



CHAPTER 2. DEVELOPMENT OF ALTERNATIVES

2.1 HOW WERE THE POTENTIAL ALTERNATIVES EVALUATED?

Alternative Evaluation Categories were developed to define and prioritize the issues of concern during alternative development. The issues covered by the Alternative Evaluation Categories were evaluated at different levels of detail over the course of the process, beginning at a very broad level and ending with more detailed evaluations. The primary and secondary needs of the project provided the initial guidelines for establishing the Alternative Evaluation Categories. Utilizing the categories ensured that alternatives were developed that satisfied the project Purpose and Need, while at the same time attempted to conserve the natural environment (including wetlands), community values, and cultural resources. This was accomplished by minimizing impacts to the natural and human environment. The Alternative Evaluation Categories are detailed in the *Alternative Development Technical Memorandum* and include:

- Purpose and Need;
- Environmental factors (i.e., wetlands, protected species, and historic resources);
- Socioeconomic issues (i.e., communities, minority and low income areas);
- Infrastructure (i.e., churches, schools, cemeteries, and fire stations);
- Engineering criteria and constructability (i.e., roadway design requirements);
- Economics (i.e., travel efficiency and development opportunities);
- Existing and future development (i.e., new residential or commercial growth);
- Indirect and cumulative impacts (i.e., impacts to wetlands from development);
- Current and future land use (i.e., conversion of farmland to development);
- Traffic (i.e., vehicle travel times and level of service);
- Construction cost (i.e., responsible expenditure of public funds);
- Utility impacts (i.e., relocation of power lines or gas lines);
- Consideration of existing transportation infrastructure (i.e., use existing roadways as frontage roads); and,
- Toll Feasibility/Financial Feasibility (i.e., comparison of funding required and estimated revenue from toll collection).

2.2 WHAT IS THE AGENCY COORDINATION TEAM?

The Agency Coordination Team (ACT) consisted of representatives from FHWA, USACE, USCG, USEPA, NRCS, USFWS, NOAA Fisheries, SCDAH, SCDOC, SCEMD, SCDHEC, SCDHEC-OCRM, SCDNR, SCDOT, and SCPRT. All of these agencies, with the exception of FHWA, the lead Federal agency, and SCDOT, are cooperating agencies.

The purpose of the ACT was to help merge the NEPA and Section 404 (wetland) permitting processes and to offer multiple opportunities for the agencies to be involved in the development of the project. These opportunities were spread throughout the EIS development process and included agency participation in the determination of the study area boundaries, Purpose and Need, alternative evaluation categories, development of alternatives,



selection of alternatives for further study, selection of a Preferred Alternative, mitigation of unavoidable impacts, and project design features. For more detailed information about the ACT, refer to Chapter 4.

The agencies provided information pertinent to their particular areas of expertise throughout the EIS process. As discussed in further detail in Section 2.4, the ACT participated in the selection of the data layers used by the Corridor Analysis Tool (CAT). They also provided input on the features designated as constraints. ACT members assigned numerical values, on a scale of one to ten, to each feature in each data layer utilized by the CAT. They also set the weighting for each layer. In addition, each agency was given the opportunity to draw alternatives on a map of the study area. The alternatives were then quantified using the CAT and the results provided to the ACT, along with the results from other segments generated by the CAT.

A field visit was conducted in May 2005 with the ACT to review areas of special interest to ACT members. Agency comments and data collected from the field visit were also used to modify the alternatives and to develop the indirect and cumulative impact analysis. As of November 2007, the ACT members have met a total of 28 times over 35 months.

Based upon the continuous involvement of the ACT, agency input on the project and the proposed alternatives has been possible from the onset. Due to this early and consistent coordination, the FHWA and SCDOT were able to perform the field work for only the Preferred Alternative. The potential cost and time savings of completing the field work for one alternative versus all eight reasonable Build Alternatives was attributable to the oversight of the ACT.

2.3 WHAT ARE THE CONDITIONS OF THE NO-BUILD ALTERNATIVE?

The No-build Alternative would fail to satisfy the stated purpose and primary and secondary needs for the project. The purpose of the proposed project “is to provide an interstate link between I-95 and the Myrtle Beach region to serve residents, businesses, and tourists while fulfilling congressional intent in an environmentally responsible and community sensitive manner.”

The primary needs for the project are to provide system linkage between the interstate system and the Myrtle Beach region and to enhance economic opportunities and tourism in South Carolina. Secondary needs are to relieve local traffic congestion, provide for multimodal planning, and improve hurricane evacuation.

The No-build Alternative would not satisfy the project’s Purpose and Need, since it would not provide:

- A direct link between I-95 and the Myrtle Beach region to improve system linkage. I-73 has been named as a High Priority Corridor (Number 5) by the U.S. Congress. This section of I-73 is needed to provide the connection between the Myrtle Beach region and I-95. Without this link, the planned High Priority Corridor between Michigan and South Carolina would not be completed;



- Opportunities for economic growth and tourism. The interstate would provide economic opportunities to the project study area that would result from the connectivity to the interstate system. Dillon and Marion Counties are two of the most economically depressed counties in the state. They have high unemployment and low income levels. A key to maintaining and improving tourism is the ability of the tourist to readily access destinations. The connection provided by I-73 would increase the travel efficiency for tourists traveling through South Carolina;
- The facilitation of a more effective evacuation of the Myrtle Beach region during emergencies. In 2030 the estimated evacuation times on U.S. Route 501, without the construction of I-73, would range between 24 and 37.4 hours depending upon the category of hurricane. This is an estimated eight to 13.2 hours longer than the existing evacuation time. Hurricane evacuation times would be dramatically reduced with any of the Build Alternatives. Because I-73 is a controlled-access facility, it also would make lane reversal, switching in-bound travel lanes to handle out-bound traffic, simpler. I-73 would allow people leaving the Myrtle Beach area an alternative to the bottleneck on U.S. Route 501 and provide additional capacity for evacuees. The differences in evacuation times between the No-Build Alternative and the Build Alternatives are illustrated in Table 1.9 (refer to page 1-23).
- A reduction in existing traffic congestion on roads accessing the Myrtle Beach region. The construction of the interstate would result in savings to the traveling public resulting from increased travel efficiency, reflected in reduced travel times on the local roadways. The diversion of traffic to the interstate from the local road network that would result from the construction of the proposed interstate would improve safety on the local network. This would take persons unfamiliar with the local roads off of that network and put them on the interstate, a more familiar situation for those traveling long distances. It would also remove truck traffic from the local network. Traffic congestion is currently a problem for this area primarily on “change-over day” when the tourists at the beach leave and new tourists arrive. This causes delays along U.S. Route 501 from Aynor south. By providing an interstate connection from S.C. Route 31 and U.S. Route 17 all the way to I-95, a high-speed alternative route to bypass this congestion would be available. The traffic travel savings between the No-Build and several of the Build Alternatives show savings of as much as 25 percent for the 65 mile trip, based upon the Annual Average Daily Traffic volumes. The travel time savings between the No-Build and the Build Alternatives for the peak season, June 1 through August 31, would be as much as 29 percent for the 65 mile trip (refer to the *Traffic Technical Memorandum*); nor,
- A plan for future provision of a multimodal facility. Within its right-of-way I-73 includes the potential for two rail corridors that would allow for future passenger and/or freight rail. This has the potential for providing additional rail connectivity to northeastern South Carolina.

