

Minutes from Contra Flow Workshop
February 14-15, 2006 Orlando, FL

Contra Flow Workshop

FEBRUARY 14-15, 2006 ORLANDO, FLORIDA



Category Two Hurricane: Winds 96-110 mph

Category Three Hurricane: Winds 111-130 mph

Category One Hurricane: Winds 74-95 mph





Welcome to Florida

Colonel Christopher A. Knight
Director Florida Highway Patrol

Topics Covered in Presentation

- **CONTRA-FLOW ROUTES**
 - I-10 (62 Miles)
 - SR-528-Beachline (22 Miles)
 - Florida Turnpike (114 Miles)
 - I-4 (63 Miles)
 - I-75 (Alligator Alley) Eastward (78 Miles)
 - I-75 (Alligator Alley) Westward (107 Miles)
 - I-75 Northbound Shoulder Plan (21 Miles)
- **CONTRA FLOW STAFFING REQUIREMENTS**
 - Traffic Control Points
 - Supervision & Management
 - Roving Patrols
 - Relief Patrols
 - Aerial Surveillance
 - Command Post Personnel
 - Duty Officers
- **CONTRA FLOW STAFFING**
 - Incident Commanders
 - Command Level Personnel Assigned
 - Assigned From Non-Impacted Area
 - Involved in Planning Process
 - Provide overall management of actual Contra-flow Operations
- **OTHER STAFFING ISSUES**
 - Emergency Medical Services
 - Wrecker Availability
 - Road Rangers
 - Evacuees Disabled Vehicles
 - Shelters of last resort

Contra Flow Evacuation Workshop

Citizens of Florida have learned to trust and act on evacuation orders thus, Florida has never had to implement contra flow. If there is a severe situation, Florida is ready to contra flow on 8 routes. The Florida Highway Patrol has created a matrix to help make the decision when to contra flow. The Governor makes the decision.

We only contra flow in daylight hours. Staff, equipment and plans are pre-staged. There are no signs on the contra flow side. We use the media to get the word out to the public. Automatic traffic recorders gather information for decision making. About 5 hours before tropical force winds hits, the contra flow will be shut down. Moving millions of people is a manpower intensive operation.

The key to successful evacuation is cooperation between state agencies and local government. Contact between neighboring states is also important.





Conference Expectations
Lap T. Hoang
State Traffic Engineer, Florida DOT

Topics Covered in Presentation

- Experiences and Plans created by:
 - Texas
 - Louisiana
 - Mississippi
 - Alabama
 - North Carolina
 - South Carolina
 - Georgia
 - Virginia
 - Florida
- Additional topics
 - Simulation Tools
 - FEMA
 - FHWA
 - Funding
 - Do's and Don'ts of contra flow

Contra Flow Evacuation Workshop

Lap Hoang welcomed everyone to the conference:

Florida DOT has worked with Florida Highway Patrol and Emergency Management to prepare to contra flow. It is timely to share our experiences in contra flow so that we can learn what you have done right and what you would do differently. We will not address issues of shelters, or other issues of general evacuation, but focus on contra flow.

Texas Louisiana , Mississippi, Alabama, North Carolina, South Carolina, Georgia, Virginia, and Florida will each talk about their contra flow plans. Professor Ken Courage will talk about some of the tools that can be used to analyze contra flow plans. Officials from FEMA and FHWA will touch on other issues surrounding evacuations.

The Do's and Don'ts of contra flow will be summarized at the end of the conference. The summary will help provide guidelines for the next hurricane season.

Thank you to FHWA for providing some of the funds to put the conference together.





TxDOT and the Hurricane Rita Experience

Scott Alley, TxDOT

Topics Covered in Presentation

- Impact of Katrina on Rita
 - Katrina had a huge impact on public behavior during Rita
 - ‘Katrina Effect’
 - No one wanted to be the one stuck on the roof
 - No Texas elected official wanted to leave citizens in peril
- Houston/Galveston Study Area Cat 5 hurricane
 - Expected **445,000 vehicles** **1.2 million Evacuees**
 - Actual **1.7 million vehicles** **2.8 million Evacuees**
- Contraflow Timeline Thursday, September 22nd
 - Governor’s first request 4:08 AM
 - Approval to implement 6:00 AM
 - Contraflow implemented 12 Noon
- Bottom Line
 - The decision to contraflow is a political decision, not an engineering decision
- Houston Re-entry Post landfall
 - Managed traffic back into Houston with a phased 3-day re-entry
 - Monitored re-entry traffic by physically observing the traffic
 - Manually Relayed that information to
 - State agencies
 - Relief organizations
 - 211, 511
 - shelters
- TxDOT Improvement Efforts
 - Governor’s task force- lead agency
 - Hurricane working group- will develop in-house recommendations
 - Attending numerous after action reviews sponsored by local jurisdiction officials
 - Contraflow exercises scheduled in February and May

Contra Flow Evacuation Workshop

What happened in Texas during Hurricane Rita?

Less than 14 days after Hurricane Katrina, Rita hit. Rita was the “perfect storm.” It was the first time a mayor or judge had the authority to call for a mandatory evacuation. Rita was projected to be ‘bigger and badder’ than Katrina. The actual evacuation areas were far larger than planned for. We think it was the largest evacuation in world history - 2.8 million people in less than 60 hours. They contra flowed 487 centerline miles.

One of TxDOT largest jobs was to provide fuel to stranded motorists. The most difficult part of re-entry was getting the word out to evacuees wanting to return. The total cost to TxDOT was over \$19 million.

The Governor has appointed a task force that will develop in-house recommendations. TxDOT will schedule exercises to practice for the next hurricane season.



Developing a Contra Flow Plan

Margaret Moore, TxDOT

Topics Covered in Presentation

- Potential Contra Flow
 - I-10 (east of Beaumont) 20 miles
 - I-10 (east of Houston) 30 miles
 - I-10 (west of Houston) 164 miles
 - I-37 (north of Corpus Christi) 100 miles
 - I-45 (north of Houston) 164 miles
 - US 83 (north of Edinburg) 66 miles
- Shifting Traffic
 - Equipment needed for removing barriers
 - How many lanes will be shifted or diverted to other side
 - Types of vehicles allowed on contra flow side (No large trucks?)
- Handling Exit and Entrance Ramps
 - Barricades, drums or cones
 - Manned by law enforcement or DOT
- Driver Needs
 - Include General Service Signs on the back of guide signs to show access to food, fuel, and restrooms
 - Determining which exits to leave open
 - Access to rest areas on contra flow side
 - Information for Drivers on Contra Flow Side
 - Display mile markers on front and back of posts
 - Exit numbers on the back of signs
 - Install horizontal signing with exit numbers on exit ramps on contra flow routes
- Permanent DMS and Portable CMS
- Procurement and Storage
 - Traffic control devices (barricades, cones, and signs)
 - Supplies (water and fuel)
- Plan to Assist Motorists
- Develop Ramp Assignment Layouts
- Develop Traffic Control for Flushing Lanes
- Access for Emergency Vehicles
- Emergency Lane Pavement Markings

Contra Flow Evacuation Workshop

It is not a good time to begin planning contra flow at 4AM on the day of the storm. You've got to have a plan.

The coastal zones were educated about evacuating. However, the 'Katrina Effect' caused more people to evacuate than planned.

Texas has over 500 centerline miles of potential contra flow. Some of the safety features to prevent collisions (cable barrier) make contra flow difficult. How do you prevent backup at a contra flow entrance/exit? Can you adequately handle trucks and everyone driving every vehicle they own? How do you man the exit and entrance ramps? TxDOT had to man ramps because there was not enough law enforcement. Look for multiple points to end the contra flow.

I-10 was not an evacuation route, but became one because of Rita. Exits may be limited, evacuees need signs to let them know where to get off. The frontage road system allows people to exit for food/gas and travel. The DMS signs are key and messages are preset as part of the planning. Ramp assignments are printed, showing equipment and personnel.

Hurricane evacuation lanes (shoulders) are marked, and buttons that are embedded in evacuation lanes are taken off for emergencies. The Houston solution was a phased plan for people to return home. Do not contra flow the return.





