Town of Hilton Head Island

William Hilton Parkway Gateway Corridor Independent Review Advisory Committee Meeting

Wednesday, February 14, 2024, 1:00 PM
1 Town Center Court, Hilton Head Island, SC
Benjamin M. Racusin Council Chambers

The meeting can be viewed on the Town's YouTube Channel, the Beaufort County Channel, and Spectrum Channel 1304.

1. **Call to Order**
2. **Approval of the Minutes**
   - **a.** Regular Meeting Minutes of January 10, 2024
3. **Unfinished Business**
   - **a.** William Hilton Parkway Gateway Corridor Independent Study - Project Progress
     1. Presentation of Final Recommendation for Growth Rate
     2. Presentation of Adaptive System Operations
     3. Presentation of 2023 Existing Conditions - Syncro Modeling based Findings
     4. Update on VISSIM Modeling
4. **Appearance by Citizens:** Citizens who wish to speak on the matters being discussed during the meeting may do so by submitting the Request to Speak form no later than the day prior to the meeting.
5. **New Business**
6. **Adjournment**

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requirements of the Town of Hilton Head Island.

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Municipal Association of South Carolina (MASC) Civility Pledge:
“I pledge to build a stronger and more prosperous community by advocating for civil engagement, respecting others and their viewpoints, and finding solutions for the betterment of my city or town.”

Town of Hilton Head Island
WILLIAM HILTON PARKWAY GATEWAY CORRIDOR INDEPENDENT REVIEW ADVISORY COMMITTEE MEETING
Wednesday, January 10, 2024, 1:00 PM
Minutes

1. Call to Order

Mayor Perry called the meeting to order at 1:00 PM.

2. Approval of the Minutes

a. Regular Meeting Minutes of December 12, 2023

A motion was made by Mr. Warner to approve the minutes of the December 12, 2023 meeting as presented. A second was made by Mr Walczak, and the motion was unanimously passed.

3. Unfinished Business

a. General Observations Noted During the Site Visit

Shawn Colin, Assistant Town Manager - Community Development, noted a technical meeting had been held last week. He asked Nate Nohren, Project Manager, appearing remotely, to report on the matters listed on the agenda.

Mr. Nohren introduced his team also appearing remotely: Kate Swinford, Shariff Ullah, and Brad Strader with CTG. He presented a brief overview from a high level standpoint of some of the observations noted during the December site visit, as they near completion of the simulation models for Synchro and VISSEM. However, he reported that specific operating conditions will not be presented until the February meeting. He explained that he and Swinford were responsible for the intersection observations at the 12 project locations, while Tyson King was performing all traffic time runs to collect real time data. The overall goal is calibration - taking the information back to the simulation models to calibrate them to what is occurring today on William Hilton Parkway. He detailed the site visit observations, including documented saturation flow rates, queue lengths, turning speeds, lane utilization, and noteworthy driver tendencies. Overall, he felt the adaptive system is making an impact.

The report from Mr. King on travel time run observations was presented by Nohren, including the benefits of the adaptive system in operation today. The time/space diagrams will be explained in detail by King at the February meeting. While Windmill Harbor was

not included in the adaptive system, it was noted that the progression at that point was at times delayed.

The Committee had no questions.

b. Status of Growth Rate Determination

Mr. Sharif reported that alternatives are being explored to develop a "Quick" model for estimating traffic growth utilizing available data provided by Town staff on the number of short-term rental units and accommodation and hospitality tax revenues per year. He anticipated presenting growth rate findings at the February committee meeting.

Questions from the Committee were addressed concerning the data sources and factors that are combined into the model to forecast future conditions.

c. Update on Modeling Capabilities

Ms. Swinford discussed with the Committee the general scope of alternatives to consider for future modeling. Since the next phase cannot be entered until a growth rate is determined and agreed upon, she asked for the Committee's agreement on the number of lanes provided through the corridor for each of the alternatives. Graphs were presented and reviewed for potential consideration in a theoretical 6-lane vs. 4-lane configuration in ideal conditions. She reported the 2023 AADT as being over 57,000 vehicles per day average, and the highway capacity manual table for traffic volume considering 2-lanes, 4-lanes, and 6-lanes, as shown on the presentation slides.

1. Approach to Alternatives

Comments from the Committee were made about the need to look at traffic volume during peak hours of congestion. Ms. Swinford noted that based on their site observations and preliminary information obtained from models still being calibrated, there is congestion on the corridor today, leading to a conclusion that a 4-lane roadway does not have a high likelihood of satisfying future level of service. Therefore, she asked the Committee if Lockmueller could narrow the alternatives and focus only on potential 6-lane options.

Lengthy discussion ensued among the Committee members, Ms. Swinford, Mayor Perry, Mr. Colin, and Mr. Nohren as to what is included in the scope of work being provided by Lochmueller. No consensus was reached that 6-lanes should be Lochmueller's focus. Conversations will be coming in the future concerning the feasibility of widening the existing bridges, with a possible future second bridge.

4. **Appearance by Citizens:** Citizens who wish to speak on the matters being discussed during the meeting may do so by submitting the Request to Speak form no later than the day prior to the meeting.

Comments posted to the Open Town Hall Portal have been sent to the Committee members and attached to the minutes.

Further comments were made by several citizens. Council Member Tamara Becker requested a private meeting with Mayor Perry to discuss information received from Senator Davis with regard to additional monies that may be available to pursue further research.

5. New Business

Mayor Perry noted that Executive Session of Town Council for the January 23, 2024 meeting would include a discussion of the William Hilton Parkway Gateway Corridor Project and legal advice will be given, but there will be no vote or action taken.

Mr. Advocaat noted that discussion about a second bridge had taken place today, and thoughtful comments have been made which should be taken seriously. While the Town has taken a leap with the adaptive traffic management system, which is proving to be successful, with intelligent people looking at this and a fantastic consulting firm who understands the issues, the entirety of the project should be considered.

6. Adjournment

Mayor Perry adjourned the meeting at 2:23 PM.

Submitted by: Lynn Buchman, Administrative Assistant

APPROVED:

Approved:

The recording of this Meeting can be found on the Town's website at www.hiltonheadislandsc.gov

TOWN OF HILTON HEAD ISLAND

William Hilton Parkway Gateway Corridor Independent Review Advisory Committee

TO: William Hilton Parkway Gateway Corridor Independent Review Advisory Committee

FROM:

DATE: February 14, 2024

SUBJECT: William Hilton Parkway Gateway Corridor Independent Study - Project Progress

RECOMMENDATION:

SUMMARY:

BACKGROUND:

ATTACHMENTS:

1. 1. WHP Advisory Committee - Scope Update 2.14.24
2. 2. Final Presentation Slides_WHP Committee Meeting_02-14-2024

Town of Hilton Head Island

William Hilton Parkway Gateway Corridor – Update on Project Scope

William Hilton Parkway Gateway Advisory Committee

February 14, 2024

Task 1

Task 1: Project Initiation and Coordination:

- Initial meeting with Town of Hilton Head Island and Independent Consultant.
- Conduct Bi-weekly project status meetings with Town staff and the project advisory committee.
- Review meeting with representatives of Town of Hilton Head Island, SCDOT and the existing design consultants on prior work performed
- Monthly update meetings with Town Manager.
- Review and define the study area.
- Perform a site visit/field review.
- Review and understand bridge inspection data.
- Understand the Town of Hilton Head Island's and Community concern with the proposed concept and existing model.
- Study existing project reports including: the SCDOT Draft Environmental Assessment, Town Council recommendations supported by MKSK and HDR studies, and the Technical Working Group report dated 3/31/23 to FHWA/Council on Environmental Quality/SCDOT.

Task 2

Task 2: Provide Modeling of Data and Recommended Design Concepts

- Review assumptions contained within the model – Daily, Hour, Land Use, and identify other input variables, including adaptive traffic signals and safety provisions.
  The results of each alternative evaluated should include but not be limited by the following:

Throughput and Traffic Simulation

This includes factors such as end-end delay, level of service, and average speed. We wish to see these computed via event simulation from end-to-end in each direction (for each alternative) including modeling the coupling and interactions of all proposed traffic lights, merges, splits, and other possible constrictions, as opposed to summing them as acting individually. The simulation must operate on the smallest interval possible to provide meaningful results.