The No-build Alternative would not provide the interstate link between I-95 and the Myrtle Beach region. Failure to provide this link would lead to the loss of projected economic opportunities, the potential loss of tourism due to in-season congestion for tourists visiting Myrtle Beach, no improvement in local traffic congestion, longer travel times, the loss of the multimodal opportunities provided by the corridor, and no improvement in hurricane evacuation.



The projected economic benefits from constructing I-73 are summarized in Section 2.7.1.2 (refer to page 2-42). This analysis shows that the study area would benefit in terms of the number of jobs and money flowing into the area from any of the Build Alternatives.

The No-build Alternative in 2030 provides a benchmark for impacts against which the Build Alternatives are measured. In all cases, the No-build Alternative was evaluated along with the Build Alternatives. For some categories of impacts the No-build Alternative may be more negative than the Build Alternatives. In other categories the No-build may have different impacts than the Build Alternatives that can be positive from one sense, but negative for another. For example, land uses will change by the Year 2030, even for the No-build Alternative. The projected land use changes for the No-build were lower, when compared against the Build Alternatives. This would be positive from the natural resource standpoint, but negative from an economic development viewpoint.

2.4 HOW WERE THE PRELIMINARY BUILD ALTERNATIVES DEVELOPED?

The No-build Alternative is one of the alternatives under consideration in the NEPA Process. As its name indicates, it is the null alternative which evaluates the no construction option. This alternative allows the evaluation of the project study area in its current condition without potential impacts related to construction and operation of the proposed project. The No-build Alternative establishes a baseline of environmental and socioeconomic conditions against which all Build Alternatives can be compared.

A computer model utilizing Geographic Information System (GIS) data was created to develop potential alignments. The CAT is a computer program that allowed GIS data to be utilized to generate potential corridors and to analyze the corridors in a short period of time. This allowed more time to be spent on interpretation, refinement, and comparison of potential corridors.

Multiple government agencies were identified as possible sources of GIS data and five information categories were identified that would be necessary to include in the CAT program. These categories were identified as environmental, socioeconomic/demographic, engineering, infrastructure, and physical/cultural. Reference materials were also obtained that validated the GIS data.

Numerous federal, state, and local agencies along with non-governmental organizations were contacted for their available GIS data (refer to Table 2.1). Approximately 877 GIS data layers and 482 tiles of aerial photography were collected from 21 sources. A detailed list of the data layers including the supplying agency, data coordinate system, date of publication, and date of receipt can be found in the *GIS and Data Collection Activities Technical Memorandum*.

52 GIS layers were determined to be complete and accurate for possible inclusion in the CAT program (refer to Table 2.2, page 2-6).

The 52 potential data layers were organized into four categories entitled environmental, roadways, infrastructure, and demographic/socioeconomic. Each feature within the 52 potential data layers utilized by the CAT was



Table 2.1
Agencies Contacted Regarding GIS Data
Interstate 73 FEIS: I-95 to the Myrtle Beach Region

Level	Agency
National	Federal Emergency Management Agency
	U.S. Census Bureau
	U.S. Department of Agriculture
	U.S. Environmental Protection Agency
	U.S. Geological Survey
State	S.C. Budget and Control Board
	S.C. Department of Commerce
	S.C. Department of Health and Environmental Control
	S.C. Department of Natural Resources
	S.C. Department of Parks, Recreation, and Tourism
	S.C. Department of Transportation
	S.C. Emergency Management Division
	S.C. Geodetic Survey
	S.C. Institute of Archaeology and Anthropology
	S.C. State Historic Preservation Office
County	Dillon County Government
	Horry County Government
	Marion County Government
	Marlboro County Government
	Pee Dee Council of Governments
	Waccamaw Council of Governments
City	City of Bennettsville
	City of Conway
	City of Dillon
	City of Marion
	City of Mullins
	City of Myrtle Beach
Other	Pee Dee Resource Conservation and Development Council
	The Nature Conservancy
	University of South Carolina - Columbia

assigned a numerical value, on a scale of one to ten (ten representing the most valuable, refer to Appendix B). For example, the environmental category included wetlands from the National Wetland Inventory (NWI) Mapping. Each wetland type in the NWI layer was assigned a numerical value in consultation with the agencies.

