2. CONCEPTUAL ALTERNATIVES

In addition to the No Action Alternative and Transportation Systems Management (TSM), eleven Initial Build Alternatives were considered. These were weighed against their ability to reasonably address the goals of this study, constraints mapping, and design criteria. The result of this "fatal flaw" analysis was the identification of nine Conceptual Alternatives. Those nine Conceptual Alternatives are reintroduced in the following sections with accompanying figures that depict a higher level of detail than those presented in Technical Memorandum No. 1. In addition to the capital improvements associated with each Conceptual Alternative, all would incorporate TSM strategies to assist in maximizing the efficiency of the transportation network.

2.1 Southern Alternatives

Of the eleven Initial Build Alternatives, five were considered to be "southern" alternatives as their connections to the Interstate System are in a relatively southern direction. These included Alternatives A, B, C, D, and E. All southern alternatives would establish a new interchange with I-26, which would replace the current local access to I-26 provided at Exits 217 and 218; however, each of the alternatives' ability to provide new local access will be evaluated in Technical Memorandum No. 3.

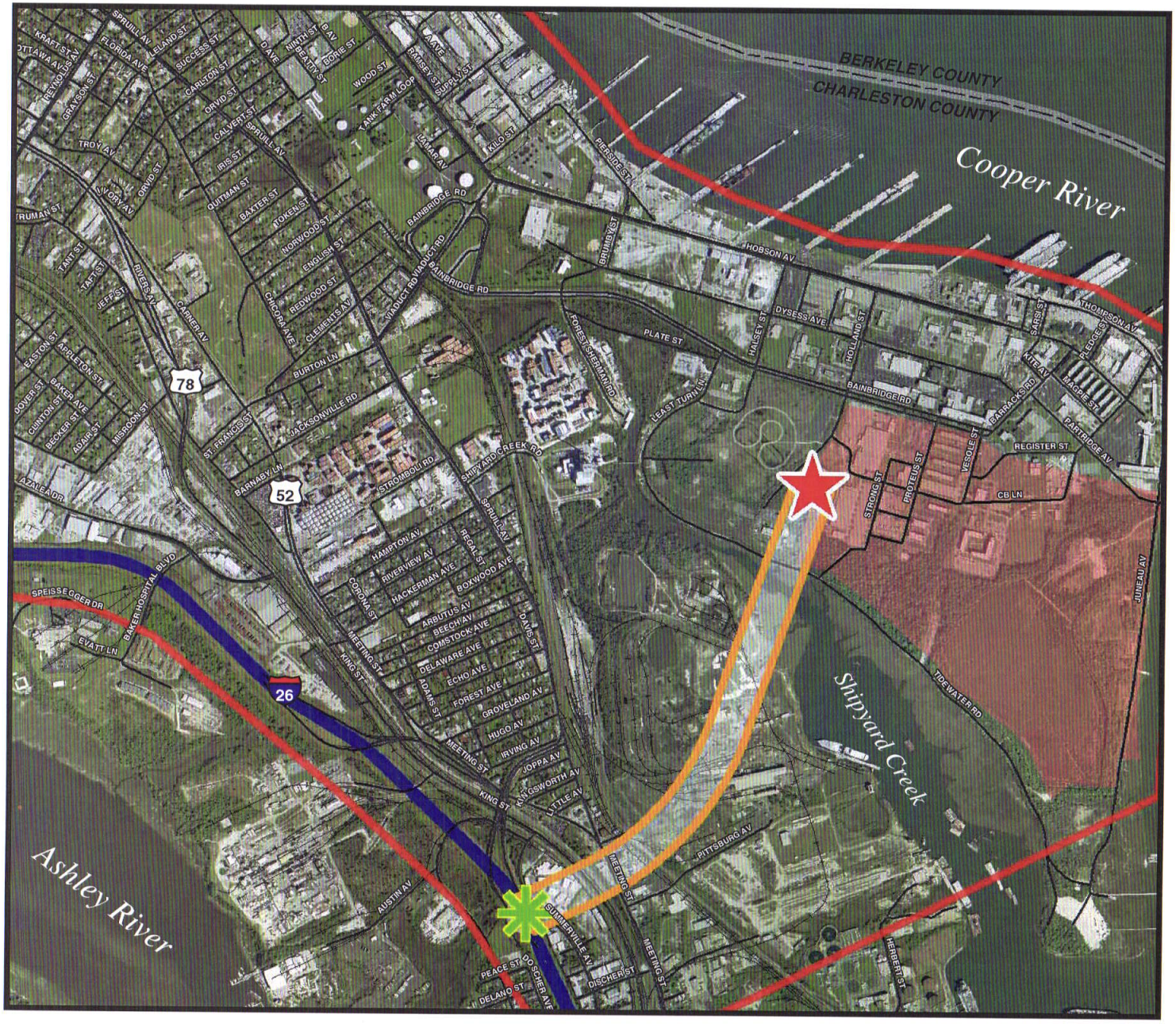
Of the five southern alternatives, it was determined that all reasonably address the goals of the study with the exception of Alternative D. Alternative D was determined to not reasonably address the study goals because it would have a detrimental and irrevocable impact on the surrounding community. Conversely, it was determined that Alternatives A, B, C, and E do reasonably address the goals of the study. These Conceptual Alternatives are presented below.

Alternative A

Alternative A (see Figure 2.1-1), for its entire length, is on new location, has a design speed of 60 mph (i.e., posted speed of 50 mph), and is classified as an urban freeway. It begins at the marine terminal entry and progresses south, diagonally crossing Shipyard Creek and bisecting the Macalloy property. After crossing the Macalloy property, Alternative A turns southwest and travels parallel to Pittsburgh Avenue, connecting to I-26 approximately 0.1 mile south of Exit 218, which currently services Spruill Avenue. The new Alternative A/I-26 Interchange would be a four-way interchange in that all movements to and from the marine terminal would be accommodated; accommodating movements to and from the Ashley River side of I-26 would be difficult, require acquisition of additional right-of-way, and are not being considered as part of this, or any of the southern alternatives at this time. This interchange would replace the current interchanges at Exits 217 and 218. The total length of Alternative A is approximately 1.1 miles. It is anticipated that the majority of Alternative A from Shipyard Creek and southward will be on structure.

Alternative B

Alternative B (see Figure 2.1-2) is approximately 1.2 miles in length, and, for its entire length, is on new location, has a design speed of 60 mph (i.e., posted speed of 50 mph), and is classified as an urban freeway. It has the same origin and terminus as Alternative A, but follows a circuitous route paralleling the Cooper Yard and traveling along the northern and western boundaries of the Macalloy property, making it slightly longer than Alternative A. After leaving the marine terminal entry, Alternative B crosses Shipyard Creek and turns west to travel around the northern boundary of the Cooper Yard. Upon reaching the northwest corner of the Yard, it turns south and travels parallel to the rail lines until reaching Pittsburgh Avenue where it turns southwest and runs parallel to Pittsburgh Avenue and then connects to I-26 approximately 0.1 mile south of Exit 218. As with Alternative A,



ACCESS ROADWAY FEASIBILITY STUDY

for the Proposed Alternative
of the CNC Marine Terminal EIS

LEGEND

- TERMINAL ENTRY POINT
- NEW INTERCHANGE
- ALTERNATIVE ALIGNMENT 400' CORRIDOR
- MARINE TERMINAL PROPOSED ALTERNATIVE
- STUDY AREA

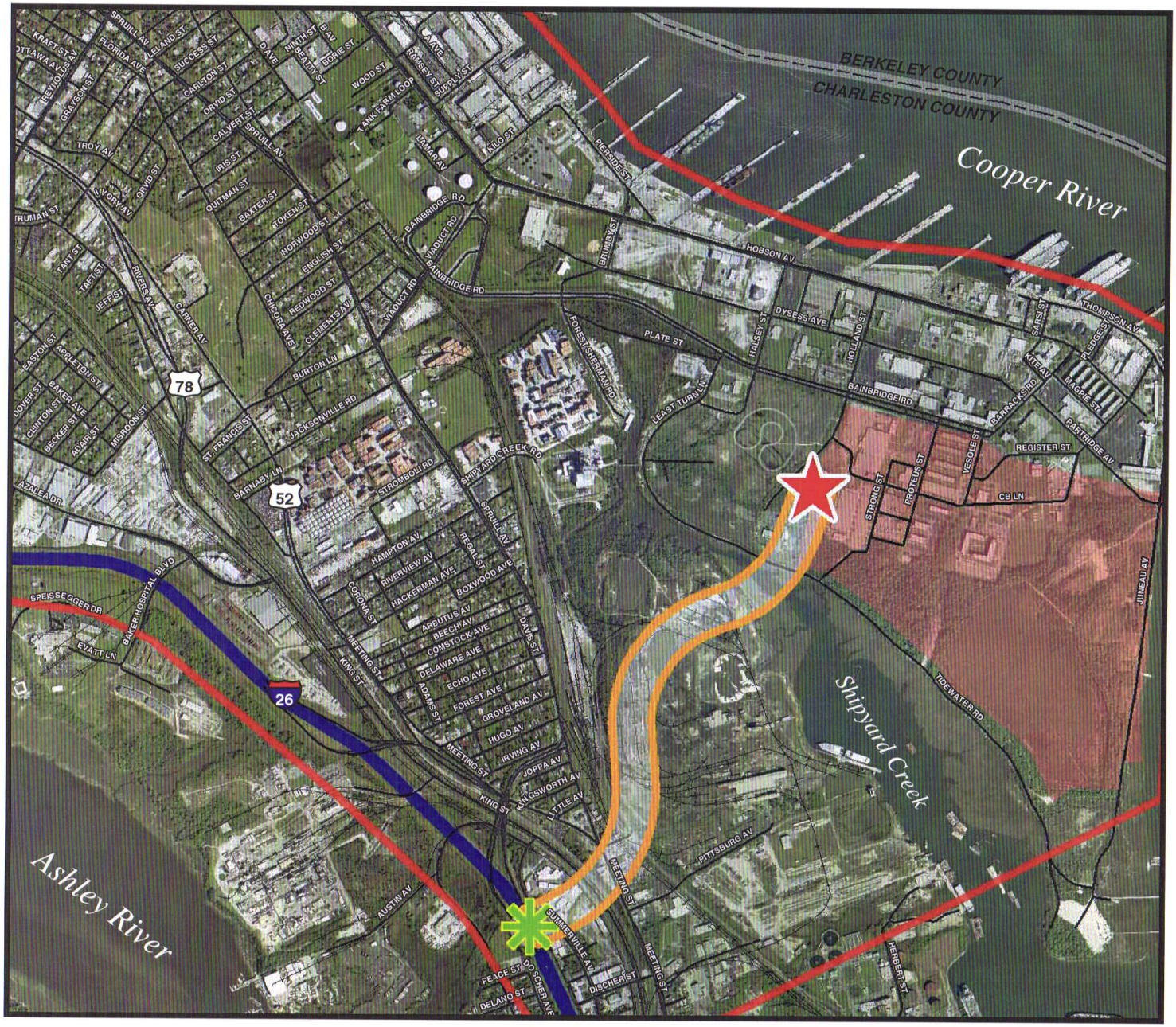
Source: Parsons Brinckerhoff 2005
Map Created: 04/18/05

This map is for conceptual presentation purposes only, and is believed to be fundamentaly accurate; however, no guarantees as to its accuracy or completeness are expressed or implied.

0 0.05 0.1 0.2 0.3 Miles

PB PARSONS BRINCKERHOFF

Figure 2.1-1
Conceptual Alternative A



ACCESS ROADWAY FEASIBILITY STUDY

for the Proposed Alternative
of the CNC Marine Terminal EIS

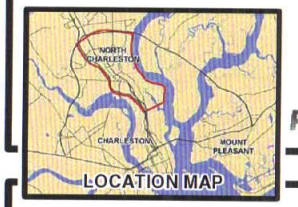
LEGEND

- TERMINAL ENTRY POINT
- NEW INTERCHANGE
- ALTERNATIVE ALIGNMENT 400' CORRIDOR
- MARINE TERMINAL PROPOSED ALTERNATIVE
- STUDY AREA

Source: Parsons Brinckerhoff 2005
Map Created: 04/18/05

This map is for conceptual presentation purposes only, and is believed to be fundamentaly accurate; however, no guarantees as to its accuracy or completeness are expressed or implied.

0 0.05 0.1 0.2 0.3 Miles



PB PARSONS BRINCKERHOFF

Figure 2.1-2
Conceptual Alternative B

the Alternative B/I-26 Interchange would accommodate all marine terminal movements and replace the interchanges at Exits 217 and 218.

