

Daniel Island Environmental Impact Statement

---

**TECHNICAL MEMORANDUM**

---

**ORIGIN AND DESTINATION SURVEY  
FOR TRUCK TRAFFIC ASSOCIATED WITH THE  
COLUMBUS STREET, NORTH CHARLESTON, AND  
WANDO WELCH TERMINALS**

PREPARED FOR

U.S. ARMY CORPS OF ENGINEERS

and

SOUTH CAROLINA STATE PORTS AUTHORITY

PREPARED BY

**URS Greiner**

APRIL 1998

## **INTRODUCTION**

The purpose of this technical memorandum is to summarize the findings of an Origin and Destination (O/D) survey of truck traffic associated with the three existing marine terminals in the city of Charleston: Wando Welch, North Charleston, and Columbus Street. The survey was performed in order to accurately assess the truck travel patterns on the area roadways. The survey information will then be used to estimate the future trip distribution for the traffic expected to be generated by the proposed alternatives considered in the Daniel Island Environmental Impact Statement (EIS).

## **SURVEY METHODOLOGY**

### **Interviews**

Truck drivers exiting the study terminals were asked to identify their destination and the roadways they intended to travel. Likewise, truck drivers entering the study terminals were asked to identify the originating point of their trip and which roadways they traveled to reach the terminal.

It should be noted that non-freight traffic was not included in the survey. Non-freight traffic includes the terminal employees as they enter and leave their work shifts, deliveries, visitors, maintenance vehicles, etc. The traffic distribution patterns for these trips can be simulated using the CHATS TRANPLAN model.

### **Survey Dates**

The O/D surveys were conducted on the following dates:

- Columbus Street Terminal: Tuesday, February 17, 1998
- North Charleston Terminal: Wednesday, February 18, 1998
- Wando Welch Terminal: Thursday, February 19, 1998

### **Traffic Count Program**

A traffic data collection program conducted in early 1998 by Wilbur Smith Associates (WSA) included a series of weekly traffic counts on roadways at or near South Carolina State Ports Authority (SCSPA) facilities. As part of this program, 24-hour machine classification counts were collected at the entrances/exits of the Wando Welch, North Charleston, and Columbus Street terminals during the week of the O/D survey.

### **Interterminal Trips**

Table 9 summarizes the number of trips taking place between the three terminals surveyed. A total of 51 responses (2 percent) listed another terminal as their origin or destination.

### **Summary of Trips by Geographical Area**

Table 10 summarizes the survey responses by geographical area. As shown, approximately 28 percent of the trips were identified as either originating or destined for locations outside of South Carolina. Of these trips, most of the responses indicated the states of Georgia (13 percent) and North Carolina (8 percent).

