

University of South Florida Scholar Commons

Graduate Theses and Dissertations

Graduate School

2008

Evaluation of contraflow lanes for hurricane evacuation

Jason Collins University of South Florida

Follow this and additional works at: http://scholarcommons.usf.edu/etd Part of the <u>American Studies Commons</u>

Scholar Commons Citation

Collins, Jason, "Evaluation of contraflow lanes for hurricane evacuation" (2008). *Graduate Theses and Dissertations*. http://scholarcommons.usf.edu/etd/184

This Dissertation is brought to you for free and open access by the Graduate School at Scholar Commons. It has been accepted for inclusion in Graduate Theses and Dissertations by an authorized administrator of Scholar Commons. For more information, please contact scholarcommons@usf.edu.

Evaluation of Contraflow Lanes for Hurricane Evacuation

by

Jason Collins, Ph.D., P.E., AICP

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Civil Engineering Department of Civil and Environmental Engineering College of Engineering University of South Florida

> Major Professor: Jian Lu, Ph.D., P.E. William Carpenter, Ph.D., P.E. Robin Ersing, Ph.D. Manjriker Gunaratne, Ph.D., P.E. Edward Mierzejewski, Ph.D., P.E. Steven Polzin, Ph.D.

> > Date of Approval: May 3, 2008

Keywords: freeway management, emergency planning, reverse laning

© Copyright 2008, Jason Collins

NOTE TO READER

The original of this document contains color that is necessary for understanding the data. The original dissertation is on file with the USF library in Tampa, Florida.

ACKNOWLEDGEMENTS

There are numerous persons I wish to acknowledge who aided me in the completion of this research. The researcher would like to thank each member of the dissertation committee. Their perseverance in helping to ensure a quality dissertation is appreciated. The committee consisted of the following:

Jian Lu, Ph.D., P.E. - Major Professor William Carpenter, Ph.D., P.E. Robin Ersing, Ph.D. Manjriker Gunaratne, Ph.D., P.E. Edward Mierzejewski, Ph.D., P.E. Steven Polzin, Ph.D.

Also, thank you to my parents, Joseph and Kathleen Collins, and my two older sisters Kristin and Martha. Your influence has given me the desire to continue with the knowledge that almost any personal goal can be achieved. Also, the researcher would like to thank Naved Siddiqui for his review and for his analysis formatting suggestions.

Finally, this project would not have been possible without the support of my wife Carly, who became my wife during the time this research was undertaken. Her patience and understanding will always be remembered.

TABLE OF CONTENTS

LIST OF TABLES	iii
LIST OF FIGURES	V
ABSTRACT	vii
INTRODUCTION	1
Problem Definition	2
Research Objective	3
Dissertation Outline	4
DEVELOPMENT OF HURRICANE PLANNING	7
Databases and Research Centers	8
History of Hurricane Evacuation Studies	13
Hurricane Evacuation Studies Between Different Regions	16
Evacuation Demand and Operations Modeling	27
Summary of Evacuation Procedures in Florida	36
RESEARCH METHODOLOGY	40
Development of Contraflow Alternatives	41
Development of Performance Measures	52
Evaluate Contraflow Logistics	55
Perform Capacity and Travel Time Analyses	57
Development of Suggestions/Conclusions	60

DATA ASSUMPTIONS	64
Sources of Data	64
Driver Behavior and Evacuee Assumptions	65
Roadway Characteristic Assumptions	67
Traffic Volume Assumptions	72
RESULTS	74
Improved Capacity	75
Required Infrastructure	84
Required Personnel	88
Speed Variation	93
Logistics	96
Delay/Congestion	103
SUMMARY/CONCLUSIONS	107
Observations and Uncertainties	111
Alternative Method of Weighting Performance Measures	113
Future Research	117
REFERENCES	120
APPENDICES	123
Appendix A: LOS E Service Volume Simulation Reports	124
Appendix B: Total Throughput at Constant Speed Simulation Reports	169
ABOUT THE AUTHOR	End Page

LIST OF TABLES

Table 1 - Speed Center Expertise	11
Table 2 - Louisiana State University Research Areas	12
Table 3 - Comparison of Authority Structure for Hurricane Evacuations	17
Table 4 - Planned Contraflow Evacuation Routes	24
Table 5 - Comparison of Evacuation Modeling Programs	34
Table 6 - State Comparison of Contraflow Strategies	45
Table 7 - Matrix Format Summary	62
Table 8 - Sources of Data	65
Table 9 - Average Speed Comparison with Constant Volume	79
Table 10 - Total Throughput Comparison by Alternative	81
Table 11 - Simulation Modeling Results for Analyzing Total Throughput	82
Table 12 - Cumulative Evaluation of Improved Capacity	83
Table 13 - Improved Capacity Performance Measure Summary	84
Table 14 - Equipment Cost Comparison	86
Table 15 - Required Number of Orange Cones for Operation	87
Table 16 - Alternative Comparison of Required Equipment	87
Table 17 - Summary of Required Infrastructure Performance Measure	88
Table 18 - Summary of Required Personnel Performance Measure	92
Table 19 - Summary of Speed Variation Performance Measure	95

Table 20 - Summary of Logistics Performance Measure	103
Table 21 - Average Delay Comparison with Constant Total Volume	104
Table 22 - Summary of Delay/Congestion Performance Measure	106
Table 23 - Summary of Performance Measure Evaluation	109
Table 24 - Summary Matrix Using Weighted Scaling Alternative	116

LIST OF FIGURES

Figure 1 - Florida Evacuation from Hurricane Charley in 2004	.1
Figure 2 - Schematic Comparison for Evacuation Response Time	.2
Figure 3 - Hurricane Katrina Evacuation in 2005	.7
Figure 4 - Hurricane Floyd2	21
Figure 5 - Coastal Hurricane Evacuation Zones and Inland Storm Damage	30
Figure 6 - Typical Cross Section of Each Contraflow Strategy4	15
Figure 7 - Bridge Span Safety Consideration for Shoulder Lane4	16
Figure 8 - Florida Real Time Traveler Information Website4	18
Figure 9 - Florida DOT Traffic Count Location Map4	19
Figure 10 - Daily Traffic Volume History5	50
Figure 11 - I-4 Crossover Locations for Contraflow5	51
Figure 12 - Components of Evacuation Time5	57
Figure 13 - Study Area Location5	59
Figure 14 - Evacuation Network	59
Figure 15 - Directional Service Volume7	70
Figure 16 - Previous I-4 Contraflow Design Plans at SR 4177	12
Figure 17 - Contraflow Average Speed Comparisons Using LOS E Service Volumes	30
Figure 18 - Total Saturation Flow vs. Contraflow Alternative for LOS E Service Volume	30
Figure 19 - Total Throughput vs. Contraflow Alternatives	33

Figure 20 - Alternative D Personnel Requirements	90
Figure 21 - Average Speed Variation Between Regular Lanes and Contraflow Lanes	94
Figure 22 - FDOT Contraflow Logistical Handout	98
Figure 23 - Conceptual Time Line of Events to Implement Contraflow	99
Figure 24 - Summary of Set Up and Breakdown Time	102
Figure 25 - Average Delay Comparison with Constant Total Volume	

EVALUATION OF CONTRAFLOW LANES FOR HURRICANE EVACUATION

Jason Collins, Ph.D., P.E., AICP

ABSTRACT

This dissertation evaluates contraflow during a hurricane evacuation for grade separated highways. Contraflow is the concept of reversing the typical direction of highway travel to provide more outbound roadway capacity. The State of Florida has spent more time and resources towards the planning and the designing of potential contraflow facilities than any other state in the country; however, contraflow has yet to be implemented (as of Summer 2008). This study determines if the additional capacity benefits of contraflow outweigh the logistical requirements of implementing contraflow. Five different alternatives of contraflow lane configurations were comparatively evaluated. The format of this study is unique due to the evaluation of both capacity and logistical measurements.

Each alternative was subject to evaluation of six different performance measures. The six different performance measures consisted of improved capacity, speed variation, logistics, required personnel, required infrastructure, and delay/congestion. Each performance measure was evaluated using a scaled scoring system. The alternative with the lowest average scoring among the different performance measures was considered the best alternative.

Contraflow should only be considered as a last resort. The loss of inbound access, safety concerns, logistical requirements, and the additional strain of public resources during an evacuation are negative aspects that should be considered when determining the capacity benefit.

If extenuating circumstances justify contraflow, then a full conversion of all inbound lanes to outbound lanes, known as Alternative D, should be considered. This alternative demonstrated the greatest capacity benefit while requiring the least amount of public resources.

However, instead of contraflow, it is suggested to divert public resources towards other, more practical alternatives. Real time traffic monitoring has been demonstrated to be quite useful. Publicly accessed web-pages on the internet and the recent installation of variable message signs all provide improved notification of traffic conditions and of the capability to use alternative "at-grade" evacuation routes in addition to using the grade separated highways. This driver notification and the ability to ensure the safe and efficient travel on these alternative routes may be worth further investment, as well as being a potential topic of future research.

INTRODUCTION

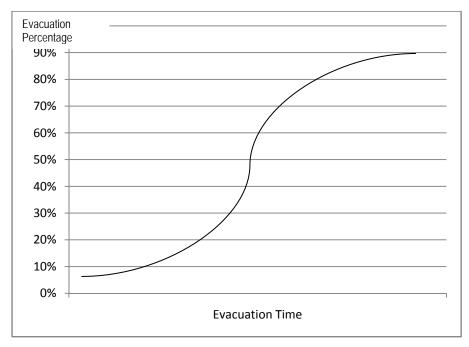
The event of an evacuation potentially contains the most demanding set of circumstances with regard to the transportation infrastructure. Millions of people from urban areas gather belongings and travel towards safety in a relatively short period of time, sometimes resulting in extreme congestion. The research topic of hurricane evacuation is continuously emerging, and new opportunities for improvement are identified after virtually each hurricane.



Figure 1 Florida Evacuation from Hurricane Charley in 2004

Problem Definition

As more vehicles crowd the roadways, the increase in density results in congestion and causes delay for the traveler, as represented in Figure 2. Roadways provide a finite amount of capacity. When the demand exceeds the available capacity, the overflow demand is held stationary, causing delay until the excess demand can be served.



Note: All values of Evacuation Time are in generic units.

Figure 2 Schematic Comparison for Evacuation Response Time

One countermeasure in providing more efficiency of the available roadway capacity is the use of contraflow lanes, which redirects inbound travel lanes toward the outbound direction of evacuation;

however, the use of contraflow has only been activated a few times in the United States and has not yet been activated on any grade separated highways in the State of Florida (as of 2007). The use of contraflow during an evacuation requires significant deployment of public resources during a time period when it is vital to have these resources available for other purposes.

A problem arises if public resources are deployed to implement contraflow when the absolute need for contraflow may not exist. While contraflow provides improved capacity, contraflow may not be an effective method of evacuation when one considers the number of security, law enforcement personnel, and resources that are required. Therefore, this dissertation study has been compiled for the purpose of addressing the necessity to implement contraflow in Florida. Additionally, the identification of which methods of contraflow are most effective is a question warranting analytical research.

Research Objective

The objective of this dissertation is to determine the necessity of contraflow for evacuation purposes. The focus is not only to improve capacity, but to also give consideration to the investment of public resources. If the determination is made that contraflow benefits outweigh the disadvantages, then the objective becomes determining which form of contraflow is most effective. The research begins with the evaluation of existing logistical procedures within the state of Florida, and then identifying improvements to the existing design plans and procedures. This dissertation is unique in that the Measures of Effectiveness (MOEs) are focused to evaluate both additional capacity benefits and logistical requirements.

While the study is directed towards hurricane evacuation procedures in Florida, several aspects of this study may be applied within other regions of the United States and contribute toward the advancement of the civil engineering and emergency planning professions. This dissertation may also be applied to other countries that experience mass evacuation of the general population. This research demonstrates that the use of contraflow lanes may not be needed to be the most effective evacuation plan on I-4 in Florida, but that other investments may be more effective when considering the access and logistical constraints associated with contraflow.

Dissertation Outline

This dissertation is a comprehensive examination of recommended evacuation procedures and is a quantitative evaluation between the advantages and disadvantages of contraflow. The result is the identification of suggested logistical methods toward enhancing the investment of public infrastructure and improved capacity.

The examination begins with detailed literature review of research dedicated to the advancement of evacuation planning and the compilation of knowledge from previous hurricane evacuation studies. Evacuation studies between Florida and other states are then compared. Previous studies also include evacuation demand and operations modeling. A summary of evacuation procedures in Florida is then presented.

The research methodology is then presented. The section begins with a description of each contraflow alternative. A description of the performance measures is defined in this section.

Administrative and logistical procedures are then evaluated. Development of how suggestions and conclusions are defined is also provided. The presentation of the comparative matrix between the contraflow alternatives and the performance measures concludes the research methodology.

Data sources are then presented defined, which are a foundation of the analysis. A description of how capacity and travel time analyses are performed is addressed. The data assumptions about driver behavior and evacuee tendencies address user characteristics. Data assumptions about roadways and traffic volumes address infrastructure characteristics.

Results of the analyses are then presented. The results of each performance measure between each contraflow alternative are provided in terms of:

- Improved Capacity
- Required Infrastructure
- Required Personnel
- Speed Variation
- Logistics
- Delay/Congestion

The comparative matrix then summarizes the performance measures in the Summary/Conclusions section of the dissertation. The determination of whether contraflow benefits outweigh disadvantages is concluded, as well as which contraflow alternative would be considered most effective.

The dissertation is completed with a discussion of future research that could be considered as a continuation of this research. A perspective of lessons learned during this process is then provided.

The dissertation then concludes with a bibliography of references and also with appendices that provide documentation of analytical results.

DEVELOPMENT OF HURRICANE PLANNING

Improvements for hurricane preparation and evacuation are constantly being identified. Something new is learned after each hurricane; therefore, much established research has evolved over the past fifty years. Particularly, the emphasis of transportation planning has advanced and has become a fundamental part of effective hurricane evacuation during the past 20 years. This section identifies some of the previous advancements that have been made in evacuation modeling and the implementation of contraflow lanes for evacuation.



Figure 3 Hurricane Katrina Evacuation in 2005

This section begins with a summary of existing databases and research centers that are established for research in hurricane planning. The topic of how hurricane evacuation studies have evolved for regional planning purposes is then addressed. A comparison of how hurricane evacuation studies are conducted between Florida and other regions in the country is performed. This comparison utilizes governmental authority structures and different adopted contraflow strategies. A review of how evacuation demand and traffic operations modeling have become incorporated into hurricane evacuation studies is then undertaken. A summary of existing hurricane evacuation procedures planned within the state of Florida then concludes the Literature Review.

Databases and Research Centers

Hurricane planning is a discipline that has significantly increased in recent history. This growing field of research is now recognized by both Federal Highway Administration (FHWA) and FEMA and is now represented as a Transportation Research Board subcommittee (A3B01(4) – Subcommittee on Emergency Evacuation) to help communicate new practices and data on this topic.

Specifically, the subcommittee addresses the following topics:

- To research and develop faster, more efficient, and more effective evacuation strategies
- Information exchange, Best-Practices documents, identify research needs
- Apply information for more "routine" conditions and for management of special event traffic
- Develop operational and safety guidelines for interstates and other major roadways during evacuations, including design standards for interstate and other major highways when operating them contra-flow for evacuations.

- Applications of ITS and remote sensing systems for evacuations, including the collection, processing, and communication of roadway and weather data to decision makers, evacuees, business and commercial carriers.
- Incorporate evacuation travel demand forecasting and operational planning.
- Evaluate human behavior/human factors issues in evacuations.
- Determine traffic enforcement issues for evacuations.

Research organizations have been developed to advance the field of hurricane planning. The International Hurricane Research Center (IHRC) at Florida International University (FIU) brought together the expertise of the public universities in Florida into an integrated multi-year, multidisciplinary cooperative research effort known as the Florida Hurricane Alliance. The Alliance is coordinated by the IHRC, drawing upon its mission as a center responsible for hurricane research, education and outreach. Individual Alliance members take the lead for specific research projects, on the basis of capabilities and relevant expertise, and working in partnership with other Alliance members. The members on the alliance focus primarily on the following types of research:

- Cost of Hurricane Warnings FIU and Florida A&M University (FAMU)
- Weather Networks University of North Florida (UNF), FAMU
- Coastal Vulnerability & Forecasting FIU, Florida Atlantic University (FAU)
- Storm Surge FIU
- LIDAR FIU, University of Florida (UF)
- Simulation and Visualization FIU, University of Central Florida (UCF)
- Surface Wind UF, FIU
- Hurricane Structure and Prediction Florida State University
- Ecological Impacts University of South Florida

More recently, the Severe Storm Prediction, Education and Evacuation from Disaster Center, or SSPEED, was created. The center is an academic and public partnership. Inaugural members include seven Texas universities and the Louisiana State University Hurricane Center.

The SSPEED Center, which is housed in Houston, Texas, and based at Rice University, organizes universities, researchers, emergency managers and private and public entities to better address severe storm impacts from Texas to Louisiana in a zone that includes major cities along the Gulf of Mexico.

The SSPEED Center's research areas include:

- Severe storm and hurricane research and storm surge prediction
- Radar-based rainfall and flood warning systems for urban and coastal areas
- State-of-the-art educational programs for workforce training and public awareness
- Infrastructure risk assessment for sheltering and evacuation from disaster
- Evacuation plans linked to the best warning and transportation systems, and societal needs.

The SSPEED Center's expertise is applied through the different universities as described below.

Research Center	Research Focus
Louisiana State University	Storm surge model prediction; evacuation and
	transportation planning
Rice University	Flood prediction and warning; urban hydrologic
	models; Web integration of real-time data;
	regional forecast test bed; public policy and
	response
University of Houston	Educational outreach for public and high
	schools; infrastructure risk assessment
University of Texas-Austin	Disaster planning; storm surge modeling;
	remotely sensed data; evacuation and
	transportation systems
Texas A&M and TAMU-Galveston	Coastal flood evacuation; storm surge impacts;
	community response, land planning in the
	coastal zone
Texas Southern University	Transportation systems and evacuation
	planning
University of Texas-Brownsville	Coastal flood response; regional forecast test
	bed; international border issues
Houston-Galveston Area Council	Evacuation planning and transportation
	management; lead governmental unit for
	operations and response

Table 1 Speed Center Expertise

The Louisiana State University holds a hurricane research center that has special focus on transportation planning. The following list indicates a number of the areas of hurricane and hurricane-related expertise and ongoing research at the university. (Wilmont, 2001)

	Louisiana State University Research Areas						
Hurricane	Hurricane climatology						
Frequency/	Paleotempestology						
	Storm track prediction						
Intensity	Effects of global climate change						
	Storm surge flooding						
	Wave modeling						
	Riverine rainfall flooding						
	Wind and wave fields						
	Rain-induced landslides						
	Evacuation traffic flow						
Modeling	Wind effects on structures and wind tunnel modeling						
	Coastal erosion/ land loss						
	Coastal response/geology						
	Impacts of coastal restoration						
	Chemical releases in extreme weather						
	Nuclear releases in extreme weather						
	Natural Environment: Coastal erosion/ wetland loss						
	Barrier islands, estuarine environmental modifications, geomorphology						
	Fish kills/ marsh kills						
	Effects on agriculture						
	Effects on aquaculture						
	Effects on forestry resources						
	Built Environment: Effects on infrastructure (roads, bridges, utilities, hospitals, schools, etc.)						
	Effects on petroleum/chemical industries, onshore and/or offshore						
Hurricane Impacts	Effects on building stock						
numeune impuers	Strength and stability of levees						
	Human Environment: Effects on social organization						
	Use of social networks to cope with hurricane impacts						
	Effects of preexisting social networks on formal and informal aid and						
	patterns of provision of informal support						
	Effects on depressive symptomatology						
	Effects on work disruption						
	Epidemiology of floods						
	Economic Impacts						
	Use of GIS for planning/ response activities						
	Risk assessment						
	Rainfall flood/ storm surge mapping						
Preparedness	Hurricane refuge/ shelter selection						
/	Evacuation planning						
	Technology and emergency management						
	Assessment/ evaluation of emergency management systems.						
Deenense /Deel	Remote sensing- satellite imagery acquisition and data analysis						
Response (Real-	Offshore, coastal, and land-based sensing of wave, wind, sediment storm phenomena						
Time data analysis	Storm surge flooding predictions						
for landfalling	Riverine rainfall flooding predictions						
hurricanes)	Evacuation traffic monitoring management						
Comprehensive community planning							
Mitigation	Floodplain management						
Mitigation	Coastal protection and restoration measures						
	Design of wind resistant landscape						
	Design of wind and flood resistant hurricane shelters Preparing historic buildings for hurricanes						

Table 2Louisiana State University Research Areas

The ability to inform the general public of an oncoming hurricane (and other forms of natural disasters) has historically been the key ingredient to avoid a catastrophe. Emerging technologies of storm forecasting and media outlets have been vital towards disseminating hurricane evacuation information. Given the fact that hurricane evacuation has the characteristics of non-recurring congestion, together with many variables in storm characteristics and behavior trends, the ability to plan for the necessary transportation infrastructure is quite challenging. Interestingly, the United States is one of only a few countries throughout the world that effectively use mass evacuations as a way of protecting the population along the coastline. (FHWA, 2005)

The primary tool for regional areas to determine their needed time for evacuation comes from Hurricane Evacuation Studies (HES). During the 1980's the Federal Emergency Management Agency (FEMA) began initiating HES around the country to identify the key factors towards a successful hurricane evacuation. A HES generally addresses the following five elements:

- Storm hazard analysis
- Vulnerability analysis
- Behavior analysis
- Sheltering analysis
- Transportation analysis

In March, 1994, FEMA, together with the National Oceanic and Atmospheric Agency (NOAA) and the U.S. Army Corps of Engineers (USACE), created the National Hurricane Evacuation Task Force to standardize guidelines for HES around the country. Federal, state, and local governments each participate in these studies, which are updated every 4-5 years. Guidelines include a comprehensive scope and a multi-regional perspective. Some HES reach across state lines when necessary. In 1995, the NOAA published the Technical Guidelines for Hurricane Evacuation Studies as a reference so that the USACE can effectively develop information for translation to local officials. Guidelines were used to develop uniformity, terminology and content to a study process that was complex and constantly being refined. (Barret, 2000 and NOAA, 2006)

One of the most important components of the HES is the calculation of clearance times that identifies how much time would be required for all evacuating vehicles to leave the study area given the roadway infrastructure constraints within the area. The technical data produced in a HES is used toward creating or updating local hurricane evacuation plans. (Wolshon, 2001 and USACE, 2006) However, not until recently, did hurricane evacuation plans emphasize the need to incorporate effective traffic operations.

HES use travel demand models to calculate clearance times for evacuations. A combination of different evacuation scenarios is evaluated. The evacuation clearance times are based on different combinations of:

- Seasonal populations for evacuation
- Socioeconomic factors for what percentage of people evacuate
- Other populations of evacuees from other locations
- Evacuation destinations
- Different evacuation population based on storm intensity, direction, and evacuation zones
- Other behavioral assumptions

Previously, local emergency management personnel were required to develop evacuation plans and traffic operations began a greater involvement beginning in the mid-1980s. Since Hurricanes George and Frances in 1998 and Hurricane Floyd in 1999 transportation professionals have become more involved in the development of evacuation plans. This added transportation expertise has provided assistance forecasting evacuation travel demand, evacuation traffic operations analysis, and the application of Intelligent Transportation System (ITS) technologies.

Hurricane Evacuation Studies Between Different Regions

One traffic management tool used for hurricane evacuation is the use of contraflow lanes. Many HES throughout the country identify provisions to use contraflow lanes to reduce clearance times in the event of an evacuation. Florida is one state that has partaken in detailed activities for contraflow research.

Most states have a two level approach between local and state agencies. Generally, the local government is responsible for the planning, response, and recovery activities, while the state level emergency management agency coordinates with the local emergency management activities in the coordination of traffic and law enforcement. For example, the Texas State Emergency Plan has a general emergency plan, but the local coastal jurisdictions manage the evacuation planning. In Florida, the entire state is vulnerable to hurricanes; therefore, in Florida, the state emergency management agency assumes a greater managerial role in developing evacuation plans.

However, the evacuation order and management plan is the responsibility of the County law enforcement. The primary difference typically lies between the centralized versus decentralized decision making approach. Table 3 summarizes how the authority to give an evacuation order is provided throughout the hurricane prone states. (Wolshon, Urbina, and Levitan, 2001)

16

	STATE AGENCIES		LOCAL AGENCIES							
STATE	Governor	State Emergency Management Office	National Guard	State Police	Local Emergency Management Office	Mayor	Highest Local Elected Official	Local Law Enforcement	County Judge	County President
New Hampshire	Х									
Massachusetts	Х						Х			
Rhode Island	Х					Х	Х			
Connecticut	Х			Х		Х		Х		
New York							Х			
New Jersey	Х	Х		Х	Х	Х		Х		
Delaware	Х									
Maryland	Х					Х	Х			
Virginia	Х				Х					
North Carolina	Х									Х
South Carolina	Х									
Georgia	Х					Х				Х
Florida	Х		Χ*							Х
Mississippi	Х					Х				Х
Louisiana	Х									Х
Texas						Х		ng the source of	Х	

Table 3Comparison of Authority Structure for Hurricane Evacuations

*Note: The State of Florida has since removed the planned deployment of the National Guard during the course of this research.

A comparison of hurricane traffic control plans throughout the Southeastern United States was undertaken during this research to learn how they compare to Florida. Florida, however, implements several different regional traffic control plans because of the possibility that several coastal areas in Florida may be evacuated for the same hurricane. For example, if a hurricane is approaching from the southwest of the state from the Gulf of Mexico, the evacuation of southwest Florida counties will greatly impact the evacuation clearance time within the Tampa Bay area because evacuees from south Florida will be using evacuation routes such as I-75 and I-4 to find shelter. This situation emphasizes the importance for regional communication between the different urban areas within Florida in creating an effective traffic control plan.

Many of the assumptions that are applied in HES are dependent upon evacuee behavior. This behavior creates many different scenarios of congestion for the road user, not just the characteristics of the roadway itself. Some of evacuees' behaviors and lifestyles toward evacuation and corresponding congestion include: (PBS&J, 2006)

- Participation Rates What percent of the population in different areas will evacuate their dwelling units for future hurricane threats?
- Evacuation rapidity of response rates How quickly will evacuees respond to what local officials are telling them to do?
- Vehicle usage Of the vehicles available to the households, what percent of those vehicles will be used in an evacuation?

While FEMA originated the basic standardization of HES, the consistency regarding the authority structure and planning/design processes is relatively limited between different regions of the country. (Wolshon, Urbina, and Levitan, 2001 and Galvan, 2002) For example, the 2001 Hampton Roads, Virginia Traffic Control Plan identifies a criterion of a Category 4 or 5 hurricane needed to

implement contraflow lanes for evacuation. Other regions around the country do not use that criterion to implement contraflow. Each HES should reflect the evacuation needs for each particular region, so complete standardization may not be required.

For some areas in the country, such as Hampton Roads, Virginia, the use of contraflow is only part of the overall traffic control plan. Some other impacting factors are as follows: (Virginia DOT, 2001)

- Tolls are lifted for hurricane evacuations
- Traffic is metered onto the freeway for the I-64 Contraflow Plan
- Traffic signal timings on evacuation routes are modified from traffic management center
- Phases of implementation are based upon time periods upon the storm's arrival
- Closing of the Chesapeake Bay Bridge Tunnel
- Agency coordination and responsibilities are based upon location of evacuation
- Detailed maintenance of traffic (MOT) drawings are provided for each interchange and major intersection

In 2003, the arrival of Hurricane Isabel required an evacuation order for Hampton Roads, Virginia. This provided an opportunity to evaluate the effectiveness of the 2001 Traffic Control Plan. Hurricane Isabel made Virginia land fall in September, 2003, as a Category 2 hurricane. One recommendation identified that the study area for the Virginia HES should include communities further inland. Additionally, it was identified that more clear evacuation shutdown procedures were needed. The most notable recommendation from the Hurricane Isabel Post Assessment regarding traffic was the emphasis on integrating emergency management requirements into the Intelligent Transportation Systems (ITS) architecture at the federal and state level.

However, due to Isabel being a Category 2, many local governments reported that relatively few people actually evacuated, or, if they did evacuate, it occurred very late in the event timeline. Only isolated incidents of roadway blockage or traffic congestion were reported. (USACE, 2006 and PBS&J 2005)

The Texas Management & I-37 Conversion Plan also identifies a procedure for agency coordination to implement contraflow. There is detailed preparation and implementation for interstate contraflow. For example, there is a listed criterion needed to implement contraflow based upon the size/intensity of a storm, anticipated path, storm surge, and the number of citizens prepared for mobilization. Unlike the Hampton Roads plan, the I-37 Conversion Plan is expected for a Category 3 storm or greater. The contraflow is discouraged during hours of darkness. The length of contraflow laneage is already predetermined. Additionally, the number of police personnel required for contraflow is already predetermined. (Hamilton, 2002)

Hurricane Rita in October, 2005, was an example of how detailed contraflow planning may be difficult to implement under a real condition. This particular use of contraflow was a reactionary implementation, instead of a pre-planned event. The Hurricane Rita contraflow was implemented on I-45 outside of Houston, Texas and not on I-37 located outside the coastal city of Corpus Christi, Texas. The Hurricane Rita contraflow experienced extreme congestion at certain bottlenecks primarily for two reasons:

- The significant number of evacuating people from the major Houston, Texas metropolitan area occurred shortly after Hurricane Katrina
- Difficulty in the merge/diverge transition areas of contraflow lanes near major interchanges

In 1998, only Florida and Georgia DOTs had adopted plans to reverse the flow on their limited access highways to expedite evacuations. By 2005, 11 of the 18 mainland coastal states subject to the threat of a hurricane had some version of a contraflow plan. Contraflow was implemented for the first time in Georgia, in 1999, during Hurricane Floyd with mixed, but mostly positive, results. An ad hoc implementation (without previous adopted plans) of contraflow was also improvised in South Carolina during Hurricane Floyd, after a strong public outcry came from evacuees trapped in congestion on I-26 between Charleston and Columbia, SC. (Wolshon, 2001) To this date, Hurricane George and Floyd are still considered to be the largest hurricane evacuations in the history of the United States. It was estimated that over four million people evacuated for Hurricane Floyd between the coastal counties of Florida, Georgia, South Carolina, and North Carolina.



Figure 4 Hurricane Floyd

Shortly after Hurricane Floyd, in 1999, the state of Florida put in motion a detailed set of design plans for contraflow. However, these plans have yet to be implemented as of 2007. There is little debate that contraflow can significantly increase the outbound capacity for emergency evacuations. However, there are many other elements to consider in determining its effectiveness. The total costs of contraflow need also be determined in safety risks and manpower requirements, most of which are widely undetermined. Currently, there are no recognized standards or guidelines for the design, operation, and location of contraflow segments.

Along with the benefits that contraflow can provide, there are also inherent risks that are associated with the use of contraflow for evacuation purposes. These risks and uncertainties may include:

- Overwhelming congestion at end of route
- Uncertainty of the behavior of individuals
- Unique storm characteristics between each storm event
- Safety design for guardrails, signage, interchanges, and errant vehicles
- Labor and time investment during crisis
- Political consequences if contraflow not required

One consideration for contraflow planning is the inverse relationship between accessibility and capacity. The complete reversal of a highway would create the most amount of available outbound capacity. However, the complete reversal would remove all access for any vehicles traveling inbound, some of which may be emergency vehicles; and those vehicles would be required to use more localized alternative routes. This relationship should be considered during the development and updating of hurricane evacuation plans.

The amount of detail that is considered during contraflow planning also varies among the different states. Much of the variation may be related to the specific agency that prepared the plan. The Hampton Roads, Virginia plan which was developed by the Virginia DOT, includes great detail in the geometric design and traffic control aspects of the cross-over location. The Louisiana plan, which was developed primarily by the State Police, focuses more attention on law enforcement requirements in the contraflow area. Table 4 summarizes the planned Contraflow Routes among the 10 states which currently have them in effect. (Urbina, 2001)

State	Route(s)	Length (miles)	Origin Location	Termination Location	
	47/347	19	Denis Twp	Maurice River Twp	
	Atlantic City Expressway	44	Atlantic City	Washington Twp	
New Jersey	72/70	29.5	Ship Bottom Boro	Southhampton	
, , , , , , , , , , , , , , , , , , ,	35	3.5	Mantoloking Boro	Pt. Pleasant Beach	
	138/I-195	26	Wall Twp	Upper Freehold	
Maryland	MD-90	11	Ocean City	U.S. 50	
Virginia	I-64	80	Hampton Road Bridge	Richmond	
North Carolina	I-40	90	Wilmington	Benson (I-95)	
South Carolina	I-26	95	Charleston	Columbia	
Georgia	I-16	120	Savannah	Dublin	
	I-10 Westbound	180	Jacksonville	Tallahassee	
	I-10 Eastbound	180	Pensacola	Tallahassee	
	SR 528 (Beeline)	20	SR 520	SR 417	
Florida*	I-4 Eastbound	110	Tampa	Orange County	
	I-75 Northbound	85	Charlotte County	I-275	
	FL Turnpike	75	Ft. Pierce	Orlando	
	I-75 (Alligator Alley)	100	Coast	Coast	
Alabama	I-65	135	Mobile	Montgomery	
Louisiana	I-10 Westbound	25	New Orleans	I-55	
Louisiana	I-10/I-59 (East/North)	115	New Orleans	Hattiesburg, MS	
Texas	I-37	90	Corpus Christi	San Antonio	

 Table 4

 Planned Contraflow Evacuation Routes

*Note: I-75 Contraflow between I-275 and I-10 currently under consideration for design in Florida.

In most states, including Florida, the authority to start contraflow operations resides with the Governor. Typically, the decision of when to initiate contraflow is made in close consultation with the Department of Transportation, law enforcement, and emergency management officials. Florida, like many other states, monitors real-time traffic conditions with "stand-by" alertness and will not implement contraflow until traffic volumes warrant their use.

All states that have contraflow are also looking towards ITS systems for hurricane operations. The most common use of ITS is for monitoring real-time traffic conditions. Florida DOT officials are able to retrieve traffic count information for hourly or 15-minute increments during evacuations. Recent enhancements allow data to be assembled and displayed in tables and graphs to monitor the progress of an evacuation. This traffic count data can also be used together with closed circuit

television (CCTV) cameras to provide direct visual confirmation of traffic conditions. In 2004, it was reported that the traffic count data was particularly useful in monitoring the evacuation and re-entry process. The count data was especially useful in coordinating with the state of Georgia in making a decision not to open a contraflow lane on I-75 in Georgia. (FHWA, 2006)

The Florida DOT also provides this real-time traffic information to the general public. The Florida DOT website provides access to its statewide network of real-time traffic volume and speed data recorders. This information helps traffic officials within the State of Florida decide when, if ever, is the appropriate time to start and end the use of contraflow. Other uses of ITS include highway advisory radio (HAR) and dynamic message signs (DMS). In the hurricane season of 2004, which witnessed four hurricanes travel through Florida, a combination of DMS, HAR, and *511 phone service was used. (FHWA, 2006) However, the difficultly with many ITS applications is that the majority of the infrastructure is located in urban areas, while the majority of evacuation route mileage is located in rural areas.

To initiate contraflow the general following procedure must be completed in sequential order:

- Install traffic control devices and barricades
- Clear inbound lanes of inbound vehicles
- Position law enforcement and DOT personnel at assigned locations

Most states anticipate that the above process requires four to 12 hours. The variation in the estimated time is dependent upon the length of the segment, number of interchanges, and number of ramps and merges points along the evacuation route. However, different authorities in Florida previously estimated that 49-96 hours were needed to prepare for contraflow operation. The time was so much longer than other states because Florida was required to activate the National Guard

forces (prior to 2005) to set up and patrol their locations (Collins, 2001). This special consideration in Florida had been the focal point of debate regarding the necessity to deploy the National Guard and the ability to effectively implement contraflow. The actual set up of contraflow has the ability to occur much faster in Florida if it were demanded by the local and state authority structure, which further questioned the necessary deployment of the National Guard. (PBS&J, 1993, 2008)

Other contraflow strategies have been reported to require only three hours to establish contraflow, such as the 2004 evacuation for Hurricane Charley in South Carolina (FHWA, 2005). However, it should be noted that a contraflow strategy for Florida is naturally more complex than most other hurricane prone states. Most other hurricane prone states are only bounded by the ocean from one side and also have highways that directly intersect the coastline, such as I-16 in Georgia, I-26 in South Carolina, and I-37 in Texas, which makes an evacuation route planning more straightforward. In the case of Florida, the major interstates of I-95 and I-75 run parallel to the coastline, with as little as 100 miles in between them. Florida is susceptible to hurricanes from either coast. That, together with the population density within the state, suggests a situation in which numerous evacuation scenarios exist with the capability of extreme congestion occurring towards the north end of the South Florida peninsula.

Florida officials have adopted a policy that contraflow operations will neither be initiated nor operated during night time. This policy has also been adopted by the Georgia DOT. One reason for this policy may include the fact that reflectors and pavement markings are designed to prevent "wrong way" driving, especially during nighttime hours. However, the same officials recognize that some situations may require flexibility depending upon the situation. (Wilmont, 2001)

Additionally, the topic of highway work zones was mostly ignored for previous hurricane evacuations. The problems of construction on hurricane evacuation routes were experienced throughout the southeast United States during the evacuations of Hurricane Opal in 1995, Hurricane George in 1998, and Hurricane Floyd in 1999. Today, most hurricane prone states have clauses that require a contractor to cease all construction activities once an evacuation order is given, clear all equipment, and open all lanes of traffic (including the lanes under construction).

At the onset of the study, it is expected the contraflow alternative with all outbound lanes *should* produce most capacity. But is it the most practical alternative? Previous efforts have shown that there is 70% additional outbound capacity with complete reversal of all inbound lanes when compared to normal operations. The increase of capacity is less than double due to reduced speed and also driver unfamiliarity on the contraflow lanes (Anderson, 2007).

Evacuation Demand and Operations Modeling

Since the 1970's travel demand modeling techniques have greatly improved, mostly because of the availability of faster computer processors capable of storing and compiling more data. Original travel demand models, such as MASSVAC, were developed in preparation for a nuclear disaster. These traditional models were designed to allow for long range planning in situations where origins and destinations were easily determined for only the peak hours of traffic flow. Today, the capability of hurricane modeling has helped create simulation programs which are used to model the characteristics of:

Evacuation travel behavior

- Weather
- Flooding
- Traffic Flow

All evacuations, whether they are caused from hurricanes, floods, fires, or manmade disasters, should consider the following characteristics (Barret, 2000):

- Shape and size of energy source
- Shape and size of evacuation area
- Rate of growth of evacuation area
- Size and socioeconomic data of evacuation population
- Amount of warning time
- Level of disruption to the road network
- Level of danger of the emergency

The composition of the evacuating population will also be influenced by the time of day in which the emergency occurs. For example, if the emergency event occurs within an office or business district at 5:00 P.M., the resulting situation will differ considerably from what would result if the same emergency occurred in the same location at 5:00 A.M. (Ran, 2000). The same is true depending if the emergency occurs on a weekend or weekday.

What is unique about the ability to forecast a hurricane, as compared to other disasters, is that there is now much more information available about the storm's intensity, speed, direction, and approaching location. However, there are also special challenges associated with a hurricane evacuation. The difficulty occurs in being able to model the entire roadway network because of the large area of impact and the long period of impacted time. This type of situation is typically more appropriate to use for macroscopic models, instead of microscopic models. Additionally, due to the

ability of the oncoming storm to damage roadways and bridges, the actual road infrastructure cannot be assumed as constant. (Pillai, 2000 and PBS&J, 2005)

In creating a hurricane evacuation study there are a minimum of six important modeling steps. (PBS&J, 2000) The development of Evacuation Zones and Data first identify who is vulnerable and who is likely to evacuate. The trip generation step calculates how many evacuees will travel from a traffic analysis zone (or county, city, etc.) for a particular storm scenario. The trip distribution step then determines the destination and the direction that evacuees will travel. The development of the evacuation road network addresses which roads can accommodate an evacuation and the carrying capacity for each of those roads. The trip assignment determines which routes will be chosen by the evacuees to reach their particular destination. Finally, the step to calculate the expected clearance time determines how much time will be required to clear all evacuees past a chosen cordon line area within the evacuation area.

For hurricanes, the Sea, Lake and Overland Surges from Hurricanes (SLOSH) model has been widely used to identify flood prone areas. This model was originally developed by the National Weather Service to predict storm surge. Since that time the model has been used to create a classification of hurricane evacuation areas and to identify evacuation routes and emergency shelters given possible flooding scenarios.

SLOSH assists in the development of evacuation zones, which are typically along the coastline due to their low elevation. Figure 5 shows the locations of the evacuation zones in Hillsborough County, Florida. Recent hurricane experiences have demonstrated that major hurricane damage does not occur only along the coastline, as shown in Figure 6 with Hurricane Charley in 2004, over central

Florida. Not surprisingly, there has also been an increase in the number of people who evacuate who do not live in an evacuation zone. These people are referred to as "shadow evacuees." Over the last 20 years, more hurricane related deaths have been attributed to inland flooding than coastal wind damage and storm surge.

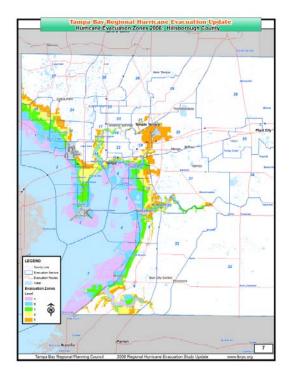




Figure 5 Coastal Hurricane Evacuation Zones and Inland Hurricane Damage

The hurricane evacuation zones based on the SLOSH model identify coastal flood prone areas from storm surge, but do not identify inland flood prone areas. Other at-risk areas located inland, such as mobile home parks, are also not identified in the SLOSH model. This current practice of determining hurricane evacuation zones does not identify these types of at-risk locations away from the shoreline. This information, together with traffic information, are two major components to consider towards effective hurricane planning.

One method of collecting traffic information is the Evacuation Traffic Information System (ETIS). Hurricane Floyd led to the development of ETIS to facilitate information sharing and planning across state boundaries in the southeast. Several features of the ETIS include integrating traffic count information across state lines, providing behavior study updates, and the ability to model partial and full evacuation options. The objective of ETIS is to estimate the necessary and available capacity on the public roadway system. However, ETIS primarily relies on historic traffic counts. (FHWA, 2006)

During an evacuation order within Florida, real time traffic conditions are used to determine traffic operation procedures, while historical traffic counts are referenced for the planning and preparation of hurricane evacuation plans. Real-time traffic counts are available via the Florida DOT webpage for the general public and are updated every fifteen minutes. The real-time traffic counts can be used for informational purposes to assist the general public with evacuation planning to avoid congestions. Also, the real-time counts are used by Florida DOT towards determining the necessity of when to deploy contraflow.

Another macroscopic model developed originally in the 1980's was the HURREVAC program. HURREVAC uses a Geographic Information System (GIS) to compare local demographic data with shelter locations and their proximity to evacuation routes to estimate the effect of strategic level evacuations. HURREVAC is not necessarily a traffic model, but is used as a tracking program for Hurricane Evacuation Studies in shelter planning.

31

Additionally, the continuous development of the Hurricane Evacuation Analysis and Decision Support Utility Program (HEADSUP) has been used in Florida to proactively manage traffic operations during an evacuation. (FHWA, 2006) HEADSUP integrates real time traffic data from 27 strategically located traffic counters placed on hurricane evacuation routes. The data provided from HEADSUP can help coordinate the timing of multi-regional evacuations, such as the Tampa Bay and Southwest Florida regions. Additionally the model can be used to identify bottlenecks and alternative evacuation routes. Some of the key functions include:

- Hourly dynamic travel demand forecasts
- Impact analyses of contra flow lanes
- Socio-economic statistics on evacuees
- Map-Based user interface system
- Travel demand modeling of evacuees on roadway network
- Archival capability of key events

One analysis tool developed for traffic operation performance was developed by the Oak Ridge National Laboratory and was called the Oak Ridge Evacuation Modeling System (OREMS). This program is based on a CORidor SIMulation (CORSIM) platform to simulate traffic flow during various emergency evacuations. CORSIM platforms have also been used by the Florida DOT to comparatively analyze traffic operations for different roadway enhancement projects. The model can be used to estimate clearance times and identify operational traffic characteristics. Table 5 summarizes a comparison of currently available evacuation programs that are applied to transportation networks.

By nature, the ability to model hurricane evacuation is a very dynamic process. Both the storm and the evacuating public have many variable characteristics which impact the evacuation process. A

dynamic hurricane evacuation model should allow for a continuous process, where information from traffic counters, law enforcement, and meteorological data can continuously update traffic conditions and optimize the system's overall performance. Several pieces of information are required to provide a dynamic modeling application (Barret, 2000 and NOAA, 2006):

- Evacuation route times and performance
- Predicted evacuation routes and departure times and the resulting evacuation time
- Monitoring of transportation infrastructure
- Impacts of different management strategies, whether they be operational or policy driven

NAME	FEATURES	LOCATIONS	INPUTS	OUTPUTS
MASSVAC	 Macro level Nuclear Power Plant Evacuations 	Inland Communities vulnerable to contamination	 Topographic data Wind Conditions 	 Direction Area Speed Magnitude of contamination
Sea, Lake and Overland Surges from Hurricanes (SLOSH)	 Flooding model Developed by National Weather Service 	All hurricane prone states	 Hurricane storm data Topographic data Tide data 	 Predict hurricane storm surge Identification of evacuation routes and shelter location
HURREVAC	 Macro level GIS Correlate demographic data to shelter locations and evacuation routes 	 Hurricane prone coastal communities Large urban areas 	 Socioeconomic data Shelter locations Evacuation Route locations 	 Sufficiency of shelter capacity and availability Distance to shelters for population groups
Oak Ridge Evacuation Modeling System (OREMS)	 CORSIM platform Micro level simulation Compare alternative evacuation routes 	 Hurricane evacuation routes Florida 	 Hurricane route locations, capacities, and speeds Behavior data Response rates Destinations 	 Clearance times Simulate traffic flow Forecast evacuee response rates Comparison of alternative evacuation routes Traffic control management techniques
Incident Management Decision Aid System (IMDAS)	 Identify high risk areas Interaction of evacuation plans and traffic operations 	• Florida	 Topographic data Elevation Behavior data Land use data Traffic volumes 	 Risk prone areas Alternative evacuation plans Traffic operation strategies
Evacuation Travel Demand Forecasting System	 Macro level evacuation model Customized inputs Web-based interface 	 Florida-Georgia Georgia-South Carolina 	Behavior dataEvacuation routesTraffic counters	 Level of congestion Predicted volumes Cross-state traffic impacts
Evacuation Traffic Information Systems (ETIS)	 Integrating historical traffic count information Partial and full evacuation options 	FloridaSouth Carolina	 Historical traffic counts Behavior data Land use data 	Predicted volumes
Hurricane Evacuation Analysis and Decision Support Utility Program (HEASUP)	 More advanced than ETIS Proactively manage traffic during evacuation Ingest real time traffic data Map based user interface Archival capability 	• Florida	 Real time traffic count data Road capacities Region specific behavior data 	 Hourly dynamic travel demand forecasts Impact analysis of contraflow Traffic volume forecast

Table 5Comparison of Evacuation Modeling Programs

The development of a real-time evacuation model is critical to the demand side requirements because the behavior of individuals cannot be assumed to replicate from previous travel patterns. Therefore, the origin-destination matrices previously used for planning travel demand purposes would not be appropriate. Human behavior is not completely predictable under emergency and threatening conditions. Hurricane evacuation does not represent typical congestion.

Conversely, the supply side of evacuation modeling is also continuously changing. Evacuation traffic conditions are characteristically similar to non-recurring congestion, much like a crash incident on the roadway. Evacuating traffic volumes are much greater than typical peak hour (and peak directions) conditions, and this situation can result in significant variations in travel times due to congestion. Also, the peak period is more spread out than a typical PM peak hour, therefore resulting in a lower K value. A dynamic model should incorporate a regional network with complete information in link conditions for average speed, length, and capacity. The model should also incorporate changes in link conditions, such as reduction in capacity due to physical damage of the roadway or crash incidents, and then also simulate alternative traffic management strategies to change the network and recalculate levels of congestion once a new equilibrium has been established. (Ran, 2000)

Additionally, a dynamic model should identify the impacts on the transportation network from the hurricane itself. A hurricane has the ability to determine which evacuation routes are chosen because of the storm's ability to change trajectory and strength. This may be the most challenging input towards creating a dynamic hurricane evacuation model.

35

These combinations of demand, supply, and storm characteristics require unique model architecture for hurricane evacuation. Under ideal modeling conditions, the evacuee behavior would be completely controlled with optimized evacuation time. However, minimum evacuation times may underestimate the time actually required for complete evacuation since the road system is not in a state of equilibrium.

Therefore, a key component of a dynamic architecture is comparing the results from previous step to the difference between the actual and optimal evacuation times and determining that they are within an acceptable range. If they are not, the development of emergency management strategies would be required to improve the performance. If the model is used in real time, it can be used to gauge the success of management strategies. Therefore, the model would choose a rolling horizon approach where the Origin-Destination matrices and network data are updated and the time horizon is then rolled forward by a length equal to the roll period. (FHWA, 2006 and Barret, 2000)

Summary of Evacuation Procedures in Florida

As demonstrated in the previous sections, the State of Florida is considered to be quite progressive when preparing for evacuations from hurricanes. The State of Florida has invested more money toward the research and development of improved hurricane evacuation plans and analysis than any other state. This is not surprising considering the fact that Florida is also the most vulnerable state given its extensive ocean coastline and low elevation throughout the state. The State of Florida is also a leader in the organization and management of hurricane preparation. As shown in Table 1, Florida is administratively structured so that the Governor serves as the lead coordinator between the different agencies, but the evacuation order is provided by the County law enforcement agencies. Therefore, the coordination between the Governor's office and local law enforcement is vital towards the success of hurricane preparation.

Florida has learned from other states that developing evacuation plans upon the eminent arrival of a hurricane is too late. Each year, the Florida Governor's office sponsors the annual Governor's Hurricane Conference. Local, regional, and state agencies attend this conference to review strategies from previous years and debate the ability to incorporate new and improved evacuation and hurricane preparation strategies. Administration procedures are also reviewed.

Recently, much of the coordination in Florida focuses with staff involvement at each County's Emergency Operations Center (EOC). The EOC is considered to be the focal point in determining an evacuation order. Local and state public agencies meet together at the EOC, such as law enforcement, public works directors, and the Department of Transportation. Adjacent EOCs communicate with each other and the state agencies upon their determination of evacuation.

Most EOCs in each county hold media press conferences in early summer to assist in the communication with the local public. The purpose of these press conferences is to inform the local public of evacuation schedules, shelter locations, road closures, standard operation procedures, etc.

Even outside hurricane season, the State of Florida is busy developing new strategies. For example, the contraflow design of I-4 has recently been reviewed for consistency with the new

widening construction and the ability to accommodate additional vehicles. However, it should be noted that the I-4 Contraflow design plans are being updated by Florida DOT to reflect recent capacity improvements. Additionally, preliminary plans have been developed to design I-75 as a contraflow route north of Tampa Bay. (Anderson, 2007)

In Florida, there have been four public agencies which are primarily responsible for hurricane evacuation:

- Florida DOT
- Florida Highway Patrol
- Florida National Guard*
- Local Law Enforcement and Emergency Operation Centers (EOC)

*However, the National Guard is no longer expected to be involved with contraflow evacuation. This was a result of a recent annual EOC meeting for State of Florida (Anderson, 2007), which coincidentally, is also during the same time period that this research has been conducted.

Since the National Guard is no longer part of the contraflow process, contraflow is now designed for a 6-hour setup. Coordination is primarily established between the FDOT and FHP. The call for contraflow originates from the Governor. All logistical operations originate at State EOC center. It is expected that the contraflow request originate upon congestion from a local official to the governor. Upon evacuation and contraflow activation, the District EOC Director assumes managerial control of FDOT operations, not the district secretary. All operations on the Interstate are managed by FDOT and FHP during contraflow activation. The local authorities then help provide law enforcement at the interchanges and local roadways leading to the contraflow routes. The Florida DOT is responsible for developing any contraflow evacuation plans. Also, the FDOT furnishes the necessary resources for contraflow, such as cones, barricades, signs, etc. The Florida Highway Patrol implements and operates the contraflow plan when it is activated. The highway patrol provides monitoring personnel at locations such as interchanges, on-ramps, and other crossover locations during the evacuation.

The decision to call a hurricane evacuation in Florida now is determined at the local county level. Prior to Hurricane Opal in 1995, the State maintained primary responsibility, but has since modified that policy. The County Sheriff's department is responsible for coordinating local hurricane evacuation procedures with State agencies. Contraflow is implemented on state facilities and monitored by state agencies, while local law enforcement is responsible for monitoring local roads.

These procedures are constantly being updated within the State of Florida; however, there are still opportunities for improvement in being effectively prepared for an oncoming hurricane. This dissertation addresses that need to identify improvements toward hurricane evacuation, particularly towards identifying strategies for the use of contraflow lanes. Therefore, this research addresses the basic question, "Is Contraflow a real feasible alternative for hurricane evacuation in Florida?" The expected benefits associated with contraflow are examined together with the logistical requirements to answer this question.

RESEARCH METHODOLOGY

The methodology identified in this dissertation is to evaluate existing procedures and traffic management techniques in Florida. Special emphasis is placed towards the application of contraflow lanes within the state as an effective traffic management tool to increase available directional volume capacity. This study is unique in that the Measures of Effectiveness (MOEs) are evaluated for both a measure of available capacity for traffic operations and a measure of logistical feasibility.

The following checklist strategy summarizes the process that was undertaken for the dissertation:

- Define the problem to be evaluated
- Research development of hurricane planning process
- Identify current Florida evacuation procedures
- Develop performance measures for analysis
- Identify contraflow design alternatives
- Identify alternatives for contraflow logistical procedures
- Explain data assumptions and data variables
- Analyze results of performance measures
 - o Improved Capacity
 - o Required Infrastructure
 - o Required Personnel
 - o Speed Variation
 - o Logistics
 - o Delay/Congestion

- Development of suggestions/conclusions
- Identify opportunities of future research
- Describe observation of dissertation procedures

While the study is directed towards hurricane evacuation procedures in Florida, several aspects of this study may be applied within other regions of the United States. Also, this research may be applied towards other types of evacuation planning. The discussion of applicability of this dissertation is elaborated under a separate chapter following the results and the development of suggestions/conclusions.

It was hypothesized during the beginning of this research that the contraflow implementation process outlined in Florida required too much activation time to be an effective evacuation tool. Therefore, new techniques have been developed and analyzed to improve their anticipated effectiveness and possible implementation.

Development of Contraflow Alternatives

The development of contraflow alternatives began with a review of established contraflow procedures. This review was undertaken by a combination of methods. One method was by interviewing employees that represent the following emergency planning agencies and companies:

- Florida Department of Transportation
- Tampa Bay Regional Planning Council
- PBS&J
- Hillsborough County Emergency Operations Center
- Citrus County Emergency Operations Center

- State of Florida Emergency Operation Center
- State of Florida Governor's Office
- Florida Department of Community Affairs

The Director of each of the Emergency Operations Center was contacted for an interview. The Planning Director of the Tampa Bay Regional Planning Council was also interviewed as the local affiliate of the Department of Community Affairs. The Emergency Planning Coordinator was also interviewed and provided subsequent information representing the TBRPC. This information consisted of providing copies of the Tampa Bay Hurricane Evacuation Studies of 2006 and 1998.

The Emergency Operations Manager of Florida DOT – District Seven was interviewed to provide information regarding the policies and process standards currently adopted by the State of Florida. Information regarding the contraflow implementation process was also discussed in detail with Florida DOT staff. This information consisted of reviewing contraflow design plans, providing logistical and promotional videos and pamphlets for public information. Florida DOT staff also helped provide traffic count data.

Staff from PBS&J assisted with providing information regarding previous and current hurricane planning processes within Florida and around the Southeast United States. PBS&J has conducted numerous hurricane evacuation studies for local governments, and holds detailed information on how the profession of hurricane planning has emerged for the past 20 years.

Provided below is a sampling of questions that were asked between the different conducted interviews:

- Please summarize your current hurricane evacuation planning efforts.
- How have these planning efforts changed over the recent years?
- How does contraflow impact your evacuation planning efforts?
- If contraflow is implemented, what are the responsibilities of your agency; and how do you coordinate those responsibilities with the other emergency planning agencies?
- What has been learned from other regional planning efforts and contraflow operations from other regions of the country, and how has your agency responded to those lessons learned?
- What alternatives of contraflow have been considered during your evacuation planning?
- How are you involved with media campaigns or other methods of educating the general public towards contraflow and evacuation preparation?
- How frequently are your planning efforts updated?
- How is success defined within your agency regarding hurricane evacuation planning?
- What suggestions toward future planning efforts regarding hurricane evacuation and contraflow should be considered?

The answers from the questions above provided the information from the conducted interviews to establish the different performance measures and determine the measurements of effectiveness. Additionally, this information was collaborated between the different sources and determines the weighting system between the different performance measures, as described in the section labeled *Alternative Method of Weighting Performance Measures.* Much of the information received from Florida DOT was prioritized in the weighting system, since Florida DOT is considered to be the implementers, as well as the manager, of contraflow activities.

The annual Florida Governor's Hurricane Conference located in Ft. Lauderdale, Florida was also attended. The purpose of the technical sessions and the workshops from this conference is to provide new developments in the emergency planning practice throughout the State, as well as other hurricane prone states.

Currently, four different variations of contraflow have been identified. Table 6 summarizes the different strategies of contraflow between the different states. Previous studies have estimated that a full four-lane outbound contraflow may provide up to a 70 percent increase in capacity over a conventional two outbound lane configuration. Another strategy to improve capacity is to have a single inbound lane reversal, which is estimated to increase outbound lane capacity by about 30 percent on a four lane grade separated highway. Additionally, a strategy that uses the outbound left shoulder lane as an additional outbound lane is estimated to increase outbound capacity by eight percent (USACE, 2006). The capacity increase depends on the width and condition of the shoulder. The use of the shoulder lane also prohibits the exclusive use of emergency vehicles.

Table 6State Comparison of Contraflow Strategies

Strategy	New Jersey	Maryland	Virginia	North Carolina	South Carolina	Georgia	Florida	Alabama	Louisiana	Texas
All lanes outbound		Х	Х	Х	Х	Х	Х	Х	Х	Х
One lane reversed, one lane inbound for emergency/service vehicle entry only	Х								х	
One lane reversed, one lane inbound for traffic only	Х				Х					
One lane reversed and use of outbound left shoulder lane									Х	

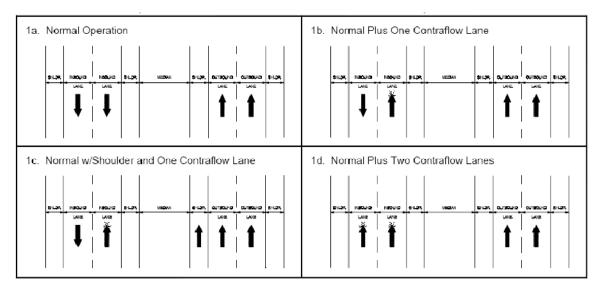


Figure 6 Typical Cross Section of Each Contraflow Strategy

Even though Florida has not yet implemented contraflow lanes, it has the most extensively planned use of contraflow operations, with seven identified sections. The first contraflow design plans in Florida were originally created for I-4 located between Tampa and Daytona Beach in February 2000. This section of I-4 has been previously considered to be the best candidate for contraflow to be activated. (Engerski, 2007) In total, approximately 750 miles are planned for possible contraflow use in Florida. An additional section is currently under design for I-75 between the North I-275 interchange and I-10. Additional contraflow plans were recently under development in Delaware, Virginia, Louisiana, and Mississippi.



This photo displays how a shoulder lane may not provide continuous capacity, and lead to merging congestion for hurricane evacuation.

Figure 7 Bridge Span Safety Consideration for Shoulder Lane

In summary, the primary contributors of technical data have been the Florida DOT and the Tampa Bay Regional Planning Council (RPC). This is in addition to the interviews conducted with the public agencies. The following sources of data were obtained for quantitative data necessary to measure the capacity analysis:

- Florida DOT Real-Time Traffic Information Website
- Tampa Bay RPC 2001 Hurricane Evacuation Study
- Tampa Bay RPC 2006 Hurricane Evacuation Study Update
- Florida Traffic Information Traffic Count CD (2006 FTI-CD)
- Florida Contraflow Design Plans

One of the tools that the Florida Department of Transportation uses to inform the traveling public of real time traffic conditions is their public website. The address for the web site is http://www3.dot.state.fl.us/trafficinformation/, and there is another web site available at www.511tampabay.com. This is a reliable source of data to obtain speed and traffic information for hurricane evacuation purposes. Drivers interested in knowing traffic congestion levels during an evacuation are able to access this website to identify which evacuation routes are experiencing congestion or incidents that would reduce the average travel speed.

Although the decision whether or not to evacuate may be predetermined by a local resident, drivers may use the information to help decide when they choose to evacuate, and/or which evacuation route to use. Congestion levels and average travel speeds are part of the information available on the web site in both graphical and tabular form. Figure 8 shows the information available provided to the traveling public on the website.

Molecture 7	Traffic Information	Witon Verunak Bon Springs Bloo Pensacola Pt Walton (2) Beach Panama City	Carefordule Control Co
ounter 01 06 on 1-4 in HILLSBOROU Polling DAILY: displays Historical Av Sunday in June Hist VPH - Historical volume of traffic	verage for a Submit	SPEEC 65 LIMIT	berein mit Eustry Sanod Inveness United Structures Stru
Hour Eastern Time Zone	East-Bound 'Hist VPH	West-Bound *Hist VPH	Largo Largo Sebastian
12am-1am	1026	1233	Cle anu ater in the second sec
1am-2am	706	695	Bradenton Waych ula
2am-3am	559	432	
3am-4am	662	43e 382	/Arca dià, Uke ech obee 🔥 Stuart
4am-5am	441	349	
5am-6am	474	494	North Rott La Belle Pañoke
6am-7am	745	733	For Myers
7am-0am	1021	901	Saniber of the Immokalee
8am-9am	1479	1523	Coral Springs
9am-10am	2096	2242	Davie Hollywo
10am-11am	2398	3097	East Naples Marco
11am-12pm	2658	S717	Coral Springs 40 9002 H East Naples Merco East Naples Merco Kegdall Springs Homestead
12pm-1pm	2635	3715	Homestead
1pm-2pm	2847	3478	
	1	3334	Key Largo
2pm-3pm	2840		
	2840 3188	3150	and the second
2pm-3pm		3150 733	Marathon
2pm-3pm 3pm-4pm	3188		Maration Keyweat
2pm-3pm 3pm-4pm 4pm-5pm	3188 745	733	Meration KeyWest
2pm-3pm 3pm-4pm 4pm-5pm 5pm-6pm	3188 745 3202 2929 2396	733 3133 2860 2540	Maration
2pm-3pm 3pm-4pm 4pm-5pm 5pm-5pm 6pm-7pm	3188 745 2002 2929 2396 1977	733 3133 2860 2540 2427	Maration Maration
2pm-3pm 3pm-4pm 4pm-5pm 5pm-5pm 6pm-7pm 7pm-9pm	3188 745 3202 2929 2396	733 3133 2860 2540	Meration Meration
2pm-3pm 3pm-4pm 4pm-5pm 5pm-5pm 5pm-7pm 7pm-9pm 8pm-9pm	3188 745 2002 2929 2396 1977	733 3133 2860 2540 2427	Maration

Figure 8 Florida Real Time Traveler Information Website

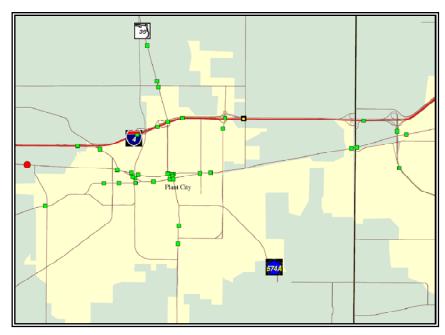
Other public websites have been as identified available to research Contraflow and hurricane

evacuation procedures in Florida, such as:

- <u>www.teachamerica.com</u>
- <u>www.onewayflorida.com</u>
- <u>www.fl511.com</u>
- <u>www.dot.state.fl.us</u>
- <u>www.tbrpc.org</u>

One task that was undertaken was to evaluate the traffic volume growth that has been experienced on the study location of I-4 in eastern Hillsborough County. The purpose of this effort was to demonstrate how excess capacity that would have been previously available during an evacuation has now been consumed for regular commuting traffic. The most recent edition of the Florida DOT Florida Traffic Information (FTI)-CD was obtained for data to identify the historical growth. This FTI-CD provides Annual Average Daily Traffic (AADT) volumes for each traffic count location in the state of Florida. For this particular count station on I-4, data has been available since 1970.

Data was obtained for the count location on I-4 just east of the Park Road Interchange, (count station 0084 located at mile marker 30.300). Figure 9 provides a map of the count station locations in east Hillsborough County.



Note: Count station used for analysis identified in yellow.

Figure 9 Florida DOT Traffic Count Location Map

The most recent data available identified an average daily volume of 104,500 vehicles per day. This is compared to an average daily volume of 17,000 vehicles per day in 1970. It should be noted that the capacity of study section of I-4 was increased from four lanes to a six lane typical cross section in 2003 in eastern Hillsborough County. These data suggest that while I-4 has increased capacity, I-4 also experiences more congestion on a daily basis than it did 35 years ago, which then suggests that I-4 would be susceptible to extreme congestion during a hurricane evacuation. The peak hour of travel on the study section of I-4 currently represents 8.24% of the total daily volume. Figure 10 summarizes the historical growth of daily traffic volumes for the study area.

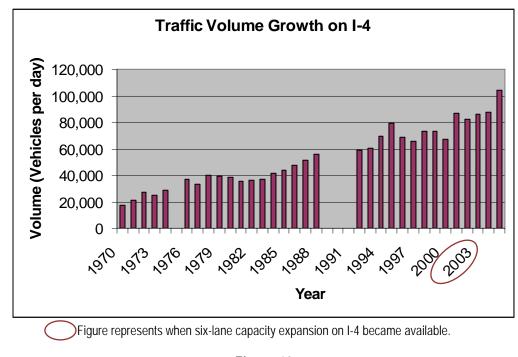


Figure 10 Daily Traffic Volume History

The researcher participated in the initial I-75 contraflow reviews. These meetings served as design workshops for the participating agencies of Highway Patrol, Department of Transportation, and local law enforcement. The attendance at these meetings assisted in understanding the development process of contraflow design plans. A design review of the I-4 Contraflow Design Plan for its anticipated effectiveness (if and when the contraflow is implemented) was also conducted. The I-4

Contraflow Design Plan was the first one developed in Florida and is considered to be the first likely roadway to be used for contraflow during an evacuation. (Anderson, 2007) Site visits of I-4 were performed during this research to demonstrate where the infrastructure is currently available to conduct a contraflow situation.



Figure 11 I-4 Crossover Locations for Contraflow

Development of Performance Measures

The six performance measures are as follows:

- Improved Capacity
- Required Infrastructure
- Required Personnel
- Speed Variation
- Logistics
- Delay/Congestion

Improved Capacity is a performance measure based upon the available vehicle throughput. Each contraflow alternative was evaluated on how much more capacity was created. This analysis evaluated improved capacity for two separate measurements:

- Evaluating average speed for each alternative assuming a standardized service volume
- Evaluating available capacity for each alternative assuming a standardized speed

For the first part of the *improved capacity* performance measure the LOS E service volume capacity was used to compare the average travel speeds. The 2002 Florida Quality/Level of Service Manual published by the Florida DOT was referenced to identify a generalized LOS E service volume. For a six-lane urban freeway, the peak-hour, peak-direction LOS E service volume is 6,150 vehicles per hour.

The total saturation flow was derived by adding the traffic volumes from the regular lanes together with the volumes from the contraflow lanes. The average speed from the total saturation flow was then evaluated and reported from Sychro/SimTraffic. The average speed was a weighted average

between the regular outbound lanes and the contraflow lanes. For the purpose of hurricane evacuation, the contraflow alternative which creates a greater average speed is considered to be more effective to quickly evacuate the general public.

The second method of the *improved capacity* performance measure was based upon identifying which alternative could produce the greatest throughput of vehicles, or the greatest volume during a hurricane evacuation. This evaluation would identify the greatest density prior to creating excessive congestion where vehicle speeds would be slow. Therefore, the average speed was assumed at approximately 30 mph to evaluate the maximum throughput for each alternative during an evacuation.

The *required infrastructure* performance measure is based upon the amount of materials and infrastructure required to implement a contraflow operation during hurricane evacuation. The primary type of additional infrastructure is the orange cones needed to delineate traffic from their desired lanes and routes. It is assumed that the best contraflow alternative for this performance measure will require the least amount of additional infrastructure.

The *required personnel* performance measure is also based upon the quantity to effectively implement the contraflow operation. Similar to the required infrastructure, the fewer number of *required personnel* that are required to operate a contraflow operation, the more favorable it is scored.

However, it is difficult to obtain a firm cost of the different alternatives, and the cost associated with additional personnel. For example, how does one measure the cost/benefit ratio when an analysis

would require the cost of FDOT/FHP overtime pay cost versus the benefit cost of evacuation? That is why this analysis is not an economical benefit/cost emphasis.

Speed variation is considered a performance measure primarily due to safety. The more variation in speed during an evacuation can create a safety risk, mostly due to side swiping and/or rear end collisions. The concern is magnified during an evacuation, because the roadway is operating at capacity; and when there is a crash, the resulting congestion delay is much greater during a time when throughput is most important. Therefore, this performance measure is rewarded by the consistency, or the lack of speed variation.

Additionally, the *speed variation* was evaluated for each lane group. However, only the outbound evacuation direction was evaluated for speed variation (not the inbound direction).

The *logistics* performance measured is measured by how much set up is required to implement contraflow. Also, part of the *logistics* is the amount of effort required to convert the contraflow lanes back to regular operation. This performance measure is related to the required personnel and the required infrastructure performance measures. The amount of cooperation and time for set up is a key component of this performance measurement.

The amount of set up and breakdown time is considered one of the most straight forward measurements of *logistics*. This is because it assumes the coordination of evacuation personnel and *logistics* to prepare for each contraflow alternative. Other logistical considerations, such as operating Highway Advisory Radio (HAR), Variable Message Signs (VMS), road rangers, etc. are expected to be relatively constant between each alternative.

The *delay/congestion* performance measure is directly related to the effectiveness of an evacuation. The amount of *delay* inhibits the free flow of vehicles. It is a quantitative measure that can be evaluated by seconds delayed, speed differentiation from free flow conditions, and/or the number of vehicles unable to be served by the highway during peak conditions. The *delay/congestion* performance measure can be evaluated using Synchro/SimTraffic modeling software.

Evaluate Contraflow Logistics

The ability for contraflow to serve as an effective evacuation tool in Florida may currently be most limited by some of the originally identified logistical procedures. The following is to be accomplished while evaluating the logistics to implement contraflow:

- Determine the Need of the Florida National Guard
- Identify the Time Needed to Activate Contraflow
- Compare Logistics to Other States
- Evaluate Authority Structure

Unlike any other state that has adopted contraflow lanes, the State of Florida previously required the activation of the National Guard. The purpose of the National Guard was to assist local law enforcement officials. Their responsibilities would include monitoring travel conditions at locations such as interchanges and helping remove disabled vehicles from the travel lanes. However, it had been reported that the National Guard may require up to 96 hours to be completely activated and deployed to the evacuation routes. (PBS&J, 2000)

Ninety six hours is the equivalent of four days, and is too long of a time to initiate an effective evacuation. Typically, an evacuation order is given two to three days prior to the expected arrival of a hurricane; therefore, the National Guard would likely arrive too late to be effective. Thus, an evacuation order would need to be called approximately six days prior to the hurricane making landfall. Six days is currently beyond the capability to accurately forecast a hurricane's trajectory.

This research evaluated the necessary logistics for contraflow deployment. The procedures used by other neighboring states were reviewed for their effectiveness and applicability to Florida. Other states, such as Texas and Georgia, have the ability to activate contraflow within a 7-15 hour time frame. Alternatives to improve Florida's ability to quickly activate contraflow, such as removing the dependence of the National Guard, have been identified. Some of these recommendations also may include modifying the authority structure in Florida summarized in Table 1. The improved measurement of time to activate contraflow would be considered as one measure of effectiveness. The researcher started the contraflow analysis by reviewing existing Hurricane Evacuation Studies. The assumptions and methodology were reviewed for appropriateness in determining the anticipated traffic volumes for particular evacuation scenarios. The Tampa Bay Region Hurricane Evacuation Study is periodically updated for the Tampa Bay Regional Planning Council and the Florida Department of Community Affairs.

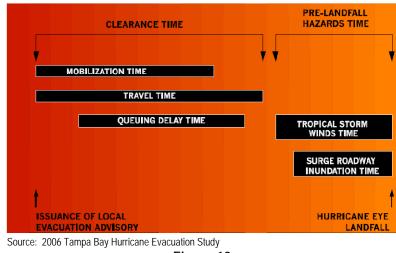


Figure 12 Components of Evacuation Time

The regional population is factored into the evacuation clearance times. Some scenarios also incorporate evacuees from Southwest Florida. The referenced population assumptions for Hillsborough County are provided below (PBS&J, 2006):

- Year 2006 Permanent Population 1,176,781
- Permanent occupied dwelling units 509, 553

- Mobile homes 34,041
- Tourist/seasonal units 29,677
- Year 2011 Population 1,301,648
- People per permanent unit 2.31
- Vehicles per permanent unit 1.64

Level of Service "E" traffic volumes were used as a constant variable in creating a comparative format of analysis for the different contraflow design plan alternatives. Expected variations between the time of day and variations between different days of the week that influence demand of the roadway were not analyzed separately. Instead, the analysis was undertaken to evaluate the available supply, or capacity, of the roadway. This was done so that the impacts from the different contraflow could be evaluated in a more straightforward approach.

A typical cross-section of grade separated highway in Central Florida was used as a demonstration facility to comparatively analyze the alternatives. Interstate 4 between Tampa, Florida and Polk County, Florida was used as the demonstration facility. The study area location was located in East Hillsborough County, just west of the Hillsborough/Polk County line. The study area location is shown in Figure 13.



Note: Cross-section study location identified by dashed red circle.

Figure 13 Study Area Location

This typical cross-section study area can help this research study in its application to other regions in the Country. The four different versions of contraflow previously identified have been analyzed comparatively for their effectiveness.

