



Town of Hilton Head Island

William Hilton Parkway Gateway Corridor Independent Review Advisory Committee Meeting

Wednesday, June 12, 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 April 22, 2024.
 - b. Regular Meeting Minutes of May 8, 2024.
3. **Unfinished Business**
 - a. Update on Project Progress
4. **New Business**
 - a. Presentation of Findings for Downstream Intersection Impacts
 - b. Consideration of a Resolution to Accept the Findings of the William Hilton Parkway Gateway Corridor Independent End to End Analysis
5. **Appearance by Citizens:**
6. **Adjournment**

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“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
Monday, April 22, 2024, 1:00 PM
Minutes

1. Call to Order

Mayor Perry called the meeting to order at 1:00 PM. Those present were: Mayor Alan Perry, Chairman; Diederik Advocaat; Edward C. Warren, Jr.; Charles P. Walczak, PE; and Willie Young. Absent was: Herbert Ford, Alternate.

2. Approval of the Minutes

a. Meeting Minutes of April 10, 2024 will be approved at the next regular meeting.

Mr. Advocaat stated he had appeared remotely at the April 10, 2024, meeting; however, he had technical issues with his microphone and was unable to pose questions or comments. Therefore, he would like his points to be recorded. **Point 1:** At the last meeting, there was no discussion or opinion made concerning the bridges - one span vs. two spans. If you have a 1 span, 11 lane bridge, is that technically feasible or make sense? **Point 2:** The on-grade bypass option needs to be given serious consideration. It is less obtrusive environmentally, has less impact on Stoney, can be a quick connection to the Cross Island Parkway, has the lowest cost option, and cuts the commute time. **Point 3:** The grading matrix produced in my opinion is really comparing apples and oranges, and you cannot add numbers and come to a conclusion. **Point 4:** The bike lane - a cost/benefit analysis should be done, its usage, and whether funds for a bike lane can be better allocated elsewhere. **Point 5:** The adaptive management system - you are still working in clusters at the end of 278, there has to be a way these 2 can be connected during peak hours to create a better flow, and disabling the Windmill Harbour light during peak hours should be explored. **Point 6:** I question whether the bow tie alternative would actually work, and should be tested in your simulation models. **Point 7:** What is the cost picture for the elevated bypass, does it makes sense at all, and has it been discussed with SCDOT as a potential solution, and what is their opinion? **Point 8:** The \$425M which has been mentioned as a number, which is a 50% increase. Where does that come from and how is that put together. All these points I would like Lochmueller to consider, take them into account, and where applicable, add onto the simulation models.

3. Unfinished Business

Shawn Colin, Assistant Town Manager - Community Development, thanked everyone for their appearance on such a short notice. He explained that at the last meeting Lochmueller

had presented 4 viable Alternatives to advance for additional evaluation. A comparative assessment was presented for each of those Alternatives, and the Committee asked for additional information related to cost, and property impact to both public and private lands. Lochmueller has developed that additional information, along with a third element relating to the construction period, based on their professional opinion of the project. He turned the presentation over to Nate Nohren and his Lochmueller team, with Brad Strader and Brian Kinzelman available remotely.

Mr. Colin clarified for the Committee that with regard to Mr. Advocaat's points, the matter of additional funding for this project is not within the scope of work for Lochmueller.

a. Additional Details on Property Impacts, Cost, and Construction Period for Alternatives.

Nate Nohren, Project Manager for Lochmueller, introduced his team joining the meeting remotely: Kate Swinford and Michelle Romaine, Traffic Engineering Leads; Chad Costa, Chief Environmental Engineer; Lorne Jackson, Chief Roadway Engineer. He noted this meeting is designed to present the additional information requested at the April 10 meeting, which included delineating between public and private parcels, providing high order of magnitude cost estimates as well as estimates for the construction duration, and a matrix incorporating everything provided.

Mr. Nohren presented slides of the Alternatives, which slides are a part of the presentation contained in the agenda packet. He briefly outlined on the slides Alternative #1, Alternative #2, Alternative #3, and Alternative #4. He pointed out the travel time comparison when compared to 2045 No Build for each Alternative completed in Synchro for the Hilton Parkway corridor between Moss Creek and Indigo Run. Questions from the Committee members were answered by Mr. Nohren, Mr. Jackson, and Mr. Colin. Discussion ensued about whether SCDOT or Beaufort County has reviewed the Lochmueller plans. Mr. Colin reminded the Committee that a part of the scope for Lochmueller was a provision to refrain from any communication with the County or SCDOT during the engineering evaluations and assessments until the Committee identifies Alternatives to be advanced, at which point any design modifications would then be shared with both the County and SCDOT for consideration. He also raised the issue of where additional funding would come from above the original project cost for the deficient bridge and funding sources from the State Infrastructure Bank, grant, and referendum, leaving a current deficit of \$100M+. While there have been communications, he noted none were specifically about SCDOT vetting all of the engineering solutions. Mr. Colin indicated he would like to have the benefit of this meeting's results and the Committee's position so that he can schedule further conversations this week.

Mr. Nohren concluded his presentation with slides detailing the additional right of way required for each Alternative, with estimated cost ranging from \$426M to \$575M, and estimated construction duration ranging from 36 to 48 months, with the resulting scoring and ranking. A lengthy discussion followed concerning the scoring system and matrix, how impact was determined for additional right of way acreage needed, difficulties and

delays that could result, whether a sufficient right of way exists in Stoney to accommodate a larger paved roadway, and the review being made Lochmueller's structural engineers of the seismic study, with the initial analysis indicating no feasible way to retrofit an existing bridge to meet SEE requirements.

Mr. Colin stated that after the last meeting when Lochmueller presented its evaluation and comparative assessment of the alternatives, the goal was to identify an Alternative that would be the preferred Alternative to put through the VISSIM model so they could then perform the deeper analysis and evaluation, and they could move beyond the current study area, as well, to look at the full end-to-end that was requested down to Sea Pines Circle and to Wilborn and Indigo Run. Therefore, with the additional information presented today as requested plus construction duration, they would like the Committee to weigh in on the Alternative or Alternatives to continue to move forward and advance. He asked for the Committee's feedback at this time. Each Committee member stated their current choices and reasoning involved, but no clear consensus was reached.

Discussion continued among the Committee members and Mr. Nohren concerning keeping a 4-lane bridge, and Mr. Nohren indicated the analyses done by them and other studies reviewed, indicate this is not practical. Mayor Perry noted there are questions concerning whether the State Infrastructure Bank, the State House, or other source would grant the additional funding for the Alternative chosen, and conversations with these entities needed to be held soon. Mr. Colin agreed that with a potential shortfall in the current funding, and the failure of the Committee to narrow down the Alternatives for Lochmueller to proceed into the VISSIM model, it would be appropriate to share the Alternatives presented by Lochmueller with Beaufort County officials and SCDOT to determine feasibility and funding availability. The Committee members indicated their support for that plan, with Mr. Colin to schedule meetings and report back soon.

4. Appearance by Citizens

No citizens have requested to appear before the Committee regarding items not on the agenda. No comments were received through the Open Town Hall Portal.

A citizen remarked that the traffic lights are not synchronized nor optimized at Spanish Wells and Squire Pope Road intersections. He also mentioned that cost/value for benefit gained in minutes should be a consideration.

Christopher Cliffe noted he had attended 32 committee meetings since November 2018 chaired by David Johnson, 12 or more joint broadcasts of Beaufort County and the Town, numerous Town Council meetings, and at no time during those meetings until recently has cost come up as a determining factor. He questioned how the construction duration was computed, where the idea of pedestrian and bike paths originated, whether construction costs were based on 2022 numbers, and whether there were certain aspects of the bridge that would be the Town's responsibility.

An Indigo Run resident stressed the need for a fair, transparent, and independent analysis

free from political manipulation, but he questioned whether that is the case. He stated too much attention is being placed on an oversize bridge and not enough on traffic lights, which are the real cause of our congestion problems. Better and cheaper options, with less community impact on the Gullah community, have been suggested and ignored. The Town's decision will be one of the most consequential decision in years and will impact our Town for decades.

Louise Miller Cohen, a native of Hilton Head Island, stated God had given her a job to keep the Gullah Geechee culture alive on Hilton Head Island. All that is remaining is the land left by their ancestors and passed down to the current generation. She expressed her gratitude to everyone who feels their pain, and asked the members to put themselves in their shoes and help them keep their land, their culture, and their community.

5. New Business

None.

6. Adjournment

The meeting was declared adjourned at 2:42 PM.

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 MEETING
Wednesday, May 8, 2024, 1:00 PM
Minutes**

1. Call to Order

Mayor Perry called the meeting to order at 1:00 PM. Present were: Mayor Alan Perry, Chairman; Diederik Advocaat; Edward C. Warner, Jr.; and Willie Young. Absent were: Charles P. Walczak and Henry Ford, Alternate.

2. Approval of the Minutes

a. Regular Meeting Minutes of April 10, 2024

Mr. Warner made a motion to approve the minutes as presented, at which time Mr. Advocaat asked that a sentence on Page 3 describing a discussion with the consultant concerning a 4-lane bridge in the minutes of the April 10, 2024 meeting be struck. Mayor Perry asked for a review of the recording to provide more clarification, so the Motion by Mr. Warner was amended to approve the minutes with the following condition: that the recording be reviewed and the sentence in question be clarified. The motion was seconded by Mr. Advocaat and unanimously adopted.

b. Special Meeting Minutes of April 22, 2024

Mr. Warner made a motion to approve the minutes as presented, at which time Mr. Advocaat questioned whether the Committee had approved Mr. Colin moving forward with a meeting with Beaufort County and SCDOT concerning the Alternatives as stated in the minutes of the April 22, 2024 meeting. Mayor Perry asked for a review of the recording to provide more clarification, so the Motion by Mr. Warner was amended to approve the minutes with the following condition: that the recording be reviewed and the question of approval be clarified. The motion was seconded by Mr. Advocaat and unanimously adopted.

3. Unfinished Business

a. Update on Project Progress

Shawn Colin, Assistant Town Manager - Community Development, noted that Mr. Nohren and his team would be going through a more in-depth evaluation, but he presented a brief review of the scope of work and progress made. In addition, he would share the

responses on the Alternatives received from SCDOT at the Committee's request, as well as SCDOT responses to bridge rehab vs. new bridge, and safety information.

He pointed out that the authorizing resolution for this Committee was to perform 4 key functions, 3 of which have been completed, with the 4th to move through the scope of work to make sure it is executed in accordance with the scope that the Committee and Town Council had adopted, and that is now in progress.

b. Update on Committee Requests

At the last meeting, the Committee requested that there be an evaluation of Alternatives that were developed independently by Lochmueller, as well as the proposed Alternative called the Express Bypass, and labeled Bypass 3.1.

Mr. Colin reported that in accordance with the request from the Committee, a trip was made to Columbia last Wednesday. Alternatives #1, #2, #3, and #4 that were identified in the Lochmueller presentation, both on April 10 and April 22, were shared with the South Carolina Department of Transportation (SCDOT) in advance of the trip. The other Alternative not recommended by Lochmueller, but recommended for submission to SCDOT for response was the Bypass 3.1 that has been discussed for some time. After review, feedback from SCDOT regarding Alternatives was provided at the meeting. They also provided some information related to the bridge rehab vs. a reconstruction or new bridge, and did a thorough review of the Alternatives to provide technical evaluation and feedback related to feasibility or viability of the Alternatives to advance.

Mr. Advocaat questioned why all the Alternatives are being discussed with SCDOT when the Committee is still reviewing these. Mr. Colin explained he was working under the unanimous direction of the Committee to have these Alternatives vetted and to provide feedback. Mayor Perry and Mr. Advocaat disagreed on what had been agreed by the Committee to seek from the SCDOT and also the role of individual committee members who discuss matters outside the meeting, which may be construed as representing the Committee as a whole.

Mr. Colin reiterated that the direction supported by the Committee was to have the Alternatives vetted and request a response from SCDOT, but there was no direction on the method used to obtain that information, therefore a meeting was held in Columbia at which the feedback requested was obtained. He reported the general feedback was technical in nature related to project implications for costs, implication to the Environmental Assessment (EA) and timing, implications to funding, and then also, feasibility to advance through Federal Highway Administration. As a result of the discussion held on May 1, the SCDOT drafted a response letter, which was officially submitted by their Deputy Secretary of Transportation and Chief Engineer. A copy of the letter dated May 2, 2024, from the SCDOT was received after the agenda packet had been published to the public, however, a copy of that letter is attached to the Minutes and

made a part hereof, and a copy was provided to all Committee members.

Mr. Colin reviewed in detail the comments from the SCDOT letter that were specific to each Alternative. He noted that Alternatives #2, #3, and #4 are very low on feasibility or viability to be able to advance based upon the National Environmental Policy Act (NEPA) process and to get these through Federal Highways with minimizing impacts. These were the 3 Lochmueller Alternatives.

Questions concerning whether SCDOT provided a breakdown of the \$425M cost estimate and the size bridge this encompassed were addressed by Mr. Colin. He indicated the cost estimate is based upon the configuration that is included in the EA, with the project being a 6-lane bridge, with a barrier between eastbound and westbound traffic, including 2-10' shoulders, one in each direction operating as breakdown lanes, with 6' shoulders on the interior, having been reduced from 10' shoulders. It includes a 12' bike and pedestrian pathway along the bridge. He indicated those are the elements that are included, with mitigation also included that is the original mitigation that the SCDOT and County had worked on, but in his opinion may not be enough. Mr. Colin indicated he had not requested detailed breakdown of every line item in the \$425M estimate for this project, especially since no Alternative has yet been selected, and he suggested that at this point it would be beneficial to look at the comparative assessment between Alternatives to understand what the approximate cost of each might be. As the EA progressed, he noted that cost was not a factor in the initial assessment done to vet Alternatives, but instead was brought in as a secondary criteria, along with other items, as you work through the NEPA process. He noted there is still an element remaining that is required by the NEPA process, and that is a value engineering. Once an Alternative is selected, there is an advance made through Federal Highways and there is a value engineering that must be done to identify where there may be additional cost-savings for the project.

Mr. Colin identified those attending the meeting in Columbia from the Town as being: Mayor Perry, Town Manager Marc Orlando, Councilman Alex Brown, Shawn Colin, and Thomas Boxley, Chairman of the Community Development Corporation. From the County, those attending were: John Robinson, Interim Administrator, Joe Passiment, Chairman of Beaufort County Council, and Jared Fralix, PE, Assistant County Administrator-Infrastructure. Mr. Advocaat noted for the record that he considered the trip premature and suggested another trip be made after the Committee's evaluation. Mayor Perry noted Mr. Advocaat's concerns. A question concerning reducing the width of the 3 lanes was answered by Mr. Colin, who indicated that had been suggested in a previous conversation with SCDOT several years ago, and the response was concerns about the volume and speed associated with the bridge, and about freight traffic requiring a 12' foot lane width. Simply re-striping to accommodate 3-lanes on the existing bridges would not provide a breakdown lane. The SCDOT suggested that the County with Town support could submit a design exception that they could possibly support to reduce on Jenkins Island the 2 interior lanes in each direction to 11', but 12' lanes on the outer lanes should be maintained for freight traffic.

A motion was made by Mr. Advocaat that the Committee fully consider the horizontal bypass, and he would like Lochmueller to include in full detail in their evaluation. Mr. Young seconded the motion. Mayor Perry noted this could be done for discussion, but if it involves an increase in cost, then it must go back to Town Council for approval. Mr. Advocaat indicated he had been given a proxy from Mr. Walczak, who had indicated his approval. Mayor Perry noted that Mr. Walczak had given no notice of his proxy. Mayor Perry indicated while the Committee had not yet been given the Lochmueller presentation, he was unclear whether this would be beneficial at this point. Discussion followed concerning the viability of considering this prior to the Lochmueller presentation and the SCDOT response as to their findings. Mr. Colin offered to provide information to help make an educated vote, and he requested that Mr. Nohren and any member of the Lochmueller team to provide their opinion on this alternative from an engineering standpoint and state whether or not they believe it is a feasible alternative to advance. In response to Mr. Advocaat's request for an immediate vote, Mayor Perry called for a vote. The motion passed 3-2, with Mr. Advocaat, Mr. Young, and Mr. Advocaat voting by proxy on behalf of Mr. Walczak in favor. Those opposed were Mayor Perry and Mr. Warner.

Mr. Colin noted the Express Bypass 3.1 that was most recently submitted was provided to SCDOT for their input and feedback and assessment on viability for advancement. Due to the significant amount of impact to the Stoney Community, they thought this would trigger a full Environmental Impact Statement (EIS), and would increase significantly the environmental impacts. See full SCDOT comments in Letter dated May 2, 2024, as noted before and attached to the minutes.

Mr. Colin noted that Alternatives #2, #3 and #4 were given very low feasibility to advance, and there are statements from SCDOT that they would be eliminated, as is the case with the Express Bypass that was presented. What was submitted to SCDOT was exactly the same as what was submitted to the Town for consideration, and this is the response from SCDOT. They do not believe that the Express Bypass is a viable option on many counts, including property impact, environmental impact, cost, timeframe, and would not advance this. Federal Highways would likely reject this option if submitted due to the additional TCP impact, as it would be counter to their objectives of avoiding or minimizing property impacts and mitigating, in that order. He asked for Mr. Nohren's professional engineering opinion on the feasibility of this alternative advancing.

Mr. Nohren indicated that would be a part of his presentation later on the Agenda. Although it was not included in the scope of services, Lochmueller experts, Loren and Chad, and from traffic perspective it was also considered, and Lochmueller's would be provided.

Mr. Advocaat expressed concern about the independent consultant being privy to the in-depth conversations that have taken place with SCDOT and their findings. Mr. Nohren advised that the information developed by Lochmueller was completed before seeing the SCDOT document that was emailed to him today, and today's presentation would be their independent viewpoints on the Bypass.

Mr. Colin reiterated that he could not modify the scope of work just at the direction of this Committee, as the scope was approved by Town Council. The Committee's charge was to work with the consultant to move forward consistent with the scope of work they created. Before a contract amendment could be executed to evaluate this alternative, Town Council approval would be needed.

Mr. Colin continued with his presentation of the Alternatives which the Committee asked be vetted through SCDOT, as there have been some questions related to a bridge rehab vs. a new bridge, SCDOT was asked about the design cost and construction implications related to bridge rehabilitation vs. new bridge. He noted the existing bridge is approaching 70 years in its lifecycle and is nearing the end of the design lifecycle of 70-75 years set by SCDOT. Their response was that bridge rehabilitation could be performed, but their preference is for a new bridge. Mr. Colin also showed a slide of a Heat Map and Collision Data outlining a significant amount of traffic incidents or collisions from 2016 to 2024 through the bridge corridor section and also as you approach the Stoney Community. The detailed response from SCDOT, Heat Map, and Collision Data are all shown on the slides presented by Mr. Colin and included in the agenda packet. These were presented to provide reasons for advancing a project to put in place a mechanism to provide improvements in this area, including reducing speeds, traffic calming, and providing a safer transportation system through this area. He reviewed the Town Council Authorized Scope of Work, which included an independent study by a consultant to review all the assumptions, methodologies, and come up with what they believed for alternatives to advance for this project. They were encouraged to develop their own ideas and recommend their own alternatives, which in Mr. Colins's opinion has been done. The proposed plans have to pass NEPA review, and any additional impacts, including safety and other items that are considered by Federal Highway. He noted that wha Lochmueller has done is look at the alternatives and viability and ability for them to move through the NEPA process and have alternatives that are supported by Federal Highway. The anticipation for completion was set at 6 months. He briefly reviewed the Tasks, noting those completed, ongoing, provided by staff, or in progress.

c. Presentation of Findings - SCDOT Seismic Study Review

Mr. Nohren noted the members of the Lochmueller team joining the meeting remotely - Kate, Michelle, Chad, and Loren and new team members, Jason Hickle, structural department manager who helped perform the analysis of existing bridge data, and Shawn Dykes, in-house transit expert, who provided input on the Memorandum regarding the feasibility of trying to maintain 4-lanes west of Squire Pope. Mr. Nohren began his presentation, which is included in the agenda packet, and included an outline of the completion data for Tasks #1, #2, #3, #4 and #5, with an overall completion progress of 80%. Mr. Advocaat asked to see the live modeling of the area Hilton Head Plantation to Moss Creek, and Mr. Nohren indicated that is a part of Task #4, with VISSIM and Synchro modeling included for the entire study area. Mr. Nohren moved into Task 1.8, which is the SCDOT Seismic Study Review Findings, which was approved by the

Committee and Town Council. He explained this was a review only of the SCDOT approved US 278 Bridge Seismic Study, approximately 1800 pages in total, dated April 2020, which was received by Lochmueller on April 15, 2024. The focus for Lochmueller was on the detailed Life Cycle Cost Analysis (LCCA) to provide their input. He reviewed the 3 options considered, rehabilitation and seismic retrofits or construction of a new 6-lane structure similar to the SCDOT Preferred Alternative.

d. Presentation of Finding - Technical Report

Detailed review findings and key observations for Options 1, 2 and 3 can be found in the presentation included in the agenda packet. In summary, Mr. Nohrens stated Lochmueller does not recommend rehabilitation and/or retrofit options be pursued. Questions from Committee members were addressed by the Lochmueller team.

Michelle Romine, Lochmueller team member, attending the meeting remotely, continued with the 4-Lane Viability Technical Memo (Task 1.3.3). She stated the objective was to perform a cursory, high-level review to determine if one or more select strategies [second bridge, modifications to the existing mass transit system, implementation of a new ferry system, or implementation of a facility usage fee (congestion pricing)] could be implemented to allow for a 4-lane section of William Hilton Parkway between Moss Creek and Squire Pope Road, as included in the Agenda Packet. She outlined the various methods used to arrive at the concluding opinion by Lochmueller that these strategies should not be considered as viable alternatives to be used individually and/or collectively to solely address traffic congestion and mobility related concerns along US 278 within the project study area, to allow a four-lane section to be maintained along US 278 within the study area. Questions from Committee members were addressed by Ms. Romine.

e. Review of Overall Evaluation Matrix for 4 Alternatives

Mr. Nohren noted that at the April 22, 2024, meeting, a request was made for a delineation between public and private parcels. With additional information provided by the Town's GIS staff, Lochmueller used that data to determine if that impacted their findings. He pointed out that for Alternative #3, the acreage changed from the April 22 acreage of 1.4, and with the new information, the figure has been reduced to 1.1 acres, which also changes the rankings of the Alternatives. A discussion ensued with Mr. Advocaat reiterating his opposition to the way the rankings were determined, and the Lochmueller team noting that ultimately it was providing the Committee with the information needed to make the final decision and differentiate between the Alternatives through a high level evaluation. However, if desired, they offered to amend the matrix to remove the last 2 rows for scoring and ranking purposes. Mr. Colin noted the scope of work asked for the consultant to determine a way to evaluate, but did not specify exactly how that was to be accomplished. Elements were added that needed to be included in the evaluation, and questions could be made about the conclusions and findings that they have made or presented, but the goal of this Committee is to make sure the project is being executed against that scope of work. When you ask for an independent review based on engineering to provide you with information, this has been done according to the scope of work. You can disagree with some of their conclusions, but not the

methodology. Mr. Advocaat continued to voice his opinion that it was wrong to draw conclusions on the numbers and the Lochmueller team noted this practice has been applied across other projects throughout the country, but it should be considered just another way of screening.

Mr. Colin noted that the first 3 Tasks have been completed to move through the independent review of all Alternatives, including any additional Alternatives Lochmueller thought worthy to advance. He reported that feedback has been obtained from SCDOT at the Committee's direction, and there is an Alternative that is preferred from the SCDOT's feedback, and there are additional design modifications that could be considered to reduce the right of way impacts, further reducing the impact to the TCP and the Stoney Community. He stated that Lochmueller needs to evaluate the downstream impacts to complete the next few Tasks in the scope of work, so the final information can be included in a delivered report. He has asked Lochmueller to move forward with Alternative #1 with design modifications to consider based on the feedback received from SCDOT on the Alternatives, so this could be built into their modeling for VISSIM to fully understand the downstream impacts.

Mr. Colin reminded the Committee that the current Preferred Alternative that the County has recommended as part of the EA document, results in 3.4 acres of total impact to the TCP, with 1.12 acres being privately owned property. The current design as you come on-Island includes 2 left turn lanes from William Hilton Parkway eastbound onto Squire Pope Road, with a design modification being evaluated by SCDOT from a performance and right of way impact standpoint, to reduce those 2 left turn lanes eastbound to 1 left turn lane onto Squire Pope Road. Also, there are currently 2 right turn lanes proposed as you come southbound on Squire Pope Road and right turn onto William Hilton Parkway westbound going off-Island. There has been a design modification request made to SCDOT from the Town and the County to reduce those 2 right turn lanes to 1 right turn lane, again further reducing the right of way impact on the Squire Pope and William Hilton Parkway segment. The third modification is that going westbound off-Island, there is a dedicated left turn only lane that accesses the Crazy Crab Restaurant. There has been a design modification request to shift that westbound and have that turn lane serve all of the driveway points on the southern side. The SCDOT has committed to evaluate those design considerations to see if the right of way and cross-section would be reduced for the roadway need, and therefore reduce the property impacts that is in the EA proposals for the current project. We believe there will be significant reductions if those design modifications are supported, and understanding the relationship between the transportation corridor land use and the performance of the roadway are all considerations. One of the primary goals of Federal Highways is social justice and social impact, so they are significantly interested in alternatives that reduce the impact as much as possible. That is why the other Alternatives that were shared with the SCDOT were unlikely to be feasible from their standpoint. Those are the design modifications that we have requested from SCDOT and are included in the Alternative #1 to move the modeling for the next phase of the project forward at this time.

Comments and questions were posed by Committee members. Mr. Advocaat reiterated his opinion that this is still premature without finishing the study and looking at the new Alternative being put forth today. Mr. Warner questioned how firm the SCDOT is in their comments, and whether there might be a hesitation on their part. Mr. Colin reported they were not interested at all in advancing Alternative #4, and as mentioned before, money is a consideration, and whether there is another viable solution that minimizes the overall impact and is less expensive. They will consider some additional elements, but the position that has been conveyed to the Town and the County consistently is that those additional costs would have to be borne at the local level. He reported that when talks began about alternatives, they let us know they were not in favor of Alternative #4 with an elevated bypass, but they are willing to understand design modifications proposed from local input in the project.

f. Observations Related to Southern "Bypass" Alternative

Ms. Romine continued by noting that although not contained within their scope, Lochmueller did look at the Southern Bypass. She provided a cursory traffic overview, Mr. Jackson provided a cursory engineering overview, and Mr. Costa provided a cursory environmental overview, which are all included in the Agenda Packet. Mr. Advocaat stated his opinion that the critical element is traffic lights that basically stop traffic coming onto Hilton Head Island, and the horizontal bypass which circumvents the traffic lights, should be considered due to less impact on the wetlands and deserves a good look. Concerns were expressed about impact on the wetlands, timing of construction, traffic capacity and signals, and other issues by the Committee members. The Lockmueller team reiterated their opinion that there is no other alignment that could be done that will not have similar or more impacts as what has already been shared with the Committee. Mr. Costa stated that although he could not speak for the Federal Highway Administration, but based on his experience, his professional opinion is that the horizontal bypass would be a difficult project for them to approve. Mr. Colin noted that what he has heard from SCDOT concerning the southern bypass is that it has a very, very small chance, if any, of advancing through the process. Timing of integration of the Windmill Harbour and Moss Creek lights into the adaptive signal system was also discussed. Mr. Advocaat pointed out the Southern Bypass would remove traffic from the regular US 278, and it could be made a toll road if the Town chooses to do so, and would then be a significant source of income.

4. Appearance by Citizens

Public comments concerning agenda items were to be submitted electronically via the Open Town Hall Portal. No comments were received through the Portal, and no requests were received to appear before the Committee regarding non-agenda items. Several citizens appeared before the Committee and provided comments.

Christopher Cliffe commented that the SCDOT letter was quite explicit, with the Preferred Alternative being the only solution in their view, with no comments about the Lochmueller proposal, so it would appear they are making it quite clear that they are only prepared to

consider their option. He asked about a time constraint possible on the life span of the EA documents. He mentioned that Craig Winn had made it quite clear that the deficiencies in the McKay bridge had been provided for at a figure of \$40M, but the seismic study numbers revealed today, there is no comparison, and questioned where the \$40M figure came from. He also mentioned that Craig Winn had made it clear that Jenkins Island was not an accident hot spot, but the 6 fatalities shown on accident data presented today all involved DUI, so including accident data in SCDOT's Preferred Alternative is slightly misleading. The 6-lanes being pushed by everyone only pushes congestion further down the road, and the SCDOT Alternative is not a solution at all.

Mr. Baer congratulated the job being done by the Committee to rationalize that the SCDOT plan is the one and only true plan with the studies based on a few key principles of staying in SCDOT's footprint and questioned who authorized this. Secondly, he suggested they have ignored proving the congestion problem has been solved. He questioned where is the stress test if you get more than expected, which he predicted would be 4,000 vehicles per hour and the plan was unproven and would not actually work, and the data has not been presented to support the plan. He noted there is no value being placed on Gullah Geechee land that is being taken, and questions from citizens are being ducked with no answers provided, and called the study the most unscientific study he has ever seen.

Gray Smith commented on time saved eastbound and westbound reported by Lochmueller, using percentages that make it look worse. Today, the eastbound AM in 2045 would be 7 minutes longer if nothing was done, and westbound coming out would be 5 minutes longer and questioned the \$500M being spent for this. He questioned the SCDOT rejection of all Alternatives except their own, and erred at the beginning of this project by ending it at Spanish Wells Road rather than include the adjacent major roadways that are integral to the project, namely Spanish Wells Road and Gumtree Road, which they say cannot be considered as part of the project without greatly extending the time of construction. He commented that as a 12-year Hilton Head Island resident, he is being asked to accept an inferior product at the outrageous cost of \$500M, and he finds this totally unacceptable and asked the Committee to do the same.

Louise Cohen, a native of Hilton Head Island, noted she is a member of the 5th generation of her family. She reminded the Committee members that as they serve and make decisions for other people, they should have a heart and understand how much the highway would affect the community they live in and that was established by their ancestors as their inheritance. Their homes mean as much to them as yours means to you, and she urged them to care about destroying a community, their heritage, and their culture.

Richard Busy expressed his surprise that the beaurocrats in Columbia, the SCDOT, liked their plan the best. He noted they don't live here - we live here. He noted that due to the vote today, he would await an impartial and independent by the consultants on the Horizontal Bypass Plan. However, Mr, Colin has indicated Town Council will need to approve that, and he questioned whether this was just another obstacle, as this was first time any discussion has been held on the Horizontal

Bypass Plan - a plan which connects directly to the Cross Island Parkway, uses almost no private land, is less than half the price of your Plan #4. He pointed out that more than 50% of the traffic coming onto the Island are bound for the Cross Island Parkway, and yet none of the plans, including the State plan, provide a direct link to the Parkway. He could not understand how an 11-lane, aircraft carrier slab, a/k/a the bridges, is in keeping with preserving the character of Hilton Head Island.

Richard Ritter, a member of the Executive Committee of the new Hilton Head-Bluffton branch of the NAAPP, noted they are in the process of drafting and submitting to the Town a letter expressing the concerns of the NAACP about all of the traffic proposals discussed today. The letter must be approved by the membership and then submitted to the State Conference of the NAACP for review and approval, so he could not discuss it in detail. He expected to have the letter ready to be sent to the Mayor within the next 2 weeks. Obviously, the concerns expressed will be about the impact of the plans on the Stoney and Gullah Geechee Community as a whole. He questioned whether it was true that Alternative #1 would have no adverse impact, as they know it will because there are homes on both sides of US 278, as well as business properties, that will be impacted. He noted the Stoney Community is 1 of 14 historic designated communities on Hilton Head Island, putting them in a special place, and his concern is to make sure the interests of this historic neighborhood are being fully accounted for and there are no alternatives that can be discussed and put in place.

Sherry Sherman, President of the NAACP, commented she was new to the Island and wanted the Committee to keep in mind that the Gullah Geechee live here and are impacted by the decisions made by the Committee.

Trey Graves, born and raised on Hilton Head Island, empathized with the Committee over its complex and difficult decision to be made as to how to solve the traffic congestion problem. He pointed out that 90% of the people in the room would not be sitting in that traffic in 2045, but he probably would be. Although the alternative is radical that was proposed decades ago to put another bridge off the Island, not in the same footprint of the Graves Bridge, but somewhere at the end of Beach City Road that could connect to St. Helena Island that would provide 2 entrances and exits onto the Island, act as a great circle to keep traffic moving, and make it easier for the working people coming from Ridgeland and Hardeeville who sit in 4 pinch points before even reaching the bridge. He acknowledged it would be expensive, would have to be a toll bridge, take extensive engineering, would affect the beauty of the Island, but it is not a problem or solution that the majority of the people affected today and making the decisions today will have to deal with when we are your age.

Mr. Colin addressed Mr. Cliffe's question about the life span of the EA by explaining that projects that go through the NEPA process, whether it is an EIS or Environmental Assessment, the information the findings and conclusions are based on has a 3-year life span. So, that expires, then you have to amend or update the information, or potentially go through the entire process again. He indicated the end date for EA is the end of June, 2026.

5. New Business

None.

6. Adjournment

Mayor Perry declared the meeting adjourned at 3:41 PM.

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 Advisory Committee

TO: Advisory Committee
FROM: Shawn Colin, Assistant Town Manager
DATE: June 12 2024
SUBJECT: Transmittal of Meeting Materials from the Lochmueller Group
Agenda

RECOMMENDATION:

This memo serves as the transmittal document to cover the materials submitted for consideration by the Lochmueller Group. This material will be covered at the June 12, 2024 meeting of the William Hilton Parkway Gateway Corridor Advisory Committee.

ATTACHMENTS:

1. The Lochmueller Group Document Transmittal Memo – dated June 10, 2024
2. Independent Study of WHP Corridor – Summary of Submitted Memorandums by the Lochmueller Group – June 10, 2024
3. WHP Committee Presentation – dated June 12, 2024
4. Technical Memorandum – Downstream Impacts to Task 4 Intersections – dated June 10, 2024

TRANSMITTAL

To: Shawn Colin, AICP – Town of Hilton Head Island
From: Nate Nohren, PE, PTOE
Date: June 10, 2024
Subject: Copies of Presentation Materials for 6/12/2024 Advisory Committee Meeting
RE: William Hilton Parkway Gateway Corridor Independent Review

Hi Shawn,

Attached please find a PDF copy of the power point slides we will be presenting at the June 12, 2024, Advisory Committee meeting. The content provided within our presentation can be summarized as follows:

- **Update on Project Progress** – we will provide the Committee an update on what our team has been working on and/or completed since the May 8 Committee meeting. We also provide current status of percent-of-work completed to date, as well as on-going or upcoming work subtasks, relative to Tasks 1, 2, 3, and 4 as described in the Town approved Scope of Services Addendum (9/29/2023).
- **Presentation of Downstream Impacts to Task 4 Intersections (Assuming Implementation of Modified Alternative 1 from Task 3)** – we will present our findings related to the anticipated impacts to intersections downstream of Gum Tree Road and Cross Island Parkway, assuming the implementation of the “modified” Alternative #1, which includes the implementation of a single eastbound left-turn and a single southbound right-turn lane at Squire Pope Road.

We have also attached a PDF copy of the technical memorandum we’ve prepared that details our findings related to the evaluation of downstream impacts to Task 4 intersections, which includes accompanying data tables and exhibits.

Finally, we have also included a “Summary of Submitted Memorandums” PDF, which includes all memorandums that Lochmueller has completed and submitted to Town staff, as of June 10, 2024.

Please let me know if you have any questions regarding the information shared above. Otherwise, we look forward to speaking with you all on June 12.

Sincerely,



Nate Nohren, PE, PTOE

William Hilton Parkway Gateway Corridor Independent Review Advisory Committee Meeting

June 12th, 2024



Agenda

- Update on Project Progress
- Presentation of Downstream Impacts to Task 4 Intersections (Assuming Implementation of Modified Alternative 1 from Task 3)
- Questions

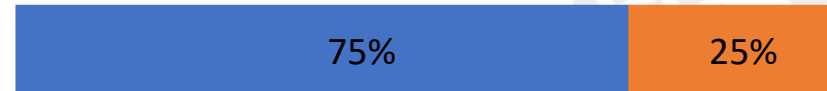
Update on Project Progress

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

- ✓ Completed evaluations RE: impacts to Task 4 intersections (assuming implementation of Modified Alternative 1 from Task 3)
- ✓ Continue traffic analyses and modeling (Synchro/VISSIM) to determine proposed mitigation strategies for 2045 Build Year conditions at intersections downstream of CIP

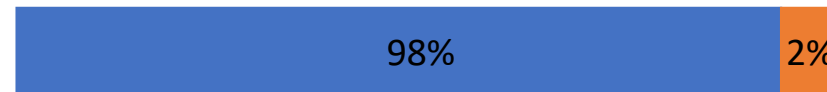
Update on Overall Project Progress (as of 6/10/24)

Overall ~75% Complete



- **Task #1: Project Initiation and Coordination**

- ~98% Complete



- Key Subtasks On-Going:

- Remaining scheduled meetings with Town staff

Update on Overall Project Progress (as of 6/10/24)

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

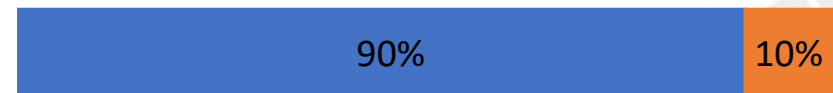
- 100% Complete



Update on Overall Project Progress (as of 6/10/24)

- Task #3: Traffic Model and Operational Update – Modified Original Project Study Area

- ~90% Complete



- Key Subtasks Forthcoming:
 - Prepare for and present results of Final Summary of Findings Memo RE: Task #3 Alternatives Analysis to be presented to Town Council (6/17 & 6/18)

Update on Overall Project Progress (as of 6/10/24)

- **Task #4: Traffic Model and Operational Update – Entire Project Study Area**

- **~50% Complete**



- Key Subtasks On-Going:

- Continue traffic analyses and modeling (Synchro/VISSIM) to determine proposed mitigation strategies for 2045 Build Year conditions at intersections downstream of CIP

- Key Subtasks Forthcoming:

- Prepare Draft Summary of Findings memo RE: Task 4 analyses (Task 4.4)
- Presentation of Task 4 findings to Town Council (date TBD) (Task 4.5)

Update on Overall Project Progress (as of 6/10/24)

- **Task #5: Final Report**
 - Will commence immediately following Task 4

Review Topics

- Independent Study Goals
- 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
 - Maximum Queue Length (feet)
 - Lane 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

Review Topics

- Traffic Volumes:
 - Hourly traffic volumes collected on March 22, 2023 were used for all scenarios
 - Corridor studies often reference the 30th highest day for traffic volumes to ensure that the volumes used in the analysis responsibly reflect peak conditions, while not over- or under-estimating the traffic volumes.
 - Historical traffic data was obtained from SCDOT from the most recent 365 days. Based on the data, it was determined that March 30, 2023 was the 30th highest day out of the year for traffic volumes. The counts collected on March 22, 2023 were adjusted to align with the estimated traffic volumes on March 30, 2023.
 - The volumes used in the study were provided during the Committee Meeting on March 27, 2024 as well as in the Corridor Alternatives Analysis Memorandum submitted on May 3, 2024. Excerpts are provided in the following slides.
- Stress Testing / Sensitivity Analysis
 - Per the scope of services, only the 2023 existing conditions and 2045 future year under one growth rate is to be evaluated. If the recommended improvements hold in 2045, then it is assumed that they would also work in the years 2025, 2030, 2035, and 2040 as those years would have lower traffic volumes than 2045.

2023 Existing Traffic Volumes



AM Peak Hour Volumes PM Peak Hour Volumes

<p>9</p> <p>212 ←</p> <p>0 ↓</p> <p>45 ↓</p> <p>Squire Pope Rd</p> <p>43 ↑</p> <p>1425 ←</p> <p>2 ↓</p>	<p>US 278</p> <p>156 →</p> <p>2620 →</p> <p>2 ↓</p>	<p>↑</p> <p>2</p> <p>0</p> <p>5</p> <p>Rd</p>
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<p>9</p> <p>341 ←</p> <p>2 ↓</p> <p>41 ↓</p> <p>Squire Pope Rd</p> <p>57 ↑</p> <p>2687 ←</p> <p>2 ↓</p>	<p>US 278</p> <p>222 →</p> <p>1992 →</p> <p>29 ↓</p>	<p>↑</p> <p>2</p> <p>25</p> <p>2</p> <p>Rd</p>
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<p>10</p> <p>76 ←</p> <p>Old Wildhorse Rd</p> <p>20 ↑</p> <p>1394 ←</p>	<p>US 278</p> <p>2670 →</p>	<p>↑</p> <p>2</p> <p>Rd</p>
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<p>10</p> <p>10 ←</p> <p>Old Wildhorse Rd</p> <p>64 ↑</p> <p>2736 ←</p>	<p>US 278</p> <p>2035 →</p>	<p>↑</p> <p>2</p> <p>Rd</p>
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<p>11</p> <p>12 ←</p> <p>70 ↓</p> <p>127 ↓</p> <p>Spanish Wells Rd</p> <p>56 ↑</p> <p>1281 ←</p> <p>71 ↓</p>	<p>US 278</p> <p>43 →</p> <p>2481 →</p> <p>146 ↓</p>	<p>↑</p> <p>121</p> <p>43</p> <p>121</p> <p>Rd</p>
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<p>11</p> <p>33 ←</p> <p>78 ↓</p> <p>62 ↓</p> <p>Spanish Wells Rd</p> <p>84 ↑</p> <p>2508 ←</p> <p>31 ↓</p>	<p>US 278</p> <p>51 →</p> <p>1869 →</p> <p>115 ↓</p>	<p>↑</p> <p>259</p> <p>47</p> <p>60</p> <p>Rd</p>
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<p>12</p> <p>92 ←</p> <p>179 ↓</p> <p>212 ↓</p> <p>Gumtree Rd</p> <p>189 ↑</p> <p>775 ←</p> <p>193 ↓</p>	<p>US 278</p> <p>154 →</p> <p>1527 →</p> <p>6 ↓</p>	<p>↑</p> <p>8</p> <p>144</p> <p>290</p> <p>Rd</p>
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<p>12</p> <p>107 ←</p> <p>183 ↓</p> <p>242 ↓</p> <p>Gumtree Rd</p> <p>326 ↑</p> <p>1542 ←</p> <p>195 ↓</p>	<p>US 278</p> <p>125 →</p> <p>1065 →</p> <p>23 ↓</p>	<p>↑</p> <p>224</p> <p>207</p> <p>277</p> <p>Rd</p>
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2045 No Build Traffic Volumes

- 0.56% Annual Growth Rate Applied



AM Peak Hour Volumes

PM Peak Hour Volumes

<p>9</p> <p>240 0 51</p> <p>Squire Pope Rd</p>	<p>49 1612 2</p>
<p>US 278</p> <p>176 2963 2</p>	<p>2 0 6</p>

<p>9</p> <p>386 2 46</p> <p>Squire Pope Rd</p>	<p>64 3039 2</p>
<p>US 278</p> <p>251 2253 33</p>	<p>2 28 2</p>

<p>10</p> <p>86</p> <p>Old Wildhorse Rd</p>	<p>23 1577</p> <p>Horse Rd</p>
<p>US 278</p> <p>3020</p>	

<p>10</p> <p>11</p> <p>Old Wildhorse Rd</p>	<p>73 3094</p> <p>Horse Rd</p>
<p>US 278</p> <p>2301</p>	

<p>11</p> <p>14 79 144</p>	<p>63 1449 80</p>
<p>US 278</p> <p>49 2806 165</p> <p>Spanish Wells Rd</p>	<p>137 49 137</p>

<p>11</p> <p>37 88 70</p>	<p>95 2837 35</p>
<p>US 278</p> <p>58 2113 130</p> <p>Spanish Wells Rd</p>	<p>293 53 68</p>

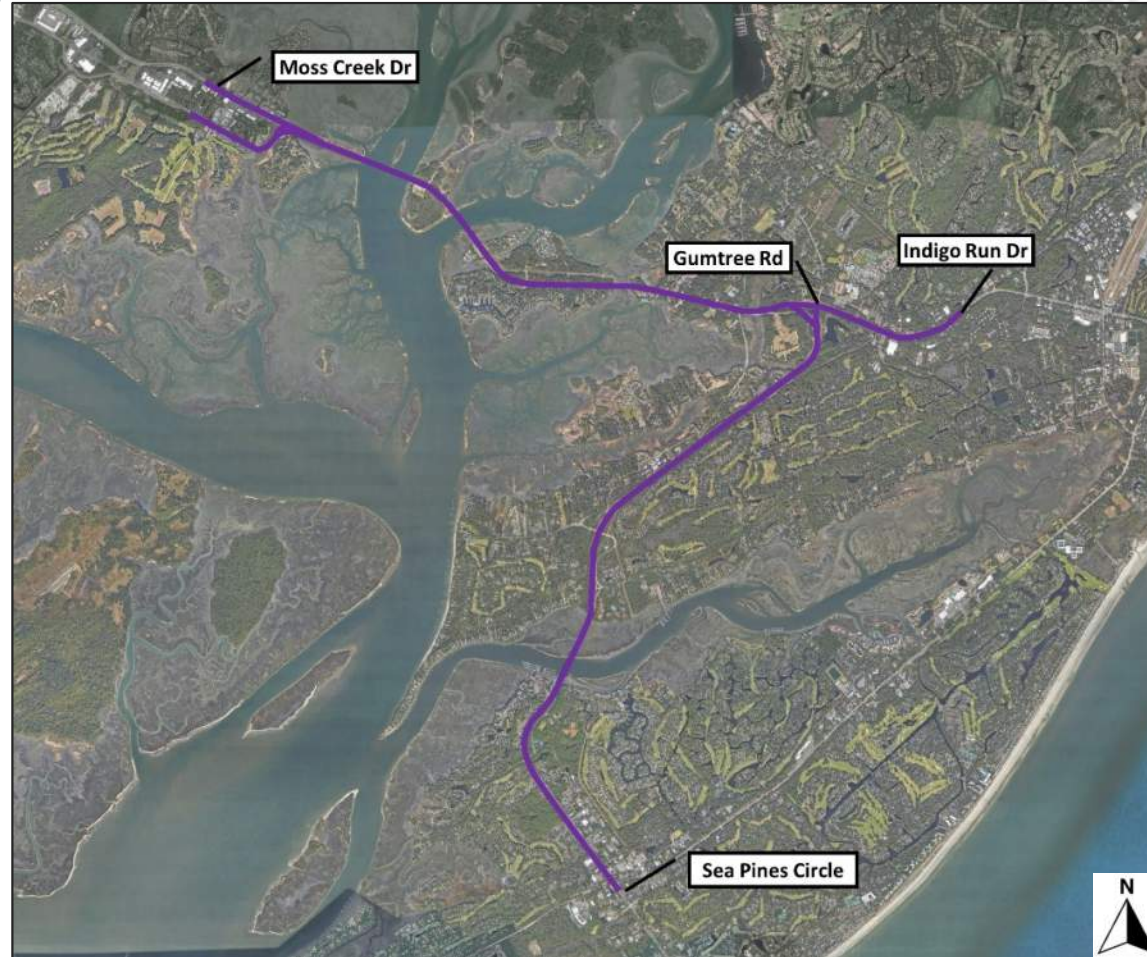
<p>12</p> <p>104 202 240</p>	<p>214 876 218</p>
<p>US 278</p> <p>174 1727 7</p> <p>Gumtree Rd</p>	<p>9 163 328</p>

<p>12</p> <p>121 207 274</p>	<p>369 1745 220</p>
<p>US 278</p> <p>141 1204 26</p> <p>Gumtree Rd</p>	<p>253 234 313</p>

Downstream Impacts to Task 4 Intersections (Assuming Implementation of Modified Alternative 1)

- Lochmueller previously analyzed four alternatives intended to improve the operating conditions along US 278 between Moss Creek Dr and Gumtree Rd.
- After review of the findings and discussion with SCDOT, Lochmueller was directed by the Town of Hilton Head Island to pursue Alternative 1: SCDOT Modified Recommended Preferred with modifications to provide a single eastbound left-turn lane and a single southbound right-turn lane at US 278 at Squire Pope Rd.
- As a next step, Lochmueller evaluated the impacts the modified Alternative 1 would have on the entire project study area and determined what, if any, improvements should be made to accommodate the 2045 forecasted traffic.

Downstream Impacts to Task 4 Intersections (Assuming Implementation of Modified Alternative 1)



Downstream Impacts to Task 4 Intersections (Assuming Implementation of Modified Alternative 1)

- VISSIM travel time results:
 - Under the 2045 No Build scenario, it is expected that it would take approximately 26.3 minutes to travel eastbound along Hilton Parkway between Moss Creek and Indigo Run during the AM peak hour. It is expected that the travel time will be reduced to approximately 10.5 minutes under the modified Alternative 1.
 - Under the 2045 No Build scenario, it is expected that it would take approximately 25.7 minutes to travel westbound along Hilton Parkway between Moss Creek and Indigo Run during the PM peak hour. It is expected that the travel time will be reduced to approximately 10.3 minutes under the modified Alternative 1.

Corridor		2045 No Build Simulated travel time (secs)		2045 Modified Alternative 1 Simulated Travel Time (secs)		% Difference	
		AM	PM	AM	PM	AM	PM
Hilton Parkway between Moss Creek and Indigo Run	EB	1579	642	628	631	-60.23%	-1.71%
	WB	584	1544	597	616	2.23%	-60.10%
Hilton Parkway @Moss Creek to Cross Island Parkway @Sea Pine	SB	1984	873	1387	874	-30.09%	0.11%
	NB	823	2465	848	904	3.04%	-63.33%

Downstream Impacts to Task 4 Intersections (Assuming Implementation of Modified Alternative 1)



Downstream Impacts to Task 4 Intersections (Assuming Implementation of Modified Alternative 1)



Downstream Impacts to Task 4 Intersections (Assuming Implementation of Modified Alternative 1)

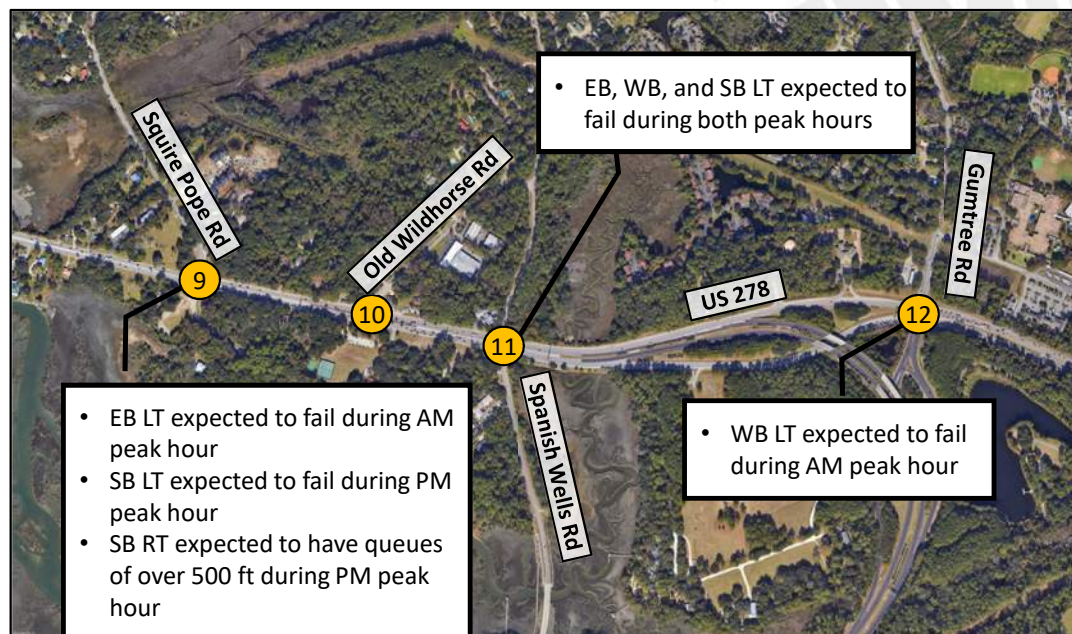


Downstream Impacts to Task 4 Intersections (Assuming Implementation of Modified Alternative 1)



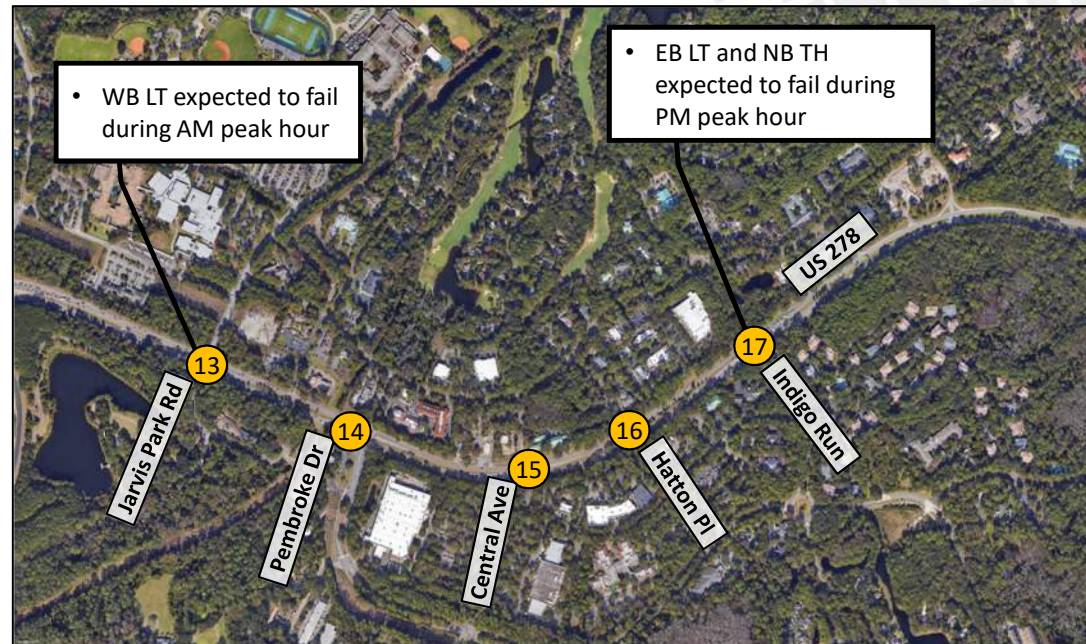
Downstream Impacts to Task 4 Intersections (Assuming Implementation of Modified Alternative 1)

Intersection & Movements	LOS (Delay, sec) [95 th Queue Length, ft] {Max Queue, ft}	
	AM Peak Hour	PM Peak Hour
9: Chamberlin Dr/Squire Pope Rd & Hilton Pkwy (signal)		
Overall Intersection	A (8.4)	B (11.8)
Eastbound Approach	A (7.0) [102] {697}	B (11.3) [124] {484}
Westbound Approach	A (8.2) [28] {237}	A (5.8) [36] {524}
Northbound Approach	C (30.4) [<25] {56}	E (67.0) [<25] {109}
Southbound Approach	C (22.6) [<25] {170}	D (51.1) [128] {521}
10: Old Wild Horse Rd & Hilton Pkwy (un-signalized)		
Southbound Approach	A (4.7) [<25] {56}	B (12.5) [<25] {32}
11: Spanish Wells Rd/Wild Horse Rd & Hilton Pkwy (signal)		
Overall Intersection	B (16.6)	C (23.8)
Eastbound Approach	B (11.0) [106] {998}	C (27.9) [198] {861}
Westbound Approach	B (11.2) [56] {248}	B (11.9) [84] {779}
Northbound Approach	D (48.6) [45] {135}	E (65.2) [77] {196}
Southbound Approach	E (75.9) [74] {292}	E (60.6) [49] {197}
12: Gumtree Rd & Hilton Pkwy (signal)		
Overall Intersection	D (37.1)	D (43.8)
Eastbound Approach	C (33.4) [164] {682}	E (57.1) [184] {562}
Westbound Approach	D (40.8) [130] {369}	D (35.4) [236] {786}
Northbound Approach	C (26.6) [61] {264}	D (37.3) [98] {327}
Southbound Approach	D (50.2) [93] {302}	D (52.7) [119] {453}



Downstream Impacts to Task 4 Intersections (Assuming Implementation of Modified Alternative 1)

Intersection & Movements	LOS (Delay, sec) [95 th Queue Length, ft] {Max Queue, ft}	
	AM Peak Hour	PM Peak Hour
13: Jarvis Park Rd/Wilborn Rd & Hilton Pkwy (signal)		
Overall Intersection	C (26.7)	B (18.8)
Eastbound Approach	C (25.4) [439] {1480}	B (16.3) [103] {735}
Westbound Approach	C (21.6) [101] {686}	B (18.2) [295] {1202}
Northbound Approach	E (68.6) [43] {170}	F (87.6) [56] {191}
Southbound Approach	D (39.1) [66] {228}	B (19.2) [29] {112}
14: Pembroke Dr/Museum St & Hilton Pkwy (signal)		
Overall Intersection	C (23.1)	C (24.5)
Eastbound Approach	B (18.9) [403] {1224}	B (17.2) [128] {910}
Westbound Approach	C (20.9) [75] {532}	C (21.6) [171] {903}
Northbound Approach	D (53.1) [71] {257}	E (60.1) [92] {299}
Southbound Approach	C (30.4) [<25] {89}	D (40.3) [<25] {111}
15: Central Ave & Hilton Pkwy (un-signalized)		
Eastbound Left Turn	A (7.1) [<25] {<25}	C (19.3) [<25] {25}
Westbound Left Turn	C (24.1) [<25] {26}	A (9.5) [<25] {<25}
Northbound Right Turn	C (16.5) [<25] {27}	B (13.9) [<25] {32}
Southbound Right Turn	B (12.5) [<25] {45}	C (18.3) [<25] {38}
16: Hatton Pl/Merchant St & Hilton Pkwy (un-signalized)		
Northbound Right Turn	A (9.5) [<25] {28}	A (7.8) [<25] {63}
Southbound Right Turn	B (11.3) [<25] {36}	C (22.9) [<25] {41}
17: Indigo Run Dr/Whooping Crane Way & Hilton Pkwy (signal)		
Overall Intersection	C (25.1)	D (36.1)
Eastbound Approach	C (21.1) [134] {846}	C (33.6) [128] {751}
Westbound Approach	B (17.3) [53] {359}	C (28.0) [207] {887}
Northbound Approach	E (56.6) [33] {114}	E (66.9) [65] {268}
Southbound Approach	D (47.7) [56] {192}	E (57.6) [77] {264}



*Highlighted cells indicate that the maximum queues are expected to extend into the next intersection

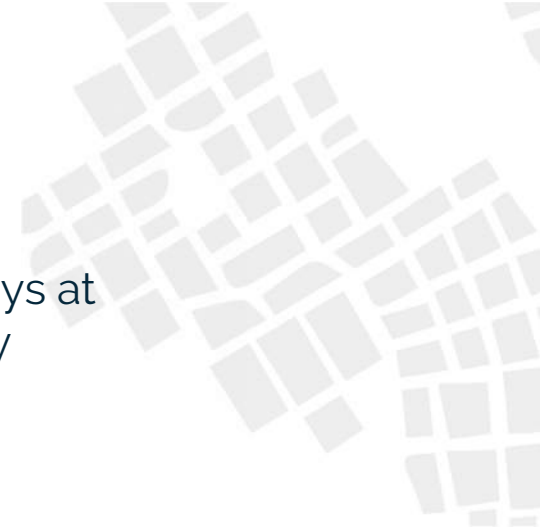
Downstream Impacts to Task 4 Intersections (Assuming Implementation of Modified Alternative 1)

Intersection & Movements	LOS (Delay, sec) [95 th Queue Length, ft] {Max Queue, ft}	
	AM Peak Hour	PM Peak Hour
27: Palmetto Bay Rd & Target Rd (signal)		
Overall Intersection	C (29.0)	B (19.0)
Eastbound Approach	D (36.9) [1380] {1512}	B (15.9) [142] {823}
Westbound Approach	B (12.9) [39] {249}	B (15.8) [85] {539}
Northbound Approach	C (26.6) [<25] {105}	D (39.5) [65] {263}
Southbound Approach	D (35.7) [34] {151}	C (25.5) [37] {140}
28: Palmetto Bay Rd & Dunnagans Alley (un-signalized)		
Westbound Left Turn	F (1,033.8) [80] {183}	F (101.3) [<25] {99}
Westbound Right Turn	F (91.9) [109] {217}	B (13.3) [35] {134}
Southbound Left Turn	C (22.0) [278] {513}	B (13.7) [29] {465}
29: Palmetto Bay Rd & Hilton Pkwy (Sea Pines Circle, RAB)		
Overall Intersection	F (53.4)	F (79.2)
Eastbound Approach	F (314.9) [809] {838}	F (179.8) [805] {838}
Westbound Approach	B (14.0) [56] {420}	F (189.7) [1644] {1658}
Northbound Approach	A (4.1) [<25] {209}	F (52.9) [463] {788}
Southbound Approach	C (18.5) [307] {461}	A (9.1) [111] {460}



Next Steps

- Evaluate potential improvements to mitigate long queues and delays at intersections downstream of Gumtree Rd and Cross Island Parkway
 - Improvements may include:
 - Reconfiguring intersections and turn lanes to improve efficiency
 - Addition of lanes to improve capacity
 - Sea Pines roundabout improvements



QUESTIONS?



