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A comparative analysis of hurricane evacuation traffic conditions using static and dynamic traffic assignments

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A COMPARATIVE ANALYSIS OF HURRICANE EVACUATION TRAFFIC CONDITIONS USING STATIC AND DYNAMIC TRAFFIC ASSIGNMENTS

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

This study compares link flows of evacuation traffic using Static Traffic Assignment (STA) with those obtained from Dynamic Traffic Assignment (DTA) and observed traffic counts. The analysis is conducted on a sample of households from South Carolina who evacuated in the face of hurricane Floyd in 1999. The results indicate that traditional static models have the potential to significantly underestimate congestion levels in the network, and DTA models account for nonuniform demand and traffic dynamics in hurricane evacuation much more realistically. From observed traffic counts, traffic volumes vary considerably during an evacuation and the DTA flow estimates generally reproduced these variations. More importantly, DTA was able to capture the delay caused by such peaking since the total vehicle hours of travel estimated by DTA was 3.3 million vehilcle hours while it was only 2.5 million vehicle hours estimated by STA. From the survey data, the estimated total vehicle hours of travel was 2.9 million, suggesting that the DTA procedure may have overestimated the delay. Speed calculated using STA and DTA was 23.3 and 30.9 miles per hour during evacuation from hurricane Floyd. The average speed during evacuation calculated from reported travel time and distance was 25 miles per hour. The clearance time calculated using STA and the traditional method of a response curve and the time taken to pass through critical links was 27 hours. On the other hand, the observed time between the issuing of the evacuation order and the last vehicle from the survey clearing the danger area was 56 hours. Using the loading behavior (i.e. time-dependent evacuation demand) shown in the survey data, the DTA process estimated a clearance time of 58 hours.

CHAPTER 1. INTRODUCTION

1.1 Background

Hurricanes are cyclones that are developed over the warm tropical oceans and have a wind speed in excess of 74 miles/hour. These storms are capable of producing dangerous winds, torrential rains and flooding, all of which can result in tremendous property damage and loss of life in coastal populations. An effective measure to reduce the damage caused by the hurricanes is to evacuate. However, hurricane evacuation is a tedious and costly process because “it involves moving a large population that may grow or change, onto a highly congested and possibly damaged road network, towards destinations that are not easily determined” (Barrett et al, 2000). Therefore it is important to make the process as efficient as possible.

Before we issue evacuation orders we need to look at the characteristics of emergency evacuation such as the size of the population needed to be moved to safety, growth of the evacuation area with respect to time, size and makeup of the evacuation population and amount of warning time, direction of storm, intensity of the storm, evacuation routes, shelter access, evacuation clearance time and the number of tourists in an area. Evacuation clearance time is determined by the number of residents to be evacuated, the expected behavior of those residents, roadway network characteristics and the designation of the danger area to be evacuated. An evacuation plan must be developed well in advance of the hurricane, and information regarding the evacuation plan should be provided to the public. The evacuation plan should be so designed that the greatest number of people can evacuate in the least amount of time under safe conditions.

The approach to travel demand modeling used in urban transportation planning has been assumed applicable to hurricane evacuation modeling by some modelers. One of the most significant consequences of this assumption is that static traffic assignment, commonly used in urban transportation planning, has also often been used in hurricane evacuation modeling. In static assignment traffic conditions on the network are assumed to remain uniform during the analysis period. In real life, and particularly in evacuation conditions, traffic volumes change as demand fluctuates and travelers negotiate a network with imperfect knowledge of the traffic conditions on it.

Another feature of static assignment that doesn't suit the evacuation environment is that in the assignment process it is assumed that trips occupy all the links on the shortest path between the origin and destination of the trip. This assumption is true only if the analysis period is longer than the longest trip. In evacuation, trips can be as long as 20-30 hours, meaning that the analysis period must be at least as long in order to accommodate this assumption. Combining a long analysis period with the assumption of non-fluctuating flows, make static traffic assignment very unsuitable for evacuation modeling.

Dynamic Traffic Assignment (DTA), on the other hand, assigns traffic continuously or in very short time intervals, and then keeps track of the vehicles both temporally and spatially. This provides moment by moment information on the traffic conditions on each link in the network. DTA has the capability to assign traffic for varying road conditions, such as capacity changes due to incidents, road closures, or the reverse-laning of facilities at certain times during the evacuation process. As a result, DTA provides a more accurate and realistic prediction of the traffic under evacuation conditions.

Robles and Janson (1995) demonstrated that dynamic traffic assignment accurately reproduces observed traffic conditions. They applied a dynamic traffic assignment model (DYMOD) to an area in southeast Denver to demonstrate the models ability to predict volumes, speeds and delays on alternative routes during incidents such as lane-blocking accidents. Peak demand data was collected from city, county and state traffic engineering departments to estimate a morning peak period trip matrix between 110 zones covering the complete area. The data was collected for every 5 minutes using loop detectors at the on-ramps to the I-25 and I-225 to estimate the departure times of trips from each zone. The study was done during a typical 5:00 a.m. – 10:00 a.m. weekday peak period. The results with respect to I-25 indicated that predicted speeds declined much earlier than actual speeds, beginning about 6:30 a.m. at each location. The model overestimated speed reduction in most, but not all cases. The study reported that predicted off-ramp volumes agree with observed volumes, disregarding the fluctuations in ramp volumes.

1.2 Problem Statement

As noted above, hurricane evacuation modeling is often conducted using static traffic assignment, but the characteristics of travel behavior during an evacuation are not well represented by the results of static traffic assignment. Thus, when evacuation modeling is used to estimate evacuation conditions such as clearance time, individual travel times, and link flows, what errors are introduced? How do these estimates compare with observed values, and what degree of improvement would be introduced by using dynamic traffic assignment?

1.3 Purpose of the Study

The purpose of the study is to compare static, dynamic, and observed traffic assignments from an actual hurricane evacuation. This will be accomplished by specifically comparing:

- The output of static traffic assignment and dynamic traffic assignment with link traffic counts collected in South Carolina during Hurricane Floyd.
- The clearance time estimates from static and dynamic traffic assignments.

CHAPTER 2. LITERATURE REVIEW

2.1 Introduction

A detailed literature review was conducted to determine the current state-of-the-art of dynamic traffic assignment, and to determine its advantages over static traffic assignment. This involved reviewing the existing literature on the application of dynamic traffic assignment and static traffic assignment to urban networks as well as evacuation networks.

2.2 The Hurricane

Hurricanes may be defined as large, ocean-born tropical cyclones with wind speeds in excess of 74 miles per hour. Hurricanes form from tropical depressions or concentrated areas of low pressure over warm oceans where surface temperatures exceed 26^{o}- 27^{o} C (Simpson and Riehl, 1981). The Saffir-Simpson scale classifies hurricanes into 5 separate categories based on the maximum sustained wind speed in the hurricane as shown in table 2-1.

Table 2-1. Saffir-Simpson Scale

Category	Wind Speed
I	74-95 mph
II	96-110 mph
III	111-130 mph
IV	131-155 mph
V	>155 mph

Tropical storms and hurricanes of all categories are serious threats to the lives and property of people living along the coast both from surge and wind. Storm surge is water pushed toward the shore by the force of the winds swirling around the storm. This advancing surge has the capability to increase the mean water level 15 feet or more. The rise in water level can cause severe flooding in coastal areas, particularly when the storm tide coincides with the normal high tides.

2.3 Review of Various Assignment Methods

2.3.1 Static Assignment

In urban transportation planning, when the origin and destination of individual trips has been estimated and the task is to find the plausible routes for each traveler, static assignment is the traditional approach for this problem. As stated earlier, a static model does not account for the temporal variations in travel demand and requires that the analysis period be longer than the longest trip. In addition, a static model cannot account for the effects of queue build-up and en-route diversion by travelers based on their perception of the downstream traffic conditions on alternate routes. Thus, the static assignment is not very applicable to evacuation conditions where demand varies considerably, journey times are long, and severe congestion can develop at the height of evacuation demand.

2.3.2 Dynamic Traffic Assignment

The shortcomings of static assignment can be overcome by DTA which has the ability to capture traffic dynamics in a realistic manner by modeling time varying OD demands, queues, and spill-backs by disaggregating the time period into finite time slices. During assignment, each trip is tracked through the network with each time slice. A trip may take several time slices to reach its destination and some trips may not reach their destination within the time period being modeled. Dynamic traffic assignment can model traffic build-up, and can handle the phenomenon of en-route diversion by travelers due to downstream conditions.

DTA can be accomplished using four different solution procedures:

- Mathematical Programming
- Optimal Control Theory
- Variational Inequality
- Simulation based assignment

The first three are analytical procedures while the last one relies on simulation. Simulation based traffic assignment procedures (Ben-Akiva et al., 1997, 2003; Mahmassani and Liu, 1997) base their operation on microscopic traffic flow characteristics and traffic assignment principles. They have been included in popular simulation packages such as CONTRAM, DynaSMART, DynaMIT, and INTEGRATION. The advantage of the simulation based approach is its capability to capture time dependent traffic conditions in a network and predict the location and impacts of traffic congestion by modeling the time-dependent traffic conditions in the network. The analytical approach (Ran et al., 1996; Han, 2003), on the other hand, has well defined properties in terms of optimality conditions, and adheres to the dynamic version of Wardrops principle (1952). Detailed dynamics such as lane-changing behavior cannot be captured and as the study area becomes larger, computation becomes complex and sometimes intractable.

2.4 Review of Simulation-Based DTA Models

CONTRAM (Continuous Traffic Assignment Model) is a leading dynamic software which has a wide range of modeling tools for representing a variety of situations ranging from congested urban networks to interurban regions. It is generally used to model unexpected events such as incidents that reduce network capacity and the effects of driver information systems. It divides the day into time slices which is used to model the buildup and decline of traffic. Vehicles are assigned to their minimum cost routes taking into account the traffic interactions and delays caused by other vehicles on the network. A trip covers several time slices during which time traffic demand and network conditions can vary and oversaturated conditions may occur temporarily. Some of the modeling features include advanced junction modeling, dynamic traffic estimation and link based speed flow relationships and tolls. The drawback of the model is that it does not capture individual traveler decisions and does not model travel behavior.

DynaMIT (Dynamic Network Assignment for the Management of Information to Travelers) developed by MIT, is a DTA-based planning tool used to improve the transportation planning process for networks with congestion. It is used to model short-term and within-day travel decisions. The input includes network, sensor, demand, link time, and socioeconomic characteristic data. The important characteristic that distinguishes DynaMIT from the traditional approach is that it accurately depicts individual traveler behavior, spillbacks, queue information and time dependent interactions between the demand and supply components. The disadvantages of DynaMIT are that the system requires a UNIX-based operating system and standard C++ compiler. DynaMIT has the capability to communicate with mathematical and computational tools such as MATLAB, MAPLE and MS Excel.

DynaSMART-P was developed by researchers at the University of Maryland. It is a state-of-the art dynamic network analysis and evaluation tool which models traffic flows in a traffic network resulting from the travel decisions of individual drivers. DynaSMART-P is a gathering of two major categories of models, namely network assignment tools which are primarily used in combination with demand forecasting procedures for planning applications, and traffic simulation tools used primarily for traffic operational studies. It is used to evaluate complex strategies and operational network planning decisions by helping to identify deficiencies in the network and to produce policy-relevant traffic assignment results for planning analysis. It achieves its objectives by providing a better representation of traveler behavior decisions than static models, an accurate description of time-varying traffic properties, and an accurate representation of traffic network elements including signal control strategies. The input data is a combination of the data needed for traditional traffic assignment and simulation models, particularly with regard to network representation and spatial demand loading patterns. The input data varies depending upon the network size and the level of detail required by the user. The output of DynaSMART-P assists users in performing detailed traffic analysis. The output consists of Measures of Effectiveness (MOEs) such as volume, speeds, travel time, and delays. It produces an individual vehicle trajectory file which is very useful for research. It also produces various graphical formats, both static and animated for users to view simulation results and other characteristics. Some of its applications include evaluation of High Occupancy Vehicle (HOV) lanes and High Occupancy Toll (HOT) lanes, planning for emergency situations like evacuation, and evaluation of different congestion pricing schemes.

2.4.1 Review of Studies Comparing Dynamic and Static Traffic Assignments

Murthy (1998) studied the difference between static and dynamic transportation assignments using a network of an area north of Boston. He proposed a dynamic model to disaggregate the trip table into a finite set of time slices. The generated disaggregated trip tables are assigned to the network based on the condition that a trip between an origin and a destination could take more than one time slice to be completed and trips from an origin progress within the network towards their destination only to the extent possible during each time slice. He introduced a conversion matrix which convert the original O-D trip table to a new O-D trip table reflecting the extent to which trips travel between origin-destination pairs within the time slice duration. The new O-D trip table obtained from the conversion process was assigned to the network using traffic assignment procedure.

He conducted the study using a software package called QRS-II. He estimated dynamic travel demand by considering trips generated in 15 minute increments between hours of 6:00 a.m. and 10:00 a.m. A peak-hour trip table was created based on these 15-minute trip tables for the time between 7:30 a.m. and 8:30 a.m. The results of the static model were obtained by assigning the peak hour trip table to the network using equilibrium assignment. The results of the dynamic trip assignment were obtained by sequentially assigning the sixteen 15-minute trip tables to the network for the period 6:00 a.m. to 10:00 a.m. The results obtained from both static and dynamic assignments were compared by considering individual link flows and system-wide travel during the peak hour. The system-wide comparison showed that the static model produced 16% higher trips than dynamic model during the peak hour. When individual links were compared during the peak hour, the dynamic model produced 5.5% lower traffic volumes than the static model. This increase in the number of trips is because the dynamic model tends to stretch the peak hour. The more congested the peak hour, the greater is the stretch. Peak spreading occurs in reality and it is reflected in the dynamic model by attempting to keep the link volumes at or below capacity at all times. Thus peak spreading results in lower volumes in the dynamic model than in the static model during the peak hour.

Merritt (1999) performed a study in Sweden to examine whether dynamic traffic modeling can give a better description of the traffic performance on congested routes than the static models which are currently used. The software used for dynamic traffic modeling was CONTRAM7. The static assignment model used for comparison was developed locally and is named DSD-IRS. The network considered was a 20km wide by 30km long area. Traffic data was collected for morning peak flow conditions and the model results were compared with these values. When a graph was drawn between observed travel time and estimated values from DSD and CONTRAM7, a considerable difference in the R^2 values was observed (DSD=0.7871, CONTRAM7=0.9166), showing that CONTRAM7 was considerably more accurate in predicting travel times than the static procedure. Similarly, a graph was drawn between observed flows and modeled link flows of DSD and CONTRAM7. The degree of resemblance between observed and modeled link flows is dependent upon the degree of detail in the network coding, which was very coarse for the urban street network carrying low flows. For high traffic flows the fit between observed and modeled flows was quite good with both CONTRAM7 and DSD for the studied case (DSD R^2 =0.9633, CONTRAM7 R^2 = 0.9058). The study concluded that dynamic traffic modeling predicts traffic flow and traffic performance more accurately than static assignment during congestion conditions.

2.5 Travel Demand Modeling for Hurricane Evacuation

2.5.1 Hurricane Evacuation Modeling Review

Traffic modeling frameworks to model hurricane evacuation have been proposed by Lewis (1985), Barrett et al. (2000), and Franzese and Han (2001). Barrett et al. (2000) developed a framework of dynamic traffic management modeling for hurricane evacuation which can be used for long term and short term planning and also for real-time operational purposes. They suggested several functional requirements for dynamic hurricane evacuation modeling to provide the planner with several crucial pieces of information, such as evacuation time, evacuation routes and departure times that drivers choose. The system also considers management strategies that optimize evacuation from either the user or the system perspective. The framework proposed requires time-dependent travel demand as input.