Costs

Since detailed engineering for the various Corridor options is not available at this point, the Consultant shall use broad-gauge cost estimates similar to those used by SCDOT. The Consultant shall solicit assistance from SCDOT, the County, and the Town in developing cost estimates for the various options and identifying the split between covered and uncovered costs.

Safety, Environmental and Community Impacts

- Review data collection approach and study area.
- Review model outputs and subsequent recommendations for intersection operations and bridge concepts.
- Model Review and Concept Review Memo.
- Compile findings into a Summary Review Memo, identifying primary findings and recommendations for improvement.
- Review data collection from Adaptive Traffic Signals.

Task 3

Task 3: Model and Operational Analysis Updates

- The model updates will be based on the version of the Lowcountry Area Transportation Study (LATS) model utilized to develop the project. Consultant to study and recommend a model alternative if warranted.
- Provide simulation and modeling of various data.
- Confirm that the base traffic demand model accurately takes into account trips generated by visitor traffic, workforce traffic, mass transit traffic, and traffic demand from redevelopment from existing island parcels.
- Update the model based on findings in Task 2 and coordination with the Town of Hilton Head.
- Expand the SCDOT project model and study area to include the following signalized intersections and merge points east of Spanish Wells Road:
  - William Hilton Parkway (US 278) merge with Cross Island Parkway.
  - William Hilton Parkway (US 278 Bus) at Gum Tree Road.
  - William Hilton Parkway (US 278 Bus) at Jarvis Park Road / Wilborn Road.
  - William Hilton Parkway (US 278 Bus) at Pembroke Drive/Museum Street.
  - William Hilton Parkway (US 278 Bus) at Indigo Run Drive/Whooping Crane Way.
  - Palmetto Bay Road (US 278) at Point Comfort Road/Arrow Road.
  - Palmetto Bay Road at Target Road.
  - Sea Pines Circle - William Hilton Parkway (US 278 Bus) at Palmetto Bay Road.
- Expand the model and study area to include the following signalized intersections and merge points west of Bluffton Parkway Flyover on US 278:
  - US 278 (Fording Island Road) at Buckingham Plantation Drive/Moss Creek Drive (on Mainland).
  - Bluffton Parkway at Buckingham Plantation Drive (on Mainland)

Task 3
Cont.

Task 3 continued:

- Existing traffic counts for the study area intersections will be obtained from the Town of Hilton Head Island and SCDOT
- Any additional counts not available from the Town of Hilton Head Island or SCDOT shall be collected by the consultant as deemed necessary and agreed to by the Town.
- The model shall include the most recent available traffic data that reflects the toll removal on the Cross Island Parkway.
- The model shall include the new adaptive traffic signal management system being deployed by the Town (Summer 2023).
- Generate model outputs for study area with agreed upon new assumptions and latest volumes and analyze operations using appropriate tools. A key deliverable of this project is a visual simulation of the models which can show the comparison of the options.
- Evaluate how Adaptive Traffic Signals could impact the traffic flow and average travel times along the corridor at peak times as well as other periods. The Town and County are expected to implement Adaptive Signals on the William Hilton Parkway/US 278 Corridor from I-95 to Sea Pines Circle. Answer questions related to potential for downstream impacts.
- Evaluate opportunities to achieve desired operational efficiency by maintaining four lanes (two lanes in each direction) between the Windmill Harbor and Squire Pope Road intersections with William Hilton Parkway. These include system improvements that result from Intelligent Traffic Systems and other operational adjustments that may provide improved efficiency in the system.
- Evaluate impacts of alternatives, including those impacts to the Traditional Cultural Property defined in the Environmental Assessment, and commonly referred to as the Stoney Community. Develop strategic options for consideration to mitigate impacts.
- Evaluate the safety for bicycle and pedestrians within the original Project Study Area.
- Coordinate and refine recommendations with the Town of Hilton Head Island.
- Participate in meetings as directed by the Town of Hilton Head Island.

Task 4

Task 4: Proposed Intersection Improvements and other important elements:

- Evaluate the safety for bicycle and pedestrians within the original Project Study Area including new signal proposed at Windmill Harbour.
- Evaluate vehicular safety of the Project and make cost-effective recommendations to reduce accidents and enhance safety for the motoring public including emergency response considerations.
- Identify potential modifications to the proposed intersection designs of the preferred alternative within the original Project Study Area from Moss Creek to Spanish Wells Road that deliver the same (or better) expected operational levels.
- Based on the findings of Task 3 for intersections outside of the original project study area, develop alternatives to improve operations in the future. Evaluation should include but not be limited to traffic conveyance and capacity improvements (LOS, delay, etc.) as well as anticipated project costs and known impacts or concerns with the alternatives
- Evaluate, quantify, and explain the Project's impacts on the Stoney Community.
- Develop a Summary of Findings and Recommendations for review by the Town of Hilton Head that can be utilized to secure future funding for the improvements beyond the Project Study Area.

Task 5

Task 5: Final Report

- Compile model updates, operational analysis, and findings into a report for a review and discussion.
- Integrate safety objectives based on the results of data and analysis into findings and recommendations.
- The report shall contain a detailed quantitative, objective comparison of alternatives including pros and cons of each that assesses the conveyance and capacity efficacy, safety improvements, community and social impacts, environmental impacts, appearance/aesthetic impacts, and total costs. This comparison shall be summarized in a simple to understand, tabular format as agreed to by the Town.
- Finalize elements into draft and final reports, including executive summaries and recommendations.
- Presentation of study, with final findings and recommendations, to Town Council for endorsement/adoption.
- Submit final report electronically for endorsement/adoption by Town Council.
- All engineering work must be certified by a Professional Engineer licensed in South Carolina.

William Hilton Parkway Gateway Corridor Independent Review Advisory Committee Meeting

February 14th, 2024

LOCHMUELLER GROUP

Agenda

- ❑ Update on Project Progress
- ❑ Presentation of Final Recommendation for Growth Rate
- ❑ Presentation of Adaptive System Operations
- ❑ Presentation of 2023 Existing Conditions (Synchro Based Findings)
- ❑ Update on VISSIM Modeling

Update on Project Progress

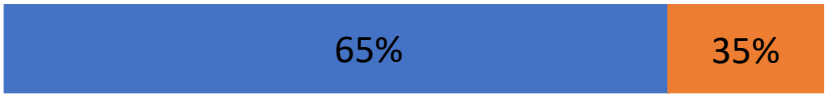
(*Key Tasks Completed & Continuing to Work on Since Last Meeting*)

- ✓ Completed evaluations related to growth rate determination, and prepared supporting technical memo summarizing our findings and recommendations.
- ✓ Finalized calibrations of 2023 Existing Synchro and VISSIM models.
- ✓ Prepared summary of findings for 2023 Existing Synchro based operating conditions.
- ✓ Compiling 2023 Existing VISSIM speed maps for the entire study area; videos focusing on congested locations during peak hours; calibration results in terms of travel time and volumes; and a write up on the methodology used to arrive at the travel time target.
- ✓ Began 2045 No-Build analyses in Synchro.

Update on Overall Project Progress

Overall ~30% Complete

- **Task #1: Project Initiation and Coordination**
  - **~65% Complete**

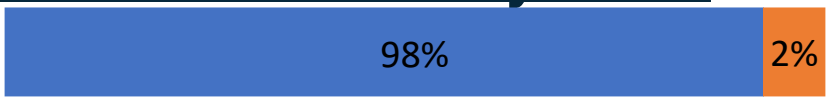


  - Task #1 Subtasks On-Going:
    - Remaining scheduled meetings with Town (Bi-Weekly) staff and Committee (Monthly)
    - Continual review/reference previously completed existing reports and historical documentation
    - Compiling background information related to Task 1.3.3 and Task 1.8, which would result in Lochmueller preparing brief technical memorandums and/or high level opinions of probable costs.