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



APPENDIX



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



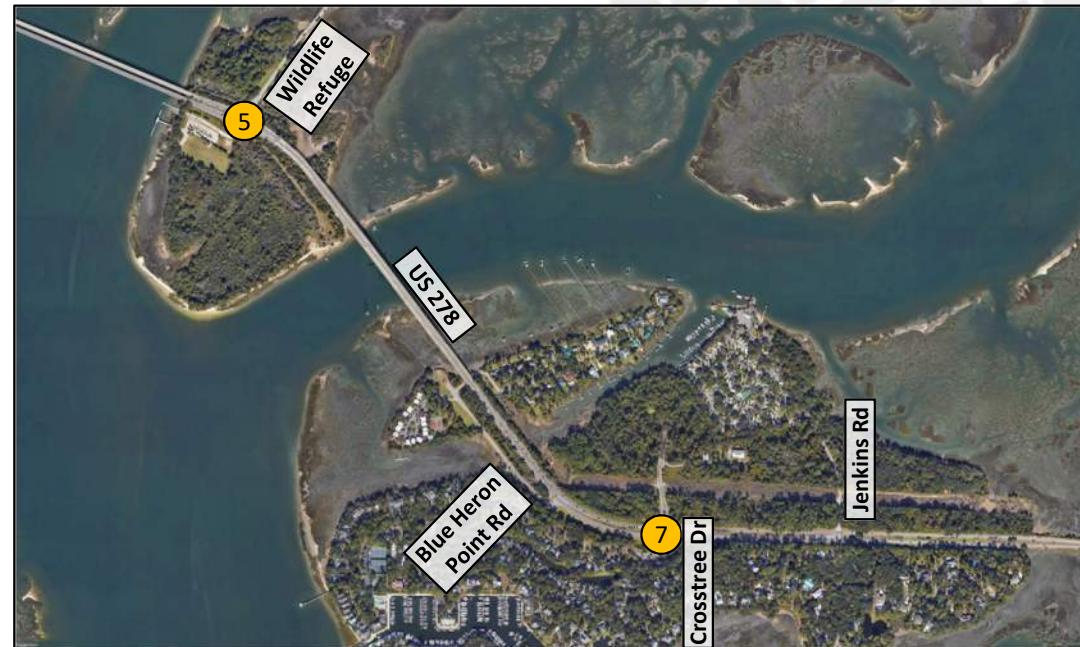
2045 Modified Alternative 1 Results (VISSIM) No Improvements East of Gumtree Rd

Intersection & Movements	LOS (Delay, sec) [95 th Queue Length, ft] {Max Queue, ft}	
	AM Peak Hour	PM Peak Hour
1: Buckingham Plantation Dr & Bluffton Pkwy (signal)		
Overall Intersection	B (17.0)	B (17.3)
Eastbound Approach	B (19.6) [63] {351}	C (20.4) [50] {242}
Westbound Approach	B (12.9) [<25] {188}	B (16.0) [51] {406}
Northbound Approach	B (14.3) [<25] {74}	B (14.2) [<25] {52}
Southbound Approach	A (6.6) [<25] {57}	A (9.6) [<25] {91}
2: Buckingham Plantation Dr/Moss Creek Dr & Hilton Pkwy (signal)		
Overall Intersection	B (15.8)	B (19.7)
Eastbound Approach	B (14.6) [59] {389}	B (15.2) [51] {313}
Westbound Approach	B (15.7) [41] {286}	C (21.5) [127] {700}
Northbound Approach	B (20.0) [<25] {159}	D (37.5) [<25] {104}
Southbound Approach	C (22.8) [<25] {84}	C (26.3) [<25] {116}
3: Salt Marsh Dr/Moss Creek Village & Hilton Pkwy (un-signalized)		
Eastbound Left Turn	A (8.0) [<25] {<25}	C (17.1) [<25] {50}
Westbound Left Turn	A (8.7) [<25] {<25}	A (8.3) [<25] {46}
Northbound Approach	B (11.3) [<25] {65}	B (10.7) [<25] {66}
Southbound Approach	A (8.6) [<25] {79}	B (10.5) [<25] {80}
4: Fording Island Rd Ext & Hilton Pkwy (un-signalized)		
Westbound Left Turn	C (16.7) [<25] {<25}	C (15.6) [<25] {32}
Northbound Approach	B (13.3) [<25] {37}	B (12.1) [<25] {43}



2045 Modified Alternative 1 Results (VISSIM) No Improvements East of Gumtree Rd

Intersection & Movements	LOS (Delay, sec) [95 th Queue Length, ft] <v/c ratio>	
	AM Peak Hour	PM Peak Hour
5: Boat Landing Driveway/Wildlife Refuge Driveway & Hilton Pkwy (un-signalized)		
Northbound Right-Turn	A (7.7) [<25] {<25}	A (6.4) [<25] {<25}
Southbound Right-Turn	No volumes observed	C (16.2) [<25] {25}
6: Blue Heron Point Rd & Hilton Pkwy (un-signalized)		
<i>Intersection combined with Crosstree Dr</i>		
7: Crosstree Dr (Windmill Harbour) & Hilton Pkwy (signal)		
Overall Intersection	A (9.5)	A (7.3)
Eastbound Approach	A (8.9) [80] {818}	A (9.2) [58] {581}
Westbound Approach	A (8.6) [36] {330}	A (3.3) [31] {188}
Northbound Approach	D (42.5) [<25] {124}	E (58.1) [61] {244}
Southbound Approach	D (50.9) [<25] {92}	D (44.9) [<25] {101}
8: Jenkins Rd & Hilton Pkwy (un-signalized)		
<i>Intersection combined with Crosstree Dr</i>		



Downstream Impacts to Task 4 Intersections (Assuming Implementation of Modified Alternative 1)

Intersection & Movements	LOS (Delay, sec) [95 th Queue Length, ft] {Max Queue, ft}	
	AM Peak Hour	PM Peak Hour
9: Chamberlin Dr/Squire Pope Rd & Hilton Pkwy (signal)		
Overall Intersection	A (8.4)	B (11.8)
Eastbound Approach	A (7.0) [102] {697}	B (11.3) [124] {484}
Westbound Approach	A (8.2) [28] {237}	A (5.8) [36] {524}
Northbound Approach	C (30.4) [<25] {56}	E (67.0) [<25] {109}
Southbound Approach	C (22.6) [<25] {170}	D (51.1) [128] {521}
10: Old Wild Horse Rd & Hilton Pkwy (un-signalized)		
Southbound Approach	A (4.7) [<25] {56}	B (12.5) [<25] {32}
11: Spanish Wells Rd/Wild Horse Rd & Hilton Pkwy (signal)		
Overall Intersection	B (16.6)	C (23.8)
Eastbound Approach	B (11.0) [106] {998}	C (27.9) [198] {861}
Westbound Approach	B (11.2) [56] {248}	B (11.9) [84] {779}
Northbound Approach	D (48.6) [45] {135}	E (65.2) [77] {196}
Southbound Approach	E (75.9) [74] {292}	E (60.6) [49] {197}
12: Gumtree Rd & Hilton Pkwy (signal)		
Overall Intersection	D (37.1)	D (43.8)
Eastbound Approach	C (33.4) [164] {682}	E (57.1) [184] {562}
Westbound Approach	D (40.8) [130] {369}	D (35.4) [236] {786}
Northbound Approach	C (26.6) [61] {264}	D (37.3) [98] {327}
Southbound Approach	D (50.2) [93] {302}	D (52.7) [119] {453}



Downstream Impacts to Task 4 Intersections (Assuming Implementation of Modified Alternative 1)

Intersection & Movements	LOS (Delay, sec) [95 th Queue Length, ft] {Max Queue, ft}	
	AM Peak Hour	PM Peak Hour
13: Jarvis Park Rd/Wilborn Rd & Hilton Pkwy (signal)		
Overall Intersection	C (26.7)	B (18.8)
Eastbound Approach	C (25.4) [439] {1480}	B (16.3) [103] {735}
Westbound Approach	C (21.6) [101] {686}	B (18.2) [295] {1202}
Northbound Approach	E (68.6) [43] {170}	F (87.6) [56] {191}
Southbound Approach	D (39.1) [66] {228}	B (19.2) [29] {112}
14: Pembroke Dr/Museum St & Hilton Pkwy (signal)		
Overall Intersection	C (23.1)	C (24.5)
Eastbound Approach	B (18.9) [403] {1224}	B (17.2) [128] {910}
Westbound Approach	C (20.9) [75] {532}	C (21.6) [171] {903}
Northbound Approach	D (53.1) [71] {257}	E (60.1) [92] {299}
Southbound Approach	C (30.4) [<25] {89}	D (40.3) [<25] {111}
15: Central Ave & Hilton Pkwy (un-signalized)		
Eastbound Left Turn	A (7.1) [<25] {<25}	C (19.3) [<25] {25}
Westbound Left Turn	C (24.1) [<25] {26}	A (9.5) [<25] {<25}
Northbound Right Turn	C (16.5) [<25] {27}	B (13.9) [<25] {32}
Southbound Right Turn	B (12.5) [<25] {45}	C (18.3) [<25] {38}
16: Hatton Pl/Merchant St & Hilton Pkwy (un-signalized)		
Northbound Right Turn	A (9.5) [<25] {28}	A (7.8) [<25] {63}
Southbound Right Turn	B (11.3) [<25] {36}	C (22.9) [<25] {41}
17: Indigo Run Dr/Whooping Crane Way & Hilton Pkwy (signal)		
Overall Intersection	C (25.1)	D (36.1)
Eastbound Approach	C (21.1) [134] {846}	C (33.6) [128] {751}
Westbound Approach	B (17.3) [53] {359}	C (28.0) [207] {887}
Northbound Approach	E (56.6) [33] {114}	E (66.9) [65] {268}
Southbound Approach	D (47.7) [56] {192}	E (57.6) [77] {264}



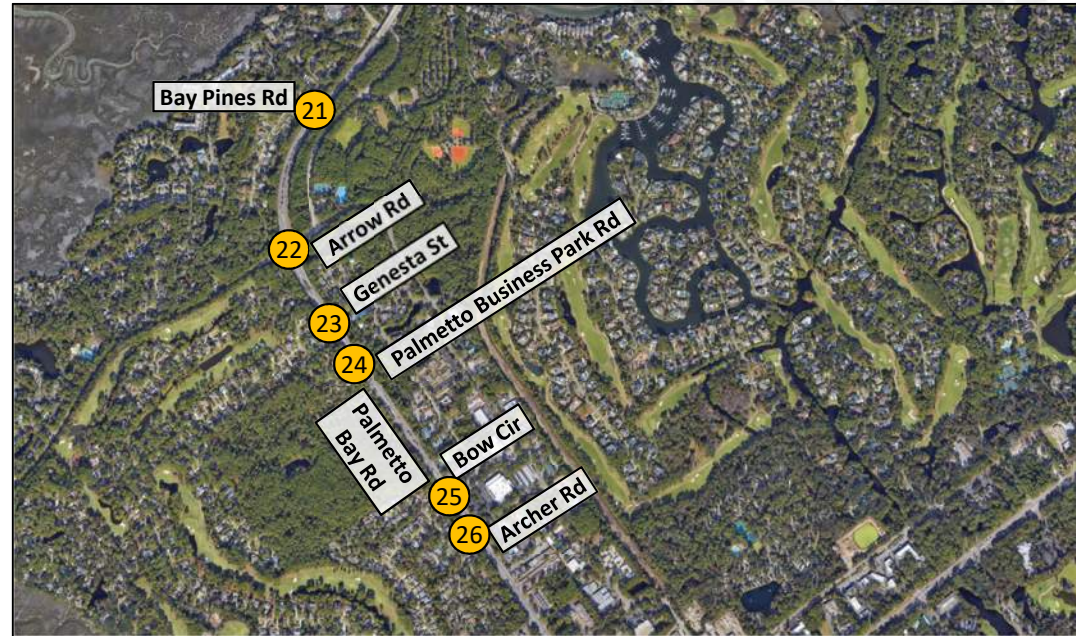
2045 Modified Alternative 1 Results (VISSIM) No Improvements East of Gumtree Rd

Intersection & Movements	LOS (Delay, sec) [95 th Queue Length, ft] {Max Queue, ft}	
	AM Peak Hour	PM Peak Hour
18: Cross Island Pkwy SB Ramp/Gumtree Rd & Honey Horn Rd (un-signalized)		
Eastbound Approach	B (11.4) [<25] {45}	B (10.9) [<25] {69}
19: Cross Island Pkwy SB Ramp & Marshland Rd (un-signalized)		
Westbound Left Turn	A (4.5) [<25] {63}	A (2.4) [<25] {70}
Southbound Left Turn	A (6.1) [<25] {85}	A (8.7) [<25] {127}
Southbound Right Turn	A (9.0) [<25] {51}	B (12.2) [<25] {94}
20: Cross Island Pkwy NB Ramp & Marshland Rd (un-signalized)		
Eastbound Left Turn	A (1.6) [<25] {49}	A (1.5) [<25] {<25}
Northbound Left Turn	B (12.1) [<25] {76}	D (27.7) [44] {227}
Northbound Right Turn	A (6.1) [<25] {101}	A (7.5) [61] {252}



2045 Modified Alternative 1 Results (VISSIM) No Improvements East of Gumtree Rd

Intersection & Movements	LOS (Delay, sec) [95 th Queue Length, ft] {Max Queue, ft}	
	AM Peak Hour	PM Peak Hour
21: Palmetto Bay Rd & Bay Pines Rd (un-signalized)		
Eastbound Left Turn	No volumes observed	E (47.6) [<25] {40}
Eastbound Right Turn	D (29.7) [<25] {41}	C (17.8) [<25] {38}
Northbound Left Turn	F (91.9) [<25] {60}	A (8.1) [<25] {26}
22: Palmetto Bay Rd & Point Comfort Rd/Arrow Rd (signal)		
Overall Intersection	C (33.0)	B (19.9)
Eastbound Approach	E (63.8) [98] {338}	C (30.6) [40] {184}
Westbound Approach	C (21.9) [26] {112}	C (28.0) [79] {328}
Northbound Approach	B (16.9) [50] {314}	B (16.6) [99] {607}
Southbound Approach	D (36.4) [840] {1658}	B (19.2) [120] {745}
23: Palmetto Bay Rd & Genesta St (un-signalized)		
Westbound Approach	F (303.0) [78] {175}	D (25.2) [<25] {54}
Southbound Left Turn	C (19.7) [494] {946}	B (13.6) [<25] {26}
24: Palmetto Bay Rd & Palmetto Business Park Rd (un-signalized)		
Westbound Approach	F (163.9) [109] {214}	C (17.9) [<25] {59}
Southbound Left Turn	B (10.5) [233] {419}	A (9.9) [<25] {<25}
25: Palmetto Bay Rd & Bow Cir (un-signalized)		
Westbound Left Turn	F (207.8) [89] {174}	E (45.5) [<25] {40}
Westbound Right Turn	F (70.2) [118] {207}	B (13.0) [<25] {74}
Southbound Left Turn	D (30.8) [1399] {1658}	B (14.3) [<25] {28}
26: Palmetto Bay Rd & Archer Rd (un-signalized)		
Westbound Left Turn	F (2,462.0) [73] {88}	E (35.5) [<25] {39}
Westbound Right Turn	B (13.2) [109] {125}	B (12.9) [<25] {76}
Southbound Left Turn	C (22.2) [380] {493}	B (11.6) [<25] {28}



Downstream Impacts to Task 4 Intersections (Assuming Implementation of Modified Alternative 1)

Intersection & Movements	LOS (Delay, sec) [95 th Queue Length, ft] {Max Queue, ft}	
	AM Peak Hour	PM Peak Hour
27: Palmetto Bay Rd & Target Rd (signal)		
Overall Intersection	C (29.0)	B (19.0)
Eastbound Approach	D (36.9) [1380] {1512}	B (15.9) [142] {823}
Westbound Approach	B (12.9) [39] {249}	B (15.8) [85] {539}
Northbound Approach	C (26.6) [<25] {105}	D (39.5) [65] {263}
Southbound Approach	D (35.7) [34] {151}	C (25.5) [37] {140}
28: Palmetto Bay Rd & Dunnagans Alley (un-signalized)		
Westbound Left Turn	F (1,033.8) [80] {183}	F (101.3) [<25] {99}
Westbound Right Turn	F (91.9) [109] {217}	B (13.3) [35] {134}
Southbound Left Turn	C (22.0) [278] {513}	B (13.7) [29] {465}
29: Palmetto Bay Rd & Hilton Pkwy (Sea Pines Circle, RAB)		
Overall Intersection	F (53.4)	F (79.2)
Eastbound Approach	F (314.9) [809] {838}	F (179.8) [805] {838}
Westbound Approach	B (14.0) [56] {420}	F (189.7) [1644] {1658}
Northbound Approach	A (4.1) [<25] {209}	F (52.9) [463] {788}
Southbound Approach	C (18.5) [307] {461}	A (9.1) [111] {460}



MEMO

To: Town of Hilton Head, South Carolina
From: Lochmueller Group
Date: June 10, 2024
Subject: Independent Study of the William Hilton Parkway Gateway Corridor
Downstream Impacts to Task 4 Intersections Memorandum – Task 4.4

Lochmueller Group (Lochmueller) has prepared the following memorandum pertaining to the Independent Study of the William Hilton Pkwy Gateway Corridor. Lochmueller previously submitted a Technical Memorandum dated May 3, 2024, which summarized four alternatives intended to improve the operating conditions along US 278 between Moss Creek Dr and Gumtree Rd. After review of the findings and discussion with SCDOT, Lochmueller was directed by the Town of Hilton Head Island to pursue Alternative 1: SCDOT Modified Recommended Preferred with modifications to provide a single eastbound left-turn lane and a single southbound right-turn lane at US 278 at Squire Pope Rd. As a next step, Lochmueller evaluated the impacts Alternative 1 would have on the entire project study area and determined what, if any, improvements should be made to accommodate the 2045 forecasted traffic at the intersections downstream of Gumtree Rd.

The intention of this memorandum is to provide the Town of Hilton Head with the findings related to traffic impacts that would be seen within the entire project area which includes US 278 from Moss Creek Drive to Indigo Run Drive, as well as US 278 (Palmetto Bay Road) from Cross Island Pkwy to Sea Pines Circle, assuming Alternative 1: SCDOT Modified Recommended Preferred with modifications is implemented. For the purposes of this memorandum, no additional physical improvements were modeled for intersections downstream of Gumtree Rd or Cross Island Parkway; however, those improvements were modeled as part of Lochmueller's next deliverable. **Figure 1** shows the entire project area which was used for the analysis.



FIGURE 1. ENTIRE PROJECT STUDY AREA

Downstream Impacts

As previously stated, the Town of Hilton Head Island directed Lochmueller to proceed with Alternative 1: SCDOT Modified Recommended Preferred with modifications to provide a single eastbound left-turn lane and a single southbound right-turn lane at US 278 at Squire Pope Rd. As such, Lochmueller was tasked to evaluate the impacts of the Modified Alternative 1 on the intersections downstream of Gumtree Rd and Cross Island Parkway.

It should be noted that the results shown in this memorandum include the adaptive signals as well as the previously recommended improvements at Gumtree Rd. The improvements at Gumtree Rd include keeping the intersections at-grade; completely reconfiguring the intersection to improve its efficiency; and providing dual left-turn lanes for the westbound, northbound, and southbound approaches. **Figure 2** displays SCDOT's recommended improvements for Alternative 1, excluding Gumtree Rd upgrades.

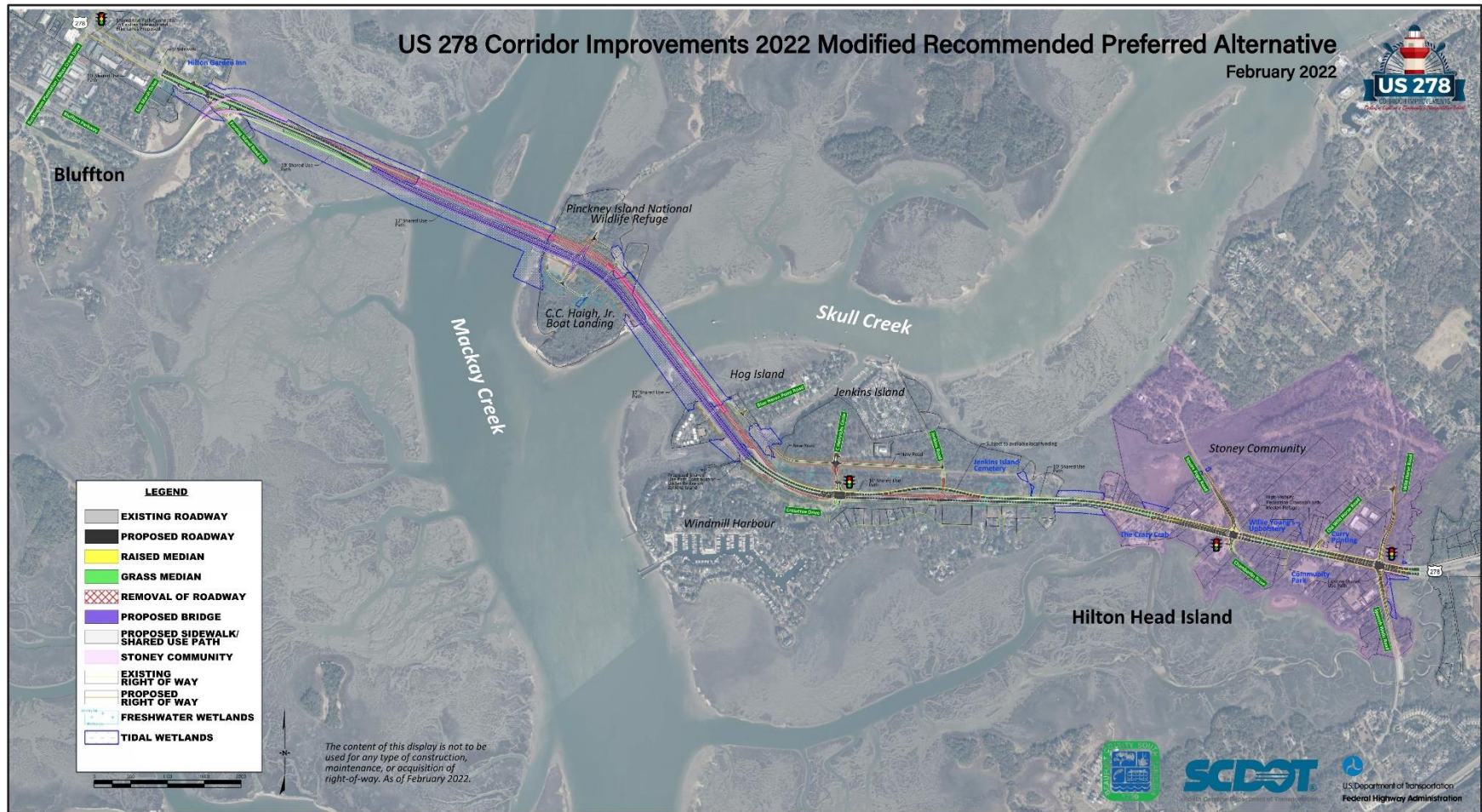


FIGURE 2. ALTERNATIVE 1: SCDOT MODIFIED RECOMMENDED PREFERRED

Modified Alternative 1 Traffic Analysis

The travel time calculations and traffic volumes between the 2045 No Build conditions and the 2045 Modified Alternative 1 conditions were evaluated using VISSIM which provides microsimulation travel time results along corridors. The traffic volumes used for the 2045 Modified Alternative 1 analysis are the same traffic volumes provided in the Technical Memorandum dated May 3, 2024.

As shown in **Table 1**, under the 2045 No Build scenario, it is expected that it would take approximately 26.3 minutes to travel eastbound along Hilton Parkway between Moss Creek and Indigo Run during the AM peak hour. It is expected that the travel time will be reduced to approximately 10.5 minutes under the Modified Alternative 1. Under the 2045 No Build scenario, it is expected that it would take approximately 25.7 minutes to travel westbound along Hilton Parkway between Moss Creek and Indigo Run during the PM peak hour. It is expected that the travel time will be reduced to approximately 10.3 minutes under the Modified Alternative 1.

TABLE 1. 2045 VISSIM TRAVEL TIME RESULTS

Corridor		2045 No Build Simulated travel time (secs)		2045 Modified Alternative 1 Simulated travel time (secs)		% Difference	
		AM	PM	AM	PM	AM	PM
William Hilton Pkwy between Moss Creek and Indigo Run	EB	1579	642	628	631	-60.23%	-1.71%
	WB	584	1544	597	616	2.23%	-60.10%
William Hilton Pkwy @Moss Creek to Cross Island Pkwy @Sea Pine	SB	1984	873	1387	874	-30.09%	0.11%
	NB	823	2465	848	904	3.04%	-63.33%

The 2045 Modified Alternative 1 operating conditions at the study intersections were evaluated using VISSIM, which is a microsimulation tool that replicates individual vehicles and their interactions within complex traffic streams, such as interchanges, freeways, and expressway corridors with signalized intersections. Intersection performance or traffic operations are quantified by six Levels of Service (LOS), which range from LOS A ("Free Flow") to LOS F ("Fully Saturated"). LOS D is considered acceptable for peak period conditions in urban and suburban areas. However, at side-street stop-controlled intersections, a LOS E or even a LOS F is a common occurrence for peak period conditions in urban and suburban areas as it is typical for delays to be longer for vehicles along the side-street as they wait to find acceptable gaps in the traffic to turn left into the traffic stream.

Levels of service for intersections are determined based on the average delay experienced by motorists. Signalized intersections reflect higher delay tolerances as compared to unsignalized and roundabout locations because motorists are accustomed to and accepting of longer delays at signals. For signalized and all-way stop intersections, the average control delay per vehicle is estimated for each movement and then aggregated for each approach and the intersection as a whole. For intersections with partial (side-street) stop control, the delay is calculated for the minor movements only (side-street approaches and major road left-turns) since thru traffic on the major road is not required to stop.

Table 2 summarizes the criterion for both signalized and unsignalized intersections, as defined by the Highway Capacity Manual (HCM) 6th Edition, last updated in 2016 by the Transportation Research Board.

TABLE 2. INTERSECTION LEVEL OF SERVICE THRESHOLDS

Level of Service	Control Delay per Vehicle (sec/veh)	
	Signalized	Unsignalized/Roundabout
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

The 2045 Modified Alternative 1 operating conditions are provided in **Table 3**. As shown, with the improvements proposed under the Modified Alternative 1, the study intersections are largely expected to operate favorably in the year 2045, with some exceptions. The eastbound and westbound through movements along US 278 are expected to operate with an overall LOS D or better between Moss Creek Dr and Gumtree Rd. While some of the side-street approaches at unsignalized intersections are still expected to experience failing conditions, the operations overall are significantly improved from the 2045 No Build scenario as vehicles can better complete their turning movement due to the reduction in congestion along the eastbound and westbound mainline.

The intersections downstream of Gumtree Rd are largely expected to operate favorably in 2045 with no improvements in place. However, long eastbound queues extending from Pembroke Dr through Gumtree Rd are expected during the AM peak hour. Similarly, the westbound queue at Jarvis Park Rd/Wilborn Rd is expected to extend back to Pembroke Dr during the PM peak hour. Furthermore, the mainline is expected to be over capacity in the year 2045. However, overall, the intersections are expected to operate acceptably with an overall LOS D or better during both peak periods.

As shown, the northbound approach at Jarvis Park Rd/Wilborn Rd is expected to have a failing LOS during the PM peak hour. It should be noted that this approach has minimal traffic volumes and the maximum queue expected is only approximately 200 ft. The eastbound left-turn movement at Indigo Run Dr is also expected to fail during the PM peak hour. The maximum queue length is expected to be approximately 335 ft, which would be contained within the existing turn lane.

Along Palmetto Bay Rd, the roundabout at Sea Pines is expected to fail during both AM and PM peak hours. The failing conditions result in long queue lengths. The southbound queue is expected to extend past the study intersection at Target Rd and towards Point Comfort Rd during the AM peak hour. This results in failing movements for the westbound left-turns out of the unsignalized intersections along Palmetto Bay Rd as vehicles are unable to find a gap in the traffic to complete their turning movement. During the PM peak hour, nearly every approach of Sea Pines Circle is expected to fail in 2045 with no improvements in place as the roundabout is unable to accommodate the expected traffic volumes.

TABLE 3. 2045 MODIFIED ALTERNATIVE 1 OPERATING CONDITIONS (VISSIM)

Intersection & Movements	LOS (Delay, sec) [95 th Queue Length, ft] {Max Queue, ft}	
	AM Peak Hour	PM Peak Hour
1: Buckingham Plantation Dr & Bluffton Pkwy (signal)		
Overall Intersection	B (17.0)	B (17.3)
Eastbound Approach	B (19.6) [63] {351}	C (20.4) [50] {242}
Westbound Approach	B (12.9) [<25] {188}	B (16.0) [51] {406}
Northbound Approach	B (14.3) [<25] {74}	B (14.2) [<25] {52}
Southbound Approach	A (6.6) [<25] {57}	A (9.6) [<25] {91}
2: Buckingham Plantation Dr/Moss Creek Dr & William Hilton Pkwy (signal)		
Overall Intersection	B (15.8)	B (19.7)
Eastbound Approach	B (14.6) [59] {389}	B (15.2) [51] {313}
Westbound Approach	B (15.7) [41] {286}	C (21.5) [127] {700}
Northbound Approach	B (20.0) [<25] {159}	D (37.5) [<25] {104}
Southbound Approach	C (22.8) [<25] {84}	C (26.3) [<25] {116}
3: Salt Marsh Dr/Moss Creek Village & William Hilton Pkwy (un-signalized)		
Eastbound Left Turn	A (8.0) [<25] {<25}	C (17.1) [<25] {50}
Westbound Left Turn	A (8.7) [<25] {<25}	A (8.3) [<25] {46}
Northbound Approach	B (11.3) [<25] {65}	B (10.7) [<25] {66}
Southbound Approach	A (8.6) [<25] {79}	B (10.5) [<25] {80}
4: Fording Island Rd Ext & William Hilton Pkwy (un-signalized)		
Westbound Left Turn	C (16.7) [<25] {<25}	C (15.6) [<25] {32}
Northbound Approach	B (13.3) [<25] {37}	B (12.1) [<25] {43}
5: Boat Landing Driveway/Wildlife Refuge Driveway & William Hilton Pkwy (un-signalized)		
Northbound Right-Turn	A (7.7) [<25] {<25}	A (6.4) [<25] {<25}
Southbound Right-Turn	No volumes observed	C (16.2) [<25] {25}
6: Blue Heron Point Rd & William Hilton Pkwy (un-signalized)		
	<i>Intersection combined with Crosstree Dr</i>	
7: Crosstree Dr (Windmill Harbour) & William Hilton Pkwy (signal)		
Overall Intersection	A (9.5)	A (7.3)
Eastbound Approach	A (8.9) [80] {818}	A (9.2) [58] {581}
Westbound Approach	A (8.6) [36] {330}	A (3.3) [31] {188}
Northbound Approach	D (42.5) [<25] {124}	E (58.1) [61] {244}
Southbound Approach	D (50.9) [<25] {92}	D (44.9) [<25] {101}

8: Jenkins Rd & William Hilton Pkwy (un-signalized)		
<i>Intersection combined with Crosstree Dr</i>		
9: Chamberlin Dr/Squire Pope Rd & William Hilton Pkwy (signal)		
Overall Intersection	A (8.4)	B (11.8)
Eastbound Approach	A (7.0) [102] {697}	B (11.3) [124] {484}
Westbound Approach	A (8.2) [28] {237}	A (5.8) [36] {524}
Northbound Approach	C (30.4) [<25] {56}	E (67.0) [<25] {109}
Southbound Approach	C (22.6) [<25] {170}	D (51.1) [128] {521}
10: Old Wild Horse Rd & William Hilton Pkwy (un-signalized)		
Southbound Approach	A (4.7) [<25] {56}	B (12.5) [<25] {32}
11: Spanish Wells Rd/Wild Horse Rd & William Hilton Pkwy (signal)		
Overall Intersection	B (16.6)	C (23.8)
Eastbound Approach	B (11.0) [106] {998}	C (27.9) [198] {861}
Westbound Approach	B (11.2) [56] {248}	B (11.9) [84] {779}
Northbound Approach	D (48.6) [45] {135}	E (65.2) [77] {196}
Southbound Approach	E (75.9) [74] {292}	E (60.6) [49] {197}
12: Gumtree Rd & William Hilton Pkwy (signal)		
Overall Intersection	D (37.1)	D (43.8)
Eastbound Approach	C (33.4) [164] {682}	E (57.1) [184] {562}
Westbound Approach	D (40.8) [130] {369}	D (35.4) [236] {786}
Northbound Approach	C (26.6) [61] {264}	D (37.3) [98] {327}
Southbound Approach	D (50.2) [93] {302}	D (52.7) [119] {453}
13: Jarvis Park Rd/Wilborn Rd & William Hilton Pkwy (signal)		
Overall Intersection	C (26.7)	B (18.8)
Eastbound Approach	C (25.4) [439] {1480}	B (16.3) [103] {735}
Westbound Approach	C (21.6) [101] {686}	B (18.2) [295] {1202}
Northbound Approach	E (68.6) [43] {170}	F (87.6) [56] {191}
Southbound Approach	D (39.1) [66] {228}	B (19.2) [29] {112}
14: Pembroke Dr/Museum St & William Hilton Pkwy (signal)		
Overall Intersection	C (23.1)	C (24.5)
Eastbound Approach	B (18.9) [403] {1224}	B (17.2) [128] {910}
Westbound Approach	C (20.9) [75] {532}	C (21.6) [171] {903}
Northbound Approach	D (53.1) [71] {257}	E (60.1) [92] {299}
Southbound Approach	C (30.4) [<25] {89}	D (40.3) [<25] {111}

15: Central Ave & William Hilton Pkwy (un-signalized)		
Eastbound Left Turn	A (7.1) [<25] {<25}	C (19.3) [<25] {25}
Westbound Left Turn	C (24.1) [<25] {26}	A (9.5) [<25] {<25}
Northbound Right Turn	C (16.5) [<25] {27}	B (13.9) [<25] {32}
Southbound Right Turn	B (12.5) [<25] {45}	C (18.3) [<25] {38}
16: Hatton Pl/Merchant St & William Hilton Pkwy (un-signalized)		
Northbound Right Turn	A (9.5) [<25] {28}	A (7.8) [<25] {63}
Southbound Right Turn	B (11.3) [<25] {36}	C (22.9) [<25] {41}
17: Indigo Run Dr/Whooping Crane Way & William Hilton Pkwy (signal)		
Overall Intersection	C (25.1)	D (36.1)
Eastbound Approach	C (21.1) [134] {846}	C (33.6) [128] {751}
Westbound Approach	B (17.3) [53] {359}	C (28.0) [207] {887}
Northbound Approach	E (56.6) [33] {114}	E (66.9) [65] {268}
Southbound Approach	D (47.7) [56] {192}	E (57.6) [77] {264}
18: Cross Island Pkwy SB Ramp/Gumtree Rd & Honey Horn Rd (un-signalized)		
Eastbound Approach	B (11.4) [<25] {45}	B (10.9) [<25] {69}
19: Cross Island Pkwy SB Ramp & Marshland Rd (un-signalized)		
Westbound Left Turn	A (4.5) [<25] {63}	A (2.4) [<25] {70}
Southbound Left Turn	A (6.1) [<25] {85}	A (8.7) [<25] {127}
Southbound Right Turn	A (9.0) [<25] {51}	B (12.2) [<25] {94}
20: Cross Island Pkwy NB Ramp & Marshland Rd (un-signalized)		
Eastbound Left Turn	A (1.6) [<25] {49}	A (1.5) [<25] {<25}
Northbound Left Turn	B (12.1) [<25] {76}	D (27.7) [44] {227}
Northbound Right Turn	A (6.1) [<25] {101}	A (7.5) [61] {252}
21: Palmetto Bay Rd & Bay Pines Rd (un-signalized)		
Eastbound Left Turn	No volumes observed	E (47.6) [<25] {40}
Eastbound Right Turn	D (29.7) [<25] {41}	C (17.8) [<25] {38}
Northbound Left Turn	F (91.9) [<25] {60}	A (8.1) [<25] {26}
22: Palmetto Bay Rd & Point Comfort Rd/Arrow Rd (signal)		
Overall Intersection	C (33.0)	B (19.9)
Eastbound Approach	E (63.8) [98] {338}	C (30.6) [40] {184}
Westbound Approach	C (21.9) [26] {112}	C (28.0) [79] {328}
Northbound Approach	B (16.9) [50] {314}	B (16.6) [99] {607}
Southbound Approach	D (36.4) [840] {1658}	B (19.2) [120] {745}

23: Palmetto Bay Rd & Genesta St (un-signalized)		
Westbound Approach	F (303.0) [78] {175}	D (25.2) [<25] {54}
Southbound Left Turn	C (19.7) [494] {946}	B (13.6) [<25] {26}
24: Palmetto Bay Rd & Palmetto Business Park Rd (un-signalized)		
Westbound Approach	F (163.9) [109] {214}	C (17.9) [<25] {59}
Southbound Left Turn	B (10.5) [233] {419}	A (9.9) [<25] {<25}
25: Palmetto Bay Rd & Bow Cir (un-signalized)		
Westbound Left Turn	F (207.8) [89] {174}	E (45.5) [<25] {40}
Westbound Right Turn	F (70.2) [118] {207}	B (13.0) [<25] {74}
Southbound Left Turn	D (30.8) [1399] {1658}	B (14.3) [<25] {28}
26: Palmetto Bay Rd & Archer Rd (un-signalized)		
Westbound Left Turn	F (2,462.0) [73] {88}	E (35.5) [<25] {39}
Westbound Right Turn	B (13.2) [109] {125}	B (12.9) [<25] {76}
Southbound Left Turn	C (22.2) [380] {493}	B (11.6) [<25] {28}
27: Palmetto Bay Rd & Target Rd (signal)		
Overall Intersection	C (29.0)	B (19.0)
Eastbound Approach	D (36.9) [1380] {1512}	B (15.9) [142] {823}
Westbound Approach	B (12.9) [39] {249}	B (15.8) [85] {539}
Northbound Approach	C (26.6) [<25] {105}	D (39.5) [65] {263}
Southbound Approach	D (35.7) [34] {151}	C (25.5) [37] {140}
28: Palmetto Bay Rd & Dunnagans Alley (un-signalized)		
Westbound Left Turn	F (1,033.8) [80] {183}	F (101.3) [<25] {99}
Westbound Right Turn	F (91.9) [109] {217}	B (13.3) [35] {134}
Southbound Left Turn	C (22.0) [278] {513}	B (13.7) [29] {465}
29: Palmetto Bay Rd & William Hilton Pkwy (Sea Pines Circle, Roundabout)		
Overall Intersection	F (53.4)	F (79.2)
Eastbound Approach	F (314.9) [809] {838}	F (179.8) [805] {838}
Westbound Approach	B (14.0) [56] {420}	F (189.7) [1644] {1658}
Northbound Approach	A (4.1) [<25] {209}	F (52.9) [463] {788}
Southbound Approach	C (18.5) [307] {461}	A (9.1) [111] {460}

Conclusions

Lochmueller Group evaluated the downstream impacts of the 2045 Modified Alternative 1 conditions with modifications to provide a single eastbound left-turn lane and a single southbound right-turn lane at US 278 at Squire Pope Rd. The analysis included in this memorandum did not assume any physical, nor signal timing improvements to the intersections downstream of Gumtree Rd or Cross Island Parkway.

With the improvements proposed under the Modified Alternative 1, the downstream study intersections are largely expected to operate acceptably in the year 2045. However, the eastbound and westbound approaches between Jarvis Park Rd and Pembroke Dr are expected to experience long queues and be over capacity in the year 2045, and the existing roundabout at Palmetto Bay Rd and Sea Pines Circle is expected to fail during both the AM and PM peak hours. As a result of the failing roundabout, the queue lengths are expected to extend beyond nearby intersections.

As a next step, Lochmueller will evaluate potential improvements to the intersections downstream of Gumtree Rd and Cross Island Parkway to help mitigate the long queues and delays presented in this memorandum.



TOWN OF HILTON HEAD ISLAND

William Hilton Parkway Gateway Corridor Advisory Committee

TO: Advisory Committee
FROM: Shawn Colin, Assistant Town Manager
DATE: June 12 2024
SUBJECT: Consideration of a Resolution to Accept the Findings William Hilton Parkway Gateway Corridor Independent End-to-End Analysis

RECOMMENDATION:

Consideration of a Resolution to Accept the Findings William Hilton Parkway Gateway Corridor Independent End-to-End Analysis.

BACKGROUND:

On February 21, 2023, the Town Council of the Town of Hilton Head Island adopted a Resolution authorizing the creation and appointment of a William Hilton Parkway Gateway Corridor Independent Review Advisory Committee (Committee), as outlined in Exhibit A.

On May 12, 2023, the Committee unanimously recommended a Scope of Work, as outlined in Exhibit B, be included in a Request for Qualifications to be considered by Town Council to procure the services of an Engineering consultant to perform the William Hilton Parkway Gateway Corridor Independent End-to-End Analysis.

On June 6, 2023, Town Council unanimously adopted a Resolution Approving the William Hilton Parkway Gateway Corridor Independent End-to-End Analysis Request for Qualifications and Scope of Work.

On August 28, 2023, the Committee unanimously recommended the Town award a contract with The Lochmueller Group, Inc. to perform the William Hilton Parkway Gateway Corridor Independent End-to-End Analysis.

On October 12, 2023, the Town of Hilton Head Island executed a contract with the Consultant to perform William Hilton Parkway Gateway Corridor Independent End-to-End Analysis.

The Committee held 10 public meetings between November 3, 2023 and June 12, 2024 to review Consultant findings and recommendations for the William Hilton Parkway Gateway Corridor Independent End-to-End Analysis, as well as receive public input.

As of June 12, 2024, the Consultant had delivered and presented technical reports and deliverables as outlined in the contracted Scope of Work to the Committee.

The Consultant has substantially completed the work of the Independent William Hilton Parkway Gateway Corridor Independent End-to-End Analysis and has conveyed findings to the Committee (Exhibit C) and should consider acceptance of these findings at this time.

ATTACHMENTS:

Proposed Resolution

Exhibit A – Resolution to Create Committee

Exhibit B – Scope of Work for Independent End to End Analysis

Exhibit C – Summary of Findings – Technical Memorandums

TOWN OF HILTON HEAD ISLAND, SOUTH CAROLINA

RESOLUTION NO. _____

A RESOLUTION OF THE WILLIAM HILTON PARKWAY GATEWAY CORRIDOR INDEPENDENT REVIEW ADVISORY COMMITTEE OF THE TOWN OF HILTON HEAD ISLAND, SOUTH CAROLINA, ACCEPTING THE FINDINGS OF THE WILLIAM HILTON PARKWAY GATEWAY CORRIDOR INDEPENDENT END TO END ANALYSIS.

WHEREAS, on February 21, 2023, the Town Council of the Town of Hilton Head Island adopted a Resolution authorizing the creation and appointment of a William Hilton Parkway Gateway Corridor Independent Review Advisory Committee, hereinafter called the “Committee”, as outlined in Exhibit A; and,

WHEREAS, on May 12, 2023, the Committee unanimously recommended a Scope of Work, as outlined in Exhibit B, be included in a Request for Qualifications to be considered by Town Council to procure the services of an Engineering consultant to perform the William Hilton Parkway Gateway Corridor Independent End-to-End Analysis; and

WHEREAS, on June 6, 2023, Town Council unanimously adopted a Resolution Approving the William Hilton Parkway Gateway Corridor Independent End-to-End Analysis Request for Qualifications and Scope of Work; and,

WHEREAS, on August 28, 2023, the Committee unanimously recommended the Town award a contract with The Lochmueller Group, Inc. hereinafter called “Consultant” to perform the William Hilton Parkway Gateway Corridor Independent End-to-End Analysis; and,

WHEREAS, on October 12, 2023, the Town of Hilton Head Island executed a contract with the Consultant to perform William Hilton Parkway Gateway Corridor Independent End-to-End Analysis; and,

WHEREAS, the Committee held 10 public meetings between November 3, 2023 and June 12, 2024 to review Consultant findings and recommendations for the William Hilton Parkway Gateway Corridor Independent End-to-End Analysis, as well as receive public input; and

WHEREAS, as of June 12, 2024, the Consultant had delivered and presented technical reports and deliverables as outlined in the contracted Scope of Work to the Committee.

NOW, THEREFORE, BE IT, AND HEREBY IT IS, RESOLVED BY THE WILLIAM HILTON PARKWAY GATEWAY CORRIDOR INDEPENDENT REVIEW ADVISORY COMMITTEE FOR THE TOWN OF HILTON HEAD ISLAND, SOUTH CAROLINA AS FOLLOWS:

- (1) The Town Council should consider a Resolution to accept the findings of the William Hilton Parkway Gateway Corridor Independent End-to-End Analysis delivered by the Consultant.
- (2) The Town Manager is hereby authorized to use the William Hilton Parkway Gateway Corridor Independent End-to-End Analysis for future planning purposes.

MOVED, APPROVED, AND ACCEPTED BY THE WILLIAM HILTON PARKWAY GATEWAY CORRIDOR INDEPENDENT REVIEW ADVISORY COMMITTEE FOR THE TOWN OF HILTON HEAD ISLAND ON THIS ____ DAY OF _____, 2024.

THE TOWN OF HILTON HEAD ISLAND,
SOUTH CAROLINA

Alan Perry, Mayor

ATTEST:

Kimberly Gammon, Town Clerk

APPROVED AS TO FORM:

Curtis L. Coltrane, Town Attorney

Introduced by Committee Member: _____

TOWN OF HILTON HEAD ISLAND, SOUTH CAROLINA**RESOLUTION NO. _____****A RESOLUTION BY THE TOWN COUNCIL OF THE TOWN OF HILTON HEAD ISLAND, AUTHORIZING THE CREATION AND APPOINTMENT OF A WILLIAM HILTON PARKWAY GATEWAY CORRIDOR INDEPENDENT REVIEW ADVISORY COMMITTEE.**

WHEREAS, the William Hilton Parkway Gateway Corridor Project, referred to herein as the "Project"; and

WHEREAS, a portion of the Project is located within the corporate limits of the Town, which impacts the citizens and visitors of the Town of Hilton Head Island, will provide for safer public transportation; and

WHEREAS, the Project will have a substantial impact on the citizens and visitors of the Town of Hilton Head Island; and

WHEREAS, separate from the design consultant for the Project retained by the South Carolina Department of Transportation (the "SCDOT"), and at the request of the Town, the County hired a design engineer, HDR, to perform an Independent Review of the project. In addition to the Independent Review, the Town hired a land planning consultant, MKSK, to assist the Town Council with evaluating the current design and to provide recommendations to enhance the Project; and

WHEREAS, as part of the Environmental Assessment process a preferred alternative for the Project was identified by the SCDOT and presented at a public hearing held on July 22, 2021; and

WHEREAS, based upon comments received from the public and from the

Town, the Project plans were updated, and a modified preferred alternative was presented at a public information meeting held on March 3, 2022; and

WHEREAS, the County and the Town determined that an independent review (the “Independent Review”) must be performed by a consultant; and

WHEREAS, the County issued a Request for Qualifications (RFQ) for an independent consultant (the “Independent Consultant”), (i.e. – one that does not have a previous or current contractual relationship with SCDOT, the County, or the Town) to perform an additional independent review of the project; and

WHEREAS, the County received only one submission for the Independent Consultant; and

WHEREAS, the Town seeks to issue its own RFQ seeking submittals for qualified firms to conduct an end-to-end simulation and study through and beyond the Project limits to include additional intersections materially consistent with the Scope of Work included in the Town RFQ; and

WHEREAS, to assist in reviewing and vetting these RFQ submissions, as well as guide work to complete the Independent Review consistent with the Scope of Work, Town Council now desires to create and appoint the William Hilton Parkway Gateway Corridor Independent Review Advisory Committee.

NOW, THEREFORE, BE IT, AND IT HEREBY IS, RESOLVED BY THE TOWN COUNCIL FOR THE TOWN OF HILTON HEAD ISLAND, SOUTH CAROLINA, THAT:

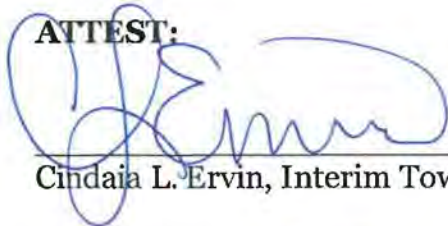
1. The William Hilton Parkway Gateway Corridor Independent Review Advisory


Committee is hereby created, and its membership shall consist of the following: one (1) member of Town Council, one (1) current or former licensed professional engineer, one (1) citizen member and (1) alternate citizen member from the Stoney Community, and two (2) citizen members from the community, to be appointed by Town Council.

2. The William Hilton Parkway Gateway Corridor Independent Review Advisory Committee, in coordination with a technical review team designated by the Town Manager, shall review and assess the Town RFQ and all responses and identify a reasonable number of firms to identify as “Preferred Consultants”.
3. Furthermore, any firm selected as a Preferred Consultant shall be required to submit a full and detailed proposal. The William Hilton Parkway Gateway Corridor Independent Review Advisory Committee, in coordination with a technical review team designated by the Town Manager, shall review these proposals and will thereafter recommend to Town Council which “Preferred Consultant with which to pursue a contract for the work.
4. The William Hilton Parkway Gateway Corridor Independent Review Advisory Committee will work in coordination with Town staff to guide work of the selected consultant, consistent with the final Scope of Work to complete the Independent Review, to include delivery of findings and recommendations from the consultant and Advisory Committee through Town staff to Town Council.

**MOVED, APPROVED, AND ADOPTED ON THIS 21st DAY OF
February, 2023.**


Alan R. Perry, Mayor

ATTEST:

Cindaia L. Ervin, Interim Town Clerk

APPROVED AS TO FORM

Curtis L. Coltrane, Town Attorney

Introduced by Council Member: Glenn Stanford



TOWN OF HILTON HEAD ISLAND

Town Council

TO: Town Council
FROM: Shawn Colin, Assistant Town Manager – Community Development
CC: Marc Orlando, Town Manager
CC: Josh Gruber, Deputy Town Manager
DATE: February 12, 2023
SUBJECT: Consideration of a Resolution authorizing the creation and appointment of a William Hilton Parkway Gateway Corridor Independent Review Advisory Committee

RECOMMENDATION:

That Town Council consider a Resolution authorizing the creation and appointment of a William Hilton Parkway Gateway Corridor Independent Review Advisory Committee.

BACKGROUND:

This project began in 2017 when a need was identified by the South Carolina Department of Transportation (SCDOT) to improve the westbound bridge that connects the mainland to the island (there are two bridges in each direction). The Town and County requested a more comprehensive approach instead of piecemealing an improvement over a series of years. Since that time, the SCDOT has involved time and funding to conduct an evaluation of alternatives and prepared a draft Preferred Recommendation following the NEPA process. There has been ample public involvement, with many workshops, well over 20 public meetings, and opportunities to provide comment. In addition, the Town has worked with MKSK, a planning and design consultant, since April 2021 to review the project and draft recommendations to improve the corridor alignment and design elements. Town Council approved 26 recommendations on October 12, 2021.

This is a major investment by the SCDOT and Federal Highway Administration (FHWA). It will have a significant impact on parts of Beaufort County, the Town of Bluffton and especially the Town of Hilton Head Island. The approach to Hilton Head Island is viewed as a visual oasis welcoming everyone to the beauty of the island. Changes that would negatively impact this entry are a major concern to the residents and visitors who come to Hilton Head. As such, the Town and many of its residents, want to make certain that all reasonable alternatives have been evaluated before a final decision is made.

On October 4, 2022 the Town approved an Memorandum of Agreement (MOA) with Beaufort County (Exhibit A). The MOA outlined a critical path and steps to take to reach a point for municipal consent consideration. One key step was the procurement of an Independent Consultant by a selection team consisting of Town and County representatives to execute the Scope of Work included in the MOA. Input from SCDOT Secretary Christy Hall and Senator Tom Davis, guided the final language for the RFQ which did not support the evaluation of additional alternatives for the corridor alignment, as in their opinion, the addition of this element as part of the Scope of Work to be executed by the Independent Consultant, could put the grant funding authorized by the State Infrastructure back in jeopardy.

Town approval of the MOA did not provide municipal consent, nor did it preclude the submission of amended documents to the Federal Highway Administration to include recommendations that emerge from the Independent Review.

The County issued a Request for Qualifications (RFQ) (Exhibit B) for an independent consultant (the "Independent Consultant"), (i.e. – one that does not have a previous or current contractual relationship with SCDOT, the County, or the Town) to perform an independent review of the project. One submission was received and reviewed by the appointed selection team which deemed it responsive, and the firm qualified to perform the requested work.

However, the Town of Hilton Head wants to hire an independent specialist to review the information and make sure the recommendations will be in the best interests of all the players, including residents, employees, visitors, businesses, and the Gullah Cultural Community which is traversed by William Hilton Parkway. Therefore, a Town RFQ (Exhibit C) has been drafted to complete work consistent with the Scope of Work agreed to in the MOA.

In addition, Town Council requested that a William Hilton Parkway Gateway Corridor Independent Review Advisory Committee be created to guide work to complete the Independent Review. A Resolution (Exhibit D) to create the requested Committee outlines the membership to include:

- a. Member of Town Council
- b. Engineer
- c. Stoney Citizen Member
- d. Community Member
- e. Community Member

SUMMARY:

Adoption of the Resolution will authorize the creation of an Advisory Committee to guide work for the Independent Review. Staff will continue its execution of the approved MOA with Beaufort County, including work that needs to be completed to provide better understanding of project details and impacts needed to inform recommendations for improvements to the bridge, corridor, and project mitigation.

ATTACHMENTS:

1. Exhibit A - MOA approved by Town of Hilton Head Island and Beaufort County Councils
2. Exhibit B - RFQ Issued by Beaufort County for Independent Consultant Review
3. Exhibit C - Draft RFQ to be issued by the Town for Independent Consultant Review
4. Exhibit D - Resolution authorizing the creation and appointment of a William Hilton Parkway Gateway Corridor Independent Review Advisory Committee

RESOLUTION NO. 2022-28

A RESOLUTION OF THE TOWN COUNCIL OF THE TOWN OF HILTON HEAD ISLAND, SOUTH CAROLINA, AUTHORIZING THE TOWN MANAGER TO ENTER INTO A REVISED MEMORANDUM OF AGREEMENT WITH BEAUFORT COUNTY, SOUTH CAROLINA CONCERNING THE WILLIAM HILTON PARKWAY GATEWAY CORRIDOR PROJECT AND ADAPTIVE TRAFFIC SIGNAL IMPROVEMENTS.

WHEREAS, the U.S. Highway 278 corridor runs from I-95 to and throughout the Town of Hilton Head Island, and is both an economic generator and necessity for transportation; and

WHEREAS, the William Hilton Parkway Gateway Corridor Project (the "Project") is a Beaufort County project and is part of the programs funded by the 2018 sales tax that was authorized by the public in a referendum; and

WHEREAS, the synchronization of adaptive traffic signals on U.S. Highway 278 is essential to the public safety and traffic control; and


WHEREAS, the Project will have a substantial impact on the citizens and visitors of the Town of Hilton Head Island; and

WHEREAS, the Town of Hilton Head Island and Beaufort County desire to undertake improvements to U.S. Highway 278 and install adaptive traffic signals thereon; and


WHEREAS, the Town Council hereby finds that the execution of the revised Memorandum of Agreement is in the best interest of the Town of Hilton Head Island.

NOW, THEREFORE, BE IT, AND IT HEREBY IS, RESOLVED BY THE TOWN COUNCIL FOR THE TOWN OF HILTON HEAD ISLAND, SOUTH CAROLINA That the Town Council hereby authorizes the Town Manager to enter into an agreement materially consistent with the revised Memorandum of Understanding from Beaufort County for the purpose of coordinating and implementing the William Hilton Parkway Gateway Corridor Project and installation of adaptive traffic signals on U.S. Highway 278.

PASSED AND APPROVED BY THE TOWN COUNCIL ON THIS 4TH DAY OF OCTOBER, 2022.


John J. McCann, Mayor

ATTEST:


Krista M. Wiedmeyer, Town Clerk

APPROVED AS TO FORM

Curtis L. Coltrane, Town Attorney

Introduced by Council Member: _____

WHEREAS, the Town has funds budgeted in its Capital Improvement Plan for Fiscal Year 2023 to make improvements to the traffic signals within the corporate limits of the Town which they maintain under their signal maintenance agreement(s) with SCDOT; and

WHEREAS, the County and Town desire to make traffic signal improvements along the entire William Hilton Parkway/US 278 Corridor to increase safety and capacity through the synchronization of "Adaptive Traffic Signals."; and

WHEREAS, any and all future signal projects, including those signals within the William Hilton Parkway Gateway/US 278 Corridor Improvement Project, are to be fitted with the same technologies to ensure they are synchronized with the other signals.

NOW, THEREFORE, for and in consideration of the mutual covenants exchanged herein, the County and the Town hereby agree as follows:

1. The County and the Town agree to advance the Project in a cooperative manner for the entire duration of the Project.
2. The County and the Town mutually agree to work together in good faith to address the feasibility, and merits of recommendations approved by Town Council on October 12, 2021 (as set forth in Exhibit B) (the "Recommendations") and further agree that one bridge will be designed and constructed for the Project.
3. The County will procure an Independent Consultant (the "Independent Consultant"), (i.e. – one that does not have a previous or current contractual relationship with SCDOT, the County, or the Town) to perform an additional Independent Review of the project. This Independent Consultant will conduct an end-to-end simulation and study through and beyond the Project limits to include additional intersections materially consistent with the Scope of Work set forth in Exhibit A.
4. The County and the Town will establish a committee (the "Committee") to select the Independent Consultant through a competitive bid process. The following County representatives shall sit on the Committee: (a) the County Administrator or his designee (b) the Assistant County Administrator for Infrastructure: (c) and the County Transportation Program Manager Consultant. The following Town representatives shall sit on the Committee: (d) the Town Manager or his designee; (e) the Assistant Town Manager of Community Development; and (f) the Town Engineer.
5. All recommendations from the Independent Review for areas within the project boundary will be considered for inclusion in the project. The County and Town agree to pursue the "Finding of No Significant Impacts" (FONSI) from the Federal Highway Administration concurrent with the Independent Review. If any findings from the Independent Review affect environmental documents submitted for the FONSI, those recommendations will be considered, and the environmental documents will be updated and resubmitted as agreed upon by the County and the Town.
6. The County and the Town, as required as part of the NEPA process, will coordinate with SCDOT to perform a value engineering of the project to identify and eliminate unwanted costs, and improve function and quality, as well as to optimize initial and long-term investment, ultimately seeking the best value for the lowest cost.
7. The County and the Town mutually agree to work together, along with SCDOT and Lowcountry

Area Transportation Study (LATS), to design, implement and maintain a connected and synchronized signal system along the entire length of the William Hilton Parkway/US 278 Corridor from I-95 to Sea Pines Circle. The synchronized system will include fiber connectivity, Adaptive Signal technologies and other tools to help maximize flow. The County and the Town mutually agree to work together to seek funds necessary to acquire and implement the proposed improvements.