It should be noted that the circuitous route of Alternative B is intended to allow for a more perpendicular crossing of Shipyard Creek, resulting in a shorter structure and fewer potential wetlands impacts. Additionally, by increasing the alternative's length, more of the roadway can be constructed at-grade, which would better allow for a local access connection to Spruill Avenue.

Alternative C

Alternative C (see Figure 2.1-3), for its entire length, is on new location, has a design speed of 60 mph (i.e., posted speed of 50 mph), and is classified as an urban freeway. It is approximately 1.0 mile in length, begins at the marine terminal entry and travels south over Shipyard Creek. After crossing Shipyard Creek, Alternative C turns southwest and directly bisects the Macalloy and Cooper Yard properties. It continues southwest and connects to I-26 at the present location of the Spruill Avenue access at Exit 218. Although Alternative C would be equidistant from the current interchanges at Exits 217 and 218, it is anticipated that a new interchange, accommodating all marine terminal movements, would be constructed and Exits 217 and 218 would be abandoned.

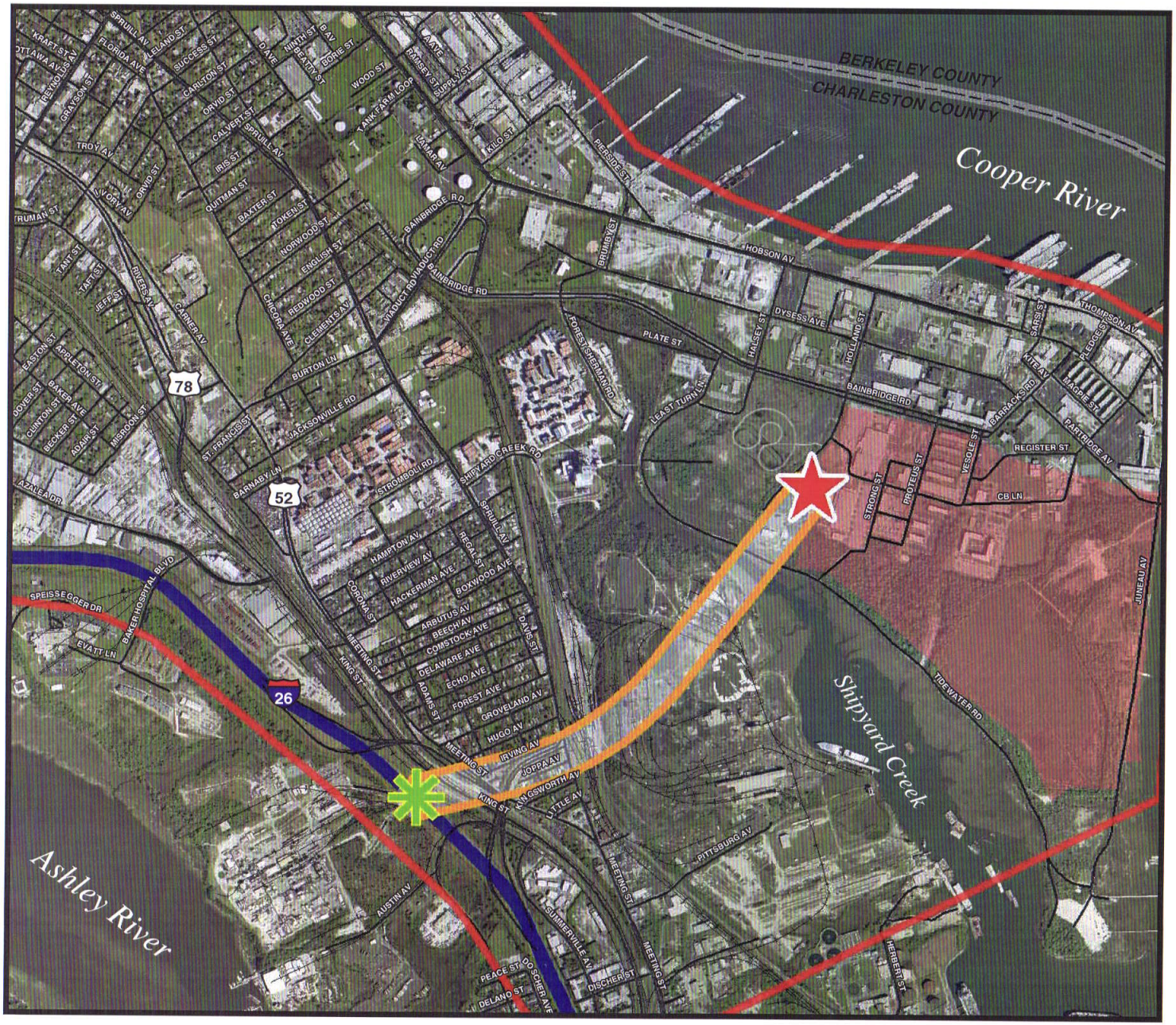
Alternative E

Alternative E (see Figure 2.1-4), for its entire length, is on new location, has a design speed of 60 mph (i.e., posted speed of 50 mph), and is classified as an urban freeway. It follows a northwesterly path of approximately 1.4 miles. As it leaves the marine terminal, it travels for approximately 0.3 mile and then turns west to cross Shipyard Creek. After crossing Shipyard Creek, it continues to turn until it is running southwest as it crosses the container storage yard north of Stromboli Road. It then connects to I-26 approximately 0.5 mile north of Exit 218. It is anticipated that the new Alternative E/I-26 Interchange would accommodate all marine terminal movements, and likely replace the interchanges at Exits 217 and 218.

2.2 Northern Alternatives

Of the eleven Initial Build Alternatives, six were considered to be "northern" alternatives as their connections to the Interstate System are in a relatively northern direction. These included Alternatives F-1, F-2, G, H, I-1, and I-2.

Of the six northern alternatives, Technical Memorandum No. 1 determined that only four reasonably address the goals of the study. Based on what were deemed to be detrimental and irrevocable impacts to the natural and built environment, Alternative H was determined to not reasonably address the study goals. Additionally, based on the working assumption that a four-way interchange should be provided with all build alternatives, Alternative I-2 was also determined to not reasonably address the study goals because critical impacts to the surrounding community and environment would be incurred in order to meet this four-way interchange assumption. However, at the Transportation ATWG meeting held on March 22, 2005, the Transportation ATWG directed that a two-movement interchange (i.e., providing access only to westbound I-526 and from eastbound I-526) would be acceptable since 90% of the truck traffic would be accommodated under such a scenario. Based on these comments, Alternative I-2 has been included in the Conceptual Alternatives presented below. In addition to Alternative I-2, Alternatives F-1, F-2, G, and I-1 were also determined to reasonably address the goals of the study and have been advanced for screening as Conceptual Alternatives.



ACCESS ROADWAY FEASIBILITY STUDY

for the Proposed Alternative
of the CNC Marine Terminal EIS

LEGEND

- TERMINAL ENTRY POINT
- NEW INTERCHANGE
- ALTERNATIVE ALIGNMENT 400' CORRIDOR
- MARINE TERMINAL PROPOSED ALTERNATIVE
- STUDY AREA

Source: Parsons Brinckerhoff 2005
Map Created: 04/18/05

This map is for conceptual presentation purposes only, and is believed to be fundamentaly accurate; however, no guarantees as to its accuracy or completeness are expressed or implied.

0 0.05 0.1 0.2 0.3 Miles

PB PARSONS BRINCKERHOFF

Figure 2.1-3
Conceptual Alternative C

ACCESS ROADWAY FEASIBILITY STUDY

for the Proposed Alternative
of the CNC Marine Terminal EIS

LEGEND

- TERMINAL ENTRY POINT
- NEW INTERCHANGE
- ALTERNATIVE ALIGNMENT 400' CORRIDOR
- MARINE TERMINAL PROPOSED ALTERNATIVE
- STUDY AREA

Source: Parsons Brinckerhoff 2005
Map Created: 04/18/05

This map is for conceptual presentation purposes only, and is believed to be fundamentaly accurate; however, no guarantees as to its accuracy or completeness are expressed or implied.

0 0.05 0.1 0.2 0.3 Miles

PB PARSONS BRINCKERHOFF

Figure 2.1-4
Conceptual Alternative E

All of the northern Conceptual Alternatives begin with a 1.2-mile connection from the marine terminal entry to Spruill Avenue on a new, at-grade alignment urban arterial with a design speed of 60 mph (i.e., posted speed of 50 mph).

Alternatives F-1 and F-2

Alternatives F-1 and F-2 (see Figures 2.2-1 and 2.2-2) are variations of the same alternative, but with two different termini. Both begin with a 1.2-mile connection from the marine terminal entry to Spruill Avenue on a new, at-grade alignment urban arterial. From there, both alternatives transition to an urban collector classification with a design speed of 45 mph (i.e., posted speed of 40), and travel Spruill Avenue for approximately 0.7 mile to Cosgrove Avenue. Alternatives F-1 and F-2 turn left onto Cosgrove Avenue. Alternative F-1 continues as an urban collector traveling Cosgrove Avenue for approximately 1.2 miles and utilizes the Cosgrove Avenue/I-26 Interchange (i.e., Exit 216). Alternative F-2 also continues as an urban collector traveling Cosgrove Avenue, but for only 0.5 mile where it turns west onto new alignment. This new alignment would be an urban arterial with a design speed of 50 mph (i.e., posted speed of 40 mph) and would connect to Dorchester Road and ultimately to the existing interchange of Dorchester Road and I-26 (i.e., Exit 215). Both of the interchanges utilized by Alternatives F-1 and F-2 are anticipated to require some form of improvement to accommodate an increased level of truck traffic. Alternative F-1 is approximately 3.1 miles in length, while Alternative F-2 is approximately 2.7 miles long.

Alternative G

Alternative G (see Figures 2.2-3, 2.2-4, and 2.2-5) begins with a 1.2-mile connection from the marine terminal entry to Spruill Avenue on a new, at-grade alignment urban arterial. It then transitions to an urban collector with a design speed of 45 mph (i.e., posted speed of 40 mph) along Spruill Avenue for 0.8 mile until it intersects with McMillan Avenue. Alternative G then transitions onto McMillan Avenue for 0.3 mile, then onto Rivers Avenue, continuing as an urban collector. The alternative continues on Rivers Avenue for 3.8 miles and connects to I-526 via the existing Exits 17 and 18, which are anticipated to require some form of improvement to accommodate an increased level of truck traffic. Alternative G has a total length of approximately 6.1 miles.

Alternatives I-1 and I-2

Alternatives I-1 and I-2 (see Figures 2.2-6, 2.2-7, and 2.2-8) are variations of the same alternative, but with two different termini. Both begin with a 1.2-mile connection from the marine terminal entry to Spruill Avenue on a new, at-grade alignment urban arterial. They then transition to an urban collector classification with a design speed of 45 mph and travel Spruill Avenue for approximately 0.1 mile to N. Carolina Avenue. Alternatives I-1 and I-2 follow N. Carolina Avenue for 0.4 mile and then go onto new, at-grade alignment for 0.4 mile to Avenue D, continuing as an urban collector but with a design speed of 50 mph (i.e., posted speed of 40 mph). The alternatives follow Avenue D for 0.9 mile as an urban collector and transition to Virginia Avenue. Both Alternative I-1 and I-2 follow Virginia Avenue for 0.4 mile and then split in two different directions. Alternative I-1 turns northwest onto new, at-grade alignment, continuing as an urban collector (i.e., design speed of 50 mph, posted speed of 40 mph). This new alignment runs 0.9 mile to Rhett Avenue were the roadway classification and posted speed limit remain the same but the design speed lowers to 45 mph. Alternative I-1 follows Rhett Avenue for 0.2 mile and connects to I-526 via the existing Exit 19, which is anticipated to require some form of improvement to accommodate an increased level of truck traffic. Alternative I-2 continues along Virginia Avenue as an urban collector (i.e., design speed of 50 mph, posted speed of 40 mph) for another 0.7 mile and ultimately connects to I-526 at the location of the existing Exit 20. This interchange currently only provides access to westbound I-526 and from eastbound I-526. It is anticipated that these ramps would be improved to accommodate an increased level

