Appendix I:
Federal Highway Administration Planning & Environmental Linkages Questionnaire

FEDERAL HIGHWAY ADMINISTRATION

PLANNING & ENVIRONMENTAL LINKAGES QUESTIONNAIRE[1]

This questionnaire is intended to act as a summary of the Planning and Environmental Linkages process and ease the transition from planning to a National Environmental Policy Act (NEPA) analysis. Often, there is no overlap in personnel between the planning and NEPA phases of a project, so consequently much (or all) of the history of decisions made in the planning phase is lost. Different planning processes take projects through analysis at different levels of detail. NEPA project teams may not be aware of relevant planning information and may re-do work that has already been done. This questionnaire is consistent with the 23 CFR 450 (Planning regulations) and other FHWA policy on Planning and Environmental Linkage (PEL) process.

The Planning and Environmental Linkages study (PEL study) is used in this questionnaire as a generic term to mean any type of planning study conducted at the corridor or subarea level which is more focused than studies at the regional or system planning levels. Many states may use other terminology to define studies of this type and those are considered to have the same meaning as a PEL study.

At the inception of the PEL study, the study team should decide how the work may later be incorporated into subsequent NEPA efforts. A key consideration is whether the PEL study will meet standards established by NEPA regulations and guidance. One example is the use of terminology consistent with NEPA vocabulary (e.g. purpose and need, alternatives, affected environment, environmental consequences).

Instructions: These questions should be used as a guide throughout the planning process, not just answered near completion of the process. When a PEL study is started, this questionnaire will be given to the project team. Some of the basic questions to consider are: "What did you do?," "What didn't you do?," and "Why?". When the team submits a PEL study to FHWA for review, the completed questionnaire will be included with the submittal. FHWA will use this questionnaire to assist it in determining if the study meets the requirements of 23 CFR §§ 450.212 or 450.318. The questionnaire should be included in the planning document as an executive summary, chapter, or appendix.

[1] https://www.fhwa.dot.gov/innovation/everydaycounts/edc-1/PEL-questionaire.cfm, Updated April 5, 2011

1: Background:

1A: Who is the sponsor of the PEL study? (state DOT, Local Agency, Other)

South Carolina Department of Transportation (SCDOT)

1B: What is the name of the PEL study document and other identifying project information (e.g., sub-account or STIP numbers, long-range plan, or transportation improvement program years)?

I-526 Lowcountry Corridor EAST Planning and Environmental Linkage (PEL) Study Report

SCDOT Project Number: P032102

1C: Who was included on the study team (Name and title of agency representatives, consultants, etc.)?

South Carolina Department of Transportation (SCDOT)

- Joy Riley, PE, PMP, CPM, DBIA | Alternative Delivery Project Manager
- Chad Long | Environmental Services Office Director
- Will McGoldrick, Assoc. DBIA | Design-Build Environmental Coordinator

Federal Highway Administration (FHWA)

- Emily Lawton | Division Administrator
- Jim Martin | Major Projects Engineer
- Jeffrey Belcher | Lead Environmental Protection Specialist (PDP)

Consultant and Contractor Team

- Mark C. Lester, PE, PMP | Project Manager (CDM Smith)
- Jenny Humphreys, AICP | Senior Transportation Planner (CDM Smith)
- Krista R. Goodin, AICP | Senior Transportation Planner (CDM Smith)
- W. Hollis Loveday, PE | Senior Traffic Engineer (CDM Smith)
- William Huffstetler, PE | Senior Engineer, Transportation Structures (CDM Smith)
- Michael L. Belvin | Senior Environmental Planner (CDM Smith)
- Karen L. Hadley | Senior Transportation Planner (CDM Smith)
- Amy L. Livingston | Senior Public Involvement Specialist (CDM Smith)
- Giovanni Cosentino | Senior GIS Analysis (CDM Smith)

1D: Provide a description of the existing transportation facility within the corridor, including project limits, modes, functional classification, number of lanes, shoulder width, access control and type of surrounding environment (urban vs. rural, residential vs. commercial, etc.)

The SCDOT conducted a Planning and Environmental Linkages (PEL) study for the Interstate 526 (I-526) Lowcountry Corridor (LCC) EAST project. I-526 is an interstate facility that provides a partial beltway around Charleston and acts as a bypass for traffic on U.S. 17 through Mount Pleasant, downtown Charleston, and portions of the West Ashley area. The study area is approximately 10 miles long extending along I-526 from Virginia Avenue in North Charleston to U.S. 17 in Mount Pleasant, South Carolina. The study area includes a 250-to-350-foot buffer on each side of I-526 and is approximately

1,183 acres. There are two significant river crossings in the study area, the Don Holt Bridge over the Cooper River and the James B. Edwards Bridge over the Wando River.

The existing I-526 facility consists of two general purpose lanes in each direction, separated by a variable, 34 to 60-foot-wide median. Truck climbing lanes are provided across the Don Holt and Wando River bridges. The I-526 LCC EAST corridor includes five interchanges and approximately 60 percent of the project corridor is on elevated structure. Throughout the study corridor, the lane widths are standard 12 feet in each direction and are separated by a grass or barrier median, with a shoulder on both sides of the travel lanes. The inside shoulder width throughout the corridor ranges from 4 to 10 feet. The outside shoulder widths vary along the corridor from 6 to 12 feet.

The study area is composed of several jurisdictions, including portions of the City of Charleston, the City of North Charleston, the Town of Mount Pleasant, Charleston County, and Berkeley County. Land uses within and adjacent to the study area vary, including residential, commercial, and industrial uses. From the western extent of the corridor in North Charleston, the dominant land use is industrial, with some residential use on the south side of the corridor. Moving east across the Cooper River, the land use on Daniel Island includes residential, commercial, and vacant or undevelopable uses because of the natural wetlands on the island. Moving east across the Wando River, the land use in Mount Pleasant is dominated by residential and commercial uses. Recreational uses are present, along with industrial uses at the western terminus of Long Point Road. This portion of the corridor also includes vacant or undevelopable uses because of the presence of wetlands.