This research study incorporates incident management techniques that impact the capacity of a highway. These incidents include friction factors such as broken down vehicles within and outside the travel lanes. Other friction factors may include narrow travel lanes, narrow shoulder lanes, poor pavement conditions, etc.

The capacity analysis for the different contraflow alternatives was undertaken using the most recent released version of *Synchro, version 7.* This format allows the direct benefit analysis for the alternatives. Additionally, simulation analyses were undertaken for each of the different contraflow

alternatives using the most recent version of *SimTraffic*. Graphical illustrations of *SimTraffic* were overlaid recent available aerial photography for the study area.

Development of Suggestions/Conclusions

The *Synchro/SimTraffic* capacity software was used to calculate the capacity Measure of Effectiveness (MOE) for the different contraflow alternatives. The different MOE considered are as follows:

- Average Travel Speed
- Total Throughput
- Speed Variation
- Level of Service
- Volume
- Saturation Flow Rate

Other measures of effectiveness were measured in terms different from the above, but were also considered in the development of conclusions. These measures include:

- Implementation time to construct
- Required manpower and equipment
- Safety risks
- Implementation time to de-construct back to normal operations
- Number of personnel required

The data for the MOEs described above were from a combination of interviews and the review of state/county administrative procedures. These aforementioned MOEs have been grouped together to create a matrix of alternatives. A sample matrix comparing the MOEs is provided in Table 7.

The matrix is summarized between the six different performance measures. The improved capacity is measured on a basis of volume, most typically in terms of vehicles per hour. The alternative, which accommodates the most vehicles per hour, received the highest score. Required Infrastructure consists of items such as cones, barriers, signage, safety enhancements, etc. that are required to modify the travel lanes into a contraflow format. The alternative which requires the least amount of additional infrastructure was rated the highest score. Required personnel are a measurement needed to monitor and manage each contraflow alternative. This column is also measured in terms of the number of different public agencies requiring activation and how many non-local personnel require activation. The alternative which requires the fewest number of personnel and least number of public agencies requiring activation will receive the best score.

Speed variation is considered to be an indicator of safety and is measured in terms of speeds (miles per hour) which deviate from the average speed. The output reports from the Synchro/SimTraffic modeling platform was the basis for evaluation. Each performance measure that was evaluated with Synchro/SimTraffic was completed using methodologies consistent with the most recent edition of the Highway Capacity Manual (HCM). The alternative with the most consistent speed received the best score.

Logistics was predominantly measured from conducting interviews during the study. The alternative with the most simplistic logistics received the best score. Factors such as accessibility, emergency vehicles, etc. are considered into the analysis.

61

Each performance measure, or criterion, was scaled. This method allows an alternative to be scored accordingly by how dominant, or inferior, it compared to the other alternatives for each performance measure.

Initially, each performance measure had equal weight. This assumes that each performance measure has a uniform importance. The conclusions were identified based upon this assumption. However, an alternate approach was also undertaken where different performance measures were assigned different weights. This approach is addressed under a separate chapter later in the report.

				-	
Contraflow Alternative	A – Normal Operation	B – Normal Outbound +1 Contraflow	C1 – Normal Outbound +1 Shoulder +1 Contraflow	C2 – Normal Outbound +2 Contraflow	D – Normal Outbound +Complete Contraflow
Improved Capacity					
Required Infrastructure					
Required Personnel					
Speed Variation					
Logistics					
Delay/Congestion					
Average Score					

Table 7 Matrix Format Summary

Each considered factor identified for each column has been presented in various charts and graphics to compare the analysis for each alternative. Each column has then been comparatively summarized. The result of each alternative is summarized in the matrix format to determine the most appropriate form of contraflow for hurricane evacuation. The contraflow design alternative with the highest average scoring between the columns will be considered as the best alternative. Suggested modifications (if any) to the implementation procedures were developed to help improve the ability of contraflow lanes to serve as an effective hurricane evacuation strategy. This research also facilitates the development of preliminary design guidelines for contraflow lanes within the state of Florida.

DATA ASSUMPTIONS

The calculated 2006 and projected 2011 clearance times from the TBRPC Hurricane Evacuation Study are based on the current and projected evacuation roadway network, storm intensity, evacuation population, and the behavioral response rate, which were adopted into the contraflow analysis. Other data assumptions more pertinent to the effectiveness of contraflow evacuation are described below:

- Driver behavior and evacuee assumptions
- Roadway characteristic assumptions
- Traffic Volume Assumptions

Sources of Data

This dissertation collected data from several different sources. The data were collected from local, state, national, and international resources. The Florida DOT, Tampa Bay Regional Planning Council, Literature Sources, and Emergency Operation Centers represented the four primary sources of data. Each of the four sources provided different types of data, as described below:

Table 8 Sources of Data

•	 Florida Department of Transportation Contraflow designs and logistics Level of Service methodologies Tampa Bay Regional Planning Council Hurricane Evacuation Studies
	 Development of traffic volumes Behavioral Survey
•	Literature Reviews • Contraflow alternatives • Examples from other states State and Local Emergency Operation Centers • Evacuation procedures • Contraflow determination

Driver Behavior and Evacuee Assumptions

The clearance time is considered as the necessary time to clear the roadways of all evacuating vehicles from the region during an approaching hurricane. The clearance time should not be confused for the time required for one vehicle to evacuate. The time begins when the first vehicle begins evacuation and ends when the last evacuating vehicle arrives at a predetermined point of safety. The 2006 HES assumes the point of safety at I-75 and Florida's Turnpike interchange near Wildwood, Florida for northbound evacuees. Orlando is determined as the eastbound point of safety. No safety location was assumed for vehicles evacuating to the south.

The Tampa Bay HES evaluates several different scenarios. For the purposes of this study, the scenario which includes a full scale evacuation associated with an oncoming Category 5 storm was

used. Standard assumptions, such as typical seasonal populations, auto ownership, trailers, and heavy vehicle percentages were used.

Traffic volumes and the distribution patterns of evacuees were adopted from the existing Florida Standard Urban Transportation Modeling Structure (FSUTMS) and Cube/Voyager protocol travel demand modeling software that is used for the Tampa Bay HES. Adopted socioeconomic data and land use intensities for the traffic analysis zones from the HES were used. Therefore, the travel demand modeling structure was adopted and applied for the following parameters:

- Anticipated traffic volumes on the evacuation routes
- Anticipated clearance times

A time distribution for evacuation was not assumed, such as hours of the day and days of the weeks. These assumptions, and other assumptions that would affect the travel demand for the highway, would be the largest source of uncertainties. Rather, the analysis is based upon a supply-side evaluation of available capacity. This provides a more straight forward ability to evaluate the different alternatives and minimize the influence of demand uncertainties.

Previous HES documentation assumed 100% evacuation for locations within the SLOSH storm surge area. All mobile homes in both coastal and inland zones are assumed to evacuate. However, most people know their intentions of evacuation and their intended refuge. 70-80% of vehicle usage was assumed for household, depending upon specific risk area. 55% of evacuees plan to go to homes of friends and relatives. Recent behavior surveys document a greater tendency of "local" evacuations, or evacuations of shorter distances. The behavioral assumptions and the precise parameters used for each county and zone for the selected hurricane scenario was referenced from Appendix C of the 2006 Tampa Bay HES Transportation Model Support Document.

The use of clearance time is mostly used for determining the requirements and logistics of public shelters. The clearance times from the HES is not referenced by the FDOT in preparing hurricane evacuation contraflow logistical planning and setup (Hibbard, 2006). However, the information does provide helpful insight into the travel demand characteristics and driver behavior during an evacuation.

Roadway Characteristic Assumptions

Law enforcement personnel were assumed to assist at bottleneck locations. The evacuation network includes facilities with sufficient elevations, minimal tree coverage, sufficient shoulder widths, and roads along existing hurricane evacuation plans. A link-node system was developed where links are the roadway segments and a node was identified at a location where two roadways change in characteristics. Directional traffic service volumes of a Level of Service E were established for each link. This was the volume used to compare each of the contraflow alternatives. The LOS E peak hour, peak direction volume for an urban, six-lane divided freeway is 6,150 vehicles per hour.

LOS E conditions are rarely reached during evacuations. Actual flow rates are typically lower. However, there can be temporary variations of traffic volumes from demand variations. To ensure a

67

more straight forward evaluation of the alternatives to minimize the impact of demand fluctuation, a supply-side evaluation of the available capacity was undertaken.

Other important roadway network assumptions include:

- All vehicles will evacuate prior to sustained tropical force winds (39 mph).
- Traffic signal timings will be actuated to provide the most green time for northbound and eastbound movements away from the coast.
- Vehicles in distress on the network will be removed quickly through aggressive traveler incident management.
- Drawbridges will be locked down at least 12 hours prior to the arrival of hazardous conditions by the U.S. Coast Guard.

It has been observed that during an evacuation, the rate of traffic volume growth observes a relatively minor peak. For example, the K factor observed during the peak hour of a 24 hour evacuation period may be 0.05-0.07. The typical K factor for the afternoon peak hour is approximately 0.09-0.10. The reason for this situation is because of an evacuation period being anywhere between one to two-and-one-half days, depending upon the characteristics of the hurricane.

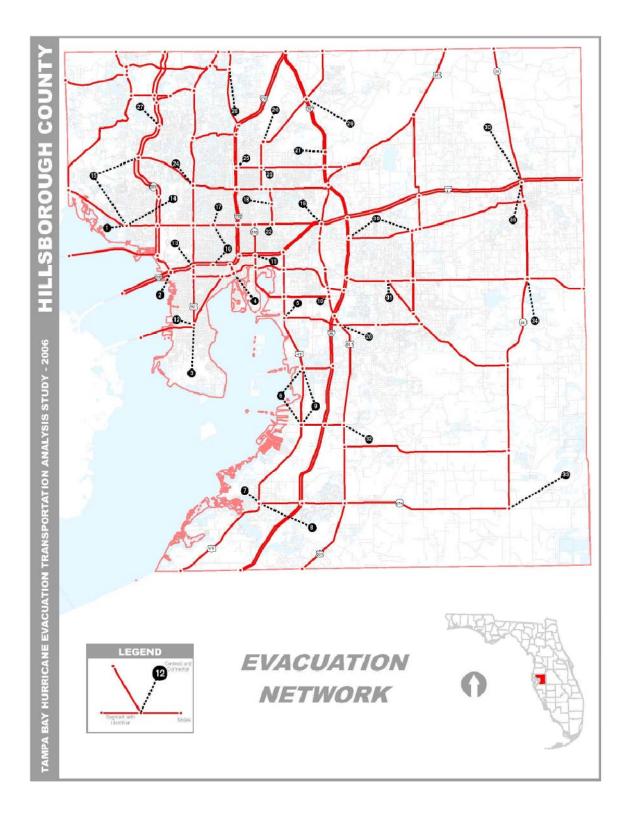


Figure 14 Evacuation Network

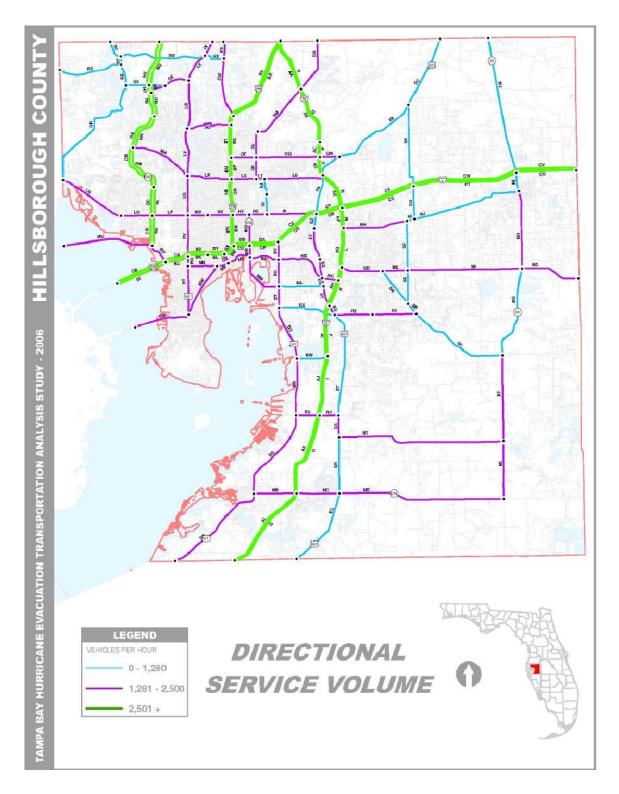


Figure 15 Directional Service Volume

Within the regional area, the majority of the critical locations are located in Tampa. Two of the six most congested locations expected during an evacuation are located along I-4. The most Critical Roadway Sections/Interchanges in Hillsborough County were previously identified to be:

- I-275/1-75 interchange
- I-275/I-4 interchange
- I-275 northbound on ramps
- I-4 eastbound on ramps
- SR580/Veterans Expressway interchange
- Gandy Boulevard Crosstown Expressway Interchange

Interstate-4 has been considered to be the most likely candidate for contraflow. The adopted I-4 contraflow design plans identified a typical cross section changeover. Recently, I-4 was widened as a typical six-lane rural cross section between Tampa and Orlando. The primary crossover location is planned at the major interchanges, such as I-4 & I-75. Also, the recent effort to install median guardrails along Florida interstates has impeded the ability for the contraflow design and implementation plans. The six-lane widening of I-4 was not designed to accommodate shoulder riding. (Anderson, 2007) Previous contraflow design plans from when I-4 was still a four lane cross-section is provided below (Yik Lim, 2003).

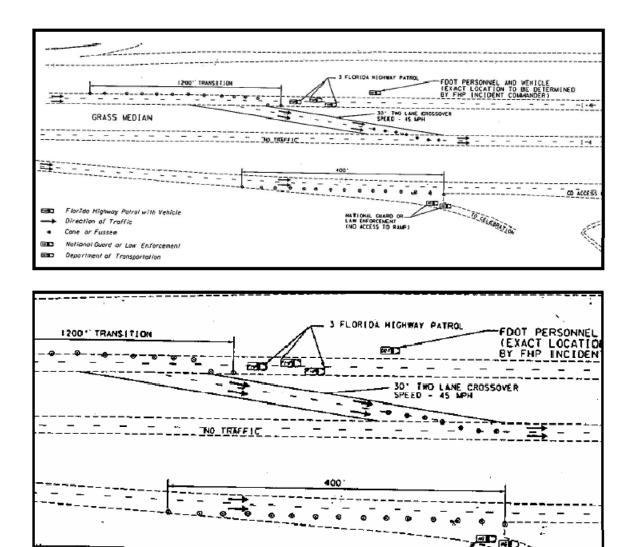


Figure 16 Previous I-4 Contraflow Design Plans at SR 417

Traffic Volume Assumptions

This research has been completed with two basic assumptions regarding traffic volumes. The previous subsection describes how the traffic volumes were adopted from a Generalized PM Peak Hour Level of Service "E" service volume for the basic three lanes in the outbound direction.

Therefore, the measures of effectiveness were evaluated from an adopted traffic volume and corresponding saturation flow rate of vehicles for each evaluated contraflow alternative. For example, consistent volumes were assumed for both non-contraflow and contraflow conditions. The same volumes were assumed for each contraflow alternative, so that the different MOEs, like average travel speed, could be evaluated under a constant baseline comparison. Then the simulation of traffic operations was run using *Synchro/SimTraffic*, version 7.

The second part of the capacity analysis was evaluated differently, in which each contraflow was evaluated to identify the maximum volumes that could be serviced. Therefore, MOE for this scenario changed so that the service volume was used to comparatively evaluate each alternative.

The capacity analysis using Synchro/SimTraffic, version 7 was completed using methodologies consistent with the most recent edition of the Highway Capacity Manual (HCM). A lane utilization factor of 1.0 was assumed when the volume/capacity (v/c) ratio for each lane group approached 1.0.

The traffic volume assumptions were most influential for the *Improved Capacity* and the *Delay/Congestion* performance measures. Other influencing factors are discussed in the following chapter.

73

RESULTS

As previously discussed in the research methodology, the evaluation of the different contraflow alternatives was determined upon the usage of six different performance measures. Each contraflow alternative is comparatively scored for each performance measure, and each performance measure has initially been provided an equal scale. The lowest scored alternative is considered to be the best and most feasible alternative for implementation. The six performance measures are as follows:

- Improved Capacity
- Required Infrastructure
- Required Personnel
- Speed Variation
- Logistics
- Delay/Congestion

Improved Capacity

Improved Capacity is a performance measure based upon the available vehicle throughput. Each contraflow alternative was evaluated on how much more capacity was created. As earlier described, the analysis evaluated improved capacity for two separate measurements:

- Evaluating average speed for each alternative assuming a standardized service volume
- Evaluating available capacity for each alternative assuming a standardized speed

For the first part of the capacity performance measure the LOS E service volume capacity was used to compare the average travel speeds. The 2002 Florida Quality/Level of Service Manual published by the Florida DOT was referenced to identify a generalized LOS E service volume. For a six-lane urban freeway, the peak-hour, peak-direction LOS E service volume is 6,150 vehicles per hour.

Therefore, each contraflow alternative for this first series of evaluation was held to a constant total hourly volume of 6,150. The ideal saturation flow per lane was then identified for the regular outbound lanes. For Alternative C1, which uses the shoulder lane for outbound direction, the ideal saturation flow per lane was reduced to reflect a reduced lane width of 10 feet, and other friction factors of road debris, different pavement type, and rumble strips located along the shoulder lane.

The ideal saturation flow per lane for the contraflow lanes was also referenced from the 2002 Florida DOT Q/LOS Manual. However, traffic service volumes for an uninterrupted, undivided highway were assumed for the alternatives which experienced opposing traffic, such as for

Alternatives B, C1, and C2. A five percent capacity reduction was applied to account for the lack of a median within the contraflow lanes (to reflect the influence of oncoming traffic).

A constant opposing volume of 400 vehicles per hour was assumed for the inbound direction during the evacuation. This volume was assumed for each alternative, except for Alternative D, which consists of complete reversal. Therefore, the assumed 400 vehicles would need to access other local, parallel facilities for Alternative D.

The total saturation flow was derived by adding the traffic volumes from the regular lanes together with the volumes from the contraflow lanes. The average speed from the total saturation flow was then evaluated and reported from Sychro/SimTraffic. The average speed was a weighted average between the regular outbound lanes and the contraflow lanes.

The capacity analysis was also based upon referencing several different empirical formulas from the most recently published edition of the *Highway Capacity Manual* (HCM), version 2000. Specifically, the referenced chapters and formulas for this analysis were derived from Chapter 22 – Freeway Facilities, Chapter 23 – Basic Freeway Segments, and Time-Space domains.

The flow rate of a basic freeway segment was referenced toward evaluating the improved capacity and the delay/congestion performance measures. The Highway Capacity Manual was referenced toward determining the flow rate. The flow rate was based upon the formula, in which:

$$v(p) = V / (PHF * N * f(hv) * f(p))$$

Where:

v(p) = 15-min passenger car equivalent flow rate (passenger cars/hour/lane)

V = hourly volume

PHF = peak-hour factor

N = number of lanes

f(hv) = heavy vehicle adjustment factor

f(p) = driver population factor

For the purpose of hurricane evacuation, the contraflow alternative which creates a greater average speed and the greatest flow rate is considered to be more effective for quickly evacuating the general public.

It should be noted that the Florida DOT has operational policies about contraflow (when and if it were to be enacted). For example, trucks are unable to travel on shoulder lanes, as provided on Alternative C1. Also, trucks are not permitted to use the contraflow lanes in Florida (Anderson, 2007). Typically, trucks reduce the number of vehicles able to travel on the roadway because they require more space, starting distance, and stopping distance. These policies were incorporated into the analysis for evaluating the improved capacity performance measure.

Alternative C1 identifies the use of the shoulder lane for outbound travel. However, this additional capacity is minimal when compared to the additional capacity achieved from Alternative C2 (when Alternative C2 is compared to Alternative C1).

However, when the average speed is lowered to obtain a greater throughput, a cross-sectional capacity analysis demonstrates that the contraflow lanes may obtain equal throughput as the regular outbound lanes.

In summary, Alternative D demonstrated the greatest average speed for the first part of the capacity analysis and did demonstrate the greatest throughput for the second part of the analysis. Alternative D experienced an average speed of 61 mph for the equal volume conditions.

Alternatively, Alternative A experienced the lowest average speed of 35 mph for the equal volume conditions. Each of the other three alternatives experienced an average speed range between 43-57 mph. Tables and graphs summarizing the capacity analysis results are provided below. Detailed report printout reports are provided in Appendix A.

	I		Average 3	pecu o				volume			
		Outbound Direction Volume = 6,150 vehicles per hour									i
Alternative		Norma	al Outbound	Lanes			Cor	ntraflow Lane	es		Weighted
	Lanes	Volume	Ideal Sat. Flow Rate per Lane	Total Sat. Flow	Avg Speed	Lanes	Volume	Ideal Sat. Flow Rate per Lane	Total Sat. Flow	Avg Speed	Average Speed
А	3	6,150	2,091	6,150	35		0		0		35
В	3	5,077	2,091	6,150	40	1	1,073	1,300	1,300	59	43
C1	3+1	5,181	1,773	6,950	51	1	969	1,300	1,300	61	53
C2	3	3,925	2,091	6,150	56	2	2,225	1,744	3,487	58	57
D	3	3,075	2,091	6,150	61	3	3,075	2,050	6,150	61	61

 Table 9

 Average Speed Comparison with Constant Volume

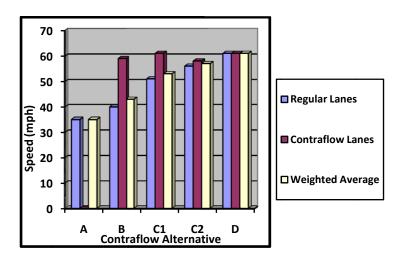


Figure 17 Contraflow Average Speed Comparisons Using LOS E Service Volumes

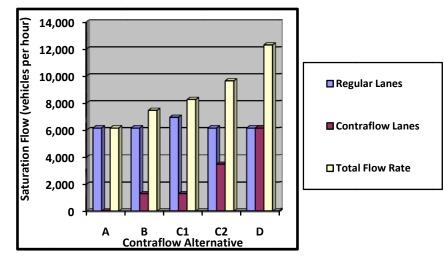


Figure 18 Total Saturation Flow vs. Contraflow Alternative for LOS E Service Volume

The second method of the improved capacity performance measure was based upon identifying which alternative could produce the greatest throughput of vehicles, or the greatest volume during a hurricane evacuation. This evaluation would identify the greatest density prior to creating excessive congestion where vehicle speeds would be slow. Therefore, the average speed was assumed at approximately 30 mph to evaluate the maximum throughput for each alternative during an evacuation.

In summary, Alternative D demonstrated the greatest average speed for the first part of the capacity analysis and did demonstrate the greatest throughput for the second part of the analysis. Alternative D experienced the greatest throughput of 10,442 vehicles per hour.

Alternatively, Alternative A experienced the throughput at 5,208 vehicles per hour (vph). Each of the other three alternatives experienced a total throughput between the range of 7,083 and 8,846 vph. Tables and graphs summarizing the capacity analysis results are provided below. Detailed report printout reports are provided in Appendix B.

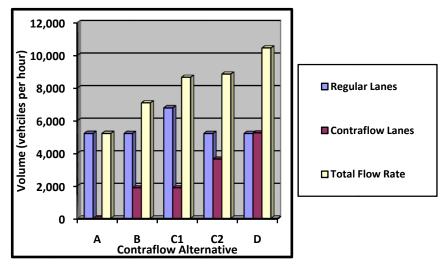
	Eastbound Volume per Hour							
		Ave	erage Spee	ed 30 mph				
Alternative	TICC	Flow Dutbound)	Contr	aflow	Total Volume			
	Lanes	Volume	Lanes	Volume				
А	3	5,208		0	5,208			
В	3	5,208	1	1,875	7,083			
C1	3+1	6,775	1	1,875	8,650			
C2	3	5,208	2	3,638	8,846			
D	3	5,208	3	5,233	10,442			

Table 10 Total Throughput Comparison by Alternative

Several iterations were completed for each simulation alternative. Three or four iterations of similar, but varying, volumes were run to identify the total average throughput and the average running speed for each alternative. The average speed between the different iterations was resulted at a constant speed of approximately 30 mph. Provided below is a summary table of the Synchro/SimTraffic simulation modeling results. Also, provided is a graphical summary of the total throughput comparison summary for each contraflow alternative for a constant speed of 30 mph.

Iteration	Freeflow Eastbound (Saturation Flow Per Lane - 2500)					Iteration	(Saturatio	Contraflow Eastbound on Flow Per Lan	e – 2500)	
	To Park H	Road Ramp	Average			Fre	e Flow	Average		
	Lanes	Volume	Speed			Lanes	Volume	Speed		
1	3	5,300	23		1	1	1,800	37		
2	3	5,200	31		2	1	1,900	25		
3	3	5,250	25	5208	3	1	1,850	35	1875	
				-	, h				t	
					1	2	3,700	27		
				-	2	2	3,600	33		
		Freeflow			3	2	3,650	29	3638	
		Eastbound		1						
Iteration	(Saturatio	n Flow Per Lan	e = 2200)		1	3	5,300	26		
	To Park H	Road Ramp	Average]	2	3	5,200	32		
	Lanes	Volume	Speed	J	3	3	5,250	29	5233	
1	3+shoulder	7,000	26							
2	3+shoulder	6,500	35							
3	3+shoulder	6,800	29							
4	3+shoulder	6,750	31	8775						
				_						

Table 11 Simulation Modeling Results for Analyzing Total Throughput



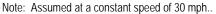


Figure 19 Total Throughput vs. Contraflow Alternative

Provided below is a summary of the scorings for each measurement of improved capacity:

	Alternative A	Alternative B	Alternative C1	Alternative C2	Alternative D
Average Speed with Constant Volume	5	3.5	1.5	0.8	0
Total Saturation Flow Rate	5	4.0	3.2	2.2	0
Total Throughput	5	3.2	1.8	1.6	0
Average Scaled Score (0-5)	5	3.6	2.2	1.5	0

Table 12Cumulative Evaluation of Improved Capacity

In summary, Alternative D, which utilizes the full contraflow operation of the inbound lanes, was identified as the best alternative for the improved capacity performance measure.

Score	Alternative
1	D
2	C2
3	C1
4	В
5	А

Table 13 Improved Capacity Performance Measure Summary

Required Infrastructure

This required infrastructure performance measure is based upon materials and infrastructure needed to implement a contraflow operation during hurricane evacuation. The primary type of additional infrastructure is the orange cones needed to delineate traffic from their desired lanes and routes. Other infrastructure includes gates and signage. The most effective contraflow alternative for this performance measure requires the least amount of additional infrastructure.

The more infrastructure that was required, the more increase there would be in the amount of time and human resources needed for activation. In addition the more infrastructure required, the more it would add to the complexity of implementation, and to the likelihood of something going wrong that could jeopardize an effective evacuation.

It was determined that Alternative D would require approximately 3,000 orange cones to implement contraflow for a distance of 63 miles. (Anderson, 2007) The number of cones required for

Alternatives B and C would be much greater because of the need to separate outbound traffic from any inbound traffic for the same 63 miles. Also, the maintenance of extra cones for Alternatives B and C would be very high because of travelers driving over and knocking over the cones.

The recent reconstruction of I-4 to six-lanes of general traffic was recently completed; however, the reconstruction does not permit shoulder riding across bridges. (Anderson, 2007) Therefore, Alternative C1 would be difficult, if not impossible to realistically implement. Thus, the required infrastructure to operate Alternative C1 would require the reconstruction of the bridge spans, which would be an extremely costly measure. This eliminates the feasibility of Alternative C1 for the purposes of this research.

However, for the purpose of this research study, Alternative C1 was evaluated. For Alternatives B, C1, and C2 cones were assumed to be placed approximately every 50 feet.

Other equipment may consist of typical costs that are part of an existing infrastructure, such as electronic signage, while other costs are representative only for contraflow, such as gates to control accessibility between inbound lanes and outbound lanes. Resources necessary to implement contraflow may include the following:

- Manual gates to provide traffic control at interchange ramps and other entry points
- Variable Message Signs (VMS)
- Highway Advisory Radio (HAR)
- Fold-down signs
- Dedicated media outlets
- Typical media outlets
- Automated Gates

The availability of resources and equipment is difficult to measure and rely upon during the times of an oncoming hurricane. (Hibbard, 2006) Each storm has its own unique characteristics, and the manner in which the general public reacts to a storm can be unique for each hurricane. For example, the news media may cover a hurricane evacuation in more detail for the first storm of the season, rather than the tenth storm of the season.

More simplistic methods of contraflow are good for dependability and quick implementation. Easy and cost effective strategies are preferred. A summary of the cost considerations is provided below:

Equipment Co	ost Comparison
Equipment	Comparative Cost
Manual Gates	\$
Variable Message Signs (VMS)	\$ (Able to use for other purposes)
Highway Advisory Radio (HAR)	\$ (Able to use for other purposes)
Fold Down Signs	\$
Dedicated Media Outlets	\$\$
Typical Media Outlets	\$
Automated Gates	\$\$\$

Table 14 Equipment Cost Comparison

Note: The number of \$-symbols indicates relative cost. More \$ indicates more cost.

It is anticipated that different contraflow alternatives require different amounts of necessary equipment that would be required to notify the general public and to direct traffic. Alternative A would require little or no additional equipment to operate under regular operations. After Alternative A, Alternative D is considered to require the least amount of equipment for operation. This is because the reversal of all inbound lanes to operate as outbound lanes is a more straight forward operation than Alternatives B and C. More notification and equipment would be required to effectively separate the direction of the inbound lanes.

Table 15Required Number of Orange Cones for Operation

	Alternative A	Alternative B	Alternative C1	Alternative C2	Alternative D
Number of Cones	0	9,650	>10,000	9,650	3,000
Scaled Score (0-5)	0	4.8	5	4.8	1.5

 Table 16

 Alternative Comparison of Required Equipment

	Alternative	Alternative	Alternative	Alternative	Alternative
	А	В	C1	C2	D
Equipment Score	1.0	3.0	3.0	3.0	2.0

Georgia uses an automated system for gates, which is very expensive. This cost would be several times greater in Florida considering the length of contraflow is 63 miles for I-4 while distances on other evacuation routes are even longer.

A summary of required infrastructure performance measure is provided below. The scorings are compiled between the required number of orange cones and the required equipment.

	Alternative A	Alternative B	Alternative C1	Alternative C2	Alternative D			
Cones	0	4.8	5.0	4.8	1.5			
Other Equipment	1.0	3.0	3.0	3.0	2.0			
Scaled Score (0-5)	0.5	3.9	4.0	3.9	1.75			

 Table 17

 Summary of Required Infrastructure Performance Measure

Required Personnel

Similar to the previous required infrastructure, this performance measure of required personnel is based upon the number of safety and law enforcement personnel to effectively implement the contraflow operation. The fewer number of personnel required for contraflow operation, the more favorably it is scored.

During the time of a hurricane evacuation, government resources are strained to ensure the public welfare and public safety. Local Emergency Operation Centers (EOCs) are running on full

activation to coordinate evacuation procedures between the different governmental agencies and media reports. Roadway emergency crews are on full alert to ensure the roadways are operating safely, free from debris, stalled vehicles, etc.

The primary personnel to operate a safe and efficient contraflow operation are law enforcement and FDOT personnel. Law enforcement personnel help regulate the direction of traffic and monitor key intersections and key interchanges operating through contraflow. FDOT personnel monitor traffic operations through Closed Circuit Television (CCTV) and continuous traffic count stations.

Interstate-4 contraflow was most recently designed in June, 2006. Contraflow design plans have been updated for the six-laning capacity improvement. The design plans are considered to be classified documents for security/terrorist reasons. Therefore, the researcher is not able to incorporate the design plans into the report; however, contraflow design plans are updated every year. New plans are incorporating gate locations and flip sign locations. (Anderson, 2007)

The Florida evacuations for the hurricanes in 2004 and 2005 worked successfully without contraflow lanes. It should be noted that those hurricanes experienced limited evacuation, and are not a fair example of how to demonstrate the need for contraflow. Contraflow is considered as the last alternative only when regular operations are insufficient as individual drivers will become more aware of other major available routes besides the interstate. Interstate-4 was designed for 63 miles of contraflow. *This design of 1-4 contraflow requires more monitoring personnel than any other contraflow plan in the state of Florida*. (Hibbard, 2006) This requirement may be because of I-4 contraflow route.

The current I-4 contraflow design plan (Alternative D) requires the activation of 105 FDOT personnel. Road rangers are provided on every evacuation route to assist, not just on the interstate. Approximately 89 repairmen, 109 trucks, and 53 vans are required to ensure timely arrivals, timely repairs to stalled vehicles, and necessary towing if the stalled vehicle cannot be fixed. (Anderson, 2007)

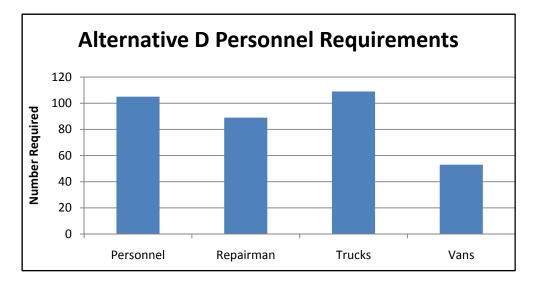


Figure 20 Alternative D Personnel Requirements

Because of the fact that Alternative A operates under regular conditions, it is anticipated that no additional personnel are required for operation. Therefore, since Alternative A does not require any additional personnel, it received the best score for this performance measure. Additional personnel to monitor an evacuation are expected when the evacuation order is given; however, they are not required since the amount of capacity is the same as it is for normal operations.

As previously stated, Alternatives B and C require more infrastructure, mostly because of the additional cones. Additional cones require additional manpower for installation and then, subsequently, require more personnel to maintain the cones. Mainline conditions need to be monitored for delineation so that vehicles do not accidentally wander into oncoming traffic. During an evacuation, it can be expected that several vehicles will accidentally drive over the cones requiring additional personnel to replace the cones.

It can be expected that Alternative C1 requires the most number of personnel because of using the shoulder lane for additional capacity. The ability to maintain a free flow operation of the shoulder lane (instead of being used for stalled vehicles) is essential. A stalled vehicle stored on the shoulder lane would eliminate the additional capacity and actually create an upstream bottleneck due to vehicles attempting to merge over. Therefore, additional personnel would be required to quickly remove the stalled vehicles, in addition to those personnel required to monitor the utilization of cones on the contraflow lane.

Alternatives B and C2 require the same amount of additional personnel. That is because the same number of cones would be utilized to create one contraflow lane as would be necessary to create two contraflow lanes.

	Alternative A	Alternative B	Alternative C1	Alternative C2	Alternative D
Scaled Score (0-5)	0.0	3.5	4.0	3.5	2.5

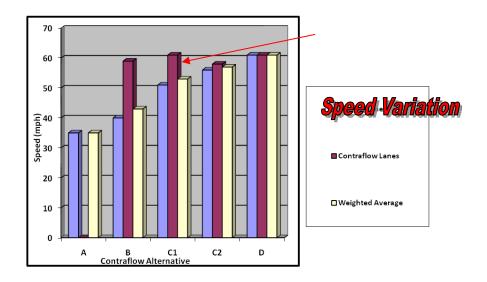
Table 18Summary of Required Personnel Performance Measure

Speed variation is considered a performance measure primarily because of safety issues. The more variation in speed during an evacuation the more likelihood there is of a safety risk, mostly because of side swiping and/or rear end collisions. The concern is magnified during an evacuation because the roadway is operating at capacity. When a crash occurs, the resulting congestion delay has much greater significance during a time when throughput is most important.

Therefore, this performance measure is rewarded by the consistency or the lack of speed variation. Synchro/SimTraffic was used to evaluate the speed variation. The difference of speed between the contraflow lanes and the regular outbound lanes was considered.

Drivers may become distracted when they see other vehicles on the other lane group traveling the same direction at a different speed. This may especially be distracting for drivers that see the other lane group traveling faster and wanting to find ways to travel faster themselves.

Anxiety is elevated for drivers during an evacuation because of the need to travel long distances and the need to arrive at the secure destination prior to the hurricane making landfall. Noticing a different lane group moving faster during congestion may add to drivers' anxiety in the slower lane group and ultimately increase the frequency of risk maneuvers by drivers desiring to speed ahead. Risks, such as traveling on emergency lanes, shoulders, and in opposite travel lanes were documented during the Hurricane Rita evacuation. This increase in risk maneuvers and speed variation eventually leads to additional safety risks.



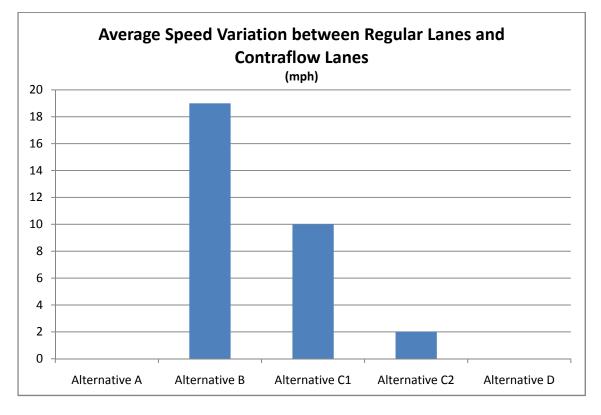


Figure 21 Average Speed Variation Between Regular Lanes and Contraflow Lanes

	Alternative A	Alternative B	Alternative C1	Alternative C2	Alternative D
Scaled Score (0-5)	0.0	5.0	2.6	0.5	0.0

 Table 19

 Summary of Speed Variation Performance Measure

The speed variation was measured upon using a consistent of LOS E generalized service volume of 6,150 vehicles per hour. It was identified that the contraflow lanes generally travelled at a faster speed than the regular lanes. This is because fewer vehicles are anticipated to travel on the contraflow lanes. The only alternative where the contraflow lanes traveled slower than the regular lanes was Alternative D.

Additionally, the speed variation was evaluated for each lane group. However, only the outbound evacuation direction was evaluated for speed variation (not the inbound direction). It was identified that Alternative C1 contained the greatest speed variation. This is mostly because of C1 utilizing the shoulder lanes. This is because the shoulder lanes are expected to travel slower than other mainline outbound lanes as the shoulder lane will create a side friction factor causing reduced speeds.

This is primarily because of the shoulder lanes are designed to be 10 feet wide, as opposed to the regular travel lanes having a width of 12 feet. Also, the shoulder lanes have inferior pavement and

debris, which can disrupt free flow speed. Shoulder lanes typically also have rumble strips, which can disrupt drivers by the induced noise and, as a result, create a safety concern.

Drivers unfamiliar with driving in the opposite direction may lead to greater speed variation. Different drivers may travel slower on the contraflow lanes. The corresponding free flow speed on the contraflow lanes would witness more variation depending on driver roadway and driver characteristics. Drivers in the contraflow lanes are likely traveling under those conditions for the first time. They would experience typical signage in the opposite direction, a reverse median, and interchange lane assignments in the opposite direction. If cones are knocked over during the evacuation (such as Alternative B, C1, and C2), this situation would result in greater speed variation, adding to a greater safety concern.

Speed variation is one of the major contributing factors to crashes on grade separated highways. Previous research has demonstrated that crash frequency significantly increases when drivers are unsure of the safe driving speed for different driving conditions. (Collins, 2000)

Logistics

The logistics performance measure is determined by how much required set up time and the set of circumstances there is to potentially implement contraflow. Also, the logistics performance measure incorporates the amount of effort required to convert the contraflow lanes back to regular operation. This performance measure is different than the other performance measures because it measures the effort required establishing each alternative, as opposed to the other performance measures

which only evaluate the benefit of each alternative upon set up. The amount of cooperation and time for set up is a key component of this performance measurement.

When this dissertation began, the deployment of the National Guard was part of the evacuation policy to establish and manage contraflow operation. The National Guard would require approximately 96-104 hours to fully deploy at the contraflow route, specifically I-4. This time sequence of three to four days would have been prohibitive during an oncoming hurricane. The purpose for deploying the National Guard would be primarily to manage traffic control at crossing locations and interchanges and to securely monitor evacuation.

By the time the National Guard would have been fully deployed, the ability to effectively evacuate the general population would have passed. During the time period while this dissertation was performed, the policy to deploy the National Guard was removed. Their responsibility was delegated to local and state law enforcement, and FDOT personnel, who could effectively deploy on scene much quickly and efficiently.

The updated hurricane evacuation plan now identifies a full contraflow (Alternative D) in much less time without the National Guard. Alternative D is currently identified for a six (6) hour set up before contraflow operations and a four (4) hour breakdown after contraflow operations. A handout describing how Alternative D may operate is provided below.

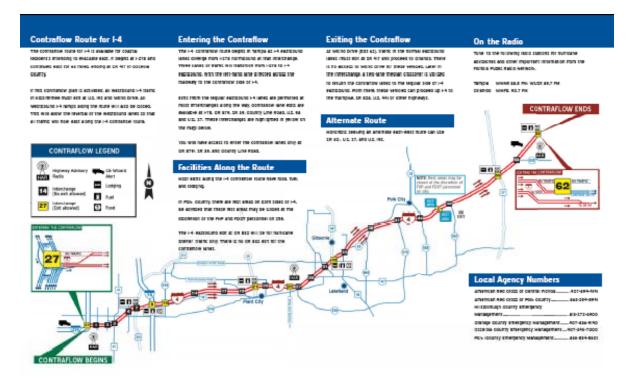


Figure 22 FDOT Contraflow Logistical Handout

Since Alternative A operates under regular operations, Alternative A would require less logistical coordination than the other alternatives during an evacuation. For this performance measure, Alternative A is logically considered the best Alternative for the easiest logistical operations.

An evaluation was undertaken to consider the time line of events and circumstances likely required to determine the need for contraflow operation, implement contraflow, and to resume back to normal operations. The process begins with the developing hurricane in the open sea. The storm event is then forecasted upon a projected route with an anticipated landfall location. When a storm event transforms from a tropical storm to a hurricane the local Emergency Operation Center (EOC) becomes activated for the counties affected near the projected landfall location. (Anderson, 2007) The following graphic summarizes the process of events to implement contraflow.

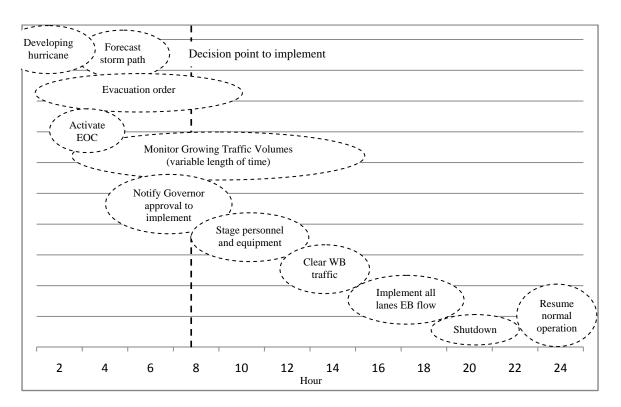


Figure 23 Conceptual Time Line of Events to Implement Contraflow

The next step in the process is the evacuation order, followed by the monitoring of traffic volumes on the evacuation route (which in this dissertation is I-4 in Central Florida). Permanent traffic counters installed into the highway pavement and CCTV provide continuous traffic count data and visual for monitoring congestion levels. One of the special considerations with contraflow is determining what level of congestion is required to warrant contraflow, and when the decision should be made. As approximately six hours is needed to implement contraflow, that means whenever the decision is made to implement contraflow, congestion is likely to keep building for the six hours until contraflow becomes operational. Therefore, the ability to anticipate the need for contraflow six hours before it is needed may greatly alleviate congestion during an evacuation. This aspect alone may justify a topic of future study.

When traffic volumes exceed acceptable congestion, the order to implement is then given from the Governor's office following a local request. The process to stage the personnel and equipment, and then to clear the westbound (inbound) traffic, is undertaken to implement contraflow for all outbound lanes. The contraflow is activated for the necessary period of time until the evacuees are served and traffic volumes decline. Then, following the evacuation, the next step in the process is to shutdown the operation and then resume back to normal operations.

Certain circumstances are anticipated around the hurricane event to potentially warrant contraflow implementation. The first circumstance is that the hurricane would be a Category 4 or 5 storm. As described in previous sections, other states that have hurricane plans have a policy to implement contraflow only for a Category 4 or 5. Although this is not official policy in Florida, it may be assumed during an evacuation.

The next circumstance may be that the hurricane is that the hurricane is traveling quickly toward the coast, perhaps at 25-35 mph. The fast moving hurricane likely results in a evacuation where many evacuees depart in a short amount of time, which would result in many evacuees arriving to travel on the highway in a relatively short amount of time. This circumstance would result in greater congestion, which may warrant contraflow evacuation.

100

Thirdly, prior to contraflow being implemented, a review of the time of day when congestion arrives to warrant contraflow would be undertaken. The state of Georgia and the state of Florida currently have a policy not to operate contraflow during nighttime hours. This is because specific safety concerns arise with contraflow operated in the dark, as discussed in previous sections. If congestion reaches levels to warrant contraflow during evening hours or late in the afternoon, the decision to implement contraflow may still not be made. With six hours needed to implement contraflow, the decision may need to be made in the morning, or the early afternoon hours of the day.

Alternatives with partial contraflow implementation, Alternatives B, C1, and C2 require more logistical coordination. Set up time and cost would be increased for these alternatives that require cones along a typical cross section. For I-4, that typical cross section is a distance of 63 miles. These alternatives also require constant maintenance and monitoring. These considerations make Alternatives B, C1, and C2 less successful for the logistical performance measure.

The amount of time to logistically operate Alternative C1 and C2 is greater than for Alternative A and Alternative D. The number of people needed to deploy is also greater. Approximately nine (9) hours may be needed to deploy Alternative C1 and eight (8) hours to deploy C2. (Engerski, 2007) Alternative C1 may require more time because of the need to ensure that the shoulder lane is cleared for travel.

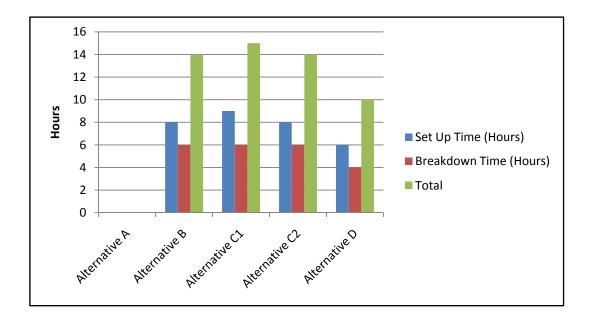


Figure 24 Summary of Set Up and Breakdown Time

The amount of set up and breakdown time is considered one of the most straight forward measurements of logistics. This is because it assumes the coordination of evacuation personnel and logistics needed to prepare for each contraflow alternative. Other logistical considerations, such as operating Highway Advisory Radio (HAR), Variable Message Signs (VMS), road rangers, etc. are expected to be relatively constant among each alternative.

In summary, Alternative A is considered the easiest logistically (primarily because it operates under normal conditions). For the contraflow alternatives, Alternative D is considered to be the most straightforward to implement. Alternatives B, C1, and C2 are considered to be relatively similar.

Table 20Summary of Logistics Performance Measure

	Alternative A	Alternative B	Alternative C1	Alternative C2	Alternative D
Set Up Time	0	8 hours	9 hours	8 hours	6 hours
Break Down Time	0	6 hours	6 hours	6 hours	4 hours
Total	0	14 hours	15 hours	14 hours	10 hours
Scaled Score (0-5)	0.0	4.7	5.0	4.7	3.3

Delay/Congestion

The Delay/Congestion performance measure evaluates the traffic operation effects of the different contraflow alternatives. The delay and congestion are a result of how traffic is able to respond to the roadway capacity. It is measured in terms of seconds (or minutes) of delay between each contraflow alternative.

The Delay/Congestion performance measure has an inverse relationship to the Additional Capacity performance measure. At the onset of evaluation, it was assumed the alternative that resulted with

the most amount of capacity would also result in the least amount of delay/congestion. The alternative with the least amount of delay or congestion is considered to be the best alternative.

Average delay was measured using a total constant volume of 6,150 vehicles per hour on the facility. The delay was measured as a total weighted average of volume between the regular outbound lanes and the contraflow lanes. Table 21 and Figure 24 illustrate the results of the analysis.

		Avera		tbound (Ea Per Vehicle	astbound) with Cons	stant Volu	me
Scenario	Reg	ular Outbo Lanes	und		Contraflow Lanes	7	Weighted
	Lanes	Volume	Delay (s/veh)	Lanes	Volume	Delay (s/veh)	Average Delay (s/veh)
Α	3	6,150	619.8			0.0	619.8
В	3	5,077	121.9	1	1,073	24.4	104.9
C1	3+1	5,181	52.1	1	969	16.5	46.5
C2	3	3,925	34.4	2	2,225	23.9	30.6
D	3	3,075	19.3	3	3,075	19.0	19.2

 Table 21

 Average Delay Comparison with Constant Total Volume

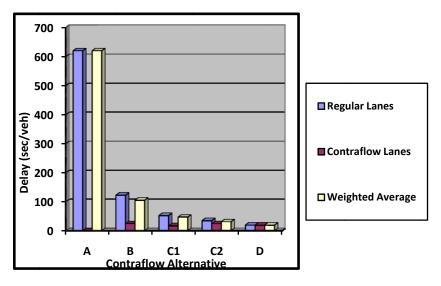


Figure 25 Average Delay Comparison with Constant Total Volume

In summary, Alternative D demonstrated the best results with the lowest amount of average delay per vehicle. Alternative D had an average delay of 19.2 seconds per vehicle from the free flow speed. Each alternative that used contraflow demonstrated significant improvements toward reducing delay. The comparative delay between Alternatives C1, C2, and D were relatively similar.

Alternative A, which operates under regular conditions and does not implement contraflow, demonstrated a significant increase of delay. The average delay per vehicle for Alternative A was 619.8 seconds. Table 22 summarizes the results of the Delay/Congestion performance measure.

1		<u> </u>			
	Alternative A	Alternative B	Alternative C1	Alternative C2	Alternative D
Delay/Congestion (sec/vehicle)	618.9	104.9	46.5	30.6	19.2
Scaled Score (0-5)	5.0	0.9	0.4	0.25	0

 Table 22

 Summary of Delay/Congestion Performance Measure

SUMMARY/CONCLUSIONS

The Florida evacuations for the hurricanes in 2004 and 2005 worked successfully without contraflow lanes. As of 2007, contraflow has never been implemented on a grade separated highway in Florida. Several factors contribute to this. One factor is that Florida's topography is unique with two coastal regions. Also, Florida has generally more than one evacuation route. For example, the Tampa Bay region may use I-75, I-4, or the Suncoast Parkway to evacuate in the north direction.

Contraflow is considered to be an effort of last resort. Currently, real time traffic monitoring has been considered effective via CCTV and via continuous traffic count stations that were used in previous evacuations. Thus far, evacuations from West Central and Southwest Florida have not created enough congestion to necessitate contraflow. There are several reasons for this. For example, it has been reported that fewer people in recent history are evacuating longer distances. Also, it has been reported that people are becoming more knowledgeable of alternate evacuation routes besides the interstate.

Alternative D, which is the alternative that operates with full contraflow implementation, was determined to be most effective. This conclusion was based primarily upon the influence of the improved capacity and the delay/congestion performance measures. If contraflow is to be implemented, Alternative D is considered the best.

Alternative D was scored best, but only by a narrow margin above Alternative A. Alternative A scored the best in the performance measures related to the implementation and safety. The fewest number of resources are required for Alternative A, resources that are strained during the time of an evacuation. The Alternative A scored best in the following performance measures:

- Required personnel
- Required infrastructure
- Speed Variation
- Logistics

Each performance measure was evaluated using a weighted scoring system. The alternative with the lowest score was considered the best alternative. Alternative D was considered the best alternative with an average score of 1.3. In summary, the conclusion can be made that the improved traffic operations of contraflow narrowly provide more benefit than that negative investment required to implement contraflow. Table 23 summarizes the results of each performance measure for each contraflow alternative.

Contraflow Alternative	A – Normal Operation	B – Normal Outbound +1 Contraflow	C1 – Normal Outbound +1 Shoulder +1 Contraflow	C2 – Normal Outbound +2 Contraflow	D – Normal Outbound +Complete Contraflow
Improved Capacity	5.0	3.6	2.2	1.5	0
Required Infrastructure	0.5	3.9	4.0	3.9	1.75
Required Personnel	0	3.5	4.0	3.5	2.5
Speed Variation	0	5.0	2.6	0.5	0
Logistics	0	4.7	5.0	4.7	3.3
Delay/Congestion	5.0	0.9	0.4	0.25	0
Average Score	1.75	3.6	3.0	2.4	1.3

Table 23Summary of Performance Measure Evaluation

Note: Lowest scored alternative is considered the best alternative.

In the event that congestion amounts to a level that unsatisfactorily serves traffic during an evacuation, and contraflow is ultimately required, then it is suggested that Alternative D is implemented. This alternative uses all of the regular inbound lanes during an evacuation as an outbound lane. Alternative D demonstrated to provide the most improved capacity, while also demonstrating to be the most "implementable" contraflow alternative. If contraflow is implemented, this alternative was demonstrated to be the most efficient, requiring the fewest amount of personnel and resources, while also being the most effective. This is primarily because of removing the deployment of the National Guard during evacuation. The removal of this requirement took place

during the same time period that this research was undertaken. Alternative A was scored second behind Alternative D for required infrastructure, required personnel, and logistics. The average scoring of all the performance measures for Alternative A was 1.75.

The contraflow alternative with the worst score was alternative B. The average score for Alternative B was 3.6. This alternative was scored in the bottom half of each performance measure. This occurred because Alternative B demonstrated the greatest speed variation. Much of this poor performance was caused by the amount of additional infrastructure that would need to be installed, and the number of personnel needed to monitor the operation for the lanes to be properly and safely delineated within the normal inbound lane group.

So what suggestions should be made from the results and observations derived from this dissertation? It is suggested to reduce the significant investment that has been made with regard to contraflow. The need to implement contraflow appears unlikely on I-4 when considering the investment required along with the other mentioned disadvantages, and should only be considered as a last resort. However, it is always challenging to predict the future when considering the dynamic socioeconomic and changing infrastructure within Florida. Therefore, it should be stressed that these suggestions are provided for the present existing conditions. More importantly, there are other alternatives for reducing the need of contraflow that should be considered.

One alternative is to increase awareness of other evacuation routes besides the interstate. At times, the other local surface routes, such as U.S. 92 in Hillsborough County, are parallel to the interstate evacuation route. During periods of congestion, these local surface routes may more quickly serve the evacuating public.

Observations and Uncertainties

This dissertation, to evaluate performance measures identified the different aspects that should be considered for contraflow. The performance measures were selected for the purposes of identifying the traffic operational impacts, as well as the personnel, infrastructure, and logistical requirements. It was observed that the traffic operations of capacity, speed variation, and delay/congestion were more easily to quantify. Conversely, it was also learned that the other performance measures represented a greater challenge to comparatively evaluate.

The performance measures of required personnel, infrastructure, and logistical requirements were more challenging to quantify. The ability to compare the value of additional personnel is difficult. How should one perform a benefit/cost analysis of paying law enforcement personnel overtime pay if they are a significant factor towards an effective evacuation? However, the type of measurement undertaken still is reflective of how important these factors are and how they may comparatively differ between alternative contraflow strategies.

One challenge was to determine if certain performance measures were more important than others. This dissertation initially assumed that each performance measure was weighted equally. However, a separate evaluation was undertaken that provides more weight to the traffic operational performance measures, and is discussed in the next section.

111

There are several uncertainties attributed toward evaluating the potential effectiveness. Most of the uncertainties are attributed towards the travel demand and anticipated traffic volumes during an evacuation, such as:

- Size, development, and intensity of hurricane
- Speed and direction of hurricane
- Arrival time of hurricane
 - o Beginning or end of season
 - o Time of day
 - o Day of week
- Percentage of people that evacuate
 - o Shadow evacuations
 - o Amount of manufactured homes
- Distance of evacuation

Because of these uncertainties, it was observed than an evaluation based upon the supply, or capacity, represented a more straightforward approach. This would help determine how many evacuees could be adequately served during an evacuation.

As stated above, the majority of uncertainties for hurricane and evacuation planning is related to the travel demand aspects onto the transportation infrastructure. Each hurricane event is, and will be, unique. Therefore, the greatest uncertainty is the challenge to prepare hurricane evacuation plans that depend upon previous events.

Alternative Method of Weighting Performance Measures

The initial evaluation assumed that each performance measure contained the same amount of influence towards evaluating the overall effectiveness. However, one may successfully debate that the ability to provide enough capacity for evacuees may be of more importance than the investment of additional personnel and temporary infrastructure.

The Delay/Congestion performance measure was developed later during the research process to more effectively account for the importance of providing adequate service. The Improved Capacity performance measure and the Delay/Congestion performance measure are similar in determining effective service with their inverse relationship.

Therefore, an effort was undertaken to consider how each of the different performance measures may be weighted differently. Initially, the ability to weigh the differences may be considered somewhat of a subjective evaluation. However, this effort to weigh the performance measures was a result of several methods of input and research.

Interviews were conducted with Florida DOT staff regarding which performance measures were considered more important. FDOT staff provided impact that it is inherently difficult to measure the cost/benefit difference between the benefit of safely evacuating the general public versus the cost of paying overtime personnel costs (Anderson, 2007). It was inherently determined that improved capacity and the reduction of delay/congestion with contraflow would be at least double the importance of the required infrastructure of orange cones (especially when considering that the

orange cones are not required for Alternative D). More so, the benefit of reduced delay/congestion was considered to be slightly more important than improved capacity. That is because the delay/congestion is a resulting performance measure, and the results may be considered to be more important than the contributing factors.

Similar discussions were undertaken with staff from the Tampa Bay Regional Planning Council regarding the importance to weigh the different performance measures. Similarly, it was determined that delay/congestion was considered to be the most important performance measure.

In addition to interviews, literature reviews were undertaken for evaluating the performance measure weighting system. Previous reports published by the Texas Department of Highway Safety identified the importance of efficient logistics, and how personnel requirements and infrastructure requirements may change over time to create a more efficient process (Galvin, 2002). Speed variation between the contraflow lanes and the regular outbound lanes was previously identified to not be as significant of a contributable factor towards a successful evacuation.

Each performance measure was then listed by order of priority as a result of the conducted interviews and literature review. It was determined the weighting of the performance measures would be provided in the following priority:

- Delay/Congestion
- Improved Capacity
- Logistics (tie)
- Required Personnel (tie)
- Speed Variation
- Required Infrastructure

The weighting of each performance measure was considered against the baseline of the lowest weighted performance measure of Required Infrastructure, weighted at 1.0. The Delay/Congestion performance measure was considered to be of the greatest importance with a scaled weight of 2.25. This is because delay and congestion are probably the most significant factors that can inhibit a successful evacuation. Following the Delay/Congestion performance measure was the Improved Capacity performance measure with a scaled weight of 2.0.

The performance measure with the lowest scaled weight was Required Infrastructure. This is because the primary measure of additional infrastructure consisted of the additional orange cones needed to delineate traffic. This does not directly influence the performance of an evacuation, but is merely a measurement of one component of investment to help supply the contraflow.

An alternative method of weighting the performance measures was introduced to provide more significance of evacuation capacity. The process of evaluation was similar, but for this alternative analysis, each of the different performance measures was assigned an assumed weight of significance.

Provided below is a summary of the evaluation results using the alternative weighting method. The performance measures related to capacity and serving the evacuation public were provided a greater weight.

115

Contraflow Alternative	Scaled Weight	A – Normal Operation	B – Normal Outbound +1 Contraflow	C1 – Normal Outbound	C2 – Normal Outbound +2 Contraflow	D – Normal Outbound +Complete
				+1 Contraflow		Contraflow
Improved Capacity	2.0	10.0	7.2	4.4	3.0	0
Required Infrastructure	1.0	0.5	3.9	4.0	3.9	1.75
Required Personnel	1.5	0	5.25	6.0	5.25	3.75
Speed Variation	1.25	0	6.25	3.25	0.6	0
Logistics	1.5	0	7.05	7.5	7.05	4.95
Delay/Congestion	2.25	11.25	2.0	0.9	0.6	0
Average Score	n/a	3.6	5.3	4.3	3.4	1.7

 Table 24

 Summary Matrix Using Weighted Scaling Alternative

In summary, after applying the scaled weights, the performance measures of improved capacity and delay/congestion benefited greatly. The contraflow alternative that benefited the most from the scaled weighting of those two performance measures was Alternative D (Complete Contraflow).

The results of the scaled weighted performance measures demonstrated a greater differential between Alternative D and Alternative A. Alternative C2 benefitted with the scaled weighting, and scored second, while Alternative A was scored lower as the third best alternative.

In summary, both the scaled weighted analysis and the original analysis demonstrated one major observation; that if contraflow is implemented, a full contraflow has consistently more benefit than the partial contraflow alternatives, and a slightly greater benefit than normal operations during a hurricane evacuation.

Future Research

This research has been directed towards evaluating the hurricane evacuation of I-4 in the West Central Florida region; however, many aspects of the research apply to wherever hurricane evacuation occurs. Some aspects of contraflow also relate to the evacuation of the general public. The United States still uses mass evacuation as the predominant method of safely preparing for a hurricane. However, recent evacuation surveys have demonstrated that many people are starting to modify their plans for evacuation.

Recent trends have shown more "local" evacuations within the same region and using alternate routes besides the interstate. Additionally, the public is becoming more informed of real time traffic conditions to monitor their evacuation routes and plan for their evacuation accordingly. This may become a topic to consider for future research. Ultimately, the combination of continual population increase in Florida growing faster than the rate of typical roadway capacity will necessitate the increasing efficiency of the existing transportation infrastructure to safely serve the evacuating public.

This dissertation can be applied to:

- Other types of evacuation planning and modeling
 - o Floods
 - o Fires
 - o Manmade disasters
- Operation planning of potential reverse lane facilities with significant peak hour directionality

While this dissertation can be applied to several different types of mass evacuations, such as floods,

fires, or manmade disasters, each type of evacuation planning should consider the following:

- Shape and size of energy source
- Shape and size of evacuation area
- Rate of growth of evacuation area
- Size and socioeconomic data of evacuation population
- Amount of warning time
- Level of disruption to the road network
- Level of danger of the emergency

The side-by-side analysis of different laneage configurations and alternatives presented in this dissertation can be used as a framework toward future research. The reality of travel demand uncertainties is addressed in this research and may be referenced for future study. Future research can also reference the constantly changing behavioral tendencies of evacuees.

It is suggested that future research focus on these behavioral trends. Something new is learned after each hurricane. Future research may address the changing characteristics of evacuees. One characteristic of evacuees that may be researched is the route assignment. Are evacuees dependent upon using only interstate and grade separated highways for evacuation, or are other

parallel local facilities determined to be as beneficial? Would the advertisement of other parallel facilities be an effective method of avoiding the need of contraflow?

Future research may also address the relationship between hurricane evacuation zones and land elevation. It has been documented that the majority of hurricane damage and human deaths is caused from inland flooding, not coastal flooding or wind damage. Therefore, the identification of damage-prone locations and hurricane evacuation zones should extend beyond coastal locations.

The ability to anticipate the need for contraflow prior to congestion may also be a topic of future research. Currently, 6-8 hours is anticipated to be needed to implement contraflow. Therefore, the ability to predict the need for contraflow approximately 6-8 hours in advance would further facilitate successful hurricane evacuations.

REFERENCES

- Federal Highway Administration, "Transportation Evacuation Planning and Operations Workshop," 2005 National Hurricane Conference, <u>http://ops.fhwa.dot.gov</u>, accessed March 2006.
- 2. Wolshon, Brian; Urbina, Elba and Levitan, Marc, "National Review of Hurricane Evacuation Plans and Policies, Louisiana State University Hurricane Center, 2001.
- 3. Barret, Bridget; Ran, Bin and Pillai, Rekha, "Developing A Dynamic Traffic Management Modeling Framework for Hurricane Evacuation," Transportation Research Board, Paper No. 00-1595, January 2000.
- 4. Virginia DOT, "Hampton Roads Hurricane Traffic Control Plan," Revised July 2001.
- 5. Galvan, John and Hamilton, Joseph, "Traffic Management & IH 37 Conversion Plan," Texas Department of Public Safety, Highway Patrol Service District 3A and 3B, June 2002.
- 6. NOAA, "Hurricane and Impact Assessment Reports," <u>www.csc.noaa.gov</u>, accessed February 2006.
- USACE, FEMA, and NOAA, "Information on Hurricane Evacuation Studies," <u>www.saw.usace.army.mil</u>, accessed February 2006.
- 8. PBS&J, "Hurricane Andrew Assessment-Florida," prepared for US Army Corps of Engineers and FEMA, January 1993.
- 9. PBS&J, "Hurricane Isabel Assessment," prepared for US Army Corps of Engineers and FEMA, March 2005.
- 10. Anderson, Ron and Engerski, Jeff, Florida DOT District Seven, personal interview, April 2006 and June 8, 2007.
- 11. PBS&J, Tampa Bay Hurricane Evacuation Study Update 1999, prepared for Tampa Bay Regional Planning Council, March 2000.
- 12. PBS&J, 2006 Tampa Bay Hurricane Evacuation Study Update, prepared for the Tampa Bay Regional Planning Council, 2006.

- 13. Hibbard, John, "Best Contraflow Practices," presented at the TransPo 2006 Annual Meeting sponsored by Florida Section ITE, Palm Harbor, Florida.
- 14. Yik Lim, Yu, "Modeling and Evaluating Evacuation Contraflow Termination Point Designs," Louisiana State University, August 2003.
- 15. Collins, Jason, "Evaluation of a Real-Time Traffic Warning System for Wet Pavement Conditions," University of South Florida Master's Thesis, 2000.
- 16. Wolshon B., Urbina E.,and Levitan M.(2002). "National Review of Hurricane Evacuation Plans and Policies" LSU Hurricane Center, Louisiana State University, Baton Rouge, Louisiana.
- 17. Wolshon, B., (2001). "One-Way-Out: Contraflow Freeway Operation for Hurricane Evacuation." *Natural Hazards Review*, Vol. 2, No. 3, pp. 105-112.
- Wolshon, Brian and Catarella-Michel, Alison, Louisiana Highway Evacuation Plan for Hurricane Katrina: Proactive Management of a Regional Evacuation, Journal of Transportation Engineering Vol. 132 No. 1, American Society of Civil Engineers, 0733-947X.
- 19. Wolshon, Brian, Brotherly Advice: Learning from Hurricanes Georges and Ivan, Louisiana avoids Katrina Massacre, Roads & Bridges Vol. 44 No. 3, Scranton Gillette Communications, Incorporated, ISSN: 8750-9229.
- 20. Lawley Publications, Texas to develop contraflow plans for hurricane evacuation routes, Urban Transportation Monitor Vol. 20 No. 6, Mar. 31, 2006.
- 21. Williams, Billy M, Tagliaferri, Anthony P, Meinhold, Stephen S, and Hummer, Joseph E, Simulation and Analysis of Freeway Lane Reversal for Coastal Hurricane Evacuation, Journal of Urban Planning and Development Vol. 133 No. 1, ISSN: 0733-9488.
- 22. Ballard, Andrew J, Traffic Operations for Hurricane Evacuation, Transportation Research Board 86th Annual Meeting, Date Held: 20070121 – 20070125.
- 23. Ballard, Andrew J, and Borchardt, Darrell W, Recommended Practices for Hurricane Evacuation Traffic Operations, Texas Transportation Institute, Accession #01029067, 2006.
- Wilmont, Chester, Wolshon, Brian, Hamilton, and Urbina, Elba, Review of Policies and Practices for Hurricane Evacuation. II: Traffic Operations, Management, and Control, Natural Hazards Review Vol. 6 No. 3, American Society of Civil Engineers, ISSN: 1527-6988.

- 25. Wolshon, B, "One-Way-Out": Contraflow Freeway Operation for Hurricane Evacuation, Natural Hazards Review Vol. 2 No. 3, American Society of Civil Engineers, ISSN: 1527-6988.
- 26. Lim, Erick, and Wolshon, Brian, Modeling and Performance Assessment of Contraflow Evacuation Termination Points, Transportation Research Record: Journal of the Transportation Research Board No. 1922, Transportation Research Board, ISSN: 0361-1981.