ACCESS ROADWAY FEASIBILITY STUDY

for the Proposed Alternative of the CNC Marine Terminal EIS

LEGEND

- TERMINAL ENTRY POINT
- ALTERNATIVE ALIGNMENT 400' CORRIDOR
- MARINE TERMINAL PROPOSED ALTERNATIVE
- STUDY AREA

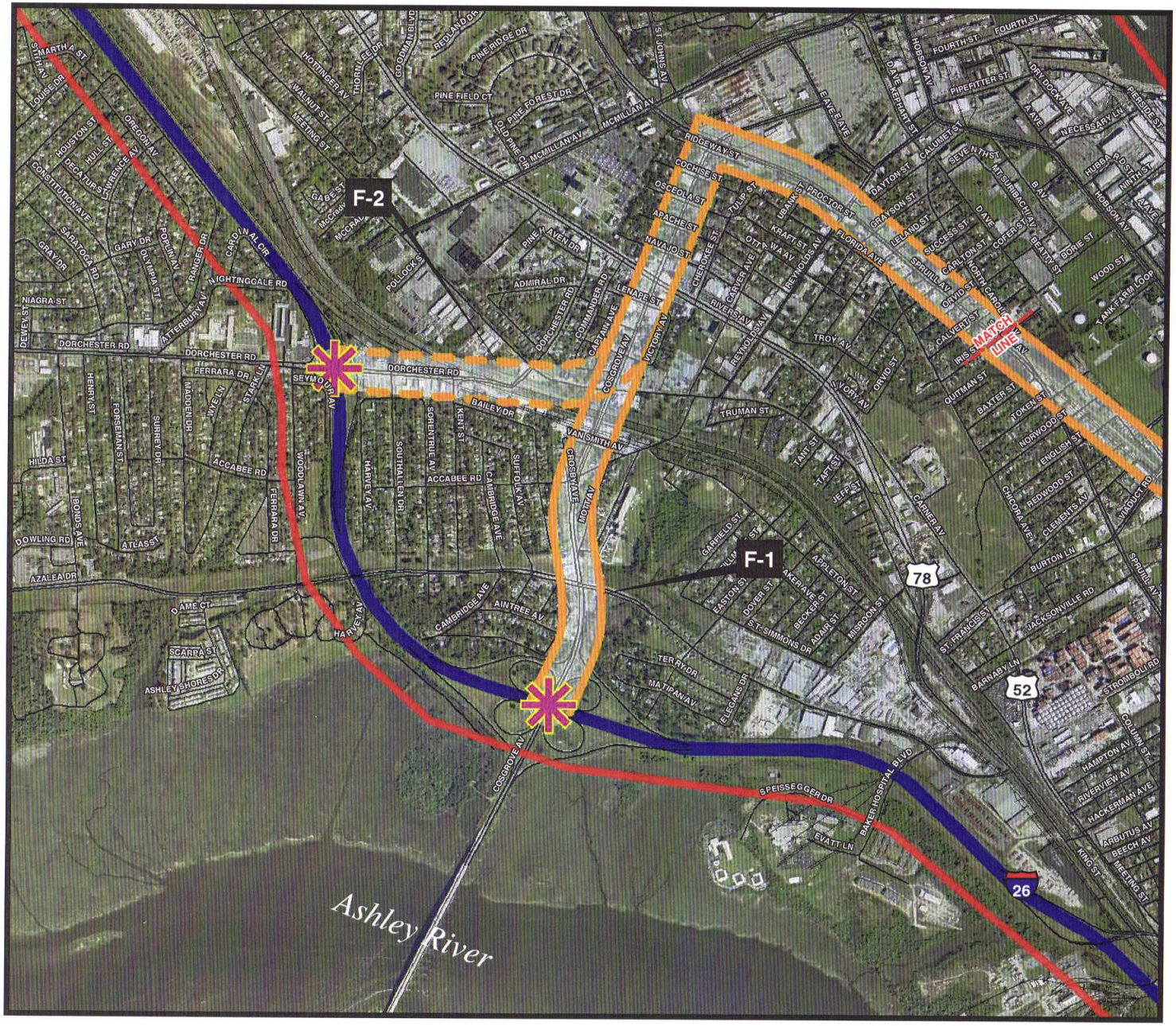
Source: Parsons Brinckerhoff 2005
Map Created: 04/18/05

This map is for conceptual presentation purposes only, and is believed to be fundamentaly accurate; however, no guarantees as to its accuracy or completeness are expressed or implied.

0 0.05 0.1 0.2 0.3 Miles

PB PARSONS BRINCKERHOFF

Figure 2.2-1
Conceptual Alternatives F-1 & F-2
(Terminal Entry to Iris Street)



ACCESS ROADWAY FEASIBILITY STUDY

for the Proposed Alternative
of the CNC Marine Terminal EIS

LEGEND

- TERMINAL ENTRY POINT
- POTENTIALLY IMPROVED INTERCHANGE
- ALTERNATIVE ALIGNMENT 400' CORRIDOR
- OPTIONAL ALIGNMENT
- MARINE TERMINAL PROPOSED ALTERNATIVE
- STUDY AREA

Source: Parsons Brinckerhoff 2005
Map Created: 04/18/05

This map is for conceptual presentation purposes only, and is believed to be fundamentaly accurate; however, no guarantees as to its accuracy or completeness are expressed or implied.

0 0.05 0.1 0.2 0.3 Miles

PB PARSONS BRINCKERHOFF

Figure 2.2-2
Conceptual Alternatives F-1 & F-2
(Iris Street to I-26)

ACCESS ROADWAY FEASIBILITY STUDY

for the Proposed Alternative
of the CNC Marine Terminal EIS

LEGEND

- TERMINAL ENTRY POINT
- ALTERNATIVE ALIGNMENT 400' CORRIDOR
- MARINE TERMINAL PROPOSED ALTERNATIVE
- STUDY AREA

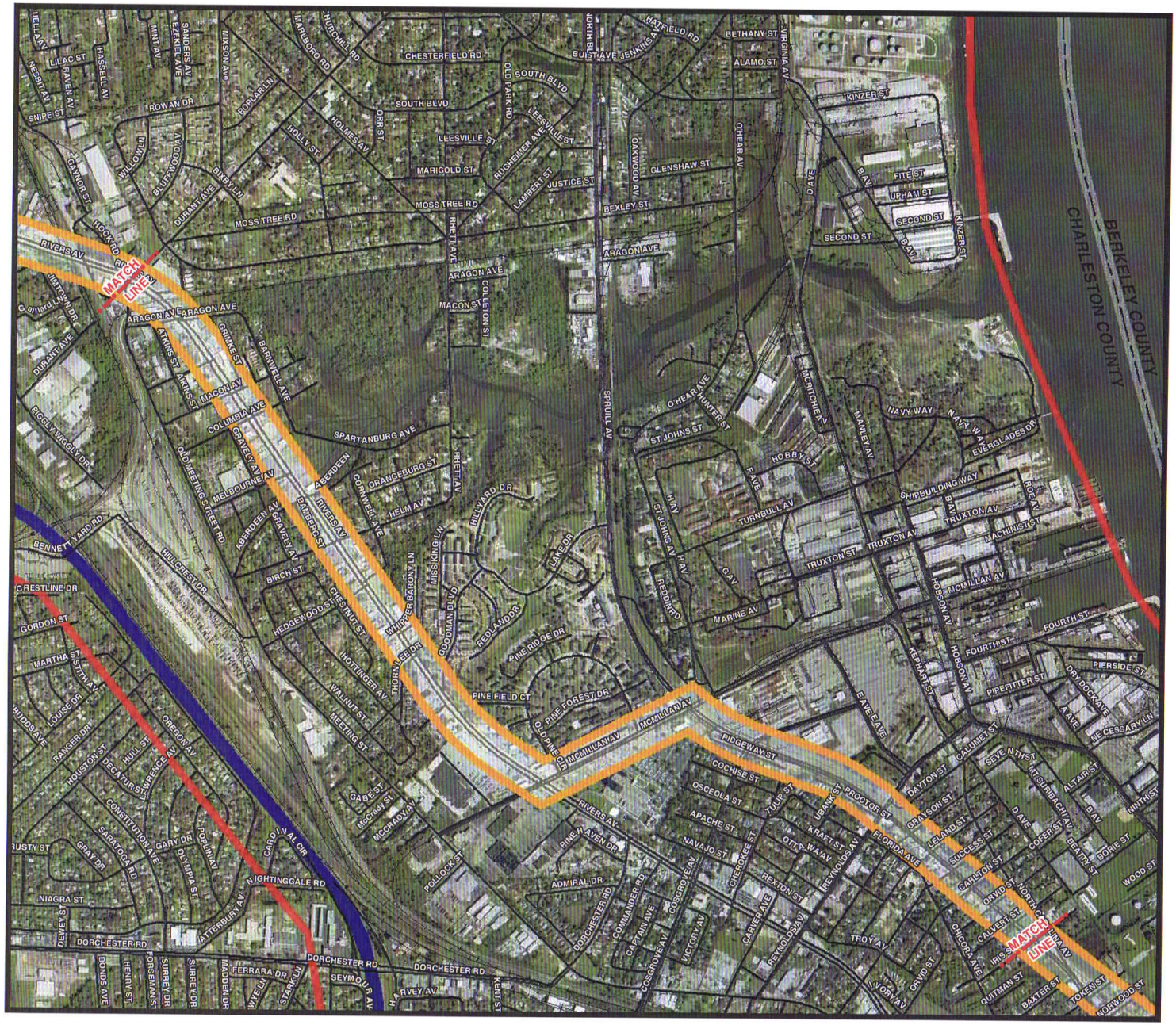
Source: Parsons Brinckerhoff 2005
Map Created: 04/18/05

This map is for conceptual presentation purposes only, and is believed to be fundamentaly accurate; however, no guarantees as to its accuracy or completeness are expressed or implied.

0 0.05 0.1 0.2 0.3 Miles

PB PARSONS BRINCKERHOFF

Figure 2.2-3
Conceptual Alternative G
(Terminal Entry to Iris Street)



ACCESS ROADWAY FEASIBILITY STUDY

for the Proposed Alternative
of the CNC Marine Terminal EIS

LEGEND

- ALTERNATIVE ALIGNMENT 400' CORRIDOR
- MARINE TERMINAL PROPOSED ALTERNATIVE
- STUDY AREA

Source: Parsons Brinckerhoff 2005
Map Created: 04/18/05

This map is for conceptual presentation purposes only, and is believed to be fundamentaly accurate; however, no guarantees as to its accuracy or completeness are expressed or implied.

0 0.05 0.1 0.2 0.3 Miles

PB PARSONS BRINCKERHOFF

Figure 2.2-4
Conceptual Alternative G
(Iris Street to Durant Avenue)

ACCESS ROADWAY FEASIBILITY STUDY

for the Proposed Alternative of the CNC Marine Terminal EIS

LEGEND

- TERMINAL ENTRY POINT
- POTENTIALLY IMPROVED INTERCHANGE
- ALTERNATIVE ALIGNMENT 400' CORRIDOR
- OPTIONAL ALIGNMENT
- MARINE TERMINAL PROPOSED ALTERNATIVE
- STUDY AREA

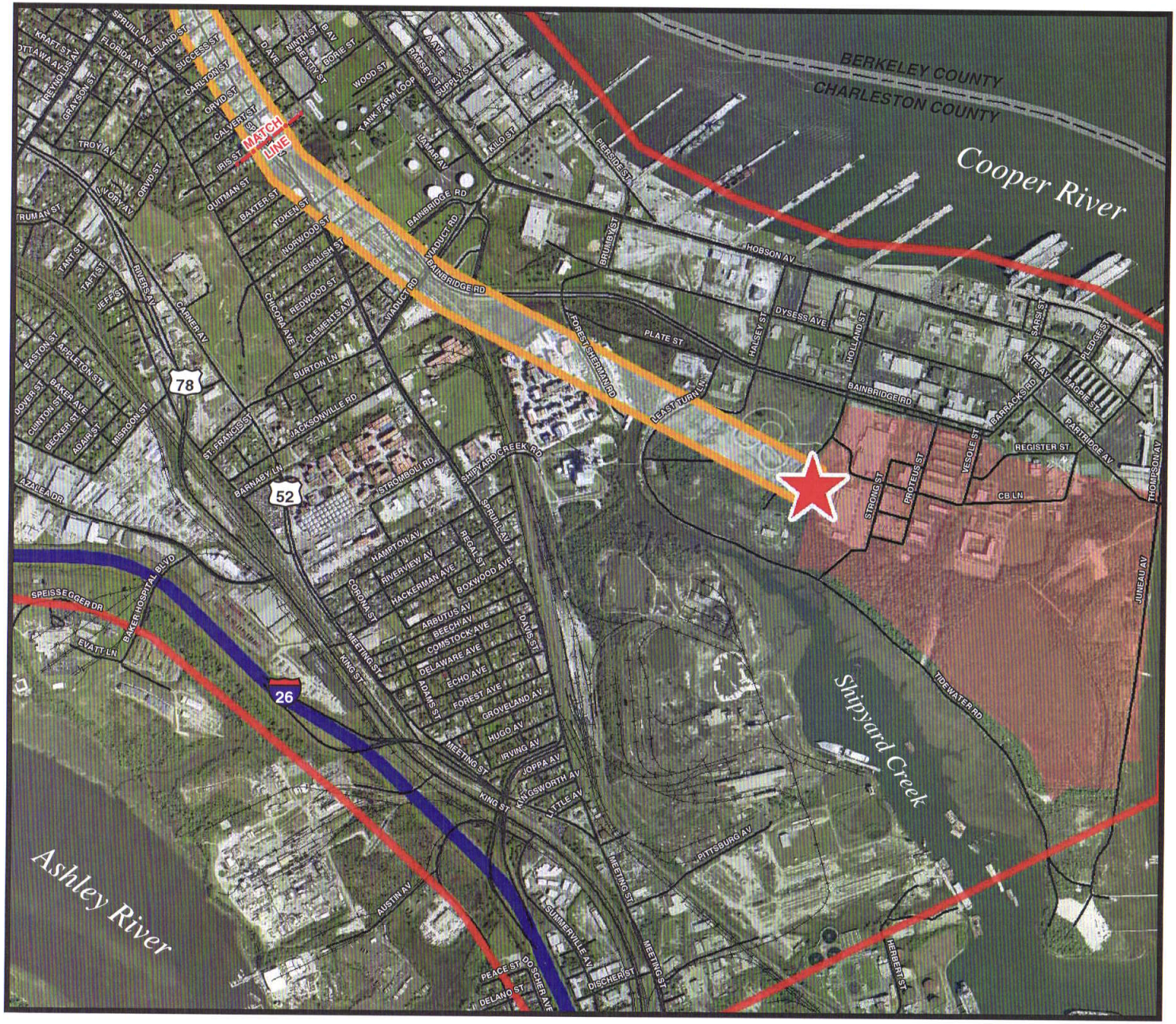
Source: Parsons Brinckerhoff 2005
Map Created: 04/18/05

This map is for conceptual presentation purposes only, and is believed to be fundamentaly accurate; however, no guarantees as to its accuracy or completeness are expressed or implied.