1E: Provide a brief chronology of the planning activities (PEL study) including the year(s) the studies were completed.

Traffic and Engineering Studies

- I-526 Over Cooper River and Approaches Bridge Report (90% submittal), January 2020
- I-526 Over Wando River and Approaches Bridge Report (90% submittal), January 2020
- I-526 LCC EAST PEL Study Purpose and Need Technical Memorandum, February 2021
- I-526 LCC EAST PEL Study VISSIM Microsimulation Model Development and Calibration Report, Revised June 2021
- I-526 LCC EAST PEL Study Travel Time Reliability Analysis Technical Memorandum, August 2021
- I-526 LCC EAST PEL Study Alternatives Analysis Technical Memorandum, August 2021
- I-526 LCC EAST PEL Study Existing Transportation Conditions Summary, February 2022
- I-526 LCC EAST PEL Study Traffic Analysis Report, February 2022

Environmental Studies

- Cultural Resources Survey of the I-526 Phase II Corridor Improvements Project, February 2019
- Cultural Resources Survey of the I-526 LCC WEST Project, Addendum Report, March 2019
- I-526 LCC EAST Natural Resources Survey Results, March 2020
- I-526 LCC EAST Hazardous Materials Environmental Record Search, June 2020
- I-526 LCC EAST PEL Study Environmental Review Technical Memorandum, March 2021

1F: Are there recent, current, or near future planning studies or projects in the vicinity? What is the relationship of this project to those studies/projects?

The planning studies that have been completed included in this study area are listed in the table below and described in further detail in the *I-526 LCC EAST PEL Study Existing Transportation Conditions Summary* (Appendix A).

Previous Transportation Studies
Study: (2022) I-526 Lowcountry Corridor WEST Environmental Impact Statement (EIS) **Study Location:** Paul Cantrell Blvd. to Virginia Ave. **Contact:** Joy Riley – SCDOT **Project Website:** www.526lowcountrycorridor.com/west/
Study: (2022) Mark Clark Extension | **Study Location:** West Ashley to Johns Island and James Island **Contact:** Jae Mattox – SCDOT **Project Website:** www.scdotmarkclark.com
Study: (2019) CHATS 2040 Long Range Transportation Plan | **Study Location:** Charleston Metro Area **Contact:** Kathryn Basha – Berkeley Charleston Dorchester Council of Governments (BCDCOG) **Project Website:** www.bcdcog.com/transportation/planning/long-range-transportation-plan/
Study: (2019) CHATS Congestion Management Process (CMP) Report | **Study Location:** Charleston Metro Area **Contact:** Kathryn Basha – BCDCOG **Project Website:** https://bcdcog.com/wp-content/uploads/2018/12/CMP-Report-Draft.pdf
Study: (2012) Our Region Our Plan | **Study Location:** Charleston Metro Area **Contact:** Kathryn Basha – BCDCOG **Project Website:** www.bcdcog.com/wp-content/uploads/2015/11/BCD_OROP_Final_01_15_2013.pdf
Study: (2018) Regional Transit Framework Plan | **Study Location:** Charleston Metro Area **Contact:** Sharon Hollis – BCDCOG **Project Website:** www.bcdcog.com/transportation/planning/regional-transit-framework/
Study: (2016) Transportation Demand Management Study (TDM) | **Study Location:** Charleston Metro Area **Contact:** Kathryn Basha – BCDCOG **Project Website:** n/a

2: Methodology used:

2A: What was the scope of the PEL study and the reason for completing it?

This PEL study is a planning-level study with the objective to identify transportation improvements in an effort to reduce congestion, improve travel time reliability, and improve roadway deficiencies within the study area corridor. The steps that were taken to accomplish the study's objective included:

- Identification of a purpose and need statement
- Development and evaluation of alternatives
- Coordination with agencies
- Engagement with the public throughout the planning process
- Identification and evaluation of potential environmental impacts
- Recommendation of reasonable alternatives for additional evaluation in the NEPA process

In coordination with FHWA staff, SCDOT determined a PEL study would be prepared for the I-526 LCC EAST project as documented in *FHWA Coordination Point 1 – Determining the reason for the PEL study*,

dated March 23, 2020 (Appendix I). Due to the major river crossings along the I-526 LCC EAST corridor, identifying feasible project alternatives and cost estimates were challenging without extensive planning efforts. Additionally, this corridor serves as a major economic connector in the lowcountry, linking the goods that flow to and from South Carolina's busiest port terminal with Interstate 26 and other integral components of the state's freight network. For these reasons, both SCDOT and FHWA determined that the I-526 LCC EAST project would move forward as a PEL study.

2B: Did you use NEPA-like language? Why or why not?

Yes, NEPA-like language was used throughout this PEL study to streamline the transition between the planning study and NEPA.

2C: What were the actual terms used and how did you define them? (Provide examples or list)

i. **Study Area**: As described in **Question 1A** above.
ii. **Purpose and Need:** A purpose and need statement was prepared in coordination with FHWA and SCDOT and refined with input from the resource agencies, general public and project stakeholders. In addition to key partner input, existing condition data was utilized to define vital issues causing congestion in the study area. Refer to the *I-526 LCC EAST PEL Study Purpose and Need Technical Memorandum* (Appendix B) for additional details.
iii. **Alternatives Development & Evaluation***:* The alternatives evaluation process included a multilevel screening approach that started with the identification of the range of concepts, development of screening criteria based on the purpose and need, and narrowing of options through a documented and tiered screening process culminating in the identification of the reasonable alternatives. Refer to the *I-526 LCC EAST PEL Study Alternatives Analysis Technical Memorandum* (Appendix D) for additional details.
iv. **Reasonable Alternatives:** A screened set of alternatives that are the result of the alternative analysis evaluation process to be moved forward and further evaluated in subsequent NEPA documentation.
v. **No Build Alternative:** The No-Build condition for I-526 LCC EAST includes four general purpose lanes with two lanes in each direction, along with the existing truck climbing lanes on the Don Holt and Wando bridges in each direction, bringing the total lane count to six in these areas of the corridor. No major infrastructure improvements will occur for the No-Build condition.
vi. **Environmental Consequences***:* The potential environmental impacts that would result from the implementation of the recommendations from the I-526 LCC EAST. The potential environmental consequences associated with this study are summarized in Chapter 4 of this PEL study and detailed in the *I-526 LCC EAST PEL Study Environmental Review Technical Memorandum* (Appendix E).
vii. **Next Steps/Mitigation Strategies:** Describes the next steps necessary for the environmental and cultural resources analyzed and mitigation measures that have been identified to address potential impacts associated with the reasonable alternatives outlined in Chapter 6 of this PEL study.

