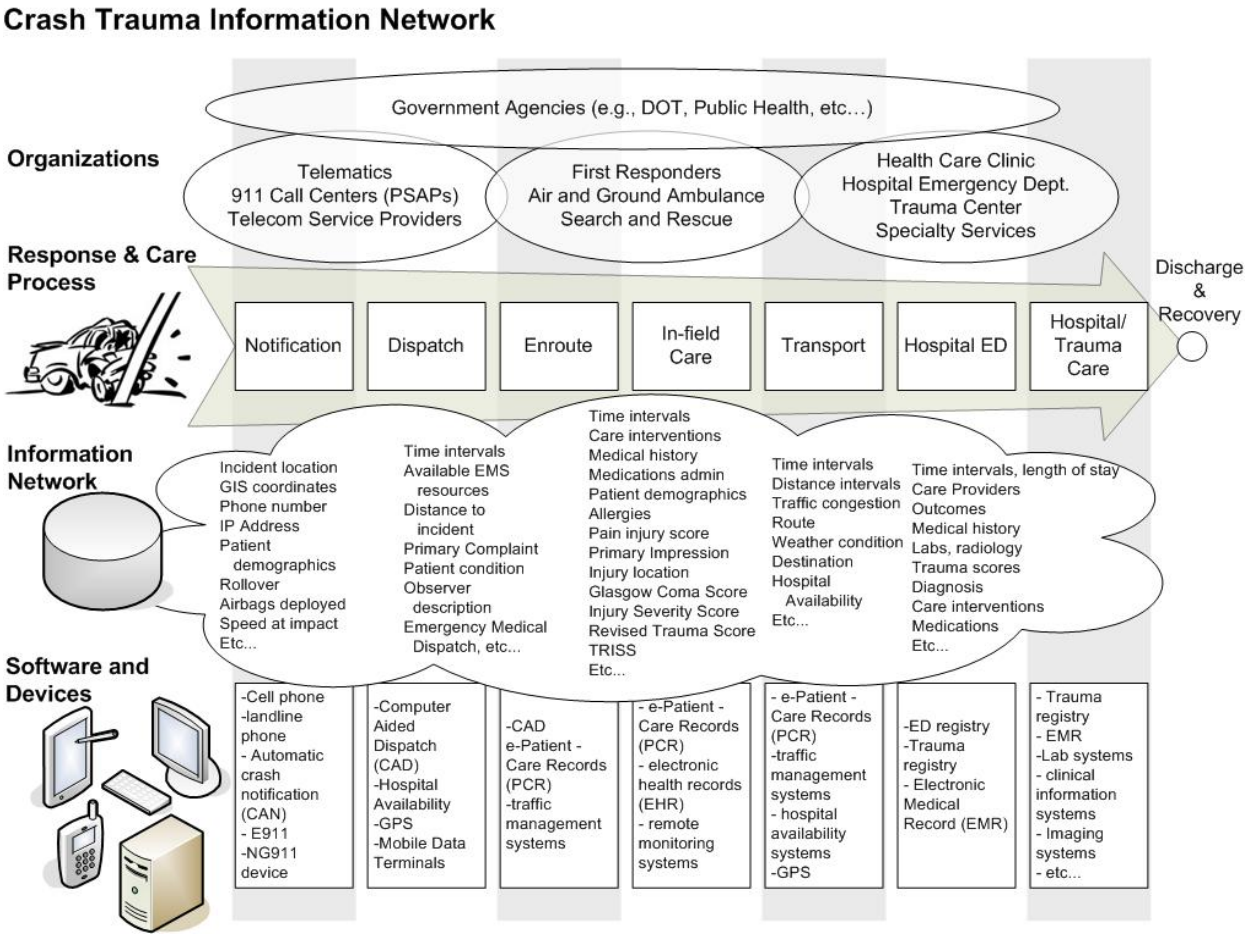


**Figure 5.1 Information Coordination across the Emergency Response Process**

5. Additional software architecture characteristics are illustrated in Figure 5.2. Though alluded to in the above discussion, these include:
    a. Security/Privacy: A standard suite of network, software, and data security measures would be implemented to ensure safe transport of patient information in accordance with State and National privacy guidelines and laws.
    b. Patient tracking system: In order to accurately identify data from one system to another, there must be a common data identifier. It has been argued that the highest level "key", or data identifier should be a patient number, which could be assigned (or found) at the soonest possible point in the emergency response continuum (e.g., ACN notification, pre-loading of patient medical record information). In any case, the important attribute here is that data associated with a patient including vehicle,

incident, medical information, care provision, receiving hospital, medications administered, dispatched emergency resources, time of phone call, etc… would all be linked back to the patient for real-time and retrospective analysis. A patient tracking system would facilitate this core function of the ICTIN.