0 0.05 0.1 0.2 0.3 Miles

PB PARSONS BRINCKERHOFF

Figure 2.2-5
Conceptual Alternative G
(Durant Avenue to I-526)



ACCESS ROADWAY FEASIBILITY STUDY

for the Proposed Alternative
of the CNC Marine Terminal EIS

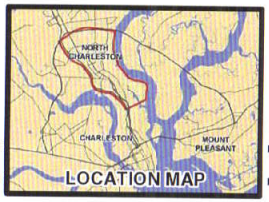
LEGEND

- TERMINAL ENTRY POINT
- ALTERNATIVE ALIGNMENT 400' CORRIDOR
- MARINE TERMINAL PROPOSED ALTERNATIVE
- STUDY AREA

Source: Parsons Brinckerhoff 2005
Map Created: 04/18/05

This map is for conceptual presentation purposes only, and is believed to be fundamentaly accurate; however, no guarantees as to its accuracy or completeness are expressed or implied.

0 0.05 0.1 0.2 0.3 Miles



PB PARSONS BRINCKERHOFF

Figure 2.2-6
Conceptual Alternatives I-1 & I-2
(Terminal Entry to Iris Street)

ACCESS ROADWAY FEASIBILITY STUDY

for the Proposed Alternative
of the CNC Marine Terminal EIS

LEGEND

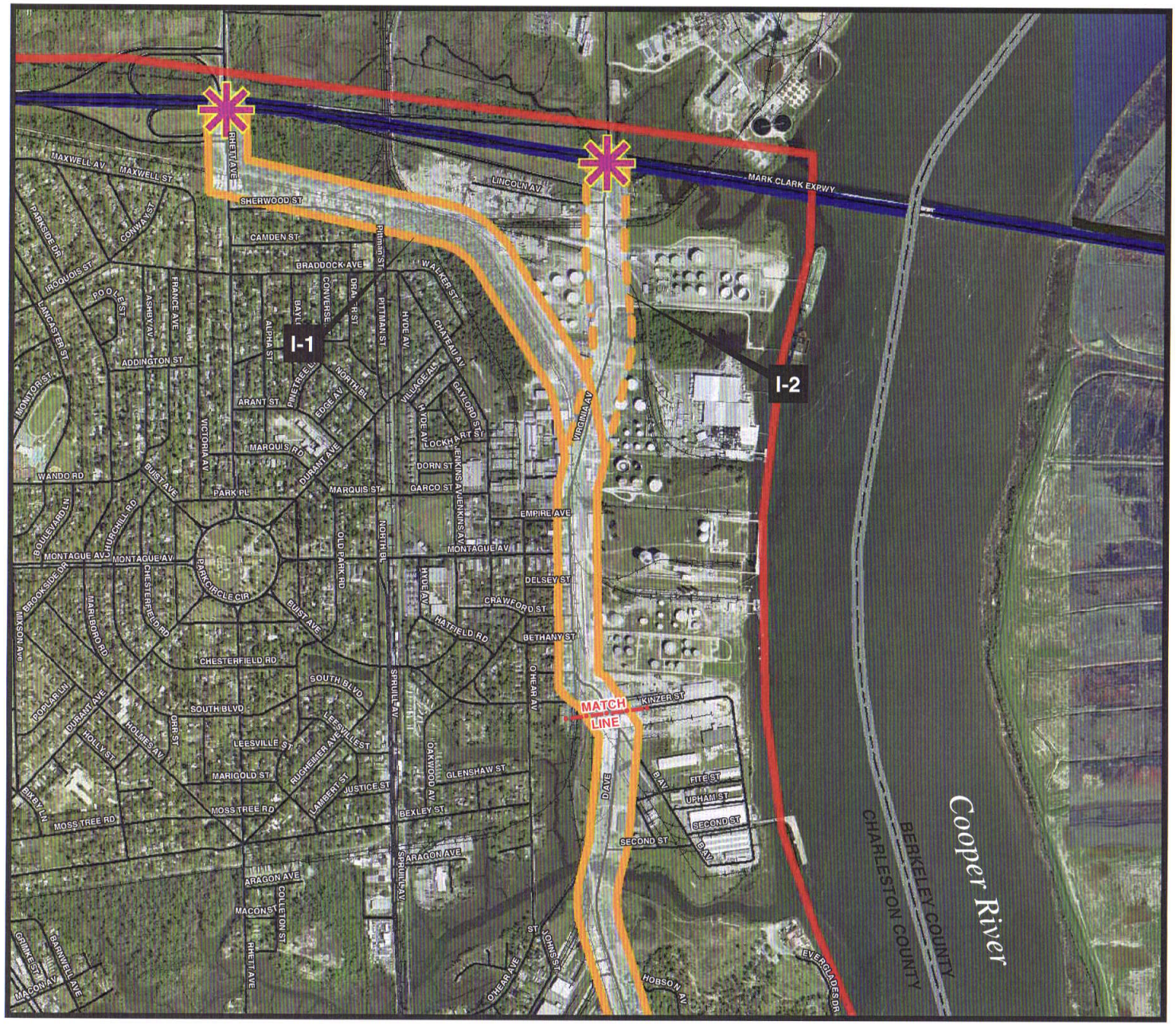
- TERMINAL ENTRY POINT
- ALTERNATIVE ALIGNMENT 400' CORRIDOR
- MARINE TERMINAL PROPOSED ALTERNATIVE
- STUDY AREA

Source: Parsons Brinckerhoff 2005
Map Created: 04/18/05

This map is for conceptual presentation purposes only, and is believed to be fundamentaly accurate; however, no guarantees as to its accuracy or completeness are expressed or implied.

PB PARSONS BRINCKERHOFF

Figure 2.2-7
Conceptual Alternatives I-1 & I-2
(Iris Street to Kinzer Street)



ACCESS ROADWAY FEASIBILITY STUDY

for the Proposed Alternative
of the CNC Marine Terminal EIS

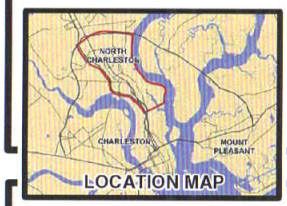
LEGEND

- TERMINAL ENTRY POINT
- POTENTIALLY IMPROVED INTERCHANGE
- ALTERNATIVE ALIGNMENT 400' CORRIDOR
- OPTIONAL ALIGNMENT
- MARINE TERMINAL PROPOSED ALTERNATIVE
- STUDY AREA

Source: Parsons Brinckerhoff 2005
Map Created: 04/18/05

This map is for conceptual presentation purposes only, and is believed to be fundamentaly accurate; however, no guarantees as to its accuracy or completeness are expressed or implied.

0 0.05 0.1 0.2 0.3 Miles



PB PARSONS BRINCKERHOFF

Figure 2.2-8
Conceptual Alternatives I-1 & I-2
(Kinzer Street to I-526)

of truck traffic, but no additional ramps (i.e., ramps to eastbound I-526 and from westbound I-526) would be constructed. Alternative I-1 is approximately 4.5 miles in length, while Alternative I-2 is approximately 4.1 miles long.

3. TRAFFIC ANALYSIS TO SUPPORT ALTERNATIVES SCREENING

Each of the Conceptual Alternatives was evaluated from a traffic perspective to assist in the screening process described in Section 4 of this technical memorandum. The following four traffic variables were used in analyzing the merits and impacts of the Conceptual Alternatives at a corridor level of detail:

- Adequacy of Access Road Capacity;
- Site Access Travel Time and Reliability;
- Impacts to Arterial Traffic Operations; and
- Impacts to Interstate Traffic Operations.

The first traffic variable evaluated the roadway capacity for each of the Conceptual Alternatives based on proposed geometric configuration, type of access control, number of lanes, design speed, truck percentages, and presence of signalized intersections. The estimated roadway capacity was compared to projected 2025 traffic demand to compute average corridor-level volume-to-capacity (V/C) ratios. The corridor-level V/C ratios were used to evaluate the adequacy of the proposed access road capacity. Any V/C ratio of 0.8 or higher was deemed inadequate, as traffic flow is prone to frequent breakdown conditions when demand exceeds 80 percent of the corridor capacity. Delay is relatively insensitive to demand when corridor saturation level, or V/C ratio, is 0.6 or less. This level of saturation (i.e., $V/C \leq 0.6$) is considered desirable for the truck access road. When V/C ratios ranged between 0.6 and 0.8, the corridor is generally considered acceptable with the understanding that some capacity constraints at signalized intersections and freeway interchanges would exist due to the length of the corridor.

The second traffic variable entailed computing average travel time to access the CNC container terminal site from the freeway interchange. The average travel times were first calculated based on FHWA's speed model equations (STEAM 2.0) and then factored up to add delays due to intersection and other bottlenecks along the corridor. The travel time reliability was qualitatively assessed based on type of access control, presence of signalized intersections, and local insights.

The third traffic variable considered the impacts of the access road alternative on other arterial street operations in the general vicinity. This was qualitatively assessed after reviewing results of two scenario runs from the latest BCDCOG travel demand model as follows:

- 2030 Daily Volumes on Existing+Committed Network – without traffic associated to the proposed marine container terminal; and
- 2030 Daily Volumes on Existing+Committed Network – with traffic associated to the proposed marine container terminal.

It should be mentioned that the BCDCOG model results are still under review by the BCDCOG staff.

The fourth traffic variable considered the impacts of each Conceptual Alternative on freeway operations in the general vicinity of each of the proposed new/modified interchange. This entailed reviewing the 2025 freeway level of service (LOS) analysis results for the No-Build condition and judging the feasibility of adding additional project traffic from LOS and weaving volume perspectives.

Table 3.1-1 summarizes the results of the traffic analysis.

