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**MISSISSIPPI DEPARTMENT OF TRANSPORTATION  
INTERSTATE 59 CONTRAFLOW  
HURRICANE EVACUATION PLAN**



*JUNE 2002*

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## I. Initial Development

### A. Introduction & Purpose

1. Experiences with past hurricane evacuations have revealed the need to investigate the logistics involved in reversing one direction of traffic to facilitate evacuation traffic flow. This contraflow process has been called “*Reverse-Laning.*”
2. In response to a request from the State of Louisiana to meet the needs of the traveling public evacuating the greater New Orleans area during a hurricane emergency, the Mississippi Department of Transportation (MDOT) has developed this Contraflow Plan for Interstate 59 (I-59).
3. It is estimated that approximately 1.4 million persons reside in southeast Louisiana. This region is generally defined as Jefferson, Lafourche, Orleans, Plaquemines, St. Bernard, St. Charles, St. James, St. John and St. Tammany Parishes. Primary evacuation routes out of the area are limited to I-10, I-12, I-55 and I-59. The I-59 route is the primary north/south interstate out of the east side of New Orleans, St. Bernard, Plaqueqemines and the southeast portion of St. Tammany Parishes.
4. Southwest Mississippi, including coastal Hancock County use I-59 as their primary means for evacuation. The population of Hancock County is approximately 42,000. State routes serving as feeder arteries funneling traffic onto I-59 include highways MS 607, 43, 603 and 53.
5. The initial process is to define the scope and to take the initial steps to develop a transportation plan for reverse-laning. Some basic observations and factors that must first be considered in order to arrive at a workable Contraflow Plan must be identified and discussed. A basic course of action will be developed in this first section of the plan and will then be further developed in more detail in later sections.

### B. Current Evacuation Route Identification

Certain strategic routes have been historically identified as hurricane evacuation routes, and are identified as shown in Appendix A. These hurricane routes are “signed on the ground” as such and have been presented to the public in various manners for their knowledge and use. This hurricane evacuation route network begins with state and county routes in coastal areas that then feed into predominately north-south

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running state routes and ultimately tying into north-south running US and Interstate routes. Any impact the Contraflow Plan will have on the existing evacuation routes and their use must be identified and mitigated.

## C. Reverse-Laning Route Identification

### 1. *Fully Controlled Access Routes*

- a. Fully controlled access routes, or Interstates, have the best potential for use in any reverse-laning scenario. By the very nature of their controlled access, the traffic control necessary to reverse the normal traffic flow on Interstate routes can be accomplished by concentrating on the interchange and termini areas.
- b. The geographic area of southwest coastal Mississippi and southeastern Louisiana, encompassing the greater New Orleans area, is deemed necessary to provide a reverse-laning capability. In this area there are four Interstate routes, I-10, I-55, I-12 and I-59. Interstate 10 (I-10) runs east and west through Louisiana and Mississippi. Interstate 55 (I-55) runs north and south through Louisiana and Mississippi. Interstate 12 (I-12) runs westward from Sildel, Louisiana to Baton Rouge, Louisiana. Interstate 59 (I-59) originates at the junction of I-10 and I-12 near Sildel, Louisiana and runs northeasterly into Mississippi and beyond into Alabama.
- c. A Contraflow Plan involving I-10 and I-55 has been determined to be impractical and unnecessary at this point due to various considerations. Use of I-10 would put additional evacuation traffic eastward into the Mississippi coastal risk area and westward affecting the west New Orleans evacuation traffic. Use of I-55 is not practical due to the inability to extend the reverse-lane operation from I-10 west onto I-55 at LaPlace, LA.
- d. I-59, however is a practical candidate for reverse-laning. The east half of the New Orleans evacuating eastward on I-10 can be easily directed onto I-59 at the junction of I-10 / I-12. Louisiana is also considering using I-12 to reverse-lane some portion of the I-10 East traffic westward north of Lake Pontchartrain. The low sea level and the storm surge potential of this area dictate expediting evacuation traffic flow as much as possible. Therefore, due to historical experience with traffic delays, the potential for large numbers of

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Louisiana evacuees and its being a designated evacuation route, a Contraflow Plan will be developed utilizing I-59 into Mississippi.

## 2. ***Limited Controlled Access Routes***

No other north/south running routes (i.e. US 49) were considered for reverse-laning due to these routes being limited controlled access, there are numerous intersections with Mississippi State routes, county routes, city streets and private commercial access points and personal driveways. The logistics involved with providing traffic control devices and the manpower to assist and enforce the traffic control measures necessary to reverse-lane prove to make these routes impractical for the reverse-laning strategy. Therefore, no limited controlled access routes are to be considered for reverse-laning.

## D. **Reverse-Laned Route Termini**

In the pervious section, I-59 was selected as a practical candidate for implementation of the reverse-laning strategy. The next step is to identify the beginning and ending points to convert from two-way traffic to one-way traffic.