c. Directory and Access Services: This would be one or several secure databases that include a listing of any and all authorized organizations and individuals allowed to access ICTIN information. Individuals would register and then be approved by the managing organization. Each organization and individual would be allowed access to certain information based on the information access policies prescribed by the managing body. The directory is controlled by a managing entity to be determined by the network stakeholders.

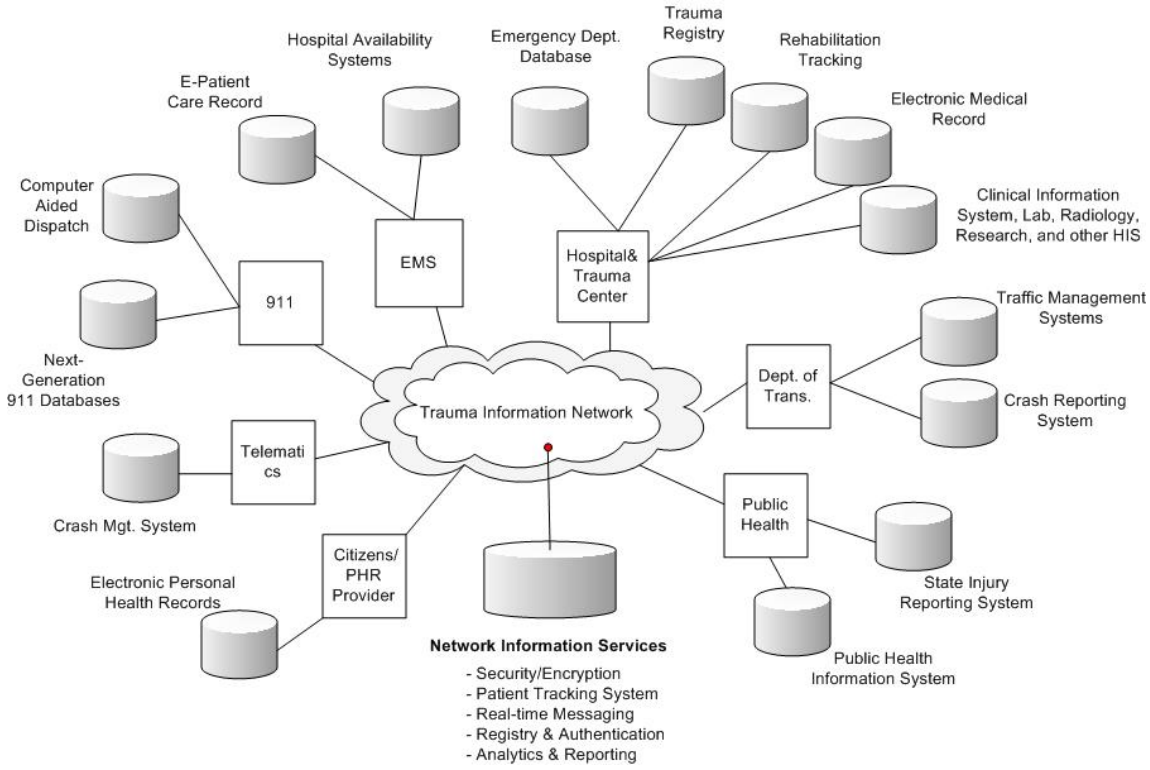


**Figure 5.2 Organizational and Components of an Integrated Crash Trauma Information Network**

# Chapter 6
# Subsequent Phases and Benefits

## Directions for Subsequent Phases

While there exists a need for an integrated crash trauma information network (CTIN), there also exists a paucity of guidance, literature, and directions on how to achieve such a complex system implementation. As confirmed by the local and state focus group discussions in Minnesota, further exploration into the potential and feasibility of developing an integrated crash trauma information network would provide an innovative advancement from both a research and practice perspective. More specific recommendations for taking a phased and incremental research approach to move the concept forward are discussed below.