2D: How do you see these terms being used in NEPA documents?

The terms used in this PEL study are consistent with terms commonly used in the NEPA process and are intended to make inclusion into future NEPA documents seamless.

2E: What were the key steps and coordination points in the PEL decision-making process? Who were the decision-makers and who else participated in those key steps? For example, for the corridor vision, the decision was made by state DOT and the local agency, with buy-in from FHWA, the USACE, and USFWS and other resource/regulatory agencies.

Key steps in the study process included:

- Coordination Point 1 – PEL Initiation (March 23, 2020)
- Coordination Point 2 – Purpose and Need Statement (February 18, 2021)
- Coordination Point 3 – Alternatives Screening (September 13, 2021)
- Coordination Point 4 – PEL Document (XXX, 2022)

The primary decision-makers in the study process were the SCDOT and FHWA. These decision-makers were kept informed and involved through monthly coordination meetings throughout the study. Resource agencies were also coordinated with during the study through two Agency Coordination Effort (ACE) meetings as described below in **Question 3A**.

2F: How should the PEL information be presented in NEPA?

The information and results developed in this PEL study can be included in the NEPA process as technical memorandum appendices and referenced as a previous study. The information presented in this PEL study is intended to serve as a foundation for additional analysis and refinement during the NEPA phase.

3: Agency coordination:

3A: Provide a synopsis of coordination with Federal, tribal, state and local environmental, regulatory and resource agencies. Describe their level of participation and how you coordinated with them.

This PEL study was coordinated with regional, state, and federal resource agencies.

SCDOT and FHWA Coordination – Project coordination meetings were held monthly with SCDOT and FHWA during the development of the PEL study. In addition, formal coordination with FHWA occurred during four coordination points that served as check-in points to confirm progress to date, review any issues or concerns, and lay out next steps to achieve the next coordination point. The coordination points coincided with the following milestones:

- Coordination Point 1 – PEL Initiation (March 23, 2020)
- Coordination Point 2 – Purpose and Need Statement (February 18, 2021)
- Coordination Point 3 – Alternatives Screening (September 13, 2021)
- Coordination Point 4 – PEL Document

Key State and Federal Agencies – The SCDOT distributed an *Invitation to Participate on the I-526 LCC EAST PEL Study* to the agencies listed below in March 2020. The invitation included a project location map and the draft purpose and need. These agencies were specifically engaged in the PEL process based upon the identified resources that are anticipated to be affected. Agencies were asked to provide comments on the draft purpose and need and provide information that may be helpful in evaluating potential environmental impacts of the project. The invited agencies include:

- South Carolina Department of Archives and History

- South Carolina Department of Health and Environmental Control (SCDHEC)
- SCDHEC Office of Ocean and Coastal Resource Management (OCRM)
- South Carolina Department of Natural Resources
- National Oceanic and Atmospheric Administration, National Marine Fisheries Service
- United States Army Corps of Engineers
- United States Environmental Protection Agency
- United States Fish and Wildlife Service

The state and federal agencies listed above were also invited to attend two agency coordination effort (ACE) meetings and all PEL public informational meetings. ACE meetings are platforms for SCDOT to bring proposed projects to resource and regulatory agencies at key stages of project development. ACE meetings held to discuss specific subjects of interest, concerns, and recommendations at key milestones in the PEL process. Two ACE meetings were held during the PEL study for the following key milestones:

- ACE Meeting #1 January 2, 2020 – PEL Initiation and Draft Purpose and Need
- ACE Meeting #2 July 8, 2021 – Alternatives Development and Screening Process

Each invited state and federal agency will also receive a copy of the Final PEL study for review. This is the only planning product contemplated for submission to these agencies for review.

One federally recognized tribal nation, the Catawba Nation, is active in the PEL study area. Coordination with the Catawba Nation will include notification of and invitation to review the Final PEL study.

MPO Coordination – Coordination meetings were also held with the Berkeley-Charleston-Dorchester Council of Governments (BCDCOG), which serves as the Charleston Area Transportation Study (CHATS) Metropolitan Planning Organization (MPO). BCDCOG also represents the Charleston Area Regional Transportation Authority. The CHATS MPO will receive a copy of the Draft PEL study, with opportunity to comment.

Additional information regarding agency coordination can be found in Chapter 7 and the *Public and Agency Involvement* (Appendix G) of this PEL study.

3B: What transportation agencies (e.g., for adjacent jurisdictions) did you coordinate with or were involved during the PEL study?

The following transportation agencies were involved throughout the PEL process:

- FHWA
- SCDOT
- BCDCOG
- SPA

3C: What steps will need to be taken with each agency during NEPA scoping?

It is expected that the agencies involved in the PEL study will continue to be engaged throughout the NEPA process. All agencies will be provided access to the final PEL study. If possible, the current agency contacts will be preserved once NEPA is initiated to leverage previous project knowledge and streamline the NEPA process.

4: Public coordination:

4A: Provide a synopsis of your coordination efforts with the public and stakeholders.