Update on Overall Project Progress

Task #2: Review of Travel Demand Model & Evaluation of 2023 Existing Operating Conditions (Entire Study Area)

- **~98% Complete**



- Task #2 Subtasks Remaining:
  - Revise/resubmit draft Traffic Growth Rate technical memorandum for final approval, based upon one (1) set of coordinated review comments provided by the Town and Committee.

Update on Overall Project Progress

- **<u>Task #3: Traffic Model and Operational Update – Modified Original Project Study Area</u>**
  - **~5% Complete**

  - Key Subtasks On-Going:
    - 2045 No-Build analyses in Synchro and VISSIM
    - Began evaluating intersection treatment alternatives along US 278 between Moss Creek and Gum Tree Road

Final Recommendation for Growth Rate

- Typically, the regional Travel Demand Model (TDM) is the best tool for identifying traffic growth rates along a major corridor.
- The project staff performed a comprehensive evaluation of the Lowcountry Area Transportation Study (LATS) TDM and found the following major issues:
  - The latest update of the TDM was limited in nature and did not include any major changes from the previous version of the model.
  - The 2045 Horizon year roadway network did not include all future planned projects.
  - Socio-economic (e.g., population, household, employment) growth for the horizon year 2045 was forecasted by simply extrapolating 2040 attributes of the previous version of the TDM.
  - Socio-economic projections did not consider recent land-use plan updates from municipalities within the TDM boundaries.
  - The TDM update did not include a complete model re-estimation and re-calibration.
  - The LATS Long-Range 2045 Transportation Plan forecasts 48,500 more future population in Jasper and Beaufort Counties than incorporated into the TDM.

Final Recommendation for Growth Rate

- Project staff performed statistical analysis to develop a tool for forecasting Average Daily Traffic (ADT) at the WHP Bridge.
- The statistical analysis tried to establish the relationship between two types of variables:
  - Dependent Variable (ADT)
  - Independent Variables (e.g., population, employment, # of short-term rental units, accommodation tax, restaurant tax, etc.)

Final Recommendation for Growth Rate

- Historic Population and Employment Trends

Geographic Unit	Year			Annual Growth (%) (2000 -2010)	Annual Growth (%) (2010 -2020)
	2000	2010	2020		
Beaufort County	120,937	162,233	187,117	**3.0**	**1.4**
Jasper County	20,678	24,777	28,791	**1.8**	**1.5**
Hilton Head Island	33,862	37,099	37,661	**0.9**	**0.2**

Population

Geographic Unit	Year		Annual Growth (%) (2010 -2020)
	2010	2020	
Beaufort County	51,761	62,001	**1.8**
Jasper County	6,522	9,819	**4.2**
Hilton Head Island	21,346	21,854	**0.2**

Employment

Source: US Census Bureau (www.census.gov)

Final Recommendation for Growth Rate

- # of Short-Term rental unit information was available for only 2023. Thus, this independent variable was not used for the regression analysis.
- Tax revenue information

Year	Tax Revenue (2021 USD)	
	Accommodation Tax	Hospitality Tax
2018	$3,827,423	$7,419,881
2019	$3,964,475	$6,807,961
2020	$3,624,196	$6,598,684
2021	$5,561,900	$8,051,256
2022	$6,534,674	$9,213,533
2023	$6,260,297	$8,905,425

Source: Town of Hilton Head Island, SC

Final Recommendation for Growth Rate

- Annual Average Daily Traffic (AADT) Trends at WHP Bridge

Year	AADT	Annual Growth (%)
2010	49,600	N/A
2011	49,900	0.60%
2012	50,700	1.60%
2013	52,200	2.96%
2014	53,200	1.92%
2015	54,700	2.82%
2016	54,700	0.00%
2017	56,300	2.93%
2018	56,100	-0.36%
2019	57,100	1.78%
2020	51,400	-9.98%
2021	57,400	11.67%
2022	57,400	0.00%
2023	57,800	0.70%

Source: SCDOT Traffic Counts Website (www.scdot.org/travel/travel-trafficdata.aspx)

Final Recommendation for Growth Rate

- Staff performed regression analysis to check whether the independent variables significantly impacted the dependent variable (e.g., AADT).
- The statistical values for the regression analysis:
  - **Co-efficient of Determination (R^2).** It explains to what degree an independent variable explains the variation of the dependent variable. Its value ranges from 0 to 1. For example, R^2 value of 0.7 indicates 70% of the variations in the dependent variable can be explained by the independent variable(s).
  - **P-Value** – It is the probability that the observed difference between the dependent and independent variable is due to chances. Its value ranges from 0 to 1. P-value close to zero indicates that any observed difference in the dependent variable is more likely due to the independent variable (not by chance).

Final Recommendation for Growth Rate

- Regression Analysis

Independent Variable	Co-efficient of Determination (R^2)	P-Value
Total Population of Beaufort and Jasper Counties	0.95	1.5E-08
Total Employment in Beaufort and Jasper Counties	0.9	8.1E-07
Accommodation Tax	0.64	0.1
Hospitality Tax	0.37	0.28

Final Recommendation for Growth Rate

- Regression Equation

AADT = 0.262684*(Total Population of Beaufort and Jasper Counties) + 830

Final Recommendation for Growth Rate

- Population Growth Projections

County	Year		Annual Growth Rate (%)
	2020	2035	
Beaufort	187,691	204,374	0.56
Jasper	29,073	34,046	1
Total	216,764	238,420	**0.6**

Source: State of South Carolina Revenue and Fiscal Affairs Office

Final Recommendation for Growth Rate

- Population Growth Related Key Assumptions
  - Annual population growth in Hilton Head Island from 2020 to 2045 will be very small (0.1%), as the population within Hilton Head Island is stable and available land for development is very limited. Moreover, population growth in Hilton Head Island from 2010 to 2020 was only 0.2% per year.
  - Annual population growth from 2020 and 2045 for the rest of Beaufort County and Jasper County will be 0.6%, as suggested by the State of South Carolina's Revenue and Fiscal Affairs Office.

Geographic Unit	Projected Annual Growth Rate	Population	
		2020	2045
Hilton Head Island	0.10%	37,661	38,614
Beaufort and Jasper Counties (Excluding Hilton Head Island)	0.60%	178,247	207,000
Total		215,908	245,614