Han et al. (2005) worked on evacuation modeling and operations using dynamic traffic assignment and the most desirable destination (MDD) approach. The MDD is a dynamic destination choice made by evacuees according to the network conditions during the time of departure and enroute based on updated destinations and roadway conditions. By using the MDD approach, evacuees can be assigned to the most efficient evacuation route choice which improves network performance. They used VISSIM software which is a microscopic, time-step and behavior-based simulation program. They used this software to study the use of dynamic traffic assignment to route evacuees in a non-equilibrium environment considering the most desirable destinations (MDD) for all evacuees in a transient traffic network. They used it to study evacuation from a nuclear power plant. The simulation results showed that the evacuation time and percent of population at risk are two critical factors to be considered during evacuation planning. It also showed that dynamic traffic assignment provides a significant improvement over the static traffic assignment during evacuation. For example the time to evacuate 75% of population was reduced by 25% (from 153 minutes to 114 minutes) and the time to evacuate 95% population was reduced by 43% (from 291 minutes to 166 minutes) when static assignment was replaced with dynamic traffic assignment. This improvement in time was achieved with the usage of dynamic destination choice coupled with dynamic traffic assignment.

CHAPTER 3. DATA

3.1 Data Acquisition

The data used for the traffic assignment comparisons was obtained from the U.S. Army Corps of Engineers. It came from a survey conducted to obtain evacuation data from hurricane Floyd. The survey was conducted by Professor Earl J. Baker of Florida State University to study the travel behavior during hurricane evacuation. The questionnaire contained 91 questions, which include questions such as

"On what day did you leave your home to go someplace safer?", "About what time on the **(REPEAT DATE)** did you leave?", "Was that AM or PM?", "In

what city is that (evacuation destination) located?", "In which state is that located?" etc.

3.2 Data Cleaning

Over 1800 telephone interviews were conducted in Beaufort, Charleston and Myrtle Beach in South Carolina. These three places were considered the origins in this study and the destinations were counties in the states of Florida, Georgia, North Carolina, South Carolina, Alabama, Virginia and Tennessee.

Only the data with the complete and correct information was used in this study. The data considered for the study was from September 13 to September 16 as the demand on the other days was low. In total, 1054 households left their homes between September 13 and September 16, of which 695 households had complete and identifiable destination information. Table 3-1 shows the distribution of the evacuating households from the three origins.

Table 3-1. Number of trips from each origin after cleaning

	Beaufort	Charleston	Myrtle Beach
Total	283	274	138

3.3 Separation of the Data

The data was separated based on departure times. All the vehicles that departed on September 13 between 12 a.m. and 2 a.m. were grouped into the first two-hour period demand matrix. Similarly, departures between 2 a.m. and 4 a.m. on September 13 were used to prepare the second two-hour period matrix. In total 48 two-hour period hourly matrices were prepared to represent the 96 hours of the four days from early morning September 13 to midnight September 17, 1999. These 48 matrices were prepared for dynamic traffic assignment, and all 48 matrices were summed to one single matrix for use in static assignment.

3.4 Geocoding of the Acquired Data

The origins and destinations were aggregated to centroids of the respective counties. The geographical file (US County file) provided by the TransCAD package was used to establish the counties. The socio-economic information of each county was also included in the acquired data. The origin and destination counties considered in this study are shown in figure 3-1.

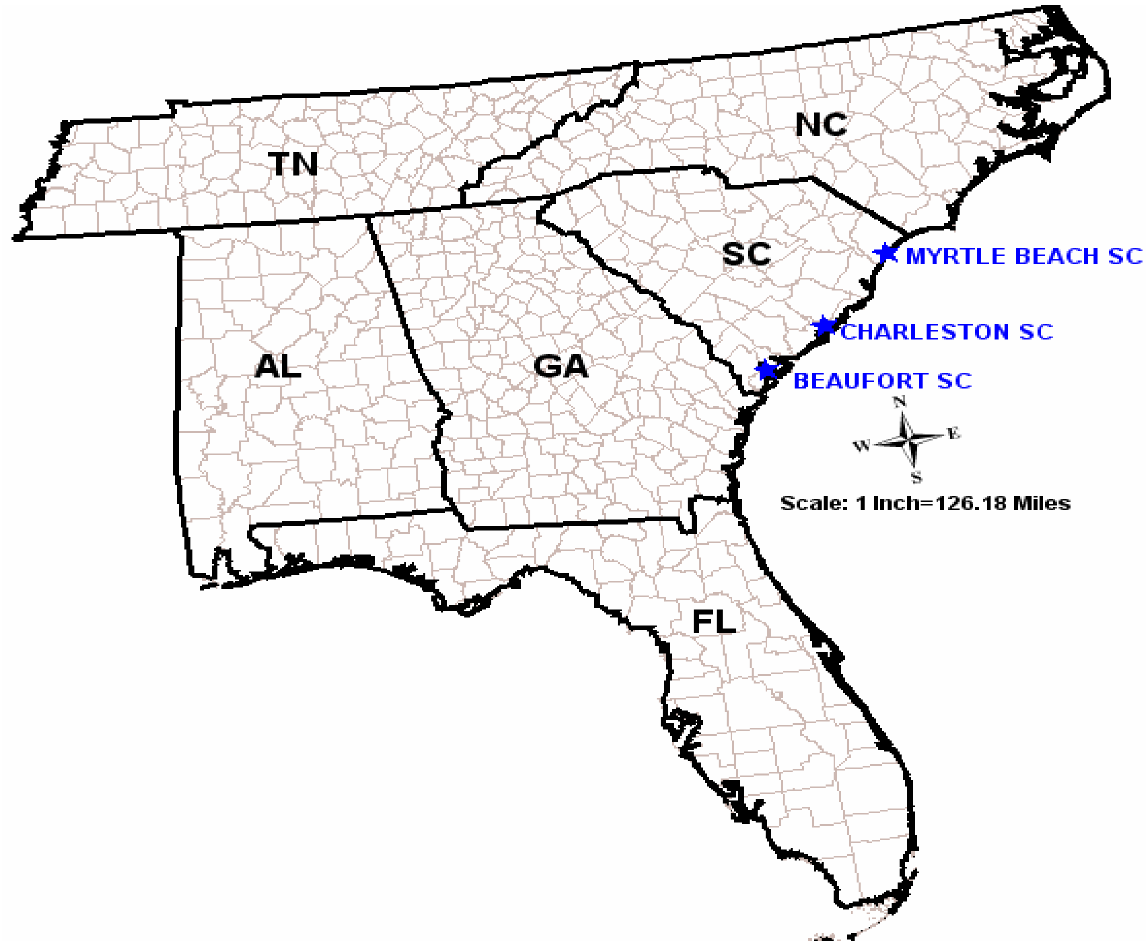

Fig. 3-1 Three Origins Considered for the Study

3.5 Highway Network

The US county highway file in the TransCAD was added as a line layer to the county map. The network includes interstate highway, US highway routes and state highway routes. The length, name and functional type of each road link was included in the data view. The network function in TransCAD was used to create a highway network. This network consists of 38,000 links. Figure 3-2 shows the highway network considered for the study.

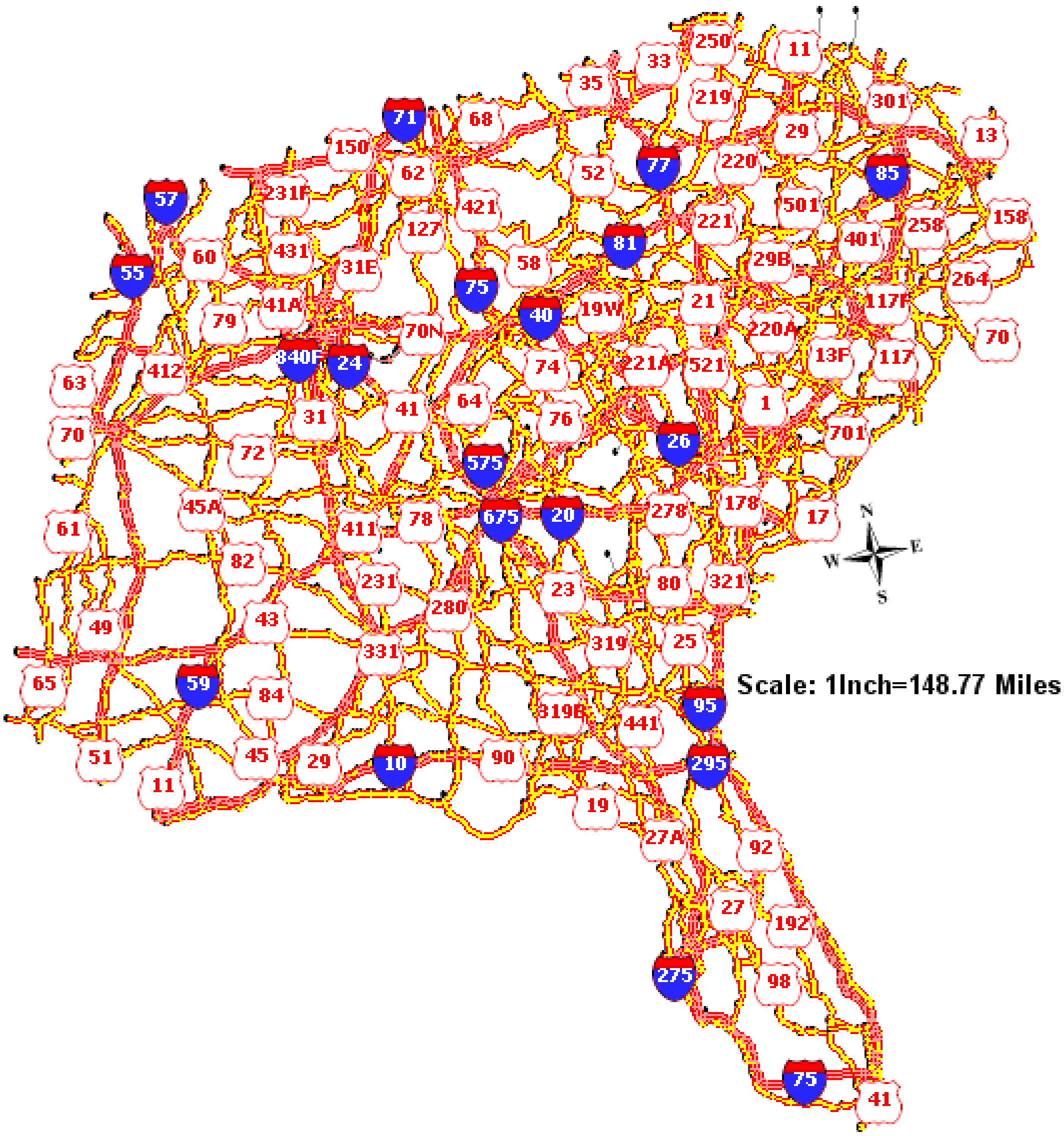

Fig. 3-2 Highway Network

CHAPTER 4. METHODOLOGY

4.1 Introduction

The main objective of this research was to see the difference between static traffic assignment and dynamic traffic assignment of hurricane evacuation traffic, and to compare both of them to observed values. Dynamic traffic assignment was used to assign time dependent origin destination trips through a transportation network, thereby producing estimates of time dependent traffic conditions on the network. TransCAD 4.8 has the capability of performing the dynamic traffic assignment and was used in the study. A comparison was made between dynamic traffic assignment, static traffic assignment and traffic counts. Clearance time considering both the complete network and the Immediate Response Zone only (people in this zone are exposed to the danger the most - see section 4.7) were also compared for dynamic and static assignment to see the difference between them.

4.2 Performing Static Assignment Using TransCAD

Static assignment was performed in TransCAD using the user equilibrium method. The user equilibrium method is an iterative process which is performed until a convergent solution is achieved which means no traveler can improve their travel times by changing routes. In each iteration, network link flows are computed incorporating link capacity restraint effects.

4.3 Converting Static O-D Demand into Time Dependent O-D Demand

The big issue in using DTA is providing time-dependent OD matrices. For static assignment, a single OD matrix is required, but for DTA one needs to know how the demand changes during the analysis period. So to know how demand changes we need to have OD matrices for small intervals of time of say, 10 or 15 minutes. It is difficult to get such detailed data presently. Since the work is done on Floyd data, which was collected for five consecutive days from September 12 to September 16, O-D matrices were prepared on a two hourly basis rather than 10 minutes or 15 minutes, taking departure times into consideration. A total of 48 O-D matrices were prepared based on data from September 13 to September 16. September 12, was excluded from the analysis due to the low demand on that day. The figure below shows the departure time of trips made by the evacuees on various days, as reported in the survey.

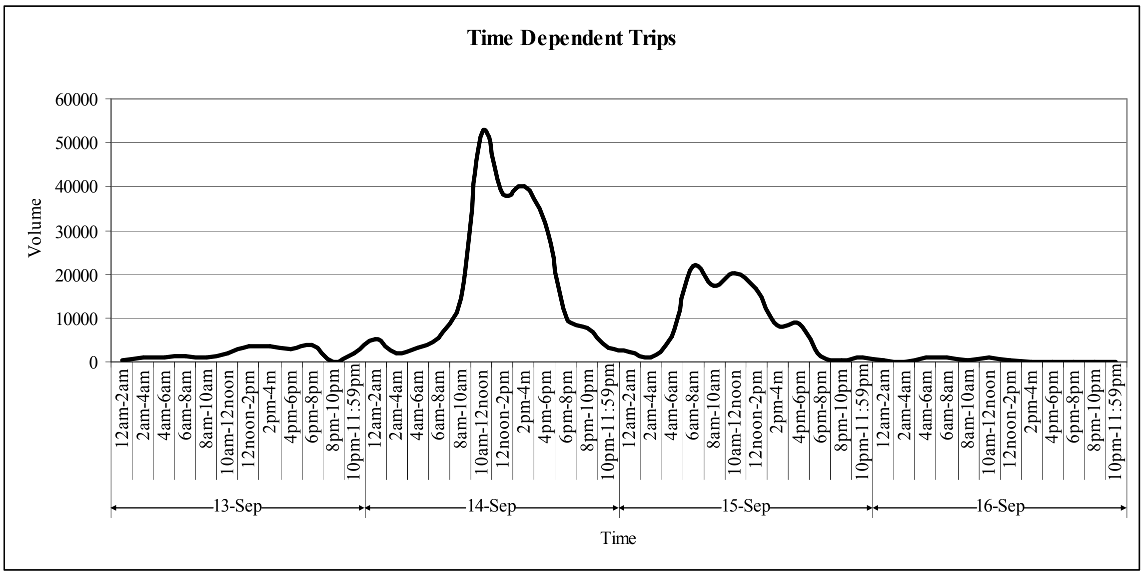

Fig 4-1: Frequency of Departures (09-13-99 – 09-16-99)

4.4 Expansion Factors

An expansion factor is defined as the ratio of population size to the sample size. In our case, the sampling unit is the household, and we have chosen to estimate separate expansion factors by metropolitan area. Thus, the expansion factors in this study are the total number of households in a metropolitan area to the number of households in the data sample from that metropolitan area. These factors were used to expand sample evacuation flows to actual evacuation flows so that they can be compared with observed values. In mathematical form the expansion factor is defined as:

$$\text{Expansion Factor (E)} = \frac{N}{n}$$

Where N = total number of households in a metropolitan area

n = number of households in the sample in that metropolitan area

The number of households in each county making up a metropolitan area were obtained from the U.S Census of 2000. The reported number of households considered in the calculation of expansion factor for the metropolitan area of Beaufort were 52,574. The counties considered for the calculation were Beaufort County and Jasper County. Similarly the reported number of households considered in the calculation of expansion factor for the Charleston and Myrtle Beach metropolitan areas were 207,957 and 103,459. The counties considered for the calculation of Charleston were Charleston County, Dorchester County and Berkeley County. The counties considered for calculation of Myrtle Beach were Horry and Georgetown counties.