8. Any signal improvements from the synchronization project which are not already installed within the corridor prior to the construction of the Project, will be incorporated as such.
9. This Agreement does not provide the Town's municipal consent. Such consent may be provided by the Town Council after the Independent Review has been evaluated by the Town and County and before the right-of-way acquisition phase of the Project begins. Municipal consent by the Town will not be unreasonably withheld.
10. The County and the Town agree that the Independent Review will be the last and final study needed for the Town to make a final decision related to the Project.

IN WITNESS WHEREOF, Beaufort County, South Carolina, and the Town of Hilton Head Island, South Carolina, by their authorized officers, have executed the within memorandum on this ____ day of October 2022.

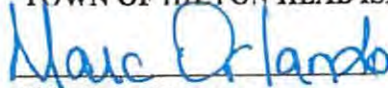
WITNESSES:



WITNESSES:

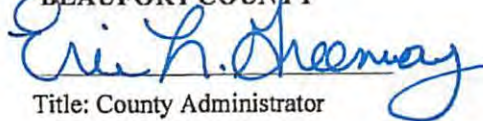


TOWN OF HILTON HEAD ISLAND



Title: Town Manager

BEAUFORT COUNTY



Title: County Administrator

EXHIBIT A

US 278 Corridor Project – Independent Review Scope of Services

Task 1: Project Initiation and Coordination:

- Initial HHI, Beaufort County, and Independent Consultant
- Biweekly project discussions with County and Town Staff
- Review meeting with representations of Beaufort County, Town of Hilton Head Island, SCDOT and the existing design consultants on prior work performed
- Monthly update meetings with Town Manager and County Administrator
- Review and define the study area
- Perform a site visit/field review
- Understand the Town of Hilton Head Island's concern with the proposed concept and existing model
- Identify what has already been completed for the project

Task 2: Model and Recommended Concept Review:

Review previous models and concept recommendations

- Review assumptions contained within the model – Daily Hour, Land Use, & other input variables
- 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

Task 3: Updating Model & Operational Updates

Model and Operational Analysis Updates

- The model updates will be based on the version of the LATS model utilized to develop the project
- Confirm that the base traffic demand model accurately takes into trips generated by visitor traffic, mass transit traffic, and traffic demand from redevelopment of existing Island parcels
- Update the model based on findings in Task 2 and coordination with the Town of Hilton Head & Beaufort County
- Expand the model and study area to include the following signalized intersections and merge points east of Spanish Wells Road
 - US 278 merge with Cross Island Pkwy
 - US 278 Bus (William Hilton Pkwy) at Gum Tree Road
 - US 278 Bus (William Hilton Pkwy) at Wilborn Road/Jarvis Park Road
 - US 278 Bus (William Hilton Pkwy) at Pembroke Drive/Museum Street
 - US 278 Bus (William Hilton Pkwy) at Indigo Run Drive/Whooping Crane Way
 - US 278 (Palmetto Bay Road) at Point Comfort Road/Arrow Road
 - Palmetto Bay Road at Target Road
 - US 278 Bus (William Hilton Pkwy) at Palmetto Bay Road (Sea Pines Circle)
- Expand the model and study area to include the following signalized intersection and merge point west of Moss Creek Drive
 - Bluffton Parkway and Buckingham Landing Road (on Mainland)
- Traffic counts for the study area intersections will be obtained from the Town of Hilton Head Island
- Any additional counts not available from the Town of Hilton Head or SCDOT shall be assumed counts that will need to be collected

- **Ensure the model includes most recent traffic data that reflects the toll removal on the Cross Island Parkway**
- **Generate model outputs for study area with new assumptions and volumes & analyze operations in Synchro/VISSIM**
- **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 operational efficiency by maintaining four lanes (two lanes in each direction) between the Windmill Harbour 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**
- **Coordinate and refine recommendations with the Town of Hilton Head Island and Beaufort County**
- **Participate in meetings as directed by the Town of Hilton Head Island and Beaufort County**

Task 4: Proposed Intersection Improvements & Potential Future Projects

- **Evaluate the safety for bicycle and pedestrians within the original Project Study Area from Moss Creek to Spanish Wells Road and make recommendations on ways to improve the safety of the proposed intersections**
- **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 level within the same (or smaller) footprint of the currently planned project. Include estimated increased or decreased costs for the potential modifications to the intersection designs. Potential modifications that increase the Project footprint and impacts to the human and natural environment should be excluded**
- **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 traffic improvements (LOS, delay, etc.) as well as anticipated project costs and known impacts or concerns with the alternatives**
- **Assume up to 3 alternatives for each impacted intersection area evaluated**
- **Develop a Summary of Recommendations for review by the Town of Hilton Head Island and Beaufort County that can be utilized to secure future funding for improvements beyond the Project Study Area**

Task 5: Draft and Final Report

- **Compile model updates, operational analysis, and findings into a report for review and discussion with Beaufort County and Town of Hilton Head Island staff**
- **Finalize elements into draft and final reports, including executive summaries and recommendations**
- **Presentation of final findings to both County Council and Town Council for endorsement/adoption by both Councils**
- **Submit final report electronically**

EXHIBIT B

Town Approved Recommendations - Gateway Corridor Project - October 12, 2021

CORRIDOR-WIDE RECOMMENDATIONS

1. Reduce lane widths to 11' to calm traffic & reduce property impacts.
2. Eliminate raised curbs in medians wherever possible, encourage existing vegetation and natural drainage in these areas.
3. Vary median widths and meander roadway alignments where possible for traffic calming and aesthetics.
4. Take advantage of Town-owned property for sake of Parkway improvements.
5. Utilize ITS smart signal technology throughout.
6. Reduce curb cuts & provide for alternative/safer property access throughout.
7. Provide trails on both sides of Parkway where possible with sufficient separation from road and in lieu of sidewalks.
8. Create a comprehensive system of safe, comfortable, and attractive shared use paths for cyclists and pedestrians.
9. Open/encourage views to the water wherever possible, as a part of the Island's "signature".
10. Ensure integration of unique, Hilton Head-specific signage, landscape schemes, public art program, architectural vocabulary, iconic features, and accent lighting that distinguish this parkway from all others.
11. Reduce design & posted speeds throughout the corridor.
12. Evaluate the island-wide transportation system.

ZONE-SPECIFIC RECOMMENDATIONS

13. Encourage Moss Creek area improvements (*commercial redevelopment, access/roadway improvements, trail connections*).
14. Establish "Gateway Experience" threshold at west end of Mackay Creek bridges (*landscape, island "icon", art, lighting*).
15. Reduce bridge mass with two separate bridges and Shared-Use Path on south side of eastbound bridge.
16. Reduce bridge lane width to 11', reduce shoulder width on left, only one breakdown lane on right.
17. Provide 14' minimum width non-motorized lane on bridge with multiple viewing areas and protection/screening of vehicles.
18. Attention to bridge design/details as viewed from afar and on-deck (parapet, railings, structural forms).
19. Consolidate Jenkins Island access to one signalized location at C. Heinrichs/Windmill Harbor Entrance.

20. Provide traditional turn lanes and intuitive intersection configurations throughout Stoney.
21. Eliminate confusing SCOOT U-turns.
22. Eliminate left turns and traffic introduction onto Old Wild Horse.
23. Create new park south of Parkway in Stoney to authentically showcase Gullah Geechee culture/heritage.
24. Consider a new Visitors Center as a part of this park that intentionally showcases this heritage while introducing visitors to the Island's offerings.

ADDITIONAL POLICY RECOMMENDATIONS

25. Create a Stoney-authored vision plan for the next generation of that neighborhood.
26. Create and professionally staff a Development Corporation as a vehicle for Stoney Advancement.

Responses to Town of Hilton Head Island Recommendations

The preliminary responses are based on the meeting held between the Beaufort County (County Administrator Eric Greenway & Assistant County Administrator Jared Fralix), SCDOT (Secretary Christy Hall, Deputy Secretary Leland Colvin, & Program Manager Craig Winn), and the Town of Hilton Head Island (Town Manager Marc Orlando, Mayor John McCann, and Senior Advisor to the Town Manager Shawn Colin) on October 14, 2021, at the Beaufort County Administration Building. Additional responses are based on further environmental NEPA evaluations, traffic evaluations & engineering design performed since the October 14, 2021 meeting.

Corridor Wide

1. Reduce lane widths to 11' to calm traffic & reduce property impacts

Preliminary Response: Agreement on 12' lanes on the bridge and Jenkins Island but a 12' outside lane and a pair of 11' inside lanes as well as accessory lanes will be pursued through the Stoney Community from the Causeway to Spanish Wells Road.

Additional Response: During the design process a design exception and appropriate approvals for the two 11' inside lanes within the Stoney Community will need to be pursued.

2. Eliminate raised curbs in medians wherever possible to encourage existing vegetation and natural drainage in these areas

Preliminary Response: Agreement on elimination of raised curbs on the interior portion of Jenkins Island where appropriate with the understanding this will increase the clear zone needed in the median. Raised curb and gutter will be installed on the exterior edge of the roadway to reduce ROW requirements and handle the drainage needs.

Additional Response: Additional investigation and review of safety and drainage needs within the area will be required as project development continues. In project areas with a proposed 15' raised median, curbing will be provided on both the inside and outside of the roadway.

3. Vary median widths and meander roadway alignments where possible for traffic calming and aesthetics

Preliminary Response: Agreement on varying median through Jenkins Island, holding eastbound lanes in the existing alignment and moving westbound travel lanes North on Jenkins Island between Crosstree Drive and the causeway. The costs are to be estimated and if project overrun will need to be funded locally (not SCDOT or SIB funding).

Additional Response: The meandering of the roadway is estimated to increase project cost by approximately \$1.5M and was designed to avoid all critical area and freshwater wetlands. Additionally, the meandering of the roadway would not be permitted to result in wetland impacts greater than the Recommended Preferred Alternative 4A, as presented at the Public Hearing. Appendix 1 shows the proposed layout of the meandering on Jenkins Island that avoids critical area.

wetlands and freshwater wetlands. The additional cost does not include any costs for the additional Town-owned ROW required to meander the roadway and the ROW is assumed to be donated. The County does not have extra funds for an additional cost, and additional local funds would need to be identified early in the design process by the Town.

4. Take advantage of Town-owned property for sake of Parkway improvements

Preliminary Response: Agreement on this item and was part of the SIB application.

Additional Response: Project is taking advantage of Town-owned property through Jenkins Island with westbound lanes alignment. Other uses of Town-owned property will be considered during design if needed to facilitate project needs.

5. Utilize ITS smart signal technology throughout

Preliminary Response: Agreement on this item. It is already part of the current project scope.

Additional Response: Please be advised that signals will continue to be maintained locally, by either the County or Town, as currently prescribed in each of our Signal Maintenance Agreements (SMA) with SCOOT

6. Reduce curb cuts and provide for alternative/safer property access throughout

Preliminary Response: Agreement on this item. Change in access drives within Stoney as proposed by MKSK is separate from the project.

Additional Response: Reduction in curb cuts is a priority for safety and access management. Before reducing curb cuts, it will need to be verified that the improvements do not cause additional impacts within the TCP and are agreeable by all property owners.

7. Provide trails on both sides of Parkway where possible with sufficient separation from the road and instead of sidewalks

Preliminary Response: No trail to be installed on the southern side of William Hilton Parkway. The existing sidewalk on the southern side is to be removed except to connect Windmill Harbor to the shared use path underpass west of the Windmill Harbor entrance.

Additional Response: No additional comments.

8. Create a comprehensive system of safe, comfortable, and attractive shared use paths for cyclists and pedestrians

Preliminary Response: Agreement on a trail on the northern side of US 278 only, with separation from the roadway. The trail will not be located in the marsh area and must tighten up alignment through the causeway section connecting Hilton Head and Jenkins Island. The trail is okay to move north for more separation from Parkway through Jenkins Island.

Additional Response: The meandering of the trail through Jenkins Island must avoid the wetlands and environmental features. The corridor will also be evaluated for other opportunities to utilize town-

owned land to meander the shared use path away from the roadway and to protect tree canopies when practical. Additional expenses to meander the trail will need to be covered by local funds (Not SCOOT or SIB funding)

9. Open/encourage views to the water wherever possible, as part of the Island's "signature"

Preliminary Response: Agreement that this is a local element with selective treatment rather than any clearing and grubbing along the water edge.

Additional Response: This will not be included as part of the project as it has the potential to increase environmental impacts outside of the proposed construction limits.

10. Ensure integration of unique, Hilton Head-specific signage, landscape schemes, public art program, architectural vocabulary, iconic features, and accent lighting that distinguish this parkway from all others

Preliminary Response: Agreement that this element should be Town driven through its CIP Program.

Additional Response: The EA document includes signage within the Stoney Community as part of the environmental commitments. This is to include two signs, banner signage on SUP lighting, and landscaping. The final details of each of these features will be coordinated with the Stoney Community and local governments. (Eligible for project funding within the Stoney Community)

11. Reduce design & posted speeds throughout the corridor.

Preliminary Response: The entire project will include a 45mph design speed and consideration given for 40mph posted speed for the William Hilton Parkway from the causeway connecting Hilton Head to Jenkins Island to Sea Pines Circle (which includes the Stoney segment)

Additional Response: The posted speed will need to be discussed with the SCOOT District Traffic Engineer and a formal request will need to be submitted by the Town requesting a Speed Study through the District office for the areas of concern between Stoney and Sea Pines Circle. The project team will assist in any communication and coordination with the SCOOT District office.

12. Evaluate the island-wide transportation system.

Preliminary Response: Agreement this is an effort that will be handled locally

Additional Response: No additional comments.

Zone specific recommendations

13. Encourage/support Moss Creek area improvements (commercial redevelopment, access/roadway improvements, trail connections)

Preliminary Response: Agreement for long-term but not included in this project scope and is not eligible for State Infrastructure Bank Funding.

Additional Response: County to support private commercial redevelopment in Moss Creek area. Any driveways and curb-cuts within project limits will be improved as part of the project. The trail along US 278 will connect to the trails along Bluffton Parkway via pedestrian improvements along Buckingham Plantation Drive.

14. Establish "Gateway Experience" threshold at the west end of Mackay Creek bridges (landscape, island "icon", art, lighting)

Preliminary Response: Okay through coordination of County & Town

Additional Response: Not eligible for SCOOT or SIB Funding

15. Reduce bridge mass with two separate bridges and a Shared-Use path on side of the eastbound bridge

Preliminary Response: SCDOT is neutral on this item. The county administrator does not think benefits will justify additional costs. SCDOT states it's likely a 10-15% increase in the cost of the bridge component resulting in a \$30M to \$40M dollar increase. These additional costs are to be funded with local funds, not SCDOT or SIB. This item is to be evaluated by KCI (County) and HDR (Town) to determine the differential in costs between 1, six-lane bridge versus 2, 3 lane bridges. Additional impacts to the environment and Pinckney Island to be considered.

Additional Response: The construction of two separate bridge structures will increase the actual bridge width and increase the impacts to Pinckney Island due to the need for a separation distance between the two structures. The dual bridge option increases the estimated project cost by \$27.3 million. Additionally, two separate bridge structures will significantly increase the construction time potentially extending the completion date and jeopardizing SIB funding. The County does not support this request.

16. Reduce bridge lane width to 11', verify the need for two breakdown lanes per bridge

Preliminary Response: The bridge will have 12' lanes and no reduction of shoulder/breakdown widths. Each direction to include 2-10' shoulders as agreed to by all parties.

Additional Response: The 12' lanes and 10' shoulders are FHWA controlling criteria and provide a safety benefit to the project. These criteria are based on the roadway classification. Additionally, the shoulders provide improved access for Emergency Response on the bridges and to Jenkins Island.

17. Provide 14' minimum width non-motorized lane on the bridge with multiple viewing areas and protection/screening of vehicles

Preliminary Response: Agreement on the 12' shared-use pathway along the southern side of the bridge with 2 bulb-outs, one over each creek. Each bulb is out to be approximately 50' long. The bulb out elements are to be funded with local money as they are considered non-essential for SIB funding

Additional Response: The final configuration of the bulb-outs will be determined during the bridge design phase but are currently estimated to be 20'x50' with an additional cost of \$125k to \$150k per bulb out. However, the cost estimate does not include the additional cost for protection/screening. The County supports the concept of the viewing areas/screening if additional local funds can be identified early in the design process by the Town, but the County does not have the extra funds to support the addition.

18. Attention to bridge design/details as viewed from afar and on-deck (parapet, railings, structural forms}

Preliminary Response: Agreement on this item with continued coordination through project design. Attention to be focused on the above deck treatment of the bridge.

Additional Response: This has potential schedule implications, but a decision would need to be made early in the design development to ensure timely completion of the bridge design. The County does not have extra funds but supports additional aesthetic details but is good with the concept if additional local funds or grants can be identified and made available.

19. Consolidate Jenkins Island access to one location at C. Heinrichs Circle/Windmill Harbor Entrance

Preliminary Response: Agreement to consolidate all turning movements on Jenkins Island to this single intersection has already been implemented as part of the refinements after the public hearing.

Additional Response: No additional response.

20. Provide traditional turn lanes and intuitive intersection configurations throughout Stoney

21. Eliminate confusing SCDOT U-turns

22. Eliminate left turns and traffic introduction onto Old Wild Horse Road

Preliminary Response: This response applies to 20-22. There is an internal agreement to provide lefts at the Stoney intersections and not to proceed with the U-turn at the Old Wild horse Road intersection. SCOOT, Beaufort County, and the Town of Hilton Head agree to evaluate options to understand the performance and impacts resulting from the preferred alternative and the local alternatives. A balance of performance, impact of land disruption, and local desires and input will drive the final request to FHWA.

Additional Response: Additional survey work and engineering design was required to address this request. A traffic technical memo was created for the section of US 278 between Squire Pope Road and Spanish Wells Road to evaluate additional intersection configurations (Appendix 2). Two additional intersections were evaluated that eliminated the signal and U-turns at Old Wild Horse Road and reintroduced the left turns at Squire Pope Road & Spanish Wells Road. Both options introduced dual left-hand turn lanes from eastbound US 278 onto northbound Squire Pope Road, dual lefts from Spanish Wells Road northbound onto US 278 westbound, and the combination of the Squire Pope Road southbound through movement and left-turn movement to protect the tree canopy on Squire Pope Road. Option 1 includes dual rights from SB

Squire Pope Road onto WB US 278 operating under a stop condition while Option 2 includes one free flow right from SB Squire Pope Road to WB US 278 with an acceleration lane on 278. While the traffic performance of each of the options causes decreased level of service at the intersections, additional travel time and delays in the peak direction, and additional delays on the side streets, the performance does meet the minimum standard of a level of service D. There is minimal discernment obtained between the performance of Option 1 and Option 2. The next step was to compare the options to original TCP impacted areas of 4.77 acres as shown in Appendix 3. Each of the alternatives, including the preferred alternative through refinements, shows a reduction in the TCP impacts. Once all factors are considered including TCP impacts, local governmental input, and public comments from the Public Hearing Option 1 balances the need for traffic performance for the mainline and side roads, and the TCP impacts throughout Stoney. Option 1 reduces the frontage impacts along US 278 within Stoney from the causeway to Squire Pope Road. The selection of Option 1 will require the trail to meander within the Town of Hilton Tract on the northeast corner of Squire Pope Road and US 278 to protect the tree canopy along Squire Pope Road as requested by the State Historical Preservation Office (SHPO).

23. Create a new park south of Parkway in Stoney to authentically showcase Gullah Geechee culture/heritage

24. Consider a new Visitor Center as part of this park that intentionally showcases this heritage while introducing visitors to the Island's offerings

Preliminary Response: This applies to 23 and 24. This must take place (at least initially) on Town/County-owned property within Stoney. NO additional property impacts, takes, or displacements should be represented as part of this element. TCP elements identified in the EA should be integrated and enhanced at this location.

Additional Response: The new park and pavilion are part of the environmental commitments for the project. The location of the improvements and details will need to be coordinated with the Stoney Community and the local entities. Should the Town desire to design and construct a visitor center, it could be constructed separately but concurrent with the project. The improvements outlined in the EA document as commitments for the Stoney Community are funded however any additional design elements or expansion would need to be funded locally and not utilize SCDOT or SIB funding.

25. Create a Stoney-authored vision plan for the next generation of that neighborhood

Preliminary Response: Agreement that this should be a locally handled effort

Additional Response: As part of the environmental commitments, the County will develop and host an online, interactive map of the history of the Stoney community to share important historical information about the community.

26. Create and professional staff a Development Corporation as a vehicle for Stoney Advancement.

Preliminary Response: Agreement that this should be a locally handled effort.

Additional Response: The County supports the advancement of citizens within the Stoney Community and other Gullah communities throughout the county and is open to further discussions to determine the most appropriate vehicle to support this mission.

REQUEST FOR QUALIFICATIONS
WILLIAM HILTON PARKWAY/US 278 CORRIDOR
INDEPENDENT REVIEW

RFQ # 112322



Prepared by: Engineering Department

Dated: October 25, 2022

Proposal Due Date: November 23, 2022 3:00PM (EST)



COUNTY COUNCIL OF BEAUFORT COUNTY
PROCUREMENT SERVICES DEPARTMENT

106 Industrial Village Road, Bldg. 2 Post Office Drawer 1228
Beaufort, South Carolina 29901-1228

PROPOSAL NOTICE NO. RFQ 112322

CLOSING DATE AND TIME: **November 23, 2022 at 3:00PM (EST)**

PROPOSAL TITLE: William Hilton Parkway/US 278 Corridor Independent Review

You are invited to submit a proposal, in accordance with the requirements of this solicitation which are contained herein.

There will be a **MANDATORY** meeting will be held virtually on **November 1, 2022/2:00PM (EST)**. Please contact Victoria Moyer at victoria.moyer@bcgov.net to receive your invite. **All vendors are encouraged to attend.**

In order for your proposal to be considered, it must be submitted in Vendor Registry no later than **November 23, 2022 at 3:00PM (EST)**, at which time respondents to this request will be recorded in the presence of one or more witnesses. RFQ received by the Procurement Services Department after the time specified will not be considered. Due to the possibility of negotiation with all respondents, the identity of any respondents or the contents of any proposal shall not be public information until after the contract award is made; therefore, the public is not invited to the proposal closing.

The proposal must be signed by an official authorized to bind the Consultant, and it shall contain a statement to the effect that the proposal is firm for a period of at least 90 days from the closing date for submission of proposal. **Proposal must be submitted through Vendor Registry by going to the County Website at www.beaufortcountysc.gov and register as a vendor. There is no cost to register your company. This will allow you to submit your RFQ electronically.**

All submittals (see Submission Requirements) received in response to this Request for Proposal will be rated by a Selection Committee, based upon the Evaluation Form contained within this RFQ. If the best proposal respondent is clearly identified from the point summary, there will not be a need for oral presentations. If not, then an oral presentation from a minimum of the top two rated firms shall be required.

This solicitation does not commit Beaufort County to award a contract, to pay any costs incurred in the preparation of a proposal, or to procure or contract for the articles of goods or services. The County reserves the right to accept or reject any or all proposals received as a result of this request, to negotiate with all qualified firms, or to cancel in part or in its entirety this solicitation, if it is in the best interests of the County to do so.

“Original Signed”

Dave Thomas
Procurement Services Director
(843) 255-2304

**IMPORTANT
ELECTRONIC SUBMITTAL REQUIREMENTS**

Response submittals for this bid project will ONLY be received electronically and must be submitted ONLINE prior to the date and time listed on page 1 of this Bid document.

All responses must adhere to the following guidelines:

- Suppliers are encouraged to submit responses as soon as possible. Responses are received into a 'lockbox' folder and cannot be opened prior to the due date and time. The time and date of receipt as recorded by the server will serve as the official time of receipt. The County is not responsible for late submissions, regardless of the reason.
- All requested information and forms MUST be uploaded as one file if possible. Each submission must be inclusive of all forms. If necessary to have more than one upload, pricing and signed acknowledgements, etc. are to be in the first upload.
- Submittals may be re-submitted prior to the date and time of bid open; if multiple submissions are received from the same source, the submission with the latest timestamp will take priority. If you have a problem with your upload, you may contact Vendor Registry at 844-802-9202 or cservice@vendorregistry.com.

Response is to be submitted ONLINE by one of the two methods below:

a. Use the Link: VendorRegistry.com

b. From the County's home page, select Bid Opportunities

The submitting offeror is required to have on the qualification packet their company name, contact information, the RFQ number, opening date, and title.

1. Questions: Submit questions through Vendor Registry.
2. All submissions to this RFQ must not exceed 15 double-sided printed pages in length. Cover sheet and table of contents are excluded.
3. Submission requirements are located on page 19.

COUNTY COUNCIL OF BEAUFORT COUNTY

Title VI Statement to Prime Contractors, Subcontractors, Architects, Engineers, and Consultants



It is the policy of the County Council of Beaufort County, South Carolina, hereafter referred to as "Beaufort County" or "the County", to comply with Title VI of the 1964 Civil Rights Act (Title VI) and its related statutes. To this end, Beaufort County assures that no person shall be excluded from participation in, denied the benefit of, or subjected to discrimination under any of its programs or activities on the basis of race, color, national origin, age, sex, disability, religion, or language regardless of whether those programs and activities are Federally funded or not. The County is also committed to assuring every effort will be made to prevent the discrimination of low-income and minority populations as a result of any impact of its programs or activities. Beaufort County also assures that every effort will be made to prevent discrimination through the impacts of its programs, policies, and activities on minority and low-income populations. Additionally, the County will take reasonable steps to provide meaningful access to services for persons with limited English proficiency. In addition, Beaufort County will not retaliate against any person who complains of discrimination or who participates in an investigation of discrimination. Beaufort County will, where necessary and appropriate, revise, update, and incorporate nondiscrimination requirements into appropriate documents, directives, and regulations.

Pursuant to Title VI requirements, any entity that enters into a contract with Beaufort County including, but not limited to Prime Contractors, Subcontractors, Architects, Engineers, and Consultants, may not discriminate on the basis of race, color, national origin, age, sex, disability, religion, or language in their selection and retention of first-tier subcontractors, and first-tier subcontractors may not discriminate in their election and retention of second-tier subcontractors, including those who supply materials and/or lease equipment. Further, Contractors may not discriminate in their employment practices in connection with highway construction projects or other projects assisted by the U.S. Department of Transportation (USDOT) and/or the Federal Highway Administration (FHWA).

In all solicitations either by competitive bidding or negotiation made by the Contractor for work to Beaufort County to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the Contractor of the Contractor's obligations under the contract and the Title VI regulations relative to nondiscrimination on the basis of race, color, national origin, age, sex, disability, religion, or language by providing such a statement in its bidding and contract documents.

Upon request, the Contractor shall provide all information and reports required by Title VI requirements issued pursuant thereto, and shall permit access to its books, records, accounts and other sources of information, and its facilities as may be determined by Beaufort County, USDOT, and/or FHWA to be pertinent to ascertain compliance with such regulations, orders, and instructions. Where any information required of a Contractor is in the exclusive possession of another who fails or refuses to furnish this information, the Contractor shall so certify to USDOT or FHWA, as appropriate and via Beaufort County, and shall set forth what efforts it has made to obtain the information. In the event of the Contractor's non-compliance with nondiscrimination provisions of this contract, USDOT may impose such contract sanctions as it or FHWA may determine to be appropriate, including, but not limited to:

- Withholding of payments to the Contractor under the contract until the Contractor complies, and/or
- Cancellation, termination, or suspension of the contract, in whole or in part.

In the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of this direction to comply with Title VI, the Contractor may request USDOT to enter into such litigation to protect the interests of USDOT and FHWA. Additionally, the Contractor may request the United States to enter into such litigation to protect the interests of the United States. Any person or Subcontractor who believes that they have been subjected to an unlawful discriminatory practice under Title VI has a right to file a formal complaint within one hundred eighty (180) days following the alleged discriminatory action. Any such complaint must be filed in writing or in person:

Beaufort County Government
Post Office Drawer 1228 · Beaufort, SC 29901-1228
843-255-2304 Telephone · E-mail: dthomas@bcgov.net

PROJECT PURPOSE

Beaufort County requests qualifications from all interested firms, licensed in the State of South Carolina, experienced in providing engineering services to complete an independent review for long-term mobility associated with the William Hilton Parkway/US 278 Corridor Improvement project.

SCOPE OF WORK

Task 1: Project Initiation and Coordination:

- Initial meeting with Town of Hilton Head Island, Beaufort County, and Independent Consultant
- Biweekly project discussions with County and Town Staff
- Review meeting with representations of Beaufort County, Town of Hilton Head Island, SCDOT and the existing design consultants on prior work performed
- Monthly update meetings with Town Manager and County Administrator
- Review and define the study area
- Perform a site visit/field review
- Understand the Town of Hilton Head Island's concern with the proposed concept and existing model
- Identify what has already been completed for the project

Task 2: Model and Recommended Concept Review

Review previous models and concept recommendations

- Review assumptions contained within the model – Daily Hour, Land Use, & other input variables
- 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

Task 3: Updating Model & Operational Updates

Model and Operational Analysis Updates

- The model updates will be based on the version of the LATS model utilized to develop the project
- Confirm that the base traffic demand model accurately takes into trips generated by visitor 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 & Beaufort County
- Expand the model and study area to include the following signalized intersections and merge points east of Spanish Wells Road
 - US 278 merge with Cross Island Parkway
 - US 278 Bus (William Hilton Parkway) at Gum Tree Road
 - US 278 Bus (William Hilton Parkway) at Jarvis Park Road
 - US 278 Bus (William Hilton Parkway) at Pembroke Drive/Museum Street

- US 278 Bus (William Hilton Parkway) at Indigo Run Drive/Whooping Crane Way
- US 278 (Palmetto Bay Road) at Point Comfort Road/Arrow Road
- Palmetto Bay Road at Target Road
- US 278 Bus (William Hilton Parkway) at Palmetto Bay Road (Sea Pines Circle)
- 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)
- Traffic counts for the study area intersections will be obtained from the Town of Hilton Head Island
- Any additional counts not available from the Town of Hilton Head or SCDOT shall be collected by the consultant as necessary.
- Ensure the model includes most recent traffic data that reflects the toll removal on the Cross Island Parkway
- Generate model outputs for study area with new assumptions and volumes & analyze operations in Synchro/VISSIM
- 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 operational efficiency by maintaining four lanes (two lanes in each direction) between the Windmill Harbour 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
- Coordinate and refine recommendations with the Town of Hilton Head Island and Beaufort County
- Participate in meetings as directed by the Town of Hilton Head Island and Beaufort County

Task 4: Proposed Intersection Improvements & Potential Future Projects

- Evaluate the safety for bicycle and pedestrians within the original Project Study Area from Moss Creek Drive to Spanish Wells Road and make recommendations on ways to improve the safety of the proposed intersections.
- 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 level within the same (or smaller) footprint of the currently planned project. Include estimated increased or decreased costs for the potential modifications to the intersection designs. Potential modifications that increase the project footprint and impacts to the human and natural environment should be excluded.
- 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 traffic improvements (LOS, delay, etc.) as well as anticipated project costs and known impacts or concerns with the alternatives
 - Assume up to 3 alternatives for each impacted intersection are evaluated

- Develop a Summary of Recommendations for review by the Town of Hilton Head and Beaufort County that can be utilized to secure future funding for the improvements beyond the Project Study Area

Task 5: Draft and Final Report

- Compile model updates, operational analysis, and findings into a report for a review and discussion with Beaufort County and Hilton Head Island staff.
- Finalize elements into draft and final reports, including executive summaries and recommendations
- Presentation of final findings to both County Council and Town Council for endorsement/adoption by both Councils
- Submit final report electronically

PROPOSAL SUBMISSION INSTRUCTIONS

1. Electronically submit file by using the Vendor Registry process through our County Website at www.beaufortcountysc.gov. File name must contain the Vendors name and Project name:
 - a. **Proposal Submittal Contents (items #1-#5 on page 8).**
 - b. **Exhibits A&B**
2. Consultant(s) will be emailed a copy of the Statement of Award.
3. Prohibition of Gratuities: It shall be unethical for any person to offer, or give, or agree to give any County employee or former County employee, or for any County employee or former County employee to solicit, demand, accept, or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, or preparation of any part of a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing, or in any other advisory capacity in any proceeding or application, request for ruling, determination, claim or controversy, or other particular matter, pertaining to any program requirement or a contract or subcontract, or to any solicitation or proposal therefore.
4. Questions
 - a. Submit questions at least ten (10) calendar days prior to proposal closing date to Vendor Registry
 - b. Answers to questions received that would change and/or clarify this solicitation will be provided be posted on Vendor Registry as addendum.
 - c. Selection Committee members SHALL NOT be contacted during the RFQ process.
5. In order to do business with the Beaufort County, vendors must register with Procurement Services through our Vendor Registration system, powered by Vendor Registry. The County may reject any quotes, bids, proposals, and qualifications submitted by businesses that are not registered. Registering also allows businesses to identify the type of goods and services they provide so that they may receive email notifications regarding relevant solicitations out for bid.

To register with the County, go to www.beaufortcountysc.gov and go to the Procurement Services Department's page and click on Vendor Registration. Once registered you may submit your proposal through the solicitation section in Vendor Registry.

PROPOSAL SUBMITTAL CONTENTS

To achieve a uniform review process and allow for adequate comparability, the information is to be organized in the manner specified below and the entire package must not exceed 15 double-sided printed pages excluding Exhibit A and B, cover pages and tabs.

1. **Executive Summary**: Objectives of the project, scope of work, and related issues which must be addressed throughout development stages of the planning.
2. **Approach to the Ranking/Planning Process**: Explanation of the process to provide a ranking system that is equitable and repeatable based on parameters defined in the scope of work.
3. **Work Plan and Scheduling** – A summary of tasks to be performed from evaluation of data through County approval of the final plan. Include a timeline of key milestone dates to include overall durations for each major task.
4. **Experience and Qualifications**: Experience and qualifications of the team members, with an emphasis on similar type project completed within the last five (5) years. Provide an organization chart including sub-consultants and contractors.
5. **List any exceptions, qualifications, or exclusions to this RFQ:**

ALL OTHER PAGES SHALL REMAIN PART OF THE RFQ

BY REFERENCE AND IT IS NOT NECESSARY TO RETURN THESE ITEMS.

Reserved Rights

The County shall not be responsible for any of the costs associated with responding to this request and all submitted materials shall become the property of the County. Furthermore, the County expressly reserves the right and options to:

- Reject any or all consultants and re-advertise if deemed necessary
- Waive any or all formalities and technicalities
- Approve, disapprove, or cancel all services associated with the project

Selection & Notification

The selected firms will be given written notification of being selected by the County. This work may be awarded in whole or in part at the sole discretion of the County. The County will negotiate and execute a contract with the selected firm(s) prior to the beginning of the actual services. Should contract negotiations fail, the County will negotiate with one or the other highly ranked firms. In general, the contract will comply with applicable laws and standard provisions and shall contain the following terms:

- Detailed scope of services
- Schedule for providing services

Beaufort County Standards for Contracting

CHAPTER 1. TYPES OF CONSULTANT SERVICES

- 1-1. Consultant Services

CHAPTER 2. PROCEDURES FOR SELECTION OF CONSULTANTS

- 2-1. General
- 2-2. Objective
- 2-3. Qualifications-Based Selection Procedures
- 2-4. Selection Criteria

CHAPTER 3. CONTRACT FORMAT AND PROVISIONS

- 3-1. Mandatory Contract Provisions
- 3-2. Time Overruns Beyond Control of the Consultant

CHAPTER 4. METHODS OF CONTRACTING AND ALLOWABLE COSTS

- 4-1. Allowable Costs
- 4-2. Nonallowable Costs
- 4-3. Fixed Payment

CHAPTER 5. BEAUFORT COUNTY STANDARD CLAUSES

- 5-1. Contract Requirements
- 5-2. Special Instructions

CHAPTER 1. TYPES OF CONSULTANT SERVICES REQUIRED:

Beaufort County requests qualifications from all interested firms, licensed in the State of South Carolina, experienced in providing engineering services to complete an independent review for long-term mobility associated with the William Hilton Parkway/US 278 Corridor Improvement project

CHAPTER 2. PROCEDURES FOR SELECTION OF CONSULTANTS

2-1. GENERAL

Qualifications-based procedures require that a contract for consulting services be awarded pursuant to a fair and open selection process based on the qualifications of the firms. The fees for such services are established following selection of a firm through a negotiation process to determine a fair and reasonable price.

2-2. OBJECTIVE

Consultants employed for work on projects shall be responsible and possess the ability to perform successfully under the terms and conditions of the proposed procurement. Consideration shall be given to such matters as integrity, record of past performance, extent of experience with the type of services required by the sponsor, technical resources, and accessibility to other necessary resources.

2-3. QUALIFICATIONS-BASED SELECTION PROCEDURES. Consultants shall be selected based on their qualifications and experience, with fees determined through negotiations following selection. **The highest ranked offeror shall be selected, and price shall be negotiated with highest ranking firm as identified through the qualifications-based selection procedure.**

2-4. SELECTION CRITERIA. Criteria include, but are not limited to, the following:

- a) Experience and knowledge with local, state, and federal regulations and permitting. Consultant to disclose the type and number of projects performed for SCDOT, Beaufort County or the Town of Hilton Head over the last 5 years.
- b) Knowledge of local conditions and potential challenges to be considered in developing the project. The ability to address and solve challenges in the design process.
- c) Ability to provide various design options, to evaluate cost-benefit analysis, taking construction and maintenance costs into consideration.
- d) Track record in meeting deadlines, achieving positive results, and providing most cost-effective/best options to implement.

CHAPTER 3. CONTRACT FORMAT

- 3-1. **MANDATORY CONTRACT PROVISIONS.** All contracts involving State or Federal funds must contain the applicable procurement standards in 49 CFR 18.36. Listed below are those provisions which pertain to consultant contracts:
- a. Contracts shall contain provisions or conditions which will allow for administrative, contractual, or legal remedies in instances where contractors violate or breach contract terms and provide for sanctions and penalties as may be appropriate.
 - b. Contracts over \$10,000 shall contain suitable provisions for termination by the sponsor, including how it will be affected and the basis for settlement. In addition, contracts shall describe conditions under which the contract may be terminated for default as well as conditions where the contract may be terminated because of circumstances beyond the control of the consultant.
 - c. All negotiated contracts shall include provisions to the effect that sponsors, the Federal Department of Transportation, the Comptroller General of the United States, or any of the duly authorized representatives shall have access to any books, documents, papers, and records of consultants which are directly pertinent to a specific grant program, for the purpose of making audits, examinations, excerpts, and transcriptions. Sponsors shall require consultants to maintain all required records for 3 years after the sponsor makes final payment and all other pending matters are closed.
 - d. In addition to the requirements contained in 49 CFR Section 23, Participation by Minority Business Enterprises in Department of Transportation Programs, and AC 150/5100-15, Civil Rights Requirements for the Airport Improvement Program, current edition, the Title VI, and Disadvantaged Business Enterprise Assurances in Appendix 1 shall be included in each contract.

3-2. **TIME OVERRUNS BEYOND CONTROL OF THE CONSULTANT.** Frequently, the consultant is called upon to continue technical inspection services on construction contracts--overrunning the program schedule contemplated at the time of negotiation. In most instances, the time element is beyond the control of the consultant. To provide for the contingency of overrun of time, the agreement between the County and the consultant will state the period for which the compensation shall apply and that the consultant shall be reimbursed for services in excess of the specified period of time at a mutually acceptable fee negotiated at the time all the pertinent circumstances are known.

CHAPTER 4. METHODS OF CONTRACTING AND ALLOWABLE COSTS

4-1. ALLOWABLE COSTS.

- a. **Direct Salary Costs.**
 - (1) Direct salary cost is defined as the cost of salaries of engineers, draftsmen, surveyors, stenographers, clerks, etc., for time directly chargeable to the project.
 - (2) Salaries or imputed salaries of partners or principals, to the extent that they perform technical or advisory services directly applicable to the project, are to be added to salary cost.
- b. **Overhead Costs.** Overhead costs include overhead on direct salary costs and general and administrative overhead.
 - (1) **Labor Overhead.** Overhead on direct salary costs includes sick leave, vacation, and holiday pay; unemployment, excise, and payroll taxes; contributions for social security, employment compensation insurance, retirement benefits, and medical insurance benefits; and any other benefits customarily paid to or enjoyed by all

employees. The allowable percentage for labor overhead allocable to a project is the ratio of (a) a firm's total direct labor overhead costs to (b) a firm's total direct salary costs (excluding overtime) for a given period, usually the average for the past 3 years.

(2) General and Administrative Overhead. General and administrative overhead includes the following indirect costs which are not directly attributable to specific projects.

- (a) Provisions for office, light, heat, and similar terms for working space, depreciation allowances or rental for furniture, drafting equipment and engineering instruments, and office and drafting supplies not identifiable to specific projects.
- (b) Taxes and insurance other than those included as salary cost but excluding state and Federal income taxes.
- (c) Library and periodical expenses, and other means of keeping abreast of advances in engineering such as attendance at technical and professional meetings and subscriptions to trade, business, professional, or technical periodicals.
- (d) Executive, administrative, accounting, legal, stenographic, and clerical salaries, and expenses (other than identifiable salaries included in salary costs and expenses included in reimbursable non-salary expenses, plus salaries or imputed salaries of partners and principals) to the extent that they perform general executive and administrative services as distinguished from technical or advisory services directly applicable to projects.
- (e) Costs of memberships in trade, business, technical, and professional organizations.
- (f) Incentive compensation for management employees, cash bonuses, suggestion awards, safety awards, and incentive compensation based on production, cost reduction, or efficient performance are allowable to the extent that the overall compensation is determined to be reasonable, and such costs are paid or accrued pursuant to an agreement entered into in good faith between the consultant and the employees before the services are rendered or pursuant to an established plan followed by the consultant so consistently as to imply, in effect, an agreement to make such payment. The allowable percentage for general and administrative overhead allocable to a project is the ratio of (a) all general and administrative costs to (b) total direct salary costs (excluding overtime) for a given period, usually the average for the past 3 years.

c. Direct Non-salary Expenses. Direct non-salary expenses usually incurred may include the following (detailed records must be kept supporting charges and allow auditing):

- (1) Living and traveling expenses of employees, partners, and principals when away from the home office on business connected with the project. (Records must include employee name, dates, points of travel, mileage rate, lodging, and meals.)
- (2) Identifiable communication expenses such as long-distance telephone, telegraph, cable, express charges, and postage, other than for general correspondence.
- (3) Services directly applicable to the work such as special legal and accounting

expenses, computer rental and programming costs, special consultants, borings, laboratory charges, commercial printing and bindings, and similar costs that is not applicable to general overhead.

- (4) Identifiable drafting supplies and stenographic supplies and expenses charged to the sponsor's work as distinguished from such supplies and expenses that are applicable to two or more projects.
- (5) Identifiable reproduction costs applicable to the work such as blueprinting, photostetting, mimeographing, printing, etc.
- (6) Advertising costs which are solely for the recruitment of personnel required for the performance by the consultant of obligations arising under the contract.

4-2. **NON-ALLOWABLE COSTS.** The expenses listed below are not allowable for reimbursement:

- a. Costs of amusement and social activities and incidental costs relating thereto such as meals, lodging, rentals, transportation, and gratuities.
- b. Contributions and donations.
- c. Bad debts, including losses due to uncollectible customer's accounts and other claims, related collection costs, and related legal costs, arising from other businesses of the consultant.
- d. Dividend provisions or payments and, in the case of sole proprietors and partners, distributions of profit.
- e. Interest on borrowed capital.
- f. Bonus payment for early completion of work.

4-3. **FIXED PAYMENT.** To all the estimated costs, including overhead, a percentage rate is applied to determine payment for profit, willingness to serve, and assumption of responsibility.

CHAPTER 5. BEAUFORT COUNTY STANDARD CLAUSES

CONTRACTUAL REQUIREMENTS

- 1.0 **EXCUSABLE DELAY:** The Firm shall not be liable for any excess costs, if the failure to perform the contract arises out of causes beyond the control and without the fault or negligence of the Firm. Such causes may include, but are not restricted to, acts of God or of the public enemy, acts of the Government in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and unusually severe weather; but in every case the failure to perform must be beyond the control and without the fault or negligence of the Firm. If the failure to perform is caused by the default of a subcontractor, and if such default arises out of causes beyond the control of both the Firm and the subcontractor, and without the fault or negligence of either of them, the Firm shall not be liable for any excess costs for failure to perform, unless the supplies or services to be furnished by the subcontractor were obtainable from other sources in sufficient time to permit the Firm to meet the required delivery schedule.
- 2.0 **S.C. LAW CLAUSE:** Upon award of a contract under this Request for QUALIFICATIONS, the person, partnership, association, or corporation to whom the award is made must comply with local and State laws which require such person or entity to be authorized and/or licensed to do business in Beaufort County. Notwithstanding the fact that applicable statutes may exempt or exclude the successful offeror from requirements that it be authorized and/or licensed to do business in Beaufort County, by submission of this signed Request for QUALIFICATIONS the offeror agrees to subject

itself to the jurisdiction and process of the Fourteenth Judicial Circuit Court of Beaufort County, as to all matters and disputes arising or to arise under the contract and the performance thereof including any questions as to the liability for taxes, licenses, or fees levied by State or local government.

- 3.0 OFFEROR'S QUALIFICATIONS: Firms must, upon request of the County, furnish satisfactory evidence of their ability to furnish services in accordance with the terms and conditions of this Request for QUALIFICATIONS. The Procurement Services Department reserves the right to make the final determination as to the offeror's ability to provide the services requested herein, before entering into any contract.
- 4.0 OFFEROR RESPONSIBILITY: Each Firm shall fully acquaint himself with conditions relating to the scope and restrictions attending the execution of the work under the conditions of this Request for QUALIFICATIONS. The failure or omission of an offeror to acquaint themselves with existing conditions shall in no way relieve him of any obligation with respect to this Request for QUALIFICATIONS or to the contract.
- 5.0 AFFIRMATIVE ACTION: The Firm will take affirmative action in complying with all Federal and State requirements concerning fair employment and employment of the handicapped and concerning the treatment of all employees, without regard or discrimination by reason of race, religion, sex, national origin, or physical handicap.
- 6.0 FIRM RESPONSIBILITIES: The Firm will be required to assume sole responsibility for the complete effort, as required by this RFQ. The County will consider the Firm to be the sole point of contact with regard to contractual matters.
- 7.0 SUBCONTRACTING: If any part of the work covered by this RFQ is to be subcontracted, the Firm shall identify the subcontracting organization and the contractual arrangements made with same. All subcontractors must be approved, in writing by the County, or when applicable a political subdivision within the County with the County's concurrence. The successful Firm will also furnish the corporate or company name and the names of the officers of any subcontractors engaged by the Firm. The County reserves the right to reject any or all subcontractors and require substitution of a firm qualified to participate in the work as specified herein.
- 8.0 OWNERSHIP OF MATERIAL: Ownership of all data, material, and documentation originated and prepared for the County pursuant to this contract shall belong exclusively to the County.
- 9.0 PERFORMANCE AND PAYMENT BONDS: (*NOT Required for Professional Services*) The successful Contractor shall furnish, within ten (10) days after written notice of acceptance of Request for QUALIFICATIONS, Performance and Payment Bonds. Contractor shall provide and pay the cost of a both bonds. The Bonds shall be in the amount of one hundred percent (100%) the contract, issued by a Surety Company licensed in South Carolina with an "A" minimum rating of performance as stated in the most current publication of "Best's Key Rating Guide, Property Liability" which shall show a financial strength rating of at least five (5) times the Contract Price. The Bond shall be accompanied by a "Power of Attorney" authorizing the attorney-in-fact to bind the surety and certified to include the date of the bond.
- 10.0 NONRESIDENT TAXPAYERS: If the offeror is a South Carolina nonresident taxpayer and the contract amount is \$10,000.00 or more, the offeror acknowledges and understands that in the event he is awarded a contract offeror shall submit a Nonresident Taxpayer Registration Affidavit (State

form #1-312-6/94), before a contract can be signed. Affidavit must certify that the nonresident taxpayer is registered with the S.C. Department of Revenue or the S.C. Secretary of State's Office, in accordance with Section 12-9-310(A) (2) (3) of S.C. Code of Laws (1976) as amended.

- 11.0 BUSINESS LICENSE In accordance with the *Beaufort County Business License Ordinance, 99-36, Article III*, as enacted November 22, 1999, any business or individual generating income in the unincorporated area of Beaufort County is required to pay an annual license fee and obtain a business license. The ordinance referenced is available on the Beaufort County website at www.beaufortcountysc.gov or by calling the Business License Administrator at (843) 255-2270 for a list of schedules.
- 12.0 ADDITIONAL ELIGIBILITY: Other Beaufort County Public Procurement units shall, at their option, be eligible for use of any contracts awarded pursuant to this Invitation.
- 13.0 INSURANCE REQUIREMENTS: Prior to commencing work/delivery hereunder, Contractor/Firm, at his expense, shall furnish insurance certification showing the certificate holder as Beaufort County, P.O. Drawer 1228, Beaufort, SC 29901-1228, Attention: Procurement Services Director and with a special notation naming Beaufort County as an additional insured on the liability coverage. Minimum coverage shall be as follows:
- (A) Worker's Compensation Insurance - Contractor shall have and maintain, during the life of this contract, Worker's Compensation Insurance for his employees connected to the work/delivery, in accordance with the Statutes of the State of South Carolina and any applicable laws.
 - (B) Commercial General Liability Insurance – Contractor shall have and maintain, during the life of this contract, Commercial General Liability Insurance. Said Commercial General Liability Policy shall contain Contractual Liability and Products/Completed Operations Liability subject to the following minimum limits: \$1,000,000 Each Occurrence/ \$2,000,000 General Aggregate and \$2,000,000 Products/Completed Operations Aggregate naming Beaufort County as an additional insured.
 - (C) Comprehensive Automobile Liability Insurance - The Contractor shall have and maintain, during the life of this contract, Comprehensive Automobile Liability, including non-owned and hired vehicle, of at least \$500,000 COMBINED SINGLE LIMIT.
 - (D) ADDITIONAL INSURANCE REQUIREMENT: Umbrella Liability Insurance – Contractor shall have and maintain, during the life of this contract, Umbrella Liability Insurance with a minimum limit of \$2,000,000
 - (E) Professional Liability (Errors & Omissions) – The vendor shall maintain a limit no less than \$1,000,000 per occurrence.
 - (F) The required insurance policy at the time of issue must be written by a company licensed to do business in the State of South Carolina and be acceptable to the County.
 - (G) The Contractor/vendor shall not cause any insurance to be canceled or permit any insurance to lapse. All insurance policies shall contain a clause to the effect that the policy shall not be canceled or reduced, restricted, or limited until fifteen (15) days after the County has received written notice, as evidenced by return receipt of registered or certified letter. Certificates of Insurance shall contain transcript from the proper office of the insurer, the location, and the operations to which the insurance applies, the expiration date, and the above-mentioned notice of cancellation clause.
 - (H) The information described above sets forth-minimum amounts and coverages and is not to be construed in any way as a limitation on the Contractor's liability.

14.0 INDEMNITY:

The Firm hereby agrees to indemnify and save harmless the County, its officers, agents, and employees from and against any and all liability, claims, demands, damages, fines, fees, expenses, penalties, suits, proceedings, actions and cost of actions, including attorney's fees for trial and on appeal of any kind and nature arising or growing out of or in any way connected with the performance of the Agreement, whether by act of omissions of the Firm, its agents, servants, employees or others, or because of or due to the mere existence of the Agreement between the parties.

15.0 TERMINATION FOR DEFAULT:

15.1 The performance of Work under the Agreement may be terminated by the Procurement Services Director, in accordance with this clause, in whole or in part, in writing, whenever the Director of Procurement Services shall determine that the Contractor has failed to meet the performance requirements of this Agreement.

15.2 The Procurement Services Director has the right to terminate for default, if the Firm fails to make delivery of the contracted deliverables or perform the Work, or if the Firm fails to perform the Work within the time specified in the Agreement, or if the Firm fails to perform any other provisions of the Agreement.

16.0 TERMINATION FOR CONVENIENCE: The County may without cause terminate this contract in whole or in part at any time for its convenience. In such instance, and adjustment shall be made to the Firm, for the reasonable costs of the work performed through the date of termination. Termination costs do not include lost profits, consequential damages, delay damages, unabsorbed or under absorbed overhead of the Firm or its subcontractors, and/or failure to include termination for convenience clause into its subcontracts and material purchase orders shall not expose the County to liability for lost profits in conjunction with a termination for convenience settlement or equitable adjustment. The Firm expressly waives any claims for lost profit or consequential damages, delay damages, or indirect costs which may arise from the County's election to terminate this contract in whole or in part for its convenience.

17.0 TERMINATION FOR NON-APPROPRIATIONS: Funds for this contract are payable from State and/or Federal and/or Beaufort County appropriations. In the event sufficient appropriations are not made to pay the charges under the contract it shall terminate without any obligation to Beaufort County.

SPECIAL INSTRUCTIONS

- 1.0 INTENT TO PERFORM: It shall be the Firm's responsibility to advise the Procurement Services Department if any language, requirements, etc., or any combinations thereof inadvertently restricts or limits the requirements stated in this RFQ to a single source. Such notification must be submitted in writing and must be received by the Procurement Services Department not later than ten (10) days prior to the Request for QUALIFICATIONS opening date. A review of such notifications will be made.
- 2.0 RECEIPT OF REQUEST FOR QUALIFICATIONS: Request for Qualifications, amendments thereto, or withdrawal requests received after the time advertised for Request for Qualifications opening will be void, regardless of when they were mailed.
- 3.0 PREPARATION OF REQUEST FOR QUALIFICATIONS
 - 3.1 All Requests for QUALIFICATIONS should be complete and carefully worded and must convey all the information requested by the County. If significant errors are found in the offeror's Request for QUALIFICATIONS, or if the Request for QUALIFICATIONS fails to conform to the essential requirements of the RFQ, the County and the County alone will be the judge as to whether that variance is significant enough to reject the Request for QUALIFICATIONS.
 - 3.2 Request for QUALIFICATIONS should be prepared simply and economically, providing a straightforward, concise description of offerors capabilities to satisfy the requirements of the RFQ. Emphasis should be on completeness and clarity of content.
 - 3.3 Each copy of the Request for QUALIFICATIONS should be bound in a single file where practical. All documentation submitted with the Request for QUALIFICATIONS should be bound in that single file.
 - 3.4 If your Request for QUALIFICATIONS includes any comment over and above the specific information requested in our Request for Request for QUALIFICATIONS (RFQ), you are to include this information as a separate appendix to your Request for QUALIFICATIONS.
- 4.0 AMENDMENTS: If it becomes necessary to revise any part of the RFQ, an amendment will be provided to all offerors who received the original Request for Request for QUALIFICATIONS. The County shall not be legally bound by an amendment or interpretation that is not in writing.
- 5.0 ADDITIONAL INFORMATION: Offerors requiring additional information may submit their questions, in writing through Vendor Registry. Answers to questions received that should change and/or clarify this solicitation will be provided in writing to all offerors via an amendment.
- 6.0 ORAL PRESENTATION/DISCUSSIONS: Any offeror or all offerors may be requested to make an oral presentation of their Request for QUALIFICATIONS to the County, after the Request for QUALIFICATIONS opening. Discussions may be conducted with responsible Firms, who submit Request for QUALIFICATIONS determined to be reasonably susceptible of being selected for award for the purpose of clarification to assure full understanding of and responsiveness to the solicitation requirement.

Firms shall be accorded fair and equal treatment with respect to any opportunity for discussions and revision of Request for QUALIFICATIONS, and such revisions may be permitted after submissions and prior to award. The purpose of these presentations/discussions will be to:

- (A) Determine in greater detail such offeror's QUALIFICATIONS.
- (B) Explore with the Firm the scope and nature of the project, the offeror's proposed method of performance, and the relative utility of alternative methods of approach.
- (C) Determine that the Firm will make available the necessary personnel and facilities to perform within the required time.
- (D) Agree upon fair and reasonable compensation, taking into account the estimated value of the required services, the scope and complexity of proposed project, and nature of such services.

7.0 FUNDING: The offeror shall agree that funds expended for the purposes of the contact must be appropriated by the County Council for each fiscal year included within the contract period. Therefore, the contract shall automatically terminate without penalty or termination costs if such funds are not appropriated. In the event that funds are not appropriated for the contract, the Firm shall not prohibit or otherwise limit the County's right to pursue and contract for alternate solutions and remedies, as deemed necessary by the County for the conduct of its affairs. The requirements stated in this paragraph shall apply to any amendment or the execution of any option to extend the contract.

8.0 AWARD: An award resulting from this request shall be awarded to the responsive and responsible Firm whose Request for QUALIFICATIONS is determined to be most advantageous to the County, taking into consideration price and the evaluation factors set forth herein; however, the right is reserved to reject any and all Request for QUALIFICATIONS received, and in all cases the County will be the sole judge as to whether a Firm's Request for QUALIFICATIONS has or has not satisfactorily met the requirements of this RFQ.

9.0 PUBLIC ACCESS TO PROCUREMENT INFORMATION: No such documents or other documents relating to this procurement will be presented or made otherwise available to any other person, agency, or organization until after award. Commercial or financial information obtained in response to this RFQ, which is privileged and confidential, will not be disclosed. Such privileged and confidential information includes information which, if disclosed, might cause harm to the competitive position of the offeror supplying the information. **All Firms, therefore, must visibly mark as "Confidential" each part of their Request for QUALIFICATIONS, which they consider containing proprietary information.**

10.0 DEVIATIONS: Any deviations from the requirements of this RFQ must be listed separately and identified as such in the table of contents.

12.0 GRATUITIES: It shall be unethical for any person to offer, or give, or agree to give any County employee or former County employee; or for any County employee or former County employee to solicit, demand, accept, or agree to accept from another person a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, or preparation of any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing, or in any other advisory capacity in any proceeding or application, request for ruling, determination, claim or controversy,

or other particular matter pertaining to any program requirement, or a contract or subcontract, or to any solicitation or Request for QUALIFICATIONS therefore.

13.0 KICKBACKS: It shall be unethical for any payment, gratuity, or offer of employment to be made by or on behalf of a subcontractor under a contract to the prime or higher tier subcontractor, or any person associated therewith, as an inducement for the award of a subcontractor order.

14.0 PROTEST PROCEDURES

14.1 Right to Protest: Any actual or prospective bidder, offeror, or firm, who is aggrieved, in connection with the solicitation or award of a contract, may protest to the Procurement Services Director. The protest shall be submitted in writing fourteen (14) days after such aggrieved person knows or should have known of the facts giving rise thereto. The protest must be accompanied by a detailed statement, indicating the reasons for such protest.

14.2 Authority to Resolve Protest: The Procurement Services Director shall have authority, prior to the commencement of an action in court concerning the controversy, to settle and resolve a protest of an aggrieved bidder, offeror, or contractor; actual or prospective, concerning the solicitation or award of a contract.

14.3 Decision: If the protest is not resolved by mutual agreement, the Procurement Services Director shall issue a decision, in writing within ten (10) days. The decision shall,

- (A) State the reasons for the action taken; and
- (B) Inform the protestant of its right to administrative review as provided in this Section.

14.4 Notice of Decision: A decision under Subsection (3) of this Section shall be mailed or otherwise furnished immediately to the protestant and any other party intervening.

14.5 Finality of Decision: A decision under Subsection (3) of this Section shall be final and conclusive, unless fraudulent, or

- (A) Any person adversely affected by the decision appeals administratively, within ten (10) days after receipt of decision under Subsection (3) to the County Council in accordance with this Section.
- (B) Any protest taken to the County Council or court shall be subject to the protestant paying all administrative costs, attorney fees, and court costs when it is determined that the protest is without standing.

EXHIBIT A

Certification regarding Debarment, Suspension, Ineligibility, and Voluntary exclusion

The contractor certifies, by submission of this qualification statement or acceptance of a contract, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any State, Federal department, or agency.

It further agrees by submitting this qualification statement that it will include this clause without modification in all lower tier transactions, solicitations, proposals, contracts, and subcontracts. Where the bidder/contractor or any lower tier participant is unable to certify to this statement, it shall attach an explanation to this solicitation/bid.

State whether your company has been involved in any litigation within the past five (5) years, arising out of your performance.

Circle Yes or No

if you answer yes, explain fully if it has been involved in any litigation involving performance.