Overview of the Louisiana Contra Flow Plan

Stephen Glascock, LADOTD
Lieutenant Chris Bodet, LASP

Topics Covered in Presentation

- **Evacuation Problems During Hurricane Ivan (September 2004)**
 - **Lack of coordination**
 - **Slow reaction** of State to evacuation traffic
 - **Poor management** of evacuation traffic beyond storm surge areas
 - **Lack of accurate and timely** public information
 - **Uninformed evacuees** (plans & expectations)
 - **Oversaturated highways**
- **Improvements to Contraflow Plan**
 - **Coordinated Evacuations**, not only in vulnerable areas but in pass-through areas
 - **Phased Evacuations** based on geographic areas of susceptibility
 - **Increased Highway Efficiency** through active traffic management, better signage, alternate routes, better loading of Contraflow
 - **Recognized Congestion is Inevitable**, everyone is competing for road space, increased timeline
 - **Educated/Informed Public** on plans, alternatives and “realistic” expectations,
 - **Provided Real-time Information to Media** (every 30 minutes)
 - **Established DOTD/LSP Traffic Control Center** (24/7 Operation)
 - **Stationed Tow Vehicles** along evacuation routes
 - **Eliminated/Managed Congestion Points** (i.e., Input = Output)
 - Original Plan: 8 freeway/expressway lanes
 - Improved Plan: 11 lanes (over 1/3rd increase in capacity)
- **Extended Contraflow Segments** north into Mississippi
- **Highlights of Katrina Contraflow Plan**
 - Operated for 25 hours
 - Over 1 million (est.) evacuated
 - Longest delay: 2 – 3 hours
- **Successes**
 - Activated & operated the Traffic Control Center
 - Had an experienced Contraflow Team w/ clear lines of responsibility
 - Executed “live” practice during Hurricane Dennis
 - Educated & continuously informed public

Contra Flow Evacuation Workshop

After Hurricane Ivan, Louisiana learned many lessons to prevent the kind of problems (e.g. loading) that occurred during the contra flow operations. Some of the **factors included:**

- Nearly 2 Million “At Risk” Population across Southeast Louisiana (1.2 million New Orleans Metro Area)
- Limited roadway system for evacuation
- 100,000 people in New Orleans dependent upon Public Transportation
- Levee Protection System- Protects East Bank Metro Area but creates a Bowl

Information was driven by media, rather than by the emergency plan. Congestion extended over 50 miles. It took 12 hours to make a 1.5 hour drive – unacceptable to the public. People should flee north from the storm, and not increase congestion by going to visit friends in Texas.

What we learned:

Phased evacuations will begin 50 hours out. Contra flow will begin at 30 hours. Loading traffic on one side and then beginning contra flow is very inefficient. Don’t expand 3 lanes of traffic to 4. Spread out traffic over a longer period of time if possible.

The Ivan evacuation occurred during a weekday (normal activity on top of evacuation). Katrina occurred over a weekend. The contra flow was more successful because they implemented the improvements developed after Ivan (including loading where input = output).



Mississippi Contra Flow Operations

Bob Chapman, MDOT
Captain Karon Bridges, MDOT

Topics Covered in Presentation

- Contraflow Response Operating Conditions
 - LEVEL 1 – Hurricane Season
 - LEVEL 2 – Hurricane Watch
 - LEVEL 3 – Hurricane Warning
 - LEVEL 4 – Louisiana Contraflow
 - LEVEL 5 – Mississippi Contraflow
- Contraflow Route Options
 - **Option 1** - LA Contraflow (only within borders of LA) to MS State Line
 - **Option 2** - MS Contraflow (into MS):
- Phases of Contraflow Operations
 1. Notification of LA intent & MS Governor approval to implement
 2. Staging Personnel & Equipment
 3. Clearing SB Traffic
 4. Implementing All Lane NB flow
 5. Termination / Shutdown
- MDOT Contraflow Staffing

Division/District/Administrative	
– Personnel	186
– Vehicles	112
Enforcement	
– Personnel	112
– Vehicles	100
- MDOT Contraflow Equipment

– Barricades	110
– Triton Barriers	70
– Drums	180
– CMS	25
– Arrow Boards	18
- Hurricane Katrina Contraflow Operations Timeline
 - Saturday, August 27, 8 AM, LA requests Contraflow at 5 PM that afternoon
 - MS Governor approves use of I-59 & I-55
 - MDOT staff notifications begin at 9:15 PM
 - MDOT in place and ready by 4:30 PM
 - LA implements contraflow into MS at 5:30 PM
 - Contraflow lasts 24 hrs and terminates at 5 PM August 28
 - It takes six more hours, until 11 PM, for MDOT to remove and store traffic control and disperse personnel

Contra Flow Evacuation Workshop

Why Is Mississippi Considering contra flow?

Evacuees from the State of Louisiana will impact Mississippi roads producing unmanageable traffic congestion. The State of Louisiana has asked for help with the evacuation of 1.4 million people from southeast Louisiana in case a hurricane tracks towards New Orleans with the potential for a high storm surge.

Mississippi has Traffic Control Diagrams for the entire contra flow plan. When Louisiana initiates contra flow operations, they provide **3 hours** advance notice to MDOT prior to decision to implement Option 1, or provide **4 hours** advance notice to MDOT prior to decision to implement Option 2, provided MDOT is already conducting Option 1 operations. If not, then **7 hours** advance notice will be required.

During contra flow operations, I-10 east evacuation traffic into Mississippi will be limited. Wide-load cargo vehicles will be denied access to the contra flowed routes.

Louisiana will facilitate equalization of traffic loading on both sides of the contra flowed routes prior to entering Mississippi.

It is best to have a PLAN and not need it, than to need it and NOT have it!



"Reverse-Laning" I-65 for Hurricane Evacuations



Reverse-Laning I-65 for Hurricane Evacuations

George Conner, ALDOT

Topics Covered in Presentation

- Route Selected
 - Interstate I-65
 - Collects northbound evacuation traffic regardless of hurricane direction
 - Traffic volumes can be very large
 - Intermediate destination for evacuation traffic leaving Baldwin County and western Florida Panhandle
- Key Features
 - Each Location staffed with:
 - Experienced Supervisory Staff
 - Team Leader
 - Assistant Team Leader
 - Local District Personnel
 - Support Staff
- Location Specific Checklists
- Criteria used in making decisions:
 - EMA evacuation plans
 - Mandatory vs. Voluntary
 - Size of Evacuation Area
 - Number of Evacuees expected
 - Location of Expected Storm Landfall
 - Expected Storm Strength at Landfall
- Four Levels Defined
 - Level 1 - Beginning of Hurricane Season
 - Level 2 - Hurricane Watch Declared
 - Level 3 - Hurricane Warning Declared
 - Level 4 – Implementation
- Time to Implement
 - Approximately 2 hours to divert SB traffic and reverse flow
 - Approximately 3 hours to stop contraflow and restore NB traffic
 - Approximately 1 additional hour to clear up loose ends at North Terminus
 - Time to Implement
- Evacuation should be complete and plan removed
 - prior to storm landfall
 - prior to nightfall
 - prior to high winds
 - Reversal not intended to remain in place long-term
- Return Traffic
 - No intention of reversing traffic flow to accommodate re-entry traffic after the storm.

Contra Flow Evacuation Workshop

This presentation focused on why the plan was developed, what went into it, and the decision making process. They carefully consider where the contra flow terminates.

The AL contra flow covers 130 miles. There is dedicated traffic control equipment, maintained and staged for reversed laning. All equipment is loaded on a trailer ready to go. A single strip map communicates information about interchanges. Flip down signs are ready to go. Each location is staffed with key people who have the authority to make decisions.

- Lessons Learned
 - Joint operation with DPS makes plan execution much better.
 - Schedule based reversal is better than response based.
 - Need better communication with public regarding start and stop times. Be clear with the media when providing information.
 - Impact of reversal on emergency operations and other evacuation routes not well understood. Many people simply want to drive on the wrong side of the interstate. There is a potential negative impact of contra flow. Know what the trade-offs are when choosing to contra flow.