Floyd data consists of 608 households from Beaufort, 627 households from Charleston and 652 households from Myrtle Beach. The number of households that evacuated from Beaufort were 412, from Charleston 557 and from Myrtle Beach are 308. Thus from the total of 1887 households the total number of households that evacuated was 1,277. The evacuated households with complete information were 283 from Beaufort, 274 from Charleston and 138 from Myrtle Beach for a total of 695 households. Thus out of 1,277 households that evacuated 695 households have provided complete information. The average number of vehicles used per household in evacuating from Beaufort were 1.4, from Charleston they were 1.37, and from Myrtle Beach 1.32. Thus, the expansion factors that were applied to individual observations, adjusted for incomplete observations and adjusted to provide vehicle trips from the number of households were:

The expansion factor for Beaufort was = $\frac{52,574}{608} \times \frac{412}{283} \times 1.4 = 176.2$

The expansion factor for Charleston was = $\frac{207,957}{627} \times \frac{557}{274} \times 1.37 = 923.7$

The expansion factor for Myrtle Beach was = $\frac{103459}{652} \times \frac{308}{138} \times 1.32 = 467.48$

These expansion factors were used to develop origin -destination matrices for static and dynamic traffic assignment in this study.

4.5 Performing Dynamic Traffic Assignment Using TransCAD

DTA was performed in TransCAD using the add-in based on an algorithm developed by Robles and Janson (1995)**.** Dynamic travel demand was approximated by dividing the analysis period into two-hour time intervals, within which demand was assumed to be uniform. The DTA procedure used incorporates the notion of a node-time interval $\alpha_{r,i}^{d,t}$, a binary variable which is set to unity if the last unit of flow leaving origin *r* during a particular time interval *d* passes through node *i* during time interval *t*, otherwise it is set to zero. Conceptually, node time intervals identify the path of the last vehicles leaving each origin at each time interval. Another variable, $\phi_{r,i}^{d,t}$, called the "trip flow fraction", spreads the flow over intervals by specifying the fraction of trips departing from zone r in time interval d that cross node i in time interval t.

The mixed integer program developed by Robles and Janson is non-convex over all possible node time intervals but is convex with a unique global optimum for a fixed set of the node time intervals. The solution is achieved by iteratively moving between two optimization procedures; one which identifies the optimum node time interval for a given set of link flows, and the other that identifies the link flows that gets all O-D trips through the network in the minimum time, given the estimated node time intervals. At each iteration, link travel time and shortest paths between O-D pairs are adjusted with the most recent estimate of link flows. The process is terminated when the change in node time intervals between successive iterations is sufficiently small. Robles and Janson (1995) proved that this iterative process converges to a dynamic user equilibrium solution.

4.6 Comparison of Static Assignment and Dynamic Traffic Assignment in TransCAD 4.8

A comparison was made among sample links chosen on a functional class basis (freeways, arterials, etc.) from the network. Traffic flow estimates from traffic assignment were plotted as a function of time for each selected link and compared with observed traffic flows from traffic counts obtained from South Carolina Department of Transportation (SCDOT).

A comparison was also conducted between the output of dynamic traffic assignment and the survey data in terms of the total number of vehicles in the network at any given time. The percentage difference between Clearance Time, Total VMT and Total VHT was also computed for the complete network between static and dynamic traffic assignments.

4.7 Calculation of Clearance Time

Clearance time is the time between the issuing of an evacuation order and when the last vehicle clears the danger area. Oscar and Han (2001) proposed three zones for any evacuation area. The first zone is an area called the Emergency Planning Zone (EPZ) or the Immediate Response Zone (IRZ). This is the area that is most at risk. The second zone is called the Protective Action Zone (PAZ), which is the area slightly further away than the IRZ, but still potentially vulnerable depending upon the type of hurricane. The third zone is called the Precautionary Zone (PZ) which is the furthest away from the threat but still within the area where adverse effects are expected. The determination of these zones are made subjectively based on the characteristics of the storm (e.g. speed, intensity, and predicted landfall location). Although not specifically so stated in the literature, we have assumed clearance time as the time from the issuing of an evacuation order to the time when the last evacuating vehicle exits the Immediate Response Zone (IRZ). Since hurricane Floyd had a diameter of 400 miles we assume the IRZ extended 100 miles inland from the three origins as an estimate of the area affected by gale force winds.

CHAPTER 5. RESULTS AND DISCUSSIONS

5.1 Time Dependent Flow Distribution

Traffic counts on a selected set of links were compared with the estimated link flows from static and dynamic assignment. The links were selected to provide a mix of road types (i.e. interstate, arterial, etc.) and to include the heavily traveled routes. The location of the selected links are shown by red stars in Figure 5-1. The results of the traffic assignments and their comparison with observed values are shown in graphs plotted between travel time and vehicle flow during each travel period. The flows in the graph are two-way flows (bi-directional) for each two hour period. The graphs are plotted considering September 14, 15 and 16 only, because traffic counts were not available for days beyond that period. The results are shown in Figures 5-2 to 5-8.

From the following graphs it is clear that:

1) The estimated flows (both DTA and STA) vary considerably from the observed flows, although the DTA estimates more closely resemble observed flows than those from STA. In some cases, the daily variation in traffic flow evident in all DTA estimates are evident in the observed counts, while at other sites this is not the case. Observed traffic counts are sometimes considerably lower and more stable than those predicted from DTA.

2) It is obvious that the observed counts are consistently higher than the DTA estimates on September 16. One possible explanation is that the traffic observed on September 16 was not evacuation traffic, but local traffic generated by the need of those not evacuating to stock up on fuel, food, and water, and to purchase material to fortify their homes against the oncoming storm.

Figure 5-1: Selected Links on Network

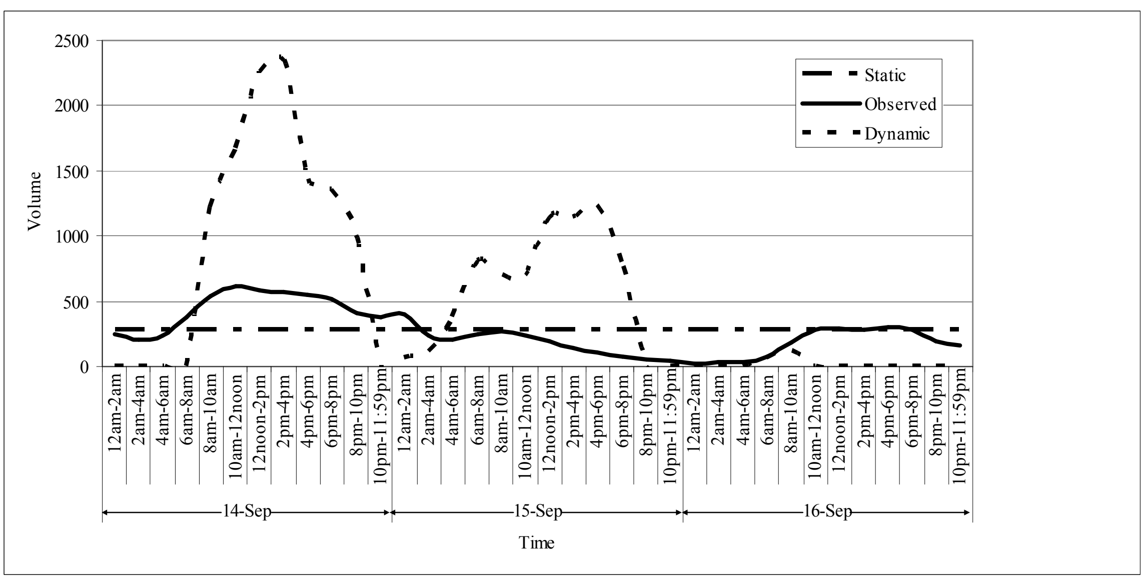

Figure 5-2: Flow on a Rural Interstate Link-1 from September 14 to September 16

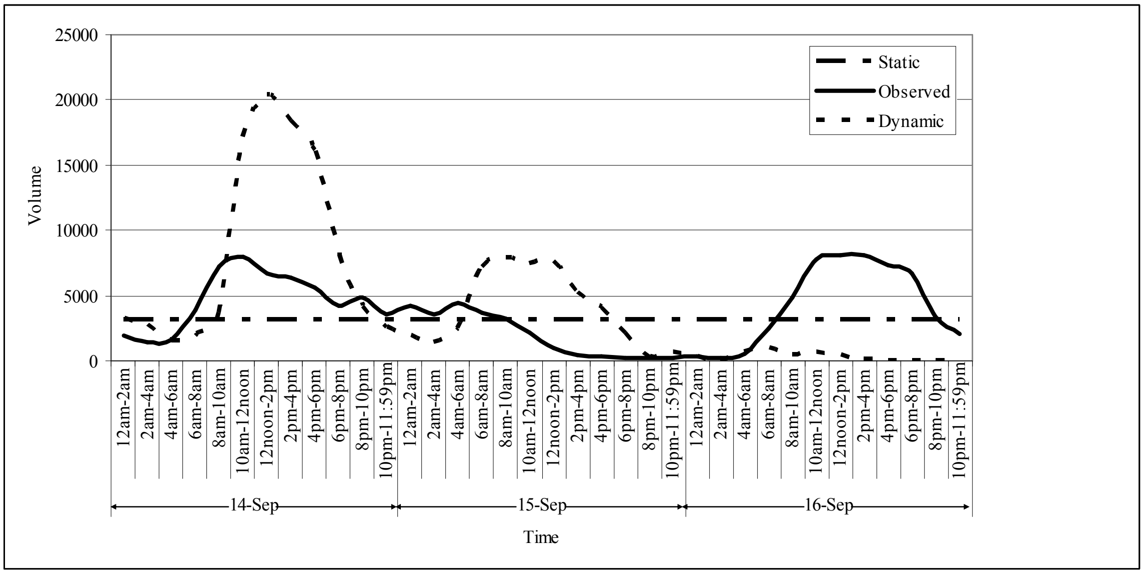

Figure 5-3: Flow on a Rural Interstate Link-2 from September 14 to September 16

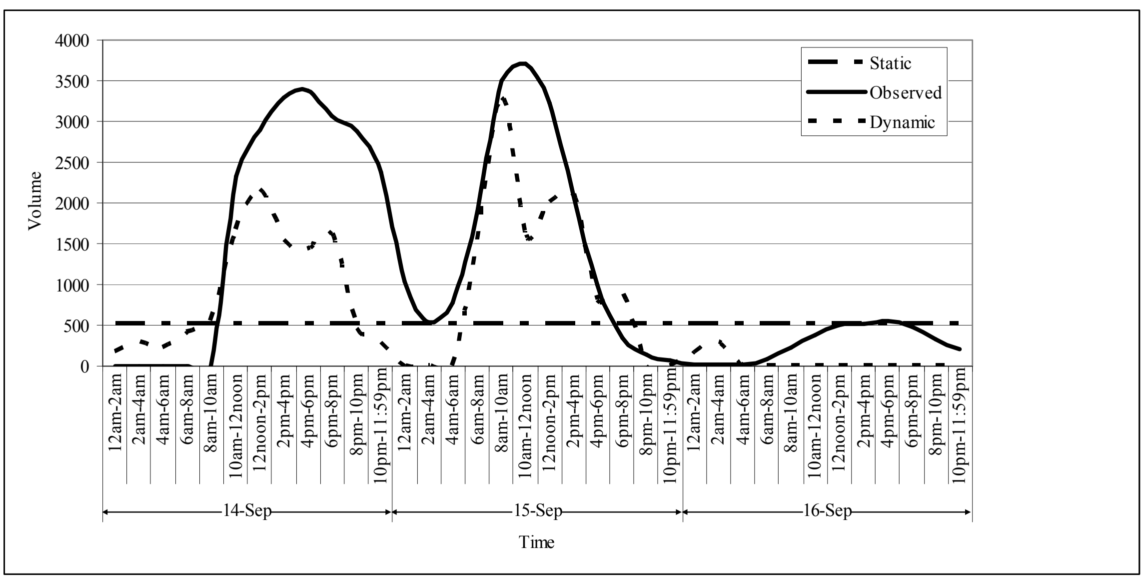

Figure 5-4: Flow on a Rural Interstate Link-3 from September 14 to September 16

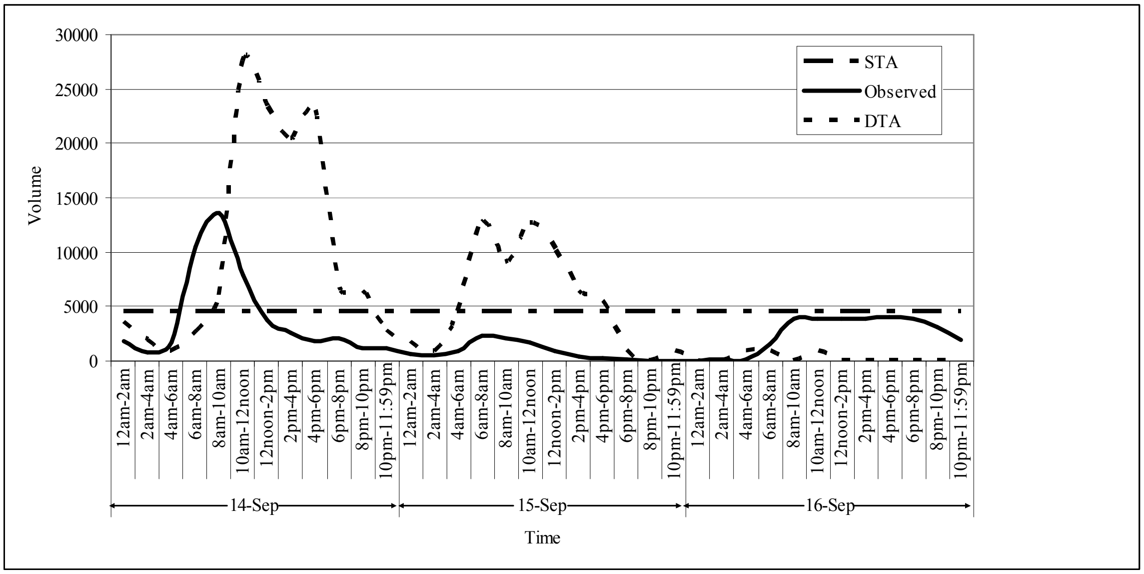

Figure 5-5: Flow on a Urban Interstate Link from September 14 to September 16

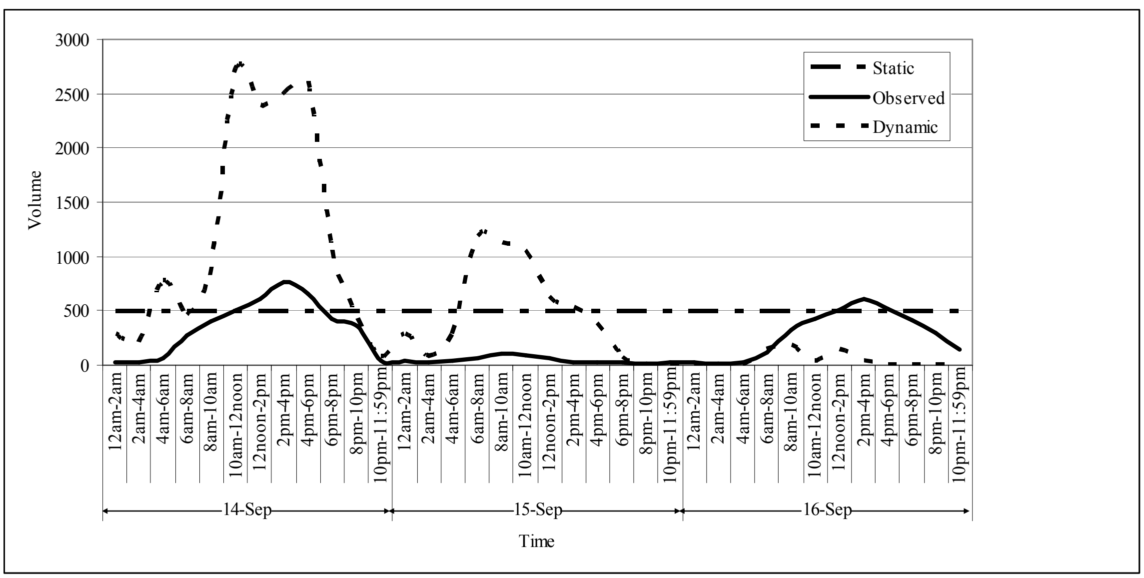

Figure 5-6: Flow on a Rural Minor Arterial Link from September 14 to September 16