In our phased approach, several methods are being employed. A first task would be to validate the Minnesota case studies by conducting a comparative case study review in another state. Findings from a cross-case comparison would be used to outline the parameters for an initial prototype of the integrated crash information system. The prototype would be a simplified "sample" system to provide a "proof of concept" and illustrate how crash information could be shared from the moment of impact, through emergency dispatch and response, and then into the emergency room and health treatment services. This would include defining the "time" increments so as to understand at what point in an emergency response medical care has begun to be administered. Our straw man system ("CrashHelp") will be defined through an iterative series of interviews and focus groups with significant stakeholders in the process, including departments of transportation, public safety, 911, emergency services, and healthcare. Small data sets from crash, EMS, health information systems would be collected and used to develop and populate the prototype to demonstrate its utility for safety decision support and planning purposes. Feedback analysis from policy-makers, planners, public health, EMS, safety engineers, emergency planners and citizens will focus on operational, organizational, and policy deployment challenges surrounding an enhanced EMS system, including possible benefits from its utilization. This would include examining what happens when the transportation and the healthcare system interacts under varying degrees of stress, or in an emergency/crisis response situation. Stress tests through software simulation tools may be used to better understand this phenomenon.

## Expected Benefits

The primary beneficiaries of an eventual integrated crash information system will be those individuals in the traveling public that have had the unfortunate circumstance of being involved in an automobile crash. The system would extend current EMS systems to include a greater range of information, including information that has been requested by emergency room physicians but often not available (possibilities include digital picture of the crash, current medications being taken by the crash victims, and speed of vehicle at impact). This information is expected to improve not only the timeliness but also the quality of the emergency response.

Transportation safety and trauma system planners are also expected to be beneficiaries. The objective is to develop tools to guide EMS and trauma performance information integration efforts across a range of safety related agencies to allow for more holistic data analysis that can be both visualized and conducted in real-time. The benefits of this research would be to assist State DOTs in creating an SHSP that meets the data intensive requirements of SAFETEA-LU with the ultimate goal of reducing the number of highway fatalities and serious injuries on all public roads.

Finally, we have significant interest and participation in applying our findings from this work by key stakeholders including agency representatives from the MN Department of Transportation, MN Department of Public Safety, MN Emergency Medical Services Regulatory Board, MN Department of Health – State Trauma System, and the National Highway Transportation Safety Administration. A final step will be a deployment analysis that will examine the technical, organizational, and policy challenges and options for implementation in Minnesota as well as more broadly.

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**Attachment F**

## Development of the Georgia Trauma System

In December 2007, Senate Bill 60 passed the Georgia Legislature and was signed by Governor Perdue. This Bill established the Georgia Trauma Care Network Commission (GTCNC) and charged it to create a trauma system for the state of Georgia, act as the accountability mechanism and to distribute trauma funds fairly and effectively.

The nine-member commission started meeting in December 2007 and began an assessment of and plan to improve trauma care in our state. In February 2009, the GTCNC adopted a comprehensive five-year strategic work plan with fifteen prioritized objectives. The document: "Our Emerging Vision- A New Public Service for Georgians" reflected not only the work of the GTCNC over the past year but the tremendous work many trauma system stakeholders have conducted this decade in advocating for an effective trauma and EMS system throughout Georgia. The top six immediate objectives were identified.

**IMMEDIATE OBJECTIVES FOR 2009 – 2010**

**1. Obtain Permanent and Adequate Trauma System Funding**

Without a permanent and adequate funding mechanism, trauma system development cannot proceed and it will be impossible to recruit any new trauma centers into the Georgia trauma system.

**2. Maintain and Expand The Trauma System, Focusing On South Georgia**

With a one time appropriation of almost $59 million dollars in the 2008 fiscal year, the trauma centers cut their annual loss in half and was sufficient for them to maintain their status for the present time. The Commission conducted discussions with hospitals that have a potential for becoming designated as Level II & III trauma centers, with a focus on South Georgia where the need is greatest. 4-6 Level II & III trauma centers could be developed in South Georgia in 2009-2010 if they are assured sustainable funding and a transfer system to manage the flow of trauma patients.

**3. Strengthen Emergency Medical Services Focusing On Rural Regions**

Due to the integral relationship between EMS and trauma care, the Commission has placed a major emphasis on strengthening EMS. Major initiatives include support for readiness, resources targeted at rural regions, consolidation of EMS Districts to promote efficiency, a GPS-based Automatic Vehicle Locator System, and air medical transport coordination.