The ACT also designated some of the GIS data as constraints, which resulted in the information within the layer being removed from consideration by the CAT when generating alternative corridors. A potential alignment should not pass through a feature designated as a constraint. The following layers were designated as constraints:



Table 2.2
Possible GIS Layers for CAT Program
Interstate 73 FEIS: I-95 to the Myrtle Beach Region

Layer
ENVIRONMENTAL
National Wetland Inventory Mapping (Wetlands and Uplands)
Little Pee Dee River in Dillon County
Soils
Mitigation Banks and Sites
Species of Concern
Federal and State Threatened and Endangered Species
Archaeology Sites
Historic Resources (Architectural)
National Historic Register Sites
Heritage Preserves
Parks (federal, state, and local)
Wildlife Refuges
Federal Lands (Over 640 acres)
Land Stewardship
Hazardous Sites
Landfills
NPDES Sites
Streams/Rivers/Lakes
Streams/Rivers/Lakes-Special Designation
Watersheds
Floodplain for Great Pee Dee River
Floodplains
Land cover
Mines/Geologic Features
ROADWAYS
Roads (Urban and Rural)
INFRASTRUCTURE
Railroads
Transmission Lines
Oil Pipelines
Bridges
Airports
Buildings (Industrial Vacant)
Dams (Hazardous)
Fire Stations
Administrative Buildings (Government)
Churches
Community Facilities
Health Facilities
Hospitals
Libraries
Mental Health Facilities
Schools
Cemeteries
Incorporated Areas
Municipalities
Sewer Infrastructure
Pipelines
Treatment Plants
Surface Withdrawal Locations
Storage Sites
DEMOGRAPHIC/SOCIOECONOMIC
Minority Areas/Density
Low Income Areas/Density
Population Density



- Intact Carolina bays;
- Mitigation Banks and Sites;
- Known Federal Threatened and Endangered Species Locations;
- Known State Threatened and Endangered Species Locations;
- Archaeology Sites Potentially Eligible, Eligible, or Listed on National Register of Historic Places;
- Historic Resources Potentially Eligible, Eligible, or Listed on National Register of Historic Places;
- SCDNR Heritage Preserves;
- Publicly-owned Parks (Federal, State, and Local);
- Hazardous Sites on National and State Priority Lists;
- Landfills;
- Mines/Geologic Features;
- Airports;
- Schools; and,
- Cemeteries.

The four categories were given an overall importance value that totaled 100 for the CAT program. Each category was given a value based upon the relative importance given to each category; environmental (50), roadways (10), infrastructure (20), and demographics/socioeconomic (20). The criteria weighting and constraints were then programmed into the CAT and used to generate preliminary Build Alternatives.

The CAT developed corridors through weighting the values that were assigned through interagency coordination, (refer to Section 2.1) for environmental, socioeconomic, engineering, and infrastructure resources in the project study area.

The CAT used a grid- or cell-based format. The program found the corridor of least impact between the endpoints of each alignment (starting and ending points) and summarized the impacts for each alignment corridor. The endpoints were set and the program developed a “least impact” line that connected the two points. Surrounding this line was a “suitability grid” that illustrates areas that were close to the best fit line and that were within a designated percentage (1 to 2 percent) of the least impact line. To ensure that the alignment would be functional as a roadway, the “least impact” line was adapted to accommodate a 75-mile per hour design speed using basic design criteria. A more detailed explanation of how the CAT program operates can be found in the *GIS and Data Collection Activities Technical Memorandum*.

In addition, each state and federal resource and regulatory agency was given the opportunity to manually draw alternatives on a map. The impacts for these alternatives, along with those for the segments generated by the CAT, were then quantified. Overall, the CAT developed approximately 63 preliminary build segments, which were combined to form 141 possible preliminary Build Alternatives (refer to Figure 2-1, page 2-9). The impacts were quantified for each of the 141 preliminary Build Alternatives and are summarized in the *Alternative Development Technical Memorandum*. In addition, a sensitivity test was performed on the CAT program to verify that the values for features used by the CAT to select paths were minimizing potential impacts to the environment (refer to the *Alternative Development Technical Memorandum* for more details).



2.4.1 How was the public involved in developing the preliminary Build Alternatives?

The public had opportunities for commenting on the project through scoping and information meetings, a telephone hotline, and a project website. Additional community information meetings were also held throughout the project study area in an effort to reach out to minority residents. Comments and recommendations that were gathered through coordination with the Stakeholder Working Group and the public were reviewed and taken into consideration during alternative development. Please refer to Chapter 4 for a detailed discussion of the public involvement process.

Public Scoping Meetings were held at two locations at the initiation of the project. The scoping meetings were an informal, drop-in style format that allowed citizens to ask questions and receive information on an individual basis. A survey of issues, a comment card, and an informational brochure were distributed to each attendee. The informational brochure included a brief description of the project, the official website address, and the toll-free hotline number. The comments received from the public were used to help develop the preliminary Build Alternatives.