In an effort to engage and receive input from the public and area stakeholders, the I-526 LCC EAST Public Involvement team established several avenues to facilitate community involvement that included:

- Stakeholder group meetings were held during the development of the PEL study. The list of participants was drawn from local public agencies, businesses, residents, non-profit organizations, and special interest groups in the project vicinity. The stakeholders' role is to provide information and concerns to the project team and to share project information with their constituencies. During stakeholder meetings, updates were provided on both I-526 LCC WEST and EAST projects. Eleven stakeholder meeting were held throughout the project development process.
- Additional stakeholder coordination included a meeting with the CHATS MPO on May 20, 2021.
- Two rounds of Public Information Meetings (PIM) were held during the PEL process to facilitate public outreach.
  - The first round of public engagement for the PEL study was held as an online, on-demand public information meeting (PIM) from May 14 to August 15, 2020, and an interactive online survey (MetroQuest) conducted during the same time frame. The content of the PIM and MetroQuest survey was intended to educate the public on the existing transportation conditions of the I-526 LCC EAST corridor and the purpose and need of the project. Participants were asked to share their concerns and issues related to traveling on I-526, provide input on the draft purpose and need and study goals, and offer input on potential solutions to address the project needs.
  - The second round of public engagement was a combination of an online, on-demand PIM held from October 11 to December 1, 2021, and two in person open houses on October 27 and October 28, 2021. The two in person meetings were held at locations in the study area to provide a comprehensive opportunity for public engagement. These meeting were intended to educate the public on the alternative analysis process and provide an in depth look at the resulting reasonable alternatives.

All public outreach was advertised two-weeks prior to meeting occurrences. In addition, all meetings were advertised via social media posts, email announcements, mailing postcards, newspaper ads, and a media day. Meeting materials and meeting advertisements were made available in English and Spanish. Refer to Chapter 8 of this PEL study and *Public and Agency Involvement* (Appendix G) for additional information.

5: Purpose and Need for the PEL study:

5A: What was the scope of the PEL study and the reason for completing it?

The scope and reason for completing this PEL study is outlined in **Question 1D** above.

5B: Provide the purpose and need statement, or the corridor vision and transportation goals and objectives to realize that vision.

The purpose of the project is to reduce congestion and improve travel time reliability[2] along I-526 from Virginia Avenue in North Charleston to U.S. 17 in Mount Pleasant. Transportation improvements are needed to address the congestion and travel time issues in the corridor. Mobility and roadway deficiencies that contribute to the congestion and unreliable travel times are discussed below:

- Mobility: The high volume of people, goods, and services moving through the corridor has increased congestion, impeded travel time and reliability, and increased incidents along the corridor. The key issues are:
  - Traffic-related congestion resulting from high demand and limited capacity
  - Overcapacity facilities resulting from the demand exceeding capacity
  - Unreliable travel times resulting from incidents
  - Congestion-related crashes on I-526 as indicated by the documented number of rear-end crashes in the corridor
- Roadway deficiency: The existing roadway, bridges, and interchange ramps along the corridor have geometric deficiencies that do not accommodate existing and future traffic volumes and contribute to inadequate mobility and travel times. The key roadway deficiencies are:
  - Inadequate shoulder widths, resulting in unsafe conditions for incident management or disabled vehicles
  - Insufficient acceleration/deceleration ramp lengths contributing to merge and diverge conflicts

In conjunction with the purpose and need, the following study goals were developed by SCDOT, stakeholders, and the public to provide guidance throughout the development and evaluation of alternatives.

- COMPATABILITY: Align with local land use plans and projects. If recommendations align with local land use or transportation plans identified in the BCDCOG Existing and Committed projects, it supports this goal area.
- DEMAND: Improve roadway infrastructure to accommodate increased traffic volumes. If recommendation is expected to increase the ability of the corridor to accommodate or better manage estimated travel demand, it is assumed to support the project goal.
- SAFETY: Reduce congestion-related incidents throughout the corridor. If congestion is improved, it is assumed that this crash rate should improve by improving safer driving conditions.
- MULTIMODAL: Enhance mobility for people and goods through the corridor. This includes modes other than single occupancy vehicles, such as carpool, transit, walk, bike, or truck. If the recommendation is designed to support such modes, it supports this goal area.
- SEISMIC: Improve seismic resiliency of the infrastructure in the case of an earthquake or other seismic event. If roadways or bridges are modified or reconstructed, it is assumed that new infrastructure will be built to current, improved seismic standards, supporting this goal area.
- TECHNOLOGY: Accommodate future transportation technologies, including vehicle technologies, communications technologies, system monitoring systems, driver information and traffic operations

[2] Travel time reliability is the comparison of free-flow conditions to congested conditions.

technologies. If the recommendation supports these technologies, it is supportive of the technology goal area.

- CONNECTIVITY: Improve connections with area ports, rail intermodal facilities, and transit assets. If the recommendation is designed to provide new or improved connections to intermodal assets, it supports the connectivity goal area.

Refer to Chapter 3 of this PEL study and *I-526 LCC EAST PEL Study Purpose and Need Technical Memorandum* (Appendix B) for additional details.

5C: What steps will need to be taken during the NEPA process to make this a project-level purpose and need statement?

The purpose and need for the PEL study was established following the FHWA PEL guidance, which encourages the integration of transportation planning and the NEPA process to provide information for incorporation into future NEPA documents (23 Code of Federal Regulations [CFR] 450).

SCDOT will coordinate with FHWA for refinement of the project-level purpose and need, if needed, during the NEPA phase of a recommended project improvement.

6: Range of alternatives:

Planning teams need to be cautious during the alternative screening process; alternative screening should focus on purpose and need/corridor vision, fatal flaw analysis, and possibly mode selection. This may help minimize problems during discussions with resource agencies. Alternatives that have fatal flaws or do not meet the purpose and need/corridor vision will not be considered reasonable alternatives, even if they reduce impacts to a particular resource. Detail the range of alternatives considered, screening criteria, and screening process, including:

6A: What types of alternatives were looked at? (Provide a one or two sentence summary and reference document.)