### **Trip Distribution on the Roadway Network**

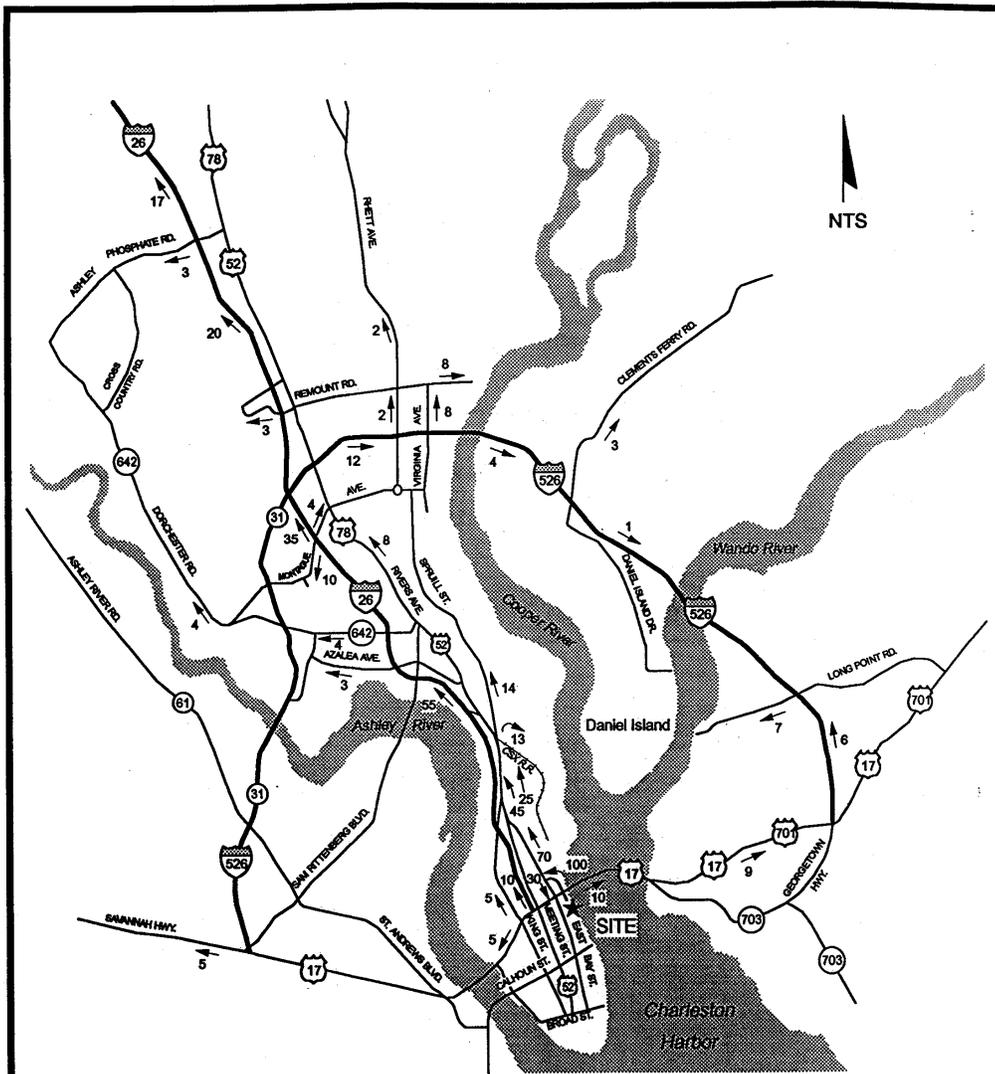
In addition to the truck origin or destination point, drivers were also asked what routes they used (or were planning to use in the case of outbound traffic) to reach their destination. The information collected is summarized in Exhibits 2 through 7.

## **CONCLUSIONS**

The truck origin and destination patterns identified and summarized in this O/D survey will serve as the basis for the projected distribution and assignment of trips in the EIS traffic study. Several alternative sites will be analyzed in the EIS, and the CHATS traffic model will be revised to ensure that the trip characteristics that actually occur, as evidenced by the survey, are also reflected in the transportation model.