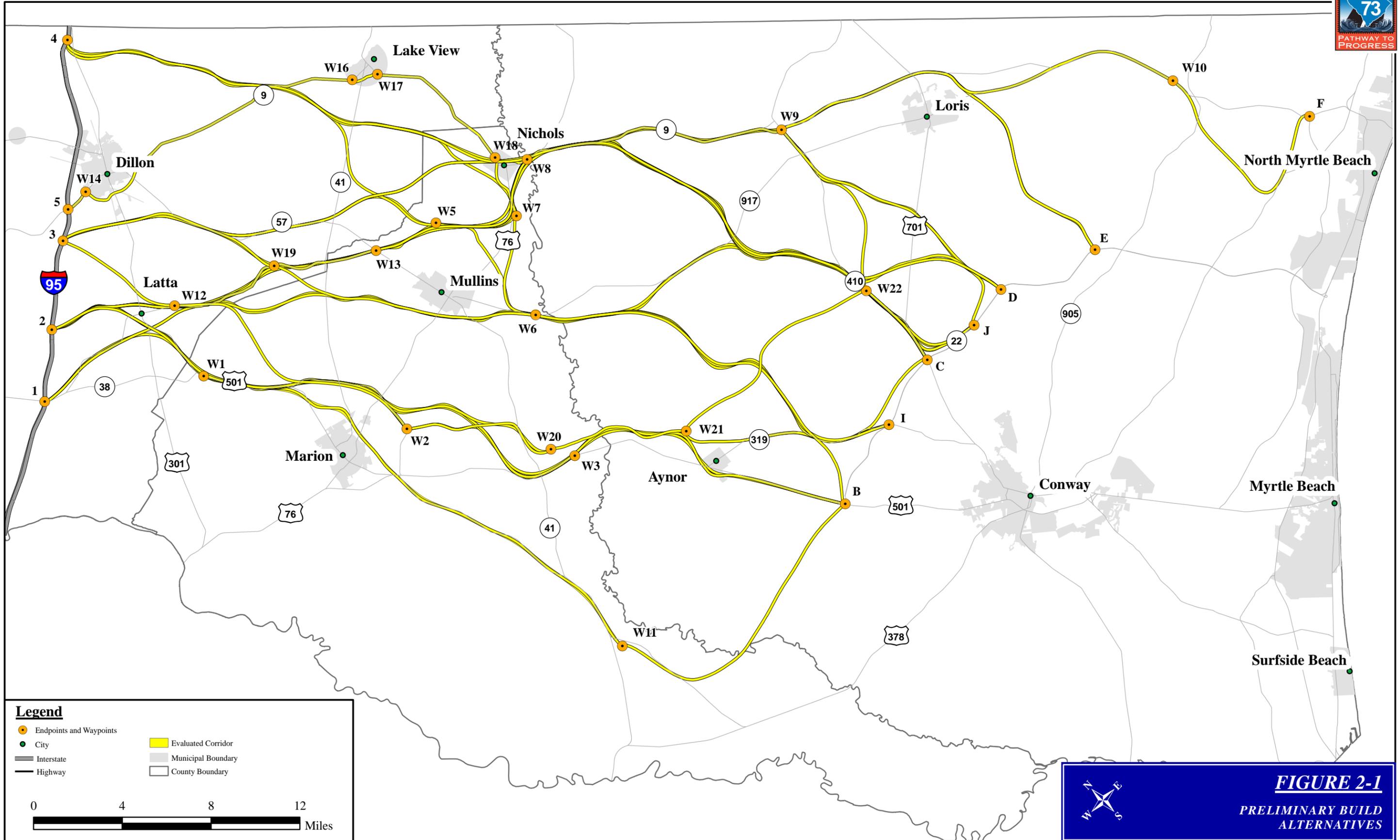


A Stakeholder Working Group was organized to create a forum for discussion with, transfer of information to, and to receive feedback from a diverse group of constituent representatives potentially impacted by the proposed project. Stakeholders were engaged in a series of meetings throughout the process and provided perspectives that represented the diverse demographics of the study area and various organizations and interest groups.

A project website was developed and updated periodically with new information and upcoming meeting times and locations. In addition, a toll-free telephone hotline was established for citizens without internet access to receive project updates and find out about upcoming meeting times and locations. The website and telephone hotline also allowed citizens to provide comments via email or in a recorded format, respectively. Furthermore, a project newsletter was available on the project website.

2.4.2 How were the 141 preliminary Build Alternatives evaluated?

The Alternative Evaluation Categories were used to compare the 141 preliminary Build Alternatives that could be created by different combinations of segments (refer to Figure 2-1, page 2-9). The alternatives were first screened using the Purpose and Need. The primary needs of system linkage and economic development were used as the first level of screening. For the project need to be fulfilled, the alternatives had to improve national and regional connectivity by providing a direct link between I-95 and the Myrtle Beach region, as well as enhance economic opportunities and tourism in South Carolina. Seven preliminary Build Alternatives were eliminated for failure to satisfy these primary needs; thus, reducing the number of preliminary Build Alternatives to 134.



Legend

- Endpoints and Waypoints
- City
- Interstate
- Highway
- Evaluated Corridor
- Municipal Boundary
- County Boundary

0 4 8 12 Miles

FIGURE 2-1
PRELIMINARY BUILD ALTERNATIVES



The secondary needs of the project were identified as hurricane evacuation, relief of local traffic congestion, and multimodal planning. It was determined that secondary needs of the project would be met indirectly by alternatives when the primary needs are fulfilled. Any Build Alternative would facilitate more effective evacuation of the Myrtle Beach region during emergencies, should reduce existing traffic congestion on roads accessing the Myrtle Beach region, and would help future provision of a multimodal facility within the interstate corridor. No preliminary Build Alternatives were eliminated due to failure to meet the secondary needs of the project.

The preliminary Build Alternatives were next evaluated against the potential impacts to the natural environment. A 600-foot corridor was initially used to quantify impacts because the typical section, as described previously in Chapter One (refer to Section 1.1.2, page 1-2), had not been established when the preliminary Build Alternatives were developed by the CAT program. The 600-foot corridor was used because it was expected to provide adequate width to accommodate the proposed facility. Constraints were not impacted by any of the 141 preliminary Build Alternatives developed by the CAT. The following impacts were quantified by the CAT and compared in an effort to reduce the number of preliminary Build Alternative segments:

- Wetland acreage (classified as previously impacted or not impacted);
- Wetland value (determined by ACT-assigned valuation multiplied by the acreage impacted);
- Upland acreage (total acreage);
- Species of concern;
- Infrastructure (i.e. churches or fire stations); and,
- Corridor length/cost (corridor length was used to estimate potential cost).

A detailed matrix of the segment impacts was completed. Competing segments, those that had the same start and endpoints, were compared and the segments with the highest impacts were eliminated. This resulted in reducing the number of preliminary Build Alternatives from 134 to 25.

2.5 HOW WERE THE REASONABLE BUILD ALTERNATIVES DEVELOPED?

A summary of the process, including information for each of the 63 preliminary build segments, the 141 preliminary Build Alternatives, how segments were eliminated, and the information on the remaining 25 preliminary Build Alternatives was presented to the ACT for their consideration. Figure 2-2 (refer to page 2-12) illustrates the 25 preliminary Build Alternatives that were presented to the ACT for consideration. The alternatives that were depicted on Figure 2-1, but are not shown on Figure 2-2 are the portions eliminated from further evaluation based on potential impacts, refer to the *Alternative Development Technical Memorandum*.

The potential wetland impacts for the remaining 25 preliminary Build Alternatives range from approximately 486 acres to 676 acres. As discussed previously the use of existing roadway infrastructure was evaluated, quantified, and compared. For example, the segment from start point four to way point W8, that utilized portions of S.C. Route 9, would result in approximately 125 additional acres of impact than the segment from start point three to way point W8 (refer to Figure 2-1, page 2-9). The ACT determined that 125 additional



wetland acres was sufficient to eliminate this segment from further evaluation in favor of segment 3-W8. Further evaluation of using S.C. Route 9 was completed with two alternatives, 3-W5-W8-W9-W10-F and 4-W8-W9- W10-F. These alternatives most closely follow existing S.C. Route 9, but resulted in potential wetland impacts of 1,144 acres and 1,250 acres respectively. It was determined to eliminate these alternatives from further evaluation since a multitude of other alternatives would meet the Purpose and Need of the project without significantly impacting wetlands. Please refer to Chapter 4, the *Alternative Development Technical Memorandum*, and the *Public Involvement Technical Memorandum* for further information.