Table 3.1-1
Summary of Traffic Analysis to Support Alternatives Screening

Conceptual Alternative	Traffic Variables			
	Adequacy of Access Road Capacity*	**Site Access Travel Time & Reliability**	**Impacts to Arterial Traffic Operations**	**Impacts to Freeway Traffic Operations**
A	• A two-lane direct access road would provide adequate capacity • Average V/C 0.6	• Time to access I-26 would be less than 5 minutes • Reliable travel time	• Minimal impacts as traffic would primarily use I-26	• Minimal impacts as traffic would enter or exit I-26 at a location where LOS is projected to be D (acceptable level) in 2025
B	• A two-lane direct access road would provide adequate capacity • Average V/C 0.6	• Time to access I-26 would be less than 5 minutes • Reliable travel time	• Minimal impacts as traffic would primarily use I-26	• Minimal impacts as traffic would enter or exit I-26 at a location where LOS is projected to be D (acceptable level) in 2025
C	• A two-lane direct access road would provide adequate capacity • Average V/C 0.6	• Time to access I-26 would be less than 5 minutes • Reliable travel time	• Minimal impacts as traffic would primarily use I-26	• Minimal impacts as traffic would enter or exit I-26 at a location where LOS is projected to be D (acceptable level) in 2025
E	• A two-lane direct access road would provide adequate capacity • Average V/C 0.6	• Time to access I-26 would be less than 5 minutes • Reliable travel time	• Minimal impacts as traffic would primarily use I-26	• Minimal impacts as traffic would enter or exit I-26 at a location where LOS is projected to be D (acceptable level) in 2025 • Some weaving is possible with Cosgrove ramps
F-1	• Would not provide adequate capacity • Average V/C 0.8	• Time to access I-26 would be around 10 minutes on average • Travel time would be unreliable due to several bottleneck intersections	• High impacts as truck traffic would mix with commuter traffic causing significant traffic volume shifts for local circulation	• High impacts as traffic would enter or exit I-26 at a clover-leaf interchange with severe weaving constraints

*Average V/C ≤ 0.6 is acceptable; Average V/C between 0.6 and 0.8 is somewhat acceptable; Average V/C > 0.8 is not acceptable

Conceptual Alternative	Traffic Variables			
	Adequacy of Access Road Capacity*	**Site Access Travel Time & Reliability**	**Impacts to Arterial Traffic Operations**	**Impacts to Freeway Traffic Operations**
F-2	• Would provide some capacity • Average V/C 0.7	• Time to access I-26 would be around 10 minutes on average • Travel time would be unreliable due to several bottleneck intersections	• High impacts as truck traffic would mix with commuter traffic causing significant traffic volume shifts for local circulation	• Moderate impacts as traffic would enter or exit I-26 at a diamond interchange with no major weaving constraints • Dorchester Road Interchange is relatively a good location among the existing interchanges
G	• Would not provide adequate capacity • Average V/C 0.9	• Time to access I-526 would be around 20 minutes on average • Travel time would be unreliable due to several bottleneck intersections	• High impacts as truck traffic would mix with commuter traffic causing significant traffic volume shifts for local circulation	• High impacts as traffic would enter or exit I-526 at a location where LOS is projected to be F (unacceptable level) without the proposed terminal • Severe weaving is possible due to proximity of the interchanges
I-1	• Would provide some capacity • Average V/C 0.65	• Time to access I-526 would be around 15 minutes on average • Travel time would be partially reliable due to new alignment	• High impacts as truck traffic would peel away from the corridor to access the intermodal yards • Some traffic would use local roads to access I-26	• High impacts as traffic would enter or exit I-526 at a location where LOS is projected to be F (unacceptable level) without the proposed terminal • Severe weaving is possible
I-2	• Would provide some capacity • Average V/C 0.65	• Time to access I-526 would be around 12 minutes on average • Travel time would be partially reliable due to new alignment	• High impacts as truck traffic would peel away from the corridor to access the intermodal yards • Some traffic would use local roads to access I-26	• High impacts as traffic would enter or exit I-526 at a location where LOS is projected to be F (unacceptable level) without the proposed terminal • No access to the East

*Average V/C ≤ 0.6 is acceptable; Average V/C between 0.6 and 0.8 is somewhat acceptable; Average V/C > 0.8 is not acceptable

4. ALTERNATIVES SCREENING

On Monday, April 11, 2005 the consultant team met to screen the Conceptual Alternatives. The screening process was highly collaborative with input from specialists in the arenas of transportation, engineering, natural environment, built environment, and community impacts. Additionally, graphics were utilized extensively during this meeting including an interactive geographic information system (GIS) that allowed for the viewing and evaluation of key resources in relation to specific alternatives.

4.1 Screening Criteria

Prior to the alternatives screening meeting, a series of broad screening criteria were developed by the consultant team and submitted to the Transportation ATWG for review and comment. Screening criteria as utilized in this process are as follows:

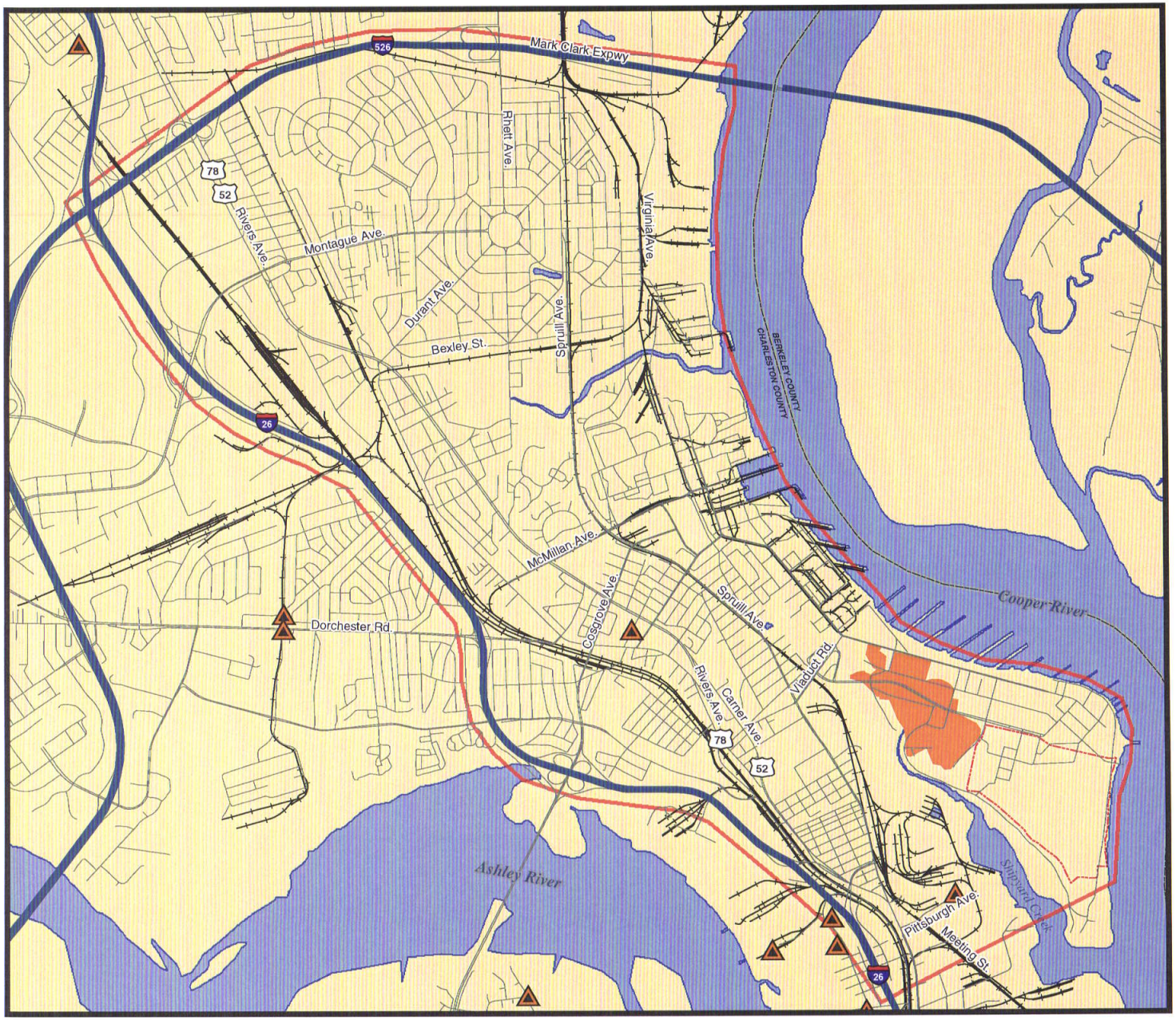
- Ability to improve physical access between the container terminal site and potential destinations;
- Ability to provide direct access to the Interstate System;
- Ability to maintain adequate service along the local road system;
- Ability to safely integrate terminal traffic with existing traffic;
- Use of a design that supports local and regional planning policies and strategies (e.g., CHATS LRTP and TIP, Noisette Project, October 25, 2002 MOU between the City of North Charleston and the SCSPA, etc.);
- Use of a design that minimizes impacts to the surrounding natural environment;
- Use of a design that minimizes impacts to local communities; and
- Use of a design that minimizes disturbance of known contaminated sites.

4.2 Constraints Mapping Not Included in Technical Memorandum No. 1

A constraints mapping exercise was undertaken as part of Technical Memorandum No. 1 to ensure that initial alternatives considered did not have "fatal flaws," which would make them an obvious detriment to the surrounding context. Generalized existing conditions for three major areas of concern (i.e., built environment, natural environment, and transportation network) were collected and represented in a GIS environment.

Based on comments from the Transportation ATWG, it has been determined that known contaminated sites in the study area should be given consideration as well. Figure 4.2-1 presents known contaminated sites as obtained from the South Carolina Department of Health and Environmental Control's (SCDHEC's) public records website. This additional constraints map was given consideration during the alternatives screening process.

Two sites are of particular note as several of the alternatives may have impact upon them. The Macalloy site is a Superfund site, which is currently undergoing remediation and is located just southeast of the Cooper Yard. The second is Solid Waste Management Unit (SWMU) 9, which is located west of the proposed marine container terminal site (see Figure 4.2-1). SWMU 9 is a former landfill and may contain a variety of hazardous waste chemical constituents. Based on available information, the presence of various contaminates have been confirmed in soil and groundwater samples taken within the boundaries of SWMU 9; also, land use controls have been placed on this unit by



ACCESS ROADWAY FEASIBILITY STUDY

for the Proposed Alternative
of the CNC Marine Terminal EIS

LEGEND

- CONTAMINATED SITE
- SOLID WASTE MANAGEMENT UNIT 9
- MARINE TERMINAL PROPOSED ALTERNATIVE
- STUDY AREA

Source: SCDHEC 2005
Map Created: 04/19/05

This map is for conceptual presentation purposes only, and is believed to be fundamentaly accurate; however, no guarantees as to its accuracy or completeness are expressed or implied.

0 0.2 0.4 0.8 1.2 Miles

PB PARSONS BRINCKERHOFF

Figure 4.2-1
Known Contaminated Sites

SCDHEC. Additionally, the Department of Homeland Security (DHS) presently controls all of the former CNC property south of Bainbridge Avenue, north of Shipyard Creek, and west of the proposed marine container terminal site, which includes a large portion of SWMU 9. DHS is currently planning to utilize the property as a training course for non-emergency vehicles.

4.3 Alternatives Screening

Table 4.3-1 summarizes the alternatives screening results. A relative scoring system with three distinct rankings was devised for screening of alternatives as follows: low potential for meeting criteria (L); moderate potential for meeting criteria (M); and high potential for meeting criteria (H).

Once screening was completed it was quite apparent where the logical "breakpoint" was and which alternatives would be retained and which would be eliminated (i.e., the table has been color-coded to further demonstrate the breakpoint). Alternatives B and C received either H or M for all criteria, while Alternatives A and E only received an L for one criterion each. Conversely, Alternatives F-1, G, I-1, and I-2 all received an L for the majority of the criteria. With three criteria ranked as L, Alternative F-2 ranked better than the lowest alternatives, but not as well as the highest alternatives.

Key observations and screening results for each of the Conceptual Alternatives are presented in the sections that follow. A matrix summarizing the screening of each alternative and whether or not it is to be retained as a Feasible Alternative is included for each.

Table 4.3-1
Summary of Alternatives Screening

SCREENING CRITERIA	ALTERNATIVE RANKING								
	A	B	C	E	F-1	F-2	G	I-1	I-2
Ability to improve physical access between the container terminal site and potential destinations	H	H	H	H	L	M	L	L	L
Ability to provide direct access to the Interstate System	H	H	H	H	L	L	L	L	L
Ability to maintain adequate service along the local road system	M	M	H	H	L	M	M	L	L
Ability to safely integrate terminal traffic with existing traffic	H	H	H	M	L	M	L	L	L
Use of a design that supports local and regional planning policies and strategies	H	H	H	H	M	M	L	L	L
Use of a design that minimizes impacts to the surrounding natural environment	L	M	M	H	H	H	H	M	M
Use of a design that minimizes impacts to local communities	M	M	M	M	L	L	L	L	L
Use of a design that minimizes disturbance of known contaminated sites	M	M	M	L	L	L	L	L	L
DETERMINATION	**R**	**R**	**R**	**R**	**E**	**E**	**E**	**E**	**E**

Key

L = low potential for meeting criteria
M = moderate potential for meeting criteria
H = high potential for meeting criteria

R = Retain
E = Eliminate

4.3.1 Alternative A

A summary of the screening of Alternative A is presented in Table 4.3-2. Key observations for Alternative A are as follows:

- Maintains adequate safety along local roads by providing direct access to I-26 and intermodal yards;
- Avoids Noisette Project and is in concert with MOU between North Charleston and SCSPA;
- Directly impacts existing local access to I-26;
- Provision of new local access would be difficult;
- Diagonal crossing of Shipyard Creek may result in increased wetlands impacts;
- Elevated portions of roadway may result in light and noise impacts to surrounding communities;
- Interchange design could impact residential uses in Rosemont community;
- Potential for new interchange to impact wetlands and contaminated sites west of I-26; and
- Crosses Macalloy site.