Hurricane Evacuation Plan Major Patrick Manning, AL HP

Topics Covered in Presentation

- **PLAN IMPLEMENTATION**
 - Based on Forecast
 - Prepare to coincide with Mandatory Evacuation Order
 - Deploy to Staging Area
 - 60 Hours from Landfall
 - PHASE ONE
 - 48 Hours from Landfall
 - PHASE TWO
 - Upon Decision of ALDOT Director
- Detailed Operations Explained in Presentation
- **LESSONS LEARNED**
 - 1. Utilize Trooper units to clear southbound lanes
 - a. Authorized emergency vehicle
 - b. Enforcement action if necessary
 - 2. Delay in starting Contra-flow traffic
 - a. Southbound lanes empty
 - b. Median crossing
 - 3. Implementing with light traffic
 - a. High speed driving
 - b. Limited enforcement capabilities
 - 4. Response to accidents/incidents
 - a. Easy response northbound
 - b. Difficult southbound response
 - c. Units get out of position

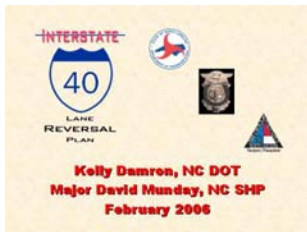
Contra Flow Evacuation Workshop

This presentation describes how the Alabama highway Patrol works with ALDOT and other agencies to contra flow the two planned phases of operation. The Special Operations Platoons are trained to conduct contra flow operations. Each platoon has a standard assignment. They know where to go and what to do. The emphasis is to facilitate the flow of traffic. Stranded motorists will be moved to the closest EMA collection site for transportation to a shelter. Troopers easily respond to incidents that are North of their position. However, they tend to get out of position because they are all moving north, and it is difficult to return south.

PHASE ONE provides for traffic management operations in the Wiregrass Region of Alabama. Designated Trooper personnel will establish traffic control points (TCPs) at critical intersections to facilitate the safe flow of evacuation traffic. Other division personnel will patrol secondary routes of travel to expedite response to wrecks and/or stranded motorists.

PHASE TWO plan calls for the reversal (contra flow) of southbound traffic along I-65 from Montgomery to Baldwin County. Special Operations members, along with ALDOT, will man traffic control points (TCP) and barricades to allow northbound traffic only. Traffic will resume normal flow once it reaches Montgomery.





I-40 Lane Reversal Plan

Kelly Damron, NC DOT

Major David Munday, NC SHP

Topics Covered in Presentation

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 - Based on Forecast
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Contra Flow Evacuation Workshop

Kelly noted how similar all our plans are. She focused on the differences in North Carolina. It is as important to come up with criteria to make the decision, as it is to have a contra flow plan. The Reversal Control group is composed of the Department of Transportation, State Highway Patrol and Emergency Management. Timing is everything. It cannot be done at the last minute and should not be done lightly. North Carolina uses barricades for control. Most signing is portable. Law Enforcement and DOT work together to man interchanges. Standby towers are located about 15 miles apart to handle incidents. Quick clearance laws allow moving vehicles involved in incidents to keep traffic moving.

The Voice Interoperability Plan for Emergency Responders covers one third of the state. It provides the ability for highway patrol, police and sheriff to talk to each other.

NC State did a research project. They discovered they had a plan on paper that would have made things worse than if they did nothing. Based on that information they changed the traffic assignment at a major intersection to load all the lanes. They expect that merges at the end will result in a 7 mile queue at the end of the contra flow.

They have press releases ready to go in case of implementation. Other issues discussed included incident command, re-entry, and buy-in from the public.





South Carolina 2006 Hurricane Evacuation Plan

Dick Jenkins, SCDOT
Lieutenant Mike Bowman, SCHP

Topics Covered in Presentation

- Emergency Support Function 16 Traffic Management
 - Department of Public Safety (Lead Agency)
 - Department of Transportation
 - South Carolina Army National Guard
 - Department of Probation, Parole and Pardon Services
 - Department of Natural Resources
 - State Law Enforcement Division
 - State Forestry Commission
 - Civil Air Patrol
- Elements of I-26 Reversal
 - Requires 2 hours to place barricades
 - Requires 2 hours to flush traffic
 - Limited entrance and exit from reversed lanes (22 interchanges)
- Key Points to I-26 Reversal
 - Four access points to reversed lanes
 - Exit at any interchange (4 exceptions)
 - Re-enter I-26 in normal pattern
- Resources Needed for I-26 Reversal
 - 162 SCDOT Personnel per shift
 - 125 SCHP personnel per shift
 - 124 barricades
 - 459 barrels
 - 1,500 cones
 - 20 changeable message signs
 - 5 highway advisory radios
- IT Resources Needed for US 501 Reversal
 - 30 SCDOT personnel per shift
 - 31 State Law Enforcement personnel per shift
 - 59 National Guard personnel per shift
 - 12 barricades
 - 1750 cones
 - 10 Changeable Message Signs
 - 5 Highway Advisory Radios

Contra Flow Evacuation Workshop

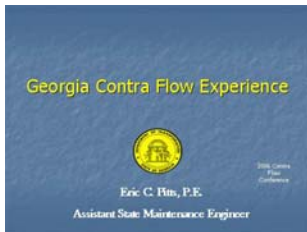
The South Carolina hurricane plan is an integrated statewide plan involving many state agencies. The state is divided into three conglomerates. All routes are checked each year, to be sure evacuation signs are in place. The Northern, Central, and Southern Routes are mapped and available on their web site.

The I-26 contra flow lanes are loaded at the 1-26/I-526 interchange. At the I-26/I-77 interchange normal traffic is diverted to I-77 and a crossover diverts contra flow lanes back to the normal lane. They also have state guards handing maps out to provide guidance for shelter, food, gas, etc. to evacuees.

South Carolina has flip down signs in place. They have also applied pavement mile markers that can be seen by aerial patrols to report incidents/status. They have a plan to keep fuel stations able to refuel vehicles.

ITS plays an extensive role in hurricane evacuation including 275 cameras, 284 speed detection radars, 8 incident response programs, and 128 automatic traffic recorders. The information gathered is distributed via portable message signs, highway advisory radio and internet. By comparing typical day to peak evacuation traffic to view trends.

To the extent possible, all routes the input = output (2 lanes in flow to 2 lanes out). They had no problems, even in nighttime operations.



Georgia Contra Flow Experience

Eric Pitts, GDOT
Capt. Larry Smith, GHP

Topics Covered in Presentation

- **Contra-Flow Lane**

As a result of Hurricane Floyd traffic conditions and operational issues, I-16 contra-flow was extended by 45 miles for a total of 125 miles.

- Only 3 exits remain open in the contra-flow side, while 21 are closed

- **Drop Gate Barricades**

- Resemble railroad crossing arms
- Will be used to restrict normal I-16 EB traffic in order to utilize I-16 EB lanes for WB-only traffic flow

- **HEROs**

- During a hurricane evacuation, GDOT HEROs will patrol the I-16 corridor to assist motorists
- HEROs will also be on I-75 when the Gulf Coast is threatened.
- Maintenance Forces will sweep interstate shoulders along I-16 corridor 72 hours prior to hurricane land fall to minimize road hazards.

- **INTERSTATE MEDIAN CROSS OVERS FOR CONTRA-FLOW**

- I-75 Contra-flow
 - Begins at MP 3.7 and ends at MP 105.3
 - All exits on the SB side are closed (32 exits)
 - to prevent exiting from the contra-flow side except 3 exits (Exits 29, 62, and 101)
- I-95 Contra-flow
 - Begins at MP 3.5 and ends at MP 81
 - All exits on the SB side are closed (11 exits)
 - to prevent exiting from the contra-flow side except 1 exit (Exit 38)

- **HERO SUCCESS**

- HUGE public relations boost.
- DOT personnel, local and state police, wrecker and fire departments worked extremely well together. Everyone went the extra mile.
- Relieved the District personnel of maintaining traffic on the interstate. This allowed District forces to be redirected.
- Provided accurate and up to date traffic and weather conditions.
- Provided information on problem road conditions (flooding, signs down, etc.).
- HERO equipment and operations allowed incidents to be cleared faster and safer. Maintenance forces did not have to respond to many of the incidents on the interstates.
- Assisted with evacuation and re-entry along interstates.