### 1. **Southern Terminus**

- a. The State of Louisiana will initiate the reverse-lane operations. Previous discussion noted that, historically, traffic congestion has occurred during hurricane evacuations on I-59 at its junction with I-10 and I-12. Therefore, it is in the State of Louisiana that the reverse-laning strategy will begin.
- b. Louisiana will construct and operate the southern terminus crossover that will move all existing northbound traffic on I-59 south of the implementation point over into the southbound I-59 traffic lanes. Traffic control devices and law enforcement officers will be required to facilitate and enforce this movement.

### 2. **Northern Terminus**

- a. The State of Mississippi will terminate the reverse-lane operations at Meridian, which is positioned around mile marker 144 just south of the I-59 / I-20 junction. MDOT will construct and operate the northern terminus crossover, returning I-59 traffic to normal flow prior to the I-20 junction.

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- b. ***In order to implement CONTRAFLOW to Meridian, MDOT will require the full support and cooperation of all supporting agencies, without which the ending termini will have to be established at Hattiesburg.***

## **E. Southbound & Emergency Vehicle Access**

1. Out of practical necessity, during the identification and development of the limits of the Contraflow Plan, consideration must also be given to maintaining the availability of a southbound traffic facility. This was a consideration when selecting the northern and southern termini.
2. United States Route 11 (US 11) runs parallel to I-59 throughout the limits of the Contraflow Plan, and therefore will serve as the general southbound detour for I-59.
3. Normal southbound traffic and emergency vehicles would be required to exit I-59 and follow US 11. It must be remembered that northbound traffic will be using the normal southbound traffic lanes so emergency vehicles travelling on the southbound I-59 outside shoulder will need to take necessary precautions. Again, due to the inherent dangers this procedure should only be used for emergency vehicles in necessary situations.
4. A map depicting the entire limits of the portion of US 11 to be utilized for southbound and emergency vehicles is included and shown in Appendix B.

## **F. Crossover Ramp Movements**

1. In addition to the northern and southern termini crossover ramps previously discussed, additional crossovers may need to be constructed to allow vehicles to move from the northbound roadway to the southbound. This will ensure an equal distribution of traffic onto both roadways and will allow for reverse-lane termination, should traffic flow warrant. These additional crossovers will be identified as Intermediate Crossovers.
2. Traffic control devices and law enforcement officers will be required at intermediate crossovers to facilitate their operation, should they become necessary.



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3. Two considerations influence where these crossover ramps should be located:
  - a. The first consideration is to locate these crossovers at locations where a significant increase in evacuation traffic merging onto I-59 can be anticipated.
  - b. A second consideration is the equal spacing of crossovers along the reverse-laning route to facilitate the equalization of traffic loading on both sides of the Interstate.
4. The intermediate crossovers will be placed just south of the identified interchanges. This placement will allow the shifting of traffic from the more congested side of the interstate to the less congested side prior to the introduction of the additional traffic at these interchanges.
5. With the designation of Meridian as the northern terminus, intermediate crossovers will be placed at the following locations:
  - a. Six miles south of Poplarville – around the 21 mile marker
  - b. Six miles south of Purvis – around the 45 mile marker
  - c. Between Heidleburg & Pachuta - around the 119 mile marker

### **G. Interchange Control**

1. The total number of I-59 interchanges between the LA / MS State Line and its junction with I-20 at Meridian are **thirty-eight (38)**. These interchanges will be classified as “OPEN”, full access or “CLOSED”, no access. All interchanges will be manned with law enforcement personnel.
  - a. There are twenty-three (23) Open Interchanges, classified as such due to their proximity to exits that offer access to alternate routes and/or travel resources. These open interchanges, proceeding north from the LA/MS State Line, are located at the following I-59 Exits: 1, 4, 6, 15, 27, 29, 41, 51, 58, 60, 65, 67A, 67B, 85, 88, 90, 93, 95, 97, 99, 113, 126, 134.

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- b. There are fifteen (15) Closed Interchanges, classified as such due to their remote locations and congestion potential. These closed interchanges, proceeding north from the LA/MS State Line, are located at the following I-59 Exits: 10, 19, 35, 69, 73, 76, 78, 80, 95C, 96A, 96B, 104, 118, 137, 142.
2. **Open Interchanges** will be staffed with four (4) MDOT personnel and two (2) MHSP officers along with the necessary traffic control devices and signs. Evacuees will be provided full access on and off the evacuation route at these open interchanges.
3. **Closed Interchanges** will be staffed with two (2) MDOT Law Enforcement officers along with the necessary traffic control devices. Law enforcement vehicles will be used to barricade the exit ramps. Signs will be placed ahead of the closed interchange advising the evacuees of the next exit(s) being closed. Evacuees will not be allowed to exit off the evacuation route at these locations. MDOT personnel from open interchanges will periodically monitor these sites.