EXHIBIT B

CERTIFICATION BY CONTRACTOR

Regarding

NON-SEGREGATED FACILITIES

The Bidder certifies that he does not, and will not, provide and maintain segregated facilities for his employees at his establishments and, further that he does not, and will not, permit his employees to perform their services at those locations, under his control, where segregated facilities are provided and maintained. Segregated fountains, transportation, parking, entertainment, recreation, and housing facilities; waiting, rest, wash, dressing, and locker room, and time clock, work, storage, restaurant, and other eating areas which are set apart in fact, or by explicit directive, habit, local custom, or otherwise, based on color, creed, national origin, and race. The Bidder agrees that, except where he has obtained identical certifications from proposed subcontractors for specific time periods, he will obtain identical certifications from proposed subcontractors prior to the award of subcontractors exceeding **\$10,000.00** which are not exempt from the provisions of the Equal Opportunity clause, and that he will retain such certifications in his files.

The Bidder agrees that a breach of this certification is a violation of the Equal Opportunity clause in this Contract. The penalty for making false statements is prescribed in 18 U.S.C. 1001.

Contractor

(Signature)

Name and Title of Signer

Date

EXHIBIT C

EVALUATION FORM

DATE: _____

RFQ#: _____ TITLE: _____

OFFEROR: _____


		POINT RANGE	POINTS ASSIGNED
1.0	Experience and knowledge with local, state, and federal regulations and permitting. Consultant to disclose the type and number of projects performed for SCDOT, Beaufort County or the Town of Hilton Head over the last 5 years.	0-25 Points	
2.0	Knowledge of local conditions and potential challenges to be considered in developing the project. The ability to address and solve challenges in the design process.	0-25 Points	
3.0	Ability to provide various design options, to evaluate cost-benefit analysis, taking construction and maintenance costs into consideration	0-25 Points	
4.0	Track record in meeting deadlines, achieving positive results, and providing most cost-effective/best options to implement.	0-25 Points	

TOWN OF HILTON HEAD ISLAND

RFQ Transmittal Page

Date Advertised: **February ##, 2023**

Offerors Shall Complete All Information Requested On This Page and Submit It With Their Qualifications

	<p>REQUEST FOR QUALIFICATIONS (RFQ)</p>	<p>Qualifications Submission:</p> <p>Qualifications will ONLY be accepted electronically via the Town's Procurement Portal which can be accessed using the link below: hiltonheadislandsc.bonfirehub.com</p>
<p>Solicitation Number: RFQ 2023-##</p> <p>Description/Title: Independent Review of the William Hilton Parkway Gateway Corridor</p>	<p>* Qualifications Submittal Deadline: 10:00 am Eastern Time on _____, 2023</p> <p>*Submittals will not be accepted after the stated time and date.</p> <p>Submittals will be publically opened via virtual conference at 10:15 am Eastern Time on _____, 2023. The link to participate in the virtual opening is provided in Section I of this RFQ.</p>	
<p>Pre-Submittal Conference Information: Not applicable for this solicitation</p>		
<p>Town Contact: Richard Groth, Procurement Officer richg@hiltonheadislandsc.gov (843) 341-4711</p>	<p>Deadline For Questions: 2:00 pm Eastern Time on _____, 2023</p> <p>Questions must be submitted through the Town's Procurement Portal using the "Opportunity Q&A" feature in the "Messages" Section of the Portal.</p>	
<p>Offeror Name:</p>	<p>Offeror Contact Name:</p>	
<p>Offeror Mailing Address:</p>	<p>Offeror Contact Phone:</p>	
<p>City-State-Zip-Code:</p>	<p>Offeror Contact Email Address:</p>	
<p>By signature below, I certify that this submission is made and submitted without prior understanding, agreement, or connection with any corporation, firm or any corporation, firm, or person submitting qualifications for the same materials, supplies, equipment or services, and is in all respects fair and without collusion or fraud. I agree that this submittal shall be good and held open for a period of at least sixty (60) days from the Submittal Deadline. I agree to abide by all conditions of this solicitation and certify that I am authorized to sign this document on behalf of the Offeror.</p>		
<p>Offeror Authorized Signature:</p> <p>_____</p> <p>Signature Date</p>	<p>Name and Title of Signator:</p> <p>Name: _____</p> <p>Title: _____</p>	

TOWN OF HILTON HEAD ISLAND

RFQ 2023-##

Independent Review of the William Hilton Parkway Gateway Corridor

I. GENERAL INFORMATION AND SUBMITTAL INSTRUCTIONS

The Town of Hilton Head Island is soliciting responses from qualified engineering firms (“Offerors” or “Consultants”) licensed in South Carolina to provide Independent Review of the William Hilton Parkway Gateway Corridor for the Town in accordance with the scope of work and specifications provided herein.

Qualifications must be submitted by the Qualifications Submittal Deadline shown on the Transmittal Page. Qualifications will ONLY be accepted electronically via the Town’s Procurement Portal which can be accessed using the following link hiltonheadislandsc.bonfirehub.com<https://hiltonheadislandsc.bonfirehub.com/portal>. If electronic submittal poses a hardship, please notify the Town Contact person identified on the Transmittal Page.

There will be a MANDATORY meeting will be held virtually on February ##, 2023/#:00PM (EST). Please contact Rich Groth at richg@bcgov.net to request an invitation. Only vendors that attend this meeting shall be qualified to submit a proposal. The Town will have an advisory committee and review the submittals and make recommendation for selection based on the stated criteria.

Submittals will be publically opened via virtual conference at the date and time indicated on the Transmittal Page. Only the names of Offerors will be provided at the opening. No other information will be shared at that time. To participate, please use the following meeting link and information.

Virtual Opening of Submittals Link and Information
10:15 am Eastern Time on _____, 2023

To join the meeting on a computer or mobile phone:
<https://bluejeans.com/8433843231?src=calendarLink&flow=joinmeeting>

Phone Dial-in
+1.404.458.0105 (United States)
+1.312.216.0325 (US (Chicago))
Global Numbers: <https://www.bluejeans.com/numbers>

Meeting ID: 843 384 3231

Want to test your video connection?
<https://bluejeans.com/111>

All questions regarding this solicitation must be submitted in writing via the Town’s

Procurement Portal using the “Opportunity Q&A” feature in the “Messages” Section. Questions will be answered via the Procurement Portal as well. Offeror’s who have downloaded an original solicitation will receive email notification if any addendums have been issued for that solicitation. **However, it is still the Offeror’s responsibility to check the procurement portal for any issued addendums prior to submitting their qualifications.**

The Town reserves the right to accept or reject any or all submittals received as a result of this solicitation, to negotiate with all qualified Offerors, to award multiple contracts for all or part of the scope of work, or to cancel in part or in whole this solicitation, if in the best interests of the Town. The Town reserves the right to refuse any and all submittals and to waive any technicalities and formalities. The Town reserves the right to waive any requirement in this solicitation, including material requirements, if such requirement is unmet by all Offerors, and, such a waiver is determined to be in the best interests of the Town.

This solicitation does not commit the Town to award a contract or to procure for any articles of goods or services. The Town shall not incur or pay for any costs associated with the preparation of Offeror submittals.

Submittals must be signed by an official of Offeror authorized to bind Offeror. Electronic signature using secure signature software is acceptable. By submitting, Offeror agrees that its submittal shall be good and held open for a period of at least sixty (60) days from the Due Date.

The Town does not discriminate on the basis of race, color, national origin, sex [including pregnancy and childbirth (or related medical conditions)], religion, age or disability in employment or in the provision of goods and services.

The Town recognizes that small businesses enterprises as well as businesses enterprises owned and operated by women and/or minority persons (collectively “disadvantaged business”) have historically faced challenges resulting in less than full participation in the free enterprise system to a degree disproportionate to other businesses. Therefore, the Town is committed to ensuring that such disadvantaged business enterprises are afforded every opportunity to fully and fairly participate in the Town’s procurement process for goods and services. In the event of a tie after the scoring of responses involving a certified disadvantaged Offeror and a non-disadvantaged Offeror, the Town will award the contract to the certified disadvantaged Offeror. Tied responses involving two certified disadvantaged Offerors will be settled by selecting the Offeror having the lowest total cost to the Town. It is the obligation of the disadvantaged Offeror to submit proof of current certification from a governmental entity in the United States at the time they submit their response in order for the certification to be considered by the Town in determining an award as described above. Tied responses involving two non-disadvantaged Offerors will be settled by selecting the Offeror having the lowest total cost to the Town.

II. SCOPE OF WORK

The Town desires to contract with qualified firm to conduct an Independent Review of the William Hilton Parkway Gateway Corridor project. It is the intent of the Town to have the selected firm review and verify the assumptions, methodologies, alternatives and preferred design recommendation are technically accurate and serve the best interest of Hilton Head Island. The specific scope, schedule and fee for the services necessary to develop the plan will be negotiated once the firm is selected. Anticipated services and tasks associated with the development of the plan may include, but are not limited to, the following:

Task 1: Project Initiation and Coordination:

- Initial meeting with Town of Hilton Head Island, Beaufort County, and Independent Consultant
- **Conduct Bi-weekly project status meetings with Town staff and the project advisory committee.**
- Review meeting with representations of Beaufort County, 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
- Understand the Town of Hilton Head Island's concern with the proposed concept and existing model
- Identify what has already been completed for the project

Task 2: Review Model Data and Recommended Design Concept

- Review assumptions contained within the model – Daily, Hour, Land Use, & other input variables
- 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

Task 3: Model and Operational Analysis Updates

- The model updates will be based on the version of the LATS model utilized to develop the project
- Confirm that the base traffic demand model accurately takes into trips generated by visitor 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 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
 - 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)
- 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 or SCDOT shall be collected by the consultant as deemed necessary and agreed to by the Town
- **The model shall include 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 in Synchro/VISSIM. 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 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
- Coordinate and refine recommendations with the Town of Hilton Head Island and Beaufort County
 - Participate in meetings as directed by the Town of Hilton Head Island

Task 4: Proposed Intersection Improvements & Potential Future Projects

- Evaluate the safety for bicycle and pedestrians within the original Project Study Area from Moss Creek Drive to Spanish Wells Road and make recommendations on ways to improve the safety of the proposed intersections.
- 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 level within the same (or smaller) footprint of the currently planned project. Include estimated increased or decreased costs for the potential modifications to the intersection designs. Potential modifications that increase the project footprint and impacts to the human and natural environment should be excluded.
- 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 traffic improvements (LOS, delay, etc.) as well as anticipated project costs and known impacts or concerns with the alternatives
- Assume up to 3 alternatives for each impacted intersection are evaluated
- Develop a Summary of Recommendations for review by the Town of Hilton Head and Beaufort County that can be utilized to secure future funding for the improvements beyond the Project Study Area

Task 5: Final Report

- Compile model updates, operational analysis, and findings into a report for a review and discussion.
- **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.**
- Finalize elements into draft and final reports, including executive summaries and recommendations.
- Presentation of final findings 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.

The anticipated Table of Contents for the Final Report is provided below.

Hilton Head Island Independent Review of the William Hilton Parkway Gateway Corridor

Table of Contents

1. Executive Summary and Recommendations for Town Action
2. Introduction
3. Study Objectives
4. Data Sources and Needs
5. Modeling – Review and Updating
 - a. Data Sources
 - b. Assumptions and Methodologies
6. Regulatory and Legal Impacts
 - a. Town, County and State Regulations
 - b. Legal Implications
7. Alternative Strategies for Traffic Mitigation
 - a. Scope and Extents
 - b. Cost Estimates
 - c. Schedule
8. Recommendations
9. Glossary - Acronyms and Terms
10. References
11. List of Figures and Tables
12. Appendices

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III. SUBMITTAL REQUIREMENTS AND FORMATTING

Offerors are REQUIRED to submit all requested information and/or documentation outlined in this RFQ. Any Offeror failing to do so may have their response rejected as being non-responsive and making them ineligible for contract award. Offeror must complete and return with their response the "Checklist of Submittal Requirements", a copy of which is included in this solicitation as Exhibit A. Offerors shall submit their responses in a format and sequence that follows the section numbering and layout provided in this solicitation to assist the Town in its evaluation of responses.

A. QUALIFICATIONS SUBMITTAL:

Section 1 - General firm background and experience to include at a minimum:

- Location of primary operations/office (address) for work on this project and number of years at this location
- Number of years firm has performed similar work on Independent Review of the William Hilton Parkway Gateway Corridor;
- State the total number of similar projects completed in the last 5 years and for each provide whether your firm was the prime or a subconsultant;
- Identify Experience _____ – list all similar projects performed (project name, year, location) in the last 5 years
- Provide the dollar amount of the contract/project;
- Date of the contract completion, the type(s) and quantity of work;
- Provide client reference information to include client name, location of the contract work, and contact person's name, telephone number and e-mail address.
- Any additional related information deemed pertinent.

Section 2 - Qualifications and Organization of Key Personnel/Project Team. Provide at a minimum:

- Provide an organizational chart of the team that will be assigned for the work on this contract with a name and role for each project team member, including support personnel;
- A resume for each team member to be assigned to this contract;
- The office location for each team member to be assigned to this contract.

Section 3 - Summary of firm's technical capabilities related to the Scope of Work described in Section II. Identify any unique qualifications, tools, equipment, software, or methodologies to be employed under this contract.

Section 4 - List of any litigation history of the firm for the past 5 years

Section 5 - Any additional relevant information not provided above.

B. QUESTIONNAIRE

Offerors shall complete the Questionnaire provided in Exhibit D.

C. REQUIRED FORMS

- Exhibit A - Checklist of Submittal Requirements
- Exhibit C - Illegal Immigration Reform Act Affidavit
- Certificate of Insurance as evidence that Consultant meets the insurance requirements specified in Exhibit B of this RFQ.

V. EVALUATION CRITERIA

If a contract is awarded as result of this solicitation, such award shall be made to the responsive and responsible Offeror with the highest rated response based on the stated evaluation criteria.

Evaluation Criteria

- 1. Nature/Comparability/Quality of previously completed contracts/projects of similar scope (40%):**
- 2. Qualifications/abilities/experience of personnel (50%)**
- 3. Project team local experience (Southeast US Atlantic coast) (10%):**

After initial scoring of the above criteria, the Town reserves the right to select a short list of finalists for a presentation/interview. Results of the interview process shall factor into the final scoring for contract award.

VI. CONTRACT AWARD

If a contract is awarded as result of this solicitation, such award shall be made to the most qualified respondent(s). In the event that contract negotiations with the most qualified respondent(s) are unsuccessful, the Town reserves the right to begin contract negotiations with next most qualified respondent(s). The Town reserves the right to award multiple contracts and anticipates awarding to two firms.

Contract award, as well as contract continuation of the contract in subsequent fiscal periods, is subject to availability of Town funds. In the event that contract negotiations with the highest rated Offeror are unsuccessful, the Town reserves the right to begin contract negotiations with next highest rated Offeror.

VII. STANDARD CONTRACT TERMS AND CONDITIONS

Offeror acknowledges it has read and understands the terms and conditions provided in the Town's standard contract clauses attached hereto as Exhibit B, and Offeror also agrees that such clauses shall substantially form the basis for a contract between Offeror and Town. Offeror also acknowledges that terms and conditions provided in this RFQ, either in their entirety or relevant portions thereof, may be included and become part of any resulting contract. The anticipated term of the resulting contract shall be one year with the option to amend as mutually agreed.

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EXHIBIT A

RFQ 2023-##

Independent Review of the William Hilton Parkway Gateway Corridor

Checklist of Submittal Requirements

The following checklist is intended to advise the Offeror of all items or information that must be included with their submittal. Offerors shall provide:

1. Completed Submittal Transmittal Page (page 1 of RFQ)
2. A Qualifications Submittal that addresses all the required elements and formatting as specified in this RFQ.
3. Completed Questionnaire (Exhibit D)
4. Copy of SC License
5. Fee Schedule (must be submitted separate from the main qualifications submittal of qualifications)
6. Signed Offeror Acknowledgement on this Exhibit A below.
7. Completed Affidavit acknowledging the requirements of the South Carolina Illegal Immigration Reform Act, Exhibit C.
8. Certificate of Insurance as evidence that Consultant meets the insurance requirements specified in Exhibit B of this RFQ. Town of Hilton Head Island shall be added as an Additional Insured on Consultant's Insurance upon contract award.
9. Offeror should include current Town business license with their submittal if they have one. If not, Offeror will be required to obtain one prior to commencing any work if awarded the contract.

Offeror Acknowledgements:

In the space provided, Offeror shall acknowledge receipt and review of the following addendums issued for this solicitation.

Addendum #'s: _____

I have read the above checklist of submittal requirements as well as this solicitation in its entirety, and understand that failure to submit any item, document, form or information identified as being required in either document, may result in the rejection of our submittal and eliminate our company from consideration for contract award.

Offeror/Firm: _____

Signature: _____

Name: _____

Title: _____

EXHIBIT B

STATE OF SOUTH CAROLINA)
)
COUNTY OF BEAUFORT) **AGREEMENT**

THIS AGREEMENT ("Agreement") is made this <<Date>> between <<Company Name>> (hereinafter called "Consultant") and the Town of Hilton Head Island (hereinafter called "Town"), a municipal corporation organized and existing under the laws of the State of South Carolina.

WHEREAS, the Town has a need for a qualified consultant to provide Independent Review of the William Hilton Parkway Gateway Corridor; and

WHEREAS, the Town and the Consultant desire to enter into an Agreement wherein the Consultant shall provide such services as set forth herein below.

NOW, THEREFORE, for and in consideration of the mutual promises, undertakings and covenants set forth herein, the receipt and sufficiency of which is acknowledged and affirmed by the Town and the Consultant, the parties hereto agree as follows:

1. The Consultant shall provide Independent Review of the William Hilton Parkway Gateway Corridor in accordance with the scope of work attached hereto as Exhibit ____, and made part of this Agreement.
2. Consultant shall be compensated in accordance with the itemized Fee Schedule attached hereto as Exhibit __, and made part of this Agreement.
3. The term of this Agreement shall be for a period of one (1) year commencing on the date of execution.
4. The Consultant is required to maintain appropriate levels of insurance for both workers compensation coverage and for auto liability. The Consultant is required to maintain one million dollars (\$1,000,000) of general liability insurance and one million dollars (\$1,000,000) of professional liability insurance. The Consultant must provide the Town with a Certificate of Insurance evidencing that they have the required insurance coverages. The Town shall be named as an additional insured with respect to liability coverages. The Consultant is required to immediately contact the Town should any change to these policies occur during the course of the performance of this contract. Failure to maintain these policies is grounds for termination.
5. Termination.

5.1 The Town may terminate this Agreement in whole or in part at any time for the convenience of the Town by delivery of a written notice to the Consultant of the Town's election to terminate this Agreement for the convenience of the Town. If this Agreement is terminated for the convenience of the Town, the Town will pay the Consultant only for those services rendered by the Consultant up to the date of termination, based on the existing rates of this Agreement, and prorated to the date of termination.

EXHIBIT B

5.2 The Town may also terminate this Agreement if funds are not appropriated or otherwise made available to support continuation of this Agreement in subsequent fiscal years. In such event, the Town shall deliver a written notice to the Consultant that this Agreement is terminated effective the last day of the then current fiscal year due to the lack of appropriated funds, and the Town will pay the Consultant only through the end of the then current fiscal year at the existing rates in this Agreement.

6. Should any part of this Agreement be rendered void, invalid, or unenforceable by any court of law, such a determination shall not render void, invalid, or unenforceable any other part of this Agreement.
7. This Agreement has been made and entered into in the State of South Carolina, and the laws of South Carolina shall govern the validity and interpretation of this Agreement in the performance due hereunder.
8. This Agreement may not be modified unless such modification is in writing and signed by both parties.
9. The Consultant may not assign this Agreement without the prior written approval of the Town.
10. The Consultant shall defend, indemnify, and hold harmless the Town, its officers, directors, agents, and employees from and against any and all actions, costs, claims, losses, expenses, and/or damages, including attorney's fees, whether incurred prior to the institution of litigation, during litigation, or on appeal arising out of or resulting from the conduct of any activity hereby authorized or the performance of any requirement imposed pursuant by this Agreement, however caused or occasioned, unless caused by the willful misconduct or gross negligence of the Town.
11. The parties hereto intend that no master/servant, employer/employee, or principal/agent relationship will be created by this Agreement. Nothing contained herein creates any relationship between the Town and the Consultant other than that which is expressly stated herein. The Town is interested only in the results to be achieved under this Agreement, and the conduct and control of the agents and employees of the Consultant and the methods utilized by the Consultant in fulfilling its obligations hereunder shall lie solely and exclusively with the Consultant and its agents and employees shall not be considered agents or employees of the Town for any purpose. No person employed by the Consultant shall have any benefits, status, or right of employment with the Town.
12. The Consultant, by signing this Agreement, hereby certifies that Consultant shall comply with all applicable requirements of the South Carolina Illegal Immigration Reform Act, S.C. Code Ann. §41-8-10 (2007) et seq., (the "Act"), and that Consultant covenants and agrees as follows:
 - 12.1. Consultant shall not knowingly or intentionally employ any unauthorized alien and, unless excluded from coverage of the "Act", shall verify the work authorization of newly hired employees performing work under the Agreement by registering and participating in the Federal Work Authorization Program (E-verify) and verifying the work authorization of every new hired employee within three (3) business days after employing employee.

EXHIBIT B

12.2. Consultant agrees to provide to the Town all documentation requested by it to establish either:

- (a) the applicability of the South Carolina Illegal Immigration Reform Act to Consultant; or
- (b) compliance with the South Carolina Illegal Immigration Reform Act by Consultant.

12.3. Consultant agrees to include in any contracts with its sub-consultants language requiring its sub-consultants to:

- (a) comply with the applicable requirements of Title 8, Chapter 14 of the South Carolina Code of Laws; and
- (b) include in their contracts with the sub-subconsultants language requiring the sub-subconsultants to comply with the applicable requirements of Title 8, Chapter 14 of the South Carolina Code of Laws.

12.4. Consultant acknowledges and agrees that it shall comply with requirements of the Immigration Reform and Control Act of 1986 including the non-discrimination provisions thereof, and shall complete all required I-9 documentation for all workers employed by it.

12.5. Consultant certifies it shall comply with all state, federal, and local laws, rules, regulations and orders applicable to it in performance of work under the contract.

IN WITNESS WHEREOF, the parties hereto have affixed their signatures hereto the date first written hereinabove.

WITNESSES:

<< CONSULTANT'S FULL NAME >>

By: _____

Its: _____

WITNESSES:

TOWN OF HILTON HEAD ISLAND

By: _____

Marc Orlando
Its: Town Manager

EXHIBIT C

**CONSULTANT AFFIDAVIT
SOUTH CAROLINA ILLEGAL IMMIGRATION REFORM ACT**

In accordance with the requirements of the South Carolina Illegal Immigration Reform Act, _____ ("Consultant") hereby certifies that it is currently in compliance with the requirements of Title 8, Chapter 14 of the South Carolina Code Annotated and will remain in compliance with such requirements throughout the term of its contract with the Town of Hilton Head Island, South Carolina

The Consultant hereby acknowledges that in order to comply with requirements of S. C. Code Annotated Section 8-14-20(B), it will register and participate in the federal work authorization program (E-verify) to verify the employment authorization of all new employees; and require agreement from its subconsultants, and through the subconsultants, the sub-subconsultants, to register and participate in the federal verification employment authorization of all new employees.

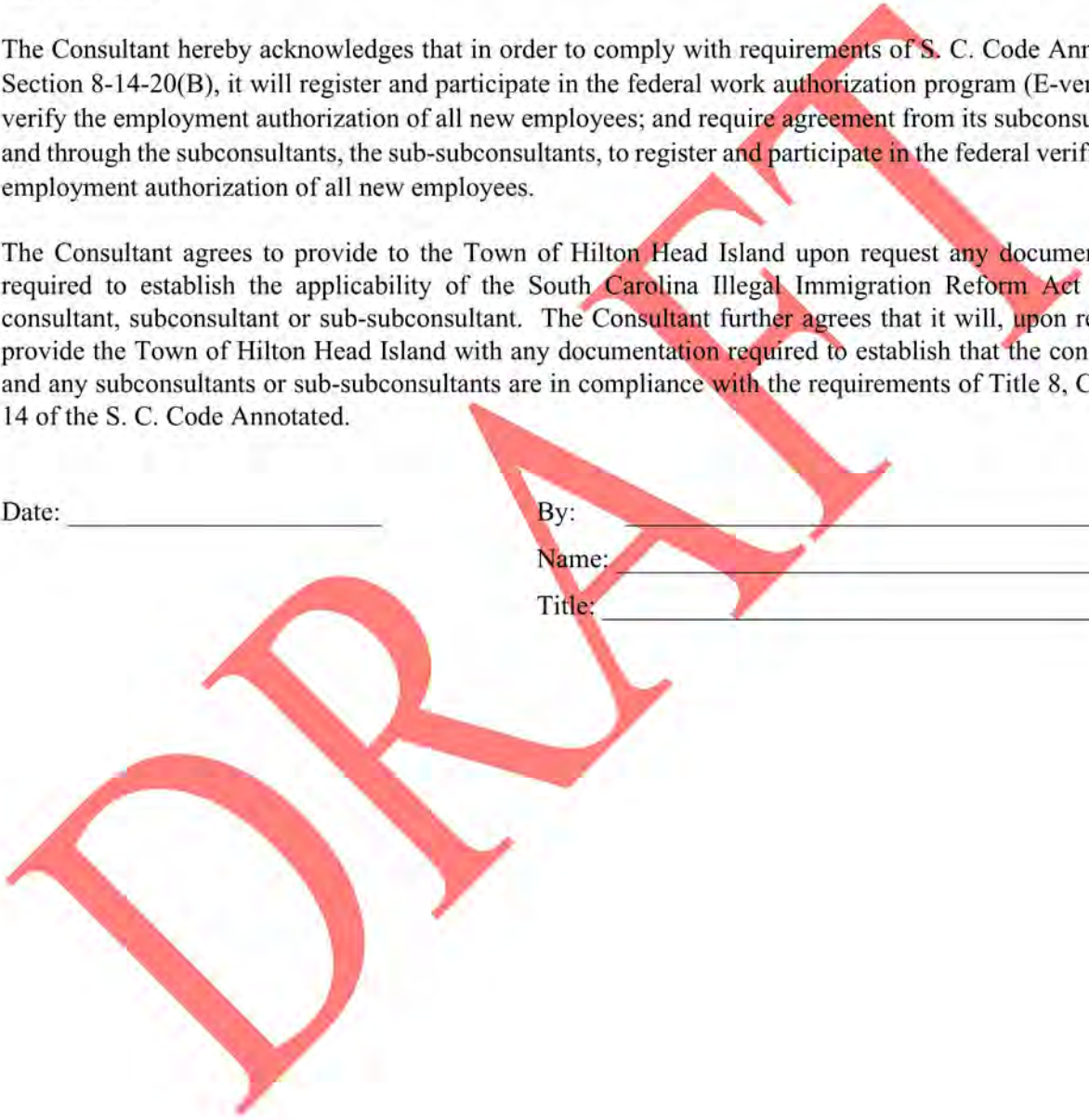
The Consultant agrees to provide to the Town of Hilton Head Island upon request any documentation required to establish the applicability of the South Carolina Illegal Immigration Reform Act to the consultant, subconsultant or sub-subconsultant. The Consultant further agrees that it will, upon request, provide the Town of Hilton Head Island with any documentation required to establish that the consultant and any subconsultants or sub-subconsultants are in compliance with the requirements of Title 8, Chapter 14 of the S. C. Code Annotated.

Date: _____

By: _____

Name: _____

Title: _____



Construction

By signing its bid or proposal, Consultant certifies that it will comply with the applicable requirements of Title 8, Chapter 14 of the South Carolina Code of Laws and agrees to provide to the Town of Hilton Head Island upon request any documentation required to establish either: (a) that Title 8, Chapter 14 is inapplicable both to Consultant and its subconsultants or sub-subconsultants; or (b) that Consultant and its subconsultants or sub-subconsultants are in compliance with Title 8, Chapter 14. Pursuant to Section 8-14-60, "A person who knowingly makes or files any false, fictitious, or fraudulent document, statement, or report pursuant to this chapter is guilty of a felony, and, upon conviction, must be fined within the discretion of the court or imprisoned for not more than five years, or both." Consultant agrees to include in any contracts with its subconsultants language requiring its subconsultants to (a) comply with the applicable requirements of Title 8, Chapter 14, and (b) include in their contracts with the sub-subconsultants language requiring the sub-subconsultants to comply with the applicable requirements of Title 8, Chapter 14.

Non-Construction

By signing your offer, you certify that you will comply with the applicable requirements of Title 8, Chapter 14 of the South Carolina Code of Laws and agree to provide to the Town of Hilton Head Island upon request any documentation required to establish either: (a) that Title 8, Chapter 14 is inapplicable to you and your subconsultants or sub-subconsultants; or (b) that you and your subconsultants or sub-subconsultants are in compliance with Title 8, Chapter 14. Pursuant to Section 8-14-60, "A person who knowingly makes or files any false, fictitious, or fraudulent document, statement, or report pursuant to this chapter is guilty of a felony, and, upon conviction, must be fined within the discretion of the court or imprisoned for not more than five years, or both." You agree to include in any contracts with your subconsultants language requiring your subconsultants to (a) comply with the applicable requirements of Title 8, Chapter 14, and (b) include in their contracts with the sub-subconsultants language requiring the sub-subconsultants to comply with the applicable requirements of Title 8, Chapter 14.

EXHIBIT D

TOWN OF HILTON HEAD ISLAND
RFQ 2023-##

QUESTIONNAIRE - INDEPENDENT REVIEW OF THE WILLIAM HILTON PARKWAY GATEWAY
CORRIDOR

INSTRUCTIONS FOR COMPLETION OF THE QUESTIONNAIRE

Please read the enclosed Questionnaire carefully. "The firm" referred to in this Questionnaire is the business entity offering qualifications for the referenced project for the Town. DO NOT leave any questions unanswered, nor OMIT any required signatures. All questions must be answered. If there is truly a question that does not apply, please enter "Not Applicable" or "N/A".

In the event additional space is required to complete an answer, you may supplement with additional pages that shall be securely attached to this Questionnaire. If information is provided on other typed or preprinted sheets, they must include all the requested information, be properly referenced, and securely attached to this Questionnaire. Said supplements or attachments shall be considered a part of this Affidavit and its oath.

Begin Questionnaire below

NOTE: In order for the response to be considered, it is necessary for an authorized individual of the firm, and on behalf of the firm, to furnish the information requested below.

Date Prepared: _____

Submitted To: Town of Hilton Head Island. ATTN: Engineering Division, One Town Center Court, Hilton Head Island, SC 29928.

Submitted By: _____

(Complete Firm Name: Must be the same as on Submittal Transmittal Page)

(Complete Street Address and Suite Number, if applicable)

(P. O. Box Number, if applicable) (Zip Code for P. O. Box Number)

(City) (County) (State) (Zip Code for Street Address)

Telephone Number: (_____) _____

Fax Number: (_____) _____

Federal Employer Identification Number: _____

13. Indicate below the experience of key individuals and technical support presently employed by the firm who will work on Town projects. Please attach resumes and an organizational chart.

Individual's Name	License or Cert.	Present Position	Years Employed By The Firm	Years of Experience	In What Capacity

14. Provide a summary of technical capabilities and experience related to the anticipated services and tasks bulleted in the RFQ (add space if necessary):

- Sea
- Flood

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15. List recently completed, similar projects/contracts preferably relating to major roadway/parkway corridor analysis and design (add space if necessary):

Contract Amount	Project Name and Type of Work	Date Completed	Reference Name, Address, & Phone Number
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

16. Identify any unique qualifications, abilities, tools, equipment, software, or methodologies used by the firm.

17. The individuals listed below are authorized to approve, sign and/or execute on the firm's behalf, the following documents:

- Document Code Nos.:
- 1 - Organization's Statement of Experience and Equipment.
 - 2 - Proposals and Contracts
 - 3 - Change Order(s)/Supplemental Agreement(s)

NAME	TITLE	DOCUMENT CODE NO.

It is the sole responsibility of the submitting firm to notify the Town of any changes to this list, post preparation date. Notification shall be by certified original documents.

- 18.** Has the firm, its parent or subsidiary ever been suspended, disqualified, or debarred by any Municipality, State or the Federal Government? _____ If yes, provide complete details, including when, where and why.

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19. Has any owner, stockholder, officer, partner, or employee(s) of the firm been suspended, disqualified, or debarred from doing business by South Carolina, any other State or the Federal Government? _____ If yes, provide complete details, including when, where and why.

20. Have you or any of the individuals or entities referred to above, in the past six years, been indicted, pled guilty, pled *nolo contendere*, or been convicted of embezzlement, theft, forgery, bribery, receiving stolen property, or any other offense indicating a lack of business integrity, or business honesty which seriously and directly affects the question of present responsibility as a consultant in any jurisdiction in the United States? _____ If yes, give complete details.

DRAFT

21. Has the firm, its subsidiaries, affiliates or parent companies ever defaulted on a contract with any Local, State or Federal Government?_____ If yes, give complete details.

22. List the firm's subsidiaries, affiliates and parent companies.

23. Is the firm herein offering the submittal, including owners, corporate officers or stockholders, either collectively or individually, currently suspended, disqualified or debarred from doing business with any Local, State or with the Federal Government? If so, list the agency and circumstance.

AFFIDAVIT

_____ BEING DULY SWORN DEPOSES AND SAYS THAT HE/SHE IS AUTHORIZED TO EXECUTE THIS AFFIDAVIT FOR AND ON BEHALF OF THE APPLICANT FIRM, AND THE ANSWERS TO THE FOREGOING QUESTIONS AND ALL STATEMENTS HEREIN CONTAINED ARE TRUE AND CORRECT TO THE BEST OF HIS/HER KNOWLEDGE.

Sworn and subscribed to before
this _____ day of

_____ me on
(Name of Applicant Firm)

(Authorized Signature)

(Notary Public)
(Not an Officer of the firm)

(Print or Type Name)

(Title)

AFFIX
CORPO
RATE
SEAL
HERE

NOTICE: THE TOWN MUST BE NOTIFIED OF ANY SIGNIFICANT CHANGE IN THE INFORMATION FURNISHED IN THIS QUESTIONNAIRE WITHIN FIFTEEN (15) DAYS OF THE OCCURRENCE OF SUCH CHANGE.

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EXHIBIT B

INDEPENDENT STUDY OF THE WILLIAM HILTON PARKWAY GATEWAY CORRIDOR

SCOPE OF WORK

1. The Consultant shall conduct an Independent Study of the William Hilton Parkway Gateway Corridor project. It is the intent of the Town to have the Consultant review and verify that the assumptions, methodologies, alternatives and preferred design recommendations are technically accurate and serve the best interest of Hilton Head Island. The Consultant shall take a fresh look at the project and test possible new alternative solutions over the project scope. The Consultant is strongly encouraged to develop their own ideas and recommend their own alternatives.
2. Proposed plans will have to pass NEPA review. Thus, the Consultant should have a familiarity with that process and its applicability to this project. It should be noted that, in addition to environmental impacts, Federal Highway Administration (FHWA) considers safety as a prime issue in its evaluation. Also, a demonstrated solution of the congestion problem over the project scope above is essential. Thus, plans that deal with these issues have a higher probability of success in the NEPA and community review.
3. The study is anticipated to take no longer than six (6) months to complete. Anticipated services and tasks associated with the development of the plan may include, but are not limited to, the following:

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: Provide Modeling of Data and Recommended Design Concepts

EXHIBIT B

- 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: 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.

EXHIBIT B

- 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)
- 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.

EXHIBIT B

- 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: 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: 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

EXHIBIT B

Council.

- All engineering work must be certified by a Professional Engineer licensed in South Carolina.

JUNE 10, 2024

Independent Study of WHP Gateway Corridor Summary of Submitted Memorandums

Hilton Head Island, South Carolina

Prepared for:

Town of Hilton Head Island

1 Town Center Court

Hilton Head Island, South Carolina

843.341.4600

Prepared by:

Lochmueller Group

Huntington Tower, 201 W Springfield Avenue

Suite 1012

Champaign, Illinois 61820

217.673.7633



Table of Contents

Executive Summary.....	ii
Four Lane Viability Memorandum (Task 1.3.3).....	1
SCDOT Seismic Study Review Findings Memorandum (Task 1.8).....	7
Traffic Forecasting Memorandum (Task 2.3).....	25
Corridor Alternatives Analysis Memorandum (Task 3.6).....	34
Downstream Impacts to Task 4 Intersections Memorandum (Interim Task 4.4)	137
Response to Advisory Committee Desire to Fully Evaluate Southern Bypass Alternative (Deliverable not included in Original Scope of Services).....	148

Executive Summary

Lochmueller Group (Lochmueller) is preparing an independent study that evaluates congestion and mobility challenges along the William Hilton Parkway (WHP) Gateway Corridor. The intention of this memorandum is to provide the Town of Hilton Head Island with each of the memorandums completed as of June 10, 2024 by Lochmueller throughout the course of the project in one document. It should be noted that the memorandums are provided in order as they appear in the scope of services, rather than by submission date. In addition to the memorandums completed as part of the scope of services, Lochmueller prepared a memorandum responding to the Advisory Committee's desire to fully evaluate the southern bypass alternative, which has also been provided in this comprehensive summary of submitted memorandums.

Four Lane Viability Memorandum (Task 1.3.3)

MEMO

To: Town of Hilton Head, South Carolina
From: Lochmueller Group
Date: May 3, 2024
Subject: Independent Study of the William Hilton Parkway Gateway Corridor
Four Lane Viability Review Technical Memorandum – Task 1.3.3

Lochmueller Group (Lochmueller) is preparing an independent study that evaluates congestion and mobility challenges along the William Hilton Parkway Gateway Corridor. As part of this independent study, Lochmueller evaluated the viability of several strategies in order to determine if they should be included or excluded from further consideration as part of this project. These items include the viability of maintaining four lanes along William Hilton Parkway (US 278) between Windmill Harbour and Squire Pope Road; the implementation of a second bridge; modifications to the existing mass transit system; implementation of a new ferry system; and the implementation of a facility usage fee. It should be noted that an in-depth detailed analysis of any of these items was excluded from the scope of work.

The intention of this memorandum is to provide the Town of Hilton Head with Lochmueller's professional opinion regarding the feasibility of William Hilton Parkway being able to remain a four lane facility within areas between Moss Creek Drive and Squire Pope Road, if one or more of these strategies were implemented.

Viability of Maintaining Four Lanes Between Windmill Harbour and Squire Pope Road

Lochmueller evaluated the viability of maintaining four lanes between Windmill Harbour and Squire Pope Road. Currently, the intersection of Squire Pope Road and US 278 experiences significant congestion, specifically during the PM peak hour. The westbound approach has failing conditions and queues which extend 2,500 feet from Squire Pope past Spanish Wells. This congestion is expected to be exacerbated by 2045 with the forecasted growth.

Travel times were calculated using VISSIM, which is a microsimulation tool that accurately replicates individual vehicles and their interactions within complex traffic streams, such as interchanges, freeways, and expressway corridors with signalized intersections. A robust amount of data and field observations were conducted to calibrate VISSIM to reproduce field conditions.

The travel time results are provided in **Table 1**. As shown, it currently takes approximately 19 minutes to travel along US 278 between Moss Creek Drive and Indigo Run Drive during the AM peak hour, and it takes approximately 21 minutes to travel along US 278 between Indigo Run Drive and Moss Creek Drive during the PM peak hour today.

US 278 between Moss Creek Drive and Indigo Run Drive is approximately 8.2 miles. Based on the travel times, the existing average speed along this corridor is 26 miles per hour (mph) during the AM peak hour and 23 mph during the PM peak hour. This is well below the posted speed limits of 45 mph and 55 mph along the corridor.

These travel times are expected to increase by approximately 36% during the AM peak hour and by approximately 23% during the PM peak hour in the year 2045 with the anticipated background growth. It is evident based on the travel times that the existing four-lane section already struggles to accommodate the 2023 traffic volumes, and the 2045 forecasted traffic volumes would be expected to significantly deteriorate operating conditions along the corridor.

TABLE 1. VISSIM 2023 EXISTING AND 2045 NO BUILD TRAVEL TIME RESULTS

Corridor		2023 Existing Simulated travel time (secs)		2045 No Build Simulated travel time (secs)		% Difference	
		AM	PM	AM	PM	AM	PM
William Hilton Parkway between Moss Creek and Indigo Run	EB	1157	619	1579	642	36.47%	3.72%
	WB	572	1252	584	1544	2.10%	23.32%

A preliminary analysis was completed in an effort to determine how much the 2023 existing and 2045 no build traffic volumes would need to be reduced in order for the existing four-lane section to operate acceptably. It was determined that the 2023 existing traffic volumes would need to be reduced by approximately 30% for the current four-lane configuration to operate acceptably. Furthermore, based on an annual growth rate of 0.56%, the 2045 traffic volumes would need to be reduced by approximately 40% for the current four-lane configuration to operate acceptably.

Implementation of a Second Bridge

Lochmueller was asked to evaluate the implementation of a second bridge and/or point of access onto Hilton Head Island from the mainland. It is Lochmueller’s understanding that a second bridge or point of access has been discussed locally to address congestion along US 278. A new bridge could take up to twenty years to come to fruition once all studies, planning, environmental, design, and construction is complete.

While there are clear benefits to providing a second bridge, such as redundancy, the operating conditions along US 278 are already congested today. As previously stated, the 2023 existing traffic volumes would need to be reduced by approximately 30% and the 2045 traffic volumes would need to be reduced by approximately 40% for the current four-lane configuration to operate acceptably. Given the congestion already experienced along this corridor today and the time it would take to construct a second bridge, it is our opinion that a six-lane section of US 278 onto Hilton Head Island is needed independently of a second bridge.

Modifications to Existing Transit System

Lochmueller evaluated whether modifications to the existing mass transit system and its services, or the implementation of a new mass transit system, could provide enough benefit to maintain the needed levels of efficiency and operations of a four-lane section between Windmill Harbour and Squire Pope Road.

Based on data provided by the Lowcountry Regional Transportation Authority (LRTA), transit service in the region has been on the decline. It should be noted that the transit service does show signs of rebounding; however, it remains to be seen what the new normal or equilibrium state may mean and if this is sustainable and long lasting for passenger volumes as transit agencies struggle with driver shortages, funding gaps and other operational challenges.

The following ridership data was provided from the LRTA:

- The Palmetto Breeze commuter bus's yearly unlinked trips peaked in 2019 at 196,978
- Trips declined to 129,160 in 2021 (post pandemic)
- Trips increased by 4.45% to 134,916 in 2022 according to the Federal Transit Administration (FTA) National Transit Database (NTD) data

The transit service in the region is fragmented by service area and type (commuter/worker, worker/tourist) and serves different markets with limited coordination. According to the LRTA, they currently have 72,963 yearly unlinked trips or 201 unlinked trips daily across all the routes that serve Hilton Head, with 363 service days and one AM and PM trip respectively. The Breeze Trolley, a seasonal service had 34,600 unlinked trips (2023) across 143 service days or 242 trips per day with 18 daily runs Sunday to Thursday and 20 runs on Friday and Saturday. The trolley runs April through Labor Day from 1 PM to 10 PM daily, with extended service to 11 PM Friday and Saturday.

There is an on-demand van service countywide with trips to Hilton Head. However, the ridership is unknown, and a 24 hour prior reservation is needed to make a trip. There is also a Beach Parking shuttle which operates 47 days per year from 10 AM to 4:30 PM on Friday, Saturday, Sunday and holidays from Memorial Day to Labor Day, with 3,980 riders (2023).

The fixed route Breeze transit option, as currently structured, only largely addresses the employment side to/from the island, and the trolley partially addresses trips of visitors, residents and likely some workers once they are on the island. The Breeze service does provide long distance routes. The on-island trolley is seasonal and has limited service hours. Overall, there is little coordination between the transit service types (commuter bus and trolley/shuttle), and there is service gap from Labor Day to April when the trolley does not currently run.

Based upon Lochmueller's evaluations, it appears transit across all services currently only provides a fraction of the total regional trip making to and from, and on, the island. In the future, transit would need to be more robust in terms of service span (number of trips daily and days per year of service) and coordinated to be most effective, with some sort of travel time advantage and way to address the last mile distribution once passengers are on the island.

As described in the preceding sections of this memorandum, the 2023 existing traffic volumes would need to be reduced by approximately 30% and the 2045 traffic volumes would need to be reduced by approximately 40% for the current 4-lane configuration to operate acceptably. By comparison, in 2021, the transit mode share was less than 1% in the region¹, and would therefore have to grow exponentially to be effective enough to reduce the need for six lanes along US 278 in the area under study.

¹ <https://datausa.io/profile/geo/hilton-head-island-bluffton-towns-beaufort-city-puma-sc#housing>

Therefore, it is Lochmueller's opinion that even if significant modifications were made to the existing Palmetto Breeze transit system, it would be highly unlikely these modifications alone could account for enough trips and the mode share percentage needed to sufficiently reduce the number of trips across the US 278 bridges, such that a four-lane facility could be maintained.

Ferry System/Facility Usage Fee

In addition to expanding the existing mass transit system, Lochmueller evaluated whether the implementation of a new ferry system or the implementation of a facility usage fee, also commonly known as congestion pricing, would provide enough benefit to maintain the existing four-lane section across the US 278 bridges and/or between Windmill Harbour and Squire Pope Road.

In regard to the implementation of a new ferry system, it is our understanding that during the development of the 2045 Lowcountry Area Transportation Study (LATS) Long Range Transportation Plan (LRTP), long-term transit considerations were discussed with the public and stakeholders. One of these considerations included implementing high-speed ferry services between Hilton Head Island and Beaufort or Port Royal to the north, and Savannah or Tybee Island to the south.

It should be noted, however, that no formal studies have been initiated by the LATS Policy Committee or other governing bodies to determine the feasibility of implementing and/or maintaining a high-speed ferry system to/from Hilton Head Island. Therefore, it is reasonable to assume that a high speed ferry system to/from Hilton Head Island would not be fully operational within the next ten to fifteen years. If/when a new ferry system is implemented, it is highly unlikely the resulting reduction in traffic would allow for a four-lane section to be maintained along US 278 across the bridges and/or between Windmill Harbour and Squire Pope Road (e.g., 30% reduction in 2023 traffic or 40% reduction in traffic by 2045), given that the existing Palmetto Breeze transit system accounts for less than 1% of the region's transit mode share today.

In regard to the implementation of a facility usage fee, it is our understanding that laws within the State of South Carolina only allow tolls/fees to be implemented on new roads within the State system. As such, implementing facility usage fees on any of the existing roadways that are within the William Hilton Parkway Gateway Corridor Study area would be prohibited. It should be noted that, even if a facility usage fee could be implemented, the fee would largely impact commuters, not tourists, who enter and exit the island for work, as the majority of traffic during the AM and PM peak hours is a result of commuter traffic. Therefore, even if a facility usage fee could be implemented, it is highly unlikely the resulting reduction in traffic would allow for a four-lane section to be maintained along US 278 across the bridges and/or between Windmill Harbour and Squire Pope Road (e.g., e.g., 30% reduction in 2023 traffic or 40% reduction in traffic by 2045).

Conclusions

Lochmueller evaluated the viability of maintaining four lanes along William Hilton Parkway (US 278) between Windmill Harbour and Squire Pope Road; the implementation of a second bridge; modifications to the existing mass transit system; implementation of a new ferry system; and the implementation of a facility usage fee. These evaluations were completed by Lochmueller to determine feasibility of maintaining a four lane section along William Hilton Parkway between Moss Creek Drive and Squire Pope Road, if one or more of these strategies were implemented.

As noted in this technical memorandum, the existing traffic volumes already create significant congestion along US 278, and the congestion is expected to be exacerbated by 2045 with the forecasted background growth. Based on a preliminary analysis, the existing traffic volumes would need to be reduced by approximately 30%, and the 2045 traffic volumes would need to be reduced by approximately 40%, in order for a four-lane section to operate acceptably.

Based on Lochmueller's evaluations, it was concluded that it would be highly unlikely that modifications to the existing transit system alone could account for enough trips and the mode share percentage needed to sufficiently reduce the number of trips across the US 278 bridges, such that a four-lane facility could be maintained, given that the current transit mode share within the region is less than 1%, and would therefore have to increase exponentially to reach the target goal. In addition, neither the implementation of a new ferry system, nor the implementation of a facility usage fee (if there were a legal way to implement said fee), would be able to significantly reduce the number of vehicles along US 278 within the study area to allow for a four-lane section to be maintained.

In order for the existing four-lane section to operate acceptably, the total reduction in vehicles from mass transit, a new ferry system, and the implementation of a facility usage fee would need to be between 30-40%. While implementing the aforementioned types of transportation strategies would help slow future traffic growth on US 278, it is Lochmueller's opinion that even if all of these strategies are implemented, the reduction in vehicles would not reach 30%. Furthermore, these strategies would not address the structural issues associated with the existing bridges over Mackay Creek and Skull Creek. Consequently, it is Lochmueller's opinion that these strategies should not be considered as viable alternatives to be used individually and/or collectively to solely address traffic congestion and mobility related concerns along US 278 within the project study area, that could allow a four-lane section to be maintained along US 278 within the study area.

In regard to implementing a second bridge and/or point of access onto Hilton Head Island from the mainland, while it is acknowledged there are clear benefits to providing a second bridge (e.g., redundancy during natural disasters), Lochmueller's evaluations show that operating conditions along US 278 are already congested today. Given the congestion that is already experienced along this corridor today, the amount of traffic that would need to be removed from the existing traffic stream to be able to maintain four lanes across the bridge (i.e., 30% reduction in 2023 traffic or 40% reduction in traffic by 2045), and the time it would take to construct a second bridge, it is our opinion that a six-lane section of US 278 onto Hilton Head Island is needed independently of a second bridge.

SCDOT Seismic Study Review Findings Memorandum (Task 1.8)

MEMO

To: Town of Hilton Head Island, South Carolina
From: Lochmueller Group
Date: May 31, 2024
Subject: Independent Study of the William Hilton Parkway Gateway Corridor
 SCDOT Seismic Study Review Findings – Task 1.8

During the May 8, 2024, William Hilton Parkway Gateway Corridor Independent Review Advisory Committee meeting, Lochmueller provided findings related Lochmueller’s cursory, high-level review the US 278 Bridge Seismic Study prepared by the South Carolina Department of Transportation (SCDOT) in April of 2020. Lochmueller was asked to perform this cursory, high-level review of SCDOT’s Seismic Study to offer a professional opinion regarding the feasibility of seismically retrofitting and structurally rehabilitating the existing US 278 bridges to allow for six travel lanes (three eastbound lanes and three westbound lanes), rather than constructing the new six-lane bridge proposed by SCDOT. A copy of the Seismic Study Review related slides that were presented during the 5/8 Committee meeting are attached to this memorandum as **Appendix A**.

The SCDOT Seismic Study included an evaluation of options to retrofit, widen, or replace the existing US 278 bridges onto Hilton Head Island, and provided information to SCDOT to implement best replacement strategies, as well as detailed Life Cycle Cost Analysis (LCCA) results, considering three Options:

- **Option #1** – Construct a new eastbound bridge over Mackay Creek & Skull Creek; widen the existing westbound bridge over Mackay Creek; and modify the existing Skull Creek bridges for westbound movements.
- **Option #2** – Construct a new eastbound bridge over Mackay Creek & Skull Creek; replace the existing westbound bridge over Mackay Creek; and modify the existing Skull Creek bridges for westbound movements.
- **Option #3** – Construct a new six-lane bridge between Bluffton and Hilton Head Island, and then remove all existing bridges across Mackay Creek and Skull Creek.

A copy of the LLCA prepared by SCDOT’s Design team is shown below:

	Option 1	Option 2	Option 3
Initial Construction Cost	\$ 129,560,000.00	\$ 137,837,000.00	\$ 171,108,500.00
Future Construction Cost	\$ 85,233,000.00	\$ 53,151,000.00	\$ -
User Cost	\$ 10,920,000.00	\$ 10,920,000.00	\$ -
Maintenance Cost	\$ 22,900,000.00	\$ 20,850,000.00	\$ 11,350,000.00
Total LCCA Cost	\$ 248,613,000.00	\$ 222,758,000.00	\$ 182,458,500.00
Construction Schedule	60 Months	60 Months	36 Months

It should be noted that Lochmueller's efforts in reviewing the Seismic Study prepared by SCDOT were limited to a cursory review of the SCDOT Design Team's structural analysis related assumptions and findings; LLCA results; their noted benefits/risks with Options 1/2/3; and if these efforts by SCDOT's Design Team appeared to following standard engineering practices. Lochmueller's efforts did not include any detailed evaluations of the SCDOT Design Team's design calculations or software modeling inputs/results; any considerations for alternative Options to consider for inclusion in the Seismic Study; any roadway, bridge, or environmental design/review services; or coordination with SCDOT, their Design Team, Beaufort County, Town of Hilton Head, and/or any other governing Agency or design consultant associated with the US 278 project.

Key observations from Lochmueller's review of the SCDOT Seismic Study are summarized below. Please refer to **Appendix A** for additional information:

- The SCDOT Design Team's structural analysis findings; LLCA results; and noted benefits/risks with Options 1/2/3 appear valid and appear to follow standard engineering practices.
- The LLCA results do not account for costs that would be required to improve seismic conditions for Options 1 & 2. Therefore, true costs associated with Options 1 & 2 would be significantly higher to implement, than what is shown in the LLCA table above.
- Options 1 & 2 would take approximately 2 years longer to construct vs Option 3. The rehabilitated structures would still need to be replaced at some point, and time required to do so is not accounted for in this table.
- Existing bridge structures would be approximately 50 years old after improvements made by Options 1 or 2, with rehab efforts likely to extend life of existing structures by approximately 25 to 35 years. By comparison, typical design life for Option 3 newly constructed bridges approximately 75 to 100 years.
- Options 1 & 2 being pursued for use solely as temporary condition would require more than \$130M to construct initially (using 2020 costs), and these costs do not account for needed Functional Evaluation Earthquake (FEE) seismic design improvements. Depending upon when remaining structures were replaced, the future/user/maintenance costs req'd over that time would assuredly lead to higher overall cost than building new at outset.
- Options 1 & 2 would put maintenance/replacement schedules of the structures on varying timeframes, which would cause additional user disruptions in the future.
- Existing structures under Options 1 & 2 would never meet Safety Evaluation Earthquake (SEE) seismic design requirements. New structures can be built to meet SEE seismic design requirements.
- In summary, Lochmueller does not recommend rehabilitation and/or retrofit options being pursued for this project, in lieu of constructing a new six-lane bridge connecting Bluffton and Hilton Head Island.