Based on the results of the screening process, Alternative A will be retained and advanced as a Feasible Alternative (see Section 4.4) for evaluation of impacts in the dEIS.

Table 4.3-2
Screening: Alternative A

SCREENING CRITERIA	RANK
Ability to improve physical access between the container terminal site and potential destinations	H
Ability to provide direct access to the Interstate System	H
Ability to maintain adequate service along the local road system	M
Ability to safely integrate terminal traffic with existing traffic	H
Use of a design that supports local and regional planning policies and strategies	H
Use of a design that minimizes impacts to the surrounding natural environment	L
Use of a design that minimizes impacts to local communities	M
Use of a design that minimizes disturbance of known contaminated sites	M
DETERMINATION	**Retain**

Key
L = low potential for meeting criteria
M = moderate potential for meeting criteria
H = high potential for meeting criteria

4.3.2 Alternative B

A summary of the screening of Alternative B is presented in Table 4.3-3. Key observations for Alternative B are as follows:

- Maintains adequate safety along local roads by providing direct access to I-26 and intermodal yards;
- Avoids Noisette Project and is in concert with MOU between North Charleston and SCSPA;
- Directly impacts existing local access to I-26, but curvature of roadway would allow for at-grade portion to accommodate new local access;
- Ninety-degree crossing of Shipyard Creek would minimize wetlands impacts;
- Elevated portions of roadway may result in light and noise impacts to surrounding communities;
- Interchange design could impact residential uses in Rosemont community; and
- Potential for new interchange to impact wetlands and contaminated sites west of I-26.

Based on the results of the screening process, Alternative B will be retained and advanced as a Feasible Alternative (see Section 4.4) for evaluation of impacts in the dEIS.

Table 4.3-3
Screening: Alternative B

SCREENING CRITERIA	RANK
Ability to improve physical access between the container terminal site and potential destinations	H
Ability to provide direct access to the Interstate System	H
Ability to maintain adequate service along the local road system	M
Ability to safely integrate terminal traffic with existing traffic	H
Use of a design that supports local and regional planning policies and strategies	H
Use of a design that minimizes impacts to the surrounding natural environment	M
Use of a design that minimizes impacts to local communities	M
Use of a design that minimizes disturbance of known contaminated sites	M
DETERMINATION	**Retain**

Key
L = low potential for meeting criteria
M = moderate potential for meeting criteria
H = high potential for meeting criteria

4.3.3 Alternative C

A summary of the screening of Alternative C is presented in Table 4.3-4. Key observations for Alternative C are as follows:

- Maintains adequate service and safety along local roads by providing direct access to I-26 and intermodal yards;
- Avoids Noisette Project and is in concert with MOU between North Charleston and SCSPA;
- Directly impacts existing local access to I-26;
- Ninety-degree crossing of Shipyard Creek would minimize wetlands impacts;
- Utilizes current I-26 access corridor (i.e., existing Exits 217 and 218), which bisects residential community;
- Elevated portions of roadway may result in light and noise impacts to surrounding communities; and
- Potential for new interchange to impact contaminated sites west of I-26.

Based on the results of the screening process, Alternative C will be retained and advanced as a Feasible Alternative (see Section 4.4) for evaluation of impacts in the dEIS.

Table 4.3-4
Screening: Alternative C

SCREENING CRITERIA	RANK
Ability to improve physical access between the container terminal site and potential destinations	H
Ability to provide direct access to the Interstate System	H
Ability to maintain adequate service along the local road system	H
Ability to safely integrate terminal traffic with existing traffic	H
Use of a design that supports local and regional planning policies and strategies	H
Use of a design that minimizes impacts to the surrounding natural environment	M
Use of a design that minimizes impacts to local communities	M
Use of a design that minimizes disturbance of known contaminated sites	M
DETERMINATION	**Retain**

Key
L = low potential for meeting criteria
M = moderate potential for meeting criteria
H = high potential for meeting criteria

4.3.4 Alternative E

A summary of the screening of Alternative E is presented in Table 4.3-5. Key observations for Alternative E are as follows:

- Maintains adequate safety along local roads by providing direct access to I-26 and intermodal yards;
- Directly impacts existing local access to I-26;
- Provision of new local access would be more difficult based on the potential for the local connection to cross the upper reaches of Shipyard Creek;
- Avoids Noisette Project and is in concert with MOU between North Charleston and SCSPA;
- Crosses primarily industrial land uses, resulting in a minimum potential for community impacts;
- Directly impacts park, resulting in potential 4(f)/6(f) issues;
- Elevated portions of roadway may result in light and noise impacts to surrounding communities; and
- Crosses SWMU 9 as it leaves the terminal.

Based on the results of the screening process, Alternative E will be retained and advanced as a Feasible Alternative (see Section 4.4) for evaluation of impacts in the dEIS.

Table 4.3-5
Screening: Alternative E

SCREENING CRITERIA	RANK
Ability to improve physical access between the container terminal site and potential destinations	H
Ability to provide direct access to the Interstate System	H
Ability to maintain adequate service along the local road system	H
Ability to safely integrate terminal traffic with existing traffic	M
Use of a design that supports local and regional planning policies and strategies	H
Use of a design that minimizes impacts to the surrounding natural environment	H
Use of a design that minimizes impacts to local communities	M
Use of a design that minimizes disturbance of known contaminated sites	L
DETERMINATION	**Retain**

Key
L = low potential for meeting criteria
M = moderate potential for meeting criteria
H = high potential for meeting criteria

4.3.5 Alternatives F-1 and F-2

As similar alignments, Alternatives F-1 and F-2 were screened simultaneously. A summary of the screening of Alternatives F-1 and F-2 is presented in Table 4.3-6. Key observations for Alternatives F-1 and F-2 are as follows:

- Interchange at Cosgrove Avenue would require a significant improvement for use as part of Alternative F-1 due to insufficient turning radii of ramps;
- Interchange at Dorchester Road would require moderate improvement for use as part of Alternative F-2;
- Trucks presently utilize Dorchester Road to access I-26;
- Although it would involve some capital costs, Alternative F-2 is the closest alternative to truly reflect a TSM strategy;
- Commercial uses and pedestrians would be impacted along Cosgrove Avenue (i.e., F-1 would have a more significant impact than F-2);
- Direct access to intermodal yards with low risk of "cut-through" traffic;
- Potential impacts to residential uses adjacent to Spruill and Cosgrove Avenues;
- Avoids Noisette Project and is in concert with MOU between North Charleston and SCSPA; and
- Crosses SWMU 9 as it leaves the terminal.

Based on the results of the screening process, Alternatives F-1 and F-2 will be eliminated from consideration.

It should be noted that Alternative F-2 ranked at mid-level in relation to all of the other alternatives.

Table 4.3-6
Screening: Alternatives F-1 and F-2

SCREENING CRITERIA	RANK	
	F-1	F-2
Ability to improve physical access between the container terminal site and potential destinations	L	M
Ability to provide direct access to the Interstate System	L	L
Ability to maintain adequate service along the local road system	L	M
Ability to safely integrate terminal traffic with existing traffic	L	M
Use of a design that supports local and regional planning policies and strategies	M	M
Use of a design that minimizes impacts to the surrounding natural environment	H	H
Use of a design that minimizes impacts to local communities	L	L
Use of a design that minimizes disturbance of known contaminated sites	L	L
DETERMINATION	**Eliminate**	

Key
L = low potential for meeting criteria
M = moderate potential for meeting criteria
H = high potential for meeting criteria

4.3.6 Alternative G

A summary of the screening of Alternative G is presented in Table 4.3-7. Key observations for Alternative G are as follows:

- Rivers Avenue presently has excess capacity;
- Directs terminal traffic onto I-526, which is already projected to operate at LOS F;
- Length of route and stop-and-go traffic at intersecting streets may pose air quality and noise impacts;
- Commercial uses and pedestrians would be impacted along Rivers Avenue;
- Fairly direct access to intermodal yards with low risk of "cut-through" traffic;
- Would impact historic Chicora Park neighborhood;
- Some impact to Noisette Project;
- Is not in concert with MOU between North Charleston and SCSPA; and
- Crosses SWMU 9 as it leaves the terminal.

Based on the results of the screening process, Alternative G will be eliminated from consideration.

Table 4.3-7
Screening: Alternative G

SCREENING CRITERIA	RANK
Ability to improve physical access between the container terminal site and potential destinations	L
Ability to provide direct access to the Interstate System	L
Ability to maintain adequate service along the local road system	M
Ability to safely integrate terminal traffic with existing traffic	L
Use of a design that supports local and regional planning policies and strategies	L
Use of a design that minimizes impacts to the surrounding natural environment	H
Use of a design that minimizes impacts to local communities	L
Use of a design that minimizes disturbance of known contaminated sites	L
DETERMINATION	**Eliminate**

Key
L = low potential for meeting criteria
M = moderate potential for meeting criteria
H = high potential for meeting criteria

4.3.7 Alternatives I-1 and I-2

As similar alignments, Alternatives I-1 and I-2 were screened simultaneously. A summary of the screening of Alternatives I-1 and I-2 is presented in Table 4.3-8. Key observations for Alternatives I-1 and I-2 are as follows:

- Does not improve access to intermodal yards;
- Directs terminal traffic onto I-526, which is already projected to operate at LOS F;
- Potential local traffic capacity and safety impacts due to trucks "cutting through" on local roads to access intermodal yards and I-26;
- Crossing of Noisette Creek could pose potential natural environment impacts;
- Length of route and stop-and-go traffic at intersecting streets may pose air quality and noise impacts;
- Directly bisects River City at Noisette planned development;
- Is not in concert with MOU between North Charleston and SCSPA; and
- Crosses SWMU 9 as it leaves the terminal.

Based on the results of the screening process, Alternatives I-1 and I-2 will be eliminated from consideration.

Table 4.3-8
Screening: Alternatives I-1 and I-2

SCREENING CRITERIA	RANK	
	I-1	I-2
Ability to improve physical access between the container terminal site and potential destinations	L	L
Ability to provide direct access to the Interstate System	L	L
Ability to maintain adequate service along the local road system	L	L
Ability to safely integrate terminal traffic with existing traffic	L	L
Use of a design that supports local and regional planning policies and strategies	L	L
Use of a design that minimizes impacts to the surrounding natural environment	M	M
Use of a design that minimizes impacts to local communities	L	L
Use of a design that minimizes disturbance of known contaminated sites	L	L
DETERMINATION	**Eliminate**	

Key
L = low potential for meeting criteria
M = moderate potential for meeting criteria
H = high potential for meeting criteria

4.4 Feasible Alternatives

Based on the alternatives screening included in Section 4.3, the following Conceptual Alternatives have been retained and will be advanced as Feasible Alternatives for impact evaluation in the dEIS:

- Alternative A;
- Alternative B;
- Alternative C; and
- Alternative E.

Alternatives A and B are extremely similar and will be considered as a single Feasible Alternative with two variations. This combination will simplify the impact evaluation process. Additionally, new numerical names will be given to each of the alternatives and the No Action Alternative will be included to serve as a basis for comparison of the build alternatives. As documented in Technical Memorandum No. 1, TSM will not be carried forward as a unique Feasible Alternative; however, elements of TSM strategies will be incorporated into each of the build alternatives as part of the further development and refinement of the Feasible Alternatives, which will be included in Technical Memorandum No. 3. Table 4.4-1 presents the Feasible Build Alternatives as they will be advanced into the dEIS for impact evaluation.

Table 4.4-1
Feasible Build Alternatives To Be Advanced

Conceptual Alternative	renamed	Feasible Alternative
Alternative A	=	Alternative 1a
Alternative B	=	Alternative 1b
Alternative C	=	Alternative 2
Alternative E	=	Alternative 3

5. PATH FORWARD

Following the receipt of Transportation ATWG comments on Technical Memorandum No. 2, the following actions will occur exclusive to the Access Roadway Feasibility Study (i.e., efforts specific to the dEIS are not included):

- Detailed data collection for each Feasible Alternative corridor;
- Alternative development and refinement to include conceptual and preliminary road plans, conceptual and conceptual and preliminary interchange design, and identification of major engineering components;
- Construction, cost, and schedule analysis of each Feasible Alternative;
- Evaluation of Feasible Alternatives; and
- Issuance of Technical Memorandum No. 3 prior to publication of the final EIS.