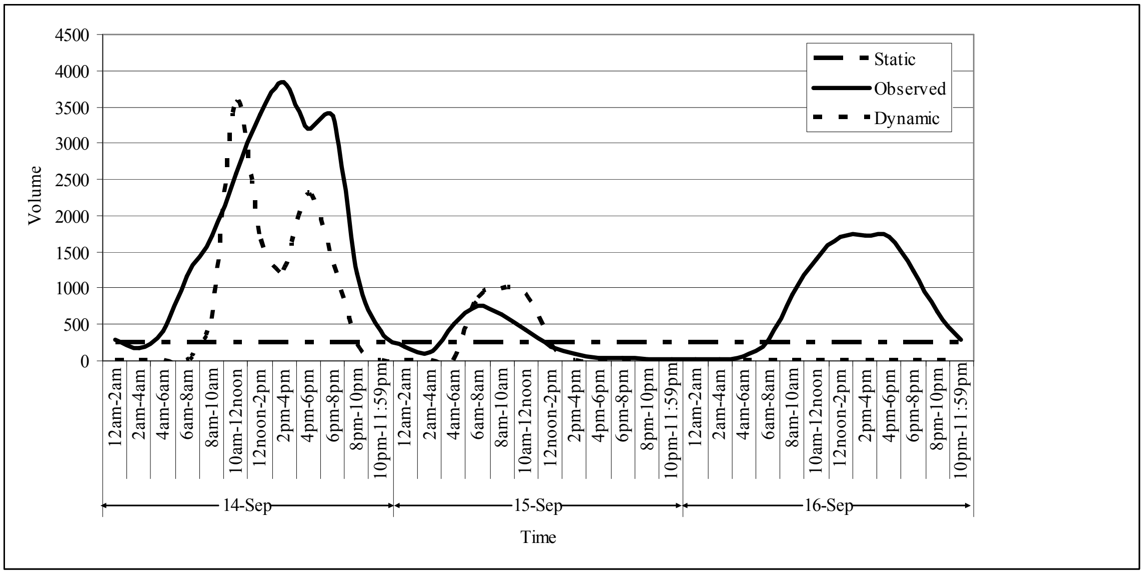

Figure 5-7: Flow on a Rural Principal Arterial Link-1 from September 14 to September 16

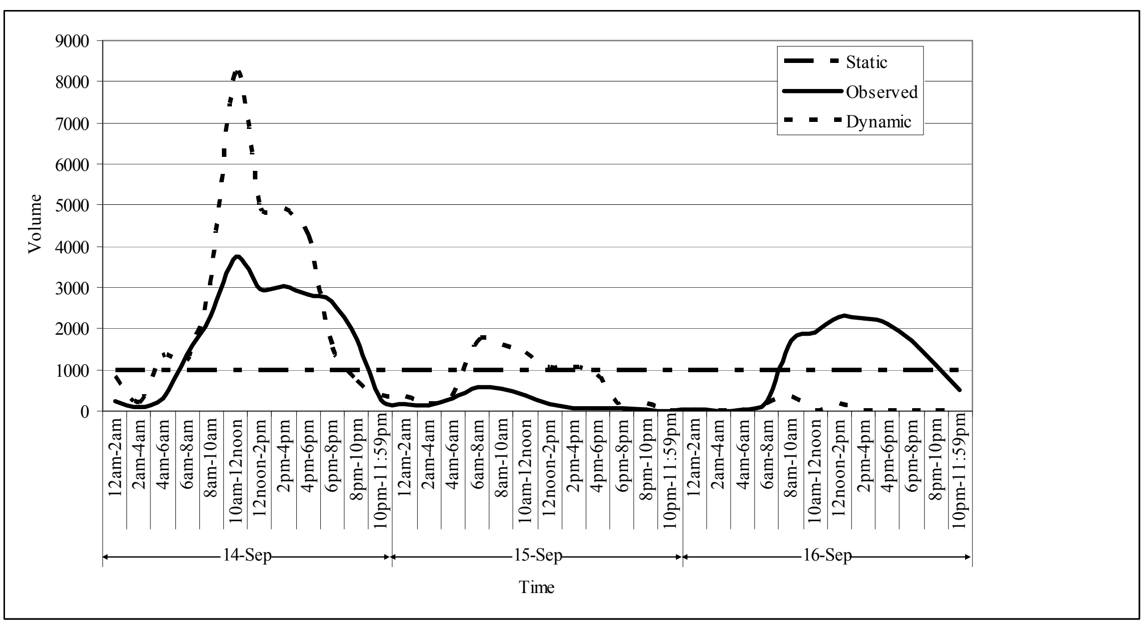

Figure 5-8: Flow on a Rural Principal Arterial Link-2 from September 14 to September 16

3) The total number of vehicles passing through each site is shown in table 5-1 below. DTA estimated a considerably larger number of vehicles on the selected links than was observed or estimated with static assignment, and since these were the more heavily-traveled links, this suggests that the DTA procedure may overestimate flows on busier links.

Table 5-1: Comparison of Total Volume on Various Links

Functional Classification	Observed	Dynamic	Static
Rural Principal Arterial Link-1	34,891	13,931	8,912
Rural Principal Arterial Link-2	38,117	41,202	35,126
Rural Minor Arterial	8,112	20,504	17,640
Rural Interstate Link -1	9,566	18,481	10,070
Rural Interstate Link -2	130,552	151,965	111,333
Rural Interstate Link -3	41,914	23,606	18,836
Urban Interstate	89,323	194,662	162,854
Total	352,475	464,351	364,771

5.2 Total Vehicle Miles Traveled (TVMT)

TVMT is a measure of the level of activity in the entire network. Since traffic counts were not available on all links in the network, DTA and STA estimates could not be compared to observed values. However, evacuation travel estimates could be obtained from the Floyd survey data using reported evacuation trips, the shortest paths through the network, and expansion factors. This was done for the entire evacuation period (September 13-16) and DTA and STA estimates made for the same period. The results are shown in table 5-2.

Table 5-2: TVMT of DTA and STA During Evacuation

	DTA	STA	Floyd Data
TVMT (vehicle-miles)	77,333,185	76,065,119	71,339,218

5.3 Total Vehicle Hours Traveled (TVHT)

TVHT is a measure which has the capability of reflecting mobility as well as quality of travel at the system level. Its advantage over VMT is that VHT includes the amount of delay that occurs during travel, thereby providing an indication of road congestion. From table 5-3 it can be observed that TVHT of DTA is more than TVHT of STA, as expected, since the peaking in DTA generates more delay. TVHT was calculated for each link considering 75 periods to ensure that the entire network was cleared of vehicles before analysis was terminated. TVHT for complete network was obtained by adding the travel on all the links. TVHT of DTA was calculated using

$$\sum_{i=1}^{75}\left[(AB\_Flowi \times AB\_Timei) + (BA\_Flowi \times BA\_Timei\right]$$

TVHT of STA was calculated using (AB_Flow×AB_Time) + (BA_Flow×BA_Time)

TVHT of Floyd Data was calculated using $\sum_{n=1}^{3}\sum_{i} TT_i \times EF_{i\in n}$

Where TT_i = travel time of household i

$EF_{i\in n}$ = expansion factor for origin n from where house hold i comes from

Table 5-3: TVHT of DTA and STA During Evacuation

	DTA	STA	Floyd Data
TVHT (Vehicle- Hours)	3,318,888	2,460,755	2,856,489

5.4 Speed and Average V/C Ratio

Average travel speed is defined as the ratio of TVMT to TVHT. Using values of TVMT from table 5-2 and the values of TVHT from table 5-3, the average speed of vehicles during evacuation are shown in table 5-4. The average travel speed derived from reported departure and arrival times in the survey data, is also shown.

Table 5-4: Speed Obtained From DTA, STA and Floyd Data During Evacuation

	DTA	STA	Floyd Data
Speed (Miles/Hour)	23.3	30.9	25.0

The average volume-capacity ratios *v/c* were estimated for all links in the network and then compared, because it is a truer measure of congestion than simply examining link flows. The average *v/c* was calculated by adding all the *v/c*'s greater than zero in each functional class and dividing by the number of links included in the analysis. The reason for getting low average values was due to low flow on many of the links in the network. This is because some links did not form part of an evacuation route, and because DTA predicted low flows at night. For some time periods the *v/c* ratio was as low as 0.004.

The range in *v/c* is also shown in table 5-5. The range in v/c for STA is the range of values among the links within each functional classification, whereas for DTA it is the range both over time and among links within the same functional classification. As expected, v/c is considerably higher among the DTA estimates which leads to the higher estimates of delay observed in TVHT in table 5-3. High v/c ratios are obtained with DTA as the BPR volume-delay function represents delay through capacity restraint on individual links. A notable result is that congestion is predicted with both DTA and STA to be greater on arterial routes than on the interstates. It is unknown whether this was indeed the experience with evacuation from hurricane Floyd in South Carolina.

Table 5-5: Volume to Capacity Ratios of Various Functional Classes

	Average v/c		Range in v/c	
Functional Classification	DTA	STA	DTA	STA
Urban Interstate	0.09	0.11	0.001-3.25	0.0002-1.88
Rural Interstate	0.08	0.11	0.004-2.92	0.001-1.28
Rural Principal Arterial	0.12	0.07	0.004-4.46	0.002-1.82
Rural Minor Arterial	0.16	0.10	0.004-4.36	0.003-1.70
Urban Principal Arterial	0.34	0.16	0.003-5.77	0.003-1.75

5.5 Clearance Time

Clearance time is the time required after an evacuation order is issued to clear all vehicles from the area of danger. We consider the Immediate Response Zone (IRZ) (described earlier in section 4.7) as the area of danger. From the path of hurricane Floyd, it's intensity, and its diameter, we estimated that gale force winds would extend approximately 100 miles inland from the coast. Thus, for the purposes of this study we assumed an IRZ that extended 100 miles inland from the coast for the entire South Carolina.

A voluntary evacuation order was issued at 6 a.m. on September 14, 1999, in all coastal counties in South Carolina. Therefore, clearance time was estimated as the time from 6 a.m. on September 14 to clear the last vehicle from the IRZ. According to the Floyd survey data, the last vehicle to evacuate was a vehicle from Beaufort that departed at 12 noon on September 16 to Winchester, Virginia. The shortest route would take the vehicle through Columbia, SC, on a journey of approximately 591 miles. Since the journey was reportedly completed in 8 hours, and Columbia is 136 miles from Beaufort and approximately 100 miles from the coast and therefore on the boundary of the IRZ, we estimated that the vehicle exited the IRZ approximately 2 hours after leaving Beaufort

(136miles×8hours/592 miles). Thus the last vehicle would have exited the IRZ at approximately 2 p.m. on September 16, 1999. This makes the observed clearance time 24+24+8 = 56 hours.

According to DTA estimates of travel in the network, the last vehicle to exit the IRZ was at 4 p.m. on September 16, 1999. Thus, the estimated clearance time using DTA was 24+24+10 = 58 hours. The clearance time of static assignment was computed using the long-response behavioral response curve. The procedure for the calculation of clearance time was taken from Southwest Louisiana Hurricane Evacuation Study (2000). According to their procedure, the time to clear the critical link (i.e. the link that has highest V/C ratio in the path out of the of study area) was used to estimate the clearance time. From the output of the static assignment the critical link was identified within the 100 miles of danger area. This critical link had a v/c ratio of 1.57, a volume of 181,458 and a capacity of 7200 vehicles/hour. A negative delay value under the first hour of response in table 5-6 indicates that demand/capacity ratio is less than 1. Considering the second hour of response, it can be seen that demand exceeds capacity by 1872.9 (9072.9-7200) and the delay is estimated as the ratio of 1872.9/7200 = 0.26 hours. The excess demand in the second hour of response is transferred to the third hour of response. The demand in the third hour of response is 12,702.06 which is greater than the assigned capacity of 7200 veh/hr. The excess demand in the third hour of response is the sum of (12702.06-7200) + 1872.9=7374.96 and the delay is therefore 7374.96/7200=1.02. The excess demand in the third hour of response (7374.96) was transferred to fourth hour of response and this continues until eleventh hour of response. Delay was calculated for every hour and the delay obtained in the eleventh hour of response was considered for the estimation of clearance time. Thus, time to clear the critical link was 14.69 hours. The time to exit the danger area from the end point of critical link was estimated from the network under average conditions as being 1.36 hours. Combining this with the loading time of 11 hours from the long response curve the calculated clearance time using static assignment was 14.69+11+1.36=27.05 hours. The reason for getting less clearance time in the case of static assignment was that the loading was assumed to occur over 11 hours, whereas the actual loading which took place over 54 hours was used in the DTA process.

The clearance time obtained from the present study was higher than the estimate from PBS&J (PBS&J, 2000). According to their estimates, clearance times for Beaufort, Charleston and Myrtle Beach were 24, 22 and 17 hours. However, PBS&J estimated clearance time based on the time taken to clear the county, and not the IRZ as in our case.

Table 5-6: Clearance Time Calculation for the Critical Link

Hour of Response	Capacity (Veh./hr)	Demand (Veh./hr)	Delay (hours)	% of Traffic Trying to Load by Hour
1	7200	3,629.16	-0.5	0.02
2	7200	9,072.9	0.26	0.05
3	7200	12,702.06	1.02	0.07
4	7200	18,145.8	2.54	0.1
5	7200	27,218.7	5.32	0.15
6	7200	39,920.76	9.86	0.22
7	7200	27,218.7	12.64	0.15
8	7200	18,145.8	14.17	0.1
9	7200	12,702.06	14.93	0.07
10	7200	9,072.9	15.1	0.05
11	7200	3,629.16	14.69	0.02

CHAPTER 6. SUMMARY AND CONCLUSIONS

6.1 Summary

Traffic assignment is one of the four steps of travel demand modeling that is considered important in the hurricane evacuation planning process. Not much study has been done in the past that addresses the comparison of static and dynamic traffic assignments during hurricane evacuation. The present study was conducted to determine the efficiency of using static and dynamic traffic assignment for a hurricane evacuation scenario. The research focused on finding the difference between static and dynamic traffic assignment volumes and comparing them with the traffic counts collected in South Carolina during hurricane Floyd. Finally, the clearance estimates from static and dynamic traffic assignments were compared.