**4. Develop Statewide Trauma Communications System**

A trauma communications center that coordinates trauma patient triage, transfer and transport will be built to assure that injured patients are quickly transported to the most appropriate trauma facility.

**5. Build Trauma System Infrastructure Within Division Of EMS & Trauma**

The Commission hosted an external review by the American College of Surgeon's Trauma System Consultation program. The College of Surgeons had a particular concern regarding the lack of state support for trauma system infrastructure in Georgia. Their report included the following suggestions: a comprehensive trauma system operational plan with supportive system

rules and regulations is required; and in order to build an effective state trauma system, the Office of EMS and Trauma, fully staffed to implement the Commission's policies, support, regulate, and monitor the trauma system, will be essential.

**6. Establish Mechanisms to Assure Exceptional Accountability**

State-of-the-art performance improvement standards and accountability measures will be built into the Georgia trauma system, and the American College of Surgeons will be asked to conduct a follow-up system review and evaluation in 2012 to assess progress in Georgia's trauma system development.

The Commission's vision identified the need for a statewide trauma communications system. This need was the genesis for a Georgia Trauma Communications Center (GTCC) that will eliminate the time-consuming search for an appropriate trauma center with available resources in response to serious injuries.

As developed over the five-year period, the Georgia Trauma System will be comprised of regional trauma systems integrated and collaborating to ensure statewide access and the highest standard of care is maintained. It is envisioned each region will represent trauma service areas and accommodate overlapping and traditional patient catchment areas. Each regional trauma system will operate according to a Regional Trauma System Plan (RTSP) developed by the region's Regional Trauma Advisory Council (RTAC). The RTSP will organize existing resources to provide a comprehensive trauma care system to care for trauma patients from the moment of injury through rehabilitation. The RTSP will develop data-driven injury prevention programs appropriate for the local community and provide for system performance and improvement and regional plan maintenance. At the core of the Georgia Trauma System is a single statewide Georgia Trauma Communications Center (GTCC) established to coordinate the needs of EMS providers in each region with the capacity of all hospitals in the state.

RTSPs are to be developed by each RTAC using the guidance provided in the Georgia Trauma System Framework. The Framework is a planning guide for the development of RTSPs. Within the Framework is guidance on the components, organization and function of regional trauma systems.

A Trauma System Pilot Project will be developed and based in Georgia EMS Region V. The pilot will provide for testing the Framework as an RTSP development guide and will operationalize the GTCC.

The goals of the pilot are as follow:

- Test the Framework as a planning guide for an RTSP
- Operationalize the GTCC as the communications component of the System
- Identify and involve all regional stakeholders including Physicians, EMS, designated Trauma Centers, non-designated participating hospitals, hospital personnel, local governments, and the public.
- Revise the Framework as a regional trauma system planning guide pursuant to the results of the pilot evaluation

The Pilot Project will be conducted in EMS Region V for a one-year period, and is planned to begin in the first quarter of 2010 and conclude in December 2010*.

*The Commission is responsible for the selection and revision of the pilot start and end dates.

Submitted by:
Jim Pettyjohn, GTCNC Administrator

Linda Cole, RN, MBA, GTCNC Commission Member and VP, Trauma and Emergency Services, Children's Healthcare of Atlanta

Attachment G

# GPS-based Automatic Vehicle Location (AVL) System
# and the
# Georgia Trauma Communications Center
## GTRI Project D6035

### Monthly Status Report for July 2009

**Tasks Performed this Month:**

*AVL-related tasks:*

Kirk Pennywitt performed queries against the surveys received last year from Georgia EMS providers. These data showed that there were 193 individual AVL units in-use in Georgia in 2008, comprising about a dozen different vendors (see Attachment 1). Because of the variation in survey responses, it is impossible to tell how many of these AVLs are GPS-based versus more simple cellular systems. Information was gathered on all the vendor systems used within Georgia.

Internal GTRI meetings were held regarding the logistics of the RFP release, and it was determined that the RFP will be managed through the Georgia Tech Purchasing Department. Because GT Purchasing is normally limited to purchases of $250,000 or less, permission was requested from the Georgia State Procurement Office for delegation of authority for the AVL and GTCC equipment purchases (permission received on 12 Aug 09).