Contra Flow Evacuation Workshop

The most important thing anyone can do is to 'Get Prepared' through meetings like this workshop and planning operations at home.

Georgia utilizes air support. Traffic signal controls are manually operated at the ramps. They have an agreement with ferry boats to help with bridge problems. They coordinate with rail roads to prevent problems with traffic. Georgia uses barricades to free personnel to handle other duties. They are located at the tops and bottoms of the ramps.

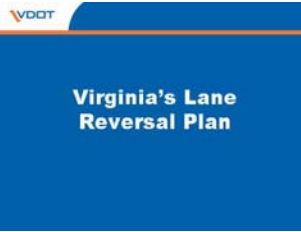
The HEROs operate two 12-hour shifts, 12 vehicles/shift so that there is one HERO truck every 10 miles.

During Hurricane Frances, traffic problems were encountered on I-75 with a 21 mile back up and the possibility of more evacuees coming. The decision was made to develop and implement a contra-flow plan for Interstates 75 and 95.

Georgia's first contra flow plan was assembled in less than 5 hours and implemented. Temporary pavement installation on I-75 was completed by DOT maintenance forces in less than 10 hours. A construction contractor installed one cross over on I-95 as well.

The I-75 contra flow ends with a cross-over merging four lanes into 3 lanes. Traffic count information helps identify conditions.





Virginia's Lane Reversal Plan Perry Cogburn, VDOT Maj. Thomas Martin, VSP

Topics Covered in Presentation

- Transportation Emergency Operations Center manages disasters from a statewide perspective
- 5 Smart Traffic Centers manage disasters from a regional perspective
- Lane Reversal (with gates)
 - Could be used for any Category storm
 - Reduces the amount of time to implement plan by 12 – 18 hours
 - Reduces number of personnel required to implement plan
 - Provides flexibility to adjust to changing conditions
- Enhancements to the Plan
 - DMME to coordinate bulk fuel distributions to facilities located along evacuation routes
 - Use of SSP along I-64 with double the fuel supplies
 - VDOT, NG, and VDH to establish emergency first aid/water/fuel station at the 2 Rest Areas along I-64
 - Contracting towing services for vehicles that breakdown during the lane reversal
 - Public Education!
 - Continue to model effects from TCP.
 - Need additional traffic monitoring devices along evacuation routes

Contra Flow Evacuation Workshop

Develop and maintain the Hampton Roads Hurricane Evacuation Traffic Control Plan.

- Implement the traffic control plan to manage the controlled evacuation of potential inundation areas threatened by a hurricane.
- Operate the Smart Traffic Centers in Virginia Beach and Richmond and the TEOC in Richmond. Keep the State EOC and local EOCs advised of the traffic situation.
- Coordinate the closure of high-risk roadways such as bridges, tunnels, or flood-prone sections of roadway, the Chesapeake Bay Bridge-Tunnel Closure Plan, and other protocols for adjusting transportation resources to meet impending emergencies.
- Coordinate the clearing of traffic from major evacuation routes prior to the arrival of sustained tropical storm force winds.
- Assist with implementation of the Hampton Roads Traffic Control Plan.
- Expedite the flow of traffic out of the coastal areas during the evacuation.
- Control access to the evacuation routes during the evacuation.
- Maintain order and security on designated evacuation routes.
- Monitor the flow of traffic during the evacuation.
- Control reentry to evacuated areas in coordination with local law enforcement.
- At least once a year, prior to hurricane season, VDOT, VSP, VDEM and National Guard have one tabletop training session on hurricane response.
- VDOT, VDEM and VSP meet regularly to discuss evacuation planning.



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Florida's Contra Flow Plans

Paul Clark, FDOT

Major Leroy Smith, FHP

Topics Covered in Presentation

- Background
 - 1999 - Hurricane Floyd impacted all southeastern coastal states
 - Approximately 5 million evacuees
 - Approximately 2 million from Florida
 - No Florida evacuees injured
 - Resulted in the forming of the Governor's Hurricane Task Force
- Governor's Hurricane Task Force
 - Assignment:
 - Identify bottlenecks
 - Need and feasibility of reverse laning
 - Results of Multi-Regional Meetings:
 - Identified possible reverse laning routes
 - Identified bottlenecks
 - Identified other evacuation issues:
 - Shelters
 - Public information
- Design Routes
 - Design routes from information derived from the multi-regional meetings
 - Identify equipment and personnel needed for each route
- Contra Flow: Decision Timeline
 - 49 hours prior to TS force winds
 - State Coordinating Officer will direct all involved agencies to make preparations for contra flow operations
 - 25 Hours prior to TS force winds
 - Recommendations from FHP, FDLE, FNG (if applicable), FDOT and DCA presented to Governor
 - Governor finalizes the decision
 - State agencies implement
 - 17 Hours prior to TS force winds
 - Contra flow must be implemented to allow maximum benefit
 - 4 Hours prior to TS force winds
 - Termination of contra flow MUST begin to allow for responders to seek shelter
- "Bottom-up Approach"

Contra Flow Evacuation Workshop

- Evacuations
 - Regional Evacuation
 - Local Responsibility
 - State Law Enforcement assists with Staffing
 - Multi-Regional Evacuation:
 - Requires Local & State coordination of evacuation sequence
 - Contra-Flow Operations
 - Enhance Regional Evacuations
- Decision Making Criteria
 - Sufficient threat
 - Cat 4/5 hurricane is forecasted to impact at least 1 region in the state
 - Extreme vulnerability
 - Mandatory evacuation for Cat 4/5 storm surge evacuation zones
 - Available time
 - Arrival of Tropical Storm force winds at least 25 hours from Florida Coast
 - Will the regional evacuation plan be sufficient without the addition of contra flow operations (Cat 4/5)
 - State and local emergency managers concur that failure to implement contra flow will threaten a greater number of vulnerable residents
- Equipment
 - Cones
 - Barricades
 - Portable signs
 - Variable message signs
 - Dynamic message signs
 - Sand bags
 - Portable light towers
- Partnerships
 - Know who all the stakeholders are!
- Florida's Evacuation Numbers
 - 2004 Hurricane Season – 9.4 million
 - 2005 Hurricane Season – 5.3 million
- Wrap-Up
 - Plans developed
 - Decision making criteria in place
 - Decision making timeline developed





Why We Evacuate

Brock Long,
FEMA Region IV

Topics Covered in Presentation

- The Largest Lesson To Be Learned Have Been Overshadowed!
- **Storm Surge:** The deadliest hurricane hazard along the coast.
- Hurricane Evacuation Studies
- Additional Decision Assistance Tools
- **Evacuation Clearance Times**
- General Evacuation Concerns
 - Counties not issuing evacuation orders according to Evacuation Zones.
 - Clearance times do not account for shut down and staging time needs
 - Typically found that many citizens never hear a specific evacuation warning order.
 - EM's may focus too much on the forecast track and not considered the error cone sufficiently.
- Forecast Trends and Track
 - How Does The Public Interpret Forecast and Evacuation Orders?
 - What is the difference between Mandatory, Voluntary, Recommended, Partial, Full, etc. etc?
 - The watches and warnings issued by the National Hurricane Center (NHC) were somewhat important or very important factor in the evacuation decisions for 95% of these households. However...their knowledge of the meaning of watches and warnings is limited.
 - If you are not seen, then do not expect to be heard!!
- Improving Evacuations
 - Well Designed Zones to promote phased evacuations
 - Social Capital Issues – How does the public receive the message?
 - How do we determine Real Time Evacuation Participation Rates?
 - Who should evacuate & Where do we evacuate?
 - Increase public awareness and self assessment capabilities
 - What about reentry?

Contra Flow Evacuation Workshop

Brock Long pointed out that the largest lesson to learn has been overshadowed. Storm Surge is the deadliest hurricane hazard along the coast. Storm surge kills people and devastates property.