Final Recommendation for Growth Rate

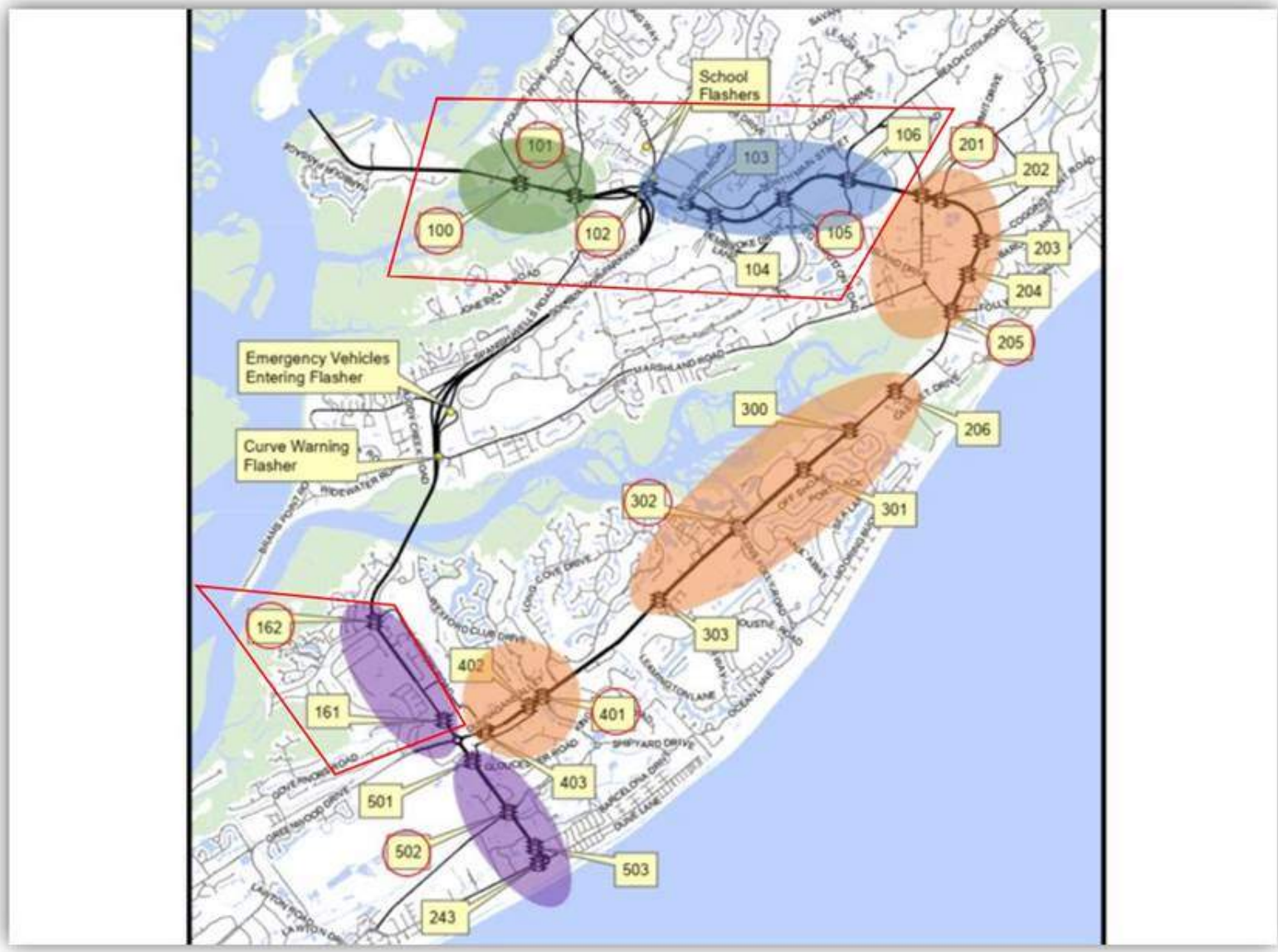
- Estimating 2045 AADT at the WHP Bridge.

2045 AADT = 0.262684*245,614 + 830 = 65,349

Year	AADT	Annual Growth Rate (%)
2023	57,800	0.56
2045	65,349	

Adaptive System Operations

- Travel Time Run General Observations:
  - Adaptive function is evident when plotting GPS trajectories on base coordination plan time-space diagrams
  - Windmill Harbor signal running Free during all peak periods results in variable progression along the corridor
  - Eastbound queue across the bridges is relatively rolling in nature
  - Stops were frequent when crossing from the Squire Pope & Spanish Wells subsystem to the subsystem from Gumtree to the east
  - Travel time was relatively reliable from Sea Pines circle to the Cross Island & WHP interchange, until poor operations through Squire Pope


School Flashers
Emergency Vehicles Entering Flasher
Curve Warning Flasher
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Adaptive System Operations

- Travel Time Run General Observations:
  - Video footage from travel time data collection process.
  - Video showing WaySync software in operation

Synchro Methodology

- Synchro 11
  - Traffic capacity model based on the HCM 7th Edition, last updated in 2022 by the Transportation Research Board
- Reported Results Include the Following:
  - Level of Service (LOS)
    - A - F
  - Delay (seconds)
  - 95th Percentile Queue Length (feet)
    - Specifies a queue that is typically exceeded only once or twice during the day
  - Volume to Capacity Ratio (v/c)
    - A v/c ratio of 1.0 indicates the intersection approach is at capacity

Level of Service	Control Delay per Vehicle (sec/veh)	
	Signalized	Unsignalized
A	≤ 10	0-10
B	> 10-20	> 10-15
C	> 20-35	> 15-25
D	> 35-55	> 25-35
E	> 55-80	> 35-50
F	> 80	> 50

Preliminary 2023 Existing Results (Synchro)

- General Findings
  - While several intersections experience long delays and queue lengths during the AM peak hour, the PM peak hour appears to have overall worse operating conditions
  - Long delays occur along side-streets at unsignalized intersections throughout the entire study area
  - A rolling queue begins at Wilborn Rd and continues westbound over the bridge during the PM peak hour
  - The westbound queue length reaches up to approximately 2,500 ft (101 cars) at Squire Pope during the PM peak hour

Preliminary 2023 Existing Results (Synchro)

Intersection & Movements	LOS (Delay, sec) [95th Queue Length, ft] <v/c ratio>	
	AM Peak Hour	PM Peak Hour
1: Buckingham Plantation Dr & Bluffton Pkwy (signal)		
Overall Intersection	**B (10.4)**	**B (15.3)**
Eastbound Approach	A (7.1) [196] <0.37>	A (9.1) [166] <0.29>
Westbound Approach	B (12.4) [146] <0.21>	B (17.5) [346] <0.46>
Northbound Approach	D (41.9) [63] <0.14>	C (34.2) [48] <0.15>
Southbound Approach	B (18.4) [55] <0.25>	C (24.3) [m81] <0.30>
2: Buckingham Plantation Dr/Moss Creek Dr & Hilton Pkwy (signal)		
Overall Intersection	**B (19.2)**	**C (29.6)**
Eastbound Approach	B (15.0) [413] <0.56>	B (18.2) [365] <0.64>
Westbound Approach	B (14.6) [291] <0.36>	C (24.8) [669] <0.69>
Northbound Approach	D (45.5) [126] <0.67>	F (83.5) [104] <0.57>
Southbound Approach	E (59.4) [107] <0.57>	F (98.8) [#213] <1.01>
3: Salt Marsh Dr/Moss Creek Village & Hilton Pkwy (signal)		
Eastbound Left Turn	C (16.5) [<25] <0.03>	E (43.4) [<25] <0.22>
Westbound Left Turn	D (33.5) [<25] <0.05>	D (26.6) [<25] <0.15>
Northbound Approach	D (26.5) [<25] <0.23>	C (21.7) [<25] <0.23>
Southbound Approach	D (30.8) [45] <0.41>	F (165.4) [150] <0.99>
4: Fording Island Rd Ext & Hilton Pkwy (un-signalized)		
Westbound Left Turn	C (18.0) [<25] <0.02>	B (14.8) [<25] <0.04>
Northbound Approach	F (242.4) [75] <0.81>	F ($744.7) [168] <1.97>

Preliminary 2023 Existing Results (Synchro)

Intersection & Movements	LOS (Delay, sec) [95th Queue Length, ft] <v/c ratio>	
	AM Peak Hour	PM Peak Hour
5: Boat Landing Driveway/Wildlife Refuge Driveway & Hilton Pkwy (un-signalized)		
Eastbound Left Turn	C (15.4) [<25] <0.01>	E (45.1) [<25] <0.05>
Westbound Left Turn	No volumes observed	C (22.7) [<25] <0.01>
Northbound Approach	E (38.1) [<25] <0.02>	F ($2538.4) [68] <2.99>
Southbound Approach	No volumes observed	F (50.4) [<25] <0.17>
6: Blue Heron Point Rd & Hilton Pkwy (un-signalized)		
Westbound Left Turn	No volumes observed	C (23.8) [<25] <0.01>
Northbound Approach	F ($794.0) [58] <1.19>	F ($2033.9) [118] <3.51>
7: Crosstree Dr (Windmill Harbour) & Hilton Pkwy (signal)		
Overall Intersection	**B (15.5)**	**E (59.1)**
Eastbound Approach	C (21.2) [#1701] <0.97>	B (10.3) [697] <0.82>
Westbound Approach	A (5.2) [291] <0.62>	F (93.2) [#2084] <1.16>
Northbound Approach	D (38.0) [65] <0.42>	E (68.0) [105] <0.72>
Southbound Approach	0 (0.0) [<25] <0.01>	0 (0.0) [<25] <0.00>
8: Jenkins Rd & Hilton Pkwy (un-signalized)		
Eastbound Left Turn	C (15.6) [<25] <0.02>	F (56.9) [<25] <0.13>
Southbound Approach	F ($469.6) [45] <0.73>	F ($7285.9) [158] <12.12>

Preliminary 2023 Existing Results (Synchro)