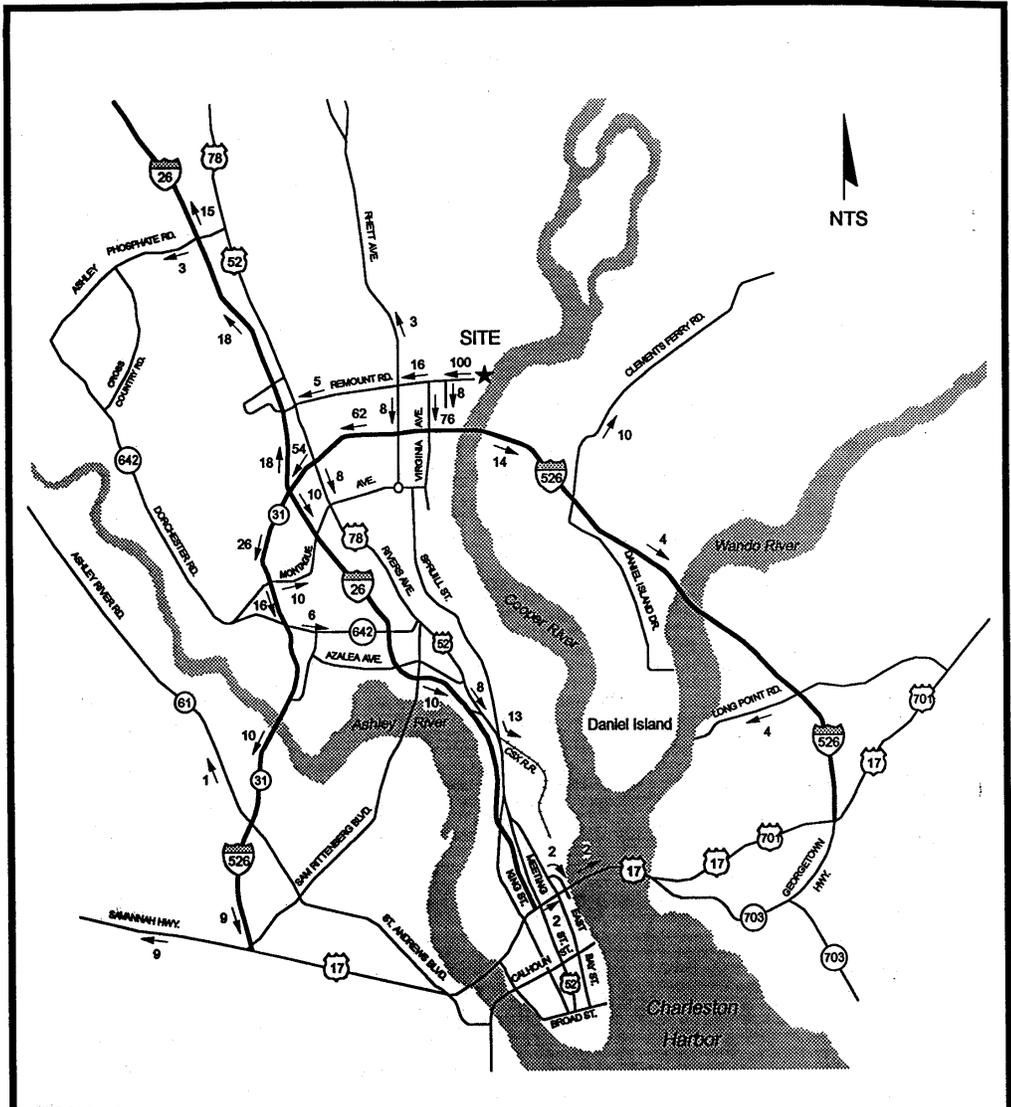
URS Greiner, Inc.

DANIEL ISLAND ENVIRONMENTAL IMPACT STATEMENT  
 Charleston, South Carolina  
**COLUMBUS STREET TERMINAL  
 DIRECTIONS OF DEPARTURE**