APPENDICES

Appendix A: LOS E Service Volume Simulation Reports

SI RELATION	reeflow - 6150 Ca ummary of All Inte in Number art Time tid Time tid Time (min) me Recorded (min) of Intervals of Recorded Intvls whs Entered the Exited		11 4:45	12		
Sti En To Tir # 0 Ve Ve Sti En De	art Time nd Time tal Time (min) me Recorded (min) of Intervals of Recorded Intvls ens Entered	4:45 6:00 75	4:45	12		where we can be supported and the state of the
Sti En To Ve Ve Sti En	art Time nd Time tal Time (min) me Recorded (min) of Intervals of Recorded Intvls ens Entered	6:00 75			Avg	
To Tir # c Ve Ve Sti En	atal Time (min) me Recorded (min) of Intervals of Recorded Intvis shs Entered	75		4:45	4:45	
Tir # 0 Ve Sta De	me Recorded (min) of Intervals of Recorded Intvis shs Entered		6:00	6:00	6:00	
# 0 Ve Ve Sta En De	of Intervals of Recorded Intvis shs Entered	60	75	75	75	
# c Ve Sti En De	of Recorded Intvis ths Entered	0	60	60	60	
Ve Ve Sti En De	hs Entered	2	2	2	2	
Ve Sti En De		1 5256	5223	5245	5241	
Sta En De	Ins Exileo	4995	5223	5009	5049	
En De		370	389	338	366	
De	arting Vehs	631	470	574	558	
	iding Vehs enled Entry Before	221	189	256	222	
	anied Entry After	1036	1092	1167	1098	
	avel Distance (mi)	15354	15382	15303	15346	
	avel Time (hr)	1094.3	1043.5	1191.5	1109.8	
	tal Delay (hr)	869.9	819.2	968.2	885.8	
	tal Stops	740	342	604	562	
	el Used (gal)	6425.0	6424.9	6698.5	6516.2	
		tion Coodin	_			
_	terval #0 Informa art Time	4:45	<u>y</u>			
-	art Time Id Time	4.45				
	tal Time (min)	15				
Sta	art Time Id Time Ital Time (min)	5:00 6:00 60	ling			
Sta En To		6:00 60	-			
Sta En To Vo Ru	ld Time Ital Time (min) Jumes adjusted by Growt In Number	6:00 60 h Factors. 10	11	12	Avg	
Sta En To Vo Ru Ve	Id Time Ital Time (min) Jumes adjusted by Growt In Number Ihs Entered	6:00 60 h Factors. 10 5256	<u>11</u> 5223	5245	5241	
Sta En To Vo Ru Ve	Id Time Ital Time (min) Jumes adjusted by Growt In Number Ins Entered Ins Exited	6:00 60 h Factors. 10 5256 4995	11 5223 5142	5245 5009	5241 5049	
Sta En To Vo Ru Ve Sta	ud Time tal Time (min) Jumes adjusted by Growt In Number ohs Entered ohs Exited arting Vehs	6:00 60 h Factors. 10 5256 4995 370	11 5223 5142 389	5245 5009 338	5241 5049 366	
Sta En To Vo Ru Ve Sta En	d Time Ital Time (mln) Jumes adjusted by Growt in Number ohs Entered ohs Exited arting Vehs iding Vehs	6:00 60 h Factors. <u>10</u> 5256 4995 370 631	11 5223 5142 389 470	5245 5009 338 574	5241 5049 366 558	
Sta En To Vo RU Ve Sta En De	Id Time Ital Time (mln) Jumes adjusted by Growt In Number Ins Entered Ins Exited arting Vehs Ining Vehs Ining Entry Before	6:00 60 h Factors. 10 5256 4995 370 631 221	11 5223 5142 389 470 189	5245 5009 338 574 256	5241 5049 366 558 222	
Sta En To Vo Ru Ve Sta En De	Id Time tal Time (min) Jumes adjusted by Growt in Number whs Entered whs Exited arting Vehs ding Vehs anied Entry Before anied Entry After	6:00 60 h Factors. 10 5256 4995 370 631 221 1036	11 5223 5142 389 470 189 1092	5245 5009 338 574 256 1167	5241 5049 366 558 222 1098	
Stan To Vo Ru Ve Stan De De Tra	Id Time tal Time (min) Jumes adjusted by Growt un Number the Exited arting Vehs dring Vehs snied Entry Before anied Entry After avel Distance (mi)	6:00 60 h Factors. <u>10</u> 5256 4995 370 631 221 1036 15354	11 5223 5142 389 470 189 1092 15382	5245 5009 338 574 256 1167 15303	5241 5049 366 558 222 1098 15346	
State To Vo Ve State De Tra Tra	Id Time tal Time (min) Jumes adjusted by Growt in Number whs Entered whs Exited arting Vehs arting Vehs while Chrty Before while Entry After avel Distance (mi) avel Time (hr)	6:00 60 h Factors. <u>10</u> 5256 4995 370 631 221 1036 15354 1094.3	11 5223 5142 389 470 189 1092 15382 1043.5	5245 5009 338 574 256 1167 15303 1191.5	5241 5049 366 558 222 1098 15346 1109.8	
State To Vo Ve State De Tra To	d Time tal Time (mln) Jumes adjusted by Growt in Number ohs Entered ohs Exited arting Vehs uding Vehs enied Entry Before enied Entry After avel Distance (mi) avel Time (hr) tal Delay (hr)	6:00 60 h Factors. 10 5256 4995 370 631 221 1036 15354 1094.3 869.9	11 5223 5142 389 470 189 1092 15382 1043.5 819.2	5245 5009 338 574 256 1167 15303 1191.5 968.2	5241 5049 366 558 222 1098 15346 1109.8 885.8	
Sta En To Ve Sta En De Sta Tra To To To	Id Time tal Time (min) Jumes adjusted by Growt in Number whs Entered whs Exited arting Vehs arting Vehs while Chrty Before while Entry After avel Distance (mi) avel Time (hr)	6:00 60 h Factors. <u>10</u> 5256 4995 370 631 221 1036 15354 1094.3	11 5223 5142 389 470 189 1092 15382 1043.5	5245 5009 338 574 256 1167 15303 1191.5	5241 5049 366 558 222 1098 15346 1109.8	

Freeflow - 6150 Cars 4: I-4 F & Park Rd On Ramp Performance by move Movement EBT All Total Delay (hr) 716.6 716.6 Delay / Veh (s) 492.6 492.6 Total Stops 243 243 Travel Dist (mi) 2554.5 2554.5 Travel Time (hr) 756.2 766.2 Avg Speed (mph) 32 32 Fuel Used (gal) 2593.2 2593.2 HC Emissions (g) 178 178 CO Emissions (g) 576 576 Vehicles Entered 5241 5241 Vehicles Exited 5233 5233	ment
Total Delay (hr) 716.6 716.6 Delay / Veh (s) 492.6 492.6 Total Stops 243 243 Travel Dist (mi) 2554.5 2554.5 Travel Time (hr) 756.2 756.2 Avg Speed (mph) 32 32 Fuel Used (gal) 2593.2 2593.2 HC Emissions (g) 178 178 CO Emissions (g) 66812 66812 NOx Emissions (g) 576 576 Vehicles Entered 5241 5241	
Total Delay (hr) 716.6 716.6 Delay / Veh (s) 492.6 492.6 Total Stops 243 243 Travel Dist (mi) 2554.5 2554.5 Travel Time (hr) 756.2 756.2 Avg Speed (mph) 32 32 Fuel Used (gal) 2593.2 2593.2 HC Emissions (g) 178 178 CO Emissions (g) 66812 66812 NOx Emissions (g) 576 576 Vehicles Entered 5241 5241	
Delay / Veh (s) 492.6 492.6 Total Stops 243 243 Travel Dist (mi) 2554.5 2554.5 Travel Time (hr) 756.2 756.2 Avg Speed (mph) 32 32 Fuel Used (gal) 2593.2 2593.2 HC Emissions (g) 178 178 CO Emissions (g) 576 576 Vehicles Entered 5241 5241 Vehicles Exited 5233 5233	
Travel Dist (mi) 2554.5 2554.5 Travel Time (hr) 756.2 756.2 Avg Speed (mph) 32 32 Fuel Used (gal) 2593.2 2593.2 HC Emissions (g) 178 178 CO Emissions (g) 66812 66812 NOx Emissions (g) 576 576 Vehicles Entered 5241 5241 Vehicles Exited 5233 5233	
Travel Time (hr) 756.2 756.2 Avg Speed (mph) 32 32 Fuel Used (gal) 2593.2 2593.2 HC Emissions (g) 178 178 CO Emissions (g) 66812 66812 NOx Emissions (g) 576 576 Vehicles Entered 5241 5241 Vehicles Exited 5233 5233	
Avg Speed (mph) 32 32 Fuel Used (gal) 2593.2 2593.2 HC Emissions (g) 178 178 CO Emissions (g) 66812 66812 NOx Emissions (g) 576 576 Vehicles Entered 5241 5241 Vehicles Exited 5233 5233	
Fuel Used (gal) 2593.2 2593.2 HC Emissions (g) 178 178 CO Emissions (g) 66812 66812 NOx Emissions (g) 576 576 Vehicles Entered 5241 5241 Vehicles Exited 5233 5233	
HC Emissions (g) 178 178 CO Emissions (g) 66812 66812 NOx Emissions (g) 576 576 Vehicles Entered 5241 5241 Vehicles Exited 5233 5233	
CO Emissions (g) 66812 66812 NOx Emissions (g) 576 576 Vehicles Entered 5241 5241 Vehicles Exited 5233 5233	
NOx Emissions (g) 576 576 Vehicles Entered 5241 5241 Vehicles Exited 5233 5233	
Vehicles Entered 5241 5241 Vehicles Exited 5233 5233	
Vehicles Exited 5233 5233	
Hourly Exit Rate 5233 5233	
Input Volume 6150 6150	
% of Volume 85 85	
Denied Entry Before 222 222	
Denied Entry After 1098 1098	
6: I-4 F & Cty Line Off Ramp Performance by move	mont
	nent
Movement EBT All Total Delay (hr) 147.8 147.8	
Delay / Veh (s) 103.4	
Total Stops 317 317	
Travel Dist (mi) 11473.5 11473.5	
Travel Time (hr) 313.2 313.2	
Avg Speed (mph) 37 37	
Fuel Used (gal) 3311.7 3311.7	×
HC Emissions (g) 447 447	
CO Emissions (g) 167891 167891	
NOx Emissions (g) 1730 1730	
Vehicles Entered 5233 5233	
Vehicles Exited 5055 5055 Hourly Exit Rate 5055 5055	
Hourly Exit Rate 5055 5055 Input Volume 6150 6150	
% of Volume 82 82	
Denied Entry Before 0 0	
Denied Entry After 0 0	
uma met genson modered * 1999/02/12	
	SimTraffic Rep
JSC	Page

Appendix A (Continued)

I-4 Contraflow Evaluat Freeflow - 6150 Cars	on	No Contraflow L 12	anes /3/200
Total Network Perform	ance		
	The state of the s		
Total Delay (hr) Delay / Veh (s) Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before Denied Entry After	885.8 619.8 562 15346.2 1109.8 35 6516.2 707 272465 2622 5241 5049 5049 18450 27 222 1098		
		SimTraffi	Repo Page

Appendix A (Continued)

I-4 Contraflow Evaluation Freeflow - 6150 Cars					No (Contraflov	v Lane 12/3/20
Arterial Level of Service: EB	I-4 F						
Canada Shanad	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed	Run 10 Speed	Run [*] Del
Cross Street Park Rd On Ramp	4	492.6	519.8	0.5	33 36	32 33	457 124
Cty Line Off Ramp Total	6	103.4 596.0	219.2 739.0	2.7	35	33	582
Arterial Level of Service: EB	I-4 F						
	Run 11	Run 11	Run 12	Run 12 Delay			
Cross Street Park Rd On Ramp	Speed 33	Delay 478.2	Speed 34	541.9	on ontraining	All and a second second	SRPEORDES
Cty Line Off Ramp Total	42 40	74.4	35 34	111.4 653.3			
						SimTra	affic Rep
							Pag
ISC							
JSC							

I-4 Contraflow Eva Freeflow - 6150 C				No Contraflow Lane 12/3/200
Intersection: 4: I-4	F & Par	k Rd (On Ran	p
Movement	EB	EB	EB	
Directions Served	Т	Т	Т	
Maximum Queue (ft)	2582	2581	2590	
Average Queue (ft) 95th Queue (ft)	172 1235	201 1341	201 1344	
Link Distance (ft)	2573	2573	2573	
Upstream Blk Time (%)	0	0	0	
Queuing Penalty (veh)	0	0	0	
Storage Bay Dist (ft) Storage Blk Time (%) Queuing Penalty (veh)				
Intersection: 6: I-4	F & Cty	Line (Off Ran	0
Movement	EB	EB	EB	
Directions Served Maximum Queue (ft)	T 92	T 174	TR 159	
Average Queue (ft)	12	24	26	
95th Queue (ft)	52	96	97	
Link Distance (ft)	11494	11494	11494	
Upstream Blk Time (%) Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				
Network Summary				
Network wide Queuing Per				
internet according to	iongr v			
JSC				SimTraffic Repo Page
000				Fage

	uation Cars			AIt	B	-	One Contraflow Lan 12/3/200
Summary of All Inte			-				
Run Number	10	11	.12	Avg	2040		
Start Time	4:45	4:45	4:45	4:45			
End Time	6:00	6:00	6:00	6:00			
Total Time (min)	75	75	75	75			
Time Recorded (min)	60	60	60	60			
# of Intervals	2	2	2	2			
# of Recorded Intvis	1	1	1	1			
Vehs Entered	1461	1491	1500	1484			
Vehs Exited	1465	1475	1492	1478			
Starting Vehs	73	58	56	62			
Ending Vehs	69	74	64	68			
Denied Entry Before	0	0	0	0			
Denied Entry After	3	5	2	3			
Travel Distance (mi)	4302	4372	4394	4356			
Travel Time (hr)	72.2	73.8	73.6	73.2			
Total Delay (hr)	9.7	10.4	10.0	10.0			
Total Stops	0	0	0	0			
Fuel Used (gal)	1355.4	1357.7	1378.3	1363.8			
Interval #0 Informa	tion Seedin	a					
		3					
Start Time	4:45						
End Time Total Time (min) Volumes adjusted by Growt No data recorded this interv							
Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informa	15 h Factors. al. tion Record	ing					
Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time	15 h Factors. al. tion Record 5:00	ing					
Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informat Start Time End Time	15 h Factors. al. tion Record 5:00 6:00	ling					
Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informat Start Time End Time Total Time (min)	15 h Factors. al. tion Record 5:00 6:00 60	ing					
Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Growt	15 h Factors. al. tion Record 5:00 6:00 60 h Factors.		12	Ava		Saturation	
Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informat Start Time End Time Total Time (min)	15 h Factors. al. tion Record 5:00 6:00 60	ling 11 1491	<u>12</u> 1500	Avg			
Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number Vehs Entered	15 h Factors. al. tion Record 5:00 6:00 60 h Factors. 10 1461	11					
Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informat Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number Vehs Entered Vehs Exited	15 h Factors. al. tion Record 5:00 6:00 60 h Factors. 10 1461 1465	11 1491	1500	1484			
Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number Vehs Entered Vehs Entered Vehs Exited Starting Vehs	15 h Factors. al. tion Record 5:00 6:00 6:00 6:00 6:00 10 1461 1465 73	11 1491 1475 58	1500 1492	1484 1478			
Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs	15 h Factors. al. tion Record 5:00 6:00 60 h Factors. 10 1461 1465 73 69	11 1491 1475 58 74	1500 1492 56 64	1484 1478 62			
Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informat Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before	15 h Factors. al. tion Record 5:00 6:00 60 h Factors. 10 1461 1465 73 69 0	11 1491 1475 58 74 0	1500 1492 56 64 0	1484 1478 62 68			
Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Ending Vehs Denied Entry Before Denied Entry After	15 h Factors. al. tion Record 5:00 6:00 60 h Factors. 10 1461 1465 73 69 0 3	11 1491 1475 58 74	1500 1492 56 64	1484 1478 62 68 0			
Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi)	15 h Factors. al. tion Record 5:00 6:00 60 h Factors. 1461 1465 73 69 0 3 4302	11 1491 1475 58 74 0 5 4372	1500 1492 56 64 0 2 4394	1484 1478 62 68 0 3			
Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informat Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Ending Vehs Denied Entry Before Denied Entry Before Denied Entry After Travel Distance (ml) Travel Time (hr)	15 h Factors. al. tion Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 1461 1465 73 69 0 3 4302 72.2	11 1491 1475 58 74 0 5 4372 73.8	1500 1492 56 64 0 2 4394 73.6	1484 1478 62 68 0 3 4356 73.2			
Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number Vehs Entered Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr)	15 h Factors. al. tion Record 5:00 60 h Factors. 10 1461 1465 73 69 0 3 4302 72.2 9.7	11 1491 1475 58 74 0 5 4372 73.8 10.4	1500 1492 56 64 0 2 4394 73.6 10.0	1484 1478 62 68 0 3 4356			
Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informat Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Ending Vehs Denied Entry After Travel Distance (mi) Travel Distance (mi) Travel Time (hr) Total Delay (hr) Total Stops	15 h Factors. al. tion Record 5:00 6:00 60 h Factors. 1461 1465 73 69 0 3 4302 72.2 9.7 0	11 1491 1475 58 74 0 5 4372 73.8 10.4 0	1500 1492 56 64 0 2 4394 73.6 10.0 0	1484 1478 62 68 0 3 4356 73.2 10.0 0			
Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number Vehs Entered Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr)	15 h Factors. al. tion Record 5:00 60 h Factors. 10 1461 1465 73 69 0 3 4302 72.2 9.7	11 1491 1475 58 74 0 5 4372 73.8 10.4	1500 1492 56 64 0 2 4394 73.6 10.0	1484 1478 62 68 0 3 4356 73.2 10.0			
Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informat Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Ending Vehs Denied Entry After Travel Distance (mi) Travel Distance (mi) Travel Time (hr) Total Delay (hr) Total Stops	15 h Factors. al. tion Record 5:00 6:00 60 h Factors. 1461 1465 73 69 0 3 4302 72.2 9.7 0	11 1491 1475 58 74 0 5 4372 73.8 10.4 0	1500 1492 56 64 0 2 4394 73.6 10.0 0	1484 1478 62 68 0 3 4356 73.2 10.0 0			

Contraflow - 1073	aluation Cars			One Contraflow Lar 12/3/20
12: I-4 C & Park F	Road On	Ramp	Perfor	mance by movement
Movement.	EBT	WBT	All	
Total Delay (hr)	3.7	0.3	4.0	
Delay / Veh (s)	12.5	2.2	9.6	
Total Stops	0	0	0	
Fravel Dist (mi)	524.5	903.1		
Travel Time (hr)	11.4	13.3	24.7	
Avg Speed (mph)	55	68	63	
Fuel Used (gal)	158.8	308.9	467.6	
HC Emissions (g)	10	49	60	
CO Emissions (g)	5765	23807	29573	
NOx Emissions (g)	79	196	275	
/ehicles Entered	1072	413	1485 1477	
/ehicles Exited	1068	409 409	1477	
Hourly Exit Rate	1068	409	1477	
nput Volume	1073 100	400	1473	
% of Volume Denied Entry Before	100	102	001	
Denied Entry Before Denied Entry After	3	0	3	
		10E2		ormance by movement
	EBT	WBT	All.	
Movement	5.6	0.0	5.6	
Fotal Delay (hr) Delay / Veh (s)	5.6	0.0	13.7	
Fotal Stops	10.9	0.2	0	
Fravel Dist (mi)	2350.8		2451.0	
Fravel Time (hr)	39.6	1.5	41.1	
Avg Speed (mph)	59	67	60	
Fuel Used (gal)	676.9	37.9	714.8	
HC Emissions (g)	44	7	51	
CO Emissions (g)	24496	3868	28365	
NOx Emissions (g)	386	23	409	
Vehicles Entered	1068	412	1480	
Vehicles Exited	1072	413	1485	
Hourly Exit Rate	1072	413	1485	
nput Volume	1073	400	1473	
% of Volume	100	103	101	
Denied Entry Before	0	0	0	
Denied Entry After	0	0	0	
Contraflow		-		SimTraffic Rep Pag

Appendix A (Continued)

I-4 Contraflow Evaluation Contraflow - 1073 Cars		One Contraflow Land 12/3/200			
Total Network Performa					
Total Delay (hr) Delay / Veh (s) Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before Denied Entry After	10.0 24.4 0 4356.1 73.2 61 1363.8 134 73391 776 1484 1478 1478 1478 4419 33 0 3				
Contraflow JSC		 SimTraffic Rep Pag			

Contraflow - 1073 Cars Arterial Level of Service	EB I-4 C						12/3
		Delay	Travel	Dist	Arterial	Run 10	Ru
Cross Street Park Road On Ramp	Node 12	(s/veh) 12.5	time (s) 38.5	(mi) 0.5	Speed 56	Speed 56	C
County Line Off Ramp	14	18.9	133.3	2.2	59	59	_
Total		31.4	171.8	2.7	59	59	
Arterial Level of Service	EB I-4 C						WAL-
	Run 11	Run 11	Run 12	Run 12			
Cross Street	Speed 56	Delay 13.2	Speed 57	Delay 11.7	Resemption of the second		1178334
Park Road On Ramp County Line Off Ramp	59	18.9	59	19.2			
Total	59	32.1	59	30.9			
Arterial Level of Service:	WB I-4 C						
		Delay	Travel	Dist	Arterial	Run 10	Ru
Cross Street	Node 14	(s/veh) 0.2	time (s) 13.2	(mi) 0.2	Speed 69	Speed 69	
County Line Off Ramp Park Road On Ramp	14	2.2	116.5	2.2	68	68	
Total		2.4	129.7	2.4	68	68	
Arterial Level of Service:	WB I-4 C						
Crosse Street	Run 11 Speed	Run 11 Delay	Run 12 Speed	Run 12 Delay			
Cross Street County Line Off Ramp	68	0.2	69	0.2	121079931 Pro2 - 49-34		erepare.
Park Road On Ramp	68	2.3	68	2.3			-
Total	68	2.5	68	2.5			
			21				
Contraflow JSC						SimTra	affic Re Pa
100							

One Contraflow Lane I-4 Contraflow Evaluation 12/3/2007 Contraflow - 1073 Cars Intersection: 12: I-4 C & Park Road On Ramp Movement **Directions Served** Maximum Queue (ft) Average Queue (ft) 95th Queue (ft) Link Distance (ft) Upstream Blk Time (%) Queuing Penalty (veh) Storage Bay Dist (ft) Storage Blk Time (%) Queuing Penalty (veh) Intersection: 14: I-4 C & County Line Off Ramp Movement **Directions Served** Maximum Queue (ft) Average Queue (ft) 95th Queue (ft) Link Distance (ft) Upstream Blk Time (%) Queuing Penalty (veh) Storage Bay Dist (ft) Storage Blk Time (%) Queuing Penalty (veh) Network Summary Network wide Queuing Penalty: 0 SimTraffic Report Contraflow JSC Page 5

I-4 Contraflow Eval Freeflow - 5077 Ca		2.423						12/3/20
Summary of All Inte								
Run Number	10	11	12	Avg	and and			
Start Time	4:45	4:45	4:45	4:45				
End Time	6:00	6:00	6:00	6:00				
Total Time (min)	75	75 60	75 60	75 60				
Time Recorded (min) # of Intervals	60 2	2	2	2				
# of Recorded Intvis	1	1	1	1				
Vehs Entered	5034	5045	5131	5070				
Vehs Exited	4994	5017	4923	4978				
Starting Vehs	301	319	323	314				
Ending Vehs	341	347	531	406				
Denied Entry Before	2	0	15	6				
Denied Entry After	7	18	9	11				
Travel Distance (mi)	14822	14888	14970	14893				
Travel Time (hr)	358.5	360.3	447.9	388.9				
Total Delay (hr)	140.3 147	141.7 210	228.2 552	170.1 303				
Total Stops Fuel Used (gal)	4813.1	4859.4	4947.4	4873.3				
			4041.4	4070.0				
Interval #0 Informa		g				_	_	
Start Time	4:45							
End Time Total Time (min) Volumes adjusted by Growt No data recorded this interv	5:00 15 h Factors.							
End Time Total Time (min) Volumes adjusted by Growl No data recorded this interv Interval #1 Informa Start Time End Time	5:00 15 h Factors. ral. tion Record 5:00 6:00	ling			<u>.</u>			
End Time Total Time (min) Volumes adjusted by Growl No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min)	5:00 15 h Factors. val. tion Record 5:00 6:00 60	ling			*1			
End Time Total Time (min) Volumes adjusted by Grown No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grown Run Number	5:00 15 h Factors. val. tion Record 5:00 6:00 60 h Factors. 10	11	12	Avg				
End Time Total Time (min) Volumes adjusted by Growl No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Growl <u>Run Number</u> Vehs Entered	5:00 15 h Factors. val. tion Record 5:00 6:00 60 h Factors. 10 5034	11 5045	5131	5070				
End Time Total Time (min) Volumes adjusted by Growl No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Growl Run Number Vehs Entered Vehs Exited	5:00 15 h Factors. ral. tion Record 5:00 6:00 6:00 60 h Factors. 10 5034 4994	11 5045 5017	5131 4923	5070 4978				
End Time Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number Vehs Entered Vehs Exited Starting Vehs	5:00 15 h Factors. ral. tion Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00	11 5045 5017 319	5131 4923 323	5070 4978 314				
End Time Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number Vehs Entered Vehs Entered Vehs Exited Starting Vehs Ending Vehs	5:00 15 h Factors. val. tion Record 5:00 6:00 60 h Factors. 10 5034 4994 301 341	11 5045 5017	5131 4923	5070 4978				
End Time Total Time (min) Volumes adjusted by Growl No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Growl Run Number Vehs Entered Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before	5:00 15 h Factors. val. tion Record 5:00 6:00 60 h Factors. 10 5034 4994 301 341 2	11 5045 5017 319 347 0	5131 4923 323 531	5070 4978 314 406				
End Time Total Time (min) Volumes adjusted by Growl No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Growl Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Ending Vehs Ending Vehs Denied Entry Before Denied Entry After	5:00 15 h Factors. val. tion Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00	11 5045 5017 319 347	5131 4923 323 531 15	5070 4978 314 406 6			4	
End Time Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Growt <u>Run Number</u> Vehs Entered Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr)	5:00 15 h Factors. val. tion Record 5:00 6:00 60 h Factors. 10 5034 4994 301 341 2	11 5045 5017 319 347 0 18	5131 4923 323 531 15 9 14970 447.9	5070 4978 314 406 6 11 14893 388.9				
End Time Total Time (min) Volumes adjusted by Growi No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Growi Run Number Vehs Entered Vehs Entered Vehs Exited Starting Vehs Ending Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi)	5:00 15 h Factors. val. tion Record 5:00 6:00 6:00 60 h Factors. 10 5034 4994 301 341 2 7 14822	11 5045 5017 319 347 0 18 14888 360.3 141.7	5131 4923 323 531 15 9 14970 447.9 228.2	5070 4978 314 406 6 11 14893 388.9 170.1				
End Time Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number Vehs Entered Vehs Entered Vehs Entered Vehs Estited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr)	5:00 15 h Factors. val. tion Record 5:00 6:00 60 h Factors. 10 5034 4994 301 341 2 7 14822 358.5 140.3 147	11 5045 5017 319 347 0 18 14888 360.3 141.7 210	5131 4923 323 531 15 9 14970 447.9 228.2 552	5070 4978 314 406 6 11 14893 388.9 170.1 303				
End Time Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr)	5:00 15 h Factors. val. tion Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00	11 5045 5017 319 347 0 18 14888 360.3 141.7	5131 4923 323 531 15 9 14970 447.9 228.2	5070 4978 314 406 6 11 14893 388.9 170.1				
End Time Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr)	5:00 15 h Factors. val. tion Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00	11 5045 5017 319 347 0 18 14888 360.3	5131 4923 323 531 15 9 14970 447.9	5070 4978 314 406 6 11 14893 388.9			A	
End Time Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr)	5:00 15 h Factors. val. tion Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00	11 5045 5017 319 347 0 18 14888 360.3 141.7	5131 4923 323 531 15 9 14970 447.9 228.2	5070 4978 314 406 6 11 14893 388.9 170.1				

w - 5077 Cars	One Contra	on	Freeflow - 5077 Cars
		ance	Total Network Perform
		an shall said a sha	
h (s) 121.9 s 303 t (m) 14893.4 (mph) 39 (gal) 4873.3 ons (g) 668 ions (g) 283128 sions (g) 2586 intered 5070 xited 4978 IR Rate 4978 me 15231 ne 333 try Before 6		121.9 303 14893.4 388.9 39 4873.3 668 283128 2566 5070 4978 4978 4978 15231 33 6	Total Delay (hr) Delay / Veh (s) Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume Ø of Volume Denied Entry Before Denied Entry After
SimTraf	S		Freeflow JSC

Park Rd On Ramp Cty Line Off Ramp Total Arterial Level of Service: EB I-4 F	Node 4 6 37 45 43	Delay (s/Veh) 29.6 78.9 108.4 Run 11 Delay 28.8 60.2 89.0	Travel time (s) 57.5 194.1 251.5 Run 12 Speed 35 35 35 35	Dist (mi) 0.5 2.2 2.7 Run 12 Delay 36.0 111.5 147.4	Arterial Speed 37 41 40	Run 10 Speed 39 44 43	De 2 6
Park Rd On Ramp Cty Line Off Ramp Total Arterial Level of Service: EB I-4 F Cross Street Park Rd On Ramp Cty Line Off Ramp Cty Line Off Ramp	4 6 un 11 peed 37 45	(s/veh) 29.6 78.9 108.4 Run 11 Delay 28.8 60.2	time (s) 57.5 194.1 251.5 Run 12 Speed 35 35	(mi) 0.5 2.2 2.7 Run 12 Delay 36.0 111.5	Speed 37 41	Speed 39 44	64
Park Rd On Ramp Cty Line Off Ramp Total Arterial Level of Service: EB I-4 F Cross Street Ru Cross Street Sp Park Rd On Ramp Cty Line Off Ramp Cty Line Off Ramp	4 6 un 11 peed 37 45	29.6 78.9 108.4 Run 11 <u>Delay</u> 28.8 60.2	57.5 194.1 251.5 Run 12 <u>Speed</u> 35 35	0.5 2.2 2.7 Run 12 Delay 36.0 111.5	37 41	39 44	23 64
Total Arterial Level of Service: EB I-4 F Cross Street Park Rd On Ramp Ctv Line Off Ramp	un 11 peed 37 45	108.4 Run 11 Delay 28.8 60.2	251.5 Run 12 Speed 35 35	2.7 Run 12 Delay 36.0 111.5			88
Ru Cross Street Sp Park Rd On Ramp Civ Line Off Ramp	peed 37 45	Delay 28.8 60.2	Speed 35 35	Delay 36.0 111.5			
Cross Street Sp Park Rd On Ramp City Line Off Ramp	peed 37 45	Delay 28.8 60.2	Speed 35 35	Delay 36.0 111.5			
Park Rd On Ramp Ctv Line Off Ramp	37 45	28.8 60.2	35 35	36.0 111.5			
Cty Line Off Ramp Total							
				15			
Freeflow						SimTra	affic Rep
JSC							Page

I-4 Contraflow Eva Freeflow - 5077 Ca				One Contraflow Lane 12/3/20
Intersection: 4: I-4	F & Par	k Rd (On Rar	np
Movement	EB	EB	EB	
Directions Served	Т	Т	Т	
Maximum Queue (ft)	2597	2585	2587	
Average Queue (ft)	373	430 2017	230 1443	
95th Queue (ft) Link Distance (ft)	1873 2573	2573	2573	
Upstream Blk Time (%)	0	0	0	
Queuing Penalty (veh)	0	0	0	
Storage Bay Dist (ft)				
Storage Blk Time (%) Queuing Penalty (veh)				
Intersection: 6: I-4	F & Cty	Line (Off Rar	np
Movement	EB	EB	EB	
Directions Served	Т	Т	TR	
Maximum Queue (ft)	36	39 7	56 11	
Average Queue (ft) 95th Queue (ft)	7 44	41	53	
Link Distance (ft)	11494	11494	11494	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				
Network Summary				
Network wide Queuing Pen				
				SimTraffic Repo

Run Number 10 11 12 Avg Start Time 4.45 4.45 4.45 4.45 End Time 6.00 6.00 6.00 fold Time Recorded (min) 60 60 60 fold of Intervals 2 2 2 fold of Corded intvis 1 1 1 fold vehs Entered 1357 1392 1305 fild Vehs Entered 1357 1342 Starting Vehs 59 fold 53 Ending Vehs 57 64 73 65 53 Ending Vehs 57 64 73 65 54 64 63.54 75 76 75 76 73 <th></th> <th>rvals</th> <th></th> <th></th> <th></th> <th></th>		rvals				
Start Time 4:45 4:45 4:45 4:45 End Time 6:00 6:00 6:00 End Time 6:00 6:00 6:00 Time Recorded (min) 60 60 60 # of Recorded intvis 1 1 1 Vehs Extled 1357 1392 1305 Time Recorded intvis 1 1 1 Vehs Extled 1359 1342 Starting Vehs 59 59 46 53 Ending Vehs 57 64 73 65 Denied Entry Before 1 0 1 1 Travel Distance (mi) 4013 4073 3797 3961 Travel Time (trin) 63.8 66.4 60.4 63.8 Total Delay (hr) 5.9 7.2 5.5 6.2 Total Staps 0 0 0 0 0 Volumes adjusted by Growth Factors. No 64 73 65 Volume	in Number	10	11	12	Avg	
Total Time (min) 75 75 75 75 Time Recorded (min) 60 60 60 60 # of Intervals 2 2 2 2 # of Recorded Intvis 1 1 1 1 Vehs Entered 1357 1392 1305 1351 Vehs Exited 1357 1392 1305 1351 Vehs Exited 1357 1392 1305 1351 Vehs Exited 1357 1392 1305 1342 Starting Vehs 59 59 46 53 Denied Entry After 1 0 1 1 Travel Distance (min) 4013 4073 3797 3961 Travel Distance (min) 63.8 66.4 60.4 63.6 Total Dialy (hr) 5.9 7.2 5.5 6.2 Total Stops 0 0 0 0 Start Time 4:45 5 500 End Time	art Time					
Time Recorded (min) 60 60 60 60 # of Intervals 2 2 2 2 # of Recorded Intvis 1 1 1 1 Vehs Entered 1357 1392 1305 1351 Vehs Exited 1359 1387 1278 1342 Starting Vehs 59 59 46 53 Ending Vehs 57 64 73 65 Denied Entry Mater 1 0 1 1 Travel Distance (mi) 4013 4073 3797 3961 Travel Time (tr) 63.8 66.4 60.4 63.6 Total Delay (th) 5.9 7.2 5.5 6.2 Total Delay (th) 126.7 1269.3 1184.8 1236.9 Interval #0 Information Seeding 50 50 50 Total Time (min) 15 Volumes adjusted by Growth Factors. No data recorded this interval. Interval #1 Information Recording 11 12 Avg Vehs Exited 1359 1387 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td></td<>						
# of Intervals 2 2 2 2 2 2 # of Recorded Inivis 1 1 1 1 1 Vehs Entered 1357 1392 1305 1351 Vehs Exited 1359 1387 1278 1342 Starling Vehs 59 59 46 53 Ending Vehs 57 64 73 65 Denied Entry After 1 0 0 0 Denied Entry After 1 0 1 1 Travel Distance (m) 4013 4073 3797 3961 Travel Distance (m) 4013 4073 3797 3961 Travel Oistance (m) 1256.7 1269.3 1184.8 1236.9 Interval #0 Information Seeding Start Time 4.45 End Time 5:00 Total Time finh 15 Volumes adjusted by Growth Factors. No data recorded this Interval. Interval #1 Information Recording Start Time 5:00 End Time 6:00 Total Time 6:00 Volumes adjusted by Growth Factors. No data recorded this Interval. Interval #1 Information Recording Start Time 5:00 End Time 6:00 Volumes adjusted by Growth Factors. No data recorded this Interval. Interval #1 Information Recording Start Time 5:00 End Time 6:00 Total Time (min) 60 Volumes adjusted by Growth Factors. Bun Number 10 11 12 Avg Vehs Entered 1357 1392 1305 1351 Vehs Exited 1359 1387 1278 1342 Starting Vehs 59 59 46 53 Denied Entry After 1 0 1 1 Travel Distance (m) 4013 4073 3797 3961 Travel Distance (m) 4013 4073 3797 361 Travel Distance (m) 4013 4073						
# of Recorded Intvis 1 1 1 1 Vehs Entered 1357 1392 1305 1351 Vehs Exited 1359 1392 1305 1351 Vehs Exited 1359 1392 1305 1351 Vehs Exited 1357 142 1342 Starting Vehs 59 59 46 53 Ending Vehs 57 64 73 65 Denied Entry After 1 0 1 1 Travel Time (trin) 63.8 66.4 60.4 63.6 Total Delay (tri) 5.9 7.2 5.5 6.2 Total Delay (tri) 5.9 7.2 5.5 6.2 Total Delay (tri) 125.7 1269.3 1184.8 1236.9 Interval #0 Information Seeding 50 50 6.2 Start Time 4:45 50 50 50 Fod Time 5:00 50 50 50 Start Time 5:00 11 12 Avg Vehs Exited 1359 <						
Vehs Entered 1357 1392 1305 1351 Vehs Exited 1359 1387 1278 1342 Starting Vehs 59 59 46 53 Ending Vehs 57 64 73 65 Denied Entry Before 1 0 0 0 Denied Entry After 1 0 1 1 Travel Distance (mi) 4013 4073 3797 3961 Travel Distance (mi) 4013 4073 3797 3961 Travel Distance (mi) 59 7.2 5.5 6.2 Total Delay (hr) 5.9 7.2 5.5 6.2 Total Stops 0 0 0 0 0 0 Fuel Used (gal) 1256.7 1269.3 1184.8 1236.9 1236.9 Interval #0 Information Seeding 500 Total Time (min) 15 Volumes adjusted by Growth Factors. No data recorded this interval. Interval 11 12 Avg						
Vehs Exited 1359 1367 1278 1342 Starting Vehs 59 59 46 53 Denied Entry Before 1 0 0 0 Denied Entry After 1 0 1 1 Travel Distance (mi) 4013 4073 3797 3961 Travel Time (m) 63.8 66.4 60.4 63.6 Total Delay (hr) 5.9 7.2 5.5 6.2 Total Stops 0 0 0 0 Fuel Used (gal) 1256.7 1269.3 1184.8 1236.9 Interval #0 Information Seeding						
Starting Vehs 59 59 46 53 Ending Vehs 57 64 73 65 Denied Entry Before 1 0 0 0 Denied Entry After 1 0 1 1 Travel Time (mi) 4013 4073 3797 3961 Travel Time (mi) 59 7.2 5.5 6.2 Total Blops 0 0 0 0 Fuel Used (gal) 1256.7 1269.3 1184.8 1236.9 Interval #0 Information Seeding 500 500 500 Total Time (min) 15 Volumes adjusted by Growth Factors. Volumes adjusted by Growth Factors. No data recorded this Interval. 11 12 Avg Volumes adjusted by Growth Factors. 59 59 46 53 Rin Number 10 11 12 Avg 126 Volumes adjusted by Growth Factors. 1357 1392 1305 1351 Vehs Entered 1357 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>						
Ending Vens 57 64 73 65 Denied Entry Before 1 0 0 0 Denied Entry After 1 0 1 1 Travel Distance (mi) 4013 4073 3797 3961 Travel Distance (mi) 4013 4073 3797 3961 Travel Distance (mi) 4013 4073 3797 3961 Travel Distance (mi) 59 7.2 5.5 6.2 Total Delay (hr) 5.9 7.2 5.5 6.2 Total Stops 0 0 0 0 Fuel Used (gal) 1256.7 1269.3 1184.8 1236.9 Interval #0 Information Seeding 500 Time 5.00 Total Time (min) 15 Volumes adjusted by Growth Factors. No data recorded this Interval. Interval #1 Information Recording Time 6.00 Total Time (min) 60 Volumes adjusted by Growth Factors. Run Mumber 10 11 12 <						
Denied Entry Before 1 0 0 0 Denied Entry After 1 0 1 1 Travel Distance (mi) 4013 4073 3797 3961 Travel Time (trit) 63.8 66.4 60.4 63.6 Total Delay (hr) 5.9 7.2 5.5 6.2 Total Stops 0 0 0 0 Fuel Used (gal) 1256.7 1269.3 1184.8 1236.9 Interval #0 Information Seeding Start Time 5:00 5:00 5:00 Total Time (min) 15 Volumes adjusted by Growth Factors. No data recorded this Interval. Interval #1 Information Recording Start Time 5:00 5:00 Start Time 5:00 5:00 5:00 End Time 6:00 7:04 7:89 1:305 1:351 Vehs Entered 1357 1392 1:305 1:351 1:42 Starting Vehs 5:9 5 4:6 5:3 5:5 5:3 5:3						
Denied Entry After 1 0 1 1 Travel Distance (mi) 4013 4073 3797 3961 Travel Time (mi) 63.8 66.4 60.4 63.6 Total Delay (hr) 5.9 7.2 5.5 6.2 Total Delay (hr) 5.9 7.2 5.5 6.2 Total Delay (hr) 1256.7 1269.3 1184.8 1236.9 Interval #0 Information Seeding						
Travel Distance (ml) 4013 4073 3797 3961 Travel Time (hr) 63.8 66.4 60.4 63.6 Total Delay (hr) 5.9 7.2 5.5 6.2 Total Stops 0 0 0 0 Fuel Used (gal) 1256.7 1269.3 1184.8 1236.9 Interval #0 Information Seeding 500 500 500 Start Time 5:00 500 500 500 Total Time 5:00 500 500 500 End Time 6:00 5:00 500 500 Start Time 5:00 500 500 500 End Time 6:00 500 500 500 Start Time 5:00 500 500 500 End Time (min) 60 60 60 704 705 Volumes adjusted by Growth Factors. 800 1351 706 706 Vehs Entered 1357 1392 1305 1351 706 Vehs Exited 1359 1387 12				1	1	
Total Delay (hr) 5.9 7.2 5.5 6.2 Total Stops 0 0 0 0 0 Fuel Used (gal) 1256.7 1269.3 1184.8 1236.9 Interval #0 Information Seeding		4013	4073	3797	3961	
Total Stops 0 0 0 0 0 Fuel Used (gal) 1256.7 1269.3 1184.8 1236.9 Interval #0 Information Seeding 2 Start Time 4:45 4:45 End Time 5:00 5:00 Total Time (min) 15 Volumes adjusted by Growth Factors. No data recorded this interval. Interval #1 Information Recording Start Time 5:00 5:00 5:00 End Time 6:00 Total Time (min) 60 Volumes adjusted by Growth Factors. Number 10 11 12 Avg Vehs Entered 1357 1392 1305 1351 Vehs Exited 1359 1347 1278 1342 Starting Vehs 59 59 46 53 53 50		63.8	66.4	60.4	63.6	
Fuel Used (gal) 1256.7 1269.3 1184.8 1236.9 Interval #0 Information Seeding	tal Delay (hr)	5.9	7.2	5.5	6.2	
Interval #0 Information Seeding Start Time 4:45 End Time 5:00 Total Time (min) 15 Volumes adjusted by Growth Factors. No data recorded this Interval. Interval #1 Information Recording Start Time Start Time 5:00 End Time 6:00 Total Time 6:00 Total Time 6:00 Total Time 6:00 Volumes adjusted by Growth Factors. 500 Run Number 10 11 12 Avg Vehs Entered 1357 1392 1305 1351 Vehs Entered 1357 64 73 65 Denied Entry Before 1 0 0 0 0						
Start Time 4:45 End Time 5:00 Total Time (min) 15 Volumes adjusted by Growth Factors. No data recorded this Interval. Interval #1 Information Recording	el Used (gal)	1256.7	1269.3	1184.8	1236.9	
Start Time4:45End Time5:00Total Time (min)15Volumes adjusted by Growth Factors. No data recorded this interval.Interval #1 Information RecordingStart Time5:00End Time6:00Total Time (min)60Volumes adjusted by Growth Factors.Run Number101112AvgVehs Entered13571359136712781342Starting Vehs59594653Ending Vehs57647365Denied Entry Before10111Travel Distance (mi)40134013407337973961Travel Time (hr)5.97.25.56.2Total Stops000	terval #0 Informati	on Seedin	a			
End Time 5:00 Total Time (min) 15 Volumes adjusted by Growth Factors. No data recorded this interval. Interval #1 Information Recording Start Time 5:00 End Time 6:00 Total Time (min) 60 Volumes adjusted by Growth Factors. <u>Run Number 10 11 12 Avg</u> Vehs Entered 1357 1392 1305 1351 Vehs Entered 1357 1392 1305 1351 Vehs Exited 1359 1387 1278 1342 Starting Vehs 59 59 46 53 Ending Vehs 57 64 73 65 Denied Entry Before 1 0 0 0 Denied Entry After 1 0 1 1 Travel Distance (mi) 4013 4073 3797 3961 Travel Time (hr) 63.8 66.4 60.4 63.6 Total Delay (hr) 5.9 7.2 5.5 6.2 Total Stops 0 0 0 0 0			5			
Total Time (min) 15 Volumes adjusted by Growth Factors. No data recorded this Interval. Interval #1 Information Recording Start Time 5:00 End Time 6:00 Total Time (min) 60 Volumes adjusted by Growth Factors. Run Number 10 11 12 Avg Vehs Entered 1357 1392 1305 1351 Vehs Entered 1359 1387 1278 1342 Starling Vehs 59 59 46 53 Ending Vehs 57 64 73 65 Denied Entry After 1 0 1 1 Travel Distance (mi) 4013 4073 3797 3961 Travel Time (hr) 63.8 66.4 60.4 63.6 Total Delay (hr) 5.9 7.2 5.5 6.2 Total Stops 0 0 0 0						
End Time 6:00 Total Time (min) 60 Volumes adjusted by Growth Factors. 10 11 12 Avg Run Number 10 11 12 Avg Vehs Entered 1357 1392 1305 1351 Vehs Entered 1357 1392 1305 1351 Vehs Exited 1359 1387 1278 1342 Starting Vehs 59 59 46 53 Ending Vehs 57 64 73 65 Denied Entry Before 1 0 0 0 Denied Entry After 1 0 1 1 Travel Distance (mi) 4013 4073 3797 3961 Travel Time (hr) 63.8 66.4 60.4 63.6 Total Delay (hr) 5.9 7.2 5.5 6.2 Total Stops 0 0 0 0	data recorded this interval					
Total Time (min) 60 Volumes adjusted by Growth Factors. Run Number 10 11 12 Avg Vehs Entered 1357 1392 1305 1351 Vehs Exited 1359 1387 1278 1342 Starting Vehs 59 59 46 53 Ending Vehs 57 64 73 65 Denied Entry After 1 0 1 1 Travel Distance (mi) 4013 4073 3797 3961 Travel Time (hr) 63.8 66.4 60.4 63.6 Total Delay (hr) 5.9 7.2 5.5 6.2 Total Stops 0 0 0 0	data recorded this interval terval #1 Information	on Record	ling			
Run Number 10 11 12 Avg Vehs Entered 1357 1392 1305 1351 Vehs Exited 1359 1387 1278 1342 Starling Vehs 59 59 46 53 Ending Vehs 57 64 73 65 Denied Entry Before 1 0 0 0 Denied Entry After 1 0 1 1 Travel Distance (mi) 4013 4073 3797 3961 Travel Time (hr) 63.8 66.4 60.4 63.6 Total Delay (hr) 5.9 7.2 5.5 6.2 Total Stops 0 0 0 0	data recorded this interval terval #1 Information and Time	on Record 5:00	ling			
Vehs Entered 1357 1392 1305 1351 Vehs Exited 1359 1387 1278 1342 Starting Vehs 59 59 46 53 Ending Vehs 57 64 73 65 Denied Entry Before 1 0 0 0 Denied Entry After 1 0 1 1 Travel Distance (mi) 4013 4073 3797 3961 Travel Time (hr) 63.8 66.4 60.4 63.6 Total Delay (hr) 5.9 7.2 5.5 6.2 Total Stops 0 0 0 0	data recorded this interval terval #1 Information art Time d Time lal Time (min)	on Record 5:00 6:00 60	ling			
Vehs Exited 1359 1387 1278 1342 Starting Vehs 59 59 46 53 Ending Vehs 57 64 73 65 Denied Entry Before 1 0 0 0 Denied Entry After 1 0 1 1 Travel Distance (mi) 4013 4073 3797 3961 Travel Time (hr) 63.8 66.4 60.4 63.6 Total Delay (hr) 5.9 7.2 5.5 6.2 Total Stops 0 0 0 0	data recorded this interval terval #1 Information of Time d Time (al Time (min) lumes adjusted by Growth	on Record 5:00 6:00 60 Factors.				
Starting Vehs 59 59 46 53 Ending Vehs 57 64 73 65 Denied Entry Before 1 0 0 0 Denied Entry After 1 0 1 1 Travel Distance (mi) 4013 4073 3797 3961 Travel Time (hr) 63.8 66.4 60.4 63.6 Total Delay (hr) 5.9 7.2 5.6 6.2 Total Stops 0 0 0 0	data recorded this interval terval #1 Information of Time d Time (min) tumes adjusted by Growth n Number	on Record 5:00 6:00 60 Factors. 10	11			
Ending Vehs 57 64 73 65 Denied Entry Before 1 0 0 0 Denied Entry After 1 0 1 1 Travel Distance (mi) 4013 4073 3797 3961 Travel Time (hr) 63.8 66.4 60.4 63.6 Total Delay (hr) 5.9 7.2 5.5 6.2 Total Stops 0 0 0 0	data recorded this interval terval #1 Information of Time d Time (min) tumes adjusted by Growth n Number hs Entered	on Record 5:00 6:00 60 Factors. 10 1357	<u>11</u> 1392	1305	1351	
Denied Entry Before 1 0 0 0 Denied Entry After 1 0 1 1 Travel Distance (mi) 4013 4073 3797 3961 Travel Time (hr) 63.8 66.4 60.4 63.6 Total Delay (hr) 5.9 7.2 5.5 6.2 Total Stops 0 0 0 0	data recorded this interval terval #1 Information art Time d Time lal Time (min) tumes adjusted by Growth n Number hs Entered hs Exited	on Record 5:00 6:00 60 Factors. 10 1357 1359	11 1392 1387	1305 1278	1351 1342	
Denied Entry After 1 0 1 1 Travel Distance (mi) 4013 4073 3797 3961 Travel Time (hr) 63.8 66.4 60.4 63.6 Total Delay (hr) 5.9 7.2 5.5 6.2 Total Stops 0 0 0 0	data recorded this interval terval #1 Information rt Time d Time lal Time (min) lumes adjusted by Growth n Number hs Entered hs Exited irting Vehs	<u>5:00</u> <u>6:00</u> <u>60</u> Factors. <u>10</u> <u>1357</u> <u>1359</u> <u>59</u>	11 1392 1387 59	1305 1278 46	1351 1342 53	
Travel Time (hr) 63.8 66.4 60.4 63.6 Total Delay (hr) 5.9 7.2 5.5 6.2 Total Stops 0 0 0 0	data recorded this interval terval #1 Information int Time d Time lal Time (min) lumes adjusted by Growth n Number hs Entered hs Exited ring Vehs ding Vehs	<u>on Record</u> 5:00 6:00 60 Factors. 10 1357 1359 59 59 57	11 1392 1387 59 64	1305 1278 46 73	1351 1342 53 65	
Total Delay (hr) 5.9 7.2 5.5 6.2 Total Stops 0 0 0 0	data recorded this interval terval #1 Information int Time d Time lal Time (min) lumes adjusted by Growth n.Number hs Entered hs Exited inting Vehs ding Vehs hied Entry Before	<u>5:00</u> <u>6:00</u> <u>60</u> Factors. <u>10</u> <u>1357</u> <u>1359</u> <u>59</u> <u>57</u> <u>1</u>	11 1392 1387 59 64 0	1305 1278 46 73 0	1351 1342 53 65 0	
Total Stops 0 0 0 0	data recorded this interval terval #1 Information and Time d Time d Time al Time (min) tumes adjusted by Growth n Number hs Entered hs Exited riding Vehs ding Vehs nied Entry Before nied Entry After	<u>on Record</u> 5:00 6:00 60 Factors. 10 1357 1359 59 57 1 1 1	11 1392 1387 59 64 0 0	1305 1278 46 73 0 1	1351 1342 53 65 0 1	
	data recorded this interval terval #1 Information rt Time d Time lal Time (min) lumes adjusted by Growth n Number hs Entered hs Exited urting Vehs ding Vehs nied Entry After wel Distance (mi) wel Time (hr)	- <u>on Record</u> 5:00 6:00 60 Factors. 10 1357 1359 59 57 1 1 4013	11 1392 1387 59 64 0 0 4073	1305 1278 46 73 0 1 3797	1351 1342 53 65 0 1 3961	
Fuel Used (gal) 1256.7 1269.3 1184.8 1236.9	data recorded this interval terval #1 Information rt Time d Time lal Time (min) lumes adjusted by Growth n Number hs Entered hs Exited urting Vehs ding Vehs hied Entry After wel Distance (mi) wel Time (hr) lal Delay (hr)	<u>on Record</u> 5:00 6:00 60 Factors. <u>10</u> 1357 1359 59 57 1 4013 63.8 5.9	11 1392 1387 59 64 0 0 4073 66.4 7.2	1305 1278 46 73 0 1 3797 60.4 5.5	1351 1342 53 65 0 1 3961 63.6 6.2	
	data recorded this interval terval #1 Information rt Time d Time d Time al Time (min) tumes adjusted by Growth n Number hs Entered hs Exited riting Vehs ding Vehs hied Entry Before nied Entry Before nied Entry After wel Distance (mi) wel Time (hr) al Delay (hr) al Stops	<u>on Record</u> 5:00 6:00 60 Factors. 10 1357 1359 59 57 1 1 4013 63.8 5.9 0	11 1392 1387 59 64 0 0 4073 66.4 7.2 0	1305 1278 46 73 0 1 3797 60.4 5.5 0	1351 1342 53 65 0 1 3961 63.6 6.2 0	
	data recorded this interval terval #1 Information rt Time d Time d Time al Time (min) tumes adjusted by Growth n Number hs Entered hs Exited riting Vehs ding Vehs hied Entry Before nied Entry Before nied Entry After wel Distance (mi) wel Time (hr) al Delay (hr) al Stops	<u>on Record</u> 5:00 6:00 60 Factors. 10 1357 1359 59 57 1 1 4013 63.8 5.9 0	11 1392 1387 59 64 0 0 4073 66.4 7.2 0	1305 1278 46 73 0 1 3797 60.4 5.5 0	1351 1342 53 65 0 1 3961 63.6 6.2 0	
	data recorded this interval terval #1 Information rt Time d Time d Time al Time (min) tumes adjusted by Growth n Number hs Entered hs Exited riting Vehs ding Vehs hied Entry Before nied Entry Before nied Entry After wel Distance (mi) wel Time (hr) al Delay (hr) al Stops	<u>on Record</u> 5:00 6:00 60 Factors. 10 1357 1359 59 57 1 1 4013 63.8 5.9 0	11 1392 1387 59 64 0 0 4073 66.4 7.2 0	1305 1278 46 73 0 1 3797 60.4 5.5 0	1351 1342 53 65 0 1 3961 63.6 6.2 0	

Novement ED Novement Delay Veh (s) 6.2 2.0 5.0 Delay Veh (s) 6.2 2.0 5.0 Travel Time (n) 6.5 13.0 21.5 Avg Speed (mph) 61 68 65 Fuel Used (sal) 143.6 299.9 443.5 HC Emissions (g) 11 54 64 CO Emissions (g) 62 21.5 76 Vehicles Exited 94.4 402 1346 Hourly Durine 969 400 1369 Vehicles Exited 94.4 402 1346 Hourly Durine 969 400 1369 Vehicles Exited 94.4 402 1346 Hourly Durine 969 400 1369 Vehicles Exited 94.4 0 1 1.4: 1-4 C & County Line Off Ramp Performance by movement Movement EBT Movement EBT VBT All Total Delay (vh (s) 15.0 0.2	I-4 Contraflow Ev Contraflow - 969				One Contraflow Lane Plus Shoulder Lane on E
Notemant Loi Note Figure 1 Delay Veh (s) 6.2 2.0 5.0 Tawel Dist (m) 463.3 884.7 1346.0 Travel Time (n) 6.5 13.0 21.5 Avg Speed (mph) 61 68 65 Fuel Used (gal) 143.6 299.9 443.5 HC Emissions (g) 11 54 64 CO Emissions (g) 76 201 276 Vehides Entered 947 403 1350 Mox Emissions (g) 76 201 276 Vehides Entered 944 402 1346 Ioput Volume 969 400 1369 % of Volume 97 100 98 Panied Entry Before 0 0 1 14: 1-4 C & County Line Off Ramp Performance by movement Movement EBT Total Disp (r) 3.9 0.5 34.4 Total Stop 0 0 0 Total Stop 0 0	12: I-4 C & Park I	Road On	Ramp	Perform	ance by movement
Delay / Vah (e) 6.2 2.0 5.0 Total Stops 0 0 0 Travel Dist (m) 46.3.3 884.7 1346.0 Travel Dist (m) 66.5 65 Fuel Used (gai) 143.6 299.9 443.5 Consistons (g) 163.9 24.361 31320 NOX Emissions (g) 76 201 276 Vehiclas Entered 944 402 1346 Input Volume 969 400 1350 Vehiclas Entered 944 402 1346 Input Volume 97 100 88 Denied Entry Belore 0 0 0 Denied Entry Mater 1 0 1 14: 1-4 C & County Line Off Ramp Performance by movement! 100 149 Movement EDT WBT All Total Delay (Yn) 3.9 0.0 4.0 Delay / Vah (s) 15.0 0.2 10.8 Total Delay (Yn) 3.9 0.0 1.0 Delay / Vah (s) 15.0 0.0 0 <th>Movement</th> <th>EBT</th> <th>WBT</th> <th>All.</th> <th></th>	Movement	EBT	WBT	All.	
Tota Stops 0 0 0 Travel Dist (m) 463.3 884.7 1346.0 Travel Time (hr) 65 13.0 21.5 Avg Speed (mph) 61 68 65 O Emissions (g) 11 54 64 O Emissions (g) 76 201 276 Vehicles Exited 944 402 1346 Houry Exit Rate 944 402 1369 Vehicles Exited 944 402 1360 Denied Entry After 1 0 1 14: 14 C & County Line Off Ramp Performance by movement Movement Emistion (%) 10 1 17: Total Delay (hr) 3.9 0.0 0 0		1.6	0.2	1.9	
Tave Dis(m) 463.3 864.7 1346.0 Travel Time (m) 6.5 13.0 21.5 Avg Speed (mph) 61 68 65 Fuel Used (gal) 143.6 299.9 443.5 CO Emissions (g) 163 64 CO Emissions (g) 76 201 276 Vehicles Entered 947 403 1350 Vehicles Exited 944 402 1346 Hourly Exit Rate 944 402 1346 Hourly Exit Rate 944 402 1346 Input Volume 969 400 1389 Vehicles Exited 944 402 1346 Input Volume 969 400 1389 Vehicles Exited 944 402 1346 Input Volume 97 10 91 14: 1-4 C & County Line Off Ramp Performance by movement 10 11 14: 1-4 C & South Line Off N 91 10 10 17: Tave Dist (m) 207.3 93. 10.4 40 Vehice Sitted 0 0 0 136 Vehice Sitted 94.04 137. 147. Trave Dist (m) 207. 38.6 628.6	Delay / Veh (s)	6.2			
Tarent Time (n) 6.5 13.0 21.5 Avg Speed (mph) 61 68 65 Fuel Used (gal) 143.6 29.9 443.5 HC Emissions (g) 11 54 64 CO Emissions (g) 76 201 276 Vehicles Exited 944 402 1346 Houry Exit Rate 944 402 1346 Houry Exit Rate 944 402 1346 Derived Enty Before 0 0 0 Denied Enty Before 0 0 0 Denied Enty Before 0 0 0 Delay (hr) 3.9 0.0 4.0 Delay (hr) 3.9 0.0 4.0 Delay (hr) 3.9 0.0 1.0 Travel Time (hr) 3.9 0.0 0 Travel Time (hr) 3.9 0.0 1.0 Travel Time (hr) 3.9 0.0 0 Taraet Time (hr) 3.9 1.5 55.4 Avg Speed (mph) 61 67 61 Fu					
Avg Speed (mph) 61 68 65 Fuel Used (gal) 143.6 299.9 443.5 HC Emissions (g) 11 54 64 CO Emissions (g) 69.99 24381 31320 VOX Emissions (g) 76 201 276 Vehides Entered 947 403 1350 Vehides Entered 944 402 1346 Input Volume 958 400 1389 Vehides Entered 94 402 1346 Input Volume 958 400 10 1001 Perifer 0 0 0 Denied Entry Before 0 0 0 Denied Entry After 1 0 1 11 0 1 1 0 12 14 C & County Line Off Ramp Performance by movement 1 12 14 C & & County Line Off Ramp Performance by movement 1 13 13 0 0 0 Total Stops 0 0 0 1 Total Stops 0					
Fuel Used (gal) 143.6 299.9 443.5 HC Emissions (g) 11 54 64 C Emissions (g) 76 201 276 Vehicles Extined 944 402 1346 Hourty Exit Rate 944 402 1346 Input Volume 969 400 1369 % of Volume 97 100 98 Denied Entry Before 0 0 0 Denied Entry After 1 0 1 14: L4 C & County Line Off Ramp Performance by movement 100 100 Movement EBT WBT All Total Delay (hr) 3.9 0.0 4.0 Delay I Veh (s) 15.0 0.2 10.6 Total Stops 0 0 0 Travel Time (hr) 3.9 1.5 55.4 Avg Speed (mph) 61 67 61 Fuel Used (gal) 592.8 36.9 629.6 Vehicles Entered 94.4 0.0 1343 Vehicles Entered 94.4 0.0 1343 <td></td> <td></td> <td></td> <td></td> <td></td>					
HC Emissions (g) 11 64 64 CO Emissions (g) 6939 24361 31320 NOX Emissions (g) 76 201 276 Vehides Entered 947 403 1350 Vehides Entered 947 402 1346 Input Volume 968 400 1369 Vehides Entered 0 0 0 Denied Entry Before 0 0 0 Denied Entry Mer 1 0 1 14: 1-4 C & County Line Off Ramp Performance by movement 10 1 Atternetin EBT All 10 Total Delay (hr) 3.9 0.0 4.0 Delay (Veh (s) 15.0 0.2 10.6 Total Delay (hr) 33.9 1.5 35.4 Arge Speed (mph) 61 67 61 Fuel Used (gal) 52.8 35.9 629.6 ICO Emissions (g) 343 23 366 Vehides Entered 944 404 1348 Hourty Exit Rate 940 403 1343<					
CO Emissions (g) 6939 24381 31320 NOX Emissions (g) 76 201 276 Vehicles Exitered 944 402 1346 Hourly Exit Rate 944 402 1346 Input Volume 969 400 1369 % of Volume 97 100 98 Denied Entry Before 0 0 0 Denied Entry Before 0 0 0 Total Delay (hr) 3.9 0.0 4.0 Delay (hr) 3.9 0.0 4.0 Delay (hr) 3.9 0.0 4.0 Delay (hr) 2.073.8 98.1 2171.9 Travel Dist (m) 2073.8 98.1 2174.9 Yang Speed (mph) 61 67 61 Fuel Used (gal) 52.8 35.9 629.6 VC Emissions (g) 2471 3876 26592 VOX Emissions (g) 343 23 366 Vehicldes Entered 940 433					5
NOx Emissions (g) 76 201 276 Vehicles Entered 947 403 1350 Vehicles Entered 944 402 1346 Input Volume 968 400 1369 Vol Volume 97 100 98 Denied Entry Before 0 0 0 Denied Entry After 1 0 1 14: 1-4 C & County Line Off Ramp Performance by movement Movement EBT All Total Delay (Iri) 3.9 0.0 4.0 Delay Veh (s) 15.0 0.2 10.6 Total Stops 0 0 0 0 1 Travel Time (Iring (Iri)) 2073.8 98.1 2171.9 Travel Time (Iring (Iri)) 2073.8 98.7 25592 Nox Emissions (g) 343 23 366 Vehicles Entered 944 404 1348 Vehicles Entered 944 404 1348 Vehicles Entered 944 403 1343 Hourty Stif Rate 90 10					
Vehicles Exited 947 403 1350 Vehicles Exited 944 402 1346 Input Volume 969 400 1369 % of Volume 97 100 98 Denied Entry Before 0 0 0 Denied Entry Before 0 0 0 Denied Entry After 1 0 1					
Vehicles Exited 944 402 1346 Hourly Exit Rate 944 402 1346 Input Volume 969 400 1369 % of Volume 97 100 98 Denied Entry Before 0 0 0 Denied Entry After 1 0 1 Att 1-4 C & County Line Off Ramp Performance by movement Movement EBT WBT All Total Delay (hr) 3.9 0.0 4.0 Delay (Veh (s) 15.0 0.2 10.6 Total Delay (hr) 207.8 98.1 217.1.9 Travel Dist (m) 207.8 98.5 26.592 Puel Used (gal) 592.8 36.6 Vehicles Entered 944 404 1348 Vehicles Exited 940 40.3 1343 Hourly Exit Rate 940.4 1343 Hourly Exit Rate 940 403 1343 Hourly Exit Rate 940.4 1343 Hourly Exit Rate 940 1363					
Hourly Exit Rate 944 402 1346 Input Volume 969 400 1369 V of Volume 97 100 98 Denied Entry Before 0 0 0 Denied Entry Atter 1 0 1 Attended to the state of the state					
Input Volume 969 400 1369 % of Volume 97 100 98 Denied Entry Before 0 0 0 14: I-4 C & County Line Off Ramp Performance by movement 1 0 1 Alt Movement EBT WBT All Total Delay (hr) 3.9 0.0 4.0 Delay (Veh (s) 15.0 0.2 10.6 Travel Dist (mt) 2073.8 98.1 217.1.9 Travel Time (hr) 3.9 1.5 35.4 Avg Speed (mph) 61 67 61 Fuel Used (gat) 592.8 36.9 629.6 HC Emissions (g) 22716 3876 26592 NOX Emissions (g) 244 404 1343 Hourly Exit Rate 940 403 1343 Hourly Exit Rate 940 403 1343 Hourly Exit Rate 940 0 0 Denied Entry After 0 0 0 Denied					
Denied Entry After 0 0 0 14: 1-4 C & County Line Off Ramp Performance by movement Movement EBT WBT All Total Delay (tr) 3.9 0.0 4.0 Delay / Veh (s) 15.0 0.2 10.6 Total Delay (tr) 3.9 0.0 4.0 Delay / Veh (s) 15.0 0.2 10.6 Total Stops 0 0 0 Travel Dist (mi) 2073.8 98.1 2171.9 Travel Time (tr) 33.9 1.5 35.4 Ary Speed (mph) 61 67 61 Fuel Used (gal) 592.8 36.8 62.0.6 HC Emissions (g) 343 23 366 Vehicles Entered 940 403 1343 Hourly Exit Rate 9400 1389 Vehicles Exited 940 403 1343 Hourly Exit Rate 940 13 Input Volume 97 101 98 Denied Entry After 0 0 0 Denied Entry After 0 0 0		969	400	1369	
Denied Entry After 1 0 1 14: I-4 C & County Line Off Ramp Performance by movement Movement EBT WBT All Total Delay (hr) 3.9 0.0 4.0 Delay /Vel (s) 15.0 0.2 10.6 Total Delay (hr) 2073.8 98.1 2171.9 Travel Time (hr) 33.9 1.5 35.4 Avg Speed (mph) 61 67 61 Fuel Used (gal) 592.8 36.9 629.9 NOX Emissions (g) 22716 3876 26592 NOX Emissions (g) 343 23 366 Vehicles Exited 940 403 1343 Hourly Exit Rate 940 403 1343 Hourly Exit Rate 940 0 1369 % of Volume 97 101 98 Denied Entry After 0 0 0 Denied Entry After 0 0 0	% of Volume	97	100		
14: 1-4 C & County Line Off Ramp Performance by movement Movement EBT WBT All Total Delay (hr) 3.9 0.0 4.0 Delay (Veh (s) 15.0 0.2 10.6 Total Stops 0 0 0 Travel Dist (m) 2073.8 98.1 2171.9 Travel Dist (m) 2073.8 98.1 2171.9 Travel G(al) 592.8 36.9 629.6 HC Emissions (g) 40 7 47 CO Emissions (g) 22716 3876 26592 NOX Emissions (g) 233 366 Vehicles Exited 940 403 1343 Input Volume 969 400 1369 % of Volume 97 101 98 Denied Entry Before 0 0 0 Denied Entry After 0 0 0 Contraflow SimTraffic Rep					
Movement EBT WBT All Dolay / Veh (s) 15.0 0.2 10.6 Total Delay (hr) 2.9 0.0 0 Travel Time (hr) 2073.8 98.1 2171.9 Travel Time (hr) 3.9 0.0 7 Avg Speed (mph) 61 67 61 Fuel Used (gal) 592.8 36.9 629.6 HC Emissions (g) 40 7 47 CO Emissions (g) 22716 3876 26592 NOx Emissions (g) 343 23 366 Vehicles Entered 944 404 1348 Vehicles Exited 940 403 1343 Hourly Exit Rate 940 403 1343 Input Volume 96 9 0 0 Denied Entry Before 0 0 0 0 Denied Entry After 0 0 0 0	Denied Entry After	1	0	1	
Fuel Used (gal) 592.8 36.9 629.6 HC Emissions (g) 40 7 47 CO Emissions (g) 22716 3876 26592 NOx Emissions (g) 343 23 366 Vehicles Entered 944 404 1348 Vehicles Exited 940 403 1343 Hourly Exit Rate 940 403 1343 Input Volume 969 400 1369 % of Volume 97 101 98 Denied Entry Before 0 0 Denied Entry After 0 0		2073 8			
HC Emissions (g) 40 7 47 CO Emissions (g) 22716 3876 26592 NOx Emissions (g) 343 23 366 Vehicles Entered 944 404 1343 Hourly Exit Rate 940 403 1343 Input Volume 969 400 1369 % of Volume 97 101 98 Denied Entry Before 0 0 0 Denied Entry After 0 0 0 Contraflow SimTraffic Rep SimTraffic Rep	Travel Time (hr)	33.9			
CO Emissions (g) 22716 3876 26592 NOx Emissions (g) 343 23 366 Vehicles Entered 944 404 1343 Vehicles Exited 940 403 1343 Input Volume 969 400 1369 % of Volume 97 101 98 Denied Entry Before 0 0 0 Denied Entry After 0 0 0 Contraflow SimTraffic Rep SimTraffic Rep	Travel Time (hr) Avg Speed (mph)	33.9 61	67	61	
NOx Emissions (g) 343 23 366 Vehicles Entered 944 404 1348 Vehicles Exited 940 403 1343 Hourly Exit Rate 940 403 1343 Input Volume 969 400 1369 % of Volume 97 101 98 Denied Entry Before 0 0 0 Denied Entry After 0 0 0 Contraflow SimTraffic Rep SimTraffic Rep	Travel Time (hr) Avg Speed (mph) Fuel Used (gal)	33.9 61 592.8	67 36.9	61 629.6	
Vehicles Exited 940 403 1343 Hourly Exit Rate 940 403 1343 Input Volume 969 400 1369 % of Volume 97 101 98 Denied Entry Before 0 0 0 Denied Entry After 0 0 0	Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g)	33.9 61 592.8 40	67 36.9 7	61 629.6 47	
Hourly Exit Rate 940 403 1343 Input Volume 969 400 1369 % of Volume 97 101 98 Denied Entry Before 0 0 0 Denied Entry After 0 0 0	Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g)	33.9 61 592.8 40 22716	67 36.9 7 3876	61 629.6 47 26592	
Input Volume 969 400 1369 % of Volume 97 101 98 Denied Entry Before 0 0 0 Denied Entry After 0 0 0	Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g)	33.9 61 592.8 40 22716 343	67 36.9 7 3876 23	61 629.6 47 26592 366	
% of Volume 97 101 98 Denied Entry Before 0 0 0 Denied Entry After 0 0 0	Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited	33.9 61 592.8 40 22716 343 944 940	67 36.9 7 3876 23 404 403	61 629.6 47 26592 366 1348 1343	
Denied Entry Before 0 0 Denied Entry After 0 0 Contraflow Sim Traffic Reputation	Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate	33.9 61 592.8 40 22716 343 944 940 940	67 36.9 7 3876 23 404 403 403	61 629.6 47 26592 366 1348 1343 1343	
Denied Entry After 0 0 Contraflow SimTraffic Rep	Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume	33.9 61 592.8 40 22716 343 944 940 940 969	67 36.9 7 3876 23 404 403 403 400	61 629.6 47 26592 366 1348 1343 1343 1343 1369	
Contrafiow SimTraffic Rep	Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume	33.9 61 592.8 40 22716 343 944 940 940 969 97	67 36.9 7 3876 23 404 403 403 400 101	61 629.6 47 26592 366 1348 1343 1343 1369 98	
	Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOX Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before	33.9 61 592.8 40 22716 343 944 940 940 940 969 97 0	67 36.9 7 3876 23 404 403 400 101 0	61 629.6 47 26592 366 1348 1343 1343 1343 1369 98 0	
	Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before	33.9 61 592.8 40 22716 343 944 940 940 940 969 97 0	67 36.9 7 3876 23 404 403 400 101 0	61 629.6 47 26592 366 1348 1343 1343 1343 1369 98 0	
	Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before	33.9 61 592.8 40 22716 343 944 940 940 940 969 97 0	67 36.9 7 3876 23 404 403 400 101 0	61 629.6 47 26592 366 1348 1343 1343 1343 1369 98 0	
	Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before	33.9 61 592.8 40 22716 343 944 940 940 940 969 97 0	67 36.9 7 3876 23 404 403 400 101 0	61 629.6 47 26592 366 1348 1343 1343 1343 1369 98 0	
	Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before	33.9 61 592.8 40 22716 343 944 940 940 940 969 97 0	67 36.9 7 3876 23 404 403 400 101 0	61 629.6 47 26592 366 1348 1343 1343 1343 1369 98 0	
	Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before	33.9 61 592.8 40 22716 343 944 940 940 940 969 97 0	67 36.9 7 3876 23 404 403 400 101 0	61 629.6 47 26592 366 1348 1343 1343 1343 1369 98 0	
	Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before	33.9 61 592.8 40 22716 343 944 940 940 940 969 97 0	67 36.9 7 3876 23 404 403 400 101 0	61 629.6 47 26592 366 1348 1343 1343 1343 1369 98 0	
	Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOX Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before	33.9 61 592.8 40 22716 343 944 940 940 940 969 97 0	67 36.9 7 3876 23 404 403 400 101 0	61 629.6 47 26592 366 1348 1343 1343 1343 1369 98 0	
	Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume Ø of Volume Denied Entry Before	33.9 61 592.8 40 22716 343 944 940 940 940 969 97 0	67 36.9 7 3876 23 404 403 400 101 0	61 629.6 47 26592 366 1348 1343 1343 1343 1369 98 0	

Contraflow - 969 Ca	uation	One Contraflow Lan	e Plus Shoulde	r Lane on EB 12/3/2007
Total Network Perfo				
Hardestariotectorio	er an de havennet gemine a granaeur en			etter and a state
Total Delay (hr) Delay / Veh (s) Total Stops Travel Dist (ml) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Extled Hourly Exit Rate Input Volume % of Volume Denied Entry Before Denied Entry After	6.2 16.5 0 3961.0 63.6 63 1236.9 134 72036 731 1351 1351 1342 1342 1342 1342 1342 1342 1342 134			
Contrailow				SimTraffic Repo Page

Contraflow - 969 Cars Arterial Level of Service	EB I-4 C						12/3
	URANA MARK	Delay	Travel	Dist	Arterial	Run 10	Ru
Cross Street Park Road On Ramp	Node 12	(s/veh) 6.2	time (s) 32.3	(mi) 0.5	Speed 62	Speed 63	D
County Line Off Ramp	14	15.0	129.5	2.2	61	61	
Total		21.3	161.7	2.7	61	61	
Arterial Level of Service	: EB I-4 C						
	Run 11	Run 11	Run 12	Run 12	NEW CALL		
Cross Street	Speed	Delay	Speed	Delay			
Park Road On Ramp	60	8.3	63	5.1			
County Line Off Ramp Total	61 61	15.5 23.8	62 62	14.6 19.6			
Arterial Level of Service	· WB I-4 C						
		Delay	Travel	Dist	Arterial	Run 10	Rur
Cross Street	Node	(s/veh)	time (s)	(mi)	Speed.	Speed	De
County Line Off Ramp	14	0.2	13.1	0.2	69	70	
Park Road On Ramp Total	12	2.0	116.2	2.2	68 68	68 69	
10th		F .(F	120.1				
Arterial Level of Service	: WB I-4 C						
Cross Street	Run 11 Speed	Run 11 Delay	Run 12 Speed	Run 12 Delay			
County Line Off Ramp	69	0.2	69	0.2	CONTRACTOR AND INC.		
Park Road On Ramp	68	2.1	68	2.1			
Total	68	2.3	68	2.3			
				224			
						SimTra	affic Re
Contraflow							Pag
Contraflow JSC							

One Contraflow Lane Plus Shoulder Lane on EB I-4 Contraflow Evaluation 12/3/2007 Contraflow - 969 Cars Intersection: 12: I-4 C & Park Road On Ramp Movement **Directions Served** Maximum Queue (ft) Average Queue (ft) 95th Queue (ft) Link Distance (ft) Upstream Blk Time (%) Queuing Penalty (veh) Storage Bay Dist (ft) Storage Blk Time (%) Queuing Penalty (veh) Intersection: 14: I-4 C & County Line Off Ramp Movement **Directions Served** Maximum Queue (ft) Average Queue (ft) Average Queue (ft) 95th Queue (ft) Link Distance (ft) Upstream Bik Time (%) Queuing Penalty (veh) Storage Bay Dist (ft) Storage Bik Time (%) Queuing Penethy (veh) Queuing Penalty (veh) Network Summary Network wide Queuing Penalty: 0 SimTraffic Report Contraflow Page 5 JSC

	ervals				
Run Number	10	11	12	Avg	
Start Time	4:45	4:45	4:45	4:45	
End Time	6:00	6:00	6:00	6:00	
Total Time (min)	75	75	75	75	
Time Recorded (min)	60	60	60	60	
# of Intervals	2	2	2	2 1	
# of Recorded Intvis	1 5057	1 5116	5208	5127	
Vehs Entered Vehs Exited	5089	5145	5208	5144	
Starting Vehs	294	320	287	301	
Ending Vehs	262	291	298	284	
Denied Entry Before	0	2	0	1	
Denied Entry After	0	1	7	3	
Travel Distance (mi)	14987	15141	15319	15149	
Travel Time (hr)	294.9	297.9	305.4	299.4	
Total Delay (hr)	72.0	73.0	78.1	74.3	
Total Stops	30	8	25	21	
Fuel Used (gal)	5145.7	5212.4	5232.7	5196.9	
Interval #0 Informa	tion Seedin	ıg			
Start Time	4:45				
End Time	5:00				
Total Time (min)	15				
Start Time End Time Total Time (min)	5:00 6:00 60				
Run Number	10	11	12	Avg	
Vehs Entered	5057	5116	5208	5127	
Vehs Exited	5089	5145	5197	5144	
Starting Vehs	294	320	287	301	
Ending Vehs	262	291	298	284	
Denied Entry Before	0	2	0	1	
Denied Entry After	0	1	7	3	
Travel Distance (mi) Travel Time (hr)	14987	15141	15319 305.4	15149 299.4	
Total Delay (hr)	294.9 72.0	297.9 73.0	78.1	74.3	
Total Stops	30	8	25	21	
	5145.7	5212.4	5232.7	5196.9	
Fuel Used (gal)					

I-4 Contraflow Ev Freeflow - 5181 (No Contraflow Plus Shoulder Lane on EE 12/3/200
4: I-4 F & Park R	d On Rar	np Perfo	ormance by movement
Movement	ÉBT	All	
Total Delay (hr)	12.1	12.1	
Delay / Veh (s)	8.5	8.5	
Total Stops	21	21	
Travel Dist (mi)	2478.5		
Travel Time (hr) Avg Speed (mph)	53.9 47	53.9 47	
Fuel Used (gal)	997.4	997.4	
HC Emissions (g)	163	163	
CO Emissions (g)	85675	85675	
NOx Emissions (g)	561	561	
Vehicles Entered	5127	5127	
Vehicles Exited Hourly Exit Rate	5120 5120	5120 5120	
Input Volume	5181	5181	
% of Volume	99	99	
Denied Entry Before	1	1	
Denied Entry After	3	3	
Movement Total Delay (hr) Delay / Veh (s) Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) NCx Emissions (g) NCx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before Denied Entry After	EBT 57.1 40.1 0 11326.3 221.0 51 3633.9 594 267431 2202 5140 5140 5140 5141 99 0 0	221.0 51 3633.9 594 267431 2202 5120 5140 5140 5140 5141 99 0	

I-4 Contraflow Evaluation Freeflow - 5181 Cars	r	No Contraflow Plus Shoul	der Lane on El 12/3/20
Total Network Performan	nce		
		CONTRACTOR CONTRACTOR OF STREET, STREET	
Total Delay (hr) Delay / Veh (s) Total Stops Travel Dist (ml) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before Denied Entry After	74.3 52.1 21 15149.2 299.4 51 5196.9 858 409234 3093 5127 5144 15543 33 1 3		
		н.	
Freeflow JSC			SimTraffic Rep Page

I-4 Contraflow Evaluation Freeflow - 5181 Cars			No Co	ontraflow F	Plus Shou	ilder Lane	e on E 12/3/20
Arterial Level of Service: E	B I-4 F						
Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed	Run 10 Speed	Run De
Park Rd On Ramp	4	8.5	37.9 155.1	0.5	49 51	49 51	8
Cty Line Off Ramp Total	0	40.1 48.6	192.9	2.2	51	51	47
Arterial Level of Service: E	B I-4 F						
Correct Strengt	Run 11	Run 11	Run 12	Run 12 Delay	1. Select		
Cross Street Park Rd On Ramp	Speed 50	Delay 7.9	Speed 48	9.3	Contraction of the		THE REAL PROPERTY
Cty Line Off Ramp Total	51 51	39.8 47.7	<u>51</u> 50	41.1 50.4			
TOIAI	51	41.1	50	50.4			
Freeflow			111.00			SimTra	affic Repo
JSC							Page
							i aya

No Contraflow Plus Shoulder Lane on E				I-4 Contraflow Eva Freeflow - 5181 C
	n Ramp	k Rd O	F & Parl	Intersection: 4: I-4
		EB	ÉB	Movement
		T 852 28 471 2551 0 0	T 854 28 472 2551 0 0	Directions Served Maximum Queue (ft) Average Queue (ft) 95th Queue (ft) Link Distance (ft) Upstream Blk Time (%) Queuing Penalty (veh) Storage Bay Dist (ft) Storage Blk Time (%)
)ff Pamp	l ine Of	E & Chy	Queuing Penalty (veh) Intersection: 6: I-4
			r a Oly	Movement
				Directions Served Maximum Queue (ft) Average Queue (ft) 95th Queue (ft) Link Distance (ft) Upstream Blk Time (%) Queuing Penalty (veh) Storage Blk Time (%) Queuing Penalty (veh) Network Summary Network wide Queuing Pen
				Freeflow

Summary of All In	Cars				12/3/20
	ervals				
Run Number	10	11		Ávg	
Start Time	4:45	4:45	4:45	4:45	
End Time	6:00 75	6:00 75	6:00 75	6:00 75	
Total Time (min)	60	60	60	60	
Time Recorded (min) # of Intervals	2	2	2	2	
# of Recorded Intvis	ĩ	1	1	1	
Vehs Entered	2546	2624	2662	2611	
Vehs Exited	2536	2613	2651	2600	
Starting Vehs	115	112	135	119	
Ending Vehs	125	123	146	131	
Denied Entry Before	0	0	0	0	
Denied Entry After	0	0	6	2	
Travel Distance (mi)	7495 125.9	7699 129.7	7800 132.2	7665 129.3	
Travel Time (hr) Total Delay (hr)	125.9	17.3	18.3	129.3	
Total Stops	10.3	17.5	2	2	
Fuel Used (gal)	2495.0	2597.3	2602.5	2564.9	
Interval #0 Informa	ation Seedin	g			
Start Time	4:45				
End Time	5:00				
Total Time (min) No data recorded this inter Interval #1 Informa	15 val. ation Record	ling			
Total Time (min) No data recorded this inter Interval #1 Informa Start Time End Time	15 val. ation Record 5:00 6:00	ling			
Total Time (min) No data recorded this inter Interval #1 Informa Start Time End Time Total Time (min)	15 val. <u>ation Record</u> 5:00 6:00 60				
Total Time (min) No data recorded this inter Interval #1 Informa Start Time End Time Total Time (min) Run Number	15 val. <u>ation Record</u> 5:00 6:00 60 10	101211	12	Avg	
Total Time (min) No data recorded this inter Interval #1 Informa Start Time End Time Total Time (min) Run Number Vehs Entered	val. ation Record 5:00 6:00 60 10 2546	11 2624	2662	2611	
Total Time (min) No data recorded this inter Interval #1 Informa Start Time End Time Total Time (min) Run Number Vehs Entered Vehs Exited	val. ation Record 5:00 6:00 60 10 2546 2536	11 2624 2613	2662 2651	2611 2600	
Total Time (min) No data recorded this inter Interval #1 Informa Start Time End Time Total Time (min) Run Number Vehs Entered Vehs Exited Starting Vehs	val. ation Record 5:00 6:00 60 10 2546 2536 115	11 2624 2613 112	2662 2651 135	2611 2600 119	
Total Time (min) No data recorded this inter Interval #1 Informa Start Time End Time Total Time (min) Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs	val. ation Record 5:00 6:00 60 10 2546 2536	11 2624 2613	2662 2651	2611 2600	
Total Time (min) No data recorded this inter Interval #1 Informa Start Time End Time Total Time (min) Run Number Vehs Entered Vehs Exited Starting Vehs	val. ation Record 5:00 6:00 60 10 2546 2536 115 125	11 2624 2613 112 123	2662 2651 135 146	2611 2600 119 131	
Total Time (min) No data recorded this inter Interval #1 Informa Start Time End Time Total Time (min) Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi)	val. ation Record 5:00 6:00 60 10 2546 2536 115 125 0 0 0 7495	11 2624 2613 112 123 0 0 7699	2662 2651 135 146 0 6 7800	2611 2600 119 131 0 2 7665	
Total Time (min) No data recorded this inter Interval #1 Informa Start Time End Time Total Time (min) Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr)	15 ation Record 5:00 6:00 60 10 2546 2536 115 125 0 0 7495 125.9	11 2624 2613 112 123 0 0 7699 129.7	2662 2651 135 146 0 6 7800 132.2	2611 2600 119 131 0 2 7665 129.3	
Total Time (min) No data recorded this inter Interval #1 Informa Start Time End Time Total Time (min) Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr)	15 ation Record 5:00 6:00 60 10 2546 2536 115 125 0 0 7495 125.9 16.3	11 2624 2613 112 123 0 0 7699 129.7 17.3	2662 2651 135 146 0 6 7800 132.2 18.3	2611 2600 119 131 0 2 7665 129.3 17.3	
Total Time (min) No data recorded this inter Interval #1 Informa Start Time End Time Total Time (min) Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr)	15 ation Record 5:00 6:00 60 10 2546 2536 115 125 0 0 7495 125.9	11 2624 2613 112 123 0 0 7699 129.7	2662 2651 135 146 0 6 7800 132.2	2611 2600 119 131 0 2 7665 129.3	

I-4 Contraflow Ev Contraflow - 2225				Two Contraflow Lan 12/3/20
12: I-4 C & Park F	Road On	Ramp	Perfo	rmance by movement
Movement	EBT	WBT	All	
Total Delay (hr)	2.9	0.8	3.6	
Delay / Veh (s)	4.7	6.8	5.0	
Total Stops	2	0	2	
Travel Dist (mi)	1070.9	895.9	1966.8	
Travel Time (hr)	19.7	13.7	33.4	
Avg Speed (mph)	56	65	60	
Fuel Used (gal)	410.8	287.6	698.4	
HC Emissions (g)	42	51	93	
CO Emissions (g)	32928	21002	53930 384	
NOx Emissions (g)	179	205 404	2610	
Vehicles Entered Vehicles Exited	2206 2200	404	2610	
Hourly Exit Rate	2200	409	2609	
Input Volume	2200	409	2625	
% of Volume	99	102	99	
Denied Entry Before	0	0	0	
Denied Entry After	2	0	2	
Total Delay (hr) Delay / Veh (s) Total Stops	12.4 20.3 0	0.1 0.9 0	12.5 17.3 0	
Travel Dist (mi)	4837.8		4934.1	
Travel Time (hr)	82.1	1.5	83.7	
Avg Speed (mph)	59	66	59	
Fuel Used (gal)	1537.7		1573.2	
HC Emissions (g)	129	6	135	
CO Emissions (g)	89312	3330	92642	
NOx Emissions (g)	753	22	775	
Vehicles Entered	2200	405	2605	
Denied Entry After	U	U	U	
Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before Denied Entry After	2200 2193 2193 2225 99 0 0	405 404 404 101 0 0	2605 2597 2597 2625 99 0 0	

I-4 Contraflow Evaluation Contraflow - 2225 Cars		Two Contraflow Lanes 12/3/200
Total Network Performa	ance	
Total Delay (hr) Delay / Veh (s) Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before Denied Entry After	17.3 23.9 2 7664.6 129.3 60 2564.9 264 171800 1305 2611 2600 2600 7875 33 0 2	
Contraflow JSC		SimTraffic Repor Page 3

I-4 Contraflow Evaluation Contraflow - 2225 Cars	n 				Two	Contraflo	N La 12/3/
Arterial Level of Service:	EB I-4 C						
Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed	Run 10 Speed	Run De
Park Road On Ramp	12	4.7	32.2	0.5	57	57	a terre i
County Line Off Ramp Total	14	20.3 24.9	134.6 166.8	2.2 2.7	59 58	59 59	2
Arterial Level of Service:	EB I-4 C						
	Run 11	Run 11	Run 12	Run 12			
Cross Street Park Road On Ramp	Speed 57	Delay 4.5	Speed 57	Delay 4.9		and and an and	dol. S.
County Line Off Ramp Total	59 59	20.2	59 58	21.1 26.0			
		24.7	00	20.0			
Arterial Level of Service:	WB I-4 C		los d e remente		STREET	D 40	D
Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed	Run 10 Speed	Run De
County Line Off Ramp	14	0.9	13.7	0.2	69	68	
Park Road On Ramp Total	12	6.8	<u>121.2</u> 134.9	2.2	65 66	65 65	
County Line Off Ramp Park Road On Ramp Total	65 66	7.0 8.0	65 66	6.5 7.4			
				1.00)			

Two Contraflow Lanes I-4 Contraflow Evaluation Contraflow - 2225 Cars 12/3/2007 Intersection: 12: I-4 C & Park Road On Ramp Movement Directions Served Maximum Queue (ft) Average Queue (ft) 95th Queue (ft) Link Distance (ft) Upstream Blk Time (%) Queuing Penalty (veh) Storage Bay Dist (ft) Storage Blk Time (%) Queuing Penalty (veh) Intersection: 14: I-4 C & County Line Off Ramp Movement **Directions Served** Maximum Queue (ft) Average Queue (ft) 95th Queue (ft) Link Distance (ft) Upstream Blk Time (%) Queuing Penalty (veh) Storage Bay Dist (ft) Storage Blk Time (%) Queuing Penalty (veh) Network Summary Network wide Queuing Penalty: 0 Contraflow SimTraffic Report JSC Page 5

Summary of All Int Run Number Start Time End Time Fotal Time (min) Time Recorded (min) # of Intervals	10 4:45 6:00 75	11			
Start Time End Time Fotal Time (min) Fime Recorded (min)	4:45 6:00		12	Avg	
Fotal Time (min) Fime Recorded (min)		4:45	4:45	4:45	
Time Recorded (min)	75	6:00	6:00	6:00	
		75	75	75	
t of Intervals	60	60	60	60	
af December Intule	2 1	2	2	2	
f of Recorded Intvis Vehs Entered	4008	3800	3993	3934	
/ehs Exited	4008	3850	3944	3937	
Starting Vehs	207	260	174	213	
Ending Vehs	197	210	223	210	
Denied Entry Before	0	0	1	0	
Denied Entry After	0	0	2	1	
Travel Distance (mi)	11849	11265	11706	11607	
Travel Time (hr)	217.4	199.3	210.5	209.1	
Total Delay (hr)	42.2 15	33.0 5	37.7 2	37.6 7	
Total Stops Fuel Used (gal)	4035.3	3867.3	3974.1	3958.9	
dor obod (gdi)					
		a			
nterval #0 Informa		3			
Start Time	4:45	5			
Start Time End Time Fotal Time (min) /olumes adjusted by Growt lo data recorded this interv	4:45 5:00 15 th Factors. val.				
Start Time End Time Fotal Time (min) /olumes adjusted by Growt No data recorded this interv nterval #1 Informa Start Time	4:45 5:00 15 th Factors. val. ation Record 5:00				
Start Time End Time Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time	4:45 5:00 15 th Factors. val. ation Record 5:00 6:00				
Start Time End Time Fotal Time (min) /olumes adjusted by Growt No data recorded this interv nterval #1 Informa Start Time	4:45 5:00 15 th Factors. val. ation Record 5:00 6:00 60				125
Start Time End Time Total Time (min) Volumes adjusted by Growt Io data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number	4:45 5:00 15 th Factors. val. ation Record 5:00 6:00 6:00 60 th Factors. 10	ing 11	12	Avg	
Start Time End Time Total Time (min) /olumes adjusted by Growt lo data recorded this interv nterval #1 Informa Start Time Total Time (min) /olumes adjusted by Growt Run Number /ehs Entered	4:45 5:00 15 th Factors. val. ation Record 5:00 6:00 6:00 60 th Factors. 10 4008	ing 11 3800	3993	3934	
Start Time End Time fotal Time (min) /olumes adjusted by Growt No data recorded this interv nterval #1 Informa Start Time fotal Time fotal Time (min) /olumes adjusted by Growt Run Number /ehs Entered /ehs Exited	4:45 5:00 15 th Factors. val. ation Record 5:00 6:00 6:00 60 th Factors. 10 4008 4018	ing 11 3800 3850	3993 3944	3934 3937	
Start Time End Time Total Time (min) /olumes adjusted by Growt No data recorded this interv nterval #1 Informa Start Time End Time Total Time (min) /olumes adjusted by Growt Run Number /ehs Entered /ehs Exited Starting Vehs	4:45 5:00 15 th Factors. val. ation Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 15 15 15 15 15 15 15 15 15 15	11 3800 3850 260	3993 3944 174	3934 3937 213	
Start Time End Time Total Time (min) folumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) folumes adjusted by Growt Run Number fehs Entered /ehs Exited Starting Vehs inding Vehs	4:45 5:00 15 th Factors. val. ation Record 5:00 6:00 6:00 60 th Factors. 10 4008 4018 207 197	11 3800 3850 260 210	3993 3944 174 223	3934 3937 213 210	
Start Time End Time Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number Vehs Entered Vehs Entered Vehs Entered Starting Vehs Denied Entry Before	4:45 5:00 15 th Factors. val. ation Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 15 15 15 15 15 15 15 15 15 15	11 3800 3850 260	3993 3944 174	3934 3937 213	
Start Time End Time Total Time (min) folumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) folumes adjusted by Growt Run Number fehs Entered /ehs Exited Starting Vehs inding Vehs	4:45 5:00 15 th Factors. val. ation Record 5:00 6:00 6:00 60 th Factors. 10 4008 4018 207 197 0	ing 11 3800 3850 260 210 0	3993 3944 174 223 1	3934 3937 213 210 0	
Start Time End Time Total Time (min) Yolumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Yolumes adjusted by Growt Run Number Yehs Entered Yehs Exited Starting Vehs Ending Vehs Ending Vehs Denied Entry Before Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) .	4:45 5:00 15 th Factors. val. ation Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 10 4:008 4:018 2:07 197 0 0	ing 11 3800 3850 260 210 0 0	3993 3944 174 223 1 2	3934 3937 213 210 0 1	
Start Time End Time Total Time (min) Yolumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Yolumes adjusted by Growt Run Number Yehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry Before Denied Entry After Travel Distance (mi) Travel Distance (mi) Total Delay (hr)	4:45 5:00 15 th Factors. val. ation Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 10 10 10 10 10 10 10 10 10	11 3800 3850 260 210 0 0 11265 199.3 33.0	3993 3944 174 223 1 2 11706 210.5 37.7	3934 3937 213 210 0 1 11607 209.1 37.6	
Start Time End Time Total Time (min) /olumes adjusted by Growt /olumes adjusted by Growt /olumes adjusted this interv Interval #1 Informa Start Time End Time Total Time (min) /olumes adjusted by Growt Run Number /ehs Entered /ehs Entered /ehs Exited Starting Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) - Total Delay (hr) Total Stops	4:45 5:00 15 th Factors. val. ation Record 5:00 6:00 6:00 60 th Factors. 10 4008 4018 207 197 0 0 11849 217.4 42.2 15	11 3800 3850 260 210 0 0 11265 199.3 33.0 5	3993 3944 174 223 1 2 11706 210.5 37.7 2	3934 3937 213 210 0 1 11607 209.1 37.6 7	
Start Time End Time Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time	4:45 5:00 15 th Factors. val. ation Record 5:00 6:00				
Start Time End Time Total Time (min) folumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) folumes adjusted by Growt Run Number fehs Entered /ehs Exited Starting Vehs inding Vehs	4:45 5:00 15 th Factors. val. ation Record 5:00 6:00 6:00 60 th Factors. 10 4008 4018 207 197	11 3800 3850 260 210	3993 3944 174 223	3934 3937 213 210	
Start Time End Time Total Time (min) /olumes adjusted by Growt Io data recorded this interv Interval #1 Informa Start Time Total Time (min) /olumes adjusted by Growt Run Number /ehs Entered /ehs Exited Starting Vehs Ending Vehs Senidg Centry Before Denied Entry After	4:45 5:00 15 th Factors. val. ation Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 10 4:008 4:018 2:07 197 0 0	ing 11 3800 3850 260 210 0 0	3993 3944 174 223 1 2	3934 3937 213 210 0 1	
Start Time End Time Total Time (min) /olumes adjusted by Growt /olumes adjusted by Growt /olumes adjusted this interv Interval #1 Informa Start Time Total Time (min) /olumes adjusted by Growt Run Number /ehs Entered /ehs Exited Starting Vehs Denied Entry Before Denied Entry After Travel Distance (mi)	4:45 5:00 15 th Factors. val. ation Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 10 10 10 197 0 0 11849	ing 11 3800 3850 260 210 0 0 11265	3993 3944 174 223 1 2 11706	3934 3937 213 210 0 1 11607	
Start Time End Time Total Time (min) Yolumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Yolumes adjusted by Growt Run Number Yehs Entered Yehs Exited Starting Vehs Ending Vehs Ending Vehs Denied Entry Before Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) .	4:45 5:00 15 th Factors. val. ation Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 15 10 10 10 10 10 10 10 10 15 10 15 10 10 10 10 10 10 10 10 10 10	11 3800 3850 260 210 0 11265 199.3	3993 3944 174 223 1 2 11706 210.5	3934 3937 213 210 0 1 11607 209.1	
Start Time End Time Total Time (min) Yolumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Yolumes adjusted by Growt Run Number Yehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry Before Denied Entry After Travel Distance (mi) Travel Distance (mi) Total Delay (hr)	4:45 5:00 15 th Factors. val. ation Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 10 10 10 10 10 10 10 10 10	11 3800 3850 260 210 0 0 11265 199.3 33.0	3993 3944 174 223 1 2 11706 210.5 37.7	3934 3937 213 210 0 1 11607 209.1 37.6	
Start Time End Time Total Time (min) Yolumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Yolumes adjusted by Growt Run Number Yehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry Before Denied Entry After Travel Distance (mi) Travel Distance (mi) Total Delay (hr)	4:45 5:00 15 th Factors. val. ation Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 10 10 10 10 10 10 10 10 10	11 3800 3850 260 210 0 0 11265 199.3 33.0	3993 3944 174 223 1 2 11706 210.5 37.7	3934 3937 213 210 0 1 11607 209.1 37.6	

I-4 Contraflow E Freeflow - 3925			Two Contraflow Land 12/3/20
		mp Per	formance by movement
Movement	EBT	All	
Total Delay (hr)	5.2		
Delay / Veh (s)	4.8	4.8	
Total Stops	7	7	
Travel Dist (mi)	1919.6		
Travel Time (hr)	36.6	36.6	
Avg Speed (mph) Fuel Used (gal)	53	53	
HC Emissions (g)	774.4	774.4 133	
CO Emissions (g)	76501	76501	
NOx Emissions (g)	431	431	
Vehicles Entered	3934	3934	
Vehicles Exited	3933	3933	
Hourly Exit Rate	3933	3933	
Input Volume	3925	3925	
% of Volume	100	100	
Denied Entry Before	0	0	
Denied Entry After	1	1	
6: I-4 F & Cty Lir	ne Off Rar	np Perf	ormance by movement
Movement		All	
Total Delay (hr)	27.8	27.8	
Delay / Veh (s)	25.5	25.5	
Total Stops	0	0	
Travel Dist (mi)	8660.3		
Travel Time (hr) Avg Speed (mph)	153.1 57	153.1 57	
Fuel Used (gal)		2810.2	
HC Emissions (g)	480	480	
CO Emissions (g)	225422		
NOx Emissions (g)	1764	1764	
Vehicles Entered	3933	3933	
Vehicles Exited	3932	3932	
Hourly Exit Rate	3932	3932	
Input Volume	3925	3925	
% of Volume	100	100	
Denied Entry Before	0	0	
Denied Entry After	0	0	
Freeflow JSC			SimTraffic Repo Page

I-4 Contraflow Evaluat Freeflow - 3925 Cars	on	Two Contraflow Lane 12/3/200
Total Network Perform	ance	
and the second s		
Total Delay (hr) Delay / Veh (s) Total Stops Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Extled Hourly Exit Rate Input Volume % of Volume Denied Entry Before Denied Entry After	37.6 34.4 7 11606.7 209.1 56 3358.9 676 333670 2417 3934 3937 3937 11775 33 0 1	
Freeflow JSC		SimTraffic Repor Page :

I-4 Contraflow Evaluation Freeflow - 3925 Cars					1000	Contraflow	12/3/20
Arterial Level of Service:	EB I-4 F						_
Cross Street	Node	Delay (chrob)	Travel	Dist (mi)	Arterial Speed	Run 10 Speed	Run Del
Cross Street Park Rd On Ramp	4	(s/veh) 4.8	time (s) 33.5	(mi) 0.5	55	55	De
Cty Line Off Ramp	6	25.5	140.2	2.2	56	55	2
Total		30.3	173.7	2.7	56	55	33
Arterial Level of Service:	EB I-4 F						
	Run 11	Run 11	Run 12	Run 12			
Cross Street Park Rd On Ramp	Speed 56	Delay 4.4	Speed 55	Delay 4.8	1994年19月1日 1997年1月11日 1997年1月11日 1997 1997 1997 1997 1997 1997 1997 1	1297392419	
Cty Line Off Ramp	57	22.9	56	25.5			
Total	57	27.3	56	30.3			
				×			
Freeflow JSC						SimTra	fic Repo

I-4 Contraflow Evaluation Freeflow - 3925 Cars	Two Contraflow Lane 12/3/20
Intersection: 4: I-4 F & Park Rd On Ramp	
Movement	
Directions Served	
Maximum Queue (ft) Average Queue (ft)	
95th Queue (ft)	
Link Distance (ft)	
Upstream Bik Time (%) Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%) Queuing Penalty (veh)	
Intersection: 6: I-4 F & Cty Line Off Ramp	
Movement Directions Served	
Maximum Queue (ft)	
Average Queue (ft) 95th Queue (ft)	
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh) Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	
Network Summary	
Network wide Queuing Penalty: 0	
Freeflow	SimTraffic Repo
JSC	Page

Contraflow - 3075	aluation Cars			Al	+ 0	Three Contraflow Lan 12/3/2
Summary of All In						
Run Number	10	11	12	Avg	NES GRAD	
Start Time	4:45	4:45	4:45	4:45		
End Time	6:00	6:00	6:00	6:00		
Total Time (min)	75	75	75	75		
Time Recorded (min)	60	60	60	60		
# of Intervals	2	2	2	2		
# of Recorded Intvis Vehs Entered	3017	3155	3099	3090		
Vehs Exited	3033	3145	3106	3095		
Starting Vehs	169	148	148	154		
Ending Vehs	153	158	141	150		
Denied Entry Before	1	0	0	0		
Denied Entry After	0	1	0	0		
Travel Distance (mi)	8943	9319	9168	9143		
Travel Time (hr)	146.6	154.4	150.5	150.5		
Total Delay (hr)	15.4	17.4	16.2	16.3		
Total Stops	0	1	0	0		
Fuel Used (gal)	3081.0	3217.6	3184.3	3160.9		
Interval #0 Informa	ation Seedin	g				
Start Time	4.45					
Start Time	4:45					
End Time	5:00					
End Time Total Time (min) Volumes adjusted by Grow No data recorded this inter	5:00 15 th Factors. val.	ling				
End Time Total Time (min) Volumes adjusted by Grow No data recorded this inter Interval #1 Informa Start Time End Time	5:00 15 th Factors. val. ation Record 5:00 6:00	ling				
End Time Total Time (min) Volumes adjusted by Grow No data recorded this inter Interval #1 Informa Start Time End Time Total Time (min)	5:00 15 th Factors. val. ation Record 5:00 6:00 60	ling				
End Time Total Time (min) Volumes adjusted by Grow No data recorded this intern Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow	5:00 15 th Factors. val. <u>ation Record</u> 5:00 6:00 60 th Factors.		12	Ανο		
End Time Total Time (min) Volumes adjusted by Grow No data recorded this inter Interval #1 Informa Start Time End Time Total Time (min)	5:00 15 th Factors. val. ation Record 5:00 6:00 60	ling 11 3155	<u>12</u> 3099	Avg 3090		
End Time Total Time (min) Volumes adjusted by Grow No data recorded this inter Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Exited	5:00 15 th Factors. val. ation Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00	11	3099 3106	3090 3095		
End Time Total Time (min) Volumes adjusted by Grow No data recorded this intern Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Exited Starting Vehs	5:00 15 th Factors. val. <u>ation Record</u> 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00	11 3155 3145 148	3099 3106 148	3090 3095 154		
End Time Total Time (min) Volumes adjusted by Grow No data recorded this intern Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs	5:00 15 th Factors. val. <u>ation Record</u> 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00	11 3155 3145 148 158	3099 3106 148 141	3090 3095 154 150		
End Time Total Time (min) Volumes adjusted by Grow No data recorded this inter Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before	5:00 15 th Factors. val. ation Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 1:00 1	11 3155 3145 148 158 0	3099 3106 148 141 0	3090 3095 154 150 0		
End Time Total Time (min) Volumes adjusted by Grow No data recorded this inter Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Ending Vehs Ending Vehs Denied Entry Before Denied Entry After	5:00 15 th Factors. val. ation Record 5:00 6:00 6:00 6:00 6:00 6:00 1:00 10 3017 3033 169 153 1 0	11 3155 3145 148 158 0 1	3099 3106 148 141 0 0	3090 3095 154 150 0 0		
End Time Total Time (min) Volumes adjusted by Grow No data recorded this inter Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Ending Vehs Denied Entry After Travel Distance (mi)	5:00 15 th Factors. val. ation Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 100 153 153 1 0 8943	11 3155 3145 148 158 0 1 9319	3099 3106 148 141 0 0 9168	3090 3095 154 150 0 0 9143		
End Time Total Time (min) Volumes adjusted by Grow No data recorded this inter Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr)	5:00 15 th Factors. val. ation Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 1:00	11 3155 3145 148 158 0 1 9319 154.4	3099 3106 148 141 0 0 9168 150.5	3090 3095 154 150 0 9143 150.5		
End Time Total Time (min) Volumes adjusted by Grow No data recorded this intern Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow <u>Run Number</u> Vehs Entered Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr)	5:00 15 th Factors. val. ation Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00	11 3155 3145 148 158 0 1 9319 154.4 17.4	3099 3106 148 141 0 9168 150.5 16.2	3090 3095 154 150 0 9143 150.5 16.3		
End Time Total Time (min) Volumes adjusted by Grow No data recorded this inter Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr) Total Stops	5:00 15 th Factors. val. ation Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 1:00 1	11 3155 3145 148 158 0 1 9319 154.4 17.4 1	3099 3106 148 141 0 9168 150.5 16.2 0	3090 3095 154 150 0 9143 150.5 16.3 0		
End Time Total Time (min) Volumes adjusted by Grow No data recorded this intern Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Entered Vehs Exited Starting Vehs Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr)	5:00 15 th Factors. val. ation Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00	11 3155 3145 148 158 0 1 9319 154.4 17.4	3099 3106 148 141 0 9168 150.5 16.2	3090 3095 154 150 0 9143 150.5 16.3		
End Time Total Time (min) Volumes adjusted by Grow No data recorded this inter Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr) Total Delay (hr)	5:00 15 th Factors. val. ation Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 1:00 1	11 3155 3145 148 158 0 1 9319 154.4 17.4 1	3099 3106 148 141 0 9168 150.5 16.2 0	3090 3095 154 150 0 9143 150.5 16.3 0		

I-4 Contraflow E Contraflow - 307			Three Contraflow Lane 12/3/200
4: I-4 C & Park F	Rd On Ra	mp Per	formance by movement
Movement	EBT	All	
Total Delay (hr)	1.7	1.7	
Delay / Veh (s)	2.0	2.0	
Total Stops	0	0	
Travel Dist (mi)	1510.0		
Travel Time (hr)	25.6	25.6	
Avg Speed (mph)	60	60	
Fuel Used (gal)	599.5	599.5	
HC Emissions (g)	68	68	
CO Emissions (g)	55235	55235	
NOx Emissions (g)	256	256	
Vehicles Entered Vehicles Exited	3090 3095	3090 3095	
Hourly Exit Rate	3095	3095	
Input Volume	3075	3075	
% of Volume	101	101	
Denied Entry Before	0	0	
Denied Entry After	0	Ő	
Total Delay (hr) Delay / Veh (s) Total Stops Travel Dist (ml)	12.7 14.8 0 6825.8	All 12.7 14.8 0 6825.8	
Delay / Veh (s) Total Stops Travel Dist (ml) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g)	14.8 0 6825.8 111.4 61 2276.3 210	12.7 14.8 0 6825.8 111.4 61 2276.3 210	
Delay / Veh (s) Total Stops Travel Dist (ml) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate	14.8 0 6825.8 111.4 61 2276.3 210 152683 1076 3095 3096 3096	12.7 14.8 0 6825.8 111.4 61 2276.3 210 152683 1076 3095 3096 3096	
Delay / Veh (s) Total Stops Travel Dist (ml) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) Vohicles Entered Vehicles Exited Hourty Exit Rate Input Volume	14.8 0 6825.8 111.4 61 2276.3 210 152683 1076 3095 3096 3096 3095	12.7 14.8 0 6825.8 111.4 61 2276.3 210 152683 1076 3095 3096 3096 3096 3075	
Delay / Veh (s) Total Stops Travel Dist (ml) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume	14.8 0 6825.8 111.4 61 2276.3 210 152683 1076 3095 3096 3096 3096 3095	12.7 14.8 0 6825.8 111.4 61 2276.3 210 152683 1076 3095 3096 3096 3096 3095 101	
Delay / Veh (s) Total Stops Travel Dist (ml) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before	14.8 0 6825.8 111.4 61 2276.3 210 152683 1076 3095 3096 3096 3095 101 0	12.7 14.8 0 6825.8 111.4 61 2276.3 210 152683 1076 3095 3096 3095 3096 3075 101 0	
Delay / Veh (s) Total Stops Travel Dist (ml) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume	14.8 0 6825.8 111.4 61 2276.3 210 152683 1076 3095 3096 3096 3096 3095	12.7 14.8 0 6825.8 111.4 61 2276.3 210 152683 1076 3095 3096 3096 3096 3095 101	
Delay / Veh (s) Total Stops Travel Dist (ml) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before	14.8 0 6825.8 111.4 61 2276.3 210 152683 1076 3095 3096 3096 3095 101 0	12.7 14.8 0 6825.8 111.4 61 2276.3 210 152683 1076 3095 3096 3095 3096 3075 101 0	
Delay / Veh (s) Total Stops Travel Dist (ml) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before	14.8 0 6825.8 111.4 61 2276.3 210 152683 1076 3095 3096 3096 3095 101 0	12.7 14.8 0 6825.8 111.4 61 2276.3 210 152683 1076 3095 3096 3095 3096 3075 101 0	

Three Contraflow Lane 12/3/20		I-4 Contraflow Evaluati Contraflow - 3075 Cars
		Total Network Perform
	16.3 19.0 0 9143.4 150.5 61 3160.9 305 227947 1462 3090 3095 3095 9225 34 0 0	Total Delay (hr) Delay / Veh (s) Total Stops Travel Dist (mi) Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) CO Emissions (g) Vokicles Entered Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before Denied Entry After
SimTraffic Report Page		Contraflow JSC

Const Stimel Node (stven) Itme (s) (m) Speed Speed Decision Park R0 On Ramp 6 14.4 128.5 2.2 61 61 1 Total 168.8 159.3 2.7 61 61 1 Arterial Level of Service: EB I-4 C EB 199.3 2.7 61 61 1 Cross Street Run 11 Run 12 Run 12 Run 12 Run 12 Run 12 Run 13 Run 14	I-4 Contraflow Evaluation Contraflow - 3075 Cars					Three (Contraflov	v Lan 12/3/2
Constrainty Node (stven) Imme (s) (m) Speed Speed Decision (stress) Park R0 On Ramp 6 14.4 128.5 2.2 61 61 1 Total 168.8 159.3 2.7 61 61 1 Arterial Level of Service: EB I-4 C Imme (s) Run 11 Run 12	Arterial Level of Service: E	EB I-4 C						
Park Bd On Ramp 4 2.0 28.8 0.5 62 62 Cly Line Off Ramp 6 14.8 129.5 2.2 61 61 1 Arterial Level of Service: EB I-4 C Image: Speed Delay Speed Delay Park Rd On Ramp 61 2.0 62 2.0 0 0 1 1 Park Rd On Ramp 61 2.0 62 2.0 0	Cross Stread	Nodo				Arterial		Run
CtyLine Off Ramp 6 14.8 129.5 2.2 61 61 1 Arterial Level of Service: EB I-4 C Image: Speed Delay Speed Speed Speed Speed Sp	Park Rd On Ramp	4	2.0	29.8	0.5	62	62	
Arterial Level of Service: EB I-4 C	Cty Line Off Ramp	6						1.
Run 11 Run 11 Run 12 Run 12 Dross Street Speed Delay Speed Delay Park Rd On Ramp 61 2.0 62 2.0 Cly Line Off Ramp 61 15.5 61 14.6 Total 61 17.5 61 16.8			10.8	159.3	2.1	01	01	10
Cross Street Speed Delay Speed Delay Park Rd On Ramp 61 2.0 62 2.0 Cyl Line Off Ramp 61 17.5 61 16.6	Arterial Level of Service: E	B I-4 C						
Park Rd On Ramp 61 2.0 62 2.0 Cly Line Off Ramp 61 15.5 61 14.6 Total 61 17.5 61 16.6	Cross Street							
Total 61 17.5 61 16.6	Park Rd On Ramp	61	2.0	62	2.0	Challe Service stations	and the result of the local	CONVERSION.
Contraflow	Cty Line Off Ramp							
Contraflow JSC SimTraffic Rep Page	Total	61	17.5	61	16.6			
Contraflow JSC								
Contraflow JSC SimTraffic Rep Page								
Contraflow JSC SimTraffic Rep Page								
Contraflow JSC SimTraffic Rep Page								
SinTraffic Rep JSC								
Contraflow JSC SimTraffic Rep Page								
Contratiow JSC SimTraffic Rep Page								
Contraflow JSC SimTraffic Rep. Page								
Contraflow JSC SimTraffic Rep Page								
Contraflow JSC SimTraffic Rep Page								
Contraflow JSC SimTraffic Rep Page								
Contraflow JSC SimTraffic Rep Page								
Contraflow JSC SimTraffic Rep Page								
Contraflow JSC SimTraffic Rep Page								
Contraflow JSC SimTraffic Rep Page								
Contraflow JSC SimTraffic Rep Page								
Contraflow JSC SimTraffic Rep Page								
Contraflow JSC SimTraffic Rep Page								
Contraflow JSC SimTraffic Rep Page								
Contraflow JSC SimTraffic Rep Page								
Contraflow SimTraffic Rep JSC Page								
Contraflow JSC SimTraffic Rep Page								
Contraflow JSC SimTraffic Rep Page								
Contraflow SimTraffic Rep JSC Page								
Contraflow SimTraffic Rep JSC Page								
Contraflow JSC SimTraffic Rep Page								
Contraflow SimTraffic Rep JSC Page								
Contraflow SimTraffic Rep JSC Page								
Contraflow SimTraffic Rep JSC Page								
Contraflow SimTraffic Rep JSC Page								
Contraflow SimTraffic Rep JSC Page								
Contraflow SimTraffic Rep JSC Page								
Contraflow SimTraffic Rep JSC Page								
Contraflow SimTraffic Rep JSC Page								
Contraflow SimTraffic Rep JSC Page								
Contraflow SimTraffic Rep JSC Page								
Contraflow SimTraffic Rep JSC Page								
Contraflow SimTraffic Rep JSC Page								
Contraflow SimTraffic Rep JSC Page								
JSC Page								
							SimTraf	fic Repo
							SimTraf	fic Repo Page
							SimTraf	fic Repo Page
							SimTraf	fic Repo Page
							SimTraf	fic Repo Page
							SimTrat	fic Repo Page
							SimTrat	fic Repo Page

I-4 Contraflow Evaluation Three Contraflow Lanes Contraflow - 3075 Cars 12/3/2007 Intersection: 4: I-4 C & Park Rd On Ramp Movement **Directions Served** Maximum Queue (ft) Average Queue (ft) 95th Queue (ft) Link Distance (ft) Upstream Blk Time (%) Queuing Penalty (veh) Storage Bay Dist (ft) Storage Blk Time (%) Queuing Penalty (veh) Intersection: 6: I-4 C & Cty Line Off Ramp Movement Directions Served Maximum Queue (ft) Average Queue (ft) 95th Queue (ft) Link Distance (ft) Upstream Blk Time (%) Queuing Penalty (veh) Storage Bay Dist (ft) Storage Blk Time (%) Queuing Penalty (veh) Network Summary Network wide Queuing Penalty: 0 Contraflow SimTraffic Report JSC Page 5

Summary of All Intervals Run Number 10 11 12 Avg Start Time 4:45 4:45 4:45 4:45 End Time 6:00 6:00 6:00 75 75 75 Time Recorded (min) 60	Summary of All Intervals Run Number 10 11 12 Avg Start Time 445 445 445 End Time 6:00 6:00 6:00 Total Time (min) 75 75 75 Time Recorded (min) 60 60 60 # of Recorded (min) 1 1 1 Vehs Entered 3081 3138 2976 3065 Vehs Entered 3081 3138 2976 3065 Vehs Entered 3081 3138 2976 3040 Starting Vehs 152 177 135 155 Denied Entry After 0 0 0 0 Denied Entry After 0 0 0 0 Travel Time (min) 15.5 152.4 144.0 149.0 Total Delay (hr) 16.5 17.3 15.4 16.4 End Time 5.00 1311.8 111.8 111.8 Unterval #0 Information Recording	Summary of All Intervals Run Number 10 11 12 Avg Start Time 445 445 445 445 End Time 6400 600 600 600 Total Time (min) 75 75 75 75 Time Recorded (min) 60 60 60 60 # of Intervals 2 2 2 2 # of Recorded Intvis 1 1 1 1 Yehs Exited 3081 3138 2976 3065 Vehs Exited 3083 3088 2950 3040 Starting Vehs 152 177 135 155 Denied Entry Before 0 0 0 0 Denied Entry After 0 0 0 0 Travel Time (hr) 16.5 17.3 15.4 164. Total Stops 0 0 0 0 0 Fuel Used (gal) 3135.3 3174.1 3026.1
Run Number 10 11 12 Avg Start Time 4.45 4.45 4.45 4.45 End Time 6:00 6:00 6:00 6:00 Total Time (min) 75 75 75 75 Time Recorded (min) 60 60 60 # # of Recorded (min) 1 1 1 1 Vehs Entered 3081 3138 2976 3065 Vehs Entered 3083 3088 2950 3040 Starting Vehs 154 127 109 130 Ending Vehs 152 177 135 155 Denied Entry After 0 0 0 0 Travel Distance (mi) 9110 9199 8750 9020 Travel Time (nr) 150.5 152.4 144.0 149.0 Total Delay (hr) 16.5 17.3 15.4 16.4 Total Delay (hr) 16.5 17.3 15.4 16.4 <	Nun Number 10 11 12 Avg Start Time 4:45 4:45 4:45 4:45 End Time 6:00 6:00 6:00 6:00 Total Time (min) 75 75 75 Time Recorded (min) 60 60 60 60 # of Recorded Invis 1 1 1 1 Vehs Exited 3081 3138 2976 3065 Vehs Exited 3083 3088 2500 3040 Starting Vehs 152 177 135 155 Denied Entry Selore 0 0 0 0 Travel Distance (mi) 9110 9199 8750 9020 Travel Time (th) 16.5 17.3 15.4 16.4 Total Stops 0 0 0 0 0 Fuel Used (gal) 3135.3 3174.1 3026.1 3111.8 111.8 Interval #0 Information Seeding 500 Total Time (min)	Run Number 10 11 12 Avg Start Time 4:45 4:45 4:45 4:45 End Time 6:00 6:00 6:00 10 10 Total Time (min) 75 75 75 75 75 Time Recorded (min) 60 60 60 40 60 40 # of Intervals 2 2 2 2 2 4 # of Recorded Intvis 1 1 1 1 1 1 Vehs Exited 3081 3138 2976 3065 Vehs Exited 3083 3088 2950 3040 Starting Vehs 152 177 135 155 Denied Entry After 0 16:5 17:3 15
Start Time 4:45 4:45 4:45 4:45 End Time 6:00 6:00 6:00 Total Time (min) 75 75 75 Time Recorded (min) 60 60 60 # of Intervals 2 2 2 2 # of Recorded Invis 1 1 1 1 Vehs Entered 3081 3138 2976 3065 Vehs Entered 3083 3088 2950 3040 Starting Vehs 152 177 135 155 Denied Entry Before 0 0 0 0 Denied Entry After 0 0 0 0 Travel Time (min) 150.5 152.4 144.0 149.0 Total Delay (hr) 16.5 17.3 15.4 16.4 Total Stops 0 0 0 0 Fuel Used (gal) 3135.3 3174.1 3026.1 3111.8 Interval #0 Information Seeding	Start Time 4:45 4:45 4:45 4:45 End Time 6:00 6:00 6:00 6:00 Total Time (min) 75 75 75 Time Recorded (min) 60 60 60 # of Recorded Intvis 1 1 1 Yehs Exited 3081 3138 2976 3065 Vehs Exited 3083 3088 2950 3040 Starting Vehs 152 177 135 155 Denied Entry Before 0 0 0 0 Denied Entry After 0 0 0 0 Travel Time (m) 150.5 152.4 144.0 149.0 Total Delay (m) 16.5 17.3 15.4 16.4 Total Delay (m) 150.5 152.4 144.0 149.0 Total Delay (m) 15.5 17.3 15.4 16.4 Total Delay (m) 15 500 11.1.8 11.1.8 Interval #1 Information	Start Time 4:45 4:45 4:45 4:45 End Time 6:00 6:00 6:00 6:00 75 Total Time (min) 75 75 75 75 Time Recorded (min) 60 60 60 #0 # of Intervals 2 2 2 2 # of Recorded (min) 60 60 60 #0 Vehs Entered 3081 3138 2976 3065 Vehs Exited 3083 3088 2950 3040 Starting Vehs 152 177 135 155 Denied Entry Before 0 0 0 0 Travel Distance (mi) 9110 9199 8750 9020 Travel Distance (mi) 150.5 152.4 144.0 149.0 Total Delay (hr) 155.5 9020 0 0 Fuel Used (gal) 3135.3 3174.1 3026.1 3111.8 Interval #0 Information Seeding 500 500
End Time 6:00 6:00 6:00 6:00 Total Time (min) 75 75 75 75 Time Recorded (min) 60 60 60 60 # of Intervals 2 2 2 2 # of Recorded Intvis 1 1 1 1 1 Vehs Exited 3081 3138 2976 3065 Vehs Exited 3083 3088 2950 3040 Starting Vehs 152 177 135 155 Denied Entry Before 0 0 0 0 Denied Entry After 0 0 0 0 Total Distance (mi) 9110 9199 8750 9020 Travel Distance (min) 16.5 17.3 15.4 16.4 Total Stops 0 0 0 0 Fuel Used (gal) 3135.3 3174.1 3026.1 3111.8 Interval #0 Information Seeding Seeding Seeding <th>End Time 6:00 6:00 6:00 6:00 Total Time (min) 75 75 75 75 Time Recorded (min) 60 60 60 60 # of Recorded IntVis 1 1 1 1 1 Vehs Entered 3081 3138 2976 3065 Vehs Exited 3083 3088 2850 3040 Starting Vehs 154 127 199 130 Ending Vehs 152 177 135 155 Denied Entry Before 0 0 0 0 Travel Distance (mi) 9110 9199 8750 9020 Travel Distance (mi) 9110 9199 8750 9020 Travel Distance (min) 110.5.5 152.4 144.0 149.0 Total Delay (thr) 16.5 173.3 3174.1 3026.1 3111.8 Interval #0 Information Seeding 111.8 15 Volumes adjusted by Growth Factors. No d</th> <th>End Time 6:00 6:00 6:00 6:00 Total Time (min) 75 75 75 75 Time Recorded (min) 60 60 60 #</th>	End Time 6:00 6:00 6:00 6:00 Total Time (min) 75 75 75 75 Time Recorded (min) 60 60 60 60 # of Recorded IntVis 1 1 1 1 1 Vehs Entered 3081 3138 2976 3065 Vehs Exited 3083 3088 2850 3040 Starting Vehs 154 127 199 130 Ending Vehs 152 177 135 155 Denied Entry Before 0 0 0 0 Travel Distance (mi) 9110 9199 8750 9020 Travel Distance (mi) 9110 9199 8750 9020 Travel Distance (min) 110.5.5 152.4 144.0 149.0 Total Delay (thr) 16.5 173.3 3174.1 3026.1 3111.8 Interval #0 Information Seeding 111.8 15 Volumes adjusted by Growth Factors. No d	End Time 6:00 6:00 6:00 6:00 Total Time (min) 75 75 75 75 Time Recorded (min) 60 60 60 #
Time Recorded (min) 60 60 60 # of Intervals 2 2 2 # of Recorded Intvis 1 1 1 Vehs Entered 3081 3138 2976 3065 Vehs Exited 3083 3088 2950 3040 Starting Vehs 154 127 109 130 Ending Vehs 152 177 135 155 Denied Entry After 0 0 0 0 Denied Entry After 0 0 0 0 Travel Time (hr) 150.5 152.4 144.0 149.0 Total Delay (hr) 16.5 17.3 15.4 16.4 Total Stops 0 0 0 0 Fuel Used (gal) 3135.3 3174.1 3026.1 3111.8 Interval #O Information Seeding Start Time 4:45 5:00 End Time 5:00 5:00 Total Time (min) 15 Volumes adjusted by Growth Factors. 8:00 Total Time (min) 6:0 Volumes adjusted by Growth Factors.<	Time Recorded (min) 60 60 60 60 # of Intervals 2 2 2 2 # of Recorded Inivis 1 1 1 Vehs Entered 3081 3138 2976 3065 Vehs Exited 3083 3088 2950 3040 Starting Vehs 152 177 135 155 Denied Entry Before 0 0 0 0 Denied Entry Before 0 0 0 0 Travel Distance (mi) 9110 9199 8750 9020 Travel Distance (mi) 16.5 17.3 154.4 164.4 Total Diavy (hr) 16.5 17.3 111.8 111.8 Interval #0 Information Seeding 177.1 3026.1 3111.8 Volumes adjusted by Growth Factors. No 0 15	Time Recorded (min) 60 60 60 60 # of Intervals 2 2 2 2 # of Recorded Intvis 1 1 1 1 Vehs Entered 3081 3138 2976 3065 Vehs Exited 3083 3088 2950 3040 Starting Vehs 152 177 135 155 Denied Entry Before 0 0 0 0 Denied Entry After 0 0 0 0 Travel Distance (mi) 9110 9199 8750 9020 Travel Time (hr) 16.5 17.3 15.4 16.4 Total Delay (hr) 16.5 17.3 15.4 16.4 Total Staps 0 0 0 0 0 Fuel Used (gal) 3135.3 3174.1 3026.1 3111.8 Interval #0 Information Seeding Seeding Seeding Start Time 5:00 5:00 5:00 5:00 End Time 6:00 5:00 5:00 5:00 5:00
# of Intervals 2 2 2 2 # of Recorded Intvis 1 1 1 1 1 Vehs Entered 3081 3138 2976 3065 Vehs Exited 3083 3088 2950 3040 Starting Vehs 154 127 109 130 Ending Vehs 152 177 135 155 Denied Entry Before 0 0 0 0 Denied Entry Matter 0 0 0 0 Travel Disance (mi) 9110 9199 8750 9020 Travel Disance (mi) 9110 9199 8750 9020 Travel Disance (mi) 9110 9199 8750 9020 Travel Time (hr) 15.5 152.4 144.0 149.0 Total Stops 0 0 0 0 Fuel Used (gal) 3135.3 3174.1 3026.1 3111.8 Interval #0 Information Seeding 500 Total	# of Intervals 2 2 2 2 # of Recorded Inivis 1 1 1 1 Yehs Entered 3081 3138 2976 3065 Vehs Exited 3083 3088 2950 3040 Starting Vehs 154 127 109 130 Ending Vehs 152 177 135 155 Denied Entry Before 0 0 0 0 Travel Distance (mi) 9110 9199 8750 9020 Travel Distance (mi) 9110 9199 8750 9020 Travel Distance (mi) 9110 9199 8750 9020 Travel Distance (mi) 16.5 17.3 15.4 16.4 Total Stops 0 0 0 0 0 Fuel Used (gal) 3135.3 3174.1 3026.1 3111.8 Interval #0 Information Seeding Second Second Second Volumes adjusted by Growth Factors. No	# of Intervals 2 2 2 2 # of Recorded Intvis 1 1 1 1 Vehs Entered 3081 3138 2976 3065 Vehs Exited 3083 3088 2950 3040 Starting Vehs 154 127 109 130 Ending Vehs 152 177 135 155 Denied Entry Before 0 0 0 0 Travel Distance (mi) 9110 9199 8750 9020 Travel Time (hr) 150.5 152.4 144.0 149.0 Total Delay (hr) 16.5 17.3 15.4 16.4 Total Stops 0 0 0 0 Fuel Used (gal) 3135.3 3174.1 3026.1 3111.8 Interval #0 Information Seeding 500 500 500 700 Total Time (min) 15 Volumes adjusted by Growth Factors. No data recorded this interval. Interval #1 Information Recording 500 500 500 500 Start Time 5:00 50
# of Recorded Inivis 1	# of Recorded Inivis 1 1 1 1 1 1 Vehs Entered 3081 3138 2976 3065 Vehs Exited 3083 3088 2950 3040 Starting Vehs 154 127 109 130 Ending Vehs 152 177 135 155 Denied Entry Before 0 0 0 0 0 Travel Distance (m) 9110 9199 8750 9020 Travel Time (hr) 150.5 152.4 144.0 149.0 Total Delay (hr) 16.5 17.3 15.4 16.4 Total Delay (hr) 16.5 17.3 15.4 16.4 Total Stops 0 0 0 0 0 Fuel Used (gal) 3135.3 3174.1 3026.1 3111.8 Interval #O Information Seeding Start Time 4:45 End Time (min) 15 Volumes adjusted by Growth Factors. No data recorded this interval. Interval #1 Information Recording Start Time 5:00 End Time 6:00 Total Time 6:00 Total Time 6:00 Volumes adjusted by Growth Factors. No data recorded this interval. Run Number 10 11 12 Avg Vehs Entered 3081 3138 2976 3065 Vehs Exited 3083 3088 2950 3040 Starting Vehs 152 177 135 155 Denied Entry Before 0 0 0 0 0 End Time 5:02 Ending Vehs 152 177 135 155 Denied Entry Before 0 0 0 0 Denied Entry After 0 0 0 Denied Entry After 0 0 0 Denied Entry Before 0 0 0 Denied Entry After 0 0 0 Penied Entry Before 0 0 0 Denied Entry After 0 0 Denied Entry After 0 0 Denied Entry After 0 D 0 D 0 Denied Entry After 0 D 0 D 0 Denied Entry After 0 D 0 D 0 D 0 D 0 D 0 D 0 D 0 D	# of Recorded Intvis 1 1 1 1 Vehs Entered 3081 3138 2976 3065 Vehs Exited 3083 3088 2950 3040 Starting Vehs 154 127 109 130 Ending Vehs 152 177 135 155 Denied Entry Before 0 0 0 0 Travel Distance (mi) 9110 9199 8750 9020 Travel Distance (mi) 9110 9199 8750 9020 Travel Time (hr) 16.5 17.3 15.4 16.4 Total Delay (hr) 16.5 17.3 15.4 16.4 Total Stops 0 0 0 0 Fuel Used (gal) 3135.3 3174.1 3026.1 3111.8 Interval #0 Information Seeding Start Time 4:45 End Time 5:00 End Time 5:00 Time 5:00 End Time 6:00 Yolumes adjusted by Growth Factors. 60 Yolumes adjusted by Growth Factors. Yolumes adjusted by Growth Factors.
Vehs Entered 3081 3138 2976 3065 Vehs Exited 3083 3088 2950 3040 Starting Vehs 154 127 109 130 Ending Vehs 152 177 135 155 Denied Entry Before 0 0 0 0 Denied Entry After 0 0 0 0 Travel Distance (mi) 9110 9199 8750 9020 Travel Time (hr) 150.5 152.4 144.0 149.0 Total Delay (hr) 16.5 17.3 15.4 16.4 Total Delay (hr) 16.5 17.3 311.4 13026.1 3111.8 Interval #0 Information Seeding Start Time 4:45 End Time 5:00 End Time 5:00 End Time 5:00 End Time 6:00 Volumes adjusted by Growth Factors. Start Time 6:00 For time 6:00 Volumes adjusted by Growth Factors. Run Number 10 11 </td <td>Vehs Entered 3081 3138 2976 3065 Vehs Exited 3083 3088 2950 3040 Starting Vehs 152 177 135 155 Denied Entry Before 0 0 0 0 Travel Distance (mi) 9110 9199 8750 9020 Travel Distance (mi) 15.5 152.4 144.0 149.0 Total Delay (hr) 16.5 17.3 15.4 16.4 Total Stops 0 0 0 0 0 End Time 5:00 3111.8 3111.8 1 1 Interval #1 Information Recording 5:00 1 1 1 1 1 1 1 1 1 1 1 1 1</td> <td>Vehs Entered 3081 3138 2976 3065 Vehs Exited 3083 3088 2950 3040 Starting Vehs 154 127 109 130 Ending Vehs 152 177 135 155 Denied Entry Before 0 0 0 0 Denied Entry After 0 0 0 0 Travel Distance (mi) 9110 9199 8750 9020 Travel Distance (min) 16.5 17.3 15.4 16.4 Total Delay (hr) 16.5 17.3 3026.1 3111.8 Interval #0 Information Seeding Start Time 5:00 Total Time (min) 15 Volumes adjusted by Growth Factors. No data recorded this interval. Interval #1 Information Recording</td>	Vehs Entered 3081 3138 2976 3065 Vehs Exited 3083 3088 2950 3040 Starting Vehs 152 177 135 155 Denied Entry Before 0 0 0 0 Travel Distance (mi) 9110 9199 8750 9020 Travel Distance (mi) 15.5 152.4 144.0 149.0 Total Delay (hr) 16.5 17.3 15.4 16.4 Total Stops 0 0 0 0 0 End Time 5:00 3111.8 3111.8 1 1 Interval #1 Information Recording 5:00 1 1 1 1 1 1 1 1 1 1 1 1 1	Vehs Entered 3081 3138 2976 3065 Vehs Exited 3083 3088 2950 3040 Starting Vehs 154 127 109 130 Ending Vehs 152 177 135 155 Denied Entry Before 0 0 0 0 Denied Entry After 0 0 0 0 Travel Distance (mi) 9110 9199 8750 9020 Travel Distance (min) 16.5 17.3 15.4 16.4 Total Delay (hr) 16.5 17.3 3026.1 3111.8 Interval #0 Information Seeding Start Time 5:00 Total Time (min) 15 Volumes adjusted by Growth Factors. No data recorded this interval. Interval #1 Information Recording
Vehs Exited 3083 3088 2950 3040 Starting Vehs 154 127 109 130 Ending Vehs 152 177 135 155 Denied Entry Before 0 0 0 0 Denied Entry After 0 0 0 0 Travel Distance (mi) 9110 9199 8750 9020 Travel Time (hr) 16.5 17.3 15.4 16.4 Total Delay (hr) 16.5 17.3 3026.1 3111.8 Interval #0 Information Seeding Start Time 5:00 Start Time 5:00 Total Time (min) 15 Volumes adjusted by Growth Factors. No data recorded this interval. Interval #1 Information Recording Start Time 5:00 Growth Factors	Vehs Exited 3083 3088 2950 3040 Starting Vehs 154 127 109 130 Ending Vehs 152 177 135 155 Denied Entry After 0 0 0 0 Travel Time (tri) 150.5 152.4 144.0 149.0 Total Delay (hr) 16.5 17.3 15.4 16.4 Total Stops 0 0 0 0 Fuel Used (gal) 3135.3 3174.1 3026.1 3111.8 Interval #O Information Seeding Start Time 4:45 End Time 5:00 Start Time 5:00 Total Time (min) 15 Volumes adjusted by Growth Factors. No data recorded this interval. Interval #1 Information Recording Start Time 5:00 Start Time 5:00 5:00 Start Time 6:0 Volumes adjusted by Growth Factors. Interval #1 Information 6:0 Volumes adjusted by Growth Factors. Run Number 10 11 12 Avg </td <td>Vehs Exited 3083 3088 2950 3040 Starting Vehs 154 127 109 130 Ending Vehs 152 177 135 155 Denied Entry Before 0 0 0 0 Denied Entry After 0 0 0 0 Tavel Distance (mi) 9110 9199 8750 9020 Travel Distance (mi) 9110 9199 8750 9020 Travel Distance (mi) 9110 9199 8750 9020 Travel Stance (mi) 9110 9199 8750 9020 Travel Stance (mi) 16.5 17.3 15.4 16.4 Total Delay (hr) 16.5 17.3 15.4 16.4 Total Stops 0 0 0 0 0 Fuel Used (gal) 3135.3 3174.1 3026.1 3111.8 Interval #0 Information Seeding Start Time 5:00 Total Time (min) 15 Volumes adjusted</td>	Vehs Exited 3083 3088 2950 3040 Starting Vehs 154 127 109 130 Ending Vehs 152 177 135 155 Denied Entry Before 0 0 0 0 Denied Entry After 0 0 0 0 Tavel Distance (mi) 9110 9199 8750 9020 Travel Distance (mi) 9110 9199 8750 9020 Travel Distance (mi) 9110 9199 8750 9020 Travel Stance (mi) 9110 9199 8750 9020 Travel Stance (mi) 16.5 17.3 15.4 16.4 Total Delay (hr) 16.5 17.3 15.4 16.4 Total Stops 0 0 0 0 0 Fuel Used (gal) 3135.3 3174.1 3026.1 3111.8 Interval #0 Information Seeding Start Time 5:00 Total Time (min) 15 Volumes adjusted
Starting Vehs 154 127 109 130 Ending Vehs 152 177 135 155 Denied Entry Before 0 0 0 0 Travel Distance (mi) 9110 9199 8750 9020 Travel Distance (mi) 9110 9199 8750 9020 Travel Time (hr) 150.5 152.4 144.0 149.0 Total Delay (hr) 16.5 17.3 15.4 16.4 Total Stops 0 0 0 0 Fuel Used (gal) 3135.3 3174.1 3026.1 3111.8 Interval #O Information Seeding Start Time 5:00 5:00 Start Time 5:00 5:00 5:00 Total Time (min) 15 Volumes adjusted by Growth Factors. Start Time 5:00 End Time 5:00 5:00 5:00 5:00 5:00 End Time 6:00 5:00 5:00 5:00 5:00 5:00 5:00 5:00	Starting Vehs 154 127 109 130 Ending Vehs 152 177 135 155 Denied Entry Before 0 0 0 0 Denied Entry After 0 0 0 0 Travel Distance (mi) 9110 9199 8750 9020 Travel Distance (mi) 16.5 17.3 15.4 16.4 Total Delay (hr) 16.5 17.3 15.4 16.4 Total Stops 0 0 0 0 Fuel Used (gal) 3135.3 3174.1 3026.1 3111.8 Interval #0 Information Seeding Start Time 5:00 End Time 5:00 Ending this interval. Total Time (min) 60 Volumes adjusted by Growth Factors. Start Ti	Starting Vehs 154 127 109 130 Ending Vehs 152 177 135 155 Denied Entry Before 0 0 0 0 Travel Distance (mi) 9110 9199 8750 9020 Travel Distance (mi) 9110 149.0 149.0 Total Delay (hr) 16.5 17.3 15.4 16.4 Total Stops 0 0 0 0 Fuel Used (gal) 3135.3 3174.1 3026.1 3111.8 Interval #0 Information Seeding Start Time 5:00 Volumes adjusted by Growth Factors. 60
Ending Vehs 152 177 135 155 Denied Entry Before 0 0 0 0 Denied Entry After 0 0 0 0 Travel Time (m) 9110 9199 8750 9020 Travel Time (m) 150.5 152.4 144.0 149.0 Total Delay (hr) 16.5 17.3 15.4 16.4 Total Stops 0 0 0 0 Fuel Used (gal) 3135.3 3174.1 3026.1 3111.8 Interval #O Information Seeding Start Time 4:45 End Time 5:00 Total Time (min) 15 Volumes adjusted by Growth Factors. No data recorded this interval. Interval #1 Information Recording Start Time 5:00 End Time 6:00 Total Time (min) 60 Volumes adjusted by Growth Factors. Run Number 10 11 12 Avg	Ending Vehs 152 177 135 155 Denied Entry Before 0 0 0 0 Travel Distance (mi) 9110 9199 8750 9020 Travel Distance (mi) 9110 9199 8750 9020 Travel Distance (mi) 9110 9199 8750 9020 Travel Distance (mi) 9110 152.4 144.0 149.0 Total Delay (hr) 16.5 17.3 15.4 16.4 Total Stops 0 0 0 0 Fuel Used (gal) 3135.3 3174.1 3026.1 3111.8 Interval #0 Information Seeding 3117.1 3026.1 3111.8 Interval #0 Information Seeding 500 500 500 Total Time (min) 15 Volumes adjusted by Growth Factors. No data recorded this interval. Interval #1 Information Recording 500 500 500 End Time 5:00 500 500 500 500	Ending Vehs 152 177 135 155 Denied Entry Before 0 0 0 0 Denied Entry After 0 0 0 0 Travel Distance (mi) 9110 9199 8750 9020 Travel Time (hr) 150.5 152.4 144.0 149.0 Total Delay (hr) 16.5 17.3 15.4 16.4 Total Stops 0 0 0 0 Fuel Used (gal) 3135.3 3174.1 3026.1 3111.8 Interval #0 Information Seeding Start Time 4:45 End Time 5:00 5:00 Total Time (min) 15 Volumes adjusted by Growth Factors. No data recorded this interval. Interval #1 Information Recording Start Time 5:00 5:00 End Time 6:00 Total Time (min) 60 Volumes adjusted by Growth Factors. Volumes adjusted by Growth Factors.
Denied Entry Before 0 0 0 0 Denied Entry After 0 0 0 0 Travel Distance (mi) 9110 9199 8750 9020 Travel Time (hr) 150.5 152.4 144.0 149.0 Total Delay (hr) 16.5 17.3 15.4 16.4 Total Delay (hr) 16.5 17.3 315.4 16.4 Total Delay (hr) 135.3 3174.1 3026.1 3111.8 Interval #O Information Seeding Start Time 4:45 End Time 5:00 Start Time 5:00 Total Time (min) 15 Volumes adjusted by Growth Factors. No data recorded this interval. Interval #1 Information Recording Start Time 6:00 Start Time 5:00 End Time 6:00 Volumes adjusted by Growth Factors. Run Number 10 11 12 Avg	Denied Entry Before 0 0 0 0 Denied Entry After 0 0 0 0 Travel Distance (mi) 9110 9199 8750 9020 Travel Time (tr) 150.5 152.4 144.0 149.0 Total Delay (tr) 16.5 17.3 15.4 16.4 Total Stops 0 0 0 0 Fuel Used (gal) 3135.3 3174.1 3026.1 3111.8 Interval #0 Information Seeding 3111.8 3111.8 Interval #0 Information Seeding 3135.3 3174.1 Volumes adjusted by Growth Factors. No data recorded this interval. Volumes adjusted by Growth Factors. No data recorded this interval. 15 Volumes adjusted by Growth Factors. Start Time 5:00 End Time 6:00 0 0 Volumes adjusted by Growth Factors. Run Number 10 11 12 Avg Vehs Exited 3083 3088 2950 3040 Star	Denied Entry Before 0 0 0 0 Denied Entry After 0 0 0 0 Travel Distance (mi) 9110 9199 8750 9020 Travel Distance (mi) 9110 9199 8750 9020 Travel Distance (mi) 150.5 152.4 144.0 149.0 Total Delay (hr) 16.5 17.3 15.4 16.4 Total Stops 0 0 0 0 Fuel Used (gal) 3135.3 3174.1 3026.1 3111.8 Interval #0 Information Seeding 5:00 5:00 5:00 Start Time 4:45 5:00 5:00 5:00 Total Time (min) 15 Volumes adjusted by Growth Factors. 5:00 End Time 5:00 5:00 5:00 5:00 End Time 6:00 5:00 5:00 5:00 End Time 6:00 5:00 5:00 5:00
Denied Entry After 0 0 0 0 Travel Distance (mi) 9110 9199 8750 9020 Travel Time (nr) 150.5 152.4 144.0 149.0 Total Delay (hr) 16.5 17.3 15.4 16.4 Total Stops 0 0 0 0 Fuel Used (gal) 3135.3 3174.1 3026.1 3111.8 Interval #0 Information Seeding Start Time 4:45 End Time 5:00 15 Volumes adjusted by Growth Factors. No data recorded this interval. 15 Volumes adjusted by Growth Factors. No data recorded this interval. 5:00 15 End Time 5:00 15 Start Time 5:00 16.0 For Time 6:00 16.0 Volumes adjusted by Growth Factors. 60 Volumes adjusted by Growth Factors. Run Number 10 11 12 Avg	Denied Entry After 0 0 0 0 Travel Distance (mi) 9110 9199 8750 9020 Travel Time (m) 150.5 152.4 144.0 149.0 Total Delay (m) 16.5 17.3 15.4 164. Total Stops 0 0 0 0 Fuel Used (gal) 3135.3 3174.1 3026.1 3111.8 Interval #0 Information Seeding 500 500 500 Total Time 5:00 500 500 500 Total Time 5:00 500 500 500 Start Time 5:00 500 500 500 End Time 6:00 7041 704 704 704 Volumes adjusted by Growth Factors. 8:00 7041 704 704 704 704 Volumes adjusted by Growth Factors. 8:00 7041 705 3:055 7041 Volumes adjusted by Growth Factors. 8:00 706 706	Denied Entry After 0 0 0 0 Travel Distance (mi) 9110 9199 8750 9020 Travel Time (nr) 150.5 152.4 144.0 149.0 Total Delay (nr) 16.5 17.3 15.4 164. Total Stops 0 0 0 0 Fuel Used (gal) 3135.3 3174.1 3026.1 3111.8 Interval #0 Information Seeding Start Time 4:45 End Time 5:00 15 Volumes adjusted by Growth Factors. No data recorded this interval. Interval #1 Information Recording Start Time 5:00 5:00 Start Time 5:00 5:00 5:00 5:00 5:00 Start Time 5:00
Travel Distance (mi) 9110 9199 8750 9020 Travel Time (hr) 150.5 152.4 144.0 149.0 Total Delay (hr) 16.5 17.3 15.4 16.4 Total Stops 0 0 0 0 Fuel Used (gal) 3135.3 3174.1 3026.1 3111.8 Interval #0 Information Seeding 3135.3 3174.1 3026.1 3111.8 Interval #0 Information Seeding 5:00 5:00 7:01	Travel Distance (mi) 9110 9199 8750 9020 Travel Time (hr) 150.5 152.4 144.0 149.0 Total Delay (hr) 16.5 17.3 15.4 16.4 Total Stops 0 0 0 0 Fuel Used (gal) 3135.3 3174.1 3026.1 3111.8 Interval #0 Information Seeding 3111.8 1 Interval #0 Information Seeding 3135.3 3174.1 3026.1 3111.8 Interval #0 Information Seeding 500 500 500 500 500 Total Time 5:00 5:00 5:00 5:00 5:00 5:00 Interval #1 Information Recording 5:00 5:00 5:00 5:00 End Time 6:00 5:00 5:00 5:00 5:00 5:00 End Time 6:00 7:00 6:00 7:00 5:00 5:00 Interval #1 Information 6:00 7:00 7:00 3:065 9:00 9:00 Vehs Exited 3081 3138 <	Travel Distance (mi) 9110 9199 8750 9020 Travel Time (hr) 150.5 152.4 144.0 149.0 Total Delay (hr) 16.5 17.3 15.4 16.4 Total Stops 0 0 0 0 Fuel Used (gal) 3135.3 3174.1 3026.1 3111.8 Interval #0 Information Seeding 5:00 5:00 7041 Time (min) 15 Volumes adjusted by Growth Factors. No data recorded this interval. No data recorded this interval. Interval #1 Information Recording Start Time 5:00 5:00 5:00 5:00 5:00 Start Time 5:00 5:00 5:00 5:00 5:00 Start Time 5:00 5:00 5:00 5:00 5:00 5:00 End Time 6:00 5:00
Travel Time (hr) 150.5 152.4 144.0 149.0 Total Delay (hr) 16.5 17.3 15.4 16.4 Total Stops 0 0 0 0 Fuel Used (gal) 3135.3 3174.1 3026.1 3111.8 Interval #0 Information Seeding	Travel Time (hr) 150.5 152.4 144.0 149.0 Total Delay (hr) 16.5 17.3 15.4 16.4 Total Stops 0 0 0 0 Fuel Used (gal) 3135.3 3174.1 3026.1 3111.8 Interval #0 Information Seeding 3135.3 3174.1 3026.1 3111.8 Interval #0 Information Seeding 5:00 3111.8 3111.8 3111.8 Interval #1 Information Recording 5:00 3111.8 3111.8 3111.8 Interval #1 Information Recording 3111.8 3111.8 3111.8 3111.8 Interval #1 Information Recording 3111.8 3111.8 3111.8 3111.8 Interval #1 Information Recording 3111.8 31111.8 3111.8 31111.8	Travel Time (hr) 150.5 152.4 144.0 149.0 Total Delay (hr) 16.5 17.3 15.4 16.4 Total Stops 0 0 0 0 Fuel Used (gal) 3135.3 3174.1 3026.1 3111.8 Interval #0 Information Seeding
Total Delay (hr) 16.5 17.3 15.4 16.4 Total Stops 0 0 0 0 0 Fuel Used (gal) 3135.3 3174.1 3026.1 3111.8 Interval #0 Information Seeding 300 3111.8 Start Time 4:45 4:45 End Time 5:00 5:00 Total Time (min) 15 5:00 Volumes adjusted by Growth Factors. No data recorded this interval. Interval #1 Information Recording 5:00 End Time 5:00 End Time 6:00 Total Time (min) 60 Volumes adjusted by Growth Factors. Run Number 10 11 12 Avg	Total Delay (hr) 16.5 17.3 15.4 16.4 Total Stops 0 0 0 0 0 Fuel Used (gal) 3135.3 3174.1 3026.1 3111.8 Interval #0 Information Seeding	Total Delay (hr) 16.5 17.3 15.4 16.4 Total Stops 0 0 0 0 0 Fuel Used (gal) 3135.3 3174.1 3026.1 3111.8 Interval #0 Information Seeding Start Time 4:45 End Time 5:00 Total Time (min) 15 Volumes adjusted by Growth Factors. No data recorded this interval. Interval #1 Information Recording Start Time 5:00 5:00 5:00 Total Time (min) 60 Yolumes adjusted by Growth Factors. 600 Yolumes adjusted by Growth Factors. 5:00 5:00
Total Stops 0 Fuel Used (gal) 3135.3 3174.1 3026.1 3111.8 Interval #0 Information Seeding 3111.8 3111.8 <th< th=""> <t< td=""><td>Total Stops 0 0 0 0 0 Fuel Used (gal) 3135.3 3174.1 3026.1 3111.8 Interval #0 Information Seeding 3111.8 Start Time 4:45 4:45 End Time 5:00 Total Time (min) 15 Volumes adjusted by Growth Factors. No data recorded this interval. Interval #1 Information Recording Start Time 5:00 5:00 Total Time (min) 60 Volumes adjusted by Growth Factors. 0 0 O Volumes adjusted by Growth Factors. Run Number 10 11 12 Avg Volumes adjusted by Growth Factors. Run Number 10 11 12 Avg Vehs Entered 3081 3138 2976 3065 Vehs Entered 3083 3088 2950 3040 Starting Vehs 154 127 109 130 Ending Vehs 152 177 135 155 155 155 155 155 155 <t< td=""><td>Total Stops 0 <th< td=""></th<></td></t<></td></t<></th<>	Total Stops 0 0 0 0 0 Fuel Used (gal) 3135.3 3174.1 3026.1 3111.8 Interval #0 Information Seeding 3111.8 Start Time 4:45 4:45 End Time 5:00 Total Time (min) 15 Volumes adjusted by Growth Factors. No data recorded this interval. Interval #1 Information Recording Start Time 5:00 5:00 Total Time (min) 60 Volumes adjusted by Growth Factors. 0 0 O Volumes adjusted by Growth Factors. Run Number 10 11 12 Avg Volumes adjusted by Growth Factors. Run Number 10 11 12 Avg Vehs Entered 3081 3138 2976 3065 Vehs Entered 3083 3088 2950 3040 Starting Vehs 154 127 109 130 Ending Vehs 152 177 135 155 155 155 155 155 155 <t< td=""><td>Total Stops 0 <th< td=""></th<></td></t<>	Total Stops 0 <th< td=""></th<>
Interval #0 Information Seeding Start Time 4:45 End Time 5:00 Total Time (min) 15 Volumes adjusted by Growth Factors. No data recorded this interval. Interval #1 Information Recording Start Time 5:00 End Time 6:00 Total Time (min) 60 Volumes adjusted by Growth Factors. Run Number 10 11 12	Interval #0 Information Seeding Start Time 4:45 End Time 5:00 Total Time (min) 15 Volumes adjusted by Growth Factors. No data recorded this interval. Interval #1 Information Recording Start Time 5:00 End Time 6:00 Total Time 6:00 Total Time 6:00 Volumes adjusted by Growth Factors. 8 Run Number 10 11 12 Avg Vehs Entered 3081 3138 2976 3065 Vehs Entered 3083 3088 2950 3040 Starting Vehs 152 177 135 155 Denied Entry Before 0 0 0 0 Denied Entry Before 0 0 0 0 0 Travel Distance (mi) 9110 9199 8750 9020 9020	Interval #0 Information Seeding Start Time 4:45 End Time 5:00 Total Time (min) 15 Volumes adjusted by Growth Factors. No data recorded this interval. Interval #1 Information Recording Start Time 5:00 End Time 6:00 Total Time (min) 60 Volumes adjusted by Growth Factors.
Start Time 4:45 End Time 5:00 Total Time (min) 15 Volumes adjusted by Growth Factors. No data recorded this interval. Interval #1 Information Recording Start Time 5:00 End Time 6:00 Total Time (min) 60 Volumes adjusted by Growth Factors. Run Number 10 11 12	Start Time 4:45 End Time 5:00 Total Time (min) 15 Volumes adjusted by Growth Factors. No data recorded this interval. Interval #1 Information Recording Start Time Start Time 5:00 End Time 6:00 Total Time (min) 60 Volumes adjusted by Growth Factors. Run Number Velues adjusted by Growth Factors. Run Number Velues Entered 3081 3138 2976 3065 Vehs Entered 3083 3088 2950 3040 Starting Vehs 152 177 135 155 Denied Entry Before 0 0 0 0 Denied Entry After 0 0 0 0 Travel Distance (mi) 9110 9199 8750 9020	Start Time 4:45 End Time 5:00 Total Time (min) 15 Volumes adjusted by Growth Factors. No data recorded this interval. Interval #1 Information Recording Start Time Start Time 5:00 End Time 6:00 Total Time (min) 60 Volumes adjusted by Growth Factors.
Start Time 4:45 End Time 5:00 Total Time (min) 15 Volumes adjusted by Growth Factors. No data recorded this interval. Interval #1 Information Recording Start Time 5:00 End Time 6:00 Total Time (min) 60 Volumes adjusted by Growth Factors. Run Number 10 11 12	Start Time 4:45 End Time 5:00 Total Time (min) 15 Volumes adjusted by Growth Factors. No data recorded this interval. Interval #1 Information Recording Start Time Start Time 5:00 End Time 6:00 Total Time (min) 60 Volumes adjusted by Growth Factors. Run Number Velues adjusted by Growth Factors. Run Number Velues Entered 3081 3138 2976 3065 Vehs Entered 3083 3088 2950 3040 Starting Vehs 154 127 109 130 Ending Vehs 152 177 135 155 Denied Entry Before 0 0 0 0 Denied Entry After 0 0 0 0 1	Start Time 4:45 End Time 5:00 Total Time (min) 15 Volumes adjusted by Growth Factors. No data recorded this interval. Interval #1 Information Recording Start Time Start Time 5:00 End Time 6:00 Total Time (min) 60 Volumes adjusted by Growth Factors.
End Time 5:00 Total Time (min) 15 Volumes adjusted by Growth Factors. No data recorded this interval. Interval #1 Information Recording Start Time 5:00 End Time 6:00 Total Time (min) 60 Volumes adjusted by Growth Factors. Run Number 10 11 12 Avg	End Time 5:00 Total Time (min) 15 Volumes adjusted by Growth Factors. No data recorded this interval. Interval #1 Information Recording Start Time 5:00 End Time 6:00 Total Time (min) 60 Volumes adjusted by Growth Factors. Run Number 10 11 12 Avg Vehs Entered 3081 3083 3088 2950 3040 Starting Vehs 152 Ending Vehs 152 Ending Vehs 152 Denied Entry Before 0 0 0 0 0 Denied Entry After 0 0 Parket (min) 9110 9199	End Time 5:00 Total Time (min) 15 Volumes adjusted by Growth Factors. No data recorded this interval. Interval #1 Information Recording Start Time 5:00 End Time (min) 60 Volumes adjusted by Growth Factors.
Total Time (min) 15 Volumes adjusted by Growth Factors. No data recorded this interval. Interval #1 Information Recording Start Time End Time 60 Volumes adjusted by Growth Factors. Run Number 10 11 12	Total Time (min) 15 Volumes adjusted by Growth Factors. No data recorded this interval. Interval #1 Information Recording Start Time 5:00 End Time 6:00 Total Time (min) 60 Volumes adjusted by Growth Factors. Run Number 10 11 12 Avg Vehs Entered 3081 3138 2976 3065 Vehs Entered 3083 3088 2950 3040 Starting Vehs 154 127 109 130 Ending Vehs 152 177 135 155 Denied Entry Before 0 0 0 Denied Entry After 0 0 0 Total Time (min) 9110 9199 8750 9020	Total Time (min) 15 Volumes adjusted by Growth Factors. No data recorded this interval. Interval #1 Information Recording Start Time 5:00 End Time 6:00 Total Time (min) 60 Volumes adjusted by Growth Factors.
End Time 6:00 Total Time (min) 60 Volumes adjusted by Growth Factors. 10 Run Number 10 11 12 Avg	End Time 6:00 Total Time (min) 60 Volumes adjusted by Growth Factors. 11 12 Avg Run Number 10 11 12 Avg Vehs Entered 3081 3138 2976 3065 Vehs Exited 3083 3088 2950 3040 Starting Vehs 154 127 109 130 Ending Vehs 152 177 135 155 Denied Entry Before 0 0 0 Denied Entry After 0 0 0 Travel Distance (mi) 9110 9199 8750 9020	End Time 6:00 Total Time (min) 60 Volumes adjusted by Growth Factors.
Total Time (min) 60 Volumes adjusted by Growth Factors. Run Number 10 11 12 Avg	Total Time (min) 60 Volumes adjusted by Growth Factors. Run Number 10 11 12 Avg Vehs Entered 3081 3138 2976 3065 Vehs Exited 3083 3088 2950 3040 Starting Vehs 154 127 109 130 Ending Vehs 152 177 135 155 Denied Entry Before 0 0 0 Denied Entry After 0 0 0 Travel Distance (mi) 9110 9199 8750 9020	Total Time (min) 60 Volumes adjusted by Growth Factors.
Volumes adjusted by Growth Factors. Run Number 10 11 12 Avg	Volumes adjusted by Growth Factors. Run Number 10 11 12 Avg Vehs Entered 3081 3138 2976 3065 Vehs Exited 3083 3088 2950 3040 Starting Vehs 154 127 109 130 Ending Vehs 152 177 135 155 Denied Entry Before 0 0 0 Denied Entry After 0 0 0 Travel Distance (mi) 9110 9199 8750 9020	Volumes adjusted by Growth Factors.
	Vehs Entered 3081 3138 2976 3065 Vehs Exited 3083 3088 2950 3040 Starting Vehs 154 127 109 130 Ending Vehs 152 177 135 155 Denied Entry Before 0 0 0 0 Denied Entry After 0 0 0 0 Travel Distance (mi) 9110 9199 8750 9020	
Vehs Entered 3081 3138 2976 3065	Vehs Exited 3083 3088 2950 3040 Starting Vehs 154 127 109 130 Ending Vehs 152 177 135 155 Denied Entry Before 0 0 0 0 Denied Entry After 0 0 0 0 Travel Distance (mi) 9110 9199 8750 9020	
	Starting Vehs 154 127 109 130 Ending Vehs 152 177 135 155 Denied Entry Before 0 0 0 0 Denied Entry After 0 0 0 0 Travel Distance (mi) 9110 9199 8750 9020	
	Ending Vehs 152 177 135 155 Denied Entry Before 0 0 0 0 Denied Entry After 0 0 0 0 Travel Distance (mi) 9110 9199 8750 9020	
	Denied Entry Before 0 0 0 Denied Entry After 0 0 0 Travel Distance (mi) 9110 9199 8750 9020	
	Denied Entry After 0 0 0 0 Travel Distance (mi) 9110 9199 8750 9020	
	Travel Distance (mi) 9110 9199 8750 9020	
Travel Diamo (b) 150 510 500 5020	Traver Line (no 150.5 152.4 144.0 149.0	Travel Time (hr) 150 5 152 4 144 0 149 0
	10(a) Delay (1) 10.0 17.3 10.4 16.4	
Total Delay (hr) 16.5 17.3 15.4 16.4		
	10.a Delay (III) 10.0 17.3 10.4 16.4	
Total Delay (hr) 16.5 17.3 15.4 16.4		
Travel Distance (mi) 9110 9199 8750 9020		Travel Time (hr) 150.5 152.4 144.0 149.0

164

I-4 Contraflow E Freeflow - 3075			Three Contraflow Lane 12/3/20
		mp Per	formance by movement
Movement	EBT	All	
Total Delay (hr)	1.7	1.7	
Delay / Veh (s)	2.0		
Total Stops	0		
Travel Dist (mi) Travel Time (hr)	1496.6 25.4	1496.6 25.4	
Avg Speed (mph)	20.4	60	
Fuel Used (gal)	589.9	589.9	
HC Emissions (g)	108	108	
CO Emissions (g)	61703		
NOx Emissions (g)	342	342	
Vehicles Entered	3065	3065	
Vehicles Exited	3067	3067	
Hourly Exit Rate	3067	3067	
Input Volume	3075	3075	
% of Volume	100	100	
Denied Entry Before	0	0	
Denied Entry After	0	U	
6: I-4 F & Cty Lin	e Off Rar	np Per	formance by movement
Movement	EBT	All	
Total Delay (hr)	12.7	12.7	
Delay / Veh (s)	14.9	14.9	
Total Stops	0	0	
Travel Dist (mi)		6729.9	
Travel Time (hr)	110.1	110.1	
Avg Speed (mph) Fuel Used (gal)	61 2240 6	61 2240.6	
HC Emissions (g)	424	424	
CO Emissions (g)	190882		
NOx Emissions (g)	1519	1519	
Vehicles Entered	3067	3067	
Vehicles Exited	3039	3039	
Hourly Exit Rate	3039	3039	
Input Volume	3075	3075	
% of Volume	99	99	
Denied Entry Before	0	0	
Denied Entry After	0	0	
Freeflow			SimTraffic Repo
JSC			Page

I-4 Contraflow Evalua Freeflow - 3075 Cars	ation		Three Contraflow Lane 12/3/200
Total Network Perfor			
HIMMADING		BARRAN MANAGER	
Total Delay (hr) Delay / Veh (s) Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before Denied Entry After	16.4 19.3 0 9019.6 149.0 61 3111.8 584 277249 2042 3065 3040 3040 9225 33 0 0 0		
Freeflow JSC			SimTraffic Report Page 3

I-4 Contraflow Evaluati Freeflow - 3075 Cars					Three (Contraflow	/ Lane: 12/3/200
Arterial Level of Servic	e: EB 1-4 F						
Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed	Run 10 Speed	Run 1 Dela
Park Rd On Ramp	4	2.0	29.8	0.5	62	62	2.
Cty Line Off Ramp	6	14.9 16.9	129.8 159.6	2.2	61 61	61 61	14
Total		10.9	159.0	2.1	01	01	10.
Arterial Level of Service	e: EB I-4 F						
Cross Street	Run 11 Speed	Run 11 Delay	Run 12 Speed	Run 12 Delay			
Park Rd On Ramp	61	2.1	62	1.8	S D. T. S.		Contraction?
Cty Line Off Ramp	61	15.4	61	14.6			
Total	61	17.5	61	16.3			
				47			
Freeflow						SimTra	ffic Repo
JSC							Page

I-4 Contraflow Evaluation Three Contraflow Lanes Freeflow - 3075 Cars 12/3/2007 Intersection: 4: I-4 F & Park Rd On Ramp Movement . **Directions Served** Maximum Queue (ft) Average Queue (ft) 95th Queue (ft) Link Distance (ft) Upstream Blk Time (%) Queuing Penalty (veh) Storage Bay Dist (ft) Storage Blk Time (%) Queuing Penalty (veh) Intersection: 6: I-4 F & Cty Line Off Ramp Movement Directions Served Maximum Queue (ft) Average Queue (ft) 95th Queue (ft) Link Distance (ft) Upstream Blk Time (%) Queuing Penalty (veh) Storage Bay Dist (ft) Storage Blk Time (%) Queuing Penalty (veh) Network Summary Network wide Queuing Penalty: 0 Freeflow SimTraffic Report JSC Page 5

				4	Alt A - NO C Simulation #1	Contraflow Land 11/30/20
Summary of All Inte	ervals					
Run Number	10	11	12	Avg		是他的基础的
Start Time	4:45	4:45	4:45	4:45		
End Time	6:00	6:00	6:00	6:00		
Total Time (min)	75	75	75	75		
Time Recorded (min)	60	60	60	60		
f of Intervals	2	2	2	2		
f of Recorded Intvis	1	1	1	1		
/ehs Entered	5132	5108	5212	5151		
/ehs Exited	4877	4885	4866	4876		
Starting Vehs	331	327	337	332		
Ending Vehs	586	550	683	606 1		
Denied Entry Before	0	0	2	6		
Denied Entry After	5	4 14927	10 15086	14981		
Travel Distance (mi)	14930		522.7	474.6		
ravel Time (hr)	448.2	452.9 231.6	298.9	252.4		
Fotal Delay (hr)	226.8	231.0	3294	2670		
Fotal Stops	2286 5304.1	5288.9	5448.1	5347.0		
Fuel Used (gal)			0110.1			
nterval #0 Informa		g				
Start Time	4:45					
End Time	5:00					
Fotal Time (min) /olumes adjusted by Growt No data recorded this interv pterval #1 Informa	al.	lina				
/olumes adjusted by Growt No data recorded this interv nterval #1 Informa Start Time End Time	h Factors. al.	ling				
/olumes adjusted by Growt No data recorded this interv nterval #1 Informa Start Time	h Factors. al. tion Record 5:00 6:00 60	ling				
/olumes adjusted by Growt No data recorded this interv nterval #1 Informa Start Time End Time Fotal Time (min) /olumes adjusted by Growt Run Number	h Factors. al. 5:00 6:00 60 h Factors. 10	11	12	Avg		
/olumes adjusted by Growt No data recorded this interv nterval #1 Informa Start Time End Time Fotal Time (min) /olumes adjusted by Growt Run Number /ehs Entered	h Factors. al. tion Record 5:00 6:00 60 h Factors. 10 5132	<u>11</u> 5108	5212	5151		
/olumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time fotal Time (min) /olumes adjusted by Growt Run Number /ehs Entered /ehs Entered	h Factors. al. tion Record 5:00 6:00 60 h Factors. 10 5132 4877	11 5108 4885	5212 4866	5151 4876		
/olumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Fotal Time (min) /olumes adjusted by Growt Run Number /ehs Entered /ehs Extted Starting Vehs	h Factors. al. 5:00 6:00 60 h Factors. 10 5132 4877 331	11 5108 4885 327	5212 4866 337	5151 4876 332		
/olumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Fotal Time (min) /olumes adjusted by Growt Run Number /ehs Entered /ehs Exited Starting Vehs Ending Vehs	h Factors. al. 5:00 6:00 60 h Factors. 10 5132 4877 331 586	11 5108 4885 327 550	5212 4866 337 683	5151 4876 332 606		
/olumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time Find Time Fotal Time (min) /olumes adjusted by Growt Run Number /ehs Entered /ehs Exited Starting Vehs Jenied Entry Before	h Factors. al. <u>5:00</u> 6:00 6:00 60 h Factors. <u>10</u> 5132 4877 331 586 0	11 5108 4885 327 550 0	5212 4866 337 683 2	5151 4876 332 606 1		
/olumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time Ford Time fortal Time (min) /olumes adjusted by Growt /ohs Entered /ohs Extited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After	h Factors. al. tion Record 5:00 6:00 60 h Factors. 10 5132 4877 331 586 0 5	11 5108 4885 327 550 0 4	5212 4866 337 683 2 10	5151 4876 332 606 1 6		
/olumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time Find Time Total Time (min) /olumes adjusted by Growt ?olumes a	h Factors. al. tion Record 5:00 6:00 60 h Factors. 10 5132 4877 331 586 0 5 14930	<u>11</u> 5108 4885 327 550 0 4 14927	5212 4866 337 683 2 10 15086	5151 4876 332 606 1 6 14981		
/olumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time fortal Time (min) /olumes adjusted by Growt Run Number /ohs Entered /ohs Entered /ohs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Fravel Time (hr)	h Factors. al. tion Record 5:00 6:00 60 h Factors. 10 5:132 4877 331 586 0 5 14930 448.2	11 5108 4885 327 550 0 4 14927 452.9	5212 4866 337 683 2 10 15086 522.7	5151 4876 332 606 1 6 14981 474.6		
/olumes adjusted by Growt No data recorded this interv Start Time End Time Fotal Time (min) /olumes adjusted by Growt Run Number /ehs Entered /ehs Entered /ehs Extited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Fravel Distance (mi) Fravel Time (hr) Fotal Delay (hr)	h Factors. al. 5:00 6:00 60 h Factors. 10 5132 4877 331 586 0 5 14930 448.2 226.8	11 5108 4885 327 550 0 4 14927 452.9 231.6	5212 4866 337 683 2 10 15086 522.7 298.9	5151 4876 332 606 1 6 14981 474.6 252.4		
/olumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time Find Time Fotal Time (min) /olumes adjusted by Growt Run Number /ehs Entered /ehs Exited Starting Vehs Denied Entry After Fravel Distance (mi) Fravel Time (hr) Fotal Delay (hr) Fotal Stops	h Factors. al. <u>5:00</u> 6:00 60 h Factors. <u>10</u> 5132 4877 331 586 0 5 14930 448.2 226.8 2286	11 5108 4885 327 550 0 4 14927 452.9 231.6 2430	5212 4866 337 683 2 10 15086 522.7 298.9 3294	5151 4876 332 606 1 6 14981 474.6 252.4 2670		
/olumes adjusted by Growt No data recorded this interv Start Time End Time Fotal Time (min) /olumes adjusted by Growt Run Number /ehs Entered /ehs Entered /ehs Extited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Fravel Distance (mi) Fravel Time (hr) Fotal Delay (hr)	h Factors. al. 5:00 6:00 60 h Factors. 10 5132 4877 331 586 0 5 14930 448.2 226.8	11 5108 4885 327 550 0 4 14927 452.9 231.6	5212 4866 337 683 2 10 15086 522.7 298.9	5151 4876 332 606 1 6 14981 474.6 252.4		
/olumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time Find Time Fotal Time (min) /olumes adjusted by Growt Run Number /ehs Entered /ehs Exited Starting Vehs Denied Entry After Fravel Distance (mi) Fravel Time (hr) Fotal Delay (hr) Fotal Stops	h Factors. al. <u>5:00</u> 6:00 60 h Factors. <u>10</u> 5132 4877 331 586 0 5 14930 448.2 226.8 2286	11 5108 4885 327 550 0 4 14927 452.9 231.6 2430	5212 4866 337 683 2 10 15086 522.7 298.9 3294	5151 4876 332 606 1 6 14981 474.6 252.4 2670		

Baseline	valuation		No Contraflow Lane 11/30/20
4: I-4 F & Park F	Rd On Ran	np Performa	ance by movement
Movement		All	
Total Delay (hr)	13.2	13.2	
Delay / Veh (s)	9.2	9.2	
Total Stops	60	60	
Travel Dist (mi)		2509.0	
Travel Time (hr)	55.0	55.0	
Avg Speed (mph)	47	47	
Fuel Used (gal)	1097.0	1097.0	
HC Emissions (g)	179	179	
CO Emissions (g)	105467 581	105467 581	
NOx Emissions (g) Vehicles Entered	5151	5151	
Vehicles Exited	5133	5133	
Hourly Exit Rate	5133	5133	
Input Volume	5200	5200	
% of Volume	99	99	
Denied Entry Before	1	1	
Denied Entry After	6	6	
Travel Time (hr)	377.3 30	377.3 30 3538.8	
Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOX Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume	3538.8 468 217774 1641 5133 4885 4885 5200 94	468 217774 1641 5133 4885 4885 5200 94	
Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before	468 217774 1641 5133 4885 4885 5200 94 0	468 217774 1641 5133 4885 4885 5200 94 0	
Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume	468 217774 1641 5133 4885 4885 5200 94	468 217774 1641 5133 4885 4885 5200 94	
Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before	468 217774 1641 5133 4885 4885 5200 94 0	468 217774 1641 5133 4885 4885 5200 94 0	
Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before	468 217774 1641 5133 4885 4885 5200 94 0	468 217774 1641 5133 4885 4885 5200 94 0	
Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before	468 217774 1641 5133 4885 4885 5200 94 0	468 217774 1641 5133 4885 4885 5200 94 0	
Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before	468 217774 1641 5133 4885 4885 5200 94 0	468 217774 1641 5133 4885 4885 5200 94 0	
Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before	468 217774 1641 5133 4885 4885 5200 94 0	468 217774 1641 5133 4885 4885 5200 94 0	
Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before	468 217774 1641 5133 4885 4885 5200 94 0	468 217774 1641 5133 4885 4885 5200 94 0	
Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before	468 217774 1641 5133 4885 4885 5200 94 0	468 217774 1641 5133 4885 4885 5200 94 0	
Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before	468 217774 1641 5133 4885 4885 5200 94 0	468 217774 1641 5133 4885 4885 5200 94 0	SimTraffic Rep

Baseline Total Network Performant		No Contraflow Lane 11/30/200		
	ce			
	AN AL AN INCOME AND ADDRESS AND ADDRESS	I MARCENERS CONTRACTOR CONTRACTOR	una and and	
Total Delay (hr)	252.4	DOUGHTERST LINE SEARCH STREET BERGER SHOWE	and the second	
Delay / Veh (s)	181.3			
Total Stops	2670			
Travel Dist (mi)	14981.0			
Travel Time (hr)	474.6			
Avg Speed (mph)	32 5347.0			
Fuel Used (gal) HC Emissions (g)	738			
CO Emissions (g)	369005			
NOx Emissions (g)	2585			
Vehicles Entered	5151			
Vehicles Exited	4876			
Hourly Exit Rate	4876			
Input Volume	15600			
% of Volume	31 1			
Denied Entry Before Denied Entry After	6			
Boniou Endy Fillor	1274			
			SimTraffic Pop	
JSC			SimTraffic Rep Page	
360				

I-4 Contraflow Evaluation No Contraflow Lane Baseline 11/30/200								
Arterial Level of Service: E	B I-4 F							
Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed	Run 10 Speed	Rur De	
Park Rd On Ramp Cty Line Off Ramp	4 6	9.2 154.7	38.5 271.1	0.5	48 29	49 31	13	
Total	DIAE	164.0	309.6	2.7	31	33	14	
Arterial Level of Service: E	B I-4 F	Run 11	Run 12	Run 12	·秋花胡桃花	and the state		
Cross Street Park Rd On Ramp	Speed 49	Delay 8.9	Speed 47	Delay 10.5		TIO AND AND A	н. 4 К	
Cty Line Off Ramp	31	140.6	26	185.5				
Total	33	149.5	28	196.0				
				· · ;				
							affic Rep	

Intersection: 4: I-4				11/30/20					
Intersection: 4: I-4 F & Park Rd On Ramp									
Movement	EB	EB	EB						
Directions Served	T	T	T						
Maximum Queue (ft) Average Queue (ft)	860 29	861 29	860 29						
95th Queue (ft)	475	475	475						
Link Distance (ft)	2573	2573	2573						
Upstream Blk Time (%)	0	0	0						
Queuing Penalty (veh)	Ő	0	0						
Storage Bay Dist (ft)									
Storage Blk Time (%)									
Queuing Penalty (veh)									
Intersection: 6: I-4	F & Cty	Line (Off Ran	np					
Movement Directions Served		EB	EB						
Maximum Queue (ft)	T 1846	T 3615	TR 3537						
Average Queue (ft)	160	414	504						
95th Queue (ft)	933	1745	1836						
Link Distance (ft)	11494		11494						
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)									
Storage Blk Time (%)									
Queuing Penalty (veh)									
Network Summary									
Network wide Queuing Per	alty: 0								
				· ·					
				SimTraffic Repo					
JSC				Page					

I-4 Contraflow Eva Baseline	aluation				Alt A - No Simulation #2	Contraflow Lan 11/30/2
Summary of All In	tervals		+			
Run Number	10		12	Avg		
Start Time	4:45	4:45	4:45	4:45		
End Time	6:00 75	6:00 75	6:00 75	6:00 75		
Total Time (min) Time Recorded (min)	60	60	60	60		
# of Intervals	2	2	2	2		
# of Recorded Intvis	1	1	1	1		
Vehs Entered	5248	5244	5446	5313		
Vehs Exited	4889	4885	4834	4869		
Starting Vehs	322	373	436	377		
Ending Vehs	681	732	1048	820		
Denied Entry Before Denied Entry After	1	0	7	3 1		
Travel Distance (mi)	15230	15155	15392	15259		
Travel Time (hr)	531.5	536.9	732.8	600.4		
Total Delay (hr)	305.7	311.8	505.1	374.2		
Total Stops	2882	3322	5463	3890		
Fuel Used (gal)	5529.8	5441.9	5881.7	5617.8		
Interval #0 Informa	ation Seedin	g				
Start Time	4.4E					
	4:45					
End Time	5:00					
End Time Total Time (min) Volumes adjusted by Grow No data recorded this inter	5:00 15 th Factors. val.	ling				
End Time Total Time (min) Volumes adjusted by Grow No data recorded this inter Interval #1 Informa Start Time End Time	5:00 15 th Factors. val. attion Record 5:00 6:00	ling				
End Time Total Time (min) Volumes adjusted by Grow No data recorded this intern Interval #1 Informa Start Time	5:00 15 th Factors. val. <u>ation Record</u> 5:00 6:00 60	ling			- 40 - 40	
End Time Total Time (min) Volumes adjusted by Grow No data recorded this inter Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number	5:00 15 th Factors. val. <u>ation Record</u> 5:00 6:00 60 th Factors. 10	11	12	Avg	·.	
End Time Total Time (min) Volumes adjusted by Grow No data recorded this intern Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow <u>Run Number</u> Vehs Entered	5:00 15 th Factors. val. ation Record 5:00 6:00 6:00 6:00 6:00 10 5:248	11 5244	5446	5313	·.	
End Time Total Time (min) Volumes adjusted by Grow No data recorded this inter Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow <u>Run Number</u> Vehs Entered Vehs Exited	5:00 15 th Factors. val. ation Record 5:00 6:00 6:00 60 th Factors. 10 5248 4889	11 5244 4885	5446 4834	5313 4869	ч. Подала в 1973 година и 1973 година и 1974	
End Time Total Time (min) Volumes adjusted by Grow No data recorded this inter Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Exited Starting Vehs	5:00 15 th Factors. val. ation Record 5:00 6:00 6:00 6:00 6:00 6:00 5:248 4889 322	11 5244 4885 373	5446 4834 436	5313 4869 377		
End Time Total Time (min) Volumes adjusted by Grow No data recorded this intern Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow <u>Run Number</u> Vehs Entered Vehs Entered Vehs Exited Starting Vehs Ending Vehs	5:00 15 th Factors. val. ation Record 5:00 6:00 6:00 60 th Factors. 10 5248 4889	11 5244 4885	5446 4834	5313 4869		
End Time Total Time (min) Volumes adjusted by Grow No data recorded this intern Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow <u>Run Number</u> Vehs Entered Vehs Exited Starting Vehs Ending Vehs Ending Vehs Denied Entry Before Denied Entry After	5:00 15 th Factors. val. ation Record 5:00 6:00 60 th Factors. 10 5248 4889 322 681	11 5244 4885 373 732	5446 4834 436 1048	5313 4869 377 820	·.	
End Time Total Time (min) Volumes adjusted by Grow No data recorded this intern Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow <u>Run Number</u> Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi)	5:00 15 th Factors. ation Record 5:00 6:00 6:00 6:00 60 th Factors. 10 5248 4889 322 681 1 1 15 15 15 15 15 15 15 15	11 5244 4885 373 732 0 0 15155	5446 4834 436 1048 7 1 15392	5313 4869 377 820 3 1 15259		
End Time Total Time (min) Volumes adjusted by Grow No data recorded this inter- Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Ending Vehs Denied Entry After Travel Distance (mi) Travel Time (hr)	5:00 15 th Factors. val. <u>attion Record</u> 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00	11 5244 4885 373 732 0 0 15155 536.9	5446 4834 436 1048 7 1 15392 732.8	5313 4869 377 820 3 1 15259 600.4		
End Time Total Time (min) Volumes adjusted by Grow No data recorded this intern Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow <u>Run Number</u> Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr)	5:00 15 th Factors. val. attion Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00	11 5244 4885 373 732 0 0 0 15155 536.9 311.8	5446 4834 436 1048 7 1 15392 732.8 505.1	5313 4869 377 820 3 1 15259 600.4 374.2		
End Time Total Time (min) Volumes adjusted by Grow No data recorded this intern Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Ending Vehs Denied Entry After Travel Distance (mi) Travel Time (hr) Total Tops	5:00 15 th Factors. ation Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 5:248 4:889 3:22 6:81 1 1 15 5:230 5:31.5 3:05.7 2:882	11 5244 4885 373 732 0 0 0 15155 536.9 311.8 3322	5446 4834 436 1048 7 1 15392 732.8 505.1 5463	5313 4869 377 820 3 1 15259 600.4 374.2 3890		
End Time Total Time (min) Volumes adjusted by Grow No data recorded this intern Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before	5:00 15 th Factors. val. attion Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00	11 5244 4885 373 732 0 0 0 15155 536.9 311.8	5446 4834 436 1048 7 1 15392 732.8 505.1	5313 4869 377 820 3 1 15259 600.4 374.2		
End Time Total Time (min) Volumes adjusted by Grow No data recorded this intern Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Ending Vehs Denied Entry After Travel Distance (mi) Travel Distance (mi) Travel Time (hr) Total Stops	5:00 15 th Factors. ation Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 5:248 4:889 3:22 6:81 1 1 15 5:230 5:31.5 3:05.7 2:882	11 5244 4885 373 732 0 0 0 15155 536.9 311.8 3322	5446 4834 436 1048 7 1 15392 732.8 505.1 5463	5313 4869 377 820 3 1 15259 600.4 374.2 3890		
End Time Total Time (min) Volumes adjusted by Grow No data recorded this intern Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Ending Vehs Denied Entry After Travel Distance (mi) Travel Distance (mi) Travel Time (hr) Total Stops	5:00 15 th Factors. ation Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 5:248 4:889 3:22 6:81 1 1 15 5:230 5:31.5 3:05.7 2:882	11 5244 4885 373 732 0 0 0 15155 536.9 311.8 3322	5446 4834 436 1048 7 1 15392 732.8 505.1 5463	5313 4869 377 820 3 1 15259 600.4 374.2 3890		SimTraffic Repo

I-4 Contraflow E Baseline	valuation		No Contraflow Lane 11/30/20
4: I-4 F & Park F	Rd On Rar	ormance by movement	
Movement	EBT	All	
Total Delay (hr)	18.7	18.7	
Delay / Veh (s)	12.7	12.7	
Total Stops	106	106	
Travel Dist (mi)		2594.5	
Travel Time (hr)	61.6 44	61.6 44	
Avg Speed (mph) Fuel Used (gal)	1145.1		
HC Emissions (g)	196	196	
CO Emissions (g)		106128	
NOx Emissions (g)	643	643	
Vehicles Entered	5313	5313	
Vehicles Exited	5316	5316	
Hourly Exit Rate	5316	5316	
Input Volume	5250	5250	
% of Volume	101	101	
Denied Entry Before Denied Entry After	3 1	3 1	
Movement Total Delay (hr) Delay / Veh (s) Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOX Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before Denied Entry After	EBT 331.1 234.0 3774 11393.2 496.0 23 3765.4 489 200438 1633 5316 4870 4870 5250 93 0 0 0	496.0 23	

I-4 Contraflow Evaluation Baseline	n		No Contraflow Lanes 11/30/200				
Total Network Performa	ince						
Total Notwork T Choine							
Total Delay (hr) Delay / Veh (s) Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g)	374.2 264.7 3890 15259.1 600.4 26 5617.8 785 352959 2661						
NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume Denied Entry Before Denied Entry After	2661 5313 4869 4869 15750 31 3 1						
Denied Entry After	1						
				SimTraffic Repo			
				Page			

I-4 Contraflow Evaluatio Baseline	n				No	Contraflov	v Lane 11/30/20		
Arterial Level of Service	Arterial Level of Service: EB I-4 F								
Cross Street Park Rd On Ramp	Node 4	Delay (s/veh) 12.7	Travel time (s) 41.7	Dist (mi) 0.5	Arterial Speed 45	Run 10 Speed 47	Run De 1		
Cty Line Off Ramp Total	6	234.0 246.7	350.6 392.3	2.2	23 25	26 28	18 19		
Arterial Level of Service	: EB I-4 F								
Cross Street Park Rd On Ramp	Run 11 Speed 47	Run 11 Delay 10.2	Run 12 Speed 43	Run 12 Delay 16.6					
Cty Line Off Ramp Total	25 28	193.8 204.0	18 20	318.2 334.8					
				<i>8</i> 0					
						SimTra	ffic Repo		

Intersection: 4: I-4 F & Park Rd On Ramp Movement EB EB Directions Served T T Maximum Queue (ft) 1720 1722 Average Queue (ft) 86 193 993 Link Distance (ft) 0 0 0 Storage Bay Die (ft) 0 0 0 0 Storage Bay Die (ft) 0 0 0 0 Storage Bay Die (ft) 0 0 0 0 Maximum Queue (ft) 101 1664 1692 Average Queue (ft) 1154 1169 Maximum Queu (ft) 1163 1664 1692 Average Queue (ft) 11694 11494 11494 Upstream Bit Time (%) 0 11694 11494 11494 11694 Usering Parality (veh) Network Kole Queuing Penality (veh) Network wide Queuing Penality (veh) Network wide Queuing Penality (veh)	I-4 Contraflow Eval Baseline	uation			No Contraflow Lane 11/30/200		
Directions Served T T T Maximum Queue (ft) 1720 1722 1725 Average Queue (ft) 86 115 115 95th Queue (ft) 86 115 115 Upstream Bik Time (%) 0 0 0 Queuing Penalty (veh) 0 0 0 Storage Bik Time (%) Queuing Penalty (veh) Intersection: 6: 1-4 F & Cty Line Off Ramp Movement EB EB ED Directions Served T T TR Maximum Queue (ft) 1103 1684 1692 Average Queue (ft) 1103 1684 1692 Average Queue (ft) 1103 1494 11494 Upstream Bik Time (%) Queue (ft) 11494 11494 Upstream Bik Time (%) Queuing Penalty (veh) Storage Bik Time (%) Queuing Penalty (veh) Network Summary Network wide Queuing Penalty: 0	Intersection: 4: I-4 I	= & Par	k Rd (On Ramp			
Maximum Queue (ft) 1720 1722 1725 Average Queue (ft) 86 115 993 993 Link Distance (ft) 2573 2573 2573 Upstream BK Time (%) 0 0 0 Queuing Penalty (veh) 0 0 0 Intersection: 6: 1-4 F & Cty Line Off Ramp Movement EB EB Movement EB EB EB PD PD Directions Served T T TR Maximum Queue (ft) 103 1664 192 Verage Queue (ft) 105 1054 120 1494 1494 194 Upstream BK Time (%) Queuing Penalty (veh) Storage By Dist (ft) Storage By Dist (ft) Storage By Dist (ft) Storage By Dist (ft) Storage Bit Time (%) Queuing Penalty (veh) Network wide Queuing Penalty: 0							
Average Queue (ft) 86 115 115 95h Queue (ft) 850 993 Unk Distance (ft) 2573 2573 Upstream Bik Time (%) 0 0 0 0 0 0 Storage Bix Time (%) 0 0 0 0 0 0 Storage Bix Time (%) 0 0 0 0 0 0 Storage Bix Time (%) 0 0 0 0 0 0 Queuing Penalty (veh) 1103 1664 1692 Average Queue (ft) 1103 1664 1692 Average Queue (ft) 1103 1664 1692 Average Queue (ft) 11494 11494 Upstream Bik Time (%) 11494 11494 11494 Queuing Penalty (veh) Queuing Penalty (veh) Storage Bix Time (%) Queuing Penalty (veh) Queuing Penalty (veh) Network wide Queuing Penalty: 0							
95th Queue (ft) 850 993 993 Link Distance (ft) 2573 2573 Upstream Bik Time (%) 0 0 0 Queuing Penalty (veh) 0 0 0 0 0 0 Intersection: 6: I-4 F & Cty Line Off Ramp	Maximum Queue (π)						
Link Distance (ft) 2573 2573 2573 Upstream Bik Time (%) 0 0 0 Storage Bix Time (%) Queuing Penalty (veh) Intersection: 6: I-4 F & Cty Line Off Ramp <u>Movement EB EB EB</u> Directions Served T T T R Maximu Queue (ft) 1103 1664 1692 Average Queue (ft) 151 319 410 95th Queue (ft) 111494 11494 11494 Upstream Bik Time (%) Queuing Penalty (veh) Storage Bix Time (%) Queuing Penalty (veh) Network Summary Network wide Queuing Penalty: 0	95th Queue (ft)						
Upstream Bit Time (%) 0 0 0 0 Queuing Penalty (veh) 0 0 0 Intersection: 6: 1-4 F & Cty Line Off Ramp <u>Movement EB EB EB</u> Directons Served T T T R Maximum Queue (ft) 1103 1664 1692 Average Queue (ft) 151 319 410 Sibi Queue (ft) 11454 11494 11494 Upstream Bit Time (%) Queuing Penalty (veh) Storage Bay Dist (ft) Storage Bay Dist (ft) Network Summary Network wide Queuing Penalty: 0	Link Distance (ft)						
Queuing Penalty (veh) 0 0 0 Storage Bik Time (%) Queuing Penalty (veh) Intersection: 6: I-4 F & Cty Line Off Ramp Movement EB EB EB Directions Served T T T Maximum Queue (ft) 103 1664 1692 Average Queue (ft) 151 319 410 95th Queue (ft) 605 1054 1210 Link Distance (ft) 11494 11494 11494 Upstream Bik Time (%) Queuing Penalty (veh) Storage Bix Time (%) Queuing Penalty (veh) Storage Bik Time (%) Queuing Penalty (veh) Storage Bix Time (%) Queuing Penalty (veh) Network wide Queuing Penalty (veh) Storage Bix Time (%) Queuing Penalty (veh) Storage Bix Time (%)	Upstream Blk Time (%)						
Storage Bik Time (%) Intersection: 6: I-4 F & Cty Line Off Ramp Movement EB EB Directions Served T T TR Maximum Queue (ft) 103 1684 1692 Average Queue (ft) 605 1054 1210 Link Distance (ft) 11494 11494 11494 Upstream Bik Time (%) Queuing Panalty (veh) Storage Bay Dist (ft) Storage Bik Time (%) Queuing Penalty (veh) Network Summary	Queuing Penalty (veh)	0	0	0			
Queuling Penalty (veh) Intersection: 6: I-4 F & Cty Line Off Ramp Movement EB EB Directions Served T T TR Maximum Queue (ft) 103 1664 1692 Average Queue (ft) 605 1054 1210 Link Distance (ft) 11494 11494 11494 Upstream Bitk Time (%) Queuing Penalty (veh) Storage Bitk Time (%) Queuing Penalty (veh) Network Summary Network wide Queuing Penalty: 0	Storage Bay Dist (ft)						
Intersection: 6: I-4 F & Cty Line Off Ramp Movement EB EB Directions Served T T Maximum Queue (ft) 1103 1664 1692 Average Queue (ft) 151 319 410 95th Queue (ft) 605 1054 1210 Link Distance (ft) 11494 11494 11494 Upstream Blk Time (%) Queuing Penalty (veh) Storage Blk Time (%) Queuing Penalty (veh) Network Wide Queuing Penalty: 0 Network wide Queuing Penalty: 0	Storage Blk Time (%)						
Movement EB EB Directions Served T T TR Maximum Queue (ft) 1103 1664 1692 Average Queue (ft) 605 1054 1210 Link Distance (ft) 11494 11494 11494 Upstream Bik Time (%) Queuing Penalty (veh) Storage Bik Time (%) Queuing Penalty (veh) Network Summary Network wide Queuing Penalty: 0							
Directions Served T	Intersection: 6: I-4 F						
Maximum Queue (ft) 1103 1664 1692 Average Queue (ft) 151 319 410 95th Queue (ft) 605 1054 1210 Link Distance (ft) 11494 11494 11494 Upstream Bik Time (%) Queuing Penalty (veh) Storage By Dist (ft) Storage By Dist (ft) Storage Bik Time (%) Queuing Penalty (veh) Network Summary Network wide Queuing Penalty: 0					and the second second second		
Average Queue (ft) 151 319 410 95th Queue (ft) 605 1054 1210 Link Distance (ft) 11494 11494 11494 Upstream Bik Time (%) Queuing Penalty (veh) Storage Bix Time (%) Queuing Penalty (veh) Storage Bix Time (%) Queuing Penalty (veh) Network Summary Network Summary	Maximum Queue (ff)						
95th Cueue (ft) 605 1054 1210 Link Distance (ft) 11494 11494 11494 Upstream BK Time (%) Cueuing Penalty (veh) Storage Bk Time (%) Cueuing Penalty (veh) Network Summary Network wide Queuing Penalty: 0	Average Queue (ft)						
Link Distance (ft) 11494 11494 11494 Upstream Bik Time (%) Queuing Penalty (veh) Network Summary Network wide Queuing Penalty: 0	95th Queue (ft)		1054				
Queuing Penalty (veh) Storage Bay Dist (ft) Storage Bik Time (%) Queuing Penalty (veh) Network Summary Network wide Queuing Penalty: 0	Link Distance (ft)	11494	11494	11494			
Storage Bay Dist (ft) Storage Bik Time (%) Queuing Penalty (veh) Network Summary Network wide Queuing Penalty: 0	Upstream Blk Time (%)						
Storage Blk Time (%) Queuing Penalty (veh) Network Summary Network wide Queuing Penalty: 0	Queuing Penalty (veh)						
Queuing Penalty (veh) Network Summary Network wide Queuing Penalty: 0	Storage Bay Dist (ft)						
Network Summary Network wide Queuing Penalty: 0	Oueuing Penalty (veh)						
Network wide Queuing Penalty: 0							
			-				
SimTraffic Rep	Network wide Queuing Pena	lty: 0					
SimTraffic Rep							
SimTraffic Rep							
SimTraffic Rep							
SimTraffic Rep							
SimTraffic Rep							
SimTraffic Rep							
SimTraffic Rep							
SimTraffic Rep							
SimTraffic Rep							
SimTraffic Rep							
SimTraffic Rep							
SimTraffic Rep							
SimTraffic Rep							
					SimTraffic Repo Page		

	luation				Alt A - No Simulation #3	Contraflow Lane 11/30/20
Summary of All Int	ervals					
Run Number	10	. 11	12	Avg		
Start Time	4:45	4:45	4:45	4:45		
End Time	6:00	6:00	6:00	6:00 75		
Total Time (min)	75 60	75 60	75 60	60		
Time Recorded (min) # of Intervals	2	2	2	2		
# of Recorded Intvis	ĩ	1	1	1		
Vehs Entered	5376	5332	5358	5355		
Vehs Exited	4864	4889	4895	4883		
Starting Vehs	400	412	421	411		
Ending Vehs	912	855	884	884		
Denied Entry Before	2	1	4	2		
Denied Entry After	1	0	1	1		
Travel Distance (mi)	15347	15343	15361	15351		
Travel Time (hr)	595.4	639.5 412.4	676.5 448.5	637.1 409.4		
Total Delay (hr) Total Stops	367.4 4313	5514	5186	5004		
Fuel Used (gal)	5651.0	5775.7	5819.9	5748.8		
Interval #0 Informa	and the second	g				
Start Time	4:45					
End Time						
End Time	5:00					
Total Time (min) Volumes adjusted by Grow No data recorded this interv	15 th Factors. val.					
Total Time (min) Volumes adjusted by Grow No data recorded this intern Interval #1 Informa Start Time End Time	15 th Factors. val. ation Record 5:00 6:00	ling				
Total Time (min) Volumes adjusted by Grow No data recorded this interval Interval #1 Informa Start Time End Time Total Time (min)	15 th Factors. val. tition Record 5:00 6:00 60	ling			, L	
Total Time (min) Volumes adjusted by Grow No data recorded this interval Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number	15 th Factors. at <u>ion Record</u> 5:00 6:00 60 th Factors. 10	11	12	Avg		
Total Time (min) Volumes adjusted by Grow No data recorded this interval Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow <u>Run Number</u> Vehs Entered	15 th Factors. ation Record 5:00 6:00 60 th Factors. 10 5376	11 5332	5358	5355		
Total Time (min) Volumes adjusted by Grow No data recorded this interval Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Exited	15 th Factors. val. tion Record 5:00 6:00 6:00 60 th Factors. 10 5376 4864	11 5332 4889	5358 4895	5355 4883		
Total Time (min) Volumes adjusted by Grow No data recorded this interval Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Exited Starting Vehs	15 th Factors. tion Record 5:00 6:00 60 th Factors. 10 5376 4864 400	11 5332 4889 412	5358 4895 421	5355 4883 411	,	
Total Time (min) Volumes adjusted by Grow No data recorded this interval Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Entered Vehs Exited Starting Vehs Ending Vehs	15 th Factors. val. tion Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00	11 5332 4889 412 855	5358 4895 421 884	5355 4883 411 884		
Total Time (min) Volumes adjusted by Grow No data recorded this interval Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before	15 th Factors. at <u>ion Record</u> 5:00 6:00 60 th Factors. 10 5376 4864 400 912 2	11 5332 4889 412 855 1	5358 4895 421 884 4	5355 4883 411 884 2		
Total Time (min) Volumes adjusted by Grow No data recorded this interval Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After	15 th Factors. ation Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00	11 5332 4889 412 855 1 0	5358 4895 421 884 4 1	5355 4883 411 884 2 1		
Total Time (min) Volumes adjusted by Grow No data recorded this interval Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi)	15 th Factors. val. tion Record 5:00 6:00 60 th Factors. 10 5376 4864 400 912 2 1 15347	11 5332 4889 412 855 1	5358 4895 421 884 4	5355 4883 411 884 2		
Total Time (min) Volumes adjusted by Grow No data recorded this interval Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr)	15 th Factors. ation Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00	11 5332 4889 412 855 1 0 15343	5358 4895 421 884 4 1 15361	5355 4883 411 884 2 1 15351		
Total Time (min) Volumes adjusted by Grow No data recorded this interval Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr) Total Stops	15 th Factors. val. tion Record 5:00 6:00 60 th Factors. 10 5376 4864 400 912 2 1 15347 595.4	11 5332 4889 412 855 1 0 15343 639.5	5358 4895 421 884 4 1 15361 676.5	5355 4883 411 884 2 1 15351 637.1 409.4 5004		
Total Time (min) Volumes adjusted by Grow No data recorded this interval Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr) Total Stops	15 th Factors. ation Record 5:00 6:00 60 th Factors. 10 5376 4864 4864 400 912 2 1 15347 5955.4 367.4 4313	11 5332 4889 412 855 1 0 15343 639.5 412.4 5514	5358 4895 421 884 4 1 15361 676.5 448.5 5186	5355 4883 411 884 2 1 15351 637.1 409.4 5004		
Total Time (min) Volumes adjusted by Grow No data recorded this interval Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Entered Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr)	15 th Factors. attion Record 5:00 6:00 60 th Factors. 10 5376 4864 400 912 2 1 15347 595.4 367.4	11 5332 4889 412 855 1 0 15343 639.5 412.4	5358 4895 421 884 4 1 15361 676.5 448.5	5355 4883 411 884 2 1 15351 637.1 409.4		
Total Time (min) Volumes adjusted by Grow No data recorded this interval Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr) Total Stops	15 th Factors. ation Record 5:00 6:00 60 th Factors. 10 5376 4864 4864 400 912 2 1 15347 5955.4 367.4 4313	11 5332 4889 412 855 1 0 15343 639.5 412.4 5514	5358 4895 421 884 4 1 15361 676.5 448.5 5186	5355 4883 411 884 2 1 15351 637.1 409.4 5004		

I-4 Contraflow Ev Baseline	aluation		No Contraflow Lane 11/30/20				
4: I-4 F & Park R	4: I-4 F & Park Rd On Ramp Performance by movement						
Movement		All	and the second secon				
Total Delay (hr)	19.0 12.7	19.0 12.7					
Delay / Veh (s) Total Stops	103	103					
Travel Dist (mi)	2616.0	2616.0					
Travel Time (hr)	62.3	62.3					
Avg Speed (mph)	43	43					
Fuel Used (gal)		1170.7					
HC Emissions (g)	187	187					
CO Emissions (g)		106058					
NOx Emissions (g)	627 5355	627 5355					
Vehicles Entered Vehicles Exited	5362	5362					
Hourly Exit Rate	5362	5362					
Input Volume	5300	5300					
% of Volume	101	101					
Denied Entry Before	2	2					
Denied Entry After	1	1					
6: I-4 F & Cty Lin	e Off Rai	np Perf	ormance by movement				
Movement	EBT	All					
Total Delay (hr)	365.8	365.8					
Delay / Veh (s)	257.1	257.1					
Total Stops	4889	4889					
Travel Dist (mi)	11459.2						
Travel Time (hr)	531.7	531.7					
Avg Speed (mph)	22	22					
Fuel Used (gal)	3862.9	3862.9					
HC Emissions (g)	443	443 190298					
CO Emissions (g) NOx Emissions (g)	190298	1519					
Vehicles Entered	5362	5362					
Vehicles Exited	4883	4883					
Hourly Exit Rate	4883	4883					
Input Volume	5300	5300					
% of Volume	92	92					
Denied Entry Before	0	0					
Denied Entry After	0	0					
			SimTraffic Rep Page				

I-4 Contraflow Evaluation Baseline	on	No Contraflow Lan 11/30/20
Total Network Performa	ance	
International Action of the	409.4	
Total Delay (hr) Delay / Veh (s) Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before Denied Entry After	287.9 5004 15350.6 637.1 24 5748.8 723 341858 2516 5355 4883 4883 15900 31 2 1	
JSC		 SimTraffic Re Pag

Arterial Level of Service: EB I-4 F Tores Street Node Given Travel Dist Arterial Run 10 Ru Park Ho On Ramp 6 257.1 37.3.7 2.2 21 23 2 Arterial Level of Service: EB I-4 F E	Arterial Level of Service: EB 1-4 F	/ Lai 11/30/	ntraflow 1	No Co					4 Contraflow Evaluatior aseline
Dross Street Node (bvef) time (a) (m) Speed Speed T Park Rd On Ramp 4 12.7 41.8 0.5 45 44 12.7 13.3 22.2 21 23 25 2 Arterial Level of Service: EB 1-4 F Run 11 Run 12 Run 12 </th <th>Dross Street Node (6/Ver) time (6) (m) Speed Speed Park Rd On Ramp 4 12.7 41.8 0.5 45 44 Cyl Line Off Ramp 6 257.1 37.3 2.2 21 23 Total 269.8 415.5 2.7 23 25 Arterial Level of Service: EB I-4 F </th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>-</th> <th>EB I-4 F</th> <th></th>	Dross Street Node (6/Ver) time (6) (m) Speed Speed Park Rd On Ramp 4 12.7 41.8 0.5 45 44 Cyl Line Off Ramp 6 257.1 37.3 2.2 21 23 Total 269.8 415.5 2.7 23 25 Arterial Level of Service: EB I-4 F						-	EB I-4 F	
Park Rd On Ramp 4 12.7 41.8 0.5 45 44 Cly Line Off Ramp 6 257.1 373.7 2.2 21 23 2 2 1 23 2 1 23 2 2 1 23 2 2 1 23 2 2 1 23 2	Park Rd On Ramp 4 12.7 41.8 0.5 45 44 Cly Line Off Ramp 6 257.1 373.7 2.2 21 23 Total 269.8 415.5 2.7 23 25 Arterial Level of Service: EB I-4 F Employeed Delay Speed Delay Speed Delay Park Rd On Ramp 21 260.7 20 283.3 Total 23 272.2 286.4	Ru			Dist				an a
City Line Off Ramp 6 257.1 373.7 2.2 21 23 2 Arterial Level of Service: EB I-4 F	City Line Off Ramp 6 257.1 373.7 2.2 21 23 25 Arterial Level of Service: EB I-4 F Image: Speed Delay Speed Delay Speed Delay Speed Delay Speed Delay <t< td=""><td></td><td>44</td><td>45</td><td>0.5</td><td>41.8</td><td>12.7</td><td>4</td><td>ross Street ark Rd On Ramp</td></t<>		44	45	0.5	41.8	12.7	4	ross Street ark Rd On Ramp
Aterial Level of Service: EB I-4 F	Arterial Level of Service: EB I-4 F	2						6	ty Line Off Ramp
Bross Street Speed Delay Speed Delay Speed Delay	British Run 11 Run 11 Run 12 Run 12 Park Rd On Ramp 46 11.5 45 13.1 Total 23 272.2 22 296.4							EB I-4 F	
Park Rd On Ramp 46 11.5 45 13.1 Cly Line Off Ramp 21 260.7 20 283.3 Tolal 23 272.2 22 296.4	Park Rd On Ramp 46 11.5 45 13.1 Cly Line Off Ramp 21 260.7 20 283.3 Total 23 272.2 22 286.4					Run 12		Run 11	
City Line Off Ramp 21 260.7 20 283.3 Total 23 272.2 22 296.4	Cty Line Off Ramp 21 260.7 20 283.3 Total 23 272.2 22 286.4								
SimTraffic R	SimTr				283.3	20	260.7	21	ty Line Off Ramp
					200.4	~~~	212.2	23	נאו
					3				
		affic Re	SimTra						
JSC	JSC	Pa	olinna						
		Fag							SC

I-4 Contraflow Eva Baseline	luation			No Contraflow Lane 11/30/20
Intersection: 4: I-4	F & Par	k Rd (On Rar	np -
Movement	EB	EB	EB	
Directions Served	T	T	T	
Maximum Queue (ft) Average Queue (ft)	1721 115	2582 229	1722 86	
95th Queue (ft)	991	1440	851	
Link Distance (ft)	2573	2573	2573	
Upstream Blk Time (%)	0	0	0	
Queuing Penalty (veh)	0	0	0	
Storage Bay Dist (ft)		1	1.250	
Storage Blk Time (%)				
Queuing Penalty (veh)				
Intersection: 6: I-4	F & Cty	Line (Off Ran	np
Movement		EB	EB	
Directions Served	Т	Т	TR	
Maximum Queue (ft)	2010	4045	4488	
Average Queue (ft)	238	436	536	
95th Queue (ft)	1199	1789	2155	
Link Distance (ft)	11494	11494	11494	
Upstream Blk Time (%)				
Queuing Penalty (veh) Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				
Network Summary		_		
Network wide Queuing Pen	alty: 0			
				7. No.
				SimTraffic Repo

I-4 Contraflow Eva Baseline					Simulation		11/30/2
Summary of All Inte	ervals		+				
Run Number	10	11	12	13	14	Avg	
Start Time	4:45	4:45	4:45	4:45	4:45 6:00	4:45 6:00	
End Time	6:00	6:00	6:00 75	6:00 75	75	75	
Total Time (min)	75 60	75 60	60	60	60	60	
Time Recorded (min)	2	2	2	2	2	2	
# of Intervals # of Recorded Intvis	1	1	1	1	1	1	
Vehs Entered	2190	2197	2199	2188	2140	2182	
Vehs Exited	2076	2140	2086	2123	2103	2106	
Starting Vehs	110	114	140	96	140	119	
Ending Vens	224	171	253	161	177	197	
Denied Entry Before	0	0	0	1	0	0	
Denied Entry After	1	0	Ő	o.	1	0	
Travel Distance (mi)	6374	6446	6366	6399	6278	6373	
Travel Time (hr)	165.5	135.1	198.1	129.3	167.7	159.2	
Total Delay (hr)	72.9	41.2	105.6	36.2	76.6	66.5	
Total Stops	3	0	0	2	0	1	
Fuel Used (gal)	2014.9	1963.6	2088.9	1930.5	2002.4	2000.1	
Interval #0 Informa	tion Seedin	a					
		9					
Start Time	4:45	9					
Start Time End Time Total Time (min) Volumes adjusted by Growt No data recorded this interv	4:45 5:00 15 h Factors. al.						
Start Time End Time Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time	4:45 5:00 15 h Factors. al. tion Record 5:00						
Start Time End Time Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min)	4:45 5:00 15 h Factors. al. tion Record 5:00 6:00 60						
Start Time End Time Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Growt	4:45 5:00 15 h Factors. al. tion Record 5:00 6:00 60 h Factors.	ling					
Start Time End Time Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number	4:45 5:00 15 h Factors. al. tion Record 5:00 6:00 60 h Factors. 10	ling 11	12 2199		14		
Start Time End Time Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Growt <u>Run Number</u> Vehs Entered	4:45 5:00 15 h Factors. al. tion Record 6:00 6:00 60 h Factors. 10 2190	ling 11 2197	2199	2188	2140	2182	
Start Time End Time Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Growt <u>Run Number</u> Vehs Entered Vehs Exited	4:45 5:00 15 h Factors. al. tion Record 6:00 6:00 6:00 6:00 60 h Factors. 10 2190 2076	ling 11 2197 2140	2199 2086	2188 2123	2140 2103		
Start Time End Time Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number Vehs Entered Vehs Exited Starting Vehs	4:45 5:00 15 h Factors. al. tion Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 10 2190 2076 110	11 2197 2140 114	2199 2086 140	2188 2123 96	2140	2182 2106	
Start Time End Time Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Growt <u>Run Number</u> Vehs Entered Vehs Exited Starting Vehs Ending Vehs	4:45 5:00 15 h Factors. al. tion Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00	11 2197 2140 114 171	2199 2086 140 253	2188 2123	2140 2103 140	2182 2106 119	
Start Time End Time Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number Vehs Entered Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before	4:45 5:00 15 h Factors. al. tion Record 5:00 6:00 60 h Factors. 10 2190 2076 110 224 0	ling 11 2197 2140 114 171 0	2199 2086 140	2188 2123 96 161	2140 2103 140 177	2182 2106 119 197	
Start Time End Time Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Ending Vehs Ending Vehs Denied Entry Before Denied Entry After	4:45 5:00 15 h Factors. al. tion Record 5:00 6:00 60 h Factors. 10 2190 2076 110 224 0 1	11 2197 2140 114 171	2199 2086 140 253 0	2188 2123 96 161 1	2140 2103 140 177 0	2182 2106 119 197 0	
Start Time End Time Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Ending Vehs Denied Entry After Travel Distance (mi)	4:45 5:00 15 h Factors. al. tion Record 5:00 6:00 60 h Factors. 10 2190 2076 110 224 0	ling 11 2197 2140 114 171 0 0	2199 2086 140 253 0 0	2188 2123 96 161 1 0	2140 2103 140 177 0 1	2182 2106 119 197 0 0 6373 159.2	
Start Time End Time Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Ending Vehs Denied Entry After Travel Distance (mi) Travel Time (hr)	4:45 5:00 15 h Factors. al. tion Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00	ling 2197 2140 114 171 0 6446 135.1	2199 2086 140 253 0 0 6366	2188 2123 96 161 1 0 6399	2140 2103 140 177 0 1 6278	2182 2106 119 197 0 0 6373	
Start Time End Time Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number Vehs Entered Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr)	4:45 5:00 15 h Factors. al. tion Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 10 2190 2076 110 224 0 1 6:374 165.5 72.9	ling 11 2197 2140 114 171 0 0 0 6446	2199 2086 140 253 0 0 6366 198.1	2188 2123 96 161 1 0 6399 129.3	2140 2103 140 177 0 1 6278 167.7	2182 2106 119 197 0 6373 159.2 66.5 1	
Start Time End Time Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number Vehs Entered Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr)	4:45 5:00 15 h Factors. al. tion Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 10 2190 2076 110 224 0 1 6:374 165.5 72.9 3	11 2197 2140 114 171 0 0 6446 135.1 41.2	2199 2086 140 253 0 0 6366 198.1 105.6	2188 2123 96 161 1 0 6399 129.3 36.2	2140 2103 140 177 0 1 6278 167.7 76.6	2182 2106 119 197 0 0 6373 159.2 66.5	
Start Time End Time Total Time (min) Volumes adjusted by Growt No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number Vehs Entered Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr)	4:45 5:00 15 h Factors. al. tion Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 10 2190 2076 110 224 0 1 6:374 165.5 72.9	11 2197 2140 114 171 0 0 6446 135.1 41.2 0	2199 2086 140 253 0 0 6366 198.1 105.6 0	2188 2123 96 161 1 0 6399 129.3 36.2 2	2140 2103 140 177 0 1 6278 167.7 76.6 0	2182 2106 119 197 0 6373 159.2 66.5 1	

I-4 Contraflow Ev Baseline	aluation			One Contraflow Lane 11/30/200
12: I-4 C & Park	Road On	Ramp	Perfor	mance by movement
Movement	EBŤ	WBT	All	
Total Delay (hr)	3.1	0.2	3.3	
Delay / Veh (s)	6.1	1.9	5.4	
Total Stops	0	0	0	
Travel Dist (mi)	875.7	871.2	1746.9	
Travel Time (hr)	16.3	12.8	29.0	
Avg Speed (mph)	56	68	61	
Fuel Used (gal)	270.4	294.6	565.0	
HC Emissions (g)	25	54	79	
CO Emissions (g)	18663	24241	42904	
NOx Emissions (g)	120	201	321	
Vehicles Entered	1789	394	2183	
Vehicles Exited	1785	398	2183	
Hourly Exit Rate	1785	398	2183	
Input Volume	1800	400	2200	
% of Volume	99	100	99 0	
Denied Entry Before	0	0	0	
Denied Entry After	0	0	0	
Movement Total Delay (hr) Delay / Veh (s) Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume Vehicles Enty Before Denied Entry Before Denied Entry After	EBT 55.1 113.7 1 3895.5 111.4 35 1092.3 62 38680 465 1785 1708 1708 1708 1708 1708 1708 0 0 0	WBT 0.0 0.2 0 95.6 1.4 68 35.9 7 3622 23 393 394 394 394 98 0 0	All 55.1 92.8 1 3991.1 112.9 35 1128.2 68 42502 487 2178 2102 2102 2200 96 0 0	

185

Total Network Performance Total Delay (hr) 66.5 Delay (Veh (s) 111.6 Total Stops 1 Travel Dist (mi) 6372.5 Travel Dist (mi) 6372.5 Travel Dist (mi) 6372.5 Travel Dist (mi) 6372.5 Colored Color	I-4 Contraflow Evaluation Baseline	n	One Contraflow Lar 11/30/20
Total Delay (hr) 66.5 Delay / Veh (s) 111.6 Total Stops 1 Travel Dist (mi) 6372.5 Travel Time (hr) 159.2 Avg Speed (mph) 40 Fuel Used (gal) 2000.1 HC Emissions (g) 176 CO Emissions (g) 101765 NOx Emissions (g) 951 Vehicles Entered 2182 Vehicles Exited 2106 Hourly Exit Rate 2106 Input Volume 6600 % of Volume 32		ince	
Delay / Veh (s) 111.6 Total Stops 1 Travel Dist (mi) 6372.5 Travel Time (hr) 159.2 Avg Speed (mph) 40 Fuel Used (gal) 2000.1 HC Emissions (g) 101765 NOX Emissions (g) 951 Vehicles Entered 2182 Vehicles Exited 2106 Hourly Exit Rate 2106 Input Volume 6600 % of Volume 32			
Denied Entry Before 0 Denied Entry After 0	Total Delay (hr) Delay / Veh (s) Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume & of Volume Denied Entry Before Denied Entry After	111.6 1 6372.5 40 2000.1 1776 101765 951 2182 2106 2106 6600 32 0	
	đ		
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
			SimTraffic Rep
SimTraffic Rep JSC Page	JSC		Page

I-4 Contraflow Evaluation Baseline					One	Contrafic	11/30
Arterial Level of Service:	EB I-4 C						_
Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed	Run 10 Speed	Ri
Park Road On Ramp	12 14	6.1 113.7	32.8 229.8	0.5 2.2	57 34	56 33	1
County Line Off Ramp Total	14	119.8	262.5	2.7	37	36	1
Arterial Level of Service:	EB I-4 C						
	Run 11	Run 11	Run 12	Run 12	Run 13	Run 13	Ru
Cross Street Park Road On Ramp	Speed 56	Delay 6.6	Speed 57	Delay 5.9	Speed 56	Delay 6.5	Sp
County Line Off Ramp	44	61.5 68.1	26 28	193.6 199.5	47	52.1 58.6	
Total		00.1	20	199.5	45	56.0	
Arterial Level of Service:	WB I-4 C						
Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed	Run 10 Speed	Run De
County Line Off Ramp	14	0.2	13.1	0.2	69	70	· · · · · · · · · · · · · · · · · · ·
Park Road On Ramp Total	12	1.9	116.2 129.3	2.2	68 68	68 68	
County Line Off Ramp Park Road On Ramp Total	69 68 68	0.2 2.3 2.5	69 68 68	0.1 1.8 2.0	69 68 68	0.2 1.9 2.1	
JSC						SimTra	iffic Re Pa

I-4 Contraflow Evaluation Baseline	One Contraflow La 11/30/2
Intersection: 12: I-4 C & Park Road On Ramp	
Movement	
Directions Served Maximum Queue (ft) Average Queue (ft) 95th Queue (ft) Link Distance (ft) Upstream Blk Time (%) Queuing Penalty (veh) Storage Bay Dist (ft) Storage Blk Time (%) Queuing Penalty (veh)	
Intersection: 14: I-4 C & County Line Off Ramp	
Movement EB Directions Served T Maximum Queue (ft) 12 Average Queue (ft) 1 95th Queue (ft) 10 Link Distance (ft) 11547 Upstream Bik Time (%) Queuing Penalty (veh) Storage Bik Time (%) Queuing Penalty (veh) Network Summary Network wide Queuing Penalty: 0	
	SimTraffic Rep

I-4 Contraflow Evalu Baseline	auon				Simulati	on #2	11/30/200
Summary of All Inte	rvals		-				
Run Number	10	11	12	13	14	Avg	us first band a
Start Time	4:45	4:45	4:45	4:45	4:45	4:45	
End Time	6:00	6:00	6:00	6:00	6:00 75	6:00 75	
Total Time (min)	75	75	75 60	75 60	60	60	
Time Recorded (min)	60 2	60 2	2	2	2	2	
# of Intervals	2	1	1	1	1	1	
# of Recorded Intvis	2251	2208	2178	2213	2261	2222	
Vehs Entered		2208	21/8	2132	2132	2130	
Vehs Exited	2126	112	137	115	90	118	
Starting Vehs	135	160	213	196	219	210	
Ending Vehs	260 4	0	213	0	0	1	
Denied Entry Before		0	2	1	0	1	
Denied Entry After	1	6469	6374	6464	6571	6479	
Travel Distance (mi)	6517		186.7	156.7	171.1	168.1	
Travel Time (hr)	197.2	128.8 34.6	93.9	62.6	75.8	73.9	
Total Delay (hr)	102.8	34.0 0	93.9	02.0	2	1	
Total Stops	2 2136.6	1944.7	2076.4	2022.7	2084.4	2053.0	
Fuel Used (gal)	2130.0	1344.1	2070.4	LULLI	2004.4	2000.0	
Internal 40 Informent	on Seedin	a					
Interval #0 Informati	on occum	9					
Start Time	4:45	9					
Start Time End Time Total Time (min)	4:45 5:00 15 Factors.	9					
Start Time End Time Total Time (min) Volumes adjusted by Growth No data recorded this interva Interval #1 Informati	4:45 5:00 15 Factors. I. on Record						
Start Time End Time Total Time (min) Volumes adjusted by Growth No data recorded this interva Interval #1 Informati Start Time	4:45 5:00 15 Factors. I. on Record 5:00						
Start Time End Time Total Time (min) Volumes adjusted by Growth No data recorded this interva Interval #1 Informati Start Time End Time	4:45 5:00 15 Factors. I. on Record 5:00 6:00						
Start Time End Time Total Time (min) Volumes adjusted by Growth No data recorded this interva Interval #1 Informati Start Time	4:45 5:00 15 Factors. I. <u>on Record</u> 5:00 6:00 60				4.		
Start Time End Time Total Time (min) Volumes adjusted by Growth No data recorded this interva Interval #1 Informati Start Time End Time Total Time (min) Volumes adjusted by Growth Run Number	4:45 5:00 15 Factors. I. <u>on Record</u> 5:00 6:00 60 Factors. 10	ling 11		13	14	Avg	
Start Time End Time Total Time (min) Volumes adjusted by Growth No data recorded this interva Interval #1 Informati Start Time End Time Total Time (min) Volumes adjusted by Growth <u>Run Number</u> Vehs Entered	4:45 5:00 15 Factors. I. <u>on Record</u> 5:00 6:00 6:00 6:00 6:00 Factors. 10 2251	ling 11 2208	2178	2213	2261	2222	
Start Time End Time Total Time (min) Volumes adjusted by Growth No data recorded this interva Interval #1 Informati Start Time End Time Total Time (min) Volumes adjusted by Growth <u>Run Number</u> Vehs Entered Vehs Exited	4:45 5:00 15 Factors. I. on Record 5:00 6:00 60 Factors. 10 2251 2126	ing 11 2208 2160	2178 2102	2213 2132	2261 2132	2222 2130	
Start Time End Time Total Time (min) Volumes adjusted by Growth No data recorded this interva Interval #1 Informati Start Time End Time Total Time (min) Volumes adjusted by Growth Run Number Vehs Entered Vehs Exited Starting Vehs	4:45 5:00 15 Factors. I. on Record 5:00 6:00 60 Factors. 10 2251 2126 135	ing 11 2208 2160 112	2178 2102 137	2213 2132 115	2261 2132 90	2222 2130 118	
Start Time End Time Total Time (min) Volumes adjusted by Growth No data recorded this interva Interval #1 Informati Start Time End Time Total Time (min) Volumes adjusted by Growth <u>Run Number</u> Vehs Entered Vehs Exited Starting Vehs Ending Vehs	4:45 5:00 15 Factors. I. <u>on Record</u> 5:00 6:00 6:00 6:00 6:00 Factors. <u>10</u> 2251 2126 135 260	11 2208 2160 112 160	2178 2102 137 213	2213 2132 115 196	2261 2132 90 219	2222 2130 118 210	
Start Time End Time Total Time (min) Volumes adjusted by Growth No data recorded this interva Interval #1 Informati Start Time End Time Total Time (min) Volumes adjusted by Growth <u>Run Number</u> Vehs Entered Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before	4:45 5:00 15 Factors. I. Con Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 10 2251 2126 135 260 4	ling 11 2208 2160 112 160 0	2178 2102 137 213 1	2213 2132 115 196 0	2261 2132 90 219 0	2222 2130 118 210 1	
Start Time End Time Total Time (min) Volumes adjusted by Growth No data recorded this interva Interval #1 Informati Start Time End Time Total Time (min) Volumes adjusted by Growth <u>Run Number</u> Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After	4:45 5:00 15 Factors. I. <u>on Record</u> 5:00 6:000	ling 11 2208 2160 112 160 0 0	2178 2102 137 213 1 2	2213 2132 115 196 0 1	2261 2132 90 219 0 0	2222 2130 118 210 1 1	
Start Time End Time Total Time (min) Volumes adjusted by Growth No data recorded this interva Interval #1 Informati Start Time End Time Total Time (min) Volumes adjusted by Growth <u>Run Number</u> Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi)	4:45 5:00 15 Factors. I. on Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 10 2251 2126 135 260 4 1 5:50 4 1 5:50 4 1 5:50	ling 11 2208 2160 112 160 0 0 6469	2178 2102 137 213 1 2 6374	2213 2132 115 196 0 1 6464	2261 2132 90 219 0 0 6571	2222 2130 118 210 1 1 6479	
Start Time End Time Total Time (min) Volumes adjusted by Growth No data recorded this interva Interval #1 Informati Start Time End Time Total Time (min) Volumes adjusted by Growth Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr)	4:45 5:00 15 Factors. I. on Record 5:00 6:00 6:00 6:00 Factors. 10 2251 2126 135 260 4 1 6517 197.2	ling 2208 2160 112 160 0 6469 128.8	2178 2102 137 213 1 2 6374 186.7	2213 2132 115 196 0 1 6464 156.7	2261 2132 90 219 0 0 6571 171.1	2222 2130 118 210 1 1 6479 168.1	
Start Time End Time Total Time (min) Volumes adjusted by Growth No data recorded this interva Interval #1 Informati Start Time End Time (min) Volumes adjusted by Growth <u>Run Number</u> Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr)	4:45 5:00 15 Factors. I. 00 Record 5:00 6	11 2208 2160 112 160 0 0 6469 128.8 34.6	2178 2102 137 213 1 2 6374 186.7 93.9	2213 2132 115 196 0 1 6464 156.7 62.6	2261 2132 90 219 0 0 6571 171.1 75.8	2222 2130 118 210 1 1 6479 168.1 73.9	
Start Time End Time Total Time (min) Volumes adjusted by Growth No data recorded this interva Interval #1 Informati Start Time End Time Total Time (min) Volumes adjusted by Growth Run Number Vehs Entered Vehs Entered Vehs Entered Vehs Exited Starting Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr) Total Stops	4:45 5:00 15 Factors. I. Con Record 5:00 6:00	ling 11 2208 2160 112 160 0 0 6469 128.8 34.6 0	2178 2102 137 213 1 2 6374 186.7 93.9 1	2213 2132 115 196 0 1 6464 156.7 62.6 0	2261 2132 90 219 0 6571 171.1 75.8 2	2222 2130 118 210 1 6479 168.1 73.9 1	
Start Time End Time Total Time (min) Volumes adjusted by Growth No data recorded this interva Interval #1 Informati Start Time End Time Total Time (min) Volumes adjusted by Growth Run Number Vehs Entered Vehs Entered Vehs Entered Vehs Exited Starting Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr) Total Stops	4:45 5:00 15 Factors. I. Con Record 5:00 6:00	ling 11 2208 2160 112 160 0 0 6469 128.8 34.6 0	2178 2102 137 213 1 2 6374 186.7 93.9 1	2213 2132 115 196 0 1 6464 156.7 62.6 0	2261 2132 90 219 0 6571 171.1 75.8 2	2222 2130 118 210 1 6479 168.1 73.9 1	
Start Time End Time Total Time (min) Volumes adjusted by Growth No data recorded this interva Interval #1 Informati Start Time End Time Total Time (min) Volumes adjusted by Growth <u>Run Number</u> Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr)	4:45 5:00 15 Factors. I. 00 Record 5:00 6	11 2208 2160 112 160 0 0 6469 128.8 34.6	2178 2102 137 213 1 2 6374 186.7 93.9	2213 2132 115 196 0 1 6464 156.7 62.6	2261 2132 90 219 0 0 6571 171.1 75.8	2222 2130 118 210 1 1 6479 168.1 73.9	

I-4 Contraflow Ev Baseline	aluation			One Contraflow La 11/30/20
12: I-4 C & Park	Road On	Ramp	Performa	ance by movement
Movement	EBT	WBT	All	
Total Delay (hr)	3.2	0.2	3.4	
Delay / Veh (s)	6.3	2.1	5.6	
Total Stops	0	0	0	
Travel Dist (mi)	885.9	909.6	1795.5	
Travel Time (hr)	16.5	13.5	30.0	
Avg Speed (mph)	56	68	61	
Fuel Used (gal)	272.3	307.9	580.2	
HC Emissions (g)	25	66	92	
CO Emissions (g)	18699	26931	45630	
NOx Emissions (g)	120	231	351	
Vehicles Entered	1809	413	2222	
Vehicles Exited	1808	415	2223	
Hourly Exit Rate	1808	415	2223	
Input Volume	1850	400	2250	
% of Volume	98	104	99	
Denied Entry Before	1	0	1	
Denied Entry After	1	0	1	
Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph)	1 3937.6 119.1 33	0 100.5 1.5 67	1 4038.1 120.6 33	
Fuel Used (gal)	1119.1 61 38892	37.8 8 4127 26	1156.9 69 43018 483	*
CO Emissions (g)	456	20		
CO Emissions (g) NOx Emissions (g) Vehicles Entered	456 1808 1716 1716 1850	413 413 413 400	2221 2129 2129 2250	
NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate	1808 1716 1716	413 413 413	2129 2129	
CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before	1808 1716 1716 1850 93 0	413 413 400 103 0	2129 2129 2250 95 0	
CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before	1808 1716 1716 1850 93 0	413 413 400 103 0	2129 2129 2250 95 0	

Total Network Performance Image: Constraint of the second state of	Total Network Performance Total Delay (hr) 73.9 Delay / Veh (s) 122.3 Total Stops 1 Travel Dist (mi) 6479.1 Travel Dist (mi) 6479.1 Travel Dist (mi) 2053.0 HC Emissions (g) 192 CO Emissions (g) 105906 NOx Emissions (g) 985 Vehicles Entered 2222 Vehicles Exited 2130 Houry Exit Rate 2130 Input Volume 6750 % of Volume 32 Denied Entry Before 1	I-4 Contraflow Evaluatior Baseline	1	One Contraflow Lar 11/30/20
Total Delay (hr) 73.9 Delay / Veh (s) 122.3 Total Stops 1 Travel Dist (mi) 6479.1 Travel Time (hr) 168.1 Avg Speed (mph) 39 Fuel Used (gal) 2053.0 HC Emissions (g) 192 CO Emissions (g) 985 Vehicles Entered 2222 Vehicles Exited 2130 Hourly Exit Rate 2130 Input Volume 6750 % of Volume 32 Denied Entry Before 1	Total Delay (hr) 73.9 Delay / Veh (s) 122.3 Total Stops 1 Travel Dist (mi) 6479.1 Travel Time (hr) 168.1 Avg Speed (mph) 39 Fuel Used (gal) 2053.0 HC Emissions (g) 192 CO Emissions (g) 985 Vehicles Entered 2222 Vehicles Exited 2130 Hourly Exit Rate 2130 Input Volume 6750 % of Volume 32 Denied Entry Before 1		ice	
Delay / Veh (s) 122.3 Total Stops 1 Travel Dist (mi) 6479.1 Travel Time (hr) 168.1 Avg Speed (mph) 39 Fuel Used (gal) 2053.0 HC Emissions (g) 192 CO Emissions (g) 105906 NOx Emissions (g) 985 Vehicles Entered 2222 Vehicles Exited 2130 Hourty Exit Rate 2130 Journy Volume 6750 % of Volume 32 Denied Entry Before 1	Delay / Veh (s) 122.3 Total Stops 1 Travel Dist (mi) 6479.1 Travel Time (hr) 168.1 Avg Speed (mph) 39 Fuel Used (gal) 2053.0 HC Emissions (g) 192 CO Emissions (g) 105906 NOx Emissions (g) 985 Vehicles Entered 2222 Vehicles Exited 2130 Hourty Exit Rate 2130 Journy Volume 6750 % of Volume 32 Denied Entry Before 1			
		Delay / Veh (s) Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOX Emissions (g) Vehicles Entered Vehicles Entered Vehicles Exited Hourty Exit Rate Input Volume Denied Entry Before	122.3 1 6479.1 168.1 39 2053.0 192 105906 985 2222 2130 2130 6750 32 1	

I-4 Contraflow Evaluation Baseline					One	Contrafic	w Lan 11/30/20
Arterial Level of Service: E	EB I-4 C						
Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed	Run 10 Speed	Run f
Park Road On Ramp	12	6.3	32.9 243.4	0.5	56 33	55 26	7 184
County Line Off Ramp Total	14	127.3 133.6	276.3	2.7	35	29	191
Arterial Level of Service: E	EB I-4 C						
Cross Street	Run 11 Speed	Run 11 Delay	Run 12 Speed	Run 12 Delay	Run 13 Speed	Run 13 Delay	Run ⁴ Spee
Park Road On Ramp	57	6.1	58	5.7	57	5.6	Ę
County Line Off Ramp Total	49 50	47.1 53.2	28	170.6	36 38	105.1 110.7	3
Arterial Level of Service: V	VB I-4 C			WHICH CARACT			
		Delay	Travel	Disl	Arterial	Run 10	Run 1
Cross Street	Node 14	(s/veh) 0.2	time (s) 13.2	(mi) 0.2	Speed 69	Speed 69	Dela
County Line Off Ramp Park Road On Ramp	14	2.1	117.0	2.2	68	68 68	1
Cross Street County Line Off Ramp Park Road On Ramp	Run 11 Speed 68 67	Run 11 Delay 0.2 2.3	Run 12 Speed 69 68	Run 12 Delay 0.2 2.2	Run 13 Speed 69 68	Run 13 Delay 0.2 2.2	Run 1 Spee 6
Total	67	2.5	68	2.3	68	2.4	
JSC						SimTr	affic Rep Page

I-4 Contraflow Evaluation Baseline	One Contraflow La 11/30/20
Intersection: 12: I-4 C & Park Road On Ramp	
Movement	
Directions Served	
Maximum Queue (ft)	
Average Queue (ft) 95th Queue (ft)	
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh) Storage Bay Dist (ft)	
Storage Bik Time (%)	
Queuing Penalty (veh)	
Intersection: 14: I-4 C & County Line Off Ramp	
Movement EB Directions Served T	
Maximum Queue (ft) 19	
Average Queue (ft) 1	
95th Queue (ft) 10 Link Distance (ft) 11547	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft) Storage Blk Time (%)	
Queuing Penalty (veh)	
Network Summary	
Network wide Queuing Penalty: 0	
	17 C
	SimTraffic Repo
JSC	Page

I-4 Contraflow Eva Baseline	luation			AI S	+ B -	#3	Contraflow Lar 11/30/20
Summary of All Int	ervals			_			
Run Number	10	11	12	13	.14		
Start Time	4:45	4:45	4:45	4:45	4:45	4:45	
End Time	6:00	6:00	6:00	6:00	6:00	6:00 75	
Total Time (min)	75	75	75 60	75 60	75 60	60	
Time Recorded (min)	60 2	60 2	2	2	2	2	
# of Intervals # of Recorded Intvis	2	1	1	1	1	1	
Vehs Entered	2271	2308	2435	2240	2312	2313	
Vehs Exited	2075	2109	2176	2079	2099	2108	
Starting Vehs	145	135	119	125	127	131	
Ending Vehs	341	334	378	286	340	336	
Denied Entry Before	0	2	0	0	0	0	
Denied Entry After	0	0	0	0	0	0	
Travel Distance (mi)	6456	6593	6888	6436	6584	6591	
Travel Time (hr)	234.7	219.7	249.3	202.2	223.2	225.8	
Total Delay (hr)	140.8	123.9	149.3	108.4	127.4	130.0 2	
Total Stops Fuel Used (gal)	1	0 2166.5	1 2315.1	4 2084.7	3 2183.3	2186.3	
10. 7	2182.0		2010.1	2004.7	2100.0	2100.0	
Interval #0 Informa		g					
Start Time End Time Total Time (min) Volumes adjusted by Grow							
End Time Total Time (min) Volumes adjusted by Grow No data recorded this interv Interval #1 Informa	5:00 15 In Factors. ral. tion Record	ling					
End Time Total Time (min) Volumes adjusted by Grow No data recorded this interv Interval #1 Informa Start Time	5:00 15 h Factors. ral. tion Record 5:00	ling					
End Time Total Time (min) Volumes adjusted by Grow No data recorded this interv Interval #1 Informa Start Time End Time	5:00 15 th Factors. ral. tion Record 5:00 6:00	ling					
End Time Total Time (min) Volumes adjusted by Grow No data recorded this interv Interval #1 Informa Start Time	5:00 15 h Factors. ral. tion Record 5:00 6:00 60	ling					
End Time Total Time (min) Volumes adjusted by Grow No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number	5:00 15 th Factors. ral. tion Record 5:00 6:00 60 th Factors. 10	11	12	13	. 14	Avg	
End Time Total Time (min) Volumes adjusted by Grow No data recorded this interval Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered	5:00 15 th Factors. val. tion Record 5:00 6:00 60 th Factors. 10 2271	11 2308	2435	2240	2312	2313	
End Time Total Time (min) Volumes adjusted by Grow No data recorded this interval Interval #1 Informat Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Exited	5:00 15 hh Factors. val. tion Record 5:00 6:00 60 th Factors. 10 2271 2075	11 2308 2109	2435 2176	2240 2079	2312 2099	2313 2108	
End Time Total Time (min) Volumes adjusted by Grow No data recorded this interval Interval #1 Informat Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Exited Starting Vehs	5:00 15 th Factors. val. tion Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00	11 2308 2109 135	2435 2176 119	2240 2079 125	2312 2099 127	2313 2108 131	
End Time Total Time (min) Volumes adjusted by Grow No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Entered Vehs Exited Starting Vehs Ending Vehs	5:00 15 th Factors. val. <u>tion Record</u> 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00	11 2308 2109 135 334	2435 2176 119 378	2240 2079 125 286	2312 2099 127 340	2313 2108 131 336	
End Time Total Time (min) Volumes adjusted by Grow No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before	5:00 15 th Factors. val. tion Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00	11 2308 2109 135 334 2	2435 2176 119 378 0	2240 2079 125 286 0	2312 2099 127 340 0	2313 2108 131 336 0	
End Time Total Time (min) Volumes adjusted by Grow No data recorded this interval Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Ending Vehs Denied Entry Before Denied Entry After	5:00 15 15 th Factors. val. tion Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00	11 2308 2109 135 334 2 0	2435 2176 119 378 0 0	2240 2079 125 286 0 0	2312 2099 127 340 0 0	2313 2108 131 336 0 0	
End Time Total Time (min) Volumes adjusted by Grow No data recorded this interval Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow <u>Run Number</u> Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi)	5:00 15 hh Factors. val. tion Record 5:00 6:00 6:00 60 th Factors. 10 2271 2075 145 341 0 0 0 6456	11 2308 2109 135 334 2 0 6593	2435 2176 119 378 0 0 6888	2240 2079 125 286 0 0 6436	2312 2099 127 340 0 0 6584	2313 2108 131 336 0 0 6591	
End Time Total Time (min) Volumes adjusted by Grow No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow <u>Run Number</u> Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr)	5:00 15 15 16 Factors. ral. tion Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 10 2271 2075 145 341 0 6456 234.7	11 2308 2109 135 334 2 0 6593 219.7	2435 2176 119 378 0 0 6888 249.3	2240 2079 125 286 0 0 6436 202.2	2312 2099 127 340 0 0 6584 223.2	2313 2108 131 336 0 0	
End Time Total Time (min) Volumes adjusted by Grow No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow <u>Run Number</u> Vehs Entered Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr)	5:00 15 hh Factors. val. tion Record 5:00 6:00 6:00 60 th Factors. 10 2271 2075 145 341 0 0 0 6456	11 2308 2109 135 334 2 0 6593	2435 2176 119 378 0 0 6888	2240 2079 125 286 0 0 6436	2312 2099 127 340 0 0 6584	2313 2108 131 336 0 0 6591 225.8	
End Time Total Time (min) Volumes adjusted by Grow No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr)	5:00 15 15 th Factors. val. tion Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00	11 2308 2109 135 334 2 0 6593 219.7 123.9 0	2435 2176 119 378 0 0 6888 249.3 149.3 1	2240 2079 125 286 0 0 6436 202.2 108.4 4	2312 2099 127 340 0 6584 223.2 127.4 3	2313 2108 131 336 0 0 6591 225.8 130.0 2	
End Time Total Time (min) Volumes adjusted by Grow No data recorded this intern Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr)	5:00 15 th Factors. val. tion Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00	11 2308 2109 135 334 2 0 6593 219.7 123.9	2435 2176 119 378 0 0 6888 249.3 149.3	2240 2079 125 286 0 0 6436 202.2 108.4	2312 2099 127 340 0 6584 223.2 127.4	2313 2108 131 336 0 0 6591 225.8 130.0	

Baseline	aluation			One Contraflow Lan 11/30/20
12: I-4 C & Park	Road On	Ramp	Perfo	rmance by movement
Movement	EBT	WBT	All	
Total Delay (hr)	4.3	0.2	4.6	
Delay / Veh (s)	8.2	2.1	7.1	
Total Stops	0	0	0	
Travel Dist (mi)	937.5	882.0		
Travel Time (hr)	18.5	13.0	31.5	
Avg Speed (mph)	53	68	59	
Fuel Used (gal)	274.7	300.5	575.1	
HC Emissions (g)	24	74	98	
CO Emissions (g)	17568	28292	45860	
NOx Emissions (g)	115 1913	243 400	359 2313	
Vehicles Entered Vehicles Exited	1913	400	2313	
Hourly Exit Rate	1912	402	2314	
Input Volume	1912	402	2314	
% of Volume	1900	100	101	
Denied Entry Before	0	0	0	
Denied Entry After	õ	0	Ő	
Movement Total Delay (hr)	EBT 116.7 232.4	WBT 0.0 0.2	All 116.7 190.3	ormance by movement
			100.0	
Delay / Veh (s) Total Stops			2	
Total Stops	2	0	2 4135.8	
Total Stops Travel Dist (mi)	2 4038.5	0 97.3	4135.8	
Total Stops Travel Dist (mi) Travel Time (hr)	2 4038.5 175.0	0	4135.8 176.5	
Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph)	2 4038.5	0 97.3 1.5	4135.8 176.5 23	
Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal)	2 4038.5 175.0 23	0 97.3 1.5 67	4135.8 176.5 23	
Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph)	2 4038.5 175.0 23 1249.2	0 97.3 1.5 67 36.7	4135.8 176.5 23 1286.0	
Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g)	2 4038.5 175.0 23 1249.2 51	0 97.3 1.5 67 36.7 9	4135.8 176.5 23 1286.0 60	
Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g)	2 4038.5 175.0 23 1249.2 51 36549	0 97.3 1.5 67 36.7 9 4246	4135.8 176.5 23 1286.0 60 40795	
Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g)	2 4038.5 175.0 23 1249.2 51 36549 376 1912 1705	0 97.3 1.5 67 36.7 9 4246 27	4135.8 176.5 23 1286.0 60 40795 404 2312 2105	
Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered	2 4038.5 175.0 23 1249.2 51 36549 376 1912 1705 1705	0 97.3 1.5 67 36.7 9 4246 27 400 400 400	4135.8 176.5 23 1286.0 60 40795 404 2312 2105 2105	
Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume	2 4038.5 175.0 23 1249.2 51 36549 376 1912 1705 1705 1900	0 97.3 1.5 67 36.7 9 4246 27 400 400 400 400	4135.8 176.5 23 1286.0 60 40795 404 2312 2105 2105 2300	
Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume	2 4038.5 175.0 23 1249.2 51 36549 376 1912 1705 1705 1705 1900 90	0 97.3 1.5 67 36.7 9 4246 27 400 400 400 400 100	4135.8 176.5 23 1286.0 60 40795 404 2312 2105 2105 2300 92	
Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume Ø of Volume Denied Entry Before	2 4038.5 175.0 23 1249.2 51 36549 376 1912 1705 1705 1900 90 0	0 97.3 1.5 67 36.7 9 4246 27 400 400 400 400 400 100 0	4135.8 176.5 23 1286.0 60 40795 404 2312 2105 2105 2300 92 0	
Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume	2 4038.5 175.0 23 1249.2 51 36549 376 1912 1705 1705 1705 1900 90	0 97.3 1.5 67 36.7 9 4246 27 400 400 400 400 100	4135.8 176.5 23 1286.0 60 40795 404 2312 2105 2105 2300 92	
Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume Ø of Volume Denied Entry Before	2 4038.5 175.0 23 1249.2 51 36549 376 1912 1705 1705 1900 90 0	0 97.3 1.5 67 36.7 9 4246 27 400 400 400 400 400 100 0	4135.8 176.5 23 1286.0 60 40795 404 2312 2105 2105 2300 92 0	
Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume Ø of Volume Denied Entry Before	2 4038.5 175.0 23 1249.2 51 36549 376 1912 1705 1705 1900 90 0	0 97.3 1.5 67 36.7 9 4246 27 400 400 400 400 400 100 0	4135.8 176.5 23 1286.0 60 40795 404 2312 2105 2105 2300 92 0	
Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume Ø of Volume Denied Entry Before	2 4038.5 175.0 23 1249.2 51 36549 376 1912 1705 1705 1900 90 0	0 97.3 1.5 67 36.7 9 4246 27 400 400 400 400 400 100 0	4135.8 176.5 23 1286.0 60 40795 404 2312 2105 2105 2300 92 0	
Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume Ø of Volume Denied Entry Before	2 4038.5 175.0 23 1249.2 51 36549 376 1912 1705 1705 1900 90 0	0 97.3 1.5 67 36.7 9 4246 27 400 400 400 400 400 100 0	4135.8 176.5 23 1286.0 60 40795 404 2312 2105 2105 2300 92 0	
Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume Ø of Volume Denied Entry Before	2 4038.5 175.0 23 1249.2 51 36549 376 1912 1705 1705 1900 90 0	0 97.3 1.5 67 36.7 9 4246 27 400 400 400 400 400 100 0	4135.8 176.5 23 1286.0 60 40795 404 2312 2105 2105 2300 92 0	
Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume Ø of Volume Denied Entry Before	2 4038.5 175.0 23 1249.2 51 36549 376 1912 1705 1705 1900 90 0	0 97.3 1.5 67 36.7 9 4246 27 400 400 400 400 400 100 0	4135.8 176.5 23 1286.0 60 40795 404 2312 2105 2105 2300 92 0	SimTraffic Repo

I-4 Contraflow Evaluati Baseline	on	One Contraflow La 11/30/20
Total Network Perform	ance	
· 政府法律研究和法律法法的法		
Total Delay (hr) Delay / Veh (s) Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before Denied Entry After	130.0 211.7 2 6591.3 225.8 29 2186.3 192 104629 922 2313 2108 2108 6990 31 0 0	
JSC		SimTraffic Rep Pag

I-4 Contraflow Evaluation Baseline	n				One	Contrafic	ow L: 11/30/
Arterial Level of Service	: EB I-4 C						
		Delay	Travel	Dist	Arterial Speed	Run 10 Speed	Ru D
Cross Street Park Road On Ramp	Node 12	(s/veh) 8.2	time (s) 34.8	(mi) 0.5	54	55	
County Line Off Ramp Total	14	232.4 240.6	348.5 383.3	2.2	23	21	2
	50140	240.0	000.0				
Arterial Level of Service			Lither States	D 40	Run 13	Run 13	Ru
Cross Street	Run 11 Speed	Run 11 Delay	Run 12 Speed	Run 12 Delay	Speed	Delay	Sp
Park Road On Ramp	54	7.6	52 21	9.7 263.0	54 26	7.9 192.2	
County Line Off Ramp Total	2326	220.9 228.5	21	272.7	28	200.1	
Arterial Level of Service	: WB I-4 C						
	unesaangesend	Delay	Travel	Dist	Arterial	Run 10	Rur
Cross Street	Node	(s/veh)	time (s)	(mi)	Speed	Speed	Di
County Line Off Ramp	14 12	0.2 2.1	13.2 116.7	0.2 2.2	69 68	69 68	
Park Road On Ramp Total	12	2.2	129.9	2.4	68	68	
Arterial Level of Service	: WB I-4 C						
CONSIGNATION OF BELLEVILLE	Run 11	Run 11	Run 12	Run 12	Run 13	Run 13	Ru
Cross Street	Speed	Delay	Speed	Delay 0.2	Speed 69	Delay 0.2	Sp
County Line Off Ramp Park Road On Ramp	69 68	0.2 2.1	68 67	2.5	68	1.9	
Total	68	2.3	67	2.7	68	2.1	
						SimTr	affic Re Pa
JSC							ra

%) h) 4: I-4 C & County Line Off Ramp EB T 25 2 13 11547 %) h) mary	I-4 Contraflow Evaluation Baseline	One Contraflow La 11/30/2
%) h) 4: I-4 C & County Line Off Ramp EB T 25 2 13 11547 %) h) mary ng Penalty: 0	Intersection: 12: I-4 C & Park Road On Ramp	
%) h) 4: I-4 C & County Line Off Ramp EB T 25 2 13 11547 %) h) mary ng Penalty: 0	Movement	
%) h) 4: I-4 C & County Line Off Ramp EB T 25 2 13 11547 %) h) mary ng Penalty: 0	Directions Served	
h) h) 4: I-4 C & County Line Off Ramp EB T 25 2 13 11547 %) h) mary mg Penalty: 0	Maximum Queue (ft)	
h) h) 4: I-4 C & County Line Off Ramp EB T 25 2 13 11547 %) h) mary mg Penalty: 0	Average Queue (ft)	
h) h) 4: I-4 C & County Line Off Ramp EB T 25 2 13 11547 %) h) mary mg Penalty: 0	95th Queue (ft) Link Distance (ft)	
h) h) 4: I-4 C & County Line Off Ramp EB T 25 2 13 11547 %) h) mary mg Penalty: 0	Upstream Blk Time (%)	
) h) 4: I-4 C & County Line Off Ramp T 25 2 13 11547 %) h)) h) mary mary ma Penalty: 0	Queuing Penalty (veh)	
h) <u>4: I-4 C & County Line Off Ramp</u> T 25 2 13 11547 %) h) h) mary mary ng Penalty: 0	Storage Bay Dist (ft) Storage Blk Time (%)	
4: I-4 C & County Line Off Ramp T 25 2 13 11547 %) h) mary g Penalty: 0	Queuing Penalty (veh)	
EB T 25 2 13 11547 %) h) h) mary mary mg Penalty: 0		
T 25 2 13 11547 %) h) h) mary mary ng Penalty: 0	Intersection: 14: I-4 C & County Line Off Ramp	
25 2 13 11547 %) h) h) nary ng Penalty: 0		
2 13 11547 %) h) h) mary mary ng Penalty: 0		
13 11547 %) h) h) mary ng Penalty: 0		
%) h) h) nary ng Penalty: 0	95th Queue (ft) 13	
h) h) mary ng Penalty: 0		
) h) ng Penalty: 0	Upstream Blk Time (%) Queuing Penalty (veh)	
h) mary ng Penalty: 0	Storage Bay Dist (ft)	
nary ng Penalty: 0	Storage Blk Time (%)	
ng Penalty: 0	Queuing Penalty (veh)	
	Network Summary	
	Network wide Queuing Penalty: 0	
SimTraffic Rep		Sim Traffic Rep
Pag	JSC	Pag

Summary of All Inte <u>Run Number</u> Start Time End Time Total Time (min) # of Intervals # of Recorded (min) # of Intervals # of Recorded Intvls Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr)	ervals 10 4:45 6:00 75 60 2 1 6451 6310 397 538 4 18967	11 4:45 6:00 75 60 2 1 6530 6392 424 562 0	12 4:45 6:00 75 60 2 1 6651 6401 438 688	Avg 4:45 6:00 75 60 2 1 6544 6368 419 596		
Start Time End Time Total Time (min) Time Recorded (min) # of Intervals # of Recorded Intvls Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr)	4:45 6:00 75 60 2 1 6451 6310 397 538 4 4	4:45 6:00 75 60 2 1 6530 6392 424 562 0	4:45 6:00 75 60 2 1 6651 6401 438	4:45 6:00 75 60 2 1 6544 6368 419		
End Time Total Time (min) Time Recorded (min) # of Intervals # of Recorded Intvils Vehs Entiered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr)	6:00 75 60 2 1 6451 6310 397 538 4 4	6:00 75 60 2 1 6530 6392 424 562 0	6:00 75 60 2 1 6651 6401 438	6:00 75 60 2 1 6544 6368 419		
Total Time (min) Time Recorded (min) # of Intervals # of Recorded Intvls Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr)	75 60 2 1 6451 6310 397 538 4 4	75 60 2 1 6530 6392 424 562 0	75 60 2 1 6651 6401 438	75 60 2 1 6544 6368 419		
Time Recorded (min) # of Intervals # of Recorded Intvis Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr)	60 2 1 6451 6310 397 538 4 4	60 2 1 6530 6392 424 562 0	60 2 1 6651 6401 438	60 2 1 6544 6368 419		
# of Intervals # of Recorded Intvis Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr)	2 1 6451 6310 397 538 4 4	2 1 6530 6392 424 562 0	2 1 6651 6401 438	2 1 6544 6368 419		
# of Recorded Intvls Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr)	1 6451 6310 397 538 4 4	1 6530 6392 424 562 0	1 6651 6401 438	1 6544 6368 419		
Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr)	6451 6310 397 538 4 4	6530 6392 424 562 0	6651 6401 438	6544 6368 419		
Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr)	6310 397 538 4 4	6392 424 562 0	6401 438	6368 419		
Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr)	397 538 4 4	424 562 0	438	419		
Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr)	538 4 4	562 0				
Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr)	4 4	0	000			
Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr)	4		8	4		
Travel Distance (mi) Travel Time (hr) Total Delay (hr)		0	D	1		
Travel Time (hr) Total Delay (hr)		19172	19479	19206		
Total Delay (hr)	522.0	509.8	620.8	550.9		
	239.6	224.8	332.1	265.5		
Total Stops	1443	1052	2412	1636		
Fuel Used (gal)	6515.1	6591.7	6817.0	6641.3		
Start Time End Time Total Time (min) No data recorded this interva Interval #1 Informat Start Time End Time	ion Record 5:00 6:00	ling				
Total Time (min)	60					
Run Number	10	11	12		12	
Vehs Entered	6451	6530	6651	6544		
	6310	6392	6401	6368		
Vehs Exited		424	438	419		
Starting Vehs	397			600		
Starting Vehs Ending Vehs	538	562	688	596		
Starting Vehs Ending Vehs Denied Entry Before	538 4	562 0	688 8	4		
Starting Vehs Ending Vehs Denied Entry Before Denied Entry After	538 4 4	562 0 0	688 8 0	4 1		
Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi)	538 4 4 18967	562 0 0 19172	688 8 0 19479	4 1 19206		
Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr)	538 4 4 18967 522.0	562 0 19172 509.8	688 8 0 19479 620.8	4 1 19206 550.9		
Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr)	538 4 18967 522.0 239.6	562 0 19172 509.8 224.8	688 8 0 19479 620.8 332.1	4 1 19206 550.9 265.5		
Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr)	538 4 4 18967 522.0	562 0 19172 509.8	688 8 0 19479 620.8	4 1 19206 550.9		

I-4 Contraflow E Baseline	valuation		Three EB Through Plus Shoulder Lan 11/30/20
the second s	d On Rar	np Perfo	ormance by movement
Movement	EBT	All	
Total Delay (hr)	27.0	27.0	
Delay / Veh (s)	14.8	14.8	
Total Stops	190	190	
Travel Dist (mi)	3166.7	3166.7	
Travel Time (hr)	80.3	80.3 41	
Avg Speed (mph)	41		
Fuel Used (gal)	1403.5 214	1403.5 214	
HC Emissions (g)		114168	
CO Emissions (g)	114168	758	
NOx Emissions (g) Vehicles Entered	6544	6544	
Vehicles Exited	6539	6539	
Hourly Exit Rate	6539	6539	
Input Volume	6600	6600	
% of Volume	99	99	
Denied Entry Before	4	4	
Denied Entry After	1	1	
Total Delay (hr) Delay / Veh (s) Total Stops Travel Dist (mi)	210.6 117.4 1436 14373.4		
Delay / Veh (s) Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal)	117.4 1436 14373.4 418.6 34 4326.2	117.4 1436 14373.4 418.6 34 4326.2	
Delay / Veh (s) Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) Vox Emissions (g) Vehicles Entered	117.4 1436 14373.4 418.6 34 4326.2 596 259332 2157 6539	117.4 1436 14373.4 418.6 34 4326.2 596 259332 2157 6539	
Delay / Veh (s) Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g)	117.4 1436 14373.4 418.6 34 4326.2 596 259332 2157	117.4 1436 14373.4 418.6 34 4326.2 596 259332 2157	
Delay / Veh (s) Total Stops Travel Dist (ml) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Exited Hourly Exit Rate Input Volume	117.4 1436 14373.4 418.6 34 4326.2 596 259332 2157 6539 6377 6377 6600	117.4 1436 14373.4 418.6 34 4326.2 596 259332 2157 6539 6377 6377 6600	
Delay / Veh (s) Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume Ø of Volume Denied Entry Before	117.4 1436 14373.4 418.6 34 4326.2 5936 259332 2157 6539 6377 6377 6307 6600 97 0	117.4 1436 14373.4 418.6 34 4326.2 596 259332 2157 6539 6377 6377 6600 97 0	
Delay / Veh (s) Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume Ø of Volume Denied Entry Before	117.4 1436 14373.4 418.6 34 4326.2 5936 259332 2157 6539 6377 6377 6307 6600 97 0	117.4 1436 14373.4 418.6 34 4326.2 596 259332 2157 6539 6377 6377 6600 97 0	

I-4 Contraflow Evaluat Baseline	ion	Three EB Through Plus Shoulder Lane 11/30/200		
Total Network Perform	ance			
		AND		
Total Delay (hr) Delay / Veh (s) Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume	265.5 148.0 1636 19206.4 550.9 35 6641.3 936 436150 3398 6544 6368 6368 19800			
% of Volume Denied Entry Before Denied Entry After	32 4 1			
JSC			SimTraffic Repoi	

I-4 Contraflow Evaluation Baseline	1		Th	ree EB Th	rough Plu	us Should	er Lar 11/30/20
Arterial Level of Service:	EB I-4 F						
	Nede	Delay	Travel	Dist (mi)	Arterial Speed	Run 10 Speed	Run Del
Cross Street Park Rd On Ramp	Node 4	(s/veh) 14.8	time (s) 44.2	0.5	43	44	12
Cty Line Off Ramp Total	6	117.4 132.3	233.4 277.5	2.2	34 35	35 37	108
Arterial Level of Service:	EB I-4 F						
Cross Street	Run 11 Speed	Run 11 Delay	Run 12 Speed	Run 12 Delay			
Park Rd On Ramp	44	14.0	41	17.7	NY IN LOUGH LOUGH		AN A
Cty Line Off Ramp Total	37	95.9 109.8	<u>30</u> 31	149.2 166.8			
						SimTra	ffic Repr
JSC							Page

tent EB EB EB EB EB un Queue (ft) 2561 2556 1707 le Queue (ft) 284 284 142 114 ueue (ft) 1610 1611 1109 984 stance (ft) 2551 2551 2551 and the stance (ft) 2551 g Penalty (veh) 0 0 0 0 0 0 g Penalty (veh) 0 0 0 0 0 0 g Penalty (veh) 0 0 0 0 0 0 g Penalty (veh) 0 0 0 0 0 0 g Penalty (veh) 0 0 0 0 0 0 section: 6: I-4 F & Cty Line Off Ramp Italian Italian Italian Italian Italian Italian um Queue (ft) 994 1265 257 357 e Queue (ft) 103 148 88 132 ieueu (ft) 11483		p	n Ran	k Rd C	F & Parl	Baseline Intersection: 4: I-4
ons Served T		1.100				
pe Queue (ft) 284 284 142 114 ueue (ft) 1610 1611 1109 984 stance (ft) 2551 2551 2551 am Bik Time (%) 0 0 0 0 g Penalty (veh) 0 0 0 0 section: 6: I-4 F & Cty Line Off Ramp eent EB EB EB ons Served T T T m Queue (ft) 994 1265 257 am Sterved T T T mm Queue (ft) 103 148 88 132 ueue (ft) 103 148 11483 11483 atnoce (ft) 11483 11483 11483 atnoce (ft) 11483<		Т	Т	Т	Т	Directions Served
ueue (ft) 1610 1611 1109 984 stance (ft) 2551 2551 2551 2551 am Bik Time (%) 0 0 0 0 g Penalty (veh) 0 0 0 0 g Bay Dist (ft) a Bik Time (%) g Penalty (veh) section: 6: I-4 F & Cty Line Off Ramp tent EB EB EB EB ms Served T T T T TR m Queue (ft) 994 1265 257 357 e Queue (ft) 103 148 88 132 ueue (ft) 103 148 88 132 ueue (ft) 11483 11483 11483 11483 am Bik Time (%) g Penalty (veh) a Bik Time (%) g Penalty (veh) section: 6: I-4 F & Cty Line Off Ramp						Maximum Queue (ft)
stance (ft) 2551 2551 2551 2551 am Bik Time (%) 0 0 0 0 ig Penalty (veh) 0 0 0 0 e Bik Time (%) ig Penalty (veh) 0 0 0 section: 6: I-4 F & Cty Line Off Ramp						Average Queue (ft)
am Bik Time (%) 0 0 0 0 ig Penalty (veh) 0 0 0 0 is Bik Time (%) ig Penalty (veh) 0 0 0 section: 6: I-4 F & Cty Line Off Ramp						Link Distance (ft)
Ig Penalty (veh) 0 0 0 0 Bay Dist (ft) Bay Dist (ft) Be Bik Time (%) Ig Penalty (veh) Section: 6: I-4 F & Cty Line Off Ramp Intervention of the section of the sectio						Upstream Blk Time (%)
e Bik Time (%) g Penalty (veh) section: 6: I-4 F & Cty Line Off Ramp tent EB EB EB EB ons Served T T T T TR um Queue (ft) 994 1265 257 357 e Queue (ft) 103 148 88 132 ueue (ft) 792 662 216 293 stance (ft) 11483 11483 11483 11483 am Bik Time (%) g Penalty (veh) e Bay Dist (ft) a Bik Time (%) g Penalty (veh) ork Summary		0	0	0	0	Queuing Penalty (veh)
g Penalty (veh) section: 6: I-4 F & Cty Line Off Ramp ent EB EB EB ons Served T T T TR um Queue (ft) 994 1265 257 357 e Queue (ft) 103 148 88 132 ueue (ft) 792 862 216 293 stance (ft) 11483 11483 11483 11483 am Blk Time (%) g g Penalty (veh) a Bik Time (%) g g Penalty (veh) a Bik Time (%) g g Penalty (veh)						Storage Bay Dist (ft)
Section: 6: I-4 F & Cty Line Off Ramp tent EB EB EB ons Served T T T T m Queue (ft) 994 1265 257 357 e Queue (ft) 103 148 88 132 ueue (ft) 792 862 216 293 stance (ft) 11483 11483 11483 am Bik Time (%) g Penalty (veh) a a Bik Time (%) g Penalty (veh) a ork Summary ork Summary ork Summary						Storage Blk Time (%)
EB EB EB EB EB ons Served T						Queuing Penalty (veh)
Served T <td></td> <td>р</td> <td>ff Ran</td> <td>Line C</td> <td>F & Cty</td> <td>Intersection: 6: I-4</td>		р	ff Ran	Line C	F & Cty	Intersection: 6: I-4
um Queue (ft) 994 1265 257 357 e Queue (ft) 103 148 88 132 ueue (ft) 792 862 216 293 stance (ft) 11483 11483 11483 11483 am Blk Time (%) g Penalty (veh) e Bay Dist (ft) e Blk Time (%) g Penalty (veh)						
e Queue (ft) 103 148 88 132 ueue (ft) 792 862 216 293 stance (ft) 11483 11483 11483 11483 am Bik Time (%) g Penalty (veh) a Bay Dist (ft) b Bik Time (%) g Penalty (veh) rork Summary						Directions Served
ueue (ft) 792 862 216 293 stance (ft) 11483 11483 11483 11483 am Blk Time (%) g Penalty (veh) a Bay Dist (ft) b Blk Time (%) g Penalty (veh) ork Summary						
stance (ft) 11483 11483 11483 11483 am Blk Time (%) g Penalty (veh) a Bay Dist (ft) a Blk Time (%) g Penalty (veh) rork Summary						95th Queue (ft)
am Blk Time (%) g Penalty (veh) e Bay Dist (ft) e Blk Time (%) g Penalty (veh) rork Summary						Link Distance (ft)
e Bay Dist (ft) e Bik Time (%) g Penalty (veh) vork Summary						Upstream Blk Time (%)
e Blk Time (%) g Penalty (veh) ork Summary						Queuing Penalty (veh)
g Penalty (veh) ork Summary						Storage Bay Dist (ft)
ork Summary						Queuing Penalty (veh)
		0.00				
					any. o	Network wide Queuing Fen
SimTraffic Rep						
Pag	SimTroffic Dor					JSC

n Number 10 11 12 Avg art Time 4:45 4:45 4:45 4:45 nd Time 6:00 6:00 6:00 5:00 stal Time (min) 75 75 75 me Recorded (min) 60 60 60 60 of Recorded Intvis 1 1 1 1 his Entered 6620 6680 6819 6706 she Exited 6350 6407 6424 6397 arting Vehs 471 740 873 761 anied Entry Refore 8 2 5 5 avel Distance (mi) 19400 19548 19869 19606 avel Distance (mi) 19400 19548 19869 19606 avel Distance (mi) 19400 19548 19869 19606 avel Distance (mi) 573.8 6835.8 7048.3 6874.0 tterval #0 Information Seeding 500 11 12 Avg	Start Time 4:45 4:45 4:45 4:45 End Time 6:00 6:00 6:00 6:00 75 Total Time (min) 75 75 75 75 Time Recorded (min) 60 60 60 60 # of Recorded Intvis 1 1 1 1 Vehs Exited 6620 6680 6819 6706 Vehs Exited 6360 6407 6424 6397 Starting Vehs 411 467 478 453 Ending Vehs 671 740 873 761 Denied Entry After 0 4 0 1 Travel Distance (mi) 19400 19548 19669 19606 Travel Time (hr) 587.4 612.2 716.5 638.7 7048.3 Total Delay (hr) 298.9 322.1 422.6 347.9 7048.15 Fuel Used (gal) 6737.8 6835.8 7048.3 6874.0 11 Interval	Run Number 10 11 Start Time 4:45 4:45 End Time 6:00 6:00 Total Time (min) 75 75 Time Recorded (min) 60 60 # of Intervals 2 2 # of Recorded Intvis 1 1 Vehs Entered 6620 6680 Vehs Exited 6360 6407 Starting Vehs 411 467	4:45 4:45 6:00 6:00 75 75 60 60 2 2 1 1		
at Time 4:45 4:45 4:45 d Time 6:00 6:00 6:00 tal Time (min) 75 75 75 me Recorded (min) 60 60 60 of Intervals 2 2 2 of Recorded Intvis 1 1 1 his Entered 6620 6680 6819 6706 she Extend 6360 6407 6424 6397 arting Vehs 411 467 478 453 ding Vehs 671 740 873 761 ented Entry After 0 4 0 1 avel Distance (mi) 19400 19548 19869 19606 avel Distance (mi) 19400 19548 19869 19606 avel Staps 2082 2191 2820 2364 iel Used (gal) 6737.8 6835.8 7048.3 6874.0 tterval #U Information Seeding 5 5 5 at Time 5:00 15 o data recorded this interval. 5 </th <th>Start Time 4:45 4:45 4:45 4:45 End Time 6:00 6:00 6:00 6:00 75 Total Time (min) 75 75 75 75 Time Recorded (min) 60 60 60 60 # of Recorded Intvis 1 1 1 1 Vehs Exited 6620 6680 6819 6706 Vehs Exited 6360 6407 6424 6397 Starting Vehs 411 467 478 453 Ending Vehs 671 740 873 761 Denied Entry After 0 4 0 1 Travel Distance (mi) 19400 19548 19669 19606 Travel Time (hr) 587.4 612.2 716.5 638.7 7048.3 Total Delay (hr) 298.9 322.1 422.6 347.9 7048.15 Fuel Used (gal) 6737.8 6835.8 7048.3 6874.0 11 Interval</th> <th>Start Time 4:45 4:45 End Time 6:00 6:00 Total Time (min) 75 75 Time Recorded (min) 60 60 # of Intervals 2 2 # of Recorded Intvils 1 1 Vehs Entered 6620 6680 Vehs Exited 6360 6407 Starting Vehs 411 467</th> <th>4:45 4:45 6:00 6:00 75 75 60 60 2 2 1 1</th> <th></th>	Start Time 4:45 4:45 4:45 4:45 End Time 6:00 6:00 6:00 6:00 75 Total Time (min) 75 75 75 75 Time Recorded (min) 60 60 60 60 # of Recorded Intvis 1 1 1 1 Vehs Exited 6620 6680 6819 6706 Vehs Exited 6360 6407 6424 6397 Starting Vehs 411 467 478 453 Ending Vehs 671 740 873 761 Denied Entry After 0 4 0 1 Travel Distance (mi) 19400 19548 19669 19606 Travel Time (hr) 587.4 612.2 716.5 638.7 7048.3 Total Delay (hr) 298.9 322.1 422.6 347.9 7048.15 Fuel Used (gal) 6737.8 6835.8 7048.3 6874.0 11 Interval	Start Time 4:45 4:45 End Time 6:00 6:00 Total Time (min) 75 75 Time Recorded (min) 60 60 # of Intervals 2 2 # of Recorded Intvils 1 1 Vehs Entered 6620 6680 Vehs Exited 6360 6407 Starting Vehs 411 467	4:45 4:45 6:00 6:00 75 75 60 60 2 2 1 1		
att Time 4:45 4:45 4:45 uf Time 6:00 6:00 6:00 uf Time (min) 75 75 75 me Recorded (min) 60 60 60 of Recorded Intvis 1 1 1 aths Entered 6620 6680 6819 6706 of Recorded Intvis 1 1 1 1 aths Entered 6620 6680 6819 6706 aths Entered 6620 6680 6819 6706 aths Exited 6380 6407 6424 6397 antide Johns 671 740 873 761 anied Entry Before 8 2 5 5 anied Entry After 0 4 0 1 avel Distance (mi) 19400 19548 19869 19606 avel Itime (n) 507.4 612.2 716.5 638.7 tatal Delay (hr) 298.9 322.1 422.6 347.9 tatal Stops 2082 2191 2802 2364	Start Time 4:45 4:45 4:45 4:45 End Time 6:00 6:00 6:00 6:00 Total Time (min) 75 75 75 75 Time Recorded (min) 60 60 60 60 # of Intervals 2 2 2 2 # of Recorded (mix)s 1 1 1 1 Vehs Exited 6360 6819 6706 Vehs Exited 6360 6407 6424 6397 Starting Vehs 411 467 478 453 Ending Vehs 671 740 873 761 Denied Entry After 0 4 0 1 Travel Distance (mi) 19400 19548 19869 19606 Travel Time (hr) 587.4 612.2 716.5 638.7 Total Delay (hr) 298.9 322.1 422.6 347.9 Total Staps 2082 2191 2820 284 Fuel	Start Time 4:45 4:45 End Time 6:00 6:00 Total Time (min) 75 75 Time Recorded (min) 60 60 # of Intervals 2 2 # of Recorded Intvils 1 1 Vehs Entered 6620 6680 Vehs Exited 6360 6407 Starting Vehs 411 467	6:00 6:00 75 75 60 60 2 2 1 1		
that Time (min) 75 75 75 75 me Recorded (min) 60 60 60 60 of Intervals 2 2 2 2 of Recorded Intvis 1 1 1 1 the Entered 6520 6680 6819 6706 of Recorded Intvis 1 1 1 1 the Entered 6520 6680 6819 6706 oftes Exited 6360 6407 6424 6397 arting Vehs 671 740 873 761 anied Entry Before 8 2 5 5 anied Entry Mater 0 4 0 1 avel Distance (mi) 19400 19548 19666 347.9 stal Delay (hr) 298.9 322.1 422.6 347.9 stal Stops 2082 2191 2820 2364 ele Used (gal) 6737.8 6835.8 7048.3 6874.0 stal Time (min) 15 otal merovide this Interval. otal merovide this Interval.	Total Time (min) 75 75 75 75 Time Recorded (min) 60 60 60 60 # of Recorded Intvis 1 1 1 1 Vehs Entered 6620 6680 6819 6706 Vehs Exited 6360 6407 6424 6397 Starting Vehs 411 467 478 453 Ending Vehs 671 740 873 761 Denied Entry Before 8 2 5 5 Denied Entry After 0 4 0 1 Travel Distance (mi) 19400 19548 19869 19606 Travel With 587.4 612.2 716.5 638.7 Total Eley (hr) 298.9 322.1 422.6 347.9 Total Stops 2082 2191 2820 2864 Fuel Used (gal) 6737.8 6835.8 7048.3 6874.0 Interval #0 Information Seeding End Time 5:00	Total Time (min) 75 75 Time Recorded (min) 60 60 # of Intervals 2 2 # of Recorded Intvis 1 1 Vehs Entered 6620 6680 Vehs Exited 6360 6407 Starting Vehs 411 467	75 75 60 60 2 2 1 1		
me Recorded (min) 60 60 60 60 of Intervals 2 2 2 2 2 0 of Recorded Intvis 1	Time Recorded (min) 60 60 60 60 # of Intervals 2 2 2 2 # of Recorded Intvis 1 1 1 1 Vehs Entered 6620 6680 6619 6706 Vehs Exited 6360 6407 6424 6397 Starting Vehs 411 467 478 453 Ending Vehs 671 740 873 761 Denied Entry Before 8 2 5 5 Denied Entry After 0 4 0 1 Travel Distance (mi) 19400 19548 19869 19606 Travel Distance (mi) 19400 19548 19869 19606 Travel Distance (mi) 298.9 322.1 422.6 347.9 Total Stops 2082 2191 2820 2364 Fuel Used (gal) 6737.8 6835.8 7048.3 6874.0 Interval #0 Information Steeding Start Time 5:00 End Time 5:00 5:00 End Time 6:00	Time Recorded (min) 60 60 # of Intervals 2 2 # of Recorded Intvis 1 1 Vehs Entered 6620 6680 Vehs Exited 6360 6407 Starting Vehs 411 467	60 60 2 2 1 1		
Model Interval 2 2 2 2 2 of Recorded Intvis 1 1 1 1 1 she Entered 6620 6680 6819 6706 she Exited 6360 6407 6424 6397 arting Vehs 411 467 478 453 ording Vehs 671 740 873 761 enied Entry Before 8 2 5 5 enied Entry After 0 4 0 1 avel Distance (mi) 19400 19548 19869 19606 avel Time (nr) 587.4 612.2 716.5 638.7 tal Delay (hr) 298.9 322.1 422.0 344 tal Stops 2082 2191 2820 2364 ret val #0 Information Seeding 6835.8 7048.3 6874.0 tterval #1 Information Recording	# of Intervals 2 2 2 2 2 # of Recorded Intvis 1	# of Intervals 2 2 # of Recorded Intvls 1 1 Vehs Entered 6620 6680 Vehs Exited 6360 6407 Starting Vehs 411 467	2 2 1 1		
of Recorded Intvis 1	# of Recorded Intvis 1 1 1 1 Vehs Entered 6620 6680 6819 6706 Vehs Exited 6380 6407 6424 6397 Starting Vehs 411 467 478 453 Ending Vehs 671 740 873 761 Denied Entry Before 8 2 5 5 Denied Entry After 0 4 0 1 Travel Distance (mi) 19400 19548 19869 19606 Travel Time (hr) 587.4 612.2 716.5 638.7 Total Delay (hr) 298.9 322.1 422.6 347.9 Total Stops 2082 2191 2804 2864 Fuel Used (gal) 6737.8 6835.8 7048.3 6874.0 Interval #0 Information Seeding Start Time 4:45 500 15 No data recorded this interval. 15 No data recorded this interval. 15 Interval #1 Information Recording Start Time 5:00 5:00 1<	# of Recorded Intvis 1 1 Vehs Entered 6620 6680 Vehs Exited 6360 6407 Starting Vehs 411 467	1 1		
Alternation 6620 6680 6819 6706 shs Exited 6360 6407 6424 6397 arting Vehs 411 467 478 453 anding Vehs 671 740 873 761 anied Entry Before 8 2 5 5 anied Entry Mater 0 4 0 1 avel Distance (mi) 19400 19548 19669 19606 avel Time (mh) 567.4 612.2 716.5 638.7 stal Delay (hr) 298.9 322.1 422.6 347.9 stal Stops 2082 2191 2820 2364 uel Used (gal) 6737.8 6835.8 7048.3 6874.0 eterval #0 Information Seeding - - - art Time 4:45 - - - od at recorded this interval. - - - - eterval #1 Information Recording - - <t< td=""><td>Interval 6620 6680 6819 6706 Vehs Exited 6360 6407 6424 6397 Starting Vehs 411 467 478 453 Ending Vehs 671 740 873 761 Denied Entry Before 8 2 5 5 Denied Entry After 0 4 0 1 Travel Distance (mi) 19400 19548 19869 19606 Travel Distance (mi) 19400 19548 19869 19606 Travel Distance (mi) 19400 19548 19869 19606 Travel Time (hr) 587.4 612.2 716.5 638.7 Total Delay (hr) 298.9 322.1 422.6 347.9 Total Stops 2082 2191 2820 2364 Fuel Used (gal) 6737.8 6835.8 7046.3 6874.0 Interval #0 Information Seeding 500 15 No data recorded this interval. Interval #1 Information</td><td>Vehs Entered 6620 6680 Vehs Exited 6360 6407 Starting Vehs 411 467</td><td></td><td></td></t<>	Interval 6620 6680 6819 6706 Vehs Exited 6360 6407 6424 6397 Starting Vehs 411 467 478 453 Ending Vehs 671 740 873 761 Denied Entry Before 8 2 5 5 Denied Entry After 0 4 0 1 Travel Distance (mi) 19400 19548 19869 19606 Travel Distance (mi) 19400 19548 19869 19606 Travel Distance (mi) 19400 19548 19869 19606 Travel Time (hr) 587.4 612.2 716.5 638.7 Total Delay (hr) 298.9 322.1 422.6 347.9 Total Stops 2082 2191 2820 2364 Fuel Used (gal) 6737.8 6835.8 7046.3 6874.0 Interval #0 Information Seeding 500 15 No data recorded this interval. Interval #1 Information	Vehs Entered 6620 6680 Vehs Exited 6360 6407 Starting Vehs 411 467			
the Exited 6360 6407 6424 6397 arting Vehs 411 467 478 453 inding Vehs 671 740 873 761 enied Entry Before 8 2 5 5 enied Entry After 0 4 0 1 avel Distance (ml) 19400 19548 19869 19606 avel Time (ntr) 298.9 322.1 422.6 347.9 tatal Delay (hr) 298.9 322.1 422.0 3464 terval #O Information Seeding 6835.8 7048.3 6874.0 tterval #O Information Seeding 445 6836 6874.0 tterval #1 Information Recording 445 445 6360 6819 6706 art Time 5:00 5 5 5 6360 6819 <td>Vehs Exited 6360 6407 6424 6397 Starting Vehs 411 467 478 453 Ending Vehs 671 740 873 761 Denied Entry Before 8 2 5 5 Denied Entry After 0 4 0 1 Travel Distance (mi) 19400 19548 19869 19606 Travel Time (hr) 587.4 612.2 716.5 638.7 Total Delay (hr) 298.9 322.1 422.6 347.9 Total Stops 2082 2191 2820 2364 Fuel Used (gal) 6737.8 6835.8 7048.3 6874.0 Interval #0 Information Seeding </td> <td>Vehs Exited 6360 6407 Starting Vehs 411 467</td> <td>0019 0700</td> <td></td>	Vehs Exited 6360 6407 6424 6397 Starting Vehs 411 467 478 453 Ending Vehs 671 740 873 761 Denied Entry Before 8 2 5 5 Denied Entry After 0 4 0 1 Travel Distance (mi) 19400 19548 19869 19606 Travel Time (hr) 587.4 612.2 716.5 638.7 Total Delay (hr) 298.9 322.1 422.6 347.9 Total Stops 2082 2191 2820 2364 Fuel Used (gal) 6737.8 6835.8 7048.3 6874.0 Interval #0 Information Seeding	Vehs Exited 6360 6407 Starting Vehs 411 467	0019 0700		
arding Vehs 411 467 478 453 iding Vehs 671 740 873 761 enied Entry Before 8 2 5 5 enied Entry After 0 4 0 1 avel Distance (mi) 19400 19548 19869 19606 avel Time (hr) 587.4 612.2 716.5 638.7 ital Delay (hr) 298.9 322.1 422.6 347.9 ital Stops 2082 2191 2820 2364 ell Used (gal) 6737.8 6835.8 7048.3 6874.0 tterval #0 Information Seeding 445 6874.0 ital Time (min) 15 5 6 o data recorded this interval. 445 670 6825.8 id Time 5:00 5 6 6 id Time 6:00 6819 6706 6 ida Time (min) 60 60 6819 6706 6 ishe Exited 6360 6407 6424 6397 6 <td< td=""><td>Starting Vehs 411 467 478 453 Ending Vehs 671 740 873 761 Denied Entry Before 8 2 5 5 Denied Entry After 0 4 0 1 Travel Distance (mi) 19400 19548 19869 19606 Travel Time (hr) 587.4 612.2 716.5 638.7 Total Delay (hr) 298.9 322.1 422.6 347.9 Total Stops 2082 2191 2820 2364 Fuel Used (gal) 6737.8 6835.8 7048.3 6874.0 Interval #0 Information Seeding Start Time 4:45 4:45 End Time 5:00 5:00 5:00 Total Time (min) 15 No data recorded this interval. 1 Interval #1 Information Recording 5:00 5:00 5:00 End Time 5:00 5:00 5:00 5:00 End Time 6:00 5:00 5:00 5:00</td><td>Starting Vehs 411 467</td><td>6424 6307</td><td></td></td<>	Starting Vehs 411 467 478 453 Ending Vehs 671 740 873 761 Denied Entry Before 8 2 5 5 Denied Entry After 0 4 0 1 Travel Distance (mi) 19400 19548 19869 19606 Travel Time (hr) 587.4 612.2 716.5 638.7 Total Delay (hr) 298.9 322.1 422.6 347.9 Total Stops 2082 2191 2820 2364 Fuel Used (gal) 6737.8 6835.8 7048.3 6874.0 Interval #0 Information Seeding Start Time 4:45 4:45 End Time 5:00 5:00 5:00 Total Time (min) 15 No data recorded this interval. 1 Interval #1 Information Recording 5:00 5:00 5:00 End Time 5:00 5:00 5:00 5:00 End Time 6:00 5:00 5:00 5:00	Starting Vehs 411 467	6424 6307		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Ending Vehs 671 740 873 761 Denied Entry Before 8 2 5 5 Denied Entry After 0 4 0 1 Travel Distance (ml) 19400 19548 19869 19606 Travel Distance (ml) 587.4 612.2 716.5 638.7 Total Delay (hr) 298.9 322.1 422.6 347.9 Total Stops 2082 2191 2820 2364 Fuel Used (gal) 6737.8 6835.8 7046.3 6874.0 Interval #0 Information Seeding Start Time 4:45 End Time (min) 15 No data recorded this interval. Interval #1 Information Recording Start Time 5:00 End Time 5:00 End Time 6:00 Total Time (min) Total Time 6:00 Total Time (min) 60 Run Number 10 11 12 Avg				
amide Entry Before 8 2 5 5 anied Entry Before 0 4 0 1 avel Distance (mi) 19400 19548 19869 19606 avel Time (hr) 587.4 612.2 716.5 638.7 tal Delay (hr) 298.9 322.1 422.6 347.9 tal Stops 2082 2191 2820 2364 iel Used (gal) 6737.8 6835.8 7048.3 6874.0 tterval #0 Information Seeding art Time 4:45 id Time (min) 15 0 0 14 o data recorded this interval. tterval #1 Information Recording art Time 5:00 data Time (min) 60 in Number 10 11 12 Avg his Entered 6620 6680 6819 6706 his Exited 6380 6407 6424 6397 arting Vehs 411 467 478 453	Denied Entry Before 8 2 5 5 Denied Entry After 0 4 0 1 Travel Distance (mi) 19400 19548 19869 19606 Travel Time (hr) 587.4 612.2 716.5 638.7 Total Delay (hr) 298.9 322.1 422.6 347.9 Total Stops 2082 2191 2820 2364 Fuel Used (gal) 6737.8 6835.8 7048.3 6874.0 Interval #0 Information Seeding Start Time 4:45 4:45 End Time 5:00 5 7048.3 6874.0 Interval #1 Information Recording Start Time 5:00 5 Start Time 5:00 5 5:00 5 Interval #1 Information Recording 5:00 5:00 5:00 5:00 End Time 6:00 5:00 5:00 5:00 5:00 5:00 End Time 6:00 5:00 5:00 5:00 5:00 5:00 5:				
anied Entry After 0 4 0 1 avel Distance (mi) 19400 19548 19869 19606 avel Time (hr) 587.4 612.2 716.5 638.7 tal Delay (hr) 298.9 322.1 422.6 347.9 tal Stops 2082 2191 2820 2364 ele Used (gal) 6737.8 6835.8 7048.3 6874.0 terval #0 Information Seeding	Denied Entry After 0 4 0 1 Travel Distance (mi) 19400 19548 19869 19606 Travel Time (hr) 587.4 612.2 716.5 638.7 Total Delay (hr) 298.9 322.1 422.6 347.9 Total Stops 2082 2191 2820 2364 Fuel Used (gal) 6737.8 6835.8 7048.3 6874.0 Interval #0 Information Seeding Start Time 4:45 500 Total Time (min) 15 No data recorded this interval. Interval #1 Information Recording Start Time 5:00 5:00 5:00 5:00 Total Time (min) 15 No data recorded this interval. Interval #1 Information Recording Start Time 5:00 5:00 5:00 5:00 End Time 6:00 5:00 5:00 5:00 End Time 6:00 7:04 7:04 7:04 7:04 Run Number 10 11 12 Avg	0			
Aude Distance (mi) 19400 19548 19869 19606 avel Distance (mi) 587.4 612.2 716.5 638.7 stal Delay (hr) 298.9 322.1 422.6 347.9 stal Delay (hr) 298.2 2191 2820 2364 iel Used (gal) 6737.8 6835.8 7048.3 6874.0 eterval #0 Information Seeding	Instruction 19400 19548 19869 19606 Travel Distance (ml) 19400 19548 19869 19606 Travel Time (hr) 587.4 612.2 716.5 638.7 Total Delay (hr) 298.9 322.1 422.6 347.9 Total Stops 2082 2191 2820 2364 Fuel Used (gal) 6737.8 6835.8 7048.3 6874.0 Interval #O Information Seeding				
avel Time (hr) 587.4 612.2 716.5 638.7 tal Delay (hr) 298.9 322.1 422.6 347.9 tal Stops 2082 2191 2820 2364 iel Used (gal) 6737.8 6835.8 7048.3 6874.0 terval #0 Information Seeding art Time 4:45 art Time 4:45 data recorded this interval. terval #1 Information Recording art Time 5:00 data recorded this interval. terval #1 Information Recording art Time 5:00 data Time 6:00 data Time 6:00 tal Time (min) 60 in Number 10 11 12 Avg of data recorded this interval. terval #1 Information Recording art Time 5:00 data Time (min) 60 in Number 10 11 12 Avg <td colsp<="" td=""><td>Travel Time (hr) 587.4 612.2 716.5 638.7 Total Delay (hr) 298.9 322.1 422.6 347.9 Total Stops 2082 2191 2820 2364 Fuel Used (gal) 6737.8 6835.8 7048.3 6874.0 Interval #0 Information Seeding </td><td></td><td>and a second sec</td><td></td></td>	<td>Travel Time (hr) 587.4 612.2 716.5 638.7 Total Delay (hr) 298.9 322.1 422.6 347.9 Total Stops 2082 2191 2820 2364 Fuel Used (gal) 6737.8 6835.8 7048.3 6874.0 Interval #0 Information Seeding </td> <td></td> <td>and a second sec</td> <td></td>	Travel Time (hr) 587.4 612.2 716.5 638.7 Total Delay (hr) 298.9 322.1 422.6 347.9 Total Stops 2082 2191 2820 2364 Fuel Used (gal) 6737.8 6835.8 7048.3 6874.0 Interval #0 Information Seeding		and a second sec	
tai Delay (hr) 298.9 322.1 422.6 347.9 tai Stops 2082 2191 2820 2364 lei Used (gal) 6737.8 6835.8 7048.3 6874.0 Atterval #0 Information Seeding art Time 4:45 dot Time 4:45 dot Time 5:00 tai Time (min) 15 o data recorded this interval. htterval #1 Information Recording art Time 5:00 data Time (min) 60 in Number 10 11 12 Avg arting (vehs 6360 6407 6424 6397 arting Vehs 411 467 478 453 of this Entered 6360 6407 6424 6397 arting Vehs 411 467 478 453 of the Exited 6360 6407 6424 6397 arting Vehs 671 740 873 761	Total Delay (hr) 298.9 322.1 422.6 347.9 Total Stops 2082 2191 2820 2364 Fuel Used (gal) 6737.8 6835.8 7048.3 6874.0 Interval #0 Information Seeding Start Time 4:45 End Time 5:00 7048.3 6874.0 Interval #1 Information Recording Start Time 5:00 Total Time (min) 15 No data recorded this interval. Interval #1 Information Recording Start Time 5:00 End Time 6:00 Total Time (min) 60 Run Number 10 11 12 Avg	Travel Time (hr) 587.4 612.2			
Ital Stop 2082 2191 2820 2364 rel Used (gal) 6737.8 6835.8 7048.3 6874.0 Iterval #0 Information Seeding art Time 4:45 od Time 5:00 tata Time (min) 15 o data recorded this interval. Iterval #1 Information Recording art Time 6:00 tata Time (min) 60 in Number 10 11 12 Avg whs Entered 6620 6680 6819 6706 shs Exited 6360 6407 6424 6397 arting Vehs 411 467 478 453 widing Vehs 671 740 873 761 mield Entry Before 8 2 5 5 anied Entry After 0 4 0 1	Total Stops 2082 2191 2820 2364 Fuel Used (gal) 6737.8 6835.8 7048.3 6874.0 Interval #0 Information Seeding Start Time 4:45 End Time 5:00 Total Time (min) 15 No data recorded this interval. Interval #1 Information Recording Start Time 5:00 5:00 Control of this interval. Start Time 5:00 Interval #1 Information Recording Start Time 5:00 Start Time 6:00 Total Time (min) 60 60 Run Number 10 11 12 Avg				
witerval #0 Information Seeding art Time 4:45 vid Time 5:00 vidal Time (min) 15 o data recorded this interval. viterval #1 Information Recording art Time 6:00 vidal Time 6:00 vidal Time (min) 60 in Number 10 11 12 Avg vistel Time 6:00 vistel Time (min) 60 in Number 10 11 12 Avg 11 vistel Kited 6:360 6:407 6:424 6:380 6:407 of 4:24 6:397 arting Vehs 4:11 4:67 4:78 viding Vehs 6:71 7:40 8:73 widing Vehs 6:71 8 2 5 anied Entry Before 8 2 5 anied Entry After 0 4 0 1	Fuel Used (gal) 6737.8 6835.8 7048.3 6874.0 Interval #0 Information Seeding Start Time 4:45 End Time 5:00 Total Time (min) 15 No data recorded this interval. Interval #1 Information Recording Start Time 5:00 End Time 6:00 Total Time (min) 60 Run Number 10 11 12 Avg				
Iterval #0 Information Seeding art Time 4:45 rd Time 5:00 stal Time (min) 15 o data recorded this interval.	Interval #0 Information Seeding Start Time 4:45 End Time 5:00 Total Time (min) 15 No data recorded this interval. Interval #1 Information Interval #1 Information Recording Start Time 5:00 End Time 6:00 Total Time (min) 60 Run Number 10 11 12 Avg		7048.3 6874.0		
tal Time (min) 15 o data recorded this interval. art Time 5:00 art Time 6:00 otal Time (min) 60 in Number 10 11 12 Avg ins Entered 6620 6680 6819 6706 shs Entered 6620 6680 6819 6706 otal Time (win) 60 610 610 610 in Number 10 11 12 Avg 610 inlog Vehs 61360 6407 6424 6397 611 arting Vehs 671 740 873 761 nied Entry Before 8 2 5 5 anied Entry After 0 4 0 1	Total Time (min) 15 No data recorded this interval. Interval #1 Information Recording Start Time 5:00 End Time 6:00 Total Time (min) 60 Run Number 10 11 12 Avg				
ata recorded this interval. atterval #1 Information Recording art Time 5:00 at Time 6:00 tal Time (min) 60 in Number 10 11 12 Avg whs Entered 6620 6680 6819 6706 whs Entered 6360 6407 6424 6397 arting Vehs 411 467 478 453 widing Vehs 671 740 873 761 anied Entry Before 8 2 5 5 anied Entry After 0 4 0 1	No data recorded this interval. Interval #1 Information Recording Start Time 5:00 End Time 6:00 Total Time (min) 60 Run Number 10 11 12 Avg	End Time 5:00			
Information Recording art Time 5:00 ad Time 6:00 stal Time (min) 60 in Number 10 11 12 Avg whs Entered 6620 6680 6819 6706 shs Exited 6360 6407 6424 6397 arting Vehs 411 467 478 453 viding Vehs 671 740 873 761 anied Entry Before 8 2 5 5 anied Entry After 0 4 0 1	Interval #1 Information Recording Start Time 5:00 End Time 6:00 Total Time (min) 60 Run Number 10 11 12 Avg				
Sentered 6620 6680 6819 6706 Instructed 6360 6407 6424 6397 arting Vehs 411 467 478 453 viding Vehs 671 740 873 761 anied Entry Before 8 2 5 5 anied Entry After 0 4 0 1		Start Time 5:00 End Time 6:00			
Sentered 6620 6680 6819 6706 Instructed 6360 6407 6424 6397 arting Vehs 411 467 478 453 viding Vehs 671 740 873 761 anied Entry Before 8 2 5 5 anied Entry After 0 4 0 1		Run Number 10 11	12 Avg		
arting Vehs 411 467 478 453 ading Vehs 671 740 873 761 anied Entry Before 8 2 5 5 anied Entry After 0 4 0 1	Vehs Entered 6620 6680 6819 6706				
nding Vehs 671 740 873 761 enied Entry Before 8 2 5 5 enied Entry After 0 4 0 1	Vehs Exited 6360 6407 6424 6397	Vehs Exited 6360 6407	6424 6397		
anied Entry Before 8 2 5 5 anied Entry After 0 4 0 1					
anied Entry After 0 4 0 1					
			422.6 347.9		
tal Delay (hr) 298.9 322.1 422.6 347.9		Total Delay (hr) 298.9 322.1	2820 2364		
ntal Delay (ĥr) 298.9 322.1 422.6 347.9 ntal Stops 2082 2191 2820 2364	Fuel Used (gal) 6/37.8 6835.8 7046.3 6874.0	Total Delay (hr) 298.9 322.1 Total Stops 2082 2191			
	Vehs Exited 6360 6407 6424 6397 Starting Vehs 411 467 478 453 Ending Vehs 671 740 873 761 Denied Entry Before 8 2 5 5 Denied Entry After 0 4 0 1 Travel Distance (mi) 19400 19548 19869 19606	Total Time (min) 60 Run Number 10 11 Vehs Entered 6620 6680 Vehs Exited 6360 6407 Starting Vehs 411 467 Ending Vehs 671 740 Denied Entry Before 8 2 Denied Entry After 0 4 Travel Distance (mi) 19400 19548	6819 6706 6424 6397 478 453 873 761 5 5 0 1 19869 19606 716.5 638.7		
	Total Delay (hr) 298.9 322.1 422.6 347.9		422.6 347.9		
tal Delay (hr) 298.9 322.1 422.6 347.9		Total Delay (hr) 298.9 322.1			
ntal Delay (ĥr) 298.9 322.1 422.6 347.9 ntal Stops 2082 2191 2820 2364	Fuel Used (gal) 6737.8 6835.8 7048.3 6874.0	Total Delay (hr) 298.9 322.1 Total Stops 2082 2191			

204

Baseline	valuation			Three EB Through Plus S	houlder Lar 11/30/20
	Rd On Rar	np Performa	nce by movemen	t	
Movement	EBT	All			an a
Total Delay (hr)	34.6	34.6			
Delay / Veh (s)	18.6	18.6			
Total Stops	208	208			
Travel Dist (mi)	3246.5				
Travel Time (hr)	88.8	88.8 39			
Avg Speed (mph) Fuel Used (gal)	39	1437.5			
HC Emissions (g)	213	213			
CO Emissions (g)		109419			
NOx Emissions (g)	771	771			
Vehicles Entered	6706	6706			
Vehicles Exited	6713	6713			
Hourly Exit Rate	6713	6713			
Input Volume	6750	6750			
% of Volume	99	99			
Denied Entry Before	5	5			
Denied Entry After	1	1			
			nce by movemen	t names var salver net til de star hit plet ble	
Movement	EBT 284.8	All 284.8			COLUMN AND ADDRESS
Total Delay (hr) Delay / Veh (s)	264.6	156.4			
Total Stops	2147	2147			
Travel Dist (mi)	14685.7				
Travel Time (hr)	497.2	497.2			
Avg Speed (mph)	30	30			
Fuel Used (gal)	4516.0	4516.0			
HC Emissions (g)	579	579			
CO Emissions (g)	242151	242151			
NOx Emissions (g)	2095	2095			
Vehicles Entered	6713	6713			
Vehicles Exited	6402	6402			
Hourly Exit Rate	6402	6402			
Input Volume	6750	6750			
% of Volume	95	95			
Denied Entry Before	0	0			
Denied Entry After	0	0			
					SimTraffic Repo

I-4 Contraflow Evaluation Baseline	n	Three EB Through Pl	us Shoulder Lar 11/30/20
Total Network Performa	ince		
Total Delay (hr) Delay / Veh (s) Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before Denied Entry After	347.9 191.2 2364 19605.6 638.7 31 6874.0 918 414193 3353 6706 6397 20250 32 5 1		
JSC			SimTraffic Rep Pag

Baseline	n		In	ree EB Th	lought is		11/30/2
Arterial Level of Service:	: EB I-4 F	+					
Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed	Run 10 Speed	Ru D
Park Rd On Ramp Cty Line Off Ramp	4 6	18.6 156.4	47.6 273.0	0.5 2.2	41 29	42 31	1
Total		174.9	320.6	2.7	31	33	14
Arterial Level of Service:	EB I-4 F Run 11	Run 11	Run 12	Run 12	a atomica		144.0.
Cross Street	Speed 42	Delay 16.9	Speed 39	Delay 23.1			
Park Rd On Ramp Cty Line Off Ramp	30	143.9	26	190.2 213.3			
Total	32	160.8	27	213.3			
				ŝ			
				8			
				÷			
				ŝ			
				×			
				ŝ			

Intersection: 4: I-4 F & Park Rd On Ramp Movement EB EB EB Directions Served T T T Maximum Queue (ft) 2564 2562 2562	
Directions Served T T T T	
Maximum Queue (ft) 2564 2563 2562 2562	
Average Queue (ft) 284 256 256 199	
D5th Queue (ft) 1612 1523 1330 Link Distance (ft) 2551 2551 2551	
Upstream Blk Time (%) 0 0 0 0	
Queuing Penalty (veh) 0 0 0 0	
Storage Bay Dist (fi)	
Storage Blk Time (%)	
Queuing Penalty (veh)	
ntersection: 6: I-4 F & Cty Line Off Ramp	
Vovement EB EB EB EB	
Directions Served T T T TR	
Maximum Queue (ft) 290 502 533 630	
Average Queue (ft) 46 90 115 137 95th Queue (ft) 174 277 324 379	
05th Queue (ft) 174 277 324 379 .ink Distance (ft) 11483 11483 11483	
Just Distance (ii) 11465 11465 11465 11465	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	
Network Summary	
Network wide Queuing Penalty: 0	
Sin	nTraffic Repo
SC	Page