Intersection & Movements	LOS (Delay, sec) [95th Queue Length, ft] <v/c ratio>	
	AM Peak Hour	PM Peak Hour
9: Chamberlin Dr/Squire Pope Rd & Hilton Pkwy (signal)		
Overall Intersection	**B (12.5)**	**F (101.4)**
Eastbound Approach	A (6.3) [530] <0.66>	B (14.4) [#387] <0.93>
Westbound Approach	A (9.4) [264] <0.55>	F (140.5) [~2514] <1.26>
Northbound Approach	C (24.0) [<25] <0.03>	E (79.9) [70] <0.22>
Southbound Approach	F (97.3) [#319] <1.01>	F (296.1) [#709] <1.61>
10: Old Wild Horse Rd & Hilton Pkwy (un-signalized)		
Southbound Approach	C (21.5) [28] <0.28>	F (53.5) [<25] <0.13>
11: Spanish Wells Rd/Wild Horse Rd & Hilton Pkwy (signal)		
Overall Intersection	**C (30.1)**	**D (36.0)**
Eastbound Approach	C (26.2) [1224] <0.85>	B (16.7) [383] <0.62>
Westbound Approach	B (18.2) [274] <0.66>	C (25.2) [862] <0.80>
Northbound Approach	E (61.8) [223] <0.62>	F (214.3) [#667] <1.46>
Southbound Approach	F (117.7) [#284] <1.00>	E (65.7) [187] <0.36>
12: Gumtree Rd & Hilton Pkwy (signal)		
Overall Intersection	**E (59.1)**	**E (66.1)**
Eastbound Approach	E (64.3) [#1177] <0.98>	E (65.7) [763] <0.90>
Westbound Approach	C (33.6) [#412] <0.93>	D (54.5) [648] <1.00>
Northbound Approach	E (72.0) [#312] <0.89>	E (61.5) [351] <0.86>
Southbound Approach	F (90.7) [#418] <0.90>	F (115.5) [#517] <1.07>

Preliminary 2023 Existing Results (Synchro)

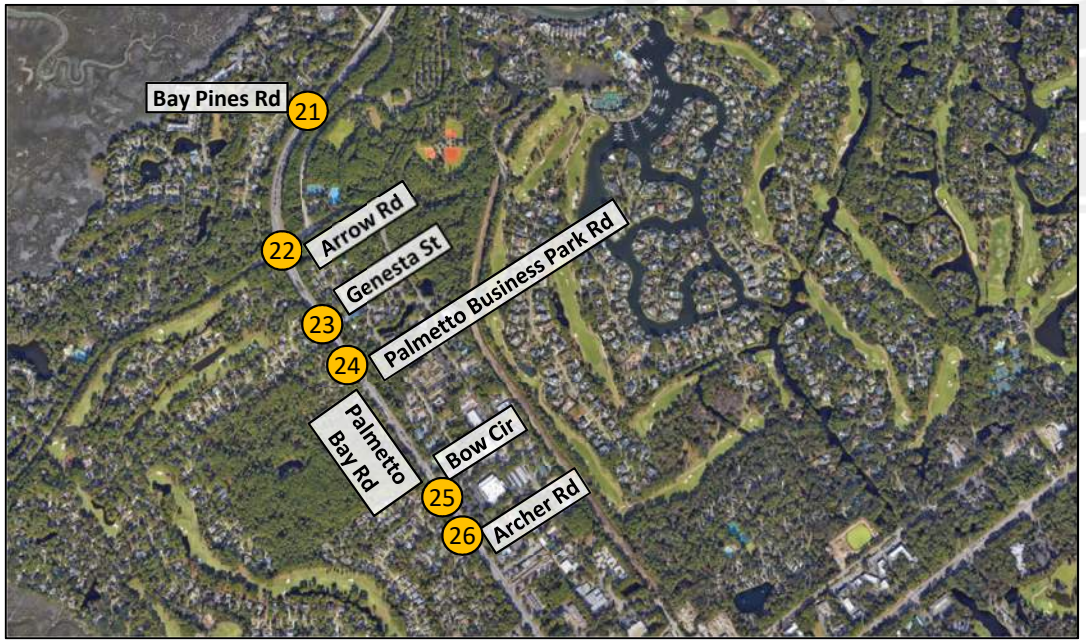
Intersection & Movements	LOS (Delay, sec) [95th Queue Length, ft] <v/c ratio>	
	AM Peak Hour	PM Peak Hour
13: Jarvis Park Rd/Wilborn Rd & Hilton Pkwy (signal)		
Overall Intersection	**C (22.1)**	**C (30.8)**
Eastbound Approach	B (16.6) [m516] <0.74>	C (20.5) [m596] <0.73>
Westbound Approach	B (11.3) [316] <0.50>	C (25.6) [#1420] <0.98>
Northbound Approach	F (99.7) [143] <0.61>	F (108.7) [146] <0.76>
Southbound Approach	E (65.5) [262] <0.77>	E (67.9) [223] <0.96>
14: Pembroke Dr/Museum St & Hilton Pkwy (signal)		
Overall Intersection	**B (19.7)**	**C (29.6)**
Eastbound Approach	B (11.2) [560] <0.73>	B (18.0) [546] <0.60>
Westbound Approach	A (9.0) [155] <0.44>	C (22.9) [508] <0.82>
Northbound Approach	F (101.1) [#317] <0.86>	F (89.3) [324] <0.84>
Southbound Approach	D (39.8) [78] <0.39>	D (49.2) [95] <0.60>
15: Central Ave & Hilton Pkwy (un-signalized)		
Eastbound Left Turn	B (10.7) [<25] <0.01>	B (14.9) [<25] <0.01>
Westbound Left Turn	C (16.0) [<25] <0.02>	B (12.3) [<25] <0.01>
Northbound Right Turn	C (18.3) [<25] <0.02>	B (14.5) [<25] <0.03>
Southbound Right Turn	B (12.8) [<25] <0.05>	C (17.1) [<25] <0.02>
16: Hatton Pl/Merchant St & Hilton Pkwy (un-signalized)		
Northbound Right Turn	C (17.6) [<25] <0.04>	C (16.1) [<25] <0.17>
Southbound Right Turn	B (12.7) [<25] <0.02>	C (17.5) [<25] <0.04>
17: Indigo Run Dr/Whooping Crane Way & Hilton Pkwy (signal)		
Overall Intersection	**C (31.1)**	**D (42.1)**
Eastbound Approach	C (27.3) [693] <0.65>	C (30.8) [634] <0.71>
Westbound Approach	B (16.2) [343] <0.41>	C (31.3) [891] <0.75>
Northbound Approach	E (70.1) [112] <0.48>	E (68.9) [205] <0.68>
Southbound Approach	E (70.3) [#188] <0.78>	F (96.0) [#247] <0.98>

Preliminary 2023 Existing Results (Synchro)

Intersection & Movements	LOS (Delay, sec) [95th Queue Length, ft] <v/c ratio>	
	AM Peak Hour	PM Peak Hour
18: Cross Island Pkwy SB Ramp/Gumtree Rd & Honey Horn Rd (un-signalized)		
Eastbound Approach	B (11.0) [<25] <0.00>	B (12.8) [<25] <0.15>
19: Cross Island Pkwy SB Ramp & Marshland Rd (un-signalized)		
Westbound Left Turn	A (8.9) [<25] <0.12>	A (8.4) [<25] <0.14>
Southbound Left Turn	C (17.2) [<25] <0.08>	D (33.6) [35] <0.35>
Southbound Right Turn	A (9.2) [<25] <0.04>	B (12.9) [<25] <0.16>
20: Cross Island Pkwy NB Ramp & Marshland Rd (un-signalized)		
Eastbound Left Turn	A (8.2) [<25] <0.11>	A (8.4) [<25] <0.05>
Northbound Left Turn	B (14.5) [<25] <0.17>	C (23.0) [100] <0.61>
Northbound Right Turn	A (9.2) [<25] <0.07>	B (10.2) [<25] <0.20>

Preliminary 2023 Existing Results (Synchro)

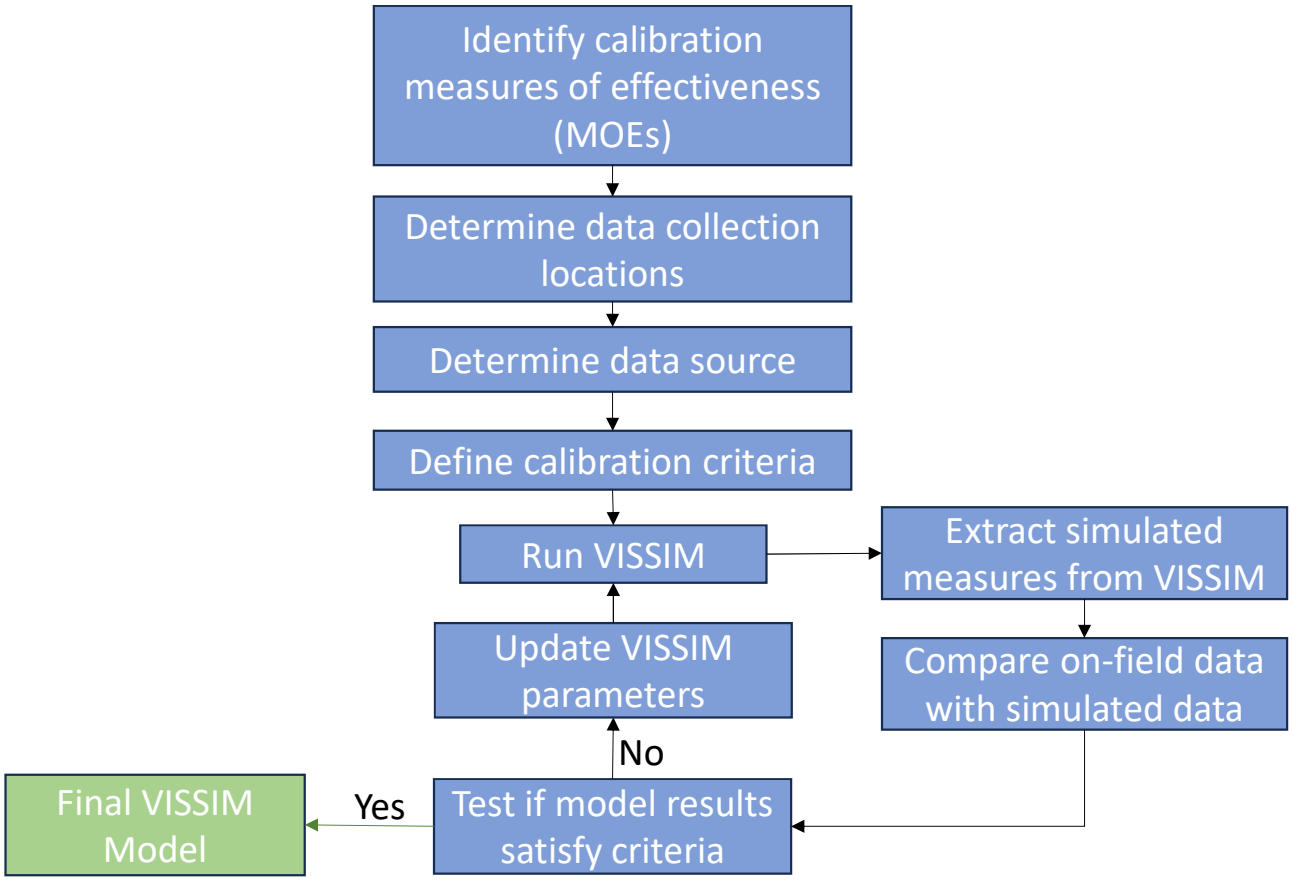
Intersection & Movements	LOS (Delay, sec) [95th Queue Length, ft] <v/c ratio>	
	AM Peak Hour	PM Peak Hour
21: Palmetto Bay Rd & Bay Pines Rd (un-signalized)		
Eastbound Left Turn	-	F (209.4) [30] <0.40>
Eastbound Right Turn	C (18.7) [<25] <0.02>	B (14.9) [<25] <0.03>
Northbound Left Turn	C (16.4) [<25] <0.02>	B (13.0) [<25] <0.05>
22: Palmetto Bay Rd & Point Comfort Rd/Arrow Rd (signal)		
Overall Intersection	**B (13.8)**	**C (21.1)**
Eastbound Approach	D (43.3) [175] <0.70>	C (30.2) [101] <0.38>
Westbound Approach	C (28.0) [74] <0.44>	D (46.9) [249] <0.88>
Northbound Approach	A (5.4) [75] <0.30>	B (17.8) [756] <0.66>
Southbound Approach	B (11.5) [535] <0.61>	B (15.4) [432] <0.65>
23: Palmetto Bay Rd & Genesta St (un-signalized)		
Westbound Approach	D (33.1) [<25] <0.08>	F (84.2) [<25] <0.19>
Southbound Left Turn	A (9.6) [<25] <0.02>	B (14.6) [<25] <0.01>
24: Palmetto Bay Rd & Palmetto Business Park Rd (un-signalized)		
Westbound Approach	D (33.8) [<25] <0.08>	F (61.2) [<25] <0.20>
Southbound Left Turn	A (9.6) [<25] <0.03>	B (14.6) [<25] <0.01>
25: Palmetto Bay Rd & Bow Cir (un-signalized)		
Westbound Left Turn	C (23.7) [<25] <0.03>	E (41.3) [<25] <0.10>
Westbound Right Turn	B (11.1) [<25] <0.01>	C (16.7) [<25] <0.03>
Southbound Left Turn	A (9.8) [<25] <0.05>	B (14.6) [<25] <0.03>
26: Palmetto Bay Rd & Archer Rd (un-signalized)		
Westbound Left Turn	C (24.7) [<25] <0.06>	E (41.3) [<25] <0.10>
Westbound Right Turn	B (11.2) [<25] <0.01>	C (16.7) [<25] <0.03>
Southbound Left Turn	A (9.9) [<25] <0.07>	B (14.6) [<25] <0.03>



Preliminary 2023 Existing Results (Synchro)

Intersection & Movements	LOS (Delay, sec) [95th Queue Length, ft] <v/c ratio>	
	AM Peak Hour	PM Peak Hour
27: Palmetto Bay Rd & Target Rd (signal)		
Overall Intersection	**B (10.6)**	**B (18.6)**
Eastbound Approach	D (39.4) [82] <0.32>	E (59.5) [247] <0.80>
Westbound Approach	E (56.6) [154] <0.68>	C (33.7) [119] <0.49>
Northbound Approach	A (8.7) [199] <0.31>	B (15.3) [530] <0.59>
Southbound Approach	A (3.9) [102] <0.58>	A (8.7) [155] <0.53>
28: Palmetto Bay Rd & Dunnagans Alley (un-signalized)		
Westbound Left Turn	D (26.5) [<25] <0.03>	E (40.3) [<25] <0.24>
Westbound Right Turn	B (11.4) [<25] <0.02>	C (17.1) [<25] <0.18>
Southbound Left Turn	B (10.6) [<25] <0.16>	B (13.0) [<25] <0.02>
29: Palmetto Bay Rd & Hilton Pkwy (Sea Pines Circle, RAB)		
Overall Intersection	**D (25.8)**	**C (24.4)**
Eastbound Approach	D (34.2) [200] <0.81>	E (45.6) [300] <0.92>
Westbound Approach	C (16.4) [125] <0.64>	E (36.6) [75] <0.85>
Northbound Approach	B (12.1) [75] <0.54>	D (32.4) [275] <0.88>
Southbound Approach	F (59.4) [500] <1.03>	E (39.2) [375] <0.94>

VISSIM Calibration Methodology



VISSIM Calibration Methodology

- Identify calibration MOEs
  - **Corridor Travel Times**
  - **Bottleneck Volumes**

- Determine data collection locations/source

Measure	Location	Data source
Travel time	• **Hilton Parkway** between Moss Creek and Indigo Run – EB and WB • From **Hilton Parkway** @Moss Creek to **Cross Island Parkway** @Sea Pine – NB and SB	Travel time runs in Dec' 23
Volume	• Hilton Parkway east of **Squire Pope** – EB and WB • Hilton Parkway west of **Spanish Wells** Spanish Wells – EB and WB • Cross Island Parkway north of **Marshland Rd interchange** – NB and SB	Traffic counts in Mar' 23