A meeting was held with Ben Hinson & Jim Pettyjohn on 29 Jul to review current activities. A teleconference was held on 27 Jul with approximately 45 state EMS stakeholders to determine their interest and present capabilities with regard to the AVL system. Interest was reportedly high, and the attendees submitted survey responses indicating their current AVL usage. Only 4 out of 37 responders indicated that they currently used an AVL system.

Information from Acadian Ambulance regarding a Garmin consumer GPS-based interface was received and investigated. This system utilizes the new Garmin Fleet Management Interface (FMI) protocol that allows position information to be transmitted from Garmin consumer GPS devices, and also allows custom messages to be transmitted via the GPS touch-screen user interface. This protocol can be utilized by any vendor, provides an attractive low-cost option for a GPS terminal interface, and will be incorporated into the AVL RFP as a desirable feature accordingly.

*GTCC-related tasks:*

Scott Sherrill made several trips and attended numerous meetings gathering GTCC-related information. Two trips to Birmingham, AL were performed to review and document the BREMSS (Birmingham Regional Emergency Medical Services System) trauma management software and offices. Additional activities performed were:

- One day trip to Macon to attend GTCNC meeting
- Four committee meetings in Atlanta area
- Meetings related to issuance of RFP
- Two meetings at Scottish Rite
- Multiple teleconferences related to tasks
- Develop list of RFP requirements
- Present list of requirements to committee for approval, prioritization
- Prepare MS Project Plan for opening pilot office

Rachel Duke performed research and development of a Pilot Project White Paper and a Framework for regional trauma system plans, as well as attended meetings and teleconferences to define deliverables of this task, share information project-wide, and research and understand the goals for the Pilot Project and Framework for Georgia Trauma System.

**Plans for Next Month:**
Continue gathering AVL vendor information; develop AVL and GTCC RFP requirements; plan to issue AVL and GTCC RFPs by late August or early Sep. Finalize Pilot Project and Framework documents for presentation to Commission.

**Current Expenditures:**
Total project charges for July 2008 were $30,130.62 and 205 person-hours. Total expenditures to-date are $36,998.63 and 246 person-hours.

## Georgia AVL Systems in use by EMS Providers (as of 15Mar2008)

| Organization | Name | Title | Phone | AVL Vendor | Email | # AVL Units | Vendor Site | |
|---|---|---|---|---|---|---|---|---|
| Priority EMS | Michael Colman | Field Operations Manager | 678-614-7994 | GPS Webtech | mcolman@priorityEMS.net | 8 | webtechwireless.com | |
| Mid Georgia Ambulance Service, Inc. | Joe Robinson | Chief Operating Officer | 478-207-3306 | Ranger | joerobinson@midgeorgiaambulance.com | 33 | mentoreng.com | |
| Gold Cross EMS Inc. | Vince Brogdon | Director Columbia County | 706-792-9292 | ORTivus *(do they offer transponders?)* | vince@goldcrossems.com | 34 | ortivusna.com | |
| Hospital Authority of Houston County | Grey Chapman | Paramedic Supervisor | 478-542-7799 | Verizon | | | | |
| Augusta Fire Department | Matthew Paynter | EMS Coordinator | 706-821-1641 | New World | | | ezspycam.com/EGT-001.htm | |
| Angel Emergency Medical Services | Lana G. Duff | Operations Manager | 706-861-1234 | Sprint/Nextel | lanaduff@comcast.net | 11 | | |
| Lifestar REsponse of Alabama dba Care Ambulance Ga | Dell Gamble | Regional Vice President | 334-448-3178 | Itrak | | | itrak.com | |
| Grady EMS / Grady Health System | Elesa Sutton | Operations Manager | 404-616-4487 | | esutton@gmh.edu | 1 | | |
| Grady EMS / Grady Health System | Elesa Sutton | Operations Manager | 404-616-4487 | Mentor *(Compass Com entered in Section V)* | esutton@gmh.edu | 38 | compasscom.com | |
| Air Methods / LifeNet | Kelly Edwards | Flight Paramedic | 706-733-8000 | Outerlink *(aerial unit)* | kedwards@airmethods.com | 1 | outerlink.com | |
| Columbus Fire and Emergency Medical Services | Marie Harrell | EMS Coordinator | 706-225-4224 | | mharrell@columbusga.org | 8 | | |
| Mitchell County Emergency Medical Services | Ann Lamb | EMS Director | (229) 336-2072 | Motorola - CES | alamb@camillaga.net | 6 | | |
| Puckett EMS | Shane Garrison | Vice-President | 678-504-1702 | Zoll Data Systems / Nomad | shanegarrison@puckettems.com | 11 | zolldata.com | |
| Candler County EMS | David Moore | Director | 912-685-4600 | Itrak | ccema1@pineland.net | 4 | | |
| Thomas County EMS | Tim Coram | Captain/Co-Director | (229) 225-4114 | Motorolla | | | | |
| Capital City EMS/Ambulance | Chuck Reese | Operations Manager | 706-733-7340 | | capitalcityofga@yahoo.com | 8 | | |
| Bulloch County EMS/Rescue | Lee C Eckles | Director | 912-764-0076 | ITRAK | bcems601@nctv.com | 6 | itrak.com | |
| Calhoun Memorial Hospital EMS | Dexter Beard | Director | 229-725-4272 | | | 2 | | |
| | | | | | **TOTAL ALL** | **171** | | |
| Medical Center of Central Georgia | Lee Oliver | | 478-633-1171 | InMotion | oliver.lee@mccg.org | 22 | inmotiontechnology.com | Info provided by Ben Hinson & Jim Pettyjohn |