### **H. Manpower Requirements**

1. MDOT personnel will, at a minimum, be required to setup the traffic control devices that have been previously mentioned at the State Line and northbound termini and at the route interchanges within the Contraflow Plan limits.
2. MHSP and MDOT Law Enforcement officers will be required to facilitate and enforce traffic control along the Contraflow Plan route.
3. It is anticipated that other personnel may be required to supplement law enforcement and perform other ancillary functions, i.e., emergency roadside assistance. See Section II, Traffic Plan, for the total manpower requirements.

### **I. Signing Requirements**

1. Existing traffic signing along I-59 is oriented to be viewed from the normal direction of traffic. Therefore, traffic utilizing the southbound roadway for northbound movements under the reverse-laning strategy will need some additional signage oriented so it can be viewed from their direction of travel.
2. Additional signage would consist of signs pertaining to interchange and exit locations, open and closed interchanges, as well as detour

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signs that will be necessary. The next section of this plan (Traffic Plan) will determine the types, locations and numbers of signs required.

## J. Other Traffic Control Device Requirements

1. The need for traffic control devices has been discussed previously as it relates to the State Line / northern termini and open / closed interchanges.
2. Another use of traffic control devices will be the use of variable message boards to notify southbound travelers, along various roadways in Mississippi north of the Contraflow Plan, of the implementation of the plan and suggest alternate routes to avoid involvement.
3. Variable message boards will be placed along I-20 either side of Meridian, US 84 at Laurel and US 98 at Hattiesburg. Placing these variable message boards before motorists reach I-59 will allow the motorists the opportunity to take an alternate route toward their destination and avoid the reverse-laning route operations.

## K. Plan Implementation

In conjunction with the development of reverse-laning procedures, an implementation strategy will also need to be developed.

### 1. Requirements & Authority

- a. An internal part of the reverse-laning implementation is the identification of circumstances that would call for the implementation of the plan.
- b. The criteria calling for plan implementation is contained within the Implementation Strategy section of this plan.

### 2. Sequence of Events

- a. Once plan implementation is called for, field personnel need a written sequence of events to follow in regard to the erection and enforcement of traffic control so as to insure that no conflicting traffic movements are allowed. By its very nature, the Contraflow Plan is introducing traffic movements contrary to normal. Particular attention will be necessary to eliminate the potential for introducing "head-on" traffic patterns.

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- b. This sequence of events, to be called a "***Field Implementation Guide***", will be developed under separate cover and distributed to personnel in the field for their use. However, a brief description is contained in the last section of this document.

### 3. Plan Reversal

- a. Just as identification of circumstances that would call for the implementation of the Contraflow Plan in the field is necessary, so these same issues must be addressed in regards to restoring normal traffic patterns
- b. Furthermore, just as a sequence of events must be followed during the erection and enforcement of traffic control, so as to insure that no conflicting traffic movements are allowed when the plan is implemented, a sequence of events will also be required to be followed when taking the Contraflow Plan out of operation.

### L. Public Information

1. For successful implementation of the Contraflow Plan to become a reality, adequate notification of the public as to the plan and its contents will be imperative.
2. The routine ongoing dissemination of plan information prior to storm events should be evaluated. Forms of notification could include press releases, flyers, TV and radio commercials, as well as others. MDOT Welcome Centers and Rest Areas could be supplemental locations for the display of plan information.
3. As an actual hurricane event approaches the area, the routine dissemination of plan information could be stepped up in conjunction with other methods. These other methods could include the running of a reverse-laning hurricane evacuation video at the MDOT Welcome Centers and Rest Areas, the use of variable message boards to convey specific site information, and the use of "low-band" radio transmitters located along the plan route to convey information about current storm strength and direction, shelter locations, medical center locations, etc. Historical responses to hurricane evacuations reveal a particular dissatisfaction by the travelling public with the lack of information available to them.

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## M. Summary & Conclusion

1. Here in this first section of the Contraflow Plan, general physical boundaries and the basic conceptual strategy have been defined.
2. The use of I-10 and I-55 and limited controlled access routes has been eliminated from further consideration. However, I-59 has been identified as a candidate for reverse-laning.
3. Historical experience revealed that traffic congestion has occurred during hurricane evacuations on I-59 at its junction with I-10 and I-12. Therefore, it is in this area that the reverse-laning strategy should begin. Furthermore, the geographic area of Mississippi where it is deemed necessary to provide a reverse-laning capability is limited to that area of the state serviced by an Interstate System. Hattiesburg was considered as an ending termini, but carrying the Louisiana evacuees past Hattiesburg would facilitate less of an impact on the MS Gulf Coast hurricane evacuation that normally follows. Therefore, it is the Meridian metropolitan area that will be considered for ending the reverse-laning strategy.
4. I-59 Interchanges will be classified as either OPEN or CLOSED depending on their location to alternate routes and traveling resources.
5. Consideration was also given to maintaining the availability of a southbound traffic facility. US 11 runs relatively parallel to I-59 throughout the limits of the Contraflow Plan and would be used for southbound traffic and emergency traffic.
6. Other factors, such as the manpower, signing and traffic control device requirements will receive further evaluation and in depth analysis later in this plan.
7. Also equally important and receiving further evaluation and in depth analysis later in this plan is the identification of circumstances that would call for the implementation and the termination of the plan.
8. In order to implement the Contraflow Plan to Meridian, MDOT must have the cooperation and support of other State agencies to accomplish this, without such MDOT can only support carrying the reverse-laning operation to Hattiesburg.