Of the 25 preliminary Build Alternatives presented to the ACT, approximately nine utilized portions of U.S. Route 501, four utilized a portion of S.C. Route 9, three alternatives used portions of S.C. Route 917 and one alternative utilized existing S.C. Route 38.

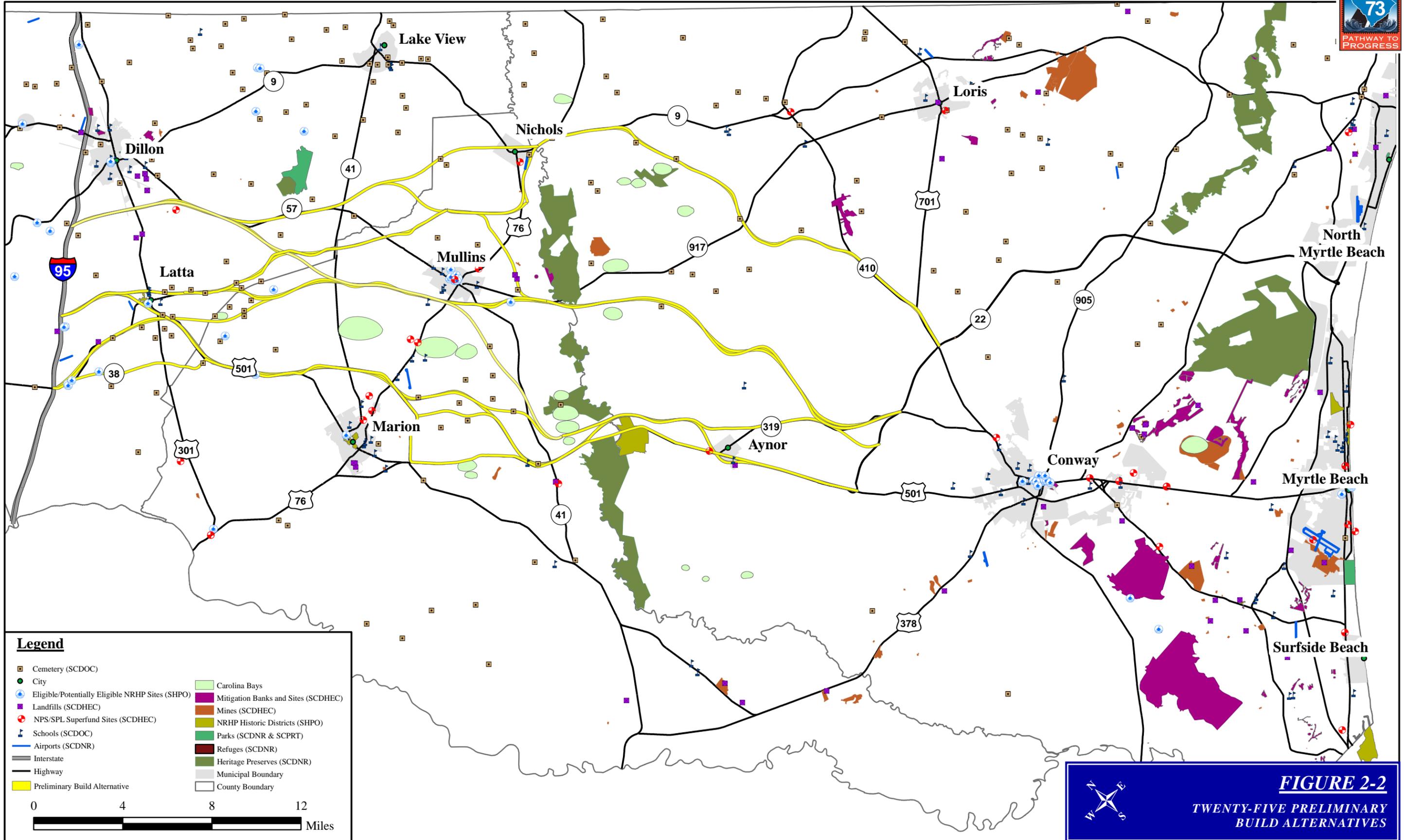
The Project Team made recommendations as to the reasonable Build Alternatives to be carried forward and evaluated in more detail. After extensive discussion and evaluation at the December 9, 2004 ACT meeting, the ACT reached a consensus on designating seven of the 25 as reasonable Build Alternatives for further study. Of the seven reasonable Build Alternatives, three utilized portions of U.S. Route 501 near Aynor, South Carolina, and two utilized a portion of U.S. Route 501 east of Marion. The remaining alternatives that would utilize existing roadway infrastructure were eliminated from further evaluation based on one or more of the following: higher wetland impacts, longer length, greater cost, and that the alternative would not meet the Purpose and Need of the project as well as other alternatives due to minimal length in Marion County, which would provide minimal economic development opportunity. Please refer to the *Alternative Development Technical Memorandum* for further information.

The reasons that the alternatives were eliminated are detailed in the *Alternative Development Technical Memorandum*.

2.5.1 How was the public involved in developing the reasonable Build Alternatives?

Following the designation of the seven reasonable Build Alternatives in coordination with the ACT, the corridors were presented to the public for review and comment. Four Public Information Meetings were held to present the reasonable Build Alternatives. A Public Information Meeting was held in each of the three counties within the project study area, with two held in Horry County (refer to Chapter 4, Section 4.1.3, page 4-2, for a detailed discussion). Overall, approximately 1,259 people attended the four Public Information Meetings, and approximately 1,023 comments were received. Each written comment was reviewed, and the written and the verbal comments heard at each of the public involvement meetings were used to reevaluate the proposed alternatives. Modifications were made to the presented reasonable Build Alternatives that reflect many of the comments. Some additional alternatives were also developed and evaluated as a result of comments received.