In this study, the data from hurricane Floyd was used to conduct dynamic traffic assignment. Responses from about 700 evacuees were collected and were used for this study. A DTA procedure developed by Robles and Janson (1995), discussed in section 4.5, was implemented in this study. This procedure captures the time-dependent trips made by travelers during evacuation. Dynamic traffic assignment was conducted on the Floyd data and from the estimated flows and congested link travel times various measures of effectiveness like TVMT, TVHT and speed were calculated. To check how well the dynamic assignment reproduced the observed demand, a comparison was made between traffic counts and the volumes produced by dynamic traffic assignment at seven sites. A comparison of performance measures calculated above from the Floyd data, dynamic traffic assignment and static assignment was done to infer how well dynamic and static assignments reproduce Floyd data.

6.2 Conclusions

Based on the analysis and results reported above, the conclusions drawn from the study are as follows:

- The results obtained from the study indicate that it is feasible to use dynamic traffic assignment for a large network.
- A comparison between static, dynamic and traffic counts showed that DTA estimated a considerably larger number of vehicles on the seven selected links than was observed (traffic counts) or estimated from static assignment.
- The results obtained were consistent with the reported values provided by Modali (2005). The average distance to all destinations was between 150 to 250 miles. From the present study the average distance obtained using dynamic and static traffic assignment was 210 and 207 miles respectively. The observed average distance was 265 miles. Similarly the reported speed varies between 22 to 29 mph. From the present study the average speed obtained using static and dynamic traffic assignments was 23 and 31 miles per hour respectively. The calculated observed speed from the Floyd data was 25 mph.
- The research shows that TVHT (Table 5-3) and volume to capacity ratio (Table 5-5) of dynamic traffic assignment is greater than with static assignment. This indicates that static assignment has the potential to significantly underpredict congestion levels due to change in demand over the peak periods.

- The results obtained from the research show that non-uniform demand produces more delay when compared to uniform demand which was in accordance to the mathematical proof provided by Boyles et al. (2005).
- From the study it can be concluded that STA induces error in computing various measures of effectiveness like TVMT, TVHT, speed, clearance time and number of vehicles in the network at any time. DTA produced more realistic results than STA when the output of DTA is compared with Floyd data and traffic counts. In the current stage, DTA can be used to evaluate and improve existing evacuation plans. Due to this, DTA can be implemented in hurricane evacuation modeling to test some policies (contraflow, use of transit and evacuating area by zone wise instead of complete area) which helps in evacuating more number of people in short amount time.
- A good understanding can be acheived if the DTA approximator in TransCAD provides additional capabilities by considering other delay functions which can allow queue spillback to be modeled and more closely represent real traffic behavior in congested networks besides the standard BPR function.

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APPENDIX : FLOYD DATA

Day	Time		City Name	State	Origin	County
Sep 13	12	PM	IRMO	South Carolina	Charleston	Lexington
Sep 13	11	AM	CHARLOTTE	North Carolina	Charleston	Mecklenburg
Sep 13	11	PM	CLINTON	South Carolina	Charleston	Laurens
Sep 13	7	PM	ATLANTA	Georgia	Charleston	Fulton
Sep 13	11	PM	ORANGEBURG	South Carolina	Charleston	Orangeburg
Sep 13	2	PM	SPARTANBURG	South Carolina	Charleston	Spartanburg
Sep 13	1	PM	COLUMBUS	Georgia	Charleston	Muscogee
Sep 13	6	AM	CHARLOTTE	North Carolina	Charleston	Mecklenburg
Sep 13	3	PM	BREVARD	North Carolina	Charleston	Transylvania
Sep 13	5	PM	CHARLOTTE	North Carolina	Charleston	Mecklenburg
Sep 13	4	PM	GREENVILLE	North Carolina	Charleston	Mecklenburg
Sep 13	4	AM	FOREST CITY	North Carolina	Charleston	Rutherford
Sep 13	12	PM	COLUMBIA	South Carolina	Beaufort	Richland
Sep 13	8	AM	ATLANTA	Georgia	Beaufort	Fulton
Sep 13	7	AM	COLUMBIA	South Carolina	Beaufort	Richland
Sep 13	12	PM	ATLANTA	Georgia	Beaufort	Fulton
Sep 13	6	PM	ATLANTA	Georgia	Beaufort	Fulton
Sep 13	7	AM	ALBANY	Georgia	Beaufort	Dougherty
Sep 13	5	AM	MACON	Georgia	Beaufort	Bibb
Sep 13	8	AM	ALBANY	Georgia	Beaufort	Dougherty
Sep 13	11	AM	CHARLOTTE	North Carolina	Beaufort	Mecklenburg
Sep 13	12	PM	ALBANY	Georgia	Beaufort	Dougherty
Sep 13	4	PM	ATLANTA	Georgia	Beaufort	Fulton
Sep 13	3	PM	ATLANTA	Georgia	Beaufort	Fulton
Sep 13	5	PM	ATLANTA	Georgia	Beaufort	Fulton
Sep 13	12	PM	AUGUSTA	Georgia	Beaufort	Richmond City
Sep 13	4	PM	PERRY	Georgia	Beaufort	Houston
Sep 13	10	AM	COLUMBIA	South Carolina	Beaufort	Richland
Sep 13	1	PM	SANDERSVILLE	Georgia	Beaufort	Washington
Sep 13	2	PM	TALLADEGA	Alabama	Beaufort	Talladega
Sep 13	12	AM	ORANGEBURG	South Carolina	Beaufort	Orangeburg
Sep 13	11	AM	LANCASTER	South Carolina	Beaufort	Lancaster
Sep 13	4	PM	GREENVILLE	South Carolina	Beaufort	Greenville
Sep 13	6	PM	ATLANTA	Georgia	Beaufort	Fulton
Sep 13	7	PM	BARNWELL	South Carolina	Beaufort	Barnwell
Sep 13	12	AM	GREENVILLE	North Carolina	Beaufort	Mecklenburg
Sep 13	2	PM	CAMDEN	South Carolina	Beaufort	Kershaw
Sep 13	1	PM	COLUMBIA	South Carolina	Beaufort	Richland
Sep 13	11	PM	ATLANTA	Georgia	Beaufort	Fulton
Sep 13	10	AM	HARDEEVILLE	South Carolina	Beaufort	Jasper
Sep 13	3	PM	CHARLOTTE	North Carolina	Beaufort	Mecklenburg
Sep 13	10	AM	ATLANTA	Georgia	Beaufort	Fulton

Sep 13	9	AM	AUGUSTA	Georgia	Beaufort	Richmond City
Sep 13	2	PM	CLEMSON	South Carolina	Beaufort	Pickens
Sep 13	2	PM	ANDERSON	South Carolina	Myrtle Beach	Anderson
Sep 13	6	PM	THOMASVILLE	North Carolina	Myrtle Beach	Davidson
Sep 13	2	AM	GREENSBORO	North Carolina	Myrtle Beach	Guilford
Sep 13	9	AM	COLUMBIA	South Carolina	Myrtle Beach	Richland
Sep 13	12	PM	LEXINGTON	South Carolina	Myrtle Beach	Lexington
Sep 13	5	PM	FLORENCE	South Carolina	Myrtle Beach	Florence
Sep 13	2	PM	CHEROKEE	North Carolina	Myrtle Beach	Swain
Sep 13	7	PM	PINEHURST	North Carolina	Myrtle Beach	Henderson
Sep 13	6	PM	COLUMBIA	South Carolina	Myrtle Beach	Richland
Sep 13	6	PM	FLORENCE	South Carolina	Myrtle Beach	Florence
Sep 13	6	PM	FLORENCE	South Carolina	Myrtle Beach	Florence
Sep 14	10	AM	COLUMBIA	South Carolina	Charleston	Richland
Sep 14	9	AM	GREENVILLE	South Carolina	Charleston	Greenville
Sep 14	1	PM	CLEMSON	South Carolina	Charleston	Pickens
Sep 14	4	PM	ANDERSON	South Carolina	Charleston	Anderson
Sep 14	11	AM	KANNAPOLIS	North Carolina	Charleston	Cabarrus
Sep 14	11	AM	ATLANTA	Georgia	Charleston	Fulton
Sep 14	5	PM	ATLANTA	Georgia	Charleston	Fulton
Sep 14	3	PM	SPARTANBURG	South Carolina	Charleston	Spartanburg
Sep 14	2	PM	COLUMBUS	Georgia	Charleston	Muscogee
Sep 14	3	PM	BURLINGTON	North Carolina	Charleston	Alamance
Sep 14	2	PM	COLUMBIA	South Carolina	Charleston	Richland
Sep 14	5	PM	COLUMBIA	South Carolina	Charleston	Richland
Sep 14	2	PM	BIRMINGHAM	Alabama	Charleston	Jefferson
Sep 14	12	PM	CHARLOTTE	North Carolina	Charleston	Mecklenburg
Sep 14	8	PM	KINGSTREE	South Carolina	Charleston	Willamburg
Sep 14	5	PM	DOUGLASVILLE	Georgia	Charleston	Early
Sep 14	12	PM	CHARLOTTE	North Carolina	Charleston	Mecklenburg
Sep 14	11	AM	HENDERSONVILLE	North Carolina	Charleston	Hendersonville
Sep 14	3	PM	GREENVILLE	South Carolina	Charleston	Greenville
Sep 14	3	PM	GREENVILLE	South Carolina	Charleston	Greenville
Sep 14	2	PM	GREENVILLE	South Carolina	Charleston	Greenville
Sep 14	5	PM	FLORENCE	South Carolina	Charleston	Florence
Sep 14	3	PM	FLORENCE	South Carolina	Charleston	Florence
Sep 14	5	PM	FLORENCE	South Carolina	Charleston	Florence
Sep 14	2	PM	ASHEVILLE	North Carolina	Charleston	Buncombe
Sep 14	4	PM	ASHEVILLE	North Carolina	Charleston	Buncombe
Sep 14	3	PM	ANDERSON	South Carolina	Charleston	Anderson
Sep 14	12	PM	ORANGEBURG	South Carolina	Charleston	Orangeburg
Sep 14	5	PM	COLUMBIA	South Carolina	Charleston	Richland
Sep 14	6	PM	CHARLOTTE	North Carolina	Charleston	Mecklenburg
Sep 14	2	PM	PROSPERITY	South Carolina	Charleston	Newberry
Sep 14	11	AM	ATLANTA	Georgia	Charleston	Fulton

Sep 14	11	AM	COLUMBIA	South Carolina	Charleston	Richland
Sep 14	8	PM	SUMMERVILLE	South Carolina	Charleston	DorChester
Sep 14	11	AM	HARTSVILLE	South Carolina	Charleston	Jasper
Sep 14	11	AM	GREENVILLE	South Carmlina	Charleston	Greenville
Sep 14	7	PM	RALEIGH	North Carolina	Charleston	Wake
Sep 14	10	AM	CHARLOTTE	North Carolina	Charleston	Mecklenburg
Sep 14	2	PM	ATLANTA	Georgia	Charleston	Fulton
Sep 14	12	PM	AUGUSTA	Georgia	Charleston	Richmond City
Sep 14	3	AM	CHARLOTTE	North Carolina	Charleston	Mecklenburg
Sep 14	1	PM	COLUMBIA	South Carolina	Charleston	Richland
Sep 14	11	AM	LADSON	South Carolina	Charleston	Charleston
Sep 14	4	PM	RALEIGH	North Carolina	Charleston	Wake
Sep 14	9	AM	RALEIGH	North Carolina	Charleston	Wake
Sep 14	12	PM	COLUMBIA	South Carolina	Charleston	Richland
Sep 14	2	PM	ROSWELL	Georgia	Charleston	Fultol
Sep 14	1	PM	ATLANTA	Georgia	Charleston	Fulton
Sep 14	12	PM	SIMPSONVILLE	South Carolina	Charleston	Greenville
Sep 14	12	PM	KNOXVILLE	Tennessee	Charleston	Knox
Sep 14	9	AM	CLEMSON	South Carolina	Charleston	Pickens
Sep 14	5	PM	GREENVILLE	North Carolina	Charleston	Mecklenburg
Sep 14	12	AM	SHELBY	North Carolina	Charleston	Clevaland
Sep 14	8	AM	COLUMBIA	South Carolina	Charleston	Richland
Sep 14	1	PM	ORANGEBURG	South Carolina	Charleston	Orangeburg
Sep 14	4	PM	SPARTANBURG	South Carolina	Charleston	Spartanburg
Sep 14	2	PM	CHARLOTTE	North Carolina	Charleston	Mecklenburg
Sep 14	12	PM	GREENVILLE	North Carolina	Charleston	Mecklenburg
Sep 14	11	AM	MADISON	Georgia	Charleston	Morgan
Sep 14	12	PM	HIGHLANDS	North Carolina	Charleston	Macon
Sep 14	9	AM	CHARLOTTE	North Carolina	Charleston	Mecklenburg
Sep 14	3	PM	GREENVILLE	South Carolina	Charleston	Greenville
Sep 14	8	AM	AUGUSTA	South Carolina	Charleston	Richmond City
Sep 14	1	PM	AUGUSTA	Georgia	Charleston	Richmond City
Sep 14	6	PM	CAMDEN	South Carolina	Charleston	Kershaw
Sep 14	10	AM	YOUNGSTOWN	Georgia	Charleston	Union
Sep 14	7	AM	SUMMERVILLE	South Carolina	Charleston	DorChester
Sep 14	10	AM	NORTH CHARLESTON	South Carolina	Charleston	Charleston
Sep 14	11	AM	HENDERSONVILLE	North Carolina	Charleston	Hendersonville
Sep 14	8	PM	CHARLOTTE	North Carolina	Charleston	Mecklenburg
Sep 14	2	PM	HENDERSONVILLE	North Carolina	Charleston	Hendersonville
Sep 14	3	PM	GREENVILLE	South Carolina	Charleston	Greenville
Sep 14	12	PM	WILLISTON	South Carolina	Charleston	Barnwell
Sep 14	12	PM	CHARLESTON	North Carolina	Charleston	Charleston
Sep 14	2	PM	ATLANTA	Georgia	Charleston	Fulton
Sep 14	10	AM	NEWPORT	Tennessee	Charleston	Cocke
Sep 14	9	PM	GREENVILLE	South Carolina	Charleston	Greenville