SCDOT Seismic Study Review Findings (Task 1.8)

- **Objective: Perform cursory, high-level review of seismic study and offer professional opinion regarding feasibility of seismic retrofit & structural rehab existing bridges vs. constructing new bridge**
 - PDF copy of SCDOT approved US 278 Bridge Seismic Study (dated April 2020) provided to Lochmueller on 4/15/24.
 - Study included evaluation of options to retrofit, widen, or replace the existing US 278 bridges onto HHI, and provided information to SCDOT to implement best replacement strategy, as well as detailed Life Cycle Costs Analysis (LCCA) results, considering following three Options:
 - **Option #1** – Construct new EB bridge over Mackay Creek & Skull Creek; widen existing WB bridge over Mackay Creek; modify existing Skull Creek bridges for WB movements.
 - **Option #2** – Construct new EB bridge over Mackay Creek & Skull Creek; replace existing WB bridge over Mackay; modify existing Skull Creek bridges for WB movements.
 - **Option #3** – Construct new 6-lane bridge; remove all existing bridges

SCDOT Seismic Study Review Findings (Task 1.8)

- With each Option, a new EB bridge will be constructed
 - Designed to SCDOT standards to withstand seismic events
 - Serve as a "lifeline" bridge in case of significant seismic event for Options 1 or 2

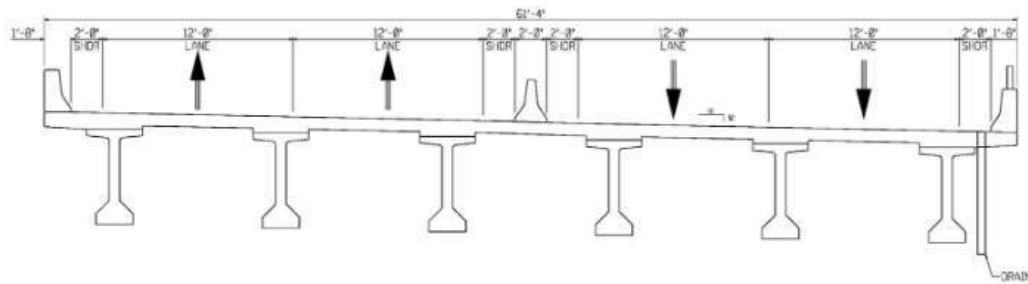
- Assumed Construction Sequence
 - **Options #1 or #2:**
 - New EB structure constructed wide enough to accommodate 4-Lanes, 2-Way traffic in temporary condition & 6-Lanes in permanent condition.
 - All traffic moved to new EB structure, while demolition / seismic retrofits / structural repairs & replacements take place on existing structures.
 - Traffic then moved in to final positions
 - If necessary, traffic can be returned to the 4-Lanes, 2-Way traffic pattern on EB structure
 - **Option #3:**
 - Entire new 6-Lane structure can constructed with traffic retained in existing patterns

SCDOT Seismic Study Review Findings (Task 1.8)

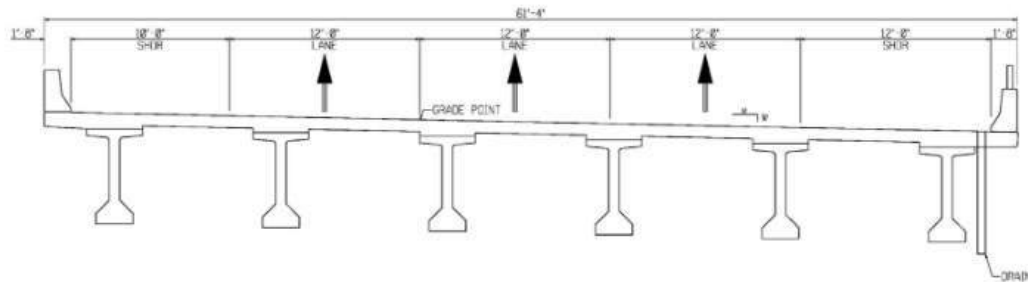


US 278 Bridge Seismic Study

Figure 3.2-1: Option 1 & 2 – New EBL over Skull Creek & Mackay Creek



PROPOSED SECTION
US 278 OVER SKULL CREEK & MACKAY CREEK
(TEMPORARY PATTERN)



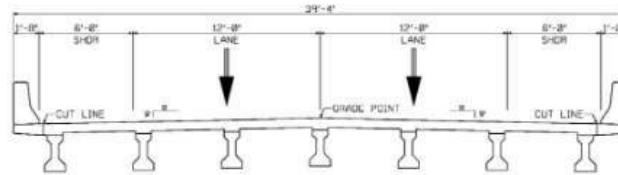
PROPOSED EBL SECTION
US 278 OVER SKULL CREEK & MACKAY CREEK

SCDOT Seismic Study Review Findings (Task 1.8)

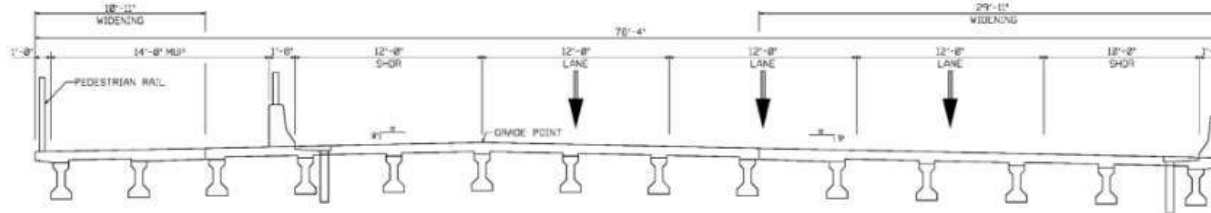
US 278 Bridge Seismic Study



Figure 3.2-2: Option 1 – Widen WBL Mackay Creek



**EXISTING WBL SECTION
US 278 OVER MACKAY CREEK**



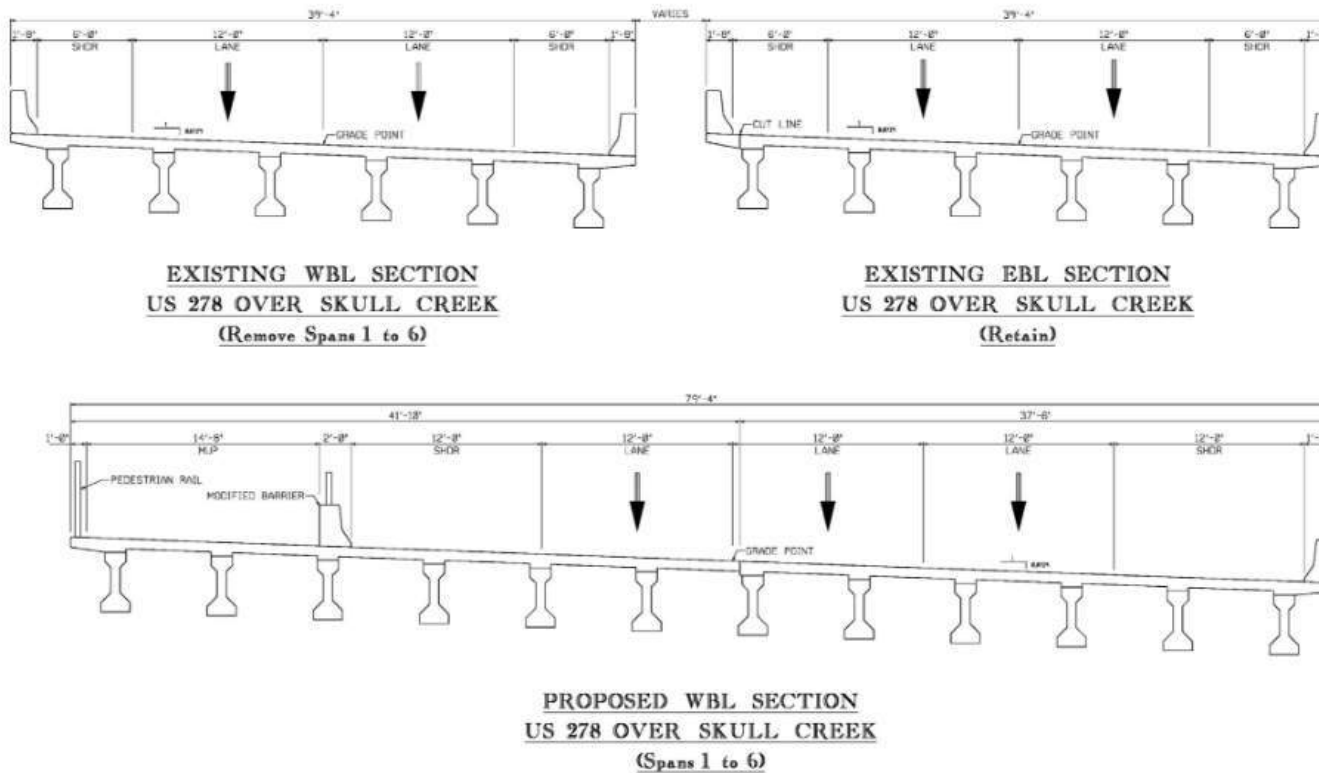
**PROPOSED WBL SECTION
US 278 OVER MACKAY CREEK**

SCDOT Seismic Study Review Findings (Task 1.8)



US 278 Bridge Seismic Study

Figure 3.2-3: Option 1 & 2 - Combine Skull Creek Bridges
(Information for Spans 1-6)

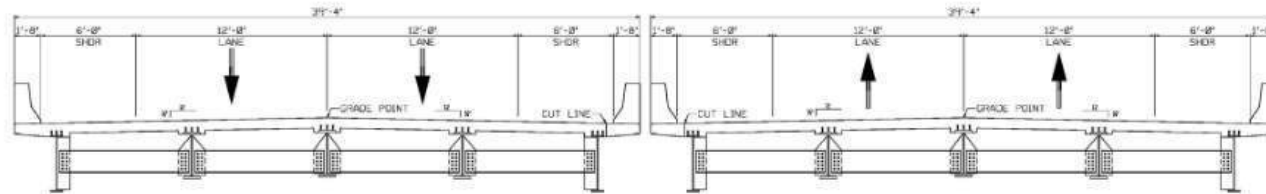


SCDOT Seismic Study Review Findings (Task 1.8)

US 278 Bridge Seismic Study

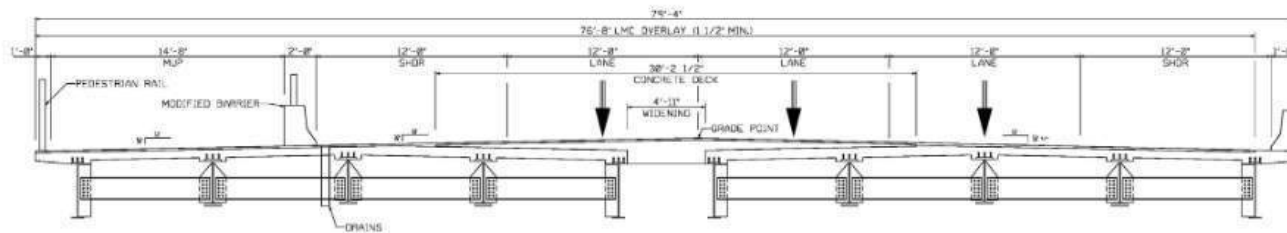


Figure 3.2-4: Option 1 & 2 - Combine Skull Creek Bridges
(Information for Spans 7-26)



EXISTING WBL SECTION
US 278 OVER SKULL CREEK

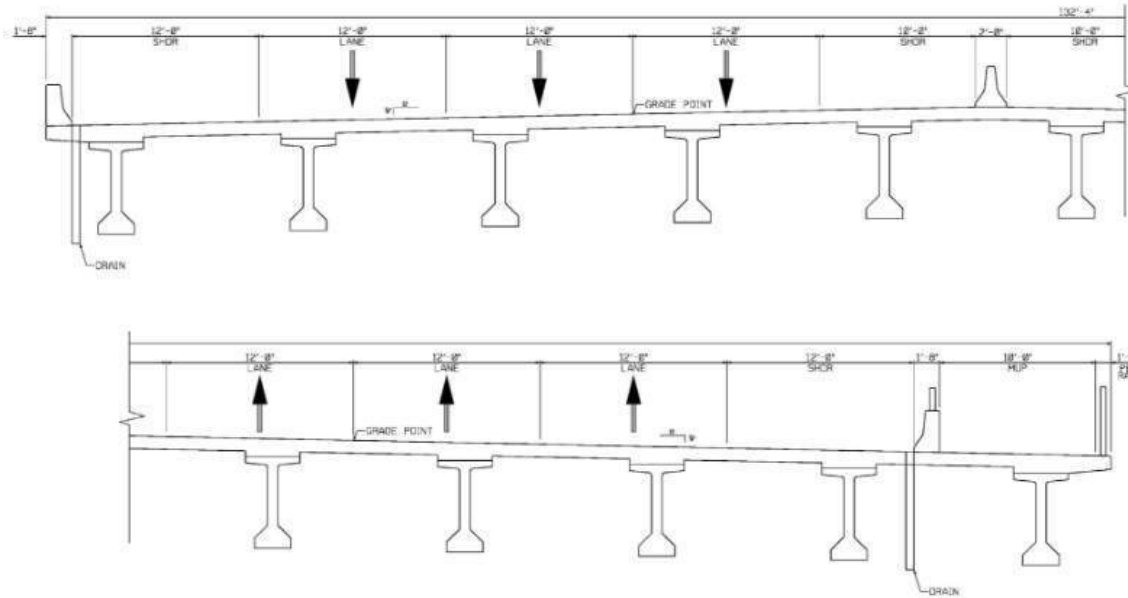
EXISTING EBL SECTION
US 278 OVER SKULL CREEK



PROPOSED WBL SECTION
US 278 OVER SKULL CREEK
(Spans 7 to 26)

SCDOT Seismic Study Review Findings (Task 1.8)

Figure 3.2-5: Option 3 - New 6-Lane Structure over Mackay Creek & Skull Creek



PROPOSED SECTION
US278 OVER SKULL CREEK & MACKAY CREEK



SCDOT Seismic Study Review Findings (Task 1.8)

- **Key Assumptions/Findings Noted by SCDOT Design Team:**
 - All existing bridges designed and constructed prior to SCDOT's implementation of seismic analysis and detailing. Therefore, **all existing bridges are considered inadequate when compared to today's seismic design standards.**
 - In order to model existing structures, SCDOT design team assumed minimum level of seismic retrofits would be performed. Design team did not determine if existing structures could withstand any seismic event without minimum retrofits being performed.
 - SCDOT design team intended to evaluate the bridges for two seismic events as required by SCDOT Seismic Design Specifications (SDS):
 - **Functional Evaluation Earthquake (FEE)** = lower magnitude earthquake event that has higher chance of occurrence during life of the bridge.
 - **Safety Evaluation Earthquake (SEE)** = higher magnitude earthquake event that has lower chance of occurrence during life of the bridge.
 - NOTE: US 278 Bridges assigned highest SCDOT SDS classification rating OC 1; therefore, must meet FEE design thresholds at a minimum

SCDOT Seismic Study Review Findings (Task 1.8)

- **Key Assumptions/Findings Noted by SCDOT Design Team (cont.):**
 - It was determined that soils around and below the existing bridge foundations and roadway approaches can liquefy at ground accelerations just above the FEE event:
 - This liquefaction could cause bridges/roadways to settle, slide or collapse during and/or after seismic event.
 - Design team recognized that mitigation for liquefaction (i.e., add'l foundations, deep soil mixing, etc.) would likely exceed costs for new construction, and would greatly increase environmental disturbance.
 - Design team therefore elected to limit structural improvements through seismic retrofits to FEE level, w/ SCDOT concurrence.
 - New bridges can be constructed to meet SEE requirements; existing bridges only will be able to attain FEE requirements at best.

SCDOT Seismic Study Review Findings (Task 1.8)

- **Key Assumptions/Findings Noted by SCDOT Design Team (cont.):**
 - SCDOT Design team prepared LCCA, for Options 1/2/3, as shown below.
 - Costs are in 2020 dollars, assume annual inflation of 2% for future costs.
 - Construction costs developed from historical data, as well as correspondence w/ local Contractors. **Widening existing structures over water ~1.5 to 2 times more expensive than new construction.**
 - User Costs developed from SCDOT provided data, based on cost/lane/day.
 - Maintenance costs based on existing bridge details and assumed new bridges.
 - NOTE: LCCA costs only reflect rehabilitation related costs (e.g., widening, maintenance, cosmetic improvements), and do **not** include retrofit related costs (e.g., seismic related improvements). Therefore, **true costs to attain FEE standards for Options 1 & 2 would be significantly higher than those shown in the table below.**

	Option 1	Option 2	Option 3
Initial Construction Cost	\$ 129,560,000.00	\$ 137,837,000.00	\$ 171,108,500.00
Future Construction Cost	\$ 85,233,000.00	\$ 53,151,000.00	\$ -
User Cost	\$ 10,920,000.00	\$ 10,920,000.00	\$ -
Maintenance Cost	\$ 22,900,000.00	\$ 20,850,000.00	\$ 11,350,000.00
Total LCCA Cost	\$ 248,613,000.00	\$ 222,758,000.00	\$ 182,458,500.00
Construction Schedule	60 Months	60 Months	36 Months

SCDOT Seismic Study Review Findings (Task 1.8)

- **Key Assumptions/Findings Noted by SCDOT Design Team (cont.):**
 - SCDOT Design team evaluated benefits & risks of Options 1/2/3

Benefits / Risks of Options 1, 2 and 3

Option 1	Initial Construction Cost	Least (assumed)	Initial cost of retrofits and widening may be less than the cost of a new structure and demolition.
	Utility Relocation	Least	Every option will require the relocation of the 24" diameter waterline as well as the fiber optic line. May require the relocation of the power line on poles. Avoids the power lines on towers.
	Constructability	Hardest	New EBL built off alignment from ground, barge and temporary work trestle. Skull Creek will be challenging to retrofit, especially in curved sections. Mackay Creek widening will follow demolition of existing EBL bridge.
	Future Maintenance	Greatest	WBL Mackay and Skull Creek bridges will be 50 year old bridges at completion of project and require more substantial maintenance. Steel bridges also require additional maintenance versus concrete bridges.
	Pickney Island Access	Worst	Island access still tied to existing (improved) interchange along US 278. New bridge could include ramps to access island.
	Environmental Impact	Least	The new EBL bridge and widening of WBL over Mackay Creek will increase impacts. The removal of existing EBL will reduce impacts.
	Seismic Response	FEE / SEE	The new EBL bridge will be designed for the SEE event. WBL Skull Creek may only withstand the FEE event. Mackay Creek may not be able to withstand the FEE event within acceptable performance limits.

SCDOT Seismic Study Review Findings (Task 1.8)

- **Key Assumptions/Findings Noted by SCDOT Design Team (cont.):**
 - SCDOT Design team evaluated benefits & risks of Options 1/2/3 (cont.)

Option 2	Initial Construction Cost	Middle	Replacing WBL Mackay Creek bridge may cost more than widening and retrofit. All other costs are similar.
	Utility Relocation	Least	Same as Option 1.
	Constructability	Middle	WBL Mackay Creek will be constructed after demolition is performed, increasing construction schedule. Existing EBL Mackay Creek bridge may be used for construction access.
	Future Maintenance	Middle	Skull Creek bridges will be 50 year old bridges at completion of project and require more substantial maintenance. Steel bridges also require additional maintenance versus concrete bridges. New Mackay Creek WBL will reduce maintenance versus Option 1.
	Pickney Island Access	Worst	Same as Option 1.
	Environmental Impact	Middle	There will be a slight increase in environmental impact due to new construction versus widening for Option 1.
	Seismic Response	FEE / SEE	The new WBL Mackay Creek bridge and new EBL bridge will be designed for the SEE event. WBL Skull Creek bridges may only withstand the FEE event within acceptable performance limits.
Option 3	Initial Construction Cost	Most	Replacing all bridges will be most expensive initial construction cost.
	Utility Relocation	Most	Power lines south of the Skull Creek bridges will need to be relocated in addition to the waterline and fiber optic line. This may be the same for all 3 options.
	Constructability	Easiest	Bridge will be constructed off alignment. Provides the shortest construction schedule.
	Future Maintenance	Least	All bridges will be new.
	Pickney Island Access	Best	A new interchange can be constructed with right-in, right-out only access. Existing Skull Creek bridges could be modified to maintain Pinckney Island access while US 278 bypasses the island.
	Environmental Impact	Most	A new 6 lane alignment will have highest impacts. Removal of existing bridges and causeway will reduce impacts.
	Seismic Response	SEE	All bridges will be designed for SEE event.

SCDOT Seismic Study Review Findings (Task 1.8)

- **Key Observations by Lochmueller Group:**

- SCDOT Design Team's structural analysis findings; LCCA results; and noted benefits/risks associated with Options 1/2/3 appear valid and appear to follow standard engineering practices.

	Option 1	Option 2	Option 3
Initial Construction Cost	\$ 129,560,000.00	\$ 137,837,000.00	\$ 171,108,500.00
Future Construction Cost	\$ 85,233,000.00	\$ 53,151,000.00	\$ -
User Cost	\$ 10,920,000.00	\$ 10,920,000.00	\$ -
Maintenance Cost	\$ 22,900,000.00	\$ 20,850,000.00	\$ 11,350,000.00
Total LCCA Cost	\$ 248,613,000.00	\$ 222,758,000.00	\$ 182,458,500.00
Construction Schedule	60 Months	60 Months	36 Months

- LCCA results do not account for costs that would be required to improve seismic conditions for Options 1 & 2. Therefore, **true costs associated with Options 1 & 2 would be significantly higher to implement, than what is shown in the LCCA table above.**
- Options 1 & 2 would take ~ 2 years longer to construct vs Option 3. **The rehabilitated structures would still need to be replaced at some point, and time required to do so is not accounted for in this table.**

SCDOT Seismic Study Review Findings (Task 1.8)

- Key Observations by Lochmueller Group (cont.):

	Option 1	Option 2	Option 3
Initial Construction Cost	\$ 129,560,000.00	\$ 137,837,000.00	\$ 171,108,500.00
Future Construction Cost	\$ 85,233,000.00	\$ 53,151,000.00	\$ -
User Cost	\$ 10,920,000.00	\$ 10,920,000.00	\$ -
Maintenance Cost	\$ 22,900,000.00	\$ 20,850,000.00	\$ 11,350,000.00
Total LCCA Cost	\$ 248,613,000.00	\$ 222,758,000.00	\$ 182,458,500.00
Construction Schedule	60 Months	60 Months	36 Months

- Existing bridge structures would be ~50 years old after improvements made by Options 1 or 2, with rehab efforts likely to extend life of existing structures by ~25 to 35 years. By comparison, **typical design life for Option 3 newly constructed bridges ~ 75 to 100 years.**
- Options 1 & 2 being pursued for use solely as temporary condition would require >\$130M to construct initially (using 2020 costs), and **these costs do not account for needed FEE improvements.** Depending upon when remaining structures were replaced, the future/user/maintenance costs req'd over that time would assuredly lead to higher overall cost than building new at outset.

SCDOT Seismic Study Review Findings (Task 1.8)

- Key Observations by Lochmueller Group (cont.):

	Option 1	Option 2	Option 3
Initial Construction Cost	\$ 129,560,000.00	\$ 137,837,000.00	\$ 171,108,500.00
Future Construction Cost	\$ 85,233,000.00	\$ 53,151,000.00	\$ -
User Cost	\$ 10,920,000.00	\$ 10,920,000.00	\$ -
Maintenance Cost	\$ 22,900,000.00	\$ 20,850,000.00	\$ 11,350,000.00
Total LCCA Cost	\$ 248,613,000.00	\$ 222,758,000.00	\$ 182,458,500.00
Construction Schedule	60 Months	60 Months	36 Months

- **Options 1 & 2** would put maintenance/replacement schedules of the structures on varying timeframes, which **would cause additional user disruptions in the future.**
- **Existing structures under Options 1 & 2 would never meet SEE seismic design requirements.** New structures can be built to meet SEE seismic design requirements.
- In summary, Lochmueller does not recommend rehabilitation and/or retrofit options be pursued.

Traffic Forecasting Memorandum (Task 2.3)

MEMORANDUM

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 Trends¹

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 Trend¹

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 Projections²

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 Site³. **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 Bridge³

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 R² 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 R² 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)

Corridor Alternatives Analysis Memorandum (Task 3.6)

MEMO

To: Town of Hilton Head, South Carolina
From: Lochmueller Group
Date: May 3, 2024
Subject: Independent Study of the William Hilton Parkway Gateway Corridor
Corridor Alternatives Analysis Memorandum – Task 3.6

Lochmueller Group (Lochmueller) has prepared the following memorandum pertaining to the Independent Study of the William Hilton Pkwy Gateway Corridor. This memorandum summarizes the findings related to the 2023 existing conditions and 2045 no build conditions for the entire project area which includes US 278 from Moss Creek Drive to Indigo Run Drive, as well as US 278 (Palmetto Bay Road) from Cross Island Pkwy to Sea Pines Circle. **Figure 1** shows the entire project area which was used for the 2023 existing conditions and 2045 no build analysis. This memorandum also provides a summary of the four alternatives considered for the 2045 build conditions for the modified original project area which extends along US 278 from Moss Creek Dr to Gumtree Road. **Figure 2** shows the modified original project area which was used for the 2045 alternatives analysis. The intention of this memorandum is to provide the Town of Hilton Head with the findings of the 2023 existing, 2045 no build, and 2045 alternatives analysis.

2023 Existing Conditions

The 2023 existing conditions analysis is intended to reflect current conditions. This scenario provides a baseline to ensure accurate calibration of the models as well as serve as a comparison to the future 2045 no build and 2045 alternatives analyses.

2023 Existing Traffic Volumes

Traffic volumes were collected by others at the following intersections on March 22, 2023:

- Buckingham Plantation Dr and Bluffton Pkwy
- Buckingham Plantation Dr and US 278
- Moss Creek Dr and US 278
- WB Bluffton Pkwy Ramp and WB US 278
- EB Bluffton Pkwy Ramp and EB US 278
- Fording Island Rd Extension and US 278
- Pinckney Wildlife Refuge and US 278
- Blue Heron Point Rd and US 278
- Crosstree Dr and US 278
- Jenkins Rd and US 278
- Squire Pope Rd and US 278
- Spanish Wells Rd and US 278
- Cross Island Pkwy Diverge and EB US 278
- Cross Island Pkwy Merge and WB US 278
- Gumtree Rd and Cross Island Pkwy Off and On Ramps
- Gumtree Rd and Business US 278
- Jarvis Park Rd and Business US 278
- Pembroke Dr and Business US 278
- Indigo Run Dr and Business US 278
- Marshland Rd and Spanish Wells Rd
- Marshland Rd and SB Cross Island Pkwy Ramps
- Marshland Rd and NB Cross Island Pkwy Ramps
- Arrow Rd and US 278
- Target Rd and US 278
- Sea Pines Circle and US 278

This study evaluates conditions during the morning and evening peak periods of a typical weekday, as these periods represent the most critical times of day for traffic operations within the study area for commuter peaks. If traffic can be accommodated during these peak periods, it stands to reason that adequate capacity would be available throughout the remainder of the day.

Corridor studies often reference the 30th highest day for traffic volumes to ensure that the volumes used in the analysis reflect peak conditions, while not over- or under-estimating the traffic volumes. Therefore, it was necessary to ensure that the counts collected accurately reflect the 30th highest day. Historical traffic data was obtained from SCDOT from the most recent 365 days. Given that the study focuses on commuter peak hours, the hourly data from 6:00 AM – 6:00 PM was referenced. After reviewing the traffic volumes throughout the year, it was determined that March 30, 2023 was the 30th highest day out of the year for traffic volumes. The counts collected on March 22, 2023 were grown by the percent difference between the two dates to bring them up to the estimated traffic volumes on March 30, 2023 (30th highest day). The resulting 2023 traffic volumes used in this study are provided in **Appendix A**.

2023 Existing Traffic Analysis

The 2023 existing traffic analysis was completed using the volumes provided in Appendix A at the study intersections shown in Figure 1. The 2023 existing traffic analysis includes the adaptive signal improvements approved by The Town of Hilton Head and implemented by Q-Free in the fall of 2023.

Synchro Analysis

This preliminary analysis was completed using Synchro 11 traffic modeling software, which is based upon the methodologies outlined in the “Highway Capacity Manual” (HCM) published by the Transportation Research Board. Intersection performance or traffic operations are quantified by six Levels of Service (LOS), which range from LOS A (“Free Flow”) to LOS F (“Fully Saturated”). LOS D is considered acceptable for peak period conditions in urban and suburban areas. However, at side-street stop-controlled intersections, a LOS E or even a LOS F is a common occurrence for peak period conditions in urban and suburban areas as it is typical for delays to be longer for vehicles along the side-street as they wait to find acceptable gaps in the traffic to turn left into the traffic stream.

Levels of service for intersections are determined based on the average delay experienced by motorists. Signalized intersections reflect higher delay tolerances as compared to unsignalized and roundabout locations because motorists are accustomed to and accepting of longer delays at signals. For signalized and all-way stop intersections, the average control delay per vehicle is estimated for each movement and then aggregated for each approach and the intersection as a whole. For intersections with partial (side-street) stop control, the delay is calculated for the minor movements only (side-street approaches and major road left-turns) since thru traffic on the major road is not required to stop.

Table 1 summarizes the criterion for both signalized and unsignalized intersections, as defined by the Highway Capacity Manual (HCM) 6th Edition, last updated in 2016 by the Transportation Research Board.

TABLE 1: INTERSECTION LEVEL OF SERVICE THRESHOLDS

Level of Service	Control Delay per Vehicle (sec/veh)	
	Signalized	Unsignalized/Roundabout
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

Operating conditions at the study intersections were evaluated using Synchro 11 and are summarized in **Table 2**. The measures of effectiveness reported include LOS, delay, queue, and volume-to-capacity ratio (v/c). The delay is reported in seconds per vehicle. The queue is reported in feet as the 95th percentile queue. The v/c ratio compares vehicle demand to the capacity of an associated lane group. A v/c ratio of 1.0 represents a road segment that is at full capacity.

As shown, eastbound traffic experiences significant congestion during the AM peak period, whereas westbound traffic experiences significant congestion during the PM peak period. This is consistent with the commuter traffic patterns in the Town of Hilton Head.

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. Additionally, a rolling queue begins at Wilborn Rd and continues in the westbound lanes of US 278 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. It is evident that the study area currently experiences congestion during both the AM and PM peak periods.

TABLE 2. 2023 EXISTING OPERATING CONDITIONS (SYNCHRO)

Intersection & Movements	LOS (Delay, sec) [95 th 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 & William Hilton Pkwy (signal)		
Overall Intersection	B (19.2)	C (29.6)
Eastbound Approach	B (15.0) [413] <0.56>	B (19.5) [391] <0.64>
Westbound Approach	B (14.6) [291] <0.36>	C (26.8) [710] <0.71>
Northbound Approach	D (45.5) [126] <0.67>	E (75.9) [103] <0.56>
Southbound Approach	E (59.4) [107] <0.57>	F (81.3) [#174] <0.91>
3: Salt Marsh Dr/Moss Creek Village & William 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 & William 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>
5: Boat Landing Driveway/Wildlife Refuge Driveway & William 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 & William 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) & William 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 & William 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>
5: Boat Landing Driveway/Wildlife Refuge Driveway & William 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 & William 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) & William 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 & William 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>
9: Chamberlin Dr/Squire Pope Rd & William 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 & William 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 & William 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 & William 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>
13: Jarvis Park Rd/Wilborn Rd & William 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 & William 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 & William 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 & William 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 & William 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>
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>
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>
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 & William 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>

– 95th Percentile volume exceeds capacity

\$ – Delay more than 300 seconds

m – Upstream metering is in effect

VISSIM Analysis

In addition to Synchro, the traffic analysis was also completed using VISSIM, which is a microsimulation tool that accurately replicates individual vehicles and their interactions within complex traffic streams, such as interchanges, freeways, and expressway corridors with signalized intersections. A robust amount of data and field observations were conducted to calibrate VISSIM to reproduce field conditions.

Field observations were conducted over the course of two weekdays in December 2023 and included both the AM and PM peak periods. Travel time runs and average speeds were conducted during the AM and PM peak periods along William Hilton Pkwy between Moss Creek and Indigo Run, as well as from William Hilton Pkwy at Moss Creek Dr to Cross Island Pkwy at Sea Pines Circle, to aid in the calibration of the VISSIM model.

As part of the calibration criteria, it was determined that the travel times reported in the VISSIM model should be within 10% of the travel times recorded in the field. The travel times calculated in the VISSIM model were inflated by 15% to account for higher volumes in March versus in December when the travel times were collected. The travel time results are provided in **Table 3**. As shown all of the travel times were within 10%, therefore all travel time targets were satisfied.

TABLE 3. 2023 EXISTING VISSIM CALIBRATION TRAVEL TIME RESULTS

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

In addition to travel time calculations, traffic volumes were also used to help calibrate the VISSIM model. Similar to the travel times, it was determined that the traffic volumes reported in the VISSIM model should be within 10% of the 2023 existing traffic volumes provided in Appendix A. The traffic volume results are provided in **Table 4**. As shown all of the traffic volumes were within 10%, therefore all traffic volume targets were satisfied.

TABLE 4. 2023 EXISTING VISSIM CALIBRATION TRAFFIC VOLUMES RESULTS

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

The VISSIM traffic models evaluate conditions during the morning and afternoon peak hours and provide performance measures as outputs. The LOS criteria for signalized and unsignalized intersections are the same as Table 1. The measures of effectiveness (MOE) reported include levels of service, delay, average queue length, and maximum queue length. The delay is reported in seconds per vehicle and the queue is reported in feet.

The 2023 existing operating conditions based on the VISSIM model are summarized in **Table 5**. As shown, the traffic operations largely agree with those shown in Table 2 from the Synchro analysis. The PM peak hour appears to have overall worse operating conditions. The long delays presented in the Synchro analysis along side-streets at unsignalized intersections throughout the entire study area were confirmed in this VISSIM analysis. Therefore, it can be concluded that the study area currently experiences significant congestion during both the AM and PM peak periods.

TABLE 5. 2023 EXISTING TRAFFIC OPERATIONS (VISSIM)

Intersection & Movements	LOS (Delay, sec) [95 th Queue Length, ft] {Max Queue, ft}	
	AM Peak Hour	PM Peak Hour
1: Buckingham Plantation Dr & Bluffton Pkwy (signal)		
Overall Intersection	B (12.2)	B (11.4)
Eastbound Approach	B (12.5) [43] {324}	B (11.7) [<25] {178}
Westbound Approach	A (8.3) [<25] {171}	A (9.3) [<25] {234}
Northbound Approach	D (38.1) [<25] {73}	C (32.2) [<25] {65}
Southbound Approach	A (9.0) [<25] {68}	B (12.6) [<25] {84}
2: Buckingham Plantation Dr/Moss Creek Dr & William Hilton Pkwy (signal)		
Overall Intersection	D (47.2)	B (19.5)
Eastbound Approach	E (70.7) [807] {1620}	B (15.6) [65] {522}
Westbound Approach	B (14.4) [35] {353}	B (19.1) [100] {633}
Northbound Approach	D (35.9) [37] {263}	D (53.6) [<25] {104}
Southbound Approach	D (42.4) [<25] {92}	C (33.6) [29] {161}
3: Salt Marsh Dr/Moss Creek Village & William Hilton Pkwy (un-signalized)		
Eastbound Left Turn	E (35.3) [720] {1302}	C (19.7) [<25] {47}
Westbound Left Turn	F (414.9) [37] {107}	B (11.2) [<25] {41}
Northbound Approach	B (10.1) [<25] {61}	A (7.3) [<25] {55}
Southbound Approach	C (19.7) [<25] {76}	A (8.0) [<25] {73}
4: Fording Island Rd Ext & William Hilton Pkwy (un-signalized)		
Westbound Left Turn	E (40.7) [46] {102}	C (16.8) [<25] {28}
Northbound Approach	F (591.0) [120] {186}	C (17.5) [<25] {41}

5: Boat Landing Driveway/Wildlife Refuge Driveway & William Hilton Pkwy (un-signalized)		
Eastbound Left Turn	C (21.4) [691] {1658}	D (33.1) [<25] {<25}
Westbound Left Turn	No volumes observed	C (20.9) [<25] {<25}
Northbound Approach	F (270.5) [<25] {38}	C (20.8) [<25] {46}
Southbound Approach	No volumes observed	C (18.2) [<25] {39}
6: Blue Heron Point Rd & William Hilton Pkwy (un-signalized)		
Westbound Left Turn	No volumes observed	D (27.7) [<25] {<25}
Northbound Approach	F (1,270.4) [123] {228}	C (23.8) [<25] {60}
7: Crosstree Dr (Windmill Harbour) & William Hilton Pkwy (signal)		
Overall Intersection	B (10.4)	A (8.2)
Eastbound Approach	A (8.4) [335] {1093}	A (5.4) [62] {890}
Westbound Approach	B (10.7) [53] {655}	A (7.5) [292] {1626}
Northbound Approach	E (67.8) [30] {164}	E (79.0) [52] {214}
Southbound Approach	B (17.3) [<25] {<25}	A (0.0) [<25] {<25}
8: Jenkins Rd & William Hilton Pkwy (un-signalized)		
Eastbound Left Turn	A (8.2) [<25] {<25}	F (98.0) [<25] {54}
Southbound Approach	F (51.8) [<25] {44}	F (109.4) [<25] {92}
9: Chamberlin Dr/Squire Pope Rd & William Hilton Pkwy (signal)		
Overall Intersection	D (39.2)	E (67.3)
Eastbound Approach	E (56.8) [451] {1334}	B (19.3) [283] {1132}
Westbound Approach	A (7.0) [39] {618}	F (104.8) [874] {1383}
Northbound Approach	C (31.9) [<25] {38}	E (78.6) [<25] {76}
Southbound Approach	C (21.7) [<25] {147}	F (91.6) [220] {638}
10: Old Wild Horse Rd & William Hilton Pkwy (un-signalized)		
Southbound Approach	A (1.3) [<25] {<25}	A (6.4) [<25] {25}
11: Spanish Wells Rd/Wild Horse Rd & William Hilton Pkwy (signal)		
Overall Intersection	C (29.8)	F (240.4)
Eastbound Approach	C (26.6) [270] {1027}	B (17.1) [103] {622}
Westbound Approach	C (21.9) [87] {471}	F (415.7) [892] {989}
Northbound Approach	E (57.1) [85] {321}	F (395.1) [1241] {1288}
Southbound Approach	F (89.0) [103] {319}	E (63.9) [58] {242}

12: Gumtree Rd & William Hilton Pkwy (signal)		
Overall Intersection	D (40.7)	E (66.4)
Eastbound Approach	D (40.6) [765] {1592}	D (49.9) [203] {779}
Westbound Approach	C (30.3) [136] {357}	E (75.2) [961] {1610}
Northbound Approach	C (29.0) [75] {291}	D (45.2) [175] {338}
Southbound Approach	E (77.2) [182] {579}	F (93.4) [234] {779}
9: Chamberlin Dr/Squire Pope Rd & William Hilton Pkwy (signal)		
Overall Intersection	D (39.2)	E (67.3)
Eastbound Approach	E (56.8) [451] {1334}	B (19.3) [283] {1132}
Westbound Approach	A (7.0) [39] {618}	F (104.8) [874] {1383}
Northbound Approach	C (31.9) [<25] {38}	E (78.6) [<25] {76}
Southbound Approach	C (21.7) [<25] {147}	F (91.6) [220] {638}
10: Old Wild Horse Rd & William Hilton Pkwy (un-signalized)		
Southbound Approach	A (1.3) [<25] {<25}	A (6.4) [<25] {25}
11: Spanish Wells Rd/Wild Horse Rd & William Hilton Pkwy (signal)		
Overall Intersection	C (29.8)	F (240.4)
Eastbound Approach	C (26.6) [270] {1027}	B (17.1) [103] {622}
Westbound Approach	C (21.9) [87] {471}	F (415.7) [892] {989}
Northbound Approach	E (57.1) [85] {321}	F (395.1) [1241] {1288}
Southbound Approach	F (89.0) [103] {319}	E (63.9) [58] {242}
12: Gumtree Rd & William Hilton Pkwy (signal)		
Overall Intersection	D (40.7)	E (66.4)
Eastbound Approach	D (40.6) [765] {1592}	D (49.9) [203] {779}
Westbound Approach	C (30.3) [136] {357}	E (75.2) [961] {1610}
Northbound Approach	C (29.0) [75] {291}	D (45.2) [175] {338}
Southbound Approach	E (77.2) [182] {579}	F (93.4) [234] {779}
13: Jarvis Park Rd/Wilborn Rd & William Hilton Pkwy (signal)		
Overall Intersection	C (21.8)	C (25.8)
Eastbound Approach	B (17.1) [178] {929}	B (13.8) [67] {754}
Westbound Approach	B (17.9) [73] {543}	C (34.2) [668] {1285}
Northbound Approach	F (81.1) [45] {168}	E (77.4) [43] {186}
Southbound Approach	D (45.4) [72] {233}	C (21.7) [28] {120}

14: Pembroke Dr/Museum St & William Hilton Pkwy (signal)		
Overall Intersection	B (18.7)	C (33.7)
Eastbound Approach	B (12.6) [134] {991}	B (14.3) [76] {754}
Westbound Approach	B (12.7) [39] {443}	D (42.4) [645] {1261}
Northbound Approach	E (72.0) [84] {274}	E (69.4) [93] {310}
Southbound Approach	D (37.3) [<25] {91}	D (42.2) [<25] {115}
15: Central Ave & William Hilton Pkwy (un-signalized)		
Eastbound Left Turn	A (8.5) [<25] {<25}	F (55.9) [<25] {50}
Westbound Left Turn	C (16.5) [<25] {<25}	A (9.7) [<25] {<25}
Northbound Right Turn	C (21.6) [<25] {27}	B (12.4) [<25] {32}
Southbound Right Turn	B (11.3) [<25] {41}	F (165.1) [<25] {65}
16: Hatton Pl/Merchant St & William Hilton Pkwy (un-signalized)		
Northbound Right Turn	B (11.5) [<25] {25}	A (7.7) [<25] {61}
Southbound Right Turn	B (10.6) [<25] {46}	F (93.1) [<25] {72}
17: Indigo Run Dr/Whooping Crane Way & William Hilton Pkwy (signal)		
Overall Intersection	C (23.3)	D (44.1)
Eastbound Approach	B (18.9) [115] {848}	C (30.6) [116] {772}
Westbound Approach	B (15.3) [40] {333}	D (44.8) [592] {1536}
Northbound Approach	D (54.0) [29] {103}	E (58.6) [46] {190}
Southbound Approach	D (49.7) [52] {187}	E (73.4) [83] {324}
18: Cross Island Pkwy SB Ramp/Gumtree Rd & Honey Horn Rd (un-signalized)		
Eastbound Approach	A (9.1) [<25] {45}	B (10.9) [<25] {61}
19: Cross Island Pkwy SB Ramp & Marshland Rd (un-signalized)		
Westbound Left Turn	A (3.7) [<25] {63}	A (2.1) [<25] {60}
Southbound Left Turn	A (8.8) [<25] {47}	B (10.6) [<25] {77}
Southbound Right Turn	A (6.1) [<25] {80}	A (7.9) [<25] {110}
20: Cross Island Pkwy NB Ramp & Marshland Rd (un-signalized)		
Eastbound Left Turn	A (1.3) [<25] {36}	A (1.4) [<25] {<25}
Northbound Left Turn	B (10.8) [<25] {69}	C (21.3) [31] {193}
Northbound Right Turn	A (6.0) [<25] {94}	A (7.0) [46] {218}
21: Palmetto Bay Rd & Bay Pines Rd (un-signalized)		
Eastbound Left Turn	No volumes observed	E (40.7) [<25] {33}
Eastbound Right Turn	B (14.3) [<25] {25}	B (12.5) [<25] {31}
Northbound Left Turn	A (9.0) [<25] {<25}	A (7.1) [<25] {34}

22: Palmetto Bay Rd & Point Comfort Rd/Arrow Rd (signal)		
Overall Intersection	B (13.2)	B (16.9)
Eastbound Approach	C (33.3) [52] {191}	C (32.0) [37] {175}
Westbound Approach	B (18.8) [<25] {106}	C (23.2) [56] {261}
Northbound Approach	B (10.5) [29] {261}	B (15.7) [92] {612}
Southbound Approach	B (10.9) [94] {873}	B (14.2) [67] {606}
23: Palmetto Bay Rd & Genesta St (un-signalized)		
Westbound Approach	C (17.1) [<25] {50}	C (18.1) [<25] {52}
Southbound Left Turn	A (3.2) [<25] {<25}	B (13.2) [<25] {<25}
24: Palmetto Bay Rd & Palmetto Business Park Rd (un-signalized)		
Westbound Approach	C (18.0) [<25] {53}	C (17.4) [<25] {53}
Southbound Left Turn	A (4.0) [<25] {37}	A (7.5) [<25] {<25}
25: Palmetto Bay Rd & Bow Cir (un-signalized)		
Westbound Left Turn	D (27.5) [<25] {<25}	D (30.0) [<25] {35}
Westbound Right Turn	A (8.4) [<25] {58}	B (13.1) [<25] {68}
Southbound Left Turn	A (3.6) [<25] {40}	B (11.0) [<25] {26}
26: Palmetto Bay Rd & Archer Rd (un-signalized)		
Westbound Left Turn	D (30.6) [<25] {27}	D (32.8) [<25] {39}
Westbound Right Turn	A (8.8) [<25] {63}	B (11.4) [<25] {75}
Southbound Left Turn	A (4.3) [<25] {98}	B (11.9) [<25] {<25}
27: Palmetto Bay Rd & Target Rd (signal)		
Overall Intersection	B (16.0)	B (17.6)
Eastbound Approach	C (33.3) [<25] {110}	D (41.8) [62] {248}
Westbound Approach	D (37.1) [35] {151}	C (29.4) [38] {149}
Northbound Approach	A (9.7) [28] {214}	B (13.3) [71] {508}
Southbound Approach	B (15.4) [287] {1309}	B (13.9) [99] {742}
28: Palmetto Bay Rd & Dunnagans Alley (un-signalized)		
Westbound Left Turn	F (184.7) [<25] {50}	F (65.5) [<25] {75}
Westbound Right Turn	A (9.1) [<25] {84}	B (13.1) [<25] {110}
Southbound Left Turn	B (10.4) [112] {512}	B (12.5) [<25] {383}

29: Palmetto Bay Rd & William Hilton Pkwy (Sea Pines Circle, RAB)		
Overall Intersection	E (37.0)	F (51.8)
Eastbound Approach	F (208.4) [615] {814}	F (51.0) [285] {770}
Westbound Approach	A (7.5) [<25] {263}	F (168.3) [1635] {1658}
Northbound Approach	A (4.2) [<25] {223}	D (30.8) [228] {738}
Southbound Approach	B (12.9) [194] {461}	A (8.4) [85] {460}

2045 No Build Conditions

The 2045 no build conditions analysis is intended to reflect future conditions within the study area while accounting for an increase in “background” traffic. No modifications were made to the lane configurations. However, the 2045 no build scenario does include the effects of the adaptive signal system implemented in the fall of 2023.

2045 No Build Traffic Volumes

In order to evaluate traffic conditions through the year 2045, it was necessary to forecast the anticipated growth within the study area based on an increase in “background” traffic resulting from increasing population and commercial and employment growth in The Town of Hilton Head.

An annual background growth rate of 0.56% was determined after careful consideration of the Lowcountry Area Transportation Study (LATS) Travel Demand Model (TDM), census data, Beaufort County historic growth trends, historic traffic growth on the US 278 bridge, sale and restaurant tax revenue, public parking revenue, and short term rental data. A memorandum detailing the methodology behind the 0.56% growth rate is provided in **Appendix B**. The 2023 existing traffic volumes (Appendix A) were grown annually by 0.56% to 2045 in order to produce the 2045 no build traffic volumes which are provided in **Appendix C**.

2045 No Build Traffic Analysis

Similar to the 2023 existing conditions, the 2045 no build traffic analysis was completed using both Synchro and VISSIM. The 2045 no build operating conditions were evaluated using the same methodology applied to the 2023 existing conditions.

Synchro Analysis

The 2045 no build operating conditions at the study intersections were evaluated using Synchro 11 and are summarized in **Table 6**. As shown, the previously failing conditions and congestion experienced in the 2023 existing conditions are expected to be exacerbated by 2045 with the forecasted growth. Significant congestion is expected throughout the study area. Therefore, it can be concluded that the study intersections cannot accommodate the forecasted traffic growth in their existing state.

TABLE 6. 2045 NO BUILD OPERATING CONDITIONS (SYNCHRO)

Intersection & Movements	LOS (Delay, sec) [95 th Queue Length, ft] <v/c ratio>	
	AM Peak Hour	PM Peak Hour
1: Buckingham Plantation Dr & Bluffton Pkwy (signal)		
Overall Intersection	B (17.6)	C (25.5)
Eastbound Approach	B (15.1) [298] <0.54>	B (16.0) [207] <0.50>
Westbound Approach	C (25.4) [202] <0.38>	D (36.7) [#496] <0.86>
Northbound Approach	B (15.9) [37] <0.08>	B (15.7) [30] <0.11>
Southbound Approach	A (9.9) [m23] <0.18>	A (6.1) [m21] <0.23>
2: Buckingham Plantation Dr/Moss Creek Dr & William Hilton Pkwy (signal)		
Overall Intersection	B (18.2)	C (26.9)
Eastbound Approach	B (16.9) [443] <0.64>	B (17.1) [345] <0.75>
Westbound Approach	B (17.9) [290] <0.51>	C (28.1) [#644] <0.89>
Northbound Approach	C (21.2) [98] <0.56>	D (49.7) [m#76] <0.74>
Southbound Approach	C (31.2) [70] <0.45>	E (60.9) [#123] <0.88>
3: Salt Marsh Dr/Moss Creek Village & William Hilton Pkwy (un-signalized)		
Eastbound Left Turn	C (18.8) [<25] <0.03>	F (65.8) [33] <0.33>
Westbound Left Turn	E (44.8) [<25] <0.08>	D (34.9) [<25] <0.22>
Northbound Approach	D (34.4) [33] <0.31>	D (26.7) [30] <0.30>
Southbound Approach	F (57.0) [88] <0.63>	F (649.6) [273] <2.05>
4: Fording Island Rd Ext & William Hilton Pkwy (un-signalized)		
Westbound Left Turn	C (21.6) [<25] <0.02>	C (17.0) [<25] <0.06>
Northbound Approach	F (684.9) [115] <1.63>	F (\$1880.2) [225] <4.10>
5: Boat Landing Driveway/Wildlife Refuge Driveway & William Hilton Pkwy (un-signalized)		
Eastbound Left Turn	C (17.8) [<25] <0.01>	F (67.3) [<25] <0.08>
Westbound Left Turn	No volumes observed	C (28.7) [<25] <0.01>
Northbound Approach	F (50.7) [<25] <0.03>	D (32.3) [<25] <0.09>
Southbound Approach	No volumes observed	F (74.9) [<25] <0.26>
6: Blue Heron Point Rd & William Hilton Pkwy (un-signalized)		
Westbound Left Turn	No volumes observed	D (30.2) [<25] <0.01>
Northbound Approach	F (\$1763.6) [73] <2.35>	F (\$5024.3) [145] <8.33>

7: Crosstree Dr (Windmill Harbour) & William Hilton Pkwy (signal)		
Overall Intersection	E (67.8)	F (92.1)
Eastbound Approach	F (105.5) [#2262] <1.19>	C (33.3) [#1547] <1.00>
Westbound Approach	A (5.9) [320] <0.64>	F (133.8) [~2456] <1.26>
Northbound Approach	B (14.6) [34] <0.39>	E (77.5) [#106] <0.86>
Southbound Approach	O (0.0) [<25] <0.01>	O (0.0) [<25] <0.00>
8: Jenkins Rd & William Hilton Pkwy (un-signalized)		
Eastbound Left Turn	C (18.3) [<25] <0.03>	F (91.5) [<25] <0.22>
Southbound Approach	F (\$1398.4) [65] <1.86>	F (151.3) [73] <.69>
9: Chamberlin Dr/Squire Pope Rd & William Hilton Pkwy (signal)		
Overall Intersection	C (23.4)	F (144.6)
Eastbound Approach	B (15.2) [918] <0.81>	B (12.6) [370] <0.91>
Westbound Approach	C (31.1) [625] <0.74>	F (233.2) [m#2394] <1.49>
Northbound Approach	B (13.0) [<25] <0.02>	E (70.6) [67] <0.29>
Southbound Approach	E (69.0) [#286] <0.92>	F (231.6) [#577] <1.46>
10: Old Wild Horse Rd & William Hilton Pkwy (un-signalized)		
Southbound Approach	D (26.7) [40] <0.36>	F (77.9) [<25] <0.20>
11: Spanish Wells Rd/Wild Horse Rd & William Hilton Pkwy (signal)		
Overall Intersection	D (37.5)	D (45.1)
Eastbound Approach	D (38.7) [#1280] <1.02>	C (20.5) [381] <0.89>
Westbound Approach	C (24.0) [345] <0.91>	D (45.2) [m909] <0.99>
Northbound Approach	D (51.5) [214] <0.60>	F (171.7) [#606] <1.35>
Southbound Approach	F (94.1) [#306] <0.97>	D (49.3) [168] <0.34>
12: Gumtree Rd & William Hilton Pkwy (signal)		
Overall Intersection	F (84.2)	F (80.1)
Eastbound Approach	F (94.6) [~1146] <1.16>	D (54.0) [#842] <0.99>
Westbound Approach	D (43.1) [#391] <0.90>	D (44.6) [m539] <0.97>
Northbound Approach	F (113.6) [#372] <1.13>	F (137.9) [#466] <1.29>
Southbound Approach	F (119.0) [#473] <1.09>	F (178.8) [#506] <1.33>
13: Jarvis Park Rd/Wilborn Rd & William Hilton Pkwy (signal)		
Overall Intersection	C (20.2)	E (57.5)
Eastbound Approach	B (16.0) [257] <0.90>	A (7.6) [m262] <0.76>
Westbound Approach	B (12.0) [306] <0.69>	D (38.2) [#1335] <1.01>
Northbound Approach	F (82.7) [136] <0.58>	F (259.8) [#208] <1.33>

Southbound Approach	D (52.5) [249] <0.73>	F (250.2) [#358] <1.61>
14: Pembroke Dr/Museum St & William Hilton Pkwy (signal)		
Overall Intersection	C (27.8)	D (38.3)
Eastbound Approach	B (15.6) [#1252] <0.91>	B (13.7) [351] <0.71>
Westbound Approach	D (36.7) [681] <0.55>	D (47.7) [1072] <0.89>
Northbound Approach	E (73.6) [254] <0.76>	F (86.1) [#355] <0.89>
Southbound Approach	C (32.7) [74] <0.36>	D (49.5) [93] <0.68>
15: Central Ave & William Hilton Pkwy (un-signalized)		
Eastbound Left Turn	B (11.4) [<25] <0.01>	B (17.2) [<25] <0.02>
Westbound Left Turn	C (18.7) [<25] <0.02>	B (13.6) [<25] <0.01>
Northbound Right Turn	C (21.0) [<25] <0.03>	C (15.9) [<25] <0.04>
Southbound Right Turn	B (13.8) [<25] <0.06>	C (19.5) [<25] <0.03>
16: Hatton Pl/Merchant St & William 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 & William Hilton Pkwy (signal)		
Overall Intersection	B (18.0)	D (36.4)
Eastbound Approach	A (3.5) [<25] <0.79>	B (16.9) [#297] <0.93>
Westbound Approach	B (19.2) [407] <0.51>	D (38.4) [#951] <0.92>
Northbound Approach	E (62.2) [112] <0.52>	E (70.5) [#245] <0.82>
Southbound Approach	D (54.9) [178] <0.71>	E (67.7) [212] <0.86>
18: Cross Island Pkwy SB Ramp/Gumtree Rd & Honey Horn Rd (un-signalized)		
Eastbound Approach	B (11.5) [<25] <0.00>	B (13.8) [<25] <0.19>
19: Cross Island Pkwy SB Ramp & Marshland Rd (un-signalized)		
Westbound Left Turn	A (9.1) [<25] <0.14>	A (8.6) [<25] <0.17>
Southbound Left Turn	C (19.7) [<25] <0.1>	E (49.9) [58] <0.49>
Southbound Right Turn	A (9.4) [<25] <0.05>	B (14.1) [<25] <0.19>
20: Cross Island Pkwy NB Ramp & Marshland Rd (un-signalized)		
Eastbound Left Turn	A (8.3) [<25] <0.12>	A (8.6) [<25] <0.06>
Northbound Left Turn	C (16.2) [<25] <0.21>	D (34.1) [160] <0.75>
Northbound Right Turn	A (9.4) [<25] <0.08>	B (10.6) [<25] <0.23>

21: Palmetto Bay Rd & Bay Pines Rd (un-signalized)		
Eastbound Left Turn	No volumes observed	F (\$454) [50] <0.74>
Eastbound Right Turn	C (21.7) [<25] <0.03>	C (16.5) [<25] <0.04>
Northbound Left Turn	C (19.4) [<25] <0.03>	B (14.5) [<25] <0.06>
22: Palmetto Bay Rd & Point Comfort Rd/Arrow Rd (signal)		
Overall Intersection	B (17.1)	C (26.9)
Eastbound Approach	D (46.0) [171] <0.71>	C (24.5) [102] <0.35>
Westbound Approach	C (23.8) [73] <0.44>	E (55.3) [#376] <0.94>
Northbound Approach	A (9.7) [136] <0.37>	C (21.7) [443] <0.86>
Southbound Approach	B (15.2) [670] <0.73>	C (24.3) [434] <0.88>
23: Palmetto Bay Rd & Genesta St (un-signalized)		
Westbound Approach	E (46.3) [<25] <0.13>	F (159.5) [30] <0.37>
Southbound Left Turn	B (10.0) [<25] <0.02>	C (16.8) [<25] <0.02>
24: Palmetto Bay Rd & Palmetto Business Park Rd (un-signalized)		
Westbound Approach	E (47.3) [<25] <0.13>	F (114.3) [33] <0.37>
Southbound Left Turn	B (10.1) [<25] <0.04>	C (16.7) [<25] <0.02>
25: Palmetto Bay Rd & Bow Cir (un-signalized)		
Westbound Left Turn	D (27.7) [<25] <0.04>	F (54.8) [<25] <0.14>
Westbound Right Turn	B (11.6) [<25] <0.01>	C (19.0) [<25] <0.04>
Southbound Left Turn	B (10.3) [<25] <0.07>	C (16.7) [<25] <0.04>
26: Palmetto Bay Rd & Archer Rd (un-signalized)		
Westbound Left Turn	D (29.0) [<25] <0.07>	F (54.8) [<25] <0.14>
Westbound Right Turn	B (11.7) [<25] <0.01>	C (19.0) [<25] <0.04>
Southbound Left Turn	B (10.5) [<25] <0.08>	C (16.7) [<25] <0.04>
27: Palmetto Bay Rd & Target Rd (signal)		
Overall Intersection	B (10.8)	B (18.7)
Eastbound Approach	C (33.2) [81] <0.31>	D (51.4) [241] <0.82>
Westbound Approach	D (48.8) [152] <0.69>	C (30.4) [115] <0.50>
Northbound Approach	B (10.9) [240] <0.37>	B (19.0) [585] <0.72>
Southbound Approach	A (4.6) [149] <0.69>	A (7.3) [233] <0.66>
28: Palmetto Bay Rd & Dunnagans Alley (un-signalized)		
Westbound Left Turn	D (33.5) [<25] <0.09>	F (55.4) [<25] <0.33>
Westbound Right Turn	B (12.0) [<25] <0.02>	C (20.0) [<25] <0.24>
Southbound Left Turn	B (11.5) [<25] <0.21>	B (14.6) [<25] <0.03>

29: Palmetto Bay Rd & William Hilton Pkwy (Sea Pines Circle, RAB)		
Overall Intersection	F (56.0)	F (60.3)
Eastbound Approach	F (83.3) [375] <1.04>	F (117.9) [550] 0.98>
Westbound Approach	D (26.1) [200] <0.79>	F (92.4) [425] <1.08>
Northbound Approach	C (16.4) [125] <0.65>	F (78.2) [525] <0.98>
Southbound Approach	F (134.4) [900] <1.23>	F (94.3) [675] <1.13>

– 95th Percentile volume exceeds capacity
 \$ – Delay more than 300 seconds
 m – Upstream metering is in effect

VISSIM Analysis

The travel time calculations and traffic volumes between the 2023 existing conditions and 2045 no build conditions were evaluated. As shown in **Table 7** and **Table 8**, several corridors and locations have negative percent differences and the 2045 no build simulated volumes are less than the 2023 simulated volumes. This is due to over-saturation of the study area and results in vehicles not being able to enter the network to process through each intersection. During the AM peak hour, the eastbound travel time is expected to increase by approximately 36% along Hilton Pkwy between Moss Creek and Indigo Run and by approximately 46% along Hilton Pkwy at Moss Creek to Cross Island Pkwy at Sea Pines Circle. During the PM peak hour, the westbound travel time is expected to increase by approximately 23% along Hilton Pkwy between Moss Creek and Indigo Run and by approximately 62% along Hilton Pkwy at Moss Creek to Cross Island Pkwy at Sea Pines Circle. Therefore, it is evident that the study area is expected to experience significant congestion through the year 2045.

TABLE 7. 2045 NO BUILD VISSIM CALIBRATION TRAVEL TIME RESULTS

Corridor		Existing Simulated travel time (secs)		2045 No Build Simulated travel time (secs)		% Difference	
		AM	PM	AM	PM	AM	PM
William Hilton Pkwy between Moss Creek and Indigo Run	EB	1157	619	1579	642	36.47%	3.72%
	WB	572	1252	584	1544	2.10%	23.32%
William Hilton Pkwy @Moss Creek to Cross Island Pkwy @Sea Pine	SB	1356	857	1984	873	46.31%	1.87%
	NB	826	1520	823	2465	-0.36%	62.17%

TABLE 8. 2045 NO BUILD VISSIM CALIBRATION TRAFFIC VOLUMES RESULTS

Location	Existing Simulated volume results (vehicles)		2045 No Build Simulated volume results (vehicles)		% Difference	
	AM	PM	AM	PM	AM	PM
William Hilton Pkwy west of Squire Pope EB	2970	2240	2783	2524	-6.30%	12.68%
William Hilton Pkwy west of Squire Pope WB	1650	2898	1843	2754	11.70%	-4.97%
William Hilton Pkwy east of Spanish Wells EB	2929	1955	2748	2198	-6.18%	12.43%
William Hilton Pkwy east of Spanish Wells WB	1423	2614	1570	2413	10.33%	-7.69%
Cross Island Pkwy north of Marshland Rd NB	964	1371	1065	919	10.48%	-32.97%
Cross Island Pkwy north of Marshland Rd SB	1486	1167	1440	1299	-3.10%	11.31%

The 2045 no build operating conditions at the study intersections were evaluated using VISSIM and are summarized in **Table 9**. As shown, the operating conditions largely agree with those shown in the 2045 no build Synchro operating conditions (Table 6) and validate the travel time and volume conclusions above. Significant congestion is expected throughout the study area through the year 2045. The congestion that currently exists throughout the study area is expected to be exacerbated by 2045 with the forecasted growth.