APPENDIX A

Minutes of Transportation ATWG Meeting
March 22, 2005, 10:00 AM

CNC Marine Container Terminal EIS
March 22, 2005 Transportation ATWG Meeting

Last Revised: March 24, 2005
Documenting Person: John Cox

Meeting Location: BCDCOG office
Meeting Time: March 22, 2005 (1000 hours)

Meeting Participants:

Name	*Organization*	*Contact Information*
Haila Maze	BCDCOG	(843) 529-0400
Ron Mitchum	BCDCOG	(843) 529-0400
David Smith	SCSPA	(843) 856-7049
Dan Hinton	FHWA	(803) 253-3887
Ron Patten	SCDOT	(803) 737-1444
Wayne Hall	SCDOT	(803) 737-1872
Travis Hughes	CESAC	(843) 329-8044
Ernie Boughman	PB	(803) 227-3475
David Antley	PB	(803) 227-3477
Scott Armstrong	PB	(803) 227-3425
Doug Smith	PB	(919) 468-2129
Mushtaq Rahman	PB	(919) 468-2133
Bo Ellis	ATM	(843) 884-8750
John Cox	ATM	(843) 884-8750

MINUTES

I. Transportation Agency Technical Working Group (ATWG)

a. The meeting was conducted on March 22, 2005, commencing at approximately 1010 hours.
b. The meeting was conducted at the BCDCOG conference room, 1362 McMillan Ave, Suite 100, North Charleston, SC

II. EIS Status Update

a. Bo Ellis provided a summary of progress and work underway for the proposed container terminal EIS. Most of the data collection activities and characterization of existing resources has been completed. Much of the community profile information will be readily available to the Feasibility Study in GIS format. The process for identifying and selecting alternative roadway corridors will determine the critical path schedule for development of the dEIS.
b. Bo indicated that a lot of work was currently underway and that the delivery date to the Corps for the preliminary dEIS is mid June 2005.

c. The group had no questions for Bo regarding the status of the EIS development process.

III. Traffic Study Presentation

a. Mushtaq Rahman gave a power point presentation of the recently completed traffic study.
b. The following key points were made regarding current and projected future traffic conditions:
c. Two local intermodal yards (N&S 7-Mile Yard and CSX East Bennett Yard) currently receive 10 and13% respectively of vehicle trips from Charleston area port facilities.
d. Approximately 30% of vehicles, 63% of which are trucks, from port facilities leave the area via I-26 west.
e. Parts of I-526 are projected to operate at LOS F under the year 2025 No-Build scenario and the situation will worsen even without the proposed project.
f. I-26/I-526 intersection is the major traffic failure point within the study area.
g. Most I-26 segments are projected to operate at LOS D under year 2025 No-Build scenario and will worsen even without the project.
h. By year 2017 some arterials and intersections are projected to begin failing (LOS F) under the with project scenario.
i. Many of the interstate interchanges are too close together and abrupt speed reduction requirements generate a backward traveling shock wave that further perturbs traffic on the roadway system.
j. Currently, approximately 15% of the vehicle traffic on I-26 consists of heavy trucks; additional trucks attributable to the proposed terminal facility will result in a small increase of the overall truck percentage.
k. The Transportation ATWG recommended that the traffic study be revised to clearly point out the projected overall truck traffic increase on I-26 (I-526 interchange to Remount Road interchange segment only).

IV. Technical Memorandum I Presentation

a. Ernie Boughman presented the findings of Feasibility Study Technical Memorandum I.
b. The initial part of the presentation focused on roadway alternatives constraints mapping. The group had no questions regarding the "Constraints Mapping" section of the memo.
c. Item 6 (Stopping Sight Distance) of Table 3.0-2 (Design Criteria) should be modified as follows, for "Urban Arterial" change to 495, for "Urban Collector" change to 425, and for "Ramps" change to 360 (pointed out by Ernie).
d. For preliminary planning purposes, the assumed vertical clearance requirement for Clouter and Beresford Creeks is 25 feet. The assumed vertical clearances need to be verified by the U.S.C.G.
e. The ATWG recommended that clearance requirements of the tallest vessel currently using the Daniel Island Marina (just upstream of the I-526 Bridge over Clouter Creek) be determined.

f. The Alternatives section was then discussed and a clarification regarding what represented the "No-Action" alternative within the Technical Memorandum (the "with project" condition represents the "No-Action" alternative within the framework of Feasibility Study Technical Memorandum I). It was determined that the "No-Action" alternative does not meet the goals of the direct access project. However, the "No Action" alternative will be retained to serve as a baseline against which "Build" alternatives will be compared.
g. Relying on TSM (Traffic Systems Management) alone is not feasible because the amount of improvements necessary would represent a capital improvement and would exceed the cost threshold for TSM guidance.
h. Ron Patten opined that SCDOT traffic engineering may have comments regarding TSM, but such comments would likely focus on incorporating TSM to optimize whatever alternative was finally chosen.
i. The ATWG recommended that a caveat be included within the Technical Memorandum that TSM elements will be considered for all roadway alignment alternatives.
j. Haila Maze brought up the City of North Charleston's desire for grade separations at three railroad crossings within the city (see MOU), however such improvements would not really be considered as TSM, but would definitely improve traffic flow on the subject arterials.
k. Five "southern" (alternatives A-E) and six "northern" (F1, F-2, G, H, I-1, and I-2 alternative alignments were initially considered.
l. Alternative D was dropped from further consideration because it bisects a residential area and would incur irrevocable and unacceptable community impacts.
m. Doug Smith opined that the City of North Charleston had indicated that losing some residential area (alternative C) would probably be preferable to losing local access to I-26.
n. Alternative E (previously referred to as the Stromboli Street corridor) may incur Section 4(f) concerns, as it would cut through a park/playground near the intersection of Spruill Avenue and Stromboli Street). Doug Smith said that the City of North Charleston has indicated that the park/playground could be relocated into the nearby community, which might be an acceptable mitigation.
o. There was discussion of the necessity of a 90° right-hand turn into the security gate and entrance to the proposed terminal facility under Alternatives A, B, and C.
p. David Smith indicated that this would not be a concern to SCSPA.
q. It was noted that Alternative E would cross a significant part of SWMU 9 onboard CNC and that this may be a constraint.
r. Travis Hughes questioned why alternative B required a large curve.
s. Scott Armstrong indicated that land use constraints and grade requirement considerations required the curve.
t. Doug Smith suggested that the alignment corridors be increased from 200 feet width to 400-500 feet to account for future required design adjustments. There was consensus that this would be a good idea.

u. Alternative I-2 was dropped from further consideration because of lack of full interchange capability (I-526/Virginia Avenue). PB assumed that a four-way interchange would be necessary.
v. Bo Ellis mentioned that approximately 90% of truck traffic from the proposed port facility would travel west on I-526 and that the lack of a full interchange may not necessarily eliminate alternative I-2 from further consideration.
w. Others mentioned that both alternatives I-1 and I-2 cut through the Noisette project area, but that transportation improvements associated with Noisette have not been programmed.
x. Ron Mitchum emphasized that the City of North Charleston has been a partner in the Noisette redevelopment project. In light of the proposed master plan for this area, the Virginia Avenue alternatives would not be acceptable to the City and are likely a waste of time and effort, also the Virginia Avenue alternatives do not address access to intermodal yards.
y. A discussion of whether alternatives I-1 and I-2 should be eliminated from further consideration ensued, Ron Mitchum indicated that they should be dropped, but SCDOT suggested keeping them in for the next round of screening. It was indicated that it would be better to document the reasons for screening out these alternatives, in case the public inquires why they were dropped. Ron Mitchum replied that the public is unfamiliar with the NEPA process for screening of alternatives and that there is no public support for any of the "northern" alternatives;
z. SCDOT indicated that alternatives G, H, I-1, and I-2 do not meet the requirements of the MOU;
aa. Travis Hughes suggested getting the alignment alternatives down to 3 or 4 and that the alternatives analysis should be driven by feasibility not just EJ issues; Ernie responded that the next Technical Memorandum will likely reduce the number of alternatives to 3 or 4, which will then be carried to the public meeting.
bb. Ron Mitchum and Doug Smith both indicated that all alternatives within the entire study area would likely have EJ issues.

V. Path Forward

a. Develop draft screening criteria and distribute to ATWG with meeting minutes.
b. Mushtaq to check traffic loading.
c. Alternatives A, B, C, E, F-1, F-2, G, I-1, and I-2 to be advanced for consideration in Technical Memorandum II
d. ATWG to meet again 5/3/05
e. Technical Memorandum II to be distributed by 4/22/05.
f. Executive Coordination Committee meeting to be held last week of April (likely date is April 27)
g. Public meeting to be held 5/12/05 at North Charleston Performing Arts Center 1600-2000 hours.

Appendix D

The South Carolina State Ports Authority's Statement of Need for the Proposed Project

1.0 The South Carolina State Ports Authority

The South Carolina State Ports Authority is an instrumentality of the State of South Carolina created in 1942 by Act No. 626 of the South Carolina General Assembly for the immediate preparation of the Ports of South Carolina for the use in prosecution of the war (World War II) and their ultimate development for peacetime commercial progress.

The current mission of the South Carolina State Ports Authority is to contribute to the economic development of the State of South Carolina by fostering and stimulating waterborne commerce and the shipment of freight. In pursuit of this mission the Authority will develop, operate and maintain competitive, cost-efficient, highly productive cargo handling facilities in a fiscally responsible manner. The Authority will pursue economic opportunities that support and enhance its core business.

The most recent economic analysis done for the Authority by the Center for Economic Forecasting at Charleston Southern University measured the impact of the Authority on the State economy. It stated that the South Carolina State Ports Authority creates 281,660 jobs, $9.4 billion in annual personal income, $2.5 billion in annual tax revenues, and $23 billion in annual total economic impact.

On September 1, 1999, the South Carolina State Ports Authority applied to the U.S. Army Corps of Engineers and the South Carolina Department of Health and Environmental Control for a permit to construct a marine cargo terminal on its property on Daniel Island in Charleston, South Carolina. A draft environmental impact statement had been prepared and a public hearing was held on November 17, 1999. Due to public opposition to the project, the Authority withdrew its permit request. On March 2, 2001 a Public Notice was issued by the U.S. Army Corps of Engineers stating the South Carolina State Ports Authority had withdrawn their permit application P/N # 99-1T-345-P-C-W to construct a marine cargo terminal and related appurtenant activities in and adjacent to the Wando and Cooper River.

Recognizing the need for the Authority to expand its facilities in support of its mission, the South Carolina General Assembly approved a Joint Resolution on May 20, 2002, requiring the Authority to begin environmental impact studies and other required actions to obtain a permit for a new terminal facility on the West Bank of the Cooper River. Further, in a Budget Proviso Codification Act, Section 15, the General Assembly authorized the Charleston Naval Complex Redevelopment Authority (RDA) to convey portions of the former Charleston Naval Base to the State Ports Authority for the construction and operation of marine terminal facilities. Furthermore, on March 26, 2003, the General

Assembly unanimously adopted a concurrent resolution to commend the South Carolina State Ports Authority Board for its diligent efforts in working with the City of North Charleston and the Charleston Naval Base Redevelopment Authority to secure a location for a new marine cargo terminal on the former Charleston Naval Base and to encourage the expeditious issuance of the necessary permits for that facility.

In pursuit of its mission and in response to Legislative directive, the South Carolina State Ports Authority applied to the U.S. Army Corps of Engineers and the South Carolina Department of Health and Environmental Control on January 24, 2003, for a permit to construct a marine cargo terminal on property it will be conveyed on the former Charleston Naval Base.