Sep 14	1	PM	CHARLOTTE	North Carolina	Charleston	Mecklenburg
Sep 14	11	PM	COLUMBIA	South Carolina	Charleston	Richland
Sep 14	12	PM	ORANGEBURG	South Carolina	Charleston	Orangeburg
Sep 14	4	PM	ROANOKE	Virginia	Charleston	Roanoke City
Sep 14	6	PM	GREENSBORO	South Carolina	Charleston	Guilford
Sep 14	1	PM	AUGUSTA	Georgia	Charleston	Richmond City
Sep 14	11	AM	HOLLYWOOD	South Carolina	Charleston	Charleston
Sep 14	2	PM	CHARLOTTE	North Carolina	Charleston	Mecklenburg
Sep 14	10	AM	NEWBERRY	South Carolina	Charleston	Newberry
Sep 14	8	PM	CHARLOTTE	North Carolina	Charleston	Mecklenburg
Sep 14	10	AM	SENECA	South Carolina	Charleston	Oconee
Sep 14	11	AM	CLEVELAND	South Carolina	Charleston	Greenville
Sep 14	11	AM	GREENVILLE	South Carolina	Charleston	Greenville
Sep 14	12	PM	COLUMBIA	South Carolina	Charleston	Richland
Sep 14	3	PM	COLUMBIA	South Carolina	Charleston	Richland
Sep 14	6	PM	ETOWAH	Tennessee	Charleston	Mcminn
Sep 14	11	AM	COLLEGEDALE	Tennessee	Charleston	Hamilton
Sep 14	1	PM	CHARLOTTE	North Carolina	Charleston	Mecklenburg
Sep 14	12	AM	COLUMBIA	South Carolina	Charleston	Richland
Sep 14	2	PM	GREENVILLE	South Carolina	Charleston	Greenville
Sep 14	9	PM	SUMMERVILLE	South Carolina	Charleston	DorChester
Sep 14	12	PM	COLUMBIA	South Carolina	Charleston	Richland
Sep 14	5	PM	VARNVILLE	South Carolina	Charleston	Hampton
Sep 14	11	AM	MACON	Georgia	Charleston	Bibb
Sep 14	3	PM	CHARLESTON	North Carolina	Charleston	Charleston
Sep 14	10	AM	ASHEVILLE	North Carolina	Charleston	Buncombe
Sep 14	10	PM	FLORENCE	South Carolina	Charleston	Florence
Sep 14	7	PM	CHARLOTTE	North Carolina	Charleston	Mecklenburg
Sep 14	11	AM	ATLANTA	Georgia	Charleston	Fulton
Sep 14	4	PM	GREENVILLE	South Carolina	Charleston	Greenville
Sep 14	1	PM	COLUMBIA	South Carolina	Charleston	Richland
Sep 14	1	PM	GREENVILLE	North Carolina	Charleston	Mecklenburg
Sep 14	11	AM	GREENSBORO	North Carolina	Charleston	Guilford
Sep 14	11	AM	GREENVILLE	North Carolina	Charleston	Mecklenburg
Sep 14	2	PM	CHARLESTON	South Carolina	Charleston	Charleston
Sep 14	5	PM	MARION	North Carolina	Charleston	McDowell
Sep 14	8	AM	COLUMBIA	South Carolina	Charleston	Richland
Sep 14	10	AM	ATLANTA	Georgia	Charleston	Fulton
Sep 14	11	AM	ATLANTA	Georgia	Charleston	Fulton
Sep 14	12	AM	GREENVILLE	North Carolina	Charleston	Mecklenburg
Sep 14	10	AM	PIGEON FORGE	Tennessee	Charleston	Sevier
Sep 14	2	PM	SHELBY	North Carolina	Charleston	Clevaland
Sep 14	11	AM	ATLANTA	Georgia	Charleston	Fulton
Sep 14	11	AM	ATLANTA	Georgia	Charleston	Fulton
Sep 14	5	PM	GREER	South Carolina	Charleston	Greenville

Sep 14	4	PM	BLACK MOUNTAIN	North Carolina	Charleston	Buncombe
Sep 14	10	AM	LANCASTER	South Carolina	Charleston	Lancaster
Sep 14	5	PM	BOWMAN	South Carolina	Charleston	Orangeburg
Sep 14	2	PM	COLUMBIA	South Carolina	Charleston	Richland
Sep 14	1	PM	LORIS	South Carolina	Charleston	Horry
Sep 14	4	PM	CHARLOTTE	North Carolina	Charleston	Mecklenburg
Sep 14	2	PM	GREENVILLE	South Carolina	Charleston	Greenville
Sep 14	10	PM	COLUMBIA	South Carolina	Charleston	Richland
Sep 14	5	PM	FORT VALLEY	Georgia	Charleston	Peach
Sep 14	3	PM	RALEIGH	North Carolina	Charleston	Wake
Sep 14	11	AM	HUNTSVILLE	Alabama	Charleston	Madison
Sep 14	4	PM	COLUMBIA	South Carolina	Charleston	Richland
Sep 14	1	PM	SANTEE	South Carolina	Charleston	Orangeburg
Sep 14	3	PM	ATLANTA	Georgia	Charleston	Fulton
Sep 14	8	AM	AUGUSTA	Georgia	Charleston	Richmond City
Sep 14	1	PM	FRANKLIN	North Carolina	Charleston	Macon
Sep 14	5	PM	ASHEVILLE	North Carolina	Charleston	Buncombe
Sep 14	10	AM	COLUMBUS	Georgia	Charleston	Muscogee
Sep 14	11	AM	WAYNESVILLE	North Carolina	Charleston	Haywood
Sep 14	7	AM	BRENT	Alabama	Charleston	Bibb
Sep 14	8	PM	JACKSONVILLE	Alabama	Charleston	Gordon
Sep 14	11	AM	COLUMBIA	South Carolina	Charleston	Richland
Sep 14	4	PM	ATLANTA	Georgia	Charleston	Fulton
Sep 14	11	AM	ANDERSON	South Carolina	Charleston	Anderson
Sep 14	12	PM	COLUMBIA	South Carolina	Charleston	Richland
Sep 14	11	AM	CONCORD	North Carolina	Charleston	Person
Sep 14	1	PM	MARTINVILLE	Virginia	Charleston	Martinsville
Sep 14	5	AM	KNOXVILLE	Tennessee	Charleston	Knox
Sep 14	3	PM	ANDERSON	South Carolina	Charleston	Anderson
Sep 14	12	PM	WASHINGTON GA	Georgia	Charleston	wilkes GA
Sep 14	12	PM	CHATTANOOGA	Tennessee	Charleston	Swain
Sep 14	8	AM	CHARLOTTE	North Carolina	Charleston	Mecklenburg
Sep 14	10	AM	SAVANNA	Georgia	Charleston	Chatham
Sep 14	11	AM	GREENVILLE	South Carolina	Charleston	Greenville
Sep 14	70	PM	ATLANTA	Georgia	Charleston	Fulton
Sep 14	5	PM	GREENVILLE	North Carolina	Charleston	Mecklenburg
Sep 14	2	PM	SPARTANBURG	South Carolina	Charleston	Spartanburg
Sep 14	7	AM	GREENVILLE	South Carolina	Charleston	Greenville
Sep 14	12	PM	COLUMBIA	South Carolina	Charleston	Richland
Sep 14	1	PM	MEMPHIS	Tennessee	Charleston	Shelby
Sep 14	6	PM	NINETYSIX	South Carolina	Charleston	Crittenden
Sep 14	2	PM	CHARLOTTE	North Carolina	Charleston	Mecklenburg
Sep 14	6	PM	DARLINGTON	South Carolina	Charleston	Jasper
Sep 14	12	AM	COLUMBIA	South Carolina	Charleston	Richland
Sep 14	11	AM	ATLANTA	Georgia	Charleston	Fulton

Sep 14	11	AM	CHARLESTON	South Carolina	Beaufort	Charleston
Sep 14	6	PM	MAGGIEVALLEY	North Carolina	Beaufort	Haywood
Sep 14	2	PM	ATLANTA	Georgia	Beaufort	Fulton
Sep 14	4	PM	COLUMBIA	South Carolina	Beaufort	Richland
Sep 14	8	PM	CALHOUN	Georgia	Beaufort	Gordon
Sep 14	11	AM	CHARLOTTE	North Carolina	Beaufort	Mecklenburg
Sep 14	11	AM	ATLANTA	Georgia	Beaufort	Fulton
Sep 14	10	AM	DUBLINI	Georgia	Beaufort	LaurensI
Sep 14	10	AM	AUGUSTA	Georgia	Beaufort	Richmond City
Sep 14	12	PM	ATLANTA	Georgia	Beaufort	Fulton
Sep 14	11	AM	GREENVILLE	South Carolina	Beaufort	Greenville
Sep 14	4	PM	SPARTANBURG	South Carolina	Beaufort	Spartanburg
Sep 14	11	AM	ORANGEBURG	South Carolina	Beaufort	Orangeburg
Sep 14	4	PM	HAMPTON	South Carolina	Beaufort	Hampton
Sep 14	11	AM	GREENVILLE	South Carolina	Beaufort	Greenville
Sep 14	8	PM	COLUMBIA	South Carolina	Beaufort	Richland
Sep 14	2	PM	CHARLOTTE	North Carolina	Beaufort	Mecklenburg
Sep 14	12	PM	COLUMBIA	Smuth Carolina	Beaufort	Richland
Sep 14	11	AM	COVINGTON	Georgia	Beaufort	Lewton
Sep 14	4	PM	CONYERS	Georgia	Beaufort	Roackdale
Sep 14	2	PM	CHARLOTTE	South Carolina	Beaufort	Mecklenburg
Sep 14	3	PM	COMMERCE	Georgia	Beaufort	Jackson
Sep 14	11	PM	ATLANTA	Georgia	Beaufort	Fulton
Sep 14	2	PM	AUGUSTA	Georgia	Beaufort	Richmond City
Sep 14	8	AM	DECATUR	Georgia	Beaufort	Dekalb
Sep 14	2	PM	GREENVILLE	North Carolina	Beaufort	Mecklenburg
Sep 14	7	PM	CHARLOTTE	North Carolina	Beaufort	Mecklenburg
Sep 14	9	AM	ATLANTA	South Carolina	Beaufort	Fulton
Sep 14	11	AM	CLINTON	South Carolina	Beaufort	Laurens
Sep 14	6	PM	ATLANTA	Georgia	Beaufort	Fulton
Sep 14	2	PM	COLUMBUS	Georgia	Beaufort	Muscogee
Sep 14	1	PM	SANTEE	South Carolina	Beaufort	Orangeburg
Sep 14	10	AM	COLUMBUS	Georgia	Beaufort	Muscogee
Sep 14	12	AM	SPARTANBURG	South Carolina	Beaufort	Spartanburg
Sep 14	1	PM	PERRY	Georgia	Beaufort	Houston
Sep 14	3	PM	ATLANTA	Georgia	Beaufort	Fulton
Sep 14	10	AM	MACON	Georgia	Beaufort	Bibb
Sep 14	11	AM	GREENVILLE	South Carolina	Beaufort	Greenville
Sep 14	12	PM	COLUMBIA	South Carolina	Beaufort	Richland
Sep 14	10	AM	MARIETTA	Georgia	Beaufort	Cobb
Sep 14	12	PM	MACON	Georgia	Beaufort	Bibb
Sep 14	9	AM	HENDERSONVILLE	North Carolina	Beaufort	Hendersonville
Sep 14	10	AM	ATLANTA	Georgia	Beaufort	Fulton
Sep 14	5	PM	NEWINGTON	Georgia	Beaufort	Screven
Sep 14	7	PM	MACON	Georgia	Beaufort	Bibb

Sep 14	8	AM	ATLANTA	Georgia	Beaufort	Fulton
Sep 14	2	PM	WILLIAMS	South Carolina	Beaufort	Colleton
Sep 14	1	PM	FLORENCE	South Carolina	Beaufort	Florence
Sep 14	12	AM	CARROLTON	Georgia	Beaufort	San Joaquin
Sep 14	4	PM	WYTHEVILLE	Virginia	Beaufort	Wythe
Sep 14	12	PM	GREENSBORO	South Carolina	Beaufort	Guilford
Sep 14	1	PM	ANDERSON	South Carolina	Beaufort	Anderson
Sep 14	2	PM	COLUMBUS	Georgia	Beaufort	Muscogee
Sep 14	2	PM	ANDERSON	South Carolina	Beaufort	Anderson
Sep 14	1	PM	BIRMINGHAM	Alabama	Beaufort	Jefferson
Sep 14	2	AM	COLUMBIA	South Carolina	Beaufort	Richland
Sep 14	10	AM	AIKEN	South Carolina	Beaufort	Aiken
Sep 14	1	PM	ATLANTA	Georgia	Beaufort	Fulton
Sep 14	1	PM	COLUMBIA	South Carolina	Beaufort	Richland
Sep 14	1	PM	WALTERBORO	South Carolina	Beaufort	Colleton
Sep 14	2	PM	COLUMBIA	South Carolina	Beaufort	Richland
Sep 14	2	PM	COLUMBIA	South Carolina	Beaufort	Richland
Sep 14	10	AM	CLEMSON	South Carolina	Beaufort	Pickens
Sep 14	1	PM	ANDERSON	South Carolina	Beaufort	Anderson
Sep 14	2	PM	FAYETTEVILLE	Georgia	Beaufort	Fayette
Sep 14	11	AM	COLUMBIA	South Carolina	Beaufort	Richland
Sep 14	11	AM	AUGUSTA	Georgia	Beaufort	Richmond City
Sep 14	4	PM	COLUMBIA	South Carolina	Beaufort	Richland
Sep 14	10	AM	ATLANTA	Georgia	Beaufort	Fulton
Sep 14	11	AM	BOONE	North Carolina	Beaufort	Watauga
Sep 14	6	PM	CHARLOTTE	North Carolina	Beaufort	Mecklenburg
Sep 14	11	AM	AUGUSTA	Georgia	Beaufort	Richmond City
Sep 14	4	PM	MILLEDGEVILLE	Georgia	Beaufort	Baldwin
Sep 14	3	PM	CHARLOTTE	North Carolina	Beaufort	Mecklenburg
Sep 14	12	AM	ATLANTA	Georgia	Beaufort	Fulton
Sep 14	11	AM	ATLANTA	Georgia	Beaufort	Fulton
Sep 14	1	PM	PINE MOUNTAIN	Georgia	Beaufort	Harris
Sep 14	4	PM	CAMDEN	South Carolina	Beaufort	Kershaw
Sep 14	3	PM	AUGUSTA	Georgia	Beaufort	Richmond City
Sep 14	5	PM	ATLANTA	Georgia	Beaufort	Fulton
Sep 14	4	PM	HAMPTON	South Carolina	Beaufort	Hampton
Sep 14	1	PM	HAMPTON	South Carolina	Beaufort	Hampton
Sep 14	12	AM	PIGEON FORGE	Tennessee	Beaufort	Sevier
Sep 14	1	PM	FAYETTEVILLE	Georgia	Beaufort	Fayette
Sep 14	4	PM	COLUMBIA	South Carolina	Beaufort	Richland
Sep 14	5	PM	CHEROKEE	North Carolina	Beaufort	Swain
Sep 14	11	AM	ATLANTA	Georgia	Beaufort	Fulton
Sep 14	12	AM	HAMPTON	South Carolina	Beaufort	Hampton
Sep 14	1	PM	ATLANTA	Georgia	Beaufort	Fulton
Sep 14	10	AM	ATLANTA	Georgia	Beaufort	Fulton