The range of concepts evaluated in the alternatives analysis were comprised of three categories:

- **No-Build** – The No-build Alternative presents the anticipated future condition if no action is taken.
- **Infrastructure Improvements** – These concepts included capital improvement such as alternative alignment, mainline improvements on I-526, and interchange/ramp improvements
- **Transportation Systems Management and Operations (TSMO) solutions** – These concepts included operating and management improvements such as managed lanes, operational elements, and multimodal improvements.

Each of the concepts are described in more detail in the *I-526 LCC EAST PEL Study Alternatives Analysis Technical Memorandum* (Appendix D).

6B: How did you select the screening criteria and screening process?

The intent of the alternatives development and evaluation process was to identify and screen a broad range of concepts for the study area to address the project's purpose and need, culminating in the identification of the range of reasonable alternatives. The alternatives evaluation process included a multilevel screening approach that started with the identification of the range of concepts, development

of screening criteria based on the purpose and need, and narrowing of options through a documented and tiered screening process.

TSMO Evaluation Strategies

Within the PEL process, the TSMO strategies presented were evaluated at a planning level to guide the project team through the decision-making process. TSMO strategies were evaluated to identify which strategies support the project goals and which strategies may have enough benefit to traffic performance to be incorporated into the eventual project design and later phases of project development. To evaluate the potential performance of TSMO strategies, case studies were used to report on the anticipated benefit of these strategies. In addition, each strategy was assessed for supportiveness of the project goals.

Level 1 Screening

The Level 1 screening evaluation used a quantitative and qualitative methodology to evaluate the universe of concepts against the baseline (or future No-build condition) to determine whether the concept met the purpose and need. This included measures of improved congestion and roadway deficiencies. Congestion was assessed using quantitative traffic performance metric outputs from the Charleston Area Transportation Study (CHATS) Interim Regional Travel Demand Model (TDM) including daily volume to capacity, daily vehicle hours of delay, average speed, and total two-way vehicle miles traveled average daily.

Development of Conceptual Options

Following the results of the Level 1 screening, the study team divided the corridor into three sections based on engineering and environmental constraints**.** Conceptual design options were developed for each section to include two additional lanes in each direction. A total of 21 infrastructure improvement concepts were developed across the three sections of the corridor using the following scenarios:

- Symmetrical – Adding capacity symmetrically to each side of the existing alignment
- North – Adding capacity to the north of the existing alignment
- South – Adding capacity to the south of the existing alignment
- Retain – Retaining the current bridge structure
- Replace – Replacing the current bridge structure

Level 2 Screening

The Level 2 screening was designed to determine which conceptual options have the highest potential to meet the purpose and need of the project. In addition, the Level 2 screening also evaluated engineering and the environmental impacts associated with each of the conceptual options resulting in four major evaluation categories outlined in table below.

Category	Criteria	Key Measures
Purpose and Need	Highway Capacity Software (HCS) analysis	Traffic performance (LOS)
Engineering (Design and Constructability)	**Design**	
	Compatible with local plans and projects	Connections to existing roadway improvement projects
	Improve seismic resiliency	Bridge replacement/new bridge structures/modification to existing bridges

Category	Criteria	Key Measures
	Ports & transit access	Improves access to ports and transit facilities
	Constructability	
	Constructability	Potential construction & staging issues, traffic disruption, construction complexity
Natural Resources	Aquatic Resources	Acreage of impact
Community and Built Environment (Relocation and Parks)	Residential/business and recreational facilities	Residential/business and recreational facilities impacted by the ROW footprint
	Parks (4f)	Impacts on park facilities

Development of Conceptual End-to-End Alternatives

The conceptual design options that resulted from the Level 2 screening were combined for each of the three corridor sections to create conceptual end-to-end alternatives.

Level 3 Screening

The Level 3 screening evaluation provided the most detailed round of analysis as complete end-to-end conceptual alternatives were evaluated. Similar to the Level 2 screening, this level focused on four major evaluation categories: Purpose and Need, Engineering, Natural Resources, and Community and Built Environment. Refer to the *I-526 LCC EAST PEL Study Alternatives Analysis Technical Memorandum* (Appendix B) and Chapter 3 of the PEL study for more details regarding the screening process.

6C: For alternative(s) that were screened out, briefly summarize the reasons for eliminating the alternative(s). (During the initial screenings, this generally will focus on fatal flaws.)

TSMO Evaluation

The TSMO strategy concepts eliminated from further consideration are summarized in the table below:

TSMO Strategy Concept	Result
HOV Lanes	Eliminated as it does not meet the purpose and need of this corridor without regional implementation.
HOT lane	Eliminated as it does not meet the purpose and need of this corridor without regional implementation.
Congestion pricing	Eliminated as it does not meet the purpose and need of this corridor without regional implementation.
Dedicated truck lanes	Eliminated as it does not meet the purpose and need of this corridor without regional implementation.
Truck platooning	Eliminated as it does not impact non-truck traffic.

Level 1

The concepts eliminated from further consideration from the Level 1 Screening are summarized in the table below:

Concept	Result
Parallel Route (New alignment):	This concept was eliminated due to minimal improvements to delay and travel speeds and fails improve roadway deficiencies on the I-526 mainline.
No-build + one lane each way:	This concept was eliminated as it would not provide an acceptable operational improvement in the V/C, delay, and travel speed.

Level 2

The concepts eliminated from further consideration from the Level 2 Screening are summarized in the table below:

Concept Option	Result
1-A, 1-B, 2-A, 2-B, 2-C, 2-D	These concept options were eliminated from further consideration because of low traffic performance (LOS F) that would result in a failure to satisfy the purpose and need.
3-A	This option was eliminated from further consideration because it had higher potential impacts on natural resources and the community and built environment when compared to option 3-B.

Level 3

Concepts eliminated from further consideration from the Level 3 Screening included Alternative 3. Alternative 3 was eliminated in screening Level 3 due to poor performance and potential impacts. Due to its larger footprint, Alternative 3 impacts 82 relocations and 215 acres of aquatic resources resulting in the greatest number of impacts when compared to the other alternatives. Due to the combination of constraints from relocation and aquatic resource impacts, resulting in a poor score, Alternative 3 was eliminated from further evaluation.

Refer to the *I-526 LCC EAST PEL Study Alternatives Analysis Technical Memorandum* (Appendix D) for more details regarding the screening process.

6D: Which alternatives should be brought forward into NEPA and why?

Based on the results of the alternatives analysis screening, the alternatives recommended to be carried forward for further evaluation in the NEPA phase are summarized below. The alternatives include the No-build Alternative and eight infrastructure improvement alternatives. In addition to the alternatives carried forward, the supplemental options including TSMO strategies and interchange improvements at the Long Point Road interchange are also recommended for further evaluation in the NEPA phase.

No-Build

The No-build Alternative is recommended as an alternative to be included in the NEPA process as a benchmark against which the benefits and impacts of other alternatives can be compared.

Infrastructure Improvement Alternatives

The PEL study determined that an alternative that expands I-526 LCC EAST corridor from a 4-lane facility to an 8-lane facility would meet the purpose and need of the project by reducing congestion and improving travel time in the project corridor. The eight reasonable alternatives below all include an expansion to 8-lanes and differ based on the location of capacity expansion and the retainment or replacement of the Don Holt bridge.

Mainline Build Alternatives	Capacity Option
Alternative 1	• Retain the Don Holt bridge while adding four lanes to the north. • Replace the Wando bridges with two new parallel two-lane bridges, remove existing bridges, and then widen newly built bridges to four lanes.
Alternative 2	• Retain the Don Holt bridge while adding four lanes to the south. • Replace the Wando bridges with two new parallel two-lane bridges, remove existing bridges, and then widen newly built bridges to four lanes.
Alternative 3A	• Replace the Don Holt bridge with two new four-lane bridges on either side of the existing facility. • Replace the Wando bridges with two new parallel two-lane bridges, remove existing bridges, and then widen newly built bridges to four lanes.
Alternative 4	• Replace the Don Holt bridge with a new eight-lane bridge north of the existing bridge. • Replace Wando bridges with an eight-lane bridge north of the existing bridges.
Alternative 5	• Replace the Don Holt bridge with a new four-lane bridge north of the existing bridge, remove the existing bridge, and add a new four-lane bridge where the existing bridge is located. • Replace the Wando bridges with a new four-lane bridge north of the existing bridge, remove the existing bridges, and add a new four-lane bridge where the existing bridge is located.
Alternative 6	• Replace the Don Holt bridge with a new four-lane bridge south of the existing bridge, remove the existing bridge, and add a new four-lane bridge where the existing bridge is located. • Replace the Wando bridges with a new four-lane bridge south of the existing bridge, remove the existing bridges, and add a new four-lane bridge where the existing bridge is located.
Alternative 7	• Replace the Don Holt bridge with a new four-lane bridge north of the existing bridge, remove the existing bridge, and add a new four-lane bridge where the existing bridge is located. • Replace the Wando bridges with two new parallel two-lane bridges, remove existing bridges, and then widen newly built bridges to four lanes.
Alternative 8	• Replace the Don Holt bridge with a new eight-lane bridge south of the existing bridge. • Replace Wando bridges with eight-lane bridge south of the existing bridges.

Supplemental Options – TSMO Strategies

The following TSMO options should be incorporated into the continued refinement, design, traffic operational design, and design criteria of the recommended preferred alternative to contribute to meeting project goals and prolonging the performance life of the infrastructure improvements or as interim improvements to help address congestion and certain roadway deficiencies but will not fully resolve the issues outlined in the purpose and need:

- Shoulder lane use

- Traveler information
- Incident management
- Road weather management
- Work zone management
- Enhance lane markings
- Ramp metering
- Accommodation of connected and autonomous vehicles
- Variable Speed Limits (VSL)
- Park-and-ride lots

Supplemental Options – Long Point Road and I-526 Interchange Improvements

The current Long Point Road and I-526 interchange configuration is deficient because it does not have the capacity to accommodate the forecast 2050 traffic as outlined in the *I-526 LCC EAST PEL Study Alternatives Analysis Technical Memorandum*. The following modifications are recommended to accommodate future traffic demand:

- An additional lane along the I-526 westbound on-ramp from Long Point Road.
- An additional lane along the I-526 eastbound off-ramp to Long Point Road.
- An additional left-turn lane along the I-526 eastbound off-ramp approach of the intersection of Long Point Road and I-526 eastbound off-ramp.
- An additional northeast through-lane along Long Point Road beginning as a receiving lane for the left turns from the I-526 eastbound off-ramp and continuing towards the intersection with the I-526 westbound on-ramp.

Improving the Long Point Road and I-526 interchange would help satisfy the roadway deficiency portion of the PEL study's purpose and need while also improving operations that will improve performance on the I-526 mainline. While upgrading the interchange deficiencies, it would be beneficial to include additional ramps to the I-526 mainline that can provide additional access for traffic originating from Wando Welch Terminal. One proposed recommendation would include the construction of new eastbound and westbound access ramps along I-526 to provide travelers with direct access to Shipping Lane. This connection would create an additional connection to the Wando Welch Terminal and to neighborhoods along Long Point Road (Hidden Cove, Oak Park, and Hobcaw Creek Plantation). The overpass would extend from near the Wando Park Boulevard and Wando Place Drive intersection, cross back to the gate terminal entrance off Shipping Lane and terminate at the main gate at the end of Long Point Road. Upgrades to this interchange can provide added benefit and independent utility to the facility that currently exists. In addition, coordination with the port to determine the feasibility of altering entry and exit times outside of passenger car peak times due to the high truck volumes in the AM and PM is recommended as a potential mitigation measure.

6E: Did the public, stakeholders, and agencies have an opportunity to comment during this process?

The public involvement efforts of this PEL study included outreach to the public, stakeholders, and agencies and is summarized in **Questions 3 and 4** above.

The SCDOT and FHWA were coordinated with monthly and given the opportunity to comment at all major milestones/decision points. The public had the opportunity to provide comments and feedback at two milestones during the process: 1) identification of needs and issues and draft purpose and need, and 2) development of concepts, alternatives screening process, and reasonable alternatives.

In accordance with 23 USC 168(d)(5)(a), the public was asked to provide input on the draft Purpose and Need during the July 15-August 15, 2020 virtual PIM and again during the October 26 and 27, 2021 in-person PIMs.

6F: Were there unresolved issues with the public, stakeholders, and/or agencies?

Noise and safety concerns were frequently noted during both rounds of public engagement. A noise study will be conducted during the NEPA phase process to determine noise impacts. Continued engagement with the public, stakeholders, and resource agencies will be required during the NEPA phase.

7: Planning assumptions and analytical methods:

7A: What is the forecast year used in the PEL study?

Year 2050

7B: What method was used for forecasting traffic volumes?

The Charleston Area Transportation Study (CHATS) Interim Regional Travel Demand Model (TDM) was utilized for 2019 (opening year) and 2050 (design year) for traffic demand and to evaluate the performance of capacity modifications and additional new location alignments at the regional level.

7C: Are the planning assumptions and the corridor vision/purpose and need statement consistent with each other and with the long-range transportation plan? Are the assumptions still valid?

The purpose and need aligns with many of the goals from the CHATS 2040 LRTP, as outlined in the table below:

CHATS 2040 LRTP Goals[3]	I-526 LCC EAST PEL Purpose and Need
Mobility This goal seeks to improve network mobility for all mode types by: • Reducing congestion along commuter corridors • Increase transit services and facilities • Support programs that include ride sharing and park-and-rides • Adopt and implement access management policies along congested corridors to improve safety and capacity	The purpose of the I-526 LCC EAST PEL Study is to identify transportation improvements that can reduce congestion and improve travel time reliability along one of the region's most traveled corridors. The PEL process is intended to align with the LRTP environmental goal by identifying environmental resources and concerns during planning rather than later in NEPA. In addition, the project goals listed below were identified to provide guidance throughout the PEL process also align with study goals outlines in the LRTP: • DEMAND: Improve roadway infrastructure to accommodate increased traffic volumes. • MULTIMODAL: Enhance mobility for people and goods through the corridor. This includes modes other than single occupancy vehicles, such as carpool, transit, walk, bike, or truck. • CONNECTIVITY: Improve connections with area ports, rail intermodal facilities, and transit assets.
Reliability This goal seeks to improve the movement reliability of people and goods throughout the region by: • Improving travel time reliability for transit corridors and highways • Improve transit reliability	
Environment This goal seeks to provide a transportation system that minimizes or mitigates impacts to the region's natural, cultural, and historic resources.	

7D: What were the future year policy and/or data assumptions used in the transportation planning process related to land use, economic development, transportation costs, and network expansion?

Future economic and demographic trends were utilized in the development of the CHATS TDM. Refer to Chapter 2 of this PEL study for additional details.

8: Environmental resources (wetlands, cultural, etc.) reviewed. For each resource or group of resources reviewed, provide the following:

8A: In the PEL study, at what level of detail was the resource reviewed and what was the method of review?

The primary methodology used to identify social and community resources included a desktop analysis, while field investigations were utilized to identify and complete studies for aquatic resources, Essential Fish Habitat (EFH), protected species, and cultural resources studies. Further information on environmental resources identified in the study area can be found in *I-526 LCC EAST PEL Study Environmental Review Technical Memorandum* (Appendix E). Impacts to resources associated with the PEL recommendations are outlined in the *I-526 LCC EAST PEL Study Alternatives Analysis Technical Memorandum* (Appendix D).

[3] https://bcdcog.com/wp-content/uploads/2018/12/01-Introduction-1.pdf

8B: Is this resource present in the area and what is the existing environmental condition for this resource?

The resources described below were assessed for presence in the study area. Chapter 6 of this PEL study and *I-526 LCC EAST PEL Study Environmental Review Technical Memorandum* (Appendix E) contains detailed environmental resource information and mapping for these resources.

- Land use – Land use in the study area is composed primarily of residential, commercial, and industrial uses.
- Schools and places of worship – Eight schools and 19 places of worship are located within the project study area and within 2,000 feet of the project study area.
- Parks and recreational facilities – Eight parks and recreational areas are located within and adjacent to the study area. Three parks are considered Section 4(f) resources: Ralph M. Hendricks, Governor's Park, and Kearns Park Trail.
- Environmental justice populations – The study area contains low-income, minority, and limited English proficiency households.
- Aquatic resources – Aquatic resources found within the study area include salt marsh, rivers and large tidal creeks, maritime forests, freshwater marshes, bottomland hardwood forest, freshwater streams, and ponds.
- Floodplains – Most of the I-526 LCC EAST corridor is located within the 100-year flood zone; however, a majority of the existing facility is elevated bridge structure.
- Federally protected species – Habitat surveys conducted in 2018 and 2019 within the study area determined that 12 protected species have suitable habitat present.
- EFH – Field investigations were conducted in 2018 and 2019 to identify EFH within the study area associated with the Cooper River and Wando River systems.
- Farmlands – According to soil data collected from the U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS), prime farmland and farmland of statewide importance is located within the study area.
- Air quality – The I-526 LCC EAST project study area is located in Charleston and Berkeley Counties, which are both are in attainment as established by the National Ambient Air Quality Standards.
- Hazardous materials sites – An Environmental Record Search report was compiled for the study area to determine the presence of hazardous materials sites. A total of 82 records were identified in the study area.
- Cultural resources – A total of 36 archaeological resources and 15 aboveground architectural resources were identified in the Area of Potential Effect.

8C: What are the issues that need to be considered during NEPA, including potential resource impacts and potential mitigation requirements (if known)?