Many studies analyze the hazards, vulnerability, behavior, shelters, and transportation to help make better decisions. Maps have been created to display the storm surge vulnerability of (particularly) the Southeastern coast.

The public may not respond as quickly or effectively as planners would desire. The public is often confused at the difference between mandatory, voluntary, recommended, partial, full and other local terms used to explain how to safely escape the approaching hurricane. Many emergency managers may focus too much on the forecast track and not consider that the error cone also displays the possibility the storm may follow a different track.

The Evacuation Liaison Team is working to facilitate communication and coordination among states impacted by a multi-state hurricane evacuation response.





Traffic Simulation Tools for Evacuation Planning

Kenneth C. Courage

Professor Emeritus,

Dept of Civil Engineering,
Univ. of Florida

Topics Covered in Presentation

- **Simulation Models**
 - Microscopic
 - Evaluation
 - Visualization
 - Mesoscopic
 - Dynamic Traffic Assignment
 - Decision support
 - Macroscopic
 - Optimization
 - Large Regional Networks
- **Microscopic Simulation Applications**
 - Getting data that you can't get anywhere else
 - Conditions don't exist
 - Conditions exist but data collection is too expensive
 - Direct testing of alternative scenarios
 - Establish feasibility
 - Compare the performance measures of different configurations
 - Development and calibration of decision support models
 - Simulation is used as a surrogate for field data collection
 - Visualization of results
- **Micro Simulation Tool Development**
 - Better simulation
 - More explicit treatment of peds, bikes, transit, roundabouts etc.
 - Data import/export
 - Dynamic traffic assignment
 - Planning model integration
 - GIS integration
 - Database integration
 - Improved visualization
- **Major US Market Players** (Alphabetical)
 - AIMSUN (Spain)
 - CORSIM (USA)
 - INTEGRATION (USA)
 - Paramics (UK)
 - SimTraffic (USA)
 - TransModeler (USA)
 - VISSIM (Germany)

Contra Flow Evacuation Workshop

Ken Courage covered the basics of Simulation models that run the gamut from microscopic to macroscopic in level. Simulations provide data that you can't get anywhere else. This presentation suggests available tools and where they would be most effective at answering the kinds of questions raised by contra flow planning.

References to Simulation Applications for Evacuation Modeling

- **Modeling Small Area Evacuation: Can Existing Transportation Infrastructure Impede Public Safety?**
Church & Sexton; *Final Report: CalTrans Task Order 3021*
- **EVALUATION OF EMERGENCY EVACUATION STRATEGIES FOR DOWNTOWN EVENT TRAFFIC USING A DYNAMIC NETWORK MODEL**
Eil Kwon and Sonia Pitt;
2005 Transportation Research Board Meeting
- **TFramework for Modeling Emergency Evacuation**
Radwan, Mollaghasemi, Mitchell, Yildiriim;
Final Report, FDOT project BD548-5
- **A model was developed for evacuation zones feeding I-40 using CORSIM and VISSIM**
- **Alternative Methods to Increase the Effectiveness of Freeway Contraflow Evacuation**
Brian Wolshon: *Poster Session TRB 2005*
- **National Review of Hurricane Evacuation Plans and Policies**
Brian Wolshon, Elba Urbina and Marc Levitan
LSU Hurricane Center, 2001



[PRESENTATION](#)



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Roundtable Discussion

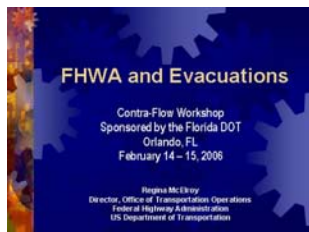
Michael Akridge, FDOT

Topics Covered in Presentation

- What about Speed Limits?
- When to Contra Flow?
- What are we doing to aid our motorists?
- Recovery Effort
- What about destination evacuation?
- What about contra flow for a terrorism incident?

Contra Flow Evacuation Workshop

Listen to the comments made by presenters and participants in this lively discussion.



FHWA and Evacuations

Regina McElroy

Director, Office of Transportation Operations

Federal Highway Administration
US Department of Transportation

Topics Covered in Presentation

- **Agenda**

- Background - Evacuations and Emergency Transportation Operations (ETO)
- Evacuation Activity
 - SAFETEA-LU Section 10204 Report
 - FHWA Primer Series
 - Joint Program Office ETO Initiative
 - Evacuation Liaison Program

- **SAFETEA-LU Section 10204 Report**

- All modes
- Extent of coordination
- Communications (before and during)
- Availability of food, water, restrooms, fueling stations, and shelter opportunities
- Time required to evacuate
- Physical and mental strains
- Emergency Preparedness

- **FHWA Evacuation Primer Series**

- Four documents in series
 - General Overview
 - Planned Evacuations using Highways
 - Planned Evacuations using Other Modes (special needs groups)
 - No-Notice Evacuations

- **DOT Joint Program Office ETO Initiative**

- Evacuation Planning and Management
- State of the practice in no-notice evacuations
- Traveler information for disaster situations
- Low cost surveillance of rural evacuation routes
- Traffic management technology to enhance emergency response

- **Evacuation Liaison Team**

- FHWA, FEMA, IT Specialist
- Stands up when multi-State evacuations are likely
- Facilitates information sharing
- Supports decision making

Contra Flow Evacuation Workshop

The Federal Highway Administration helped support this conference and wants to support other initiatives.

Evacuations fit into a larger context. There are 4 major evacuation activities. FHWA is focusing on strategies to reduce surprise congestion. Operating the system smartly and efficiently can help address challenges like: Traffic Incident Management, Planned Special Events, HazMat, Technological Events, Wildfires, Hurricanes, Earthquakes, and Terrorist Attacks.

The SAFETEA-LU Section 10204 Report provides information to congress about catastrophic hurricanes and events. Congress will be providing and also dictating how money will be spent under the current legislation and wants to see how emergency plans deal with a number of issues and what appropriate next steps should be.

The FHWA Evacuation Primer Series includes four documents. The General Overview will consider all the elements that must be considered and the other three sections will drill down into more detailed information. Once folks are on the highway system, what will you do with them? How do you get them to take action? How do you handle a no-notice situation.

The ETO Initiative focuses on ITS (high tech stuff).

The Evacuation Liaison Team facilitates information sharing for multi-state evacuations or assist with problems like RITA in Texas.



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Funding – “A State
Perspective”
Patrick Odom
FDEM

Topics Covered in Presentation

- What can be done for funding from a State Perspective?
- Things to consider
 - Document everything
 - If you didn't document it, you didn't do it
- Emergency contracts are reimbursable for disaster relief
- After Disaster Recovery
 - Hazard mitigation money (5% for special projects)
 - Generators
 - Shelters
 - Air conditioning for special needs
 - Public education campaigns
 - Update Hurricane Evacuation Studies
- Restudy coastline to know storm surge zones
 - Public information
 - Protecting lives and changing outcomes.
- Other Funds
 - Homeowners are funding through insurance

Contra Flow Evacuation Workshop

Hurricane season 2004/2005 saw \$1.2 Billion in funding requests. Reimbursement requires that the mission was necessary for life/safety.

Contracts are reimbursable for disasters. Don't be afraid of spending money for things like emergency fueling cost, debris removal. You should be reasonably assured that if you document it you will get your money back.

Hazard mitigation money – 5% can be used for special projects – *e.g.*, generators, shelters. Shelters are not great places to live, they are not comfortable, but they are life boats for people who need them. Air conditioning is required for elderly. Public education campaigns can be funded from the 5% money.

Florida has requested \$8.4 million to update Hurricane Evacuation Studies (Mitigation Studies). These studies will assist residents in protecting their property by informing them where their surge zones are. Florida wants to restudy with Lydar to get an accurate picture of the coastline.

Counties get a base grant of ~ \$100,000 for funding salaries, etc. Competitive grant funds are available for DMS and other emergency needs. Homeland Security Funds are another potential source of funds.