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## II. Traffic Plan

### A. Introduction & Purpose

1. The previous section identified the general location of the beginning and ending termini. To successfully implement the plan the need for a significant amount of additional traffic control devices and considerable manpower resources has also been identified.
2. The remainder of this section will focus on detailing the capital improvements (ending termini, etc.), traffic control measures and the staffing requirements to implement the plan.

### B. Beginning and Ending Termini

This document discussed the rationale for the locations of the beginning and ending points for the Contraflow Plan. The conceptual design of these locations can be seen in Appendices C and D, respectively.

### C. Intermediate Crossovers

1. Three (3) Intermediate crossovers are to be positioned at the following locations:
  - a) Six miles south of Poplarville – around the 21 mile marker
  - b) Six miles south of Purvis – around the 45 mile marker
  - c) Between Heidleburg & Pachuta - around the 119 mile marker
2. To aid in the identification of the intermediate crossovers, the interstate strip map of I-59 has been modified and included in this report as Appendix D. The location is labeled as previously described.
3. Traffic control devices and staffing will be required at the intermediate crossovers in order to aid in the safe operation of the crossover during plan operation. The typical conceptual design for the intermediate crossover is shown in Appendix E.

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## D. I-59 Interchanges

1. Thirty-eight (38) interchanges are located along I-59 from the LA State Line to I-20 junction at Meridian within the limits of the Contraflow Plan. Twenty-three (23) of these will be classified as *open* and fifteen (15) will be classified as *closed*. Additional traffic control devices and/or staffing will be required for these locations in order to aid in the safe operation of these interchanges during plan operation.
2. To aid in the identification of the I-59 interchanges, the interstate strip map of I-59 has been modified and included in this report as Appendix D.
3. The design of the additional traffic control devices and staffing requirements for each of the I-59 interchanges is contained in Appendix E.

## E. Manpower Requirements

The design of the ending termini, intermediate crossovers and I-59 interchanges has been presented in this document. These designs specified the staffing requirements for each, which will be summarized in the following two sections.

### 1. Mississippi Department of Transportation (MDOT)

- a. MDOT personnel will be required at the ending termini, intermediate crossovers and I-59 interchanges to ensure that the required traffic control devices are in place and in good working order throughout the duration of the reverse-laning operation.
- b. **Two (2)** MDOT personnel will be required at the ending termini. **Three (3)** MDOT personnel will be required at each of the **three (3)** intermediate crossovers. **Four (4)** MDOT personnel will be required at each of the twenty-three (23) OPEN interchanges. Two (2) MDOT Law Enforcement officers will be required at each of the fifteen (15) CLOSED interchanges. A total of **one hundred thirty-three (133)** MDOT personnel will be required to fill these field positions for one 12-hour shift.

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- c. The Contraflow Plan area is served by MDOT District 6 office and supported by District 7 and District 5. **Six (6)** MDOT personnel will be on duty at each these District Offices to provide communications and other support functions. A total of **eighteen (18)** District MDOT personnel will be required to support the operation.
- d. **One (1)** MDOT representatives will be located in the State Emergency Operations Center (SEOC) in Jackson to supervise reverse-laning operations and coordinate with the Mississippi Emergency Management Agency (MEMA).
- e. A total MDOT staff of **one hundred fifty-two (152)** is required to implement the Contraflow Plan for a single 12-hour shift. ***(304 MDOT staff would be required for 24-hour coverage.)*** A detailed initial staffing plan for the MDOT is included in this document as Appendix F.

### **2. Mississippi Highway Safety Patrol (MHSP)**

- a. MHSP personnel will also be required at the ending termini and I-59 interchanges to enforce the required traffic control plan.
- b. **Two (2)** MHSP officers will be required at the ending termini. **One (1)** MHSP Officer will be required at each of the **three (3)** intermediate crossovers. **Two (2)** MHSP officers will be required at each of the twenty-three (23) OPEN interchanges. This brings the total requirements for MHSP field based personnel to **fifty-one (51)**.
- c. **One (1)** MHSP officer is located at the SEOC in Jackson to supervise the reverse-laning operations and coordinate with MEMA.
- d. A total MHSP staff of **fifty-two (52)** is required to implement the Contraflow Plan for a single 12-hour shift. ***(104 MHSP staff would be required for 24-hour coverage.)*** A detailed initial staffing plan for the MHSP is included in this document as Appendix G.

### **F. Traffic Control Device Requirements**

- 1. The design of the ending termini and I-59 interchanges has been presented in this document. These designs specified the number for each type of traffic control device required.