In addition to the Public Information Meetings, community presentations were made to reach out to interested citizens from the study area. These meetings served to disseminate information about the project and gather input at the local and community level as to what was important about the project. Approximately 17 community presentations were made to 267 people.





2.5.2 What modifications were made to the reasonable Build Alternatives based on input?

Public and agency input resulted in the modification of alternatives to move away from communities such as Aynor, Cool Spring, Floydale, Galivants Ferry, Ketchuptown, Temperance Hill, and Zion. The alternatives were also modified to avoid two neighborhoods in the vicinity of Mullins and to minimize potential impacts to Aynor.

As a result of the public comments, and as part of the effort to continue to improve the alternatives to minimize impacts, the reasonable Build Alternatives were again analyzed and modified. The alternatives were once again divided into segments to study potential impacts and to be used to “assemble” the least impact alternatives. Information regarding the existing communities, wetland types, constraints, other layers evaluated by the CAT, and public input was used to modify the segments to minimize impacts.

During the ACT coordination process, one concern expressed was that while the CAT designated alternatives represent the “best fit” corridor, there were several other wider corridors called suitability layers that could have similar impacts. The suitability layers illustrate the areas that were within 99.0 to 99.9 percent of the “best fit” corridor and those within 98.0 to 98.9 percent of the “best fit” corridor. Therefore, other alternatives within the suitability layers for each of the reasonable Build Alternatives previously discussed were evaluated (refer to Figure 2-3, page 2-15).

Overall, approximately 108 individual segments were created or modified based on the suitability layers and public input (refer to Figure 2-4, page 2-16). The segments were compared using the Alternative Evaluation Categories and the segments that had the highest impact were eliminated in favor of those with lower impacts. As explained previously, the Purpose and Need and then potential impacts were used to determine the best route for each portion of each overall alternative. The following impacts were quantified by the CAT and were taken into consideration to compare the segments:

- Wetland acreage (classified by previously impacted or not impacted);
- Wetland value (determined by ACT-assigned valuation and acreage impacted);
- Uplands;
- Species of concern;
- Infrastructure (i.e. churches or fire stations);
- Corridor length (used to estimate potential cost); and,
- Residential and business relocations.

The result was the development of segments that would avoid areas of concern (refer to Figure 2-4, page 2-16), for example, segments that would be farther west of Aynor (BG and AG1), farther east of Cool Spring (AT, AM2, AM3, and AM Mod1), farther west of Floydale (B2 and B4), and farther north of Temperance Hill (J1, J2, and U2).



2.5.3 Were any new segments developed based on public comments?

Approximately 12 new segments were developed that modified the corridor to cross the Little Pee Dee River southwest of U.S. Route 501, and two new segments were evaluated that followed the school district attendance zone boundary between Loris and Aynor (refer to Figure 2-5, page 2-17). In addition, Horry County, by Resolution R-40-05, dated April 5, 2005, had rejected “the Galivants Ferry crossing as a proposed route and asks South Carolina Department of Transportation to eliminate this route and replace it with this new southern route.”

The 12 new segments would be an average of 10 miles longer and would have an average of 235 acres of additional wetland impact than the corresponding segments in the seven reasonable Build Alternatives designated by the ACT. The two alternatives that were designed to follow the school district attendance zone boundary would be an average of four miles longer, with 124 acres of additional wetland impacts than the equivalent segments in the seven reasonable Build Alternatives. These 14 segments were eliminated from further evaluation due to the high potential for environmental impacts and increase costs associated with them.

2.5.4 How were preliminary interchange locations designated?

Initial criteria for developing preliminary interchange locations were proposed as follows:

- To provide access to primary roadway routes, i.e. Interstates, U.S. Routes, and S.C. Routes;
- Provide a minimum spacing of two miles between interchanges;
- Cost (ensure a reasonable expenditure of public funds);
- Provide a maximum spacing of eight miles between interchanges to provide system linkage, ease of maintenance, increased safety, and opportunities for economic development;
- Provide interchanges where higher traffic volumes warrant; and,
- Minimize impacts.

Preliminary locations of interchanges were taken into consideration to fully evaluate potential impacts to the categories listed previously, as well as potential impacts to communities and relocations. The Dillon, Marion, and Horry County planning and economic development agencies were contacted to solicit their preferences for potential interchanges. The following meetings were held:

- On June 30, 2005, members of the Project Team met with the Executive Director of the Marion County Economic Development Commission and the Marion County Administrator. The Project Team provided a project update and discussed potential interchange locations.
- Also on June 30, 2005, members of the Project Team updated the Dillon County Administrator and the Director of the Dillon County Development Board about the project and discussed the potential interchanges.
- On July 8, 2005, members of the Project Team provided the Infrastructure and Regulation Division Director of Horry County and the Horry County Planning Department a project update and discussed potential interchange locations.