The Do's and Don'ts of Contra Flow

Lap T. Hoang
State Traffic Engineer,
Florida DOT

Topics Covered in Presentation

- **Don't** underestimate resource requirements
- **Don't** forget to pre-stage water, gas, rest rooms
- **Don't** be slow to react
- **Don't** contra flow on reentry
- **Don't** give the public unlimited choices
- **Don't** underestimate human behavior
- **Don't** use contra flow if you have a good evacuation route
- **Other Discussion points**
 - Speed limits
 - Signing
 - Traffic signals
 - Service patrols
 - Lane marking
 - Trucks
 - MUTCD impacts
 - Night time operations
 - Exit and entry on contra flow side
 - Manned vs unmanned gates/ramps
 - Next conference
 - National website

Contra Flow Evacuation Workshop

- **Do have a plan**
- **Be Flexible**
 - Political decision vs Engineering decision
 - Plan for unexpected
- **Traffic Plan**
 - Clear chain of command
 - Define Route
 - Handle Logistics
 - Create Care plan
 - Limit public choice
- **Outreach – Coordinate**
 - Other modes of transportation
 - Mutual aid
 - Cross jurisdiction
 - State to state
- **Outreach Educate**
 - Develop trust
 - Reach at different levels
 - Have an outreach program
 - Evacuation zone
- **Define Both Ends**
 - Entry = Exit
 - Consider exit location
 - Shelters, food, gas
- **Should include**
 - Use air surveillance
 - Start contra flow as soon as lanes are clear
 - Consider effects of trucks
 - Use ITS information
- **Must include**
 - Spread out traffic
 - Stage the contra flow
 - Multi-level
 - May Limit public choice
 - May close some entrance ramps
 - Provide water, maps, restrooms, fuel
 - Stranded motorists
 - Service patrols
 - Take care of stranded motorists
 - Routes for emergency vehicles
- **Should consider**
 - Infrastructure improvement
 - Gates
 - Building crossover
 - Guard rail end treatments
 - Median openings
 - Reflective buttons
- **Motorist Info**
 - Signs
 - Barricade
 - ITS
- **After action review**



DVD/CD Library

Library



Excel Spreadsheet Menu Includes:

- Presentations
- Topics from Presentations
- Library Documents

Contra Flow Evacuation Workshop

Document

[FL_050606-FIHS_Contraflow_Rprt-V1.pdf](#)

[FL_050613-FIHS_Contraflow_Exec_Sum-V1.pdf](#)

[itsdocs_fhwa.pdf](#)

[MS_05_Contraflow_Plan_FINAL_webversion.pdf](#)

[MS_HurrEvacRoutes_05.pdf](#)

[MS_Hurricane_Evac_Brochure_2005.pdf](#)

[MS_I-55_Contraflow_Traffic_Control_Diagram_Plan_Aug05.pdf](#)

[MS_I-59_Contraflow_Traffic_Control_Diagram_Plan_Aug05.pdf](#)

[NC_CollegeRd_Corridor.pdf](#)

[NC_HurricaneEvacuationRoutes.pdf](#)

[NC_I40_Lane_Rev_Brochure.pdf](#)

[NC_I40_Lane_Rev_Poster.pdf](#)

[NC_I40_QA.pdf](#)

[NC_I40_Talking_Points.pdf](#)

[NC_processGuidelinesI40Rev.pdf](#)

[NC_Wilmington_AreaEvac.pdf](#)

[SC_I-26.pdf](#)

[SC_US17_3Lane.pdf](#)

[SC_US21.pdf](#)

[SC_US21_3Lane.pdf](#)

[SC_US278.pdf](#)

[SC_US278_3Lane.pdf](#)

[SC_US501.pdf](#)



Contra Flow Workshop

FEBRUARY 14-15, 2006 ORLANDO, FLORIDA



Category Two Hurricane: Winds 96-110 mph

Category Three Hurricane: Winds 111-130 mph

Category One Hurricane: Winds 74-95 mph



Florida Department of Transportation

JEB BUSH
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

DENVER J. STUTLER, JR.
SECRETARY

On behalf of Governor Jeb Bush, I would like to personally welcome you to the great state of Florida.

We are excited to be your host for the first ever Contraflow Evacuation Conference. This two-day meeting brings together evacuation experts from the Gulf and East Coasts to discuss the successes and opportunities for improvement in this critical emergency management area. In addition, we welcome those representing our national transportation partners, the Federal Highway Administration and other states who are interested in this important topic.

Please take the next two days to share your state's experiences with the other transportation and law enforcement professionals in attendance. This is your chance to have a regional and national dialogue on contraflow.

We are confident that you will find the presentations informative and valuable. We are also certain that you will find much to do in the Orlando area.

Enjoy your time in Florida.

Denver Stutler, Jr. P.E.
Secretary

Contra Flow Workshop Conference Agenda

February 14, 2006

- | | |
|---------------|---|
| 7:00 – 8:00 | Registration & Networking |
| 8:00 – 8:05 | Introduction of Keynote Speaker
Michael Akridge, FDOT |
| 8:05 – 8:25 | “Welcome to Florida”
Colonel Christopher A. Knight, Director Florida Highway Patrol |
| 8:25 – 8:30 | “Conference Expectations”
Lap Hoang, FDOT |
| | Session Moderator – Michael Akridge, FDOT |
| 8:30 – 9:05 | “TX DOT, Contra Flow and the Hurricane Rita Experience”
Scott Alley, TX DOT |
| | “Developing a Contra Flow Plan”
Margaret Moore, TX DOT |
| 9:00 – 9:40 | “Overview of the Louisiana Contra Flow Plan”
Stephen Glascock, LADOTD / Lieutenant Chris Bodet, LASP |
| 9:40 – 10:00 | Morning Break |
| | Session Moderator – Paul Clark, FDOT |
| 10:00 – 10:35 | “Mississippi Contra Flow Operations”
Bob Chapman, MDOT / Captain Karon Bridges, MDOT |
| 10:35 – 11:10 | “Reverse-Laning I-65 for Hurricane Evacuations”
George Conner, ALDOT |

“Hurricane Evacuation Plan”

Patrick Manning, ALHP

11:10 – 11:35	North Carolina DOT/ State Law Enforcement Presentation Kelly Damron, NC DOT / Major Munday, NCHP
11:35 – 1:00	Lunch On Your Own Moderator – Mark Wilson, FDOT
1:00 – 1:35	“South Carolina 2006 Hurricane Evacuation Plan” Dick Jenkins, SCDOT / Lieutenant Mike Bowman, SCHP
1:35 – 2:10	“Georgia Contra Flow Experience” Eric Pitts, GDOT / Capt. Larry Smith, GAHP
2:10 – 2:45	“Virginia’s Lane Reversal Plan” Perry Cogburn / Maj. Thomas Martin, VASP
2:45 – 3:05	Afternoon Break Session Moderator – Mike Akridge, FDOT
3:05 – 3:40	“Florida’s Contra Flow Plans” Paul Clark, FDOT / Major Leroy Smith, FHP
3:40 – 4:15	“Why We Evacuate” Brock Long, FEMA Region IV
4:15 – 4:30	Session Wrap-ups
5:30 – 7:30	Reception

Contra Flow Workshop Conference Agenda

February 15, 2006

7:45 – 8:30	Registration & Networking
8:30 – 9:00	“Traffic Simulation Tools for Evacuation Planning” Kenneth C. Courage Professor Emeritus, Dept of Civil Engineering, Univ. of Florida
9:00 – 9:30	Round Table Discussion Michael Akridge, FDOT
9:30 – 10:00	Morning Break
10:00 – 10:30	FHWA – Regina McElroy
10:30 – 11:00	Funding – “A State Perspective” Patrick Odom, FDEM
11:00 – 11:30	“The Do’s and Don’ts of Contra Flow” Lap Hoang, FDOT
11:30 – 11:45	Conference Close-out Michael Akridge, FDOT

Presenter's Biography Summary



Colonel Christopher A. Knight, *Director of Florida Highway Patrol*

Agency: Florida Department of Highway Safety

Email: knight.chris@hsmv.state.fl.us

Colonel Christopher Allen Knight is a 24-year veteran of the Florida Highway Patrol. A graduate of Venice High School, he received his Bachelor of Science degree in Criminology from Florida State University in 1979. Colonel Knight is also a graduate of the 171st Session of the FBI National Academy, the 2nd Session of the North Carolina State University Administrative Officers Management Program, the 20th Session of the Florida Department of Law Enforcement Chief Executive Seminar, and the 26th Session of the FBI's National Executive Institute.