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2. "Secondary traffic locations" outside of the actual Contraflow Plan limits need to be identified for the placement of variable message board signs. These variable message board signs would be placed in advance of the actual Contraflow Plan limits notifying the travelling public of the existence and enactment of the plan. This would allow the travelling public to select an alternate route to reach their destination prior to encountering the reverse-laning operation. The placement of these variable message board signs would be on I-20 east and west of Meridian, US 84 east and west of Laurel, US 98 east and west of Hattiesburg and US 49 north and south of Hattiesburg. Additional MDOT employees will be required to monitor the operation of these variable message boards.
3. The exact type and number of each traffic control device is inconsequential at this point of the discussion. However, a detailed summary of quantities for these traffic control devices is contained in Appendix H.

## **G. Summary & Conclusion**

1. This section has located the ending termini and I-59 open/closed interchanges. It has also provided the conceptual design for the capitol improvements required and the traffic control devices required for the operation of the plan, and furthermore, provided detailed initial staffing plans for plan operation.
2. The Implementation Strategies section will deal with the conditions, processes and procedures under which the Contraflow Plan could be implemented.

## **III. Implementation Strategy**

### **A. Introduction & Purpose**

1. Earlier discussions in the Initial Development section identified the most logical route for reverse-laning, where to begin and end this strategy, identified an alternate route for emergency southbound traffic and briefly discussed other considerations to be resolved in order to implement and successfully operate this plan. The next section, Traffic Plan, identified the necessary capital improvements, traffic control measures and staffing requirements to conduct this operation.

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2. This section, Implementation Strategies, concentrates on the process and procedures under which this Contraflow Plan can be implemented. However, it must be remembered that any plan of this type may be amended or changed during the course of an actual emergency situation to address the actual conditions encountered in the field.

### **B. Division of Responsibility**

1. In order to successfully implement an operation of this type, a well defined and coordinated effort crossing state and state agency boundaries is essential. Input and assistance is needed from the State of Louisiana, the Mississippi Emergency Management Agency (MEMA), the Mississippi Department of Public Safety (MDPS) / Mississippi Highway Safety Patrol (MHSP) as well as the Mississippi Department of Transportation (MDOT), and possibly other agencies.
2. Upon receiving a request from the State of Louisiana to implement the Contraflow Plan the MDOT Director will contact the Governor to call for the plan implementation in Mississippi. The Governor in turn would make the announcement from the Governor's office to implement the Contraflow Plan. MEMA would provide information and guidance to the MDOT Director. MEMA is equipped, staffed with its own personnel as well as representatives from each of the other supporting state agencies during times of disasters, and trained to gather and disseminate information, and coordinate relief assistance. The MDPS would have the primary responsibility for enforcement of the traffic control provisions called for within this plan. The MDPS may, due to manpower limitations, and at their discretion, call for the assistance of other law enforcement officials to man key strategic locations along the Contraflow Plan limits. *MDOT will have the responsibility of constructing the needed capitol improvements, procuring and installing the necessary traffic control devices, and maintaining these assets both prior to and during implementation of the plan.*

### **C. Before "Hurricane Season" Considerations**

There are some considerations that ideally need to be addressed prior to the possibility of implementing the Contraflow Plan.

1. Personnel Assignments
  - a. One of these considerations is the identification and assignment of personnel by the various state agencies.

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MEMA has an established command and control structure in-house. The Mississippi Department of Public Safety (MDPS) needs to select and assign MHSP officers to man key strategic traffic control locations. The MDPS should either assign individual officers or coordinate this task with other local law enforcement agencies within the city limits of the affected cities. MDOT also needs to identify and assign personnel to key strategic traffic monitoring and traffic control points prior to and throughout the limits of the plan.

- b. Initial key personnel assignments and the total estimated manpower requirements have been identified in detail in the Traffic Plan section of this plan. However, personnel changes are inevitable and the constant monitoring of staffing will be necessary.

## 2. Communications

- a. The second consideration involves the provision of a reliable and comprehensive communication network. The communication of administrative officials with field staff, both within and between states and state agencies will be essential to provide the information necessary to ensure the proper implementation and operation of this plan. Currently, each of the state agencies has reliable communications within its own agency. However, it has been demonstrated that communication between field personnel of different agencies can be troublesome and problematic.
- b. It is advised that key personnel be provided access to shared radio frequencies to facilitate "cross-agency" communications.
- c. MDOT will utilize its satellite radio network to augment in place ground communications (low band, high band & 800 MHz).

## 3. *Field Implementation Manual*

- a. A third consideration is the need for a MDOT "*Field Implementation Manual*" that would provide clear and concise written procedures for MDOT personnel that would guide personnel through the sequence of events to establish and operate the Contraflow Plan in the field. This manual should contain personnel assignments by position/classification, station assignments and contact

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numbers. This "*Field Implementation Manual*" must also contain clear, concise written procedures that would guide field personnel through the sequence of events to terminate the plan in the field and return traffic operation back to normal conditions.

- b. Periodic training and "mock" testing of this plan would be advisable to insure its smooth implementation. This kind of periodic training could discover areas where amendments and changes to the plan may be warranted.