TABLE 9. 2045 NO BUILD OPERATING CONDITIONS (VISSIM)

Intersection & Movements	LOS (Delay, sec) [95 th Queue Length, ft] {Max Queue, ft}	
	AM Peak Hour	PM Peak Hour
1: Buckingham Plantation Dr & Bluffton Pkwy (signal)		
Overall Intersection	C (22.3)	B (15.9)
Eastbound Approach	C (26.6) [123] {700}	B (18.5) [43] {241}
Westbound Approach	B (14.0) [<25] {168}	B (14.4) [32] {218}
Northbound Approach	B (14.1) [<25] {68}	B (14.5) [<25] {53}
Southbound Approach	A (6.6) [<25] {56}	A (8.5) [<25] {83}

2: Buckingham Plantation Dr/Moss Creek Dr & William Hilton Pkwy (signal)		
Overall Intersection	E (74.1)	B (18.6)
Eastbound Approach	F (146.0) [1628] {1658}	B (16.6) [86] {567}
Westbound Approach	B (14.1) [37] {302}	B (18.4) [86] {474}
Northbound Approach	C (26.4) [25] {186}	D (39.3) [<25] {91}
Southbound Approach	D (35.8) [<25] {88}	C (24.4) [<25] {119}
3: Salt Marsh Dr/Moss Creek Village & William Hilton Pkwy (un-signalized)		
Eastbound Left Turn	F (54.8) [1075] {1304}	C (18.8) [<25] {55}
Westbound Left Turn	F (4,646.8) [142] {214}	B (12.4) [<25] {45}
Northbound Approach	B (12.3) [<25] {63}	A (7.4) [<25] {62}
Southbound Approach	D (29.4) [49] {107}	A (8.1) [<25] {77}
4: Fording Island Rd Ext & William Hilton Pkwy (un-signalized)		
Westbound Left Turn	F (3,675.2) [85] {146}	C (19.0) [<25] {34}
Northbound Approach	F (3,448.2) [171] {189}	C (18.4) [<25] {43}
5: Boat Landing Driveway/Wildlife Refuge Driveway & William Hilton Pkwy (un-signalized)		
Eastbound Left Turn	C (20.9) [902] {1658}	D (26.6) [<25] {<25}
Westbound Left Turn	No volumes observed	C (21.4) [<25] {<25}
Northbound Approach	F (426.9) [<25] {38}	C (20.6) [<25] {47}
Southbound Approach	No volumes observed	C (17.5) [<25] {42}
6: Blue Heron Point Rd & William Hilton Pkwy (un-signalized)		
Westbound Left Turn	No volumes observed	F (131.6) [<25] {<25}
Northbound Approach	F (2,505.2) [214] {351}	E (49.9) [<25] {74}
7: Crosstree Dr (Windmill Harbour) & William Hilton Pkwy (signal)		
Overall Intersection	A (9.5)	B (13.4)
Eastbound Approach	B (11.3) [433] {1093}	B (10.6) [216] {1092}
Westbound Approach	A (5.3) [26] {601}	A (6.0) [86] {913}
Northbound Approach	D (41.6) [<25] {138}	F (237.4) [193] {326}
Southbound Approach	A (9.8) [<25] {<25}	A (0.0) [<25] {<25}
8: Jenkins Rd & William Hilton Pkwy (un-signalized)		
Eastbound Left Turn	B (14.4) [<25] {<25}	D (32.0) [<25] {33}
Southbound Approach	D (29.2) [<25] {47}	E (43.5) [<25] {62}

9: Chamberlin Dr/Squire Pope Rd & William Hilton Pkwy (signal)		
Overall Intersection	C (26.8)	E (70.7)
Eastbound Approach	D (38.4) [361] {1332}	B (13.9) [235] {1106}
Westbound Approach	A (8.4) [55] {700}	F (128.0) [1018] {1383}
Northbound Approach	C (21.2) [<25] {42}	E (67.4) [<25] {73}
Southbound Approach	B (19.2) [<25] {189}	F (80.3) [228] {693}
10: Old Wild Horse Rd & William Hilton Pkwy (un-signalized)		
Southbound Approach	A (1.4) [<25] {26}	A (8.0) [<25] {29}
11: Spanish Wells Rd/Wild Horse Rd & William Hilton Pkwy (signal)		
Overall Intersection	C (30.3)	F (328.8)
Eastbound Approach	C (25.2) [169] {787}	B (15.1) [98] {668}
Westbound Approach	B (15.5) [80] {365}	F (637.7) [896] {989}
Northbound Approach	E (63.1) [122] {407}	F (510.5) [1241] {1288}
Southbound Approach	F (147.4) [192] {319}	D (49.1) [51] {243}
12: Gumtree Rd & William Hilton Pkwy (signal)		
Overall Intersection	D (51.9)	E (76.0)
Eastbound Approach	D (43.1) [838] {1562}	D (50.4) [254] {711}
Westbound Approach	C (31.2) [128] {375}	E (76.3) [1203] {1623}
Northbound Approach	D (38.8) [166] {334}	F (92.7) [280] {356}
Southbound Approach	F (143.1) [1039] {1452}	F (121.3) [657] {1380}
13: Jarvis Park Rd/Wilborn Rd & William Hilton Pkwy (signal)		
Overall Intersection	C (22.3)	C (33.4)
Eastbound Approach	B (17.7) [169] {962}	B (12.6) [51] {552}
Westbound Approach	C (21.5) [106] {673}	D (42.5) [907] {1289}
Northbound Approach	E (67.4) [42] {178}	F (281.4) [153] {297}
Southbound Approach	D (36.9) [65] {225}	C (25.8) [32] {153}
14: Pembroke Dr/Museum St & William Hilton Pkwy (signal)		
Overall Intersection	C (22.1)	E (55.1)
Eastbound Approach	B (17.8) [227] {1081}	B (18.9) [99] {679}
Westbound Approach	B (19.5) [72] {553}	D (54.5) [998] {1279}
Northbound Approach	D (52.8) [71] {260}	F (260.2) [397] {719}
Southbound Approach	C (31.1) [<25] {87}	D (43.2) [<25] {114}

15: Central Ave & William Hilton Pkwy (un-signalized)		
Eastbound Left Turn	B (13.4) [<25] {<25}	C (21.6) [87] {146}
Westbound Left Turn	C (22.4) [<25] {25}	C (21.8) [<25] {<25}
Northbound Right Turn	C (16.2) [<25] {29}	B (12.6) [<25] {31}
Southbound Right Turn	B (12.3) [<25] {44}	F (2,448.4) [87] {171}
16: Hatton Pl/Merchant St & William Hilton Pkwy (un-signalized)		
Northbound Right Turn	A (8.1) [<25] {<25}	A (6.9) [<25] {64}
Southbound Right Turn	B (11.0) [<25] {36}	F (1,211.0) [123] {244}
17: Indigo Run Dr/Whooping Crane Way & William Hilton Pkwy (signal)		
Overall Intersection	C (24.5)	E (66.7)
Eastbound Approach	B (19.7) [107] {764}	C (34.5) [115] {636}
Westbound Approach	B (17.3) [53] {371}	E (75.8) [1341] {1658}
Northbound Approach	E (55.2) [32] {110}	E (76.4) [65] {265}
Southbound Approach	D (47.7) [57] {203}	F (126.4) [327] {1023}
18: Cross Island Pkwy SB Ramp/Gumtree Rd & Honey Horn Rd (un-signalized)		
Eastbound Approach	A (9.7) [<25] {45}	B (12.1) [<25] {72}
19: Cross Island Pkwy SB Ramp & Marshland Rd (un-signalized)		
Westbound Left Turn	A (4.5) [<25] {62}	A (2.4) [<25] {67}
Southbound Left Turn	A (9.8) [<25] {53}	B (11.1) [<25] {79}
Southbound Right Turn	A (6.1) [<25] {86}	A (7.9) [<25] {112}
20: Cross Island Pkwy NB Ramp & Marshland Rd (un-signalized)		
Eastbound Left Turn	A (1.6) [<25] {49}	A (1.5) [<25] {<25}
Northbound Left Turn	B (11.9) [<25] {77}	D (27.8) [46] {252}
Northbound Right Turn	A (6.0) [<25] {102}	A (8.0) [62] {277}
21: Palmetto Bay Rd & Bay Pines Rd (un-signalized)		
Eastbound Left Turn	No volumes observed	E (48.5) [<25] {35}
Eastbound Right Turn	C (15.6) [<25] {<25}	B (13.9) [<25] {32}
Northbound Left Turn	B (12.8) [<25] {<25}	A (7.8) [<25] {31}
22: Palmetto Bay Rd & Point Comfort Rd/Arrow Rd (signal)		
Overall Intersection	B (14.0)	B (18.2)
Eastbound Approach	C (30.2) [51] {187}	C (29.0) [38] {164}
Westbound Approach	B (17.3) [<25] {108}	C (28.2) [79] {337}
Northbound Approach	B (12.4) [38] {311}	B (15.5) [94] {596}
Southbound Approach	B (11.6) [91] {737}	B (16.3) [90] {601}

23: Palmetto Bay Rd & Genesta St (un-signalized)		
Westbound Approach	E (41.7) [<25] {57}	D (25.4) [<25] {53}
Southbound Left Turn	A (5.5) [37] {255}	A (8.8) [<25] {<25}
24: Palmetto Bay Rd & Palmetto Business Park Rd (un-signalized)		
Westbound Approach	F (65.1) [<25] {75}	C (21.0) [<25] {59}
Southbound Left Turn	A (5.7) [35] {176}	B (12.8) [<25] {<25}
25: Palmetto Bay Rd & Bow Cir (un-signalized)		
Westbound Left Turn	F (69.4) [46] {98}	E (40.7) [<25] {48}
Westbound Right Turn	A (9.1) [59] {131}	B (13.1) [<25] {81}
Southbound Left Turn	C (16.2) [551] {1040}	B (14.1) [<25] {67}
26: Palmetto Bay Rd & Archer Rd (un-signalized)		
Westbound Left Turn	F (1,234.0) [40] {69}	D (31.8) [<25] {34}
Westbound Right Turn	B (11.6) [62] {105}	B (11.5) [<25] {70}
Southbound Left Turn	C (16.2) [228] {469}	B (12.0) [<25] {28}
27: Palmetto Bay Rd & Target Rd (signal)		
Overall Intersection	C (26.9)	B (18.6)
Eastbound Approach	C (26.5) [<25] {105}	D (37.6) [62] {250}
Westbound Approach	C (34.2) [32] {157}	C (26.1) [38] {144}
Northbound Approach	B (12.5) [39] {235}	B (15.4) [83] {522}
Southbound Approach	C (33.5) [1209] {1511}	B (15.6) [129] {820}
28: Palmetto Bay Rd & Dunnagans Alley (un-signalized)		
Westbound Left Turn	F (872.0) [62] {148}	F (87.7) [<25] {97}
Westbound Right Turn	E (36.3) [88] {182}	B (13.0) [30] {132}
Southbound Left Turn	C (20.8) [258] {513}	B (13.1) [<25] {416}
29: Palmetto Bay Rd & William Hilton Pkwy (Sea Pines Circle, RAB)		
Overall Intersection	F (60.5)	F (81.8)
Eastbound Approach	F (314.7) [808] {838}	F (168.2) [805] {838}
Westbound Approach	B (14.3) [56] {434}	F (200.4) [1645] {1658}
Northbound Approach	A (4.2) [<25] {207}	F (61.1) [534] {794}
Southbound Approach	C (34.4) [297] {461}	A (8.2) [88] {460}

Alternative Analysis

As shown in both the 2023 existing and 2045 no build analysis, it is evident that improvements are needed within the study area to accommodate the expected growth within the area. Therefore, Lochmueller Group studied four alternatives to help improve the US 278 corridor. In determining the most beneficial and appropriate alternatives, the following guiding principles, as stated by the Town of Hilton Head, were top of mind:

- Fix the transportation issues in the corridor in a way that improves the safety and quality of life for all residents, workers, and visitors to Hilton Head Island
 - a) Address transportation needs for natural disasters and resiliency of island access
 - b) Consider future transportation alternatives
- Improve the safety and quality of life for the residents of the neighborhoods and businesses directly impacted by the US 278 corridor
 - a) Stoney Community
 - b) Neighborhoods on Jenkins and Hog Islands (including but not limited to Windmill Harbor)
- Have a gateway to and from Hilton Head Island that the region will be proud of:
 - a) Aesthetically pleasing and reflecting the Hilton Head Island/Low County values
 - b) Safe and functional pathways for pedestrians and cyclists
 - c) Minimizes environmental impacts and enhances the national asset of Pinckney Island

With the guiding principles in mind, the following four alternatives are recommended for further study:

- Alternative 1: SCDOT Modified Recommended Preferred
- Alternative 2: Bowties at Squire Pope and Spanish Wells
- Alternative 3: Echelon / Center Turn Overpass
 - a) Grade Separated Intersection at either Squire Pope or Spanish Wells, but not both
- Alternative 4: Elevated Bypass

As agreed upon with the Town of Hilton Head, the alternative analysis was completed for the modified original project study area shown in Figure 2.

2045 Alternative 1: SCDOT Modified Recommended Preferred

Alternative 1 considers the SCDOT Modified Recommended Preferred alternative with adaptive signals in place and improvements at Gumtree Rd. The improvements at Gumtree Rd include keeping the intersections at-grade, completely reconfiguring the intersection to improve its efficiency, and providing dual left-turn lanes for the westbound, northbound, and southbound approaches. **Figure 3** shows the improvements recommended as part of Alternative 1, as provided by SCDOT. It should be noted that the improvements at Gumtree Rd are not reflected in the figure provided by SCDOT.

May 3, 2024

Page 28

2045 Alternative 1 Traffic Volumes

The traffic volumes used for the 2045 Alternative 1 analysis were largely similar to the 2045 no build traffic volumes provided in Appendix C. However, some intersections were combined in this alternative, requiring traffic diversions. The 2045 Alternative 1 traffic volumes are provided in Appendix D.

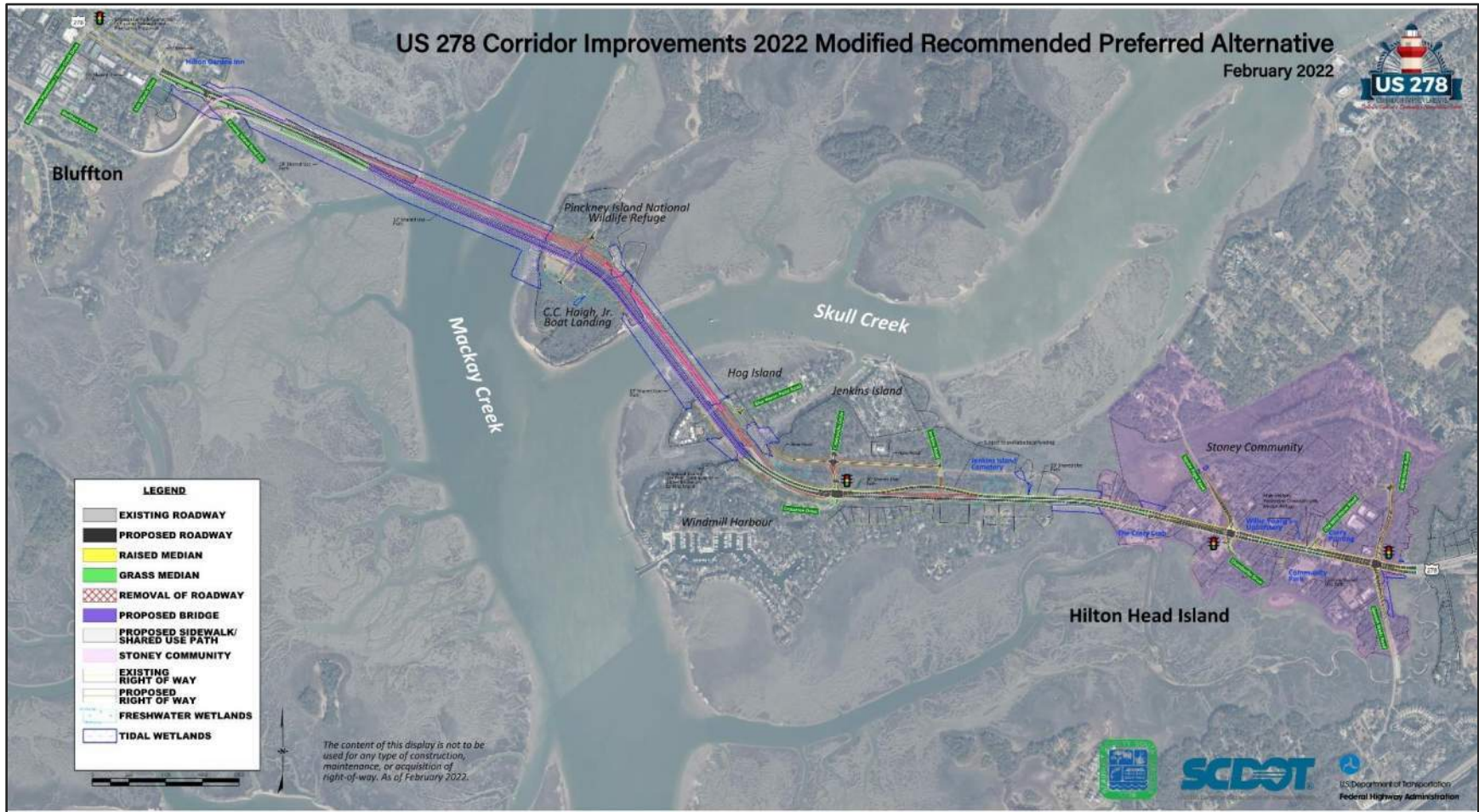


FIGURE 3. ALTERNATIVE 1: SCDOT MODIFIED RECOMMENDED PREFERRED

2045 Alternative 1 Traffic Analysis

As agreed upon with The Town of Hilton Head, the traffic analysis was completed using Synchro 11. The 2045 Alternative 1 operating conditions were evaluated using the same methodology applied to the existing and no build conditions. The operating conditions for the 2045 Alternative 1 scenario are shown in **Table 10**.

As shown, overall the study intersections are expected to operate acceptably under Alternative 1. Each signalized intersection is expected to operate with a LOS D or better overall. However, side-street and unsignalized approaches may still experience long delays. This is to be expected given the heavy volumes experienced along the mainline of William Hilton Pkwy and the inability of side-street traffic to find gaps in the mainline traffic to complete their movement.

TABLE 10. 2045 ALTERNATIVE 1 TRAFFIC OPERATING CONDITIONS (SYNCHRO)

Intersection & Movements	LOS (Delay, sec) [95 th Queue Length, ft] <v/c ratio>	
	AM Peak Hour	PM Peak Hour
1: Buckingham Plantation Dr & Bluffton Pkwy (signal)		
Overall Intersection	B (16.9)	B (12.9)
Eastbound Approach	B (16.2) [361] <0.54>	A (8.7) [254] <0.50>
Westbound Approach	C (20.4) [180] <0.38>	B (12.1) [291] <0.86>
Northbound Approach	B (17.1) [49] <0.08>	D (47.7) [77] <0.11>
Southbound Approach	A (7.2) [55] <0.18>	C (27.1) [137] <0.23>
2: Buckingham Plantation Dr/Moss Creek Dr & William Hilton Pkwy (signal)		
Overall Intersection	B (14.8)	C (19.1)
Eastbound Approach	B (13.1) [283] <0.64>	B (14.0) [274] <0.75>
Westbound Approach	B (13.9) [223] <0.51>	C (21.1) [348] <0.89>
Northbound Approach	C (24.5) [120] <0.56>	D (38.2) [97] <0.74>
Southbound Approach	C (24.4) [80] <0.45>	D (27.4) [169] <0.88>
3: Salt Marsh Dr/Moss Creek Village & William Hilton Pkwy (un-signalized)		
Eastbound Left Turn	C (18.9) [27] <0.04>	F (65.8) [33] <0.33>
Westbound Left Turn	E (44.8) [<25] <0.08>	D (34.9) [<25] <0.22>
Northbound Approach	B (14.2) [59] <0.31>	C (11.4) [59] <0.30>
Southbound Approach	B (17.0) [91] <0.63>	F (173.4) [305] <2.05>
4: Fording Island Rd Ext & William Hilton Pkwy (un-signalized)		
Westbound Left Turn	D (27.4) [<25] <0.06>	B (17.7) [34] <0.13>
Northbound Approach	E (37.7) [53] <0.58>	F (99.8) [127] <1.26>

5: Boat Landing Driveway/Wildlife Refuge Driveway & William Hilton Pkwy (un-signalized)		
Northbound Right-Turn	A (3.0) [<25] <0.00>	A (1.3) [<25] <0.00>
Southbound Right-Turn	No volumes observed	A (2.9) [<25] <0.00>
6: Blue Heron Point Rd & William Hilton Pkwy (un-signalized)		
<i>Intersection combined with Crosstree Dr</i>		
7: Crosstree Dr (Windmill Harbour) & William Hilton Pkwy (signal)		
Overall Intersection	B (15.4)	B (14.6)
Eastbound Approach	B (18.6) [338] <0.82>	B (11.6) [283] <0.70>
Westbound Approach	A (8.4) [166] <0.45>	B (19.6) [280] <0.92>
Northbound Approach	D (52.9) [93] <0.35>	E (60.4) [108] <0.72>
Southbound Approach	C (31.0) [<25] <0.06>	D (48.9) [30] <0.14>
8: Jenkins Rd & William Hilton Pkwy (un-signalized)		
<i>Intersection combined with Crosstree Dr</i>		
A: The Crazy Crab & William Hilton Pkwy (un-signalized)		
Westbound Left-Turn	F (169.2) [<25] <0.05>	F (77.1) [<25] <0.02>
Northbound Right-Turn	F (95.8) [<25] <0.02>	E (39.3) [<25] <0.01>
9: Chamberlin Dr/Squire Pope Rd & William Hilton Pkwy (signal)		
Overall Intersection	B (18.1)	C (23.3)
Eastbound Approach	B (13.3) [852] <0.75>	B (11.1) [467] <0.71>
Westbound Approach	A (3.2) [91] <0.48>	B (18.0) [522] <0.97>
Northbound Approach	E (70.6) [263] <0.07>	F (84.1) [#464] <0.29>
Southbound Approach	D (52.9) [151] <0.58>	E (65.6) [281] <0.70>
10: Old Wild Horse Rd & William Hilton Pkwy (un-signalized)		
Southbound Approach	C (17.0) [74] <0.36>	E (43.2) [32] <0.20>
11: Spanish Wells Rd/Wild Horse Rd & William Hilton Pkwy (signal)		
Overall Intersection	C (26.0)	C (20.9)
Eastbound Approach	B (11.7) [354] <0.99>	B (10.1) [216] <0.85>
Westbound Approach	A (8.7) [350] <0.91>	C (28.3) [1107] <0.99>
Northbound Approach	E (73.5) [459] <0.66>	E (70.9) [#609] <0.95>
Southbound Approach	E (58.6) [411] <0.76>	E (57.7) [430] <0.77>

12: Gumtree Rd & William Hilton Pkwy (signal)		
Overall Intersection	D (38.8)	D (38.4)
Eastbound Approach	C (32.3) [655] <0.77>	C (31.3) [489] <0.93>
Westbound Approach	D (40.4) [310] <0.75>	D (43.6) [554] <0.97>
Northbound Approach	E (57.4) [375] <0.41>	D (54.5) [319] <0.93>
Southbound Approach	E (60.8) [293] <0.87>	E (74.3) [298] <0.90>

In addition to the Synchro operating conditions, travel time calculations were performed in Synchro along the William Hilton Pkwy corridor between Moss Creek and Indigo Run. It should be noted that VISSIM provides more accurate travel time results than Synchro. However, for the purposes of comparing alternatives, the Synchro results are shown as they still provide a reasonable comparison. The scope of work will include a VISSIM analysis for the preferred alternative in which the travel time calculations will be finalized. It is acknowledged that the travel time results from Synchro may understate the travel time calculations when compared to VISSIM.

Table 11 shows the changes in travel time for the 2045 Alternative 1 scenario when compared to the 2045 no build scenario. As shown, Alternative 1 is expected to improve the travel time along eastbound William Hilton Pkwy by approximately 16% during the AM peak period and westbound William Hilton Pkwy by approximately 34% during the PM peak period.

It should be noted that westbound William Hilton Pkwy during the AM peak period and eastbound William Hilton Pkwy during the PM peak period are not expected to experience significant congestion in the 2045 no build scenario, as traffic patterns in the study area largely follow the commuter traffic. Therefore, the increase in travel time shown is not expected to significantly impact the operating conditions of the study area.

TABLE 11. TRAVEL TIME COMPARISON FOR ALTERNATIVE 1

Scenario		Difference in Travel Time (seconds) when Compared to 2045 No Build		% Difference	
		AM	PM	AM	PM
2045 Alternative 1: SCDOT Modified Recommended Preferred	EB	-109	+18	-16.1%	2.7%
	WB	+43	-276	6.3%	-34.2%

2045 Alternative 1 Right-of-Way Impacts

The proposed modifications to the SCDOT Preferred Alternative in this alternative involve reconfiguring the Gumtree Rd intersection to providing dual left-turn lanes for the westbound, northbound, and southbound approaches. These improvements will require a strip of additional right of way of approximately 0.2 acre on Town owned land, in the northeast quadrant to accommodate the additional southbound left turn lane. The lane additions on the Westbound and northbound approaches can be accommodated within existing right of way.

2045 Alternative 1 Environmental Analysis

As noted above, Alternative 1 would require 0.2 acre of additional ROW. The additional ROW impacts are located within the Squire Pope neighborhood. The additional ROW to be acquired is owned by the Town of Hilton Head. The SCDOT Environmental Assessment (EA) determined that this area is an environmental justice community. One hazardous material site, Shell Food Mart Station 101 (165 William Hilton Pkwy), is located near the alternatives. No impacts to the site are anticipated as a result of Alternative 1. The SCDOT recommended preferred alternative was determined to have a “may affect- not likely to adversely affect” finding for threatened and endangered species. Alternative 1 is not anticipated to alter this finding. Coordination with the USFWS and the NOAA National Marine Fisheries Service (NMFS) will need to occur to affirm this finding. Alternative 1 would not result in additional impacts to NWI wetlands, streams, floodplains, or essential fish habitat types. No additional relocations would occur as a result of Alternative 1. No additional impacts to cultural resources or Section 4(f) properties would occur as a result of Alternative 1. Please refer to the Technical Environmental Overview in **Appendix H** for additional details.

2045 Alternative 2: Bowties at Squire Pope and Spanish Wells

Alternative 2 considers bowties at Squire Pope Rd and Spanish Wells Rd with adaptive signals in place and improvements at Gumtree Rd. The improvements at Gumtree Rd are the same as what was included in Alternative 1, which keeps the intersections at-grade, reconfigures the intersection to improve its efficiency, and provides dual left-turn lanes for the westbound, northbound, and southbound approaches.

A bowtie intersection removes left-turns from the intersection and requires vehicles to make a right-turn at the signal rather than a left-turn. Vehicles must then navigate through roundabouts along the side-street to return to the signal and continue through. **Figure 4** shows an example of a bowtie intersection. Note that this is only an example and not a schematic drawing of William Hilton Pkwy.



FIGURE 4. EXAMPLE BOWTIE INTERSECTION (PROVIDED BY VIRGINIA DOT)

Bowtie intersections provide several benefits. They improve safety as fewer conflicting vehicle and pedestrian movements are allowed. Bowtie intersections have 12 fewer conflict points when compared to traditional intersections, which have 32 conflict points. Bowtie intersections also encourage lower vehicle speeds through the roundabouts. The size of main intersections can be reduced as left-turn lanes are removed. Lastly, bowtie intersections increases the efficiency of the signalized intersections as more of the signal time can go to the main through movements, improving traffic operations.

However, bowtie intersections require a change in decision making for drivers as all left-turn movements would be required to navigate the adjacent roundabouts at Squire Pope Rd and Spanish Wells Rd. Bowtie intersections also increases the amount of travel time for left-turning vehicles and require additional ROW for the roundabouts.

2045 Alternative 2 Traffic Volumes

The traffic volumes used for the 2045 Alternative 2 analysis were largely similar to the 2045 no build traffic volumes provided in Appendix C. However, given that the left-turns along William Hilton Pkwy were removed at Squire Pope Rd and Spanish Wells Rd, some traffic diversions were necessary. The 2045 Alternative 2 traffic volumes are provided in Appendix E.

It should be noted that Lochmueller agrees with the improvements proposed along William Hilton Pkwy between Moss Creek Dr and Crosstree Dr in Alternative 1. Therefore, those improvements were included in Alternative 2. As such, the traffic volumes at those intersections would be the same between Alternative 2 and Alternative 1.

2045 Alternative 2 Traffic Analysis

As agreed upon with The Town of Hilton Head, the traffic analysis was completed using Synchro 11. The 2045 Alternative 2 operating conditions were evaluated using the same methodology applied to the existing and no build conditions. The operating conditions for the 2045 Alternative 2 scenario are shown in **Table 12**.

As shown, the bowties at Squire Pope and Spanish Wells are expected to improve operations throughout the study area. Overall, the study intersections are expected to operate acceptably under Alternative 2. Each signalized intersection is expected to operate with a LOS D or better overall. However, side-street and unsignalized approaches may still experience long delays. Similar to Alternative 1, this is to be expected given the heavy volumes experienced along the mainline of William Hilton Pkwy and the inability of side-street traffic to find gaps in the mainline traffic to complete their movement.

TABLE 12. 2045 ALTERNATIVE 2 TRAFFIC OPERATING CONDITIONS (SYNCHRO)

Intersection & Movements	LOS (Delay, sec) [95 th Queue Length, ft] <v/c ratio>	
	AM Peak Hour	PM Peak Hour
9: Chamberlin Dr/Squire Pope Rd & William Hilton Pkwy (signal)		
Overall Intersection	B (16.3)	B (13.6)
Eastbound Approach	B (15.8) [394] <0.82>	B (14.7) [301] <0.65>
Westbound Approach	B (11.5) [253] <0.45>	B (11.3) [507] <0.95>
Northbound Approach	E (60.4) [277] <0.78>	D (44.0) [535] <0.94>
Southbound Approach	B (12.2) [87] <0.62>	D (51.8) [369] <0.82>
9A: Squire Pope North Bowtie (Roundabout)		
Overall Intersection	A (4.5)	A (5.5)
Eastbound Approach	A (3.7) [<25]	A (4.4) [<25]
Westbound Approach	A (3.4) [<25]	A (3.9) [<25]
Northbound Approach	A (4.2) [25]	A (5.1) [25]
Southbound Approach	A (4.7) [25]	A (5.9) [50]

9B: Chamberlin Dr South Bowtie (Roundabout)		
Overall Intersection	A (4.2)	A (4.9)
Eastbound Approach	A (3.4) [<25]	A (3.8) [<25]
Northbound Approach	A (3.5) [<25]	A (4.0) [<25]
Southbound Approach	A (4.2) [25]	A (5.0) [25]
10: Old Wild Horse Rd & William Hilton Pkwy (un-signalized)		
Southbound Approach	C (17.0) [80] <0.36>	F (51.5) [33] <0.20>
11: Spanish Wells Rd/Wild Horse Rd & William Hilton Pkwy (signal)		
Overall Intersection	C (23.7)	C (21.2)
Eastbound Approach	C (23.8) [519] <0.87>	B (15.5) [348] <0.69>
Westbound Approach	A (5.7) [118] <0.39>	B (16.9) [357] <0.94>
Northbound Approach	D (54.4) [486] <0.88>	E (58.9) [560] <0.94>
Southbound Approach	D (42.8) [369] <0.79>	C (29.4) [245] <0.81>
11A: Wild Horse Rd North Bowtie (Roundabout)		
Overall Intersection	A (6.1)	A (6.6)
Eastbound Approach	A (4.4) [<25]	A (4.7) [<25]
Northbound Approach	A (6.3) [50]	A (6.8) [50]
Southbound Approach	A (5.7) [25]	A (6.1) [25]
11B: Spanish Wells Rd South Bowtie (Roundabout)		
Overall Intersection	A (7.2)	A (6.2)
Eastbound Approach	A (4.7) [<25]	A (4.0) [<25]
Northbound Approach	A (7.9) [50]	A (6.9) [50]
Southbound Approach	A (6.6) [50]	A (5.4) [25]
12: Gumtree Rd & William Hilton Pkwy (signal)		
Overall Intersection	D (35.1)	D (36.5)
Eastbound Approach	D (40.2) [465] <0.88>	C (29.7) [360] <0.93>
Westbound Approach	B (19.4) [314] <0.41>	D (32.9) [455] <0.97>
Northbound Approach	C (32.2) [208] <0.75>	D (44.2) [341] <0.93>
Southbound Approach	E (57.8) [244] <0.86>	E (57.9) [275] <0.90>

In addition to the Synchro operating conditions, travel time calculations were performed in Synchro along the William Hilton Pkwy corridor between Moss Creek and Indigo Run. It should be noted that VISSIM provides more accurate travel time results than Synchro. However, for the purposes of comparing alternatives, the Synchro results are shown as they still provide a reasonable comparison. The scope of work will include a VISSIM analysis for the preferred alternative in which the travel time calculations will

be finalized. It is acknowledged that the travel time results from Synchro may understate the travel time calculations when compared to VISSIM.

Table 13 shows the changes in travel time for the 2045 Alternative 2 scenario when compared to the 2045 no build scenario. As shown, Alternative 2 is expected to improve the travel time along eastbound William Hilton Pkwy by approximately 15% during the AM peak period and westbound William Hilton Pkwy by approximately 36% during the PM peak period.

TABLE 13. TRAVEL TIME COMPARISON FOR ALTERNATIVE 2

Scenario		Difference in Travel Time (seconds) when Compared to 2045 No Build		% Difference	
		AM	PM	AM	PM
2045 Alternative 2: Bowties at Squire Pope and Spanish Wells	EB	-104	-39	-15.3%	-6.6%
	WB	+9	-290	1.4%	-36.4%

As previously noted, bowtie intersections may increase the total travel time for left-turning vehicles as they must alter their course to make a right-turn at the intersection and navigate through a roundabout to complete their movement. Therefore, the expected change in travel time was calculated in Synchro to better determine the additional time for the displaced left-turn movements. The changes in travel time are shown in **Table 14**. As shown, it could take an additional two minutes for a vehicle making a northbound left-turn at Squire Pope Rd to navigate through the bowtie intersection. However, several left-turning movements, such as the eastbound left-turn at Spanish Wells Rd, are actually expected to experience a decrease in travel time. This is likely due to the long delay those movements are expected to experience in the 2045 no build scenario.

TABLE 14. EXPECTED CHANGE IN TRAVEL TIME FOR LEFT-TURNING VEHICLES

Intersection		Difference in Travel Time (seconds) for Left-Turning Vehicles	
		AM	PM
Squire Pope	EB Left-Turn	+63	+42
	WB Left-turn	+82	+81
	NB Left-Turn	+101	+120
	SB Left-Turn	+44	+4
Spanish Wells	EB Left-Turn	-10	-26
	WB Left-turn	-13	-7
	NB Left-Turn	+89	-42
	SB Left-Turn	+43	+61

2045 Alternative 2 Right-of-Way Impacts

The proposed Bowtie configurations of Alternative 2 will require the 0.2 acre of additional right of way at Gumtree Rd as well as additional right of way along the crossroads to accommodate the construction of the roundabouts.

At the Squire Pope Rd intersection, the north roundabout would be located along Squire Pope Rd at Old Stony Ln, requiring approximately 0.2 acres of additional right of way from privately owned land. The south roundabout would be located at the end of Chamberlin Rd and would require approximately 0.4 acre of additional right of way from Town owned land.

At the Spanish Wells Rd intersection, the north roundabout would be located along Wild Horse Rd at Old Wild Horse Rd, requiring approximately 0.2 acre of additional right of way from Town owned land. The south roundabout would be located south of Humane Way and would require approximately 0.1 acre of additional right of way from Town owned land.

This alternative could potentially reduce the right of way required for the widening of William Hilton Pkwy by 0.5 acre or more due to the elimination of the left turn lanes at the intersections.

2045 Alternative 2 Environmental Analysis

As noted above, Alternative 2 would require 1.10 acres of additional ROW. The Town of Hilton Head owns 0.9 acre of the ROW that would need to be acquired. The additional ROW impacts are located within the Stoney and Squire Pope neighborhoods. The SCDOT EA determined that the Stoney neighborhood is an environmental justice community. The Squire Pope neighborhood was outside of the SCDOT EA investigation area but is also a Gullah community. The Gullah people are the only African American population in the US that have maintained a separate language and a distinct culture. Therefore, Squire Pope is likely an environmental justice community. The SCDOT recommended alternative was determined to have a “may affect- not likely to adversely affect” finding for threatened and endangered species. Alternative 2 is not anticipated to alter this finding. Coordination with the USFWS and the NOAA-NMFS would need to occur to affirm this finding. Alternative 2 would require additional impacts to the Stoney Traditional Cultural Property (TCP). The SCDOT identified the Stoney community as a TCP and as a resource eligible for inclusion in the National Register of Historic Places (NRHP). As a NRHP-eligible resource, it is also considered a Section 4(f) property. Alternative 2 would not result in additional impacts to hazardous materials sites, NWI wetlands, streams, floodplains, or essential fish habitat types. No additional relocations would occur as a result of Alternative 2. Please refer to the Technical Environmental Overview in Appendix H for additional details.

2045 Alternative 3: Echelon / Center Turn Overpass

Alternative 3 considers either an echelon or a center turn overpass at either Squire Pope Rd or Spanish Wells Rd. Echelons at both Squire Pope Rd and Spanish Wells Rd were not considered because there is not enough room for both intersections to be grade separated. The same can be said for why center turn overpasses were not considered at both Squire Pope and Spanish Wells.

Alternative 3 includes the adaptive signals in place as well as the previously detailed improvements at Gumtree Rd. The improvements at Gumtree Rd are the same as what was included in Alternative 1, which keeps the intersections at-grade, reconfigures the intersection to improve its efficiency, and provides dual left-turn lanes for the westbound, northbound, and southbound approaches.

An echelon is a grade-separate intersection where one approach on both roadways is elevated. For example, the northbound and eastbound approaches would be elevated and the southbound and westbound approaches would remain at-grade to create two intersections. Both intersections would be signalized and all pedestrian and bicycle movements would remain at-grade. **Figure 5** shows an example of an echelon. Note that this is only an example and not a schematic drawing of William Hilton Pkwy.

An echelon improves safety as fewer conflicting vehicle and pedestrian movements are allowed. Echelon intersections have 10 fewer conflict points when compared to traditional intersections (32 conflict points). They do not require a change in decision making for drivers as all movements would remain at-grade. Echelons increase the efficiency of the signalized intersections as more of the signal time can go to the main through movements, improving traffic operations. While each approach would likely need the same lane configurations as shown in Alternative 1, only two approaches would conflict.

However, echelons do require grade separation of intersections and large intersections would likely remain as all movements (left-turn, through, and right-turn) are still allowed.

A center turn overpass is also a grade-separated intersection which raises only the left-turn movements from the main intersection using ramps to create two intersections. Both intersections would be signalized and all pedestrian and bicycle movements would remain at-grade. **Figure 6** shows an example of a center turn overpass. Note that this is only an example and not a schematic drawing of William Hilton Pkwy.

A center turn overpass improves safety as fewer conflicting vehicle and pedestrian movements are allowed. Center turn overpass intersections have 8 fewer conflict points when compared to traditional intersections (32 conflict points). They increase the efficiency of the signalized intersections as more of the signal time can go to the main through movements, improving traffic operations and they reduce the size of intersections as left-turn lanes are removed at-grade.

However, similar to echelons, center turn overpasses require grade separate and large intersections would likely remain as all movements (left-turn, through, and right-turn) are still allowed.



FIGURE 5. EXAMPLE ECHELON (PROVIDED BY VIRGINIA DOT)



FIGURE 6. EXAMPLE CENTER TURN OVERPASS (PROVIDED BY VIRGINIA DOT)

2045 Alternative 3 Traffic Volumes

The traffic volumes used for the 2045 Alternative 3 analysis were largely similar to the 2045 no build traffic volumes provided in Appendix C. However the traffic volumes for the intersections impacted by Alternative 3 are provided in Appendix F.

It should be noted that Lochmueller agrees with the improvements proposed along William Hilton Pkwy between Moss Creek Dr and Crosstree Dr in Alternative 1. Therefore, those improvements were included in Alternative 3. As such, the traffic volumes at those intersections would be the same between Alternative 3 and Alternative 1.

2045 Alternative 3 Traffic Analysis

As agreed upon with The Town of Hilton Head, the traffic analysis was completed using Synchro 11. The 2045 Alternative 3 operating conditions were evaluated using the same methodology applied to the existing and no build conditions. The operating conditions for the 2045 Alternative 3 scenario are shown in **Table 15** through **Table 18**.

As shown, overall the study intersections are expected to operate acceptably under Alternative 3. Each signalized intersection is expected to operate with a LOS D or better overall for either configuration. Similar to the previous scenarios, side-street and unsignalized approaches may still experience long delays. The long queues and delay that are expected under the 2045 No Build Scenario would be expected to be improved overall.

It should be noted that while operating conditions overall would be expected to improve when compared to the 2045 no build conditions, some movements would be expected to experience failing levels of service. When considering an echelon at Squire Pope Rd, the southbound approach at Squire Pope Rd is expected to fail. This is caused by a reduction in green time for the heavy southbound right-turns. Additionally, when considering a center turn overpass at Squire Pope Rd, the northbound approach at Spanish Wells Rd is expected to experience failing operating conditions. This is due to the limited amount of green time allowed for this movement under this scenario. However, overall each option in Alternative 3 is an improvement when compared to the 2045 no build scenario.

TABLE 15. 2045 ALTERNATIVE 3 TRAFFIC OPERATING CONDITIONS – ECHELON AT SPANISH WELLS (SYNCHRO)

Intersection & Movements	LOS (Delay, sec) [95 th Queue Length, ft] <v/c ratio>	
	AM Peak Hour	PM Peak Hour
9: Chamberlin Dr/Squire Pope Rd & William Hilton Pkwy (signal)		
Overall Intersection	B (11.2)	C (20.4)
Eastbound Approach	B (12.4) [236] <0.75>	C (24.4) [478] <0.89>
Westbound Approach	A (7.7) [159] <0.48>	B (15.5) [332] <0.94>
Northbound Approach	D (41.3) [29] <0.03>	E (62.3) [77] <0.28>
Southbound Approach	B (16.7) [102] <0.57>	C (26.9) [274] <0.83>
10: Old Wild Horse Rd & William Hilton Pkwy (un-signalized)		
Southbound Approach	A (4.2) [37] <0.36>	A (4.8) [<25] <0.17>
11A: Wild Horse Rd & William Hilton Pkwy (signal) - Echelon		
Overall Intersection	B (10.8)	B (12.8)
Westbound Approach	A (7.2) [134] <0.38>	B (11.5) [249] <0.82>
Southbound Approach	C (34.5) [138] <0.58>	C (32.8) [131] <0.53>
11B: Spanish Wells Rd & William Hilton Pkwy (signal) - Echelon		
Overall Intersection	B (18.3)	B (12.4)
Eastbound Approach	B (17.3) [474] <0.95>	A (9.4) [288] <0.75>
Northbound Approach	C (28.1) [147] <0.72>	C (29.1) [233] <0.77>
12: Gumtree Rd & William Hilton Pkwy (signal)		
Overall Intersection	D (44.6)	D (44.2)
Eastbound Approach	D (53.1) [449] <0.88>	D (42.5) [406] <0.93>
Westbound Approach	C (30.0) [479] <0.38>	D (42.1) [824] <0.97>
Northbound Approach	C (33.3) [213] <0.75>	D (46.0) [356] <0.93>
Southbound Approach	E (59.5) [239] <0.86>	D (54.4) [274] <0.90>

TABLE 16. 2045 ALTERNATIVE 3 TRAFFIC OPERATING CONDITIONS - ECHELON AT SQUIRE POPE (SYNCHRO)

Intersection & Movements	LOS (Delay, sec) [95 th Queue Length, ft] <v/c ratio>	
	AM Peak Hour	PM Peak Hour
9A: Squire Pope Rd & William Hilton Pkwy (signal) - Echelon		
Overall Intersection	A (3.6)	C (35.0)
Westbound Approach	A (2.2) [57] <0.51>	A (8.4) [258] <0.95>
Southbound Approach	B (6.6) [156] <0.62>	F (250.5) [858] <1.02>
9B: Chamberlin Dr & William Hilton Pkwy (signal) - Echelon		
Overall Intersection	C (25.9)	A (4.6)
Eastbound Approach	C (25.9) [263] <0.66>	A (4.1) [167] <0.54>
Northbound Approach	C (26.9) [151] <0.05>	D (37.9) [66] <0.19>
10: Old Wild Horse Rd & William Hilton Pkwy (un-signalized)		
Southbound Approach	C (17.6) [85] <0.36>	B (12.7) [<25] <0.17>
11: Spanish Wells Rd/Wild Horse Rd & William Hilton Pkwy (signal)		
Overall Intersection	D (35.5)	D (39.6)
Eastbound Approach	D (45.0) [906] <0.99>	B (17.4) [369] <0.67>
Westbound Approach	B (11.8) [168] <0.69>	D (52.5) [984] <0.93>
Northbound Approach	D (43.2) [167] <0.51>	E (67.8) [239] <0.90>
Southbound Approach	E (61.3) [214] <0.98>	D (47.1) [166] <0.37>
12: Gumtree Rd & William Hilton Pkwy (signal)		
Overall Intersection	D (35.5)	D (42.4)
Eastbound Approach	D (44.9) [464] <0.87>	D (35.6) [399] <0.87>
Westbound Approach	B (17.1) [204] <0.41>	D (42.8) [801] <0.83>
Northbound Approach	C (28.7) [202] <0.75>	D (43.3) [364] <0.89>
Southbound Approach	D (52.7) [230] <0.77>	E (55.1) [260] <0.77>

TABLE 17. 2045 ALTERNATIVE 3 TRAFFIC OPERATING CONDITIONS - CENTER TURN OVERPASS AT SPANISH WELLS

Intersection & Movements	LOS (Delay, sec) [95 th Queue Length, ft] <v/c ratio>	
	AM Peak Hour	PM Peak Hour
9: Chamberlin Dr/Squire Pope Rd & William Hilton Pkwy (signal)		
Overall Intersection	B (12.6)	C (26.8)
Eastbound Approach	B (11.4) [210] <0.75>	D (39.0) [620] <0.81>
Westbound Approach	B (14.5) [306] <0.48>	B (16.3) [456] <0.96>
Northbound Approach	D (49.0) [<25] <0.07>	E (63.9) [64] <0.26>
Southbound Approach	B (14.7) [99] <0.58>	C (24.5) [292] <0.77>
10: Old Wild Horse Rd & William Hilton Pkwy (un-signalized)		
Southbound Approach	B (13.6) [78] <0.36>	E (46.6) [36] <0.20>
11A: Spanish Wells Rd/Wild Horse Rd & William Hilton Pkwy (signal)		
Overall Intersection	B (12.9)	A (8.8)
Eastbound Approach	B (13.8) [346] <0.87>	A (8.6) [271] <0.62>
Westbound Approach	A (5.9) [139] <0.64>	A (5.7) [135] <0.75>
Northbound Approach	C (32.4) [209] <0.81>	C (34.6) [146] <0.62>
Southbound Approach	E (59.8) [146] <0.51>	E (56.6) [186] <0.69>
11B: Spanish Wells Rd/Wild Horse Rd & William Hilton Pkwy (signal) – Center Turn Overpass		
Overall Intersection	B (19.1)	B (17.9)
Eastbound Approach	B (16.3) [58] <0.07>	B (12.2) [55] <0.08>
Northbound Approach	C (20.1) [102] <0.22>	B (19.2) [176] <0.46>
Southbound Approach	B (18.8) [32] <0.02>	B (16.9) [68] <0.11>
12: Gumtree Rd & William Hilton Pkwy (signal)		
Overall Intersection	D (36.7)	D (35.4)
Eastbound Approach	D (48.2) [465] <0.87>	C (31.9) [347] <0.93>
Westbound Approach	B (17.1) [337] <0.41>	C (30.9) [571] <0.97>
Northbound Approach	C (28.6) [203] <0.75>	D (37.4) [286] <0.93>
Southbound Approach	D (51.2) [234] <0.77>	E (58.8) [249] <0.90>

TABLE 18. 2045 ALTERNATIVE 3 TRAFFIC OPERATING CONDITIONS - CENTER TURN OVERPASS AT SQUIRE POPE (SYNCHRO)

Intersection & Movements	LOS (Delay, sec) [95 th Queue Length, ft] <v/c ratio>	
	AM Peak Hour	PM Peak Hour
9A: Chamberlin Dr/Squire Pope Rd & William Hilton Pkwy (signal)		
Overall Intersection	A (3.2)	A (9.3)
Eastbound Approach	A (3.5) [40] <0.78>	A (4.8) [139] <0.64>
Westbound Approach	A (2.0) [42] <0.43>	A (7.4) [234] <0.93>
Northbound Approach	D (37.3) [21] <0.05>	E (68.1) [67] <0.11>
Southbound Approach	A (6.1) [149] <0.77>	D (48.3) [387] <0.89>
9B: Chamberlin Dr/Squire Pope Rd & William Hilton Pkwy (signal) – Center Turn Overpass		
Overall Intersection	B (17.2)	B (10.0)
Eastbound Approach	B (15.9) [108] <0.21>	A (3.9) [70] <0.65>
Westbound Approach	B (10.6) [<25] <0.00>	A (4.1) [<25] <0.95>
Northbound Approach	B (18.8) [<25] <0.00>	E (56.2) [<25] <0.94>
Southbound Approach	C (21.8) [64] <0.10>	D (40.9) [77] <0.82>
10: Old Wild Horse Rd & William Hilton Pkwy (un-signalized)		
Southbound Approach	C (17.4) [77] <0.36>	E (42.4) [29] <0.20>
11: Spanish Wells Rd/Wild Horse Rd & William Hilton Pkwy (signal)		
Overall Intersection	C (32.4)	C (31.3)
Eastbound Approach	D (39.0) [771] <0.98>	B (17.6) [369] <0.68>
Westbound Approach	B (12.6) [149] <0.91>	C (22.1) [446] <0.99>
Northbound Approach	D (44.0) [162] <0.64>	F (157.4) [766] <1.28>
Southbound Approach	E (62.8) [220] <0.82>	E (57.9) [152] <0.85>
12: Gumtree Rd & William Hilton Pkwy (signal)		
Overall Intersection	D (35.8)	D (36.4)
Eastbound Approach	D (45.7) [473] <0.87>	C (32.5) [387] <0.93>
Westbound Approach	B (17.4) [263] <0.41>	C (33.5) [651] <0.97>
Northbound Approach	C (28.3) [199] <0.75>	D (36.4) [277] <0.93>
Southbound Approach	D (52.7) [228] <0.77>	E (56.5) [262] <0.90>

In addition to the Synchro operating conditions, travel time calculations were performed in Synchro along the William Hilton Pkwy corridor between Moss Creek and Indigo Run. It should be noted that VISSIM provides more accurate travel time results than Synchro. However, for the purposes of comparing alternatives, the Synchro results are shown as they still provide a reasonable comparison. The scope of work will include a VISSIM analysis for the preferred alternative in which the travel time calculations will be finalized. It is acknowledged that the travel time results from Synchro may understate the travel time calculations when compared to VISSIM.

Table 19 shows the changes in travel time for the 2045 Alternative 3 scenario when compared to the 2045 no build scenario. As shown, between the four options provided in Alternative 3, the travel time calculations indicate that the travel time along eastbound William Hilton Pkwy would improve between approximately 18-32% during the AM peak period and westbound William Hilton Pkwy would improve between approximately 41-60% during the PM peak period.

TABLE 19. TRAVEL TIME COMPARISON FOR ALTERNATIVE 3

Scenario		Difference in Travel Time (seconds) when Compared to 2045 No Build		% Difference	
		AM	PM	AM	PM
2045 Alternative 3: Echelon at Squire Pope	EB	-191	-68	-32.1%	-12.1%
	WB	-79	-407	-13.9%	-60.0%
2045 Alternative 3: Echelon at Spanish Wells	EB	-140	-11	-21.6%	-1.8%
	WB	-15	-331	-2.3%	-44.0%
2045 Alternative 3: Center Turn Overpass at Squire Pope	EB	-122	+23	-18.4%	3.5%
	WB	-21	-319	-3.3%	-41.6%
2045 Alternative 3: Center Turn Overpass at Spanish Wells	EB	-134	-17	-20.6%	-2.9%
	WB	-16	-339	-2.5%	-45.4%

2045 Alternative 3 Right-of-Way Impacts

The proposed Echelon or Center Turn Overpass configurations of Alternative 3 would still require the 0.2 acres of additional right of way at Gumtree Rd as well as additional right of way along William Hilton Pkwy for turn lanes and additional right of way along the crossroads to accommodate the construction of the turn arounds and/or roundabouts to maintain full access to parcels near the intersections.

At the Squire Pope Rd intersection, the north roundabout would be located along Squire Pope Rd at Old Stony Ln, requiring approximately 0.2 acres of additional right of way from privately owned land. The south roundabout would be located at the end of Chamberlin Rd and would require approximately 0.4 acres of additional right of way from Town owned land. Widening of Chamberlin Rd would require approximately 0.05 acres of additional right of way from private land and 0.05 acres of right of way from

Town owned land. Widening along the north side of William Hilton Pkwy will require approximately 0.1 acres of additional right of way from Town owned land.

At the Spanish Wells Rd intersection, the north roundabout would be located along Wild Horse Rd at Old Wild Horse Rd, requiring approximately 0.2 acres of additional right of way from Town owned land. The south turn around would require approximately 0.35 acres of additional right of way from private land. Widening along the south side of William Hilton Pkwy would require approximately 0.3 acres of additional right of way from Town owned land and approximately 0.05 acres of additional right of way from private land.

2045 Alternative 3 Environmental Analysis

The environmental impacts for Alternative 3 were evaluated for an echelon at the Squire Pope Road intersection and an echelon at the Spanish Wells Road/Wild Horse Road intersection. A center turn overpass would result in more impacts than an echelon at either intersection. Therefore, a center turn overpass was dismissed from further consideration.

An echelon at the Squire Pope intersection would require the 1.0 acre of additional ROW. The Town of Hilton Head owns 0.75 acre of the ROW that would need to be acquired. The additional ROW impacts are located within the Stoney and Squire Pope neighborhoods. The SCDOT EA determined that the Stoney neighborhood is an environmental justice community. The Squire Pope neighborhood is a Gullah community and is likely an environmental justice community. The SCDOT recommended preferred alternative was determined to have a “may affect- not likely to adversely affect” finding for threatened and endangered species. An echelon at the Squire Pope intersection is not anticipated to alter this finding. Coordination with the USFWS and the NOAA-NMFS would need to occur to affirm this finding. An echelon at Squire Pope Road would result in additional impacts to the Stoney TCP, a cultural resource and Section 4(f) property. The addition of a grade separated intersection at Squire Pope Road also has the potential to create visual barriers within the Stoney TCP. It would not result in additional impacts to hazardous materials sites, NWI wetlands, streams, floodplains, or essential fish habitat types. No additional relocations would occur as a result of Alternative 3.

An echelon at the Spanish Wells Road/ Wild Horse Road intersection would require 1.1 acres of additional ROW. The Town of Hilton Head owns 0.7 acre of the ROW that would need to be acquired. The additional ROW impacts are located within the Stoney and Squire Pope neighborhoods. The SCDOT EA determined that the Stoney neighborhood is an environmental justice community. The Squire Pope neighborhood is a Gullah neighborhood and likely an environmental justice community. The SCDOT recommended preferred alternative was determined to have a “may affect- not likely to adversely affect” finding for threatened and endangered species. An echelon at the Spanish Wells Road intersection is not anticipated to alter this finding. Coordination with the USFWS and the NOAA-NMFS would need to occur to affirm this finding. An echelon at Spanish Wells Road would result in 0.29 acre of additional impacts to floodplains. It would result in additional impacts to the Stoney TCP, a cultural resource and Section 4(f) property. It would also result in 0.03 acre of additional impacts to the public park at 152 William Hilton Pkwy, a Section 4(f) property. The addition of a grade separated intersection at Spanish Wells Road / Wild Horse Road also has the potential to create visual barriers within the Stoney TCP. An echelon at Spanish Wells Road would not result in additional impacts to hazardous materials sites, NWI wetlands, streams, or essential fish habitat types. No relocations would occur as a result of Alternative 3.

Please refer to the Technical Environmental Overview in Appendix H for additional details.

2045 Alternative 4: Elevated Bypass

Alternative 4 considers an elevated bypass which would begin west of Squire Pope Rd and end east of Gumtree Rd. The elevated bypass will take the four internal lanes, two in each direction, and elevate them over the study intersections. This would allow free-flow for the eastbound and westbound through traffic from just east of the Jenkins Island causeway to just west of Wilborn Road. One lane in each direction along William Hilton Parkway will remain at grade along with a separate eastbound right-turn lane at Squire Pope Rd, and left-turn lanes at Squire Pope Rd and Spanish Wells Rd. This allows for full access to be maintained at Squire Pope Rd and Spanish Wells Rd. Full access could also be provided at Old Wild Horse Rd, which is currently a right-in/right-out intersection, in this scenario.

The elevated bypass will directly connect to the Cross Island Pkwy. In the eastbound direction, the two eastbound lanes will expand to provide one lane to the Cross Island Pkwy, one lane to William Hilton Pkwy at-grade for access to Gumtree Rd, and two lanes will continue along the elevated bypass and connect to the at-grade section just east of Gumtree Rd, allowing through vehicles to also bypass Gumtree Rd. In the westbound direction, two lanes will be provided along William Hilton Pkwy just east of Gumtree Rd. These lanes will be reduced to one lane prior to the merge with the westbound Cross Island Pkwy ramp. The westbound Cross Island Pkwy ramp and the single elevated westbound bypass ramp will then merge into a two-lane elevated section.

Alternative 4 has the adaptive signals in place. However, the improvements needed at Gumtree Rd in Alternatives 1, 2, and 3 would no longer be needed. In fact, the Gumtree Rd intersection would be able to be reduced in size as most of the eastbound and westbound through traffic would remain on the bypass rather than navigating through the intersection. Similarly, the at-grade intersections at Squire Pope Rd and Spanish Wells Rd would also be able to be reduced in size. An elevated bypass would improve safety as fewer through vehicles would remain at grade, reducing the conflicts between vehicles and pedestrians. In addition, the efficiency of the at-grade signalized intersections would be increased despite the reduction in the size of the intersection. Lastly, the alternative provides the most room for growth along the corridor.

However, this alternative would be the most expensive and would result in the largest construction impact. Alternative 4 also requires grade separation and a change in decision making as drivers looking to continue traveling eastbound or westbound would need to enter the bypass, rather than go through the local intersections of Squire Pope Rd, Old Wildhorse Rd, and Spanish Wells Rd as they do today. Full access would still be provided at-grade. **Figure 7** through **Figure 10** provide an example of the elevated bypass.



FIGURE 7. EXAMPLE OF ELEVATED BYPASS - 01



FIGURE 8. EXAMPLE OF ELEVATED BYPASS - 02

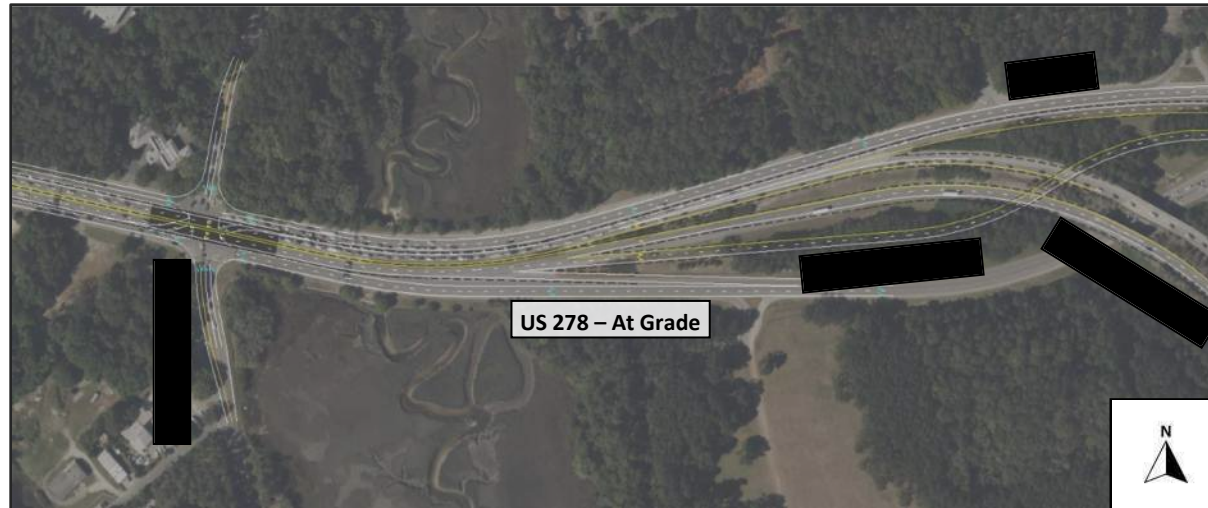


FIGURE 9. EXAMPLE OF ELEVATED BYPASS - 03



FIGURE 10. EXAMPLE OF ELEVATED BYPASS - 04

2045 Alternative 4 Traffic Volumes

The traffic volumes used for the 2045 Alternative 4 analysis were largely similar to the 2045 no build traffic volumes provided in Appendix C. However the traffic volumes for the intersections impacted by Alternative 4 are provided in Appendix G.

It should be noted that Lochmueller agrees with the improvements proposed along William Hilton Pkwy between Moss Creek Dr and Crosstree Dr in Alternative 1. Therefore, those improvements were included in Alternative 4. As such, the traffic volumes at those intersections would be the same between Alternative 4 and Alternative 1.

2045 Alternative 4 Traffic Analysis

As agreed upon with The Town of Hilton Head, the traffic analysis was completed using Synchro 11. The 2045 Alternative 4 operating conditions were evaluated using the same methodology applied to the existing and no build conditions. The operating conditions for the 2045 Alternative 4 scenario are shown in **Table 20**.

As shown, Squire Pope, Spanish Wells, and Gumtree would be expected to operate at an overall LOS C or better. Overall, the study intersections are expected to operate acceptably under Alternative 4. The signalized intersections throughout the corridor are expected to operate with a LOS C or better overall. Similar to the previous scenarios, side-street and unsignalized approaches throughout the corridor may still experience long delays. It should be noted that the results provided are for the at-grade intersections only and the operating conditions for the elevated bypass traffic are not provided in Synchro.

TABLE 20. 2045 ALTERNATIVE 4 TRAFFIC OPERATING CONDITIONS (SYNCHRO)

Intersection & Movements	LOS (Delay, sec) [95 th Queue Length, ft] <v/c ratio>	
	AM Peak Hour	PM Peak Hour
9: Chamberlin Dr/Squire Pope Rd & William Hilton Pkwy (signal)		
Overall Intersection	A (7.5)	A (9.6)
Eastbound Approach	A (4.1) [71] <0.23>	A (4.7) [75] <0.42>
Westbound Approach	A (6.5) [75] <0.27>	A (6.5) [120] <0.46>
Northbound Approach	A (6.7) [<25] <0.01>	C (31.8) [38] <0.19>
Southbound Approach	B (12.6) [58] <0.52>	B (16.1) [103] <0.74>
10: Old Wild Horse Rd & William Hilton Pkwy (un-signalized)		
Southbound Approach	B (3.3) [<25] <0.11>	B (11.9) [<25] <0.02>
11: Spanish Wells Rd/Wild Horse Rd & William Hilton Pkwy (signal)		
Overall Intersection	C (28.1)	C (27.9)
Eastbound Approach	B (13.2) [63] <0.43>	B (15.0) [71] <0.44>
Westbound Approach	C (24.6) [100] <0.60>	B (13.2) [55] <0.32>
Northbound Approach	C (27.0) [102] <0.65>	D (39.6) [132] <0.78>
Southbound Approach	D (47.1) [161] <0.75>	D (46.5) [136] <0.73>

12: Gumtree Rd & William Hilton Pkwy (signal)		
Overall Intersection	C (26.0)	C (28.5)
Eastbound Approach	B (17.1) [115] <0.25>	C (29.9) [142] <0.28>
Westbound Approach	B (10.9) [142] <0.33>	B (17.3) [205] <0.54>
Northbound Approach	C (30.4) [212] <0.70>	C (33.6) [266] <0.81>
Southbound Approach	D (42.9) [250] <0.80>	C (34.1) [211] <0.83>

In addition to the Synchro operating conditions, travel time calculations were performed in Synchro along the William Hilton Pkwy corridor between Moss Creek and Indigo Run. It should be noted that VISSIM provides more accurate travel time results than Synchro. However, for the purposes of comparing alternatives, the Synchro results are shown as they still provide a reasonable comparison. The scope of work will include a VISSIM analysis for the preferred alternative in which the travel time calculations will be finalized. It is acknowledged that the travel time results from Synchro may understate the travel time calculations when compared to VISSIM.

Table 21 shows the changes in travel time for the 2045 Alternative 4 scenario when compared to the 2045 no build scenario. As shown, Alternative 4 is expected to improve the travel time along the remaining at grade eastbound William Hilton Pkwy by approximately 19% during the AM peak period and at grade westbound William Hilton Pkwy by approximately 44% during the PM peak period. It should be noted that the travel times reflect operations of at-grade intersections only. VISSIM software will allow for modeling of bypass itself and will therefore yield greater reductions in travel times than those shown in the table.

TABLE 21. TRAVEL TIME COMPARISON FOR ALTERNATIVE 4

Scenario	Difference in Travel Time (seconds) when Compared to 2045 No Build		% Difference		
	AM	PM	AM	PM	
2045 Alternative 4: Elevated Bypass	EB	-126	27	-19.1%	4.1%
	WB	+4	-330	0.5%	-43.7%

2045 Alternative 4 Right-of-Way Impacts

The proposed Elevated Bypass Alternative can be constructed within the proposed right of way footprint of the SCDOT Preferred alternative and, unlike the other alternatives, would not adding turn lanes to the Gumtree Rd intersection and the additional strip of right of way required by those improvements, resulting in no additional right of way being required for this alternative.

2045 Alternative 4 Environmental Analysis

Alternative 4 would impact an additional 0.03 acre of National Wetland Inventory (NWI) wetlands and an additional 0.03 acre of essential fish habitats. Approximately 65 linear feet of Jarvis Creek would be impacted. Alternative 4 would require no additional ROW. The SCDOT recommended preferred alternative was determined to have a “may affect- not likely to adversely affect” finding for threatened

and endangered species. Alternative 4 is not anticipated to alter this finding. Coordination with the USFWS and the NOAA-NMFS would need to occur to affirm this finding.

The Honey Horn Plantation is a collection of historic farm buildings and landscape and would be considered a Section 4(f) resource. It is also home to the Coastal Discovery Museum, which educates the public on the region's cultural and natural history. Alternative 4 intersects the current boundary of Honey Horn plantation according to the South Carolina Department of Archives and History website. This is unlikely to be considered a Section 4(f) use as the proposed improvements associated with this alternative would occur entirely within existing transportation ROW. Therefore, there is likely no conversion of the resource from a non-transportation use to a transportation one. The current boundary of the site extends into the existing footprint of U.S. 278. However, this part of the site has likely been disturbed by previous construction. Further investigation and coordination with the applicable agencies would be needed to determine the exact cultural and Section 4(f) impacts to this site. No additional relocations would be required. The addition of an elevated bypass lane on a combination of fill or structure also has the potential to create visual barriers within the Stoney TCP. However, this alternative would not result in additional encroachment on the Stoney TCP and, as such, is not quantified as a direct impact. No additional impacts to hazardous materials sites, neighborhoods, or environmental justice communities are anticipated. No impacts to floodplains are anticipated. Please refer to the Technical Environmental Overview in Appendix H for additional details.

Summary of Alternative Analysis

Based on the preceding analysis, a detailed matrix was prepared for each subcategory to compare alternatives. The matrix for traffic operations is presented in **Table 22**.

TABLE 22. TRAFFIC OPERATIONS OVERVIEW MATRIX

Resource/Category	Alternative 1 (Mod. SCDOT Recommended Preferred)	Alternative 2 (Bowties at Squire Pope and Spanish Wells)	Alternative 3 (Echelon / Center Turn Overpass)	Alternative 4 (Elevated Bypass)
Travel Time along US 278	4	4	2	1
Overall Intersection Operations	4	3	3	1
Side-Street Operations	4 Movements with a LOS F at a signalized intersection: Squire Pope: • Northbound approach (PM)	2 No movements have a LOS F at a signalized intersection. However, some movements are expected to have a LOS E at signalized intersections between Squire Pope and Gumtree.	4 Movements with a LOS F at a signalized intersection: <u>Echelon at Squire Pope:</u> Squire Pope: • Southbound approach (PM) <u>Center Turn Overpass at Squire Pope:</u> • Spanish Wells: Northbound Approach (PM)	1 All movements are expected to have a LOS D or better at signalized intersections between Squire Pope and Gumtree.
TOTAL	12	9	9	3
RANK	4	3	3	1

The matrix for bicycle and pedestrian impact is presented in **Table 23**.

TABLE 23. BICYCLE AND PEDESTRIAN OVERVIEW MATRIX

Resource/Category	Alternative 1 (Mod. SCDOT Recommended Preferred)	Alternative 2 (Bowties at Squire Pope and Spanish Wells)	Alternative 3 (Echelon / Center Turn Overpass)	Alternative 4 (Elevated Bypass)
Pedestrian Crossing Distance	Longest pedestrian crossing distances.	Reduced pedestrian crossing distances and exposure to motor vehicle traffic.	Reduced pedestrian crossing distances and exposure to motor vehicle traffic.	Reduced pedestrian crossing distances and exposure to motor vehicle traffic.
Potential for Refuge Islands	No refuge islands on north- south crossings.	Potential for median refuge island on east and west crosswalk legs at Squire Pope	Refuge islands between directional traffic allow pedestrians to more comfortably navigate the complex intersection.	Refuge islands between directional traffic allow pedestrians to more comfortably navigate the complex intersection; HOWEVER, multiple refuge islands per leg and long end- to-end crossing distances increase intersection complexity and the likelihood of pedestrians needing two or more stages to complete a north-south crossing.
Conflict Points	Multiple turning movements and potential conflict points along each leg.	Fewer ped/vehicle conflict points and vehicle turning movements.	Fewer ped/vehicle conflict points and vehicle turning movements.	Fewer ped/vehicle conflict points and vehicle turning movements.

The matrix for right-of-way impact is presented in **Table 24**.

TABLE 24. RIGHT-OF-WAY OVERVIEW MATRIX

Resource/Category	Alternative 1 (Mod. SCDOT Recommended Preferred)	Alternative 2 (Bowties at Squire Pope and Spanish Wells)	Alternative 3 (Echelon / Center Turn Overpass)	Alternative 4 (Elevated Bypass)
Estimated Additional Right of Way Acres – Public	0.2 ac	0.9 ac	0.7 ac	0 ac
<u>Estimated Additional Right of Way Acres – Private</u>	<u>0.0 ac</u>	<u>0.2 ac</u>	<u>0.4 ac</u>	
Approx. TOTAL Additional Right of Way Acres	0.2 ac	1.1 ac	1.1 ac	
Right of Way Score	2	4	4	1
Estimated Cost	\$426	\$430M	\$440M to \$450M	\$545M to \$575M
Cost Score	1	2	3	4
Estimated Construction Duration	36 months	38 months	42 months	48 months
Construction Duration Score	1	2	3	4
TOTAL	4	8	10	9
RANK	1	2	4	3

The matrix for environmental impacts is presented in **Table 25**.

TABLE 25. ENVIRONMENTAL OVERVIEW MATRIX

Resource/Category	Alternative 1	Alternative 2	Alternative 3	Alternative 4
NWI Wetlands	1	1	1	4
Streams	1	1	1	4
Floodplains	1	1	4	1
Essential Fish Habitat	1	1	1	4
Threatened & Endangered Species	1	1	1	1
Hazardous Material Sites	1	1	1	1
Relocations	1	1	1	1
Right-of-Way	2	4	4	1
Neighborhoods	2	4	4	1
Environmental Justice	2	4	4	1
Cultural Resources	1	4	4	4
Section 4(f) Resources	1	3	4	1
Total	15	26	30	24
Rank	1	3	4	2

Conclusions

Lochmueller Group evaluated the 2023 existing conditions, 2045 no build conditions, and four alternatives for the year 2045. Based on the preceding analysis, an overall matrix was prepared to compare each alternative. A score of 1 is the highest ranking, whereas a score of 4 is the lowest ranking. As shown, in **Table 26**, Alternative 1 ranked first with a total score of 20. Alternative 4 ranked second with a total score of 21. Alternative 2 ranked third with a total score of 24, and Alternative 3 ranked last with a total score of 28.

TABLE 26. OVERALL SCORING MATRIX

Resource/Category	Alternative 1 (Mod. SCDOT Recommended Preferred)	Alternative 2 (Bowties at Squire Pope and Spanish Wells)	Alternative 3 (Echelon / Center Turn Overpass)	Alternative 4 (Elevated Bypass)
Traffic Operations (Throughput and Traffic Simulations)	4	3	3	1
ROW Impact	2	4	4	1
Environmental Impact	1	3	4	2
Safety	4	3	3	1
Bike/Pedestrian Impact	4	3	1	2
Community and Social Impact	1	3	4	2
Aesthetic	2	1	3	4
Cost	1	2	3	4
Construction Duration	1	2	3	4
TOTAL	20	24	28	21
RANK	1	3	4	2

May 3, 2024

Page 59

Appendix

Appendix A. 2023 Existing Traffic Volumes

Appendix B. Growth Rate Memorandum

Appendix C. 2045 No Build Traffic Volumes

Appendix D. 2045 Alternative 1 Traffic Volumes

Appendix E. 2045 Alternative 2 Traffic Volumes

Appendix F. 2045 Alternative 3 Traffic Volumes

Appendix G. 2045 Alternative 4 Traffic Volumes

Appendix H. Technical Environmental Overview Memo

Appendix A. 2023 Existing Traffic Volumes

2023 Existing Traffic Volumes



AM Peak Hour Volumes PM Peak Hour Volumes

<p>1</p>	<p>1</p>
<p>2</p>	<p>2</p>
<p>3</p>	<p>3</p>
<p>4</p>	<p>4</p>

2023 Existing Traffic Volumes



AM Peak Hour Volumes PM Peak Hour Volumes

<p>5</p>	<p>5</p>
<p>6</p>	<p>6</p>
<p>7</p>	<p>7</p>
<p>8</p>	<p>8</p>

2023 Existing Traffic Volumes



AM Peak Hour Volumes PM Peak Hour Volumes

<p>9</p> <p>212 0 45 2</p> <p>43 1425 2</p> <p>US 278 156 2620 2</p> <p>2 2 0 5</p>	<p>9</p> <p>341 2 2</p> <p>57 2687 2</p> <p>US 278 222 1992 29</p> <p>2 25 2</p>
<p>10</p> <p>76</p> <p>20 1394</p> <p>US 278 2670</p>	<p>10</p> <p>10</p> <p>64 2736</p> <p>US 278 2035</p>
<p>11</p> <p>12 70 127</p> <p>56 1281 71</p> <p>US 278 43 2481 146</p> <p>121 43 121</p>	<p>11</p> <p>33 78 62</p> <p>84 2508 31</p> <p>US 278 51 1869 115</p> <p>259 47 60</p>
<p>12</p> <p>92 179 212</p> <p>189 775 193</p> <p>US 278 154 1527 6</p> <p>8 144 290</p>	<p>12</p> <p>107 183 242</p> <p>326 1542 195</p> <p>US 278 125 1065 23</p> <p>224 207 277</p>

2023 Existing Traffic Volumes



AM Peak Hour Volumes PM Peak Hour Volumes

<p>13</p> <p>181 77 244</p> <p>302 953 2</p> <p>US 278 253 1708 68</p> <p>23 45 0</p>	<p>13</p> <p>246 8 86</p> <p>64 1761 4</p> <p>US 278 113 1422 49</p> <p>56 8 10</p>
<p>14</p> <p>45 12 18</p> <p>31 953 33</p> <p>US 278 80 1631 241</p> <p>259 21 37</p>	<p>14</p> <p>51 27 14</p> <p>27 1462 31</p> <p>US 278 57 1258 203</p> <p>316 35 37</p>
<p>15</p> <p>20</p> <p>20 997 5</p> <p>US 278 5 1676 5</p> <p>5</p>	<p>15</p> <p>5</p> <p>21 1515 5</p> <p>US 278 5 1299 2</p> <p>10</p>
<p>16</p> <p>111 68 214</p> <p>166 862 33</p> <p>US 278 129 1415 55</p> <p>80 51 33</p>	<p>16</p> <p>10</p> <p>10 1531</p> <p>US 278 1304 5</p> <p>59</p>
<p>17</p> <p>10</p> <p>41 1012</p> <p>US 278 1589 92</p> <p>10</p>	<p>17</p> <p>111 115 251</p> <p>304 1366 51</p> <p>US 278 164 1152 47</p> <p>64 115 49</p>

2023 Existing Traffic Volumes



AM Peak Hour Volumes

PM Peak Hour Volumes

18	<p>6 ←</p> <p>374 →</p> <p>2 ←</p> <p>0 →</p> <p>Honey Horn Rd</p>	<p>Cross Island Pkwy SB</p>
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18	<p>8 ←</p> <p>397 →</p> <p>40 ←</p> <p>15 →</p> <p>Honey Horn Rd</p>	<p>Cross Island Pkwy SB</p>
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19	<p>36 ←</p> <p>0 →</p> <p>23 ←</p> <p>225 →</p> <p>242 →</p> <p>Marshland Rd</p>	<p>Cross Island Pkwy SB</p> <p>140 ←</p> <p>115 →</p>
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19	<p>78 ←</p> <p>2 →</p> <p>61 ←</p> <p>130 →</p> <p>135 →</p> <p>Marshland Rd</p>	<p>Cross Island Pkwy SB</p> <p>420 ←</p> <p>137 →</p>
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20	<p>126 ←</p> <p>122 →</p> <p>Cross Island Pkwy NB</p>	<p>79 ←</p> <p>184 →</p> <p>71 ←</p> <p>58 →</p> <p>Marshland Rd</p>
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20	<p>48 ←</p> <p>143 →</p> <p>Cross Island Pkwy NB</p>	<p>37 ←</p> <p>305 →</p> <p>252 ←</p> <p>142 →</p> <p>Marshland Rd</p>
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2023 Existing Traffic Volumes



AM Peak Hour Volumes

PM Peak Hour Volumes

21	<p>0 ←</p> <p>1714 →</p> <p>0 ←</p> <p>5 →</p> <p>Bay Pines Rd</p>	<p>Palmetto Bay</p> <p>5 ←</p> <p>899 →</p>
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21	<p>10 ←</p> <p>1313 →</p> <p>10 ←</p> <p>10 →</p> <p>Bay Pines Rd</p>	<p>Palmetto Bay</p> <p>20 ←</p> <p>1721 →</p>
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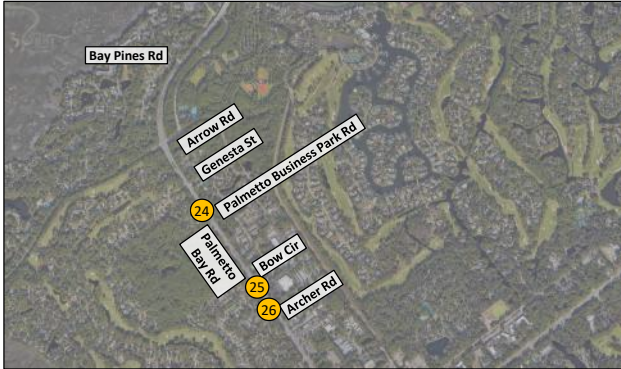
22	<p>53 ←</p> <p>1343 →</p> <p>223 ←</p> <p>114 →</p> <p>15 ←</p> <p>138 →</p> <p>Arrow Rd</p>	<p>Palmetto Bay</p> <p>118 ←</p> <p>11 →</p> <p>38 ←</p> <p>672 →</p> <p>34 →</p>
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22	<p>86 ←</p> <p>1062 →</p> <p>175 ←</p> <p>67 →</p> <p>29 ←</p> <p>93 →</p> <p>Arrow Rd</p>	<p>Palmetto Bay</p> <p>328 ←</p> <p>36 →</p> <p>38 ←</p> <p>120 →</p> <p>1346 →</p> <p>76 →</p>
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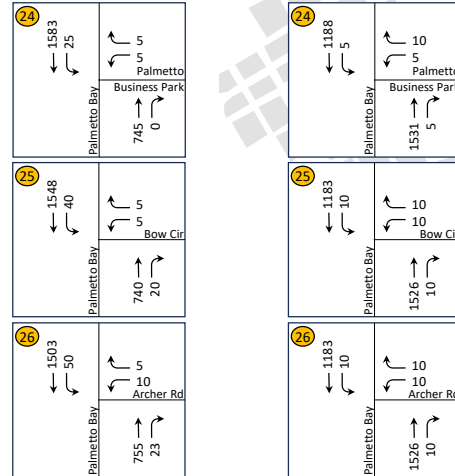
23	<p>1603 ←</p> <p>16 →</p> <p>Palmetto Bay</p>	<p>5 ←</p> <p>5 →</p> <p>745 ←</p> <p>5 →</p> <p>Genesta St</p>
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23	<p>1188 ←</p> <p>5 →</p> <p>5 ←</p> <p>5 →</p> <p>Genesta St</p>	<p>5 ←</p> <p>5 →</p> <p>1537 ←</p> <p>4 →</p> <p>Palmetto Bay</p>
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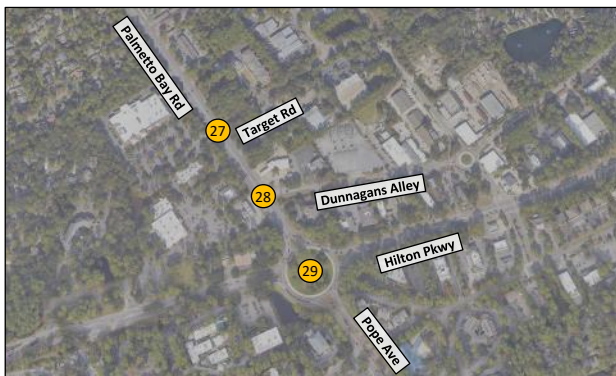
2023 Existing Traffic Volumes



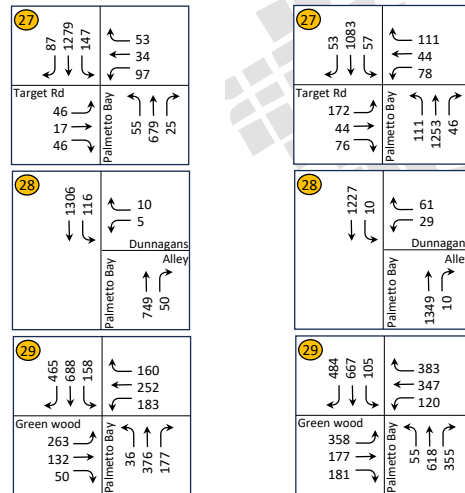
AM Peak Hour Volumes PM Peak Hour Volumes



2023 Existing Traffic Volumes



AM Peak Hour Volumes PM Peak Hour Volumes



May 3, 2024

Appendix B

Appendix B. Growth Rate Memorandum

MEMORANDUM

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 Trends¹

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 Trend¹

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 Projections²

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 Site³. **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 Bridge³

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 R² 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 R² 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)

May 3, 2024
Appendix C

Appendix C. 2045 No Build Traffic Volumes

2045 No Build Traffic Volumes

- 0.56% Annual Growth Rate Applied



AM Peak Hour Volumes PM Peak Hour Volumes

Location	AM Peak Hour Volumes	PM Peak Hour Volumes																														
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2045 No Build Traffic Volumes

- 0.56% Annual Growth Rate Applied



AM Peak Hour Volumes PM Peak Hour Volumes

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2045 No Build Traffic Volumes

- 0.56% Annual Growth Rate Applied



AM Peak Hour Volumes PM Peak Hour Volumes

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AM Peak Hour Volumes PM Peak Hour Volumes

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2045 No Build Traffic Volumes

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AM Peak Hour Volumes PM Peak Hour Volumes

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2045 No Build Traffic Volumes

- 0.56% Annual Growth Rate Applied



AM Peak Hour Volumes PM Peak Hour Volumes

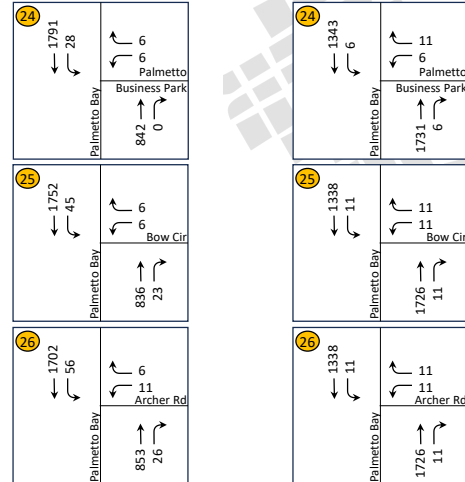
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2045 No Build Traffic Volumes

- 0.56% Annual Growth Rate Applied



AM Peak Hour Volumes PM Peak Hour Volumes

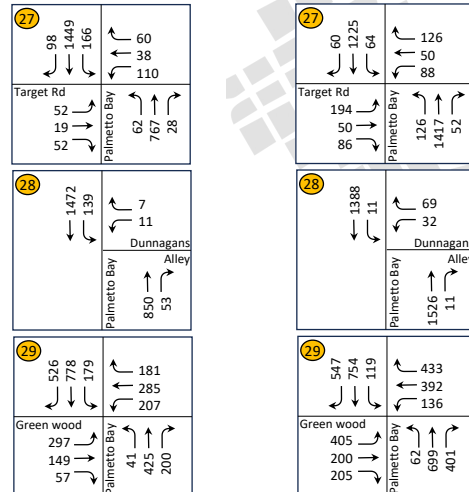


2045 No Build Traffic Volumes

- 0.56% Annual Growth Rate Applied



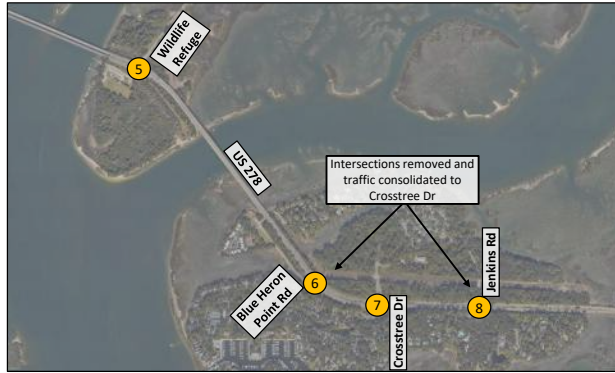
AM Peak Hour Volumes PM Peak Hour Volumes



Appendix D. 2045 Alternative 1 Traffic Volumes

*Note: Volumes not shown are the same as the 2045 No Build Traffic Volumes

2045 Alternative 1. Modified Recommended Traffic Volumes



AM Peak Hour Volumes

PM Peak Hour Volumes

5	
6	
7	
8	

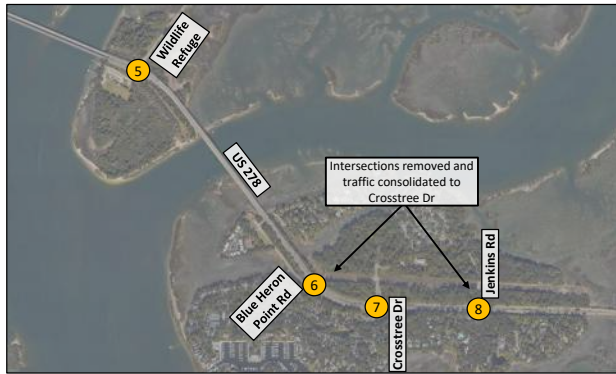
5	
6	
7	
8	

May 3, 2024
Appendix E

Appendix E. 2045 Alternative 2 Traffic Volumes

*Note: Volumes not shown are the same as the 2045 No Build Traffic Volumes

2045 Alternative 2. Bowties at Spanish Wells and Squire Pope Traffic Volumes



AM Peak Hour Volumes PM Peak Hour Volumes

<p>5</p> <p>US 278 3124 → Wildlife Refuge 7 ← Wildlife Refuge 2 →</p>	<p>5</p> <p>US 278 2499 → Wildlife Refuge 10 ← Wildlife Refuge 12 →</p>
<p>6</p> <p>US 278 3126 → Blue Heron Point Rd ← 1837</p>	<p>6</p> <p>US 278 2511 → Blue Heron Point Rd ← 3405</p>
<p>7</p> <p>US 278 3080 → Crosstree Dr 39 ← Crosstree Dr 8 → Wildlife Refuge 0 ← Wildlife Refuge 5 → Jenkins Rd 18 ← Jenkins Rd 0 → Blue Heron Point Rd 56 ← Blue Heron Point Rd</p>	<p>7</p> <p>US 278 2457 → Crosstree Dr 43 ← Crosstree Dr 11 → Wildlife Refuge 17 ← Wildlife Refuge 1 → Jenkins Rd 3353 ← Jenkins Rd 57 → Blue Heron Point Rd 73 ← Blue Heron Point Rd</p>
<p>8</p> <p>Jenkins Rd ← 1854 US 278 3141 →</p>	<p>8</p> <p>Jenkins Rd ← 3427 US 278 2537 →</p>

2045 Alternative 2. Bowties at Spanish Wells and Squire Pope Traffic Volumes



AM Peak Hour Volumes PM Peak Hour Volumes

<p>9A</p> <p>Squire Pope Rd ← 1 ← 292 ← 1 1 → Squire Pope Rd 1 → Squire Pope Rd 1 → Squire Pope Rd 4 → Squire Pope Rd 225 → Squire Pope Rd 1 →</p>	<p>9A</p> <p>Squire Pope Rd ← 1 ← 435 ← 1 1 → Squire Pope Rd 1 → Squire Pope Rd 1 → Squire Pope Rd 4 → Squire Pope Rd 341 → Squire Pope Rd 1 →</p>
<p>9</p> <p>US 278 243 → Squire Pope Rd 53 ← Squire Pope Rd 2963 → Squire Pope Rd 178 ← Squire Pope Rd 178 → Squire Pope Rd 57 ← Squire Pope Rd</p>	<p>9</p> <p>US 278 389 → Squire Pope Rd 50 ← Squire Pope Rd 2253 → Squire Pope Rd 284 ← Squire Pope Rd 279 → Squire Pope Rd 48 ← Squire Pope Rd</p>
<p>9B</p> <p>Squire Pope Rd ← 1 ← 2 ← 229 1 → Squire Pope Rd 1 → Squire Pope Rd 1 → Squire Pope Rd 1 → Squire Pope Rd 6 →</p>	<p>9B</p> <p>Squire Pope Rd ← 1 ← 37 ← 297 1 → Squire Pope Rd 1 → Squire Pope Rd 1 → Squire Pope Rd 1 → Squire Pope Rd 30 →</p>
<p>10</p> <p>Old Wildhorse Rd ← 86 ← 23 ← 1577 US 278 3020 →</p>	<p>10</p> <p>Old Wildhorse Rd ← 11 ← 73 ← 3094 US 278 2301 →</p>

2045 Alternative 2. Bowties at Spanish Wells and Squire Pope Traffic Volumes



AM Peak Hour Volumes

PM Peak Hour Volumes

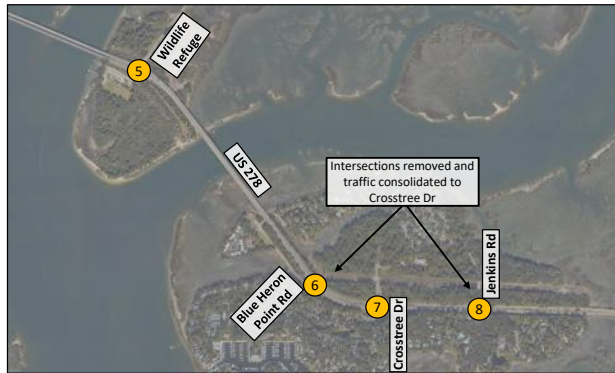
<p>11A</p> <p>Old Wild Rd Spanish Wells Rd</p> <p>Horse Rd</p> <p>1 1</p> <p>237 217</p> <p>1 1</p> <p>261</p>
<p>11</p> <p>151 303</p> <p>143 1449</p> <p>US 278</p> <p>Spanish Wells Rd</p> <p>2806 214</p> <p>335 281</p>
<p>11B</p> <p>1 324 193</p> <p>1 1</p> <p>Spanish Wells Rd</p> <p>Spanish Wells Rd</p> <p>1 1</p> <p>423</p>
<p>12</p> <p>104 202 240</p> <p>214 876 218</p> <p>Gumtree Rd</p> <p>US 278</p> <p>174 1727 7</p> <p>9 163 328</p>

<p>11A</p> <p>Old Wild Rd Spanish Wells Rd</p> <p>Horse Rd</p> <p>1 1</p> <p>195 328</p> <p>1 1</p> <p>206</p>
<p>11</p> <p>330 193</p> <p>130 2837</p> <p>US 278</p> <p>Spanish Wells Rd</p> <p>2113 188</p> <p>404 138</p>
<p>11B</p> <p>1 253 128</p> <p>1 1</p> <p>Spanish Wells Rd</p> <p>Spanish Wells Rd</p> <p>1 1</p> <p>414</p>
<p>12</p> <p>121 207 274</p> <p>369 1745 220</p> <p>Gumtree Rd</p> <p>US 278</p> <p>141 1204 26</p> <p>100 234 313</p>

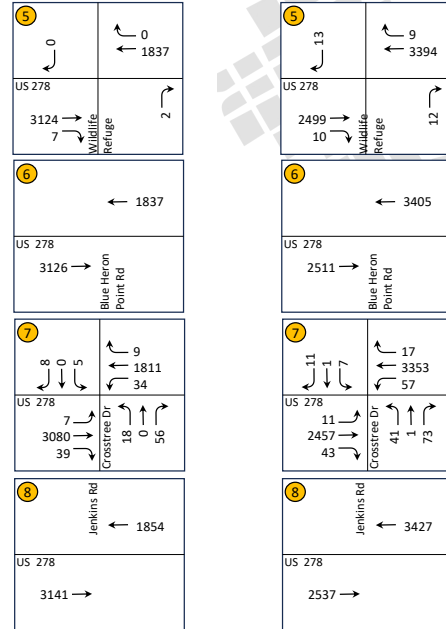
Appendix F. 2045 Alternative 3 Traffic Volumes

*Note: Volumes not shown are the same as the 2045 No Build Traffic Volumes

2045 Alternative 3. Echelon at Spanish Wells Traffic Volumes



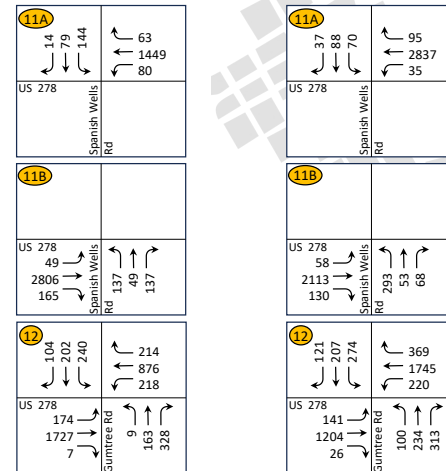
AM Peak Hour Volumes PM Peak Hour Volumes



2045 Alternative 3. Echelon at Spanish Wells Traffic Volumes



AM Peak Hour Volumes PM Peak Hour Volumes



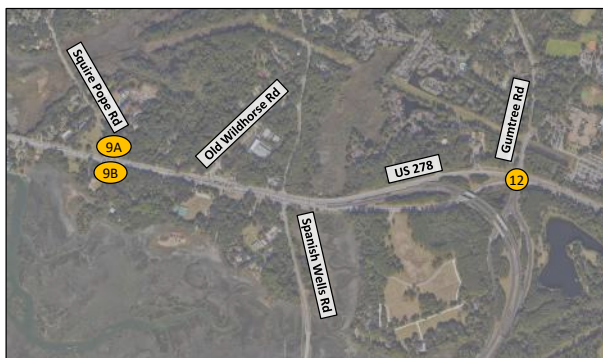
2045 Alternative 3. Echelon at Squire Pope Traffic Volumes



AM Peak Hour Volumes PM Peak Hour Volumes

<p>5</p> <p>US 278</p> <p>3124 →</p> <p>7 ↓</p> <p>Waldille Refuge</p> <p>← 0</p> <p>← 1837</p> <p>← 2</p>	<p>5</p> <p>US 278</p> <p>2499 →</p> <p>10 ↓</p> <p>Waldille Refuge</p> <p>← 13</p> <p>← 3394</p> <p>← 12</p>
<p>6</p> <p>US 278</p> <p>3126 →</p> <p>Blue Heron Point Rd</p> <p>← 1837</p>	<p>6</p> <p>US 278</p> <p>2511 →</p> <p>Blue Heron Point Rd</p> <p>← 3405</p>
<p>7</p> <p>US 278</p> <p>3080 →</p> <p>39 ↓</p> <p>Crosstree Dr</p> <p>← 8</p> <p>← 0</p> <p>← 5</p> <p>← 18</p> <p>← 0</p> <p>← 56</p> <p>← 9</p> <p>← 1811</p> <p>← 34</p>	<p>7</p> <p>US 278</p> <p>2457 →</p> <p>43 ↓</p> <p>Crosstree Dr</p> <p>← 11</p> <p>← 1</p> <p>← 1</p> <p>← 41</p> <p>← 1</p> <p>← 73</p> <p>← 17</p> <p>← 3353</p> <p>← 57</p>
<p>8</p> <p>US 278</p> <p>3141 →</p> <p>Jenkins Rd</p> <p>← 1854</p>	<p>8</p> <p>US 278</p> <p>2537 →</p> <p>Jenkins Rd</p> <p>← 3427</p>

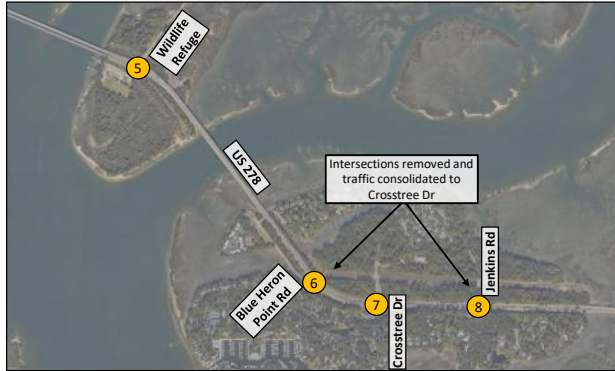
2045 Alternative 3. Echelon at Squire Pope Traffic Volumes



AM Peak Hour Volumes PM Peak Hour Volumes

<p>9A</p> <p>US 278</p> <p>2431 →</p> <p>0 ↓</p> <p>51 ↓</p> <p>Squire Pope Rd</p> <p>← 49</p> <p>← 1612</p> <p>← 2</p>	<p>9A</p> <p>US 278</p> <p>3877 →</p> <p>2 ↓</p> <p>46 ↓</p> <p>Squire Pope Rd</p> <p>← 64</p> <p>← 3039</p> <p>← 2</p>
<p>9B</p> <p>US 278</p> <p>176 →</p> <p>2963 →</p> <p>2 ↓</p> <p>Squire Pope Rd</p> <p>← 2</p> <p>← 0</p> <p>← 6</p>	<p>9B</p> <p>US 278</p> <p>251 →</p> <p>2253 →</p> <p>33 ↓</p> <p>Squire Pope Rd</p> <p>← 2</p> <p>← 28</p> <p>← 2</p>
<p>12</p> <p>US 278</p> <p>174 →</p> <p>1727 →</p> <p>7 ↓</p> <p>Gumtree Rd</p> <p>← 104</p> <p>← 202</p> <p>← 240</p> <p>← 9</p> <p>← 165</p> <p>← 328</p> <p>← 214</p> <p>← 876</p> <p>← 218</p>	<p>12</p> <p>US 278</p> <p>141 →</p> <p>1204 →</p> <p>26 ↓</p> <p>Gumtree Rd</p> <p>← 121</p> <p>← 207</p> <p>← 274</p> <p>← 100</p> <p>← 234</p> <p>← 313</p> <p>← 369</p> <p>← 1745</p> <p>← 220</p>

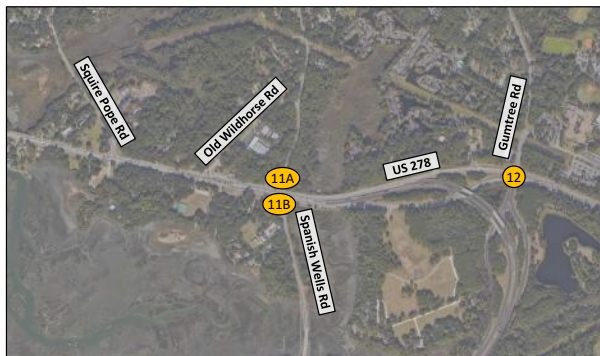
2045 Alternative 3. Center Turn Overpass at Spanish Wells Traffic Volumes



AM Peak Hour Volumes PM Peak Hour Volumes

<p>5</p>	<p>5</p>
<p>6</p>	<p>6</p>
<p>7</p>	<p>7</p>
<p>8</p>	<p>8</p>

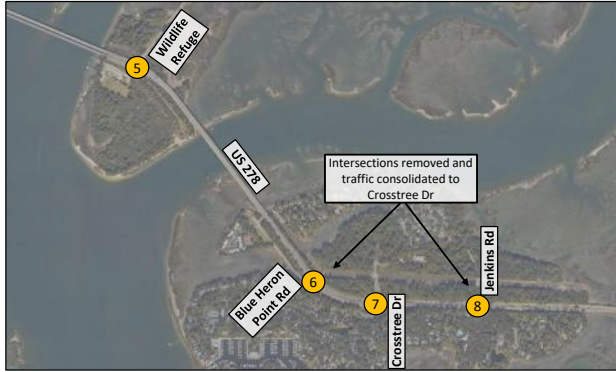
2045 Alternative 3. Center Turn Overpass at Spanish Wells Traffic Volumes



AM Peak Hour Volumes PM Peak Hour Volumes

<p>11A</p>	<p>11A</p>
<p>11B</p>	<p>11B</p>
<p>12</p>	<p>12</p>

2045 Alternative 3. Center Turn Overpass at Squire Pope Traffic Volumes



AM Peak Hour Volumes PM Peak Hour Volumes

<p>5</p>	<p>5</p>
<p>6</p>	<p>6</p>
<p>7</p>	<p>7</p>
<p>8</p>	<p>8</p>

2045 Alternative 3. Center Turn Overpass at Squire Pope Traffic Volumes



AM Peak Hour Volumes PM Peak Hour Volumes

<p>9A</p>	<p>9A</p>
<p>9B</p>	<p>9B</p>
<p>12</p>	<p>12</p>

May 3, 2024
Appendix G

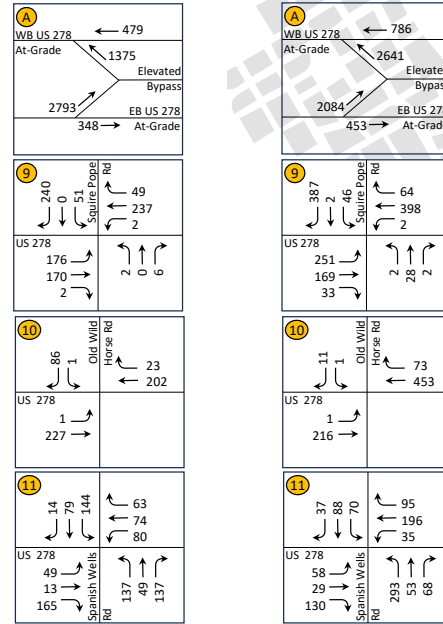
Appendix G. 2045 Alternative 4 Traffic Volumes

*Note: Volumes not shown are the same as the 2045 No Build Traffic Volumes

2045 Alternative 4. Elevated Bypass



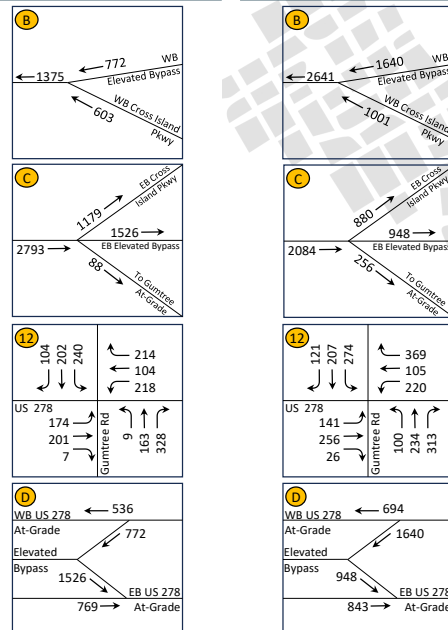
AM Peak Hour Volumes PM Peak Hour Volumes



2045 Alternative 4. Elevated Bypass



AM Peak Hour Volumes PM Peak Hour Volumes



May 3, 2024

Appendix H

Appendix H. Technical Environmental Overview Memo

MEMO

To: Nathan Nohren, PE, PTOE, Senior Traffic Engineer

From: Chad Costa, Environmental Department Manager, Ashley Taylor, Environmental Specialist, and Samantha Beaupre, Environmental Specialist

Date: May 3, 2024

Subject: William Hilton Parkway Gateway Corridor – Technical Environmental Overview

1.0 Regulation Overview

This section encompasses a brief description of the applicable laws and regulations pertaining to the human and natural environment, which help shape the decision-making process for projects with Federal funding.

1.1 National Environmental Policy Act

The Federal Highway Administration (FHWA) is required by the National Environmental Policy Act (NEPA) to evaluate potential impacts to the social, economic, and natural environments for the proposed reasonable alternatives. According to the NEPA federal government website (www.nepa.gov), Section 101 ([42 U.S.C. §4331\(a\)](#)) of NEPA sets forth a national policy "to use all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans." Section 102 ([42 U.S.C. §4332\(2\)\(C\)](#)) of NEPA "establishes procedural requirements, applying that national policy to proposals for major Federal actions significantly affecting the quality of the human environment by requiring Federal agencies to prepare a detailed statement on: (1) the environmental impact of the proposed action; (2) any adverse effects that cannot be avoided; (3) alternatives to the proposed action; (4) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity; and (5) any irreversible and irretrievable commitments of resources that would be involved in the proposed action."

1.2 Clean Water Act

The Clean Water Act (CWA) ([33 U.S.C. §1251](#)) establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters.

1.3 Endangered Species Act

The Federal Endangered Species Act (ESA) of 1973 ([16 U.S.C. §1531](#)) is the federal regulation whose goal is "to protect and recover imperiled species and the ecosystems upon which they depend." The U.S. Fish and Wildlife Service (USFWS) manages terrestrial and freshwater organisms while the National Oceanic and Atmospheric Administration (NOAA) Fisheries manages marine and anadromous species. Both administer the ESA and establish a list of protected species.

1.4 Marine Mammal Protection Act

The Marine Mammal Protection Act (MMPA) of 1972 ([16 U.S.C. 1361](#)) prohibits, the "take" of marine mammals in U.S. waters and by U.S. citizens on the high seas, and the importation of marine mammals and marine mammal products into the U.S. Jurisdiction for MMPA is shared by USFWS and NOAA Fisheries.

1.5 Section 106 of the National Historic Preservation Act

Section 106 of the National Historic Preservation Act (NHPA) ([16 U.S.C. §470](#)) requires Federal agencies to take into account the effect of federal undertakings on historic properties and provide the Advisory Council of Historic Preservation (ACHP) an opportunity to comment on the undertaking. The NHPA established the National Register of Historic Places (NRHP). Items considered for the NRHP include districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, and culture, which possess national, state, or local significance. The NHPA also provides funding for the State Historic Preservation Officer (SHPO) and staff to conduct surveys and develop comprehensive preservation planning standards for state programs.

1.6 Section 4(f) of the U.S. Department of Transportation Act

Section 4(f) of the U.S. Department of Transportation (USDOT) Act of 1966 states that USDOT-funded projects are prohibited from using land from certain properties unless there is no feasible and prudent alternative to the use of the Section 4(f) resource. The proposed action must also include planning to minimize harm to the property that would result from such use. The purpose of Section 4(f) is to protect historic sites and publicly owned park and recreation lands and wildlife and waterfowl refuges. Section 4(f) properties are defined by [23 U.S.C. §138](#) and the [Section 4\(f\) Policy Paper](#) as “any publicly owned land from a public park, recreation area, of wildlife and waterfowl refuge of national, state, or local significance as determined by the federal, state, or local officials having jurisdiction thereof, or any land from an historic site of national, state, or local significance as so determined by such officials.” The law prevents agencies within the USDOT from approving a project that “uses” land from publicly owned parks, recreational areas, wildlife and waterfowl refuges, or public and private historical sites providing, 1) there is no feasible and prudent alternative to the use of the resource, 2) the project includes measures to minimize harm to the resource, or 3) the agency determines the use of the resource is considered to be a *de minimis* impact. A “use” is considered to be the conversion of a Section 4(f) property from a non-transportation use to a transportation use.

1.7 Environmental Justice

[Executive Order \(EO\) 12898](#) was signed in 1994 and requires Federal actions to identify and address potentially disproportionately high and adverse human health or environmental impacts among minority and low-income populations which may occur as part of the proposed project. [EO 13985](#) was signed in 2021 and expanded in [EO 12898](#) to consider not only minority and low-income populations, but assess “equity with respect to race, ethnicity, religion, income, geography, gender identity, sexual orientation, and disability.” The order also expanded to evaluate whether “underserved communities and their members face systemic barriers in accessing benefits and opportunities available.”

2.0 Methodology

2.1 Limitations and Exceptions

There were several limitations and exceptions considered as part of this independent environmental overview, which are described in more detail below. Lochmueller Group has applied generally accepted professional practices and standards and exercised its professional judgment, skill, and care in a manner consistent with that of other professionals performing similar work under similar conditions.

2.1.1 Independent Study

As part of the overall independent study, this document represents an overview that evaluates reasonably foreseeable environmental implications associated with conceptual alternatives for possible incorporation by the South Carolina Department of Transportation (SCDOT) into a larger recommended preferred alternative for the William Hilton Parkway Gateway Corridor project along United States (U.S.) Highway 278 within the town of Hilton Head Island, Beaufort County, South Carolina. This document discusses conceptual layouts of alternatives, which would require further agency coordination, field investigation, public involvement, and evaluation if advanced for adoption into the SCDOTs recommended preferred alternative. This document does not replicate or replace the Environmental Assessment (EA) prepared by the SCDOT. Additionally, this overview is not intended to serve as a NEPA document or even comply with NEPA requirements either independently or in conjunction with SCDOTs project.

2.1.2 Desktop Review of Environmental Resources and Constraints

The environmental impacts are based on a preliminary desktop review of potential resources located within the project area. Environmental resources were not field verified as part of this study. The environmental resources identified during the desktop review were assumed to be present, and each alternative evaluated potential impacts to those resources. These resources would need to be field delineated and evaluated under the existing EA before an alternative could be pursued.

2.1.3 Coordination Efforts

This independent overview of potential environmental implications did not complete any agency, stakeholder, or public involvement and outreach, which is a necessary component to the NEPA process. It is expected that the necessary coordination with applicable agencies, stakeholders, and the public would be undertaken by the SCDOT and their consultant as part of the NEPA evaluation for the William Hilton Parkway Gateway Corridor project.

2.1.4 Noise Analysis

A noise analysis was not conducted for this independent overview of potential environmental implications. Before an alternative could be pursued, a noise analysis would be required to determine the impacts of each alternative to the surrounding communities and whether any noise mitigation measures would be deemed necessary.

2.1.5 Reasonably Ascertainable, Publicly Available, and Practically Reviewable Information

This independent overview of potential environmental implications associated with the William Hilton Parkway Gateway Corridor Project was solely based on information that was publicly available, practically reviewable, and reasonably ascertainable. That is, the content of this overview is based on records that are feasibly retrieved for review, information that is readily available to the public upon request, and obtainable from a source within a reasonable time and cost constraint. As of the date of this independent overview, information sought from the SCDOT regarding access to specific data relating to their recommended preferred alternative (i.e., proposed right-of-way limits) and the resources identified through technical environmental studies (i.e., delineated wetlands) was not furnished to Lochmueller Group. While the absence of this information is unlikely to have affected the overall results of this overview, it does present a limiting factor in the data provided herein.

2.2 Sources Reviewed

In association with the Federal Highway Administration (FHWA) and Beaufort County, the SCDOT developed an Environmental Assessment (EA) to document the proposed U.S. Route 278 Corridor Improvements (<https://www.scdot278corridor.com/environmental-assessment>). The EA was released in June 2021 for public review and was reviewed as a part of this investigation. Information regarding hazardous material sites was retrieved from the EPA Envirofacts website (<https://enviro.epa.gov/>) and the South Carolina Department of Health and Environmental Control website (<https://scdhec.gov/>, <https://apps.dhec.sc.gov/Environment/USTRegistry>). Information about the Honey Horn Plantation site was found on the Hilton Head Island website (<https://hiltonheadislandsc.gov/parks/HoneyHorn/>).

In addition, several publicly available geographic information systems (GIS) were reviewed. The GIS resources reviewed are summarized in the table below.

Table 1. GIS Resources Reviewed			
Database	Map Service	Data Retrieved	Link
Hilton Head Island Open Data	Town-Owned Property Dashboard & Property Viewer	Property data	https://opendata.hiltonheadislandsc.gov/
South Carolina Department of Natural Resources (SDNR)'s Geospatial Data	SCDNR Public Lands Map, South Carolina Public Water Access, SC Public Boat Ramps, Recreational Shellfish Map Application, & Shellfish Management Layers Public View	Public Lands, public water access, and state shellfish grounds	https://data-scdnr.opendata.arcgis.com/
National Oceanic and Atmospheric Administration (NOAA)'s GeoPlatform	Essential Fish Habitat	Essential fish habitat	https://noaa.maps.arcgis.com/home/gallery.html?sortField=relevance&sortOrder=desc
U.S. Geological Survey (USGS) National Hydrography Dataset (NHD)	The National Map Downloader	NHD lines	https://www.usgs.gov/national-hydrography/access-national-hydrography-products
Federal Emergency Management Agency (FEMA)'s Flood Map Service Center	NFHL_45013C	floodways	https://msc.fema.gov/portal/home
SC Arch Site	Subscriber View Map	Cultural resources	http://www.scarchsite.org/default.aspx
U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI)	Wetlands Data Layer	NWI wetlands	https://www.fws.gov/program/national-wetlands-inventory/wetlands-data

3.0 Alternatives Analysis on Potentially Affected Resources

Four conceptual alternatives were evaluated as part of this overview. Publicly available GIS data was used to evaluate potentially affected resources for each of the conceptual alternatives in an effort to identify potential implications associated with each. These resources were separated into two categories: 1) ecological and 2) community and social impacts (i.e., the human environment). Ecological resources included NWI wetlands, streams, floodplains, essential fish habitat types, and threatened and endangered species. Community and social impacts included relocations, right-of-way (ROW) acquisition, hazardous materials sites, neighborhood impacts, environmental justice impacts, impacts to cultural resources, and impacts to Section 4(f) resources. All alternatives identified result in some level of impact to identified resources. However, some conceptual alternatives may result in a reduction of impacts to some resources compared to the approved EA. The impacts discussed below are additional impacts anticipated as a result of each conceptual alternative and are independent of quantities identified in SCDOT's Environmental Assessment (EA). In order to be considered cumulative impacts, the quantities presented here must be added to those of the recommended preferred alternative advanced by SCDOT in the EA for the project. However, there are some extenuating issues associated with this in that resources identified in the EA have been verified through field surveys, coordination with agencies, and/or through the results of public engagement. Quantities presented in this overview are largely based on unverified resources unless reasonably obtainable from the EA in combination with available GIS resources.

3.1 Alternative 1

Alternative 1 is the SCDOT Modified Recommended Preferred Alternative. Alternative 1 would require 0.2 acre of additional ROW. The additional ROW impacts are located within the Squire Pope neighborhood. The additional ROW to be acquired is owned by the Town of Hilton Head. The SCDOT EA determined that this area is an environmental justice community. One hazardous material site, Shell Food Mart Station 101 (165 William Hilton Parkway), is located near the alternatives. No impacts to the site are anticipated as a result of Alternative 1. The SCDOT recommended preferred alternative was determined to have a "may affect- not likely to adversely affect" finding for threatened and endangered species. Alternative 1 is not anticipated to alter this finding. Coordination with the USFWS and the NOAA National Marine Fisheries Service (NMFS) would need to occur to affirm this finding. Alternative 1 would not result in additional impacts to NWI wetlands, streams, floodplains, or essential fish habitat types. No additional relocations would occur as a result of Alternative 1. No additional impacts to cultural resources or Section 4(f) properties would occur as a result of Alternative 1.

Table 2. Alternative 1 Additional Impact Summary			
Resource/Category		Units	Impacts
Ecological	NWI Wetlands	Acres	0
	Streams	Linear Feet	0
	Floodplains	Acres	0
	Essential Fish Habitat Types	Acres	0
	Threatened & Endangered Species	Finding	May Affect, Not Likely to Adversely Affect*
Community & Social	Hazardous Material Sites	No.	0
	Relocations	No.	0
	Right-of-Way	Acres	0.2
		No. of Tracts	1
	Right-of-Way Owned by Town	Acres	0.2
		No. of Tracts	1
	Neighborhoods	No.	1 (Squire Pope)
	Environmental Justice	No.	1 (Squire Pope)
Cultural Resources	No.	0	
Section 4(f) Resources (Hist. Properties/Public Recreational Areas/Wildlife Refuges)	No.	0	

*Anticipated finding, pending coordination with USFWS and NOAA-NMFS

3.2 Alternative 2

Alternative 2 would involve the construction of bowties along both Squire Pope Road and Spanish Wells Road/Wild Horse Road. Alternative 2 would require 1.10 acres of additional ROW. The Town of Hilton Head owns 0.9 acre of the ROW that would need to be acquired. The additional ROW impacts are located within the Stoney and Squire Pope neighborhoods. The SCDOT EA determined that the Stoney neighborhood is an environmental justice community. The Squire Pope neighborhood was outside of the SCDOT EA investigation area but is also a Gullah community. The Gullah people are the only African American population in the US that have maintained a separate language and a distinct culture. Therefore, Squire Pope is likely an environmental justice community. The SCDOT recommended alternative was determined to have a “may affect- not likely to adversely affect” finding for threatened and endangered species. Alternative 2 is not anticipated to alter this finding. Coordination with the USFWS and the NOAA-NMFS would need to occur to affirm this finding. Alternative 2 would require additional impacts to the Stoney Traditional Cultural Property (TCP). The SCDOT identified the Stoney community as a TCP and as a resource eligible for inclusion in the National Register of Historic Places (NRHP). As a NRHP-eligible resource, it is also considered a Section 4(f) property. Alternative 2 would not result in additional impacts to hazardous materials sites, NWI wetlands, streams, floodplains, or essential fish habitat types. No additional relocations would occur as a result of Alternative 2.

Table 3. Alternative 2 Additional Impact Summary			
Resource/Category		Units	Impacts
Ecological	NWI Wetlands	Acres	0
	Streams	Linear Feet	0
	Floodplains	Acres	0
	Essential Fish Habitat Types	Acres	0
	Threatened & Endangered Species	Finding	May Affect, Not Likely to Adversely Affect*
Community & Social	Hazardous Material Sites	No.	0
	Relocations	No.	0
	Right-of-Way	Acres	1.1
		No. of Tracts	11
	Right-of-Way Owned by Town	Acres	0.9
		No. of Tracts	8
	Neighborhoods	No.	2 (Stoney & Squire Pope)
	Environmental Justice	No.	2 (Stoney & Squire Pope)
Cultural Resources	No.	1 (Stoney TCP)	
Section 4(f) Resources (Hist. Properties/Public Recreational Areas/Wildlife Refuges)	No.	1 (Stoney TCP)	

*Anticipated finding, pending coordination with USFWS and NOAA-NMFS

3.3 Alternative 3

Alternative 3 would involve an echelon or center turn overpass at either Squire Pope Road or Spanish Wells Road/Wild Horse Road intersection with William Hilton Parkway (US 278). The environmental impacts for Alternative 3 were evaluated for an echelon at the Squire Pope Road intersection and an echelon at the Spanish Wells Road/Wild Horse Road intersection. A center turn overpass would result in more impacts than an echelon at either intersection. Therefore, a center turn overpass was dismissed from further consideration.

An echelon at the Squire Pope intersection would require 1.0 acre of additional ROW. The Town of Hilton Head owns 0.75 acre of the ROW that would need to be acquired. The additional ROW impacts are located within the Stoney and Squire Pope neighborhoods. The SCDOT EA determined that the Stoney neighborhood is an environmental justice community. The Squire Pope neighborhood is a Gullah community and is likely an environmental justice community. The SCDOT recommended preferred alternative was determined to have a “may affect- not likely to adversely affect” finding for threatened and endangered species. An echelon at the Squire Pope intersection is not anticipated to alter this finding. Coordination with the USFWS and the NOAA-NMFS would need to occur to affirm this finding. An echelon at Squire Pope Road would result in additional impacts to the Stoney TCP, a cultural resource and Section 4(f) property. The addition of a grade separated intersection at Squire Pope Road also has the potential to create visual barriers within the Stoney TCP. It would not result in additional impacts to hazardous

materials sites, NWI wetlands, streams, floodplains, or essential fish habitat types. No additional relocations would occur as a result of Alternative 3.

Table 4. Alternative 3 (Echelon at Squire Pope Road) Additional Impact Summary			
Resource/Category		Units	Impacts
Ecological	NWI Wetlands	Acres	0
	Streams	Linear Feet	0
	Floodplains	Acres	0
	Essential Fish Habitat Types	Acres	0
	Threatened & Endangered Species	Finding	May Affect, Not Likely to Adversely Affect*
Community & Social	Hazardous Material Sites	No.	0
	Relocations	No.	0
	Right-of-Way	Acres	1.0
		No. of Tracts	12
	Right-of-Way Owned by Town	Acres	0.75
		No. of Tracts	7
	Neighborhoods	No.	2 (Stoney & Squire Pope)
	Environmental Justice	No.	2 (Stoney & Squire Pope)
Cultural Resources	No.	1 (Stoney TCP)	
Section 4(f) Resources (Hist. Properties/Public Recreational Areas/Wildlife Refuges)	No.	1 (Stoney TCP)	

*Anticipated finding, pending coordination with USFWS and NOAA-NMFS

An echelon at the Spanish Wells Road/ Wild Horse Road intersection would require 1.1 acres of additional ROW. The Town of Hilton Head owns 0.7 acre of the ROW that would need to be acquired. The additional ROW impacts are located within the Stoney and Squire Pope neighborhoods. The SCDOT EA determined that the Stoney neighborhood is an environmental justice community. The Squire Pope neighborhood is a Gullah neighborhood and likely an environmental justice community. The SCDOT recommended preferred alternative was determined to have a “may affect- not likely to adversely affect” finding for threatened and endangered species. An echelon at the Spanish Wells Road intersection is not anticipated to alter this finding. Coordination with the USFWS and the NOAA-NMFS would need to occur to affirm this finding. An echelon at Spanish Wells Road would result in 0.29 acre of additional impacts to floodplains. It would result in additional impacts to the Stoney TCP, a cultural resource and Section 4(f) property. It would also result in 0.03 acre of additional impacts to the public park at 152 William Hilton Parkway, a Section 4(f) property. The addition of a grade separated intersection at Spanish Wells Road / Wild Horse Road also has the potential to create visual barriers within the Stoney TCP. An echelon at Spanish Wells Road would not result in additional impacts to hazardous materials sites, NWI wetlands, streams, or essential fish habitat types. No relocations would occur as a result of Alternative 3.

Table 5. Alternative 3 (Echelon at Spanish Wells Road/Wild Horse Road) Additional Impact Summary			
Resource/Category		Units	Impacts
Ecological	NWI Wetlands	Acres	0
	Streams	Linear Feet	0
	Floodplains	Acres	0.3
	Essential Fish Habitat Types	Acres	0
	Threatened & Endangered Species	Finding	May Affect, Not Likely to Adversely Affect*
Community & Social	Hazardous Material Sites	No.	0
	Relocations	No.	0
	Right-of-Way	Acres	1.1
		No. of Tracts	9
	Right-of-Way Owned by Town	Acres	0.7
		No. of Tracts	5
	Neighborhoods	No.	2 (Stoney & Squire Pope)
	Environmental Justice	No.	2 (Stoney & Squire Pope)
Cultural Resources	No.	1 (Stoney TCP)	
Section 4(f) Resources (Hist. Properties/Public Recreational Areas/Wildlife Refuges)	No.	2 (Stoney TCP & Park at 152 William Hilton Parkway)	

*Anticipated finding, pending coordination with USFWS and NOAA-NMF

3.4 Alternative 4

Alternative 4 would involve the construction of an elevated bypass lane generally within the center of the existing William Hilton Parkway (US 278) roadway section (i.e., no additional widening of the mainline). Alternative 4 would impact an additional 0.03 acre of National Wetland Inventory (NWI) wetlands and an additional 0.03 acre of essential fish habitats. Approximately 65 linear feet of Jarvis Creek would be impacted. Alternative 4 would require no additional ROW. The SCDOT recommended preferred alternative was determined to have a “may affect- not likely to adversely affect” finding for threatened and endangered species. Alternative 4 is not anticipated to alter this finding. Coordination with the USFWS and the NOAA-NMFS would need to occur to affirm this finding.

The Honey Horn Plantation is a collection of historic farm buildings and landscape and would be considered a Section 4(f) resource. It is also home to the Coastal Discovery Museum, which educates the public on the region’s cultural and natural history. Alternative 4 intersects the current boundary of Honey Horn plantation according to the South Carolina Department of Archives and History website. This is unlikely to be considered a Section 4(f) use as the proposed improvements associated with this alternative would occur entirely within existing transportation ROW. Therefore, there is likely no conversion of the resource from a non-transportation use to a transportation one. The current boundary of the site extends into the existing footprint of U.S. 278. However, this part of the site has likely been disturbed by previous construction. Further investigation and coordination with the applicable agencies would be needed to determine the exact cultural and Section 4(f) impacts to this site. No additional relocations would be required. The addition of an elevated bypass lane on a combination of fill or structure also has the

potential to create visual barriers within the Stoney TCP. However, this alternative would not result in additional encroachment on the Stoney TCP and, as such, is not quantified as a direct impact in the table below. No additional impacts to hazardous materials sites, neighborhoods, or environmental justice communities are anticipated. No impacts to floodplains are anticipated.

Table 6. Alternative 4 Additional Impact Summary			
Resource/Category		Units	Impacts
Ecological	NWI Wetlands	Acres	0.03
	Streams	Linear Feet	65
	Floodplains	Acres	0
	Essential Fish Habitat	Acres	0.03
	Threatened & Endangered Species	Finding	May Affect, Not Likely to Adversely Affect*
Community & Social	Hazardous Material Sites	No.	0
	Relocations	No.	0
	Right-of-Way	Acres	0
		No. of Tracts	0
	Neighborhoods	No.	0
	Environmental Justice	No.	0
	Cultural Resources	No.	1 (Honey Horn Plantation)
Section 4(f) Resources (Hist. Properties/Public Recreational Areas/Wildlife Refuges)	No.	0	

*Anticipated finding, pending coordination with USFWS and NOAA-NMFS

3.5 Summary

An overall summary of the environmental impacts for each of the alternatives can be seen in Table 7:

Table 7. Additional Environmental Impacts Summary						
Resource/Category	Units	Alternative 1	Alternative 2	Alternative 3 (Echelon at Squire Pope)	Alternative 3 (Echelon at Spanish Wells)	Alternative 4
NWI Wetlands	Acres	0	0	0	0	0.03
Streams	Linear Feet	0	0	0	0	65
Floodplains	Acres	0	0	0	0.29	0
Essential Fish Habitat	Acres	0	0	0	0	0.03
Threatened & Endangered Species	Finding	May Affect, Not Likely to Adversely Affect*	May Affect, Not Likely to Adversely Affect*	May Affect, Not Likely to Adversely Affect*	May Affect, Not Likely to Adversely Affect*	May Affect, Not Likely to Adversely Affect*
Hazardous Material Sites	No.	0	0	0	0	0
Relocations	No.	0	0	0	0	0
Right-of Way	Acres No. of Tracts	0.2 1	1.1 11	1.0 12	1.1 9	0 0
Right-of-Way Owned by Town	Acres No. of Tracts	0.2 1	0.9 8	0.75 7	0.7 5	0 0
Neighborhoods	No.	1 (Squire Pope)	2 (Stoney & Squire Pope)	2 (Stoney & Squire Pope)	2 (Stoney & Squire Pope)	0
Environmental Justice	No.	1 (Squire Pope)	2 (Stoney & Squire Pope)	2 (Stoney & Squire Pope)	2 (Stoney & Squire Pope)	0
Cultural Resources	No.	0	1 (Stoney TCP)	1 (Stoney TCP)	1 (Stoney TCP)	1 (Honey Horn Plantation)
Section 4(f) Resources	No.	0	1 (Stoney TCP)	1 (Stoney TCP)	2 (Stoney TCP & Park at 152 William Hilton Parkway)	0

*Anticipated finding, pending coordination with USFWS and NOAA-NMFS

Each environmental impact was ranked in order from least impactful (1) to most impactful (4) across the four different alternatives. The total of these rankings was calculated for each alternative and this was used to rank the alternatives from least impactful (1) to most impactful (4).

Table 8. Additional Environmental Impacts- Alternatives Ranking				
Resource/Category	Alternative 1	Alternative 2	Alternative 3	Alternative 4
NWI Wetlands	1	1	1	4
Streams	1	1	1	4
Floodplains	1	1	4	1
Essential Fish Habitat	1	1	1	4
Threatened & Endangered Species	1	1	1	1
Hazardous Material Sites	1	1	1	1
Relocations	1	1	1	1
Right-of-Way	2	4	4	1
Neighborhoods	2	4	4	1
Environmental Justice	2	4	4	1
Cultural Resources	1	4	4	4
Section 4(f) Resources	1	3	4	1
Total	15	26	30	24
Rank	1	3	4	2

4.0 Risk Assessment

The largest risk for implementing any alternative beyond those identified within the existing NEPA document is the additional time required to complete field investigations of new areas added, coordinate with appropriate regulatory agencies, and complete additional community outreach and engagement opportunities. Therefore, the project schedule would be delayed in order to complete these activities. In addition to time, there will be an added cost to complete these activities and update the existing NEPA document.

Alternatives 1 and 2 are not anticipated to change the cultural resources or Section 4(f) findings compared to the existing EA. However, additional outreach may be necessary within the Stoney and Squire Pope communities. Alternatives 3 and 4 may elevate the cultural resources finding from a No Adverse Effect (NAE) to Adverse Effect (AE) finding due to additional impacts to the Stoney Traditional Cultural Property (TCP). Additional Section 106 investigations and documentation would be required to determine if this

May 3, 2024

Page 13

finding would be elevated or not. Alternatives 3 and 4 have additional involvement with Section 4(f) resources, which is not anticipated to be a “use.” However, additional evaluation and concurrence with appropriate agencies would be required for any changes to impacts to Section 4(f) resources. The specific risks associated with each alternative are summarized in Table 9.

Table 9: Summary of Risk Considerations for Each Alternative

Resource/Category Type		Alt. 1: Risk Considerations	Alt. 2: Risk Considerations	Alt. 3: Risk Considerations	Alt. 4: Risk Considerations
Ecological	Wetlands, Streams, Floodplains, Threatened & Endangered Species	Additional time will be necessary for field investigations of new areas added and coordination with the appropriate regulatory agencies.			
	Permits	Since no impacts to wetlands, streams, or floodplains are anticipated, no water resource permits are anticipated.		Water resource permits are anticipated due to impacts to the floodplain.	Water resource permits are anticipated due to impacts to wetlands, streams, and essential fish habitat.
Community & Social	Relocations	None			
	Right-of-Way	Risks same as noted in ecological.			None
	Neighborhoods	New impacts to Squire Pope community	Additional impacts within Stoney and new impacts to Squire Pope community. Turning limitations will bring additional traffic into neighborhood at bowtie locations.	Additional impacts within Stoney and new impacts to Squire Pope community. Echelons within Stoney creates potential barriers.	While no additional ROW acquired, the elevated bypass lane within Stoney creates a potential barrier dividing community.
		All impacts to neighborhoods require additional outreach and engagement opportunities to inform the public of project updates.			
	Environmental Justice	Risks are the same as noted in the neighborhoods section.			
	Cultural Resources	Current Section 106 finding is "Adverse Effect" for impacts to archaeological site 38BU66; no change in finding is expected. Additional project elements at Gum Tree may require consideration of Squire Pope as a TCP.	Current Section 106 finding is "Adverse Effect" for impacts to archaeological site 38BU66; additional ROW from Stoney; no change in finding is expected. Additional project elements at Gum Tree may require consideration of Squire Pope as a TCP.	Additional ROW from Stoney and elevated project elements creates visual effects, which may elevate Stoney TCP from NAE to AE finding and require a MOA amendment. Additional project elements at Gum Tree may require consideration of Squire Pope as a TCP.	Elevated project elements within Stoney TCP create visual effects, which may elevate Stoney TCP from NAE to AE finding and require a MOA amendment. New impacts to Honey Horn Plantation require consideration.
Section 4(f) Resources	No change expected to current 4(f) findings in EA. Potential for Squire Pope to be considered a TCP. ROW required unlikely to be considered a conversion ("use").	No change expected to current 4(f) findings in EA. Potential for Squire Pope to be considered a TCP. ROW required unlikely to be considered a conversion ("use").	Additional "use" at Stoney & park at 152 WHP; likely AE at Stoney TCP may require additional 4(f) evaluations. Potential for Squire Pope to be considered a TCP. ROW required unlikely to be considered a conversion ("use").	Likely AE at Stoney TCP, when added to impacts identified in EA, may require additional 4(f) evaluations. Project elements within Honey Horn Plantation unlikely to be considered a conversion ("use").	

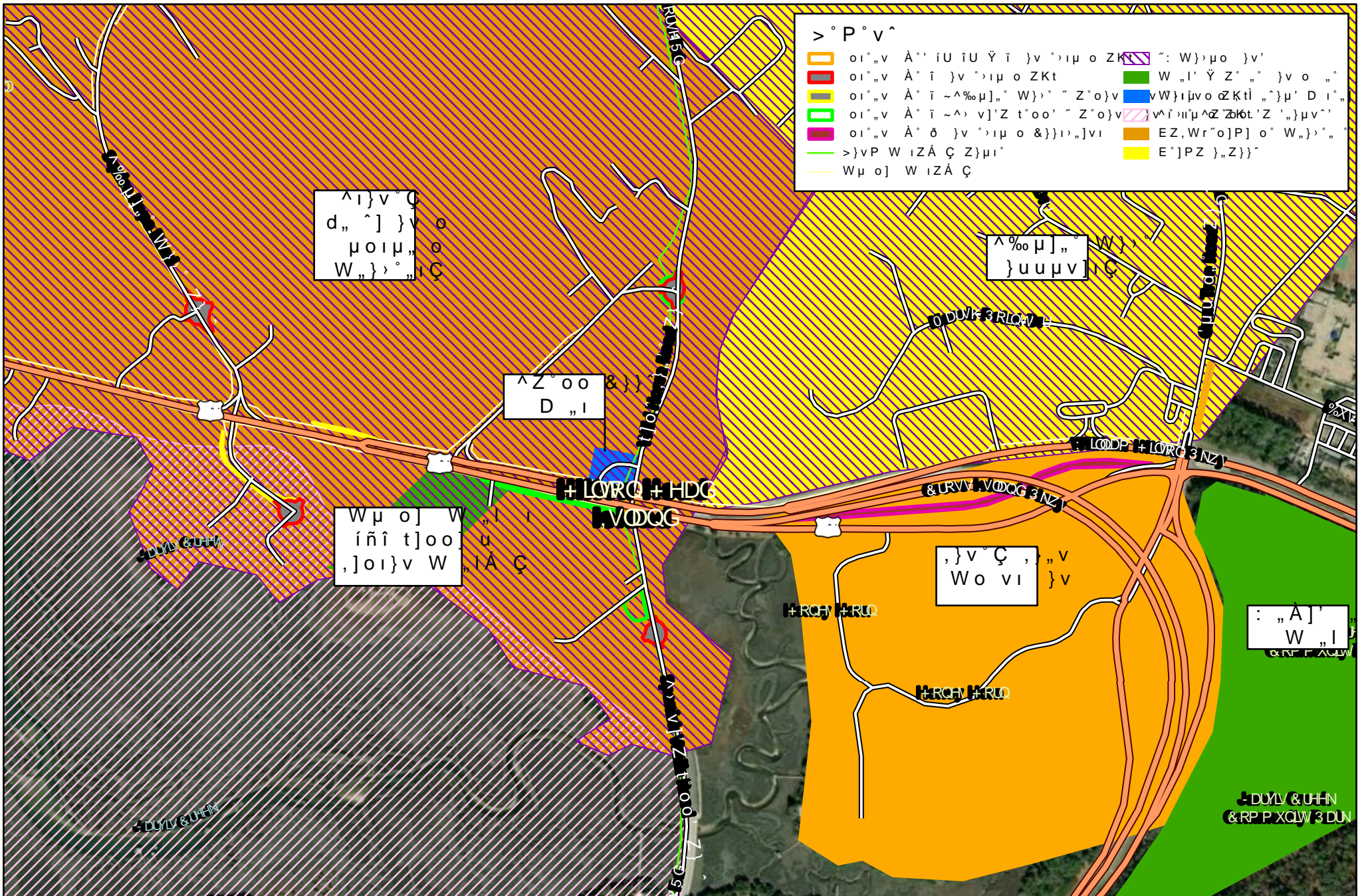
5.0 Conceptual Mitigation Strategies

For alternatives where impacts to ecological resources such as wetlands, streams, and floodplains are unavoidable, mitigation would be determined during the permitting phase of the project and in context with the overall project impacts. For alternatives where impacts to Section 106, Section 4(f), and the local communities are unavoidable, mitigation may become necessary.

Based on the risks associated with Alternative 1, additional mitigation considerations are unlikely to be required. Alternative 2 is unlikely to require mitigation for Section 106 and Section 4(f) impacts. However, mitigation measures such as traffic calming measures, inclusion of Gullah art in bowties, or the creation of a unique gateway may be necessary to address any community impacts. Alternatives 3 and 4 have higher associated risk and impacts to the surrounding communities. Mitigation strategies could include a variety of different approaches focusing on the Gullah community. This may include interpretive signage, incorporation of community art, a walking tour pamphlet, or a video documentary about the Gullah. Additionally, elements would focus on encouraging connectivity of the community on either side of U.S. 278. The specific risk level and mitigation strategies associated with each alternative are summarized in Table 10.

Table 10: Summary of Environmental Risk Levels and Potential Mitigation Strategies

Alternative		Risk Categories (related to cost and schedule implications to the NEPA process)		
		Section 106 (Cultural Resources)	Section 4(f)	Community & Social Impacts
Alt. 1 – Mod. SCDOT Rec. Preferred Alt.	Risk Considerations	Moderate	Low	Low
	Mitigation	Unlikely additional mitigation considerations would be required for this alternative.		
Alt. 2 – Bowties at Squire Pope and Spanish Wells	Risk Considerations	Moderate	Moderate	Moderate
	Mitigation	Mitigation for Section 106 and Section 4(f) unlikely. Community impacts may require mitigation. Concepts could include traffic calming measures, inclusion of Gullah art in bowties, or creation of unique gateway.		
Alt. 3 – Echelon/Center Turn Overpass	Risk Considerations	High	High	Moderate
	Mitigation	Interpretive signage about Gullah community along trails. Incorporation of Gullah art into the transportation infrastructure (crosswalks, wall murals, lighting, asphalt painting, sculptures). Walking tour pamphlet or video documentary about the Gullah. Include design elements that encourage connectivity of community on either side of U.S. 278 and traffic calming on intersecting roadways. Evaluate context sensitive design opportunities.		
Alt. 4 – Elevated Bypass	Risk Considerations	High	High	High
	Mitigation	Same as Alternative 3.		



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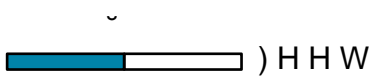
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Downstream Impacts to Task 4 Intersections Memorandum (Interim Task 4.4)

MEMO

To: Town of Hilton Head, South Carolina
From: Lochmueller Group
Date: June 10, 2024
Subject: Independent Study of the William Hilton Parkway Gateway Corridor
Downstream Impacts to Task 4 Intersections Memorandum – Task 4.4

Lochmueller Group (Lochmueller) has prepared the following memorandum pertaining to the Independent Study of the William Hilton Pkwy Gateway Corridor. Lochmueller previously submitted a Technical Memorandum dated May 3, 2024, which summarized four alternatives intended to improve the operating conditions along US 278 between Moss Creek Dr and Gumtree Rd. After review of the findings and discussion with SCDOT, Lochmueller was directed by the Town of Hilton Head Island to pursue Alternative 1: SCDOT Modified Recommended Preferred with modifications to provide a single eastbound left-turn lane and a single southbound right-turn lane at US 278 at Squire Pope Rd. As a next step, Lochmueller evaluated the impacts Alternative 1 would have on the entire project study area and determined what, if any, improvements should be made to accommodate the 2045 forecasted traffic at the intersections downstream of Gumtree Rd.

The intention of this memorandum is to provide the Town of Hilton Head with the findings related to traffic impacts that would be seen within the entire project area which includes US 278 from Moss Creek Drive to Indigo Run Drive, as well as US 278 (Palmetto Bay Road) from Cross Island Pkwy to Sea Pines Circle, assuming Alternative 1: SCDOT Modified Recommended Preferred with modifications is implemented. For the purposes of this memorandum, no additional physical improvements were modeled for intersections downstream of Gumtree Rd or Cross Island Parkway; however, those improvements were modeled as part of Lochmueller's next deliverable. **Figure 1** shows the entire project area which was used for the analysis.



FIGURE 1. ENTIRE PROJECT STUDY AREA

Downstream Impacts

As previously stated, the Town of Hilton Head Island directed Lochmueller to proceed with Alternative 1: SCDOT Modified Recommended Preferred with modifications to provide a single eastbound left-turn lane and a single southbound right-turn lane at US 278 at Squire Pope Rd. As such, Lochmueller was tasked to evaluate the impacts of the Modified Alternative 1 on the intersections downstream of Gumtree Rd and Cross Island Parkway.

It should be noted that the results shown in this memorandum include the adaptive signals as well as the previously recommended improvements at Gumtree Rd. The improvements at Gumtree Rd include keeping the intersections at-grade; completely reconfiguring the intersection to improve its efficiency; and providing dual left-turn lanes for the westbound, northbound, and southbound approaches. **Figure 2** displays SCDOT's recommended improvements for Alternative 1, excluding Gumtree Rd upgrades.

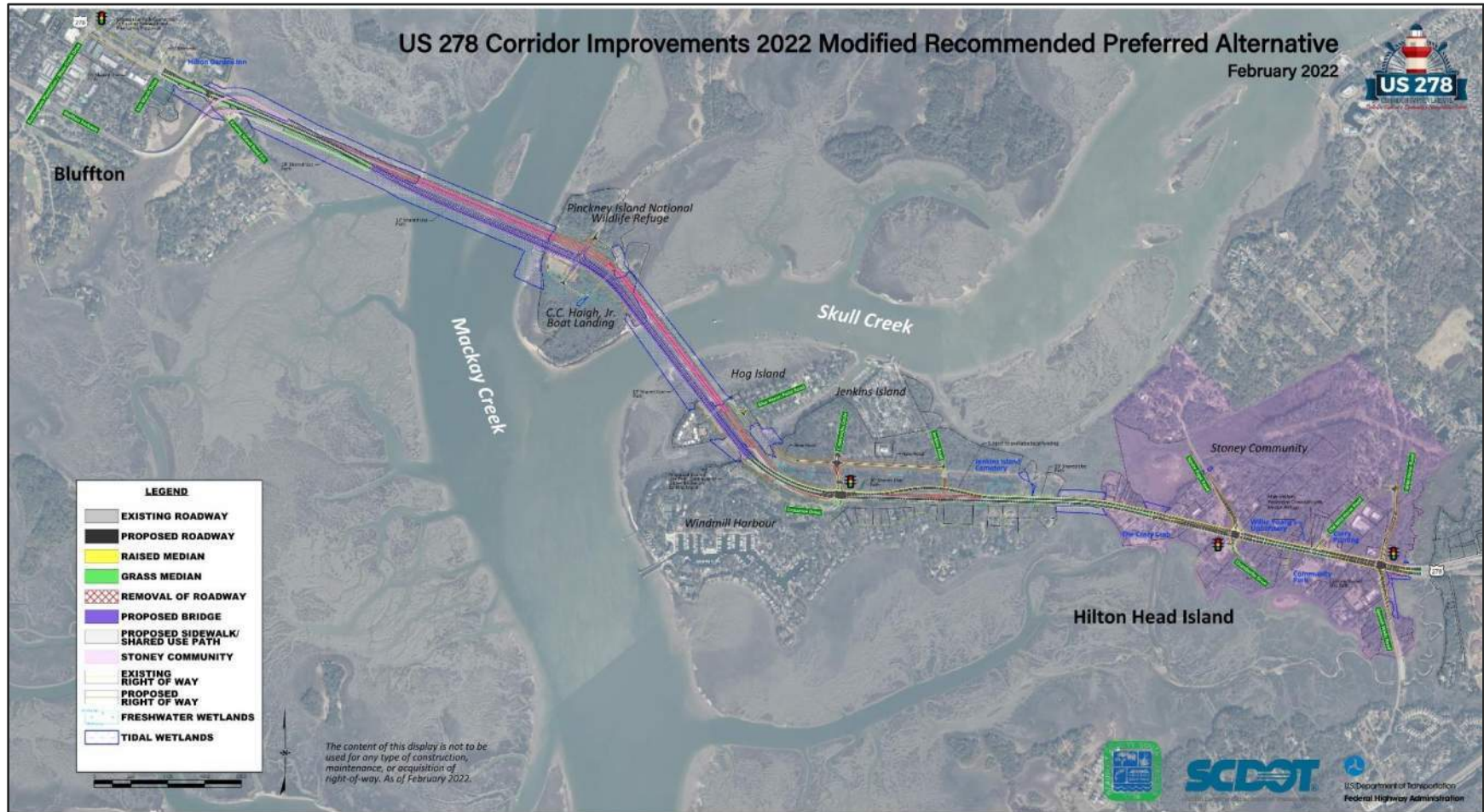


FIGURE 2. ALTERNATIVE 1: SCDOT MODIFIED RECOMMENDED PREFERRED

Modified Alternative 1 Traffic Analysis

The travel time calculations and traffic volumes between the 2045 No Build conditions and the 2045 Modified Alternative 1 conditions were evaluated using VISSIM which provides microsimulation travel time results along corridors. The traffic volumes used for the 2045 Modified Alternative 1 analysis are the same traffic volumes provided in the Technical Memorandum dated May 3, 2024.

As shown in **Table 1**, under the 2045 No Build scenario, it is expected that it would take approximately 26.3 minutes to travel eastbound along Hilton Parkway between Moss Creek and Indigo Run during the AM peak hour. It is expected that the travel time will be reduced to approximately 10.5 minutes under the Modified Alternative 1. Under the 2045 No Build scenario, it is expected that it would take approximately 25.7 minutes to travel westbound along Hilton Parkway between Moss Creek and Indigo Run during the PM peak hour. It is expected that the travel time will be reduced to approximately 10.3 minutes under the Modified Alternative 1.

TABLE 1. 2045 VISSIM TRAVEL TIME RESULTS

Corridor		2045 No Build Simulated travel time (secs)		2045 Modified Alternative 1 Simulated travel time (secs)		% Difference	
		AM	PM	AM	PM	AM	PM
William Hilton Pkwy between Moss Creek and Indigo Run	EB	1579	642	628	631	-60.23%	-1.71%
	WB	584	1544	597	616	2.23%	-60.10%
William Hilton Pkwy @Moss Creek to Cross Island Pkwy @Sea Pine	SB	1984	873	1387	874	-30.09%	0.11%
	NB	823	2465	848	904	3.04%	-63.33%

The 2045 Modified Alternative 1 operating conditions at the study intersections were evaluated using VISSIM, which is a microsimulation tool that replicates individual vehicles and their interactions within complex traffic streams, such as interchanges, freeways, and expressway corridors with signalized intersections. Intersection performance or traffic operations are quantified by six Levels of Service (LOS), which range from LOS A ("Free Flow") to LOS F ("Fully Saturated"). LOS D is considered acceptable for peak period conditions in urban and suburban areas. However, at side-street stop-controlled intersections, a LOS E or even a LOS F is a common occurrence for peak period conditions in urban and suburban areas as it is typical for delays to be longer for vehicles along the side-street as they wait to find acceptable gaps in the traffic to turn left into the traffic stream.

Levels of service for intersections are determined based on the average delay experienced by motorists. Signalized intersections reflect higher delay tolerances as compared to unsignalized and roundabout locations because motorists are accustomed to and accepting of longer delays at signals. For signalized and all-way stop intersections, the average control delay per vehicle is estimated for each movement and then aggregated for each approach and the intersection as a whole. For intersections with partial (side-street) stop control, the delay is calculated for the minor movements only (side-street approaches and major road left-turns) since thru traffic on the major road is not required to stop.

Table 2 summarizes the criterion for both signalized and unsignalized intersections, as defined by the Highway Capacity Manual (HCM) 6th Edition, last updated in 2016 by the Transportation Research Board.

TABLE 2. INTERSECTION LEVEL OF SERVICE THRESHOLDS

Level of Service	Control Delay per Vehicle (sec/veh)	
	Signalized	Unsignalized/Roundabout
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

The 2045 Modified Alternative 1 operating conditions are provided in **Table 3**. As shown, with the improvements proposed under the Modified Alternative 1, the study intersections are largely expected to operate favorably in the year 2045, with some exceptions. The eastbound and westbound through movements along US 278 are expected to operate with an overall LOS D or better between Moss Creek Dr and Gumtree Rd. While some of the side-street approaches at unsignalized intersections are still expected to experience failing conditions, the operations overall are significantly improved from the 2045 No Build scenario as vehicles can better complete their turning movement due to the reduction in congestion along the eastbound and westbound mainline.

The intersections downstream of Gumtree Rd are largely expected to operate favorably in 2045 with no improvements in place. However, long eastbound queues extending from Pembroke Dr through Gumtree Rd are expected during the AM peak hour. Similarly, the westbound queue at Jarvis Park Rd/Wilborn Rd is expected to extend back to Pembroke Dr during the PM peak hour. Furthermore, the mainline is expected to be over capacity in the year 2045. However, overall, the intersections are expected to operate acceptably with an overall LOS D or better during both peak periods.

As shown, the northbound approach at Jarvis Park Rd/Wilborn Rd is expected to have a failing LOS during the PM peak hour. It should be noted that this approach has minimal traffic volumes and the maximum queue expected is only approximately 200 ft. The eastbound left-turn movement at Indigo Run Dr is also expected to fail during the PM peak hour. The maximum queue length is expected to be approximately 335 ft, which would be contained within the existing turn lane.

Along Palmetto Bay Rd, the roundabout at Sea Pines is expected to fail during both AM and PM peak hours. The failing conditions result in long queue lengths. The southbound queue is expected to extend past the study intersection at Target Rd and towards Point Comfort Rd during the AM peak hour. This results in failing movements for the westbound left-turns out of the unsignalized intersections along Palmetto Bay Rd as vehicles are unable to find a gap in the traffic to complete their turning movement. During the PM peak hour, nearly every approach of Sea Pines Circle is expected to fail in 2045 with no improvements in place as the roundabout is unable to accommodate the expected traffic volumes.

TABLE 3. 2045 MODIFIED ALTERNATIVE 1 OPERATING CONDITIONS (VISSIM)

Intersection & Movements	LOS (Delay, sec) [95 th Queue Length, ft] {Max Queue, ft}	
	AM Peak Hour	PM Peak Hour
1: Buckingham Plantation Dr & Bluffton Pkwy (signal)		
Overall Intersection	B (17.0)	B (17.3)
Eastbound Approach	B (19.6) [63] {351}	C (20.4) [50] {242}
Westbound Approach	B (12.9) [<25] {188}	B (16.0) [51] {406}
Northbound Approach	B (14.3) [<25] {74}	B (14.2) [<25] {52}
Southbound Approach	A (6.6) [<25] {57}	A (9.6) [<25] {91}
2: Buckingham Plantation Dr/Moss Creek Dr & William Hilton Pkwy (signal)		
Overall Intersection	B (15.8)	B (19.7)
Eastbound Approach	B (14.6) [59] {389}	B (15.2) [51] {313}
Westbound Approach	B (15.7) [41] {286}	C (21.5) [127] {700}
Northbound Approach	B (20.0) [<25] {159}	D (37.5) [<25] {104}
Southbound Approach	C (22.8) [<25] {84}	C (26.3) [<25] {116}
3: Salt Marsh Dr/Moss Creek Village & William Hilton Pkwy (un-signalized)		
Eastbound Left Turn	A (8.0) [<25] {<25}	C (17.1) [<25] {50}
Westbound Left Turn	A (8.7) [<25] {<25}	A (8.3) [<25] {46}
Northbound Approach	B (11.3) [<25] {65}	B (10.7) [<25] {66}
Southbound Approach	A (8.6) [<25] {79}	B (10.5) [<25] {80}
4: Fording Island Rd Ext & William Hilton Pkwy (un-signalized)		
Westbound Left Turn	C (16.7) [<25] {<25}	C (15.6) [<25] {32}
Northbound Approach	B (13.3) [<25] {37}	B (12.1) [<25] {43}
5: Boat Landing Driveway/Wildlife Refuge Driveway & William Hilton Pkwy (un-signalized)		
Northbound Right-Turn	A (7.7) [<25] {<25}	A (6.4) [<25] {<25}
Southbound Right-Turn	No volumes observed	C (16.2) [<25] {25}
6: Blue Heron Point Rd & William Hilton Pkwy (un-signalized)		
	<i>Intersection combined with Crosstree Dr</i>	
7: Crosstree Dr (Windmill Harbour) & William Hilton Pkwy (signal)		
Overall Intersection	A (9.5)	A (7.3)
Eastbound Approach	A (8.9) [80] {818}	A (9.2) [58] {581}
Westbound Approach	A (8.6) [36] {330}	A (3.3) [31] {188}
Northbound Approach	D (42.5) [<25] {124}	E (58.1) [61] {244}
Southbound Approach	D (50.9) [<25] {92}	D (44.9) [<25] {101}

8: Jenkins Rd & William Hilton Pkwy (un-signalized)		
	<i>Intersection combined with Crosstree Dr</i>	
9: Chamberlin Dr/Squire Pope Rd & William Hilton Pkwy (signal)		
Overall Intersection	A (8.4)	B (11.8)
Eastbound Approach	A (7.0) [102] {697}	B (11.3) [124] {484}
Westbound Approach	A (8.2) [28] {237}	A (5.8) [36] {524}
Northbound Approach	C (30.4) [<25] {56}	E (67.0) [<25] {109}
Southbound Approach	C (22.6) [<25] {170}	D (51.1) [128] {521}
10: Old Wild Horse Rd & William Hilton Pkwy (un-signalized)		
Southbound Approach	A (4.7) [<25] {56}	B (12.5) [<25] {32}
11: Spanish Wells Rd/Wild Horse Rd & William Hilton Pkwy (signal)		
Overall Intersection	B (16.6)	C (23.8)
Eastbound Approach	B (11.0) [106] {998}	C (27.9) [198] {861}
Westbound Approach	B (11.2) [56] {248}	B (11.9) [84] {779}
Northbound Approach	D (48.6) [45] {135}	E (65.2) [77] {196}
Southbound Approach	E (75.9) [74] {292}	E (60.6) [49] {197}
12: Gumtree Rd & William Hilton Pkwy (signal)		
Overall Intersection	D (37.1)	D (43.8)
Eastbound Approach	C (33.4) [164] {682}	E (57.1) [184] {562}
Westbound Approach	D (40.8) [130] {369}	D (35.4) [236] {786}
Northbound Approach	C (26.6) [61] {264}	D (37.3) [98] {327}
Southbound Approach	D (50.2) [93] {302}	D (52.7) [119] {453}
13: Jarvis Park Rd/Wilborn Rd & William Hilton Pkwy (signal)		
Overall Intersection	C (26.7)	B (18.8)
Eastbound Approach	C (25.4) [439] {1480}	B (16.3) [103] {735}
Westbound Approach	C (21.6) [101] {686}	B (18.2) [295] {1202}
Northbound Approach	E (68.6) [43] {170}	F (87.6) [56] {191}
Southbound Approach	D (39.1) [66] {228}	B (19.2) [29] {112}
14: Pembroke Dr/Museum St & William Hilton Pkwy (signal)		
Overall Intersection	C (23.1)	C (24.5)
Eastbound Approach	B (18.9) [403] {1224}	B (17.2) [128] {910}
Westbound Approach	C (20.9) [75] {532}	C (21.6) [171] {903}
Northbound Approach	D (53.1) [71] {257}	E (60.1) [92] {299}
Southbound Approach	C (30.4) [<25] {89}	D (40.3) [<25] {111}

15: Central Ave & William Hilton Pkwy (un-signalized)		
Eastbound Left Turn	A (7.1) [<25] {<25}	C (19.3) [<25] {25}
Westbound Left Turn	C (24.1) [<25] {26}	A (9.5) [<25] {<25}
Northbound Right Turn	C (16.5) [<25] {27}	B (13.9) [<25] {32}
Southbound Right Turn	B (12.5) [<25] {45}	C (18.3) [<25] {38}
16: Hatton Pl/Merchant St & William Hilton Pkwy (un-signalized)		
Northbound Right Turn	A (9.5) [<25] {28}	A (7.8) [<25] {63}
Southbound Right Turn	B (11.3) [<25] {36}	C (22.9) [<25] {41}
17: Indigo Run Dr/Whooping Crane Way & William Hilton Pkwy (signal)		
Overall Intersection	C (25.1)	D (36.1)
Eastbound Approach	C (21.1) [134] {846}	C (33.6) [128] {751}
Westbound Approach	B (17.3) [53] {359}	C (28.0) [207] {887}
Northbound Approach	E (56.6) [33] {114}	E (66.9) [65] {268}
Southbound Approach	D (47.7) [56] {192}	E (57.6) [77] {264}
18: Cross Island Pkwy SB Ramp/Gumtree Rd & Honey Horn Rd (un-signalized)		
Eastbound Approach	B (11.4) [<25] {45}	B (10.9) [<25] {69}
19: Cross Island Pkwy SB Ramp & Marshland Rd (un-signalized)		
Westbound Left Turn	A (4.5) [<25] {63}	A (2.4) [<25] {70}
Southbound Left Turn	A (6.1) [<25] {85}	A (8.7) [<25] {127}
Southbound Right Turn	A (9.0) [<25] {51}	B (12.2) [<25] {94}
20: Cross Island Pkwy NB Ramp & Marshland Rd (un-signalized)		
Eastbound Left Turn	A (1.6) [<25] {49}	A (1.5) [<25] {<25}
Northbound Left Turn	B (12.1) [<25] {76}	D (27.7) [44] {227}
Northbound Right Turn	A (6.1) [<25] {101}	A (7.5) [61] {252}
21: Palmetto Bay Rd & Bay Pines Rd (un-signalized)		
Eastbound Left Turn	No volumes observed	E (47.6) [<25] {40}
Eastbound Right Turn	D (29.7) [<25] {41}	C (17.8) [<25] {38}
Northbound Left Turn	F (91.9) [<25] {60}	A (8.1) [<25] {26}
22: Palmetto Bay Rd & Point Comfort Rd/Arrow Rd (signal)		
Overall Intersection	C (33.0)	B (19.9)
Eastbound Approach	E (63.8) [98] {338}	C (30.6) [40] {184}
Westbound Approach	C (21.9) [26] {112}	C (28.0) [79] {328}
Northbound Approach	B (16.9) [50] {314}	B (16.6) [99] {607}
Southbound Approach	D (36.4) [840] {1658}	B (19.2) [120] {745}

23: Palmetto Bay Rd & Genesta St (un-signalized)		
Westbound Approach	F (303.0) [78] {175}	D (25.2) [<25] {54}
Southbound Left Turn	C (19.7) [494] {946}	B (13.6) [<25] {26}
24: Palmetto Bay Rd & Palmetto Business Park Rd (un-signalized)		
Westbound Approach	F (163.9) [109] {214}	C (17.9) [<25] {59}
Southbound Left Turn	B (10.5) [233] {419}	A (9.9) [<25] [<25]
25: Palmetto Bay Rd & Bow Cir (un-signalized)		
Westbound Left Turn	F (207.8) [89] {174}	E (45.5) [<25] {40}
Westbound Right Turn	F (70.2) [118] {207}	B (13.0) [<25] {74}
Southbound Left Turn	D (30.8) [1399] {1658}	B (14.3) [<25] {28}
26: Palmetto Bay Rd & Archer Rd (un-signalized)		
Westbound Left Turn	F (2,462.0) [73] {88}	E (35.5) [<25] {39}
Westbound Right Turn	B (13.2) [109] {125}	B (12.9) [<25] {76}
Southbound Left Turn	C (22.2) [380] {493}	B (11.6) [<25] {28}
27: Palmetto Bay Rd & Target Rd (signal)		
Overall Intersection	C (29.0)	B (19.0)
Eastbound Approach	D (36.9) [1380] {1512}	B (15.9) [142] {823}
Westbound Approach	B (12.9) [39] {249}	B (15.8) [85] {539}
Northbound Approach	C (26.6) [<25] {105}	D (39.5) [65] {263}
Southbound Approach	D (35.7) [34] {151}	C (25.5) [37] {140}
28: Palmetto Bay Rd & Dunnagans Alley (un-signalized)		
Westbound Left Turn	F (1,033.8) [80] {183}	F (101.3) [<25] {99}
Westbound Right Turn	F (91.9) [109] {217}	B (13.3) [35] {134}
Southbound Left Turn	C (22.0) [278] {513}	B (13.7) [29] {465}
29: Palmetto Bay Rd & William Hilton Pkwy (Sea Pines Circle, Roundabout)		
Overall Intersection	F (53.4)	F (79.2)
Eastbound Approach	F (314.9) [809] {838}	F (179.8) [805] {838}
Westbound Approach	B (14.0) [56] {420}	F (189.7) [1644] {1658}
Northbound Approach	A (4.1) [<25] {209}	F (52.9) [463] {788}
Southbound Approach	C (18.5) [307] {461}	A (9.1) [111] {460}

Conclusions

Lochmueller Group evaluated the downstream impacts of the 2045 Modified Alternative 1 conditions with modifications to provide a single eastbound left-turn lane and a single southbound right-turn lane at US 278 at Squire Pope Rd. The analysis included in this memorandum did not assume any physical, nor signal timing improvements to the intersections downstream of Gumtree Rd or Cross Island Parkway.

With the improvements proposed under the Modified Alternative 1, the downstream study intersections are largely expected to operate acceptably in the year 2045. However, the eastbound and westbound approaches between Jarvis Park Rd and Pembroke Dr are expected to experience long queues and be over capacity in the year 2045, and the existing roundabout at Palmetto Bay Rd and Sea Pines Circle is expected to fail during both the AM and PM peak hours. As a result of the failing roundabout, the queue lengths are expected to extend beyond nearby intersections.

As a next step, Lochmueller will evaluate potential improvements to the intersections downstream of Gumtree Rd and Cross Island Parkway to help mitigate the long queues and delays presented in this memorandum.

Response to Advisory Committee Desire to Fully Evaluate Southern Bypass Alternative (Deliverable not included in Original Scope of Services

MEMO

To: Town of Hilton Head Island, South Carolina
From: Lochmueller Group
Date: May 13, 2024
Subject: Independent Study of the William Hilton Parkway Gateway Corridor
Response to Advisory Committee Desire to Fully Evaluate Southern Bypass Alternative

During the May 8, 2024, William Hilton Parkway Gateway Corridor Independent Review Advisory Committee meeting, Lochmueller provided cursory, high-level observations related to traffic, geometric, ROW, and environmental challenges associated with the “Southern Bypass” alternative that has been brought up by citizens and/or Committee members. The primary purpose for sharing this information with the Committee and others in attendance was to provide reasoning as to why Lochmueller did not include this Southern Bypass alternative as one of the four alternatives that were thoroughly evaluated as a part of our independent study. A copy of the Southern Bypass related slides that were presented during the 5/8 Committee meeting are attached to this memorandum as **Appendix A**.

As specified during the May 8 Committee meeting, Lochmueller has been clear that our professional opinion is that any iteration of a new terrain route along the south side of US 278 is not feasible due to the many sensitive resources that would be impacted. However, the May 8 Committee meeting included a passing voice vote that seemingly puts Lochmueller in the position of having to evaluate an alternate concept that still has considerable identified flaws and only perpetuates a fallacious motive by some members of the Committee. We contend that further exploration and detailed evaluation of such a concept only serves as an exercise in futility and would not expend the Town’s money prudently, as the results will remain unchanged. Additionally, we can predict with certainty that South Carolina Department of Transportation (SCDOT) and the Federal Highway Administration (FHWA) will outright reject such a concept, regardless of its location south of US 278, because such a premise fails to regard the basic NEPA principles applied to projects of avoid, minimize, and mitigate. If the Town expands our scope to provide an in-depth analysis regarding the viability of a southern bypass alternative, we want to be certain the following is clear:

- 1) The FHWA and SCDOT will not accept any version of a route that extends on new terrain creating more direct impacts to the Stoney TCP and other Section 4(f) resources.
- 2) Recommending the inclusion of the southern bypass as part of SCDOTs recommended preferred alternative has grave implications associated with the trajectory of the level of NEPA document being prepared, if adopted by SCDOT. Currently, SCDOT is preparing an Environmental Assessment (EA) for the project. An EA is prepared for projects where it is unknown whether there are clear significant impacts to the natural or human environment, and typically culminates with FHWA issuing a Finding of No Significant Impact (FONSI). The FONSI is FHWA’s decision document for the project that acknowledges the absence of any significant impacts to the natural or human environment. However, at any point during the development of an EA, FHWA can elevate the level of environmental documentation to an Environmental Impact Statement

Huntington Tower, 201 W Springfield Avenue, Suite 1012
Champaign, Illinois 61820
PHONE: 217.673.7633

(EIS) if they foresee the potential for significant impacts. EIS-level projects conclude with FHWA issuing a Record of Decision (ROD), which is their acceptance of the preferred alternative and identification of all mitigation measures to offset the significant impacts. If FHWA elevates this project to an EIS, it is likely to require at least an additional two years to reach a ROD. Some of this time is attributed to necessary backsteps in the process to make the transition to the higher level of document, but a majority of it resides with time needed to update / complete the essential technical analyses that would be prompted by such an action in this case. A summary of some major actions associated with the elevation to an EIS for this project is listed below.

- Publication of a Notice of Intent (NOI) in the Federal Register
- Scoping meeting with resource agencies
- Update alternatives analysis
- Update noise analysis
- Update environmental justice analysis / additional outreach
- Update ecological surveys and supplemental coordination with agencies
- Updating Section 106 process to reflect adverse effects to previously reviewed resources (Stoney TCP) and new cultural resources (Honey Horn Plantation)
- Amend the Section 106 Memorandum of Agreement (MOA) to account for mitigation measures for new adverse effects
- Completion of an Individual Section 4(f) Evaluation for Stoney TCP, Park at 152 William Hilton Parkway, and Honey Horn Plantation)
- Prepare a Draft EIS
- Prepare for and conduct another public hearing
- Prepare Final EIS / ROD

This is not intended to be an exclusive list of tasks needed for the transition to an EIS but provides some insight on the breadth in task detail that will be required for such an endeavor. Elevation to an EIS would also likely make the project subject to the July 2020 regulations promulgated by the Council on Environmental Quality (CEQ) regarding Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act. Specifically, Section 1501.10(b)(2) of 40 CFR which mandates the completion of EISs within two years measured from NOI to ROD.

- 3) The requested analysis, if authorized by Town Council, is a deviation from our agreed upon scope of work and will require additional funds. We have taken the liberty of outlining some cost estimates to complete a full evaluation of the southern bypass to the same level as the other four alternatives approved by the Committee. Please note that what is provided below are ballpark estimates, intended to provide the Town with context regarding the scale of a supplemental request, and are not definitive costs.

May 13, 2024

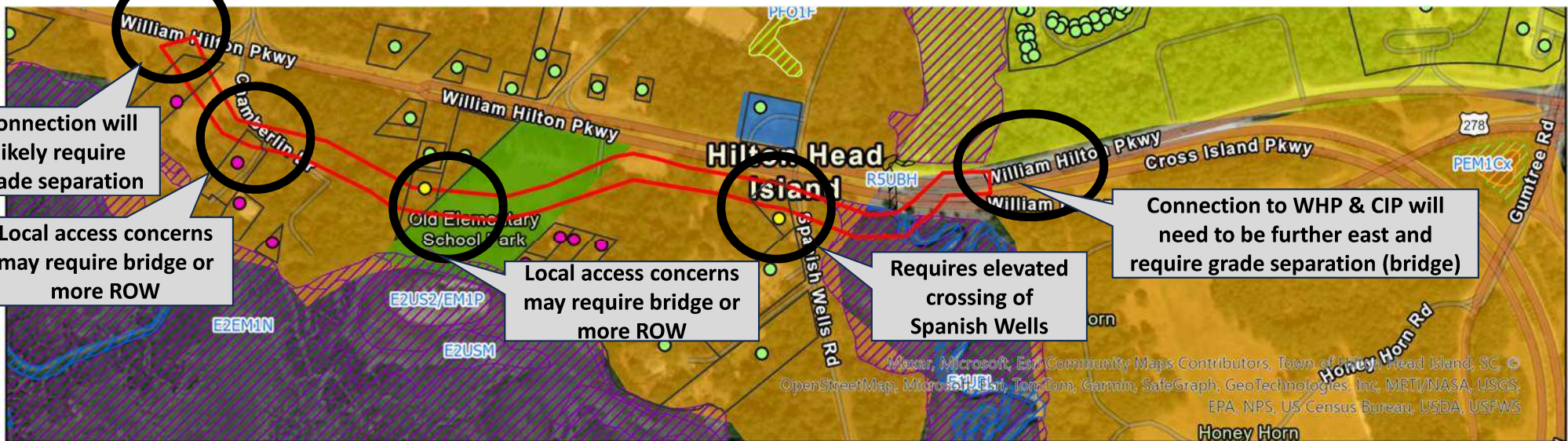
Page 3

<i>Discipline</i>	<i>Scope Modifications</i>	<i>Est. Cost</i>
Traffic Engineering Services	Evaluate concept to the level of detail identified in Task 3.3.3.	\$9,000
Environmental Services	Evaluate concept to match level of effort identified in Task 3.4.	\$8,000
Roadway/ROW/Costing Services	Define most realistic concept alignment, tie-in points to CIP, and general ROW footprint. Prepare cost estimate for concept.	\$9,000
Cursory Observation Services of TWG's Version 3.1	Initial observations already completed by Lochmueller to assess the TWG's Version 3.1 of the southern bypass, and presentation of findings at 5/8 Committee meeting.	\$5,725
TOTAL COST		\$31,725
TIME REQUIRED FOR COMPLETION (*UPON RECEIVING FORMAL NTP)		3 WEEKS

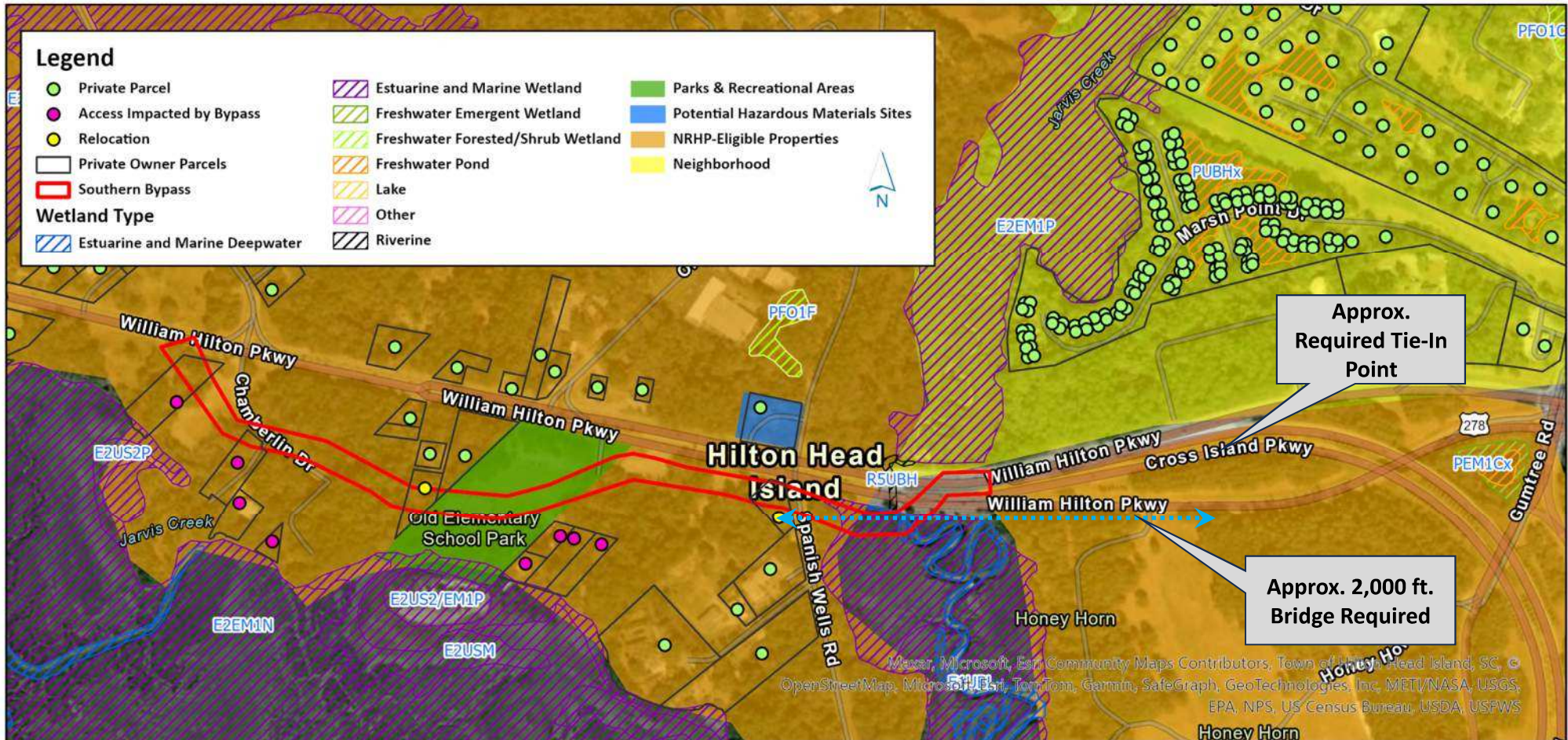
Pending a decision regarding the Southern Bypass, as per your direction, we will proceed with our Task 4 related modeling efforts for Alternative 1 (with minor modifications noted on 5/1). Any further evaluation of the Southern Bypass will be placed on hold until a definitive direction is received from you.

“Southern Bypass” | Cursory Traffic Overview

- At 12/12/23 Committee meeting, Committee members prioritized limiting impacts to ROW (any public and/or private parcels) as guidance to Lochmueller when selecting potential Alternatives. Topic re-emphasized at 3/27/24 Committee meeting.
- The “Southern Bypass” is not anticipated to improve the operating conditions of Gumtree Road, as there is no way to effectively bypass Gumtree at-grade.
- While the bypass has the opportunity to remove most of the through traffic from US 278, if the bypass is at grade, then it will still need to cross several streets as shown below, reducing the effectiveness of the bypass.



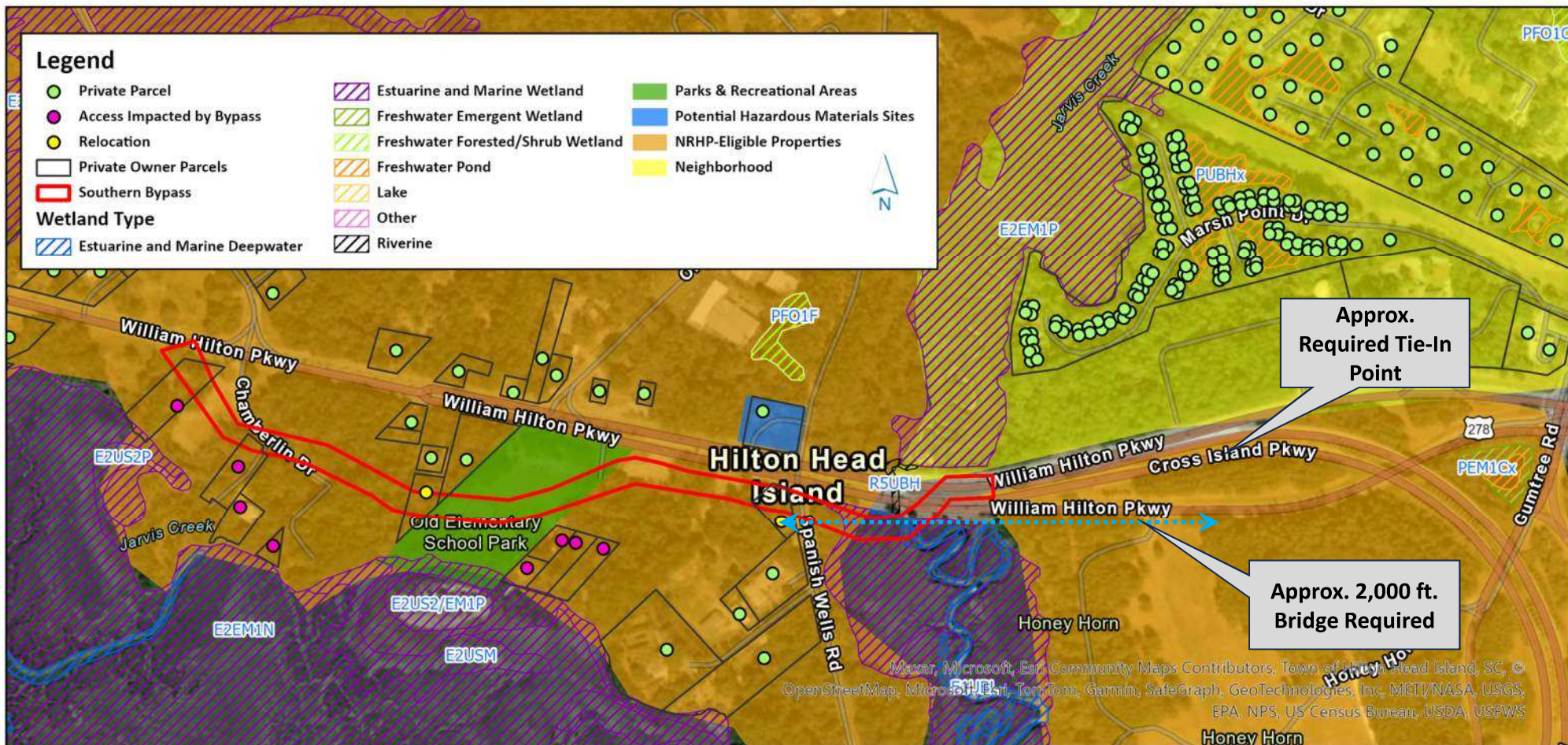
“Southern Bypass” | Cursory Overview Map



“Southern Bypass” | Cursory Engineering Overview

Categories	Prior SCDOT Findings / Considerations	Southern Bypass Constraints / Issues	Southern Bypass Overall Risks
Engineering Feasibility	<ul style="list-style-type: none"> • Concept not considered 	<ul style="list-style-type: none"> • The horizontal alignment to the east tying back into US 278, as presented, is not feasible • Current at-grade alignment creates access issues at Chamberlin Drive that requires consideration (i.e., bridge) • Tie-in point requires moving east to the Cross Island Parkway ramp (US 278 East) 	<ul style="list-style-type: none"> • Challenges in addressing the horizontal and vertical alignments need to be addressed – affects time and cost • New bridge, approximately 2,000 ft. in length required between Spanish Wells Road and Cross Island Parkway ramp
Right-of-Way	<ul style="list-style-type: none"> • Total of 34 acres of right-of-way required for the recommended preferred alternative 	<ul style="list-style-type: none"> • Estimated 6 additional acres required • Eliminates approximately 1.2 acres from SCDOTs proposed right-of-way needed for recommended preferred alternative 4(a) • 23 total parcels impacted (18 publicly owned 5 privately owned) • Creates 8 private parcels with access concerns (2 of which are partially impacted) 	<ul style="list-style-type: none"> • Additional right-of-way increases impacts to sensitive environmental resources • Additional time necessary to address access issues with the 8 parcels (total purchase or additional access road to Spanish Wells Road)
Relocations	<ul style="list-style-type: none"> • Two commercial relocations 	<ul style="list-style-type: none"> • Results in at least 2 additional relocations 	<ul style="list-style-type: none"> • Additional impacts to Stoney TCP

“Southern Bypass” | Cursory Overview Map



“Southern Bypass” | Cursory Environmental Overview

Categories	Prior SCDOT Findings / Considerations	Southern Bypass Constraints / Issues	Southern Bypass Overall Risks
Section 106 (Cultural)	<ul style="list-style-type: none"> • “Adverse Effect” finding for the project due to impacts to Archaeological Site 38BU66; “No Adverse Effect” for Stoney TCP 	<ul style="list-style-type: none"> • Greater impacts to Stoney TCP • New impacts to Honey Horn Plantation if tie-in corrected 	<ul style="list-style-type: none"> • Change in effect finding for Stoney TCP to “Adverse Effect” • New “Adverse Effect” likely for Honey Horn Plantation • Amendment to the Memorandum of Agreement likely
Section 4(f)	<ul style="list-style-type: none"> • <i>De minimis</i> impact finding for both Stoney TCP and the Old Elementary School Park • Honey Horn Plantation was not impacted 	<ul style="list-style-type: none"> • Additional “use” of Stoney TCP & Old Elementary School Park • New “use” of Honey Horn Plantation 	<ul style="list-style-type: none"> • Additional use of non-transportation land from Stoney TCP & the Old Elementary School Park likely to elevate to an Individual 4(f) evaluation • Time and cost expended to complete the Individual evaluation \neq a feasible & prudent option
Environmental Justice / Community Impacts	<ul style="list-style-type: none"> • 1 EJ community identified – Stoney • Determined project effects are not disproportionately high & adverse compared to non-EJ areas 	<ul style="list-style-type: none"> • New impacts to the EJ Stoney community requires: <ul style="list-style-type: none"> ✓ Outreach & engagement ✓ Benefits & burdens analysis ✓ Noise considerations 	<ul style="list-style-type: none"> • New terrain route introduces potential added benefits & burdens to evaluate • Potential unacceptance by the EJ community • Added mitigation costs
Ecological Impacts	<ul style="list-style-type: none"> • Impacts 22.9 acres of wetlands / streams • Impacts 145 acres of floodplain • “May Affect – Not Likely to Adversely Affect” finding for threatened & endangered from U.S. Fish & Wildlife Service 	<ul style="list-style-type: none"> • Creation of segmented forest block (Approx. 4 acres of tree clearing) • Approx. 0.7 acre of NWI wetland impact; 140 linear ft. of stream impact • Approx. 1 acre of floodplain impact 	<ul style="list-style-type: none"> • Agency concerns with added forest, wetland, stream, & floodplain impacts • Potential elevation in Threatened & Endangered Species finding • Added mitigation costs