Colonel Knight was a member of the Florida Highway Patrol's 61st Recruit Class. He was elected President of his recruit class, and graduated with High Academic Honors. After receiving his initial training at the FHP Academy, he began his career as a Trooper in Naples, and later served in Venice. Colonel Knight progressed through the ranks of the Patrol, and has been stationed in Miami, Bradenton, Palatka, and Tallahassee in various positions, including Commander of Troop H, Tallahassee, and Chief of Training at the FHP Academy.

Colonel Knight is a member of the State Law Enforcement Chiefs Association, the International Association of Chiefs of Police, the Florida Sheriffs Association, and the Florida Police Chiefs Association. He is also

the chairman of both the Florida Anti-Car Theft Committee and the Southern Region of the Division of State and Provincial Police, International Association of Chiefs of Police.

Colonel Knight has been Director of the FHP since July 1, 2001.



Lap Hoang, *State Traffic Operations Engineer*

Agency: Florida Department of Transportation

Email: lap.haoang@dot.state.fl.us

Lap Hoang has been the State Traffic Operations Engineer and Manager of the Traffic Engineering and Operations Office since 2002.

Born and raised in Hue, Viet Nam, Hoang received an academic scholarship to study in the United States after finishing high school. He earned both a Bachelors degree in Civil Engineering and a Masters degree in Engineering from the University of Florida.

He is known nationally in the field of signal systems and operations, and has served on the Transportation Research Board Signal System Committee since 1994. Active in research and education, Hoang served as Adjunct Professor at the FAMU/FSU College of Engineering and taught Transportation Engineering classes in the 1980-90s. He also taught classes in Transportation Demand Modeling, Traffic Engineering Fundamentals, Traffic Studies, Intersection Design and Operations for the FDOT and other public and private sector employees throughout the past twenty years.

Under his leadership, the Intelligent Transportation Systems (ITS) Strategic Plan was adopted by the Department in 2000, and has since become a major program within the FDOT. This program has received numerous national and state awards for the deployment and operations. He spearheaded Traffic Incident Management into an organized statewide program, and helped build the Road Rangers Service Patrol into a major component of this program. He helped advance the Traffic Engineering Research Laboratory into a nationally recognized facility in ITS standards testing, communications technology, and traffic control innovation. Lap served on the American Association of State Highway and Transportation Officials (AASHTO) Subcommittees on Traffic Engineering and Systems Operations and Management.

An accomplished martial artist, Lap holds black belts in several martial arts, including a seventh degree black belt in Cuong Nhu, a hard-soft Vietnamese martial art. He has conducted karate and kungfu workshops throughout the US. His hobbies include travel and working in his persimmon farm near Wacissa.



Michael Akridge, CPM, *Deputy State Traffic Operations Engineer*

Agency: Florida Department of Transportation

Email: Michael.Akridge@dot.state.fl.us

Mr. Akridge is a USAF veteran who retired in 1986. He has since worked for the State of Florida in a variety of positions including Deputy Right of Way Manager, Property Management & Relocation: Assistant to the State Highway Engineer: and ITS Administrator, CVO/ETC and currently is the Deputy State Traffic Engineer, Incident Management and Commercial Vehicles.

Mike took over the Deputy Engineer position for Incident Management in 2004 and started his CVO track as the Assistant to the State Highway Engineer in 1997, he later moved into the newly formed ITS Program Office as the Administrator for Commercial Vehicle Operations and Electronic Toll Collection. He serves as Florida's Commercial Vehicle Information Systems and Networks (CVISN) Program Manager. Mike also serves in a national capacity as the Immediate Past Chair of ITS America's Commercial Vehicle and Freight Mobility Forum and has served as the Co-Chair of the I-95 Corridor Coalition Commercial Vehicle Track. Mike currently sits of the Board of Directors as well as the Executive Board for the Heavy Vehicle License Plat (HELP) Inc. a public/private non-profit partnership and he chairs the Commercial Motor Vehicle Review Board for the State of Florida.

Mike has a Bachelors of Science Degree in Business from Tampa College, in Tampa Florida and received the designation of Certified Public Manager from Florida State University in 1991.

Mike and his wife Carmen have been married 32 years and have two grown children and two grandsons.



Scott Alley, *Emergency Management Coordinator*

Agency: Texas Department of Transportation

Email: jalley@dot.state.tx.us

Mr. Alley has a BBA, MBA from Angelo State University. He has been an employee for the department of Texas for 28 years. Mr. Alley has served in various capacities including Maintenance Technician, Engineering Technician, and District Safety Coordinator. He is currently serving the capacity of Maintenance Supervisor, which has the responsibility of managing TxDOT's Emergency Response activities, State Emergency Management Council Representative, Homeland Security Coordinator, Division Legislative Affairs Coordinator and member of the Texas Coastal Advisory Team.



Margaret A. Moore, *Traffic Engineering Section Director*

Agency: Texas Department of Transportation

Email: mmoore1@dot.state.tx.us

Ms. Moore oversees the Traffic Engineering Section in the Traffic Operations Division of Texas Department of Transportation and serves as the State Traffic Engineer. Ms. Moore is a graduate of Texas A&M

University in 1985. Ms. Moore has been with Texas Department of Transportation for over 20 years.



Stephen Glascock, *ITS Director*

Agency: Louisiana Department of Transportation

Email: stehpenglascock@dotd.louisiana.gov

Mr. Glascock currently serves as Director of the Intelligent Transportation Systems (ITS) Section for the Louisiana DOTD. This position, which reports to the Assistant Secretary for Operations, oversees all planning, engineering, implementation, and operations of the state's ITS Program, including delivery of advanced traffic management and traveler information systems, commercial vehicle information systems and networks, and the State's Traffic Incident Management program. Mr. Glascock has been a registered professional engineer in Louisiana since 1992 and is certified as a Professional Traffic Operations Engineer.



Lieutenant Chris Bodet, *Evacuation Coordinator – Troop B*

Agency: Louisiana State Police

Email: cbodet@dps.state.la.us

Lt. Chris S. Bodet is in the 23rd year of service with Louisiana State Police assigned to Troop B which encompasses the New Orleans Metropolitan area. Lt. Bodet has been involved with evacuations since Hurricane George in 1998. After the mediocre evacuation for George, Lt. Bodet was assigned to write an operation plan for a Contra Flow scenario. The plan has evolved over time with a West and an East Contra Flow which includes evacuation into Mississippi. The plan remained until it was tested in 2004 for Hurricane Ivan where several chokepoints and coordination issues were discovered. The plan was overhauled in 2005 and was ultimately put to the test for Hurricane Katrina where the plan proved solid.



Bob Chapman, *Emergency Services Manager*

Agency: Mississippi Department of Transportation

Email: bchapman@mdot.state.ms.us

Mr. Chapman has given 31 years overall service in State Government. His services consist of work in the field of Environmental Quality, Emergency Medical, Emergency Management and Transportation. Mr. Chapman authored a Comprehensive Emergency Response Plan and the Contra Flow Plan for the Mississippi Department of Transportation.



Captain Karon Bridges, *South Regional Commander*

Agency: Mississippi Department of Transportation

Email: kbridges@mdot.state.ms.us

Mr. Bridges has given over 25 years of service to Mississippi Department of Transportation Law Enforcement. He has worked his way up through the ranks to obtain his present position.



George H. Conner, PE, *Asst. State Maintenance Engineer – Bridges*
Agency: Alabama Department of Transportation

Email: connerg@dot.state.al.us

Mr. Conner started with Alabama Department of Transportation in 1992. He has been involved with Alabama Department of Transportation Emergency Management Operations since 1998 and with Interstate Traffic Reversal since 2000.



Patrick Manning, *Major*

Agency: Alabama Department of Public Safety

Email: pmanning@dps.state.al.us

Mr. Manning has been employed with Department of Public Safety since 1981, promoted through the ranks while assigned to Highway Patrol for 4 years, training center for 5 years, and Alabama Bureau of Investigation for 9 years. He has served as Chief of the Highway Patrol Division since 12/99.



Kelly E. Damron, PE, *State ITS Operations Engineer*

Agency: North Carolina Department of Transportation

Email: kdamron@dot.state.nc.us

After Ms. Damron spent 8 years with FHWA in various places across the US, Kelly came to North Carolina Department of Transportation in 1999. Her unit manages the statewide Incident Management and ITS Operations programs which include the Incident Management Assistance Patrol (IMAP) and the 511 System.



W. David Munday, *Major – Director of Special Operations*

Agency: North Carolina State Highway Patrol

Email: wmunday@ncshp.org

Major David Munday currently serves as Director of Special Operations for the North Carolina State Highway Patrol. Major Munday has held

positions with agency-wide responsibility including Zone Commander, Director of Communications & Logistics, Office of Professional Standards and Director of Accreditation. He is certified assessor & team leader for the Commission on Accreditation for Law Enforcement Agencies, Inc. (CALEA).



Dick Jenkins, *State Safety and Systems Engineer*

Agency: South Carolina Department of Transportation

Email: jenkinsrf@scddot.org

Mr. Jenkins has a BS in Civil Engineering from the University of South Carolina.



Michael C. Bowman, *Emergency Management Unit Commander*

Agency: South Carolina Dept. of Public Safety/ Highway Patrol

Email: mcbowman@schp.org

Lieutenant Mike Bowman is a 27 year Law Enforcement veteran having begun his career with the State Law Enforcement Division as a Capital Complex Police Officer. Lieutenant Bowman joined the Highway Patrol in 1984 and has served in field positions in Richland, Aiken, and Lexington counties. In 2000, Lieutenant Bowman transferred to the Department of Public Safety's Traffic/Emergency Management Unit

where he has participated in planning, coordinating and exercising the South Carolina Department of Public Safety's response to natural and man-made disasters and currently serves as the agency's Emergency Management Coordinator. In 2005, Lieutenant Bowman was awarded the "Storm Thurmond" Award for Law Enforcement Excellence, he has attended training sessions and seminars on terrorist activities including the Office of Justice Programs, Louisiana State University Law Enforcement Response to Weapons of Mass Destructions, OJP WMD/ Cobra Incident Command Course in Anniston, AL, Incident Command Train-the-Trainer Course, has received training through the United States Army, Soldier Biological Chemical Command Domestic Preparedness Office. Lieutenant Bowman graduated in December 2005 from the Federal Bureau of Investigations National Academy in Quantico, Virginia.



Eric C. Pitts, *Asst. State Maintenance Engineer*

Agency: Georgia Department of Transportation

Email: eric.pitts@dot.state.ga.us

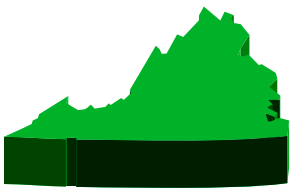


Larry G. Smith, *Captain/GEMA – Homeland Security/ Liaison*

Agency: Georgia State Patrol

Email: lgsmith@gsp.net

Captain Smith joined the Department in 1975 as a radio operator and was promoted to Trooper in 1976. Captain Smith has done varied assignments including: Field Operations, Executive Security, Training, Governors Drug Task Force, Drivers License, Colonels Executive Assistant, Aviation Director and Headquarters.



Perry Cogburn, *Director of Transportation Emergency Operations Center*

Agency: Virginia Department of Transportation

Email: perry.cogburn@vdot.virginia.gov

Mr. Cogburn is the Director of Transportation Emergency Operations Center (TEOC) since 2002. He was Deputy Director of TEOC from 1994 to 2002. Mr. Cogburn worked for the Maine Department of Environmental Protection from 1981 – 1993 as a supervisor of an oil and hazardous material response team. He received a Bachelor of Science Degree from Rensselaer Polytechnic Institute in Urban and Environmental Studies.



Thomas Martin, *Captain of Virginia State Police*

Agency: Virginia State Police

Email: thomas.martin@vsp.virginia.gov

Captain Martin is the captain of the Patrol Division in Eastern Virginia (Virginia Beach/Norfolk/Chesapeake) during his 31 years with the Virginia State Police.



Paul Clark, Traffic Incident Management & Road Ranger Program Manager

Agency: Florida Department of Transportation

Email: paul.clark@dot.state.fl.us

Paul is the Statewide Traffic Incident Management and Road Ranger Program Manager for the Florida Department of Transportation. He has been with the Department since 1994 and in his current position since April of 2005. Prior to his current position he was one of the Department's five full time Emergency Managers coordinating and preparing for response to major disaster events in the State of Florida. Mr. Clark was raised in Central Florida; Paul now lives in Tallahassee with his wife Jennifer and son Alex.



Leroy Smith, *Major*

Agency: Department of Highway Safety - Florida Highway Patrol

Email: smith.leroy@hsmv.state.fl.us

Major Smith is a 17 year veteran of the Florida Highway Patrol (FHP). He is currently assigned to General Headquarters in Tallahassee, Florida, and serves as FHP's Homeland Security & State Emergency Operations Center Administrator.



Brock Long, *National Hurricane Program Specialist*

Agency: Federal Emergency Management Agency

Email: brock.long@dhs.gov

Brock Long currently serves as the Hurricane Program Manager for the Federal Emergency Management Agency's (FEMA) Region IV office in Atlanta, GA. In this capacity, he provides training and technical evacuation planning assistance/guidance to federal, state, and local government officials, and serves as a National Team Leader for both the Hurricane Liaison Team (located at the National Hurricane Center) and the Evacuation Liaison Team during operational hurricane threats.

Prior to his FEMA appointment, Brock served as the Statewide Planner & Hurricane Program Manager for the Georgia Emergency Management Agency (GEMA). As Georgia's State Hurricane Program Manager, he provided training, technical planning assistance and incident response to local government officials across Georgia. As the Interstate Hurricane Planning Coordinator for Georgia, he also assisted other southeastern states with hurricane disaster pre-planning and coordination initiatives.

His experience also includes service as an Area School Safety Coordinator for GEMA in middle and southeast Georgia. In that position, he provided training, technical assistance, and incident response on the issues of school safety throughout Georgia. His training portfolio extended to education, emergency management, and public safety professionals throughout the state in the areas of emergency operations planning, crisis response and recovery, bomb threat management, visual weapons screening, and school site risk assessment.

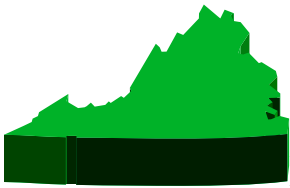
Brock holds a master's degree from Appalachian State University in public administration with a concentration in city/county management as well as a bachelor's degree in criminal justice. He is also a certified instructor through the Georgia Peace Officer Standards and Training Council.



Patrick Odom, Hurricane Planner

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Regina McElroy, *Director of Federal Highway Administration
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Regina McElroy serves as the Director of the Federal Highway Administration's (FHWA's) Office of Transportation Operations. In this position, she leads a multi-faceted National program designed to alleviate non-recurring highway congestion and improve the day-to-day operations of our Nation's highways. Included in her portfolio are the following programs: Road Weather Management, Emergency Transportation Operations, Traffic Incident Management, Planned Special Events, Work Zone Safety and Mobility, FHWA Emergency Preparedness and Response, and the Manual on Uniform Traffic Control Devices programs.

Prior to her current position, Ms. McElroy was a team leader in FHWA's Office of Asset Management. She was responsible for advancing tools and techniques to facilitate the development of investment strategies by transportation agencies. Before joining the Office of Asset Management, Ms. McElroy led development of several multimodal Congressional reports, to include the Status of the Nation's Surface Transportation System: Conditions and Performance Report and the U.S. Department of Transportation's Comprehensive Truck Size and Weight Study. Ms.

McElroy has been with FHWA since 1987 and has also worked for the American Trucking Associations, Inc. and the Department of Defense.