#### 4. Emergency Activities

A fourth consideration must be taken in account concerning what the State of Mississippi can legally do to remove a vehicle that has broken down and/or been involved in an accident affecting the evacuation route. Does MDOT have the legal means to push a disabled vehicle off the roadway?

#### 5. Public Education

A final consideration would be early education of the travelling public as to the existence of the Contraflow Plan. Educational efforts could include television, radio, and print media, distribution of informational flyers at special events as well as regular distribution points such as Mississippi welcome centers/rest areas, drivers' license offices, etc. The more the travelling public knows about the plan and its provisions the better they could be expected to react once the plan was implemented.

### **D. Pre-staging of Assets**

- 1. The goal of pre-staging assets is to have the necessary manpower prepared to act and the equipment on-hand and available, prior to the actual call to implement the Contraflow Plan. Essential manpower and equipment should be placed at predetermined strategic locations prior to the call for plan implementation in order to reduce the chance of needing to mobilize into the plan area after severe traffic congestion has already occurred and gotten out-of-hand.
- 2. These assets may include vehicles with motorist assistance supplies (gasoline & water), traffic counting equipment, variable message boards and other traffic control equipment, and low-band AM radio transmitters. Convenient locations to store these assets,

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or otherwise make sure these are readily available, need to be selected and provisions made to acquire whatever space, transportation, etc. may be required.

## E. Operating Conditions

Operating condition levels have been identified that specify what actions are to be taken when certain external conditions occur. These external conditions are based on the start of hurricane season and whether or not the State of Louisiana orders an evacuation of the metropolitan New Orleans area. The operating levels are described below: (It should be noted that criteria specified to call a level into operation are general in nature and other conditions may arise which necessitate placing a level into operation.)

### 1. Level 1

- a. Operating Level 1 begins at the onset of the hurricane season, which begins June 1<sup>st</sup> and ends November 30<sup>th</sup>. Weather information sources shall be continuously monitored for the development of tropical disturbances and storms.
- b. Review necessary assets and make provisions to ensure that all equipment and material is in the predetermined staging locations and in good working order. This will include but is not limited to, checking the operation of variable message signs, arrow boards and generators (both portable and stationary). All necessary materials shall be inventoried and insured that they are placed at their required staging areas. These materials are to include message and arrow boards, generators, barricades, signs, trailers, communications equipment, etc. All permanently mounted and installed signs will be inventoried and inspected, then cleaned and replaced as necessary.
- c. Personnel assignments will be reviewed with staff and adjustments made as necessary.
- d. Weather information sources shall be continuously monitored for the development of tropical disturbances and storms
- e. Level 1 status should remain in effect unless the next level is enacted or until the end of the hurricane season.

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## 2. Level 2

- a. The MDOT Director, when notified that the State of Louisiana is about to implement the Contraflow Plan, will contact the Governor, who in turn will call operating Level 2 into effect. The Governor will make the official announcement and inform the Directors of the Mississippi Department of Public Safety (MDPS) and the Mississippi Emergency Management Agency (MEMA) of the decision to implement the Contraflow Plan. The respective directors would then in turn notify their own agency personnel to proceed with the reverse-laning implementation.
- b. Level 2 would stay in effect until a call for Contraflow Plan termination is received from the MDOT Director. This determination would be based on New Orleans, Louisiana area evacuation operations and weather/traffic congestion information gathered by MDOT / MDPS field personnel monitoring the evacuation and transmitted to the MDOT/MDPS decision-makers. The MDOT Emergency Coordination staff at the State Emergency Operations Center (SEOC) would then contact their field personnel and notify them of the decision to terminate the reverse-laning operations.

## F. Sequence of Events

The "*Field Implementation Manual*" is to provide clear and concise written procedures guiding MDOT field personnel through the sequence of events to establish, operate and terminate the Contraflow Plan in the field and should be consulted for a complete explanation of this process. The following discussion presents the concept of putting this process into use.

### 1. Plan Implementation

- a. The MDOT Director, under the authority of a State of Emergency Declaration issued by the Governor, will initiate this Contraflow Plan.
- b. At the inception of Level 2 operation, all assigned personnel will report to their reverse-laning stations.
- c. The MDOT personnel assigned to traffic control device operation and maintenance shall place and anchor all variable message boards into position and position all "flip-down" signs so they may be read by the reverse-laned traffic. The variable message boards

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will not be turned on, as there will not be any reversed-laned traffic as of yet. Each MDOT employee will have specific sign/message board assignments.