**LEGEND**  
 2 ← - Percentage of Outbound Traffic

EXHIBIT 3





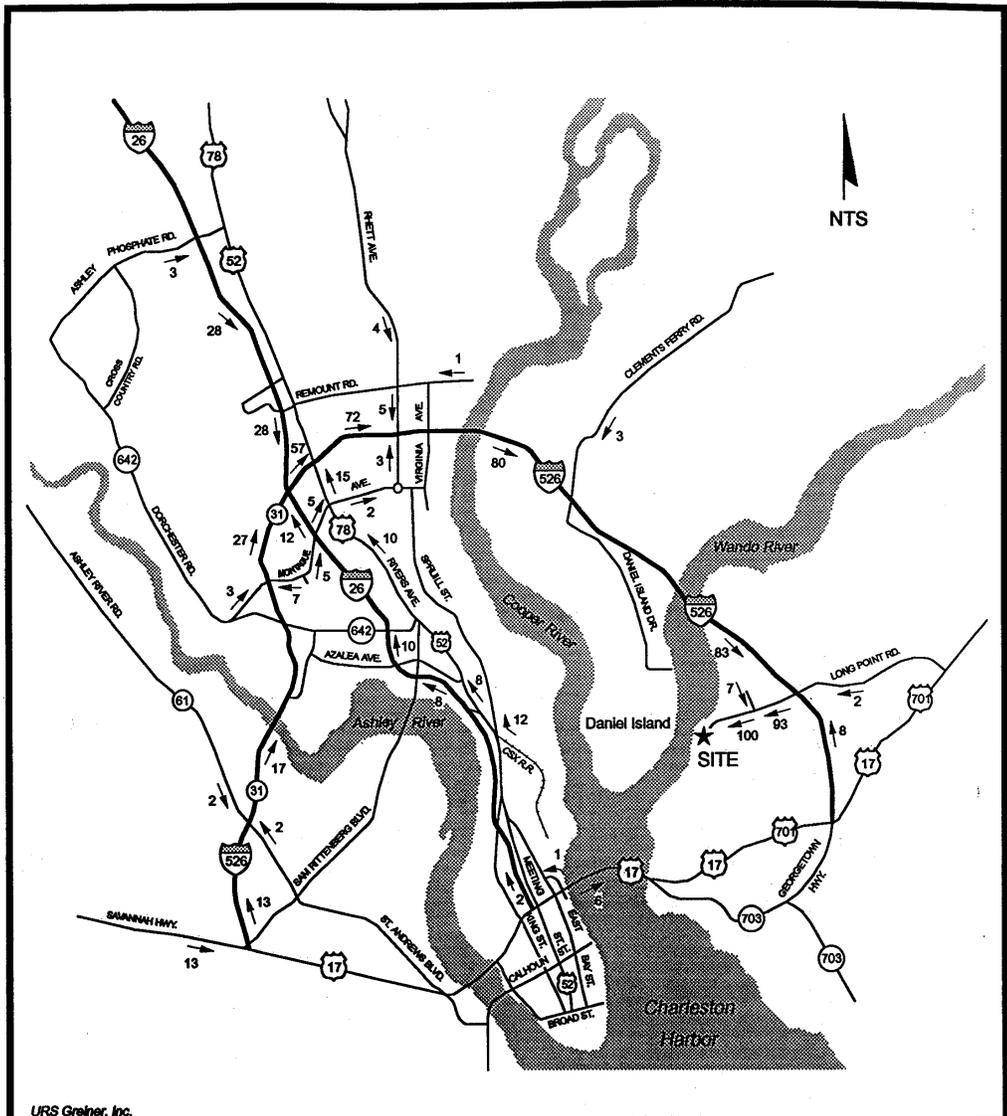
URS Greiner, Inc.

DANIEL ISLAND ENVIRONMENTAL IMPACT STATEMENT  
Charleston, South Carolina

NORTH CHARLESTON TERMINAL  
DIRECTIONS OF DEPARTURE

**LEGEND**  
 ← 2 - Percentage of Outbound Traffic

EXHIBIT 5



URS Greiner, Inc.

DANIEL ISLAND ENVIRONMENTAL IMPACT STATEMENT  
 Charleston, South Carolina  
**WANDO WELCH TERMINAL  
 DIRECTIONS OF APPROACH**

**LEGEND**  
 2 - Percentage of Inbound Traffic

EXHIBIT 6



TABLE 1

RATIO OF TRUCK INTERVIEWS TO TOTAL TRUCK TRAFFIC  
Daniel Island Marine Cargo Terminal EIS  
Origin and Destination Survey

Terminal Location	Interviews	Counts (Trucks)*	Percent of Sample
Columbus Street	617	1,477	41.77%
North Charleston	781	2,176	35.89%
Wando Welch	1,162	5,462	21.27%
<b>TOTAL</b>	<b>2,560</b>	<b>9,115</b>	<b>28.09%</b>

\*Includes three-axle, single-unit trucks or larger. See Table 1A for traffic count summary.

TABLE 1A

TRAFFIC COUNT SUMMARY  
Daniel Island Marine Cargo Terminal EIS  
Origin and Destination Survey

North Charleston Terminal (February 1998*)					
	Daily Traffic				
	Evergreen		Common		Total
	In	Out	In	Out	
Volumes	756	756	739	689	2,940
Percent of Trucks	73%	73%	69%	80%	74%

Columbus Street Terminal (February 1998*)					
---	--	--	--	--	--

**TABLE 2**  
**COLUMBUS STREET TERMINAL**  
**TRIP ORIGIN SUMMARY - INBOUND**  
**Daniel Island Marine Cargo Terminal EIS**  
**Origin and Destination Survey**

Location	Number of Responses	Percentage of Total Inbound Trips
Norfolk Southern Railroad	28	8%
Yards Near King St.	17	5%
Other yards near Montague Ave.	44	12%
CSX Railroad (Meeting St.)	37	10%
Wando Yards, Terminal	26	7%
Other Yards near Ashley Phosphate	10	3%
Out of State	78	21%
Within State, Outside BCD Area	38	10%
Dorchester Rd. Yard	12	3%
N. Charleston Terminal	6	2%
Other	75	20%
<b>TOTAL</b>	<b>371</b>	<b>100%</b>

**TABLE 3**  
**COLUMBUS STREET TERMINAL**  
**TRIP DESTINATION SUMMARY - OUTBOUND**  
**Daniel Island Marine Cargo Terminal EIS**  
**Origin and Destination Survey**

Location	Number of Responses	Percentage of Total Outbound Trips
Norfolk Southern Railroad	9	4%
Yards Near King St.	9	4%
Yards off North Charleston near Montague Ave.	29	12%
CSX Railroad (Meeting St.)	25	10%
Wando Welch Yards, Terminal	11	4%
Out of State	50	20%
Within State, Outside BCD Area	16	7%
Dorchester Rd. Yard	10	4%
N. Charleston Terminal	14	6%
Other	73	30%
<b>TOTAL</b>	<b>246</b>	<b>100%</b>

**TABLE 4**

**NORTH CHARLESTON TERMINAL  
TRIP ORIGIN SUMMARY - INBOUND  
Daniel Island Marine Cargo Terminal EIS  
Origin and Destination Survey**

<b>Location</b>	<b>Number of Responses</b>	<b>Percentage of Total Inbound Trips</b>
Southern Rail Yard (Near Montague Ave.)	34	9%
CSX Rail Road (Meeting St.)	48	12%
Wando Welch Terminal	12	3%
Rhett Ave. Terminal	12	3%
Westvaco (Virginia Ave.)	10	3%
Amoco/Mikasa	31	8%
Out of State	84	21%
Within State, Outside BCD Area	26	7%
Dorchester Rd. Yard	10	3%
Columbus St. Terminal	14	4%
Other	111	28%
<b>TOTAL</b>	<b>392</b>	<b>100%</b>

**TABLE 5**

**NORTH CHARLESTON TERMINAL  
TRIP DESTINATION SUMMARY - OUTBOUND  
Daniel Island Marine Cargo Terminal EIS  
Origin and Destination Survey**

<b>Location</b>	<b>Number of Responses</b>	<b>Percentage of Total Outbound Trips</b>
Standard Warehouse (1000 Maybelline Rd.)	12	3%
Norfolk Southern Rail (near Montague Ave.)	32	8%
CSX Railroad (Meeting St.)	48	13%
Wando Welch Terminal	17	4%
Westvaco (Virginia Ave.)	29	8%
Amoco	29	8%
Out of State	52	14%
Within State, Outside BCD Area	15	4%
Dorchester Rd. Yard	14	4%
Columbus St. Terminal	7	2%
Other	124	33%
<b>TOTAL</b>	<b>379</b>	<b>100%</b>

TABLE 6

**WANDO WELCH TERMINAL  
TRIP ORIGIN SUMMARY - INBOUND  
Daniel Island Marine Cargo Terminal EIS  
Origin and Destination Survey**