Summary of All Inte Run Number Start Time End Time Total Time (min) Time Recorded (min) # of Intervals # of Recorded Intvis Vehs Entered Vehs Exited	10 4:45 6:00 75 60	11 4:45	-					
Start Time End Time (min) Time Recorded (min) # of Intervals # of Recorded Intvis Vehs Entered	4:45 6:00 75 60		a land an or	-				
End Time Total Time (min) Time Recorded (min) # of Intervals # of Recorded Intvis Vehs Entered	6:00 75 60	4:45	and the second sec	Avg	no desints all statistics and an all all all			
Total Time (min) Time Recorded (min) # of Intervals # of Recorded Intvis Vehs Entered	75 60		4:45	4:45				
Time Recorded (min) # of Intervals # of Recorded Intvls Vehs Entered	60	6:00	6:00	6:00				
# of Intervals # of Recorded Intvis Vehs Entered		75	75	75	15			
# of Recorded Intvis Vehs Entered		60	60	60 2				
Vehs Entered	2	2	2	2				
	6666	6719	6882	6756				
	6367	6417	6405	6396				
Starting Vehs	424	452	504	460				
Ending Vehs	723	754	981	819				
Denied Entry Before	5	4	10	6				
Denied Entry After	0	6	2	3				
Fravel Distance (mi)	19514	19621	19936	19690				
Travel Time (hr)	598.8	610.5	788.3	665.9				
Fotal Delay (hr)	308.7	319.5	493.7	373.9				
Total Stops	2349	2230	3993	2857				
Fuel Used (gal)	6753.8	6839.1	7192.9	6928.6				
			1102.0	0020.0				
nterval #0 Informati		g						
Start Time	4:45							
nd Timo	5:00							
End Time								
rotal Time (min) No data recorded this interva Interval #1 Informati	15 al.	ing						
Fotal Time (min) No data recorded this interva <u>nterval #1 Informati</u> Start Time End Time	15 al.	ing						
Fotal Time (min) No data recorded this interva Interval #1 Informati Start Time End Time Fotal Time (min)	al. ion Record 5:00 6:00 60		12	Âva				
Fotal Time (min) No data recorded this interva <u>nterval #1 Informati</u> Start Time End Time	15 ion Record 5:00 6:00	ling 11 6719	<u>12</u> 6882	Avg 6756				
Fotal Time (min) No data recorded this interva Interval #1 Informati Start Time End Time Fotal Time (min) Run Number	al. ion Record 5:00 6:00 60 10	-11						
Fotal Time (min) No data recorded this interva Interval #1 Informati Start Time End Time Total Time (min) Run Number /ehs Entered /ehs Exited	15 ion Record 5:00 6:00 60 10 6666	<u>11</u> 6719	6882	6756				
Fotal Time (min) No data recorded this interva Interval #1 Informati Start Time End Time Fotal Time (min) Run Number /ehs Entered	al. ion Record 5:00 6:00 60 10 6666 6367	11 6719 6417	6882 6405	6756 6396				
Fotal Time (min) No data recorded this interva Interval #1 Informati Start Time End Time Fotal Time (min) Run Number /ehs Entered /ehs Exited Starting Vehs	15 ion Record 5:00 6:00 60 10 6666 6367 424	11 6719 6417 452	6882 6405 504	6756 6396 460				
Fotal Time (min) No data recorded this interva Start Time End Time Fotal Time (min) Run Number /ehs Entered Starting Vehs Ending Vehs	15 ion Record 5:00 6:00 600 10 66666 6367 424 723	11 6719 6417 452 754	6882 6405 504 981	6756 6396 460 819				
Fotal Time (min) No data recorded this interva Start Time End Time Fotal Time (min) Run Number /ehs Entered /ehs Exited Starting Vehs Denied Entry Before	15 ion Record 5:00 6:00 00 10 66666 6367 424 723 5	11 6719 6417 452 754 4	6882 6405 504 981 10	6756 6396 460 819 6				
Fotal Time (min) No data recorded this interva Interval #1 Informati Start Time End Time Total Time (min) Run Number /ehs Entered /ehs Exited Starting Vehs Ending Vehs Denied Entry After Fravel Distance (mi)	15 ion Record 5:00 6:00 60 10 6666 6367 424 723 5 0	11 6719 6417 452 754 4 6	6882 6405 504 981 10 2	6756 6396 460 819 6 3				
Fotal Time (min) No data recorded this interva Interval #1 Informati Start Time End Time Fotal Time (min) Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Fravel Time (hr)	15 ion Record 5:00 6:00 60 10 6666 6367 424 723 5 0 19514 598.8	11 6719 6417 452 754 4 6 19621	6882 6405 504 981 10 2 19936	6756 6396 460 819 6 3 19690				
Fotal Time (min) No data recorded this interva Interval #1 Informati Start Time End Time Total Time (min) Run Number /ehs Entered /ehs Exited Starting Vehs Ending Vehs Denied Entry After Fravel Distance (mi)	15 ion Record 5:00 6:00 60 10 6666 6367 424 723 5 0 19514	11 6719 6417 452 754 4 6 19621 610.5	6882 6405 504 981 10 2 19936 788.3	6756 6396 460 819 6 3 19690 665.9				

I-4 Contraflow Ev Baseline	valuation		Three EB Through Plus Shoulder Lan 11/30/200
4: I-4 F & Park R	d On Rar	np Perfc	ormance by movement
Movement	EBT	All	
Total Delay (hr)	38.9	38.9	
Delay / Veh (s)	20.7	20.7	
Total Stops	240	240	
Travel Dist (mi)	3269.4	3269.4	
Travel Time (hr)	93.2	93.2	
Avg Speed (mph)	38	38 1433.2	
Fuel Used (gal)	208	208	
HC Emissions (g) CO Emissions (g)	104775		
NOx Emissions (g)	763	763	
Vehicles Entered	6756	6756	
Vehicles Exited	6758	6758	
Hourly Exit Rate	6758	6758	
Input Volume	6800	6800	
% of Volume	99	99	
Denied Entry Before	6	6	
Denied Entry After	3	3	
6. I-4 E & Ctv I in	e Off Rar	nn Perfo	ormance by movement
Movement Total Delay (hr)	EBT 306.7	All 306.7	
Delay / Veh (s)	167.8	167.8	
Total Stops	2610	2610	
Travel Dist (mi)	14747.2		
Travel Time (hr)	520.1	520.1	
Avg Speed (mph)	28	28	
Fuel Used (gal)	4565.8	4565.8	
HC Emissions (g)	575	575	
CO Emissions (g)	236963	236963	
NOx Emissions (g)	2082	2082	
Vehicles Entered	6758	6758	
Vehicles Exited	6404	6404	
Hourly Exit Rate	6404	6404	
Input Volume	6800	6800	
% of Volume	94	94	
Denied Entry Before	0	0	
Denied Entry After	0	0	
			SimTraffic Rep
JSC			Page

Three EB Through Plus Shoulder La 11/30/2	ion	I-4 Contraflow Evaluati Baseline
	ance	Total Network Perform
	373.9 204.7 2857 19690.5 665.9 30 6928.6 911 405983 3339 6756 6396 20400 31 6 3	Total Delay (hr) Delay / Veh (s) Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before Denied Entry After
SimTraffic Re Pag		JSC

I-4 Contraflow Evaluatio Baseline					nrough Plu		11/30/200
Arterial Level of Service	: EB I-4 F			anton tarabata			
Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed	Run 10 Speed	Run ⁴ Dela
Park Rd On Ramp	4	20.7	49.7	0.5	40	42	16
Cty Line Off Ramp Total	6	167.8 188.5	284.6 334.2	2.2 2.7	28 29	31 32	138
Arterial Level of Service	: EB I-4 F						
	Run 11	Run 11	Run 12	Run 12			
Cross Street	Speed 41	Delay 17.9	Speed 38	Delay 27.6		496.4389.3	
Park Rd On Ramp Cty Line Off Ramp	31	140.9	23	223.0			
Total	32	158.9	25	250.6			
						SimTr	affic Rep Page
						OIIIIII	anic nep

I-4 Contraflow Eva Baseline	luation				Three EB Through Plus Shoulder La 11/30/2
Intersection: 4: I-4	F & Par	k Rd (On Rar	np	
Movement	EB	EB	EB	EB	
Directions Served	T	T	T	T 2563	
Maximum Queue (ft) Average Queue (ft)	2561 199	2563 171	2559 171	2503	
95th Queue (ft)	1330	1224	1224	1224	
Link Distance (ft)	2551	2551	2551	2551	
Upstream Blk Time (%)	0	0	0	0	
Queuing Penalty (veh)	0	0	0	0	
Storage Bay Dist (ft)					
Storage Blk Time (%) Queuing Penalty (veh)					
Intersection: 6: I-4	F & Cty	19.00	Off Rar		
Movement Directions Served	EB T	EB	EB	EB	
Maximum Queue (ft)	909	1106	1305	1207	
Average Queue (ft)	78	176	197	204	
95th Queue (ft)	541	719	670	630	
Link Distance (ft)	11483	11483	11483	11483	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft) Storage Blk Time (%)					
Queuing Penalty (veh)					
Queung renaity (ven)					
Network Summary					
Network wide Queuing Pen	alty: 0				
					8
					SimTraffic Re Pa

SimTraffic Simulation Summary of All Inter un Number tart Time nd Time otal Time (min) ime Recorded (min) of Intervals of Recorded Intvls ehs Entered	rvals 10 4:45 6:00 75		+			Simulation # 4 11/30/200				
tart Time nd Time otal Time (min) ime Recorded (min) of Intervals of Recorded Intvls ehs Entered	4:45 6:00 75	The second s			12 Ava					
nd Time otal Time (min) ime Recorded (min) of Intervals of Recorded Intvls ehs Entered	6:00 75		12	Avg	NO MARKA SA KA					
otal Time (min) ime Recorded (min) of Intervals of Recorded Intvls ehs Entered	75	4:45	4:45	4:45						
ime Recorded (min) of Intervals of Recorded Intvls ehs Entered		6:00	6:00	6:00						
of Intervals of Recorded Intvis ehs Entered		75 60	75 60	75 60						
of Recorded Intvls ehs Entered	60 2	2	2	2						
ehs Entered	1	1	1	1						
	6885	6862	7090	6946						
ehs Exited	6377	6404	6403	6395						
tarting Vehs	448	477	514	480						
nding Vehs	956	935	1201	1030						
enied Entry Before	4	6	19	10						
enied Entry After	14	36	6	19						
ravel Distance (mi)	19919	19909	20251	20027						
ravel Time (hr)	714.8	717.5	905.7	779.3						
otal Delay (hr)	420.0	423.0	607.4	483.5						
otal Stops	3368	3142	4450 7493.1	3653 7206.4						
uel Used (gal)	7051.3	7074.8	7495.1	7200.4						
nterval #0 Information	on Seedin	g								
tart Time	4:45									
nd Time	5:00									
	15									
otal Time (min) o data recorded this interval.		ling								
		ling								
o data recorded this interval. <u> nterval #1 Informatic</u> lart Time nd Time otal Time (min)	on Record 5:00 6:00		12	Avg	`					
o data recorded this interval. Interval #1 Informatic lart Time nd Time	on Record 5:00 6:00 60 10 6885	11 6862	7090	Avg 6946	, , ,					
o data recorded this interval. Interval #1 Information tart Time nd Time otal Time (min) un Number ehs Entered ehs Exited	on Record 5:00 6:00 60 10 6885 6377	11 6862 6404	7090 6403	6946 6395	,					
o data recorded this interval. Interval #1 Informatic tart Time nd Time otal Time (min) un Number ehs Entered ehs Exited tarting Vehs	on Record 5:00 6:00 60 10 6885 6377 448	11 6862 6404 477	7090 6403 514	6946 6395 480						
o data recorded this interval. Interval #1 Informatic lart Time nd Time otal Time (min) un Number ehs Entered ehs Exited larting Vehs nding Vehs	on Record 5:00 6:00 60 10 6885 6377 448 956	11 6862 6404 477 935	7090 6403 514 1201	6946 6395 480 1030	X					
o data recorded this interval. <u>Interval #1 Information</u> tart Time nd Time otal Time (min) <u>un Number</u> ehs Entered ehs Exited tarting Vehs enied Entry Before	on Record 5:00 6:00 60 10 6885 6377 448 956 4	11 6862 6404 477 935 6	7090 6403 514 1201 19	6946 6395 480 1030 10						
o data recorded this interval. <u>Interval #1 Information</u> tart Time nd Time otal Time (min) <u>un Number</u> ehs Entered ehs Exited tarting Vehs nding Vehs enied Entry Before enied Entry After	on Record 5:00 6:00 60 10 6885 6377 448 956 4 14	11 6862 6404 477 935 6 36	7090 6403 514 1201 19 6	6946 6395 480 1030 10 10	`					
o data recorded this interval. Interval #1 Informatic tart Time nd Time otal Time (min) un Number ehs Entered ehs Extered ehs Extered tarting Vehs noting Vehs enied Entry Before enied Entry After ravel Distance (mi)	on Record 5:00 6:00 60 10 6885 6377 448 956 4 4 8 956 4 14 19919	11 6862 6404 477 935 6 36 19909	7090 6403 514 1201 19 6 20251	6946 6395 480 1030 10 19 20027	• •					
o data recorded this interval. Atterval #1 Informatic tart Time and Time otal Time (min) un Number ehs Entered ehs Exited tarting Vehs nding Vehs enied Entry Before enied Entry After ravel Distance (mi) ravel Time (hr)	on Record 5:00 6:00 60 10 6885 6377 448 956 4 4 4 4 14 19919 714.8	11 6862 6404 477 935 6 36 19909 717.5	7090 6403 514 1201 19 6 20251 905.7	6946 6395 480 1030 10 19 20027 779.3						
o data recorded this interval. Interval #1 Informatic tart Time nd Time otal Time (min) un Number ehs Entered ehs Extered ehs Extered tarting Vehs noting Vehs enied Entry Before enied Entry After ravel Distance (mi)	on Record 5:00 6:00 60 10 6885 6377 448 956 4 4 8 956 4 14 19919	11 6862 6404 477 935 6 36 19909	7090 6403 514 1201 19 6 20251	6946 6395 480 1030 10 19 20027						

I-4 Contraflow Ev SimTraffic Perfor	electron en en el company	eport	Three EB Through Plus Shoulder Lan 11/30/20
4: I-4 F & Park R	d On Rar	np Performance b	by movement
Movement	EBT	AÎ	
Total Delay (hr)	61.7	61.7	
Delay / Veh (s)	32.0	32.0	
Total Stops	297	297	
Travel Dist (mi)	3360.3	3360.3 116.6	
Travel Time (hr) Avg Speed (mph)	116.6 36	36	
		1513.1	
Fuel Used (gal) HC Emissions (g)	208	208	
CO Emissions (g)	99713	99713	
NOx Emissions (g)	784	784	
Vehicles Entered	6946	6946	
Vehicles Exited	6946	6946	
Hourly Exit Rate	6946	6946	
Input Volume	7000	7000	
% of Volume	99	99	
Denied Entry Before	10	10	
Denied Entry After	19	19	
Movement Total Delay (hr)	EBT 392.9	NP Performance b All 392.9	
Delay / Veh (s)	211.9	211.9	
Total Stops	3346	3346	
Travel Dist (mi)	14993.4	14993.4	
Have Dist (IIII)	000 0	609.6	
Travel Time (hr)	609.6		
Travel Time (hr) Avg Speed (mph)	25	25	
Travel Time (hr)	25	25 4765.7	
Travel Time (hr) Avg Speed (mph)	25 4765.7 547	4765.7 547	
Travel Time (hr) Avg Speed (mph) Fuel Used (gal)	25 4765.7 547 214318	4765.7 547 214318	
Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g)	25 4765.7 547 214318 2001	4765.7 547 214318 2001	
Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered	25 4765.7 547 214318 2001 6946	4765.7 547 214318 2001 6946	
Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited	25 4765.7 547 214318 2001 6946 6401	4765.7 547 214318 2001 6946 6401	
Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate	25 4765.7 547 214318 2001 6946 6401 6401	4765.7 547 214318 2001 6946 6401 6401	
Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume	25 4765.7 547 214318 2001 6946 6401 6401 7000	4765.7 547 214318 2001 6946 6401 6401 7000	
Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume	25 4765.7 547 214318 2001 6946 6401 6401 7000 91	4765.7 547 214318 2001 6946 6401 6401 7000 91	
Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume Ø of Volume Denied Entry Before	25 4765.7 547 214318 2001 6946 6401 7000 91 0	4765.7 547 214318 2001 6946 6401 6401 7000 91 0	
Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOX Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume	25 4765.7 547 214318 2001 6946 6401 6401 7000 91	4765.7 547 214318 2001 6946 6401 6401 7000 91	
Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume Ø of Volume Denied Entry Before	25 4765.7 547 214318 2001 6946 6401 7000 91 0	4765.7 547 214318 2001 6946 6401 6401 7000 91 0	
Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before	25 4765.7 547 214318 2001 6946 6401 7000 91 0	4765.7 547 214318 2001 6946 6401 6401 7000 91 0	
Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before	25 4765.7 547 214318 2001 6946 6401 7000 91 0	4765.7 547 214318 2001 6946 6401 6401 7000 91 0	
Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before	25 4765.7 547 214318 2001 6946 6401 7000 91 0	4765.7 547 214318 2001 6946 6401 6401 7000 91 0	
Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before	25 4765.7 547 214318 2001 6946 6401 7000 91 0	4765.7 547 214318 2001 6946 6401 6401 7000 91 0	
Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOX Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume & of Volume Denied Entry Before	25 4765.7 547 214318 2001 6946 6401 7000 91 0	4765.7 547 214318 2001 6946 6401 6401 7000 91 0	SimTraffic Repc

I-4 Contraflow Evaluation SimTraffic Performance	n Report	Three EB Through	Plus Shoulder Lar 11/30/20
Total Network Performa			
	483.5		
Total Delay (hr) Delay / Veh (s) Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before Denied Entry After	260.9 3653 20026.6 779.3 27 7206.4 882 376821 32777 6946 6395 6395 21000 30 10 19		
JSC			SimTraffic Rep Pag

I-4 Contraflow Evaluation Arterial Level of Service			Th	ree EB Th	rough Plu	is Should	er La 11/30/2
Arterial Level of Service: E	B I-4 F						
Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed	Run 10 Speed	Rui D
Park Rd On Ramp Cty Line Off Ramp	4 6	32.0 211.9	60.4 328.9	0.5 2.2	38 24	39 26	11
Total		243.9	389.3	2.7	26	27	21
Arterial Level of Service: El							
Cross Street	Run 11 Speed	Run 11 Delay	Run 12 Speed	Run 12 Delay			
Park Rd On Ramp	39 26	22.9 190.0	36 21	50.5 255.2			
Cty Line Off Ramp Total	20	212.8	23	305.7			
JSC				-		SimTra	ffic Rep Page

I-4 Contraflow Eva Queuing and Bloc		oort			Three EB Through Plus Shoulder La 11/30/2/
Intersection: 4: I-4		19 June 19 4	On Rar	np	
Movement	EB	EB.	EB	EB	
Directions Served	Т	т	Т	Т	
Maximum Queue (ft)	2573	2565	2563	2554	
Average Queue (ft)	455	512	398	142	
95th Queue (ft) Link Distance (ft)	2071 2551	2202 2551	1927 2551	1108 2551	
Upstream Blk Time (%)	2551	0	0	0	
Queuing Penalty (veh)	0	0	0	0	
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					
Intersection: 6: I-4	F & Cty	Line (Off Rar	10 mm	
Movement Directions Served	EB	EB	EB	EB	
Maximum Queue (ft)	216	474	652	770	
Average Queue (ft)	42	108	168	184	
95th Queue (ft)	129	314	437	485	
Link Distance (ft)	11483	11483	11483	11483	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft) Storage Blk Time (%)					
Queuing Penalty (veh)					
Network Summary					
Network wide Queuing Per	alty: 0				
					SimTraffic Rep
					Page

Summary of All Interv Run Number Start Time End Time Fotal Time (min) Time Recorded (min) ¥ of Intervals	10 4:45						
Start Time End Time Fotal Time (min) Fime Recorded (min) ≇ of Intervals	4:45						
End Time Fotal Time (min) Time Recorded (min) # of Intervals		11	12	13	14	Avg	Se esterador de la Colorada
Fotal Time (min) Time Recorded (min) ♯ of Intervals		4:45	4:45	4:45	4:45	4:45	
Time Recorded (min) # of Intervals	6:00	6:00	6:00	6:00	6:00	6:00	
# of Intervals	75	75	75	75	75	75 60	
the second se	60	60	60	60	60 2	2	
	2	2	2	2 1	1	1	
# of Recorded Intvis	1	1 3999	1 4055	3943	3983	3978	
Vehs Entered	3911 3809	3999	3833	3830	3846	3826	
Vehs Exited		263	271	244	263	254	
Starting Vehs	229 331	263	493	357	400	406	
Ending Vehs Depied Entry Refere	331	449	495	0	0	0	
Denied Entry Before Denied Entry After	3	0	1	0	2	1	
Fravel Distance (mi)	11426	11660	11735	11528	11685	11607	
Travel Time (hr)	297.1	364.1	373.4	326.4	365.5	345.3	
Fotal Delay (hr)	128.9	192.8	201.1	156.6	194.0	174.7	
Total Stops	750	1496	1652	952	1533	1277	
Fuel Used (gal)	3836.0	4071.5	4083.8	3935.2	4085.3	4002.3	
Interval #0 Informatio	n Seedin	q					
Start Time	4:45	0					
	5:00						
End Time Total Time (min)							
rotal Time Fotal Time (min) No data recorded this interval. Interval #1 Informatio	15	ling					
Fotal Time (min) No data recorded this interval.	15	ling					
Total Time (min) No data recorded this interval. Interval #1 Informatio	15 n Record	ling					
Fotal Time (min) No data recorded this interval. Interval #1 Informatio Start Time	15 n Record 5:00	ling					
Fotal Time (min) No data recorded this interval. Interval #1 Informatio Start Time End Time	15 n Record 5:00 6:00 60 10	11	12	13	. 14	Avg	
Fotal Time (min) No data recorded this interval. Interval #1 Informatio Start Time End Time Fotal Time (min) Run Number Vehs Entered	15 n Record 5:00 6:00 60 10 3911	<u>11</u> 3999	4055	3943	3983	3978	
Total Time (min) No data recorded this interval. Interval #1 Informatio Start Time End Time Total Time (min) Run Number Vehs Entered Vehs Exited	15 n Record 5:00 6:00 60 10 3911 3809	11 3999 3813	4055 3833	3943 3830	3983 3846	3978 3826	
Total Time (min) No data recorded this interval. Interval #1 Informatio Start Time End Time Total Time (min) Run Number Vehs Entered Vehs Exited Starting Vehs	15 <u>n Record</u> 5:00 6:00 60 <u>10</u> 3911 3809 229	11 3999 3813 263	4055 3833 271	3943 3830 244	3983 3846 263	3978 3826 254	
Fotal Time (min) No data recorded this interval. Interval #1 Informatio Start Time End Time Fotal Time (min) Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs	15 n Record 5:00 6:00 60 10 3911 3809 229 331	11 3999 3813 263 449	4055 3833 271 493	3943 3830 244 357	3983 3846 263 400	3978 3826 254 406	
Total Time (min) No data recorded this interval. Interval #1 Informatio Start Time End Time Total Time (min) Run Number Vehs Entered Vehs Entered Starting Vehs Ending Vehs Denied Entry Before	15 n Record 5:00 6:00 60 10 3911 3809 229 331 1	11 3999 3813 263 449 0	4055 3833 271 493 1	3943 3830 244 357 0	3983 3846 263 400 0	3978 3826 254 406 0	ana kana kana kana ka
Total Time (min) No data recorded this interval. Interval #1 Informatio Start Time End Time Total Time (min) Run Number Vehs Entered Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After	15 n Record 5:00 6:00 60 10 3911 3809 229 331 1 3	11 3999 3813 263 449 0 0	4055 3833 271 493 1 1	3943 3830 244 357 0 0	3983 3846 263 400 0 2	3978 3826 254 406 0 1	
Total Time (min) No data recorded this interval. Interval #1 Informatio Start Time End Time Total Time (min) Run Number Vehs Entered Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi)	15 n Record 5:00 6:00 60 10 3911 3809 229 331 1 3 11426	11 3999 3813 263 449 0 0 11660	4055 3833 271 493 1 1 11735	3943 3830 244 357 0 0 11528	3983 3846 263 400 0 2 11685	3978 3826 254 406 0 1 11607	
Total Time (min) No data recorded this interval. Interval #1 Informatio Start Time End Time Total Time (min) Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr)	15 n Record 5:00 6:00 60 10 229 331 1 3 11426 297.1	11 3999 3813 263 449 0 0 11660 364.1	4055 3833 271 493 1 1 11735 373.4	3943 3830 244 357 0 0 11528 326.4	3983 3846 263 400 0 2 11685 365.5	3978 3826 254 406 0 1 11607 345.3	
Total Time (min) No data recorded this interval. Interval #1 Informatio Start Time End Time Total Time (min) Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Distance (mi) Travel Time (hr) Total Delay (hr)	15 n Record 5:00 6:00 60 10 3911 3809 229 331 1 3 11426 297.1 128.9	11 3999 3813 263 449 0 0 11660 364.1 192.8	4055 3833 271 493 1 11735 373.4 201.1	3943 3830 244 357 0 0 11528 326.4 156.6	3983 3846 263 400 0 2 11685 365.5 194.0	3978 3826 254 406 0 1 11607 345.3 174.7	
Total Time (min) No data recorded this interval. Interval #1 Informatio Start Time End Time Total Time (min) Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr)	15 n Record 5:00 6:00 60 10 229 331 1 3 11426 297.1	11 3999 3813 263 449 0 0 11660 364.1	4055 3833 271 493 1 1 11735 373.4	3943 3830 244 357 0 0 11528 326.4	3983 3846 263 400 0 2 11685 365.5	3978 3826 254 406 0 1 11607 345.3	

I-4 Contraflow Ev Baseline	aluation			Two Contraflow Lane 11/30/200
12: I-4 C & Park I	Road On	Ramp	Perform	ance by movement
Movement	EBT	WBT	All	
Total Delay (hr)	11.0	0.7	11.7	
Delay / Veh (s)	11.1	6.1	10.6	
Total Stops	43	0	43	
Travel Dist (mi)	1733.4	902.1	2635.5	
Travel Time (hr)	38.9	13.8	52.7	
Avg Speed (mph)	47	65	52	
Fuel Used (gal)	759.1	290.5	1049.6	
HC Emissions (g)	81	51	133	
CO Emissions (g)	65147	21234	86380	
NOx Emissions (g)	307	207	514 3979	
Vehicles Entered	3570 3567	409 411	3979	
Vehicles Exited Hourly Exit Rate	3567	411	3978	
Input Volume	3600	400	4000	
% of Volume	99	103	99	
Denied Entry Before	0	0	0	
Denied Entry After	1	0	1	
Movement Total Delay (hr) Delay / Veh (s) Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal)	EBT 137.2 141.4 1219 7795.9 249.9 31 2412.8	WBT 0.0 0.3 0 97.5 1.5 66 36.9	All 137.2 126.6 1219 7893.4 251.4 31 2449.7	
HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before Denied Entry After	163 119558 819 3567 3420 3420 3600 95 0 0	7	169 123208 842 3975 3829 3829 4000 96 0 0	

Total Network Performance Total Delay (hr) 174.7 Delay / Veh (s) 161.1 Total Stops 1277 Travel Dist (mi) 11606.9 Travel Time (hr) 345.3 Avg Speed (mph) 34 Fuel Used (gal) 4002.3 HC Emissions (g) 231719 NOx Emissions (g) 231719 NOx Emissions (g) 1526 Vehicles Entered 3978 Vehicles Exited 3826 Hourly Exit Rate 3826 Input Volume 12000 % of Volume 32 Denied Entry Before 0 Denied Entry After 1	4 Contraflow Evaluation aseline	n		Two	Contraflow Lane 11/30/200
Total Delay (hr) 174.7 Delay / Veh (s) 161.1 Total Stops 1277 Travel Dist (mi) 11606.9 Travel Time (hr) 345.3 Avg Speed (mph) 34 Fuel Used (gal) 4002.3 HC Emissions (g) 231719 NOx Emissions (g) 1526 Vehicles Entered 3978 Vehicles Extled 3826 Hourly Exit Rate 3826 Input Volume 12000 % of Volume 32 Denied Entry Before 0		nce	-		
Delay / Veĥ (s) 161.1 Total Stops 1277 Travel Dist (mi) 11606.9 Travel Time (hr) 345.3 Avg Speed (mph) 34 Fuel Used (gal) 4002.3 HC Emissions (g) 231719 NOx Emissions (g) 1526 Vehicles Entered 3978 Vehicles Exited 3826 Hourly Exit Rate 3826 Input Volume 12000 % of Volume 32 Denied Entry Before 0	La Matter Spottikertens a switch onduct	an musika shaka shirta	STORES AND ALLAND	e contestadaren 50 M	
	slay / Veh (s) tal Stops avel Dist (mi) avel Time (hr) g Speed (mph) lei Used (gal) 2 Emissions (g) D Emissions (g) DX Emissions (g) DX Emissions (g) bhicles Entered bhicles Exited purty Exit Rate but Volume of Volume nied Entry Before	161.1 1277 11606.9 345.3 34 4002.3 388 231719 1526 3978 3826 3826 3826 12000 32 0			
	C				SimTraffic Repo Page

I-4 Contraflow Evaluatio Baseline					100	Contraflov	11/30/
Arterial Level of Service	: EB I-4 C						
Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed	Run 10 Speed	Rur De
Park Road On Ramp	12	11.1 141.4	39.2 257.5	0.5 2.2	48 31	49 37	g
County Line Off Ramp Total	14	152.6	296.8	2.7	33	39	10
Arterial Level of Service	: EB I-4 C						
Cases Sheed	Run 11 Speed	Run 11 Delay	Run 12 Speed	Run 12 Delay	Run 13 Speed	Run 13 Delay	Run Spi
Cross Street Park Road On Ramp	48	9.9	46	12.3	49	10.5	
County Line Off Ramp	29 31	160.1 169.9	28	166.1	33	125.2	
Total		109.9	30	170.4	55	100.1	
Arterial Level of Service		Delay	Travel	Dist	Arterial	Run 10	Run
Cross Street	Node	(s/veh)	time (s)	(mi)	Speed	Speed	De
County Line Off Ramp	14	0.3	13.2	0.2 2.2	69 65	69 66	
Park Road On Ramp Total	12	6.1 6.5	121.1 134.3	2.4	66	66	
Cross Street County Line Off Ramp Park Road On Ramp Total	<u>Speed</u> 70 66 67	Delay 0.3 5.8 6.2	Speed 70 66 66	Delay 0.3 5.6 5.9	5peed 68 64 64	Delay 0.4 7.0 7.4	Sp
							affic Re

Invertent EU EU Maximum Queue (ft) 1643 1541 Average Queue (ft) 86 51 95th Queue (ft) 86 51 Uho Distance (ft) 2561 2561 Upstream Bit Time (%) 0 0 Queuing Penalty (veh) 0 0 Intersection: 14: I-4 C & County Line Off Ramp Movement EB EB Directions Served T T Maximum Queue (ft) 397 388 Average Queue (ft) 40 265 Link Distance (ft) 11536 11536 Upstream Bit Time (%) Queuing Penalty (veh) 265 Link Distance (ft) 11536 11536 Upstream Bit Time (%) Queuing Penalty (veh) 265 Network wide Queuing Penalty (veh) 265 265 Network wide Queuing Penalty (veh) 265 265 Network wide Queuing Penalty (veh) 265 265 Network wide Queuing Penalty 0 0 365	I-4 Contraflow Eva Baseline	luation		Two Contraflow Lan 11/30/2
Invertent European Maximum Queue (ft) 1643 1541 Average Queue (ft) 86 51 95th Queue (ft) 86 51 Uho Distance (ft) 2561 25561 Upstream Bit Time (%) 0 0 Queuing Penalty (veh) 0 0 Intersection: 142: 14: 4 C & County Line Off Ramp Movement EB EB Directions Served T T Maximum Queue (ft) 397 388 Average Queue (ft) 210 225 Link Distance (ft) 11538 11536 Upstream Bit Time (%) Queuing Penalty (veh) Queuing Penalty (veh) Storage Bay Dist (ft) Storage Bay Dist (ft) Storage Bay Dist (ft) Storage Bay Dist (ft) Storage Bay Dist (ft) Queuing Penalty (veh) Network wide Queuing Penalty: 0 Network wide Queuing Penalty: 0	Intersection: 12: I-	4 C & Pa	ark Ro	ad On Ramp
Directions Served T T Maximum Queue (f) 1543 1541 Average Queue (f) 68 51 Stih Queue (f) 167 645 Lih Distance (f) 2561 2561 Upstream Bit Time (%) 0 0 Storage Bay Diet (f) Storage Bit Time (%) 0 Queuing Penalty (veh) 0 0 Intersection: 14: I-4 C & County Line Off Ramp Movement EB Maximum Queue (f) 307 388 Average Queue (f) 64 108 Storage Bit Time (%) 0 0 Queuing Penalty (veh) 210 265 Link Distance (f) 11338 11336 Upstream Bit Time (%) 0 0 Queuing Penalty (veh) Network wide Queuing Penalty: 0 Network wide Queuing Penalty: 0	Movement	EB	EB	
Average Queue (ft) 66 51 S5h Queue (ft) 647 645 Link Distance (ft) 2561 2551 Upstream Bit Time (ft) 0 0 Storage Bit Time (ft) 0 0 Movement EB EB Directions Served T T Maximum Queue (ft) 97 388 Average Queue (ft) 64 108 S5th Queue (ft) 11536 11536 Upstream Bit Time (ft) 11538 11536 Upstream Bit Time (ft) Queuing Penalty (veh) Network wide Queuing Penalty: 0 Network wide Queuing Penalty: 0	Directions Served	Т	Т	
Sth Cueue (ft) 847 645 Link Distance (ft) 2631 2561 Upstream Bik Time (%) 0 0 Storage Big Viti (ft) Storage Big Viti (ft) 0 0 Intersection: 14: 14-C & County Line Off Ramp Movement EB EB Directions Served T T Maximum Queue (ft) 397 388 Average Queue (ft) 11536 11536 Upstream Bik Time (%) 0 0 Queue (ft) 11536 11536 Upstream Bik Time (%) 0 0 Queuing Penalty (veh) Network wide Queuing Penalty (veh) Network Summary Network wide Queuing Penalty: 0	Maximum Queue (ft)			
Link Distance (ft) 2561 Upstream BK Time (%) 0 Oueuing Penalty (veh) Intersection: 14: 14: C & County Line Off Ramp Movement EB EB Directions Served T T Maximum Queue (ft) 397 388 Average Queue (ft) 64 108 95th Queue (ft) 210 265 Link Distance (ft) 11536 11536 Upstream BK Time (%) Queuing Penalty (veh) Network Summary Queuing Penalty (veh) Network wide Queuing Penalty: 0	95th Queue (ft)			
Queuing Penalty (veh) 0 0 Storage Bik Time (%) Queuing Penalty (veh) Intersection: 14: 1-4 C & County Line Off Ramp Movement EB Directions Served T Maximum Queue (h) 397 95th Queue (h) 210 265 Link Distance (h) Link Distance (h) 11536 Storage Bay Dist (h) Storage Bay Dist (h) Storage Bay Dist (h) Storage Bay Dist (h) Storage Bay Dist (h) Storage Bay Dist (h) Network wide Queuing Penalty (veh) Network wide Queuing Penalty: 0	Link Distance (ft)			
Storage Bay Dist (tt) Storage Bik Time (%) Intersection: 14: 1-4 C & County Line Off Ramp Movement EB EB EB Directions Served T Maximum Queue (tt) 397 386 Average Queue (tt) 64 950 Queue (tt) 11535 Queuing Penalty (veh) Storage Bay Dist (tt) Storage Bay Time (%) Queuing Penalty (veh) Network wide Queuing Penalty: 0	Upstream Blk Time (%)			
Storage Bik Time (%) Intersection: 14: 1-4 C & County Line Off Ramp Movement EB Directions Served T Maximum Queue (ft) 97 95th Queue (ft) 64 95th Queue (ft) 71 Queuing Penalty (web) Storage Queue (ft) 64 11K Distance (ft) 11535 11535 10536 Upstream Bik Time (%) Queuing Penalty (web) Storage Bay Dist (ft) Storage Bik Time (%) Queuing Penalty (web) Network Wide Queuing Penalty: 0		0	v	
Movement EB EB Directions Served T T Maximum Queue (ft) 397 388 Average Queue (ft) 64 108 95th Queue (ft) 11536 11536 Upstram Bits Time (%) Queuing Penalty (veh) Storage Bit Time (%) Storage Bits Time (%) Queuing Penalty (veh) Network Summary Network wide Queuing Penalty: 0 Network wide Queuing Penalty: 0	Storage Blk Time (%)			
Directions Served T T T Maximum Queue (ft) 397 388 Average Queue (ft) 64 108 95th Queue (ft) 11536 11536 Upstream Bit Time (%) Queuing Penalty (veh) Storage Bit Time (%) Queuing Penalty (veh) <u>Network Summary</u> Network wide Queuing Penalty: 0	Intersection: 14: I-	4 C & C	ounty L	ine Off Ramp
Maximum Queue (ft) 397 388 Average Queue (ft) 64 108 95fh Queue (ft) 11536 11536 Upstream Bik Time (%) Queuing Penalty (veh) Storage Bay Dist (ft) Storage Bik Time (%) Queuing Penalty (veh) Network Summary Network Wide Queuing Penalty: 0 Network wide Queuing Penalty: 0 Storage Bik Time (%)				
Average Queue (ft) 64 108 95th Queue (ft) 11536 11536 Upstream Bik Time (%) Queuing Penalty (veh) Storage Bik Time (%) Queuing Penalty (veh) <u>Network Summary</u> Network wide Queuing Penalty: 0 SimTraffic Repr				
95th Oueue (f) 210 265 Link Distance (f) 11536 11536 Upstream Bik Time (%) Queuing Penalty (veh) Network Summary Network wide Queuing Penalty: 0				
Upstream Bik Time (%) Queuing Penalty (veh) Storage Bix Time (%) Queuing Penalty (veh) <u>Network Summary</u> Network wide Queuing Penalty: 0	95th Queue (ft)	210	265	
Queuing Penalty (veh) Storage Bay Dist (ft) Storage Bik Time (%) Queuing Penalty (veh) Network Summary Network wide Queuing Penalty: 0	Link Distance (ft)	11536	11536	
Storage Bay Dist (ft) Storage Bik Time (%) Queuing Penalty (veh) Network Summary Network wide Queuing Penalty: 0				
Queuing Penalty (veh) Network Summary Network wide Queuing Penalty: 0 SimTraffic Repr	Storage Bay Dist (ft)			
Network Summary Network wide Queuing Penalty: 0	Storage Blk Time (%)			
Network wide Queuing Penalty: 0				
SimTraffic Repo	the second s			
	Network wide Queuing Per	nalty: 0		
				SimTraffic Rep

Number 12 00 11 12 00 14 15 Start Time 4:45 4:45 4:45 4:45 4:45 4:45 End Time 6:00 6:00 6:00 6:00 6:00 6:00 Total Time (min) 75 75 75 75 75 75 Time Recorded (min) 60 60 60 60 60 60 # of Recorded Intvis 1 1 1 1 1 1 1 Vehs Exited 3805 3820 3829 3822 3830 3821 Starting Vehs 243 267 286 249 282 265 Ending Vehs 385 508 568 423 476 472 Denied Entry Before 0 3 1 1 1 1 Denied Entry After 1 1 0 1 1 1 1 1 1 1 1	umber 10 11 12 13 14 Avg lime 4:45 4:45 4:45 4:45 4:45 me 6:00 6:00 6:00 6:00 6:00 lime (min) 75 75 75 75 75 Recorded (min) 60 60 60 60 60 tervals 2 2 2 2 2 2 2 corded (min) 60 600 60 60 60 60 60 tervals 2	Run Number 10 11 12 13 14 Avg Run Time 4:45 4:45 4:45 4:45 4:45 4:45 Bart Time 6:00 6:00 6:00 6:00 6:00 6:00 Otal Time (min) 75 75 75 75 75 75 Time Recorded (min) 60 60 60 60 60 60 of Intervals 2 3 3 3 1 1 1 1 3	Run Number 10 11 Start Time 4:45 4:45 4 End Time 6:00 6:00 6:00 Total Time (min) 75 75 75 Time Recorded (min) 60 60 4 # of Recorded Intvis 1 1 Vehs Exited 3805 3820 31 Vehs Exited 3805 3820 33 34 <th>$\begin{array}{ccccccc} 4:45 & 4:45 \\ 6:00 & 6:00 \\ 75 & 75 \\ 60 & 60 \\ 2 & 2 \\ 1 & 1 \\ 4111 & 3996 \\ 3829 & 3822 \\ 286 & 249 \\ 568 & 423 \\ 1 & 1 \\ 0 & 0 \\ 11820 & 11641 \\ 419.3 & 3644 \\ 246.1 & 187.9 \\ 1839 & 1391 \\ \end{array}$</th> <th>4:45 6:00 75 60 2 1 3996 3822 249 423 1 0 11641 359.4 187.9 1391</th> <th>4:45 6:00 75 60 2 1 4024 3830 282 476 1 11744 413.2 240.6</th> <th>$\begin{array}{cccccccccccccccccccccccccccccccccccc$</th> <th></th>	$\begin{array}{ccccccc} 4:45 & 4:45 \\ 6:00 & 6:00 \\ 75 & 75 \\ 60 & 60 \\ 2 & 2 \\ 1 & 1 \\ 4111 & 3996 \\ 3829 & 3822 \\ 286 & 249 \\ 568 & 423 \\ 1 & 1 \\ 0 & 0 \\ 11820 & 11641 \\ 419.3 & 3644 \\ 246.1 & 187.9 \\ 1839 & 1391 \\ \end{array}$	4:45 6:00 75 60 2 1 3996 3822 249 423 1 0 11641 359.4 187.9 1391	4:45 6:00 75 60 2 1 4024 3830 282 476 1 11744 413.2 240.6	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	
Start Time 4:45	Time 4:45 4:45 4:45 4:45 4:45 4:45 time 6:00 6:00 6:00 6:00 6:00 6:00 6:00 Time (min) 75 75 75 75 75 75 Recorded (min) 60 60 60 60 60 60 tervals 2	Start Time 4:45 4:45 4:45 4:45 4:45 4:45 ind Time 6:00 6:00 6:00 6:00 6:00 6:00 ind Time (min) 75 75 75 75 75 Time Recorded (min) 60 60 60 60 60 i finervals 2 2 2 2 2 2 i of Recorded Intvis 1 1 1 1 1 1 i chestentered 3947 4061 4111 3996 4024 4028 i chestentered 3947 4061 4111 3996 4024 4028 i chestentered 3805 3820 3822 3830 3821 3381 i atring Vehs 243 267 286 249 282 265 i anding Vehs 385 508 568 423 476 472 venied Entry After 1 1 0 1 1 1 1 1 1 1 1 1 1 1	Start Time 4:45 4:45 4 End Time 6:00 6:00 6 Total Time (min) 75 75 Time Recorded (min) 60 60 # of Intervals 2 2 # of Recorded Intvis 1 1 Vehs Entered 3947 4061 4/ Vehs Exited 3805 3820 3i Starting Vehs 243 267 2 Ending Vehs 385 508 508 508 Denied Entry Before 0 3 3 51216 394.8 41 Total Distance (mi) 11500 11773 111 173 111 Travel Distance (mi) 11500 11773 111 174 173 111 Travel Distance (mi) 11500 11773 111 174 173 111 Total Delay (hr) 152.4 222.1 24 241 104666 11 Fuel Used (gal) 3928.1 4182.	$\begin{array}{ccccccc} 4:45 & 4:45 \\ 6:00 & 6:00 \\ 75 & 75 \\ 60 & 60 \\ 2 & 2 \\ 1 & 1 \\ 4111 & 3996 \\ 3829 & 3822 \\ 286 & 249 \\ 568 & 423 \\ 1 & 1 \\ 0 & 0 \\ 11820 & 11641 \\ 419.3 & 3644 \\ 246.1 & 187.9 \\ 1839 & 1391 \\ \end{array}$	4:45 6:00 75 60 2 1 3996 3822 249 423 1 0 11641 359.4 187.9 1391	4:45 6:00 75 60 2 1 4024 3830 282 476 1 11744 413.2 240.6	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	
Start filte Filte	Inite File File <t< th=""><th>Mark Time No. N</th><th>End Time 6:00 6:00 6 Total Time (min) 75 75 Time Recorded (min) 60 60 # of Intervals 2 2 # of Recorded Intvis 1 1 Vehs Exited 3947 4061 4' Vehs Exited 3805 3820 3' Starting Vehs 243 267 3' Ending Vehs 385 508 3' Denied Entry Before 0 3 3' Denied Entry After 1 1 1' Travel Distance (mi) 11500 11773 11' Travel Time (hr) 321.6 394.8 41 Total Delay (hr) 152.4 222.1 24 Total Stops 941 1666 11 Fuel Used (gal) 3928.1 4182.9 421 Interval #O Information Seeding 500 Total Time 4:45 500 500 Total Time (min) 15 15<!--</th--><th>6:00 6:00 75 75 60 60 2 2 1 1 4111 3996 3829 3822 286 249 568 423 1 1 0 0 11820 11641 419.3 387.9 1839 1391</th><th>6:00 75 60 2 3996 3822 249 423 1 0 11641 359.4 187.9 1391</th><th>6:00 75 60 2 1 4024 3830 282 476 1 1 11744 413.2 240.6</th><th>$\begin{array}{cccc} 0 & 6:00 \\ 5 & 75 \\ 0 & 60 \\ 2 & 2 \\ 1 & 1 \\ 4 & 4028 \\ 0 & 3821 \\ 2 & 265 \\ 6 & 472 \\ 1 & 1 \\ 1 & 1 \\ 1 & 1 \\ 4 & 11696 \end{array}$</th><th></th></th></t<>	Mark Time No. N	End Time 6:00 6:00 6 Total Time (min) 75 75 Time Recorded (min) 60 60 # of Intervals 2 2 # of Recorded Intvis 1 1 Vehs Exited 3947 4061 4' Vehs Exited 3805 3820 3' Starting Vehs 243 267 3' Ending Vehs 385 508 3' Denied Entry Before 0 3 3' Denied Entry After 1 1 1' Travel Distance (mi) 11500 11773 11' Travel Time (hr) 321.6 394.8 41 Total Delay (hr) 152.4 222.1 24 Total Stops 941 1666 11 Fuel Used (gal) 3928.1 4182.9 421 Interval #O Information Seeding 500 Total Time 4:45 500 500 Total Time (min) 15 15 </th <th>6:00 6:00 75 75 60 60 2 2 1 1 4111 3996 3829 3822 286 249 568 423 1 1 0 0 11820 11641 419.3 387.9 1839 1391</th> <th>6:00 75 60 2 3996 3822 249 423 1 0 11641 359.4 187.9 1391</th> <th>6:00 75 60 2 1 4024 3830 282 476 1 1 11744 413.2 240.6</th> <th>$\begin{array}{cccc} 0 & 6:00 \\ 5 & 75 \\ 0 & 60 \\ 2 & 2 \\ 1 & 1 \\ 4 & 4028 \\ 0 & 3821 \\ 2 & 265 \\ 6 & 472 \\ 1 & 1 \\ 1 & 1 \\ 1 & 1 \\ 4 & 11696 \end{array}$</th> <th></th>	6:00 6:00 75 75 60 60 2 2 1 1 4111 3996 3829 3822 286 249 568 423 1 1 0 0 11820 11641 419.3 387.9 1839 1391	6:00 75 60 2 3996 3822 249 423 1 0 11641 359.4 187.9 1391	6:00 75 60 2 1 4024 3830 282 476 1 1 11744 413.2 240.6	$\begin{array}{cccc} 0 & 6:00 \\ 5 & 75 \\ 0 & 60 \\ 2 & 2 \\ 1 & 1 \\ 4 & 4028 \\ 0 & 3821 \\ 2 & 265 \\ 6 & 472 \\ 1 & 1 \\ 1 & 1 \\ 1 & 1 \\ 4 & 11696 \end{array}$	
Link min Side	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	And mice (min) 75 75 75 75 75 Time Recorded (min) 60 60 60 60 60 60 1 of Recorded Intvis 1 1 1 1 1 1 1 of Recorded Intvis 1 1 1 1 1 1 1 1 of Recorded Intvis 1 1 1 1 1 1 1 1 of Recorded Intvis 1 1 1 1 1 1 1 1 of Recorded Intvis 3947 4061 4111 3996 4024 4028 Vehs Entered 3947 4061 4111 3996 4024 4028 Vehs Entered 3805 3820 3829 3822 3830 3821 Starting Vehs 243 267 266 249 282 265 Endid Time Vehs 385 508 568 423 476 472 Denied Entry Before 0 3 1 1 1 1 Travel Distance (min) 1500 <td>Total Time (min) 75 75 Time Recorded (min) 60 60 # of Intervals 2 2 # of Recorded Intvis 1 1 Vehs Entered 3947 4061 4/ Vehs Entered 3947 4061 4/ Vehs Exited 3805 3820 3/ Starting Vehs 243 267 2 Ending Vehs 385 508 4 Denied Entry Before 0 3 3 Denied Entry After 1 1 1 Travel Distance (mi) 11500 11773 11/ Travel Time (hr) 321.6 394.8 41 Total Stops 941 1666 11 Fuel Used (gal) 3928.1 4182.9 421 Interval #0 Information Seeding 5:00 10al Time 5:00 Total Time (min) 15 No data recorded this interval. 15</td> <td>$\begin{array}{cccc} 75 & 75 \\ 60 & 60 \\ 2 & 2 \\ 1 & 1 \\ 4111 & 3996 \\ 3829 & 3822 \\ 286 & 249 \\ 568 & 423 \\ 1 & 1 \\ 0 & 0 \\ 11820 & 11641 \\ 419.3 & 359.4 \\ 246.1 & 187.9 \\ 1839 & 1391 \\ \end{array}$</td> <td>75 60 2 1 3996 3822 249 423 1 0 11641 359.4 187.9 1391</td> <td>75 60 2 1 4024 3830 282 476 1 1 11744 413.2 240.6</td> <td>$\begin{array}{cccccccccccccccccccccccccccccccccccc$</td> <td></td>	Total Time (min) 75 75 Time Recorded (min) 60 60 # of Intervals 2 2 # of Recorded Intvis 1 1 Vehs Entered 3947 4061 4/ Vehs Entered 3947 4061 4/ Vehs Exited 3805 3820 3/ Starting Vehs 243 267 2 Ending Vehs 385 508 4 Denied Entry Before 0 3 3 Denied Entry After 1 1 1 Travel Distance (mi) 11500 11773 11/ Travel Time (hr) 321.6 394.8 41 Total Stops 941 1666 11 Fuel Used (gal) 3928.1 4182.9 421 Interval #0 Information Seeding 5:00 10al Time 5:00 Total Time (min) 15 No data recorded this interval. 15	$\begin{array}{cccc} 75 & 75 \\ 60 & 60 \\ 2 & 2 \\ 1 & 1 \\ 4111 & 3996 \\ 3829 & 3822 \\ 286 & 249 \\ 568 & 423 \\ 1 & 1 \\ 0 & 0 \\ 11820 & 11641 \\ 419.3 & 359.4 \\ 246.1 & 187.9 \\ 1839 & 1391 \\ \end{array}$	75 60 2 1 3996 3822 249 423 1 0 11641 359.4 187.9 1391	75 60 2 1 4024 3830 282 476 1 1 11744 413.2 240.6	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	
Total Time Recorded (min) FO	The (min) 10 10 10 10 10 10 10 10 10 10 10 10 10	Oral Hins (HIII) 10 11 1	Time Recorded (min) 60 60 # of Intervals 2 2 # of Recorded Intvis 1 1 Vehs Entered 3947 4061 4 Vehs Entered 3805 3820 3i Starting Vehs 243 267 2 Ending Vehs 385 508 9 Denied Entry Before 0 3 9 Denied Entry After 1 1 1 Travel Distance (mi) 11500 11773 110 Travel Distance (mi) 11500 11773 110 Travel Stance (mi) 11500 11773 110 Travel Distance (mi) 11500 11773 110 Travel Stance (mi) 3921.6 394.8 41 Total Stops 941 1666 10 Fuel Used (gal) 3928.1 4182.9 421 Interval #O Information Seeding 500 10 Start Time 4:45 500 10	60 60 2 2 1 1 4111 3996 3829 3822 286 249 568 423 1 1 0 0 11820 11641 419.3 359.4 246.1 187.9 1839 1391	60 2 1 3996 3822 249 423 1 0 11641 359.4 187.9 1391	60 2 1 4024 3830 282 476 1 1 11744 413.2 240.6	0 60 2 2 1 1 4 4028 0 3821 2 265 6 472 1 1 1 1 4 11696	
Inite Reducted (inity) 00 1	Vector of the value 0.0	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	# of Intervals 2 2 # of Intervals 1 1 Vehs Entered 3947 4061 4' Vehs Entered 3805 3820 3i Starting Vehs 243 267 2' Ending Vehs 385 508 4' Denied Entry Before 0 3 3' Denied Entry After 1 1 1' Travel Distance (mi) 11500 11773 11' Travel Time (hr) 321.6 394.8 41 Total Delay (hr) 152.4 222.1 24 Total Stops 941 1666 10 Fuel Used (gal) 3928.1 4182.9 421 Interval #0 Information Seeding 5:00 5:00 5:00 Start Time 4:45 5:00 5:00 10al Time (min) 15 No data recorded this Interval. 15 No 4at recorded this Interval. 4at recorded this Interval.	2 2 1 1 4111 3996 3829 286 249 568 423 1 1 0 0 11820 11641 419.3 359.4 246.1 187.9 1839 1391	2 1 3996 3822 249 423 1 0 11641 359.4 187.9 1391	2 1 4024 3830 282 476 1 1 11744 413.2 240.6	2 2 2 1 1 4 4028 0 3821 2 265 6 472 1 1 1 1 4 11696	
Initiation I <thi< th=""> <thi<< td=""><td>L L II II IIIIII IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII</td><td>Control of Recording L L II II IIIII IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII</td><td># of Recorded Intvis 1 1 Vehs Entered 3947 4061 4/ Vehs Entered 3805 3820 3i Starting Vehs 243 267 2 Ending Vehs 385 508 9 Denied Entry Before 0 3 3 Denied Entry After 1 1 1 Travel Distance (mi) 11500 11773 111 Travel Distance (mi) 11500 11773 111 Total Delay (hr) 321.6 394.8 41 Total Delay (hr) 152.4 222.1 24 Total Stops 941 1666 11 Fuel Used (gal) 3928.1 4182.9 421 Interval #O Information Seeding 5:00 5:00 10 Start Time 4:45 5:00 10 Total Time (min) 15 No data recorded this Interval.</td><td>1 1 4111 3996 3829 3822 286 249 568 423 1 1 0 0 11820 11641 419.3 3544 246.1 187.9 1839 1391</td><td>1 3996 3822 249 423 1 0 11641 359.4 187.9 1391</td><td>1 4024 3830 282 476 1 1 11744 413.2 240.6</td><td>1 1 4 4028 0 3821 2 265 6 472 1 1 1 1 4 11696</td><td></td></thi<<></thi<>	L L II II IIIIII IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Control of Recording L L II II IIIII IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	# of Recorded Intvis 1 1 Vehs Entered 3947 4061 4/ Vehs Entered 3805 3820 3i Starting Vehs 243 267 2 Ending Vehs 385 508 9 Denied Entry Before 0 3 3 Denied Entry After 1 1 1 Travel Distance (mi) 11500 11773 111 Travel Distance (mi) 11500 11773 111 Total Delay (hr) 321.6 394.8 41 Total Delay (hr) 152.4 222.1 24 Total Stops 941 1666 11 Fuel Used (gal) 3928.1 4182.9 421 Interval #O Information Seeding 5:00 5:00 10 Start Time 4:45 5:00 10 Total Time (min) 15 No data recorded this Interval.	1 1 4111 3996 3829 3822 286 249 568 423 1 1 0 0 11820 11641 419.3 3544 246.1 187.9 1839 1391	1 3996 3822 249 423 1 0 11641 359.4 187.9 1391	1 4024 3830 282 476 1 1 11744 413.2 240.6	1 1 4 4028 0 3821 2 265 6 472 1 1 1 1 4 11696	
Workson 1 1 1 3996 4024 4028 Vehs Extired 3805 3820 3829 3822 3830 3621 Starting Vehs 243 267 286 249 282 265 Ending Vehs 385 508 568 423 476 472 Denied Entry Before 0 3 1 1 1 1 Denied Entry After 1 1 0 0 1 1 Travel Distance (mi) 11500 11773 11820 11641 11744 11696 Travel Time (hr) 321.6 394.8 419.3 359.4 413.2 381.6 Total Delay (hr) 152.4 222.1 246.1 187.9 240.6 209.8 Total Stops 941 1666 1839 1391 1844 1537 Fuel Used (gal) 3926.1 4182.9 4215.6 4023.4 4194.3 4108.9 Interval #O Information Seeding 5:00 70.4 4194.3 4108.9 No data recorde	Economic 3947 4061 4111 3996 4024 4028 Entered 3805 3820 3829 3822 3830 3621 g Vehs 243 267 286 249 282 265 y Vehs 385 508 568 423 476 472 d Entry Before 0 3 1 1 1 1 Distance (mi) 11500 11773 11820 11641 11744 11696 Time (hr) 321.6 394.8 419.3 359.4 413.2 381.6 Delay (hr) 152.4 222.1 240.6 209.8 Stops 941 1666 1839 1391 1844 1537 Ised (gal) 3928.1 4182.9 4215.6 4023.4 4194.3 4108.9 val #0 Information Seeding Stops 941 156 1666 1839 1391 1844 1537 Ia recorded this interval.	Concentration Starting Concentration Starting Concentration Concentration <thconcentration< th=""> <thconcentration< th=""></thconcentration<></thconcentration<>	Vehs Entered 3947 4061 4' Vehs Exited 3805 3820 34' Starting Vehs 243 267 3' Ending Vehs 385 508 3' Denied Entry Before 0 3' 3' Denied Entry After 1 1 1' Travel Distance (mi) 11500 11773 11' Travel Time (hr) 321.6 394.8 41 Total Delay (hr) 152.4 222.1 24 Total Stops 941 1666 1' Fuel Used (gal) 3928.1 4182.9 421 Interval #O Information Seeding 5:00 5:00 1' Start Time 4:45 5:00 1' End Time 5:00 1' 5 No data recorded this Interval. 1'5 No data recorded this Interval.	4111 3996 3829 3822 286 249 568 423 1 1 0 0 11820 11641 419.3 359.4 246.1 187.9 1839 1391	3996 3822 249 423 1 0 11641 359.4 187.9 1391	4024 3830 282 476 1 11744 413.2 240.6	4 4028 0 3821 2 265 6 472 1 1 1 1 4 11696	
Vens Entered 3805 3820 3822 3830 3821 Starting Vehs 243 267 286 249 282 265 Ending Vehs 3855 508 568 423 476 472 Denied Entry Before 0 3 1 1 1 1 Denied Entry After 1 1 0 0 1 1 Travel Distance (mi) 11500 11773 11820 11641 11744 11696 Travel Distance (mi) 11500 11773 11820 11641 11744 11696 Travel Time (hr) 321.6 394.8 419.3 359.4 413.2 381.6 Total Stops 941 1666 1839 1391 1844 1537 Fuel Used (gal) 3928.1 4182.9 4215.6 4023.4 4194.3 4108.9 Interval #0 Information Seeding Start Time 4:45 4:45 End Time 5:00 Total Time (min	Line box 3805 3829 3822 3930 3621 g Vehs 243 267 286 249 282 265 g Vehs 385 508 568 423 476 4772 d Entry Before 0 3 1 1 1 1 d Entry After 1 1 0 0 1 1 Distance (mi) 11500 11773 11820 11641 11744 11696 Time (hr) 321.6 394.8 419.3 359.4 413.2 381.6 Delay (hr) 152.4 222.1 246.1 187.9 240.6 209.8 Stops 941 1666 1839 1391 1844 1537 Ised (gal) 3928.1 4182.9 4215.6 4023.4 4194.3 4108.9 val #0 Information Seeding Seeding Seeding Seeding Seeding Seeding tare recorded this interval. 5:00 Seedin	Beneficient Start Start <thstart< th=""> Start Start</thstart<>	Vehs Exited 3805 3820 33 Starting Vehs 243 267 33 Ending Vehs 385 508 34 Denied Entry Before 0 3 33 Denied Entry After 1 1 1 Travel Distance (mi) 11500 11773 110 Travel Time (hr) 321.6 394.8 41 Total Delay (hr) 152.4 222.1 24 Total Stops 941 1666 14 Fuel Used (gal) 3928.1 4182.9 421 Interval #0 Information Seeding 5:00 5:00 Total Time 5:00 15 No data recorded this interval.	3829 3822 286 249 568 423 1 1 0 0 11820 11641 419.3 359.4 246.1 187.9 1839 1391	3822 249 423 1 0 11641 359.4 187.9 1391	3830 282 476 1 11744 413.2 240.6	0 3821 2 265 6 472 1 1 1 1 4 11696	
Verify Extract Constraint Constant Constraint Const	Links 243 267 286 249 282 265 g Vehs 385 508 568 423 476 472 d Entry Before 0 3 1 1 1 1 d Entry After 1 1 0 0 1 1 Distance (mi) 11500 11773 11820 11641 11744 11696 Time (hr) 321.6 394.8 419.3 359.4 413.2 381.6 belay (hr) 152.4 222.1 246.1 187.9 240.6 209.8 Stops 941 1666 1839 1391 1844 1537 Ised (gal) 3928.1 4182.9 4215.6 4023.4 4194.3 4108.9 val #O Information Seeding 15 a recorded this interval. 15 ta recorded this interval. 15 a 16 16 17 val #1 Information Recording 17 16	Constraint Constraint <thconstraint< th=""> Constraint Constrai</thconstraint<>	Starting Vehs 243 267 267 Ending Vehs 385 508 385 Denied Entry Before 0 3 385 Denied Entry After 1 1 1 Travel Distance (mi) 11500 11773 111 Travel Distance (mi) 11500 11773 111 Travel Distance (mi) 152.4 222.1 24 Total Delay (hr) 152.4 222.1 24 Total Stops 941 1666 11 Fuel Used (gal) 3928.1 4182.9 421 Interval #O Information Seeding 5:00 5:00 5:00 Total Time 4:45 5:00 5:00 Total Time (min) 15 No data recorded this Interval.	286 249 568 423 1 1 0 0 11820 11641 419.3 359.4 246.1 187.9 1839 1391	249 423 1 0 11641 359.4 187.9 1391	282 476 1 1 11744 413.2 240.6	2 265 6 472 1 1 1 1 4 11696	
Start Time 4:05 2:16 2:16 2:16 2:16 2:16 2:16 2:16 2:16 2:16 2:16 2:16 2:16 2:16 2:16 2:16 2:16 2:16 2:16 2:16 3:11 1	g Veins 385 508 568 423 476 472 d Entry Before 0 3 1 1 1 1 d Entry Before 0 3 1 1 1 1 d Entry After 1 1 0 0 1 1 Distance (mi) 11500 11773 11820 11641 11744 11696 Time (hr) 321.6 394.8 419.3 359.4 413.2 381.6 Delay (hr) 152.4 222.1 246.1 187.9 240.6 209.8 Stops 941 1666 1839 1391 1844 1537 Ised (gal) 3928.1 4182.9 4215.6 4023.4 4194.3 4108.9 val #0 Information Seeding Image: Seeding	Naming Yorks 2.10 2.11 2.10 2.11 2.10 2.11 1.11 1 <t< td=""><td>Ending Vehs 385 508 508 Denied Entry Before 0 3 Denied Entry After 1 1 Travel Distance (mi) 11500 11773 110 Travel Distance (mi) 11500 11773 110 Travel Distance (mi) 11500 11773 110 Travel Time (hr) 321.6 394.8 41 Total Delay (hr) 152.4 222.1 24 Total Stops 941 1666 10 Fuel Used (gal) 3928.1 4182.9 421 Interval #0 Information Seeding 500 500 500 Start Time 4:45 5:00 5:00 Total Time (min) 15 No data recorded this Interval.</td><td>568 423 1 1 0 0 11820 11641 419.3 359.4 246.1 187.9 1839 1391</td><td>423 1 0 11641 359.4 187.9 1391</td><td>476 1 1 11744 413.2 240.6</td><td>6 472 1 1 1 1 4 11696</td><td></td></t<>	Ending Vehs 385 508 508 Denied Entry Before 0 3 Denied Entry After 1 1 Travel Distance (mi) 11500 11773 110 Travel Distance (mi) 11500 11773 110 Travel Distance (mi) 11500 11773 110 Travel Time (hr) 321.6 394.8 41 Total Delay (hr) 152.4 222.1 24 Total Stops 941 1666 10 Fuel Used (gal) 3928.1 4182.9 421 Interval #0 Information Seeding 500 500 500 Start Time 4:45 5:00 5:00 Total Time (min) 15 No data recorded this Interval.	568 423 1 1 0 0 11820 11641 419.3 359.4 246.1 187.9 1839 1391	423 1 0 11641 359.4 187.9 1391	476 1 1 11744 413.2 240.6	6 472 1 1 1 1 4 11696	
Linding Vortis Color	val #0 3 1 1 1 1 d Entry Before 0 3 1	Initial Verifie Octo	Denied Entry Before 0 3 Denied Entry After 1 1 Travel Distance (mi) 11500 11773 111 Travel Time (hr) 321.6 394.8 41 Total Delay (hr) 152.4 222.1 24 Total Stops 941 1666 11 Fuel Used (gal) 3928.1 4182.9 421 Interval #O Information Seeding 5:00 5:00 10al Time Start Time 4:45 5:00 10al Time (min) 15 No data recorded this Interval. 15 10 10	1 1 0 0 11820 11641 419.3 359.4 246.1 187.9 1839 1391	1 0 11641 359.4 187.9 1391	1 1 11744 413.2 240.6	1 1 1 1 4 11696	
Denied Entry Deficie 0 0 1 1 Travel Distance (mi) 11500 11773 11820 11641 11744 11696 Travel Distance (mi) 11500 11773 11820 11641 11744 11696 Travel Time (hr) 321.6 394.8 419.3 359.4 413.2 381.6 Total Delay (hr) 152.4 222.1 246.1 187.9 240.6 209.8 Total Stops 941 1666 1839 1391 1844 1537 Fuel Used (gal) 3926.1 4182.9 4215.6 4023.4 4194.3 4108.9 Interval #0 Information Seeding 5:00 7 7 7 7 Start Time 4:45 5:00 7 7 7 7 7 No data recorded this Interval. 15 No data recorded this Interval. 15 7	Intropende 0 0 1 1 I Entry After 1 1 0 0 1 1 Distance (mi) 11500 11773 11820 11641 11744 11696 Time (hr) 321.6 394.8 419.3 359.4 413.2 381.6 Delay (hr) 152.4 222.1 246.1 187.9 240.6 209.8 Stops 941 1666 1839 1391 1844 1537 Ised (gal) 3928.1 4182.9 4215.6 4023.4 4194.3 4108.9 val #0 Information Seeding Seeding Time (hin) 15 Time (hin) 15 ta recorded this interval. 115 ta recorded this interval. 115 116 116 116 val #1 Information Recording Time 5:00 Site Site Site Site Site Time 5:00 6:00 5:00 18 116 116 116	Venice Liny Sector 0 1 1 Travel Distance (mi) 11500 11773 11820 11641 11744 11696 Travel Distance (mi) 321.6 394.8 419.3 359.4 413.2 381.6 Travel Distance (mi) 152.4 222.1 246.1 187.9 240.6 209.8 Total Delay (hr) 152.4 222.1 246.1 187.9 240.6 209.8 Total Stops 941 1666 1839 1391 1844 1537 Tuel Used (gal) 3928.1 4182.9 4215.6 4023.4 4194.3 4108.9 Interval #0 Information Seeding Start Time 4:45 1174 15 No data recorded this Interval. 15 No data recorded this Interval. 15 15 Interval #1 Information Recording Start Time 5:00 160 160 Start Time 5:00 5:00 161 17 60 160	Denied Entry After 1 1 Travel Distance (mi) 11500 11773 110 Travel Distance (mi) 11500 11773 110 Travel Distance (mi) 321.6 394.8 41 Total Delay (hr) 152.4 222.1 24 Total Stops 941 1666 11 Fuel Used (gal) 3928.1 4182.9 421 Interval #0 Information Seeding 5 5 Start Time 4:45 5 6 End Time 5:00 5:00 5:00 Total Time (min) 15 No data recorded this interval.	0 0 11820 11641 419.3 359.4 246.1 187.9 1839 1391	0 11641 359.4 187.9 1391	1 11744 413.2 240.6	1 1 4 11696	
Data Construction 11500 11773 11820 11641 11744 11696 Travel Distance (mi) 11500 11773 11820 11641 11744 11696 Travel Time (tr) 321.6 394.8 419.3 359.4 413.2 381.6 Total Delay (hr) 152.4 222.1 246.1 187.9 240.6 209.8 Total Stops 941 1666 1839 1391 1844 1537 Fuel Used (gal) 3928.1 4182.9 4215.6 4023.4 4194.3 4108.9 Interval #0 Information Seeding Start Time 4:45 5:00 10al Time (min) 15 No data recorded this interval. 15 No 4at recorded this interval. 15	Distance (mi) 11500 11773 11820 11641 11744 11696 Time (hr) 321.6 394.8 419.3 359.4 413.2 381.6 Delay (hr) 152.4 222.1 246.1 187.9 240.6 209.8 Stops 941 1666 1839 1391 1844 1537 Ised (gal) 3928.1 4182.9 4215.6 4023.4 4194.3 4108.9 val #0 Information Seeding Time 4:45 4182.9 4215.6 4023.4 4194.3 4108.9 val #0 Information Seeding Time (min) 15 15 16 18 16 16 16 16 16 16 16 16<	Value Linky Attention 11500 11773 11820 11641 11744 11696 ravel Time (hr) 321.6 394.8 419.3 359.4 413.2 381.6 Travel Time (hr) 321.6 394.8 419.3 359.4 413.2 381.6 Travel Time (hr) 152.4 222.1 246.1 187.9 240.6 209.8 Total Delay (hr) 152.4 222.1 246.1 187.9 240.6 209.8 Total Delay (hr) 3928.1 4182.9 4215.6 4023.4 4194.3 4108.9 Interval #0 Information Seeding Start Time 5:00 5:0	Travel Distance (mi) 11500 11773 111 Travel Time (hr) 321.6 394.8 41 Total Delay (hr) 152.4 222.1 24 Total Stops 941 1666 14 Fuel Used (gal) 3928.1 4182.9 421 Interval #0 Information Seeding Start Time 4:45 End Time 5:00 Total Time (min) 15 No data recorded this interval. 3928.1 3928.1 3928.1	11820 11641 419.3 359.4 246.1 187.9 1839 1391	11641 359.4 187.9 1391	11744 413.2 240.6	4 11696	
Intervention 100 11000 11000 11000 11000	District (iii) 11000 11000 11000 11000 District (iii) 321.6 394.8 419.3 359.4 413.2 381.6 Delay (hr) 152.4 222.1 246.1 187.9 240.6 209.8 Stops 941 1666 1839 1391 1844 1537 Ised (gal) 3928.1 4182.9 4215.6 4023.4 4194.3 4108.9 val #0 Information Seeding 15 16 16 16 16 Ime 4:45 15 16 16 16 Ime 5:00 15 16 16 Ime (min) 15 15 16 16 ia recorded this interval. 15 16 16 val #1 Information Recording 17 17 16 Time 5:00 16 16 16 ia recorded this interval. 5:00 16 16 val #1 Information Recording 16 16 16 Time 5:00 16 16 ime 6:00 16 16	Nature (min) Notice Number of the information	Travel Time (hr) 321.6 394.8 41 Total Delay (hr) 152.4 222.1 24 Total Stops 941 1666 11 Fuel Used (gal) 3928.1 4182.9 421 Interval #0 Information Seeding 5100 500 Start Time 5:00 15 No data recorded this interval.	419.3 359.4 246.1 187.9 1839 1391	359.4 187.9 1391	413.2 240.6		
Interval #0 152.4 222.1 246.1 187.9 240.6 209.8 Total Delay (hr) 152.4 222.1 246.1 187.9 240.6 209.8 Total Stops 941 1666 1839 1391 1844 1537 Fuel Used (gal) 3928.1 4182.9 4215.6 4023.4 4194.3 4108.9 Interval #0 Information Seeding Start Time 4:45 1700 1700 1700 Start Time 5:00 15 15 15 15 15	Value Value <th< td=""><td>Interval 152.4 222.1 246.1 187.9 240.6 209.8 Total Delay (hr) 152.4 222.1 246.1 187.9 240.6 209.8 Total Delay (hr) 3928.1 4186.9 1391 1844 1537 Fuel Used (gal) 3928.1 4182.9 4215.6 4023.4 4194.3 4108.9 Interval #O Information Seeding Seeding Second Time Second</td><td>Total Delay (hr) 152.4 222.1 24 Total Stops 941 1666 14 Fuel Used (gal) 3928.1 4182.9 421 Interval #O Information Seeding Start Time 4:45 5:00 Total Time (min) 15 No data recorded this Interval. 15</td><td>246.1 187.9 1839 1391</td><td>187.9 1391</td><td>240.6</td><td></td><td></td></th<>	Interval 152.4 222.1 246.1 187.9 240.6 209.8 Total Delay (hr) 152.4 222.1 246.1 187.9 240.6 209.8 Total Delay (hr) 3928.1 4186.9 1391 1844 1537 Fuel Used (gal) 3928.1 4182.9 4215.6 4023.4 4194.3 4108.9 Interval #O Information Seeding Seeding Second Time Second	Total Delay (hr) 152.4 222.1 24 Total Stops 941 1666 14 Fuel Used (gal) 3928.1 4182.9 421 Interval #O Information Seeding Start Time 4:45 5:00 Total Time (min) 15 No data recorded this Interval. 15	246.1 187.9 1839 1391	187.9 1391	240.6		
Note Note <th< td=""><td>Val 1066 1839 1391 1844 1537 Ised (gal) 3928.1 4182.9 4215.6 4023.4 4194.3 4108.9 val #O Information Seeding 1</td><td>Name Substrate Section <th< td=""><td>Total Stops 941 1666 10 Fuel Used (gal) 3928.1 4182.9 421 Interval #0 Information Seeding 5 5 5 6 Start Time 4:45 5 500 7 7 Total Time (min) 15 15 15 15 16</td><td>1839 1391</td><td>1391</td><td></td><td></td><td></td></th<></td></th<>	Val 1066 1839 1391 1844 1537 Ised (gal) 3928.1 4182.9 4215.6 4023.4 4194.3 4108.9 val #O Information Seeding 1	Name Substrate Section Section <th< td=""><td>Total Stops 941 1666 10 Fuel Used (gal) 3928.1 4182.9 421 Interval #0 Information Seeding 5 5 5 6 Start Time 4:45 5 500 7 7 Total Time (min) 15 15 15 15 16</td><td>1839 1391</td><td>1391</td><td></td><td></td><td></td></th<>	Total Stops 941 1666 10 Fuel Used (gal) 3928.1 4182.9 421 Interval #0 Information Seeding 5 5 5 6 Start Time 4:45 5 500 7 7 Total Time (min) 15 15 15 15 16	1839 1391	1391			
Number State State <t< td=""><td>Jobps Jobs <thjobs< th=""> Jobs Jobs <th< td=""><td>Out Used (gal) 3928.1 4182.9 4215.6 4023.4 4194.3 4108.9 Interval #0 Information Seeding Start Time 4:45 </td><td>Fuel Used (gal) 3928.1 4182.9 421 Interval #0 Information Seeding 5100 5100 5100 Start Time 5:00 15 5100 No data recorded this interval. 5100 5100 5100</td><td></td><td></td><td></td><td></td><td></td></th<></thjobs<></td></t<>	Jobps Jobs Jobs <thjobs< th=""> Jobs Jobs <th< td=""><td>Out Used (gal) 3928.1 4182.9 4215.6 4023.4 4194.3 4108.9 Interval #0 Information Seeding Start Time 4:45 </td><td>Fuel Used (gal) 3928.1 4182.9 421 Interval #0 Information Seeding 5100 5100 5100 Start Time 5:00 15 5100 No data recorded this interval. 5100 5100 5100</td><td></td><td></td><td></td><td></td><td></td></th<></thjobs<>	Out Used (gal) 3928.1 4182.9 4215.6 4023.4 4194.3 4108.9 Interval #0 Information Seeding Start Time 4:45	Fuel Used (gal) 3928.1 4182.9 421 Interval #0 Information Seeding 5100 5100 5100 Start Time 5:00 15 5100 No data recorded this interval. 5100 5100 5100					
Interval #0 Information Seeding Start Time 4:45 End Time 5:00 Total Time (min) 15 No data recorded this interval. 15	val #0 Information Seeding Time 4:45 me 5:00 Time (min) 15 ta recorded this interval. val #1 Information Recording Time 5:00 Time 5:00 Time 5:00 Time 5:00 Time 5:00	Interval #0 Information Seeding Start Time 4:45 ind Time 5:00 Total Time (min) 15 No data recorded this interval. 15 Interval #1 Information Recording Start Time 5:00 ind Time 5:00 Interval #1 Information Recording Start Time 5:00 ind Time 6:00 Total Time (min) 60	Interval #0 Information Seeding Start Time 4:45 End Time 5:00 Total Time (min) 15 No data recorded this interval.	4215.6 4023.4	4023.4			
Start Time 4:45 End Time 5:00 Total Time (min) 15 No data recorded this interval. 15	Time 4:45 Ime 5:00 Time (min) 15 ta recorded this interval. 1 val #1 Information Recording 1 Time 5:00 Time 6:00	Start Time 4:45 ind Time 5:00 Total Time (min) 15 Ito data recorded this interval. Interval #1 Information Recording Start Time 5:00 ind Time 6:00 Total Time (min) 60	Start Time 4:45 End Time 5:00 Total Time (min) 15 No data recorded this interval.			4194.3	3 4108.9	
End Time 5:00 Total Time (min) 15 No data recorded this interval. 15	ime 5:00 Time (min) 15 ta recorded this Interval. Tval #1 Information Recording Time 5:00 ime 6:00	ind Time 5:00 Total Time (min) 15 to data recorded this interval. Interval #1 Information Recording Start Time 5:00 End Time 6:00 Total Time (min) 60	End Time 5:00 Total Time (min) 15 No data recorded this interval.					
End Time 5:00 Total Time (min) 15 No data recorded this interval. 15	ime 5:00 Time (min) 15 ta recorded this Interval. Tval #1 Information Recording Time 5:00 ime 6:00	ind Time 5:00 Total Time (min) 15 to data recorded this interval. Interval #1 Information Recording Start Time 5:00 End Time 6:00 Total Time (min) 60	End Time 5:00 Total Time (min) 15 No data recorded this interval.					
Total Time (min) 15 No data recorded this interval.	Time (min) 15 ta recorded this interval. 1 val #1 Information Recording 1 Time 5:00 ime 6:00	Time (min) 15 No data recorded this interval. 15 Interval #1 Information Recording Start Time 5:00 Ind Time 6:00 Total Time (min) 60	Total Time (min) 15 No data recorded this interval.					
No data recorded this interval.	a recorded this interval. val #1 Information Recording Time 5:00 Time 6:00	lo data recorded this interval. nterval #1 Information Recording Start Time 5:00 ind Time 6:00 Total Time (min) 60	No data recorded this interval.					
End Time 6:00		A STATE OF A	End Time 6:00					
Run Number 10 11 12 13 14 Avg	and the second	CUD NUMBER 10 11 12 13 13 19 19		12 13	13	. 14	4 Avg	one in the
Vehs Entered 3947 4061 4111 3996 4024 4028		/ehs Entered 3947 4061 4111 3996 4024 4028						
			Vehs Entered 3947 4061 4					
Old Hand Market 242 267 296 240 282 265	Exited 3805 3820 3829 3822 3830 3821		Vehs Entered 3947 4061 4' Vehs Exited 3805 3820 3'	286 249	249			
	Exited 3805 3820 3829 3822 3830 3821 g Vehs 243 267 286 249 282 265	Inding Vehs 385 508 568 423 476 472	Vehs Entered 3947 4061 4' Vehs Exited 3805 3820 3i Starting Vehs 243 267 25			476		
Ending Vens 385 508 568 423 476 472	Exited 3805 3820 3829 3822 3830 3821 g Vehs 243 267 286 249 282 265 g Vehs 385 508 568 423 476 472		Vehs Entered 3947 4061 4 Vehs Exited 3805 3820 3i Starting Vehs 243 267 3i Ending Vehs 385 508 3i	568 423	423		1 1	
Charling Vens 285 508 568 423 476 472 Denied Entry Before 0 3 1 1 1 1	Exited 3805 3820 3829 3822 3830 3821 g Vehs 243 267 286 249 282 265 g Vehs 385 508 568 423 476 472 d Entry Before 0 3 1 1 1 1		Vehs Entered 3947 4061 4 Vehs Exited 3805 3820 3i Starting Vehs 243 267 267 Ending Vehs 385 508 365	568 423 1 1	423 1			
Charling Vens 245 266 423 476 472 Ending Vens 385 508 568 423 476 472 Denied Entry Before 0 3 1 1 1 1 Denied Entry After 1 1 0 0 1 1	Exited 3805 3820 3829 3822 3830 3821 g Vehs 243 267 286 249 282 265 g Vehs 385 508 568 423 476 472 g Vehs 385 508 568 423 476 472 g Lentry Before 0 3 1 1 1 1 g Lentry After 1 0 0 1 1 1		Vehs Entered 3947 4061 4' Vehs Exited 3805 3820 3i Starting Vehs 243 267 3i Ending Vehs 385 508 3i Denied Entry Before 0 3 3i Denied Entry After 1 1 1	568 423 1 1 0 0	423 1 0	1		
Chaing Vens 385 508 568 423 476 472 Denied Entry Before 0 3 1 1 1 1 Denied Entry After 1 1 0 0 1 1 Travel Distance (mi) 11500 11773 11820 11641 11744 11696	Exited 3805 3820 3829 3822 3830 3821 ig Vehs 243 267 286 249 282 265 g Vehs 385 508 568 423 476 472 d Entry Before 0 3 1 1 1 1 d Entry After 1 1 0 0 1 1 Distance (mi) 11500 11773 11820 11641 11744 11696		Vehs Entered 3947 4061 4' Vehs Exited 3805 3820 3i Starting Vehs 243 267 3i Ending Vehs 385 508 3i Denied Entry Before 0 3 3i Denied Entry After 1 1 1	568 423 1 1 0 0 11820 11641	423 1 0 11641	1 11744	4 11696	
Chaing Vens 385 508 568 423 476 472 Denied Entry Before 0 3 1 1 1 1 Denied Entry After 1 1 0 0 1 1 Travel Distance (mi) 11500 11773 11820 11641 11744 11696 Travel Time (hr) 321.6 394.8 419.3 359.4 413.2 381.6	Exited 3805 3820 3829 3822 3830 3821 ig Vehs 243 267 286 249 282 265 g Vehs 385 508 568 423 476 472 d Entry Before 0 3 1 1 1 1 Distance (mi) 11500 11773 11820 11641 11744 11696 Time (hr) 321.6 394.8 419.3 359.4 413.2 381.6		Vehs Entered 3947 4061 4' Vehs Exited 3805 3820 3i Starting Vehs 243 267 3i Ending Vehs 385 508 3i Denied Entry Before 0 3 3i Denied Entry After 1 1 1 Travel Distance (mi) 11500 11773 111 Travel Time (hr) 321.6 394.8 41	568 423 1 1 0 0 11820 11641 419.3 359.4	423 1 0 11641 359.4	1 11744 413.2	4 11696 2 381.6	
Chaing Vens 385 508 568 423 476 472 Denied Entry Before 0 3 1 1 1 1 Denied Entry After 1 1 0 0 1 1 Travel Distance (mi) 11500 11773 11820 11641 11744 11696 Travel Time (hr) 321.6 394.8 419.3 359.4 413.2 381.6 Total Delay (hr) 152.4 222.1 246.1 187.9 240.6 209.8	Exited 3805 3820 3829 3822 3830 3821 ig Vehs 243 267 286 249 282 265 g Vehs 385 508 568 423 476 472 d Entry Before 0 3 1 1 1 1 d Entry After 1 0 0 1 1 Distance (mi) 11500 11773 11820 11641 11744 11696 Time (hr) 321.6 394.8 419.3 359.4 413.2 381.6 Delag (hr) 152.4 222.1 246.1 187.9 240.6 209.8		Vehs Entered 3947 4061 4 Vehs Exited 3805 3820 3i Starting Vehs 243 267 3i Ending Vehs 385 508 3i Denied Entry Before 0 3 3i Denied Entry After 1 1 1 Travel Distance (mi) 11500 11773 11i Travel Time (hr) 321.6 394.8 41 Total Delay (hr) 152.4 222.1 24	568 423 1 1 0 0 11820 11641 419.3 359.4 246.1 187.9	423 1 0 11641 359.4 187.9	1 11744 413.2 240.6	4 11696 2 381.6 6 209.8	
Starting Vents 240	Exited 3805 3820 3829 3822 3830 3821 ig Vehs 243 267 286 249 282 265 g Vehs 385 508 568 423 476 472 d Entry Before 0 3 1 1 1 1 d Entry After 1 1 0 0 1 1 Distance (mi) 11500 11773 11820 11641 11744 11696 Time (hr) 321.6 394.8 419.3 359.4 413.2 381.6 Delay (hr) 152.4 222.1 246.1 187.9 240.6 209.8 Stops 941 1666 1839 1391 1844 1537	Tuel Used (gal) 3928.1 4182.9 4215.6 4023.4 4194.3 4108.9	Vehs Entered 3947 4061 4 Vehs Exited 3805 3820 3i Starting Vehs 243 267 3i Ending Vehs 385 508 3i Denied Entry Before 0 3 3i Denied Entry After 1 1 1 Travel Distance (mi) 11500 11773 11i Travel Time (hr) 321.6 394.8 41 Total Delay (hr) 152.4 222.1 24 Total Stops 941 1666 11	568 423 1 1 0 0 11820 11641 419.3 359.4 246.1 187.9 1839 1391	423 1 0 11641 359.4 187.9 1391	1 11744 413.2 240.6 1844	4 11696 2 381.6 6 209.8 4 1537	
			Vehs Entered 3947 4061 4					
	Exited 3805 3820 3829 3822 3830 3821		Vehs Entered 3947 4061 4' Vehs Exited 3805 3820 3'	286 229	249			
	Exited 3805 3820 3829 3822 3830 3821 g Vehs 243 267 286 249 282 265		Vehs Entered 3947 4061 4' Vehs Exited 3805 3820 3i Starting Vehs 243 267 3i			476		
Ending Vens 385 508 568 423 476 472	Exited 3805 3820 3829 3822 3830 3821 g Vehs 243 267 286 249 282 265 g Vehs 385 508 568 423 476 472		Vehs Entered 3947 4061 4' Vehs Exited 3805 3820 3i Starting Vehs 243 267 3i				1 1	
Ending Vens 385 508 568 423 476 472 Denied Entry Before 0 3 1 1 1 1	Exited 3805 3820 3829 3822 3830 3821 g Vehs 243 267 286 249 282 265 g Vehs 385 508 568 423 476 472 d Entry Before 0 3 1 1 1 1		Vehs Entered 3947 4061 4 Vehs Exited 3805 3820 3i Starting Vehs 243 267 267 Ending Vehs 385 508 365	568 423	423	1		
Ending Vens 385 508 568 423 476 472 Denied Entry Before 0 3 1 1 1 1	Exited 3805 3820 3829 3822 3830 3821 g Vehs 243 267 286 249 282 265 g Vehs 385 508 568 423 476 472 g Lentry Before 0 3 1 1 1 1		Vehs Entered 3947 4061 4 Vehs Exited 3805 3820 3i Starting Vehs 243 267 267 Ending Vehs 385 508 3i Denied Entry Before 0 3 3i	568 423 1 1	423 1		1 1	
Charling Vens 245 266 423 476 472 Ending Vens 385 508 568 423 476 472 Denied Entry Before 0 3 1 1 1 1 Denied Entry After 1 1 0 0 1 1	Exited 3805 3820 3829 3822 3830 3821 g Vehs 243 267 286 249 282 265 g Vehs 385 508 568 423 476 472 g Vehs 385 508 568 423 476 472 g Lentry Before 0 3 1 1 1 1 g Lentry After 1 0 0 1 1 1		Vehs Entered 3947 4061 4 Vehs Exited 3805 3820 3i Starting Vehs 243 267 3i Ending Vehs 385 508 3i Denied Entry Before 0 3 3i Denied Entry After 1 1 1	568 423 1 1 0 0	423 1 0	1		
Chaing Vens 385 508 568 423 476 472 Denied Entry Before 0 3 1 1 1 1 Denied Entry After 1 1 0 0 1 1 Travel Distance (mi) 11500 11773 11820 11641 11744 11696	Exited 3805 3820 3829 3822 3830 3821 g Vehs 243 267 286 249 282 265 g Vehs 385 508 568 423 476 472 d Entry Before 0 3 1 1 1 1 d Entry After 1 1 0 0 1 1 Distance (mi) 11500 11773 11820 11641 11744 11696		Vehs Entered 3947 4061 4 Vehs Exited 3805 3820 3i Starting Vehs 243 267 3i Ending Vehs 385 508 3i Denied Entry Before 0 3 3i Denied Entry After 1 1 1 Travel Distance (mi) 11500 11773 11	568 423 1 1 0 0 11820 11641	423 1 0 11641	1 11744	4 11696	
Chaing Vens 240 200 <th< td=""><td>Exited 3805 3820 3829 3822 3830 3821 ig Vehs 243 267 286 249 282 265 g Vehs 385 508 568 423 476 472 d Entry Before 0 3 1 1 1 1 d Entry After 1 0 0 1 1 Distance (mi) 11500 11773 11820 11641 11744 11696 Time (hr) 321.6 394.8 419.3 359.4 413.2 381.6</td><td>Total Delay (hr) 152.4 222.1 246.1 187.9 240.6 209.8</td><td>Vehs Entered 3947 4061 4 Vehs Exited 3805 3820 3i Starting Vehs 243 267 3i Ending Vehs 385 508 3i Denied Entry Before 0 3 3i Denied Entry After 1 1 1 Travel Distance (mi) 11500 11773 11</td><td>568 423 1 1 0 0 11820 11641</td><td>423 1 0 11641</td><td>1 11744 413.2</td><td>4 11696 2 381.6</td><td></td></th<>	Exited 3805 3820 3829 3822 3830 3821 ig Vehs 243 267 286 249 282 265 g Vehs 385 508 568 423 476 472 d Entry Before 0 3 1 1 1 1 d Entry After 1 0 0 1 1 Distance (mi) 11500 11773 11820 11641 11744 11696 Time (hr) 321.6 394.8 419.3 359.4 413.2 381.6	Total Delay (hr) 152.4 222.1 246.1 187.9 240.6 209.8	Vehs Entered 3947 4061 4 Vehs Exited 3805 3820 3i Starting Vehs 243 267 3i Ending Vehs 385 508 3i Denied Entry Before 0 3 3i Denied Entry After 1 1 1 Travel Distance (mi) 11500 11773 11	568 423 1 1 0 0 11820 11641	423 1 0 11641	1 11744 413.2	4 11696 2 381.6	
Chaing Vens 385 508 568 423 476 472 Ending Vens 385 508 568 423 476 472 Denied Entry Before 0 3 1 1 1 1 Denied Entry After 1 1 0 0 1 1 Travel Distance (mi) 11500 11773 11820 11641 11744 11696 Travel Time (hr) 321.6 394.8 419.3 359.4 413.2 381.6	Exited 3805 3820 3829 3822 3830 3821 ig Vehs 243 267 286 249 282 265 g Vehs 385 508 568 423 476 472 d Entry Before 0 3 1 1 1 1 Distance (mi) 11500 11773 11820 11641 11744 11696 Time (hr) 321.6 394.8 419.3 359.4 413.2 381.6		Vehs Entered 3947 4061 4' Vehs Exited 3805 3820 3i Starting Vehs 243 267 3i Ending Vehs 385 508 3i Denied Entry Before 0 3 3i Denied Entry After 1 1 1 Travel Distance (mi) 11500 11773 111 Travel Time (hr) 321.6 394.8 41	568 423 1 1 0 0 11820 11641 419.3 359.4	423 1 0 11641 359.4	1 11744 413.2	4 11696 2 381.6	
Chaing Vens 385 508 568 423 476 472 Denied Entry Before 0 3 1 1 1 1 Denied Entry After 1 1 0 0 1 1 Travel Distance (mi) 11500 11773 11820 11641 11744 11696 Travel Time (hr) 321.6 394.8 419.3 359.4 413.2 381.6 Total Delay (hr) 152.4 222.1 246.1 187.9 240.6 209.8	Exited 3805 3820 3829 3822 3830 3821 ig Vehs 243 267 286 249 282 265 g Vehs 385 508 568 423 476 472 d Entry Before 0 3 1 1 1 1 d Entry After 1 1 0 0 1 1 Distance (mi) 11500 11773 11820 11641 11744 11696 Time (hr) 321.6 394.8 419.3 359.4 413.2 381.6 Delay (hr) 152.4 222.1 246.1 187.9 240.6 209.8		Vehs Entered 3947 4061 4 Vehs Exited 3805 3820 3i Starting Vehs 243 267 3i Ending Vehs 385 508 3i Denied Entry Before 0 3 3i Denied Entry After 1 1 1 Travel Distance (mi) 11500 11773 11i Travel Distance (mi) 321.6 394.8 41 Total Delay (hr) 152.4 222.1 24	568 423 1 1 0 0 11820 11641 419.3 359.4 246.1 187.9	423 1 0 11641 359.4 187.9	1 11744 413.2 240.6	4 11696 2 381.6 6 209.8	
Starting Vents 240	Exited 3805 3820 3829 3822 3830 3821 ig Vehs 243 267 286 249 282 265 g Vehs 385 508 568 423 476 472 d Entry Before 0 3 1 1 1 1 d Entry After 1 1 0 0 1 1 Distance (mi) 11500 11773 11820 11641 11744 11696 Time (hr) 321.6 394.8 419.3 359.4 413.2 381.6 Delay (hr) 152.4 222.1 246.1 187.9 240.6 209.8 Stops 941 1666 1839 1391 1844 1537	Fuel Used (gal) 3928.1 4182.9 4215.6 4023.4 4194.3 4108.9	Vehs Entered 3947 4061 4 Vehs Exited 3805 3820 3i Starting Vehs 243 267 3i Ending Vehs 385 508 3i Denied Entry Before 0 3 3i Denied Entry After 1 1 1 Travel Distance (mi) 11500 11773 11i Travel Time (hr) 321.6 394.8 41 Total Delay (hr) 152.4 222.1 24 Total Stops 941 1666 11	568 423 1 1 0 0 11820 11641 419.3 359.4 246.1 187.9 1839 1391	423 1 0 11641 359.4 187.9 1391	1 11744 413.2 240.6 1844	4 11696 2 381.6 6 209.8 4 1537	