- d. Each traffic control location (interchange, intermediate crossover, etc.) will have a Crew Leader assigned. Once each MDOT employee completes his tasks under Level 2, he/she will report to the Crew Leader. Once all tasks have been completed and the Crew Leader notified, the Crew Leader will in turn notify the MDOT Counterflow Supervisor.
- e. The MDOT Reverse-Laning Supervisor will keep a checklist of each traffic control location. Not until all traffic control locations have reported that Level 2 tasks are completed will the MDOT Counterflow Supervisor confirm that they are ready for plan implementation.
- f. Once the Governor calls for the Contraflow Plan to be implemented, MDOT employees will barricade the southbound entrance ramp at each I-59 interchange. At this same time other MDOT employees will position all I-59 South detour "flip-down" signs so that the motorist may read them. At this point in time no new traffic will be allowed to enter I-59 southbound, but rather will follow the I-59 South detour (US 11).
- g. After each I-59 interchange southbound entrance ramp has been barricaded, one MHSP officer shall be located at the southbound exit ramp gores. These MHSP officers are to direct all southbound I-59 traffic off I-59 and up the exit ramp. There they may follow the I-59 South detour. At this same time the other MHSP officer at each interchange is to proceed south on I-59 and ensure that all southbound I-59 traffic is cleared between that starting location and the next interchange. Once reaching the next interchange that officer shall pass the officer at the southbound exit ramp, proceed up the exit ramp and position him/herself at the junction of the southbound exit and entrance ramps. The MHSP officer is then to notify the MDPS Counterflow Supervisor that the section is clear and ready for reverse-laning.
- h. The MDPS Counterflow Supervisor will keep a checklist of each section of I-59. Not until all Mississippi sections of I-59 have been cleared for reverse-laning will the MDPS Counterflow Supervisor confirm that they are ready to introduce northbound traffic flow onto the southbound I-59 traffic lanes.

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- i. Once this occurs, the MDPS and MDOT Counterflow Supervisors shall confer and ensure that both parties are ready to introduce northbound traffic flow onto the southbound I-59 traffic lanes. When both parties are ready, they shall notify their field personnel by radio that the introduction of northbound traffic flow onto the southbound I-59 traffic lanes is about to begin. The MDPS Counterflow Supervisor shall then contact the MHSP officer, who is positioned at the beginning crossover in Louisiana and instruct him/her to request that the crossover be placed into operation and thereby introduce northbound traffic flow onto the southbound I-59 traffic lanes. This MHSP officer shall lead the initial traffic onto the southbound I-59 traffic lanes northeastward into Mississippi.
- j. MDOT personnel are to man the barricades at the southbound entrance ramps and only allow vehicles to exit I-59 from the southbound roadway. MHSp officers and MDOT crews are to continue to pay particular attention to these locations to prevent the introduction of southbound traffic onto I-59. MDOT personnel are to monitor the operation of all traffic control devices and ensure their proper operation throughout the duration of the Contraflow Plan operation.
- k. MHSP officers are to remain at their stations at the junctions of the exit/entrance ramps and enforce the traffic control provisions. Again, paying particular attention to preventing the introduction of southbound traffic onto I-59.
- l. During operation of the plan it is envisioned that MHSP officers and/or possibly an MDPS helicopter unit monitor the plan route to confirm its proper operation.
- m. It is also envisioned that additional MHSP officers and MDOT employees be assigned to monitor the I-59 South Detour route that utilizes US 11 to ensure its proper operation.
- n. Traffic is to be observed by MDOT personnel and MHSP officers throughout plan operation. Significant traffic problems/congestion are to be reported to either the MDPS Counterflow Supervisor or MDOT Counterflow Supervisor. MDOT and MDPS vehicles shall be stationed along the plan route to assist disabled motorists and clear the route as necessary.
- o. If it becomes apparent that the northbound traffic lanes are experiencing a much heavier traffic volume the MDOT Counterflow Supervisor is to call for the operation of one or more of the intermediate crossovers. This will shift a portion of the northbound



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traffic from the northbound lanes onto the southbound lanes and equally distribute the traffic load. It will be at the discretion of the MDOT Counterflow Supervisor to call into service or take out of service any intermediate crossover.

## 2. Plan Reversal

There could be two instances that can cause the Contraflow Plan to be taken out of operation and traffic flow returned to normal. The first is the decision by Louisiana to terminate the plan and the second would be a decision by Mississippi that traffic conditions do not warrant reverse-lane operations. Once the MDOT Director calls for the Contraflow Plan to be taken out of service the termination of the reverse-laning operations would generally follow the following procedures:

- a. Louisiana notifies Mississippi that they are about to take the Contraflow Plan out of operation. The MDOT Counterflow Supervisor shall confer with the MDPS Counterflow Supervisor and notify him/her of the decision to take the plan out of operation. Both supervisors shall notify their field personnel by radio that the Contraflow Plan is about to be taken out of operation. The MDPS Counterflow Supervisor shall then contact the Louisiana State Police officer at the beginning crossover and instruct him/her to take the crossover out of operation and thereby restricting the northbound traffic flow to the northbound I-59 traffic lanes. One MHSP officer that was stationed at the beginning crossover is then to proceed northbound on the southbound traffic lanes ensuring that all northbound traffic is cleared behind him/her. As the MHSP Clearance Officer passes an interchange, that interchange may be placed back into normal operation. This procedure is to continue northward until the entire Contraflow Plan limits have been returned to normal operation.
- b. Mississippi elects to terminate contraflow operations due to insufficient traffic volume prior to that decision being made by Louisiana. One of the intermediate crossovers will be selected to serve as the ending termini. The MDOT Counterflow Supervisor shall confer with the MDPS Counterflow Supervisor and notify him/her of the decision to take the plan out of operation. Both supervisors shall notify their field personnel by radio that the Contraflow Plan is about to be taken out of operation. The MDPS Counterflow Supervisor shall then contact MHSP officer at the selected intermediate crossover and instruct him/her to take the crossover out of operation and thereby restricting the northbound traffic flow to the northbound I-59 traffic lanes. One of the two MHSP officers at this crossover is then to proceed northbound on