Sep 14	12	AM	CALHOUN	Georgia	Beaufort	Gordon
Sep 14	2	PM	AUGUSTA	Georgia	Beaufort	Richmond City
Sep 14	2	PM	SNELLVILLE	Georgia	Beaufort	Gwinnett
Sep 14	3	PM	COLUMBUS	Georgia	Beaufort	Muscogee
Sep 14	10	AM	MONROE	North Carolina	Beaufort	Union
Sep 14	5	PM	AUGUSTA	Georgia	Beaufort	Richmond City
Sep 14	4	PM	ATHENS	Georgia	Beaufort	Fulton
Sep 14	4	PM	DUBLIN	Georgia	Beaufort	Laurens
Sep 14	7	AM	LYONS	Georgia	Beaufort	Toombs
Sep 14	10	PM	HAMPTON	South Carolina	Beaufort	Hampton
Sep 14	10	AM	ATLANTA	Georgia	Beaufort	Fulton
Sep 14	12	PM	MADISON	Georgia	Beaufort	Morgan
Sep 14	2	PM	COLUMBIA	South Carolina	Beaufort	Richland
Sep 14	11	AM	MONTGOMERY	Alabama	Beaufort	Montgomery
Sep 14	3	PM	COLUMBIA	South Carolina	Beaufort	Richland
Sep 14	12	PM	DOUGLASVILLE	Georgia	Beaufort	Early
Sep 14	8	AM	ORANGEBURG	South Carolina	Beaufort	Orangeburg
Sep 14	4	PM	ATHENS	Georgia	Beaufort	Fulton
Sep 14	6	PM	ATLANTA	Georgia	Beaufort	Fulton
Sep 14	2	PM	COLUMBIA	South Carolina	Beaufort	Richland
Sep 14	8	AM	COLUMBIA	South Carolina	Beaufort	Richland
Sep 14	11	AM	FOREST CITY	North Carolina	Beaufort	Rutherford
Sep 14	11	AM	ATLANTA	Georgia	Beaufort	Fulton
Sep 14	5	PM	ALBANY	Georgia	Beaufort	Dougherty
Sep 14	11	AM	COLUMBIA	South Carolina	Beaufort	Richland
Sep 14	1	PM	ANDERSON	South Carolina	Beaudort	Anderson
Sep 14	2	PM	WAYCROSS	Georgia	Beaufort	ware
Sep 14	11	AM	ATLANTA	Georgia	Beaufort	Fulton
Sep 14	11	AM	ATLANTA	Georgia	Beaufort	Fulton
Sep 14	2	PM	AUGUSTA	Georgia	Beaufort	Richmond City
Sep 14	12	PM	ATLANTA	Georgia	Beaufort	Dulton
Sep 14	12	PM	STOCKBRIDGE	Georgia	Beaufort	Henry
Sep 14	6	PM	ESTILL	South Carolina	Beaufort	Hampton
Sep 14	3	PM	GREENVILLE	North Carolina	Beaufort	Mecklenburg
Sep 14	1	PM	ATLANTA	Georgia	Beaufort	Fulton
Sep 14	5	AM	COLUMBIA	South Carolina	Beaufort	Richland
Sep 14	4	PM	CHARLOTTE	North Carolina	Beaufort	Mecklenburg
Sep 14	9	AM	AUGUSTA	Georgia	Beaufort	Richmond City
Sep 14	9	AM	LOUISVILLE	Georgia	Beaufort	Jefferson
Sep 14	6	PM	CHATTANOOGA	Tennessee	Beaufort	Swain
Sep 14	5	AM	BARNWELL	South Carolina	Beaufort	Barnwell
Sep 14	6	PM	STATESBORO	Georgia	Beaufort	Bulloch
Sep 14	11	AM	COLUMBIA	South Carolina	Beaufort	Richland
Sep 14	1	PM	BARNWELL	South Carolina	Beaufort	Barnwell
Sep 14	5	PM	STATESBORO	Georgia	Beaufort	Bulloch

Sep 14	12	PM	CHARLOTTE	North Carolina	Beaufort	Mecklenburg
Sep 14	6	AM	MACON	Georgia	Beaufort	Bibb
Sep 14	11	AM	PINEHURST	North Carolina	Beaufort	Henderson
Sep 14	10	AM	ATLANTA	Georgia	Beaufort	Fulton
Sep 14	7	AM	LOUISVILLE	Georgia	Beaufort	Jefferson
Sep 14	6	AM	ATLANTA	Georgia	Beaufort	Fulton
Sep 14	9	AM	AUGUSTA	Georgia	Beaufort	Richmond City
Sep 14	4	AM	ATLANTA	Georgia	Beaufort	Fulton
Sep 14	11	AM	SARASOTA	Florida	Beaufort	Sarasota
Sep 14	9	AM	WAYNESBORO	Georgia	Beaufort	Burke
Sep 14	4	PM	COLUMBIA	South Carolina	Beaufort	Richland
Sep 14	7	AM	BIRMINGHAM	Alabama	Beaufort	Jefferson
Sep 14	2	PM	ATLANTA	Georgia	Beaufort	Fulton
Sep 14	9	AM	STATESBORO	Georgia	Beaufort	Bulloch
Sep 14	7	AM	ATLANTA	Georgia	Beaufort	Fulton
Sep 14	9	AM	ATHENS	Georgia	Beaufort	Fulton
Sep 14	4	PM	MACON	Georgia	Beaufort	Bibb
Sep 14	5	PM	GREENSBORO	South Carolina	Beaufort	Guilford
Sep 14	11	AM	CHARLOTTE	North Carolina	Beaufort	Mecklenburg
Sep 14	9	AM	COLUMBUS	Georgia	Beaufort	Muscogee
Sep 14	2	PM	ORANGEBURG	South Carolina	Beaufort	Orangeburg
Sep 14	8	AM	MARIETTA	Georgia	Beaufort	Cobb
Sep 14	12	PM	ORANGEBURG	South Carolina	Beaufort	Orangeburg
Sep 14	12	PM	GREENVILLE	South Carolina	Beaufort	Greenville
Sep 14	10	AM	GRIFFIN	Georgia	Beaufort	Spalding
Sep 14	10	AM	MACON	Georgia	Beaufort	Bibb
Sep 14	12	PM	COLUMBIA	South Carolina	Beaufort	Richland
Sep 14	4	PM	ORANGEBURG	South Carolina	Beaufort	Orangeburg
Sep 14	10	AM	CHARLOTTE	North Carolina	Beaufort	Mecklenburg
Sep 14	9	AM	MAGGIE VALLEY	North Carolina	Beaufort	Haywood
Sep 14	1	PM	AUGUSTA	Georgia	Beaufort	Richmond City
Sep 14	8	AM	GREENVILLE	South Carolina	Beaufort	Greenville
Sep 14	9	AM	ATLANTA	Georgia	Beaufort	Fulton
Sep 14	3	PM	ATLANTA	Georgia	Beaufort	Fulton
Sep 14	4	PM	ATLANTA	Georgia	Beaufort	Fulton
Sep 14	10	AM	RIDGELAND	South Carolina	Beaufort	Jasper
Sep 14	11	AM	KNOXVILLE	Tennessee	Beaufort	Knox
Sep 14	10	AM	ATLANTA	Georgia	Beaufort	Fulton
Sep 14	12	PM	STATESBORO	Georgia	Beaufort	Bulloch
Sep 14	11	AM	COLUMBIA	South Carolina	Beaufort	Richland
Sep 14	5	PM	ATLANTA	Georgia	Beaufort	Fulton
Sep 14	1	PM	ATLANTA	Georgia	Beaufort	Fulton
Sep 14	10	AM	ATLANTA	Georgia	Beaufort	Fulton
Sep 14	1	PM	CHARLOTTE	North Carolina	Beaufort	Mecklenburg
Sep 14	10	AM	METTER	Georgia	Beaufort	Candler

Sep 14	9	AM	MCDONOUGH	Geopgia	Beaufort	Henry
Sep 14	10	AM	CHARLOTTE	North Carolina	Beaufort	Mecklenburg
Sep 14	11	AM	ROSEHILL	South Carolina	Beaufort	Charleston
Sep 14	9	AM	SPINDALE	North Carolina	Beaufort	Rutherford
Sep 14	11	AM	MACON	Georgia	Beaufort	Bibb
Sep 14	8	AM	ATLANTA	Georgia	Beaufort	Fulton
Sep 14	6	AM	CHARLOTTE	North Carolina	Beaufort	Mecklenburg
Sep 14	3	PM	COLUMBIA	South Carolina	Beaufort	Richland
Sep 14	10	AM	AIKEN	South Carolina	Beaufort	Aiken
Sep 14	8	PM	SARASOTA	Florida	Beaufort	Sarasota
Sep 14	6	AM	SPARTANBURG	South Carolina	Beaufort	Spartanburg
Sep 14	8	PM	AIKEN	South Carolina	Beaufort	Aiken
Sep 14	12	PM	WOODRUFF	South Carolina	Myrtle Beach	Spartanburg
Sep 14	1	PM	ASHEVILLE	North Carolina	Myrtle Beach	Buncombe
Sep 14	8	AM	COLUMBIA	South Carolina	Myrtle Beach	Richland
Sep 14	12	PM	FLORENCE	South Carolina	Myrtle Beach	Florence
Sep 14	2	PM	FLORENCE	South Carolina	Myrtle Beach	Florence
Sep 14	5	PM	CHARLOTTE	North Carolina	Myrtle Beach	Mecklenburg
Sep 14	6	PM	FLORENCE	South Carolina	Myrtle Beach	Florence
Sep 14	10	AM	FLORENCE	South Carolina	Myrtle Beach	Florence
Sep 14	4	AM	CHARLOTTE	North Carolina	Myrtle Beach	Mecklenburg
Sep 14	3	PM	ANDERSON	South Carolina	Myrtle Beach	Anderson
Sep 14	8	AM	TIMMONSVILLE	South Carolina	Myrtle Beach	Florence
Sep 14	10	AM	GEORGETOWN	South Carolina	Myrtle Beach	Georgetown
Sep 14	12	PM	FLORENCE	South Carolina	Myrtle Beach	Florence
Sep 14	5	PM	ATLANTA	Georgia	Myrtle Beach	Fulton
Sep 14	10	AM	CHEROKEE	North Carolina	Myrtle Beach	Swain
Sep 14	9	AM	FLORENCE	South Carolina	Myrtle Beach	Florence
Sep 14	10	AM	GREENVILLE	South Carolina	Myrtle Beach	Greenville
Sep 14	11	AM	CHARLOTTE	North Carolina	Myrtle Beach	Mecklenburg
Sep 14	12	PM	NEWBERRY	South Carolina	Myrtle Beach	Newberry
Sep 14	9	AM	GREENVILLE SC	South Carolina	Myrtle Beach	Greenville SC
Sep 14	11	AM	CHARLOTTE	North Carolina	Myrtle Beach	Mecklenburg
Sep 14	5	PM	LAKE CITY SC	South Carolina	Myrtle Beach	Florence SC
Sep 14	7	PM	SPARTANBURG	South Carolina	Myrtle Beach	Spartanburg
Sep 14	3	PM	GEORGETOWN	South Carolina	Myrtle Beach	Georgetown
Sep 14	9	AM	SPARTANBURG	South Carolina	Myrtle Beach	Spartanburg
Sep 14	10	AM	JACKSONVILLE	North Carolina	Myrtle Beach	Onslow
Sep 14	9	AM	RICHMOND	Virginia	Myrtle Beach	Richmond City
Sep 14	2	PM	BUNN	North Carolina	Myrtle Beach	Franklin
Sep 14	5	PM	CAMDEN	South Carolina	Myrtle Beach	Kershaw
Sep 14	3	PM	CHARLOTTE	North Carolina	Myrtle Beach	Mecklenburg
Sep 14	6	PM	ORLANDO	Florida	Myrtle Beach	Orange
Sep 14	4	PM	CHARLOTTE	North Carolina	Myrtle Beach	Mecklenburg
Sep 14	11	AM	CHARLOTTE	North Carolina	Myrtle Beach	Mecklenburg

Sep 14	11	AM	CHARLOTTE	North Carolina	Myrtle Beach	Mecklenburg
Sep 14	9	PM	ATLANTA	Georgia	Myrtle Beach	Fulton
Sep 14	5	AM	COLUMBIA	South Carmlina	Myrtle Beach	Richland
Sep 14	3	PM	FLORENCE	South Carolina	Myrtle Beach	Florence
Sep 14	10	AM	COLUMBIA	South Carolina	Myrtle Beach	Richland
Sep 14	6	AM	LORIS	South Carolina	Myrtle Beach	Horry
Sep 14	10	AM	CHARLOTTE	North Carolina	Myrtle Beach	Mecklenburg
Sep 14	7	AM	PULASKI	Virginia	Myrtle Beach	Pulaski
Sep 14	12	PM	MULLINS	South Carolina	Myrtle Beach	Marion
Sep 14	10	AM	GREENVILLE	South Carolina	Myrtle Beach	Greenville
Sep 14	1	PM	CHEROKEE	North Carolina	Myrtle Beach	Swain
Sep 14	4	PM	CHARLOTTE	North Carolina	Myrtle Beach	Mecklenburg
Sep 14	2	PM	FLORENCE	South Carolina	Myrtle Beach	Florence
Sep 14	3	PM	HIGH POINT	North Carolina	Myrtle Beach	Guilford
Sep 14	2	PM	GREENSBORO	North Carolina	Myrtle Beach	Guilford
Sep 14	1	PM	WILMINGTON	North Carolina	Myrtle Beach	New Hanover
Sep 14	7	AM	GREENVILLE	North Carolina	Myrtle Beach	Mecklenburg
Sep 14	3	PM	KNOXVILLE	Tennessee	Myrtle Beach	Knox
Sep 14	11	AM	STATESBORO	South Carolina	Myrtle Beach	Bulloch
Sep 14	12	PM	BENNETTSVILLE	South Carolina	Myrtle Beach	Marlboro
Sep 14	5	PM	CLINTON	South Carolina	Myrtle Beach	Laurens
Sep 14	10	AM	PIGEON FORGE	North Carolina	Myrtle Beach	Sevier
Sep 14	1	PM	PINEHURST	North Carolina	Myrtle Beach	Henderson
Sep 14	5	PM	COLUMBIA	South Carolina	Myrtle Beach	Richland
Sep 14	12	AM	ANDERSON	South Carolina	Myrtle Beach	Anderson
Sep 14	5	PM	CHARLOTTE	North Carolina	Myrtle Beach	Mecklenburg
Sep 14	3	PM	ROLLAND	North Carolina	Myrtle Beach	Isabella
Sep 14	10	AM	ATLANTA	Georgia	Charleston	Fulton
Sep 14	10	AM	MAGGIE VALLEY	Tennessee	Charleston	Haywood
Sep 14	5	PM	ATLANTA	Georgia	Charleston	Fulton
Sep 15	11	AM	COLUMBIA	South Carolina	Charleston	Richland
Sep 15	12	PM	COLUMBIA	South Carolina	Charleston	Richland
Sep 15	6	AM	COLUMBIA	South Carolina	Charleston	Richland
Sep 15	6	AM	WASHINGTON	Georgia	Charleston	wilkes
Sep 15	6	AM	LEESBURG	Georgia	Charleston	Muscogee
Sep 15	1	PM	AUGUSTA	Georgia	Charleston	Richmond City
Sep 15	6	AM	COLUMBIA	South Carolina	Charleston	Richland
Sep 15	11	AM	AIKEN	South Carolina	Charleston	Aiken
Sep 15	6	AM	CHARLOTTE	North Carolina	Charleston	Mecklenburg
Sep 15	3	PM	SALUDA	North Carolina	Charleston	Polk
Sep 15	3	PM	AIKEN	South Carolina	Charleston	Aiken
Sep 15	12	PM	GREENSBORO	North Carolina	Charleston	Guilford
Sep 15	1	PM	ASHEVILLE	North Carolina	Charleston	Buncombe
Sep 15	9	AM	CLEMSON	South Carolina	Charleston	Pickens
Sep 15	10	AM	SIMPSONVILLE	South Carolina	Charleston	Greenville