12: I-4 C & Park				11/30/200
	Road On	Ramp	Perfor	nance by movement
Movement	EBT	WBT	All	
Total Delay (hr)	12.6	0.7	13.3	
Delay / Veh (s)	12.6	6.1	11.9	
Total Stops	63	0	63	
Travel Dist (mi)	1757.8	900.4	2658.2	
Travel Time (hr)	40.8	13.8	54.5	
Avg Speed (mph)	46	65	51	
Fuel Used (gal)	785.9		1075.8	
HC Emissions (g)	83	51	135	
CO Emissions (g)	66729	21216	87946	
NOx Emissions (g)	317	206	524	
Vehicles Entered	3620	409	4029	
Vehicles Exited	3615	409	4024 4024	
Hourly Exit Rate	3615	409		
Input Volume	3650	400	4050 99	
% of Volume	99	102 0	1	
Denied Entry Before Denied Entry After	1	0	1	
14: I-4 C & Cour	nty Line Of	ff Ram	p Perfo	rmance by movement
Movement	EBT	WBT	All	and the second state of the se
Total Delay (hr)	171.0	0.0	171.0	
Delay / Veh (s)	175.2	0.3	156.9	
Total Stops	1457	0	1457	
Travel Dist (mi)	7863.4		7960.7	
Travel Time (hr)	284.6	1.5	286.1	
Avg Speed (mph)	28	66	28	
Fuel Used (gal)	2489.1	36.8		
HC Emissions (g)	152	7	159	
CO Emissions (g)	113360	3648	117008	
NOx Emissions (g)	778	23	801	
Vehicles Entered	3615	408	4023	
Vehicles Exited	3414	409	3823	
Hourly Exit Rate	3414	409	3823	
Input Volume	3650	400	4050	
% of Volume	94	102	94	
Denied Entry Before	0	0	0	
Denied Entry After	0	0	0	
				SimTraffic Repo

I-4 Contraflow Evaluati Baseline	on	Two Contraflow Lane 11/30/20
Total Network Perform	ance	
A REPORT OF A R		
Total Delay (hr) Delay / Veh (s) Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume Ø of Volume Denied Entry Before Denied Entry After	209.8 192.5 1537 11695.6 381.6 31 4108.9 330 227476 1499 4028 3821 3821 12150 31 1 1 1	
		Sim Traffia Da
JSC		SimTraffic Rep Pag

Baseline							11/30/2
Arterial Level of Service:	EB I-4 C						
		Delay	Travel	Dist	Arterial	Run 10 Speed	Run De
Cross Street Park Road On Ramp	Node 12	(s/veh) 12.6	time (s) 40.6	(mi) 0.5	Speed 47	48	1
County Line Off Ramp	14	175.2	291.6	2.2	27	34	11
Total		187.7	332.1	2.7	29	36	13
Arterial Level of Service:	EB I-4 C						
	Run 11	Run 11	Run 12	Run 12	Run 13	Run 13	Run
Cross Street	Speed	Delay	Speed	Delay	Speed	Delay 10.7	Spe
Park Road On Ramp County Line Off Ramp	46 26	12.7 185.1	45 24	14.4 208.6	49 29	10.7 156.6	
Total	28	197.9	27	223.0	31	167.4	
Arterial Level of Service:	WB I-4 C						
		Delay	Travel	Dist	Arterial	Run 10	Run
Cross Street	Node	(s/veh)	time (s)	(mi)	Speed	Speed	De
County Line Off Ramp	14 12	0.3 6.1	13.2 121.2	0.2 2.2	69 65	69 66	. (
Park Road On Ramp Total	12	6.5	134.4	2.4	66	66	-
County Line Off Ramp Park Road On Ramp Total	70 66 67	0.3 <u>5.8</u> 6.1	70 66 66	0.3 <u>5.6</u> 6.0	68 <u>64</u> 64	0.4 7.0 7.3	

I-4 Contraflow Eva Baseline	luation					Two Con	traflow Lane 11/30/20
Intersection: 12: I-4	1 C & Pa	ark Roa	d On Ramp				
Movement				State and St	過過這個自己的影響	1 deterter al	
Directions Served Maximum Queue (ft) Average Queue (ft) 95th Queue (ft)	T 2059 137 1091 2561	T 2056 86 847 2561					
Link Distance (ft) Upstream Blk Time (%) Queuing Penalty (veh) Storage Bay Dist (ft) Storage Blk Time (%) Queuing Penalty (veh)	0	0					
Intersection: 14: I-4	4 C & C	ounty L	ine Off Ramp				
Movement Directions Served	EB T	EB T		Sec. Acer	E. C. A.		
Maximum Queue (ft) Average Queue (ft) 95th Queue (ft) Link Distance (ft) Upstream Bik Time (%) Queuing Penalty (veh) Storage Bay Dist (ft) Storage Bik Time (%)	276 59 165	511 119 318 11536					
Queuing Penalty (veh) Network Summary Network wide Queuing Pen							
							SimTraffic Repo

Summary of All In Run Number Start Time End Time Total Time (min) Time Recorded (min) # of Intervals # of Recorded Intvls Vehs Entered	10 4:45 6:00	11								
Start Time End Time Total Time (min) Time Recorded (min) # of Intervals # of Recorded Intvls	4:45 6:00	Run Number 10 11 12 13 14 Avg								
End Time Total Time (min) Time Recorded (min) # of Intervals # of Recorded Intvls	6:00			and the second se						
Total Time (min) Time Recorded (min) # of Intervals # of Recorded Intvis		4:45	4:45	4:45	4:45	4:45 6:00				
Time Recorded (min) # of Intervals # of Recorded Intvls		6:00	6:00 75	6:00 75	6:00 75	75				
# of Intervals # of Recorded Intvls	75 60	75 60	60	60	60	60				
# of Recorded Intvls	2	2	2	2	2	2				
	1	1	1	ĩ	1	1				
	3995	4114	4151	4030	4090	4076				
Vehs Exited	3812	3832	3816	3840	3831	3826				
Starting Vehs	247	279	302	268	292	278				
Ending Vehs	430	561	637	458	551	528				
Denied Entry Before	1	0	1	0	1	1				
Denied Entry After	0	2	0	5	2	2				
Travel Distance (mi)	11597	11873	11853	11705	11841	11774				
Travel Time (hr)	345.3	423.3	466.3	386.7	458.0	415.9				
Total Delay (hr)	174.7	249.5	292.4	214.3	284.2	243.0				
Total Stops	1272	1627	2608	1909	2248	1933				
Fuel Used (gal)	3985.1	4235.5	4290.4	4097.4	4277.1	4177.1				
Interval #0 Information	ation Seedin	ig								
Start Time	4:45									
End Time	5:00									
Interval #1 Informa Start Time End Time Total Time (min)	ation Record 5:00 6:00 60	ling								
Start Time End Time	5:00 6:00	ding	12	13	. 14					
Start Time End Time Total Time (min)	5:00 6:00 60	<u>11</u> 4114	4151	4030	4090	4076				
Start Time End Time Total Time (min) Run Number	5:00 6:00 60 10 3995 3812	<u>11</u> 4114 3832	4151 3816	4030 3840	4090 3831	4076 3826				
Start Time End Time Total Time (min) Run Number Vehs Entered Vehs Exited Starting Vehs	5:00 6:00 60 10 3995 3812 247	11 4114 3832 279	4151 3816 302	4030 3840 268	4090 3831 292	4076 3826 278				
Start Time End Time Total Time (min) Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs	5:00 6:00 60 10 3995 3812 247 430	11 4114 3832 279 561	4151 3816 302 637	4030 3840 268 458	4090 3831 292 551	4076 3826 278 528				
Start Time End Time Total Time (min) <u>Run Number</u> Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before	5:00 6:00 60 <u>10</u> 3995 3812 247 430 1	11 4114 3832 279 561 0	4151 3816 302 637 1	4030 3840 268 458 0	4090 3831 292 551 1	4076 3826 278 528 1				
Start Time End Time Total Time (min) <u>Run Number</u> Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After	5:00 6:00 60 <u>10</u> 3995 3812 247 430 1 0	11 4114 3832 279 561 0 2	4151 3816 302 637 1 0	4030 3840 268 458 0 5	4090 3831 292 551 1 2	4076 3826 278 528 1 2				
Start Time End Time Total Time (min) <u>Run Number</u> Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi)	5:00 6:00 60 <u>10</u> 3995 3812 247 430 1 0 11597	11 4114 3832 279 561 0 2 11873	4151 3816 302 637 1 0 11853	4030 3840 268 458 0 5 11705	4090 3831 292 551 1 2 11841	4076 3826 278 528 1 2 11774				
Start Time End Time Total Time (min) <u>Run Number</u> Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr)	5:00 6:00 60 <u>10</u> 3995 3812 247 430 1 0 11597 345.3	11 4114 3832 279 561 0 2 11873 423.3	4151 3816 302 637 1 0 11853 466.3	4030 3840 268 458 0 5 11705 386.7	4090 3831 292 551 1 2 11841 458.0	4076 3826 278 528 1 2 11774 415.9				
Start Time End Time Total Time (min) <u>Run Number</u> Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Distance (hr) Total Delay (hr)	5:00 6:00 60 10 3995 3812 247 430 1 430 1 1597 345.3 174.7	11 4114 3832 279 561 0 2 11873 423.3 249.5	4151 3816 302 637 1 0 11853 466.3 292.4	4030 3840 268 458 0 5 11705 386.7 214.3	4090 3831 292 551 1 2 11841 458.0 284.2	4076 3826 278 528 1 2 11774 415.9 243.0				
Start Time End Time Total Time (min) <u>Run Number</u> Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr)	5:00 6:00 60 <u>10</u> 3995 3812 247 430 1 0 11597 345.3	11 4114 3832 279 561 0 2 11873 423.3	4151 3816 302 637 1 0 11853 466.3	4030 3840 268 458 0 5 11705 386.7	4090 3831 292 551 1 2 11841 458.0	4076 3826 278 528 1 2 11774 415.9				

12: 1-4 C & Park Road On Ramp Performance by movement Movement EBT WBT All Total Delay (hr) 14.0 0.7 14.7 Delay / Veh (s) 13.8 6.1 13.0 Total Stops 75 0 75 Travel Dist (mi) 1780.9 899.3 2680.1 Travel Time (hr) 42.4 13.8 56.2 Avg Speed (mph) 45 65 50 Fuel Used (gal) 794.0 289.4 1063.4 HC Emissions (g) 82 51 134 CO Emissions (g) 82 51 134 CO Emissions (g) 319 206 526 Vehicles Entered 3664 408 4072 Hourly Exit Rate 3664 408 4072 Input Volume 3700 400 4100 % of Volume 99 102 99 Denied Entry After 2 0 2 14: 1-4 C & County Line Off Ramp Performance by movement 164 </th
Total Delay (hr) 14.0 0.7 14.7 Delay / Veh (s) 13.8 6.1 13.0 Total Stops 75 0 75 Travel Dist (m) 1780.9 899.3 2680.1 Travel Time (hr) 42.4 13.8 56.2 Avg Speed (mph) 45 65 50 Fuel Used (gal) 794.0 289.4 1083.4 HC Emissions (g) 82 51 134 CO Emissions (g) 82 51 134 CO Emissions (g) 319 206 526 Vehicles Entered 3669 408 4072 Input Volume 3700 400 4100 % of Volume 99 102 99 Denied Entry Before 1 0 1 Denied Entry After 2 0 2 14: I-4 C & County Line Off Ramp Performance by movement 1 Movement EBT WBT All Total Delay (hr) 202.2 0.0 <
Delay / Veh (s) 13.8 6.1 13.0 Total Stops 75 0 75 Travel Dist (mi) 1780.9 899.3 2680.1 Travel Time (hr) 42.4 13.8 56.2 Avg Speed (mph) 45 65 50 Fuel Used (gal) 794.0 289.4 1083.4 HC Emissions (g) 82 51 134 CO Emissions (g) 65594 21191 86786 NOx Emissions (g) 319 206 526 Vehicles Entered 3664 408 4072 Hourly Exit Rate 3664 408 4072 Hourly Exit Rate 3664 408 4072 Input Volume 3700 400 4100 % of Volume 99 102 99 Denied Entry After 2 0 2 14: 1-4 C & County Line Off Ramp Performance by movement 10 1 Movement EBT WBT< All All Total Delay (hr) 2
Total Stops 75 0 75 Travel Dist (mi) 1780.9 899.3 2680.1 Travel Time (hr) 42.4 13.8 56.2 Avg Speed (mph) 45 65 50 Fuel Used (gal) 794.0 289.4 1083.4 HC Emissions (g) 82 51 134 CO Emissions (g) 65594 21191 86786 NOx Emissions (g) 65594 21191 86786 NOx Emissions (g) 66594 408 4072 Vehicles Exited 3664 408 4072 Hourly Exit Rate 3664 408 4072 Input Volume 3700 400 4100 % of Volume 99 102 99 Denied Entry After 2 0 2 14: 1-4 C & County Line Off Ramp Performance by movement 10 1 Movement EBT WBT< All 10 Total Delay (hr) 202.2 0.0 202.3 Delay / Veh (s) 205.8 0.3 184.6 Total Stops 1842
Travel Dist (mi) 1780.9 899.3 2680.1 Travel Time (hr) 42.4 13.8 56.2 Avg Speed (mph) 45 65 50 Fuel Used (gal) 794.0 289.4 1083.4 HC Emissions (g) 65594 21191 86786 NOx Emissions (g) 65594 21191 86786 NOx Emissions (g) 319 206 526 Vehicles Entered 3664 408 4072 Input Volume 3700 400 4100 % of Volume 99 102 99 Denied Entry Before 1 0 1 Denied Entry After 2 0 2 14: I-4 C & County Line Off Ramp Performance by movement
$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$
Avg Speed (mph) 45 65 50 Fuel Used (gal) 794.0 289.4 1083.4 HC Emissions (g) 82 51 134 CO Emissions (g) 65594 21191 86786 NOx Emissions (g) 319 206 526 Vehicles Entered 3669 408 4077 Vehicles Exited 3664 408 4072 Hourly Exit Rate 3064 400 4100 % of Volume 99 102 99 Denied Entry After 2 0 2 14: 1-4 C & County Line Off Ramp Performance by movement Movement EBT MBT Movement
No processions 794.0 289.4 1083.4 HC Emissions (g) 82 51 134 CO Emissions (g) 65594 21191 86786 NOx Emissions (g) 319 206 526 Vehicles Entered 3669 408 4072 Hourly Exit Rate 3664 408 4072 Input Volume 99 102 99 Denied Entry Before 1 0 1 Denied Entry After 2 0 2 14: I-4 C & County Line Off Ramp Performance by movement 10 1 Movement EBT WBT< All
HC Emissions (g) 82 51 134 CO Emissions (g) 65594 21191 86786 NOx Emissions (g) 319 206 526 Vehicles Entered 3669 408 4072 Hourly Exit Rate 3664 408 4072 Input Volume 3700 400 4100 % of Volume 99 102 99 Denied Entry Before 1 0 1 Denied Entry After 2 0 2 14: I-4 C & County Line Off Ramp Performance by movement
CO Emissions (g) 65594 21191 86786 NOx Emissions (g) 319 206 526 Vehicles Entered 3669 408 4077 Vehicles Exited 3664 408 4072 Input Volume 3700 400 4100 % of Volume 99 102 99 Denied Entry Before 1 0 1 Denied Entry After 2 0 2 14: I-4 C & County Line Off Ramp Performance by movement
$\begin{array}{llllllllllllllllllllllllllllllllllll$
Vehicles Entered 3669 408 4077 Vehicles Exited 3664 408 4072 Hourly Exit Rate 3664 408 4072 Input Volume 3700 400 4100 % of Volume 99 102 99 Denied Entry Before 1 0 1 Denied Entry After 2 0 2 14: I-4 C & County Line Off Ramp Performance by movement Movement EBT WBT All Total Delay (hr) 202.2 0.0 202.3 Delay / Veh (s) 205.8 0.3 184.6 Total Stops 1842 0 1842 1842 17avel Dist (mi) 7920.0 97.1 8017.1 Travel Dist (mi) 7920.0 97.1 8017.1 15 318.2 Avg Speed (mph) 25 66 25 Fuel Used (gal) 2555.2 36.8 2591.9 45 45
Vehicles Exited 3664 408 4072 Hourly Exit Rate 3664 408 4072 Input Volume 3700 400 4100 % of Volume 99 102 99 Denied Entry Before 1 0 1 Denied Entry After 2 0 2 14: I-4 C & County Line Off Ramp Performance by movement Movement EBT WBT All Total Delay (hr) 202.2 0.0 202.3 2 2 2 2 3 2 3 3 3 46. 3 3 184.6 3 3 184.6 3<
Hourly Exit Rate 3664 408 4072 Input Volume 3700 400 4100 % of Volume 99 102 99 Denied Entry Before 1 0 1 Denied Entry After 2 0 2 14: I-4 C & County Line Off Ramp Performance by movement
Input Volume 3700 400 4100 % of Volume 99 102 99 Denied Entry Before 1 0 1 Denied Entry After 2 0 2 14: I-4 C & County Line Off Ramp Performance by movement
% of Volume 99 102 99 Denied Entry Before 1 0 1 Denied Entry After 2 0 2 14: I-4 C & County Line Off Ramp Performance by movement
Denied Entry Before 1 0 1 Denied Entry After 2 0 2 14: I-4 C & County Line Off Ramp Performance by movement Movement EBT WBT All Total Delay (hr) 202.2 0.0 202.3 Delay / Veh (s) 205.8 0.3 184.6 Total Stops 1842 0 1842 Travel Dist (mi) 792.0.0 97.1 8017.1 Travel Dist (mi) 792.0.0 97.1 818.2 Avg Speed (mph) 25 66 25 Fuel Used (gal) 2555.2 36.8 2591.9
Denied Entry After 2 0 2 14: I-4 C & County Line Off Ramp Performance by movement Movement EBT WBT All Movement EBT WBT All Movement EBT WBT All Total Delay (hr) 202.2 0.0 202.3 Delay / Veh (s) 205.8 0.3 184.6 Total Stops 1842 0 1842 Travel Dist (mi) 7920.0 97.1 8017.1 Travel Time (hr) 316.7 1.5 318.2 Avg Speed (mph) 25 66 25 Fuel Used (gal) 2555.2 36.8 2591.9 9 14
14: I-4 C & County Line Off Ramp Performance by movement Movement EBT WBT All Total Delay (hr) 202.2 0.0 202.3 Delay / Veh (s) 205.8 0.3 184.6 Total Stops 1842 0 1842 Travel Dist (mi) 7920.0 97.1 8017.1 Travel Time (hr) 316.7 1.5 318.2 Avg Speed (mph) 25 66 25 Fuel Used (gal) 2555.2 36.8 2591.9
Total Delay (hr) 202.2 0.0 202.3 Delay / Veh (s) 205.8 0.3 184.6 Total Stops 1842 0 1842 Travel Dist (mi) 7920.0 97.1 8017.1 Travel Time (hr) 316.7 1.5 318.2 Avg Speed (mph) 25 66 25 Fuel Used (gal) 2555.2 36.8 2591.9
Delay / Veh (s) 205.8 0.3 184.6 Total Stops 1842 0 1842 Travel Dist (mi) 7920.0 97.1 8017.1 Travel Time (hr) 316.7 1.5 318.2 Avg Speed (mph) 25 66 25 Fuel Used (gal) 2555.2 36.8 2591.9
Total Stops 1842 0 1842 Travel Dist (mi) 7920.0 97.1 8017.1 Travel Time (hr) 316.7 1.5 318.2 Avg Speed (mph) 25 66 25 Fuel Used (gal) 2555.2 36.8 2591.9
Travel Dist (mi) 7920.0 97.1 8017.1 Travel Time (hr) 316.7 1.5 318.2 Avg Speed (mph) 25 66 25 Fuel Used (gal) 2555.2 36.8 2591.9
Travel Time (hr) 316.7 1.5 318.2 Avg Speed (mph) 25 66 25 Fuel Used (gal) 2555.2 36.8 2591.9
Avg Speed (mph) 25 66 25 Fuel Used (gal) 2555.2 36.8 2591.9
Fuel Used (gal) 2555.2 36.8 2591.9
HC Emissions (g) 141 7 148
CO Emissions (g) 106373 3639 110012
NOx Emissions (g) 742 23 764
Vehicles Entered 3664 407 4071
Vehicles Exited 3412 408 3820
Hourly Exit Rate 3412 408 3820
Input Volume 3700 400 4100
% of Volume 92 102 93
Denied Entry Before 0 0 0
Denied Entry After 0 0 0

I-4 Contraflow Evaluat Baseline	on	Two Contraflow Lane 11/30/200		
Total Network Perform	ance			
	243.0		Sil	
Total Delay (hr) Delay / Veh (s) Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before Denied Entry After	221.4 1933 11773.7 415.9 28 4177.1 317 218700 1459 4076 3826 3826 12300 31 1 2			
JSC		SimTraffic	Repo	

Baseline Arterial Level of Service: E	B I-4 C						
		Delay	Travel	Dist	Arterial	Run 10	Rur
Cross Street Park Road On Ramp	Node 12	(s/veh) 13.8	time (s) 41.7	(mi) 0.5	Speed 46	Speed 47	De
County Line Off Ramp	14	205.8	322.2	2.2	25 27	<u>31</u> 33	13
Total Arterial Level of Service: E	PLAC	219.5	363.9	2.1	21	55	15
Alterial Level of Service.	Run 11	Run 11	Run 12	Run 12	Run 13	Run 13	Run
Cross Street	Speed	Delay	Speed	Delay	Speed	Delay	Spi
Park Road On Ramp County Line Off Ramp	44 24	14.8 209.4	45 21	14.8 252.5	47 27	12.8 180.2	
Total	26	224.1	24	267.3	29	192.9	
Arterial Level of Service: V	VB I-4 C						
	Node	Delay	Travel time (s)	Dist (mi)	Arterial Speed	Run 10 Speed	Run De
Cross Street County Line Off Ramp	14	(s/veh) 0.3	13.2	0.2	69	69	
Park Road On Ramp Total	12	6.1	121.4 134.6	2.2	65 66	65 66	
County Line Off Ramp Park Road On Ramp Total	70 66 67	0.3 5.8 6.2	69 66 66	0.3 5.6 6.0	68 64 64	0.4 7.0 7.4	
					20010 - 10 10 0	SimTra	affic Rep Pag

I-4 Contraflow Eva Baseline	aluation		Two Contraflow Lan 11/30/2
Intersection: 12: I-	4 C & Pa	ark Ro	On Ramp
Movement	EB	EB	
Directions Served	Т	Т	
Maximum Queue (ft)	2059	1028	
Average Queue (ft)	86	34	
95th Queue (ft) Link Distance (ft)	848 2561	520 2561	
Upstream Blk Time (%)	0	0	
Queuing Penalty (veh)	0	0	
Storage Bay Dist (ft)			
Storage Blk Time (%) Queuing Penalty (veh)			
			011 D
Intersection: 14: I-	and the second state	-	Off Ramp
Movement Directions Served	EB	EB	
Maximum Queue (ft)	386	580	
Average Queue (ft)	77	136	
95th Queue (ft)	230	376	
Link Distance (ft)	11536	11536	
Upstream Blk Time (%) Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			
Network Summary			
Network wide Queuing Pen			
			SimTraffic Rep Page

Baseline	luation				Alt D - Three Contraflow Lane Simulation #1 11/30/20				
Summary of All Int	ervals								
Run Number	10	. 11	12	13	14	Avg			
Start Time	4:45	4:45	4:45	4:45	4:45	4:45			
End Time	6:00	6:00	6:00	6:00	6:00	6:00			
Total Time (min)	75	75	75	75	75	75			
Time Recorded (min)	60	60	60	60	60	60			
# of Intervals	2	2	2	2	2	2			
# of Recorded Intvis	1	1	1	1	1	1			
Vehs Entered	5215	5245	5129	5192	5221	5200			
Vehs Exited	4947	4953	4921	4946	4938	4941			
Starting Vehs	310	358	344	358	348	343			
Ending Vehs	578	650	552	604	631	603			
Denied Entry Before	0	0	3	1	0	1			
Denied Entry After	0	3	4	0	0	1			
Travel Distance (mi)	15163	15262	15035	15124	15273	15171			
Travel Time (hr)	464.1	531.6	407.8	476.2	518.8	479.7			
Total Delay (hr)	239.9	306.0	185.0	252.4	292.4	255.1			
Total Stops	2666	3157	1725	2467	3445	2693			
Fuel Used (gal)	5417.4	5563.0	5250.8	5413.1	5531.3	5435.1			
Interval #0 Informa	tion Soudin	a							
		y							
		0							
Start Time	4:45	0							
Start Time End Time Total Time (min) Volumes adjusted by Growi No data recorded this interv	4:45 5:00 15 th Factors. <i>r</i> al.	-							
Start Time End Time Total Time (min) Volumes adjusted by Growi	4:45 5:00 15 th Factors. <i>r</i> al.	-							
Start Time End Time Total Time (min) Volumes adjusted by Grow/ No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow/	4:45 5:00 15 th Factors. ral. tion Record 5:00 6:00 60 th Factors.	ling							
Start Time End Time Total Time (min) Volumes adjusted by Grow No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number	4:45 5:00 15 th Factors. ral. tion Record 5:00 6:00 60 th Factors. 10	ling	12	13	14	Avg 5200			
Start Time End Time Total Time (min) Volumes adjusted by Grow No data recorded this interval Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered	4:45 5:00 15 th Factors. ral. tion Record 5:00 6:00 6:00 60 th Factors. 10 5215	ling 11 5245	5129	5192	5221	5200			
Start Time End Time Total Time (min) Volumes adjusted by Grown No data recorded this interval Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grown Run Number Vehs Entered Vehs Exited	4:45 5:00 15 th Factors. ral. tion Record 5:00 6:00 6:00 60 th Factors. 10 5215 4947	ling 11 5245 4953	5129 4921	5192 4946	5221 4938	5200 4941			
Start Time End Time Total Time (min) Volumes adjusted by Grown No data recorded this interval Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grown Run Number Vehs Entered Vehs Exited Starting Vehs	4:45 5:00 15 th Factors. ral. tion Record 5:00 60 60 th Factors. 10 5215 4947 310	11 5245 4953 358	5129 4921 344	5192 4946 358	5221 4938 348	5200 4941 343			
Start Time End Time Total Time (min) Volumes adjusted by Grow No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs	4:45 5:00 15 th Factors. ral. tion Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00 5:215 4947 3:10 5:78	11 5245 4953 358 650	5129 4921 344 552	5192 4946 358 604	5221 4938 348 631	5200 4941 343 603			
Start Time End Time Total Time (min) Volumes adjusted by Grow No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before	4:45 5:00 15 th Factors. ral. tion Record 5:00 6:00 6:00 60 th Factors. 10 5215 4947 310 578 0	11 5245 4953 358 650 0	5129 4921 344 552 3	5192 4946 358 604 1	5221 4938 348 631 0	5200 4941 343 603 1			
Start Time End Time Total Time (min) Volumes adjusted by Grow No data recorded this interval Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After	4:45 5:00 15 th Factors. ral. tion Record 5:00 6:00 60 th Factors. 10 5215 4947 310 578 0 0	ling 5245 4953 358 650 0 3	5129 4921 344 552 3 4	5192 4946 358 604 1 0	5221 4938 348 631 0 0	5200 4941 343 603 1 1			
Start Time End Time Total Time (min) Volumes adjusted by Grow No data recorded this interval Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi)	4:45 5:00 15 th Factors. ral. tion Record 5:00 6:00 5:15 10 0 5:15 10 0 5:15 10 0 5:15 10 0 10 5:15 10 0 10 5:15 10 0 10 10 10 10 10 10 10 10	ling 5245 4953 358 650 0 3 15262	5129 4921 344 552 3 4 15035	5192 4946 358 604 1 0 15124	5221 4938 348 631 0 0 15273	5200 4941 343 603 1 1 15171			
Start Time End Time Total Time (min) Volumes adjusted by Grow No data recorded this interval Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr)	4:45 5:00 15 th Factors. ral. tion Record 5:00 6:00	ling 5245 4953 358 650 0 3 15262 531.6	5129 4921 344 552 3 4 15035 407.8	5192 4946 358 604 1 0 15124 476.2	5221 4938 348 631 0 0 15273 518.8	5200 4941 343 603 1 1 15171 479.7			
Start Time End Time Total Time (min) Volumes adjusted by Grow No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr)	4:45 5:00 15 th Factors. ral. tion Record 5:00 6:00	11 5245 4953 338 650 0 3 15262 531.6 306.0	5129 4921 344 552 3 4 15035 407.8 185.0	5192 4946 358 604 1 0 15124 476.2 252.4	5221 4938 348 631 0 0 15273 518.8 292.4	5200 4941 343 603 1 15171 479.7 255.1			
Start Time End Time Total Time (min) Volumes adjusted by Grow No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Distance (mi) Travel Time (hr) Total Delay (hr) Total Stops	$\begin{array}{r} 4:45\\ 5:00\\ 15\\ 15\\ 15\\ 16\\ 15\\ 10\\ 15\\ 10\\ 6:00\\ 60\\ 60\\ 60\\ 60\\ 60\\ 10\\ 5215\\ 4947\\ 310\\ 578\\ 0\\ 0\\ 15163\\ 464.1\\ 239.9\\ 2666\\ \end{array}$	ling 11 5245 4953 358 650 0 3 15262 531.6 306.0 3157	5129 4921 344 552 3 4 15035 407.8 185.0 1725	5192 4946 358 604 1 0 15124 476.2 252.4 2467	5221 4938 348 631 0 0 15273 518.8 292.4 3445	5200 4941 343 603 1 15171 479.7 255.1 2693			
Start Time End Time Total Time (min) Volumes adjusted by Grow No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr)	4:45 5:00 15 th Factors. ral. tion Record 5:00 6:00	11 5245 4953 338 650 0 3 15262 531.6 306.0	5129 4921 344 552 3 4 15035 407.8 185.0	5192 4946 358 604 1 0 15124 476.2 252.4	5221 4938 348 631 0 0 15273 518.8 292.4	5200 4941 343 603 1 15171 479.7 255.1			
Start Time End Time Total Time (min) Volumes adjusted by Grow No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Distance (mi) Travel Time (hr) Total Delay (hr) Total Stops	$\begin{array}{r} 4:45\\ 5:00\\ 15\\ 15\\ 15\\ 16\\ 15\\ 10\\ 15\\ 10\\ 6:00\\ 60\\ 60\\ 60\\ 60\\ 60\\ 10\\ 5215\\ 4947\\ 310\\ 578\\ 0\\ 0\\ 15163\\ 464.1\\ 239.9\\ 2666\\ \end{array}$	ling 11 5245 4953 358 650 0 3 15262 531.6 306.0 3157	5129 4921 344 552 3 4 15035 407.8 185.0 1725	5192 4946 358 604 1 0 15124 476.2 252.4 2467	5221 4938 348 631 0 0 15273 518.8 292.4 3445	5200 4941 343 603 1 15171 479.7 255.1 2693			

I-4 Contraflow Ev Baseline	aluation		Three Contraflow Lan 11/30/2
And show of the state of the st	d On Rar	mp Perfor	mance by movement
Movement	ÉBT	All	
Total Delay (hr)	14.1	14.1	
Delay / Veh (s)	9.7	9.7	
Total Stops	78	78	
Travel Dist (mi)	2535.0		
Travel Time (hr)	56.1 47	56.1 47	
Avg Speed (mph)		1131.2	
Fuel Used (gal) HC Emissions (g)	123	123	
CO Emissions (g)	99295	99295	
NOx Emissions (g)	458	458	
Vehicles Entered	5200	5200	
Vehicles Exited	5192	5192	
Hourly Exit Rate	5192	5192	
Input Volume	5200	5200	
% of Volume	100	100	
Denied Entry Before	1	1	
Denied Entry After	1	1	
Delay / Veh (s) Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate	380.2 30 3588.1 247	247 187345 1167 5192 4948	
Input Volume % of Volume Denied Entry Before Denied Entry After	5200 95 0 0	0	
			SimTraffic Re

Total Network Performance Total Delay (hr) 255.1 Delay (Veh (s) 181.1 Total Stops 2693 Travel Dist (mi) 15171.3 Travel Time (hr) 479.7 Avg Speed (mph) 32 Fuel Used (gal) 5435.1 HC Emissions (g) 426 CO Emissions (g) 326185 NOx Emissions (g) 1898 Vehicles Entered 5200 Vehicles Exited 4941 Hourly Exit Rate 4941	I-4 Contraflow Evaluation Baseline		Three Contraflow Lanes 11/30/200		
Delay / Veh (s) 181.1 Total Stops 2693 Travel Dist (mi) 15171.3 Travel Time (hr) 479.7 Avg Speed (mph) 32 Fuel Used (gal) 5435.1 HC Emissions (g) 426 CO Emissions (g) 326185 NOx Emissions (g) 1898 Vehicles Entered 5200 Vehicles Exited 4941 Hourly Exit Rate 4941 Input Volume 15600 % of Volume 32 Denied Entry Before 1	August and a second	се			
Delay / Veh (s) 181.1 Total Stops 2693 Travel Dist (mi) 15171.3 Travel Time (hr) 479.7 Avg Speed (mph) 32 Fuel Used (gal) 5435.1 HC Emissions (g) 426 CO Emissions (g) 326185 NOx Emissions (g) 1898 Vehicles Entered 5200 Vehicles Exited 4941 Hourly Exit Rate 4941 Input Volume 15600 % of Volume 32 Denied Entry Before 1					
	Input Volume % of Volume Denied Entry Before	181.1 2693 15171.3 479.7 32 5435.1 426 326185 1898 5200 4941 4941 15600 32 1			

JSC

Baseline						Contraflo	11/30/200
Arterial Level of Service: EB I	-4 F						
Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed	Run 10 Speed	Run 1 Dela
Park Rd On Ramp Cty Line Off Ramp	4	9.7 153.6	38.9	0.5	48	49	9.
Total	0	163.3	270.0 308.8	2.2	29 32	<u>30</u> 33	143.
Arterial Level of Service: EB I-	-4 F						
cross Street	Run 11	Run 11	Run 12	Run 12	Run 13	Run 13	Run 1
ark Rd On Ramp	Speed 48	Delay 10.6	Speed 49	Delay 8.5	Speed 48	Delay 10.2	Spee 4
ty Line Off Ramp	26	188.0	35	106.6	30	151.2	2
otal	28	198.6	37	115.1	32	161.4	2

SimTraffic Port

I-4 Contraflow Eva Baseline	aluation				Thre	e Contraflow Lane 11/30/20
Intersection: 4: I-4	F & Par	k Rd (On Ramp			
Movement	EB	EB		and the second		
Directions Served	Т	T				
Maximum Queue (ft)	2064	2067				
Average Queue (ft) 95th Queue (ft)	120 1018	138 1095				
Link Distance (ft)	2573	2573				
Upstream Blk Time (%)	0	0				
Queuing Penalty (veh)	Ő	0				
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						
Internetion: C. I.	E & Ch	Line	Off Bomp			
Intersection: 6: I-4				and declarations and		SPLINEDSHATESATEDO DOGO
Movement Directions Served	EB	EB	EB TR	相次以政治反為反為		
	784	1584	2000			
Maximum Queue (ft) Average Queue (ft)	112	248	403			
95th Queue (ft)	425	840	1361			
Link Distance (ft)	11494	11494	11494			
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						
Natural Our						
Network Summar						
Network wide Queuing Pe	enalty: 0					
					¥	
						0L T
JSC						SimTraffic Repo Page

Baseline	uation			Alt D Three Contraflow Land Simulation #2 11/30/20				
Summary of All Inte	ervals							
Run Number	10	11	12	13	14			
Start Time	4:45	4:45	4:45	4:45	4:45	4:45		
End Time	6:00	6:00	6:00	6:00	6:00 75	6:00 75		
Total Time (min)	75	75	75	75 60	60	60		
Time Recorded (min)	60	60	60	2	2	2		
# of Intervals	2	2	2	1	1	1		
# of Recorded Intvis	1	5259	5412	5272	5237	5281		
Vehs Entered	5224 4978	4980	4954	4914	4966	4958		
Vehs Exited		371	364	330	414	363		
Starting Vehs	337 583	650	822	688	685	686		
Ending Vehs	0	050	022	000	0	0		
Denied Entry Before	8	0	4	0	0	2		
Denied Entry After	15251	15329	15555	15272	15258	15333		
Travel Distance (mi)	460.0	504.9	604.1	508.0	571.4	529.7		
Travel Time (hr)	234.3	278.2	374.5	282.1	345.5	302.9		
Total Delay (hr)	234.3	2430	5026	3463	3529	3341		
Total Stops Fuel Used (gal)	5407.7	5518.1	5778.0	5535.6	5633.0	5574.5		
Total Time (min) Volumes adjusted by Growt No data recorded this interv								
Interval #1 Informat	tion Record	ina						
Interval #1 Informat		ing						
Start Time	5:00	ling						
Start Time End Time	5:00 6:00	ling						
Start Time End Time Total Time (min)	5:00 6:00 60	ling						
Start Time End Time Total Time (min) Volumes adjusted by Growt	5:00 6:00 60 h Factors.		12	13	14	Avg		
Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number	5:00 6:00 60 h Factors. 10	11	<u>12</u> 5412	<u>13</u> 5272	<u>14</u> 5237	Avg 5281	an ann an	
Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number Vehs Entered	5:00 6:00 60 h Factors. 10 5224		12 5412 4954					
Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number Vehs Entered Vehs Exited	5:00 6:00 60 h Factors. 10 5224 4978	11 5259	5412	5272	5237	5281		
Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number Vehs Entered Vehs Extled Starting Vehs	5:00 6:00 60 h Factors. 10 5224 4978 337	11 5259 4980	5412 4954	5272 4914	5237 4966	5281 4958		
Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number Vehs Entered Vehs Exited	5:00 6:00 60 h Factors. 10 5224 4978	11 5259 4980 371	5412 4954 364	5272 4914 330	5237 4966 414 685 0	5281 4958 363 686 0		
Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs	5:00 6:00 60 h Factors. 10 5224 4978 337 583	11 5259 4980 371 650	5412 4954 364 822	5272 4914 330 688 0 0	5237 4966 414 685 0 0	5281 4958 363 686 0 2		
Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before	5:00 6:00 60 h Factors. 10 5224 4978 337 583 0	11 5259 4980 371 650 0	5412 4954 364 822 0	5272 4914 330 688 0 0 15272	5237 4966 414 685 0 0 15258	5281 4958 363 686 0 2 15333		
Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Ending Vehs Denied Entry Before Denied Entry After	5:00 6:00 60 h Factors. 10 5224 4978 337 583 0 8	11 5259 4980 371 650 0 0	5412 4954 364 822 0 4 15555 604.1	5272 4914 330 688 0 0 15272 508.0	5237 4966 414 685 0 0 15258 571.4	5281 4958 363 686 0 2 15333 529.7		
Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi)	5:00 6:00 60 h Factors. 10 5224 4978 337 583 0 8 15251	11 5259 4980 371 650 0 0 15329	5412 4954 364 822 0 4 15555 604.1 374.5	5272 4914 330 688 0 0 15272 508.0 282.1	5237 4966 414 685 0 0 15258 571.4 345.5	5281 4958 363 686 0 2 15333 529.7 302.9		
Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number Vehs Entered Vehs Extled Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr) Total Delay (hr)	5:00 6:00 60 h Factors. 10 5224 4978 337 583 0 8 15251 460.0 234.3 2261	11 5259 4980 371 650 0 0 15329 504.9 278.2 2430	5412 4954 364 822 0 4 15555 604.1 374.5 5026	5272 4914 330 688 0 0 15272 508.0 282.1 3463	5237 4966 414 685 0 0 15258 571.4 345.5 3529	5281 4958 363 686 0 2 15333 529.7 302.9 3341		
Start Time End Time Total Time (min) Volumes adjusted by Growt Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr)	5:00 6:00 60 h Factors. 10 5224 4978 337 583 0 8 15251 460.0 234.3	11 5259 4980 371 650 0 0 15329 504.9 278.2	5412 4954 364 822 0 4 15555 604.1 374.5	5272 4914 330 688 0 0 15272 508.0 282.1	5237 4966 414 685 0 0 15258 571.4 345.5	5281 4958 363 686 0 2 15333 529.7 302.9		

239

I-4 Contraflow E Baseline	valuation		Three Contraflow Lane 11/30/200
4: I-4 F & Park F	Rd On Rar	np Perfo	ormance by movement
Movement	EBT	All	
Total Delay (hr)	16.2	16.2	
Delay / Veh (s)	11.1	11.1	
Total Stops	104	104	
Travel Dist (mi)	2575.5	2575.5	
Travel Time (hr)	58.9	58.9	
Avg Speed (mph)	46	46 1165.7	
Fuel Used (gal) HC Emissions (g)	126	126	
CO Emissions (g)		101320	
NOx Emissions (g)	471	471	
Vehicles Entered	5281	5281	
Vehicles Exited	5277	5277	
Hourly Exit Rate	5277	5277	
Input Volume	5250	5250	
% of Volume	101	101	
Denied Entry Before	0	0	
Denied Entry After	2	2	
Delay / Veh (s) Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered	1124 5277	427.2 27 3689.7 234 178480 1124 5277	
Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before Denied Entry After	4960 4960 5250 94 0 0	4960 4960 5250 94 0 0	
			SimTraffic Repo

I-4 Contraflow Evaluatio Baseline	n	Thre	e Contraflow Lane 11/30/200
Total Network Performa	nce		
Total Delay (hr) Delay / Veh (s) Total Stops Travel Dist (mi) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before Denied Entry After	302.9 213.0 3341 15333.0 529.7 29 5574.5 415 319687 1869 5281 4958 4958 15750 31 0 2	×	
JSC			SimTraffic Rep Pag

I-4 Contraflow E Baseline	valuation			Three (Contraflow Lane 11/30/20
4: I-4 F & Park F	≀d On Ran	np Performar	nce by movement		
Movement	EBT	All			
Total Delay (hr)	16.2	16.2			
Delay / Veh (s)	11.1	11.1			
Total Stops	104	104			
Travel Dist (mi)	2575.5	2575.5			
Travel Time (hr)	58.9	58.9			
Avg Speed (mph)	46	46			
Fuel Used (gal)	1165.7	1165.7 126			
HC Emissions (g)	126 101320				
CO Emissions (g)	471	471			
NOx Emissions (g) Vehicles Entered	5281	5281			
Vehicles Exited	5277	5277			
Hourly Exit Rate	5277	5277			
Input Volume	5250	5250			
% of Volume	101	101			
Denied Entry Before	0	0			
Denied Entry After	2	2			
6: I-4 F & Ctv Li	ne Off Rar	np Performa	nce by movement		
Movement	EBT	All	NEW SALES AND		
Total Delay (hr)	261.8	261.8			
Delay / Veh (s)	184.1	184.1			
Total Stops	3229	3229			
Travel Dist (mi)	11462.1	11462.1			
Travel Time (hr)	427.2	427.2			
Avg Speed (mph)	27	27			
Fuel Used (gal)	3689.7				
HC Emissions (g)	234	234			
		178480			
CO Emissions (g)	1124	1124			
CO Emissions (g) NOx Emissions (g)					
CO Emissions (g) NOx Emissions (g) Vehicles Entered	5277	5277			
CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited	5277 4960	4960			
CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate	5277 4960 4960	4960 4960			
CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume	5277 4960 4960 5250	4960 4960 5250			
CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume	5277 4960 4960 5250 94	4960 4960 5250 94			
CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume	5277 4960 4960 5250	4960 4960 5250			
CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before	5277 4960 4960 5250 94 0	4960 4960 5250 94 0			
CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before	5277 4960 4960 5250 94 0	4960 4960 5250 94 0			
CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before	5277 4960 4960 5250 94 0	4960 4960 5250 94 0			
CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before	5277 4960 4960 5250 94 0	4960 4960 5250 94 0			
CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before	5277 4960 4960 5250 94 0	4960 4960 5250 94 0			
CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before	5277 4960 4960 5250 94 0	4960 4960 5250 94 0			
CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before	5277 4960 4960 5250 94 0	4960 4960 5250 94 0			SimTraffic Re Pac

I-4 Contraflow Evaluation Baseline	n	Three	Contraflow Lane 11/30/200
Total Network Performa	nce		
		制度的建立的建筑和正规的	
Total Delay (hr) Delay / Veh (s) Total Stops Travel Dist (ml) Travel Time (hr) Avg Speed (mph) Fuel Used (gal) HC Emissions (g) CO Emissions (g) NOx Emissions (g) Vehicles Entered Vehicles Exited Hourly Exit Rate Input Volume % of Volume Denied Entry Before Denied Entry After	302.9 213.0 3341 15333.0 529.7 29 5574.5 415 319667 1869 5281 4958 4958 15750 31 0 2		
JSC			SimTraffic Rep Pag

I-4 Contraflow Evaluation Baseline	n				Three Co	ontraflow Lan 11/30/20
Arterial Level of Service	: EB I-4 F	-				
Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (ml)	Arterial Speed	
Park Rd On Ramp Cty Line Off Ramp	4	11.1 184.1	40.2 300.5	0.5	47 26	
Total		195.2	340.7	2.7	29	
						SimTraffic Re
JSC						SimTraffic Re Pa

Baseline	aluation			Three Contraflow Lane 11/30/20
Intersection: 4: I-4	F & Par	k Rd C	On Ram	р -
Movement	ĘB	EB	EB	
Directions Served	T 2582	T 2066	T 1549	
Maximum Queue (ft) Average Queue (ft)	2582	138	86	
95th Queue (ft)	1234	1095	851	
Link Distance (ft)	2573	2573	2573	
Upstream Blk Time (%)	0	0	0	
Queuing Penalty (veh)	0	0	0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				
Intersection: 6: I-4	F & Cty	Line (Off Ran	np
Movement	EB	EB	ËB	
Directions Served	T	Т	TR	
Maximum Queue (ft)	2568	3121	3356	
Average Queue (ft)	317	456	533	
95th Queue (ft)	2050	2231	2335	
Link Distance (ft)	11494	11494	11494	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft) Storage Blk Time (%)				
Queuing Penalty (veh)				
Quoung ronary (rony				
Network Summary	/			
Network wide Queuing Pe	nalty: 0			
JSC				SimTraffic Rep Page

I-4 Contraflow Eva Baseline	luation		Alt 0 - Three Contraflow Lane Simulation # 3 11/30/20				
Summary of All Inte	ervals						
Run Number	10	11	12	13		Avg	
Start Time	4:45	4:45	4:45	4:45	4:45	4:45	
End Time	6:00	6:00	6:00	6:00	6:00	6:00 75	
Total Time (min)	75	75	75	75	75 60	60	
Time Recorded (min)	60	60	60	60 2	2	2	
# of Intervals	2	2	2	1	1	1	
# of Recorded Intvis	1	1	1		5272	5343	
Vehs Entered	5334	5308	5424	5377 4952	4898	4945	
Vehs Exited	4969	4940	4967		327	373	
Starting Vehs	388	387	422	345	701	771	
Ending Vehs	753	755	879	770	01	1	
Denied Entry Before	1	0	2	0	0	0	
Denied Entry After	0	0	0		10 A 10 A 10 A	5000 mar (51) s	
Travel Distance (mi)	15462	15385	15583	15491	15274	15439	
Travel Time (hr)	587.0	586.5	656.5	569.8	520.2	584.0 355.6	
Total Delay (hr)	358.4	358.4	426.4	340.8	293.9		
Total Stops	4550	3643	4961	3495	3490	4028 5679.4	
Fuel Used (gal)	5656.6	5639.2	5854.1	5695.7	5551.4	5075.4	
Interval #0 Informa	tion Seedin	g					
Start Time	4:45						
End Time Total Time (min) Volumes adjusted by Grow							
Total Time (min)	15 th Factors. val.	ling					
Total Time (min) Volumes adjusted by Grow No data recorded this interv Interval #1 Informa	15 th Factors. val. tion Record	ling					
Total Time (min) Volumes adjusted by Grow No data recorded this interv Interval #1 Informa Start Time	15 th Factors. /al. tion Record 5:00	ling					
Total Time (min) Volumes adjusted by Growi No data recorded this interv Interval #1 Informa Start Time End Time	15 th Factors. /al. tion Record 5:00 6:00	ling					
Total Time (min) Volumes adjusted by Grow No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min)	15 th Factors. tition Record 5:00 6:00 60	ling			-		
Total Time (min) Volumes adjusted by Growi No data recorded this interv Interval #1 Informa Start Time End Time	15 th Factors. tition Record 5:00 6:00 60	ling 11	12	13	14	Avg	
Total Time (min) Volumes adjusted by Grow No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow	15 th Factors. <u>al.</u> <u>tion Record</u> 5:00 6:00 60 th Factors.		5424	5377	5272	5343	
Total Time (min) Volumes adjusted by Grow No data recorded this interval Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number	15 th Factors. at <u>ion Record</u> 5:00 6:00 60 th Factors. 10	11 5308 4940	5424 4967	5377 4952	5272 4898	5343 4945	
Total Time (min) Volumes adjusted by Grow No data recorded this interval Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered	15 th Factors. ation Record 5:00 6:00 60 th Factors. 10 5334	11 5308	5424 4967 422	5377 4952 345	5272 4898 327	5343 4945 373	
Total Time (min) Volumes adjusted by Grow No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Exited	15 th Factors. val. tion Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 5:304 4969	11 5308 4940 387 755	5424 4967 422 879	5377 4952 345 770	5272 4898 327 701	5343 4945 373 771	
Total Time (min) Volumes adjusted by Grow No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Exited Starting Vehs	15 th Factors. Al. tion Record 5:00 6:00 60 th Factors. 10 5:334 4969 388	11 5308 4940 387 755 0	5424 4967 422 879 2	5377 4952 345 770 0	5272 4898 327 701 0	5343 4945 373 771 1	
Total Time (min) Volumes adjusted by Grow No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs	15 th Factors. Al. tion Record 5:00 6:00 6:00 60 th Factors. 10 5334 4969 388 753	11 5308 4940 387 755	5424 4967 422 879 2 0	5377 4952 345 770 0	5272 4898 327 701 0 0	5343 4945 373 771 1 0	
Total Time (min) Volumes adjusted by Grow No data recorded this interval Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before	15 th Factors. at <u>ion Record</u> 5:00 6:00 60 th Factors. <u>10</u> 5334 4969 388 753 1	11 5308 4940 387 755 0	5424 4967 422 879 2	5377 4952 345 770 0 0 15491	5272 4898 327 701 0 0 15274	5343 4945 373 771 1 0 15439	
Total Time (min) Volumes adjusted by Grow No data recorded this interval Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After	15 th Factors. Ation Record 5:00 6:00 6:00 60 th Factors. 10 5334 4969 388 753 1 0	11 5308 4940 387 755 0 0	5424 4967 422 879 2 0	5377 4952 345 770 0	5272 4898 327 701 0 0 15274 520.2	5343 4945 373 771 1 0 15439 584.0	
Total Time (min) Volumes adjusted by Grow No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr)	15 th Factors. Ation Record 5:00 6:00 60 th Factors. 10 5334 4969 388 753 1 0 15462	11 5308 4940 387 755 0 0 0 15385	5424 4967 422 879 2 0 15583	5377 4952 345 770 0 0 15491	5272 4898 327 701 0 0 15274 520.2 293.9	5343 4945 373 771 1 0 15439 584.0 355.6	
Total Time (min) Volumes adjusted by Grow No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Exited Starting Vehs Ending Vehs Ending Vehs Denied Entry Before Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr)	15 th Factors. val. tion Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00	11 5308 4940 387 755 0 0 15385 586.5 358.4 3643	5424 4967 422 879 2 0 15583 656.5	5377 4952 345 770 0 0 15491 569.8	5272 4898 327 701 0 15274 520.2 293.9 3490	5343 4945 373 771 1 0 15439 584.0 355.6 4028	
Total Time (min) Volumes adjusted by Grow No data recorded this interv Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr)	15 th Factors. Al. tion Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00	11 5308 4940 387 755 0 0 0 15385 568.5 358.4	5424 4967 422 879 2 0 15583 656.5 426.4	5377 4952 345 770 0 0 15491 569.8 340.8	5272 4898 327 701 0 0 15274 520.2 293.9	5343 4945 373 771 1 0 15439 584.0 355.6	
Total Time (min) Volumes adjusted by Grow No data recorded this interval Interval #1 Informa Start Time End Time Total Time (min) Volumes adjusted by Grow Run Number Vehs Entered Vehs Entered Vehs Exited Starting Vehs Ending Vehs Denied Entry Before Denied Entry Before Denied Entry Before Denied Entry After Travel Distance (mi) Travel Time (hr) Total Delay (hr) Total Stops	15 th Factors. Ation Record 5:00 6:00 6:00 6:00 6:00 6:00 6:00 6:00	11 5308 4940 387 755 0 0 15385 586.5 358.4 3643	5424 4967 422 879 2 0 15583 656.5 426.4 4961	5377 4952 345 770 0 0 15491 569.8 340.8 3495	5272 4898 327 701 0 15274 520.2 293.9 3490	5343 4945 373 771 1 0 15439 584.0 355.6 4028	

I-4 Contraflow Ev Baseline	aluation		Three Contraflow Lane 11/30/20
	d On Rar	mp Per	mance by movement
Movement		All	
Total Delay (hr)	17.4	17.4	
Delay / Veh (s) Total Stops	11.7 98	11.7 98	
Travel Dist (mi)	2607.4		
Travel Time (hr)	60.5	60.5	
Avg Speed (mph)	45	45	
Fuel Used (gal)		1165.5	
HC Emissions (g)	123	123	
CO Emissions (g)	98065	98065	
NOx Emissions (g)	470	470	
Vehicles Entered	5343	5343	
Vehicles Exited	5343	5343	
Hourly Exit Rate	5343	5343	
Input Volume	5300	5300	
% of Volume	101	101	
Denied Entry Before	1	1	
Denied Entry After	0	0	
6: I-4 F & Cty Lin	e Off Rar	mp Per	rmance by movement
Movement	EBT	All	
Total Delay (hr)	313.6	313.6	
Delay / Veh (s)	219.4	219.4	
Total Stops	3921	3921	
Travel Dist (mi)	11539.7		
Travel Time (hr)	480.2	480.2 24	
Avg Speed (mph)	24		
Fuel Used (gal)	216	3791.8 216	
HC Emissions (g)		166092	
CO Emissions (g)	106092	106052	
NOx Emissions (g) Vehicles Entered	5343	5343	
Vehicles Exited	4947	4947	
Hourly Exit Rate	4947	4947	
Input Volume	5300	5300	
% of Volume	93	93	
Denied Entry Before	0	0	
Denied Entry After	0	0	
JSC			SimTraffic Rep Pag

I-4 Contraflow Eva Baseline	luation			Three Contraflow Land 11/30/20
Intersection: 4: I-4	F & Par	k Rd (On Ramp	-
Movement Directions Served Maximum Queue (ft) Average Queue (ft)	EB T 2581 138	EB T 2585 189	EB T 516 17	
95th Queue (ft) Link Distance (ft) Upstream Blk Time (%) Queuing Penalty (veh) Storage Bay Dist (ft) Storage Blk Time (%) Queuing Penalty (veh)	1094 2573 0 0	1300 2573 0 0	364 2573 0 0	
Intersection: 6: I-4	F & Cty	Line (Off Ramp	
Movement	ÉB	EB	EB	
Directions Served Maximum Queue (ft) Average Queue (ft) 95th Queue (ft) Link Distance (ft) Upstream Bik Time (%) Queuing Penalty (veh) Storage Bik Time (%) Queuing Penalty (veh)	T 2602 287 1826 11494	T 3012 445 2047 11494	TR 2885 541 2461 11494	
Network Summary	11			
Network wide Queuing Pen	alty: 0			
				SimTraffic Rep

ABOUT THE AUTHOR

Jason Scott Collins, Ph.D, P.E., AICP was originally born and raised in Milwaukee, Wisconsin. Building from his personal hobbies of geography and automobiles, he attended Vanderbilt University where he obtained is Bachelor of Engineering degree with a focus on transportation. Then shortly after, Jason attended University of South Florida where he received his Master's degree in Civil Engineering through the University's Interdisciplinary Program of Public Administration and Economics.

Transforming his personal hobbies into his career, Jason has since worked for consulting engineering firms managing transportation planning, traffic operations, permitting, and design projects. He is currently the Florida Manager of Trans Associates Engineering Consultants, Inc. Jason lives in Tampa, Florida with his wife Carly.