VISSIM Calibration Methodology

- Define calibration criteria
  - **Travel time targets**
    - ✓ Travel times on corridors extracted from December 2023 runs
    - ✓ Inflated by 15% to account for higher volumes in March vs. December
    - ✓ Town provided additional travel time data from March 2023
    - ✓ Factored in adaptive signal improvements based on FHWA guidelines
      - ✓ Adaptive signal system was not in place during March 2023
  - **Volume targets**
    - ✓ Traffic counts collected in March 2023
  - **Criteria**
    - ✓ Criteria for both travel time and volume – Within 10% of the observed data

VISSIM Calibration Methodology

- Calibration results
  - **Travel time results**

Corridor		Observed travel time (secs)		Simulated travel time (secs)		Difference	
		AM	PM	AM	PM	AM	PM
Hilton Parkway between Moss Creek and Indigo Run	EB	1108	672	1157	619	4.42%	-7.91%
	WB	605	1202	572	1252	-5.50%	4.17%
Hilton Parkway @Moss Creek to **Cross Island Parkway** @Sea Pine	SB	1378	821	1356	857	-1.58%	4.37%
	NB	800	1516	826	1520	3.20%	0.25%

All travel time targets are satisfied and met

VISSIM Calibration Methodology

- Calibration results
  - **Volume results**

Location	Observed travel time (secs)		Simulated travel time (secs)		Difference	
	AM	PM	AM	PM	AM	PM
Hilton Parkway west of Squire Pope EB	2774	2237	2970	2240	7.07%	0.13%
Hilton Parkway west of Squire Pope WB	1639	3030	1650	2898	0.67%	-4.36%
Hilton Parkway east of Spanish Wells EB	2729	1991	2929	1955	7.33%	-1.81%
Hilton Parkway east of Spanish Wells WB	1408	2623	1423	2614	1.07%	-0.34%
Cross Island Parkway north of Marshland Rd NB	975	1422	964	1371	-1.13%	-3.59%
Cross Island Parkway north of Marshland Rd SB	1416	1190	1486	1167	4.94%	-1.93%

All volume targets are satisfied and met

QUESTIONS?

https://www.islandpacket.com/news/local/traffic/article235209867.html

TOWN OF HILTON HEAD ISLAND

William Hilton Parkway Gateway Corridor Independent Review Advisory Committee

TO: William Hilton Parkway Gateway Corridor Independent Review Advisory Committee

FROM:

DATE: February 14, 2024

SUBJECT: Presentation of Final Recommendation for Growth Rate

RECOMMENDATION:

SUMMARY:

BACKGROUND:

ATTACHMENTS:

1. 3. WHP Traffic Growth Memo_02-12-2024

MEMORANDUM

LOCHMUELLER GROUP
411 North 10th Street, Suite 200
St. Louis, Missouri 63101
PHONE: 314.621.3395

To:	Shawn Colin, AICP (Town of Hilton Head)
Cc:	Bryan McIlwee, PE (Town of Hilton Head) Jim Iwanicki, PE (Town of Hilton Head)
From:	Nate Nohren, PE, PTOE Sharif Ullah, PE, PTP
Date:	February 12, 2024
Subject:	Independent Study of WHP Gateway Corridor Traffic Forecasting Memorandum

Lochmueller Group (Lochmueller) was retained by the Town of Hilton Head Island to conduct an independent study of the William Hilton Parkway (WHP) Gateway Corridor. This memorandum summarizes the review of the existing Lowcountry Area Transportation Study (LATS) Travel Demand Model (TDM) and recommends future traffic growth at the William Hilton Parkway Bridge connecting Hilton Head Island with the mainland. The future traffic growth estimation was based on a thorough review of historic traffic volumes, socio-economic trends for Jasper and Beaufort Counties, and accommodation and restaurant tax revenues collected per year by the Town of Hilton Head.

LATS TDM Evaluation

The Lowcountry TDM was updated in December 2021 with a new base year, 2019, and a new horizon year, 2045. Lochmueller completed a thorough review of the TDM to determine its ability to forecast traffic growth along WHP.

The detailed review of the LATS TDM revealed the following:

- The latest update was limited/minor in nature and did not include any major model changes.
- 2045 Horizon year roadway network did not include all future planned projects.
- Socio-economic (e.g., population, household, employment) growth for the horizon year 2045 was forecasted by simply extrapolating 2040 attributes of the previous version of the TDM.
- Socio-economic projections did not consider recent land-use plan updates from municipalities within the TDM boundaries.
- The TDM update did not include a complete model re-estimation and re-calibration.
- The LATS Long-Range 2045 Transportation Plan forecasts 48,500 more future population in Jasper and Beaufort Counties than incorporated into the TDM.

Based on these findings, Lochmueller staff determined the LATS TDM may not provide accurate traffic forecasts for WHP. To that end, alternative methods of traffic forecasting were investigated. First, key data indicators of traffic growth were researched.

Socio-Economic Trends for Hilton Head Island, Jasper County, and Beaufort County

Hilton Head Island is located in Beaufort County. Beaufort and neighboring Jasper County experienced significant growth over the last 20 years. **Table 1** shows population growth trends for Beaufort and Jasper Counties and Hilton Head Island based on the US Census. This data reflects permanent residents.

Table 1: Population Trends[1]

Geographic Unit	Year			Annual Growth (%) (2000 -2010)	Annual Growth (%) (2010 -2020)
	2000	2010	2020		
Beaufort County	120,937	162,233	187,117	3.0	1.4
Jasper County	20,678	24,777	28,791	1.8	1.5
Hilton Head Island	33,862	37,099	37,661	0.9	0.2

As shown in **Table 1**, both Beaufort and Jasper Counties experienced significant population growth since 2000. However, population growth was much slower between 2010 and 2020 compared to 2000 to 2010. Hilton Head Island experienced a modest growth rate of 0.2% from 2010 and 2020.

Table 2 shows the total employment for Beaufort and Jasper Counties and Hilton Head Island for 2010 and 2020.

Table 2: Total Employment Trend[1]

Geographic Unit	Year		Annual Growth (%) (2010 -2020)
	2010	2020	
Beaufort County	51,761	62,001	1.8
Jasper County	6,522	9,819	4.2
Hilton Head Island	21,346	21,854	0.2

As can be seen in **Table 2**, both Jasper and Beaufort Counties experienced significant growth in jobs between 2010 and 2020. Overall job growth in Hilton Head Island was small and similar to the island's population growth rate.

Population Growth Projections for Beaufort and Jasper Counties

Population growth estimates are a key element in forecasting traffic growth for a region. For this study, Lochmueller staff researched reliable population growth estimates for Beaufort and Jasper counties. The State of South Carolina's Revenue and Fiscal Affairs Office provides population growth estimates for all counties within the state through 2035. **Table 3** shows the population projections for Beaufort and Jasper Counties for 2035 and the corresponding growth rates.

Table 3: Population Growth Projections[2]

County	Year		Annual Growth Rate (%)
	2020	2035	
Beaufort	187,691	204,374	**0.56**
Jasper	29,073	34,046	**1**
Total	216,764	238,420	**0.6**

Historic Annual Average Daily Traffic Volume Trends at the WHP Bridge

Lochmueller staff obtained Annual Average Daily Traffic (AADT) volumes on WHP near the WHP Bridge (Site ID #0035) from the South Carolina Department of Transportation's Traffic Data Site[3]. **Table 4** shows the AADT volumes by year. These volumes effectively represent the volume of traffic entering and exiting Hilton Head Island via US 278.

As shown in **Table 4**, there was a significant reduction in growth between 2019 and 2020 and a significant increase in growth between 2020 and 2021. Such sudden changes were attributed to COVID-19 pandemic-related restrictions. Overall traffic growth on WHP from 2010 to 2023 was approximately 16.5%.