Sep 15	7	AM	GREENVILLE	South Carolina	Charleston	Greenville
Sep 15	9	AM	GOOSECREEK	South Carolina	Charleston	Berkeley
Sep 15	6	AM	ATLANTA	Georgia	Charleston	Fulton
Sep 15	2	PM	MANNING	South Carolina	Charleston	Clarendon
Sep 15	2	PM	RALEIGH	North Carolina	Charleston	Wake
Sep 15	10	AM	ATLANTA	Georgia	Charleston	Fulton
Sep 15	11	AM	SPARTANBURG	South Carolina	Charleston	Spartanburg
Sep 15	10	PM	ATLANTA	Georgia	Charleston	Fulton
Sep 15	10	AM	ORANGEBURG	South Carolina	Charleston	Orangeburg
Sep 15	4	AM	ATLANTA	Alabama	Charleston	Fulton
Sep 15	8	AM	CLEMSON	South Carolina	Charleston	Pickens
Sep 15	6	AM	ATLANTA	Georgia	Charleston	Fulton
Sep 15	4	AM	LEXINGTON	South Carolina	Charleston	Lexington
Sep 15	9	AM	COLUMBIA	South Carolina	Charleston	Richland
Sep 15	1	AM	COLUMBIA	South Carolina	Charleston	Richland
Sep 15	1	PM	GREENVILLE	South Carolina	Charleston	Greenville
Sep 15	10	AM	COLUMBIA	South Carolina	Charleston	Richland
Sep 15	5	PM	ATLANTA	Georgia	Charleston	Fulton
Sep 15	6	AM	SPARTANBURG	South Carolina	Charleston	Spartanburg
Sep 15	7	AM	AUGUSTA	Georgia	Charleston	Richmond City
Sep 15	6	AM	WALTERBORO	South Carolina	Charleston	Colleton
Sep 15	3	PM	ATLANTA	Georgia	Charleston	Fulton
Sep 15	2	PM	SUMMERVILLE	South Carolina	Charleston	DorChester
Sep 15	5	AM	GREENVILLE	South Carolina	Charleston	Greenville
Sep 15	45	AM	ATLANTA	Georgia	Charleston	Fulton
Sep 15	9	AM	AIKEN	South Carolina	Charleston	Aiken
Sep 15	5	PM	PIGEON FORGE	Tennessee	Charleston	Sevier
Sep 15	10	AM	VIRGINIA BEACH	Virginia	Charleston	Virginia Beach
Sep 15	8	AM	GREENVILLE	South Carolina	Charleston	Greenville
Sep 15	3	PM	CLEMSON	South Carolina	Charleston	Pickens
Sep 15	10	AM	ASHBURN	Georgia	Charleston	Turner
Sep 15	5	PM	LAURENS	South Carolina	Charleston	Laurens
Sep 15	7	AM	GREENVILLE	South Carolina	Charleston	Greenville
Sep 15	5	AM	AUGUSTA	Georgia	Charleston	Richmond City
Sep 15	9	AM	GREENVILLE	South Carolina	Charleston	Greenville
Sep 15	7	AM	COLUMBIA	South Carolina	Charleston	Richland
Sep 15	11	AM	COLUMBIA	South Carolina	Charleston	Richland
Sep 15	4	PM	CHARLOTTE	North Carolina	Charleston	Mecklenburg
Sep 15	9	AM	GAINESVILLE	Florida	Charleston	Alachua
Sep 15	8	AM	ATLANTA	Georgia	Charleston	Fulton
Sep 15	10	AM	ATLANTA	Georgia	Charleston	Fulton
Sep 15	12	PM	COLUMBIA	South Carolina	Charleston	Richland
Sep 15	11	AM	COLUMBIA	South Carolina	Charleston	Richland
Sep 15	12	PM	GREENVILLE	South Carolina	Charleston	Greenville
Sep 15	5	AM	MOCKSVILLE	North Carolina	Charleston	Rowan

Sep 15	1	PM	COLUMBIA	South Carolina	Charleston	Richland
Sep 15	5	PM	GREENSBORO	Georgia	Charleston	Guilford
Sep 15	2	PM	MOBILE	Alabama	Charleston	Mobile
Sep 15	8	AM	COLUMBIA	South Carolina	Charleston	Richland
Sep 15	11	AM	KNOXVILLE	Tennessee	Charleston	Knox
Sep 15	12	AM	COLUMBIA	South Carolina	Charleston	Richland
Sep 15	1	PM	COLUMBIA	South Carolina	Charleston	Richland
Sep 15	7	AM	BASSETT	Virginia	Charleston	Henry
Sep 15	11	AM	COSBY	Tennessee	Charleston	Cocke
Sep 15	11	AM	OLAR	South Carolina	Charleston	Bamberg
Sep 15	3	PM	ATLANTA	Georgia	Charleston	Fulton
Sep 15	8	AM	LEESVILLE	South Carolina	Charleston	Lexington
Sep 15	4	PM	AUGUSTA	Georgia	Charleston	Richmond City
Sep 15	12	PM	HARTWELL	Georgia	Charleston	Hart
Sep 15	3	AM	CHARLOTTE	North Carolina	Charleston	Mecklenburg
Sep 15	6	AM	COLUMBIA	South Carolina	Charleston	Richland
Sep 15	12	PM	NEW BERN	North Carolina	Charleston	Craven
Sep 15	3	PM	COLUMBIA	South Carolina	Beaufort	Richland
Sep 15	5	AM	SPARTANBURG	South Carolina	Beaufort	Spartanburg
Sep 15	12	AM	MAGGIEVALLEY	North Carolina	Beaufort	Haywood
Sep 15	9	AM	COLUMBIA	South Carolina	Beaufort	Richland
Sep 15	10	AM	BARNWELL	South Carolina	Beaufort	Barnwell
Sep 15	10	AM	WAYNESBORO	Georgia	Beaufort	Burke
Sep 15	3	PM	COLUMBIA	South Carolina	Beaufort	Richland
Sep 15	6	AM	LAKE CITY	South Carolina	Beaufort	Florence
Sep 15	8	PM	BERIAN	Georgia	Beaufort	BERIAN
Sep 15	8	AM	MACON	Georgia	Beaufort	Bibb
Sep 15	3	PM	CONYERS	Georgia	Beaufort	Roackdale
Sep 15	5	AM	COLUMBIA	South Carolina	Beaufort	Richland
Sep 15	3	AM	ATLANTA	Georgia	Beaufort	Fulton
Sep 15	7	AM	COLUMBIA	South Carolina	Beaufort	Richland
Sep 15	7	AM	AIKEN	South Carolina	Beaufort	Aiken
Sep 15	7	AM	JAKIN	Georgia	Beaufort	Early
Sep 15	4	PM	CHARLOTTE	North Carolina	Beaufort	Mecklenburg
Sep 15	9	AM	COLUMBIA	South Carolina	Beaufort	Richland
Sep 15	5	PM	ATLANTA	Georgia	Beaufort	Fulton
Sep 15	1	PM	ORANGEBURG	South Carolina	Beaufort	Orangeburg
Sep 15	11	AM	ANDERSON	South Carolina	Beaufort	Anderson
Sep 15	3	PM	SYLVANIA	Georgia	Beaufort	Screven
Sep 15	8	AM	PENSACOLA	Florida	Beaufort	Escambia
Sep 15	12	PM	CHARLOTTE	North Carolina	Beaufort	Mecklenburg
Sep 15	9	AM	WASHINGTON	Georgia	Beaufort	wilkes
Sep 15	4	PM	VARNVILLE	South Carolina	Beaufort	Hampton
Sep 15	12	PM	WALTERBORO	.	Beaufort	Colleton
Sep 15	1	PM	ESTILL	South Carolina	Beaufort	Hampton

Sep 15	7	AM	CHEROKEE	North Carolina	Beaufort	Swain
Sep 15	10	AM	AIKEN	South Carolina	Beaufort	Aiken
Sep 15	4	PM	ALLENDALE	South Carolina	Beaufort	Allendale
Sep 15	10	AM	KINGSPORT	Tennessee	Beaufort	Sullivan
Sep 15	10	AM	FLORENCE	South Carolina	Beaufort	Florence
Sep 15	4	PM	CHARLOTTE	North Carolina	Beaufort	Mecklenburg
Sep 15	2	PM	ATLANTA	Georgia	Beaufort	Fulton
Sep 15	8	PM	ATLANTA	Georgia	Beaufort	Fulton
Sep 15	12	AM	AUGUSTA	Georgia	Beaufort	Richmond City
Sep 15	10	AM	GREENSBORO	North Carolina	Beaufort	Guilford
Sep 15	7	AM	COLUMBIA	South Carolina	Beaufort	Richland
Sep 15	9	AM	ATLANTA	Georgia	Beaufort	Fulton
Sep 15	7	AM	ABBEVILLE	Georgia	Beaufort	Wilcox
Sep 15	6	AM	SPARTANBURG	South Carolina	Beaufort	Spartanburg
Sep 15	9	AM	HINESVILLE	Georgia	Beaufort	Liberty
Sep 15	9	AM	COLUMBUS	North Carolina	Beaufort	Polk
Sep 15	7	AM	AIKEN	South Carolina	Beaufort	Aiken
Sep 15	2	PM	PANAMA CITY	Florida	Beaufort	Bay
Sep 15	1	PM	PERRY	Georgia	Beaufort	Houston
Sep 15	8	AM	AUGUSTA	Georgia	Beaufort	Richmond City
Sep 15	12	PM	LOUISVILLE	Georgia	Beaufort	Jefferson
Sep 15	11	AM	ATLANTA	Georgia	Beaufort	Fulton
Sep 15	9	AM	AUGUSTA	Georgia	Beaufort	Richmond City
Sep 15	6	AM	GREER	South Carolina	Beaufort	Greenville
Sep 15	7	PM	SALISBURY	North Carolina	Myrtle Beach	Rowan
Sep 15	7	AM	COLUMBIA	South Carolina	Myrtle Beach	Richland
Sep 15	8	AM	CHARLOTTE	North Carolina	Myrtle Beach	Mecklenburg
Sep 15	6	AM	COLUMBIA	South Carolina	Myrtle Beach	Richland
Sep 15	11	AM	CHEROKEE	North Carolina	Myrtle Beach	Swain
Sep 15	7	AM	MOCKSVILLE	North Carolina	Myrtle Beach	Rowan
Sep 15	5	PM	ATHENS	Georgia	Myrtle Beach	Fulton
Sep 15	9	AM	ATLANTA	Georgia	Myrtle Beach	Fulton
Sep 15	2	AM	BRUNSWICK	Georgia	Myrtle Beach	Glynn
Sep 15	10	AM	ATLANTA	Georgia	Myrtle Beach	Fulton
Sep 15	12	PM	SUMTER	South Carolina	Myrtle Beach	Sumter
Sep 15	9	AM	AIKEN	South Carolina	Myrtle Beach	Aiken
Sep 15	6	AM	FLORENCE	South Carolina	Myrtle Beach	Florence
Sep 15	10	AM	RICHMOND	Virginia	Myrtle Beach	Richmond City
Sep 15	8	AM	CHARLOTTE	North Carolina	Myrtle Beach	Mecklenburg
Sep 15	1	PM	CHARLOTTE	North Carolina	Myrtle Beach	Mecklenburg
Sep 15	2	AM	CHARLOTTE	North Carolina	Myrtle Beach	Mecklenburg
Sep 15	6	AM	GREENVILLE	South Carolina	Myrtle Beach	Greenville
Sep 15	4	PM	COLUMBIA	South Carolina	Myrtle Beach	Richland
Sep 15	6	AM	MARTINSVILLE	Virginia	Myrtle Beach	Martinsville
Sep 15	9	AM	ATLANTA	Georgia	Myrtle Beach	Fulton

Sep 15	8	AM	EMPORIA	Virginia	Myrtle Beach	Emporia
Sep 15	8	AM	COLUMBIA	South Carolina	Myrtle Beach	Richland
Sep 15	12	PM	COLUMBIA	South Carolina	Myrtle Beach	Richland
Sep 15	8	AM	WAXHAW	North Carolina	Myrtle Beach	union
Sep 15	12	PM	ANDERSON	South Carolina	Myrtle Beach	Anderson
Sep 15	6	AM	ATLANTA	Georgia	Myrtle Beach	Fulton
Sep 15	10	AM	GREENVILLE	North Carolina	Myrtle Beach	Mecklenburg
Sep 15	9	AM	ROANOKE	Virginia	Myrtle Beach	Roanoke City
Sep 15	1	PM	CHATTANOOGA	Tennessee	Myrtle Beach	Swain
Sep 15	10	AM	DILLON	South Carolina	Myrtle Beach	Dillon
Sep 15	6	AM	CHARLOTTE	North Carolina	Myrtle Beach	Mecklenburg
Sep 15	2	PM	LANCASTER	South Carolina	Myrtle Beach	Lancaster
Sep 15	1	PM	COLUMBIA	South Carolina	Myrtle Beach	Richland
Sep 15	5	AM	RICHMOND	Virginia	Myrtle Beach	Richmond City
Sep 15	11	AM	RICHMOND	Virginia	Myrtle Beach	Richmond City
Sep 15	5	AM	NEWPORT	Virginia	Myrtle Beach	Page
Sep 15	7	AM	COLUMBIA	South Carolina	Myrtle Beach	Richland
Sep 15	7	AM	CHARLOTTE	South Carolina	Myrtle Beach	Mecklenburg
Sep 15	6	AM	COLUMBIA	South Carolina	Myrtle Beach	Richland
Sep 15	6	AM	GREENVILLE	North Carolina	Myrtle Beach	Mecklenburg
Sep 15	8	AM	DUE WEST	South Carolina	Myrtle Beach	Abbeville
Sep 15	10	AM	FLORENCE	South Carolina	Myrtle Beach	Florence
Sep 15	8	AM	COLUMBUS	South Carolina	Myrtle Beach	Muscogee
Sep 15	8	AM	CHARLOTTE	North Carolina	Myrtle Beach	Mecklenburg
Sep 15	7	PM	LOUISVILLE	South Carolina	Myrtle Beach	Jefferson
Sep 15	11	AM	COLUMBIA	South Carolina	Myrtle Beach	Richland
Sep 15	6	AM	CHESTER	South Carolina	Myrtle Beach	Chester
Sep 15	12	PM	GREENSBORO	North Carolina	Myrtle Beach	Guilford
Sep 15	6	AM	ATLANTA	Georgia	Myrtle Beach	Fulton
Sep 15	12	PM	CHARLOTTE	North Carolina	Myrtle Beach	Mecklenburg
Sep 15	6	AM	GREENVILLE	South Carolina	Myrtle Beach	Greenville
Sep 15	12	PM	CLEMSON	South Carolina	Myrtle Beach	Pickens
Sep 15	9	AM	BLUEMONT	Virginia	Myrtle Beach	Loudoun
Sep 15	9	AM	CHARLOTTE	North Carolina	Myrtle Beach	Mecklenburg
Sep 15	9	AM	CHARLOTTE	North Carolina	Myrtle Beach	Mecklenburg
Sep 15	4	PM	COLUMBIA	South Carolina	Myrtle Beach	Richland
Sep 15	10	AM	GREENSBORO	Georgia	Myrtle Beach	Guilford
Sep 15	5	AM	AUGUSTA	Georgia	Myrtle Beach	Richmond City
Sep 15	2	PM	MARION	South Carolina	Myrtle Beach	Marion
Sep 15	6	PM	ETOWAH	Tennessee	Charleston	Mcminn
Sep 16	2	PM	COLUMBIA	South Carolina	Charleston	Richland
Sep 16	4	AM	GREENVILLE	South Carolina	Charleston	Greenville
Sep 16	10	AM	GREENVILLE	South Carolina	Charleston	Greenville
Sep 16	2	AM	GOOSECREEK	South Carolina	Charleston	Berkeley
Sep 16	6	AM	TALLADEGA	Alabama	Charleston	Talladega

Sep 16	9	AM	HAMPTON	South Carolina	Beaufort	Hampton
Sep 16	12	PM	WINCHESTER	Virginia	Beaufort	WinChester
Sep 16	9	AM	CHARLOTTE	North Carolina	Beaufort	Mecklenburg
Sep 16	7	AM	FLORENCE	South Carolina	Beaufort	Florence
Sep 16	1	AM	COLUMBIA	South Carolina	Myrtle Beach	Richland

VITA

Santosh Andem was born on February 7, 1982, in the city of Hyderabad, Andhra Pradesh, India. He obtained his Bachelor of Technology degree in Civil Engineering in 2003 from Kakatiya University, Warangal, India. He worked and studied in Kakatiya University before he joined the Louisiana State University in August 2003. In August 2006, he will receive the degree of Master of Science in Civil Engineering.