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the southbound traffic lanes ensuring that all northbound traffic is cleared behind him/her. As the MHSP Clearance Officer passes an interchange, that interchange may be placed back into normal operation. This procedure is to continue northward until the entire Contraflow Plan limits from the selected intermediate crossover have been returned to normal operation.

## G. Summary & Conclusion

1. This section of the plan, Implementation Strategies, has attempted to describe the process and procedures under which the Contraflow Plan could be implemented. It has tried to stress the importance of a well defined and coordinated effort involving the State of Louisiana and various Mississippi State agencies. The need to assign individuals to key strategic traffic control locations and obtain dedicated material and equipment needed for plan implementation and staging it near where it would be needed has been discussed.
2. An Operating Level structure has been defined that is generally based on the beginning of hurricane season and notification of impending New Orleans area evacuation. The structure identifies what measures are to be taken based on these external conditions. And finally a general "Sequence of Events" has been presented which outlines the steps to be taken to place the plan into operation once called for by the Governor.
3. This document has identified the need for an MDOT "*Field Implementation Manual*" to provide clear and concise written procedures that would guide MDOT field personnel through the sequence of events to establish and operate the Contraflow Plan in the field, and a comprehensive public education program for the travelling public.
4. It is also important that periodic training and "mock" testing of this plan take place to insure smooth implementation, when the Governor calls for it to be implemented. As with any plan of this scope and type, this kind of training could identify areas where amendments and changes to the plan may be warranted.
5. ***This Contraflow Plan addresses only the transportation operational aspects of the I-59 reverse-lane evacuation operations. Any other evacuation planning considerations resulting from the implementation of this Plan will be addressed by MEMA.***

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**Appendix A  
Existing Hurricane Evacuation Routes**

*TO BE ADDED*

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**Appendix B  
Reverse-Laning Limits on I-59 for Hurricane Evacuation**

*TO BE ADDED*

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**Appendix C  
Reverse-Laning Ending Location Design**

*TO BE DEVELOPED*

**DRAFT**

**Appendix D  
Intermediate Crossover Strip Map**

*TO BE ADDED*

**DRAFT**

**Appendix E  
Intermediate Crossover Design**

*TO BE DEVELOPED*

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**Appendix F  
I-59 Interchange Strip Map**

*TO BE ADDED*



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**Appendix G  
I-59 Interchange Design**

*TO BE DEVELOPED*

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## **Appendix H Mississippi Department of Transportation Staffing Plan**

**I. District 6 Personnel**

**Responsible for staffing personnel from State Line to Hattiesburg**

**II. District 5 Personnel**

**Responsible for staffing personnel from Laurel to I-20 Junction**

**III. District 7 Personnel**

**Responsible for staffing personnel from Hattiesburg to Laurel**

**IV. District 3 Personnel**

**Assisting with personnel staffing where needed.**

**V. MDOT Law Enforcement Officers**

**Available resources:**

- 110 Officers**
- 51 vehicles**

**VI. Traffic Engineering Personnel**

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**Appendix I**  
**Mississippi Department of Public Safety Staffing Plan**

*TO BE ADDED*

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**Appendix J  
Traffic Control Device Summary of Quantities**

*TO BE ADDED*

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## CONTRAFLOW PERSONNEL REQUIREMENTS:

	<u>MDOT Staff</u>	<u>MDOT Law Enforcement</u>	<u>MHSP Staff</u>
<b><u>Meridian/I-20 Ending Termini</u></b>			
• 23 OPEN Interchanges (4 each MDOT / 2 each MHSP)	92	-	44
• 15 CLOSED Interchanges (2 each MDOT Law Enforcement)	-	30	-
• 3 Intermediate Crossovers (3 each MDOT / 1 each MHSP) @ Popularville Purvis Heidelberg	9	-	3
• Ending Termini (2 ea) @ I-20 Junction, Meridian	2	-	2
• District Support	18	-	2
• SEOC	<u>1</u>	<u>-</u>	<u>1</u>
<b>&gt;12 Hour Shift</b>	<b>122</b>	<b>30</b>	<b>52</b>
<b>&gt;24 Hour Shift: (two 12-Hour Shifts)</b>	<b>244</b>	<b>60</b>	<b>104</b>