Table 4: AADT Volumes on WHP near the WHP Bridge[3]

Year	AADT	Annual Growth (%)
2010	49,600	
2011	49,900	0.60%
2012	50,700	1.60%
2013	52,200	2.96%
2014	53,200	1.92%
2015	54,700	2.82%
2016	54,700	0.00%
2017	56,300	2.93%
2018	56,100	-0.36%
2019	57,100	1.78%
2020	51,400	-9.98%
2021	57,400	11.67%
2022	57,400	0.00%
2023	57,800	0.70%

Short-Term Rental Permit and Tax Revenue Data

Lochmueller staff received information on the short-term rental units per year and the accommodation (hotel) and restaurant tax revenues collected by the Town of Hilton Head. The short-term rental unit information was available only for 2023. Thus, this information was not used in statistical analysis. The accommodation and restaurant tax revenue information was available from 2018 to 2023. Lochmueller staff evaluated the revenue data to test any relation between revenues and the volume of traffic entering and exiting Hilton Head Island. These measures are intended to represent the visitor population as compared to permanent residents reflected in the Census data. **Table 5** shows the annual accommodation and restaurant tax revenue information for the Town of Hilton Head Island.

Table 5: Annual Accommodation and Hospitality Tax (Source: Town of Hilton Head Island)

Year	Tax Revenue (2021 USD)	
	Accommodation Tax	Hospitality Tax
2018	$3,827,423	$7,419,881
2019	$3,964,475	$6,807,961
2020	$3,624,196	$6,598,684
2021	$5,561,900	$8,051,256
2022	$6,534,674	$9,213,533
2023	$6,260,297	$8,905,425

As shown in **Table 5**, the tax revenues have increased significantly since 2020 after a reduction due to Covid-19 Pandemic-related impacts. These increases have outpaced traffic growth on WHP entering/exiting the island and can be at least partially attributed to factors beyond the number of visitors to the island, such as high rates of inflation in recent years.

Traffic Growth Estimation Using Available Data

Lochmueller staff performed regression analyses utilizing the preceding available socio-economic and revenue information data as indicators of traffic on WHP at the WHP bridge. The regression analyses considered AADT volumes as the dependent variable and evaluated whether different independent variables (e.g., population, employment, tax revenue) had a statistically significant influence on the AADT volumes.

In regression analysis, the coefficient of determination (R^2) and the P-values were used to identify independent variables with significant impact on the dependent variable. R^2 values explain to what degree an independent variable (e.g., population) explains the variation of the dependent variable (AADT). R^2 values range from 0 to 1. An R^2 value of 0.7 indicates that 70% of the variation in the output variable can be explained by the independent variable(s).

The P-value is the probability that the observed difference between the dependent and independent variables is due to chance. Its value ranges from 0 to 1. A P-value close to 0 means that any observed difference in the dependent variable is more likely due to the independent variable (not by chance). For regression analysis with a 95% confidence interval, a P-value less than 0.05 would represent a strong correlation between the dependent and independent variables.

Table 6 shows the simple regression analysis (95% Confidence Interval) results in terms of R^2 and P-values for various independent variables relative to the dependent variable (AADT).

Table 6: Simple Regression Analysis Results with Different Independent Variables

Independent Variable	Co-efficient of Determination (R^2)	P-Value
Total Population of Beaufort and Jasper Counties	**0.95**	**1.5E-08**
Total Employment in Beaufort and Jasper Counties	**0.9**	**8.1E-07**
Accommodation Tax	0.64	0.1
Hospitality Tax	0.37	0.28

As shown in **Table 6,** the total population and total employment in Beaufort and Jasper Counties clearly influence the AADT volumes. P-values in both of these cases are very close to zero, which confirms the differences in AADT are influenced by changes in population and employment numbers in the two counties. On the other hand, there is no clear correlation between hospitality tax and AADT and between accommodation tax and AADT.

Lochmueller staff also completed a more complex multiple regression analysis combining both independent variables (population and employment). With the multiple regression analysis, the adjusted R^2 value showed almost no improvement. Therefore, the simple regression analysis using the total population of Beaufort and Jasper Counties was utilized to formulate an equation for estimating AADT on WHP as a function of population in the counties. **Equation 1** shows the regression equation for the AADT estimate.

Equation 1: Regression Equation for AADT Estimate

AADT = 0.262684*(Total Population of Beaufort and Jasper Counties) + 830

Equation 1 was then used to forecast future traffic on WHP based on anticipated population growth. Lochmueller estimated the 2045 population of Beaufort and Jasper Counties utilizing the following assumptions:

- Annual population growth in Hilton Head Island from 2020 to 2045 will be very small (0.1%). As the population within Hilton Head Island is stable and available land for development is very limited. Moreover, population growth in Hilton Head Island from 2010 to 2020 was only 0.2% per year.
- Annual population growth from 2020 and 2045 for the rest of Beaufort County and Jasper County will be 0.6%, as suggested by the State of South Carolina's Revenue and Fiscal Affairs Office, referenced in **Table 3**.

Based on the above-mentioned population growth assumptions, **Table 7** shows the projected 2045 population for the Beaufort and Jasper Counties.

Table 7: Projected Population

Geographic Unit	Projected Annual Growth Rate	Population	
		2020	2045
Hilton Head Island	0.10%	37,661	38,614
Jasper County and Beaufort County (Excluding Hilton Head Island)	0.60%	178,247	207,000
Total		**215,908**	**245,614**

As shown in **Table 7**, the total population in 2045 for Beaufort and Jasper Counties was estimated at 245,614. Applying **Equation 1**, that population number would translate to 65,349 AADT on WHP at the WHP Bridge.

Table 8 shows the estimated annual traffic growth rate from 2023 to 2045 based on the 2045 forecast of 65,425 compared to the 2023 traffic count.

Table 8: Projected Traffic Growth Rate at the WHP Bridge

Year	AADT	Annual Growth Rate (%)
2023	57,800	0.56
2045	65,349	

Conclusion

Lochmueller determined that the LATS TDM may not be a reliable source of future traffic on WHP. Through careful application of statistical analysis, an alternative method for forecasting traffic on WHP was developed using the population of Beaufort and Jasper Counties as the key indicator. Based on this method, traffic on WHP at the WHP Bridge is expected to increase by 0.56 percent annually, resulting in an AADT forecast of 65,349 daily vehicles in 2045.

Lochmueller Group appreciates the opportunity to serve the Town of Hilton Head by performing this independent analysis to determine the appropriate annual background growth rate that should be utilized for the overall corridor study. Should you have any questions regarding the information shared within this technical memorandum, please do not hesitate to contact us at nnohren@lochgroup.com or 217-821-8435.

Reference

1. U.S. Census Bureau (www.census.gov)
2. South Carolina Revenue and Fiscal Affairs Office. (www.rfa.sc.gov).
3. South Carolina Department of Transportation Traffic Counts Website. (www.scdot.org/travel/travel-trafficdata.aspx)

TOWN OF HILTON HEAD ISLAND

William Hilton Parkway Gateway Corridor Independent Review Advisory Committee

TO: William Hilton Parkway Gateway Corridor Independent Review Advisory Committee

FROM:

DATE: February 14, 2024

SUBJECT: Presentation of Adaptive System Operations

RECOMMENDATION:

SUMMARY:

BACKGROUND:

ATTACHMENTS:

None

TOWN OF HILTON HEAD ISLAND

William Hilton Parkway Gateway Corridor Independent Review Advisory Committee

TO: William Hilton Parkway Gateway Corridor Independent Review Advisory Committee

FROM:

DATE: February 14, 2024

SUBJECT: Presentation of 2023 Existing Conditions - Syncro Modeling based Findings

RECOMMENDATION:

SUMMARY:

BACKGROUND:

ATTACHMENTS:

None

TOWN OF HILTON HEAD ISLAND

William Hilton Parkway Gateway Corridor Independent Review Advisory Committee

TO: William Hilton Parkway Gateway Corridor Independent Review Advisory Committee
FROM:
DATE: February 14, 2024
SUBJECT: Update on VISSIM Modeling

RECOMMENDATION:

SUMMARY:

BACKGROUND:

ATTACHMENTS:

None