**Other Possible Organizations?**

| Organization | Name | Title | Phone | AVL Vendor | Email |
|---|---|---|---|---|---|
| National EMS, Inc. | Huey Atkins | Director | 770-922-9578 | | hatkins@nationalems.com |
| Banks County Fire and EMS | Gary Pollard | Chief | 706-677-1812 | | gpollard@co.banks.ga.us |
| Colquitt-Miller Co. Fire EMS | Craig Tully | Fire Chief | 229-758-1011 | | ctullycmcfire@bellsouth.net |
| Talbot Co EMS | Jerry Anthony | EMS | 706-665-3456 | | tripleJFarm3@yahoo.com |
| Towns County EMS | Rickey Mathis | Director | 706-896-2228 | | rm801@alltel.net |
| White Co EMS | William Scandrett | Director | 706-865-7475 | | bill.scandrett@nghs.com |
| Jefferson County EMS | Michael Bennett | EMS Director | 478-625-9628 | | rmajeff@bellsouth.net |
| CRHS - Columbus Regional Healthcare Systems | Rita Reddish, Gloria Arnold, Joe Claborn | Nurse Manager - Neonatal Transport, Perinatal Program Manager, Safety Manager | 706-571-1879, 706-660-6402, 706-571-1715 | | rita.reddish@crhs.net, gloria.arnold@crhs.net, joe.claborn@crhs.net |
| Taylor County EMS | Garry Lowe / Judson Montgomey | EMS/EMA Directory Judson Depty EMA Director | 478-837-8127 | | tcema@pstel.net |
| Schley County Emergency Medical Service | Duane Montgomery | Director | 229-937-9093 | | schleyems@windstream.net |
| Pickens Co. EMS | Keith LaSalle | Capt. | 706-253-8965 | | |
| Columbus Fire and Emergency Medcial Services | Marie Harrell | EMS Coordinator | 706-225-4224 | | mharrell@columbusga.org |
| City of Peachtree City | David Williamson | EMS Director | 770-631-2097 | | dwilliamson@peachtree-city.org |
| Premiere EMS | Wayne D Burdette | Director of Training & Safety | 770-445-8177 | | wburdettejr@msn.com |
| Putnam County Emergency Sevices | Shane E. Hill | Deputy Director/Asst. Chief | 706-485-9096 | | shill@netcommander.com |
| Regional Emergency Medical Service, Inc. | Danny Connell | Chief Operations Officer | | | medic045@windstream.net |
| Turner County Emergency Services | Randall Whiddon | Director | 229-567-3501 | | turnerems@alltel.net |
| Wilkes County Emergency Medical Service | Tina Bailey | Operations Manager | 706-678-7837 | | wilkescountyems@lycos.com |
| Redmond Regional Medical Center EMS | Robert Early | EMS Director/NREMT-P, AAS EMS | 706-252-5660 | | robert.early@hcahealthcare.com |
| Capital City EMS/Ambulance | Chuck Reese | Operations Manager | 706-733-7340 | | capitalcityofga@yahoo.com |