Location	Number of Responses	Percentage of Total Inbound Trips
Amoco, Cainhoy	23	3%
Norfolk Southern Rail (off Rich, Montague Ave.)	35	4%
Other Yards near Montague Ave.	49	6%
CSX Rail Road (Meeting St.)	96	12%
Yards on Long Point Road	57	7%
Out of State	224	27%
Within State, Outside BCD Area	55	7%
Columbus Street Terminal	6	1%
Ashley Phosphate	20	2%
Dorchester Rd.	26	3%
N. Charleston Terminal	8	1%
Other	232	28%
<b>TOTAL</b>	<b>831*</b>	<b>100%</b>

\*Survey included the inbound a.m. peak period.

TABLE 7

**WANDO WELCH TERMINAL  
TRIP DESTINATION SUMMARY  
Daniel Island Marine Cargo Terminal EIS  
Origin and Destination Survey**

Location	Number of Responses	Percentage of Total Outbound Trips
Amoco, Cainhoy	25	8%
Norfolk Southern Rail (off Rich, Montague Ave.)	25	8%
Other Yards near Montague Ave.	12	4%
CSX Railroad (Meeting St.)	45	14%
Yards on Long Point Road	15	5%
Out of State	79	24%
Within State, Outside BCD Area	20	6%
Columbus St. Terminal	6	2%
Ashley Phosphate	7	2%
Dorchester Rd.	5	2%
N. Charleston Terminal	6	2%
Other	86	26%
<b>TOTAL</b>	<b>331*</b>	<b>100%</b>

\*Survey did not include empty outbound vehicles or p.m. peak period outbound flow.

**TABLE 8**

**SUMMARY OF PRIMARY ORIGIN AND DESTINATION POINTS  
Daniel Island Marine Cargo Terminal EIS  
Origin and Destination Survey**

LOCATION	Origin (inbound trucks)		Destination (outbound trucks)		Combined In and Out		
	Number of Responses	Percentage of Total	Number of Responses	Percentage of Total	Number of Responses	Percentage of Total	Ranking
Out of State	308	19.32%	181	18.74%	489	19.10%	1
CSX Rail Yard	181	11.36%	118	12.22%	299	11.68%	2
Other Yards Off Montague	132	8.28%	82	8.49%	214	8.36%	3
Within State, Outside BCD Area	107	6.71%	66	6.83%	173	6.76%	4
Norfolk Southern Rail	119	7.47%	51	5.28%	170	6.64%	5
Amoco, Others in Cainhoy	64	4.02%	64	6.63%	128	5.00%	6
Yards Near Dorchester Road	48	3.01%	29	3.00%	77	3.01%	7

TABLE 9

**SUMMARY OF TRIPS BETWEEN TERMINALS**  
**Daniel Island Marine Cargo Terminal EIS**  
**Origin and Destination Survey**

From	To		
	Columbus St.	N. Charleston	Wando Welch
Columbus St.	NA	14	11
N. Charleston	7	NA	17
Wando Welch	6	6	NA

Total Interterminal Trips: 51  
Percentage: 2.00%

NA = Not Applicable.

TABLE 10

ORIGIN OF TRIPS BY GEOGRAPHICAL AREA  
 Daniel Island Marine Cargo Terminal EIS  
 Origin and Destination Survey

Location	Percentage of Responses	Ranking
<b>Outside South Carolina:</b>		
Georgia	12.90%	1
North Carolina	8.10%	2
Florida	2.20%	3
Tennessee	2.20%	4
Alabama	0.90%	5
Other States	1.20%	
<b>Subtotal</b>	<b>27.50%</b>	
<b>Within South Carolina:</b>		
North Charleston	47.00%	1
Wando Welch	12.00%	2
Charleston	4.00%	3
Columbia	1.00%	4
Orangeburg	0.90%	5
Mount Pleasant	0.50%	6-8
Greenville	0.50%	6-8
Summerville	0.50%	6-8
Other, less than 0.5%	6.10%	
<b>Subtotal</b>	<b>72.50%</b>	
<b>TOTAL</b>	<b>100.00%</b>	