2.1 Historical Container Cargo Volumes

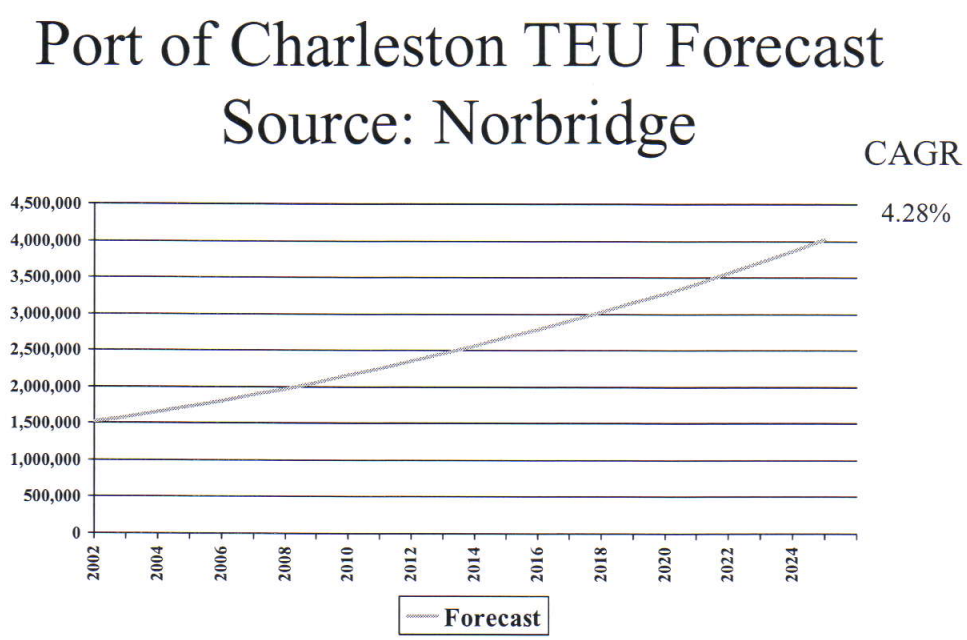
The following table lists container cargo volumes through the Port of Charleston for the fiscal years (July 1 – June 30) 1998 through 2003. Volumes are in twenty foot equivalent units (TEU). TEU is a standard industry measurement (one standard twenty foot ocean shipping container). Ocean shipping containers come in 20, 40, 45, lengths. Over the period listed Charleston container cargo averaged 1.74 TEU per physical container. Container volumes have grown at 5.97% compound annual growth rate over this period. Container volumes were down in 2002, mainly attributed to the events of September 11, 2001.

	Fiscal Year					
	1998	1999	2000	2001	2002	2003
TEU	1,259,259	1,347,618	1,574,467	1,619,577	1,509,381	1,681,721
Pier Containers	737,632	780,428	906,339	933,214	866,640	958,310
TEU/Container	1.71	1.73	1.74	1.74	1.74	1.75

2.2 Projected Container Cargo Volumes

Container cargo projections were updated in September 2002. The forecasting model has been corroborated by the South Carolina State Ports Authority Market Research department, and has been adjusted over the years based on actual experience. The basis for the projections was basically the same as that used in earlier projections done by Mercer Management and Norbridge Inc. Those models considered customer trade lane data compiled by the Port Import Export Reporting Service (PIERS), macroeconomic growth drivers and annual growth rates by trade lane projected by the Wharton Econometric Forecasting Associates (WEFA), and customer specific information provided by the South Carolina State Ports Authority.

Container cargo volume through the Port of Charleston is projected to grow from 1,650,000 TEU in 2004 to 4,000,000 TEU in 2025. This represents a compound annual growth rate of 4.28%.



While the graph indicates a smooth growth curve it should be understood actual growth will contain steps on the growth curve. Growth rates will vary by trade lane and world economic conditions. Additions of trade lanes or modifications of trade routes by individual steamship carriers will result in step changes in cargo volumes. However, the growth curve is expected to fairly represent growth over the planning period.

2.3 Projected Maximum Throughput of Existing Facilities

TEU throughput per container yard acre varies greatly around the world. Typically, Ports in the Far East realize a greater facility throughput sometimes reaching 8000 to 10,000 TEU per acre per year. For those ports, a dense, high stacked grounded operation is more economical than constructing additional acres of container storage areas because of scarcity of land. Also, ports that have a high percentage of transshipped cargo (in by ship/out by ship) or more frequent ship calls usually enjoy greater throughput per acre.

High infrastructure costs drive better facility utilization. Better utilization of a container terminal facility requires denser stacking of containers which increases operating costs. The balance between infrastructure cost and operating cost

drives land use and operating styles. To be successful, Ports within a given range must be competitive in cost and style of operation. Even if a high throughput yard were more economical in itself, the departure from a familiar operating style might not be economical or preferable to the Port customer.

Terminal operations vary by steamship line, import/export balance, 20/40 mix, partnering arrangements, vessel call frequency, operating style, and other factors. Steamship line contracts are increasingly tailored to encourage good terminal space utilization. The actual terms of these contracts are competitively driven and the final agreement will be an acceptable compromise on the part of both parties.

In the Port of Charleston throughput per acre is calculated based on the container yard area provided. A contract will typically specify a number of slots or number of acres and a utilization standard. Licensed operators must operate within the assigned area and achieve the utilization standard.

Areas that are not licensed are used by the Authority to accommodate "common users". A common user is a Steamship Line that has elected to hire the Authority to manage its yard operations. This unlicensed area is used to calculate throughput in the SPA managed areas. Since a less dense yard arrangement is less expensive to manage and operate, the Authority manages the unlicensed area to minimize costs rather than to maximize the throughput per acre.

Available capacity is calculated based on a projected maximum throughput per container slot. The actual capacity realized will vary depending upon factors previously mentioned. Operating styles, frequency of vessel calls, transshipments, empty storage, and grounding density are the main drivers. Columbus Street Terminal's maximum throughput is estimated at 55 containers per slot per year based on its heavily grounded configuration. Wando-Welch Terminal is estimated at 65 containers per slot per year. The throughput is estimated higher than Columbus Street because structurally Wando-Welch's pavement will support more load. Therefore, stacks can potentially be higher. North Charleston's capacity is estimated less because much of the area at North Charleston is not suitable for grounding due to subsurface conditions.

The following table summarizes the container operations by terminal and projects maximum terminal operating capacity. The table is based on the movement of containers per slot. The actual number of slots per acre will vary based on terminal configuration and whether the slots are 20' or 40' slots.

The terminals are currently not capable of the capacities indicated. However, the capital program in place anticipates improvements to systems and facilities to increase the capacities of the respective terminals to the levels indicated in the following chart. The implementation of throughput improvements is highly

dependent upon the service and operating characteristics of individual steamship line customers.

Existing terminals will also be expanded to produce additional capacity. The impacts of the expansion on the maximum throughput of each terminal is noted in the table below. These expansions represent total buildout of all existing container terminals. No adjacent lands are available for container yard development.

FACILITY UTILIZATION BY TERMINAL

(Measurement unit is Containers)

Existing Container Terminals

Columbus Street Terminal (CST)

Operator	Storage Slots	2003 T-put	T-put/Slot	Max/Slot	Max T-put
Steamship Lines	3,218	133,925	41.6	55.0	176,990
State Ports	337	3,495	10.4	55.0	18,535
Combined	3,555	137,420	38.7	55.0	195,525

North Charleston Terminal (NCT)

Operator	Storage Slots	2003 T-put	T-put/Slot	Max/Slot	Max T-put
Steamship Lines	3,784	128,972	34.1	55.0	208,120
State Ports	3,087	106,841	34.6	55.0	169,785
Combined	6,871	235,813	34.3	55.0	377,905

Wando-Welch Terminal (WWT)

Operator	Storage Slots	2003 T-put	T-put/Slot	Max/Slot	MaxT-put
Steamship Lines	5,522	283,352	51.3	65.0	358,930
State Ports	5,293	301,720	57.0	65.0	344,045
Combined	10,815	585,072	54.1	65.0	702,975

All Terminals & All Operators Combined

Operator	Storage Slots	2003 T-put	T-put/Slot	Max/Slot	MaxT-put
All	21,241	958,310	45.1	60.1	1,276,405

Expansion of Existing Container Terminals

B

Terminal	New Container Acres	Storage Slots	Max/Slot	Max T-put
CST	3.8	98	55.0	5,390
NCT	10.5	576	55.0	31,680
WWT	49.0	3,188	65.0	207,220
Combined	63.3	3,862	63.3	244,290

Total Existing Terminal Throughput **1,520,695 Containers or 2,646,010 TEU**

The Port of Charleston currently has a total of 21,241 container slots located on 449.4 acres in its three container terminals (47.3 slots/acre). Currently, the annual throughput is 2,128 containers or 3,702 TEU per acre per year. Through increased operational efficiencies and new technologies a projected maximum throughput of 2,966 containers or 5,161 TEU per acre is expected.

2.4 The Need for Additional Capacity

The South Carolina State Ports Authority has an attainable capacity of approximately 2.6 million TEU annual throughput. Based on the projected container growth rate this capacity will be needed on line by 2014.

The new facility is projected to provide approximately 200 acres of active container marshalling area producing approximately 11,300 slots. Considering that enhanced stacking equipment and systems will be effectively employed the throughput per slot is estimated at 70 containers per slot per year. Thus, the 11,300 slots would provide throughput capacity of 791,000 containers or 1.4 million TEU. This would meet the projected port needs for new terminal capacity until 2025.

2.5 The Need for a Cost Competitive Charleston Location

The Port of Charleston is recognized world wide as a significant and capable container cargo port. It is important that future growth is provided in Charleston. From a port management standpoint, Management, Maintenance, Engineering, Information Technology, and Security can be more effectively and economically provided from a central location to nearby facilities. As facility locations become more remote there would be inefficiencies in delivering the needed services and a possibly even a need to duplicate those services in the remote locations.

From the customer's standpoint, the Port of Charleston is a recognized name and location for those seeking to ship cargo internationally. Its value as a sales tool cannot be measured.

Port customers look for a port that is capable of meeting their shipping needs. The Port of Charleston has such a reputation. Customers would view a remote port facility as just that-removed from the center of operations and not having the synergies that currently exist in the Charleston port community.

Port customers also look for accessibility. The Port of Charleston has very adequate and competitive navigation channels with terminals within short sailing time of the ocean. The Port is served by two major railroads with good services to Atlanta and Charlotte. It is served by many motor carriers and has good highway access via I-26 to I-95, I-77, and I-85. It has a strong productive labor

force, and a full compliment of competitive providers of services to both the vessel and cargo. These are all strong selling points in the competitive port industry.

All of these services, including Port services, are provided at competitive rates. The rates are competitive because of competition and because of the cooperative working relationships that have been developed in the Port of Charleston.

For these reasons, it is essential that any new facility be located on a site within Charleston Harbor that has good access to existing Federal shipping channels, the two major rail carriers, and the interstate highway system. Furthermore, it must be a site that can support the timely construction of marine terminal facilities.

Appendix E

Beverly T. Craven, Clerk
(843) 958-4030
1-800-524-7832
FAX (843) 958-4035
E-mail: bcraven@charlestoncounty.org

CHARLESTON COUNTY COUNCIL
LONNIE HAMILTON, III PUBLIC SERVICES BUILDING
4045 BRIDGE VIEW DRIVE
CHARLESTON, SOUTH CAROLINA
29405-7464

November 10, 2005

Mr. Keith Bishop
Deputy Director of Finance and Administration
South Carolina Department of Transportation
Post Office Box 191
Columbia, SC 29202-0191

SUBJECT: CHARLESTON COUNTY HALF-CENT SALES TAX STATE INFRASTRUCTURE BANK APPLICATION

Dear Mr. Bishop:

Thank you for your October 31, 2005, letter which offered South Carolina Department of Transportation (SCDOT) support to Charleston County for the development of an application for funding assistance to the State Infrastructure Bank (SIB). It is our intention to work closely with SCDOT to structure the application.

Recently, we have been informed that the SIB will require that new applications be submitted on or before December 5, 2005. As a result, we have accelerated our efforts to meet this deadline. Unfortunately, this timeframe does not give us the amount of time that we would have preferred for coordination.

In an effort to move forward with coordination, enclosed with this letter is a copy of the draft SIB application. We would very much appreciate SCDOT's review of this document and concurrence/comments, particularly on those items designated in the SIB application guidelines. These items include:

Cost estimate for the project
Fund disbursement schedule
Useful life of the project
Project future maintenance costs
Time table for implementation

SCDOT preference for responsibilities for:

Environmental studies
Design of the projects

Right of way acquisition
Construction
Construction management
Operation
Maintenance
Tort liability and ownership
Law enforcement
Marketing

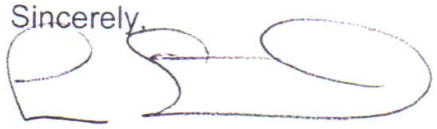
Given the short time frame for submission of the application, we respectfully request a meeting on either Monday, November 14, 2005, or Tuesday, November 15, 2005, with representatives from SCDOT and Charleston County to answer your questions and receive your comments. Please contact James Hutto, Public Works Director, at 202-7600, to confirm a date.

As you know, John Walsh has initiated a series of monthly meetings to coordinate the implementation of the Charleston County sales tax program. These meetings may offer an excellent forum to continue the coordination activities for these projects after our November meeting.

Charleston County greatly appreciates the cooperation and support of SCDOT as we move forward to the completion of these projects which are so vital to the state and the Charleston region.

We look forward to meeting with SCDOT and receiving SCDOT's comments on the application.

Sincerely,



Leon E. Stavrinakis

LES/bac

c: Elizabeth Mabry, Executive Director, SCDOT
Tony Chapman, State Highway Engineer, SCDOT
John Walsh, Deputy State Highway Engineer for Preconstruction, SCDOT
Roland Windham, Charleston County
Jim Hutto, Charleston County