The resources that will require further analysis and evaluation for potential impacts during NEPA are outlined in Chapter 6 of this PEL study and are listed below:

- Social and community resources
- Environmental justice populations
- Natural resources

- Waters of the U.S.
- Section 4(f)/6(f)
- Federal- and State-protected species
- Water quality/floodplains
- Update to the cultural resources
- Hazardous waste sites
- Climate change/greenhouse gas emissions
- Traffic noise analysis

Mitigation coordination is anticipated for the following resources:

- Aquatic resources
- Wetland and stream habitat
- Essential Fish Habitat
- Parks and recreation resources, Sections 4(f) and 6(f)
- Noise
- Conservation easements
- Community resources
- Threatened and endangered species
- Viewsheds

Federal, state, and local agencies that are responsible for a specific resource would be coordinated with and mitigation would be determined on a case-by-case basis.

8D: How will the planning data provided need to be supplemented during NEPA?

Environmental data were reviewed using a planning level of detail to evaluate potential impacts to resources that included GIS desktop reviews, freely available database inquiries, imagery review, and in some cases field surveys. Additional analysis will be required for the limits of the Preferred Alternative during NEPA to examine the potential resource impacts and potential mitigation requirements. Consultations with appropriate agencies and continued public involvement will also be required.

9. List environmental resources you are aware of that were not reviewed in the PEL study and why. Indicate whether or not they will need to be reviewed in NEPA and explain why.

The following resources were not reviewed as part of this PEL study and may need to be evaluated in the NEPA phase depending on the NEPA class of action and the context of the preferred alternative:

- Water quality
- Climate change/greenhouse gas emissions
- Traffic noise analysis
- Economic resources
- Energy
- Utilities
- Visual resources

10. Were cumulative impacts considered in the PEL study? If yes, provide the information or reference where the analysis can be found.

Cumulative impacts were not considered during the PEL study. They will be considered during future NEPA process.

11. Describe any mitigation strategies discussed at the planning level that should be analyzed during NEPA.

Completing any of the build alternatives would be anticipated to result in unavoidable impacts to the wetlands and other aquatic resources that are presumed to be waters of the U.S. Construction of build alternatives would potentially impact tidal salt marsh/critical areas and freshwater wetlands in the Cooper River watershed (HUC 03050201) in the Sea Island/Coastal Marsh Level IV Ecoregion (75j).

A proposal for the purchase of compensatory mitigation credits from a combination of USACE approved mitigation banks to offset unavoidable impacts to wetlands and other aquatic resources will be explored during NEPA. Mitigation strategies are further discussed in Chapter 6 of this PEL study.

12. What needs to be done during NEPA to make information from the PEL study available to the agencies and the public? Are there PEL study products which can be used or provided to agencies or the public during the NEPA scoping process?

The PEL study and technical memorandums produced during the PEL process will be integrated into NEPA to reference the study's decision-making process. Project information contained in the PEL reports have been published on the project website and presented to the public and agencies at various meetings throughout the PEL process.

13. Are there any other issues a future project team should be aware of?

13A: Examples: Utility problems, access or ROW issues, encroachments into ROW, problematic land owners and/or groups, contact information for stakeholders, special or unique resources in the area, etc.

There are no additional issues at this time that a future project team should be made aware of other than what has been detailed in this PEL study and associated appendices.

14: Provide a table of identified projects and/or a proposed phasing plan for corridor build out.

Chapter 5 of this PEL study outlines the non-widening recommended projects and are summarized in the table below.

Programming Option	Description	Potential NEPA Class of Action	Estimated Cost
Incident Management (TSMO Strategy)	Planned and coordinated multidisciplinary process to detect, verify, respond, and clear traffic incidents so traffic flow may be restored as safely and quickly as possible.	Categorical Exclusion	To Be Determined

Programming Option	Description	Potential NEPA Class of Action	Estimated Cost
Ramp Metering (TSMO Strategy)	A traffic management strategy that uses specialized traffic signals at highway on-ramps to control the number of vehicles merging onto the highway.	Categorical Exclusion	To Be Determined
Park-and-Ride Lots (TSMO Strategy)	An active traffic management strategy that uses specialized traffic signals at highway on-ramps to control the number of vehicles merging onto the highway.	Categorical Exclusion	To Be Determined

Chapter 11 of this PEL study outlines the programming options and next steps in the project development process. These programming options are intended as potential standalone projects that can be moved forward in the project development process as a means to make implementation of the full corridor improvements more manageable. The programming options are summarized in the table below.

Programming Option	Description	Potential NEPA Class of Action	Estimated Cost
Long Point Road and I-526 Interchange Improvements	Interchange improvements to address interchange deficiencies, while also incorporating additional ramps to the I-526 mainline that can provide additional access for traffic originating from the Wando Welch Terminal and neighborhoods along Long Point Road.	Environmental Assessment	$165 million
Phased Option: Long Point Road to U.S. 17	Widen the existing facility by one lane in each direction to the inside using the existing median and one lane to the outside for a total of 8 lanes from Long Point Road to U.S. 17, approximately 2.8 miles.	Categorical Exclusion	$215 million
Phased Option: Virginia Avenue to Long Point Road	Widen the existing facility by 4 lanes totaling 8 lanes for approximately 8.3 miles from Virginia Avenue in North Charleston to mile marker 27 near Shoals Drive in Mount Pleasant just west of Long Point Road. This phase includes the reconstruction or replacement of the Don Holt and Wando Bridges.	Environmental Assessment	$2-$3.4 billion
Full Corridor: Virginia Avenue to U.S. 17	This option encompasses the entire I-526 LCC EAST corridor. It includes the widening of I-526 to 8-lanes for approximately 10 miles from Virginia Avenue to U.S. 17 and the reconstruction or replacement of the Don Holt and Wando Bridges.	Environmental Assessment	$2.3-3.7 billion

15: Provide a list of what funding sources have been identified to fund projects from this PEL?

Funding for the proposed improvements has not been identified and most likely will require a mix of federal and state sources to implement the full corridor improvements. Potential federal and state funding sources are summarized in Chapter 12 of this PEL study.