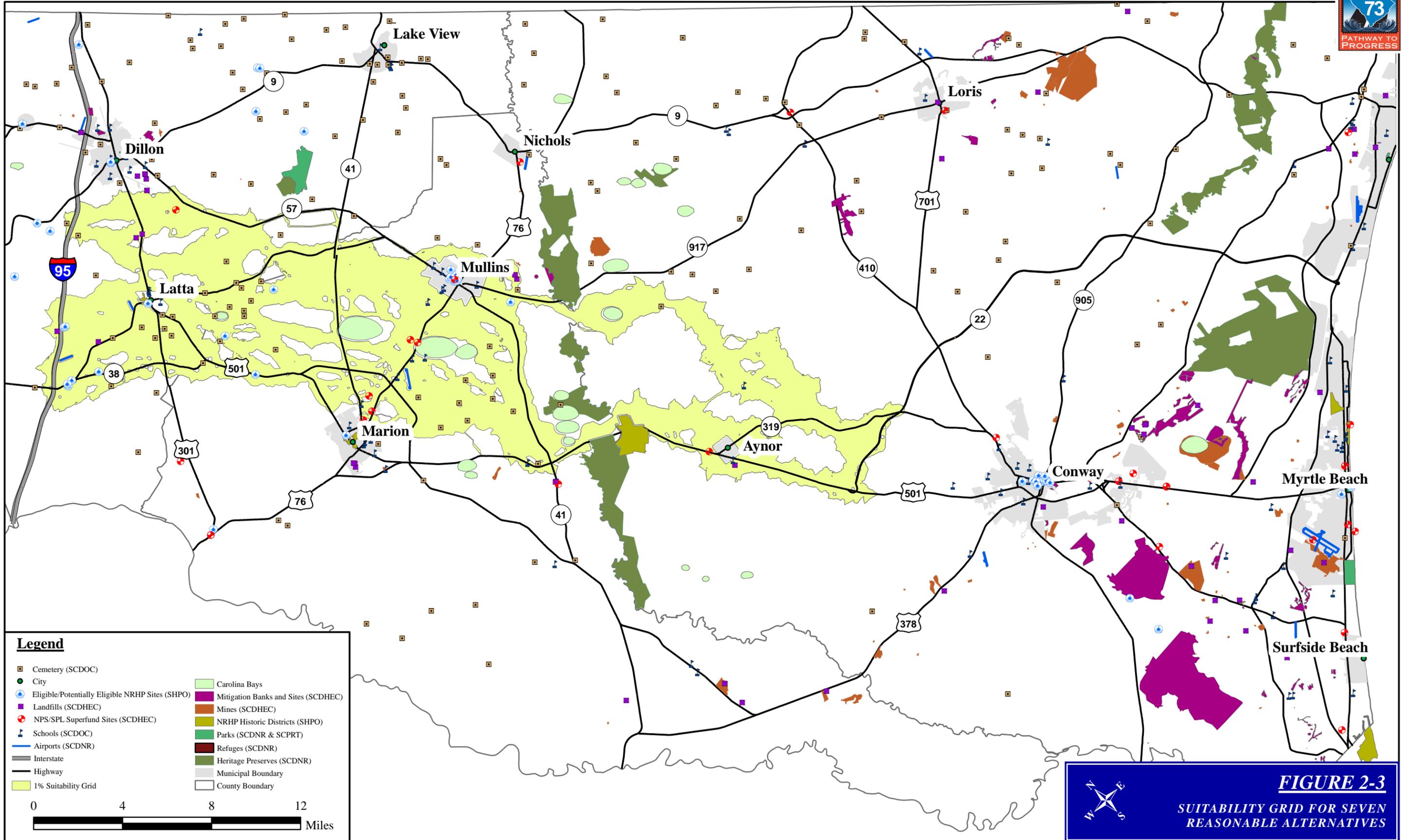


FIGURE 2-3
SUITABILITY GRID FOR SEVEN REASONABLE ALTERNATIVES

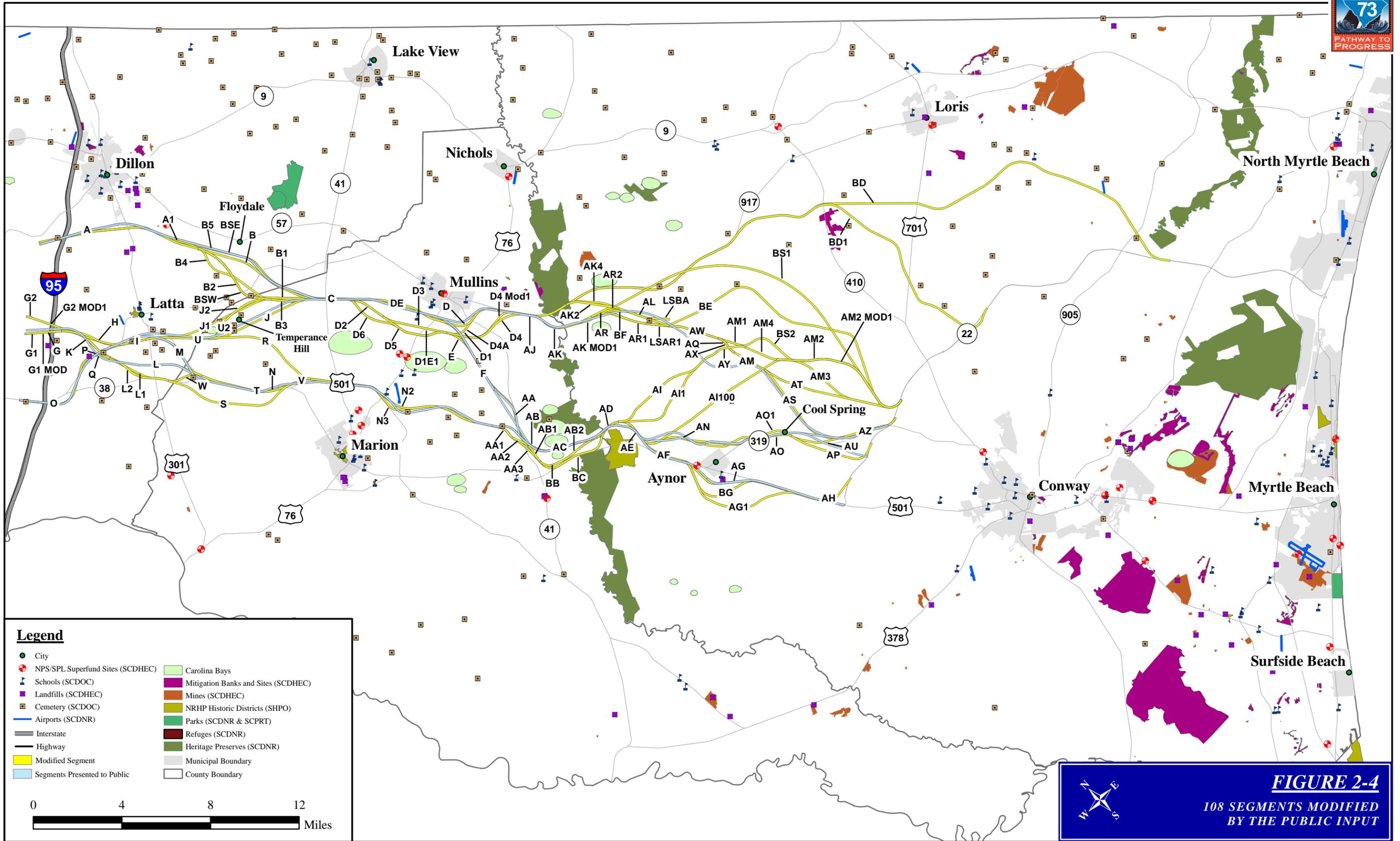


FIGURE 2-4
 108 SEGMENTS MODIFIED
 BY THE PUBLIC INPUT

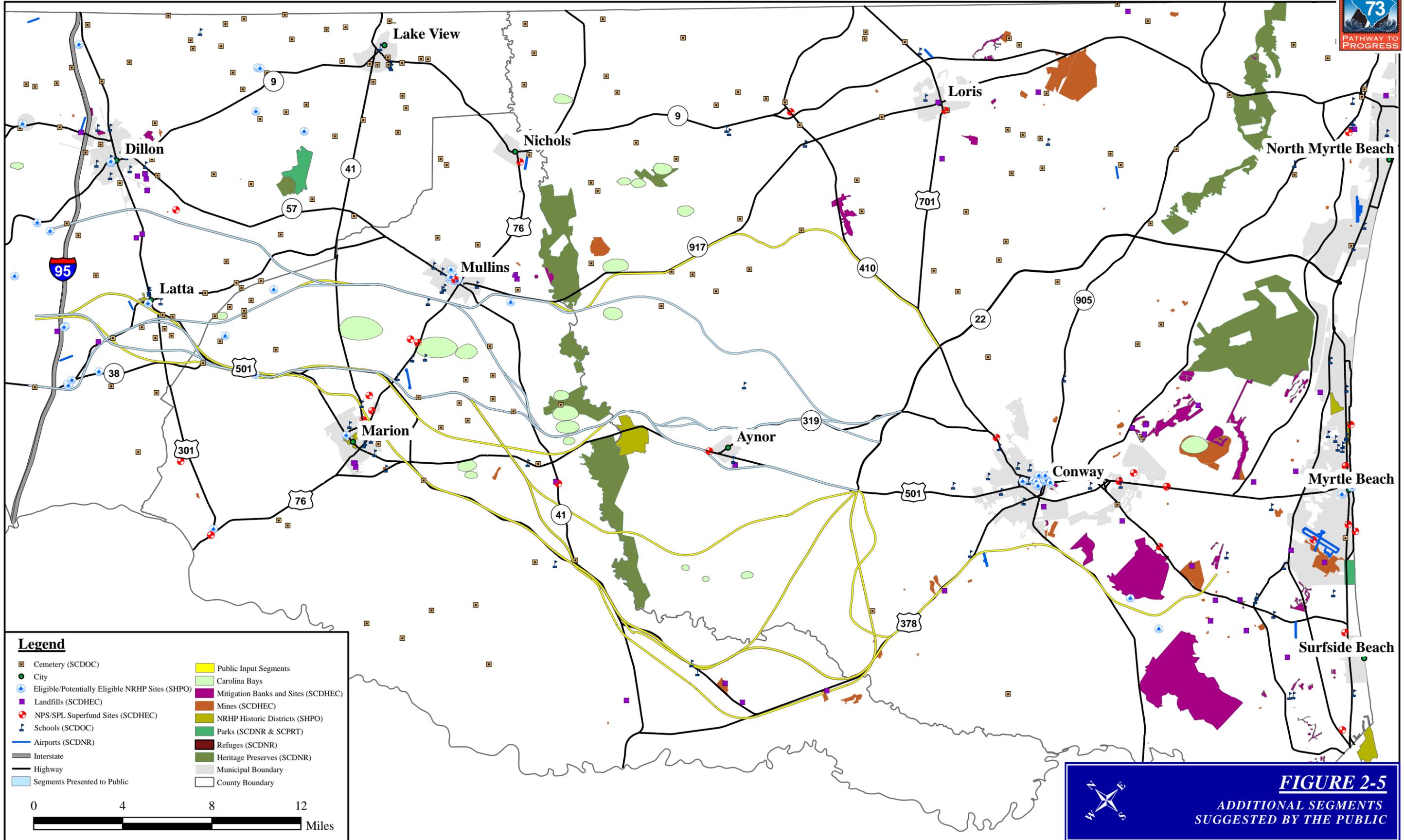


FIGURE 2-5
 ADDITIONAL SEGMENTS
 SUGGESTED BY THE PUBLIC



As an example, some interchanges in Horry County were placed at or near S.C. Route 23 (Nichols Highway) at the request of Horry County to improve access to the Cool Spring Business Park.

2.5.5 How were the modifications of the reasonable Build Alternatives evaluated?

Segments that connected common ending points were compared against one another. Where the difference between the segments was clear cut, the segment that minimized overall impacts was chosen. The remaining segments were taken to the ACT for review. Following a detailed comparison of the segments, the ACT eliminated 36 segments from further evaluation based on potential community and environmental impacts. For additional information refer to the *Alternative Development Technical Memorandum*. Thirty-three individual segments remained that balanced environmental concerns and potential impacts to the public.

The 33 segments could be combined to form a total of 10 alternatives (refer to Figure 2-6, page 2-20). These 10 alternatives were evaluated and the recommendations on which alternatives to continue to evaluate were presented to the ACT for their consideration. The ACT reached a consensus on eliminating four of the 10 alternatives (September 7, 2005 ACT Meeting). Table 2.3 presents the 10 alternatives and the reason for the elimination of four. This left six of the 10 alternatives to be evaluated further.

Alternative	Recommendation
1	Recommended for further study
2	Recommended for further study
3	Eliminated due to having high relocations
4	Eliminated due to having high wetland impacts and the second highest relocations
5	Recommended for further study
6	Eliminated due to having the highest wetland impacts
7	Recommended for further study
8	Eliminated due to having high wetland impacts and the highest relocations
9	Recommended for further study
10	Recommended for further study

2.6 HOW WERE THE SIX REASONABLE BUILD ALTERNATIVES EVALUATED FURTHER?

At this point, the reasonable Build Alternatives were established. These were to be given greater scrutiny in the environmental evaluation. The evaluation was expanded to include the comprehensive list of categories. In addition, more specific data about each alternative, including preliminary construction limits, interchange boundaries, and bridge lengths were estimated to provide a more accurate representation of potential impacts. The categories discussed previously were utilized, as well as the following resources to evaluate the six alternatives in further detail: