Port Canaveral Section 203 Feasibility Study

Engineering Appendix

Attachment J

Civil Design Impacts: Traffic Study, Harbor Crossing Utilities Drawings, Dredged and Excavated Material Disposal Sites Drawing

Rev Date: September 2012

Northside and Southside Traffic Study, Port Canaveral, Florida

Final Report

Prepared for:

Canaveral Port Authority

Prepared by:
Ghyabi & Associates

May 2006

Ghyabi & Associates, Inc.

Engineering & Planning

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PROFESSIONAL ENGINEERING CERTIFICATION

I hereby certify that I am a Professional Engineer properly registered in the State of Florida practicing with Ghyabi & Associates, Inc., a corporation authorized to operate as an engineering business, EB 00007311, by the State of Florida Department of Professional Regulation, Board of Professional Engineers, and that I have prepared or approved the evaluations, findings, opinions, conclusions, or technical advice attached hereto for:

PROJECT: CPA/North and South Side Traffic Study
LOCATION: Port Canaveral, Florida
CLIENT: Canaveral Port Authority

I hereby acknowledge that the procedures and references used to develop the results contained in these computations are standard to the professional practice of Transportation Engineering as applied through professional judgment and experience.

Ghyabi & Associates, Inc. C.A. #7311
214 East New York Avenue
DeLand, FL 32724

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Mark D. Tobin, P.E. #57304

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Section 1 --- Introduction

Ghyabi & Associates, Inc. (G&A) has been retained by the Canaveral Port Authority (CPA) to provide transportation engineering services for Port Canaveral located in Brevard County, Florida.

Location

The project is located in Port Canaveral, Brevard County, Florida. Figure 1 presents the general location of the project site.

Study Area

For this study, Ghyabi & Associates evaluated conceptual land use/access alternatives and their associated impacts to the operating conditions for the north-side and south-side Port Canaveral internal roadway system. The study limits for the north cargo area extends from the Inlet Bridge to the USAF gate on SR 401. The study area for the south side of Port Canaveral includes the internal roadway system from SR 528 to Jetty Park, notably George King Boulevard, Scallop Drive and Mullet Drive. Port Canaveral area currently includes several land uses including cruise ship terminals, cargo piers, tanker berths, a marina, public boat ramps and various retail and commercial uses.

Land Use Assumptions and Analysis Periods

Future land use for both the North and South sides of the Port was provided to G&A by the CPA. Some of the information provided included estimated opening years. For phasing and build-out information that was not available from the CPA, G&A made assumptions.

South side port expansion projects include the aggregate conveyor and storage area which is expected to open initially in 2006 and have 150 daily truck trips. This site is expected to increase to full operation with 300 daily truck trips by 2009. The Premier Office Building is expected to be fully occupied by 2008. In the Cove area, east of Dave Nesbit Drive, future land uses are evolving. For this study, it is assumed to include a hotel (Milrose), a museum and small amount of retail land use. The Milrose Hotel is assumed to initially open with 115 rooms by 2007 and add 60 rooms by 2010. The museum is assumed to be 15,000 square feet while the retail uses at this location are assumed to be 25,000 square feet. Both were assumed to be open by 2010.

Additionally on the South side, at the west end of George King Boulevard and adjacent to the Banana River is the proposed Ron Jon World project. This project is proposed to include a 400-room hotel, a 25,000 square foot conference center, a 73,000 square foot store, a 10,000 square foot restaurant, approximately 11.5 acre surf/water park and board sports venue and a 1200-vehicle parking garage. Also associated with Ron Jon World is a proposed 5,000 square foot retail site at the current Jetty Park.

Other South side expansion projects include the opening of Cruise Terminals 3 and 4 which are expected to be operating by Fall 2006 and Fall 2008, respectively. Cruise Terminal 3 would serve 2-day cruises while Terminal 4 would serve 3- and 4-day cruises.

North side port expansion includes the opening of Cruise Terminals 6 and 7 by 2008 to accommodate 3 ships per week. Cruise Terminals 11 and 12 are expected to be open by 2012 and accommodate 3 ships per week as well. Cargo Piers 5 and 6 are expected to be fully operational by 2015. These cargo piers would have an upland container staging area of 18.45 acres (assumed to be operating by 2010) then expand fully to 53.6 acres by 2015. The future land use of the North Side of the Port also includes a 30-acre fuel tank farm expected to be open by 2009 and generate 500 truck trips per day.

Traffic analysis was performed for the following time periods: current year (2005), opening year (2010) and design year (2025).

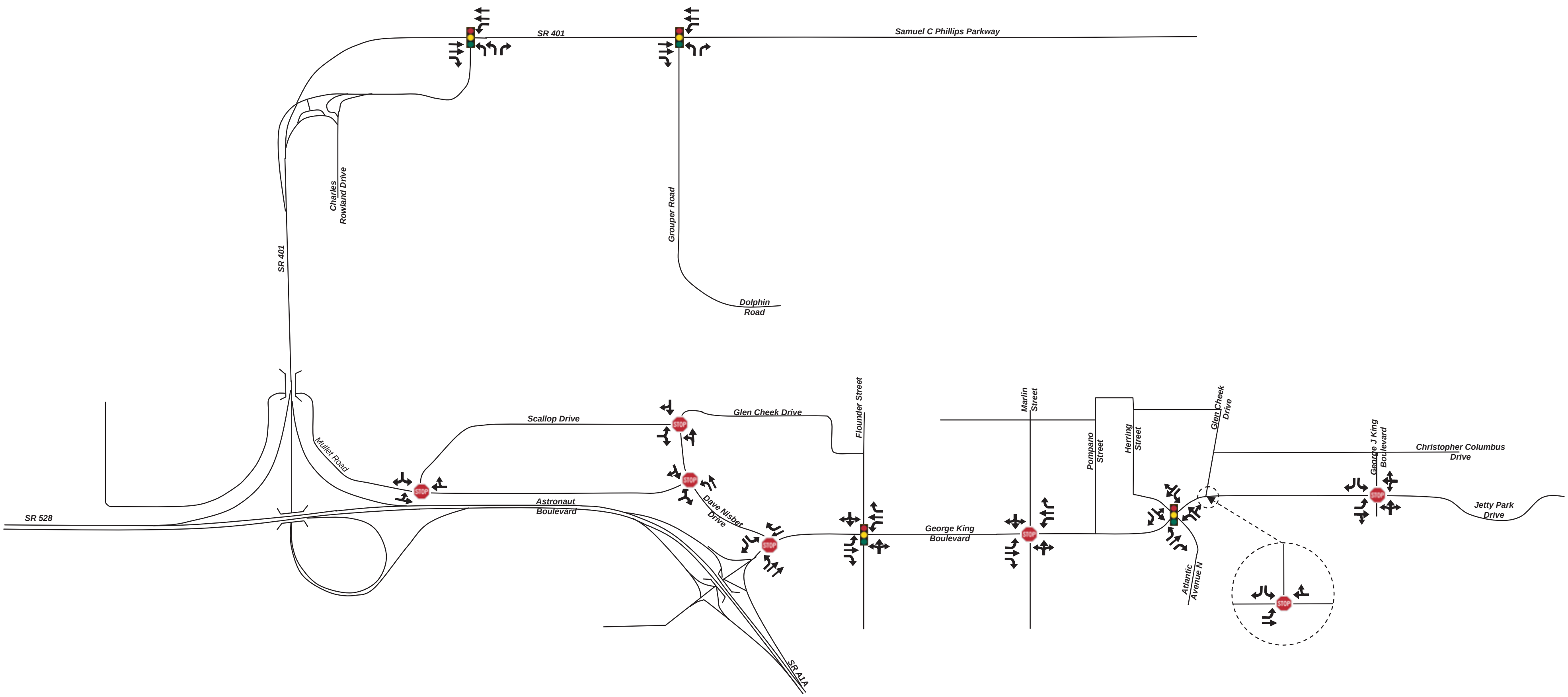
Study Procedures

Standard engineering and planning procedures were used to determine the impacts of this project. Reference data was obtained from the Canaveral Port Authority, the Florida Department of Transportation, and the Institute of Transportation Engineers (ITE). Traffic volumes and turning movement counts were collected by G&A in August 2005.

The methodology used in this report includes:

- Determination of the existing Daily traffic volumes and AM peak hour, Mid-day peak hour, and PM peak hour volumes and turning movements for the study areas and the intersections within it, based on collected data.
- Development of opening year (2010) and design year (2025) traffic volume forecasts for the conceptual land use improvements.
- Evaluation of the existing and future traffic conditions.
- Level of Service analysis for the study area intersections for existing and future conditions (opening and design years).
- Recommendations for improvements to accommodate the anticipated travel demand with the study are based on Level of Service analysis.

North and South Side Traffic Study for Port Canaveral	General Location Map			Ghyabi & Associates, Inc.
	PROJECT NUMBER: 2630.03 & 2630.04	FIGURE: 1	Not to Scale	Engineering & Planning 214 East New York Avenue, DeLand, FL 32724 Telephone: (386) 469-0006 Fax: (386) 469-0017



North and South Side Traffic Study for Port Canaveral	Existing Year 2005 - Existing Geometry		Not to Scale		Ghyabi & Associates, Inc. Engineering & Planning
	PROJECT NUMBER: 2630.03 & 2630.04	FIGURE: 2			214 East New York Avenue, DeLand, FL 32724 Telephone: (386) 469-0006 Fax: (386) 469-0017

Section 2 --- Existing Roadway Conditions

An analysis of the existing traffic conditions was conducted using the 24 hour volume counts, 72 hour classification counts and the turning movement counts collected by G&A at the segments and intersections, respectively listed below. The turning movement counts were conducted for eight hours. Figure 2 shows the existing intersection geometry. The 2005 AM, Mid-day and PM peak-hour turning movement counts are shown in Figures 6, 7 and 8. The volume count summaries, classification count summaries and turning movement count summaries are attached in Appendix A.

North Cargo Area of Port Canaveral:

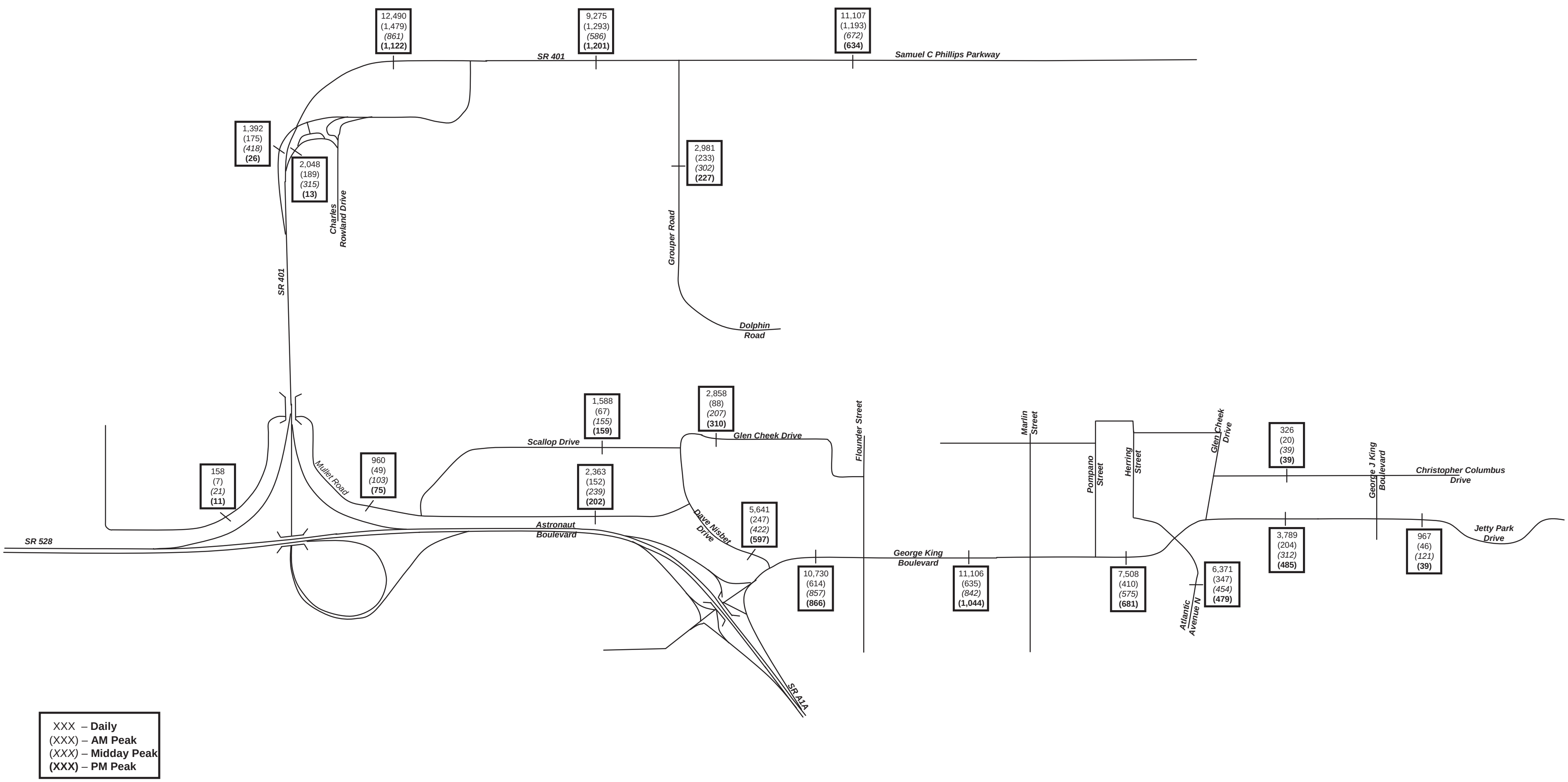
- 24-Hour Volume Counts –
    1. SR 401 – NB Off Ramp to Charles Rowland Drive
    2. SR 401 – SB On Ramp from Charles Rowland Drive
    3. SR 401 – West of Charles Rowland Drive
    4. Grouper Road – South of SR 401
- 72-Hour Classification Counts –
    1. SR 401 – East of Charles Rowland Drive
    2. SR 401 – East of Grouper Road
- Turning Movement Counts –
    1. SR 401 @ Charles Rowland Drive
    2. SR 401 @ Grouper Road

South Cargo Area of Port Canaveral:

- 24-Hour Volume Counts –
    1. George King Boulevard – East of Dave Nisbet Drive
    2. George King Boulevard – East of Flounder Street
    3. George King Boulevard – East of Glen Cheek Drive
    4. Jetty Park Drive – East of George King Boulevard
    5. Christopher Columbus Drive – East of Glen Cheek Drive
    6. Atlantic Avenue – South of George King Boulevard
    7. Glen Cheek Drive – East of Dave Nisbet Drive
    8. Dave Nisbet Drive – North of George King Boulevard
    9. Scallop Drive – West of Dave Nisbet Drive
    10. Mullet Road – West of Dave Nisbet Drive

11. Mullet Road – West of Scallop Drive
12. Mullet Road – West of SR 401 (Bridge)

- 72-Hour Classification Counts –
    1. George King Boulevard – East of Pompano Street
- Turning Movement Counts –
    1. George King Boulevard @ Dave Nisbet Drive
    2. George King Boulevard @ Flounder Street
    3. George King Boulevard @ Marlin Street
    4. George King Boulevard @ N Atlantic Avenue
    5. George King Boulevard @ Christopher Columbus Road
    6. George King Boulevard @ Jetty Park Drive
    7. Scallop Drive @ Mullet Road
    8. Mullet Road @ Dave Nisbet Drive
    9. Scallop Drive @ Dave Nisbet Drive



North and South Side Traffic Study for Port Canaveral

Existing Year 2005 – Roadway Volumes

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FIGURE: 3

Not to Scale

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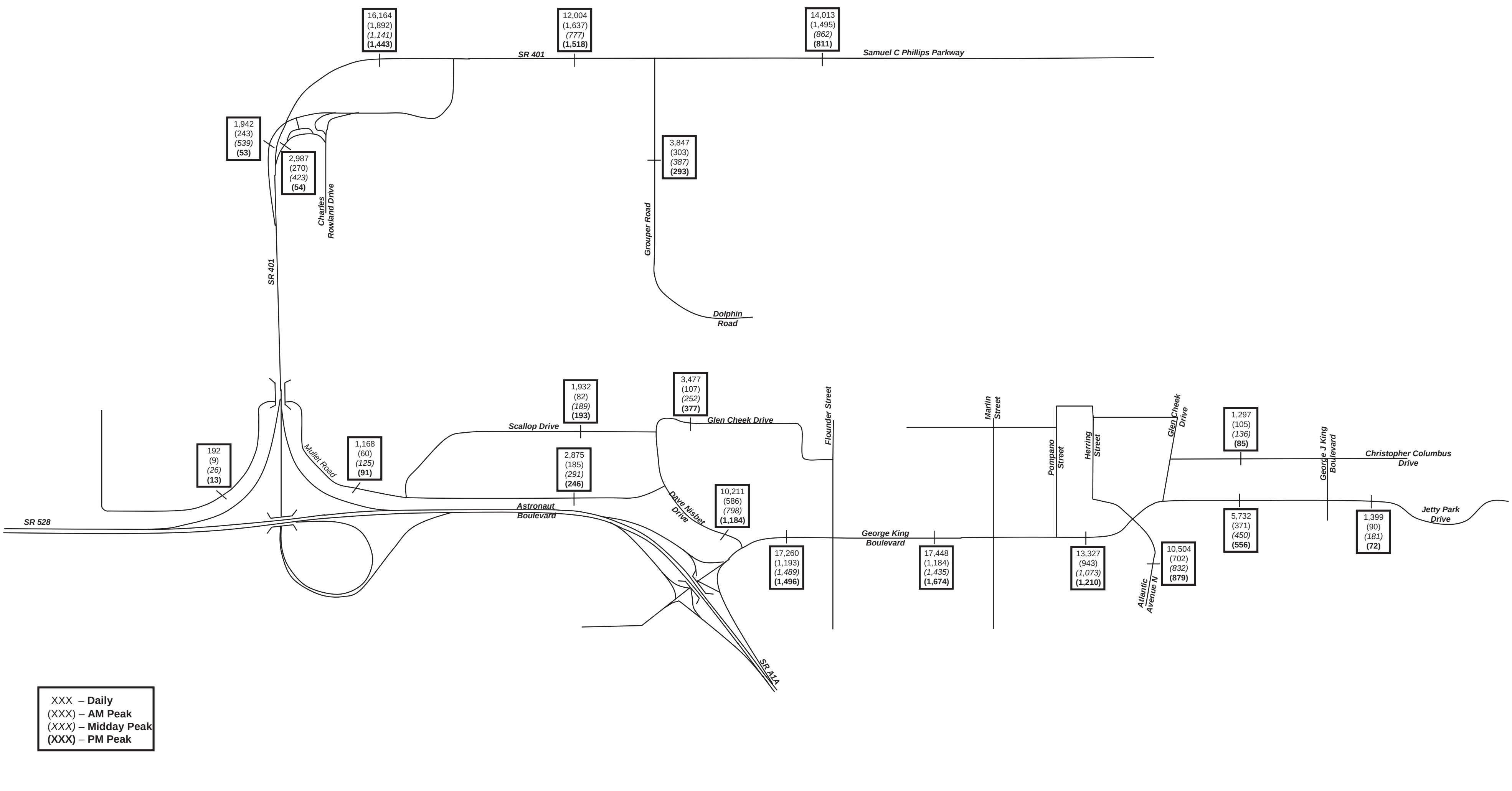

North and South Side Traffic Study for Port Canaveral

Opening Year 2010 – Roadway Volumes

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FIGURE: 4

Not to Scale

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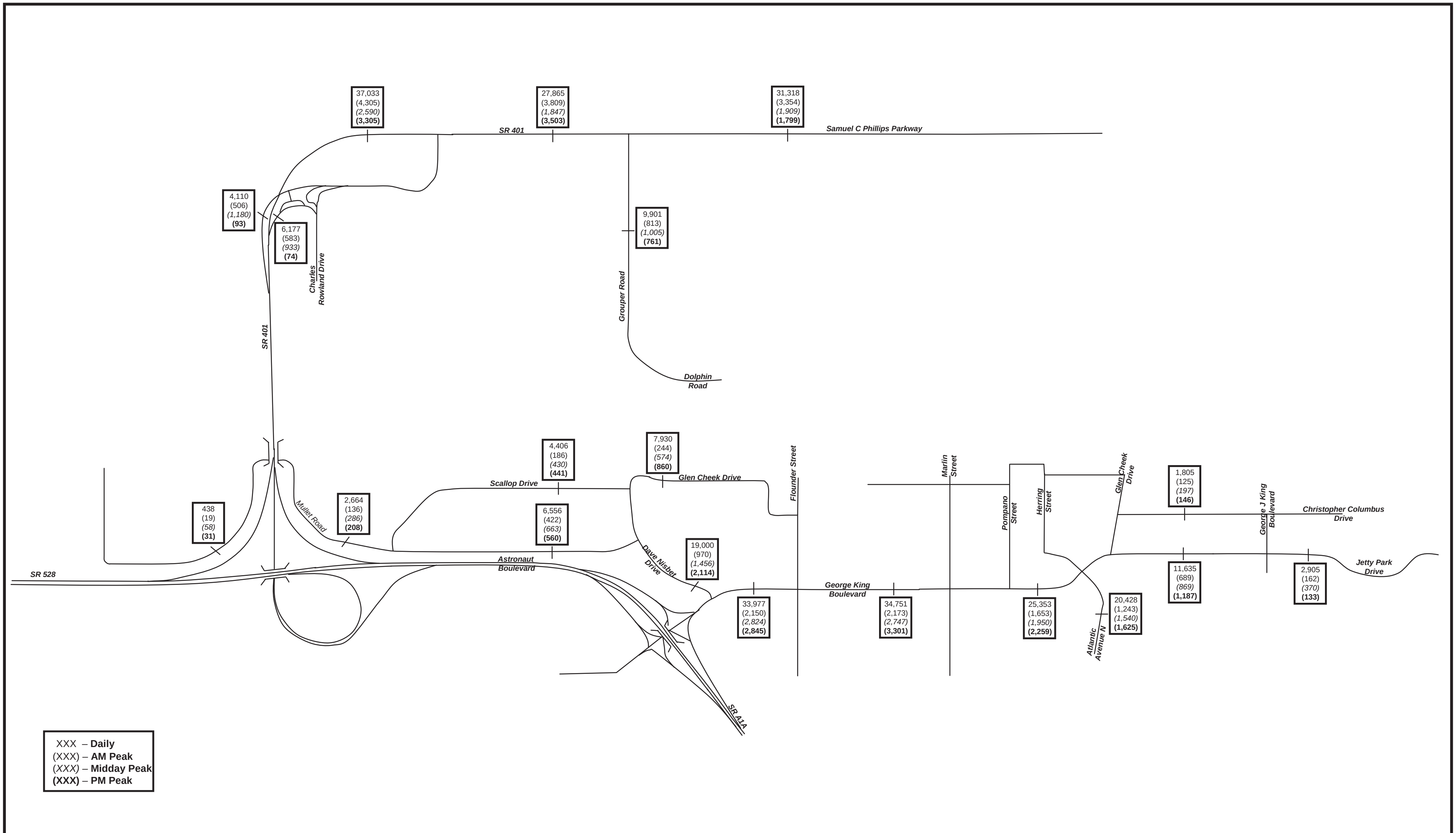

North and South Side Traffic Study for Port Canaveral

Design Year 2025 – Roadway Volumes

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FIGURE: 5

Not to Scale

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Intersection Analysis

Intersection operational analyses were performed based on the AM, Mid-day and PM peak hours. All intersections were analyzed using the most current adopted procedures as outlined in the Transportation Research Board's Special Report 209 – Highway Capacity Manual (HCM). Roadway levels of service describe the operating condition determined from the number of vehicles passing over a given section of roadway during a specified time period. It is a qualitative measure of several factors which include: speed, travel time, traffic interruptions, freedom to maneuver, driver comfort, convenience, safety and vehicle operating costs. Six levels of service have been established as standards by which to gauge roadway performance, designated by the letters A through F. The level of service categories are defined as follows:

Level of Service A:	Free flow, individual users virtually unaffected by the presence of others
Level of Service B:	Stable flow with a high degree of freedom to select operating conditions
Level of Service C:	Flow remains stable, but with significant interactions with others
Level of Service D:	High-density stable flow in which the freedom to maneuver is severely restricted
Level of Service E:	This condition represents the capacity level of the road
Level of Service F:	Forced flow in which the traffic exceeds the amount that can be served

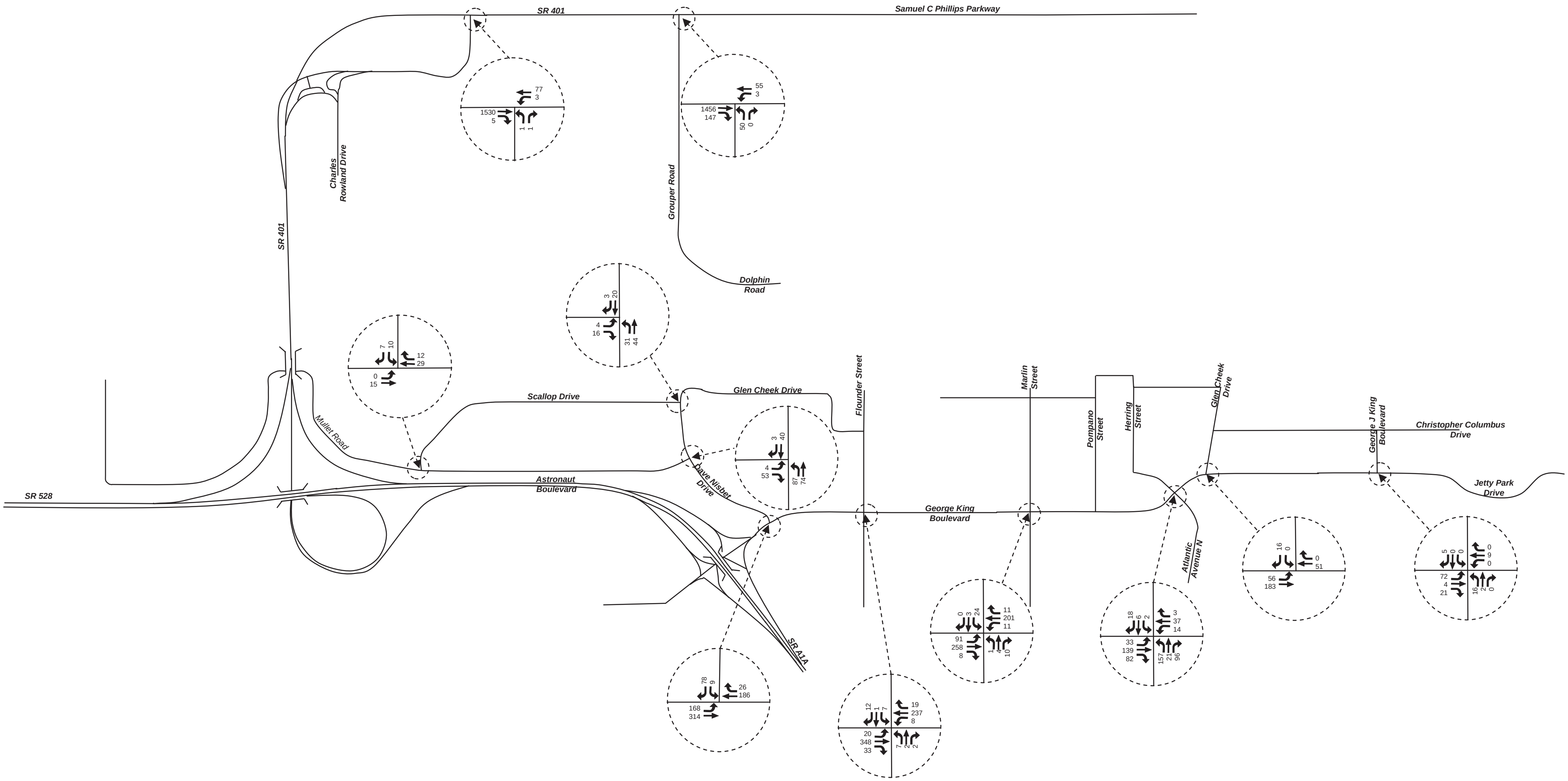
Intersection levels of service use quantitative measures to describe the operating condition at an intersection. Length of delay due to the traffic signal cycle timings at a signalized intersection or due to traffic conditions at an unsignalized intersection determine intersection level of service. This delay is measured in seconds.

The operating conditions at the intersections were evaluated using the Highway Capacity Software 2000 (HCS). This utilizes the methodology outlined in Chapters 16 and 17 of the *Highway Capacity Manual*. Table 1 shows the existing levels of service for the study intersection for the AM, Mid-day and PM peak-hours. The HCS worksheets for the existing conditions are located in Appendix C.

Table 1 shows the current level of service for the 11 intersections studied as part of this report. All of the intersections operate at level of service A or B, except for George King Blvd and Dave Nisbet Drive which operates at level of service C during the Mid-day and PM peak hours.

Table 1: Existing AM/Mid-day/PM Peak Hour Level of Service

Intersection	Am Peak		Mid-day Peak		PM Peak	
	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
Charles Rowland Drive and SR 401	7.6	A	4.4	A	6.8	A
Grouper Road and SR 401	8.4	A	9.4	A	8.4	A
George King Blvd and Dave Nisbet Drive	14.5	B	17.3	C	17.5	C
George King Blvd and Flounder St	8.8	A	10.6	B	10.6	B
George King Blvd and Marlin Avenue	11.4	B	12.3	A	11.6	B
George King Blvd and N Atlantic Avenue	17.8	B	16.6	B	16.2	B
George King Blvd and Christopher Columbus Road	10.6	B	10.0	A	9.7	A
George King Blvd and Jetty Park Drive	10.2	B	9.1	A	9.5	A
Scallop Drive and Mullet Road	9.0	A	9.1	A	9.2	A
Scallop Drive and Dave Nisbet Drive	8.8	A	9.4	A	10.2	B
Mullet Road and Dave Nisbet Drive	8.9	A	9.7	A	10.8	B



North and South Side Traffic Study for Port Canaveral	Existing Year 2005 – AM Peak Hour Turning Movement Volumes	Not to Scale	Ghyabi & Associates, Inc. Engineering & Planning
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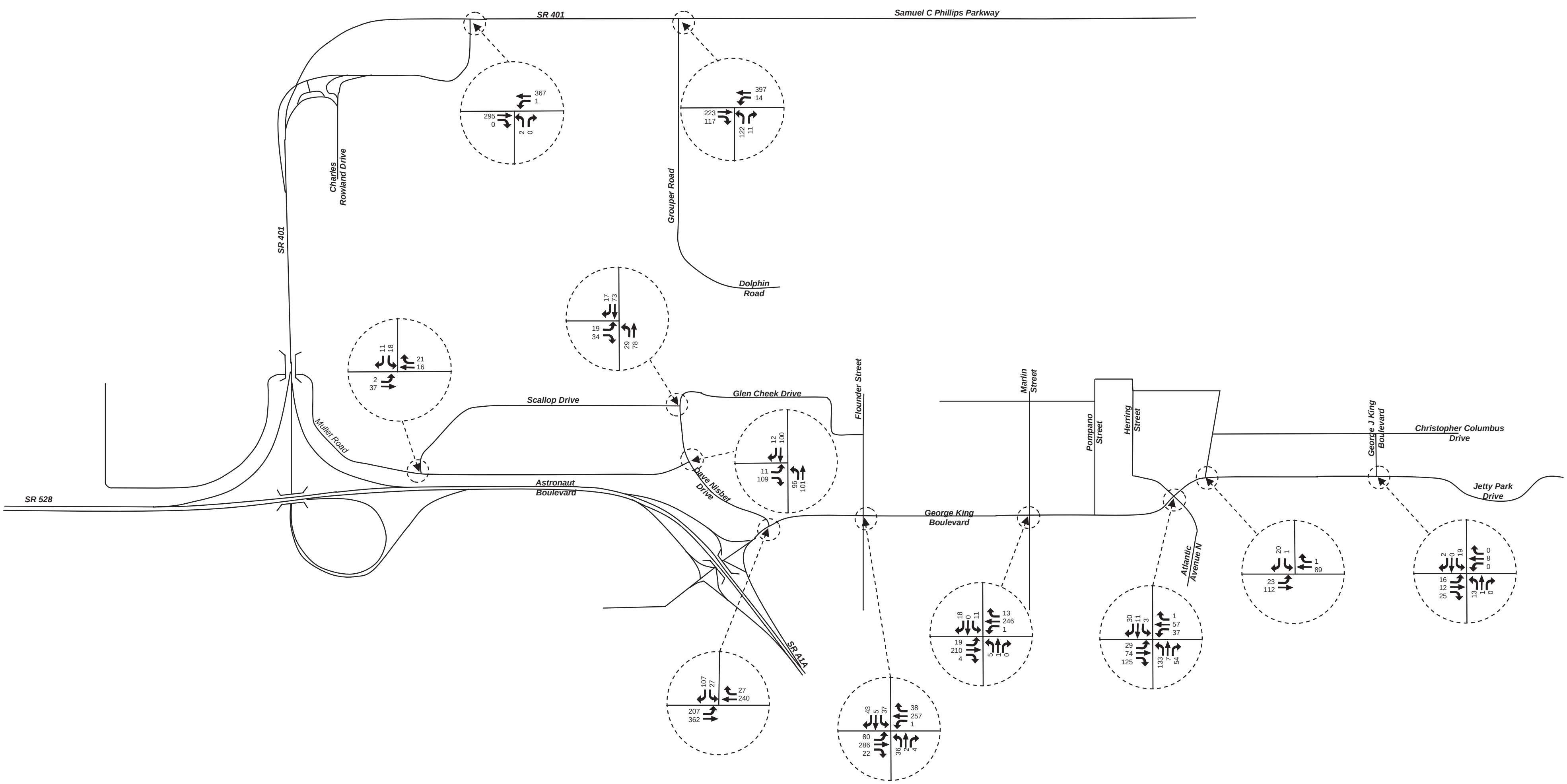

North and South Side Traffic Study for Port Canaveral	Existing Year 2005 – Mid-day Peak Hour Turning Movement Volumes	Not to Scale	Ghyabi & Associates, Inc. Engineering & Planning
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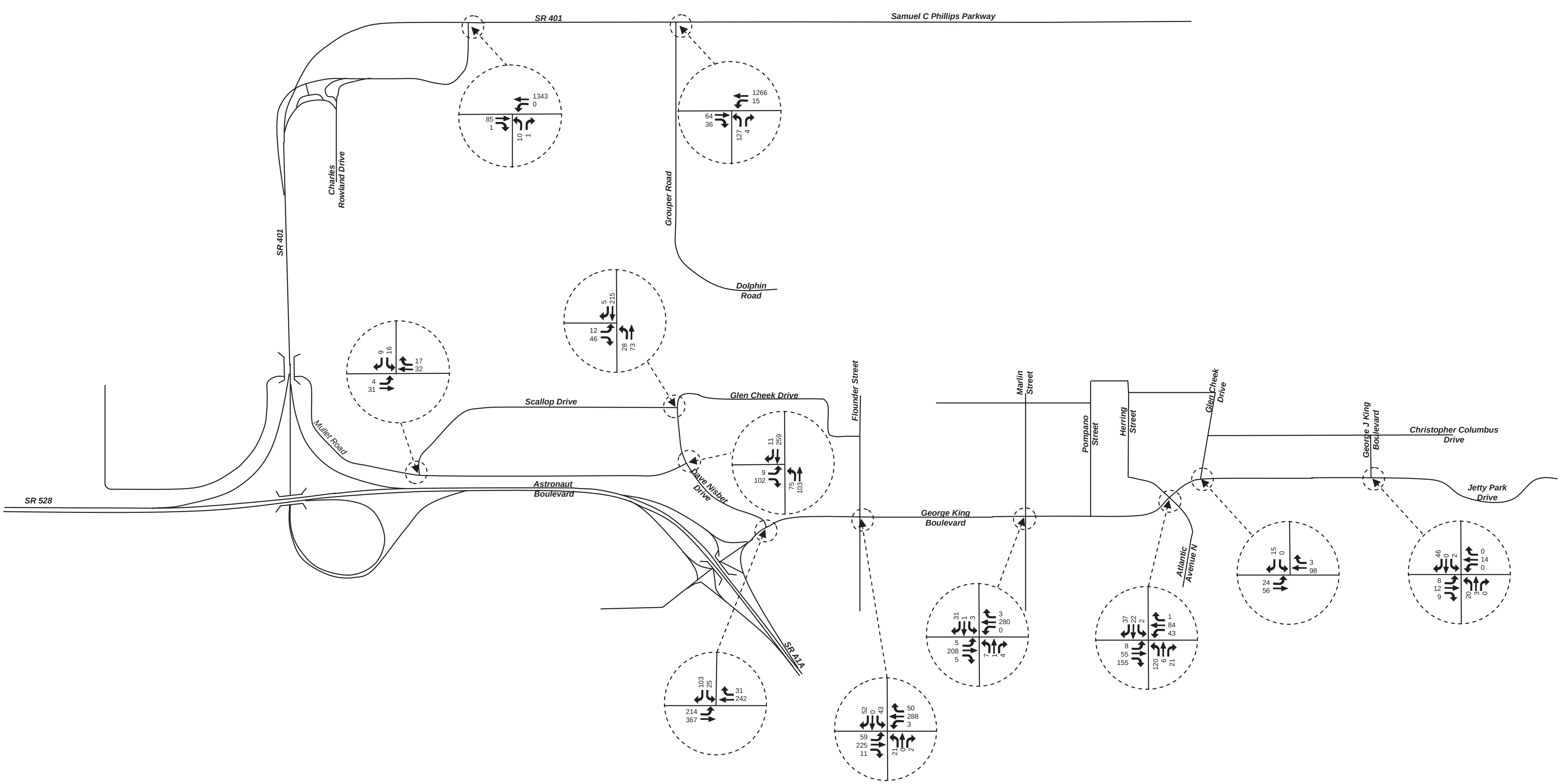

North and South Side Traffic Study for Port Canaveral	Existing Year 2005 – PM Peak Hour Turning Movement Volumes	Not to Scale	Ghyabi & Associates, Inc. Engineering & Planning
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Weave Analysis

Weaving occurs when two or more streams of traffic moving in the same general direction merge and then diverge over a short distance, resulting in crossings of portions of the traffic streams. As in this study, weaving is typically found when an on-ramp is followed by an off-ramp. Some portions of the road are usually multilane and much of the traffic is not involved in the weaving movement.

When performing a weave analysis, sufficient length and width of the weaving section need to be provided so that the speed of any non-weaving traffic is not adversely affected. When sufficient space is not available it can be expected that the speed of all traffic passing through the weaving section will be lower than on the open road.

Higher densities are usually obtained for any given LOS obtained on a weaving section. This is due to the fact that drivers expect and accept higher densities along these areas. Factors that affect weaving include the length of the roadway segment, number of lanes, types of weaving configurations, as well as types of terrain or grade conditions.

A weave analysis of the area along George King Boulevard, from the A1A eastbound off-ramp to Dave Nisbet Drive was evaluated using the Highway Capacity Software 2000 (HCS). This utilizes the methodology outlined in Chapter 24 of the *Highway Capacity Manual*. Table 2 shows the existing levels of service for the weaving section for the AM, Mid-day and PM peak-hours. The HCS worksheets for the weave analysis are located in Appendix C.

Table 2: Existing Level of Service – Weaving Section

Weaving Section	**AM Peak-Hour**			**Mid-day Peak Hour**			**PM Peak-Hour**		
	Speed (mph)	**Density (pc/mi/ln)**	**LOS**	**Speed (mph)**	**Density (pc/mi/ln)**	**LOS**	**Speed (mph)**	**Density (pc/mi/ln)**	**LOS**
GKB from A1A Off-ramp to Dave Nisbet Dr.	31.79	10.68	B	32.08	11.22	B	34.40	6.64	A

SECTION 3 --- FUTURE TRAFFIC CONDITIONS

Background Traffic Growth

Traffic on the roadway network within Port Canaveral and along roadways adjacent to or providing access to the Port (i.e., SR 528, SR A1A and North Atlantic Avenue) will continue to grow due to local development approvals. The counts taken by Ghyabi and Associates were used to determine the future growth rate of the background trips. However there was insufficient historical data available to conduct a trend analysis. In order to project future traffic growth associated with a high degree of new development both within the Port's boundaries and in areas in close proximity to the Port, a mixed annual growth rate was used to develop future background traffic. A 4% annual growth rate was used for the first five years (2006-2010) and a 3 % annual growth rate was used for the next 15 years (2011-2025).

Trip Generation

The trip generation for this development was determined using the trip generation rates published by the Institute of Transportation Engineers (ITE) in their *Trip Generation Manual, 7th Edition*. For land uses not found in the *Trip Generation Manual*, data was obtained from the Canaveral Port Authority for estimated number of trips for the aggregate plant/storage site, the fuel tank farm and the cruise ship terminals. In addition, to approximate trip generation rates for the proposed conference center, ITE code 710, General Office Building was used. Similarly, a land use does not exist for museums. The ITE code 590, Library, was used to approximate the trip generation of the maritime museum. These were chosen based on similarities in size and possible traffic generation. The trip generation for the library and the movie theater without a matinee are shown in Table 3.

Table 3: Future Trip Generation

			Rates					Daily Trips					PM Peak					AM Peak				
									Dir. Split		Dir. Trips			Dir. Split		Dir. Trips			Dir. Split		Dir. Trips	
Parcel No.	**ITE Code**	**Land Use**	**Daily**	**PM Peak**	**AM Peak**	**Units**	**Size**	**Total Trips**	**In**	**Out**	**In**	**Out**	**Total Trips**	**In**	**Out**	**In**	**Out**	**Total Trips**	**In**	**Out**	**In**	**Out**
1	814	Specialty Retail Center	44.3	5.02	6.84	SF	25,000	1,108	50%	50%	544	544	126	56%	44%	70	55	171	48%	52%	82	89
2	590	Library	54	7.09	1.06	SF	15,000	810	50%	50%	405	405	107	48%	52%	51	56	16	52%	48%	9	7
3	030	Aggregate Plant (1)	300					300	50%	50%	150	150	25	47%	53%	12	13	27	40%	60%	11	16
4	710	Premier Office	11	1.49	1.55	SF	68,480	754	50%	50%	377	377	102	17%	83%	17	85	106	88%	12%	93	13
5	310	Hotel (Milrose)	8.17	0.59	0.56	Room	175	1,430	50%	50%	715	715	103	53%	47%	55	49	98	61%	39%	60	38
6	310	Hotel (Ron Jon)	8.17	0.59	0.56	Room	400	3,268	50%	50%	1634	1634	236	53%	47%	125	111	224	61%	39%	137	87
6		Conference Center (2)	81	11	11.4	SF	25,000	2,025	50%	50%	1,013	1,013	274	53%	47%	145	129	285	61%	39%	174	111
6	814	Retail	44.3	5.02	6.84	SF	20,000	886	50%	50%	443	443	100	56%	44%	56	44	137	48%	52%	66	71
6	932	Restaurant	127.15	11.52	10.92	SF	8,000	1,017	50%	50%	509	509	92	61%	39%	56	36	87	52%	48%	45	42
7	010	Cargo Pier/Container Area (1)	11.9			Acres	18	220	50%	50%	110	110	18	47%	53%	8	9	20	60%	40%	12	8
8	010	Cargo Pier/Container Area (1)	11.9			Acres	54	640	50%	50%	320	320	51	47%	53%	24	27	58	60%	40%	35	23
9	030	Fuel Tank Farm (3)				Acres	30	500	50%	50%	250	250	40	47%	53%	19	21	44	60%	40%	26	18
10		Cruise Terminal 6 & 7 (3)						990	50%	50%	495	495	80	47%	53%	38	42	99	60%	40%	59	40
11		Cruise Terminal 11 & 12 (3)						990	50%	50%	495	495	80	47%	53%	38	42	99	60%	40%	59	40
12		Cruise Terminal 3 (3)						670	50%	50%	335	335	54	47%	53%	25	29	67	60%	40%	40	27
13		Cruise Terminal 4 (3)						1,130	50%	50%	565	565	90	47%	53%	42	48	113	60%	40%	68	45
14	814	Retail (Jetty Park	44.3	5.02	6.84	SF	5,000	222	50%	50%	111	111	25	56%	44%	14	11	34	48%	52%	16	18
Total								**16,960**	50%	50%	**8,480**	**8,480**	**1,603**	56%	44%	**796**	**807**	**1685**	56%	44%	**99**	**693**

1 Used ITE Code 030 Truck Terminal to determine AM and PM trip rates

2 Daily and peak hour trips were estimated using data from Prime Osborn Convention Center Traffic Impact Study

3 Daily trip volumes provided by Canaveral Port Authority; peak hour trips assumed.

Trip Assignments

The final step in the analysis is to assign the new traffic from future land uses at the Port to the road network. Figures 4 and 5 show the results of the Daily, AM, Mid-day and PM peak-hour assignments to the roadway network for 2010 (opening year) and 2025 (design year).

Future Conditions Analysis

Eleven critical intersections and the segment of George King Boulevard from SR A1A to the intersection of Dave Nisbet Drive were analyzed based on the existing roadway geometry to determine potential impacts and to investigate mitigation possibilities, if necessary. The total projected traffic volumes, which consist of future background traffic and project trips, were assigned to the road network.

Intersection Analysis

The operating conditions of the intersections were analyzed using Chapters 16 and 17 of the *Highway Capacity Manual*. The results of the HCS analyses of the intersection for the future conditions for 2010 and 2025 and during the AM, Mid-day and PM peak-hours are presented in Table 4.

The 11 intersections analyzed as part of this study show that all except one, George King Boulevard and Dave Nisbet Drive, will operate at acceptable levels of service with their current lane configurations in 2010. The HCS analysis shows that George King Boulevard and Dave Nisbet Drive will operate at LOS F during the PM peak hour in 2010 if it remains unsignalized. Installing a traffic signal at this intersection will improve the LOS to D during the PM Peak hour at this intersection. During the AM Peak hour this intersection will operate at LOS C.

By 2025, this intersection, George King Boulevard and Dave Nisbet Drive, will need an additional left-turn lane for the eastbound to northbound movement to maintain the LOS at D. A signal at the intersection of George King Boulevard and Marlin Street will be needed to accommodate volumes expected by 2025 . In addition, George King Boulevard will need to be widened to provide 2 through-lanes in each direction between Atlantic Avenue North and the interchange with SR A1A. Other improvements required on the south side of the Port by 2025 are additional lanes at Mullett Road and Dave Nesbit Drive. While this intersection can remain unsignalized, a through lane in the southbound direction and the widening of the eastbound approach to provide a left- turn and a right- turn lane will be needed by 2025.

On the Port's north side, the signalized intersections of SR 401 and Charles Rowland Drive, and SR 401 and Grouper Road, will operate at acceptable levels of service provided the signal cycles are lengthened in 2010. An interim year analysis (2015) was performed for these two intersections to determine if improvements would be needed sooner than 2025. By 2015, it is expected that SR 401 will need to be widened to 3 lanes in each direction. By 2025, the intersection of SR 401 and Grouper Road will require a second northbound-left turn lane to maintain an adequate level of service in both the AM and PM peak hours.

Figures 9 through 14 show the future years turning movements for the time periods analyzed (AM peak, mid-day peak and PM peak).

Central Boulevard Analysis

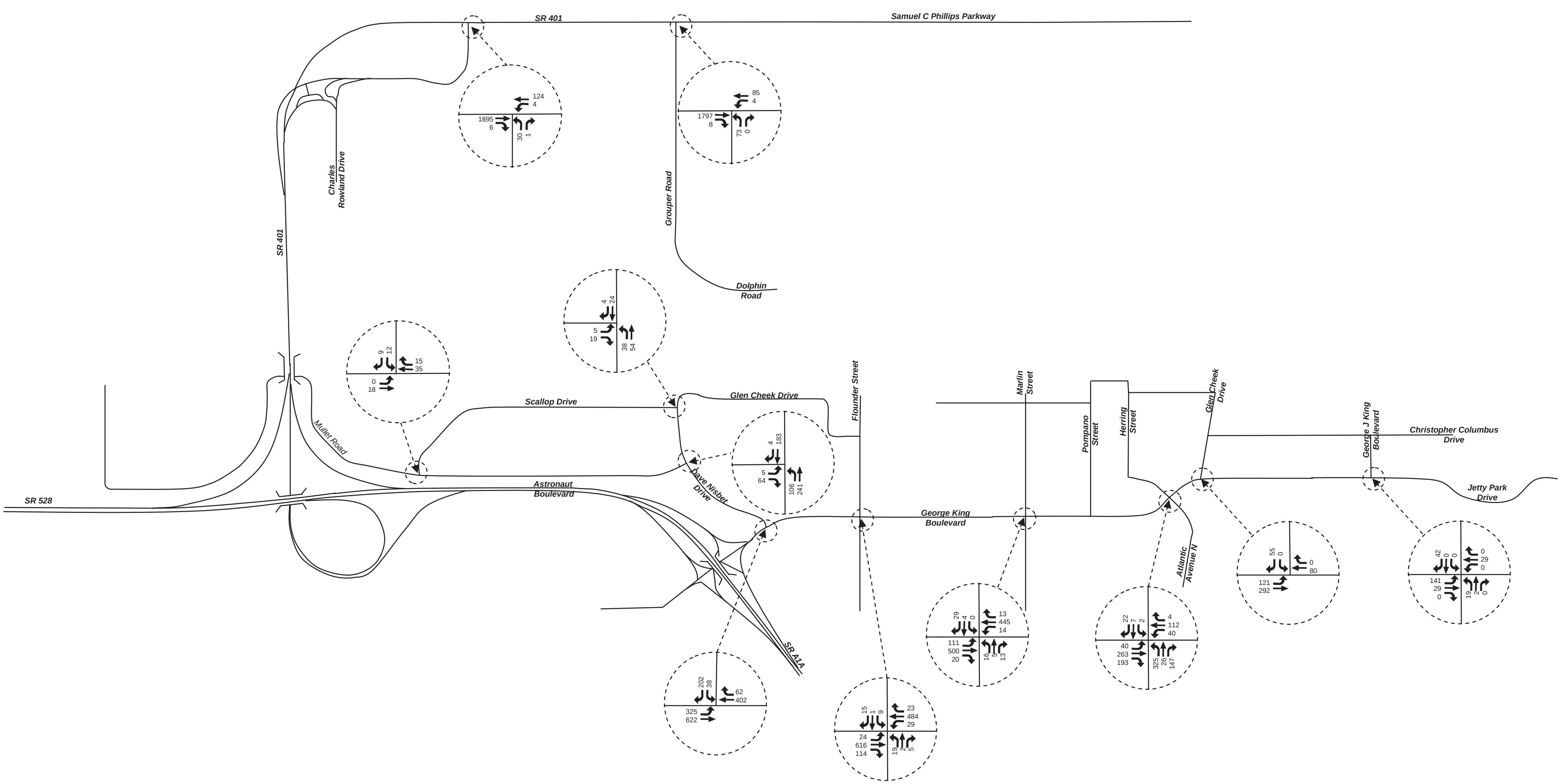
An analysis of the potential impact on Central Boulevard in the City of Cape Canaveral for traffic generated by the proposed Ron Jon World project was performed. Using trip generation data for the proposed land uses at Ron Jon World and the Central Florida Regional Planning Model II to determine trip distribution, it has been estimated that at the full build out of Ron Jon World approximately 60 vehicles would use Central Boulevard between SR A1A and Atlantic Avenue North during the PM peak hour. These 60 vehicles would be nearly evenly split between eastbound and westbound. Worksheets and model output can be found in Appendix F.

Table 4: Future AM/Mid-day/PM Peak-Hour Level of Service for Intersection

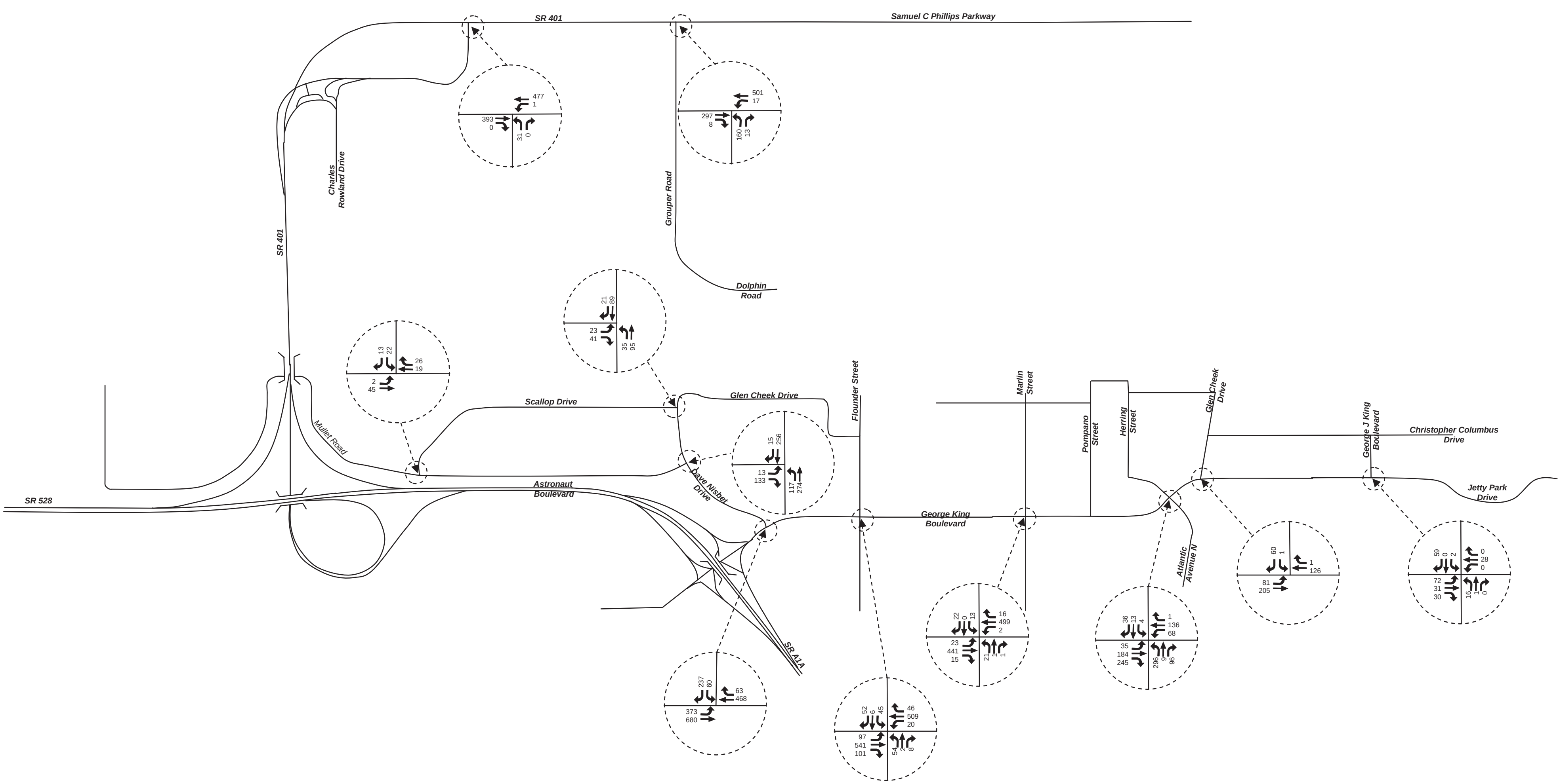
Future AM/Mid-day/PM Peak Hour Level of Service (2010)						
Intersection	AM Peak		Mid-day Peak		PM Peak	
	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
Charles Rowland Drive and SR 401	11.0	B	5.3	A	8.7	A
Grouper Road and SR 401	21.4	C	9.7	A	9.8	A
George King Blvd and Dave Nisbet Drive	10.6	B	12.5	B	31.3	C
George King Blvd and Flounder St	10.4	B	11.2	B	12.2	B
George King Blvd and Marlin Avenue	19.3	C	17.4	C	16.7	B
George King Blvd and N Atlantic Avenue	19.9	B	20.7	C	21.1	C
George King Blvd and Christopher Columbus Road	9.0	A	10.8	B	10.5	B
George King Blvd and Jetty Park Drive	11.8	B	10.3	B	10.2	B
Scallop Drive and Mullet Road	9.3	A	9.4	A	9.6	A
Scallop Drive and Dave Nisbet Drive	8.9	A	9.6	A	10.7	B
Mullet Road and Dave Nisbet Drive	9.9	A	11.4	B	13.4	B

Future AM/Mid-day/PM Peak Hour Level of Service (2025)						
Intersection	AM Peak		Mid-day Peak		PM Peak	
	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
Charles Rowland Drive and SR 401	48.6	D	5.4	A	36.8	D
Grouper Road and SR 401	45.2	D	16.3	B	36.5	D
George King Blvd and Dave Nisbet Drive	19.0	B	29.4	C	35.3	D
George King Blvd and Flounder St	26.2	C	30.0	C	21.8	C
George King Blvd and Marlin Avenue	33.7	C	32.3	C	10.9	B
George King Blvd and N Atlantic Avenue	34.9	C	24.8	C	33.4	C
George King Blvd and Christopher Columbus Road	19.6	C	10.8	B	11.5	B
George King Blvd and Jetty Park Drive	16.6	C	12.6	B	11.2	B
Scallop Drive and Mullet Road	9.8	A	9.5	A	10	B
Scallop Drive and Dave Nisbet Drive	9.4	A	12.1	B	18.3	C

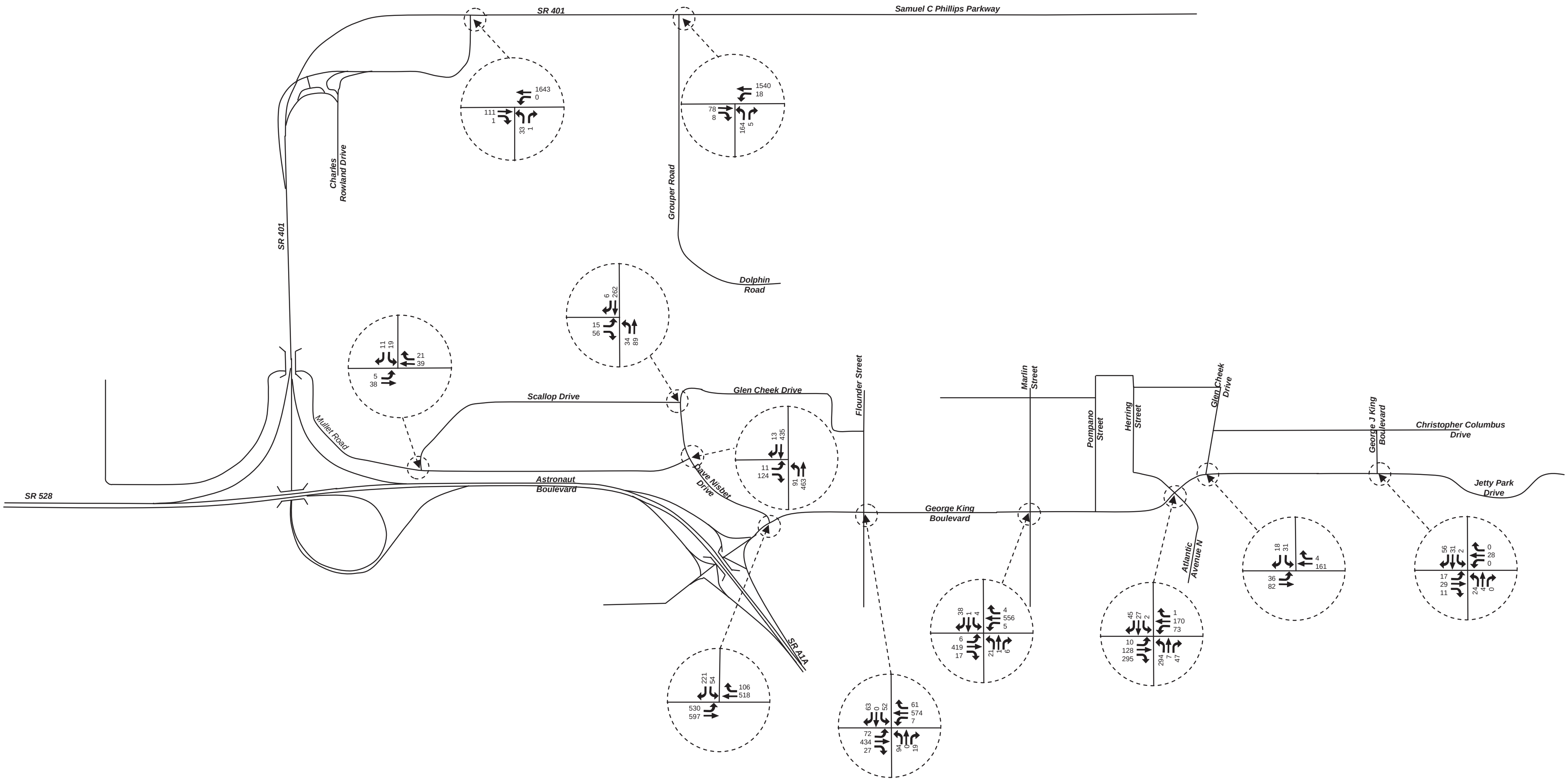
Mullet Road and Dave Nisbet Drive	10.6	B	14.5	B	20.6	C



North and South Side Traffic Study for Port Canaveral	Opening Year 2010 – AM Peak Hour Turning Movement Volumes	Not to Scale	Ghyabi & Associates, Inc. Engineering & Planning
	PROJECT NUMBER: 2630.03 & 2630.04 — FIGURE: 9		214 East New York Avenue, DeLand, FL 32724 Telephone: (386) 469-0006 Fax: (386) 469-0017



North and South Side Traffic Study for Port Canaveral	**Opening Year 2010 – Mid-day Peak Hour Turning Movement Volumes** PROJECT NUMBER: 2630.03 & 2630.04 — FIGURE: 10	N Not to Scale		***Ghyabi & Associates, Inc.*** **Engineering & Planning** 214 East New York Avenue, DeLand, FL 32724 Telephone: (386) 469-0006 Fax: (386) 469-0017



North and South Side Traffic Study for Port Canaveral

Opening Year 2010 – PM Peak Hour Turning Movement Volumes

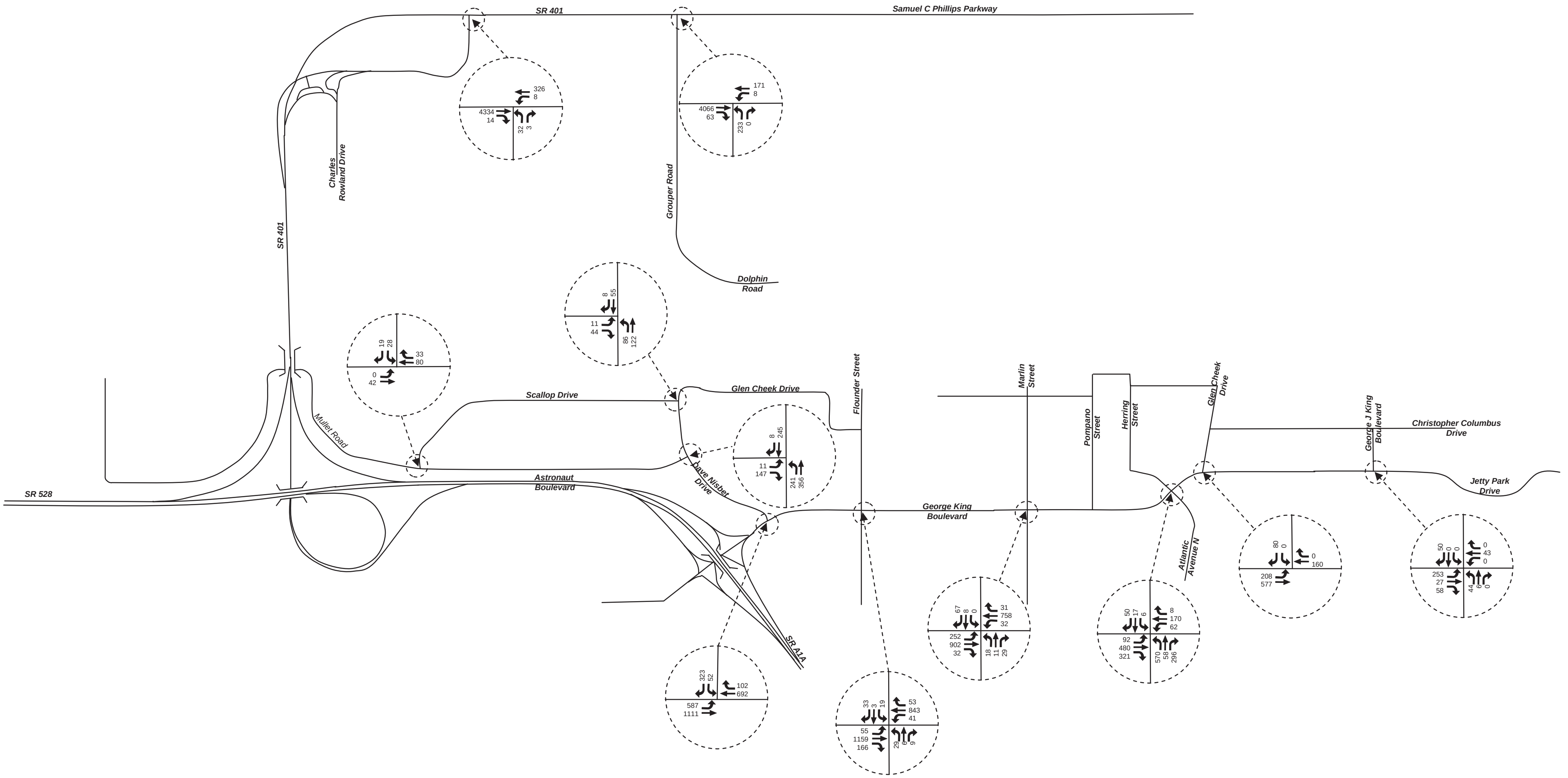
PROJECT NUMBER: 2630.03 & 2630.04

FIGURE: 11

N

Not to Scale

Ghyabi & Associates, Inc.
Engineering & Planning
214 East New York Avenue, DeLand, FL 32724
Telephone: (386) 469-0006 Fax: (386) 469-0017



North and South Side Traffic Study for Port Canaveral

Design Year 2025 – AM Peak Hour Turning Movement Volumes

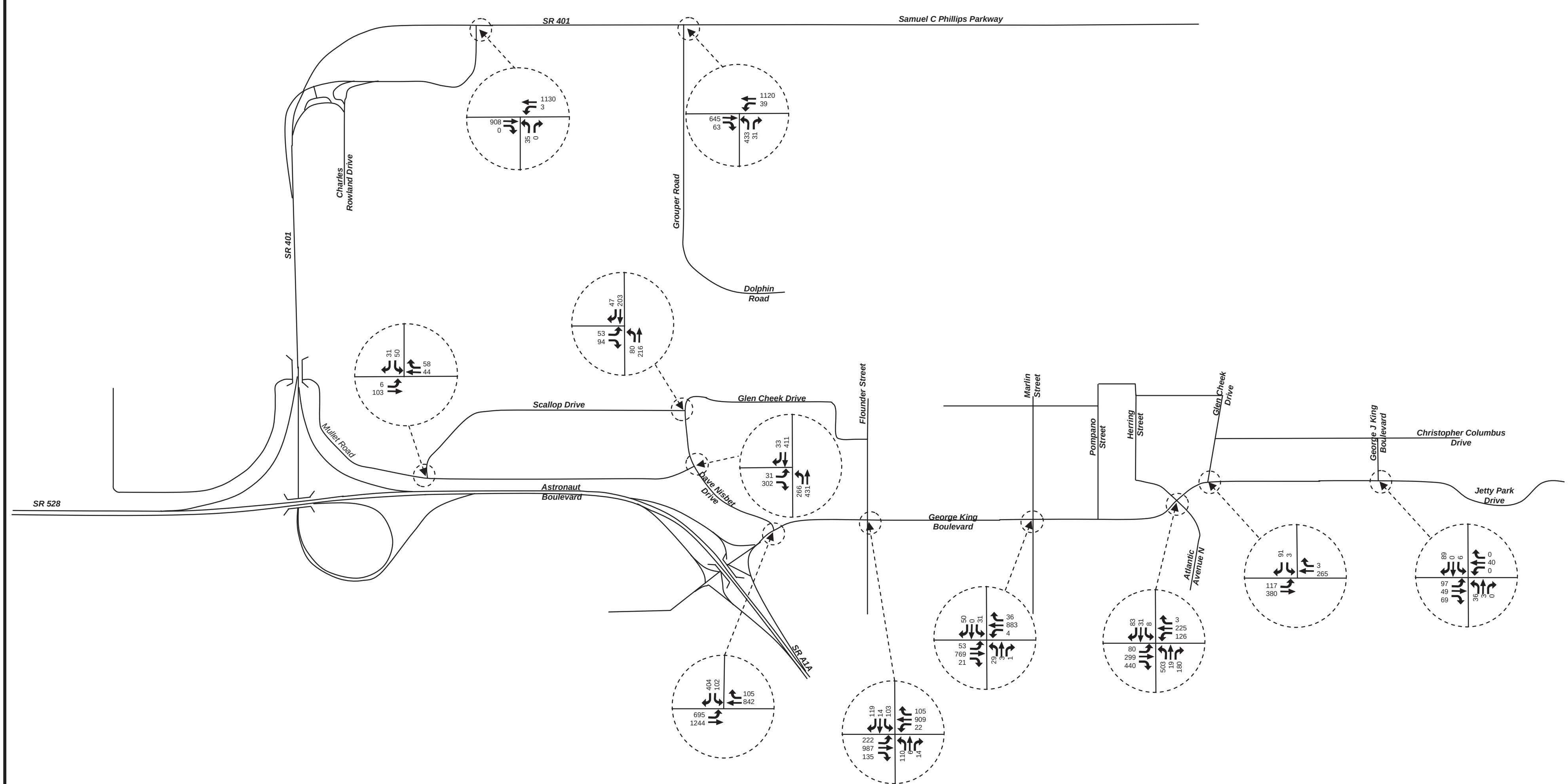
PROJECT NUMBER: 2630.03 & 2630.04

FIGURE: 12

N

Not to Scale

Ghyabi & Associates, Inc.
Engineering & Planning
214 East New York Avenue, DeLand, FL 32724
Telephone: (386) 469-0006 Fax: (386) 469-0017



North and South Side Traffic Study for Port Canaveral

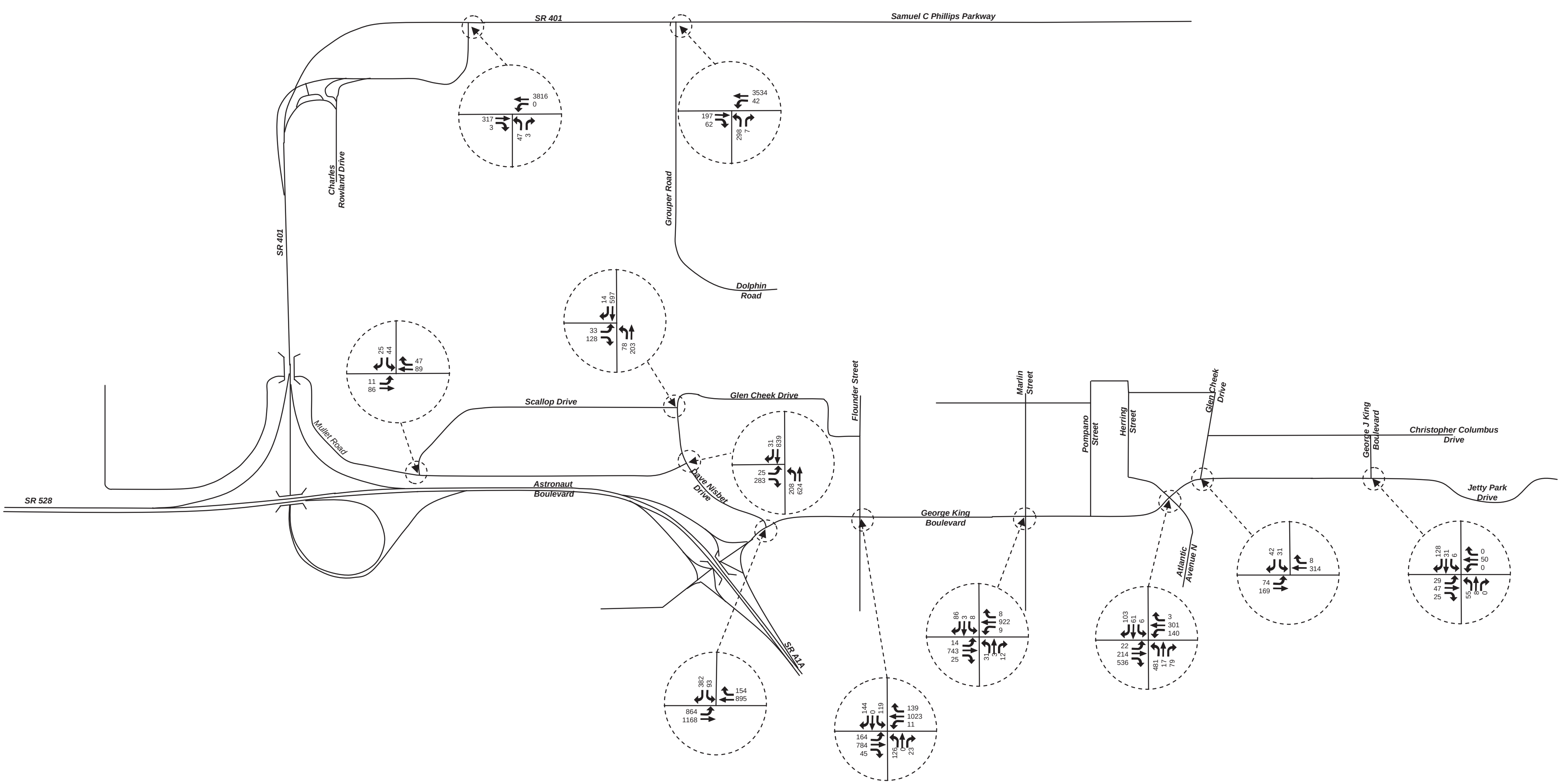
Design Year 2025 – Mid-day Peak Hour Turning Movement Volumes

PROJECT NUMBER: 2630.03 & 2630.04

FIGURE: 13

Not to Scale

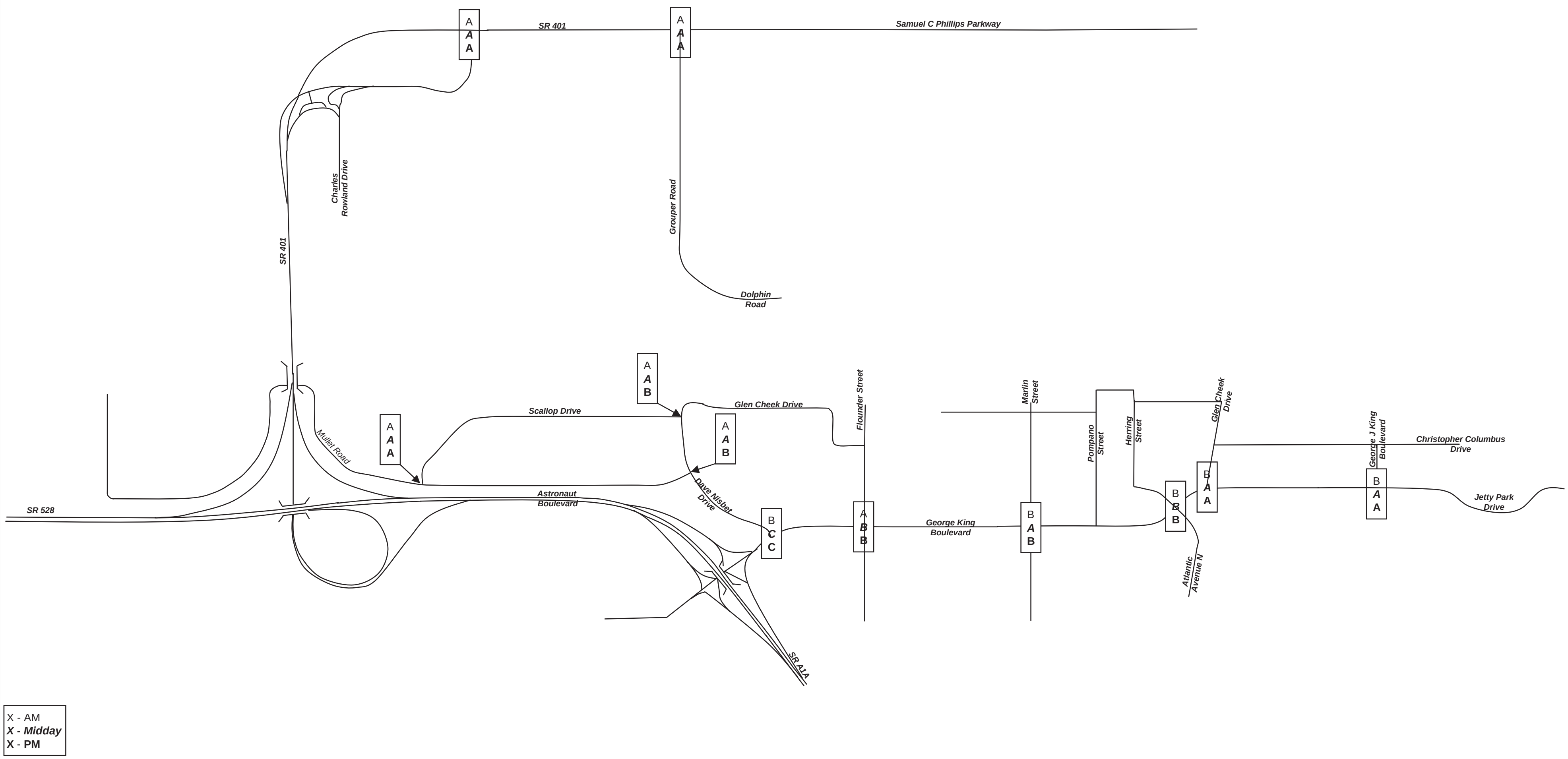
Ghyabi & Associates, Inc.
Engineering & Planning
214 East New York Avenue, DeLand, FL 32724
Telephone: (386) 469-0006 Fax: (386) 469-0017



North and South Side Traffic Study for Port Canaveral	Design Year 2025 – PM Peak Hour Turning Movement Volumes
	PROJECT NUMBER: 2630.03 & 2630.04
	FIGURE: 14

Not to Scale

Ghyabi & Associates, Inc.
Engineering & Planning
214 East New York Avenue, DeLand, FL 32724
Telephone: (386) 469-0006 Fax: (386) 469-0017



North and South Side Traffic Study for Port Canaveral

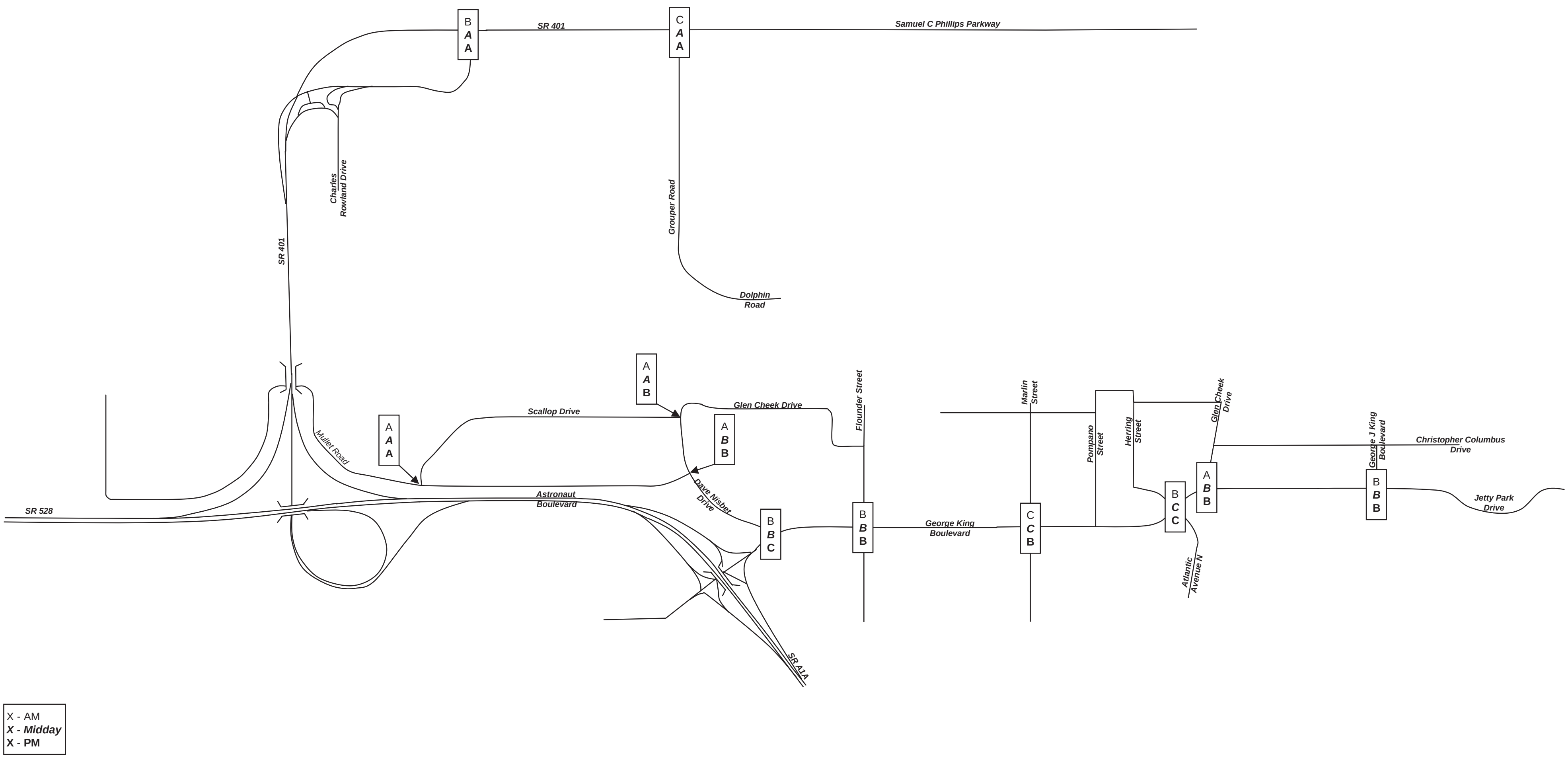
Existing Year 2005 – Level of Service

PROJECT NUMBER: 2630.03 & 2630.04

FIGURE: 15

Not to Scale

Ghyabi & Associates, Inc.
Engineering & Planning
214 East New York Avenue, DeLand, FL 32724
Telephone: (386) 469-0006 Fax: (386) 469-0017



North and South Side Traffic Study for Port Canaveral

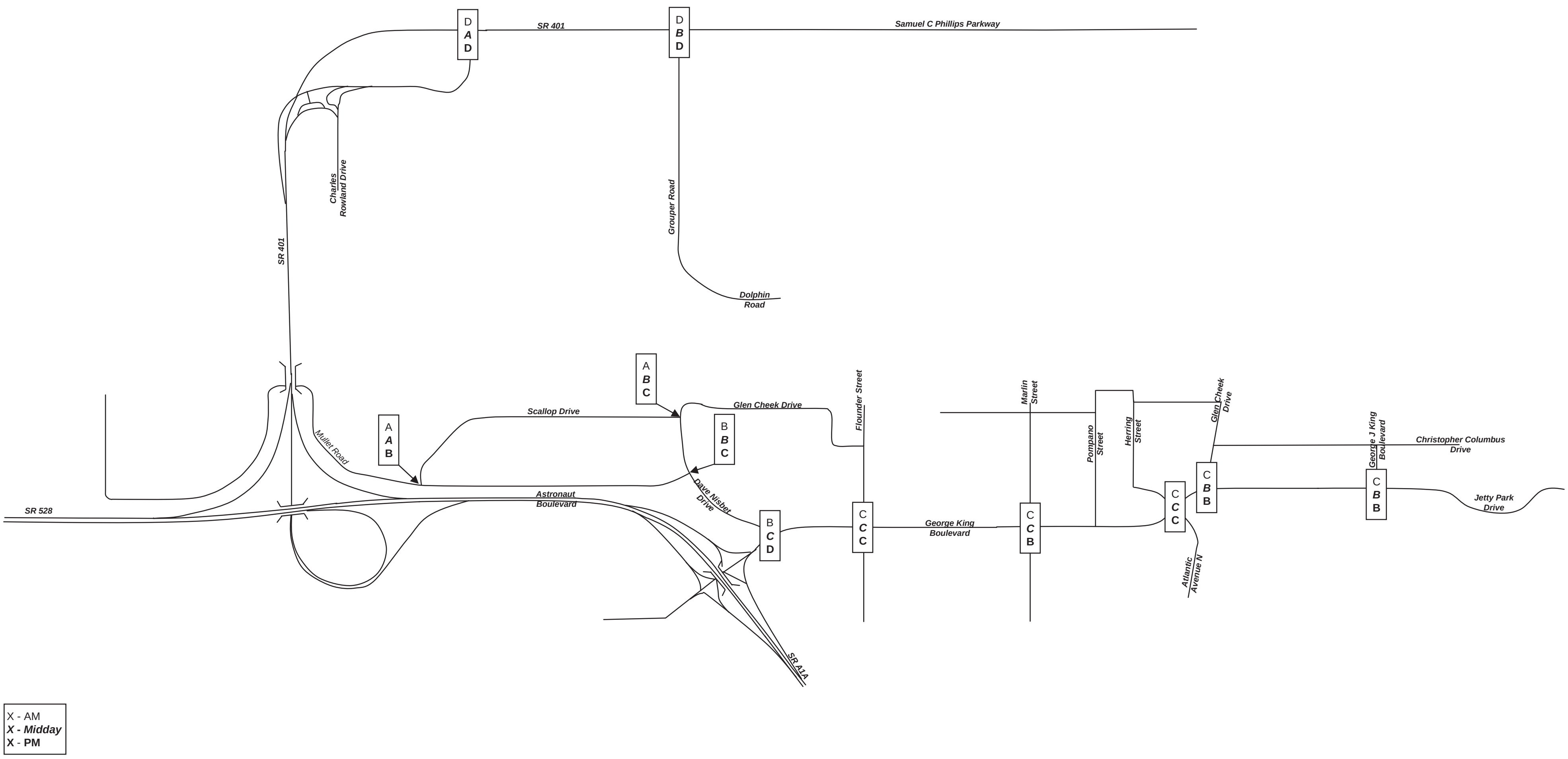
Opening Year 2010 – Level of Service

PROJECT NUMBER: 2630.03 & 2630.04

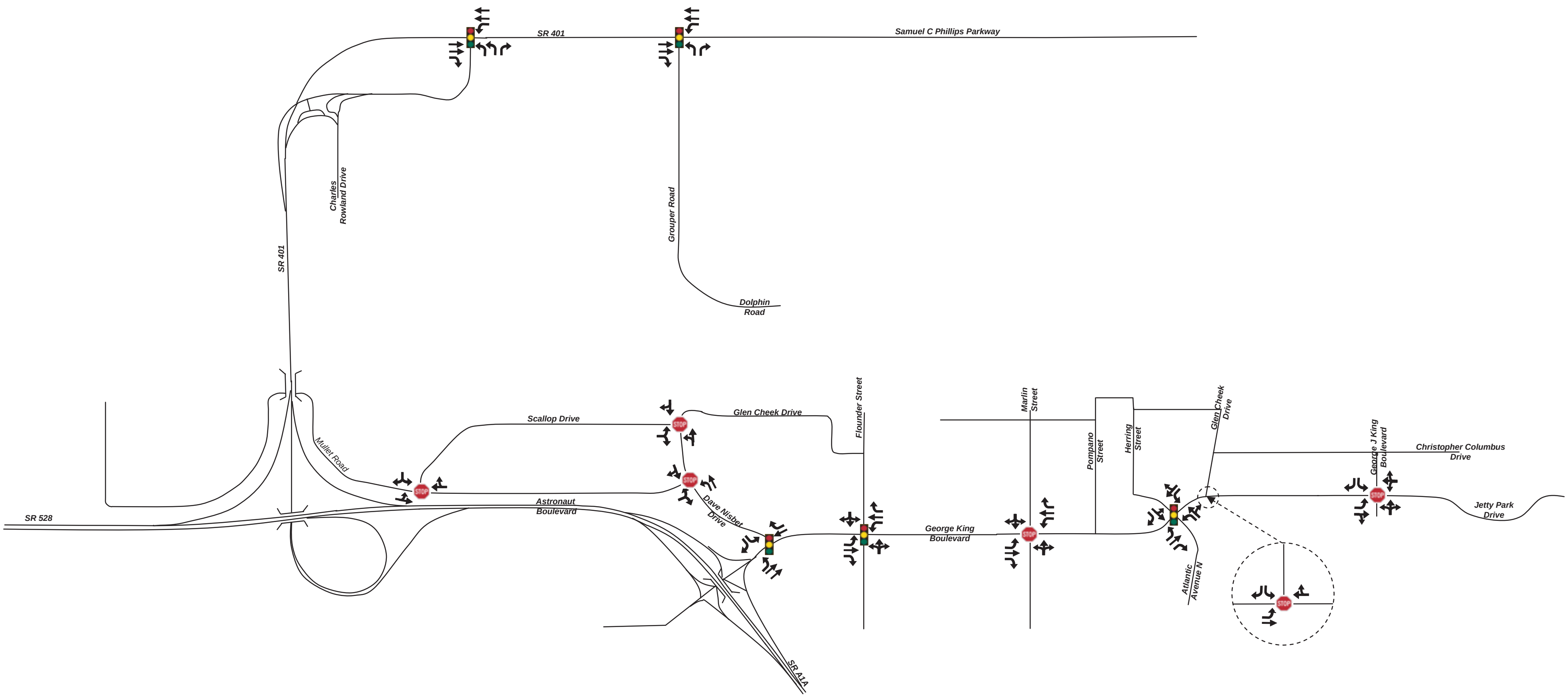
FIGURE: 16

Not to Scale

Ghyabi & Associates, Inc.
Engineering & Planning
214 East New York Avenue, DeLand, FL 32724
Telephone: (386) 469-0006 Fax: (386) 469-0017



North and South Side Traffic Study for Port Canaveral	**Design Year 2025 – Level of Service**		Not to Scale		***Ghyabi & Associates, Inc.*** **Engineering & Planning** 214 East New York Avenue, DeLand, FL 32724 Telephone: (386) 469-0006 Fax: (386) 469-0017
	PROJECT NUMBER: 2630.03 & 2630.04	FIGURE: 17			



North and South Side Traffic Study for Port Canaveral

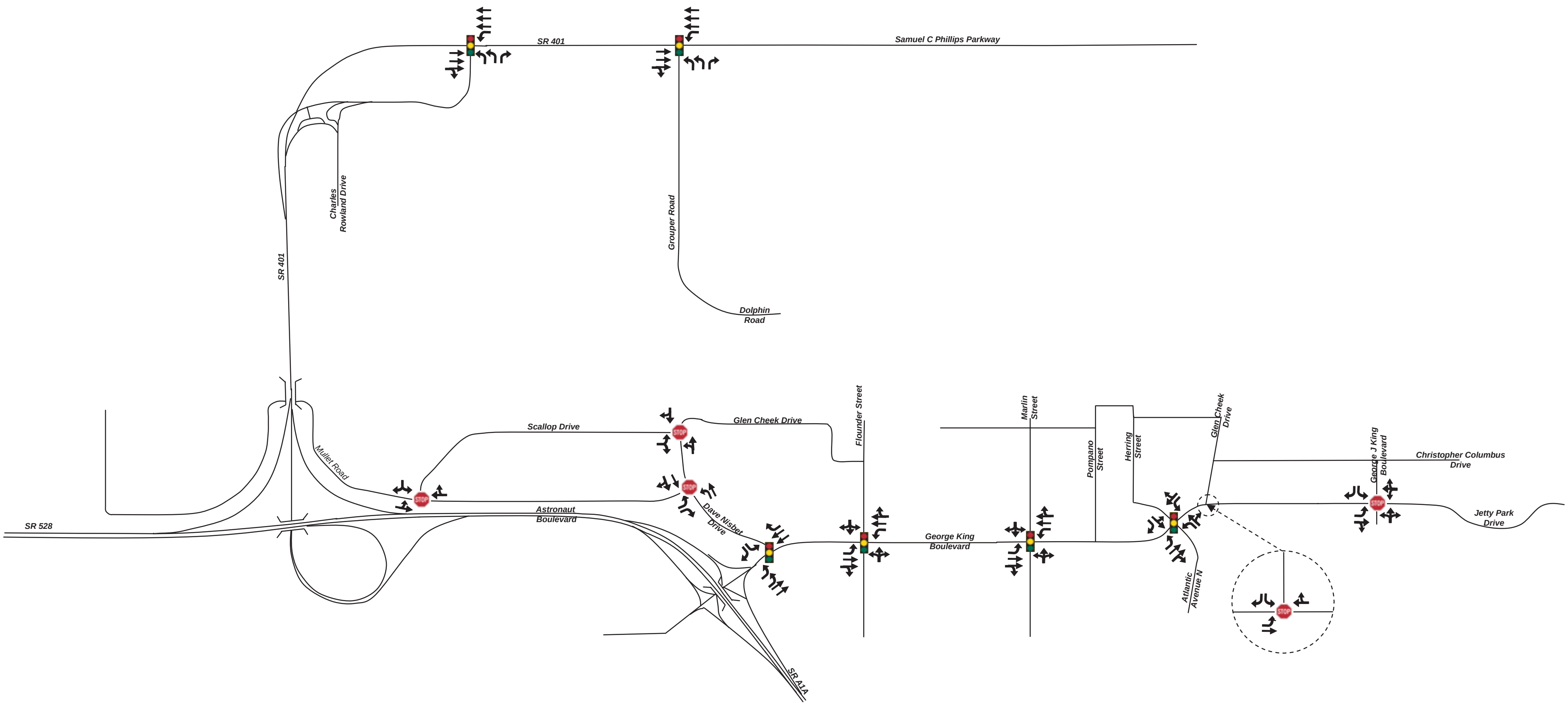
Opening Year 2010 - Future Geometry

PROJECT NUMBER: 2630.03 & 2630.04

FIGURE: 18

Not to Scale

Ghyabi & Associates, Inc.
Engineering & Planning
214 East New York Avenue, DeLand, FL 32724
Telephone: (386) 469-0006 Fax: (386) 469-0017



North and South Side Traffic Study for Port Canaveral

Design Year 2025 - Future Geometry

PROJECT NUMBER: 2630.03 & 2630.04

FIGURE: 19

Not to Scale

Ghyabi & Associates, Inc.
Engineering & Planning
214 East New York Avenue, DeLand, FL 32724
Telephone: (386) 469-0006 Fax: (386) 469-0017

Weaving Analysis

The section of George King Blvd. between the A1A Off-ramp and Dave Nisbet Dr. was analyzed to accommodate the total projected traffic in 2010 and in 2025. The operating conditions of this segment were analyzed according to Chapter 24 of the Highway Capacity Manual. The results of the HCS weaving analyses of the roadway segment are presented in Table 5.

Table 5: Future Peak-Hour Level of Service for Weave Analysis

Weaving Section	AM Peak-Hour (2010)			Mid-day Peak-Hour (2010)			PM Peak-Hour (2010)		
	Speed (mph)	Density (pc/mi/ln)	LOS	Speed (mph)	Density (pc/mi/ln)	LOS	Speed (mph)	Density (pc/mi/ln)	LOS
GKB from A1A Off-ramp to Dave Nisbet Dr.	31.6	16	B	32.7	15	B	31.0	18	B
Weaving Section	**AM Peak-Hour (2025)**			**Mid-day Peak-Hour (2025)**			**PM Peak-Hour (2025)**		
	Speed (mph)	**Density (pc/mi/ln)**	**LOS**	**Speed (mph)**	**Density (pc/mi/ln)**	**LOS**	**Speed (mph)**	**Density (pc/mi/ln)**	**LOS**
GKB from A1A Off-ramp to Dave Nisbet Dr.	29.9	25	C	28.9	30	D	29.3	30	D

SECTION 4 --- CONCLUSION

This study was conducted to analyze the effect that future land use changes at both Port Canaveral North side and South side would have on the Port's transportation infrastructure. North side Port expansion includes the opening of Cruise Terminals 6 and 7 by 2008 to accommodate 3 ships per week. Cruise Terminals 11 and 12 are expected to be open by 2012 and accommodate 3 ships per week as well. Cargo Piers 5 and 6 are expected to be fully operational by 2015. These cargo piers would have an upland container staging area of 18.45 acres (assumed to be operating by 2010) then expand fully to 53.6 acres by 2015. The future land use of the North side of the Port also includes a 30-acre fuel tank farm expected to be open by 2009 and generate 500 truck trips per day.

South side Port expansion projects include the aggregate conveyor and storage area which is expected to open in 2006 and have 150 daily truck trips, then increase to full operation with 300 daily truck trips by 2009. The Premier Office Building is expected to be fully occupied by 2008. In the Cove area, east of Dave Nesbit Drive, future land uses are evolving. For this study, the Cove is assumed to include a hotel (Milrose), a museum and small amount of retail land use. The Milrose Hotel is assumed to initially open with 115 rooms by 2007 and add 60 rooms by 2010. The museum is assumed to be 15,000 square feet while the retail uses at this location are assumed to be 25,000 square feet. Both were assumed to be open by 2010.

Also on the South side is a Hotel and Conference Center at the west end of George King Blvd. and adjacent to the Banana River (the proposed Ron-Jon project). This project is proposed to include a 400-room hotel, a 25,000 square foot conference center, a 25,000 square foot store, a 10,000 square foot restaurant and a 1200-vehicle parking garage. Also associated with this Hotel and Conference Center would be a 5,000 square foot retail site at the current Jetty Park.

Other south side expansion projects include the opening of Cruise Terminals 3 and 4 which are expected to be operating by fall 2006 and 2008, respectively. Cruise Terminal 3 would serve 2-day cruises while Terminal 4 would serve 3- and 4-day cruises.

The results of the traffic impacts are summarized below:

- By 2010, the proposed developments at both the North side and South side will generate approximately 15,330 new daily trips with 1472 occurring during the PM peak hour and 1528 occurring during the AM peak hour at build-out. Table 3 illustrates the future project trip generation as it is proposed.
- By 2025, the proposed developments at both the North side and South side will generate approximately an additional 1,630 new daily trips with 131 additional trips occurring during the PM peak hour and 157 additional trips occurring during the AM peak hour at build-out. This will result in a total of 16,960 new daily trips, 1603 new PM peak hour trips and 1685 AM peak hour trips.
- The intersection of George King Boulevard and Dave Nisbet Drive will require a traffic signal at this intersection by 2010.

- George King Boulevard and Dave Nisbet Drive will need an additional left-turn lane for the eastbound to northbound movement by 2025.
- George King Boulevard will need to be widened to provide 2 through-lanes in each direction (eastbound and westbound) between Atlantic Avenue North and the interchange with SR A1A.
- At the intersection of Mullett Drive and Dave Nesbit Drive, a through lane in the southbound direction and the widening of the eastbound approach to provide a left- turn and a right- turn lane will be needed by 2025.
- The signalized intersections of SR 401 and Charles Rowland Drive, and SR 401 and Grouper Road will operate at acceptable levels of service provided the signal cycles are lengthened in 2010.
- By 2015, it is expected that SR 401 will need to be widened to 3 lanes in each direction.
- By 2025, the intersection of SR 401 and Grouper Road will require a second northbound-left turn lane to maintain an adequate level of service in both the AM and PM peak hours.
- The weave analysis conducted for the segment of George King Blvd. between the A1A eastbound off-ramp and Dave Nisbet Drive indicates that this segment of roadway currently operates at a LOS B during the AM and Mid-day Peak hours and a LOS A during the PM Peak hour. In 2010, the analysis indicates that this weave section is expected to operating at a LOS B for all three peak hours (AM, Mid-day and PM). In 2025, this weave section will continue to operate at LOS C during the AM peak hour and will operate at LOS D during the mid-day and PM peak hours.
- At this time the analysis does not indicate a need to modify the segment of George King Boulevard between the A1A off-ramp and Dave Nisbet Drive. This segment appears to adequately accommodate the weaving vehicles and should continue to do so through the design year (2025).
- Using trip generation data for the proposed land uses at Ron Jon World and the Central Florida Regional Planning Model III to determine trip distribution, it has been estimated that at the full build out of Ron Jon World approximately 60 vehicles would use Central Boulevard between SR A1A and Atlantic Avenue North during the PM peak hour. These 60 vehicles would be nearly evenly split between eastbound (28) and westbound (32).

APPENDICES

Appendix A

Existing Link Volumes

Ghyabi & Associates
VOLUME SUMMARY
WED 08/03/2005

Site Reference: ATLSOFGEOR15
Site ID: 000000000046
Location: ATLANTIC AVE S.OF GEORGE KING BLVD

File: D0803026.prn
City: #11
County: BREVARD

TIME	1 NORTH	2 NORTH	3 NORTH	4 SOUTH	Total
01:00	0	0	20	154	174
02:00	0	0	12	36	48
03:00	0	0	23	28	51
04:00	0	0	15	18	33
05:00	0	0	26	24	50
06:00	0	0	61	25	86
07:00	0	0	158	64	222
08:00	0	0	242	101	343
09:00	0	0	228	119	347
10:00	0	0	196	149	345
11:00	0	0	224	165	389
12:00	0	0	204	209	413
13:00	0	0	219	235	454
14:00	0	1	185	197	383
15:00	0	0	186	186	372
16:00	0	0	208	219	427
17:00	0	0	158	321	479
18:00	0	0	193	271	464
19:00	0	0	238	187	425
20:00	0	0	97	162	259
21:00	0	0	118	129	247
22:00	0	0	73	111	184
23:00	0	0	45	59	104
24:00	0	0	34	38	72
DAY TOTAL	0	1	3163	3207	6371
PERCENTS	0.0%	0.1%	49.6%	50.3%	100%
AM Times			07:45	11:15	
AM Peaks			273	209	
PM Times		12:45	18:00	16:30	
PM Peaks		1	243	348	

Site Reference: CCOLEOFATL37
Site ID: 000055010001
Location: CRHISTOPHER COLUMBUS E.OF GLEN CHEEK DR

File: D0803024.prn
City: #10
County: BREVARD

TIME	1 EAST	2 WEST	Total
01:00	18	6	24
02:00	2	4	6
03:00	1	3	4
04:00	1	1	2
05:00	1	0	1
06:00	1	4	5
07:00	1	0	1
08:00	12	8	20
09:00	4	9	13
10:00	11	16	27
11:00	11	28	39
12:00	3	8	11
13:00	3	6	9
14:00	1	7	8
15:00	6	13	19
16:00	7	10	17
17:00	25	14	39
18:00	6	15	21
19:00	10	20	30
20:00	6	6	12
21:00	5	4	9
22:00	1	2	3
23:00	1	1	2
24:00	0	4	4
DAY TOTAL	137	189	326
PERCENTS	42.1%	57.9%	100%
AM Times	00:30	09:45	
AM Peaks	19	28	
PM Times	16:00	17:45	
PM Peaks	26	21	

Site Reference: 000000000015
Site ID: 000000000054
Location: DAVE NISBET DR N.OF GEORGE KING BLVD

File: D0803031.prn
City: #13
County: BREVARD

TIME	1 NORTH	2 SOUTH	Total
01:00	32	241	273
02:00	4	25	29
03:00	7	25	32
04:00	2	9	11
05:00	6	7	13
06:00	56	8	64
07:00	105	35	140
08:00	172	58	230
09:00	152	95	247
10:00	206	118	324
11:00	239	161	400
12:00	202	211	413
13:00	208	214	422
14:00	174	208	382
15:00	142	165	307
16:00	155	218	373
17:00	188	409	597
18:00	181	190	371
19:00	248	157	405
20:00	80	103	183
21:00	53	100	153
22:00	43	54	97
23:00	30	57	87
24:00	19	69	88
DAY TOTAL	2704	2937	5641
PERCENTS	48.0%	52.0%	100%
AM Times	10:00	00:15	
AM Peaks	252	241	
PM Times	18:15	16:00	
PM Peaks	248	423	

Ghyabi & Associates
VOLUME SUMMARY
WED 08/03/2005

Site Reference: 000000000007
Site ID: 000000000037
Location: GEORGE KING BLVD E.OF FLOUNDER STREET

File: D0803032.prn
City: #7
County: BREVARD

TIME	1 EAST	2 WEST	Total
01:00	122	277	399
02:00	46	38	84
03:00	23	20	43
04:00	23	27	50
05:00	41	43	84
06:00	111	92	203
07:00	183	235	418
08:00	342	279	621
09:00	369	266	635
10:00	399	312	711
11:00	486	356	842
12:00	384	336	720
13:00	359	388	747
14:00	333	357	690
15:00	335	337	672
16:00	340	365	705
17:00	374	670	1044
18:00	346	364	710
19:00	457	256	713
20:00	178	135	313
21:00	170	119	289
22:00	108	78	186
23:00	77	50	127
24:00	67	33	100
DAY TOTAL	5673	5433	11106
PERCENTS	51.1%	48.9%	100%
AM Times	10:00	10:00	
AM Peaks	512	358	
PM Times	18:15	16:30	
PM Peaks	457	687	

Ghyabi & Associates
VOLUME SUMMARY
WED 08/03/2005

Site Reference: GEOKGEOFAT07
Site ID: 000000000042
Location: GEORGE KING BLVD E.OF GLEN CHEEK DR

File: D0803020.prn
City: #8
County: BREVARD

TIME	1 WEST	Total
01:00	245	245
02:00	14	14
03:00	3	3
04:00	3	3
05:00	4	4
06:00	12	12
07:00	44	44
08:00	49	49
09:00	62	62
10:00	77	77
11:00	104	104
12:00	105	105
13:00	128	128
14:00	147	147
15:00	123	123
16:00	130	130
17:00	319	319
18:00	147	147
19:00	93	93
20:00	65	65
21:00	48	48
22:00	34	34
23:00	29	29
24:00	20	20
DAY TOTAL	2005	2005
PERCENTS	100.0%	100%
AM Times	00:15	
AM Peaks	245	
PM Times	16:30	
PM Peaks	329	

Ghyabi & Associates
VOLUME SUMMARY
WED 08/03/2005

Site Reference: GEOKGEOFAT03
Site ID: 000000000020
Location: GEORGE KING BLVD E.OF GLEN CHEEK DRIVE

File: D0803034.prn
City: #8
County: BREVARD

TIME	1 EAST	Total
01:00	15	15
02:00	5	5
03:00	4	4
04:00	2	2
05:00	1	1
06:00	4	4
07:00	36	36
08:00	52	52
09:00	142	142
10:00	129	129
11:00	165	165
12:00	152	152
13:00	129	129
14:00	132	132
15:00	111	111
16:00	103	103
17:00	86	86
18:00	101	101
19:00	166	166
20:00	65	65
21:00	68	68
22:00	48	48
23:00	41	41
24:00	27	27
DAY TOTAL	1784	1784
PERCENTS	100.0%	100%
AM Times	09:45	
AM Peaks	181	
PM Times	18:00	
PM Peaks	168	

Site Reference: 000000000037
Site ID: 000000000075
Location: GLEN CHEEK DRIVE E.OF DAVE NISBET DRIVE

File: D0803029.prn
City: #12
County: BREVARD

TIME	1 EAST	2 WEST	Total
01:00	24	164	188
02:00	3	20	23
03:00	2	17	19
04:00	3	8	11
05:00	4	4	8
06:00	9	2	11
07:00	25	8	33
08:00	29	18	47
09:00	51	37	88
10:00	94	51	145
11:00	146	61	207
12:00	106	74	180
13:00	97	103	200
14:00	61	100	161
15:00	87	66	153
16:00	71	67	138
17:00	155	155	310
18:00	145	92	237
19:00	202	88	290
20:00	74	66	140
21:00	42	47	89
22:00	44	30	74
23:00	29	30	59
24:00	19	28	47
DAY TOTAL	1522	1336	2858
PERCENTS	53.3%	46.7%	100%
AM Times	10:00	00:15	
AM Peaks	154	164	
PM Times	18:15	16:30	
PM Peaks	202	166	

Ghyabi & Associates
VOLUME SUMMARY
WED 08/03/2005

Site Reference: GRPSOF401_15
Site ID: 000000000023
Location: GROUPER ROAD S.OF SR-401

File: D0803027.prn
City: #4
County: BREVARD

TIME	1 NORTH	2 SOUTH	Total
01:00	4	6	10
02:00	6	6	12
03:00	8	6	14
04:00	18	13	31
05:00	22	16	38
06:00	20	55	75
07:00	56	127	183
08:00	65	168	233
09:00	90	129	219
10:00	103	116	219
11:00	115	80	195
12:00	146	156	302
13:00	149	149	298
14:00	131	118	249
15:00	91	85	176
16:00	141	86	227
17:00	120	53	173
18:00	101	33	134
19:00	53	19	72
20:00	14	13	27
21:00	16	17	33
22:00	8	9	17
23:00	10	10	20
24:00	11	13	24
DAY TOTAL	1498	1483	2981
PERCENTS	50.3%	49.7%	100%
AM Times	11:15	07:00	
AM Peaks	146	189	
PM Times	12:15	12:30	
PM Peaks	149	156	

Ghyabi & Associates
VOLUME SUMMARY
WED 08/03/2005

Site Reference: JEPKDRATGK37
Site ID: 000000000009
Location: JETTY PARK DR E.OF GEORGE KING BLVD

File: D0803025.prn
City: #9
County: BREVARD

TIME	1 EAST	2 WEST	Total
01:00	1	1	2
02:00	4	4	8
03:00	0	0	0
04:00	4	3	7
05:00	3	4	7
06:00	2	2	4
07:00	14	10	24
08:00	19	15	34
09:00	27	19	46
10:00	29	22	51
11:00	37	35	72
12:00	60	41	101
13:00	43	37	80
14:00	43	78	121
15:00	30	50	80
16:00	27	53	80
17:00	14	25	39
18:00	17	18	35
19:00	24	22	46
20:00	23	21	44
21:00	15	17	32
22:00	11	13	24
23:00	7	11	18
24:00	5	7	12
DAY TOTAL	459	508	967
PERCENTS	47.5%	52.5%	100%
AM Times	11:00	11:15	
AM Peaks	62	41	
PM Times	12:30	13:15	
PM Peaks	49	78	

Site Reference: 000000000037
Site ID: 000000000025
Location: MULLET ROAD W.OF DAVE NISBET DRIVE

File: D0803028.prn
City: #15
County: BREVARD

TIME	1 EAST	2 WEST	Total
01:00	5	3	8
02:00	3	2	5
03:00	1	1	2
04:00	3	1	4
05:00	4	1	5
06:00	9	39	48
07:00	18	66	84
08:00	31	95	126
09:00	64	88	152
10:00	59	96	155
11:00	101	84	185
12:00	133	106	239
13:00	115	116	231
14:00	97	99	196
15:00	78	68	146
16:00	126	76	202
17:00	111	76	187
18:00	91	42	133
19:00	47	29	76
20:00	32	30	62
21:00	43	12	55
22:00	15	16	31
23:00	14	9	23
24:00	7	1	8
DAY TOTAL	1207	1156	2363
PERCENTS	51.1%	48.9%	100%
AM Times	11:15	11:15	
AM Peaks	133	106	
PM Times	15:30	12:15	
PM Peaks	128	116	

Site Reference: 000000000037
Site ID: 000000000017
Location: MULLET ROAD W.OF SCALLOP DRIVE

File: D0804017.prn
City: #16
County: BREVARD

TIME	1 EAST	2 WEST	Total
01:00	1	1	2
02:00	3	1	4
03:00	2	2	4
04:00	0	0	0
05:00	0	0	0
06:00	3	8	11
07:00	5	4	9
08:00	12	30	42
09:00	18	31	49
10:00	5	14	19
11:00	45	48	93
12:00	55	48	103
13:00	52	37	89
14:00	42	51	93
15:00	34	36	70
16:00	37	33	70
17:00	36	39	75
18:00	31	24	55
19:00	20	26	46
20:00	22	19	41
21:00	33	17	50
22:00	10	6	16
23:00	6	6	12
24:00	3	4	7
DAY TOTAL	475	485	960
PERCENTS	49.5%	50.5%	100%
AM Times	11:15	10:45	
AM Peaks	55	50	
PM Times	12:15	13:15	
PM Peaks	52	51	

Ghyabi & Associates
VOLUME SUMMARY
THU 08/04/2005

Site Reference: 000000000037
Site ID: 000000000072
Location: MULLET ROAD W.OF SR-401

File: D0804016.prn
City: #17
County: BREVARD

TIME	1 EAST	2 WEST	Total
01:00	0	0	0
02:00	0	0	0
03:00	0	0	0
04:00	0	0	0
05:00	0	0	0
06:00	0	1	1
07:00	2	1	3
08:00	3	4	7
09:00	2	2	4
10:00	3	4	7
11:00	5	6	11
12:00	8	13	21
13:00	10	5	15
14:00	3	8	11
15:00	10	9	19
16:00	7	7	14
17:00	6	5	11
18:00	2	6	8
19:00	5	2	7
20:00	2	6	8
21:00	4	1	5
22:00	1	1	2
23:00	1	1	2
24:00	1	1	2
DAY TOTAL	75	83	158
PERCENTS	47.5%	52.5%	100%
AM Times	11:15	11:15	
AM Peaks	8	13	
PM Times	12:15	14:30	
PM Peaks	10	12	

Ghyabi & Associates
VOLUME SUMMARY
WED 08/03/2005

Site Reference: 000000000037
Site ID: 000000000038
Location: SCALLOP DR W.OF DAVE NISBET DRIVE

File: D0803030.prn
City: #14
County: BREVARD

TIME	1 EAST	2 WEST	Total
01:00	4	5	9
02:00	0	0	0
03:00	5	3	8
04:00	1	1	2
05:00	0	3	3
06:00	12	19	31
07:00	27	40	67
08:00	25	46	71
09:00	36	31	67
10:00	67	42	109
11:00	53	58	111
12:00	97	55	152
13:00	84	71	155
14:00	40	62	102
15:00	74	59	133
16:00	98	61	159
17:00	87	49	136
18:00	49	36	85
19:00	49	18	67
20:00	22	17	39
21:00	21	18	39
22:00	6	5	11
23:00	20	5	25
24:00	2	5	7
DAY TOTAL	879	709	1588
PERCENTS	55.4%	44.6%	100%
AM Times	11:15	10:00	
AM Peaks	97	66	
PM Times	15:30	12:30	
PM Peaks	108	75	

Ghyabi & Associates
VOLUME SUMMARY
WED 08/03/2005

Site Reference: 401EOFGRP_37
Site ID: 000000000066
Location: SR-401 E.OF GROUPER DRIVE

File: D0803021.prn
City: #5
County: BREVARD

TIME	1 NORTH	2 NORTH	3 EAST	4 WEST	Total
01:00	0	0	2	13	15
02:00	0	0	2	1	3
03:00	0	0	5	1	6
04:00	0	0	0	1	1
05:00	0	0	44	2	46
06:00	0	0	323	9	332
07:00	0	0	1256	37	1293
08:00	0	0	1142	56	1198
09:00	0	0	365	80	445
10:00	0	0	194	105	299
11:00	0	0	127	157	284
12:00	0	0	168	418	586
13:00	0	0	277	219	496
14:00	0	0	206	180	386
15:00	0	0	126	436	562
16:00	0	0	62	1139	1201
17:00	0	0	50	936	986
18:00	0	0	26	474	500
19:00	0	0	28	213	241
20:00	0	0	9	97	106
21:00	0	0	14	51	65
22:00	0	0	40	28	68
23:00	0	0	16	72	88
24:00	0	0	11	57	68
DAY TOTAL	0	0	4493	4782	9275
PERCENTS	0.0%	0.0%	48.5%	51.5%	100%
AM Times			06:45	11:15	
AM Peaks			1488	418	
PM Times			12:15	15:45	
PM Peaks			277	1292	

Ghyabi & Associates
VOLUME SUMMARY
WED 08/03/2005

Site Reference: 401NBONRAMP1
Site ID: 000056940001
Location: SR-401 NB OFF RAMP TO CHARLES ROLAND DR

File: D0803023.prn
City: #2
County: BREVARD

TIME	1 NORTH	Total
01:00	0	0
02:00	0	0
03:00	0	0
04:00	2	2
05:00	42	42
06:00	81	81
07:00	152	152
08:00	176	176
09:00	189	189
10:00	153	153
11:00	264	264
12:00	271	271
13:00	315	315
14:00	311	311
15:00	67	67
16:00	11	11
17:00	13	13
18:00	1	1
19:00	0	0
20:00	0	0
21:00	0	0
22:00	0	0
23:00	0	0
24:00	0	0
DAY TOTAL	2048	2048
PERCENTS	100.0%	100%
AM Times	11:15	
AM Peaks	271	
PM Times	12:45	
PM Peaks	344	

Ghyabi & Associates
VOLUME SUMMARY
WED 08/03/2005

Site Reference: 401SBOFFRMP5
Site ID: 000072090004
Location: SR-401 SB.ON RAMP FROM.CHARLES ROLAND DR

File: D0803019.prn
City: #1
County: BREVARD

TIME	1 SOUTH	Total
01:00	3	3
02:00	3	3
03:00	1	1
04:00	1	1
05:00	1	1
06:00	8	8
07:00	13	13
08:00	54	54
09:00	175	175
10:00	418	418
11:00	265	265
12:00	135	135
13:00	111	111
14:00	124	124
15:00	22	22
16:00	21	21
17:00	26	26
18:00	3	3
19:00	2	2
20:00	0	0
21:00	0	0
22:00	2	2
23:00	1	1
24:00	3	3
DAY TOTAL	1392	1392
PERCENTS	100.0%	100%
AM Times	09:30	
AM Peaks	439	
PM Times	13:15	
PM Peaks	124	

Site Reference: SR401WOFCR37
Site ID: 000000000004
Location: SR-401 W.OF CHARLES ROLAND DRIVE

File: D0803022.prn
City: #3
County: BREVARD

TIME	1 EAST	2 WEST	Total
01:00	14	19	33
02:00	9	8	17
03:00	14	10	24
04:00	17	23	40
05:00	70	28	98
06:00	413	23	436
07:00	1402	77	1479
08:00	1327	143	1470
09:00	475	267	742
10:00	307	277	584
11:00	215	303	518
12:00	323	538	861
13:00	429	343	772
14:00	303	355	658
15:00	220	517	737
16:00	119	1290	1409
17:00	79	1043	1122
18:00	59	578	637
19:00	48	265	313
20:00	22	119	141
21:00	36	70	106
22:00	50	38	88
23:00	27	83	110
24:00	23	72	95
DAY TOTAL	6001	6489	12490
PERCENTS	48.1%	51.9%	100%
AM Times	06:45	11:15	
AM Peaks	1673	538	
PM Times	12:30	15:30	
PM Peaks	449	1404	

Ghyabi & Associates
VOLUME SUMMARY
THU 08/11/2005

Site Reference: 401CLASS0072
Site ID: 000072090004
Location: SR-401 E.OF CHARLES ROLAND DR 1=OUT 2=IN

File: D0811015.prn
City: #18
County: BREVARD

TIME	1 WEST	2 WEST	Total
01:00	25	15	40
02:00	8	2	10
03:00	9	7	16
04:00	2	3	5
05:00	11	6	17
06:00	27	6	33
07:00	45	17	62
08:00	92	37	129
09:00	63	33	96
10:00	106	76	182
11:00	113	120	233
12:00	260	193	453
13:00	174	116	290
14:00	144	101	245
15:00	283	253	536
16:00	591	535	1126
17:00	450	417	867
18:00	295	231	526
19:00	143	111	254
20:00	73	34	107
21:00	39	25	64
22:00	19	9	28
23:00	37	23	60
24:00	36	17	53
DAY TOTAL	3045	2387	5432
PERCENTS	56.1%	43.9%	100%
AM Times	11:15	11:15	
AM Peaks	260	193	
PM Times	15:45	15:30	
PM Peaks	639	592	

Ghyabi & Associates
VOLUME SUMMARY
TUE 08/09/2005

Site Reference: 6_0000000037
Site ID: 000000000055
Location: GEORGE KING BLVD E.OF DAVE NISBET DR

File: D0809006.prn
City: #6
County: BREVARD

TIME	1 EAST	2 WEST	Total
01:00	60	298	358
02:00	26	37	63
03:00	14	24	38
04:00	31	32	63
05:00	48	58	106
06:00	127	76	203
07:00	249	185	434
08:00	356	228	584
09:00	395	219	614
10:00	343	234	577
11:00	540	290	830
12:00	494	363	857
13:00	346	383	729
14:00	369	334	703
15:00	307	300	607
16:00	306	384	690
17:00	317	549	866
18:00	280	402	682
19:00	429	259	688
20:00	183	161	344
21:00	138	127	265
22:00	87	106	193
23:00	59	74	133
24:00	56	47	103
DAY TOTAL	5560	5170	10730
PERCENTS	51.9%	48.1%	100%
AM Times	10:15	11:00	
AM Peaks	540	363	
PM Times	18:15	16:30	
PM Peaks	429	558	

Ghyabi & Associates
VOLUME SUMMARY
WED 08/10/2005

Site Reference: GEORGE000037
Site ID: 000055010001
Location: GEORGE KING BLVD E.OF POMPANO ST

File: D0810015.prn
City: #19
County: BREVARD

TIME	1 EAST	2 WEST	Total
01:00	71	214	285
02:00	27	26	53
03:00	16	14	30
04:00	10	15	25
05:00	9	16	25
06:00	33	58	91
07:00	113	164	277
08:00	231	237	468
09:00	247	219	466
10:00	222	249	471
11:00	322	210	532
12:00	246	219	465
13:00	212	255	467
14:00	229	227	456
15:00	217	226	443
16:00	213	243	456
17:00	234	471	705
18:00	278	325	603
19:00	341	254	595
20:00	175	168	343
21:00	116	98	214
22:00	104	70	174
23:00	57	45	102
24:00	55	34	89
DAY TOTAL	3778	4057	7835
PERCENTS	48.3%	51.7%	100%
AM Times	10:00	09:30	
AM Peaks	324	261	
PM Times	18:15	16:30	
PM Peaks	341	497	

Ghyabi & Associates
VOLUME SUMMARY
THU 08/11/2005

Site Reference: GEORGE000037
Site ID: 000055010001
Location: GEORGE KING BLVD E.OF POMPANO ST

File: D0811006.prn
City: #19
County: BREVARD

TIME	1 EAST	2 WEST	Total
01:00	62	250	312
02:00	38	33	71
03:00	21	15	36
04:00	12	13	25
05:00	15	25	40
06:00	37	94	131
07:00	109	168	277
08:00	217	232	449
09:00	294	200	494
10:00	259	298	557
11:00	334	249	583
12:00	198	271	469
13:00	228	277	505
14:00	238	228	466
15:00	209	220	429
16:00	192	285	477
17:00	236	406	642
18:00	238	268	506
19:00	319	241	560
20:00	141	127	268
21:00	105	97	202
22:00	90	65	155
23:00	47	37	84
24:00	43	34	77
DAY TOTAL	3682	4133	7815
PERCENTS	47.2%	52.8%	100%
AM Times	10:00	09:15	
AM Peaks	351	298	
PM Times	18:15	16:00	
PM Peaks	319	436	

Ghyabi & Associates
VOLUME SUMMARY
TUE 08/09/2005

Site Reference: GEORGE000037
Site ID: 000055010001
Location: GEORGE KING BLVD E.OF POMPANO ST

File: D0809007.prn
City: #19
County: BREVARD

TIME	1 EAST	2 WEST	Total
01:00	81	218	299
02:00	26	30	56
03:00	5	18	23
04:00	14	19	33
05:00	15	22	37
06:00	39	67	106
07:00	115	170	285
08:00	165	187	352
09:00	216	194	410
10:00	213	187	400
11:00	332	243	575
12:00	272	231	503
13:00	238	280	518
14:00	215	234	449
15:00	191	216	407
16:00	211	253	464
17:00	268	413	681
18:00	252	291	543
19:00	342	224	566
20:00	141	139	280
21:00	114	79	193
22:00	100	47	147
23:00	59	46	105
24:00	46	30	76
DAY TOTAL	3670	3838	7508
PERCENTS	48.9%	51.1%	100%
AM Times	10:15	11:00	
AM Peaks	332	251	
PM Times	18:15	16:30	
PM Peaks	342	452	

Ghyabi & Associates
VOLUME SUMMARY
TUE 08/09/2005

Site Reference: 401CLASS0032
Site ID: 000056940005
Location: SR-401 E.OF CHARLES ROLAND DR 1=OUT 2=IN

File: D0809004.prn
City: #18
County: BREVARD

TIME	1 EAST	2 EAST	Total
01:00	25	23	48
02:00	18	20	38
03:00	24	22	46
04:00	46	19	65
05:00	58	50	108
06:00	299	171	470
07:00	820	301	1121
08:00	808	285	1093
09:00	365	186	551
10:00	165	120	285
11:00	137	71	208
12:00	171	54	225
13:00	272	133	405
14:00	193	113	306
15:00	111	86	197
16:00	78	32	110
17:00	33	11	44
18:00	60	11	71
19:00	29	10	39
20:00	14	7	21
21:00	10	12	22
22:00	21	39	60
23:00	12	10	22
24:00	6	6	12
DAY TOTAL	3775	1792	5567
PERCENTS	67.9%	32.1%	100%
AM Times	06:45	06:30	
AM Peaks	940	310	
PM Times	12:30	12:15	
PM Peaks	279	133	

Ghyabi & Associates
VOLUME SUMMARY
TUE 08/09/2005

Site Reference: 401CLASS0072
Site ID: 000072090004
Location: SR-401 E.OF CHARLES ROLAND DR 1=OUT 2=IN

File: D0809017.prn
City: #18
County: BREVARD

TIME	1 WEST	2 WEST	Total
01:00	10	5	15
02:00	9	2	11
03:00	6	3	9
04:00	14	9	23
05:00	12	4	16
06:00	47	13	60
07:00	72	43	115
08:00	85	54	139
09:00	91	46	137
10:00	121	65	186
11:00	136	85	221
12:00	213	210	423
13:00	188	168	356
14:00	125	143	268
15:00	251	202	453
16:00	575	488	1063
17:00	513	446	959
18:00	346	266	612
19:00	192	115	307
20:00	71	30	101
21:00	42	23	65
22:00	22	20	42
23:00	50	20	70
24:00	40	25	65
DAY TOTAL	3242	2485	5727
PERCENTS	56.7%	43.3%	100%
AM Times	11:15	11:15	
AM Peaks	213	210	
PM Times	15:45	15:45	
PM Peaks	632	553	

Ghyabi & Associates
VOLUME SUMMARY
WED 08/10/2005

Site Reference: 401CLASS0032
Site ID: 000056940005
Location: SR-401 E.OF CHARLES ROLAND DR 1=OUT 2=IN

File: D0810013.prn
City: #18
County: BREVARD

TIME	1 EAST	2 EAST	Total
01:00	21	12	33
02:00	16	13	29
03:00	21	17	38
04:00	33	21	54
05:00	55	59	114
06:00	269	154	423
07:00	854	291	1145
08:00	851	279	1130
09:00	337	170	507
10:00	193	110	303
11:00	148	70	218
12:00	134	64	198
13:00	229	127	356
14:00	192	146	338
15:00	123	69	192
16:00	85	21	106
17:00	47	6	53
18:00	50	6	56
19:00	23	17	40
20:00	21	23	44
21:00	24	19	43
22:00	38	54	92
23:00	29	7	36
24:00	19	15	34
DAY TOTAL	3812	1770	5582
PERCENTS	68.3%	31.7%	100%
AM Times	06:45	06:45	
AM Peaks	1000	303	
PM Times	12:30	13:15	
PM Peaks	238	146	

Ghyabi & Associates
VOLUME SUMMARY
WED 08/10/2005

Site Reference: 401CLASS0072
Site ID: 000072090004
Location: SR-401 E.OF CHARLES ROLAND DR 1=OUT 2=IN

File: D0810024.prn
City:
County: BREVARD

TIME	1 WEST	2 WEST	Total
01:00	18	5	23
02:00	7	4	11
03:00	6	4	10
04:00	7	5	12
05:00	14	6	20
06:00	23	12	35
07:00	58	34	92
08:00	79	43	122
09:00	80	47	127
10:00	100	55	155
11:00	124	100	224
12:00	249	199	448
13:00	195	166	361
14:00	186	127	313
15:00	282	234	516
16:00	578	490	1068
17:00	503	440	943
18:00	309	249	558
19:00	145	100	245
20:00	61	32	93
21:00	24	12	36
22:00	24	13	37
23:00	54	21	75
24:00	44	30	74
DAY TOTAL	3170	2428	5598
PERCENTS	56.7%	43.3%	100%
AM Times	11:15	11:15	
AM Peaks	249	199	
PM Times	15:45	15:30	
PM Peaks	623	562	

Ghyabi & Associates
VOLUME SUMMARY
THU 08/11/2005

Site Reference: 401CLASS0032
Site ID: 000056940005
Location: SR-401 E.OF CHARLES ROLAND DR 1-OUT 2=IN

File: D0811004.prn
City: #18
County: BREVARD

TIME	1 EAST	2 EAST	Total
01:00	27	30	57
02:00	43	19	62
03:00	35	23	58
04:00	41	25	66
05:00	84	65	149
06:00	279	176	455
07:00	729	313	1042
08:00	702	265	967
09:00	303	209	512
10:00	167	135	302
11:00	117	80	197
12:00	131	49	180
13:00	200	148	348
14:00	215	136	351
15:00	116	79	195
16:00	76	34	110
17:00	36	26	62
18:00	56	24	80
19:00	21	17	38
20:00	31	10	41
21:00	14	12	26
22:00	34	34	68
23:00	18	15	33
24:00	10	5	15
DAY TOTAL	3485	1929	5414
PERCENTS	64.4%	35.6%	100%
AM Times	06:45	06:45	
AM Peaks	817	336	
PM Times	12:45	12:30	
PM Peaks	249	155	

Appendix B

Existing Turning Movement Counts

15 MINUTE TURNING MOVEMENT COUNTS (AUTOS & TRUCKS)

DATE: August 24, 2005 **CITY:** CAPE CANAVERAL

LOCATION: SCALLOP DR & MULLET RD **COUNTY:** BREVARD

	SCALLOP DR											MULLET RD											
TIME	NORTHBOUND					SOUTHBOUND					N/S	EASTBOUND					WESTBOUND					E/W	GRAND
BEGIN	R	T	L	PEDS	TOT	R	T	L	PEDS	TOT	TOT	R	T	L	PEDS	TOT	R	T	L	PEDS	TOT	TOT	TOTAL
7:00	0	0	0	0	0	2	0	4	0	6	6	0	0	0	0	0	2	2	0	0	4	4	10
7:15	0	0	0	0	0	3	0	2	0	5	5	0	2	0	0	2	2	7	0	0	9	11	16
7:30	0	0	0	0	0	0	0	2	0	2	2	0	4	0	0	4	4	4	0	0	8	12	14
7:45	0	0	0	0	0	1	0	2	0	3	3	0	6	0	0	6	1	4	0	0	5	11	14
TOTAL	0	0	0	0	0	6	0	10	0	16	16	0	12	0	0	12	9	17	0	0	26	38	54
8:00	0	0	0	0	0	3	0	4	0	7	7	0	3	0	0	3	5	14	0	0	19	22	29
8:15	0	0	0	0	0	0	0	4	0	4	4	0	1	1	0	2	2	3	0	0	5	7	11
8:30	0	0	0	0	0	1	0	2	0	3	3	0	4	2	0	6	4	4	0	0	8	14	17
8:45	0	0	0	0	0	1	0	3	0	4	4	0	4	0	0	4	3	4	0	0	7	11	15
TOTAL	0	0	0	0	0	5	0	13	0	18	18	0	12	3	0	15	14	25	0	0	39	54	72
10:30	0	0	0	0	0	2	0	5	0	7	7	0	5	1	0	6	6	3	0	0	9	15	22
10:45	0	0	0	0	0	3	0	4	0	7	7	0	7	2	0	9	8	4	0	0	12	21	28
TOTAL	0	0	0	0	0	5	0	9	0	14	14	0	12	3	0	15	14	7	0	0	21	36	50
11:00	0	0	0	0	0	1	0	6	0	7	7	0	4	1	0	5	4	3	0	0	7	12	19
11:15	0	0	0	0	0	3	0	5	0	8	8	0	1	0	0	1	0	3	0	0	3	4	12
11:30	0	0	0	0	0	4	0	8	0	12	12	0	9	1	0	10	11	5	0	0	16	26	38
11:45	0	0	0	0	0	1	0	3	0	4	4	0	7	0	0	7	3	5	0	0	8	15	19
TOTAL	0	0	0	0	0	9	0	22	0	31	31	0	21	2	0	23	18	16	0	0	34	57	88
12:00	0	0	0	0	0	2	0	1	0	3	3	0	5	1	0	6	2	1	0	0	3	9	12
12:15	0	0	0	0	0	4	0	6	0	10	10	0	16	0	0	16	5	5	0	0	10	26	36
TOTAL	0	0	0	0	0	6	0	7	0	13	13	0	21	1	0	22	7	6	0	0	13	35	48
16:00	0	0	0	0	0	3	0	5	0	8	8	0	10	1	0	11	7	8	0	0	15	26	34
16:15	0	0	0	0	0	5	0	2	0	7	7	0	10	1	0	11	2	5	0	0	7	18	25
16:30	0	0	0	0	0	1	0	6	0	7	7	0	6	2	0	8	5	7	0	0	12	20	27
16:45	0	0	0	0	0	0	0	3	0	3	3	0	5	0	0	5	3	12	0	0	15	20	23
TOTAL	0	0	0	0	0	9	0	16	0	25	25	0	31	4	0	35	17	32	0	0	49	84	109
17:00	0	0	0	0	0	1	0	1	0	2	2	0	9	0	0	9	1	5	0	0	6	15	17
17:15	0	0	0	0	0	3	0	5	0	8	8	0	5	1	0	6	2	6	0	0	8	14	22
17:30	0	0	0	0	0	2	0	2	0	4	4	0	9	2	0	11	1	2	0	0	3	14	18
17:45	0	0	0	0	0	1	0	1	0	2	2	0	7	1	0	8	2	1	0	0	3	11	13
TOTAL	0	0	0	0	0	7	0	9	0	16	16	0	30	4	0	34	6	14	0	0	20	54	70

Am Peak 7:15 - 8:15	0	0	0	0	0	7	0	10	0	17	17	0	15	0	0	15	12	29	0	0	41	56	73
																						Peak Hour Factor:	**0.63**
Off Peak 11:30 - 12:30	0	0	0	0	0	11	0	18	0	29	29	0	37	2	0	39	21	16	0	0	37	76	105
																						Peak Hour Factor:	**0.69**
Pm Peak 4:00 - 5:00	0	0	0	0	0	9	0	16	0	25	25	0	31	4	0	35	17	32	0	0	49	84	109
																						Peak Hour Factor:	**0.80**

15 MINUTE TURNING MOVEMENT COUNTS (TRUCKS)

DATE: August 24, 2005 **CITY:** CAPE CANAVERAL

LOCATION: SCALLOP DR & MULLET RD **COUNTY:** BREVARD

SCALLOP DR **MULLET RD**

TIME	NORTHBOUND					SOUTHBOUND					N/S	EASTBOUND					WESTBOUND					E/W	GRAND
BEGIN	R	T	L	PEDS	TOT	R	T	L	PEDS	TOT	TOT	R	T	L	PEDS	TOT	R	T	L	PEDS	TOT	TOT	TOTAL
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00	0	0	0	0	0	0	0	2	0	2	2	0	0	0	0	0	0	0	0	0	0	0	2
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	2	0	2	2	0	0	0	0	0	0	0	0	0	0	0	2
10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30	0	0	0	0	0	1	0	1	0	2	2	0	1	0	0	1	0	0	0	0	0	1	3
11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1
TOTAL	0	0	0	0	0	1	0	1	0	2	2	0	1	0	0	1	0	1	0	0	1	2	4
12:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	2	2
12:15	0	0	0	0	0	0	0	1	0	1	1	0	1	0	0	1	0	0	0	0	0	1	2
TOTAL	0	0	0	0	0	0	0	1	0	1	1	0	2	0	0	2	0	1	0	0	1	3	4
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Am Peak 7:15 - 8:15	0	0	0	0	0	0	0	2	0	2	2	0	0	0	0	0	0	0	0	0	0	0	2
																					Peak Hour Factor:		0.25
Off Peak 11:30 - 12:30	0	0	0	0	0	1	0	2	0	3	3	0	3	0	0	3	0	2	0	0	2	5	8
																					Peak Hour Factor:		0.67
Pm Peak 4:00 - 5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1
																					Peak Hour Factor:		0.25

FLORIDA DEPARTMENT OF TRANSPORTATION

PEDESTRIAN MOVEMENT SUMMARY

SECTION 0

STATE ROUTE

OBSERVER VERSATILE TRAFFIC DATA

CITY CAPE CANAVERAL

COUNTY BREVARD

INTERSECTING ROUTE SCALLOP DR & MULLET RD

DATE 8/24/2005

REMARKS

FORM COMPLETED BY MM

DATE

SCALLOP DR

SB ST NAME

7-8	8-9	10:30-11:30	11:30-12:30	12-1	1-2	2-3	3-4	4-5	5-6	Total
2	2	2	0	0	0	0	0	0	0	**0**
5	0	0	0	0	0	0	0	0	0	**5**
7	**2**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**11**

7-8	0	0	**0**
8-9	0	0	**0**
10:30-11:30	0	0	**0**
11:30-12:30	0	0	**0**
12-1	0	0	**0**
1-2	0	0	**0**
2-3	0	0	**0**
3-4	0	0	**0**
4-5	0	0	**0**
5-6	0	0	**0**
Total	**0**	**0**	**0**

MULLET RD

EB ST NAME

MULLET RD

WB ST NAME

7-8	0	0	**0**
8-9	0	0	**0**
10:30-11:30	0	0	**0**
11:30-12:30	0	0	**0**
12-1	0	0	**0**
1-2	0	0	**0**
2-3	0	0	**0**
3-4	0	0	**0**
4-5	0	0	**0**
5-6	0	0	**0**
Total	**0**	**0**	**0**

7-8	8-9	10:30-11:30	11:30-12:30	12-1	1-2	2-3	3-4	4-5	5-6	Total
0	1	0	0	0	0	0	0	2	2	**5**
0	0	0	0	0	0	0	0	0	0	**0**
0	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**5**

SCALLOP DR

NB ST NAME

FLORIDA DEPARTMENT OF TRANSPORTATION

PEDESTRIAN MOVEMENT SUMMARY

SECTION 0 **CITY** CAPE CANAVERAL **COUNTY** BREVARD
STATE ROUTE **INTERSECTING ROUTE** DAVE NISBET DR & SCALLOP DRIVE
OBSERVER VERSATILE TRAFFIC DATA **DATE** 8/24/2005

REMARKS

FORM COMPLETED BY MM **DATE**

DAVE NISBET DRIVE

SB ST NAME

7-8	8-9	10:30-11:30	11:30-12:30	12-1	1-2	2-3	3-4	4-5	5-6	Total
0	0	0	0	0	0	0	0	1	0	**1**
0	0	0	2	0	0	0	0	1	0	**3**
0	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**0**	**4**

SCALLOP DRIVE

EB ST NAME

7-8	0	0	**0**
8-9	0	0	**0**
10:30-11:30	0	0	**0**
11:30-12:30	0	1	**1**
12-1	0	0	**0**
1-2	0	0	**0**
2-3	0	0	**0**
3-4	0	0	**0**
4-5	1	0	**1**
5-6	0	0	**0**
Total	**1**	**1**	**2**

SCALLOP DRIVE

WB ST NAME

7-8	0	0	**0**
8-9	0	0	**0**
10:30-11:30	0	0	**0**
11:30-12:30	0	0	**0**
12-1	0	0	**0**
1-2	0	0	**0**
2-3	0	0	**0**
3-4	0	0	**0**
4-5	0	1	**1**
5-6	0	1	**1**
Total	**0**	**2**	**2**

7-8	8-9	10:30-11:30	11:30-12:30	12-1	1-2	2-3	3-4	4-5	5-6	Total
0	0	0	0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	0	1	0	**1**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**

DAVE NISBET DRIVE

NB ST NAME

15 MINUTE TURNING MOVEMENT COUNTS (TRUCKS)

DATE: August 24, 2005

CITY: CAPE CANAVERAL

LOCATION: DAVE NISBET DRIVE & SCALLOP DRIVE

COUNTY: BREVARD

TIME	DAVE NISBET DRIVE NORTHBOUND					SOUTHBOUND					N/S	SCALLOP DRIVE EASTBOUND					WESTBOUND					E/W	GRAND
BEGIN	R	T	L	PEDS	TOT	R	T	L	PEDS	TOT	TOT	R	T	L	PEDS	TOT	R	T	L	PEDS	TOT	TOT	TOTAL
7:00	0	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
7:15	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	1	0	0	1	1	0	0	1	0	1	0	0	0	0	0	1	2
TOTAL	0	0	1	0	1	0	2	0	0	2	3	0	0	1	0	1	0	0	0	0	0	1	4
8:00	0	0	0	0	0	1	1	0	0	2	2	0	0	2	0	2	0	0	0	0	0	2	4
8:15	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1
8:30	0	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
8:45	0	0	0	0	0	0	1	0	0	1	1	1	0	0	0	1	0	0	0	0	0	1	2
TOTAL	0	0	1	0	1	1	3	0	0	4	5	1	0	2	0	3	0	0	0	0	0	3	8
10:30	0	0	0	0	0	0	1	1	0	2	2	0	0	0	0	0	0	0	0	0	0	0	2
10:45	0	0	0	0	0	0	1	2	0	3	3	1	0	0	0	1	0	0	2	0	2	3	6
TOTAL	0	0	0	0	0	0	2	3	0	5	5	1	0	0	0	1	0	0	2	0	2	3	8
11:00	1	1	2	0	4	0	0	0	0	0	4	0	0	0	0	0	1	0	0	0	1	1	5
11:15	0	0	1	0	1	0	0	0	0	0	1	1	0	0	0	1	0	0	0	0	0	1	2
11:30	0	1	1	0	2	1	0	0	0	1	3	0	0	0	0	0	0	0	3	0	3	3	6
11:45	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1
TOTAL	1	2	4	0	7	1	1	0	0	2	9	1	0	0	0	1	1	0	3	0	4	5	14
12:00	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	2	2
12:15	0	1	0	0	1	1	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	2
TOTAL	0	1	0	0	1	1	0	0	0	1	2	2	0	0	0	2	0	0	0	0	0	2	4
16:00	0	1	0	0	1	0	6	0	0	6	7	2	0	0	0	2	0	0	0	0	0	2	9
16:15	0	0	0	0	0	0	2	0	0	2	2	1	0	0	0	1	0	0	0	0	0	1	3
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	1	0	0	1	0	8	0	0	8	9	3	0	0	0	3	0	0	0	0	0	3	12
17:00	0	0	0	0	0	0	2	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	2
17:15	1	0	0	0	1	0	2	0	0	2	3	0	0	0	0	0	0	0	0	0	0	0	3
17:30	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	1	0	1	1	2
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	1	0	0	0	1	0	5	0	0	5	6	0	0	0	0	0	0	0	1	0	1	1	7

Am Peak 8:00 - 9:00	0	0	1	0	1	1	3	0	0	4	5	1	0	2	0	3	0	0	0	0	0	3	8
																					Peak Hour Factor:		0.50
Off Peak 11:30 - 12:30	0	2	1	0	3	2	1	0	0	3	6	2	0	0	0	2	0	0	3	0	3	5	11
																					Peak Hour Factor:		0.46
Pm Peak 4:00 - 5:00	0	1	0	0	1	0	8	0	0	8	9	3	0	0	0	3	0	0	0	0	0	3	12
																					Peak Hour Factor:		0.33

15 MINUTE TURNING MOVEMENT COUNTS (AUTOS & TRUCKS)

DATE: August 24, 2005 **CITY:** CAPE CANAVERAL

LOCATION: DAVE NISBET DRIVE & SCALLOP DRIVE **COUNTY:** BREVARD

DAVE NISBET DRIVE **SCALLOP DRIVE**

TIME	NORTHBOUND					SOUTHBOUND					N/S	EASTBOUND					WESTBOUND					E/W	GRAND
BEGIN	R	T	L	PEDS	TOT	R	T	L	PEDS	TOT	TOT	R	T	L	PEDS	TOT	R	T	L	PEDS	TOT	TOT	TOTAL
7:00	0	6	6	0	**12**	0	1	0	0	**1**	**13**	4	1	0	0	**5**	0	0	0	0	**0**	**5**	**18**
7:15	0	6	6	0	**12**	1	3	0	0	**4**	**16**	2	0	0	0	**2**	0	0	0	0	**0**	**2**	**18**
7:30	0	6	8	0	**14**	3	4	0	0	**7**	**21**	1	0	0	0	**1**	0	0	0	0	**0**	**1**	**22**
7:45	0	8	14	0	**22**	1	3	0	0	**4**	**26**	4	0	2	0	**6**	0	0	0	0	**0**	**6**	**32**
TOTAL	0	26	34	0	**60**	5	11	0	0	**16**	**76**	11	1	2	0	**14**	0	0	0	0	**0**	**14**	**90**
8:00	0	7	12	0	**19**	1	1	0	0	**2**	**21**	2	0	2	0	**4**	0	0	0	0	**0**	**4**	**25**
8:15	0	10	6	0	**16**	0	4	0	0	**4**	**20**	2	0	0	0	**2**	0	0	0	0	**0**	**2**	**22**
8:30	1	6	8	0	**15**	0	5	0	0	**5**	**20**	7	0	1	0	**8**	0	0	1	0	**1**	**9**	**29**
8:45	0	21	5	0	**26**	2	10	0	0	**12**	**38**	5	0	1	0	**6**	0	0	0	0	**0**	**6**	**44**
TOTAL	1	44	31	0	**76**	3	20	0	0	**23**	**99**	16	0	4	0	**20**	0	0	1	0	**1**	**21**	**120**
10:30	0	22	7	0	**29**	1	11	1	0	**13**	**42**	6	0	0	0	**6**	0	0	0	0	**0**	**6**	**48**
10:45	2	27	11	0	**40**	3	14	2	0	**19**	**59**	8	0	4	0	**12**	1	0	2	0	**3**	**15**	**74**
TOTAL	2	49	18	0	**69**	4	25	3	0	**32**	**101**	14	0	4	0	**18**	1	0	2	0	**3**	**21**	**122**
11:00	1	10	9	0	**20**	4	6	0	0	**10**	**30**	7	0	3	0	**10**	1	0	0	0	**1**	**11**	**41**
11:15	0	17	9	0	**26**	6	13	1	0	**20**	**46**	8	0	1	0	**9**	0	0	1	0	**1**	**10**	**56**
11:30	0	28	8	0	**36**	4	12	0	0	**16**	**52**	8	0	4	0	**12**	0	0	3	0	**3**	**15**	**67**
11:45	0	21	7	0	**28**	3	17	0	0	**20**	**48**	8	0	6	0	**14**	0	0	0	0	**0**	**14**	**62**
TOTAL	1	76	33	0	**110**	17	48	1	0	**66**	**176**	31	0	14	0	**45**	1	0	4	0	**5**	**50**	**226**
12:00	1	8	6	0	**15**	2	24	0	0	**26**	**41**	12	0	5	0	**17**	0	0	0	0	**0**	**17**	**58**
12:15	0	21	8	0	**29**	8	20	0	0	**28**	**57**	6	0	4	0	**10**	0	0	0	0	**0**	**10**	**67**
TOTAL	1	29	14	0	**44**	10	44	0	0	**54**	**98**	18	0	9	0	**27**	0	0	0	0	**0**	**27**	**125**
16:00	0	15	9	0	**24**	0	128	0	0	**128**	**152**	20	0	2	0	**22**	0	0	0	0	**0**	**22**	**174**
16:15	0	16	5	0	**21**	0	44	0	0	**44**	**65**	10	0	3	0	**13**	0	0	0	0	**0**	**13**	**78**
16:30	2	26	6	0	**34**	3	26	0	0	**29**	**63**	3	0	4	0	**7**	0	0	2	0	**2**	**9**	**72**
16:45	1	16	8	0	**25**	2	17	0	0	**19**	**44**	13	0	3	0	**16**	0	0	1	0	**1**	**17**	**61**
TOTAL	3	73	28	0	**104**	5	215	0	0	**220**	**324**	46	0	12	0	**58**	0	0	3	0	**3**	**61**	**385**
17:00	0	21	2	0	**23**	2	23	0	0	**25**	**48**	3	0	3	0	**6**	0	0	0	0	**0**	**6**	**54**
17:15	1	15	3	0	**19**	2	20	1	0	**23**	**42**	10	0	3	0	**13**	0	0	1	0	**1**	**14**	**56**
17:30	0	26	3	0	**29**	2	19	0	0	**21**	**50**	5	0	3	0	**8**	0	0	1	0	**1**	**9**	**59**
17:45	0	30	5	0	**35**	2	16	0	0	**18**	**53**	4	0	5	0	**9**	0	0	0	0	**0**	**9**	**62**
TOTAL	1	92	13	0	**106**	8	78	1	0	**87**	**193**	22	0	14	0	**36**	0	0	2	0	**2**	**38**	**231**

Am Peak 8:00 - 9:00	**1**	**44**	**31**	**0**	**76**	**3**	**20**	**0**	**0**	**23**	**99**	**16**	**0**	**4**	**0**	**20**	**0**	**0**	**1**	**0**	**1**	**21**	**120**
																					Peak Hour Factor:		**0.68**
Off Peak 11:30 - 12:30	**1**	**78**	**29**	**0**	**108**	**17**	**73**	**0**	**0**	**90**	**198**	**34**	**0**	**19**	**0**	**53**	**0**	**0**	**3**	**0**	**3**	**56**	**254**
																					Peak Hour Factor:		**0.95**
Pm Peak 4:00 - 5:00	**3**	**73**	**28**	**0**	**104**	**5**	**215**	**0**	**0**	**220**	**324**	**46**	**0**	**12**	**0**	**58**	**0**	**0**	**3**	**0**	**3**	**61**	**385**
																					Peak Hour Factor:		**0.55**

15 MINUTE TURNING MOVEMENT COUNTS (TRUCKS)

DATE: August 24, 2005 **CITY:** CAPE CANAVERAL

LOCATION: DAVE NISBET DRIVE & MULLET DRIVE **COUNTY:** BREVARD

TIME	DAVE NISBET DRIVE											MULLET DRIVE											
TIME	NORTHBOUND					SOUTHBOUND					N/S	EASTBOUND					WESTBOUND					E/W	GRAND
BEGIN	R	T	L	PEDS	TOT	R	T	L	PEDS	TOT	TOT	R	T	L	PEDS	TOT	R	T	L	PEDS	TOT	TOT	TOTAL
7:00	0	1	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
7:15	0	0	0	0	0	0	1	0	0	1	1	2	0	0	0	2	0	0	0	0	0	2	3
7:30	0	1	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
7:45	0	0	1	0	1	0	1	0	0	1	2	1	0	0	0	1	0	0	0	0	0	1	3
TOTAL	0	2	1	0	3	0	2	0	0	2	5	3	0	0	0	3	0	0	0	0	0	3	8
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	2	2
8:30	0	1	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
8:45	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1
TOTAL	0	1	0	0	1	0	1	0	0	1	2	2	0	0	0	2	0	0	0	0	0	2	4
10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1
TOTAL	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1
11:00	0	2	0	0	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
11:15	0	1	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
11:30	0	1	0	0	1	0	3	0	0	3	4	1	0	0	0	1	0	0	0	0	0	1	5
11:45	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	1
TOTAL	0	4	0	0	4	0	3	0	0	3	7	2	0	0	0	2	0	0	0	0	0	2	9
12:00	0	0	1	0	1	0	1	0	0	1	2	1	0	0	0	1	0	0	0	0	0	1	3
12:15	0	0	1	0	1	0	0	0	0	0	1	2	0	0	0	2	0	0	0	0	0	2	3
TOTAL	0	0	2	0	2	0	1	0	0	1	3	3	0	0	0	3	0	0	0	0	0	3	6
16:00	0	0	1	0	1	0	8	0	0	8	9	0	0	0	0	0	0	0	0	0	0	0	9
16:15	0	0	0	0	0	0	2	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	2
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	1	0	1	0	10	0	0	10	11	0	0	0	0	0	0	0	0	0	0	0	11
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1
17:30	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	2	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	2

Am Peak 8:00 - 9:00	0	1	0	0	1	0	1	0	0	1	2	2	0	0	0	2	0	0	0	0	0	2	4
																					Peak Hour Factor:		0.50
Off Peak 11:30 - 12:30	0	1	2	0	3	0	4	0	0	4	7	5	0	0	0	5	0	0	0	0	0	5	12
																					Peak Hour Factor:		0.60
Pm Peak 4:00 - 5:00	0	0	1	0	1	0	10	0	0	10	11	0	0	0	0	0	0	0	0	0	0	0	11
																					Peak Hour Factor:		0.31

FLORIDA DEPARTMENT OF TRANSPORTATION

PEDESTRIAN MOVEMENT SUMMARY

SECTION 0 **CITY** CAPE CANAVERAL **COUNTY** BREVARD
STATE ROUTE **INTERSECTING ROUTE** DAVE NISBET DRIVE & MULLET DRIVE
OBSERVER VERSATILE TRAFFIC DATA **DATE** 8/24/2005

REMARKS

FORM COMPLETED BY MM **DATE**

DAVE NISBET DRIVE

SB ST NAME

7-8	8-9	10:30-11:30	11:30-12:30	12-1	1-2	2-3	3-4	4-5	5-6	Total
0	0	0	0	0	0	0	0	0	0	**0**
0	1	0	0	0	0	0	0	0	0	**1**
0	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**

MULLET DRIVE

EB ST NAME

7-8	0	0	**0**
8-9	0	0	**0**
10:30-11:30	0	0	**0**
11:30-12:30	0	0	**0**
12-1	0	0	**0**
1-2	0	0	**0**
2-3	0	0	**0**
3-4	0	0	**0**
4-5	1	0	**1**
5-6	0	0	**0**
Total	**1**	**0**	**1**

MULLET DRIVE

WB ST NAME

7-8	0	0	**0**
8-9	0	0	**0**
10:30-11:30	0	0	**0**
11:30-12:30	0	0	**0**
12-1	0	0	**0**
1-2	0	0	**0**
2-3	0	0	**0**
3-4	0	0	**0**
4-5	0	2	**2**
5-6	0	0	**0**
Total	**0**	**2**	**2**

7-8	8-9	10:30-11:30	11:30-12:30	12-1	1-2	2-3	3-4	4-5	5-6	Total
0	0	0	0	0	0	0	0	0	0	**0**
0	0	0	1	0	0	0	0	0	0	**1**
0	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**

DAVE NISBET DRIVE

NB ST NAME

15 MINUTE TURNING MOVEMENT COUNTS (AUTOS & TRUCKS)

DATE: August 24, 2005 **CITY:** CAPE CANAVERAL

LOCATION: DAVE NISBET DRIVE & MULLET DRIVE **COUNTY:** BREVARD

DAVE NISBET DRIVE **MULLET DRIVE**

TIME	NORTHBOUND					SOUTHBOUND					N/S	EASTBOUND					WESTBOUND					E/W	GRAND
BEGIN	R	T	L	PEDS	TOT	R	T	L	PEDS	TOT	TOT	R	T	L	PEDS	TOT	R	T	L	PEDS	TOT	TOT	TOTAL
7:00	0	12	15	0	**27**	0	6	0	0	**6**	**33**	9	0	0	0	**9**	0	0	0	0	**0**	**9**	**42**
7:15	0	12	18	0	**30**	0	4	0	0	**4**	**34**	6	0	0	0	**6**	0	0	0	0	**0**	**6**	**40**
7:30	0	14	25	0	**39**	1	6	0	0	**7**	**46**	5	0	0	0	**5**	0	0	0	0	**0**	**5**	**51**
7:45	0	23	26	0	**49**	0	9	0	0	**9**	**58**	10	0	1	0	**11**	0	0	0	0	**0**	**11**	**69**
TOTAL	0	61	84	0	**145**	1	25	0	0	**26**	**171**	30	0	1	0	**31**	0	0	0	0	**0**	**31**	**202**
8:00	0	19	23	0	**42**	0	13	0	0	**13**	**55**	14	0	1	0	**15**	0	0	0	0	**0**	**15**	**70**
8:15	0	17	26	0	**43**	1	4	0	0	**5**	**48**	11	0	0	0	**11**	0	0	0	0	**0**	**11**	**59**
8:30	0	13	23	0	**36**	1	11	0	0	**12**	**48**	13	0	1	0	**14**	0	0	0	0	**0**	**14**	**62**
8:45	0	25	15	0	**40**	1	12	0	0	**13**	**53**	15	0	2	0	**17**	0	0	0	0	**0**	**17**	**70**
TOTAL	0	74	87	0	**161**	3	40	0	0	**43**	**204**	53	0	4	0	**57**	0	0	0	0	**0**	**57**	**261**
10:30	0	20	15	0	**35**	1	17	0	0	**18**	**53**	17	0	3	0	**20**	0	0	0	0	**0**	**20**	**73**
10:45	0	42	19	0	**61**	3	20	0	0	**23**	**84**	16	0	4	0	**20**	0	0	0	0	**0**	**20**	**104**
TOTAL	0	62	34	0	**96**	4	37	0	0	**41**	**137**	33	0	7	0	**40**	0	0	0	0	**0**	**40**	**177**
11:00	0	19	22	0	**41**	2	14	0	0	**16**	**57**	15	0	1	0	**16**	0	0	0	0	**0**	**16**	**73**
11:15	0	21	25	0	**46**	3	16	0	0	**19**	**65**	31	0	4	0	**35**	0	0	0	0	**0**	**35**	**100**
11:30	0	32	21	0	**53**	2	20	0	0	**22**	**75**	30	0	7	0	**37**	0	0	0	0	**0**	**37**	**112**
11:45	0	26	19	0	**45**	5	24	0	0	**29**	**74**	29	0	2	0	**31**	0	0	0	0	**0**	**31**	**105**
TOTAL	0	98	87	0	**185**	12	74	0	0	**86**	**271**	105	0	14	0	**119**	0	0	0	0	**0**	**119**	**390**
12:00	0	15	29	0	**44**	2	35	0	0	**37**	**81**	29	0	1	0	**30**	0	0	0	0	**0**	**30**	**111**
12:15	0	28	27	0	**55**	3	21	0	0	**24**	**79**	21	0	1	0	**22**	0	0	0	0	**0**	**22**	**101**
TOTAL	0	43	56	0	**99**	5	56	0	0	**61**	**160**	50	0	2	0	**52**	0	0	0	0	**0**	**52**	**212**
16:00	0	23	21	0	**44**	2	144	0	0	**146**	**190**	27	0	2	0	**29**	0	0	0	0	**0**	**29**	**219**
16:15	0	21	15	0	**36**	3	58	0	0	**61**	**97**	26	0	2	0	**28**	0	0	0	0	**0**	**28**	**125**
16:30	0	31	22	0	**53**	1	28	0	0	**29**	**82**	28	0	4	0	**32**	0	0	0	0	**0**	**32**	**114**
16:45	0	28	17	0	**45**	5	29	0	0	**34**	**79**	21	0	1	0	**22**	0	0	0	0	**0**	**22**	**101**
TOTAL	0	103	75	0	**178**	11	259	0	0	**270**	**448**	102	0	9	0	**111**	0	0	0	0	**0**	**111**	**559**
17:00	0	25	9	0	**34**	4	24	0	0	**28**	**62**	22	0	1	0	**23**	0	0	0	0	**0**	**23**	**85**
17:15	0	24	11	0	**35**	1	31	0	0	**32**	**67**	28	0	0	0	**28**	0	0	0	0	**0**	**28**	**95**
17:30	0	32	5	0	**37**	0	19	0	0	**19**	**56**	21	0	0	0	**21**	0	0	0	0	**0**	**21**	**77**
17:45	0	36	5	0	**41**	0	22	0	0	**22**	**63**	14	0	1	0	**15**	0	0	0	0	**0**	**15**	**78**
TOTAL	0	117	30	0	**147**	5	96	0	0	**101**	**248**	85	0	2	0	**87**	0	0	0	0	**0**	**87**	**335**

Am Peak 8:00 - 9:00	**0**	**74**	**87**	**0**	**161**	**3**	**40**	**0**	**0**	**43**	**204**	**53**	**0**	**4**	**0**	**57**	**0**	**0**	**0**	**0**	**0**	**57**	**261**
																					Peak Hour Factor:		**0.93**
Off Peak 11:30 - 12:30	**0**	**101**	**96**	**0**	**197**	**12**	**100**	**0**	**0**	**112**	**309**	**109**	**0**	**11**	**0**	**120**	**0**	**0**	**0**	**0**	**0**	**120**	**429**
																					Peak Hour Factor:		**0.96**
Pm Peak 4:00 - 5:00	**0**	**103**	**75**	**0**	**178**	**11**	**259**	**0**	**0**	**270**	**448**	**102**	**0**	**9**	**0**	**111**	**0**	**0**	**0**	**0**	**0**	**111**	**559**
																					Peak Hour Factor:		**0.64**

FLORIDA DEPARTMENT OF TRANSPORTATION

PEDESTRIAN MOVEMENT SUMMARY

SECTION 0
CITY CAPE CANAVERAL **COUNTY** BREVARD
STATE ROUTE
INTERSECTING ROUTE GEORGE KING BLVD & FLOUNDER ST/COLUMBIA RD
OBSERVER VERSATILE TRAFFIC DATA
DATE 8/25/2005

REMARKS

FORM COMPLETED BY MM **DATE**

FLOUNDER STREET

SB ST NAME

7-8	8-9	10:30-11:30	11:30-12:30	12-1	1-2	2-3	3-4	4-5	5-6	Total
2	0	0	2	0	0	0	0	3	0	**5**
0	0	0	0	0	0	0	0	2	2	**4**
2	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**5**	**2**	**11**

GEORGE KING BLVD

EB ST NAME

7-8	0	0	**0**
8-9	0	0	**0**
10:30-11:30	0	0	**0**
11:30-12:30	0	0	**0**
12-1	0	0	**0**
1-2	0	0	**0**
2-3	0	0	**0**
3-4	0	0	**0**
4-5	0	0	**0**
5-6	0	0	**0**
Total	**0**	**0**	**0**

GEORGE KING BLVD

WB ST NAME

7-8	0	0	**0**
8-9	0	0	**0**
10:30-11:30	0	0	**0**
11:30-12:30	0	0	**0**
12-1	0	0	**0**
1-2	0	0	**0**
2-3	0	0	**0**
3-4	0	0	**0**
4-5	0	2	**2**
5-6	1	0	**1**
Total	**1**	**2**	**3**

7-8	8-9	10:30-11:30	11:30-12:30	12-1	1-2	2-3	3-4	4-5	5-6	Total
0	0	0	0	0	0	0	0	1	0	**1**
0	0	0	0	0	0	0	0	0	0	**0**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**

COLUMBIA ROAD

NB ST NAME

15 MINUTE TURNING MOVEMENT COUNTS (TRUCKS)

DATE: August 25, 2005 **CITY:** CAPE CANAVERAL

LOCATION: GEORGE KING BLVD & FLOUNDER ST/COLUMBIA RD **COUNTY:** BREVARD

FLOUNDER ST/COLUMBIA RD **GEORGE KING BLVD**

TIME	NORTHBOUND					SOUTHBOUND					N/S	EASTBOUND					WESTBOUND					E/W	GRAND
BEGIN	R	T	L	PEDS	TOT	R	T	L	PEDS	TOT	TOT	R	T	L	PEDS	TOT	R	T	L	PEDS	TOT	TOT	TOTAL
7:00	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	10	0	7	0	0	7	17	17
7:15	0	0	0	0	0	0	0	0	0	0	0	0	11	0	0	11	0	4	0	0	4	15	15
7:30	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	0	11	1	0	12	16	16
7:45	0	0	1	0	1	0	0	0	0	0	1	0	14	1	0	15	0	13	0	0	13	28	29
TOTAL	0	0	1	0	1	0	0	0	0	0	1	0	39	1	0	40	0	35	1	0	36	76	77
8:00	0	0	0	0	0	1	0	0	0	1	1	0	12	0	0	12	0	7	0	0	7	19	20
8:15	0	0	0	0	0	0	0	0	0	0	0	1	7	1	0	9	0	8	0	0	8	17	17
8:30	1	0	0	0	1	0	0	0	0	0	1	0	10	1	0	11	0	14	0	0	14	25	26
8:45	0	0	0	0	0	1	0	0	0	1	1	0	19	1	0	20	0	11	0	0	11	31	32
TOTAL	1	0	0	0	1	2	0	0	0	2	3	1	48	3	0	52	0	40	0	0	40	92	95
10:30	0	0	1	0	1	0	0	0	0	0	1	0	10	0	0	10	1	9	0	0	10	20	21
10:45	0	0	2	0	2	0	0	2	0	2	4	0	10	2	0	12	0	12	0	0	12	24	28
TOTAL	0	0	3	0	3	0	0	2	0	2	5	0	20	2	0	22	1	21	0	0	22	44	49
11:00	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	10	0	9	0	0	9	19	19
11:15	0	1	0	0	1	0	0	1	0	1	2	0	8	0	0	8	0	6	0	0	6	14	16
11:30	0	0	0	0	0	0	1	0	0	1	1	0	14	0	0	14	0	11	0	0	11	25	26
11:45	0	0	0	0	0	0	0	0	0	0	0	0	14	0	0	14	0	8	0	0	8	22	22
TOTAL	0	1	0	0	1	0	1	1	0	2	3	0	46	0	0	46	0	34	0	0	34	80	83
12:00	0	0	0	0	0	0	0	0	0	0	0	0	8	2	0	10	0	17	0	0	17	27	27
12:15	0	0	0	0	0	0	0	0	0	0	0	1	11	0	0	12	0	13	0	0	13	25	25
TOTAL	0	0	0	0	0	0	0	0	0	0	0	1	19	2	0	22	0	30	0	0	30	52	52
16:00	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	2	0	0	2	4	4
16:15	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	2	0	0	2	4	4
16:30	0	0	0	0	0	0	0	1	0	1	1	1	2	0	0	3	0	4	0	0	4	7	8
16:45	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	7	0	0	7	9	9
TOTAL	0	0	0	0	0	0	0	1	0	1	1	1	7	1	0	9	0	15	0	0	15	24	25
17:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	3	0	0	3	4	4
17:15	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	4	0	0	4	7	7
17:30	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	2	0	0	2	4	4
17:45	0	0	1	0	1	0	0	1	0	1	2	0	2	0	0	2	0	2	0	0	2	4	6
TOTAL	0	0	1	0	1	0	0	1	0	1	2	1	7	0	0	8	0	11	0	0	11	19	21

Am Peak 7:30 - 8:30	0	0	1	0	1	1	0	0	0	1	2	1	37	2	0	40	0	39	1	0	40	80	82
																					Peak Hour Factor:		1.03
Off Peak 11:30 - 12:30	0	0	0	0	0	0	1	0	0	1	1	1	47	2	0	50	0	49	0	0	49	99	100
																					Peak Hour Factor:		0.93
Pm Peak 4:45 - 5:45	0	0	0	0	0	0	0	0	0	0	0	1	7	0	0	8	0	16	0	0	16	24	24
																					Peak Hour Factor:		0.67

15 MINUTE TURNING MOVEMENT COUNTS (AUTOS & TRUCKS)

DATE: August 25, 2005 **CITY:** CAPE CANAVERAL

LOCATION: GEORGE KING BLVD & FLOUNDER ST/COLUMBIA RD **COUNTY:** BREVARD

FLOUNDER ST/COLUMBIA RD **GEORGE KING BLVD**

TIME	NORTHBOUND					SOUTHBOUND					N/S	EASTBOUND					WESTBOUND					E/W	GRAND
BEGIN	R	T	L	PEDS	TOT	R	T	L	PEDS	TOT	TOT	R	T	L	PEDS	TOT	R	T	L	PEDS	TOT	TOT	TOTAL
7:00	1	0	0	0	1	2	0	2	0	4	5	6	59	2	0	67	3	63	1	0	67	134	139
7:15	0	1	2	0	3	1	0	1	0	2	5	3	69	3	0	75	6	69	1	0	76	151	156
7:30	0	0	1	0	1	2	0	1	0	3	4	6	75	3	0	84	4	72	3	0	79	163	167
7:45	1	0	3	0	4	0	0	0	0	0	4	14	95	8	0	117	5	53	1	0	59	176	180
TOTAL	2	1	6	0	9	5	0	4	0	9	18	29	298	16	0	343	18	257	6	0	281	624	642
8:00	1	1	2	0	4	7	0	3	0	10	14	7	97	4	0	108	5	50	2	0	57	165	179
8:15	0	1	1	0	2	3	1	3	0	7	9	6	81	5	0	92	5	62	2	0	69	161	170
8:30	2	0	1	0	3	1	0	3	0	4	7	5	62	6	0	73	3	61	0	0	64	137	144
8:45	1	0	1	0	2	5	0	2	0	7	9	1	66	8	0	75	5	52	0	0	57	132	141
TOTAL	4	2	5	0	11	16	1	11	0	28	39	19	306	23	0	348	18	225	4	0	247	595	634
10:30	1	1	2	0	4	3	0	6	0	9	13	6	74	12	0	92	13	45	0	0	58	150	163
10:45	0	0	5	0	5	6	1	8	0	15	20	8	69	17	0	94	7	43	0	0	50	144	164
TOTAL	1	1	7	0	9	9	1	14	0	24	33	14	143	29	0	186	20	88	0	0	108	294	327
11:00	2	0	6	0	8	4	0	7	0	11	19	4	61	21	0	86	9	53	0	0	62	148	167
11:15	1	1	3	0	5	11	0	9	0	20	25	10	66	19	0	95	13	41	0	0	54	149	174
11:30	2	0	5	0	7	10	1	6	0	17	24	5	73	20	0	98	10	57	0	0	67	165	189
11:45	1	0	6	0	7	8	2	10	0	20	27	6	74	20	0	100	5	49	0	0	54	154	181
TOTAL	6	1	20	0	27	33	3	32	0	68	95	25	274	80	0	379	37	200	0	0	237	616	711
12:00	1	2	16	0	19	20	1	12	0	33	52	4	77	27	0	108	13	85	1	0	99	207	259
12:15	0	0	9	0	9	5	1	9	0	15	24	7	62	13	0	82	10	66	0	0	76	158	182
TOTAL	1	2	25	0	28	25	2	21	0	48	76	11	139	40	0	190	23	151	1	0	175	365	441
16:00	1	0	2	0	3	9	0	8	0	17	20	2	52	9	0	63	9	35	0	0	44	107	127
16:15	0	0	0	0	0	11	1	9	0	21	21	0	49	9	0	58	6	33	0	0	39	97	118
16:30	3	0	5	0	8	12	0	8	0	20	28	5	54	8	0	67	9	53	0	0	62	129	157
16:45	0	0	4	0	4	15	0	9	0	24	28	1	48	11	0	60	7	57	0	0	64	124	152
TOTAL	4	0	11	0	15	47	1	34	0	82	97	8	203	37	0	248	31	178	0	0	209	457	554
17:00	1	0	9	0	10	8	0	13	0	21	31	2	53	10	0	65	10	98	0	0	108	173	204
17:15	1	0	2	0	3	21	0	11	0	32	35	4	66	20	0	90	15	71	1	0	87	177	212
17:30	0	0	6	0	6	8	0	10	0	18	24	4	58	18	0	80	18	62	2	0	82	162	186
17:45	1	0	5	0	6	14	0	6	0	20	26	1	49	12	0	62	23	28	0	0	51	113	139
TOTAL	3	0	22	0	25	51	0	40	0	91	116	11	226	60	0	297	66	259	3	0	328	625	741
Am Peak 7:30 - 8:30	2	2	7	0	11	12	1	7	0	20	31	33	348	20	0	401	19	237	8	0	264	665	696
																					Peak Hour Factor:		0.97
Off Peak 11:30 - 12:30	4	2	36	0	42	43	5	37	0	85	127	22	286	80	0	388	38	257	1	0	296	684	811
																					Peak Hour Factor:		0.78
Pm Peak 4:45 - 5:45	2	0	21	0	23	52	0	43	0	95	118	11	225	59	0	295	50	288	3	0	341	636	754
																					Peak Hour Factor:		0.89

FLORIDA DEPARTMENT OF TRANSPORTATION

PEDESTRIAN MOVEMENT SUMMARY

SECTION 0
CITY CAPE CANAVERAL
COUNTY BREVARD
STATE ROUTE
INTERSECTING ROUTE GEORGE KING BLVD & MARLIN STREET
OBSERVER VERSATILE TRAFFIC DATA
DATE 8/24/2005

REMARKS

FORM COMPLETED BY MM **DATE**

MARLIN STREET

SB ST NAME

7-8	8-9	10:30-11:30	11:30-12:30	12-1	1-2	2-3	3-4	4-5	5-6	Total
3	1	2	1	0	0	0	0	0	0	1
0	0	0	0	0	0	0	0	0	0	0
3	**1**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**7**

GEORGE KING BLVD

EB ST NAME

7-8	0	0	**0**
8-9	0	0	**0**
10:30-11:30	1	0	**1**
11:30-12:30	0	0	**0**
12-1	0	0	**0**
1-2	0	0	**0**
2-3	0	0	**0**
3-4	0	0	**0**
4-5	0	0	**0**
5-6	0	0	**0**
Total	**0**	**0**	**0**

GEORGE KING BLVD

WB ST NAME

7-8	0	0	**0**
8-9	2	0	**2**
10:30-11:30	0	0	**0**
11:30-12:30	0	0	**0**
12-1	0	0	**0**
1-2	0	0	**0**
2-3	0	0	**0**
3-4	0	0	**0**
4-5	0	0	**0**
5-6	0	0	**0**
Total	**2**	**0**	**2**

7-8	8-9	10:30-11:30	11:30-12:30	12-1	1-2	2-3	3-4	4-5	5-6	Total
1	3	1	1	0	0	0	0	0	0	6
0	0	0	0	0	0	0	0	0	0	0
1	**3**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**6**

MARLIN STREET

NB ST NAME

15 MINUTE TURNING MOVEMENT COUNTS (TRUCKS)

DATE: August 24, 2005 **CITY:** CAPE CANAVERAL

LOCATION: GEORGE KING BLVD & MARLIN STREET **COUNTY:** BREVARD

TIME	MARLIN STREET NORTHBOUND					SOUTHBOUND					N/S	GEORGE KING BLVD EASTBOUND					WESTBOUND					E/W	GRAND
BEGIN	R	T	L	PEDS	TOT	R	T	L	PEDS	TOT	TOT	R	T	L	PEDS	TOT	R	T	L	PEDS	TOT	TOT	TOTAL
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1
7:15	2	0	0	0	2	4	0	0	0	4	6	0	4	0	0	4	0	3	0	0	3	7	13
7:30	0	0	0	0	0	2	0	0	0	2	2	0	6	0	0	6	0	2	0	0	2	8	10
7:45	0	0	1	0	1	2	0	0	0	2	3	0	3	0	0	3	0	3	0	0	3	6	9
TOTAL	2	0	1	0	3	8	0	0	0	8	11	0	13	0	0	13	0	9	0	0	9	22	33
8:00	0	0	0	0	0	3	0	0	0	3	3	1	5	0	0	6	0	2	0	0	2	8	11
8:15	0	0	2	0	2	3	0	0	0	3	5	1	0	0	0	1	0	4	0	0	4	5	10
8:30	0	0	1	0	1	0	0	0	0	0	1	2	4	0	0	6	0	2	0	0	2	8	9
8:45	1	0	2	0	3	2	0	0	0	2	5	2	3	0	0	5	0	6	0	0	6	11	16
TOTAL	1	0	5	0	6	8	0	0	0	8	14	6	12	0	0	18	0	14	0	0	14	32	46
10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45	0	0	2	0	2	4	0	0	0	4	6	2	3	0	0	5	1	2	0	0	3	8	14
TOTAL	0	0	2	0	2	4	0	0	0	4	6	2	3	0	0	5	1	2	0	0	3	8	14
11:00	0	0	0	0	0	4	0	0	0	4	4	1	1	0	0	2	1	2	0	0	3	5	9
11:15	0	0	0	0	0	1	0	1	0	2	2	0	5	0	0	5	1	5	0	0	6	11	13
11:30	0	0	1	0	1	5	0	1	0	6	7	0	6	0	0	6	1	2	0	0	3	9	16
11:45	0	0	0	0	0	3	0	0	0	3	3	0	5	0	0	5	1	5	0	0	6	11	14
TOTAL	0	0	1	0	1	13	0	2	0	15	16	1	17	0	0	18	4	14	0	0	18	36	52
12:00	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	2	0	0	2	4	4
12:15	0	0	0	0	0	4	0	0	0	4	4	0	5	0	0	5	0	3	0	0	3	8	12
TOTAL	0	0	0	0	0	4	0	0	0	4	4	0	7	0	0	7	0	5	0	0	5	12	16
16:00	0	0	0	0	0	1	0	0	0	1	1	0	1	0	0	1	0	2	0	0	2	3	4
16:15	0	0	0	0	0	2	0	0	0	2	2	0	1	0	0	1	0	1	0	0	1	2	4
16:30	0	0	0	0	0	2	0	0	0	2	2	0	1	0	0	1	0	1	0	0	1	2	4
16:45	0	1	0	0	1	4	0	0	0	4	5	1	0	0	0	1	0	4	0	0	4	5	10
TOTAL	0	1	0	0	1	9	0	0	0	9	10	1	3	0	0	4	0	8	0	0	8	12	22
17:00	1	0	1	0	2	1	0	0	0	1	3	0	1	0	0	1	0	3	0	0	3	4	7
17:15	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	2	0	0	2	4	4
17:30	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	3	0	3	0	0	3	6	6
17:45	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	1	0	0	1	4	4
TOTAL	1	0	1	0	2	1	0	0	0	1	3	2	7	0	0	9	0	9	0	0	9	18	21
Am Peak 7:15 - 8:15	2	0	1	0	3	11	0	0	0	11	14	1	18	0	0	19	0	10	0	0	10	29	43
																					Peak Hour Factor:		0.83
Off Peak 11:30 - 12:30	0	0	1	0	1	12	0	1	0	13	14	0	18	0	0	18	2	12	0	0	14	32	46
																					Peak Hour Factor:		0.72
Pm Peak 4:45 - 5:45	1	1	1	0	3	5	0	0	0	5	8	3	4	0	0	7	0	12	0	0	12	19	27
																					Peak Hour Factor:		0.68

15 MINUTE TURNING MOVEMENT COUNTS (AUTOS & TRUCKS)

DATE: August 24, 2005 **CITY:** CAPE CANAVERAL

LOCATION: GEORGE KING BLVD & MARLIN STREET **COUNTY:** BREVARD

	MARLIN STREET											GEORGE KING BLVD										
TIME	NORTHBOUND					SOUTHBOUND					N/S	EASTBOUND					WESTBOUND					E/W	GRAND
BEGIN	R	T	L	PEDS	TOT	R	T	L	PEDS	TOT	TOT	R	T	L	PEDS	TOT	R	T	L	PEDS	TOT	TOT	TOTAL
7:00	0	0	0	0	**0**	6	2	2	0	**10**	**10**	3	39	8	0	**50**	7	35	2	0	**44**	**94**	**104**
7:15	9	2	0	0	**11**	12	0	0	0	**12**	**23**	1	44	23	0	**68**	2	52	7	0	**61**	**129**	**152**
7:30	0	0	0	0	**0**	4	1	0	0	**5**	**5**	5	58	15	0	**78**	3	54	1	0	**58**	**136**	**141**
7:45	0	1	1	0	**2**	3	1	0	0	**4**	**6**	1	83	27	0	**111**	2	37	0	0	**39**	**150**	**156**
TOTAL	9	3	1	0	**13**	25	4	2	0	**31**	**44**	10	224	73	0	**307**	14	178	10	0	**202**	**509**	**553**
8:00	1	1	0	0	**2**	5	1	0	0	**6**	**8**	1	73	26	0	**100**	4	58	3	0	**65**	**165**	**173**
8:15	0	1	3	0	**4**	5	1	3	0	**9**	**13**	3	52	20	0	**75**	4	38	0	0	**42**	**117**	**130**
8:30	6	0	2	0	**8**	9	0	1	0	**10**	**18**	3	60	19	0	**82**	1	50	6	0	**57**	**139**	**157**
8:45	4	0	3	0	**7**	2	1	0	0	**3**	**10**	7	48	24	0	**79**	5	56	0	0	**61**	**140**	**150**
TOTAL	11	2	8	0	**21**	21	3	4	0	**28**	**49**	14	233	89	0	**336**	14	202	9	0	**225**	**561**	**610**
10:30	1	2	1	0	**4**	2	0	3	0	**5**	**9**	0	44	5	0	**49**	2	49	0	0	**51**	**100**	**109**
10:45	0	1	2	0	**3**	6	0	1	0	**7**	**10**	3	50	24	0	**77**	5	47	0	0	**52**	**129**	**139**
TOTAL	1	3	3	0	**7**	8	0	4	0	**12**	**19**	3	94	29	0	**126**	7	96	0	0	**103**	**229**	**248**
11:00	2	1	0	0	**3**	6	2	2	0	**10**	**13**	2	49	13	0	**64**	4	44	0	0	**48**	**112**	**125**
11:15	1	0	5	0	**6**	5	0	3	0	**8**	**14**	1	52	4	0	**57**	1	37	0	0	**38**	**95**	**109**
11:30	0	0	1	0	**1**	6	0	1	0	**7**	**8**	1	62	7	0	**70**	3	44	0	0	**47**	**117**	**125**
11:45	0	1	1	0	**2**	5	0	6	0	**11**	**13**	2	55	4	0	**61**	5	65	1	0	**71**	**132**	**145**
TOTAL	3	2	7	0	**12**	22	2	12	0	**36**	**48**	6	218	28	0	**252**	13	190	1	0	**204**	**456**	**504**
12:00	0	0	0	0	**0**	0	0	0	0	**0**	**0**	0	49	4	0	**53**	2	67	0	0	**69**	**122**	**122**
12:15	0	0	3	0	**3**	7	0	4	0	**11**	**14**	1	44	4	0	**49**	3	70	0	0	**73**	**122**	**136**
TOTAL	0	0	3	0	**3**	7	0	4	0	**11**	**14**	1	93	8	0	**102**	5	137	0	0	**142**	**244**	**258**
16:00	0	0	1	0	**1**	5	0	2	0	**7**	**8**	1	38	1	0	**40**	1	45	0	0	**46**	**86**	**94**
16:15	0	0	3	0	**3**	7	0	1	0	**8**	**11**	1	46	0	0	**47**	1	48	0	0	**49**	**96**	**107**
16:30	0	0	3	0	**3**	4	0	1	0	**5**	**8**	1	44	2	0	**47**	0	47	0	0	**47**	**94**	**102**
16:45	1	1	3	0	**5**	9	1	1	0	**11**	**16**	3	49	1	0	**53**	1	49	0	0	**50**	**103**	**119**
TOTAL	1	1	10	0	**12**	25	1	5	0	**31**	**43**	6	177	4	0	**187**	3	189	0	0	**192**	**379**	**422**
17:00	2	0	2	0	**4**	10	0	2	0	**12**	**16**	0	46	1	0	**47**	1	94	0	0	**95**	**142**	**158**
17:15	0	0	1	0	**1**	8	0	0	0	**8**	**9**	1	60	3	0	**64**	0	67	0	0	**67**	**131**	**140**
17:30	1	0	1	0	**2**	4	0	0	0	**4**	**6**	1	53	0	0	**54**	1	70	0	0	**71**	**125**	**131**
17:45	0	0	3	0	**3**	3	0	3	0	**6**	**9**	0	41	0	0	**41**	2	38	0	0	**40**	**81**	**90**
TOTAL	3	0	7	0	**10**	25	0	5	0	**30**	**40**	2	200	4	0	**206**	4	269	0	0	**273**	**479**	**519**
Am Peak 7:15 - 8:15	**10**	**4**	**1**	**0**	**15**	**24**	**3**	**0**	**0**	**27**	**42**	**8**	**258**	**91**	**0**	**357**	**11**	**201**	**11**	**0**	**223**	**580**	**622**
																					Peak Hour Factor:		**0.90**
Off Peak 11:30 - 12:30	**0**	**1**	**5**	**0**	**6**	**18**	**0**	**11**	**0**	**29**	**35**	**4**	**210**	**19**	**0**	**233**	**13**	**246**	**1**	**0**	**260**	**493**	**528**
																					Peak Hour Factor:		**0.91**
Pm Peak 4:45 - 5:45	**4**	**1**	**7**	**0**	**12**	**31**	**1**	**3**	**0**	**35**	**47**	**5**	**208**	**5**	**0**	**218**	**3**	**280**	**0**	**0**	**283**	**501**	**548**
																					Peak Hour Factor:		**0.87**

FLORIDA DEPARTMENT OF TRANSPORTATION

PEDESTRIAN MOVEMENT SUMMARY

SECTION 0 **CITY** CAPE CANAVERAL **COUNTY** BREVARD
STATE ROUTE **INTERSECTING ROUTE** GEORGE KING BLVD & ATLANTIC AVENUE
OBSERVER VERSATILE TRAFFIC DATA **DATE** 8/24/2005

REMARKS

FORM COMPLETED BY MM **DATE**

ATLANTIC AVENUE

SB ST NAME

7-8	8-9	10:30-11:30	11:30-12:30	12-1	1-2	2-3	3-4	4-5	5-6	Total
0	0	0	0	0	0	0	0	0	5	**5**
0	0	0	0	0	0	0	0	1	0	**1**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**5**	**6**

GEORGE KING BLVD

EB ST NAME

7-8	0	0	**0**
8-9	0	0	**0**
10:30-11:30	0	0	**0**
11:30-12:30	0	0	**0**
12-1	0	0	**0**
1-2	0	0	**0**
2-3	0	0	**0**
3-4	0	0	**0**
4-5	0	0	**0**
5-6	4	0	**4**
Total	**4**	**0**	**4**

GEORGE KING BLVD

WB ST NAME

7-8	2	13	**15**
8-9	1	8	**9**
10:30-11:30	5	12	**17**
11:30-12:30	6	4	**10**
12-1	0	0	**0**
1-2	0	0	**0**
2-3	0	0	**0**
3-4	0	0	**0**
4-5	16	1	**17**
5-6	28	4	**32**
Total	**58**	**42**	**100**

7-8	8-9	10:30-11:30	11:30-12:30	12-1	1-2	2-3	3-4	4-5	5-6	Total
0	3	1	1	0	0	0	0	1	14	**20**
1	0	2	0	0	0	0	0	0	2	**5**
1	**3**	**3**	**1**	**0**	**0**	**0**	**0**	**1**	**16**	**25**

ATLANTIC AVENUE

NB ST NAME

15 MINUTE TURNING MOVEMENT COUNTS (TRUCKS)

DATE: August 24, 2005 **CITY:** CAPE CANAVERAL

LOCATION: GEORGE KING BLVD & ATLANTIC AVENUE **COUNTY:** BREVARD

	ATLANTIC AVENUE											GEORGE KING BLVD											
TIME	NORTHBOUND					SOUTHBOUND					N/S	EASTBOUND					WESTBOUND					E/W	GRAND
BEGIN	R	T	L	PEDS	TOT	R	T	L	PEDS	TOT	TOT	R	T	L	PEDS	TOT	R	T	L	PEDS	TOT	TOT	TOTAL
7:00	0	0	0	0	**0**	0	0	0	0	**0**	**0**	0	0	0	0	**0**	0	0	0	0	**0**	**0**	**0**
7:15	1	0	1	0	**2**	2	0	0	0	**2**	**4**	0	0	2	0	**2**	0	0	0	0	**0**	**2**	**6**
7:30	2	0	3	0	**5**	0	0	0	0	**0**	**5**	1	1	3	0	**5**	0	0	1	0	**1**	**6**	**11**
7:45	0	0	1	0	**1**	1	0	0	0	**1**	**2**	3	0	2	0	**5**	0	0	1	0	**1**	**6**	**8**
TOTAL	3	0	5	0	**8**	3	0	0	0	**3**	**11**	4	1	7	0	**12**	0	0	2	0	**2**	**14**	**25**
8:00	0	0	4	0	**4**	0	1	0	0	**1**	**5**	5	1	0	0	**6**	0	1	2	0	**3**	**9**	**14**
8:15	0	0	2	0	**2**	0	0	0	0	**0**	**2**	0	0	0	0	**0**	0	0	0	0	**0**	**0**	**2**
8:30	0	1	3	0	**4**	1	0	0	0	**1**	**5**	1	2	3	0	**6**	0	1	1	0	**2**	**8**	**13**
8:45	0	0	3	0	**3**	3	0	0	0	**3**	**6**	2	0	1	0	**3**	0	1	0	0	**1**	**4**	**10**
TOTAL	0	1	12	0	**13**	4	1	0	0	**5**	**18**	8	3	4	0	**15**	0	3	3	0	**6**	**21**	**39**
10:30	0	0	2	0	**2**	2	1	0	0	**3**	**5**	2	0	1	0	**3**	0	0	0	0	**0**	**3**	**8**
10:45	0	0	1	0	**1**	1	0	0	0	**1**	**2**	1	1	1	0	**3**	0	0	0	0	**0**	**3**	**5**
TOTAL	0	0	3	0	**3**	3	1	0	0	**4**	**7**	3	1	2	0	**6**	0	0	0	0	**0**	**6**	**13**
11:00	1	0	1	0	**2**	5	0	0	0	**5**	**7**	1	0	0	0	**1**	1	1	2	0	**4**	**5**	**12**
11:15	0	0	6	0	**6**	2	1	0	0	**3**	**9**	3	1	2	0	**6**	0	0	0	0	**0**	**6**	**15**
11:30	0	0	2	0	**2**	3	1	0	0	**4**	**6**	2	2	1	0	**5**	0	0	0	0	**0**	**5**	**11**
11:45	2	0	5	0	**7**	6	1	0	0	**7**	**14**	1	0	5	0	**6**	0	1	0	0	**1**	**7**	**21**
TOTAL	3	0	14	0	**17**	16	3	0	0	**19**	**36**	7	3	8	0	**18**	1	2	2	0	**5**	**23**	**59**
12:00	0	0	4	0	**4**	2	0	0	0	**2**	**6**	3	1	2	0	**6**	0	0	0	0	**0**	**6**	**12**
12:15	1	0	3	0	**4**	3	0	0	0	**3**	**7**	2	0	3	0	**5**	0	0	1	0	**1**	**6**	**13**
TOTAL	1	0	7	0	**8**	5	0	0	0	**5**	**13**	5	1	5	0	**11**	0	0	1	0	**1**	**12**	**25**
16:00	0	0	1	0	**1**	2	0	0	0	**2**	**3**	0	0	2	0	**2**	0	0	0	0	**0**	**2**	**5**
16:15	0	0	1	0	**1**	1	0	0	0	**1**	**2**	2	0	0	0	**2**	0	0	0	0	**0**	**2**	**4**
16:30	0	0	1	0	**1**	1	0	0	0	**1**	**2**	0	0	0	0	**0**	0	0	0	0	**0**	**0**	**2**
16:45	0	0	1	0	**1**	2	0	0	0	**2**	**3**	0	0	0	0	**0**	0	0	0	0	**0**	**0**	**3**
TOTAL	0	0	4	0	**4**	6	0	0	0	**6**	**10**	2	0	2	0	**4**	0	0	0	0	**0**	**4**	**14**
17:00	0	0	1	0	**1**	2	0	0	0	**2**	**3**	2	0	0	0	**2**	0	0	0	0	**0**	**2**	**5**
17:15	0	0	0	0	**0**	2	0	0	0	**2**	**2**	1	0	0	0	**1**	0	0	0	0	**0**	**1**	**3**
17:30	0	0	2	0	**2**	1	0	0	0	**1**	**3**	1	0	0	0	**1**	0	0	0	0	**0**	**1**	**4**
17:45	0	0	1	0	**1**	0	0	0	0	**0**	**1**	1	1	0	0	**2**	0	0	0	0	**0**	**2**	**3**
TOTAL	0	0	4	0	**4**	5	0	0	0	**5**	**9**	5	1	0	0	**6**	0	0	0	0	**0**	**6**	**15**

Am Peak 7:30 - 8:30	**2**	**0**	**10**	**0**	**12**	**1**	**1**	**0**	**0**	**2**	**14**	**9**	**2**	**5**	**0**	**16**	**0**	**1**	**4**	**0**	**5**	**21**	**35**
																					Peak Hour Factor:		**0.63**
Off Peak 11:30 - 12:30	**3**	**0**	**14**	**0**	**17**	**14**	**2**	**0**	**0**	**16**	**33**	**8**	**3**	**11**	**0**	**22**	**0**	**1**	**1**	**0**	**2**	**24**	**57**
																					Peak Hour Factor:		**0.68**
Pm Peak 4:45 - 5:45	**0**	**0**	**4**	**0**	**4**	**7**	**0**	**0**	**0**	**7**	**11**	**4**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**4**	**15**
																					Peak Hour Factor:		**0.75**

15 MINUTE TURNING MOVEMENT COUNTS (AUTOS & TRUCKS)

DATE: August 24, 2005 **CITY:** CAPE CANAVERAL

LOCATION: GEORGE KING BLVD & ATLANTIC AVENUE **COUNTY:** BREVARD

	ATLANTIC AVENUE											GEORGE KING BLVD											
TIME	NORTHBOUND					SOUTHBOUND					N/S	EASTBOUND					WESTBOUND					E/W	GRAND
BEGIN	R	T	L	PEDS	TOT	R	T	L	PEDS	TOT	TOT	R	T	L	PEDS	TOT	R	T	L	PEDS	TOT	TOT	TOTAL
7:00	11	3	26	0	40	3	1	1	0	5	45	9	5	7	0	21	1	7	3	0	11	32	77
7:15	14	2	29	0	45	4	3	2	0	9	54	7	9	8	0	24	0	5	7	0	12	36	90
7:30	25	2	44	0	71	4	0	0	0	4	75	20	20	11	0	51	1	8	2	0	11	62	137
7:45	28	7	39	0	74	3	0	1	0	4	78	17	55	12	0	84	1	11	5	0	17	101	179
TOTAL	78	14	138	0	230	14	4	4	0	22	252	53	89	38	0	180	3	31	17	0	51	231	483
8:00	15	9	41	0	65	8	3	1	0	12	77	27	35	5	0	67	0	10	3	0	13	80	157
8:15	28	3	33	0	64	3	3	0	0	6	70	18	29	5	0	52	1	8	4	0	13	65	135
8:30	8	3	30	0	41	2	3	1	0	6	47	15	24	8	0	47	0	18	5	0	23	70	117
8:45	8	1	38	0	47	7	1	1	0	9	56	14	22	5	0	41	1	7	8	0	16	57	113
TOTAL	59	16	142	0	217	20	10	3	0	33	250	74	110	23	0	207	2	43	20	0	65	272	522
10:30	9	2	19	0	30	5	2	0	0	7	37	16	24	3	0	43	1	16	8	0	25	68	105
10:45	11	1	16	0	28	5	2	1	0	8	36	11	31	4	0	46	1	18	9	0	28	74	110
TOTAL	20	3	35	0	58	10	4	1	0	15	73	27	55	7	0	89	2	34	17	0	53	142	215
11:00	9	1	23	0	33	5	2	0	0	7	40	21	23	3	0	47	1	15	11	0	27	74	114
11:15	6	2	32	0	40	6	3	0	0	9	49	26	22	6	0	54	0	13	3	0	16	70	119
11:30	15	0	23	0	38	8	4	1	0	13	51	34	17	7	0	58	0	7	7	0	14	72	123
11:45	11	0	33	0	44	9	3	1	0	13	57	20	20	12	0	52	1	14	8	0	23	75	132
TOTAL	41	3	111	0	155	28	12	2	0	42	197	101	82	28	0	211	2	49	29	0	80	291	488
12:00	9	4	36	0	49	8	3	1	0	12	61	46	20	5	0	71	0	19	16	0	35	106	167
12:15	19	3	41	0	63	5	1	0	0	6	69	25	17	5	0	47	0	17	6	0	23	70	139
TOTAL	28	7	77	0	112	13	4	1	0	18	130	71	37	10	0	118	0	36	22	0	58	176	306
16:00	4	3	24	0	31	9	3	0	0	12	43	48	17	9	0	74	2	24	11	0	37	111	154
16:15	5	3	25	0	33	5	4	0	0	9	42	45	14	3	0	62	0	23	6	0	29	91	133
16:30	6	0	19	0	25	2	0	0	0	2	27	34	11	0	0	45	0	17	10	0	27	72	99
16:45	3	2	25	0	30	9	3	0	0	12	42	39	9	1	0	49	0	14	16	0	30	79	121
TOTAL	18	8	93	0	119	25	10	0	0	35	154	166	51	13	0	230	2	78	43	0	123	353	507
17:00	5	2	36	0	43	9	12	1	0	22	65	44	12	0	0	56	0	23	11	0	34	90	155
17:15	6	1	26	0	33	9	4	0	0	13	46	40	15	5	0	60	1	23	8	0	32	92	138
17:30	7	1	33	0	41	10	3	1	0	14	55	32	19	2	0	53	0	24	8	0	32	85	140
17:45	6	1	16	0	23	1	2	1	0	4	27	20	14	2	0	36	0	17	12	0	29	65	92
TOTAL	24	5	111	0	140	29	21	3	0	53	193	136	60	9	0	205	1	87	39	0	127	332	525
Am Peak 7:30 - 8:30	**96**	**21**	**157**	**0**	**274**	**18**	**6**	**2**	**0**	**26**	**300**	**82**	**139**	**33**	**0**	**254**	**3**	**37**	**14**	**0**	**54**	**308**	**608**
																					Peak Hour Factor:		**0.85**
Off Peak 11:30 - 12:30	**54**	**7**	**133**	**0**	**194**	**30**	**11**	**3**	**0**	**44**	**238**	**125**	**74**	**29**	**0**	**228**	**1**	**57**	**37**	**0**	**95**	**323**	**561**
																					Peak Hour Factor:		**0.84**
Pm Peak 4:45 - 5:45	**21**	**6**	**120**	**0**	**147**	**37**	**22**	**2**	**0**	**61**	**208**	**155**	**55**	**8**	**0**	**218**	**1**	**84**	**43**	**0**	**128**	**346**	**554**
																					Peak Hour Factor:		**0.89**

FLORIDA DEPARTMENT OF TRANSPORTATION

PEDESTRIAN MOVEMENT SUMMARY

SECTION 0

STATE ROUTE

OBSERVER VERSATILE TRAFFIC DATA

CITY CAPE CANAVERAL

COUNTY BREVARD

INTERSECTING ROUTE CHRISTOPHER COLUMBUS BLVD & GEORGE KING BLVD

DATE 8/24/2005

REMARKS

FORM COMPLETED BY MM **DATE**

CHRISTOPHER COLUMBUS BLVD
SB ST NAME

7-8	8-9	10:30-11:30	11:30-12:30	12-1	1-2	2-3	3-4	4-5	5-6	Total
0	0	0	0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	0	0	0	**0**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

GEORGE KING BLVD
EB ST NAME

7-8	0	0	**0**
8-9	0	0	**0**
10:30-11:30	0	0	**0**
11:30-12:30	0	0	**0**
12-1	0	0	**0**
1-2	0	0	**0**
2-3	0	0	**0**
3-4	0	0	**0**
4-5	0	0	**0**
5-6	0	0	**0**
Total	**0**	**0**	**0**

GEORGE KING BLVD
WB ST NAME

7-8	2	7	**9**
8-9	1	6	**7**
10:30-11:30	2	8	**10**
11:30-12:30	6	3	**9**
12-1	0	0	**0**
1-2	0	0	**0**
2-3	0	0	**0**
3-4	0	0	**0**
4-5	0	0	**0**
5-6	0	0	**0**
Total	**11**	**24**	**35**

7-8	8-9	10:30-11:30	11:30-12:30	12-1	1-2	2-3	3-4	4-5	5-6	Total
0	3	1	1	0	0	0	0	0	0	**5**
1	0	2	0	0	0	0	0	0	0	**3**
1	**3**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**8**

CHRISTOPHER COLUMBUS BLVD
NB ST NAME

15 MINUTE TURNING MOVEMENT COUNTS (TRUCKS)

DATE: August 24, 2005 **CITY:** CAPE CANAVERAL

LOCATION: CHRISTOPHER COLUMBUS BLVD & GEORGE KING BLVD **COUNTY:** BREVARD

CHRISTOPHER COLUMBUS BLVD — **GEORGE KING BLVD**

TIME	NORTHBOUND					SOUTHBOUND					N/S	EASTBOUND					WESTBOUND					E/W	GRAND
BEGIN	R	T	L	PEDS	TOT	R	T	L	PEDS	TOT	TOT	R	T	L	PEDS	TOT	R	T	L	PEDS	TOT	TOT	TOTAL
7:00	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1
7:15	0	0	0	0	0	1	0	0	0	1	1	0	1	0	0	1	0	0	0	0	0	1	2
7:30	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	1
7:45	0	0	0	0	0	2	0	0	0	2	2	0	0	0	0	0	0	2	0	0	2	2	4
TOTAL	0	0	0	0	0	4	0	0	0	4	4	0	2	0	0	2	0	2	0	0	2	4	8
8:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	1
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	2	0	0	2	4	4
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	1
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	4	0	2	0	0	2	6	6
10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1
10:45	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	1
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	2	2
11:00	0	0	0	0	0	1	0	0	0	1	1	0	0	1	0	1	0	2	0	0	2	3	4
11:15	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	1
11:30	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	2	2
11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	2	0	0	2	4	4
TOTAL	0	0	0	0	0	1	0	0	0	1	1	0	2	4	0	6	0	4	0	0	4	10	11
12:00	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2	2
12:15	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1
TOTAL	0	0	0	0	0	1	0	0	0	1	1	0	2	0	0	2	0	0	0	0	0	2	3
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Am Peak 7:30 - 8:30	0	0	0	0	0	2	0	0	0	2	2	0	2	0	0	2	0	2	0	0	2	4	6
																					Peak Hour Factor:		0.38
Off Peak 11:30 - 12:30	0	0	0	0	0	1	0	0	0	1	1	0	3	3	0	6	0	2	0	0	2	8	9
																					Peak Hour Factor:		0.56
Pm Peak 5:00 - 6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
																					Peak Hour Factor:		0.00

15 MINUTE TURNING MOVEMENT COUNTS (AUTOS & TRUCKS)

DATE: August 24, 2005 **CITY:** CAPE CANAVERAL

LOCATION: CHRISTOPHER COLUMBUS BLVD & GEORGE KING BLVD **COUNTY:** BREVARD

	CHRISTOPHER COLUMBUS BLVD											GEORGE KING BLVD											
TIME	NORTHBOUND					SOUTHBOUND					N/S	EASTBOUND					WESTBOUND					E/W	GRAND
BEGIN	R	T	L	PEDS	TOT	R	T	L	PEDS	TOT	TOT	R	T	L	PEDS	TOT	R	T	L	PEDS	TOT	TOT	TOTAL
7:00	0	0	0	0	0	3	0	0	0	3	3	0	7	4	0	11	1	5	0	0	6	17	20
7:15	0	0	0	0	0	4	0	0	0	4	4	0	14	12	0	26	0	8	0	0	8	34	38
7:30	0	0	0	0	0	3	0	0	0	3	3	0	42	19	0	61	0	13	0	0	13	74	77
7:45	0	0	0	0	0	8	0	0	0	8	8	0	53	21	0	74	0	14	0	0	14	88	96
TOTAL	0	0	0	0	0	18	0	0	0	18	18	0	116	56	0	172	1	40	0	0	41	213	231
8:00	0	0	0	0	0	4	0	0	0	4	4	0	52	8	0	60	0	11	0	0	11	71	75
8:15	0	0	0	0	0	1	0	0	0	1	1	0	36	8	0	44	0	13	0	0	13	57	58
8:30	0	0	0	0	0	3	0	0	0	3	3	0	25	5	0	30	0	19	0	0	19	49	52
8:45	0	0	0	0	0	0	0	0	0	0	0	0	18	6	0	24	0	14	0	0	14	38	38
TOTAL	0	0	0	0	0	8	0	0	0	8	8	0	131	27	0	158	0	57	0	0	57	215	223
10:30	0	0	0	0	0	6	0	0	0	6	6	0	16	7	0	23	0	18	0	0	18	41	47
10:45	0	0	0	0	0	8	0	0	0	8	8	0	20	8	0	28	1	23	0	0	24	52	60
TOTAL	0	0	0	0	0	14	0	0	0	14	14	0	36	15	0	51	1	41	0	0	42	93	107
11:00	0	0	0	0	0	8	0	0	0	8	8	0	22	4	0	26	0	19	0	0	19	45	53
11:15	0	0	0	0	0	7	0	1	0	8	8	0	25	3	0	28	0	12	0	0	12	40	48
11:30	0	0	0	0	0	3	0	0	0	3	3	0	24	8	0	32	0	13	0	0	13	45	48
11:45	0	0	0	0	0	5	0	0	0	5	5	0	22	6	0	28	0	24	0	0	24	52	57
TOTAL	0	0	0	0	0	23	0	1	0	24	24	0	93	21	0	114	0	68	0	0	68	182	206
12:00	0	0	0	0	0	9	0	0	0	9	9	29	0	6	0	35	0	28	0	0	28	63	72
12:15	0	0	0	0	0	3	0	1	0	4	4	37	0	3	0	40	1	24	0	0	25	65	69
TOTAL	0	0	0	0	0	12	0	1	0	13	13	66	0	9	0	75	1	52	0	0	53	128	141
16:00	0	0	0	0	0	7	0	1	0	8	8	0	20	0	0	20	1	31	0	0	32	52	60
16:15	0	0	0	0	0	5	0	0	0	5	5	0	18	2	0	20	2	23	0	0	25	45	50
16:30	0	0	0	0	0	2	0	0	0	2	2	0	13	1	0	14	1	25	0	0	26	40	42
16:45	0	0	0	0	0	3	0	0	0	3	3	0	12	1	0	13	0	24	0	0	24	37	40
TOTAL	0	0	0	0	0	17	0	1	0	18	18	0	63	4	0	67	4	103	0	0	107	174	192
17:00	0	0	0	0	0	4	0	0	0	4	4	0	13	5	0	18	2	30	0	0	32	50	54
17:15	0	0	0	0	0	2	0	0	0	2	2	0	13	6	0	19	0	23	0	0	23	42	44
17:30	0	0	0	0	0	5	0	0	0	5	5	0	17	7	0	24	0	24	0	0	24	48	53
17:45	0	0	0	0	0	4	0	0	0	4	4	0	13	6	0	19	1	21	0	0	22	41	45
TOTAL	0	0	0	0	0	15	0	0	0	15	15	0	56	24	0	80	3	98	0	0	101	181	196

Am Peak 7:30 - 8:30	**0**	**0**	**0**	**0**	**0**	**16**	**0**	**0**	**0**	**16**	**16**	**0**	**183**	**56**	**0**	**239**	**0**	**51**	**0**	**0**	**51**	**290**	**306**
																					Peak Hour Factor:		**0.80**
Off Peak 11:30 - 12:30	**0**	**0**	**0**	**0**	**0**	**20**	**0**	**1**	**0**	**21**	**21**	**66**	**46**	**23**	**0**	**135**	**1**	**89**	**0**	**0**	**90**	**225**	**246**
																					Peak Hour Factor:		**0.85**
Pm Peak 5:00 - 6:00	**0**	**0**	**0**	**0**	**0**	**15**	**0**	**0**	**0**	**15**	**15**	**0**	**56**	**24**	**0**	**80**	**3**	**98**	**0**	**0**	**101**	**181**	**196**
																					Peak Hour Factor:		**0.91**

15 MINUTE TURNING MOVEMENT COUNTS (TRUCKS)

DATE: August 24, 2005

CITY: CAPE CANAVERAL

LOCATION: GEOERGE KING BLVD/SHOREWOOD DR & JETTY PARK DR/GEORGE KING BLVD

COUNTY: BREVARD

GEORGE KING BLVD/SHOREWOOD DR | **JETTY PARK DR/GEORGE KING BLVD**

TIME	NORTHBOUND					SOUTHBOUND					N/S	EASTBOUND					WESTBOUND					E/W	GRAND
BEGIN	R	T	L	PEDS	TOT	R	T	L	PEDS	TOT	TOT	R	T	L	PEDS	TOT	R	T	L	PEDS	TOT	TOT	TOTAL
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1
8:45	0	0	0	0	0	1	0	0	0	1	1	0	0	1	0	1	0	0	0	0	0	1	2
TOTAL	0	0	0	0	0	1	0	0	0	1	1	0	0	1	0	1	0	1	0	0	1	2	3
10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15	0	0	0	0	0	1	0	0	0	1	1	1	0	1	0	2	0	1	0	0	1	3	4
11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1
11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	1	0	0	0	1	1	1	0	1	0	2	0	2	0	0	2	4	5
12:00	0	0	0	0	0	1	0	0	0	1	1	0	0	1	0	1	0	1	0	0	1	2	3
12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	1	0	0	0	1	1	0	0	1	0	1	0	1	0	0	1	2	3
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	1
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	1
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	1
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	1
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	2	2

Am Peak 7:45 - 8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2	2
																					Peak Hour Factor:		0.50
Off Peak 11:30 - 12:30	0	0	0	0	0	1	0	0	0	1	1	0	0	1	0	1	0	2	0	0	2	3	4
																					Peak Hour Factor:		0.33
Pm Peak 4:15 - 4:45	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	2	2
																					Peak Hour Factor:		0.50

FLORIDA DEPARTMENT OF TRANSPORTATION

PEDESTRIAN MOVEMENT SUMMARY

SECTION 0
STATE ROUTE
OBSERVER VERSATILE TRAFFIC DATA

CITY CAPE CANAVERAL **COUNTY** BREVARD
INTERSECTING ROUTE GEORGE KING /SHOREWOOD DR & JETTY PARK DR/GEORGE KING
DATE 8/24/2005

REMARKS

FORM COMPLETED BY MM **DATE**

GEORGE KING BLVD

SB ST NAME

7-8	8-9	10:30-11:30	11:30-12:30	12-1	1-2	2-3	3-4	4-5	5-6	Total
0	0	1	4	0	0	0	0	2	0	**6**
1	6	0	0	0	0	0	0	0	0	**7**
1	**6**	**1**	**4**	**0**	**0**	**0**	**0**	**2**	**0**	**14**

GEORGE KING BLVD

EB ST NAME

7-8	2	0	**2**
8-9	7	0	**7**
10:30-11:30	1	0	**1**
11:30-12:30	1	2	**3**
12-1	0	0	**0**
1-2	0	0	**0**
2-3	0	0	**0**
3-4	0	0	**0**
4-5	0	1	**1**
5-6	0	3	**3**
Total	**1**	**6**	**7**

JETTY PARK DRIVE

WB ST NAME

7-8	28	0	**28**
8-9	51	0	**51**
10:30-11:30	8	4	**12**
11:30-12:30	4	7	**11**
12-1	0	0	**0**
1-2	0	0	**0**
2-3	0	0	**0**
3-4	0	0	**0**
4-5	1	40	**41**
5-6	0	29	**29**
Total	**92**	**80**	**172**

7-8	8-9	10:30-11:30	11:30-12:30	12-1	1-2	2-3	3-4	4-5	5-6	Total
0	4	1	0	0	0	0	0	0	1	**6**
2	4	0	0	0	0	0	0	1	2	**9**
2	**8**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**3**	**15**

SHOREWOOD DRIVE

NB ST NAME

15 MINUTE TURNING MOVEMENT COUNTS (AUTOS & TRUCKS)

DATE: August 24, 2005 **CITY:** CAPE CANAVERAL

LOCATION: GEORGE KING BLVD/SHOREWOOD DR & JETTY PARK DR/GEORGE KING BLVD **COUNTY:** BREVARD

	GEORGE KING BLVD/SHOREWOOD DR											JETTY PARK DR/GEORGE KING BLVD											
TIME	NORTHBOUND					SOUTHBOUND					N/S	EASTBOUND					WESTBOUND					E/W	GRAND
BEGIN	R	T	L	PEDS	TOT	R	T	L	PEDS	TOT	TOT	R	T	L	PEDS	TOT	R	T	L	PEDS	TOT	TOT	TOTAL
7:00	0	0	0	0	0	0	0	0	0	0	0	1	3	4	0	8	0	1	0	0	1	9	9
7:15	0	0	0	0	0	0	0	0	0	0	0	2	1	2	0	5	0	1	0	0	1	6	6
7:30	0	0	0	0	0	0	0	0	0	0	0	1	3	4	0	8	0	1	0	0	1	9	9
7:45	0	0	3	0	3	1	0	0	0	1	4	2	1	16	0	19	0	3	0	0	3	22	26
TOTAL	0	0	3	0	3	1	0	0	0	1	4	6	8	26	0	40	0	6	0	0	6	46	50
8:00	0	1	9	0	10	1	0	0	0	1	11	3	2	22	0	27	0	0	0	0	0	27	38
8:15	0	1	3	0	4	1	0	0	0	1	5	14	1	28	0	43	0	1	0	0	1	44	49
8:30	0	0	1	0	1	2	0	0	0	2	3	2	0	6	0	8	0	5	0	0	5	13	16
8:45	0	2	2	0	4	1	0	0	0	1	5	1	5	9	0	15	0	1	0	0	1	16	21
TOTAL	0	4	15	0	19	5	0	0	0	5	24	20	8	65	0	93	0	7	0	0	7	100	124
10:30	1	0	3	0	4	0	0	0	0	0	4	3	4	5	0	12	0	7	0	0	7	19	23
10:45	0	1	4	0	5	6	0	0	0	6	11	5	2	1	0	8	0	1	0	0	1	9	20
TOTAL	1	1	7	0	9	6	0	0	0	6	15	8	6	6	0	20	0	8	0	0	8	28	43
11:00	0	0	4	0	4	4	0	0	0	4	8	1	7	4	0	12	0	3	0	0	3	15	23
11:15	0	0	0	0	0	4	0	0	0	4	4	4	1	6	0	11	0	1	0	0	1	12	16
11:30	0	0	2	0	2	5	0	0	0	5	7	2	7	3	0	12	0	5	0	0	5	17	24
11:45	0	1	3	0	4	5	0	1	0	6	10	5	5	4	0	14	0	3	0	0	3	17	27
TOTAL	0	1	9	0	10	18	0	1	0	19	29	12	20	17	0	49	0	12	0	0	12	61	90
12:00	0	0	1	0	1	6	0	1	0	7	8	12	0	5	0	17	0	0	0	0	0	17	25
12:15	0	0	7	0	7	3	0	0	0	3	10	6	0	4	0	10	0	0	0	0	0	10	20
TOTAL	0	0	8	0	8	9	0	1	0	10	18	18	0	9	0	27	0	0	0	0	0	27	45
16:00	0	0	4	0	4	14	0	1	0	15	19	4	3	3	0	10	0	6	0	0	6	16	35
16:15	0	0	5	0	5	10	0	1	0	11	16	0	7	3	0	10	0	2	0	0	2	12	28
16:30	0	1	4	0	5	11	0	0	0	11	16	1	3	3	0	7	0	3	0	0	3	10	26
16:45	0	0	6	0	6	7	0	1	0	8	14	5	1	1	0	7	0	3	0	0	3	10	24
TOTAL	0	1	19	0	20	42	0	3	0	45	65	10	14	10	0	34	0	14	0	0	14	48	113
17:00	0	2	5	0	7	18	0	0	0	18	25	3	1	1	0	5	0	6	0	0	6	11	36
17:15	0	0	1	0	1	10	0	0	0	10	11	2	4	4	0	10	0	6	0	0	6	16	27
17:30	0	0	3	0	3	7	0	1	0	8	11	1	5	1	0	7	0	7	1	0	8	15	26
17:45	0	0	4	0	4	8	0	0	0	8	12	2	3	1	0	6	0	1	0	0	1	7	19
TOTAL	0	2	13	0	15	43	0	1	0	44	59	8	13	7	0	28	0	20	1	0	21	49	108

Am Peak 7:45 - 8:45	0	2	16	0	18	5	0	0	0	5	23	21	4	72	0	97	0	9	0	0	9	106	129
																					Peak Hour Factor:		0.66
Off Peak 11:30 - 12:30	0	1	13	0	14	19	0	2	0	21	35	25	12	16	0	53	0	8	0	0	8	61	96
																					Peak Hour Factor:		0.89
Pm Peak 4:15 - 4:45	0	3	20	0	23	46	0	2	0	48	71	9	12	8	0	29	0	14	0	0	14	43	114
																					Peak Hour Factor:		0.79

Appendix C

HCS Worksheets – Existing Conditions

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*M Tobin*
Agency/Co.	*GA*
Date Performed	*11/21/2005*
Analysis Time Period	*AM*

Site Information

Intersection	*Scallop Rd @ Dave Nisbet Drive*
Jurisdiction	*Port Canaveral*
Analysis Year	*2005*

Project Description

East/West Street: *Scallop Road*
North/South Street: *Dave Nisbet Drive*

Intersection Orientation: *North-South*
Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	31	44			20	3
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	32	46	0	0	21	3
Percent Heavy Vehicles	3	--	--	20	--	--
Median Type	Raised curb					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	4		16			
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	4	0	16	0	0	0
Percent Heavy Vehicles	25	2	6	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (vph)	32						20	
C (m) (vph)	1584						971	
v/c	0.02						0.02	
95% queue length	0.06						0.06	
Control Delay	7.3						8.8	
LOS	A						A	
Approach Delay	--	--				8.8		
Approach LOS	--	--				A		

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SHORT REPORT

General Information		Site Information	
Analyst	*S.C.*	Intersection	*SR 401 @ Grouper*
Agency or Co.	*G&A*	Area Type	*All other areas*
Date Performed	*11/28/2005*	Jurisdiction	*Port Authority*
Time Period	*AM Peak*	Analysis Year	*2005 - Existing*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	2	0	1	2	0	1	0	1	0	0	0
Lane Group		T		L	T		L		R			
Volume (vph)		1456		3	55		50		0			
% Heavy veh	2	2	2	2	2	2	2	2	2	2	2	2
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)		A		A	A		A		A			
Startup lost time		2.0		2.0	2.0		2.0	2.0	2.0		2.0	
Ext. eff. green		2.0		2.0	2.0		2.0	2.0	2.0		2.0	
Arrival type		3		3	3		3	3	3		3	
Unit Extension		3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width		12.0		12.0	12.0		12.0	12.0	12.0		12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr		0		0	0		0	0	0		0	
Unit Extension		3.0		3.0	3.0		3.0	3.0	3.0		3.0	

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = 50.0	G =	G =	G =	G = 15.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25					Cycle Length C = 75.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adj. flow rate		1533		3	58		53	0	0		0
Lane group cap.		2365		145	2365		354		317		
v/c ratio		0.65		0.02	0.02		0.15		0.00		
Green ratio		0.67		0.67	0.67		0.20	0.00	0.20		0.00
Unif. delay d_1		7.3		4.2	4.2		24.7		24.0		
Delay factor k		0.23		0.11	0.11		0.11		0.11		
Increm. delay d_2		0.6		0.1	0.0		0.2		0.0		
PF factor		1.000		1.000	1.000		1.000		1.000		
Control delay		8.0		4.3	4.2		24.9		24.0		
Lane group LOS		A		A	A		C		C		
Apprch. delay	8.0			4.2			24.9				
Approach LOS	A			A			C				
Intersec. delay	8.4			Intersection LOS						A	

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SHORT REPORT

General Information		**Site Information**	
Analyst	*S.C.*	Intersection	*SR 401 & Charles Rowland*
Agency or Co.	*G&A*	Area Type	*All other areas*
Date Performed	*11/28/2005*	Jurisdiction	*Port Authority*
Time Period	*AM Peak*	Analysis Year	*2005 Existing*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	2	1	1	2	0	2	0	1	0	0	0
Lane Group		T	R	L	T		L		R			
Volume (vph)		1530	5	3	77		1		1			
% Heavy veh	2	2	2	2	2	2	2	2	2	2	2	2
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)		A	A	A	A		A		A			
Startup lost time		2.0	2.0	2.0	2.0		2.0	2.0	2.0		2.0	
Ext. eff. green		2.0	2.0	2.0	2.0		2.0	2.0	2.0		2.0	
Arrival type		3	3	3	3		3	3	3		3	
Unit Extension		3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width		12.0	12.0	12.0	12.0		12.0	12.0	12.0		12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr		0	0	0	0		0	0	0		0	
Unit Extension		3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0	

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = 55.0	G =	G =	G =	G = 15.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 80.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adj. flow rate		1611	5	3	81		1	0	1		0
Lane group cap.		2439	1088	137	2439		644		297		
v/c ratio		0.66	0.00	0.02	0.03		0.00		0.00		
Green ratio		0.69	0.69	0.69	0.69		0.19	0.00	0.19		0.00
Unif. delay d_1		7.2	3.9	4.0	4.0		26.4		26.4		
Delay factor k		0.24	0.11	0.11	0.11		0.11		0.11		
Increm. delay d_2		0.7	0.0	0.1	0.0		0.0		0.0		
PF factor		1.000	1.000	1.000	1.000		1.000		1.000		
Control delay		7.8	3.9	4.0	4.0		26.4		26.4		
Lane group LOS		A	A	A	A		C		C		
Apprch. delay	7.8			4.0			26.4				
Approach LOS	A			A			C				
Intersec. delay	7.6			Intersection LOS						A	

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SHORT REPORT

General Information		Site Information	
Analyst	*SC*	Intersection	*George King @ Atlantic*
Agency or Co.	*G&A*	Area Type	*All other areas*
Date Performed	*11/29/2005*	Jurisdiction	*Port Authority*
Time Period	*AM Peak*	Analysis Year	*2005 - Existing*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	0	1	1	1	0	1	1	1	1	0
Lane Group	L	TR		L	T	R		LT	R	L	TR	
Volume (vph)	33	139	82	14	37	3	157	21	96	2	6	18
% Heavy veh	2	2	2	2	2	2	2	2	2	2	2	2
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup lost time	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0	2.0	
Ext. eff. green	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0	2.0	
Arrival type	3	3		3	3	3		3	3	3	3	
Unit Extension	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0	12.0		12.0	12.0	12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0	0		0	0	0	0	
Unit Extension	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0	3.0	

Phasing	EB Only	EW Perm	03	04	NS Perm	06	07	08
Timing	G = 10.0	G = 40.0	G =	G =	G = 25.0	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adj. flow rate	35	232		15	39	3		187	101	2	25
Lane group cap.	803	1075		508	828	704		379	440	298	458
v/c ratio	0.04	0.22		0.03	0.05	0.00		0.49	0.23	0.01	0.05
Green ratio	0.61	0.61		0.44	0.44	0.44		0.28	0.28	0.28	0.28
Unif. delay d_1	7.1	7.8		14.1	14.2	13.9		27.2	25.1	23.5	23.8
Delay factor k	0.11	0.11		0.11	0.11	0.11		0.11	0.11	0.11	0.11
Increm. delay d_2	0.0	0.1		0.0	0.0	0.0		1.0	0.3	0.0	0.0
PF factor	1.000	1.000		1.000	1.000	1.000		1.000	1.000	1.000	1.000
Control delay	7.1	7.9		14.1	14.2	13.9		28.2	25.3	23.5	23.9
Lane group LOS	A	A		B	B	B		C	C	C	C
Apprch. delay	7.8			14.2			27.2			23.9	
Approach LOS	A			B			C			C	
Intersec. delay	17.8			Intersection LOS						B	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*GKB @ C Columbus Drive*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	*2005*
Analysis Time Period	*AM*		

Project Description	
East/West Street: *George King Blvd*	North/South Street: *C Columbus Drive*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*56*	*183*			*51*	*0*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*58*	*192*	*0*	*0*	*53*	*0*
Percent Heavy Vehicles	*0*	--	--	*25*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				*0*		*16*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*0*	*0*	*16*
Percent Heavy Vehicles	*6*	*0*	*2*	*0*	*16*	*12*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
v (vph)	*58*					*0*		*16*
C (m) (vph)	*1566*					*638*		*987*
v/c	*0.04*					*0.00*		*0.02*
95% queue length	*0.12*					*0.00*		*0.05*
Control Delay	*7.4*					*10.6*		*8.7*
LOS	*A*					*B*		*A*
Approach Delay	--	--				*8.7*		
Approach LOS	--	--				*A*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst		Intersection	*GKB @ Dave Nisbet Drive*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	*2005*
Analysis Time Period	*AM*		

Project Description	
East/West Street: *George King Blvd*	North/South Street: *Dave Nisbet Drive*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*168*	*314*			*186*	*26*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*176*	*330*	*0*	*0*	*195*	*27*
Percent Heavy Vehicles	*2*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*0*	*1*	*1*
Configuration	*L*	*T*			*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				*9*		*78*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*9*	*0*	*82*
Percent Heavy Vehicles	*0*	*0*	*0*	*11*	*0*	*4*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
v (vph)	*176*					*9*		*82*
C (m) (vph)	*1344*					*389*		*807*
v/c	*0.13*					*0.02*		*0.10*
95% queue length	*0.45*					*0.07*		*0.34*
Control Delay	*8.1*					*14.5*		*10.0*
LOS	*A*					*B*		*A*
Approach Delay	--	--				*10.4*		
Approach LOS	--	--				*B*		

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SHORT REPORT

General Information		Site Information	
Analyst	*SC*	Intersection	*George King @ Flounder*
Agency or Co.	*G&A*	Area Type	*All other areas*
Date Performed	*11/29/2005*	Jurisdiction	*Port Authority*
Time Period	*AM Peak*	Analysis Year	*2055 - Existing*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	*1*	*1*	*1*	*1*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group	*L*	*T*	*R*	*L*	*T*	*R*		*LTR*			*LTR*	
Volume (vph)	*20*	*348*	*33*	*8*	*237*	*19*	*7*	*2*	*2*	*7*	*1*	*12*
% Heavy veh	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup lost time	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Ext. eff. green	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Arrival type	*3*	*3*	*3*	*3*	*3*	*3*		*3*			*3*	
Unit Extension	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*			*3.0*	
Ped/Bike/RTOR Volume	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*		*12.0*			*12.0*	
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/hr												
Bus stops/hr	*0*	*0*	*0*	*0*	*0*	*0*		*0*			*0*	
Unit Extension	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*			*3.0*	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *55.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis (hrs) = *0.25*					Cycle Length C = *90.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adj. flow rate	*21*	*366*	*35*	*8*	*249*	*20*		*11*			*21*
Lane group cap.	*694*	*1161*	*987*	*585*	*1161*	*987*		*467*			*459*
v/c ratio	*0.03*	*0.32*	*0.04*	*0.01*	*0.21*	*0.02*		*0.02*			*0.05*
Green ratio	*0.61*	*0.61*	*0.61*	*0.61*	*0.61*	*0.61*		*0.28*			*0.28*
Unif. delay d_1	*6.9*	*8.4*	*7.0*	*6.9*	*7.8*	*6.9*		*23.6*			*23.8*
Delay factor k	*0.11*	*0.11*	*0.11*	*0.11*	*0.11*	*0.11*		*0.11*			*0.11*
Increm. delay d_2	*0.0*	*0.2*	*0.0*	*0.0*	*0.1*	*0.0*		*0.0*			*0.0*
PF factor	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*		*1.000*			*1.000*
Control delay	*7.0*	*8.6*	*7.0*	*6.9*	*7.9*	*6.9*		*23.6*			*23.8*
Lane group LOS	*A*	*A*	*A*	*A*	*A*	*A*		*C*			*C*
Apprch. delay		*8.4*			*7.8*			*23.6*			*23.8*
Approach LOS		*A*			*A*			*C*			*C*
Intersec. delay		*8.8*					Intersection LOS				*A*

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*George King @ Jetty Park*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	*2005*
Analysis Time Period	*AM*		

Project Description	
East/West Street: *George King Blvd*	North/South Street: *Jetty Park Drive*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*72*	*4*	*21*	*0*	*9*	*0*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*75*	*4*	*22*	*0*	*9*	*0*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*		*TR*	*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*16*	*2*	*0*	*0*		
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*16*	*2*	*0*	*0*	*0*	*6*
Percent Heavy Vehicles	*2*	*2*	*2*	*2*	*16*	*2*
Percent Grade (%)	*2*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*1*	*0*	*1*
Configuration		*LTR*		*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*LTR*		*LTR*		*L*		*R*
v (vph)	*75*	*0*		*18*		*0*		*6*
C (m) (vph)	*1611*	*1588*		*712*		*721*		*1073*
v/c	*0.05*	*0.00*		*0.03*		*0.00*		*0.01*
95% queue length	*0.15*	*0.00*		*0.08*		*0.00*		*0.02*
Control Delay	*7.3*	*7.3*		*10.2*		*10.0*		*8.4*
LOS	*A*	*A*		*B*		*A*		*A*
Approach Delay	--	--	*10.2*			*8.4*		
Approach LOS	--	--	*B*			*A*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*GKB @ Marlin*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	*2005*
Analysis Time Period	*AM*		

Project Description

East/West Street: *George King Blvd* — North/South Street: *Marlin Street*

Intersection Orientation: *East-West* — Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*91*	*258*	*8*	*11*	*201*	*11*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*95*	*271*	*8*	*11*	*211*	*11*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*1*	*1*	*1*	*1*
Configuration	*L*	*T*	*R*	*L*	*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*1*	*4*	*10*	*0*	*3*	*24*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*1*	*4*	*10*	*0*	*3*	*25*
Percent Heavy Vehicles	*25*	*1*	*14*	*5*	*2*	*35*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
v (vph)	*95*	*11*		*15*			*28*	
C (m) (vph)	*1347*	*1284*		*577*			*692*	
v/c	*0.07*	*0.01*		*0.03*			*0.04*	
95% queue length	*0.23*	*0.03*		*0.08*			*0.13*	
Control Delay	*7.9*	*7.8*		*11.4*			*10.4*	
LOS	*A*	*A*		*B*			*B*	
Approach Delay	--	--	*11.4*			*10.4*		
Approach LOS	--	--	*B*			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*Mullett Rd @ Dave Nisbet Drive*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	*2005*
Analysis Time Period	*AM*		

Project Description
East/West Street: *Mullet Road* North/South Street: *Dave Nisbet Drive*
Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*87*	*74*			*40*	*3*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*91*	*77*	*0*	*0*	*42*	*3*
Percent Heavy Vehicles	*2*	--	--	*20*	--	--
Median Type	*Two Way Left Turn Lane*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*4*		*53*			
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*4*	*0*	*55*	*0*	*0*	*0*
Percent Heavy Vehicles	*3*	*0*	*2*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (vph)	*91*						*59*	
C (m) (vph)	*1563*						*988*	
v/c	*0.06*						*0.06*	
95% queue length	*0.19*						*0.19*	
Control Delay	*7.4*						*8.9*	
LOS	*A*						*A*	
Approach Delay	--	--				*8.9*		
Approach LOS	--	--				*A*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*Mullett Rd @ Scallop Dr*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	*2005*
Analysis Time Period	*AM*		

Project Description

East/West Street: *Mullet Road*	North/South Street: *Scallop Drive*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*72*	*4*	*21*	*0*	*9*	*0*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*75*	*4*	*22*	*0*	*9*	*0*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*		*TR*	*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*16*	*2*	*0*	*0*		*5*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*16*	*2*	*0*	*0*	*0*	*5*
Percent Heavy Vehicles	*2*	*2*	*2*	*2*	*16*	*2*
Percent Grade (%)		*2*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*1*	*0*	*1*
Configuration		*LTR*		*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*LTR*		*LTR*		*L*		*R*
v (vph)	*75*	*0*		*18*		*0*		*5*
C (m) (vph)	*1611*	*1588*		*712*		*721*		*1073*
v/c	*0.05*	*0.00*		*0.03*		*0.00*		*0.00*
95% queue length	*0.15*	*0.00*		*0.08*		*0.00*		*0.01*
Control Delay	*7.3*	*7.3*		*10.2*		*10.0*		*8.4*
LOS	*A*	*A*		*B*		*A*		*A*
Approach Delay	--	--		*10.2*			*8.4*	
Approach LOS	--	--		*B*			*A*	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*Scallop Rd @ Dave Nisbet Drive*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	*2005*
Analysis Time Period	*AM*		

Project Description

East/West Street: *Scallop Road* North/South Street: *Dave Nisbet Drive*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	31	44			20	3
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	32	46	0	0	21	3
Percent Heavy Vehicles	3	--	--	20	--	--
Median Type	Raised curb					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	4		16			
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	4	0	16	0	0	0
Percent Heavy Vehicles	25	2	6	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (vph)	32						20	
C (m) (vph)	1584						971	
v/c	0.02						0.02	
95% queue length	0.06						0.06	
Control Delay	7.3						8.8	
LOS	A						A	
Approach Delay	--	--				8.8		
Approach LOS	--	--				A		

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SHORT REPORT

General Information		Site Information	
Analyst	*S.C.*	Intersection	*SR 401 @ Grouper*
Agency or Co.	*G&A*	Area Type	*All other areas*
Date Performed	*11/28/2005*	Jurisdiction	*Port Authority*
Time Period	*AM Peak*	Analysis Year	*2005 - Existing*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	2	0	1	2	0	1	0	1	0	0	0
Lane Group		T		L	T		L		R			
Volume (vph)		1456		3	55		50		0			
% Heavy veh	2	2	2	2	2	2	2	2	2	2	2	2
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)		A		A	A		A		A			
Startup lost time		2.0		2.0	2.0		2.0	2.0	2.0		2.0	
Ext. eff. green		2.0		2.0	2.0		2.0	2.0	2.0		2.0	
Arrival type		3		3	3		3	3	3		3	
Unit Extension		3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width		12.0		12.0	12.0		12.0	12.0	12.0		12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr		0		0	0		0	0	0		0	
Unit Extension		3.0		3.0	3.0		3.0	3.0	3.0		3.0	

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = 50.0	G =	G =	G =	G = 15.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 75.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adj. flow rate		1533		3	58		53	0	0		0
Lane group cap.		2365		145	2365		354		317		
v/c ratio		0.65		0.02	0.02		0.15		0.00		
Green ratio		0.67		0.67	0.67		0.20	0.00	0.20		0.00
Unif. delay d_1		7.3		4.2	4.2		24.7		24.0		
Delay factor k		0.23		0.11	0.11		0.11		0.11		
Increm. delay d_2		0.6		0.1	0.0		0.2		0.0		
PF factor		1.000		1.000	1.000		1.000		1.000		
Control delay		8.0		4.3	4.2		24.9		24.0		
Lane group LOS		A		A	A		C		C		
Apprch. delay	8.0			4.2			24.9				
Approach LOS	A			A			C				
Intersec. delay	8.4			Intersection LOS						A	

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SHORT REPORT

General Information		Site Information	
Analyst	*S.C.*	Intersection	*SR 401 & Charles Rowland*
Agency or Co.	*G&A*	Area Type	*All other areas*
Date Performed	*11/28/2005*	Jurisdiction	*Port Authority*
Time Period	*AM Peak*	Analysis Year	*2005 Existing*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	2	1	1	2	0	2	0	1	0	0	0
Lane Group		T	R	L	T		L		R			
Volume (vph)		1530	5	3	77		1		1			
% Heavy veh	2	2	2	2	2	2	2	2	2	2	2	2
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)		A	A	A	A		A		A			
Startup lost time		2.0	2.0	2.0	2.0		2.0	2.0	2.0		2.0	
Ext. eff. green		2.0	2.0	2.0	2.0		2.0	2.0	2.0		2.0	
Arrival type		3	3	3	3		3	3	3		3	
Unit Extension		3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width		12.0	12.0	12.0	12.0		12.0	12.0	12.0		12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr		0	0	0	0		0	0	0		0	
Unit Extension		3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0	

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = 55.0	G =	G =	G =	G = 15.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 80.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adj. flow rate		1611	5	3	81		1	0	1		0
Lane group cap.		2439	1088	137	2439		644		297		
v/c ratio		0.66	0.00	0.02	0.03		0.00		0.00		
Green ratio		0.69	0.69	0.69	0.69		0.19	0.00	0.19		0.00
Unif. delay d_1		7.2	3.9	4.0	4.0		26.4		26.4		
Delay factor k		0.24	0.11	0.11	0.11		0.11		0.11		
Increm. delay d_2		0.7	0.0	0.1	0.0		0.0		0.0		
PF factor		1.000	1.000	1.000	1.000		1.000		1.000		
Control delay		7.8	3.9	4.0	4.0		26.4		26.4		
Lane group LOS		A	A	A	A		C		C		
Apprch. delay	7.8			4.0			26.4				
Approach LOS	A			A			C				
Intersec. delay	7.6			Intersection LOS						A	

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SHORT REPORT

General Information		Site Information	
Analyst	*SC*	Intersection	*George King @ Atlantic*
Agency or Co.	*G&A*	Area Type	*All other areas*
Date Performed	*11/29/2005*	Jurisdiction	*Port Authority*
Time Period	*AM Peak*	Analysis Year	*2005 - Existing*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	0	1	1	1	0	1	1	1	1	0
Lane Group	L	TR		L	T	R		LT	R	L	TR	
Volume (vph)	33	139	82	14	37	3	157	21	96	2	6	18
% Heavy veh	2	2	2	2	2	2	2	2	2	2	2	2
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup lost time	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0	2.0	
Ext. eff. green	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0	2.0	
Arrival type	3	3		3	3	3		3	3	3	3	
Unit Extension	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0	12.0		12.0	12.0	12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0	0		0	0	0	0	
Unit Extension	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0	3.0	

Phasing	EB Only	EW Perm	03	04	NS Perm	06	07	08
Timing	G = *10.0*	G = *40.0*	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis (hrs) = *0.25*						Cycle Length C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adj. flow rate	35	232		15	39	3		187	101	2	25
Lane group cap.	803	1075		508	828	704		379	440	298	458
v/c ratio	0.04	0.22		0.03	0.05	0.00		0.49	0.23	0.01	0.05
Green ratio	0.61	0.61		0.44	0.44	0.44		0.28	0.28	0.28	0.28
Unif. delay d_1	7.1	7.8		14.1	14.2	13.9		27.2	25.1	23.5	23.8
Delay factor k	0.11	0.11		0.11	0.11	0.11		0.11	0.11	0.11	0.11
Increm. delay d_2	0.0	0.1		0.0	0.0	0.0		1.0	0.3	0.0	0.0
PF factor	1.000	1.000		1.000	1.000	1.000		1.000	1.000	1.000	1.000
Control delay	7.1	7.9		14.1	14.2	13.9		28.2	25.3	23.5	23.9
Lane group LOS	A	A		B	B	B		C	C	C	C
Apprch. delay	7.8			14.2			27.2			23.9	
Approach LOS	A			B			C			C	
Intersec. delay	17.8			Intersection LOS						B	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*GKB @ C Columbus Drive*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	*2005*
Analysis Time Period	*AM*		

Project Description

East/West Street: *George King Blvd*	North/South Street: *C Columbus Drive*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*56*	*183*			*51*	*0*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*58*	*192*	*0*	*0*	*53*	*0*
Percent Heavy Vehicles	*0*	--	--	*25*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				*0*		*16*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*0*	*0*	*16*
Percent Heavy Vehicles	*6*	*0*	*2*	*0*	*16*	*12*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
v (vph)	*58*					*0*		*16*
C (m) (vph)	*1566*					*638*		*987*
v/c	*0.04*					*0.00*		*0.02*
95% queue length	*0.12*					*0.00*		*0.05*
Control Delay	*7.4*					*10.6*		*8.7*
LOS	*A*					*B*		*A*
Approach Delay	--	--				*8.7*		
Approach LOS	--	--				*A*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst		Intersection	*GKB @ Dave Nisbet Drive*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	*2005*
Analysis Time Period	*AM*		

Project Description	
East/West Street: *George King Blvd*	North/South Street: *Dave Nisbet Drive*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*168*	*314*			*186*	*26*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*176*	*330*	*0*	*0*	*195*	*27*
Percent Heavy Vehicles	*2*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*0*	*1*	*1*
Configuration	*L*	*T*			*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				*9*		*78*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*9*	*0*	*82*
Percent Heavy Vehicles	*0*	*0*	*0*	*11*	*0*	*4*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
v (vph)	*176*					*9*		*82*
C (m) (vph)	*1344*					*389*		*807*
v/c	*0.13*					*0.02*		*0.10*
95% queue length	*0.45*					*0.07*		*0.34*
Control Delay	*8.1*					*14.5*		*10.0*
LOS	*A*					*B*		*A*
Approach Delay	--	--				*10.4*		
Approach LOS	--	--				*B*		

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SHORT REPORT

General Information		Site Information	
Analyst	*SC*	Intersection	*George King @ Flounder*
Agency or Co.	*G&A*	Area Type	*All other areas*
Date Performed	*11/29/2005*	Jurisdiction	*Port Authority*
Time Period	*AM Peak*	Analysis Year	*2055 - Existing*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	*1*	*1*	*1*	*1*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group	*L*	*T*	*R*	*L*	*T*	*R*		*LTR*			*LTR*	
Volume (vph)	*20*	*348*	*33*	*8*	*237*	*19*	*7*	*2*	*2*	*7*	*1*	*12*
% Heavy veh	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup lost time	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Ext. eff. green	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Arrival type	*3*	*3*	*3*	*3*	*3*	*3*		*3*			*3*	
Unit Extension	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*			*3.0*	
Ped/Bike/RTOR Volume	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*		*12.0*			*12.0*	
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/hr												
Bus stops/hr	*0*	*0*	*0*	*0*	*0*	*0*		*0*			*0*	
Unit Extension	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*			*3.0*	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *55.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis (hrs) = *0.25*					Cycle Length C = *90.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adj. flow rate	*21*	*366*	*35*	*8*	*249*	*20*		*11*			*21*
Lane group cap.	*694*	*1161*	*987*	*585*	*1161*	*987*		*467*			*459*
v/c ratio	*0.03*	*0.32*	*0.04*	*0.01*	*0.21*	*0.02*		*0.02*			*0.05*
Green ratio	*0.61*	*0.61*	*0.61*	*0.61*	*0.61*	*0.61*		*0.28*			*0.28*
Unif. delay d_1	*6.9*	*8.4*	*7.0*	*6.9*	*7.8*	*6.9*		*23.6*			*23.8*
Delay factor k	*0.11*	*0.11*	*0.11*	*0.11*	*0.11*	*0.11*		*0.11*			*0.11*
Increm. delay d_2	*0.0*	*0.2*	*0.0*	*0.0*	*0.1*	*0.0*		*0.0*			*0.0*
PF factor	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*		*1.000*			*1.000*
Control delay	*7.0*	*8.6*	*7.0*	*6.9*	*7.9*	*6.9*		*23.6*			*23.8*
Lane group LOS	*A*	*A*	*A*	*A*	*A*	*A*		*C*			*C*
Apprch. delay	*8.4*			*7.8*			*23.6*			*23.8*	
Approach LOS	*A*			*A*			*C*			*C*	
Intersec. delay	*8.8*			Intersection LOS						*A*	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*George King @ Jetty Park*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	*2005*
Analysis Time Period	*AM*		

Project Description	
East/West Street: *George King Blvd*	North/South Street: *Jetty Park Drive*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	72	4	21	0	9	0
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	75	4	22	0	9	0
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type	Raised curb					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L		TR	LTR		
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	16	2	0	0		
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	16	2	0	0	0	6
Percent Heavy Vehicles	2	2	2	2	16	2
Percent Grade (%)	2			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	1	0	1
Configuration		LTR		L		R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	LTR		LTR		L		R
v (vph)	75	0		18		0		6
C (m) (vph)	1611	1588		712		721		1073
v/c	0.05	0.00		0.03		0.00		0.01
95% queue length	0.15	0.00		0.08		0.00		0.02
Control Delay	7.3	7.3		10.2		10.0		8.4
LOS	A	A		B		A		A
Approach Delay	--	--	10.2			8.4		
Approach LOS	--	--	B			A		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*GKB @ Marlin*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	*2005*
Analysis Time Period	*AM*		

Project Description	
East/West Street: *George King Blvd*	North/South Street: *Marlin Street*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*91*	*258*	*8*	*11*	*201*	*11*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*95*	*271*	*8*	*11*	*211*	*11*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*1*	*1*	*1*	*1*
Configuration	*L*	*T*	*R*	*L*	*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*1*	*4*	*10*	*0*	*3*	*24*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*1*	*4*	*10*	*0*	*3*	*25*
Percent Heavy Vehicles	*25*	*1*	*14*	*5*	*2*	*35*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
v (vph)	*95*	*11*		*15*			*28*	
C (m) (vph)	*1347*	*1284*		*577*			*692*	
v/c	*0.07*	*0.01*		*0.03*			*0.04*	
95% queue length	*0.23*	*0.03*		*0.08*			*0.13*	
Control Delay	*7.9*	*7.8*		*11.4*			*10.4*	
LOS	*A*	*A*		*B*			*B*	
Approach Delay	--	--	*11.4*			*10.4*		
Approach LOS	--	--	*B*			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	M Tobin	Intersection	Mullett Rd @ Dave Nisbet Drive
Agency/Co.	GA	Jurisdiction	Port Canaveral
Date Performed	11/21/2005	Analysis Year	2005
Analysis Time Period	AM		

Project Description

East/West Street: *Mullet Road*	North/South Street: *Dave Nisbet Drive*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	87	74			40	3
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	91	77	0	0	42	3
Percent Heavy Vehicles	2	--	--	20	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	4		53			
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	4	0	55	0	0	0
Percent Heavy Vehicles	3	0	2	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (vph)	91						59	
C (m) (vph)	1563						988	
v/c	0.06						0.06	
95% queue length	0.19						0.19	
Control Delay	7.4						8.9	
LOS	A						A	
Approach Delay	--	--				8.9		
Approach LOS	--	--				A		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*M Tobin*
Agency/Co.	*GA*
Date Performed	*11/21/2005*
Analysis Time Period	*AM*

Site Information

Intersection	*Mullett Rd @ Scallop Dr*
Jurisdiction	*Port Canaveral*
Analysis Year	*2005*

Project Description

East/West Street: *Mullet Road* North/South Street: *Scallop Drive*

Intersection Orientation: *East-West* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*72*	*4*	*21*	*0*	*9*	*0*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*75*	*4*	*22*	*0*	*9*	*0*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*		*TR*	*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*16*	*2*	*0*	*0*		*5*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*16*	*2*	*0*	*0*	*0*	*5*
Percent Heavy Vehicles	*2*	*2*	*2*	*2*	*16*	*2*
Percent Grade (%)		*2*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*1*	*0*	*1*
Configuration		*LTR*		*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*LTR*		*LTR*		*L*		*R*
v (vph)	*75*	*0*		*18*		*0*		*5*
C (m) (vph)	*1611*	*1588*		*712*		*721*		*1073*
v/c	*0.05*	*0.00*		*0.03*		*0.00*		*0.00*
95% queue length	*0.15*	*0.00*		*0.08*		*0.00*		*0.01*
Control Delay	*7.3*	*7.3*		*10.2*		*10.0*		*8.4*
LOS	*A*	*A*		*B*		*A*		*A*
Approach Delay	--	--		*10.2*			*8.4*	
Approach LOS	--	--		*B*			*A*	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*Scallop Rd @ Dave Nisbet Drive*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	*2005*
Analysis Time Period	*AM*		

Project Description	
East/West Street: *Scallop Road*	North/South Street: *Dave Nisbet Drive*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*31*	*44*			*20*	*3*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*32*	*46*	*0*	*0*	*21*	*3*
Percent Heavy Vehicles	*3*	--	--	*20*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*4*		*16*			
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*4*	*0*	*16*	*0*	*0*	*0*
Percent Heavy Vehicles	*25*	*2*	*6*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*32*						*20*	
C (m) (vph)	*1584*						*971*	
v/c	*0.02*						*0.02*	
95% queue length	*0.06*						*0.06*	
Control Delay	*7.3*						*8.8*	
LOS	*A*						*A*	
Approach Delay	--	--				*8.8*		
Approach LOS	--	--				*A*		

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SHORT REPORT

General Information		Site Information	
Analyst	*S.C.*	Intersection	*SR 401 @ Grouper*
Agency or Co.	*G&A*	Area Type	*All other areas*
Date Performed	*11/28/2005*	Jurisdiction	*Port Authority*
Time Period	*AM Peak*	Analysis Year	*2005 - Existing*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	2	0	1	2	0	1	0	1	0	0	0
Lane Group		T		L	T		L		R			
Volume (vph)		1456		3	55		50		0			
% Heavy veh	2	2	2	2	2	2	2	2	2	2	2	2
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)		A		A	A		A		A			
Startup lost time		2.0		2.0	2.0		2.0	2.0	2.0		2.0	
Ext. eff. green		2.0		2.0	2.0		2.0	2.0	2.0		2.0	
Arrival type		3		3	3		3	3	3		3	
Unit Extension		3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width		12.0		12.0	12.0		12.0	12.0	12.0		12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr		0		0	0		0	0	0		0	
Unit Extension		3.0		3.0	3.0		3.0	3.0	3.0		3.0	

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = 50.0	G =	G =	G =	G = 15.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 75.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adj. flow rate		1533		3	58		53	0	0		0
Lane group cap.		2365		145	2365		354		317		
v/c ratio		0.65		0.02	0.02		0.15		0.00		
Green ratio		0.67		0.67	0.67		0.20	0.00	0.20		0.00
Unif. delay d_1		7.3		4.2	4.2		24.7		24.0		
Delay factor k		0.23		0.11	0.11		0.11		0.11		
Increm. delay d_2		0.6		0.1	0.0		0.2		0.0		
PF factor		1.000		1.000	1.000		1.000		1.000		
Control delay		8.0		4.3	4.2		24.9		24.0		
Lane group LOS		A		A	A		C		C		
Apprch. delay	8.0			4.2			24.9				
Approach LOS	A			A			C				
Intersec. delay	8.4			Intersection LOS						A	

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SHORT REPORT

General Information		Site Information	
Analyst	*S.C.*	Intersection	*SR 401 & Charles Rowland*
Agency or Co.	*G&A*	Area Type	*All other areas*
Date Performed	*11/28/2005*	Jurisdiction	*Port Authority*
Time Period	*AM Peak*	Analysis Year	*2005 Existing*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	2	1	1	2	0	2	0	1	0	0	0
Lane Group		T	R	L	T		L		R			
Volume (vph)		1530	5	3	77		1		1			
% Heavy veh	2	2	2	2	2	2	2	2	2	2	2	2
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)		A	A	A	A		A		A			
Startup lost time		2.0	2.0	2.0	2.0		2.0	2.0	2.0		2.0	
Ext. eff. green		2.0	2.0	2.0	2.0		2.0	2.0	2.0		2.0	
Arrival type		3	3	3	3		3	3	3		3	
Unit Extension		3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width		12.0	12.0	12.0	12.0		12.0	12.0	12.0		12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr		0	0	0	0		0	0	0		0	
Unit Extension		3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0	

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = 55.0	G =	G =	G =	G = 15.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25					Cycle Length C = 80.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adj. flow rate		1611	5	3	81		1	0	1		0
Lane group cap.		2439	1088	137	2439		644		297		
v/c ratio		0.66	0.00	0.02	0.03		0.00		0.00		
Green ratio		0.69	0.69	0.69	0.69		0.19	0.00	0.19		0.00
Unif. delay d_1		7.2	3.9	4.0	4.0		26.4		26.4		
Delay factor k		0.24	0.11	0.11	0.11		0.11		0.11		
Increm. delay d_2		0.7	0.0	0.1	0.0		0.0		0.0		
PF factor		1.000	1.000	1.000	1.000		1.000		1.000		
Control delay		7.8	3.9	4.0	4.0		26.4		26.4		
Lane group LOS		A	A	A	A		C		C		
Apprch. delay	7.8			4.0			26.4				
Approach LOS	A			A			C				
Intersec. delay	7.6			Intersection LOS						A	

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SHORT REPORT

General Information		Site Information	
Analyst	SC	Intersection	George King @ Atlantic
Agency or Co.	G&A	Area Type	All other areas
Date Performed	11/29/2005	Jurisdiction	Port Authority
Time Period	AM Peak	Analysis Year	2005 - Existing

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	0	1	1	1	0	1	1	1	1	0
Lane Group	L	TR		L	T	R		LT	R	L	TR	
Volume (vph)	33	139	82	14	37	3	157	21	96	2	6	18
% Heavy veh	2	2	2	2	2	2	2	2	2	2	2	2
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup lost time	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0	2.0	
Ext. eff. green	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0	2.0	
Arrival type	3	3		3	3	3		3	3	3	3	
Unit Extension	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0	12.0		12.0	12.0	12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0	0		0	0	0	0	
Unit Extension	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0	3.0	

Phasing	EB Only	EW Perm	03	04	NS Perm	06	07	08
Timing	G = 10.0	G = 40.0	G =	G =	G = 25.0	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adj. flow rate	35	232		15	39	3		187	101	2	25
Lane group cap.	803	1075		508	828	704		379	440	298	458
v/c ratio	0.04	0.22		0.03	0.05	0.00		0.49	0.23	0.01	0.05
Green ratio	0.61	0.61		0.44	0.44	0.44		0.28	0.28	0.28	0.28
Unif. delay d_1	7.1	7.8		14.1	14.2	13.9		27.2	25.1	23.5	23.8
Delay factor k	0.11	0.11		0.11	0.11	0.11		0.11	0.11	0.11	0.11
Increm. delay d_2	0.0	0.1		0.0	0.0	0.0		1.0	0.3	0.0	0.0
PF factor	1.000	1.000		1.000	1.000	1.000		1.000	1.000	1.000	1.000
Control delay	7.1	7.9		14.1	14.2	13.9		28.2	25.3	23.5	23.9
Lane group LOS	A	A		B	B	B		C	C	C	C
Apprch. delay	7.8			14.2			27.2			23.9	
Approach LOS	A			B			C			C	
Intersec. delay	17.8			Intersection LOS						B	

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*M Tobin*
Agency/Co.	*GA*
Date Performed	*11/21/2005*
Analysis Time Period	*AM*

Site Information

Intersection	*GKB @ C Columbus Drive*
Jurisdiction	*Port Canaveral*
Analysis Year	*2005*

Project Description

East/West Street: *George King Blvd* North/South Street: *C Columbus Drive*

Intersection Orientation: *East-West* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*56*	*183*			*51*	*0*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*58*	*192*	*0*	*0*	*53*	*0*
Percent Heavy Vehicles	*0*	--	--	*25*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				*0*		*16*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*0*	*0*	*16*
Percent Heavy Vehicles	*6*	*0*	*2*	*0*	*16*	*12*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
v (vph)	*58*					*0*		*16*
C (m) (vph)	*1566*					*638*		*987*
v/c	*0.04*					*0.00*		*0.02*
95% queue length	*0.12*					*0.00*		*0.05*
Control Delay	*7.4*					*10.6*		*8.7*
LOS	*A*					*B*		*A*
Approach Delay	--	--				*8.7*		
Approach LOS	--	--				*A*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst		Intersection	GKB @ Dave Nisbet Drive
Agency/Co.	GA	Jurisdiction	Port Canaveral
Date Performed	11/21/2005	Analysis Year	2005
Analysis Time Period	AM		

Project Description	
East/West Street: George King Blvd	North/South Street: Dave Nisbet Drive
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	168	314			186	26
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	176	330	0	0	195	27
Percent Heavy Vehicles	2	--	--	0	--	--
Median Type	Raised curb					
RT Channelized			0			0
Lanes	1	2	0	0	1	1
Configuration	L	T			T	R
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				9		78
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	0	0	0	9	0	82
Percent Heavy Vehicles	0	0	0	11	0	4
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	1	0	1
Configuration				L		R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L					L		R
v (vph)	176					9		82
C (m) (vph)	1344					389		807
v/c	0.13					0.02		0.10
95% queue length	0.45					0.07		0.34
Control Delay	8.1					14.5		10.0
LOS	A					B		A
Approach Delay	--	--				10.4		
Approach LOS	--	--				B		

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SHORT REPORT

General Information		Site Information	
Analyst	*SC*	Intersection	*George King @ Flounder*
Agency or Co.	*G&A*	Area Type	*All other areas*
Date Performed	*11/29/2005*	Jurisdiction	*Port Authority*
Time Period	*AM Peak*	Analysis Year	*2055 - Existing*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	1	1	1	1	0	1	0	0	1	0
Lane Group	L	T	R	L	T	R		LTR			LTR	
Volume (vph)	20	348	33	8	237	19	7	2	2	7	1	12
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup lost time	2.0	2.0	2.0	2.0	2.0	2.0		2.0			2.0	
Ext. eff. green	2.0	2.0	2.0	2.0	2.0	2.0		2.0			2.0	
Arrival type	3	3	3	3	3	3		3			3	
Unit Extension	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0		12.0			12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0	0	0	0	0		0			0	
Unit Extension	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 55.0	G =	G =	G =	G = 25.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25					Cycle Length C = 90.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adj. flow rate	21	366	35	8	249	20		11			21
Lane group cap.	694	1161	987	585	1161	987		467			459
v/c ratio	0.03	0.32	0.04	0.01	0.21	0.02		0.02			0.05
Green ratio	0.61	0.61	0.61	0.61	0.61	0.61		0.28			0.28
Unif. delay d_1	6.9	8.4	7.0	6.9	7.8	6.9		23.6			23.8
Delay factor k	0.11	0.11	0.11	0.11	0.11	0.11		0.11			0.11
Increm. delay d_2	0.0	0.2	0.0	0.0	0.1	0.0		0.0			0.0
PF factor	1.000	1.000	1.000	1.000	1.000	1.000		1.000			1.000
Control delay	7.0	8.6	7.0	6.9	7.9	6.9		23.6			23.8
Lane group LOS	A	A	A	A	A	A		C			C
Apprch. delay	8.4			7.8			23.6			23.8	
Approach LOS	A			A			C			C	
Intersec. delay	8.8			Intersection LOS						A	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*George King @ Jetty Park*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	*2005*
Analysis Time Period	*AM*		

Project Description

East/West Street: *George King Blvd* — North/South Street: *Jetty Park Drive*

Intersection Orientation: *East-West* — Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*72*	*4*	*21*	*0*	*9*	*0*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*75*	*4*	*22*	*0*	*9*	*0*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*		*TR*	*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*16*	*2*	*0*	*0*		
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*16*	*2*	*0*	*0*	*0*	*6*
Percent Heavy Vehicles	*2*	*2*	*2*	*2*	*16*	*2*
Percent Grade (%)		*2*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*1*	*0*	*1*
Configuration		*LTR*		*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*LTR*		*LTR*		*L*		*R*
v (vph)	*75*	*0*		*18*		*0*		*6*
C (m) (vph)	*1611*	*1588*		*712*		*721*		*1073*
v/c	*0.05*	*0.00*		*0.03*		*0.00*		*0.01*
95% queue length	*0.15*	*0.00*		*0.08*		*0.00*		*0.02*
Control Delay	*7.3*	*7.3*		*10.2*		*10.0*		*8.4*
LOS	*A*	*A*		*B*		*A*		*A*
Approach Delay	--	--		*10.2*			*8.4*	
Approach LOS	--	--		*B*			*A*	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*GKB @ Marlin*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	*2005*
Analysis Time Period	*AM*		

Project Description	
East/West Street: *George King Blvd*	North/South Street: *Marlin Street*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*91*	*258*	*8*	*11*	*201*	*11*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*95*	*271*	*8*	*11*	*211*	*11*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*1*	*1*	*1*	*1*
Configuration	*L*	*T*	*R*	*L*	*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*1*	*4*	*10*	*0*	*3*	*24*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*1*	*4*	*10*	*0*	*3*	*25*
Percent Heavy Vehicles	*25*	*1*	*14*	*5*	*2*	*35*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
v (vph)	*95*	*11*		*15*			*28*	
C (m) (vph)	*1347*	*1284*		*577*			*692*	
v/c	*0.07*	*0.01*		*0.03*			*0.04*	
95% queue length	*0.23*	*0.03*		*0.08*			*0.13*	
Control Delay	*7.9*	*7.8*		*11.4*			*10.4*	
LOS	*A*	*A*		*B*			*B*	
Approach Delay	--	--	*11.4*			*10.4*		
Approach LOS	--	--	*B*			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*Mullett Rd @ Dave Nisbet Drive*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	*2005*
Analysis Time Period	*AM*		

Project Description
East/West Street: *Mullet Road* North/South Street: *Dave Nisbet Drive*
Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*87*	*74*			*40*	*3*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*91*	*77*	*0*	*0*	*42*	*3*
Percent Heavy Vehicles	*2*	--	--	*20*	--	--
Median Type	*Two Way Left Turn Lane*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*4*		*53*			
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*4*	*0*	*55*	*0*	*0*	*0*
Percent Heavy Vehicles	*3*	*0*	*2*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (vph)	*91*						*59*	
C (m) (vph)	*1563*						*988*	
v/c	*0.06*						*0.06*	
95% queue length	*0.19*						*0.19*	
Control Delay	*7.4*						*8.9*	
LOS	*A*						*A*	
Approach Delay	--	--				*8.9*		
Approach LOS	--	--				*A*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	M Tobin	Intersection	Mullett Rd @ Scallop Dr
Agency/Co.	GA	Jurisdiction	Port Canaveral
Date Performed	11/21/2005	Analysis Year	2005
Analysis Time Period	AM		

Project Description	
East/West Street: *Mullet Road*	North/South Street: *Scallop Drive*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	72	4	21	0	9	0
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	75	4	22	0	9	0
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type	Raised curb					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L		TR	LTR		
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	16	2	0	0		5
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	16	2	0	0	0	5
Percent Heavy Vehicles	2	2	2	2	16	2
Percent Grade (%)	2			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	1	0	1
Configuration		LTR		L		R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	LTR		LTR		L		R
v (vph)	75	0		18		0		5
C (m) (vph)	1611	1588		712		721		1073
v/c	0.05	0.00		0.03		0.00		0.00
95% queue length	0.15	0.00		0.08		0.00		0.01
Control Delay	7.3	7.3		10.2		10.0		8.4
LOS	A	A		B		A		A
Approach Delay	--	--	10.2			8.4		
Approach LOS	--	--	B			A		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*Scallop Rd @ Dave Nisbet Drive*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	*2005*
Analysis Time Period	*AM*		

Project Description	
East/West Street: *Scallop Road*	North/South Street: *Dave Nisbet Drive*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*31*	*44*			*20*	*3*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*32*	*46*	*0*	*0*	*21*	*3*
Percent Heavy Vehicles	*3*	--	--	*20*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*4*		*16*			
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*4*	*0*	*16*	*0*	*0*	*0*
Percent Heavy Vehicles	*25*	*2*	*6*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*32*						*20*	
C (m) (vph)	*1584*						*971*	
v/c	*0.02*						*0.02*	
95% queue length	*0.06*						*0.06*	
Control Delay	*7.3*						*8.8*	
LOS	*A*						*A*	
Approach Delay	--	--				*8.8*		
Approach LOS	--	--				*A*		

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SHORT REPORT

General Information		Site Information	
Analyst	*S.C.*	Intersection	*SR 401 @ Grouper*
Agency or Co.	*G&A*	Area Type	*All other areas*
Date Performed	*11/28/2005*	Jurisdiction	*Port Authority*
Time Period	*AM Peak*	Analysis Year	*2005 - Existing*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	2	0	1	2	0	1	0	1	0	0	0
Lane Group		T		L	T		L		R			
Volume (vph)		1456		3	55		50		0			
% Heavy veh	2	2	2	2	2	2	2	2	2	2	2	2
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)		A		A	A		A		A			
Startup lost time		2.0		2.0	2.0		2.0	2.0	2.0		2.0	
Ext. eff. green		2.0		2.0	2.0		2.0	2.0	2.0		2.0	
Arrival type		3		3	3		3	3	3		3	
Unit Extension		3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width		12.0		12.0	12.0		12.0	12.0	12.0		12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr		0		0	0		0	0	0		0	
Unit Extension		3.0		3.0	3.0		3.0	3.0	3.0		3.0	

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = 50.0	G =	G =	G =	G = 15.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 75.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adj. flow rate		1533		3	58		53	0	0		0
Lane group cap.		2365		145	2365		354		317		
v/c ratio		0.65		0.02	0.02		0.15		0.00		
Green ratio		0.67		0.67	0.67		0.20	0.00	0.20		0.00
Unif. delay d_1		7.3		4.2	4.2		24.7		24.0		
Delay factor k		0.23		0.11	0.11		0.11		0.11		
Increm. delay d_2		0.6		0.1	0.0		0.2		0.0		
PF factor		1.000		1.000	1.000		1.000		1.000		
Control delay		8.0		4.3	4.2		24.9		24.0		
Lane group LOS		A		A	A		C		C		
Apprch. delay	8.0			4.2			24.9				
Approach LOS	A			A			C				
Intersec. delay	8.4			Intersection LOS						A	

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SHORT REPORT

General Information		Site Information	
Analyst	*S.C.*	Intersection	*SR 401 & Charles Rowland*
Agency or Co.	*G&A*	Area Type	*All other areas*
Date Performed	*11/28/2005*	Jurisdiction	*Port Authority*
Time Period	*AM Peak*	Analysis Year	*2005 Existing*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	2	1	1	2	0	2	0	1	0	0	0
Lane Group		T	R	L	T		L		R			
Volume (vph)		1530	5	3	77		1		1			
% Heavy veh	2	2	2	2	2	2	2	2	2	2	2	2
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)		A	A	A	A		A		A			
Startup lost time		2.0	2.0	2.0	2.0		2.0	2.0	2.0		2.0	
Ext. eff. green		2.0	2.0	2.0	2.0		2.0	2.0	2.0		2.0	
Arrival type		3	3	3	3		3	3	3		3	
Unit Extension		3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width		12.0	12.0	12.0	12.0		12.0	12.0	12.0		12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr		0	0	0	0		0	0	0		0	
Unit Extension		3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0	

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = 55.0	G =	G =	G =	G = 15.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 80.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adj. flow rate		1611	5	3	81		1	0	1		0
Lane group cap.		2439	1088	137	2439		644		297		
v/c ratio		0.66	0.00	0.02	0.03		0.00		0.00		
Green ratio		0.69	0.69	0.69	0.69		0.19	0.00	0.19		0.00
Unif. delay d_1		7.2	3.9	4.0	4.0		26.4		26.4		
Delay factor k		0.24	0.11	0.11	0.11		0.11		0.11		
Increm. delay d_2		0.7	0.0	0.1	0.0		0.0		0.0		
PF factor		1.000	1.000	1.000	1.000		1.000		1.000		
Control delay		7.8	3.9	4.0	4.0		26.4		26.4		
Lane group LOS		A	A	A	A		C		C		
Apprch. delay	7.8			4.0			26.4				
Approach LOS	A			A			C				
Intersec. delay	7.6			Intersection LOS						A	

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SHORT REPORT	
General Information	**Site Information**
Analyst: *SC*	Intersection: *George King @ Atlantic*
Agency or Co.: *G&A*	Area Type: *All other areas*
Date Performed: *11/29/2005*	Jurisdiction: *Port Authority*
Time Period: *AM Peak*	Analysis Year: *2005 - Existing*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	0	1	1	1	0	1	1	1	1	0
Lane Group	L	TR		L	T	R		LT	R	L	TR	
Volume (vph)	33	139	82	14	37	3	157	21	96	2	6	18
% Heavy veh	2	2	2	2	2	2	2	2	2	2	2	2
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup lost time	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0	2.0	
Ext. eff. green	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0	2.0	
Arrival type	3	3		3	3	3		3	3	3	3	
Unit Extension	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0	12.0		12.0	12.0	12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0	0		0	0	0	0	
Unit Extension	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0	3.0	

Phasing	EB Only	EW Perm	03	04	NS Perm	06	07	08
Timing	G = 10.0	G = 40.0	G =	G =	G = 25.0	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adj. flow rate	35	232		15	39	3		187	101	2	25
Lane group cap.	803	1075		508	828	704		379	440	298	458
v/c ratio	0.04	0.22		0.03	0.05	0.00		0.49	0.23	0.01	0.05
Green ratio	0.61	0.61		0.44	0.44	0.44		0.28	0.28	0.28	0.28
Unif. delay d_1	7.1	7.8		14.1	14.2	13.9		27.2	25.1	23.5	23.8
Delay factor k	0.11	0.11		0.11	0.11	0.11		0.11	0.11	0.11	0.11
Increm. delay d_2	0.0	0.1		0.0	0.0	0.0		1.0	0.3	0.0	0.0
PF factor	1.000	1.000		1.000	1.000	1.000		1.000	1.000	1.000	1.000
Control delay	7.1	7.9		14.1	14.2	13.9		28.2	25.3	23.5	23.9
Lane group LOS	A	A		B	B	B		C	C	C	C
Apprch. delay	7.8			14.2			27.2			23.9	
Approach LOS	A			B			C			C	
Intersec. delay	17.8			Intersection LOS						B	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*GKB @ C Columbus Drive*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	*2005*
Analysis Time Period	*AM*		

Project Description

East/West Street: *George King Blvd*	North/South Street: *C Columbus Drive*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*56*	*183*			*51*	*0*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*58*	*192*	*0*	*0*	*53*	*0*
Percent Heavy Vehicles	*0*	--	--	*25*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				*0*		*16*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*0*	*0*	*16*
Percent Heavy Vehicles	*6*	*0*	*2*	*0*	*16*	*12*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
v (vph)	*58*					*0*		*16*
C (m) (vph)	*1566*					*638*		*987*
v/c	*0.04*					*0.00*		*0.02*
95% queue length	*0.12*					*0.00*		*0.05*
Control Delay	*7.4*					*10.6*		*8.7*
LOS	*A*					*B*		*A*
Approach Delay	--	--				*8.7*		
Approach LOS	--	--				*A*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst		Intersection	*GKB @ Dave Nisbet Drive*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	*2005*
Analysis Time Period	*AM*		

Project Description

East/West Street: *George King Blvd*	North/South Street: *Dave Nisbet Drive*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*168*	*314*			*186*	*26*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*176*	*330*	*0*	*0*	*195*	*27*
Percent Heavy Vehicles	*2*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*0*	*1*	*1*
Configuration	*L*	*T*			*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				*9*		*78*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*9*	*0*	*82*
Percent Heavy Vehicles	*0*	*0*	*0*	*11*	*0*	*4*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
v (vph)	*176*					*9*		*82*
C (m) (vph)	*1344*					*389*		*807*
v/c	*0.13*					*0.02*		*0.10*
95% queue length	*0.45*					*0.07*		*0.34*
Control Delay	*8.1*					*14.5*		*10.0*
LOS	*A*					*B*		*A*
Approach Delay	--	--				*10.4*		
Approach LOS	--	--				*B*		

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SHORT REPORT

General Information		Site Information	
Analyst	*SC*	Intersection	*George King @ Flounder*
Agency or Co.	*G&A*	Area Type	*All other areas*
Date Performed	*11/29/2005*	Jurisdiction	*Port Authority*
Time Period	*AM Peak*	Analysis Year	*2055 - Existing*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	1	1	1	1	0	1	0	0	1	0
Lane Group	L	T	R	L	T	R		LTR			LTR	
Volume (vph)	20	348	33	8	237	19	7	2	2	7	1	12
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup lost time	2.0	2.0	2.0	2.0	2.0	2.0		2.0			2.0	
Ext. eff. green	2.0	2.0	2.0	2.0	2.0	2.0		2.0			2.0	
Arrival type	3	3	3	3	3	3		3			3	
Unit Extension	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0		12.0			12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0	0	0	0	0		0			0	
Unit Extension	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 55.0	G =	G =	G =	G = 25.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25					Cycle Length C = 90.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	21	366	35	8	249	20		11			21	
Lane group cap.	694	1161	987	585	1161	987		467			459	
v/c ratio	0.03	0.32	0.04	0.01	0.21	0.02		0.02			0.05	
Green ratio	0.61	0.61	0.61	0.61	0.61	0.61		0.28			0.28	
Unif. delay d_1	6.9	8.4	7.0	6.9	7.8	6.9		23.6			23.8	
Delay factor k	0.11	0.11	0.11	0.11	0.11	0.11		0.11			0.11	
Increm. delay d_2	0.0	0.2	0.0	0.0	0.1	0.0		0.0			0.0	
PF factor	1.000	1.000	1.000	1.000	1.000	1.000		1.000			1.000	
Control delay	7.0	8.6	7.0	6.9	7.9	6.9		23.6			23.8	
Lane group LOS	A	A	A	A	A	A		C			C	
Apprch. delay	8.4			7.8			23.6			23.8		
Approach LOS	A			A			C			C		
Intersec. delay	8.8			Intersection LOS						A		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*George King @ Jetty Park*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	*2005*
Analysis Time Period	*AM*		

Project Description

East/West Street: *George King Blvd*	North/South Street: *Jetty Park Drive*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*72*	*4*	*21*	*0*	*9*	*0*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*75*	*4*	*22*	*0*	*9*	*0*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*		*TR*	*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*16*	*2*	*0*	*0*		
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*16*	*2*	*0*	*0*	*0*	*6*
Percent Heavy Vehicles	*2*	*2*	*2*	*2*	*16*	*2*
Percent Grade (%)	*2*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*1*	*0*	*1*
Configuration		*LTR*		*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*LTR*		*LTR*		*L*		*R*
v (vph)	*75*	*0*		*18*		*0*		*6*
C (m) (vph)	*1611*	*1588*		*712*		*721*		*1073*
v/c	*0.05*	*0.00*		*0.03*		*0.00*		*0.01*
95% queue length	*0.15*	*0.00*		*0.08*		*0.00*		*0.02*
Control Delay	*7.3*	*7.3*		*10.2*		*10.0*		*8.4*
LOS	*A*	*A*		*B*		*A*		*A*
Approach Delay	--	--	*10.2*			*8.4*		
Approach LOS	--	--	*B*			*A*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*GKB @ Marlin*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	*2005*
Analysis Time Period	*AM*		

Project Description	
East/West Street: *George King Blvd*	North/South Street: *Marlin Street*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*91*	*258*	*8*	*11*	*201*	*11*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*95*	*271*	*8*	*11*	*211*	*11*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*1*	*1*	*1*	*1*
Configuration	*L*	*T*	*R*	*L*	*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*1*	*4*	*10*	*0*	*3*	*24*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*1*	*4*	*10*	*0*	*3*	*25*
Percent Heavy Vehicles	*25*	*1*	*14*	*5*	*2*	*35*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
v (vph)	*95*	*11*		*15*			*28*	
C (m) (vph)	*1347*	*1284*		*577*			*692*	
v/c	*0.07*	*0.01*		*0.03*			*0.04*	
95% queue length	*0.23*	*0.03*		*0.08*			*0.13*	
Control Delay	*7.9*	*7.8*		*11.4*			*10.4*	
LOS	*A*	*A*		*B*			*B*	
Approach Delay	--	--		*11.4*			*10.4*	
Approach LOS	--	--		*B*			*B*	

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*M Tobin*
Agency/Co.	*GA*
Date Performed	*11/21/2005*
Analysis Time Period	*AM*

Site Information

Intersection	*Mullett Rd @ Dave Nisbet Drive*
Jurisdiction	*Port Canaveral*
Analysis Year	*2005*

Project Description

East/West Street: *Mullet Road* North/South Street: *Dave Nisbet Drive*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*87*	*74*			*40*	*3*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*91*	*77*	*0*	*0*	*42*	*3*
Percent Heavy Vehicles	*2*	--	--	*20*	--	--
Median Type	*Two Way Left Turn Lane*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*4*		*53*			
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*4*	*0*	*55*	*0*	*0*	*0*
Percent Heavy Vehicles	*3*	*0*	*2*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (vph)	*91*						*59*	
C (m) (vph)	*1563*						*988*	
v/c	*0.06*						*0.06*	
95% queue length	*0.19*						*0.19*	
Control Delay	*7.4*						*8.9*	
LOS	*A*						*A*	
Approach Delay	--	--				*8.9*		
Approach LOS	--	--				*A*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*Mullett Rd @ Scallop Dr*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	*2005*
Analysis Time Period	*AM*		

Project Description

East/West Street: *Mullet Road*	North/South Street: *Scallop Drive*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	72	4	21	0	9	0
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	75	4	22	0	9	0
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type	Raised curb					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L		TR	LTR		
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	16	2	0	0		5
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	16	2	0	0	0	5
Percent Heavy Vehicles	2	2	2	2	16	2
Percent Grade (%)		2			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	1	0	1
Configuration		LTR		L		R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	LTR		LTR		L		R
v (vph)	75	0		18		0		5
C (m) (vph)	1611	1588		712		721		1073
v/c	0.05	0.00		0.03		0.00		0.00
95% queue length	0.15	0.00		0.08		0.00		0.01
Control Delay	7.3	7.3		10.2		10.0		8.4
LOS	A	A		B		A		A
Approach Delay	--	--	10.2			8.4		
Approach LOS	--	--	B			A		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*Scallop Rd @ Dave Nisbet Drive*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	*2005*
Analysis Time Period	*AM*		

Project Description	
East/West Street: *Scallop Road*	North/South Street: *Dave Nisbet Drive*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*31*	*44*			*20*	*3*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*32*	*46*	*0*	*0*	*21*	*3*
Percent Heavy Vehicles	*3*	--	--	*20*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*4*		*16*			
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*4*	*0*	*16*	*0*	*0*	*0*
Percent Heavy Vehicles	*25*	*2*	*6*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*32*						*20*	
C (m) (vph)	*1584*						*971*	
v/c	*0.02*						*0.02*	
95% queue length	*0.06*						*0.06*	
Control Delay	*7.3*						*8.8*	
LOS	*A*						*A*	
Approach Delay	--	--				*8.8*		
Approach LOS	--	--				*A*		

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SHORT REPORT

General Information		Site Information	
Analyst	*S.C.*	Intersection	*SR 401 @ Grouper*
Agency or Co.	*G&A*	Area Type	*All other areas*
Date Performed	*11/28/2005*	Jurisdiction	*Port Authority*
Time Period	*AM Peak*	Analysis Year	*2005 - Existing*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	2	0	1	2	0	1	0	1	0	0	0
Lane Group		T		L	T		L		R			
Volume (vph)		1456		3	55		50		0			
% Heavy veh	2	2	2	2	2	2	2	2	2	2	2	2
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)		A		A	A		A		A			
Startup lost time		2.0		2.0	2.0		2.0	2.0	2.0		2.0	
Ext. eff. green		2.0		2.0	2.0		2.0	2.0	2.0		2.0	
Arrival type		3		3	3		3	3	3		3	
Unit Extension		3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width		12.0		12.0	12.0		12.0	12.0	12.0		12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr		0		0	0		0	0	0		0	
Unit Extension		3.0		3.0	3.0		3.0	3.0	3.0		3.0	

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *50.0*	G =	G =	G =	G = *15.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis (hrs) = *0.25*					Cycle Length C = *75.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adj. flow rate		1533		3	58		53	0	0		0
Lane group cap.		2365		145	2365		354		317		
v/c ratio		0.65		0.02	0.02		0.15		0.00		
Green ratio		0.67		0.67	0.67		0.20	0.00	0.20		0.00
Unif. delay d_1		7.3		4.2	4.2		24.7		24.0		
Delay factor k		0.23		0.11	0.11		0.11		0.11		
Increm. delay d_2		0.6		0.1	0.0		0.2		0.0		
PF factor		1.000		1.000	1.000		1.000		1.000		
Control delay		8.0		4.3	4.2		24.9		24.0		
Lane group LOS		A		A	A		C		C		
Apprch. delay	8.0			4.2			24.9				
Approach LOS	A			A			C				
Intersec. delay	8.4			Intersection LOS						A	

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SHORT REPORT

General Information		Site Information	
Analyst	*S.C.*	Intersection	*SR 401 & Charles Rowland*
Agency or Co.	*G&A*	Area Type	*All other areas*
Date Performed	*11/28/2005*	Jurisdiction	*Port Authority*
Time Period	*AM Peak*	Analysis Year	*2005 Existing*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	2	1	1	2	0	2	0	1	0	0	0
Lane Group		T	R	L	T		L		R			
Volume (vph)		1530	5	3	77		1		1			
% Heavy veh	2	2	2	2	2	2	2	2	2	2	2	2
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)		A	A	A	A		A		A			
Startup lost time		2.0	2.0	2.0	2.0		2.0	2.0	2.0		2.0	
Ext. eff. green		2.0	2.0	2.0	2.0		2.0	2.0	2.0		2.0	
Arrival type		3	3	3	3		3	3	3		3	
Unit Extension		3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width		12.0	12.0	12.0	12.0		12.0	12.0	12.0		12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr		0	0	0	0		0	0	0		0	
Unit Extension		3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0	

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = 55.0	G =	G =	G =	G = 15.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25					Cycle Length C = 80.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adj. flow rate		1611	5	3	81		1	0	1		0
Lane group cap.		2439	1088	137	2439		644		297		
v/c ratio		0.66	0.00	0.02	0.03		0.00		0.00		
Green ratio		0.69	0.69	0.69	0.69		0.19	0.00	0.19		0.00
Unif. delay d_1		7.2	3.9	4.0	4.0		26.4		26.4		
Delay factor k		0.24	0.11	0.11	0.11		0.11		0.11		
Increm. delay d_2		0.7	0.0	0.1	0.0		0.0		0.0		
PF factor		1.000	1.000	1.000	1.000		1.000		1.000		
Control delay		7.8	3.9	4.0	4.0		26.4		26.4		
Lane group LOS		A	A	A	A		C		C		
Apprch. delay	7.8			4.0			26.4				
Approach LOS	A			A			C				
Intersec. delay	7.6			Intersection LOS						A	

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SHORT REPORT

General Information		Site Information	
Analyst	*SC*	Intersection	*George King @ Atlantic*
Agency or Co.	*G&A*	Area Type	*All other areas*
Date Performed	*11/29/2005*	Jurisdiction	*Port Authority*
Time Period	*AM Peak*	Analysis Year	*2005 - Existing*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	0	1	1	1	0	1	1	1	1	0
Lane Group	L	TR		L	T	R		LT	R	L	TR	
Volume (vph)	33	139	82	14	37	3	157	21	96	2	6	18
% Heavy veh	2	2	2	2	2	2	2	2	2	2	2	2
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup lost time	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0	2.0	
Ext. eff. green	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0	2.0	
Arrival type	3	3		3	3	3		3	3	3	3	
Unit Extension	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0	12.0		12.0	12.0	12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0	0		0	0	0	0	
Unit Extension	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0	3.0	

Phasing	EB Only	EW Perm	03	04	NS Perm	06	07	08
Timing	G = 10.0	G = 40.0	G =	G =	G = 25.0	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adj. flow rate	35	232		15	39	3		187	101	2	25
Lane group cap.	803	1075		508	828	704		379	440	298	458
v/c ratio	0.04	0.22		0.03	0.05	0.00		0.49	0.23	0.01	0.05
Green ratio	0.61	0.61		0.44	0.44	0.44		0.28	0.28	0.28	0.28
Unif. delay d_1	7.1	7.8		14.1	14.2	13.9		27.2	25.1	23.5	23.8
Delay factor k	0.11	0.11		0.11	0.11	0.11		0.11	0.11	0.11	0.11
Increm. delay d_2	0.0	0.1		0.0	0.0	0.0		1.0	0.3	0.0	0.0
PF factor	1.000	1.000		1.000	1.000	1.000		1.000	1.000	1.000	1.000
Control delay	7.1	7.9		14.1	14.2	13.9		28.2	25.3	23.5	23.9
Lane group LOS	A	A		B	B	B		C	C	C	C
Apprch. delay	7.8			14.2			27.2			23.9	
Approach LOS	A			B			C			C	
Intersec. delay	17.8			Intersection LOS						B	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*GKB @ C Columbus Drive*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	*2005*
Analysis Time Period	*AM*		

Project Description

East/West Street: *George King Blvd* | North/South Street: *C Columbus Drive*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*56*	*183*			*51*	*0*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*58*	*192*	*0*	*0*	*53*	*0*
Percent Heavy Vehicles	*0*	--	--	*25*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				*0*		*16*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*0*	*0*	*16*
Percent Heavy Vehicles	*6*	*0*	*2*	*0*	*16*	*12*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
v (vph)	*58*					*0*		*16*
C (m) (vph)	*1566*					*638*		*987*
v/c	*0.04*					*0.00*		*0.02*
95% queue length	*0.12*					*0.00*		*0.05*
Control Delay	*7.4*					*10.6*		*8.7*
LOS	*A*					*B*		*A*
Approach Delay	--	--				*8.7*		
Approach LOS	--	--				*A*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst		Intersection	*GKB @ Dave Nisbet Drive*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	*2005*
Analysis Time Period	*AM*		

Project Description

East/West Street: *George King Blvd* | North/South Street: *Dave Nisbet Drive*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*168*	*314*			*186*	*26*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*176*	*330*	*0*	*0*	*195*	*27*
Percent Heavy Vehicles	*2*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*0*	*1*	*1*
Configuration	*L*	*T*			*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				*9*		*78*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*9*	*0*	*82*
Percent Heavy Vehicles	*0*	*0*	*0*	*11*	*0*	*4*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
v (vph)	*176*					*9*		*82*
C (m) (vph)	*1344*					*389*		*807*
v/c	*0.13*					*0.02*		*0.10*
95% queue length	*0.45*					*0.07*		*0.34*
Control Delay	*8.1*					*14.5*		*10.0*
LOS	*A*					*B*		*A*
Approach Delay	--	--				*10.4*		
Approach LOS	--	--				*B*		

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SHORT REPORT

General Information		Site Information	
Analyst	SC	Intersection	George King @ Flounder
Agency or Co.	G&A	Area Type	All other areas
Date Performed	11/29/2005	Jurisdiction	Port Authority
Time Period	AM Peak	Analysis Year	2055 - Existing

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	1	1	1	1	0	1	0	0	1	0
Lane Group	L	T	R	L	T	R		LTR			LTR	
Volume (vph)	20	348	33	8	237	19	7	2	2	7	1	12
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup lost time	2.0	2.0	2.0	2.0	2.0	2.0		2.0			2.0	
Ext. eff. green	2.0	2.0	2.0	2.0	2.0	2.0		2.0			2.0	
Arrival type	3	3	3	3	3	3		3			3	
Unit Extension	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0		12.0			12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0	0	0	0	0		0			0	
Unit Extension	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 55.0	G =	G =	G =	G = 25.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25					Cycle Length C = 90.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	21	366	35	8	249	20		11			21	
Lane group cap.	694	1161	987	585	1161	987		467			459	
v/c ratio	0.03	0.32	0.04	0.01	0.21	0.02		0.02			0.05	
Green ratio	0.61	0.61	0.61	0.61	0.61	0.61		0.28			0.28	
Unif. delay d_1	6.9	8.4	7.0	6.9	7.8	6.9		23.6			23.8	
Delay factor k	0.11	0.11	0.11	0.11	0.11	0.11		0.11			0.11	
Increm. delay d_2	0.0	0.2	0.0	0.0	0.1	0.0		0.0			0.0	
PF factor	1.000	1.000	1.000	1.000	1.000	1.000		1.000			1.000	
Control delay	7.0	8.6	7.0	6.9	7.9	6.9		23.6			23.8	
Lane group LOS	A	A	A	A	A	A		C			C	
Apprch. delay	8.4			7.8			23.6			23.8		
Approach LOS	A			A			C			C		
Intersec. delay	8.8			Intersection LOS						A		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*George King @ Jetty Park*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	*2005*
Analysis Time Period	*AM*		

Project Description

East/West Street: *George King Blvd*	North/South Street: *Jetty Park Drive*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*72*	*4*	*21*	*0*	*9*	*0*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*75*	*4*	*22*	*0*	*9*	*0*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*		*TR*	*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*16*	*2*	*0*	*0*		
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*16*	*2*	*0*	*0*	*0*	*6*
Percent Heavy Vehicles	*2*	*2*	*2*	*2*	*16*	*2*
Percent Grade (%)		*2*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*1*	*0*	*1*
Configuration		*LTR*		*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*LTR*		*LTR*		*L*		*R*
v (vph)	*75*	*0*		*18*		*0*		*6*
C (m) (vph)	*1611*	*1588*		*712*		*721*		*1073*
v/c	*0.05*	*0.00*		*0.03*		*0.00*		*0.01*
95% queue length	*0.15*	*0.00*		*0.08*		*0.00*		*0.02*
Control Delay	*7.3*	*7.3*		*10.2*		*10.0*		*8.4*
LOS	*A*	*A*		*B*		*A*		*A*
Approach Delay	--	--		*10.2*			*8.4*	
Approach LOS	--	--		*B*			*A*	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*GKB @ Marlin*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	*2005*
Analysis Time Period	*AM*		

Project Description	
East/West Street: *George King Blvd*	North/South Street: *Marlin Street*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*91*	*258*	*8*	*11*	*201*	*11*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*95*	*271*	*8*	*11*	*211*	*11*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*1*	*1*	*1*	*1*
Configuration	*L*	*T*	*R*	*L*	*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*1*	*4*	*10*	*0*	*3*	*24*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*1*	*4*	*10*	*0*	*3*	*25*
Percent Heavy Vehicles	*25*	*1*	*14*	*5*	*2*	*35*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
v (vph)	*95*	*11*		*15*			*28*	
C (m) (vph)	*1347*	*1284*		*577*			*692*	
v/c	*0.07*	*0.01*		*0.03*			*0.04*	
95% queue length	*0.23*	*0.03*		*0.08*			*0.13*	
Control Delay	*7.9*	*7.8*		*11.4*			*10.4*	
LOS	*A*	*A*		*B*			*B*	
Approach Delay	--	--	*11.4*			*10.4*		
Approach LOS	--	--	*B*			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*Mullett Rd @ Dave Nisbet Drive*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	*2005*
Analysis Time Period	*AM*		

Project Description	
East/West Street: *Mullet Road*	North/South Street: *Dave Nisbet Drive*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*87*	*74*			*40*	*3*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*91*	*77*	*0*	*0*	*42*	*3*
Percent Heavy Vehicles	*2*	--	--	*20*	--	--
Median Type	*Two Way Left Turn Lane*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*4*		*53*			
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*4*	*0*	*55*	*0*	*0*	*0*
Percent Heavy Vehicles	*3*	*0*	*2*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (vph)	*91*						*59*	
C (m) (vph)	*1563*						*988*	
v/c	*0.06*						*0.06*	
95% queue length	*0.19*						*0.19*	
Control Delay	*7.4*						*8.9*	
LOS	*A*						*A*	
Approach Delay	--	--				*8.9*		
Approach LOS	--	--				*A*		

 HCS+™ Version 5.1 Generated: 12/8/2005 9:47 AM

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*Mullett Rd @ Scallop Dr*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	*2005*
Analysis Time Period	*AM*		

Project Description	
East/West Street: *Mullet Road*	North/South Street: *Scallop Drive*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*72*	*4*	*21*	*0*	*9*	*0*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*75*	*4*	*22*	*0*	*9*	*0*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*		*TR*	*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*16*	*2*	*0*	*0*		*5*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*16*	*2*	*0*	*0*	*0*	*5*
Percent Heavy Vehicles	*2*	*2*	*2*	*2*	*16*	*2*
Percent Grade (%)	*2*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*1*	*0*	*1*
Configuration		*LTR*		*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*LTR*		*LTR*		*L*		*R*
v (vph)	*75*	*0*		*18*		*0*		*5*
C (m) (vph)	*1611*	*1588*		*712*		*721*		*1073*
v/c	*0.05*	*0.00*		*0.03*		*0.00*		*0.00*
95% queue length	*0.15*	*0.00*		*0.08*		*0.00*		*0.01*
Control Delay	*7.3*	*7.3*		*10.2*		*10.0*		*8.4*
LOS	*A*	*A*		*B*		*A*		*A*
Approach Delay	--	--	*10.2*			*8.4*		
Approach LOS	--	--	*B*			*A*		

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Appendix D

HCS Worksheets – Future Conditions, Opening Year (2010)

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*M Tobin*
Agency/Co.	*GA*
Date Performed	*11/21/2005*
Analysis Time Period	*AM*

Site Information

Intersection	*Scallop Rd @ Dave Nisbet Drive*
Jurisdiction	*Port Canaveral*
Analysis Year	*2010*

Project Description

East/West Street: *Scallop Road* North/South Street: *Dave Nisbet Drive*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*101*	*146*			*84*	*3*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*106*	*153*	*0*	*0*	*88*	*3*
Percent Heavy Vehicles	*3*	--	--	*20*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*5*		*61*			
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*5*	*0*	*64*	*0*	*0*	*0*
Percent Heavy Vehicles	*25*	*2*	*6*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*106*						*69*	
C (m) (vph)	*1498*						*903*	
v/c	*0.07*						*0.08*	
95% queue length	*0.23*						*0.25*	
Control Delay	*7.6*						*9.3*	
LOS	*A*						*A*	
Approach Delay	--	--				*9.3*		
Approach LOS	--	--				*A*		

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SHORT REPORT

General Information		Site Information	
Analyst	*S.C.*	Intersection	*SR 401 @ Grouper*
Agency or Co.	*G&A*	Area Type	*All other areas*
Date Performed	*11/28/2005*	Jurisdiction	*Port Authority*
Time Period	*AM Peak*	Analysis Year	*2010*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	2	0	1	2	0	1	0	1	0	0	0
Lane Group		T		L	T		L		R			
Volume (vph)		1688		3	64		70		0			
% Heavy veh	2	2	2	2	2	2	2	2	2	2	2	2
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)		A		A	A		A		A			
Startup lost time		2.0		2.0	2.0		2.0	2.0	2.0		2.0	
Ext. eff. green		2.0		2.0	2.0		2.0	2.0	2.0		2.0	
Arrival type		3		3	3		3	3	3		3	
Unit Extension		3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width		12.0		12.0	12.0		12.0	12.0	12.0		12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr		0		0	0		0	0	0		0	
Unit Extension		3.0		3.0	3.0		3.0	3.0	3.0		3.0	

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = 50.0	G =	G =	G =	G = 15.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 75.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adj. flow rate		1777		3	67		74	0	0		0
Lane group cap.		2365		99	2365		354		317		
v/c ratio		0.75		0.03	0.03		0.21		0.00		
Green ratio		0.67		0.67	0.67		0.20	0.00	0.20		0.00
Unif. delay d_1		8.3		4.3	4.2		25.0		24.0		
Delay factor k		0.31		0.11	0.11		0.11		0.11		
Increm. delay d_2		1.4		0.1	0.0		0.3		0.0		
PF factor		1.000		1.000	1.000		1.000		1.000		
Control delay		9.7		4.4	4.3		25.3		24.0		
Lane group LOS		A		A	A		C		C		
Apprch. delay	9.7			4.3			25.3				
Approach LOS	A			A			C				
Intersec. delay	10.1			Intersection LOS						B	

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SHORT REPORT

General Information		Site Information	
Analyst	*S.C.*	Intersection	*SR 401 & Charles Rowland*
Agency or Co.	*G&A*	Area Type	*All other areas*
Date Performed	*11/28/2005*	Jurisdiction	*Port Authority*
Time Period	*AM Peak*	Analysis Year	*2010*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	*0*	*2*	*1*	*1*	*2*	*0*	*2*	*0*	*1*	*0*	*0*	*0*
Lane Group		*T*	*R*	*L*	*T*		*L*		*R*			
Volume (vph)		*1782*	*6*	*3*	*101*		*30*		*1*			
% Heavy veh	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Actuated (P/A)		*A*	*A*	*A*	*A*		*A*		*A*			
Startup lost time		*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*		*2.0*	
Ext. eff. green		*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*		*2.0*	
Arrival type		*3*	*3*	*3*	*3*		*3*	*3*	*3*		*3*	
Unit Extension		*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*		*3.0*	
Ped/Bike/RTOR Volume	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*	*12.0*	*12.0*	*12.0*		*12.0*	*12.0*	*12.0*		*12.0*	
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/hr												
Bus stops/hr		*0*	*0*	*0*	*0*		*0*	*0*	*0*		*0*	
Unit Extension		*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*		*3.0*	

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *55.0*	G =	G =	G =	G = *15.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis (hrs) = *0.25*					Cycle Length C = *80.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adj. flow rate		*1876*	*6*	*3*	*106*		*32*	*0*	*1*		*0*
Lane group cap.		*2439*	*1088*	*93*	*2439*		*644*		*297*		
v/c ratio		*0.77*	*0.01*	*0.03*	*0.04*		*0.05*		*0.00*		
Green ratio		*0.69*	*0.69*	*0.69*	*0.69*		*0.19*	*0.00*	*0.19*		*0.00*
Unif. delay d_1		*8.3*	*3.9*	*4.0*	*4.0*		*26.7*		*26.4*		
Delay factor k		*0.32*	*0.11*	*0.11*	*0.11*		*0.11*		*0.11*		
Increm. delay d_2		*1.6*	*0.0*	*0.1*	*0.0*		*0.0*		*0.0*		
PF factor		*1.000*	*1.000*	*1.000*	*1.000*		*1.000*		*1.000*		
Control delay		*9.8*	*3.9*	*4.1*	*4.0*		*26.7*		*26.4*		
Lane group LOS		*A*	*A*	*A*	*A*		*C*		*C*		
Apprch. delay	*9.8*			*4.0*			*26.7*				
Approach LOS	*A*			*A*			*C*				
Intersec. delay	*9.8*			Intersection LOS						*A*	

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SHORT REPORT

General Information		Site Information	
Analyst	*SC*	Intersection	*George King @ Atlantic*
Agency or Co.	*G&A*	Area Type	*All other areas*
Date Performed	*11/29/2005*	Jurisdiction	*Port Authority*
Time Period	*AM Peak*	Analysis Year	*2010*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	0	1	1	1	0	1	1	1	1	0
Lane Group	L	TR		L	T	R		LT	R	L	TR	
Volume (vph)	38	161	110	16	43	3	216	24	111	2	7	21
% Heavy veh	2	2	2	2	2	2	2	2	2	2	2	2
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup lost time	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0	2.0	
Ext. eff. green	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0	2.0	
Arrival type	3	3		3	3	3		3	3	3	3	
Unit Extension	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0	12.0		12.0	12.0	12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0	0		0	0	0	0	
Unit Extension	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0	3.0	

Phasing	EB Only	EW Perm	03	04	NS Perm	06	07	08
Timing	G = 10.0	G = 40.0	G =	G =	G = 25.0	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adj. flow rate	40	285		17	45	3		252	117	2	29
Lane group cap.	800	1069		484	828	704		376	440	242	459
v/c ratio	0.05	0.27		0.04	0.05	0.00		0.67	0.27	0.01	0.06
Green ratio	0.61	0.61		0.44	0.44	0.44		0.28	0.28	0.28	0.28
Unif. delay d_1	7.1	8.1		14.1	14.2	13.9		28.8	25.3	23.5	23.9
Delay factor k	0.11	0.11		0.11	0.11	0.11		0.24	0.11	0.11	0.11
Increm. delay d_2	0.0	0.1		0.0	0.0	0.0		4.6	0.3	0.0	0.1
PF factor	1.000	1.000		1.000	1.000	1.000		1.000	1.000	1.000	1.000
Control delay	7.1	8.3		14.1	14.3	13.9		33.4	25.7	23.5	23.9
Lane group LOS	A	A		B	B	B		C	C	C	C
Apprch. delay	8.1			14.2			31.0			23.9	
Approach LOS	A			B			C			C	
Intersec. delay	19.9			Intersection LOS						B	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*GKB @ C Columbus Drive*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	*2010*
Analysis Time Period	*AM*		

Project Description	
East/West Street: *George King Blvd*	North/South Street: *C Columbus Drive*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*65*	*212*			*59*	*0*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*68*	*223*	*0*	*0*	*62*	*0*
Percent Heavy Vehicles	*2*	--	--	*25*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				*0*		*19*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*0*	*0*	*20*
Percent Heavy Vehicles	*6*	*0*	*2*	*2*	*16*	*12*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
v (vph)	*68*					*0*		*20*
C (m) (vph)	*1541*					*594*		*975*
v/c	*0.04*					*0.00*		*0.02*
95% queue length	*0.14*					*0.00*		*0.06*
Control Delay	*7.4*					*11.1*		*8.8*
LOS	*A*					*B*		*A*
Approach Delay	--	--				*8.8*		
Approach LOS	--	--				*A*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*GKB @ Dave Nisbet Drive*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	*2010*
Analysis Time Period	*AM*		

Project Description

East/West Street: *George King Blvd* North/South Street: *Dave Nisbet Drive*

Intersection Orientation: *East-West* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*251*	*448*			*241*	*44*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*264*	*471*	*0*	*0*	*253*	*46*
Percent Heavy Vehicles	*2*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*0*	*1*	*1*
Configuration	*L*	*T*			*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				*21*		*132*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*22*	*0*	*138*
Percent Heavy Vehicles	*0*	*0*	*0*	*11*	*0*	*4*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
v (vph)	*264*					*22*		*138*
C (m) (vph)	*1259*					*262*		*740*
v/c	*0.21*					*0.08*		*0.19*
95% queue length	*0.79*					*0.27*		*0.68*
Control Delay	*8.6*					*20.0*		*11.0*
LOS	*A*					*C*		*B*
Approach Delay	--	--				*12.2*		
Approach LOS	--	--				*B*		

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SHORT REPORT

General Information		Site Information	
Analyst	SC	Intersection	George King @ Flounder
Agency or Co.	G&A	Area Type	All other areas
Date Performed	11/29/2005	Jurisdiction	Port Authority
Time Period	AM Peak	Analysis Year	2010

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	1	1	1	1	0	1	0	0	1	0
Lane Group	L	T	R	L	T	R		LTR			LTR	
Volume (vph)	23	424	112	28	304	22	18	2	5	8	1	14
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup lost time	2.0	2.0	2.0	2.0	2.0	2.0		2.0			2.0	
Ext. eff. green	2.0	2.0	2.0	2.0	2.0	2.0		2.0			2.0	
Arrival type	3	3	3	3	3	3		3			3	
Unit Extension	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0		12.0			12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0	0	0	0	0		0			0	
Unit Extension	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 55.0	G =	G =	G =	G = 25.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25					Cycle Length C = 90.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	24	446	118	29	320	23		26			24	
Lane group cap.	627	1161	987	516	1161	987		441			456	
v/c ratio	0.04	0.38	0.12	0.06	0.28	0.02		0.06			0.05	
Green ratio	0.61	0.61	0.61	0.61	0.61	0.61		0.28			0.28	
Unif. delay d_1	7.0	8.9	7.3	7.0	8.2	6.9		23.9			23.8	
Delay factor k	0.11	0.11	0.11	0.11	0.11	0.11		0.11			0.11	
Increm. delay d_2	0.0	0.2	0.1	0.0	0.1	0.0		0.1			0.0	
PF factor	1.000	1.000	1.000	1.000	1.000	1.000		1.000			1.000	
Control delay	7.0	9.1	7.4	7.1	8.3	6.9		23.9			23.9	
Lane group LOS	A	A	A	A	A	A		C			C	
Apprch. delay	8.7			8.1			23.9			23.9		
Approach LOS	A			A			C			C		
Intersec. delay	9.2			Intersection LOS						A		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*George King @ Jetty Park*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	*2010*
Analysis Time Period	*AM*		

Project Description	
East/West Street: *George King Blvd*	North/South Street:
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*83*	*5*	*24*	*0*	*10*	*0*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*87*	*5*	*25*	*0*	*10*	*0*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*		*TR*	*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*19*	*2*	*0*	*0*		*6*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*20*	*2*	*0*	*0*	*0*	*6*
Percent Heavy Vehicles	*2*	*2*	*2*	*2*	*16*	*2*
Percent Grade (%)	*2*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*1*	*0*	*1*
Configuration		*LTR*		*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*LTR*		*LTR*		*L*		*R*
v (vph)	*87*	*0*		*22*		*0*		*6*
C (m) (vph)	*1610*	*1583*		*685*		*693*		*1071*
v/c	*0.05*	*0.00*		*0.03*		*0.00*		*0.01*
95% queue length	*0.17*	*0.00*		*0.10*		*0.00*		*0.02*
Control Delay	*7.4*	*7.3*		*10.4*		*10.2*		*8.4*
LOS	*A*	*A*		*B*		*B*		*A*
Approach Delay	--	--	*10.4*			*8.4*		
Approach LOS	--	--	*B*			*A*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	M Tobin	Intersection	GKB @ Marlin
Agency/Co.	GA	Jurisdiction	Port Canaveral
Date Performed	11/21/2005	Analysis Year	2010
Analysis Time Period	AM		

Project Description	
East/West Street: George King Blvd	North/South Street: Marlin Street
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	105	310	19	14	247	13
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	110	326	20	14	260	13
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type	Raised curb					
RT Channelized			0			0
Lanes	1	1	1	1	1	1
Configuration	L	T	R	L	T	R
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	16	5	16	0	3	28
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	16	5	16	0	3	29
Percent Heavy Vehicles	25	1	14	5	2	35
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L		LTR			LTR	
v (vph)	110	14		37			32	
C (m) (vph)	1290	1213		421			647	
v/c	0.09	0.01		0.09			0.05	
95% queue length	0.28	0.04		0.29			0.16	
Control Delay	8.1	8.0		14.4			10.9	
LOS	A	A		B			B	
Approach Delay	--	--	14.4			10.9		
Approach LOS	--	--	B			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*Mullett Rd @ Dave Nisbet Drive*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	*2010*
Analysis Time Period	*AM*		

Project Description	
East/West Street: *Mullet Road*	North/South Street: *Dave Nisbet Drive*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*36*	*51*			*23*	*3*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*37*	*53*	*0*	*0*	*24*	*3*
Percent Heavy Vehicles	*2*	--	--	*20*	--	--
Median Type	*Two Way Left Turn Lane*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*5*		*19*			
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*5*	*0*	*20*	*0*	*0*	*0*
Percent Heavy Vehicles	*3*	*0*	*2*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (vph)	*37*						*25*	
C (m) (vph)	*1587*						*984*	
v/c	*0.02*						*0.03*	
95% queue length	*0.07*						*0.08*	
Control Delay	*7.3*						*8.8*	
LOS	*A*						*A*	
Approach Delay	--	--				*8.8*		
Approach LOS	--	--				*A*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	M Tobin	Intersection	Mullett Rd @ Scallop Dr
Agency/Co.	GA	Jurisdiction	Port Canaveral
Date Performed	11/21/2005	Analysis Year	2010
Analysis Time Period	AM		

Project Description

East/West Street: Mullet Road	North/South Street: Scallop Drive
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	17			34	14
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	0	17	0	0	35	14
Percent Heavy Vehicles	2	--	--	0	--	--
Median Type	Raised curb					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				12		8
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	0	0	0	12	0	8
Percent Heavy Vehicles	0	0	0	20	0	2
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (vph)	0						20	
C (m) (vph)	1558						909	
v/c	0.00						0.02	
95% queue length	0.00						0.07	
Control Delay	7.3						9.0	
LOS	A						A	
Approach Delay	--	--				9.0		
Approach LOS	--	--				A		

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SHORT REPORT

General Information		Site Information	
Analyst	*MT*	Intersection	*SR 401 @ Grouper*
Agency or Co.	*G&A*	Area Type	*All other areas*
Date Performed	*11/28/2005*	Jurisdiction	*Port Authority*
Time Period	*Midday Peak*	Analysis Year	*2010*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	2	0	1	2	0	1	0	1	0	0	0
Lane Group		T		L	T		L		R			
Volume (vph)		259		16	460		153		13			
% Heavy veh	2	2	2	2	2	2	2	2	2	2	2	2
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)		A		A	A		A		A			
Startup lost time		2.0		2.0	2.0		2.0	2.0	2.0		2.0	
Ext. eff. green		2.0		2.0	2.0		2.0	2.0	2.0		2.0	
Arrival type		3		3	3		3	3	3		3	
Unit Extension		3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width		12.0		12.0	12.0		12.0	12.0	12.0		12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr		0		0	0		0	0	0		0	
Unit Extension		3.0		3.0	3.0		3.0	3.0	3.0		3.0	

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = 50.0	G =	G =	G =	G = 20.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 80.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adj. flow rate		273		17	484		161	0	14		0
Lane group cap.		2217		680	2217		443		396		
v/c ratio		0.12		0.03	0.22		0.36		0.04		
Green ratio		0.63		0.63	0.63		0.25	0.00	0.25		0.00
Unif. delay d_1		6.1		5.7	6.5		24.7		22.7		
Delay factor k		0.11		0.11	0.11		0.11		0.11		
Increm. delay d_2		0.0		0.0	0.0		0.5		0.0		
PF factor		1.000		1.000	1.000		1.000		1.000		
Control delay		6.1		5.7	6.6		25.3		22.7		
Lane group LOS		A		A	A		C		C		
Apprch. delay	6.1			6.5			25.1				
Approach LOS	A			A			C				
Intersec. delay	9.8			Intersection LOS						A	

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SHORT REPORT

General Information		Site Information	
Analyst	*MT*	Intersection	*SR 401 & Charles Rowland*
Agency or Co.	*G&A*	Area Type	*All other areas*
Date Performed	*11/28/2005*	Jurisdiction	*Port Authority*
Time Period	*Mid-day Peak*	Analysis Year	*2010*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	*0*	*2*	*1*	*1*	*2*	*0*	*2*	*0*	*1*	*0*	*0*	*0*
Lane Group		*T*	*R*	*L*	*T*		*L*		*R*			
Volume (vph)		*350*	*0*	*1*	*437*		*31*		*0*			
% Heavy veh	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Actuated (P/A)		*A*	*A*	*A*	*A*		*A*		*A*			
Startup lost time		*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*		*2.0*	
Ext. eff. green		*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*		*2.0*	
Arrival type		*3*	*3*	*3*	*3*		*3*	*3*	*3*		*3*	
Unit Extension		*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*		*3.0*	
Ped/Bike/RTOR Volume	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*	*12.0*	*12.0*	*12.0*		*12.0*	*12.0*	*12.0*		*12.0*	
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/hr												
Bus stops/hr		*0*	*0*	*0*	*0*		*0*	*0*	*0*		*0*	
Unit Extension		*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*		*3.0*	

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *55.0*	G =	G =	G =	G = *15.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis (hrs) = *0.25*						Cycle Length C = *80.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adj. flow rate		*368*	*0*	*1*	*460*		*33*	*0*	*0*		*0*
Lane group cap.		*2439*	*1088*	*683*	*2439*		*644*		*297*		
v/c ratio		*0.15*	*0.00*	*0.00*	*0.19*		*0.05*		*0.00*		
Green ratio		*0.69*	*0.69*	*0.69*	*0.69*		*0.19*	*0.00*	*0.19*		*0.00*
Unif. delay d_1		*4.4*	*3.9*	*3.9*	*4.5*		*26.7*		*26.4*		
Delay factor k		*0.11*	*0.11*	*0.11*	*0.11*		*0.11*		*0.11*		
Increm. delay d_2		*0.0*	*0.0*	*0.0*	*0.0*		*0.0*		*0.0*		
PF factor		*1.000*	*1.000*	*1.000*	*1.000*		*1.000*		*1.000*		
Control delay		*4.4*	*3.9*	*3.9*	*4.5*		*26.7*		*26.4*		
Lane group LOS		*A*	*A*	*A*	*A*		*C*		*C*		
Apprch. delay	*4.4*			*4.5*			*26.7*				
Approach LOS	*A*			*A*			*C*				
Intersec. delay	*5.3*			Intersection LOS						*A*	

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SHORT REPORT

General Information		Site Information	
Analyst	*MT*	Intersection	*George King @ Atlantic*
Agency or Co.	*G&A*	Area Type	*All other areas*
Date Performed	*12/5/05*	Jurisdiction	*Port Authority*
Time Period	*Mid-day Peak*	Analysis Year	*2010*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	0	1	1	1	0	1	1	1	1	0
Lane Group	L	TR		L	T	R		LT	R	L	TR	
Volume (vph)	34	86	160	43	66	1	188	8	63	3	13	35
% Heavy veh	2	2	2	2	2	2	2	2	2	2	2	2
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup lost time	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0	2.0	
Ext. eff. green	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0	2.0	
Arrival type	3	3		3	3	3		3	3	3	3	
Unit Extension	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0	12.0		12.0	12.0	12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0	0		0	0	0	0	
Unit Extension	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0	3.0	

Phasing	EB Only	EW Perm	03	04	NS Perm	06	07	08
Timing	G = *10.0*	G = *40.0*	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis (hrs) = *0.25*						Cycle Length C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adj. flow rate	36	259		45	69	1		206	66	3	51
Lane group cap.	787	1028		496	828	704		361	440	281	461
v/c ratio	0.05	0.25		0.09	0.08	0.00		0.57	0.15	0.01	0.11
Green ratio	0.61	0.61		0.44	0.44	0.44		0.28	0.28	0.28	0.28
Unif. delay d_1	7.1	8.0		14.5	14.4	13.9		27.9	24.5	23.5	24.2
Delay factor k	0.11	0.11		0.11	0.11	0.11		0.17	0.11	0.11	0.11
Increm. delay d_2	0.0	0.1		0.1	0.0	0.0		2.2	0.2	0.0	0.1
PF factor	1.000	1.000		1.000	1.000	1.000		1.000	1.000	1.000	1.000
Control delay	7.1	8.2		14.6	14.5	13.9		30.1	24.7	23.6	24.3
Lane group LOS	A	A		B	B	B		C	C	C	C
Apprch. delay	8.0			14.5			28.7			24.3	
Approach LOS	A			B			C			C	
Intersec. delay	17.9			Intersection LOS						B	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*GKB @ C Columbus Drive*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*12/5/05*	Analysis Year	*2010*
Analysis Time Period	*Mid day*		

Project Description	
East/West Street: *George King Blvd*	North/South Street: *C Columbus Drive*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	27	130			103	1
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	30	144	0	0	114	1
Percent Heavy Vehicles	13	--	--	25	--	--
Median Type	Raised curb					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				1		0
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	0	0	0	1	0	0
Percent Heavy Vehicles	6	0	2	0	16	5
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	1	0	1
Configuration				L		R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L					L		R
v (vph)	30					1		0
C (m) (vph)	1408					693		931
v/c	0.02					0.00		0.00
95% queue length	0.07					0.00		0.00
Control Delay	7.6					10.2		8.9
LOS	A					B		A
Approach Delay	--	--				10.2		
Approach LOS	--	--				B		

 HCS+™ Version 5.1 Generated: 12/8/2005 3:25 PM

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*GKB @ Dave Nisbet Drive*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	*2010*
Analysis Time Period	*Mid Day*		

Project Description

East/West Street: *George King Blvd*	North/South Street: *Dave Nisbet Drive*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	296	504			303	45
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	311	530	0	0	318	47
Percent Heavy Vehicles	5	--	--	0	--	--
Median Type	Raised curb					
RT Channelized			0			0
Lanes	1	2	0	0	1	1
Configuration	L	T			T	R
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				42		0
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	0	0	0	44	0	0
Percent Heavy Vehicles	0	0	0	11	0	10
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	1	0	1
Configuration				L		R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L					L		R
v (vph)	311					44		0
C (m) (vph)	1169					207		655
v/c	0.27					0.21		0.00
95% queue length	1.08					0.78		0.00
Control Delay	9.2					27.0		10.5
LOS	A					D		B
Approach Delay	--	--				27.0		
Approach LOS	--	--				D		

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SHORT REPORT

General Information		Site Information	
Analyst	*MT*	Intersection	*George King @ Dave Nisbet*
Agency or Co.	*G&A*	Area Type	*All other areas*
Date Performed	*12/5/05*	Jurisdiction	*Port Authority*
Time Period	*PM Peak*	Analysis Year	*2010*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	0	1	1	0	0	0	1	0	1
Lane Group	L	T			T	R				L		R
Volume (vph)	296	504			303	45				42		166
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A			A	A				A		A
Startup lost time	2.0	2.0			2.0	2.0		2.0		2.0	2.0	2.0
Ext. eff. green	2.0	2.0			2.0	2.0		2.0		2.0	2.0	2.0
Arrival type	3	3			3	3		3		3	3	3
Unit Extension	3.0	3.0			3.0	3.0		3.0		3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	5	0	0	5	0	0	5	0	0	5
Lane Width	12.0	12.0			12.0	12.0		12.0		12.0	12.0	12.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0			0	0		0		0	0	0
Unit Extension	3.0	3.0			3.0	3.0		3.0		3.0	3.0	3.0

Phasing	EW Perm	02	03	04	SB Only	06	07	08
Timing	G = 60.0	G =	G =	G =	G = 20.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adj. flow rate	312	531			319	42		0		44	0
Lane group cap.	701	2412			1267	1077				401	
v/c ratio	0.45	0.22			0.25	0.04				0.11	
Green ratio	0.67	0.67			0.67	0.67		0.00		0.22	0.00
Unif. delay d_1	7.1	5.9			6.0	5.1				27.9	
Delay factor k	0.11	0.11			0.11	0.11				0.11	
Increm. delay d_2	0.5	0.0			0.1	0.0				0.1	
PF factor	1.000	1.000			1.000	1.000				1.000	
Control delay	7.6	5.9			6.1	5.1				28.0	
Lane group LOS	A	A			A	A				C	
Apprch. delay	6.5			6.0						30.7	
Approach LOS	A			A						C	
Intersec. delay	10.0			Intersection LOS						B	

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SHORT REPORT

General Information		Site Information	
Analyst	SC	Intersection	George King @ Flounder
Agency or Co.	G&A	Area Type	All other areas
Date Performed	11/29/2005	Jurisdiction	Port Authority
Time Period	Mid-day Peak	Analysis Year	2005 - Existing

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	1	1	1	1	0	1	0	0	1	0
Lane Group	L	T	R	L	T	R		LTR			LTR	
Volume (vph)	93	353	100	20	327	44	52	2	8	43	6	50
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup lost time	2.0	2.0	2.0	2.0	2.0	2.0		2.0			2.0	
Ext. eff. green	2.0	2.0	2.0	2.0	2.0	2.0		2.0			2.0	
Arrival type	3	3	3	3	3	3		3			3	
Unit Extension	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0		12.0			12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0	0	0	0	0		0			0	
Unit Extension	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 55.0	G =	G =	G =	G = 25.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25					Cycle Length C = 90.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	98	372	105	21	344	46		65			104	
Lane group cap.	605	1161	987	581	1161	987		381			424	
v/c ratio	0.16	0.32	0.11	0.04	0.30	0.05		0.17			0.25	
Green ratio	0.61	0.61	0.61	0.61	0.61	0.61		0.28			0.28	
Unif. delay d_1	7.6	8.5	7.3	7.0	8.3	7.0		24.6			25.2	
Delay factor k	0.11	0.11	0.11	0.11	0.11	0.11		0.11			0.11	
Increm. delay d_2	0.1	0.2	0.0	0.0	0.1	0.0		0.2			0.3	
PF factor	1.000	1.000	1.000	1.000	1.000	1.000		1.000			1.000	
Control delay	7.7	8.6	7.3	7.0	8.5	7.0		24.9			25.5	
Lane group LOS	A	A	A	A	A	A		C			C	
Apprch. delay	8.2			8.2			24.9			25.5		
Approach LOS	A			A			C			C		
Intersec. delay	10.7			Intersection LOS						B		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*GKB @ Jetty Park Drive*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*12/5/05*	Analysis Year	*2010*
Analysis Time Period	*Mid Day*		

Project Description	
East/West Street: *Jetty Park Dr*	North/South Street: *GKB/Shorewood Drive*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*19*	*14*	*29*	*0*	*9*	*0*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*20*	*14*	*30*	*0*	*9*	*0*
Percent Heavy Vehicles	*6*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*		*TR*	*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*15*	*1*	*0*	*2*		*0*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*15*	*1*	*0*	*2*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*5*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*1*	*0*	*1*
Configuration		*LTR*		*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*LTR*		*LTR*		*L*		*R*
v (vph)	*20*	*0*		*16*		*2*		*0*
C (m) (vph)	*1585*	*1577*		*900*		*904*		*1064*
v/c	*0.01*	*0.00*		*0.02*		*0.00*		*0.00*
95% queue length	*0.04*	*0.00*		*0.05*		*0.01*		*0.00*
Control Delay	*7.3*	*7.3*		*9.1*		*9.0*		*8.4*
LOS	*A*	*A*		*A*		*A*		*A*
Approach Delay	--	--		*9.1*			*9.0*	
Approach LOS	--	--		*A*			*A*	

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	M Tobin
Agency/Co.	GA
Date Performed	11/21/2005
Analysis Time Period	Mid day

Site Information

Intersection	GKB @ Marlin
Jurisdiction	Port Canaveral
Analysis Year	2010

Project Description	
East/West Street: George King Blvd	North/South Street: Marlin Street
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	22	254	15	2	299	15
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	23	267	15	2	314	15
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type	Raised curb					
RT Channelized			0			0
Lanes	1	1	1	1	1	1
Configuration	L	T	R	L	T	R
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	21	1	4	13	0	0
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	22	1	4	13	0	0
Percent Heavy Vehicles	20	2	2	9	2	50
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L		LTR			LTR	
v (vph)	23	2		27			13	
C (m) (vph)	1231	1280		485			473	
v/c	0.02	0.00		0.06			0.03	
95% queue length	0.06	0.00		0.18			0.08	
Control Delay	8.0	7.8		12.9			12.8	
LOS	A	A		B			B	
Approach Delay	--	--	12.9			12.8		
Approach LOS	--	--	B			B		

 HCS+TM Version 5.1 Generated: 12/8/2005 3:28 PM

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*Mullett Rd @ Dave Nisbet Drive*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*12/5/2005*	Analysis Year	*2010*
Analysis Time Period	*Mid Day*		

Project Description

East/West Street: *Mullet Road*	North/South Street: *Dave Nisbet Drive*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*11*	*177*			*154*	*0*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*11*	*186*	*0*	*0*	*162*	*0*
Percent Heavy Vehicles	*2*	--	--	*20*	--	--
Median Type	*Two Way Left Turn Lane*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*13*		*126*			
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*13*	*0*	*132*	*0*	*0*	*0*
Percent Heavy Vehicles	*2*	*0*	*5*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (vph)	*11*						*145*	
C (m) (vph)	*1417*						*851*	
v/c	*0.01*						*0.17*	
95% queue length	*0.02*						*0.61*	
Control Delay	*7.6*						*10.1*	
LOS	*A*						*B*	
Approach Delay	--	--				*10.1*		
Approach LOS	--	--				*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*Mullett Rd @ Scallop Dr*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*12/5/05*	Analysis Year	*2010*
Analysis Time Period	*Mid Day*		

Project Description
East/West Street: *Mullet Road* — North/South Street: *Scallop Drive*
Intersection Orientation: *East-West* — Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*2*	*43*			*19*	*24*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*2*	*45*	*0*	*0*	*20*	*25*
Percent Heavy Vehicles	*2*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				*21*		*0*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*22*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*11*	*0*	*9*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*2*						*22*	
C (m) (vph)	*1563*						*847*	
v/c	*0.00*						*0.03*	
95% queue length	*0.00*						*0.08*	
Control Delay	*7.3*						*9.4*	
LOS	*A*						*A*	
Approach Delay	--	--				*9.4*		
Approach LOS	--	--				*A*		

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Generated: 12/8/2005 3:29 PM

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*Scallop Rd @ Dave Nisbet Drive*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*12/5/05*	Analysis Year	*2010*
Analysis Time Period	*Mid Day*		

Project Description

East/West Street: *Scallop Road*	North/South Street: *Dave Nisbet Drive*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*34*	*90*			*85*	*0*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*35*	*94*	*0*	*0*	*89*	*0*
Percent Heavy Vehicles	*3*	--	--	*20*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*22*		*39*			
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*23*	*0*	*41*	*0*	*0*	*0*
Percent Heavy Vehicles	*2*	*0*	*6*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*35*						*64*	
C (m) (vph)	*1500*						*860*	
v/c	*0.02*						*0.07*	
95% queue length	*0.07*						*0.24*	
Control Delay	*7.5*						*9.5*	
LOS	*A*						*A*	
Approach Delay	--	--				*9.5*		
Approach LOS	--	--				*A*		

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SHORT REPORT

General Information		Site Information	
Analyst	*S.C.*	Intersection	*SR 401 @ Grouper*
Agency or Co.	*G&A*	Area Type	*All other areas*
Date Performed	*12/5/2005*	Jurisdiction	*Port Authority*
Time Period	*PM Peak*	Analysis Year	*2010*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	*0*	*2*	*0*	*1*	*2*	*0*	*1*	*0*	*1*	*0*	*0*	*0*
Lane Group		*T*		*L*	*T*		*L*		*R*			
Volume (vph)		*74*		*17*	*1468*		*156*		*5*			
% Heavy veh	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Actuated (P/A)		*A*		*A*	*A*		*A*		*A*			
Startup lost time		*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	*2.0*		*2.0*	
Ext. eff. green		*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	*2.0*		*2.0*	
Arrival type		*3*		*3*	*3*		*3*	*3*	*3*		*3*	
Unit Extension		*3.0*		*3.0*	*3.0*		*3.0*	*3.0*	*3.0*		*3.0*	
Ped/Bike/RTOR Volume	*0*	*0*	*3*	*0*	*0*	*0*	*0*	*0*	*5*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*12.0*		*12.0*	*12.0*	*12.0*		*12.0*	
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/hr												
Bus stops/hr		*0*		*0*	*0*		*0*	*0*	*0*		*0*	
Unit Extension		*3.0*		*3.0*	*3.0*		*3.0*	*3.0*	*3.0*		*3.0*	

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *55.0*	G =	G =	G =	G = *15.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis (hrs) = *0.25*						Cycle Length C = *80.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adj. flow rate		*78*		*18*	*1545*		*164*	*0*	*0*		*0*
Lane group cap.		*2439*		*901*	*2439*		*332*		*297*		
v/c ratio		*0.03*		*0.02*	*0.63*		*0.49*		*0.00*		
Green ratio		*0.69*		*0.69*	*0.69*		*0.19*	*0.00*	*0.19*		*0.00*
Unif. delay d_1		*4.0*		*4.0*	*6.9*		*29.1*		*26.4*		
Delay factor k		*0.11*		*0.11*	*0.21*		*0.11*		*0.11*		
Increm. delay d_2		*0.0*		*0.0*	*0.5*		*1.2*		*0.0*		
PF factor		*1.000*		*1.000*	*1.000*		*1.000*		*1.000*		
Control delay		*4.0*		*4.0*	*7.5*		*30.3*		*26.4*		
Lane group LOS		*A*		*A*	*A*		*C*		*C*		
Apprch. delay	*4.0*			*7.4*			*30.3*				
Approach LOS	*A*			*A*			*C*				
Intersec. delay	*9.4*			Intersection LOS						*A*	

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SHORT REPORT

General Information		Site Information	
Analyst	*MT*	Intersection	*SR 401 & Charles Rowland*
Agency or Co.	*G&A*	Area Type	*All other areas*
Date Performed	*12/5/05*	Jurisdiction	*Port Authority*
Time Period	*PM Peak*	Analysis Year	*2010*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	*0*	*2*	*1*	*1*	*2*	*0*	*2*	*0*	*1*	*0*	*0*	*0*
Lane Group		*T*	*R*	*L*	*T*		*L*		*R*			
Volume (vph)		*107*	*1*	*0*	*1566*		*33*		*1*			
% Heavy veh	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Actuated (P/A)		*A*	*A*	*A*	*A*		*A*		*A*			
Startup lost time		*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*		*2.0*	
Ext. eff. green		*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*		*2.0*	
Arrival type		*3*	*3*	*3*	*3*		*3*	*3*	*3*		*3*	
Unit Extension		*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*		*3.0*	
Ped/Bike/RTOR Volume	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*	*12.0*	*12.0*	*12.0*		*12.0*	*12.0*	*12.0*		*12.0*	
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/hr												
Bus stops/hr		*0*	*0*	*0*	*0*		*0*	*0*	*0*		*0*	
Unit Extension		*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*		*3.0*	

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *55.0*	G =	G =	G =	G = *15.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis (hrs) = *0.25*					Cycle Length C = *80.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adj. flow rate		*113*	*1*	*0*	*1648*		*35*	*0*	*1*		*0*
Lane group cap.		*2439*	*1088*	*872*	*2439*		*644*		*297*		
v/c ratio		*0.05*	*0.00*	*0.00*	*0.68*		*0.05*		*0.00*		
Green ratio		*0.69*	*0.69*	*0.69*	*0.69*		*0.19*	*0.00*	*0.19*		*0.00*
Unif. delay d_1		*4.0*	*3.9*	*3.9*	*7.3*		*26.7*		*26.4*		
Delay factor k		*0.11*	*0.11*	*0.11*	*0.25*		*0.11*		*0.11*		
Increm. delay d_2		*0.0*	*0.0*	*0.0*	*0.8*		*0.0*		*0.0*		
PF factor		*1.000*	*1.000*	*1.000*	*1.000*		*1.000*		*1.000*		
Control delay		*4.0*	*3.9*	*3.9*	*8.1*		*26.7*		*26.4*		
Lane group LOS		*A*	*A*	*A*	*A*		*C*		*C*		
Apprch. delay	*4.0*			*8.1*			*26.7*				
Approach LOS	*A*			*A*			*C*				
Intersec. delay	*8.2*			Intersection LOS						*A*	

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SHORT REPORT

General Information		Site Information	
Analyst	MT	Intersection	George King @ Atlantic
Agency or Co.	G&A	Area Type	All other areas
Date Performed	12/5/05	Jurisdiction	Port Authority
Time Period	PM Peak	Analysis Year	2010

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	0	1	1	1	0	1	1	1	1	0
Lane Group	L	TR		L	T	R		LT	R	L	TR	
Volume (vph)	9	64	252	50	97	1	211	7	24	2	26	43
% Heavy veh	2	2	2	2	2	2	2	2	2	2	2	2
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup lost time	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0	2.0	
Ext. eff. green	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0	2.0	
Arrival type	3	3		3	3	3		3	3	3	3	
Unit Extension	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0	3.0	
Ped/Bike/RTOR Volume	0	0	15	0	0	0	0	0	5	0	0	0
Lane Width	12.0	12.0		12.0	12.0	12.0		12.0	12.0	12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0	0		0	0	0	0	
Unit Extension	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0	3.0	

Phasing	EB Only	EW Perm	03	04	NS Perm	06	07	08
Timing	G = 10.0	G = 40.0	G =	G =	G = 25.0	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adj. flow rate	9	316		53	102	1		229	20	2	72
Lane group cap.	769	1004		471	828	704		352	440	262	469
v/c ratio	0.01	0.31		0.11	0.12	0.00		0.65	0.05	0.01	0.15
Green ratio	0.61	0.61		0.44	0.44	0.44		0.28	0.28	0.28	0.28
Unif. delay d_1	7.0	8.4		14.6	14.7	13.9		28.6	23.8	23.5	24.5
Delay factor k	0.11	0.11		0.11	0.11	0.11		0.23	0.11	0.11	0.11
Increm. delay d_2	0.0	0.2		0.1	0.1	0.0		4.2	0.0	0.0	0.2
PF factor	1.000	1.000		1.000	1.000	1.000		1.000	1.000	1.000	1.000
Control delay	7.0	8.6		14.7	14.8	13.9		32.9	23.8	23.5	24.7
Lane group LOS	A	A		B	B	B		C	C	C	C
Apprch. delay	8.6			14.7			32.1			24.6	
Approach LOS	A			B			C			C	
Intersec. delay	18.5			Intersection LOS						B	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*GKB @ C Columbus Drive*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*12/5/05*	Analysis Year	*2010*
Analysis Time Period	*PM Peak*		

Project Description	
East/West Street: *George King Blvd*	North/South Street: *C Columbus Drive*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*28*	*65*			*114*	*3*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*29*	*68*	*0*	*0*	*120*	*3*
Percent Heavy Vehicles	*0*	--	--	*25*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				*0*		*0*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*6*	*0*	*2*	*0*	*16*	*12*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
v (vph)	*29*					*0*		*0*
C (m) (vph)	*1477*					*742*		*903*
v/c	*0.02*					*0.00*		*0.00*
95% queue length	*0.06*					*0.00*		*0.00*
Control Delay	*7.5*					*9.9*		*9.0*
LOS	*A*					*A*		*A*
Approach Delay	--	--						
Approach LOS	--	--						

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	MT	Intersection	GKB @ Dave Nisbet Drive
Agency/Co.	GA	Jurisdiction	Port Canaveral
Date Performed	12/5/05	Analysis Year	2010
Analysis Time Period			

Project Description	
East/West Street: George King Blvd	North/South Street: Dave Nisbet Drive
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	518	477			375	104
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	545	502	0	0	394	109
Percent Heavy Vehicles	6	--	--	0	--	--
Median Type	Raised curb					
RT Channelized			0			0
Lanes	1	2	0	0	1	1
Configuration	L	T			T	R
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				53		0
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	0	0	0	55	0	0
Percent Heavy Vehicles	0	0	0	8	0	7
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	1	0	1
Configuration				L		R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L					L		R
v (vph)	545					55		0
C (m) (vph)	1030					80		591
v/c	0.53					0.69		0.00
95% queue length	3.20					3.24		0.00
Control Delay	12.4					117.0		11.1
LOS	B					F		B
Approach Delay	--	--				117.0		
Approach LOS	--	--				F		

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SHORT REPORT

General Information		Site Information	
Analyst	*MT*	Intersection	*George King @ Dave Nisbet*
Agency or Co.	*G&A*	Area Type	*All other areas*
Date Performed	*12/5/05*	Jurisdiction	*Port Authority*
Time Period	*PM Peak*	Analysis Year	*2010*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	0	1	1	0	0	0	1	0	1
Lane Group	L	T			T	R				L		R
Volume (vph)	518	477			375	104				53		215
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A			A	A				A		A
Startup lost time	2.0	2.0			2.0	2.0		2.0		2.0	2.0	2.0
Ext. eff. green	2.0	2.0			2.0	2.0		2.0		2.0	2.0	2.0
Arrival type	3	3			3	3		3		3	3	3
Unit Extension	3.0	3.0			3.0	3.0		3.0		3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	5	0	0	5	0	0	5	0	0	5
Lane Width	12.0	12.0			12.0	12.0		12.0		12.0	12.0	12.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0			0	0		0		0	0	0
Unit Extension	3.0	3.0			3.0	3.0		3.0		3.0	3.0	3.0

Phasing	EW Perm	02	03	04	SB Only	06	07	08
Timing	G = 60.0	G =	G =	G =	G = 20.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25					Cycle Length C = 90.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adj. flow rate	545	502			395	104		0		56	0
Lane group cap.	631	2412			1267	1077				401	
v/c ratio	0.86	0.21			0.31	0.10				0.14	
Green ratio	0.67	0.67			0.67	0.67		0.00		0.22	0.00
Unif. delay d_1	11.8	5.8			6.3	5.3				28.1	
Delay factor k	0.39	0.11			0.11	0.11				0.11	
Increm. delay d_2	11.9	0.0			0.1	0.0				0.2	
PF factor	1.000	1.000			1.000	1.000				1.000	
Control delay	23.7	5.8			6.5	5.4				28.3	
Lane group LOS	C	A			A	A				C	
Apprch. delay	15.1			6.2						33.4	
Approach LOS	B			A						C	
Intersec. delay	15.5			Intersection LOS						B	

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SHORT REPORT

General Information		Site Information	
Analyst	MT	Intersection	George King @ Flounder
Agency or Co.	G&A	Area Type	All other areas
Date Performed	12/5/05	Jurisdiction	Port Authority
Time Period	PM Peak	Analysis Year	2010

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	1	1	1	1	0	1	0	0	1	0
Lane Group	L	T	R	L	T	R		LTR			LTR	
Volume (vph)	68	297	27	6	414	58	92	0	19	50	0	60
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup lost time	2.0	2.0	2.0	2.0	2.0	2.0		2.0			2.0	
Ext. eff. green	2.0	2.0	2.0	2.0	2.0	2.0		2.0			2.0	
Arrival type	3	3	3	3	3	3		3			3	
Unit Extension	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	
Ped/Bike/RTOR Volume	0	0	5	0	0	5	0	0	5	0	0	5
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0		12.0			12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0	0	0	0	0		0			0	
Unit Extension	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 55.0	G =	G =	G =	G = 25.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25					Cycle Length C = 90.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	72	313	23	6	436	56		112			111	
Lane group cap.	525	1161	987	634	1161	987		368			405	
v/c ratio	0.14	0.27	0.02	0.01	0.38	0.06		0.30			0.27	
Green ratio	0.61	0.61	0.61	0.61	0.61	0.61		0.28			0.28	
Unif. delay d_1	7.4	8.1	6.9	6.8	8.8	7.1		25.6			25.4	
Delay factor k	0.11	0.11	0.11	0.11	0.11	0.11		0.11			0.11	
Increm. delay d_2	0.1	0.1	0.0	0.0	0.2	0.0		0.5			0.4	
PF factor	1.000	1.000	1.000	1.000	1.000	1.000		1.000			1.000	
Control delay	7.5	8.3	6.9	6.9	9.0	7.1		26.1			25.8	
Lane group LOS	A	A	A	A	A	A		C			C	
Apprch. delay	8.1			8.8			26.1			25.8		
Approach LOS	A			A			C			C		
Intersec. delay	11.9			Intersection LOS						B		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*GKB and Jetty Park Drive*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*12/5/05*	Analysis Year	*2010*
Analysis Time Period			

Project Description	
East/West Street: *George King Blvd*	North/South Street: *Jetty Park Drive*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	9	14	10	0	16	0
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	9	14	10	0	16	0
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type	Raised curb					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L		TR	LTR		
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	23	3	0	2		0
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	24	3	0	2	0	0
Percent Heavy Vehicles	2	2	2	2	16	2
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	1	0	1
Configuration		LTR		L		R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	LTR		LTR		L		R
v (vph)	9	0		27		2		0
C (m) (vph)	1602	1591		865		875		1063
v/c	0.01	0.00		0.03		0.00		0.00
95% queue length	0.02	0.00		0.10		0.01		0.00
Control Delay	7.3	7.3		9.3		9.1		8.4
LOS	A	A		A		A		A
Approach Delay	--	--	9.3			9.1		
Approach LOS	--	--	A			A		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*GKB @ Marlin*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*12/5/2005*	Analysis Year	*2010*
Analysis Time Period	*PM*		

Project Description	
East/West Street: *George King Blvd*	North/South Street: *Marlin Street*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*6*	*285*	*18*	*4*	*396*	*3*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*6*	*300*	*18*	*4*	*416*	*3*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*1*	*1*	*1*	*1*
Configuration	*L*	*T*	*R*	*L*	*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*20*	*1*	*6*	*3*	*1*	*0*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*21*	*1*	*6*	*3*	*1*	*0*
Percent Heavy Vehicles	*25*	*1*	*14*	*5*	*2*	*35*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
v (vph)	*6*	*4*		*28*			*4*	
C (m) (vph)	*1140*	*1242*		*452*			*433*	
v/c	*0.01*	*0.00*		*0.06*			*0.01*	
95% queue length	*0.02*	*0.01*		*0.20*			*0.03*	
Control Delay	*8.2*	*7.9*		*13.5*			*13.4*	
LOS	*A*	*A*		*B*			*B*	
Approach Delay	--	--	*13.5*			*13.4*		
Approach LOS	--	--	*B*			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*Mullett Rd @ Dave Nisbet Drive*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*12/5/2005*	Analysis Year	*2010*
Analysis Time Period	*PM*		

Project Description	
East/West Street: *Mullet Road*	North/South Street: *Dave Nisbet Drive*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*87*	*174*			*349*	*0*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*91*	*183*	*0*	*0*	*367*	*0*
Percent Heavy Vehicles	*2*	--	--	*20*	--	--
Median Type	*Two Way Left Turn Lane*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*10*		*118*			
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*10*	*0*	*124*	*0*	*0*	*0*
Percent Heavy Vehicles	*2*	*0*	*2*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (vph)	*91*						*134*	
C (m) (vph)	*1192*						*656*	
v/c	*0.08*						*0.20*	
95% queue length	*0.25*						*0.76*	
Control Delay	*8.3*						*11.9*	
LOS	*A*						*B*	
Approach Delay	--	--				*11.9*		
Approach LOS	--	--				*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*Mullett Rd @ Scallop Dr*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*12/5/05*	Analysis Year	*2010*
Analysis Time Period	*PM*		

Project Description	
East/West Street: *Mullet Road*	North/South Street: *Scallop Drive*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*5*	*36*			*37*	*20*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*5*	*37*	*0*	*0*	*38*	*21*
Percent Heavy Vehicles	*2*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				*19*		*0*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*20*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*20*	*0*	*2*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*5*						*20*	
C (m) (vph)	*1545*						*816*	
v/c	*0.00*						*0.02*	
95% queue length	*0.01*						*0.08*	
Control Delay	*7.3*						*9.5*	
LOS	*A*						*A*	
Approach Delay	--	--				*9.5*		
Approach LOS	--	--				*A*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	M Tobin
Agency/Co.	GA
Date Performed	12/5/2005
Analysis Time Period	PM

Site Information

Intersection	Scallop Rd @ Dave Nisbet Drive
Jurisdiction	Port Canaveral
Analysis Year	2010

Project Description

East/West Street: Scallop Road | North/South Street: Dave Nisbet Drive

Intersection Orientation: North-South | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	32	85			249	0
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	33	89	0	0	262	0
Percent Heavy Vehicles	3	--	--	20	--	--
Median Type	Raised curb					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	14		53			
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	14	0	55	0	0	0
Percent Heavy Vehicles	25	0	6	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (vph)	33						69	
C (m) (vph)	1296						724	
v/c	0.03						0.10	
95% queue length	0.08						0.31	
Control Delay	7.9						10.5	
LOS	A						B	
Approach Delay	--	--				10.5		
Approach LOS	--	--				B		

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Appendix E

HCS Worksheets – Future Conditions, Design Year (2025)

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*Scallop Rd @ Dave Nisbet Drive*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	*2025*
Analysis Time Period	*AM*		

Project Description	
East/West Street: *Scallop Road*	North/South Street: *Dave Nisbet Drive*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*56*	*79*			*36*	*5*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*58*	*83*	*0*	*0*	*37*	*5*
Percent Heavy Vehicles	*3*	--	--	*20*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*7*		*29*			
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*7*	*0*	*30*	*0*	*0*	*0*
Percent Heavy Vehicles	*25*	*2*	*6*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*58*						*37*	
C (m) (vph)	*1561*						*928*	
v/c	*0.04*						*0.04*	
95% queue length	*0.12*						*0.12*	
Control Delay	*7.4*						*9.0*	
LOS	*A*						*A*	
Approach Delay	--	--				*9.0*		
Approach LOS	--	--				*A*		

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SHORT REPORT

General Information		Site Information	
Analyst	*S.C.*	Intersection	*SR 401 @ Grouper*
Agency or Co.	*G&A*	Area Type	*All other areas*
Date Performed	*11/28/2005*	Jurisdiction	*Port Authority*
Time Period	*AM Peak*	Analysis Year	*2025*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	*0*	*2*	*0*	*1*	*2*	*0*	*1*	*0*	*1*	*0*	*0*	*0*
Lane Group		*T*		*L*	*T*		*L*		*R*			
Volume (vph)		*2656*		*5*	*117*		*184*		*0*			
% Heavy veh	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Actuated (P/A)		*A*		*A*	*A*		*A*		*A*			
Startup lost time		*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	*2.0*		*2.0*	
Ext. eff. green		*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	*2.0*		*2.0*	
Arrival type		*3*		*3*	*3*		*3*	*3*	*3*		*3*	
Unit Extension		*3.0*		*3.0*	*3.0*		*3.0*	*3.0*	*3.0*		*3.0*	
Ped/Bike/RTOR Volume	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*12.0*		*12.0*	*12.0*	*12.0*		*12.0*	
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/hr												
Bus stops/hr		*0*		*0*	*0*		*0*	*0*	*0*		*0*	
Unit Extension		*3.0*		*3.0*	*3.0*		*3.0*	*3.0*	*3.0*		*3.0*	

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *80.0*	G =	G =	G =	G = *15.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis (hrs) = *0.25*						Cycle Length C = *105.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adj. flow rate		*2796*		*5*	*123*		*194*	*0*	*0*		*0*
Lane group cap.		*2702*		*71*	*2702*		*253*		*226*		
v/c ratio		*1.03*		*0.07*	*0.05*		*0.77*		*0.00*		
Green ratio		*0.76*		*0.76*	*0.76*		*0.14*	*0.00*	*0.14*		*0.00*
Unif. delay d_1		*12.5*		*3.1*	*3.1*		*43.3*		*38.6*		
Delay factor k		*0.50*		*0.11*	*0.11*		*0.32*		*0.11*		
Increm. delay d_2		*27.1*		*0.4*	*0.0*		*13.2*		*0.0*		
PF factor		*1.000*		*1.000*	*1.000*		*1.000*		*1.000*		
Control delay		*39.6*		*3.6*	*3.1*		*56.5*		*38.6*		
Lane group LOS		*D*		*A*	*A*		*E*		*D*		
Apprch. delay	*39.6*			*3.1*			*56.5*				
Approach LOS	*D*			*A*			*E*				
Intersec. delay	*39.2*			Intersection LOS						*D*	

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SHORT REPORT

General Information		Site Information	
Analyst	*S.C.*	Intersection	*SR 401 & Charles Rowland*
Agency or Co.	*G&A*	Area Type	*All other areas*
Date Performed	*11/28/2005*	Jurisdiction	*Port Authority*
Time Period	*AM Peak*	Analysis Year	*2025*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	*0*	*2*	*1*	*1*	*2*	*0*	*2*	*0*	*1*	*0*	*0*	*0*
Lane Group		*T*	*R*	*L*	*T*		*L*		*R*			
Volume (vph)		*2852*	*9*	*5*	*251*		*31*		*2*			
% Heavy veh	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Actuated (P/A)		*A*	*A*	*A*	*A*		*A*		*A*			
Startup lost time		*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*		*2.0*	
Ext. eff. green		*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*		*2.0*	
Arrival type		*3*	*3*	*3*	*3*		*3*	*3*	*3*		*3*	
Unit Extension		*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*		*3.0*	
Ped/Bike/RTOR Volume	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*	*12.0*	*12.0*	*12.0*		*12.0*	*12.0*	*12.0*		*12.0*	
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/hr												
Bus stops/hr		*0*	*0*	*0*	*0*		*0*	*0*	*0*		*0*	
Unit Extension		*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*		*3.0*	

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *80.0*	G =	G =	G =	G = *10.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis (hrs) = *0.25*						Cycle Length C = *100.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adj. flow rate		*3002*	*9*	*5*	*264*		*33*	*0*	*2*		*0*
Lane group cap.		*2838*	*1266*	*74*	*2838*		*344*		*158*		
v/c ratio		*1.06*	*0.01*	*0.07*	*0.09*		*0.10*		*0.01*		
Green ratio		*0.80*	*0.80*	*0.80*	*0.80*		*0.10*	*0.00*	*0.10*		*0.00*
Unif. delay d_1		*10.0*	*2.0*	*2.1*	*2.2*		*40.9*		*40.6*		
Delay factor k		*0.50*	*0.11*	*0.11*	*0.11*		*0.11*		*0.11*		
Increm. delay d_2		*34.7*	*0.0*	*0.4*	*0.0*		*0.1*		*0.0*		
PF factor		*1.000*	*1.000*	*1.000*	*1.000*		*1.000*		*1.000*		
Control delay		*44.7*	*2.0*	*2.5*	*2.2*		*41.0*		*40.6*		
Lane group LOS		*D*	*A*	*A*	*A*		*D*		*D*		
Apprch. delay	*44.6*			*2.2*			*41.0*				
Approach LOS	*D*			*A*			*D*				
Intersec. delay	*41.1*			Intersection LOS						*D*	

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SHORT REPORT	
General Information	**Site Information**
Analyst *SC*	Intersection *George King @ Atlantic*
Agency or Co. *G&A*	Area Type *All other areas*
Date Performed *11/29/2005*	Jurisdiction *Port Authority*
Time Period *AM Peak*	Analysis Year *2025*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	0	1	1	1	0	1	1	1	1	0
Lane Group	L	TR		L	T	R		LT	R	L	TR	
Volume (vph)	60	251	163	25	67	5	318	38	173	4	11	33
% Heavy veh	2	2	2	2	2	2	2	2	2	2	2	2
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup lost time	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0	2.0	
Ext. eff. green	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0	2.0	
Arrival type	3	3		3	3	3		3	3	3	3	
Unit Extension	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0	12.0		12.0	12.0	12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0	0		0	0	0	0	
Unit Extension	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0	3.0	

Phasing	EB Only	EW Perm	03	04	NS Perm	06	07	08
Timing	G = 10.0	G = 42.0	G =	G =	G = 33.0	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 100.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adj. flow rate	63	436		26	71	5		375	182	4	47
Lane group cap.	733	999		399	782	665		440	522	204	546
v/c ratio	0.09	0.44		0.07	0.09	0.01		0.85	0.35	0.02	0.09
Green ratio	0.57	0.57		0.42	0.42	0.42		0.33	0.33	0.33	0.33
Unif. delay d_1	9.7	12.3		17.3	17.5	16.9		31.2	25.4	22.6	23.1
Delay factor k	0.11	0.11		0.11	0.11	0.11		0.38	0.11	0.11	0.11
Increm. delay d_2	0.1	0.3		0.1	0.1	0.0		14.8	0.4	0.0	0.1
PF factor	1.000	1.000		1.000	1.000	1.000		1.000	1.000	1.000	1.000
Control delay	9.8	12.6		17.4	17.5	16.9		46.1	25.8	22.6	23.2
Lane group LOS	A	B		B	B	B		D	C	C	C
Apprch. delay	12.3			17.5			39.4			23.1	
Approach LOS	B			B			D			C	
Intersec. delay	25.7			Intersection LOS						C	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	M Tobin	Intersection	GKB @ C Columbus Drive
Agency/Co.	GA	Jurisdiction	Port Canaveral
Date Performed	11/21/2005	Analysis Year	2025
Analysis Time Period	AM		

Project Description

East/West Street: George King Blvd	North/South Street: C Columbus Drive
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	101	331			92	0
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	106	348	0	0	96	0
Percent Heavy Vehicles	2	--	--	25	--	--
Median Type	Raised curb					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				0		29
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	0	0	0	0	0	30
Percent Heavy Vehicles	6	0	2	2	16	12
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	1	0	1
Configuration				L		R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L					L		R
v (vph)	106					0		30
C (m) (vph)	1498					462		934
v/c	0.07					0.00		0.03
95% queue length	0.23					0.00		0.10
Control Delay	7.6					12.8		9.0
LOS	A					B		A
Approach Delay	--	--				9.0		
Approach LOS	--	--				A		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*GKB @ Dave Nisbet Drive*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	*2025*
Analysis Time Period	*AM*		

Project Description	
East/West Street: *George King Blvd*	North/South Street: *Dave Nisbet Drive*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*359*	*651*			*361*	*61*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*377*	*685*	*0*	*0*	*380*	*64*
Percent Heavy Vehicles	*2*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*0*	*1*	*1*
Configuration	*L*	*T*			*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				*27*		*183*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*28*	*0*	*192*
Percent Heavy Vehicles	*0*	*0*	*0*	*11*	*0*	*4*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
v (vph)	*377*					*28*		*192*
C (m) (vph)	*1112*					*144*		*612*
v/c	*0.34*					*0.19*		*0.31*
95% queue length	*1.51*					*0.69*		*1.34*
Control Delay	*9.9*					*35.9*		*13.5*
LOS	*A*					*E*		*B*
Approach Delay	--	--				*16.4*		
Approach LOS	--	--				*C*		

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SHORT REPORT

General Information		Site Information	
Analyst	*MT*	Intersection	*George King @ Dave Nisbet*
Agency or Co.	*G&A*	Area Type	*All other areas*
Date Performed	*12/5/05*	Jurisdiction	*Port Authority*
Time Period	*AM Peak*	Analysis Year	*2025*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	*2*	*2*	*0*	*0*	*1*	*1*	*0*	*0*	*0*	*1*	*0*	*1*
Lane Group	*L*	*T*			*T*	*R*				*L*		*R*
Volume (vph)	*359*	*651*			*361*	*61*				*27*		*183*
% Heavy veh	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Actuated (P/A)	*P*	*A*			*A*	*A*				*A*		*A*
Startup lost time	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Ext. eff. green	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Arrival type	*3*	*3*			*3*	*3*		*3*		*3*	*3*	*3*
Unit Extension	*3.0*	*3.0*			*3.0*	*3.0*		*3.0*		*3.0*	*3.0*	*3.0*
Ped/Bike/RTOR Volume	*0*	*0*	*5*	*0*	*0*	*12*	*0*	*0*	*4*	*0*	*0*	*15*
Lane Width	*12.0*	*12.0*			*12.0*	*12.0*		*12.0*		*12.0*	*12.0*	*12.0*
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/hr												
Bus stops/hr	*0*	*0*			*0*	*0*		*0*		*0*	*0*	*0*
Unit Extension	*3.0*	*3.0*			*3.0*	*3.0*		*3.0*		*3.0*	*3.0*	*3.0*

Phasing	EW Perm	EB Only	03	04	SB Only	06	07	08
Timing	G = *60.0*	G = *30.0*	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis (hrs) = *0.25*						Cycle Length C = *135.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adj. flow rate	*378*	*685*			*380*	*52*		*0*		*28*	*0*
Lane group cap.	*1190*	*1608*			*844*	*718*				*468*	
v/c ratio	*0.32*	*0.43*			*0.45*	*0.07*				*0.06*	
Green ratio	*0.70*	*0.44*			*0.44*	*0.44*		*0.00*		*0.26*	*0.00*
Unif. delay d_1	*22.2*	*25.7*			*26.0*	*21.5*				*37.6*	
Delay factor k	*0.50*	*0.11*			*0.11*	*0.11*				*0.11*	
Increm. delay d_2	*0.7*	*0.2*			*0.4*	*0.0*				*0.1*	
PF factor	*1.000*	*1.000*			*1.000*	*1.000*				*1.000*	
Control delay	*22.9*	*25.9*			*26.4*	*21.6*				*37.7*	
Lane group LOS	*C*	*C*			*C*	*C*				*D*	
Apprch. delay	*24.8*			*25.8*						*9.6*	
Approach LOS	*C*			*C*						*A*	
Intersec. delay	*23.2*			Intersection LOS						*C*	

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SHORT REPORT

General Information		Site Information	
Analyst	SC	Intersection	George King @ Flounder
Agency or Co.	G&A	Area Type	All other areas
Date Performed	11/29/2005	Jurisdiction	Port Authority
Time Period	AM Peak	Analysis Year	2025

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	1	1	1	1	0	1	0	0	1	0
Lane Group	L	T	R	L	T	R		LTR			LTR	
Volume (vph)	36	650	134	33	457	34	23	4	7	13	2	22
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup lost time	2.0	2.0	2.0	2.0	2.0	2.0		2.0			2.0	
Ext. eff. green	2.0	2.0	2.0	2.0	2.0	2.0		2.0			2.0	
Arrival type	3	3	3	3	3	3		3			3	
Unit Extension	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0		12.0			12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0	0	0	0	0		0			0	
Unit Extension	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 55.0	G =	G =	G =	G = 25.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25					Cycle Length C = 90.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	38	684	141	35	481	36		35			39	
Lane group cap.	487	1161	987	329	1161	987		435			450	
v/c ratio	0.08	0.59	0.14	0.11	0.41	0.04		0.08			0.09	
Green ratio	0.61	0.61	0.61	0.61	0.61	0.61		0.28			0.28	
Unif. delay d_1	7.1	10.6	7.5	7.3	9.1	7.0		24.0			24.1	
Delay factor k	0.11	0.18	0.11	0.11	0.11	0.11		0.11			0.11	
Increm. delay d_2	0.1	0.8	0.1	0.1	0.2	0.0		0.1			0.1	
PF factor	1.000	1.000	1.000	1.000	1.000	1.000		1.000			1.000	
Control delay	7.2	11.4	7.5	7.4	9.4	7.0		24.1			24.1	
Lane group LOS	A	B	A	A	A	A		C			C	
Apprch. delay	10.6			9.1			24.1			24.1		
Approach LOS	B			A			C			C		
Intersec. delay	10.7			Intersection LOS						B		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*George King @ Jetty Park*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	
Analysis Time Period	*AM*		

Project Description

East/West Street: *George King Blvd*	North/South Street:
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*130*	*7*	*38*	*0*	*16*	*0*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*136*	*7*	*40*	*0*	*16*	*0*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*		*TR*	*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*29*	*4*	*0*	*0*		*9*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*30*	*4*	*0*	*0*	*0*	*9*
Percent Heavy Vehicles	*2*	*2*	*2*	*2*	*16*	*2*
Percent Grade (%)		*2*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*1*	*0*	*1*
Configuration		*LTR*		*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*LTR*		*LTR*		*L*		*R*
v (vph)	*136*	*0*		*34*		*0*		*9*
C (m) (vph)	*1602*	*1560*		*578*		*582*		*1063*
v/c	*0.08*	*0.00*		*0.06*		*0.00*		*0.01*
95% queue length	*0.28*	*0.00*		*0.19*		*0.00*		*0.03*
Control Delay	*7.5*	*7.3*		*11.6*		*11.2*		*8.4*
LOS	*A*	*A*		*B*		*B*		*A*
Approach Delay	--	--		*11.6*			*8.4*	
Approach LOS	--	--		*B*			*A*	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*GKB @ Marlin*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	*2025*
Analysis Time Period	*AM*		

Project Description

East/West Street: *George King Blvd*	North/South Street: *Marlin Street*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*164*	*477*	*24*	*21*	*377*	*20*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*172*	*502*	*25*	*22*	*396*	*21*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*1*	*1*	*1*	*1*
Configuration	*L*	*T*	*R*	*L*	*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*17*	*7*	*22*	*0*	*5*	*43*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*17*	*7*	*23*	*0*	*5*	*45*
Percent Heavy Vehicles	*25*	*1*	*14*	*5*	*2*	*35*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
v (vph)	*172*	*22*		*47*			*50*	
C (m) (vph)	*1142*	*1040*		*275*			*507*	
v/c	*0.15*	*0.02*		*0.17*			*0.10*	
95% queue length	*0.53*	*0.06*		*0.61*			*0.33*	
Control Delay	*8.7*	*8.5*		*20.8*			*12.9*	
LOS	*A*	*A*		*C*			*B*	
Approach Delay	--	--	*20.8*			*12.9*		
Approach LOS	--	--	*C*			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*Mullett Rd @ Dave Nisbet Drive*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	*2025*
Analysis Time Period	*AM*		

Project Description

East/West Street: *Mullet Road*	North/South Street: *Dave Nisbet Drive*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*157*	*194*			*110*	*5*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*165*	*204*	*0*	*0*	*115*	*5*
Percent Heavy Vehicles	*2*	--	--	*20*	--	--
Median Type	*Two Way Left Turn Lane*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*7*		*96*			
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*7*	*0*	*101*	*0*	*0*	*0*
Percent Heavy Vehicles	*3*	*0*	*2*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (vph)	*165*						*108*	
C (m) (vph)	*1468*						*873*	
v/c	*0.11*						*0.12*	
95% queue length	*0.38*						*0.42*	
Control Delay	*7.8*						*9.7*	
LOS	*A*						*A*	
Approach Delay	--	--				*9.7*		
Approach LOS	--	--				*A*		

 HCS+™ Version 5.1 Generated: 12/8/2005 2:21 PM

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*Mullett Rd @ Scallop Dr*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*11/21/2005*	Analysis Year	
Analysis Time Period	*AM*		

Project Description

East/West Street: *Mullet Road*	North/South Street: *Scallop Drive*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*27*			*52*	*22*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*0*	*28*	*0*	*0*	*54*	*23*
Percent Heavy Vehicles	*2*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				*18*		*13*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*18*	*0*	*13*
Percent Heavy Vehicles	*0*	*0*	*0*	*20*	*0*	*2*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*0*						*31*	
C (m) (vph)	*1522*						*884*	
v/c	*0.00*						*0.04*	
95% queue length	*0.00*						*0.11*	
Control Delay	*7.4*						*9.2*	
LOS	*A*						*A*	
Approach Delay	--	--				*9.2*		
Approach LOS	--	--				*A*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*M Tobin*
Agency/Co.	*GA*
Date Performed	*12/5/2005*
Analysis Time Period	*Mid Day*

Site Information

Intersection	*Scallop Rd @ Dave Nisbet Drive*
Jurisdiction	*Port Canaveral*
Analysis Year	*2025*

Project Description

East/West Street: *Scallop Road* North/South Street: *Dave Nisbet Drive*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*52*	*141*			*132*	*31*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*54*	*148*	*0*	*0*	*138*	*32*
Percent Heavy Vehicles	*3*	--	--	*20*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*34*		*61*			
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*35*	*0*	*64*	*0*	*0*	*0*
Percent Heavy Vehicles	*2*	*0*	*6*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*54*						*99*	
C (m) (vph)	*1401*						*771*	
v/c	*0.04*						*0.13*	
95% queue length	*0.12*						*0.44*	
Control Delay	*7.7*						*10.4*	
LOS	*A*						*B*	
Approach Delay	--	--				*10.4*		
Approach LOS	--	--				*B*		

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SHORT REPORT

General Information		Site Information	
Analyst	*MT*	Intersection	*SR 401 @ Grouper*
Agency or Co.	*G&A*	Area Type	*All other areas*
Date Performed	*12/5/05*	Jurisdiction	*Port Authority*
Time Period	*Midday Peak*	Analysis Year	*2025*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	*0*	*2*	*0*	*1*	*2*	*0*	*1*	*0*	*1*	*0*	*0*	*0*
Lane Group		*T*		*L*	*T*		*L*		*R*			
Volume (vph)		*429*		*25*	*735*		*314*		*20*			
% Heavy veh	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Actuated (P/A)		*A*		*A*	*A*		*A*		*A*			
Startup lost time		*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	*2.0*		*2.0*	
Ext. eff. green		*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	*2.0*		*2.0*	
Arrival type		*3*		*3*	*3*		*3*	*3*	*3*		*3*	
Unit Extension		*3.0*		*3.0*	*3.0*		*3.0*	*3.0*	*3.0*		*3.0*	
Ped/Bike/RTOR Volume	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*12.0*		*12.0*	*12.0*	*12.0*		*12.0*	
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/hr												
Bus stops/hr		*0*		*0*	*0*		*0*	*0*	*0*		*0*	
Unit Extension		*3.0*		*3.0*	*3.0*		*3.0*	*3.0*	*3.0*		*3.0*	

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *50.0*	G =	G =	G =	G = *20.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis (hrs) = *0.25*						Cycle Length C = *80.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adj. flow rate		*452*		*26*	*774*		*331*	*0*	*21*		*0*
Lane group cap.		*2217*		*572*	*2217*		*443*		*396*		
v/c ratio		*0.20*		*0.05*	*0.35*		*0.75*		*0.05*		
Green ratio		*0.63*		*0.63*	*0.63*		*0.25*	*0.00*	*0.25*		*0.00*
Unif. delay d_1		*6.4*		*5.8*	*7.2*		*27.7*		*22.8*		
Delay factor k		*0.11*		*0.11*	*0.11*		*0.30*		*0.11*		
Increm. delay d_2		*0.0*		*0.0*	*0.1*		*6.9*		*0.1*		
PF factor		*1.000*		*1.000*	*1.000*		*1.000*		*1.000*		
Control delay		*6.5*		*5.8*	*7.3*		*34.5*		*22.9*		
Lane group LOS		*A*		*A*	*A*		*C*		*C*		
Apprch. delay	*6.5*			*7.2*			*33.8*				
Approach LOS	*A*			*A*			*C*				
Intersec. delay	*12.9*			Intersection LOS						*B*	

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SHORT REPORT

General Information		Site Information	
Analyst	*MT*	Intersection	*SR 401 & Charles Rowland*
Agency or Co.	*G&A*	Area Type	*All other areas*
Date Performed	*12/5/05*	Jurisdiction	*Port Authority*
Time Period	*Mid-day Peak*	Analysis Year	*2025*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	*0*	*2*	*1*	*1*	*2*	*0*	*2*	*0*	*1*	*0*	*0*	*0*
Lane Group		*T*	*R*	*L*	*T*		*L*		*R*			
Volume (vph)		*622*	*0*	*2*	*775*		*33*		*0*			
% Heavy veh	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Actuated (P/A)		*A*	*A*	*A*	*A*		*A*		*A*			
Startup lost time		*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*		*2.0*	
Ext. eff. green		*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*		*2.0*	
Arrival type		*3*	*3*	*3*	*3*		*3*	*3*	*3*		*3*	
Unit Extension		*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*		*3.0*	
Ped/Bike/RTOR Volume	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*	*12.0*	*12.0*	*12.0*		*12.0*	*12.0*	*12.0*		*12.0*	
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/hr												
Bus stops/hr		*0*	*0*	*0*	*0*		*0*	*0*	*0*		*0*	
Unit Extension		*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*		*3.0*	

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *55.0*	G =	G =	G =	G = *15.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis (hrs) = *0.25*						Cycle Length C = *80.0*		

Lane Group Capacity, Control Delay, and LOS Determination

		EB			WB			NB			SB
Adj. flow rate		*655*	*0*	*2*	*816*		*35*	*0*	*0*		*0*
Lane group cap.		*2439*	*1088*	*508*	*2439*		*644*		*297*		
v/c ratio		*0.27*	*0.00*	*0.00*	*0.33*		*0.05*		*0.00*		
Green ratio		*0.69*	*0.69*	*0.69*	*0.69*		*0.19*	*0.00*	*0.19*		*0.00*
Unif. delay d_1		*4.8*	*3.9*	*3.9*	*5.1*		*26.7*		*26.4*		
Delay factor k		*0.11*	*0.11*	*0.11*	*0.11*		*0.11*		*0.11*		
Increm. delay d_2		*0.1*	*0.0*	*0.0*	*0.1*		*0.0*		*0.0*		
PF factor		*1.000*	*1.000*	*1.000*	*1.000*		*1.000*		*1.000*		
Control delay		*4.9*	*3.9*	*3.9*	*5.2*		*26.7*		*26.4*		
Lane group LOS		*A*	*A*	*A*	*A*		*C*		*C*		
Apprch. delay	*4.9*			*5.2*			*26.7*				
Approach LOS	*A*			*A*			*C*				
Intersec. delay	*5.5*			Intersection LOS							*A*

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SHORT REPORT

General Information		Site Information	
Analyst	*MT*	Intersection	*George King @ Atlantic*
Agency or Co.	*G&A*	Area Type	*All other areas*
Date Performed	*12/5/05*	Jurisdiction	*Port Authority*
Time Period	*Mid-day Peak*	Analysis Year	*2025*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	0	1	1	1	0	1	1	1	1	0
Lane Group	L	TR		L	T	R		LT	R	L	TR	
Volume (vph)	52	134	241	67	103	2	274	13	98	5	20	54
% Heavy veh	2	2	2	2	2	2	2	2	2	2	2	2
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup lost time	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0	2.0	
Ext. eff. green	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0	2.0	
Arrival type	3	3		3	3	3		3	3	3	3	
Unit Extension	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0	3.0	
Ped/Bike/RTOR Volume	0	0	15	0	0	0	0	0	10	0	0	5
Lane Width	12.0	12.0		12.0	12.0	12.0		12.0	12.0	12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0	0		0	0	0	0	
Unit Extension	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0	3.0	

Phasing	EB Only	EW Perm	03	04	NS Perm	06	07	08
Timing	G = 10.0	G = 40.0	G =	G =	G = 25.0	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adj. flow rate	55	379		71	108	2		302	93	5	73
Lane group cap.	766	1031		444	828	704		353	440	201	462
v/c ratio	0.07	0.37		0.16	0.13	0.00		0.86	0.21	0.02	0.16
Green ratio	0.61	0.61		0.44	0.44	0.44		0.28	0.28	0.28	0.28
Unif. delay d_1	7.2	8.8		15.0	14.7	13.9		30.8	24.9	23.6	24.5
Delay factor k	0.11	0.11		0.11	0.11	0.11		0.39	0.11	0.11	0.11
Increm. delay d_2	0.0	0.2		0.2	0.1	0.0		18.3	0.2	0.1	0.2
PF factor	1.000	1.000		1.000	1.000	1.000		1.000	1.000	1.000	1.000
Control delay	7.2	9.0		15.1	14.8	13.9		49.0	25.2	23.7	24.7
Lane group LOS	A	A		B	B	B		D	C	C	C
Apprch. delay	8.8			14.9			43.4			24.6	
Approach LOS	A			B			D			C	
Intersec. delay	23.5			Intersection LOS						C	

 HCS+™ Version 5.1 Generated: 12/9/2005 9:31 AM

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*GKB @ C Columbus Drive*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*12/5/05*	Analysis Year	*2025*
Analysis Time Period	*Mid day*		

Project Description	
East/West Street: *George King Blvd*	North/South Street: *C Columbus Drive*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*42*	*202*			*161*	*2*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*46*	*224*	*0*	*0*	*178*	*2*
Percent Heavy Vehicles	*13*	--	--	*25*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				*2*		*36*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*2*	*0*	*40*
Percent Heavy Vehicles	*6*	*0*	*2*	*0*	*16*	*5*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
v (vph)	*46*					*2*		*40*
C (m) (vph)	*1332*					*588*		*856*
v/c	*0.03*					*0.00*		*0.05*
95% queue length	*0.11*					*0.01*		*0.15*
Control Delay	*7.8*					*11.1*		*9.4*
LOS	*A*					*B*		*A*
Approach Delay	--	--				*9.5*		
Approach LOS	--	--				*A*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	M Tobin	Intersection	GKB @ Dave Nisbet Drive
Agency/Co.	GA	Jurisdiction	Port Canaveral
Date Performed	12/5/2005	Analysis Year	2025
Analysis Time Period	Mid Day		

Project Description

East/West Street: George King Blvd — North/South Street: Dave Nisbet Drive

Intersection Orientation: East-West — Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	430	738			458	63
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	452	776	0	0	482	66
Percent Heavy Vehicles	5	--	--	0	--	--
Median Type	Raised curb					
RT Channelized			0			0
Lanes	1	2	0	0	1	1
Configuration	L	T			T	R
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				60		0
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	0	0	0	63	0	0
Percent Heavy Vehicles	0	0	0	11	0	10
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	1	0	1
Configuration				L		R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L					L		R
v (vph)	452					63		0
C (m) (vph)	997					94		509
v/c	0.45					0.67		0.00
95% queue length	2.40					3.29		0.00
Control Delay	11.6					99.7		12.1
LOS	B					F		B
Approach Delay	--	--				99.7		
Approach LOS	--	--				F		

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SHORT REPORT

General Information		Site Information	
Analyst	*MT*	Intersection	*George King @ Dave Nisbet*
Agency or Co.	*G&A*	Area Type	*All other areas*
Date Performed	*12/5/05*	Jurisdiction	*Port Authority*
Time Period	*Mid Day Peak*	Analysis Year	*2025*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	*2*	*2*	*0*	*0*	*1*	*1*	*0*	*0*	*0*	*1*	*0*	*1*
Lane Group	*L*	*T*			*T*	*R*				*L*		*R*
Volume (vph)	*430*	*738*			*458*	*63*				*60*		*235*
% Heavy veh	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Actuated (P/A)	*P*	*A*			*A*	*A*				*A*		*A*
Startup lost time	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Ext. eff. green	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Arrival type	*3*	*3*			*3*	*3*		*3*		*3*	*3*	*3*
Unit Extension	*3.0*	*3.0*			*3.0*	*3.0*		*3.0*		*3.0*	*3.0*	*3.0*
Ped/Bike/RTOR Volume	*0*	*0*	*5*	*0*	*0*	*12*	*0*	*0*	*4*	*0*	*0*	*15*
Lane Width	*12.0*	*12.0*			*12.0*	*12.0*		*12.0*		*12.0*	*12.0*	*12.0*
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/hr												
Bus stops/hr	*0*	*0*			*0*	*0*		*0*		*0*	*0*	*0*
Unit Extension	*3.0*	*3.0*			*3.0*	*3.0*		*3.0*		*3.0*	*3.0*	*3.0*

Phasing	EW Perm	EB Only	03	04	SB Only	06	07	08
Timing	G = *60.0*	G = *30.0*	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis (hrs) = *0.25*					Cycle Length C = *135.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adj. flow rate	*453*	*777*			*482*	*54*		*0*		*63*	*0*
Lane group cap.	*1181*	*1608*			*844*	*718*				*468*	
v/c ratio	*0.38*	*0.48*			*0.57*	*0.08*				*0.13*	
Green ratio	*0.70*	*0.44*			*0.44*	*0.44*		*0.00*		*0.26*	*0.00*
Unif. delay d_1	*27.5*	*26.5*			*27.9*	*21.6*				*38.4*	
Delay factor k	*0.50*	*0.11*			*0.17*	*0.11*				*0.11*	
Increm. delay d_2	*0.9*	*0.2*			*0.9*	*0.0*				*0.1*	
PF factor	*1.000*	*1.000*			*1.000*	*1.000*				*1.000*	
Control delay	*28.4*	*26.8*			*28.9*	*21.6*				*38.5*	
Lane group LOS	*C*	*C*			*C*	*C*				*D*	
Apprch. delay	*27.4*			*28.1*						*12.5*	
Approach LOS	*C*			*C*						*B*	
Intersec. delay	*25.4*			Intersection LOS						*C*	

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SHORT REPORT

General Information		Site Information	
Analyst	*MT*	Intersection	*George King @ Flounder*
Agency or Co.	*G&A*	Area Type	*All other areas*
Date Performed	*12/5/05*	Jurisdiction	*Port Authority*
Time Period	*Mid-day Peak*	Analysis Year	*2025*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	1	1	1	1	0	1	0	0	1	0
Lane Group	L	T	R	L	T	R		LTR			LTR	
Volume (vph)	144	538	114	21	493	69	75	4	10	67	9	78
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup lost time	2.0	2.0	2.0	2.0	2.0	2.0		2.0			2.0	
Ext. eff. green	2.0	2.0	2.0	2.0	2.0	2.0		2.0			2.0	
Arrival type	3	3	3	3	3	3		3			3	
Unit Extension	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	
Ped/Bike/RTOR Volume	0	0	10	0	0	10	0	0	5	0	0	10
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0		12.0			12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0	0	0	0	0		0			0	
Unit Extension	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 55.0	G =	G =	G =	G = 25.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25					Cycle Length C = 90.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	152	566	109	22	519	62		88			152	
Lane group cap.	456	1161	987	419	1161	987		359			408	
v/c ratio	0.33	0.49	0.11	0.05	0.45	0.06		0.25			0.37	
Green ratio	0.61	0.61	0.61	0.61	0.61	0.61		0.28			0.28	
Unif. delay d_1	8.5	9.7	7.3	7.0	9.4	7.1		25.2			26.2	
Delay factor k	0.11	0.11	0.11	0.11	0.11	0.11		0.11			0.11	
Increm. delay d_2	0.4	0.3	0.0	0.1	0.3	0.0		0.4			0.6	
PF factor	1.000	1.000	1.000	1.000	1.000	1.000		1.000			1.000	
Control delay	9.0	10.0	7.3	7.1	9.6	7.1		25.5			26.8	
Lane group LOS	A	B	A	A	A	A		C			C	
Apprch. delay	9.5			9.3			25.5			26.8		
Approach LOS	A			A			C			C		
Intersec. delay	11.8			Intersection LOS						B		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*GKB @ Jetty Park Drive*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*12/5/2005*	Analysis Year	*2025*
Analysis Time Period	*Mid Day*		

Project Description	
East/West Street: *Jetty Park Dr*	North/South Street: *GKB/Shorewood Drive*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*29*	*22*	*45*	*0*	*14*	*0*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*30*	*23*	*47*	*0*	*14*	*0*
Percent Heavy Vehicles	*6*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*		*TR*	*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*23*	*2*	*0*	*4*		*34*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*24*	*2*	*0*	*4*	*0*	*35*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*5*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*1*	*0*	*1*
Configuration		*LTR*		*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*LTR*		*LTR*		*L*		*R*
v (vph)	*30*	*0*		*26*		*4*		*35*
C (m) (vph)	*1578*	*1544*		*795*		*844*		*1057*
v/c	*0.02*	*0.00*		*0.03*		*0.00*		*0.03*
95% queue length	*0.06*	*0.00*		*0.10*		*0.01*		*0.10*
Control Delay	*7.3*	*7.3*		*9.7*		*9.3*		*8.5*
LOS	*A*	*A*		*A*		*A*		*A*
Approach Delay	--	--		*9.7*			*8.6*	
Approach LOS	--	--		*A*			*A*	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*GKB @ Marlin*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*12/5/2005*	Analysis Year	*2025*
Analysis Time Period	*Mid day*		

Project Description	
East/West Street: *George King Blvd*	North/South Street: *Marlin Street*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	34	390	17	3	458	23
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	35	410	17	3	482	24
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type	Raised curb					
RT Channelized			0			0
Lanes	1	1	1	1	1	1
Configuration	L	T	R	L	T	R
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	24	2	4	20	0	33
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	25	2	4	21	0	34
Percent Heavy Vehicles	20	2	2	9	2	50
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L		LTR			LTR	
v (vph)	35	3		31			55	
C (m) (vph)	1059	1132		326			424	
v/c	0.03	0.00		0.10			0.13	
95% queue length	0.10	0.01		0.31			0.44	
Control Delay	8.5	8.2		17.2			14.8	
LOS	A	A		C			B	
Approach Delay	--	--	17.2			14.8		
Approach LOS	--	--	C			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	M Tobin	Intersection	Mullett Rd @ Dave Nisbet Drive
Agency/Co.	GA	Jurisdiction	Port Canaveral
Date Performed	12/5/2005	Analysis Year	2025
Analysis Time Period	Mid Day		

Project Description

East/West Street: Mullet Road	North/South Street: Dave Nisbet Drive
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	173	242			219	22
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	182	254	0	0	230	23
Percent Heavy Vehicles	2	--	--	20	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	20		197			
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	21	0	207	0	0	0
Percent Heavy Vehicles	2	0	5	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (vph)	182						228	
C (m) (vph)	1312						718	
v/c	0.14						0.32	
95% queue length	0.48						1.37	
Control Delay	8.2						12.3	
LOS	A						B	
Approach Delay	--	--				12.3		
Approach LOS	--	--				B		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*Mullett Rd @ Scallop Dr*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*12/5/2005*	Analysis Year	*2025*
Analysis Time Period	*Mid Day*		

Project Description

East/West Street: *Mullet Road*	North/South Street: *Scallop Drive*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*4*	*67*			*29*	*38*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*4*	*70*	*0*	*0*	*30*	*40*
Percent Heavy Vehicles	*2*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				*33*		*20*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*34*	*0*	*21*
Percent Heavy Vehicles	*0*	*0*	*0*	*11*	*0*	*9*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*4*						*55*	
C (m) (vph)	*1531*						*873*	
v/c	*0.00*						*0.06*	
95% queue length	*0.01*						*0.20*	
Control Delay	*7.4*						*9.4*	
LOS	*A*						*A*	
Approach Delay	--	--				*9.4*		
Approach LOS	--	--				*A*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*Scallop Rd @ Dave Nisbet Drive*
Agency/Co.	*G&A*	Jurisdiction	*Port Canaveral*
Date Performed	*12/5/05*	Analysis Year	*2025*
Analysis Time Period	*PM*		

Project Description	
East/West Street: *Scallop Road*	North/South Street: *Dave Nisbet Drive*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*51*	*132*			*388*	*9*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*53*	*138*	*0*	*0*	*408*	*9*
Percent Heavy Vehicles	*3*	--	--	*20*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*22*		*83*			
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*23*	*0*	*87*	*0*	*0*	*0*
Percent Heavy Vehicles	*25*	*0*	*6*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*53*						*110*	
C (m) (vph)	*1137*						*590*	
v/c	*0.05*						*0.19*	
95% queue length	*0.15*						*0.68*	
Control Delay	*8.3*						*12.5*	
LOS	*A*						*B*	
Approach Delay	--	--				*12.5*		
Approach LOS	--	--				*B*		

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SHORT REPORT

General Information		Site Information	
Analyst	*MT*	Intersection	*SR 401 @ Grouper*
Agency or Co.	*G&A*	Area Type	*All other areas*
Date Performed	*12/5/05*	Jurisdiction	*Port Authority*
Time Period	*PM Peak*	Analysis Year	*2025*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	2	0	1	2	0	1	0	1	0	0	0
Lane Group		T		L	T		L		R			
Volume (vph)		135		27	2308		298		7			
% Heavy veh	2	2	2	2	2	2	2	2	2	2	2	2
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)		A		A	A		A		A			
Startup lost time		2.0		2.0	2.0		2.0	2.0	2.0		2.0	
Ext. eff. green		2.0		2.0	2.0		2.0	2.0	2.0		2.0	
Arrival type		3		3	3		3	3	3		3	
Unit Extension		3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Ped/Bike/RTOR Volume	0	0	5	0	0	0	0	0	4	0	0	0
Lane Width		12.0		12.0	12.0		12.0	12.0	12.0		12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr		0		0	0		0	0	0		0	
Unit Extension		3.0		3.0	3.0		3.0	3.0	3.0		3.0	

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = 75.0	G =	G =	G =	G = 25.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 110.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate		142		28	2429		314	0	3		0	
Lane group cap.		2418		841	2418		402		360			
v/c ratio		0.06		0.03	1.00		0.78		0.01			
Green ratio		0.68		0.68	0.68		0.23	0.00	0.23		0.00	
Unif. delay d_1		5.8		5.7	17.5		39.9		32.9			
Delay factor k		0.11		0.11	0.50		0.33		0.11			
Increm. delay d_2		0.0		0.0	19.4		9.6		0.0			
PF factor		1.000		1.000	1.000		1.000		1.000			
Control delay		5.8		5.7	36.9		49.5		32.9			
Lane group LOS		A		A	D		D		C			
Apprch. delay	5.8			36.5			49.4					
Approach LOS	A			D			D					
Intersec. delay	36.4			Intersection LOS						D		

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SHORT REPORT

General Information		Site Information	
Analyst	*MT*	Intersection	*SR 401 & Charles Rowland*
Agency or Co.	*G&A*	Area Type	*All other areas*
Date Performed	*12/5/05*	Jurisdiction	*Port Authority*
Time Period	*PM Peak*	Analysis Year	*2025*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	*0*	*2*	*1*	*1*	*2*	*0*	*2*	*0*	*1*	*0*	*0*	*0*
Lane Group		*T*	*R*	*L*	*T*		*L*		*R*			
Volume (vph)		*235*	*2*	*0*	*2516*		*37*		*2*			
% Heavy veh	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Actuated (P/A)		*A*	*A*	*A*	*A*		*A*		*A*			
Startup lost time		*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*		*2.0*	
Ext. eff. green		*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*		*2.0*	
Arrival type		*3*	*3*	*3*	*3*		*3*	*3*	*3*		*3*	
Unit Extension		*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*		*3.0*	
Ped/Bike/RTOR Volume	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*	*12.0*	*12.0*	*12.0*		*12.0*	*12.0*	*12.0*		*12.0*	
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/hr												
Bus stops/hr		*0*	*0*	*0*	*0*		*0*	*0*	*0*		*0*	
Unit Extension		*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*		*3.0*	

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *80.0*	G =	G =	G =	G = *20.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis (hrs) = *0.25*					Cycle Length C = *110.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate		*247*	*2*	*0*	*2648*		*39*	*0*	*2*		*0*	
Lane group cap.		*2580*	*1151*	*811*	*2580*		*625*		*288*			
v/c ratio		*0.10*	*0.00*	*0.00*	*1.03*		*0.06*		*0.01*			
Green ratio		*0.73*	*0.73*	*0.73*	*0.73*		*0.18*	*0.00*	*0.18*		*0.00*	
Unif. delay d_1		*4.4*	*4.1*	*4.1*	*15.0*		*37.2*		*36.9*			
Delay factor k		*0.11*	*0.11*	*0.11*	*0.50*		*0.11*		*0.11*			
Increm. delay d_2		*0.0*	*0.0*	*0.0*	*24.8*		*0.0*		*0.0*			
PF factor		*1.000*	*1.000*	*1.000*	*1.000*		*1.000*		*1.000*			
Control delay		*4.4*	*4.1*	*4.1*	*39.8*		*37.3*		*36.9*			
Lane group LOS		*A*	*A*	*A*	*D*		*D*		*D*			
Apprch. delay	*4.4*			*39.8*			*37.3*					
Approach LOS	*A*			*D*			*D*					
Intersec. delay	*36.8*			Intersection LOS						*D*		

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SHORT REPORT

General Information		Site Information	
Analyst	MT	Intersection	George King @ Atlantic
Agency or Co.	G&A	Area Type	All other areas
Date Performed	12/5/05	Jurisdiction	Port Authority
Time Period	PM Peak	Analysis Year	2025

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	0	1	1	1	0	1	1	1	1	0
Lane Group	L	TR		L	T	R		LT	R	L	TR	
Volume (vph)	14	99	352	78	152	2	289	11	38	4	40	67
% Heavy veh	2	2	2	2	2	2	2	2	2	2	2	2
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup lost time	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0	2.0	
Ext. eff. green	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0	2.0	
Arrival type	3	3		3	3	3		3	3	3	3	
Unit Extension	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0	3.0	
Ped/Bike/RTOR Volume	0	0	20	0	0	2	0	0	7	0	0	8
Lane Width	12.0	12.0		12.0	12.0	12.0		12.0	12.0	12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0	0		0	0	0	0	
Unit Extension	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0	3.0	

Phasing	EB Only	EW Perm	03	04	NS Perm	06	07	08
Timing	G = 10.0	G = 40.0	G =	G =	G = 25.0	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adj. flow rate	15	453		82	160	0		316	33	4	104
Lane group cap.	740	1006		415	828	704		341	440	190	471
v/c ratio	0.02	0.45		0.20	0.19	0.00		0.93	0.08	0.02	0.22
Green ratio	0.61	0.61		0.44	0.44	0.44		0.28	0.28	0.28	0.28
Unif. delay d_1	7.0	9.4		15.2	15.2	13.9		31.6	24.0	23.6	25.0
Delay factor k	0.11	0.11		0.11	0.11	0.11		0.44	0.11	0.11	0.11
Increm. delay d_2	0.0	0.3		0.2	0.1	0.0		30.6	0.1	0.0	0.2
PF factor	1.000	1.000		1.000	1.000	1.000		1.000	1.000	1.000	1.000
Control delay	7.0	9.7		15.5	15.3	13.9		62.2	24.0	23.7	25.2
Lane group LOS	A	A		B	B	B		E	C	C	C
Apprch. delay	9.6			15.4			58.6			25.2	
Approach LOS	A			B			E			C	
Intersec. delay	26.9			Intersection LOS						C	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*GKB @ C Columbus Drive*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*12/5/2005*	Analysis Year	*2025*
Analysis Time Period	*PM Peak*		

Project Description

East/West Street: *George King Blvd*	North/South Street: *C Columbus Drive*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*43*	*101*			*177*	*5*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*45*	*106*	*0*	*0*	*186*	*5*
Percent Heavy Vehicles	*0*	--	--	*25*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				*0*		*27*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*0*	*0*	*28*
Percent Heavy Vehicles	*6*	*0*	*2*	*0*	*16*	*12*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
v (vph)	*45*					*0*		*28*
C (m) (vph)	*1395*					*654*		*829*
v/c	*0.03*					*0.00*		*0.03*
95% queue length	*0.10*					*0.00*		*0.10*
Control Delay	*7.7*					*10.5*		*9.5*
LOS	*A*					*B*		*A*
Approach Delay	--	--				*9.5*		
Approach LOS	--	--				*A*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*GKB @ Dave Nisbet Drive*
Agency/Co.	*GA*	Jurisdiction	*Port Canaveral*
Date Performed	*12/5/2005*	Analysis Year	*2025*
Analysis Time Period	*PM*		

Project Description	
East/West Street: *George King Blvd*	North/South Street: *Dave Nisbet Drive*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*657*	*715*			*531*	*124*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*691*	*752*	*0*	*0*	*558*	*130*
Percent Heavy Vehicles	*6*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*0*	*1*	*1*
Configuration	*L*	*T*			*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				*69*		*0*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*72*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*8*	*0*	*7*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*R*
v (vph)	*691*					*72*		*0*
C (m) (vph)	*876*					*21*		*461*
v/c	*0.79*					*3.43*		*0.00*
95% queue length	*8.26*					*9.28*		*0.00*
Control Delay	*22.6*					*1473*		*12.8*
LOS	*C*					*F*		*B*
Approach Delay	--	--				*1473*		
Approach LOS	--	--				*F*		

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SHORT REPORT

General Information		Site Information	
Analyst	*MT*	Intersection	*George King @ Dave Nisbet*
Agency or Co.	*G&A*	Area Type	*All other areas*
Date Performed	*12/5/05*	Jurisdiction	*Port Authority*
Time Period	*PM Peak*	Analysis Year	*2025*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	*2*	*2*	*0*	*0*	*1*	*1*	*0*	*0*	*0*	*1*	*0*	*1*
Lane Group	*L*	*T*			*T*	*R*				*L*		*R*
Volume (vph)	*657*	*715*			*531*	*124*				*69*		*282*
% Heavy veh	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Actuated (P/A)	*P*	*A*			*A*	*A*				*A*		*A*
Startup lost time	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Ext. eff. green	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Arrival type	*3*	*3*			*3*	*3*		*3*		*3*	*3*	*3*
Unit Extension	*3.0*	*3.0*			*3.0*	*3.0*		*3.0*		*3.0*	*3.0*	*3.0*
Ped/Bike/RTOR Volume	*0*	*0*	*5*	*0*	*0*	*12*	*0*	*0*	*4*	*0*	*0*	*15*
Lane Width	*12.0*	*12.0*			*12.0*	*12.0*		*12.0*		*12.0*	*12.0*	*12.0*
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/hr												
Bus stops/hr	*0*	*0*			*0*	*0*		*0*		*0*	*0*	*0*
Unit Extension	*3.0*	*3.0*			*3.0*	*3.0*		*3.0*		*3.0*	*3.0*	*3.0*

Phasing	EW Perm	EB Only	03	04	SB Only	06	07	08
Timing	G = *60.0*	G = *30.0*	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis (hrs) = *0.25*						Cycle Length C = *135.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adj. flow rate	*692*	*753*			*559*	*118*		*0*		*73*	*0*
Lane group cap.	*1221*	*1608*			*844*	*718*				*468*	
v/c ratio	*0.57*	*0.47*			*0.66*	*0.16*				*0.16*	
Green ratio	*0.70*	*0.44*			*0.44*	*0.44*		*0.00*		*0.26*	*0.00*
Unif. delay d_1	*32.5*	*26.3*			*29.5*	*22.5*				*38.6*	
Delay factor k	*0.50*	*0.11*			*0.24*	*0.11*				*0.11*	
Increm. delay d_2	*1.9*	*0.2*			*2.0*	*0.1*				*0.2*	
PF factor	*1.000*	*1.000*			*1.000*	*1.000*				*1.000*	
Control delay	*34.4*	*26.5*			*31.5*	*22.6*				*38.8*	
Lane group LOS	*C*	*C*			*C*	*C*				*D*	
Apprch. delay	*30.3*			*29.9*						*12.4*	
Approach LOS	*C*			*C*						*B*	
Intersec. delay	*27.6*			Intersection LOS						*C*	

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SHORT REPORT

General Information		Site Information	
Analyst	MT	Intersection	George King @ Flounder
Agency or Co.	G&A	Area Type	All other areas
Date Performed	12/5/05	Jurisdiction	Port Authority
Time Period	PM Peak	Analysis Year	2025

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	1	1	1	1	0	1	0	0	1	0
Lane Group	L	T	R	L	T	R		LTR			LTR	
Volume (vph)	107	442	34	8	600	90	106	0	21	78	0	94
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup lost time	2.0	2.0	2.0	2.0	2.0	2.0		2.0			2.0	
Ext. eff. green	2.0	2.0	2.0	2.0	2.0	2.0		2.0			2.0	
Arrival type	3	3	3	3	3	3		3			3	
Unit Extension	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	
Ped/Bike/RTOR Volume	0	0	5	0	0	7	0	0	4	0	0	7
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0		12.0			12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0	0	0	0	0		0			0	
Unit Extension	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 55.0	G =	G =	G =	G = 25.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	113	465	31	8	632	87		130			174	
Lane group cap.	368	1161	987	500	1161	987		326			400	
v/c ratio	0.31	0.40	0.03	0.02	0.54	0.09		0.40			0.44	
Green ratio	0.61	0.61	0.61	0.61	0.61	0.61		0.28			0.28	
Unif. delay d_1	8.4	9.0	6.9	6.9	10.2	7.2		26.4			26.7	
Delay factor k	0.11	0.11	0.11	0.11	0.14	0.11		0.11			0.11	
Increm. delay d_2	0.5	0.2	0.0	0.0	0.5	0.0		0.8			0.8	
PF factor	1.000	1.000	1.000	1.000	1.000	1.000		1.000			1.000	
Control delay	8.9	9.2	7.0	6.9	10.7	7.2		27.2			27.5	
Lane group LOS	A	A	A	A	B	A		C			C	
Apprch. delay	9.1			10.3			27.2			27.5		
Approach LOS	A			B			C			C		
Intersec. delay	13.0			Intersection LOS						B		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*M Tobin*
Agency/Co.	*G&A*
Date Performed	*12/5/05*
Analysis Time Period	*PM Peak*

Site Information

Intersection	*Mullett Rd @ Scallop Dr*
Jurisdiction	*Port Canaveral*
Analysis Year	*2025*

Project Description

East/West Street: *Mullet Road*	North/South Street: *Scallop Drive*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*14*	*22*	*16*	*0*	*25*	*0*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*14*	*23*	*16*	*0*	*26*	*0*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*		*TR*	*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*36*	*5*	*0*	*4*		*83*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*37*	*5*	*0*	*4*	*0*	*87*
Percent Heavy Vehicles	*2*	*2*	*2*	*2*	*16*	*2*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*1*	*0*	*1*
Configuration		*LTR*		*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*LTR*		*LTR*		*L*		*R*
v (vph)	*14*	*0*		*42*		*4*		*87*
C (m) (vph)	*1588*	*1571*		*752*		*839*		*1050*
v/c	*0.01*	*0.00*		*0.06*		*0.00*		*0.08*
95% queue length	*0.03*	*0.00*		*0.18*		*0.01*		*0.27*
Control Delay	*7.3*	*7.3*		*10.1*		*9.3*		*8.7*
LOS	*A*	*A*		*B*		*A*		*A*
Approach Delay	--	--		*10.1*			*8.8*	
Approach LOS	--	--		*B*			*A*	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	M Tobin	Intersection	GKB @ Marlin
Agency/Co.	GA	Jurisdiction	Port Canaveral
Date Performed	12/5/2005	Analysis Year	2025
Analysis Time Period	PM		

Project Description

East/West Street: George King Blvd	North/South Street: Marlin Street
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	9	420	21	6	577	5
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	9	442	22	6	607	5
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type	Raised curb					
RT Channelized			0			0
Lanes	1	1	1	1	1	1
Configuration	L	T	R	L	T	R
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	25	2	8	5	2	56
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	26	2	8	5	2	58
Percent Heavy Vehicles	25	1	14	5	2	35
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L		LTR			LTR	
v (vph)	9	6		36			65	
C (m) (vph)	967	1097		297			423	
v/c	0.01	0.01		0.12			0.15	
95% queue length	0.03	0.02		0.41			0.54	
Control Delay	8.8	8.3		18.8			15.0	
LOS	A	A		C			C	
Approach Delay	--	--	18.8			15.0		
Approach LOS	--	--	C			C		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*Mullett Rd @ Dave Nisbet Drive*
Agency/Co.	*G&A*	Jurisdiction	*Port Canaveral*
Date Performed	*12/5/05*	Analysis Year	*2025*
Analysis Time Period	*PM*		

Project Description	
East/West Street: *Mullet Road*	North/South Street: *Dave Nisbet Drive*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*135*	*241*			*517*	*20*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*142*	*253*	*0*	*0*	*544*	*21*
Percent Heavy Vehicles	*2*	--	--	*20*	--	--
Median Type	*Two Way Left Turn Lane*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*16*		*184*			
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*16*	*0*	*193*	*0*	*0*	*0*
Percent Heavy Vehicles	*2*	*0*	*2*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (vph)	*142*						*209*	
C (m) (vph)	*1007*						*509*	
v/c	*0.14*						*0.41*	
95% queue length	*0.49*						*1.98*	
Control Delay	*9.2*						*16.9*	
LOS	*A*						*C*	
Approach Delay	--	--				*16.9*		
Approach LOS	--	--				*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*M Tobin*	Intersection	*Mullett Rd @ Scallop Dr*
Agency/Co.	*G&A*	Jurisdiction	*Port Canaveral*
Date Performed	*12/5/05*	Analysis Year	*2025*
Analysis Time Period	*PM*		

Project Description	
East/West Street: *Mullet Road*	North/South Street: *Scallop Drive*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*7*	*56*			*58*	*31*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*7*	*58*	*0*	*0*	*61*	*32*
Percent Heavy Vehicles	*2*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				*29*		*16*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*30*	*0*	*16*
Percent Heavy Vehicles	*0*	*0*	*0*	*20*	*0*	*2*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*7*						*46*	
C (m) (vph)	*1501*						*838*	
v/c	*0.00*						*0.05*	
95% queue length	*0.01*						*0.17*	
Control Delay	*7.4*						*9.5*	
LOS	*A*						*A*	
Approach Delay	--	--				*9.5*		
Approach LOS	--	--				*A*		

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Appendix F

Central Boulevard Analysis

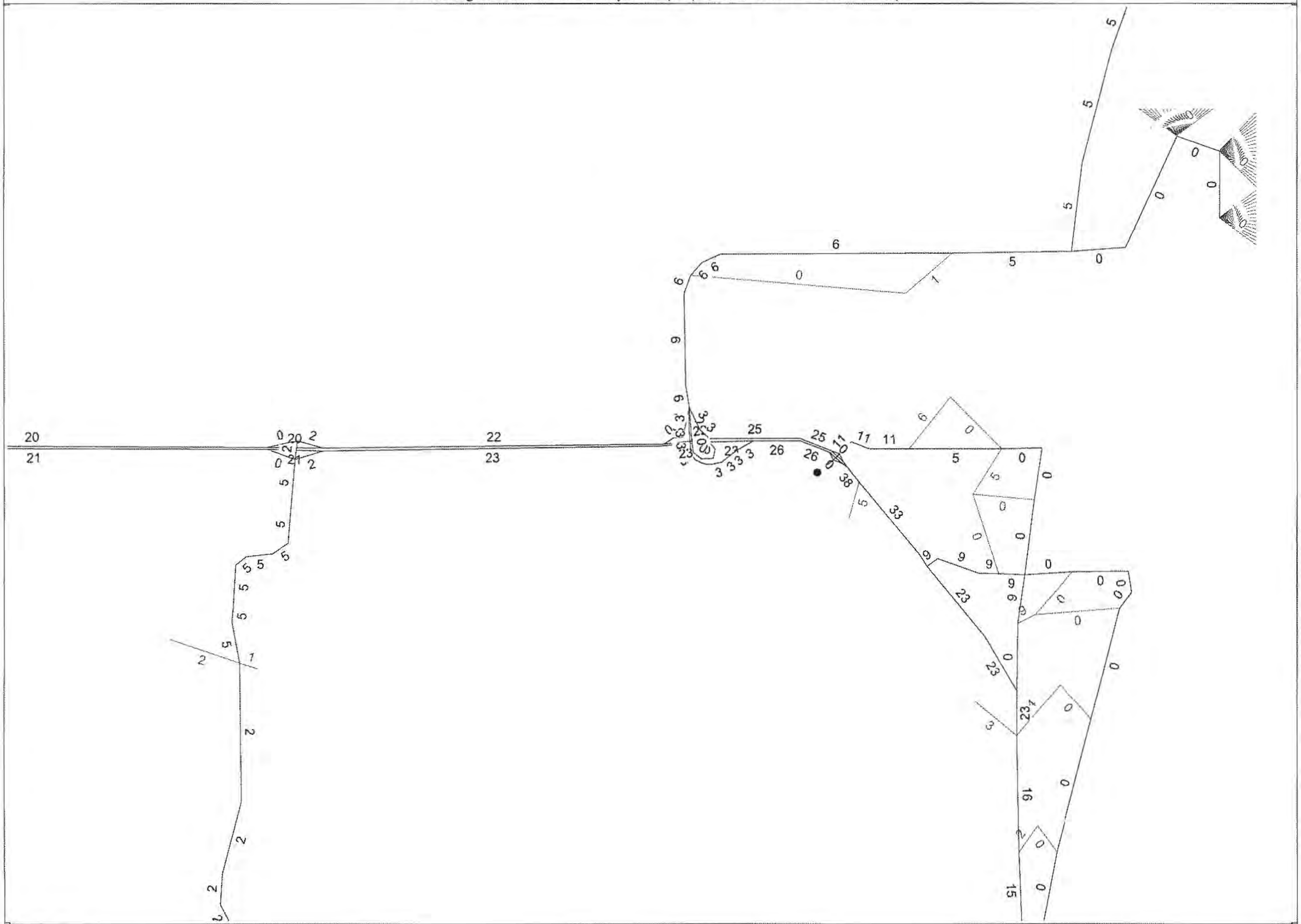
Central Boulevard PM Peak Hour Trips

Ron Jon World				
ITE Code	Land Use	Size	Daily Trips	PM Peak Hour Trips
814	Surf Shop	73,000 SF	3235	198
310	Resort Hotel	400 rooms	3268	168
	Conference Space	20,000 SF	1620	220
480	Surf Park	10.2 Acres	773	40
480	Board Sports area	50,000 SF	87	5
932	Restaurant	10,000 SF	1272	109
		Sub-total	10,255	740
		less Internal Capture (10%)	1026	74
		Total External Trips	9,230	666

Trip Distribution on Central Blvd (from Model Plot) 9%

PM Peak Trips on Central Blvd 666 x .09 = 60

2630-03: Proposed Ron Jon World Study
Percentage Distribution of Project Trips (CFRPM II Model:Year 2010)



RGE. -500
RGE. 0
RGE. 500
COMMUNICATIONS DUCT
STA. 215+00
PROPOSED CHANNEL WIDENER
SCP 1 & 2
MILITARY COMMUNICATIONS DUCT PLAN
50' 25' 0 50' 100' 150'
1" = 50'-0"
ECI DRILL BIT EXIT POINT 22.68°
ELEV. 17'±
RGE. -375.00
MANHOLE
3.5
1
EL. 0.0 (MLW)
EXISTING CHANNEL EL. -40'
FUTURE CHANNEL EL. -44'
-35'
FACE OF SCP 1&2
RGE. 583.62
100'±
EL +17±
COMM. BLDG
RGE. 770.00
ECI DRILL BIT ENTRY POINT 15.59°
-5
-27.33'
MANHOLE
FUTURE BULKHEAD
COMMUNICATIONS DUCT AS-BUILT EL. -83'±
MILITARY COMMUNICATIONS DUCT PROFILE (STA. 214 +72.5)
50' 25' 0 50' 100' 150'
1" = 50'-0"
7 - 4"ø CONDUITS
24"ø CONC. ENCASEMENT
COMMUNICATION DUCT SECTION
SCALE: NONE
NOTE:
AS-BUILT INFORMATION PROVIDED BY;
ENVIRONMENTAL CROSSINGS, INC.
P.O. BOX 601 TRAVERSE CITY, MI 49685-0601
FOR SPEEGLE CONSTRUCTION CO.
7-21-93.
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DSGN ARD
DR ARD
CHK
APVD
NO. DATE REVISION BY APVD
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445 CHALLENGER ROAD, SUITE 180
CAPE CANAVERAL, FLORIDA 32920
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CANAVERAL PORT AUTHORITY
SECT. 203 FEASIBILITY STUDY, PHASE 3
MILITARY COMM. DUCT PLAN AND PROFILE
SHEET S1
DWG
DATE 08/08/07
PROJ 2007-08
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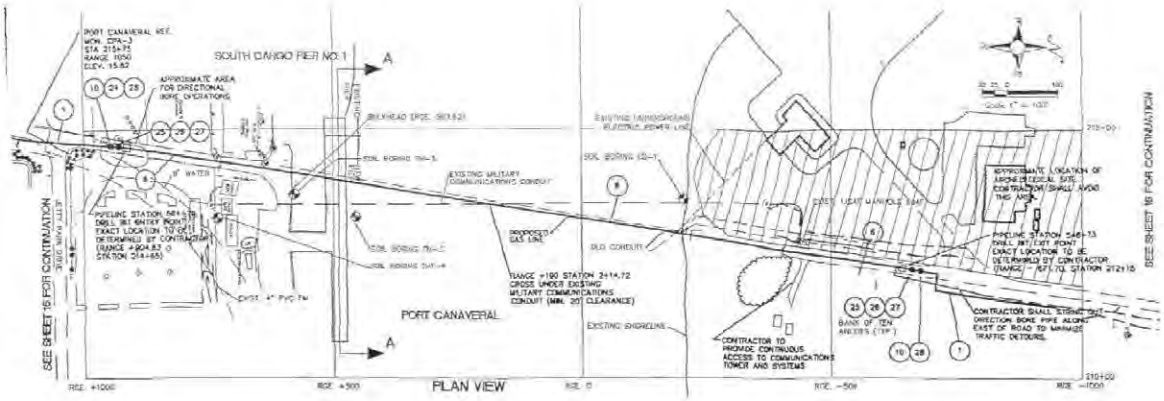
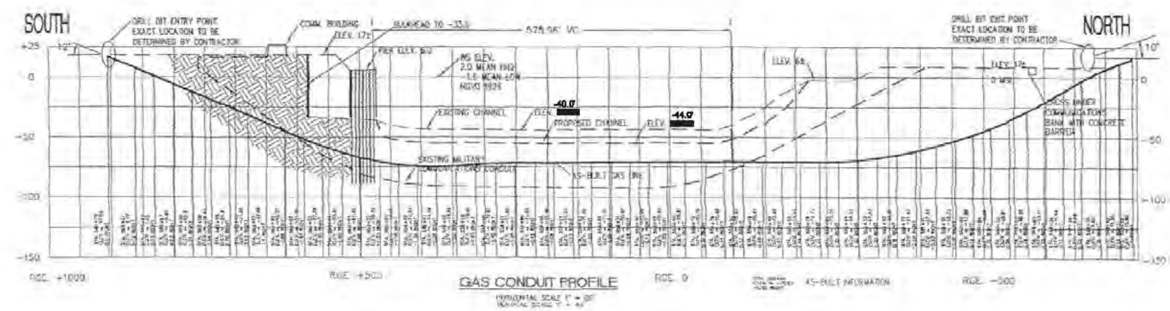


NOTES:

1. SOIL BORING REPORT IS INCLUDED IN CONTRACT DOCUMENTS.
2. SEE CONTRACT DOCUMENTS FOR SPECIAL WORKING CONDITIONS ON CCAS AND PORT CANAVERAL.
3. COORDINATE CROSSING OF MILITARY COMMUNICATIONS CONDUIT WITH 407-853-5461
4. CONDUIT CONSISTS OF A BUNDLE OF (7) 4" HDPE CONDUITS WITH FIBEROPTIC CABLE ENCASED IN APPROX. 24" DIAMETER CONCRETE.



NUI/ CITY GAS CONDUIT PLAN AND PROFILE

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1670 S.E. PORT ST. LUCIE BLVD.
PORT ST. LUCIE, FL 34952

THIS DRAWING IS FOR INFORMATION PURPOSES ONLY AND DOES NOT REFLECT THE ACTUAL CHANNEL WIDENING AND DEEPENING CRITERIA.

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DR	ARD					
CHK						
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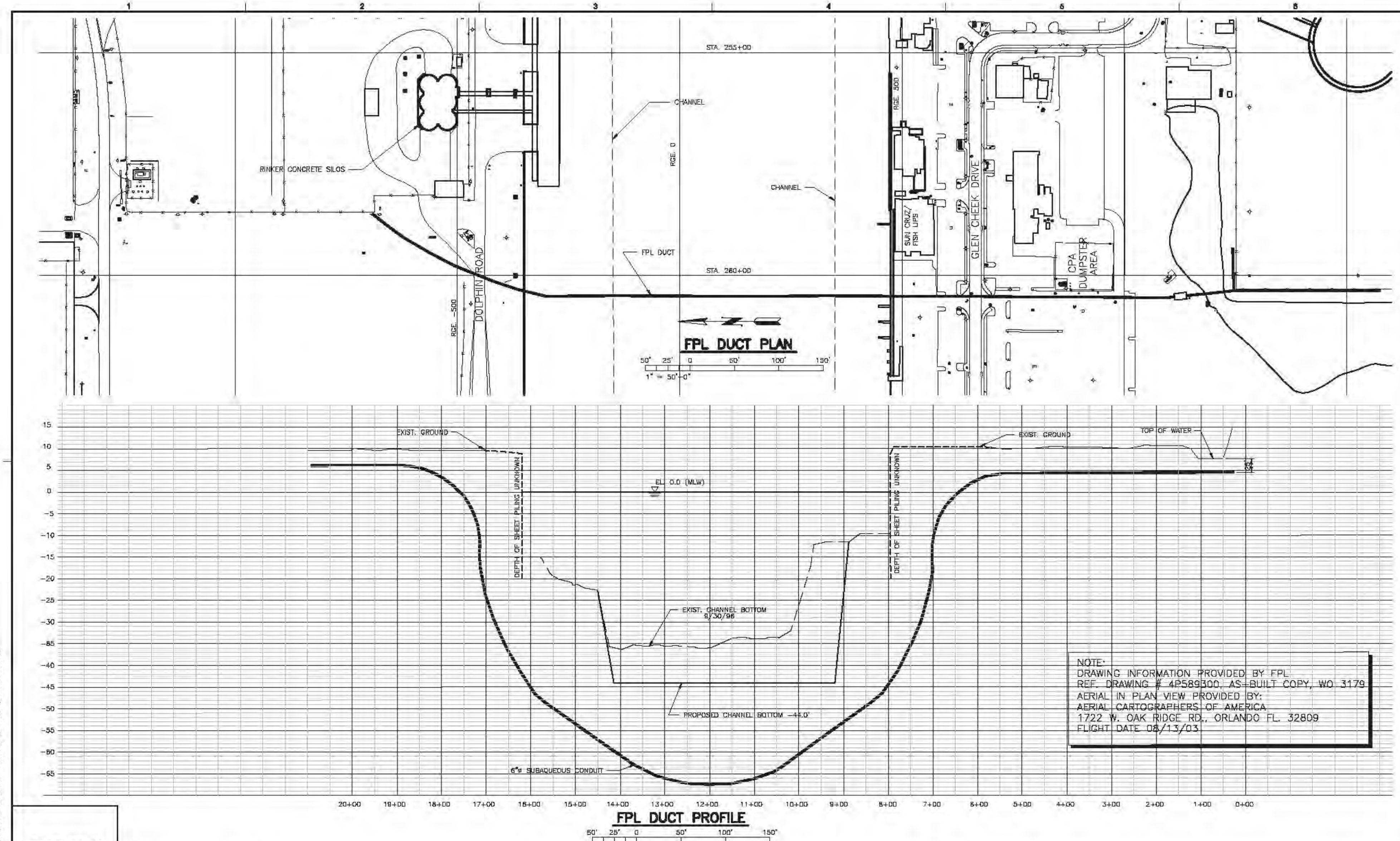
SECT. 203 FEASABILITY STUDY, PHASE 3
NUI/ CITY GAS CONDUIT PLAN AND PROFILE

SHEET	S4
DWG	
DATE	08/06/07
PROJ	2007-08

08/08/07



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SECT. 203 FEASIBILITY STUDY, PHASE 3
FPL FEEDER DUCT PLAN AND PROFILE

SHEET	S2
DWG	
DATE	06/06/07
PROJ	2007-08

06/06/07

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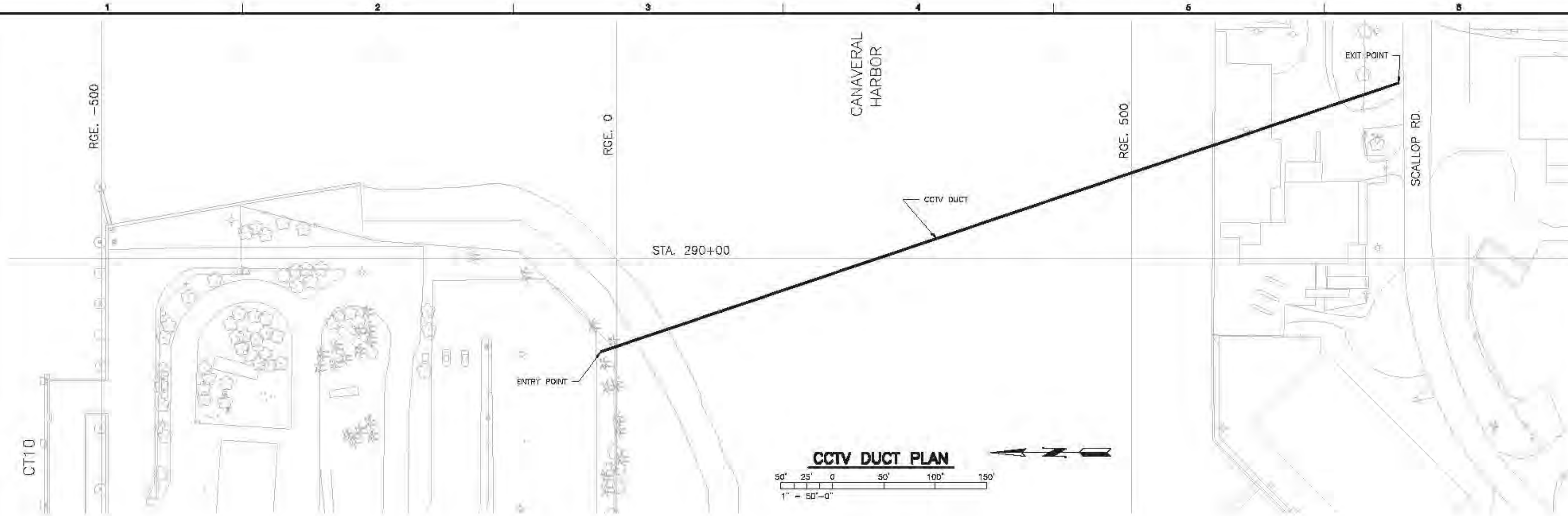
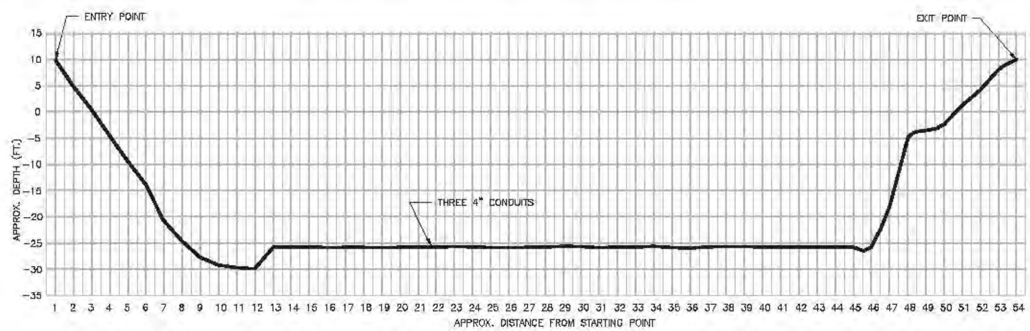


CCTV DUCT PLAN

50' 25' 0 50' 100' 150'
1" = 50'-0"

NOTE: UTILITY CROSSING IS WEST OF PROPOSED CHANNEL IMPROVEMENTS.



CCTV DUCT PROFILE

SCALE: NONE

NOTE:
AS-BUILT INFORMATION PROVIDED BY:
TRENCHLESS SPECIALTIES, INC.
2300 SILVER STAR RD.
ORLANDO, FL 32804-3310 ON 4-27-06 FOR
MIL-CON ELECTRIC CO.

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1722 W. OAK RIDGE RD., ORLANDO FL. 32809
FLIGHT DATE 08/13/03

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DR	ARD
CHK	
APVD	

NO.	DATE	REVISION	BY	APVD

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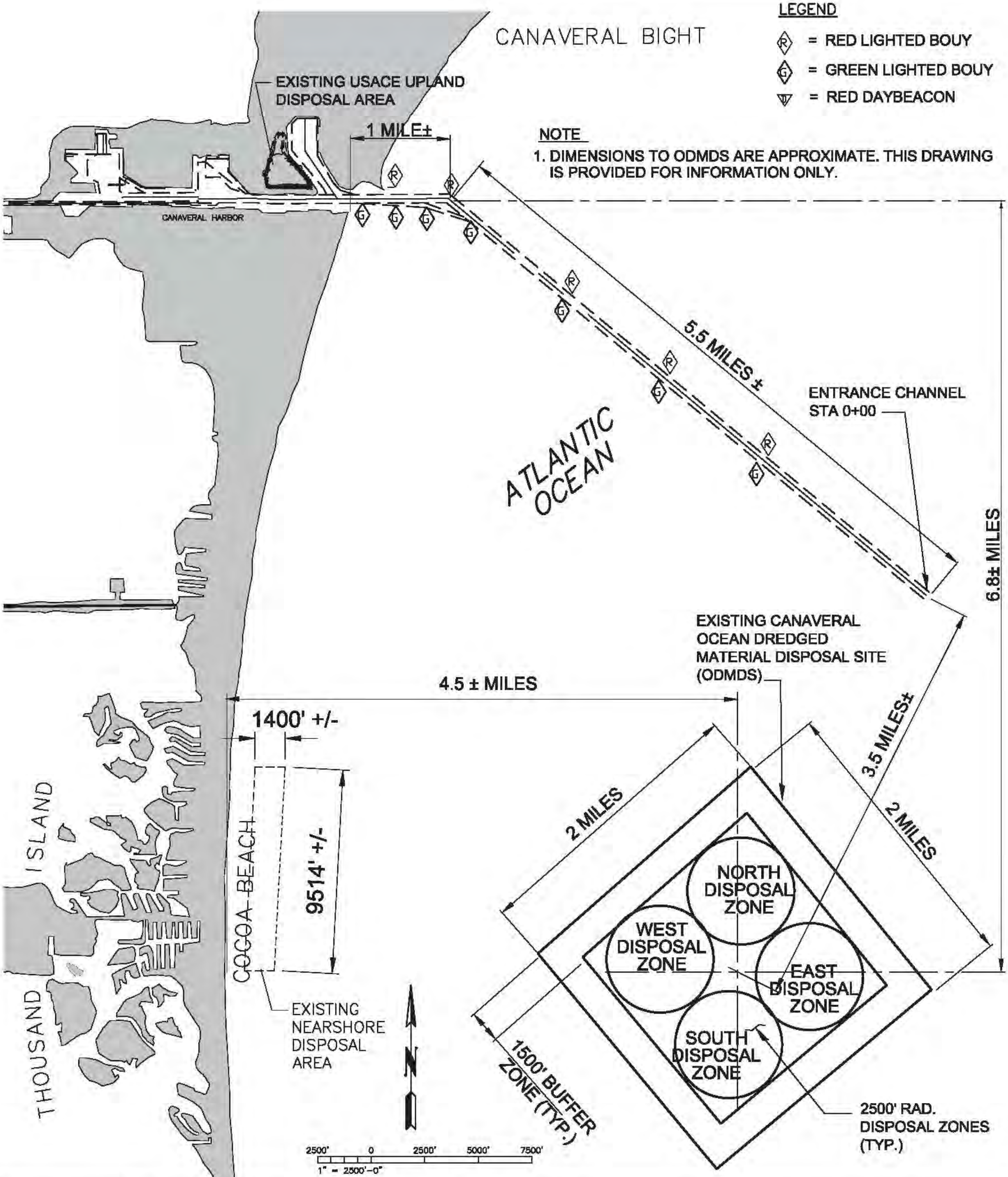
PORT CANAVERAL

CANAVERAL PORT AUTHORITY
SECT. 203 FEASIBILITY STUDY, PHASE 3
CCTV DUCT PLAN AND PROFILE

SHEET	S3
DWG	
DATE	06/06/07
PROJ	2007-08

06/06/07

i:\2006-cpa\2007-cpa\2007-08 Channel Phase 3\Drawings\Comm-Duct.dwg



PLOTTED:	10-6-11
TIME:	1048 am
PLOT SCALE:	1 = 6000
DESIGNED:	LB
DRAWN:	TL
CHECKED:	
APPROVED:	
DATE:	11/8/11

SECTION 203 FEASIBILITY STUDY

CANAVERAL PORT AUTHORITY

CAPE CANAVERAL, FLORIDA

DREDGED MATERIAL AND UPLAND EXCAVATION DISPOSAL SITES

PORT CANAVERAL

JOB No. 424368

CAD FILE C1_424368.dwg

SHEET NUMBER C1

SHEET 1 OF 2

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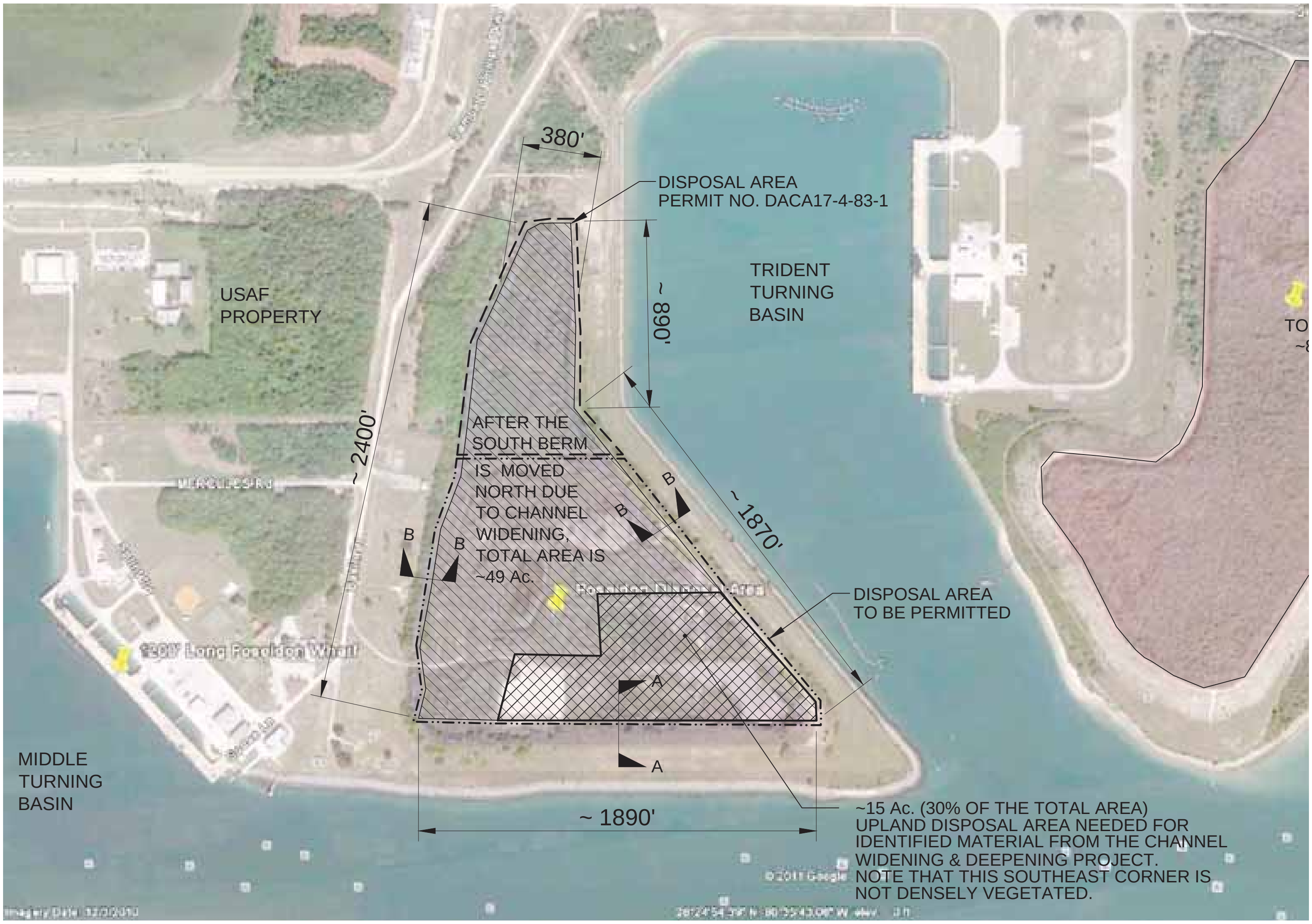


USACE UPLAND DISPOSAL AREA ON USAF PROPERTY

0 800' 1600'

SCALE: 1" = 800'-0"

LEGEND:

TOTAL STORAGE AREA

STORAGE AREA WITHIN SOUTHEAST CORNER

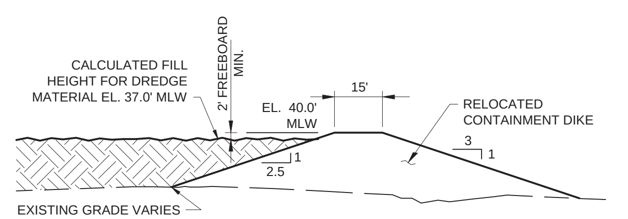
DISPOSAL AREA LEASE NO. DACA17-4-83-1

DISPOSAL AREA TO BE PERMITTED

STORAGE CAPACITY *

SEDIMENTATION BASIN	STORAGE CAPACITY (CY)	SURFACE AREA OF STORAGE AREA (AC)
TOTAL AREA	890,000	49
SOUTHEAST CORNER	390,000	15

*NOTE: CAPACITY BASED ON LIMITED AVAILABLE TOPOGRAPHICAL SURVEY AND EXISTING BERM HEIGHTS. CAPACITY CAN BE INCREASED BY RAISING BERMS.



SECTION A-A

SCALE IN FEET

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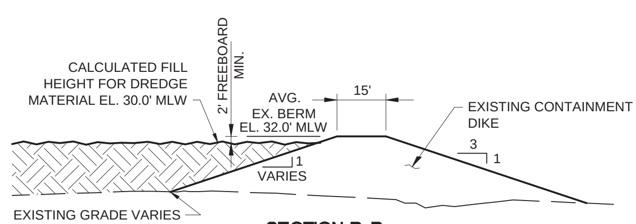

SECTION B-B

SCALE IN FEET

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PLOTTED:	8-24-2011
PLOT SCALE:	1"= 800'
DESIGNED:	LB
DRAWN:	TL
CHECKED:	
APPROVED:	
DATE:	8/24/11

SECTION 203 FEASIBILITY STUDY

CANAVERAL PORT AUTHORITY

CAPE CANAVERAL, FLORIDA

USACE UPLAND DISPOSAL AREA ON USAF PROPERTY

PORT CANAVERAL

JOB No. 424368

CAD FILE USACE Upland Disposal Area

SHEET NUMBER C2

SHEET 2 OF 2

Port Canaveral Section 203 Feasibility Study

Engineering Appendix

Attachment K

Hazardous, Toxic, and Radioactive Waste (HTRW) Assessment Report and Source Removal Report, Beyel Bros. Lease

May 2006

Section 203 Feasibility Study Hazardous, Toxic and Radioactive Waste (HTRW) Assessment

Preliminary Assessment Report

Port Canaveral
Brevard County,
Florida

Performed by
CH2M HILL, Inc.

Performed for
Canaveral Port Authority

TABLE OF CONTENTS

1.0 GENERAL

1.1 Port Canaveral Location and Description

Port Canaveral, located just south of the John F. Kennedy Space Center in Brevard County, Florida, has both commercial and military enterprise and use.

Port Canaveral and its waterfront facilities, both commercial and military, have been developed around three deepwater turning basins in addition to areas on either side of the main channel. The West Turning Basin primarily supports the commercial cruise business. Waterfront facilities and uplands on the north side of the West Access Channel support commercial cargo operations. The Middle Turning Basin has shared use with commercial and military cargo berths. All of the uplands surrounding Canaveral Harbor are owned by CPA except for the land to the north and east sides of the Middle Turning Basin, owned by the Cape Canaveral Air Force Station (CCAFS). In support of the U.S. Navy's Trident Submarine Program, the military dredged the Trident Turning Basin and developed support facilities on the adjacent uplands. The Trident Turning Basin is dedicated to military activity and not for commercial use. The major facilities and operations on the south side of Canaveral Harbor support commercial cruise and cargo activities.

CPA grants long-term leases to tenants whose businesses are related to or dependent on a marine location. The tenants are responsible to develop their own facilities and parking areas while the port provides conventional civil and marine infrastructure as well as fire and police protection. The port, specifically a location within the West Turning Basin, is also home to the U.S. Coast Guard Station Port Canaveral.

Several tenants lease land fronting shallow draft bulkheads for use in their business operations. The long-term shallow draft waterfront leases are held by the fishing industry and various small craft marinas located primarily along the south side of the Barge Canal. Other temporary leases along shallow bulkhead walls on the east side of the West Turning Basin may be terminated to execute future cruise terminal and cargo berth projects.

1.2 Summary

Three areas within Port Canaveral have been identified for navigation deepening and/or widening improvements that will impact both uplands and submerged lands. The three areas include the entrance to the West Turning Basin; the north side of the channel between the Middle Turning Basin and Trident Turning Basin; and the entrance channel turn area in the Atlantic Ocean at the intersection of the outer and middle channel reaches. In support of the Canaveral Port Authority's Section 203 Feasibility Study for navigation improvements at Port Canaveral, a preliminary Hazardous and Toxic Waste (HTRW) site assessment was conducted along the Canaveral Harbor from the West Turning Basin eastward to the Atlantic Ocean. The hazardous and toxic waste evaluation revealed that the majority of the area is predominantly construction and activities associated with marine and port facilities, including cruise terminals, marine maintenance, park visitors, marine cargo transfers and a military installation. The potential of finding hazardous and toxic waste is moderate. The areas evaluated are presented separately in this report and discussed in general below.

West Turning Basin
Within the West Turning Basin Area (WTB), there are several locations and activities which may be HTRW contaminated. These are discussed in detail in Section 2.0.

North Side of the Channel (Inner and Middle Reaches)
This area includes the uplands and submerged lands on the north side of the Inner and Middle Reaches Within this project area (NC), there are several locations and activities which may be HTRW contaminated. These are discussed in Section 3.0.

Entrance Channel Turn
This area includes the submerged lands of the Middle Reach, the Outer Reach, and adjacent lands. Within this project area (ECT) the potential for the presence HTRW contamination is low. The area is located approximately one mile offshore in the Atlantic Ocean. No site visit was conducted due to its location in the Atlantic Ocean with water depths of 35 to 41 feet.

1.3 Introduction

1.3.1 Purpose

The goal of this site investigation is to identify Recognized Environmental Conditions (RECs) and indicate the presence or likely presence of hazardous substances or petroleum products in and around the target property areas. To the extent supported by the investigative approach typically used for this type of project, the assessment attempts to reveal conditions that indicate an existing release, a past release, or a material threat of a release of hazardous substances or petroleum products on the properties or into the ground, groundwater, or surface water of the properties. This report substantially satisfies the requirements of ER-1165-2-132 and ASTM Practice E 1527.

1.3.2 Special Terms and Conditions

The RECs that were considered throughout this investigation included hazardous substances or petroleum products even under conditions in compliance with laws. The term, RECs, is not intended to include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

1.3.3 Limitations and Exceptions of Assessment

The conclusions and recommendations contained in this report represent the professional opinions of CH2M HILL. These opinions were arrived at in accordance with the applicable professional standards and practices. However, this report is not a warranty nor does it imply a guarantee of any sort. In addition, the following limitations apply:

- The CH2M HILL staff who performed the site assessment are not attorneys; therefore, this report is not a legal representation or interpretation of environmental laws, rules, regulations, or policies of local, state, or federal governmental agencies.
- This report is based, in part, on unverified preliminary information supplied to CH2M HILL from several sources during this project; therefore, CH2M HILL cannot guarantee the report's completeness or accuracy.
- If hazardous substances or hazardous conditions have not been identified during the performance of the scope of services, such a finding should not be construed as a guarantee or representation, either expressed or implied, that such substances or conditions are absent.
- All opinions or recommendations apply to site conditions existing when services were performed. CH2M HILL cannot report on, or accurately predict, events that may change the site conditions after the described services are performed, whether occurring naturally or caused by external forces.
- No ASTM non-scope considerations were conducted during the performance of the HTRW Assessment.
- This report has been prepared for the exclusive use of the Canaveral Port Authority and their client for specific application to the property described here. There are no beneficiaries of this report other than the Canaveral Port Authority and their client, and no other person or entity is entitled to rely upon this report without the written consent of CH2M HILL.
- CH2M HILL assumes no responsibility for conditions that we were not authorized to investigate, or that were not in our specific scope of work.

This Section 203 Feasibilit6y Study, Hazardous, Toxic, and Radioactive Waste (HTRW) Assessment - Preliminary Assessment Report is comprised of the following five components: 1) Records and Database Review, 2) Historical Aerial Photography and Topographic Map Study, 3) Site Reconnaissance, 4) Interviews, 5) Report. The records review, aerial photography and topographic map study, site reconnaissance, and interviews are intended to be used in concert with each other.

1.3.4 Limiting Conditions and Methodology Used

There were limitations imposed by physical obstructions. Approximately 90 percent (%) of the WTB project area is under water at all times (80.4 acres out of a total of 88.6 acres). Only the northern shoreline and banks of the Harbor adjacent to the north side of the channel (NC) could be accessed as the entire project area (23.2 acres) is under water at all times. In addition, there was an adjacent area between the Middle Turning Basin (MTB) and the Trident Turning Basin (TTB) that was inaccessible due to the presence of a 10-foot high, three-stranded barbed wire fence along the entire portion planned for inspection. Furthermore, the eastern one-quarter of this area is located in the Atlantic Ocean. The ECT project area (18.8 acres) is located completely underwater, approximately one-mile from the shoreline in the Atlantic Ocean.

Historic aerial photographs available for review were from the years 1972, 1983, 1993, and 2004. The historic USGS topographic maps available for review were from the years 1951 (revised 1970) and 1976.

One database search was performed by Environmental Data Resources (EDR) using a calculated centroid of all three sites. Upon receipt of the database hand-scribed distances of 0.25 miles, 0.5 miles, and 1.0 mile were placed onto the database Map Findings Summary. From these hand-scribed distances, each database search distance (e.g., RCRIS-SQG = 0.25 miles, ASTs = 0.5 miles, etc.) was reviewed and summarized for the appropriate site. As such three "sub-database" searches were conducted from the large database search performed for the entire area.

Although much of the areas identified for navigation improvements are submerged lands, the Canaveral Port Authority and the U.S. Army Corps of Engineers periodically conduct extensive sediment sampling, testing, and Section 103 evaluation in support of maintenance and new construction dredging of the federal and non-federal portions of Canaveral Harbor and offshore and/or upland disposal of dredged material. Review and discussion of this sampling and testing program is outside the scope of the effort documented herein; however, the environmental studies and Environmental Baseline Report associated with the Section 203 study contains data and information on the submerged lands sediment test analysis results.

2.0 WEST TURNING BASIN – SITE DESCRIPTION

2.1 Location and Legal Description

The WTB study area is located at the west end of Port Canaveral as shown in Figure 1A.

This portion of the study consists of the area within and north of the Barge Canal and West Access Channel (WAC) at the entrance to the WTB, at the western-most turning basin of the Harbor. The total acreage of this area is 88.6 acres. Of that acreage, 8.2 acres are uplands and the remaining 80.4 acres are underwater.

2.2 Descriptions of Structures, Roads, Other Improvements on the Site (Including Heating/Cooling System, Sewage Disposal, Source of Potable Water)

The Canaveral Port Authority (CPA) owns the land. There are numerous roads that traverse through the entire uplands area. In addition, most of the uplands area has been subdivided and leased or subleased to individuals or companies generally associated with the marine industry, including marinas, repair and maintenance facilities, cruise line departure areas, restaurants, public parks, and other commercial cargo facilities.

Utilities that are supplied to the upland area consist of potable water by the City of Cocoa, sewer lines by the City of Cocoa Beach, and electrical power by Florida Power and Light.

2.3 Information (if any) Reported by User Regarding Environmental Liens or Specialized Knowledge or Experience

No specialized knowledge is available for this site.

2.4 Current Uses of the Property

The upland areas located on the north and south sides of WTB area currently consist of land and buildings that have been developed and redeveloped since approximately 1972. The earthen dike for the WTB peninsula was created from sand as a result of dredging the TTB. The land between the WTB and MTB was created from the dredge spoils from the enlargement of the MTB and creation of the original 300-foot wide channel. The land was built up to create uplands for use by the CPA and to provide an area for the placement of dredge spoils material. Photographs 1-11 taken at several points within the WTB area clearly show the typical terrain.

2.5 Past Uses of the Property (to the extent identified)

Based on the review of historic aerial photography, topographic maps, and interviews with representatives from CPA and the Brevard County Natural Resource Management Office, the project area appears to have a history of significant development, including buildings, marinas, piers to handle imported/exported cargo, public parks, and filling-in of open water to create usable land, as well as dredging other areas to create or deepen the turning basins. A review of the regulatory databases indicates a number of facilities are listed in the vicinity of the project area.

2.6 Current and Past Uses of Adjoining Properties (to the extent identified)

By indications observed throughout the site investigation, the adjoining properties are a mixture of commercial marinas, restaurants, and cruise terminals with associated ancillary buildings, Coast Guard facility, and cargo piers with associated storage and support buildings.

The Port was first opened for commercial fishing operations in November 1953. The import and export of commercial cargo began operations in June 1955. Cruise ship lines began sailing from the port in September 1964. The West Turning Basin area was constructed in 1972. The area owned by the U.S. Air Force (north side of the Harbor from the Trident Basin eastward to the Atlantic Ocean) began construction of their Trident submarine operations in the early 1970s. Since that time, the port has increased the number of operations, especially the cruise line industry.

The location of the WTB and surrounding area is presented on Figure 1A. Photographs 1-11 generally show the conditions and features of the project area and surrounding areas.

2.7 Site Rendering, Map, or Site Plan

See Figure 1A.

2.8 Records Review

2.8.1 Standard Environmental Records Sources, Federal, State, and/or Local

Under subcontract to CH2M HILL, EDR conducted a database search to identify potential or existing environmental liabilities within the target area. Records searched included several databases, such as the Toxic Chemical Release Inventory System (TCRIS), Hazardous Material Information Reporting System (HMIRS), and Leaking Underground Storage Tanks (LUST). The table below lists all of the databases EDR searched, and includes the search distance from the site. The entries that are bolded are those required by ASTM E 1527-00 and the HTRW guidance document (ER 11695-2-132, 26 June 1992).

Databases Searched

Database	Search Distance (miles)
Federal Environmental Protection Agency (EPA)	
Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS)	**0.5**
Comprehensive Environmental Response, Compensation, and Liability Information System (CERC-NFRAP)	**0.25**
Emergency Response Notification System (ERNS)	**Target Property**
Proposed National Priority List (NPL)	1.0
National Priority List (NPL)	**1.0**
Delisted NPL	1.0
Resource Conservation and Recovery Information System (RCRIS-TSD)	**0.5**
RCRIS Small Quantity Generator (RCRIS-SQG)	**0.25**
RCRIS Large Quantity Generator (RCRIS-LQG)	**0.25**
Superfund (CERCLIS) Consent Decrees (CONSENT)	1.0
Corrective Action Report (CORRACTS)	**1.0**
Facility Index System (FINDS)	Target Property
Hazardous Materials Information Reporting System (HMIRS)	Target Property
Material Licensing Tracking System (MLTS)	Target Property
Mines Master Index File (MINES)	0.25
Federal Superfund Liens (NPL Liens)	Target Property
PCB Activity Database System (PADS)	Target Property
RCRA Administrative Action Tracking System (RAATS)	Target Property
Record of Decision (ROD)	1.0
Toxic Chemical Release Inventory System (TCRIS)	Target Property
Toxic Substances Control Act (TSCA)	Target Property
FIFRA/TSCA Tracking System – FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act) – (FTTS)	Target Property
State of Florida	
Leaking Underground Storage Tanks (LUST)	**0.5**
Underground Storage Tanks (UST)	**0.25**
Aboveground Storage Tanks (AST)	Target Property
State Hazardous Waste Sites (SHWS)	**1.0**
State Solid Waste Facilities/Landfill Sites (SWF/LF)	**0.5**
Florida Sites	**0.5**
Florida Cattle Dip Vats	0.5
Florida Wastewater	Target Property
Florida Dry Cleaners	0.5
Coal Gas	1.0

Based on the review of the Federal and state regulatory databases search, the following table lists the sites within the search distance and the database in which they appear.

Database Review Results						
Name	**Address**	**RCRA-SQG (1/4 mi)**	**FINDS (TP)**	**SWF/LF (1/2 mi)**	**LUST (1/2 mi)**	**UST (1/4 MI)**
Astro Pak Corp.	730 Mullet Rd. Ste B	Yes	No	No	No	No
Beyel Bros. Inc.	9155 Grouper Rd	No	Yes	No	No	No
Canaveral Custom Boats	770 Mullet Rd	Yes	No	No	No	No
Canaveral Scallop Landfill	Grouper Rd/SR 401	No	No	Yes	No	No
Canaveral Seafoods Inc.	520 Glen Cheek Dr.	No	No	No	Yes	Yes
Canaveral Seafoods Inc.	714 Scallop Dr	No	No	No	Yes	Yes
Cape Marina	800 Scallop Dr	Yes	No	No	No	No
Commercial Carrier Corp	9012 Marlin St	No	No	No	Yes	Yes
Disney Cruise Line Terminal	9150 Christopher Columbus Dr	Yes	No	No	No	No
Dutra Construction	707 Mullet Dr	Yes	No	No	No	No
Excel Coatings, Inc.	745 B Scallop Dr	Yes	No	No	No	No
Florida Solar Energy Ctr	700 Snapper Rd	Yes	No	No	No	No
Harbor Fuel & Ice Co.	626 Glen Cheek Dr.	No	No	No	Yes	No
Manutech, Inc.	760 Mullet Dr	Yes	No	No	No	No
Martin Marietta Services	710 Mullet Rd	Yes	No	No	No	No
Port Canaveral Auto Repair	780 Mullet Rd	Yes	No	No	No	No
Port Canaveral Auto Repair	790 Mullet Rd	Yes	No	No	No	No
Port Canaveral Towing	747 Snapper Rd	No	No	No	Yes	No
Sands Salvage & Marine	515 Glen Cheek Dr.	No	No	No	Yes	Yes
Scallop Plant	710 Scallop Rd	No	No	No	Yes	Yes
Sunrise Marina	505 Glen Cheek Dr.	No	No	No	Yes	Yes
USCG Canaveral Light	9235 Grouper Rd	Yes	No	No	No	No
USCG Port Canaveral	Grouper and Snapper Rds.	Yes	No	No	No	No

None of the databases listed any facilities in the WTB project area except for Beyel Brothers, Inc. This company is listed in the FINDS database, which indicates the facility is under a "Permit Compliance System." No other information was presented in the database document. According to CPA personnel, this leased property was recently inspected (November and December 2005) as part of CPA's annual self-inspection under the requirements of the National Pollutant Discharge Elimination System (NPDES) permit CPA holds. The results of the inspection indicate that RECs are present. This is discussed further in Sections 2.9.1 and 2.9.7, along with the information provided by CPA for a 17 and 30 November 2005 site inspection performed as part of this effort.

2.8.2 Physical Setting Source(s)

The present configuration of the submerged lands of the WTB and adjacent uplands was created by dredging material from the Canaveral Harbor WTB area and depositing the spoil as fill material, resulting in the surrounding usable uplands. Uplands elevations presented on the historic topographic maps indicate relatively flat terrain, grading from the north to the south on north side of the West Access Channel, and grading south to north on the south side of the West Access Channel and Barge Canal. Photographs 1-11 taken at several locations show that the land is relatively level up to the banks of the Harbor and is or has been used for a variety of port marine activities.

2.8.3 Additional Record Sources

None

2.9 Information from Site Reconnaissance and Interviews

Ms. A. Tracy Langille, P.G., CH2M HILL, Inc., Jacksonville, Florida office, performed a site inspection on 20 December 2005. Access to the majority of the project area is limited due to fact that nearly all of the project area (90 percent) is under water. There was observed hazardous or toxic waste on the 8.2 acres upland portion of the project area (east upland areas of the WTB). This is described in the following sections. Telephone interviews were conducted with Mr. Dave Maher, P.G. of the Brevard County Natural Resource Management Office and Ms. Jeannie Adame, Director of Environmental Plans & Programs for the CPA regarding information that may be available for the project area and vicinity.

2.9.1 Hazardous Substances in Connection with Identified Uses (Including Storage, Handling, Disposal)

Hazardous substances in connection with identified uses were observed on the property leased by Beyel Brothers, Inc. Per details in the lease, the allowable use of the property is described as follows: "… for the purpose of mooring tugboats and associated crane equipment, the loading of concrete rubble for disposal on reef sites at sea, and the parking of passenger vehicles in connection with the moored vessels and business operations."

Two compliance inspections were performed on 17 November 2005 and 30 November 2005. The earlier inspection was performed as part of the CPA's National Pollutant Discharge and Elimination System (NPDES) annual reporting requirements. The HTRW inspection was performed for the entire project area on 20 December 2005 by CH2M HILL personnel. The results of the three inspections included, but were not limited to, the following.

- Cylinders with welding gases were tied or chained to the exterior of a small metal building.
- Miscellaneous large vehicle tires, large vehicle and crane engines were stored inside and outside of the property boundary. It is unknown whether all of the engine fluids were drained prior to storage.
- Sand blasting using “Black Beauty” was observed being performed on the hull of a marine vessel. The waste material (Black Beauty and sand blasted material from hull) was allowed to collect on the adjacent bulkhead and surface of the ground. During the 20 December 2005 inspection, employees were observed moving and piling up this waste material using hand shovels and Bobcat.
- Compressor with fluids leaking onto the bare ground was observed.
- Numerous rail cars (with rusted walls and ceilings) were observed containing a number of unlabeled 1- to 55-gallon containers of unknown materials. Given the current operations observed during the 20 December 2005 inspection it is possible that hazardous materials are stored in these containers. The storage method suggests that all of the materials are compatible with each other or that materials are not being properly segregated based on compatibility.
- A few open 5-gallon buckets containing waste oil filters.
- Open and closed unmarked 55-gallon drums outside with no protection from the elements.
- Improper hand washing station is set-up and appears to be in use. Wastewater from station allowed to discharge onto the ground and/or at the bulkhead seawall.
- Numerous waste paint cans, oil cans, primer paint cans, etc. observed in open 5-gallon buckets throughout area.
- Evidence of engine oil spill onto bare ground was observed.

Similar conditions were observed during the 17 and 30 November 2005 inspection by CPA personnel.

Hazardous substances in connection with identified uses were only observed within the uplands portion of the WTB project area as the majority of the area of study is under water.

2.9.2 Hazardous Substance Containers and Unidentified Substance Containers (Including Storage, Handling, Disposal)

Hazardous substance containers and unidentified substance containers were observed and are discussed in the previous section.

2.9.3 Storage Tanks (Including Contents and Assessment of Leakage or Potential for Leakage)

The hazardous and toxic waste database search revealed the presence of several underground storage tanks within the search distance. Additionally, there are two ASTs on the property leased by Beyel Brothers Inc. These ASTs have secondary containment, do not have roofs to keep out stormwater from the containment area, and are not labeled as to contents. ASTs were observed on other nearby properties during the site inspection and discussed in the telephone interviews.

2.9.4 Indications of PCBs (Including How Contained and Assessment of Leakage or Potential for Leakage)

No indications exist that PCB's are present within the WTB area.

2.9.5 Indications of Solid Waste Disposal

No recorded or physical data yielded any indications that the disposal of sanitary solid waste had occurred at any time at the proposed project area. However, inadequate housekeeping was observed throughout the Beyel Brothers, Inc. leased area. This included, but is not limited to, paper, wood, large engine parts, tires, large parts from cranes, etc. Some of this solid waste was observed outside of the Beyel Brothers, Inc. leased boundary.

2.9.6 Physical Setting Analysis, If Migrating Hazardous Substances Are an Issue

Based on the site inspection, results of the database search, and interviews with CPA personnel and Brevard County Natural Resource Management Office many of the operations in the vicinity, both sides of the Barge Canal and West Access Channel, have known or suspected releases. Shallow groundwater flow direction is typically toward the nearest water body, in this area it is the Barge Canal, WTB, and West Access Channel. Therefore, the potential exists for releases to impact the sediment and soils at the WTB entrance which are to be dredged for the deepening/widening to provide navigation improvement. However, the bulkhead seawalls on the south side of the Harbor are anticipated to limit the migration of potential contaminants into the water and sediments in the Harbor.

Additionally, surface water and sediment collection and analyses (as part of the compliance work for the facility's NPDES permit, has been conducted since issuance of the permit. None of the parameters analyzed indicate that reported parameter concentrations are above comparative clean-up criteria for surface water or sediment.

2.9.7 Any Other Conditions of Concern

The level of housekeeping is relatively poor at Beyel Brothers, Inc. Numerous small and very large pieces of scrap material (tires, cranes, paper, wood, engine parts, etc.) were observed throughout the interior and exterior of the Beyel Brothers leased property. Many of these disposal areas were also noted to be tripping hazards.

A telephone interview was conducted on January 12, 2006 with Mr. Dave Maher, P.G. with the Brevard County Natural Resource Management Office. Mr. Maher indicated that Coastal Fuels had a release of petroleum product via a location in their pipeline to the docks. Coastal is located on the south side of the Harbor and upgradient to the NC area. Soil was excavated, during which the laboratory analytical results indicated the presence of chlorinated solvents, which are not typically found in petroleum impacted soils.

Based on the information discussed above, a telephone interview was performed with Ms. Jeannie Adame, Director of Environmental Plans & Programs for the CPA regarding information that may be available for the petroleum releases and discovery of the chlorinated solvents. Ms. Adame provided copies of figures developed by TEA that project the aerial extent of the plume from 1996 to 2012. According to Ms. Adame, this was plume discovered in 1996. The source of the release appears to have been from the property and facilities currently leased by Mid-Florida Freezer. Prior to Mid-Florida Freezer being at this location, Dow Chemical had a facility that used chlorinated solvents in their operations. The extent of impact to groundwater in 1996 appears to be bound by the bulkhead to the north, approximately 225 feet east of Herring Street to the east, approximately 100 feet south of Challenger Road to the south, and approximately 150 west of Pompano Street to the west. The extent of impact in 2004 (last groundwater sampling event) suggests the size of the plume is slightly smaller, although temporal effects in the groundwater concentrations and inferred plume size can occur. Currently, the majority of the plume is being monitored. An air sparging system is being designed for installation along the bulkhead to insure that contaminants are not migrating into the water and sediments in the Harbor. Past sampling and analyses of surface water and sediments in the Harbor indicate that no chlorinated solvents, exceeding comparative clean-up criteria, are present. In addition, a risk assessment is being performed in order to establish alternate groundwater cleanup criteria in the original source area.

3.0 NORTH SIDE OF THE MAIN CHANNEL (INNER AND MIDDLE REACHES) - SITE DESCRIPTION

3.1 Location and Legal Description

The NC portion of the study consists of the submerged area and adjacent shoreline and uplands north of the channel from the east side of the MTB eastward to the intersection of the Middle and Outer Reaches and approximately one mile offshore in the Atlantic Ocean. The total acreage of this navigation improvement area is 23.2 acres and is completely underwater. It is anticipated that the adjacent northern shoreline and uplands of CCAFS may be impacted by the width of the northside channel widener, estimated to be as much as 100 ft. The area included in the NC portion of the study is shown in Figures 1A and 1B.

3.2 Descriptions of Structures, Roads, Other Improvements on the Site (Including Heating/Cooling System, Sewage Disposal, Source of Potable Water)

The only "structures" on the NBH consist of channel markers, concrete piers, chain-link fence to the waterline, and rip-rap to maintain the side slopes of the Harbor.

3.3 Information (if any) Reported by Auditor Regarding Environmental Liens or Specialized Knowledge or Experience

No specialized knowledge is available for this site.

3.4 Current Uses of the Property

The submerged lands of the NC project area presently support navigational uses of Port Canaveral. The CCAFS shoreline is protected with rip-rap and the adjacent uplands remain largely undeveloped except for serving as a berm for military construction and dredge spoils containment. Photographs 12-20 taken at several points within the project area clearly show the typical terrain.

3.5 Past Uses of the Property (to the extent identified)

Based on historic aerial photography and topographic maps, the project area has been part of the Harbor since at least 1951. A review of the regulatory databases indicates a few facilities that are listed within the search distance of the area.

3.6 Current and Past Uses of Adjoining Properties (to the extent identified)

By indications observed throughout the site investigation, the adjoining properties are a mixture of commercial marinas, restaurants, cruise terminals with associated ancillary buildings, Coast Guard facility, cargo piers with associated storage and support buildings, and the Cape Canaveral Air Force Station (CCAFS) with military tenant operations of the Naval Ordnance Test Unit (NOTU) at the Middle and Trident Turning Basins, the Navy Poseidon and Trident wharves and Trident missile storage facilities.

Excavation of the Canaveral Harbor Project began in 1950 with the dredging of the Barge Canal from the Inland Waterway at the middle of the Indian River to the east across Merritt Island and the Banana River. Much of the dredge spoil was used to construct a causeway across the Indian and Banana Rivers to the south of the Barge Canal which was eventually improved by the State of Florida to become S.R. 528. Finally, the Canaveral Harbor, consisting of one turning basin and a channel to the Atlantic Ocean was dredged. Port Canaveral's channel was opened to the ocean in January 1953.

The Port first opened for commercial fishing operations in November 1953. The import and export of commercial cargo began operations in June 1955. The US Air Force wharf and Navy's Poseidon Pier facilities were constructed in 1957. Cruise ships began sailing intermittently from the port in September 1964. The West Turning Basin area was constructed in 1972. The Trident Turning Basin and pier and uplands facilities were constructed in the early 1970's to support the U.S. Navy and UK Navy Trident Fleet Ballistic Missile (FBM) operations under the sponsorship of NOTU. Cruise ships have been sailing regular schedules from Port Canaveral since approximately 1981. Since that time, Port commerce, operations, and vessel traffic have increased significantly, especially the cruise business portion.

The location of the NC project area and surrounding area is presented on Figures 1A and 1B. Photographs 12-20 generally show the conditions and features of the project area and surrounding areas.

3.7 Site Rendering, Map, or Site Plan

See Figures 1A and 1B.

3.8 Records Review

3.8.1 Standard Environmental Records Sources, Federal, State, and/or Local

Under subcontract to CH2M HILL, EDR conducted a database search to identify potential or existing environmental liabilities within the target area. Records searched included several databases, such as the Toxic Chemical Release Inventory System (TCRIS), Hazardous Material Information Reporting System (HMIRS), and Leaking Underground Storage Tanks (LUST). The table below lists all of the databases EDR searched, and includes the search distance from the site. The entries that are bolded are those required of ASTM E 1527-00 and the HTRW guidance document (ER 11695-2-132, 26 June 1992).

Databases Searched

Database	Search Distance (miles)
Federal Environmental Protection Agency (EPA)	
Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS)	**0.5**
Comprehensive Environmental Response, Compensation, and Liability Information System (CERC-NFRAP)	**0.25**
Emergency Response Notification System (ERNS)	**Target Property**
Proposed National Priority List (NPL)	1.0
National Priority List (NPL)	**1.0**
Delisted NPL	1.0
Resource Conservation and Recovery Information System (RCRIS-TSD)	**0.5**
RCRIS Small Quantity Generator (RCRIS-SQG)	**0.25**
RCRIS Large Quantity Generator (RCRIS-LQG)	**0.25**
Superfund (CERCLIS) Consent Decrees (CONSENT)	1.0
Corrective Action Report (CORRACTS)	**1.0**
Facility Index System (FINDS)	Target Property
Hazardous Materials Information Reporting System (HMIRS)	Target Property
Material Licensing Tracking System (MLTS)	Target Property
Mines Master Index File (MINES)	0.25
Federal Superfund Liens (NPL Liens)	Target Property
PCB Activity Database System (PADS)	Target Property
RCRA Administrative Action Tracking System (RAATS)	Target Property
Record of Decision (ROD)	1.0
Toxic Chemical Release Inventory System (TCRIS)	Target Property
Toxic Substances Control Act (TSCA)	Target Property
FIFRA/TSCA Tracking System – FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act) – (FTTS)	Target Property
State of Florida	
Leaking Underground Storage Tanks (LUST)	**0.5**
Underground Storage Tanks (UST)	**0.25**
Aboveground Storage Tanks (AST)	0.500
State Hazardous Waste Sites (SHWS)	**1.0**
State Solid Waste Facilities/Landfill Sites (SWF/LF)	**0.5**
Florida Sites	**0.5**
Florida Cattle Dip Vats	0.5
Florida Wastewater	Target Property
Florida Dry Cleaners	0.5
Coal Gas	1.0

Based on the review of Federal and state regulatory database search, the following table lists the sites within the search distance and the database in which they appear.

Database Review Results						
Name	**Address**	**RCRA-SQG (1/4 mi)**	**FINDS (TP)**	**SWF/LF (1/2 mi)**	**LUST (1/2 mi)**	**UST (1/4 MI)**
Sterling Shipping	180 Jetty Dr	Yes	No	No	No	No
Canaveral Truck & Bus	9049 Jetty Rd	Yes	Yes	No	No	Yes
Rinker Material - Can. Plant	209 George King Blvd	No	No	No	No	Yes
Commercial Carrier Corp	9012 Marlin St	No	No	No	Yes	Yes

None of the databases listed any facilities in the NC project area.

3.8.2 Physical Setting Source(s)

The present configuration of the submerged lands on the north side of the navigation channel of the Inner and Middle Reaches and adjacent uplands was created by dredging material from the Canaveral Harbor area and depositing the spoil as fill material, resulting in the surrounding usable uplands.. Uplands elevations presented on the historic topographic maps indicate relatively flat terrain with steep grading on the north bank, forming a berm for military dredge spoil containment. Photographs 12-20 are taken at several locations within the project area.

3.8.3 Additional Record Sources

None

3.9 Information from Site Reconnaissance and Interviews

Ms. A. Tracy Langille, P.G., CH2M HILL, Inc., Jacksonville, Florida office performed a site inspection on 20 December 2005. Access to the project area was limited to that area that could be observed while walking along the adjacent uplands on CCAFS, as 100 percent of the study area is submerged land. There was no observed hazardous or toxic waste on the upland adjacent to the project area.

Telephone interviews were conducted with Mr. Dave Maher, P.G. of the Brevard County Natural Resource Management Office and Ms. Jeannie Adame, Director of Environmental Plans & Programs for the CPA regarding information that may be available for the project area and vicinity.

3.9.1 Hazardous Substances in Connection with Identified Uses (Including Storage, Handling, Disposal)

Hazardous substances in connection with identified uses were unable to be seen, if present, due to inaccessibility.

3.9.2 Hazardous Substance Containers and Unidentified Substance Containers (Including Storage, Handling, Disposal)

No hazardous substance containers and unidentified substance containers were observed.

3.9.3 Storage Tanks (Including Contents and Assessment of Leakage or Potential for Leakage)

No storage tanks or containers were observed during the site inspection.

3.9.4 Indications of PCBs (Including How Contained and Assessment of Leakage or Potential for Leakage)

No indications exist that PCB's are present within the proposed project area.

3.9.5 Indications of Solid Waste Disposal

No recorded or physical data yielded any indications that the disposal of sanitary solid waste had occurred at any time at the proposed project area.

3.9.6 Physical Setting Analysis, If Migrating Hazardous Substances Are an Issue

Based on the site inspection, results of the database search, and interviews with CPA personnel and Brevard County Natural Resource Management Office some of the operations in the vicinity of the project area, south side of the channel have known or suspected releases. Shallow groundwater flow direction is typically toward the nearest water body, in this area it is the Inner Reach portion of the channel, Therefore, the potential exists for releases to impact the sediment and soils along the north side of the channel in the project area which are to be dredged for the deepening/widening navigation improvement. However, the bulkhead seawalls on the south side of the Harbor are anticipated to limit the migration of potential contaminants into the Harbor water and sediments.

Additionally, surface water and sediment collection and analyses (as part of the compliance work for the facility's NPDES permit, has been conducted since issuance of the permit. None of the parameters analyzed indicate that reported parameter concentrations are above comparative clean-up criteria for surface water or sediment.

3.9.7 Any Other Conditions of Concern

Other conditions of concern that may be applicable to this project area have been previously discussed in Section 2.9.7.

4.0 ENTRANCE CHANNEL TURN – SITE DESCRIPTION

4.1 Location and Legal Description

The ECT is an area in the Atlantic Ocean that is to be deepened and widened to accommodate larger vessels maneuvering through the turn between the Middle and Outer Reaches. The total acreage of this area is 18.8 acres. All of that acreage is approximately one-mile off the shoreline in the Atlantic Ocean, completely under water (approximately 41 feet deep). The area included in the ECT portion of the study is shown in Figure 1B.

4.2 Descriptions of Structures, Roads, Other Improvements on the Site (Including Heating/Cooling System, Sewage Disposal, Source of Potable Water)

There are no reported structures, roads, or other improvements on the site.

4.3 Information (if any) Reported by Auditor Regarding Environmental Liens or Specialized Knowledge or Experience

No specialized knowledge is available for this site.

4.4 Current Uses of the Property

The project area is adjacent to and will expand the vessel navigation area at the intersection of the Middle and Outer Reaches.

4.5 Past Uses of the Property (to the extent identified)

Based on historic aerial photography and topographic maps, the project area appears to have always been underwater.

4.6 Current and Past Uses of Adjoining Properties (to the extent identified)

By all indications observed throughout the site investigation, the adjoining properties are underwater for approximately one-mile west to the shoreline.

4.7 Site Rendering, Map, or Site Plan

See Figure 1B.

4.8 Records Review

4.8.1 Standard Environmental Records Sources, Federal, State, and/or Local

Under subcontract to CH2M HILL, EDR conducted a database search to identify potential or existing environmental liabilities within the target area. Records searched included several databases, such as the Toxic Chemical Release Inventory System (TCRIS), Hazardous Material Information Reporting System (HMIRS), and Leaking Underground Storage Tanks (LUST). The table below lists all of the databases EDR searched, and includes the search distance from the site. The entries that are bolded are those required of ASTM E 1527-00 and the HTRW guidance document (ER 11695-2-132, 26 June 1992).

Databases Searched

Database	Search Distance (miles)
Federal Environmental Protection Agency (EPA)	
Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS)	**0.5**
Comprehensive Environmental Response, Compensation, and Liability Information System (CERC-NFRAP)	**0.25**
Emergency Response Notification System (ERNS)	**Target Property**
Proposed National Priority List (NPL)	1.0
National Priority List (NPL)	**1.0**
Delisted NPL	1.0
Resource Conservation and Recovery Information System (RCRIS-TSD)	**0.5**
RCRIS Small Quantity Generator (RCRIS-SQG)	**0.25**
RCRIS Large Quantity Generator (RCRIS-LQG)	**0.25**
Superfund (CERCLIS) Consent Decrees (CONSENT)	1.0
Corrective Action Report (CORRACTS)	**1.0**
Facility Index System (FINDS)	Target Property
Hazardous Materials Information Reporting System (HMIRS)	Target Property
Material Licensing Tracking System (MLTS)	Target Property
Mines Master Index File (MINES)	0.25
Federal Superfund Liens (NPL Liens)	Target Property
PCB Activity Database System (PADS)	Target Property
RCRA Administrative Action Tracking System (RAATS)	Target Property
Record of Decision (ROD)	1.0
Toxic Chemical Release Inventory System (TCRIS)	Target Property
Toxic Substances Control Act (TSCA)	Target Property
FIFRA/TSCA Tracking System – FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act) – (FTTS)	Target Property
State of Florida	
Leaking Underground Storage Tanks (LUST)	**0.5**
Underground Storage Tanks (UST)	**0.25**
Aboveground Storage Tanks (AST)	0.500
State Hazardous Waste Sites (SHWS)	**1.0**

Databases Searched

Database	Search Distance (miles)
Federal Environmental Protection Agency (EPA)	
State Solid Waste Facilities/Landfill Sites (SWF/LF)	**0.5**
Florida Sites	**0.5**
Florida Cattle Dip Vats	0.5
Florida Wastewater	Target Property
Florida Dry Cleaners	0.5
Coal Gas	1.0

Based on the review of the Federal and state regulatory database search, no facilities are located within the search distance.

4.8.2 Physical Setting Source(s)

The proposed project area is underwater and subject to variations in tidal action.

4.8.3 Additional Record Sources

None

4.9 Information from Site Reconnaissance and Interviews

Ms. A. Tracy Langille, P.G., CH2M HILL, Inc., Jacksonville, Florida office performed a site inspection on 20 December 2005. Access to all of the project area was limited due to fact that it is completely underwater and approximately one-mile offshore in 41 feet of ocean water. Please see Photograph 21.

Telephone interviews were conducted with Mr. Dave Maher, P.G. of the Brevard County Natural Resource Management Office and Ms. Jeannie Adame, Director of Environmental Plans & Programs for the CPA regarding information that may be available for the project area and vicinity.

4.9.1 Hazardous Substances in Connection with Identified Uses (Including Storage, Handling, Disposal)

Hazardous substances in connection with identified uses were unable to be seen, if present, due to inaccessibility.

4.9.2 Hazardous Substance Containers and Unidentified Substance Containers (Including Storage, Handling, Disposal)

No hazardous substance containers and unidentified substance containers were observed due to inaccessibility.

4.9.3 Storage Tanks (Including Contents and Assessment of Leakage or Potential for Leakage)

No storage tanks or containers were observed due to inaccessibility.

4.9.4 Indications of PCBs (Including How Contained and Assessment of Leakage or Potential for Leakage)

Because the entire area is underwater, no indications exist that PCB's are present within the proposed project area.

4.9.5 Indications of Solid Waste Disposal

No recorded data yielded any indications that the disposal of sanitary solid waste had occurred at any time at the proposed project area.

4.9.6 Physical Setting Analysis, If Migrating Hazardous Substances Are an Issue

Migration of hazardous substances off-site is not a concern because the adjacent property having contamination is located too far to be of concern.

4.9.7 Any Other Conditions of Concern

None

5.0 FINDINGS AND CONCLUSIONS

5.1 General Comments

A Section 230 Feasibility Study - HTRW Assessment was conducted in conformance with the scope and limitations of ASTM Practice E 1527 and ER-1165-2-132. The findings and conclusions provided below reflect existing HTRW conditions based on a HTRW database search, aerial photography, reviews of available records, site inspections and interviews. These findings and conclusions are of existing conditions as they were identified at this time.

5.2 Regional Overview

A site inspection was performed on or in the immediate vicinity of the three project areas identified for navigation improvements at Port Canaveral. Two of the three areas (WTB and NC) are located within Canaveral Harbor and the third area (ECT) is located approximately one-mile offshore. The hazardous and toxic waste evaluation revealed that the majority of the area is predominantly developed having construction and activities associated with marine and port facilities, including cruise terminals, marine maintenance, public parks, marine cargo transfers and a military installation. The HTRW database search included the entire area and indicated that overall, that a relatively small portion of the proposed project area may have been impacted, to some extent, with hazardous and toxic waste. Most of these reported properties are located on the uplands portion of the northeast side of the WTB and West Access Channel and on the south side of the Inner Reach portion of the channel, upgradient to two of the three areas (WTB and NC). No propertied were reported in the vicinity of the ECT. The most common type of HTRW, hydrocarbons, was reported in the EDR database and located along the southern portion of the Harbor.

The database also revealed several locations of Small Quantity Generators (SQG). Most of these SQG sites are reported to be in compliance with reported requirements. The site inspection revealed the presence of a location in the northeast section of the WTB that appears to be not in compliance with regulatory rules in regards to the operations conducted. There is another site reported by personnel from the Brevard County Natural Resource Management Office (BCNRM) suggests that a release of chlorinated solvents has occurred in the location that is leased to and operated by Mid-Florida Freezer on the south side of the Harbor. Contamination from the sites located on the perimeter of the proposed project may be migrating into the project area.

5.3 West Turning Basin

A site inspection was conducted on 20 December 2005. The HTRW database review of the existing conditions indicated the site to be free of hazardous and toxic materials and waste. However, during the site inspection indicated the presence of hazardous materials and waste in one area: the Beyel Brothers, Inc. property located at the southeastern edge of the WTB uplands.

Most of the items observed were those used in connection with marine vessel repair and painting, and marine scrap (e.g., cranes, shipping containers, etc.). According to the lease agreement with CPA, these activities were not allowed on the property.

Coastal Fuels, located on the south side of the Harbor, had a release of petroleum product via a location in their pipeline to the docks. Soil was excavated, during which the laboratory analytical results indicated the presence of chlorinated solvents, which are not typically found in petroleum impacted soils. The source of the chlorinated solvents is likely from past activities at another facility leased from CPA. The extent of impact in 2004 (last groundwater sampling event) suggests the size of the plume is slightly smaller, although temporal effects in the groundwater concentrations in and inferred plume size can occur. Currently, the majority of the plume is being monitored. An air sparging system is being designed for installation along the bulkhead to insure that contaminants are not migrating into the water and sediments in the Harbor. Past sampling and analyses of surface water and sediments in the Harbor indicate that no chlorinated solvents, exceeding comparative clean-up criteria, are present. In addition, a risk assessment is being performed in order to establish alternate groundwater cleanup criteria in the original source area. A large bulkhead is present at the water's edge that may impede the migration of the chlorinated solvents and petroleum constituents into the Harbor. The potential of HTRW risks at this site is considered moderate.

5.4 North Side of Channel (Inner and Middle Reaches)

A site inspection of the land adjacent to NC was performed on 20 December 2005, as the NC area is located completely underwater. The HTRW database review of the existing condition found the site to be free of hazardous and toxic materials and waste. The property surrounding the proposed project is a mix of commercial shipping, marine port activities, and a military installation. Please see the previous section for a discussion of releases on the south side of the Harbor, which is considered to be adjacent property. The potential of HTRW risks at this site is considered low.

5.5 Entrance Channel Turn

This area is located approximately one-mile offshore in the Atlantic Ocean. A site visit was not performed as it is in about 41 feet of water. None of the sites listed in the HTRW database review are located within the search distances. The potential of HTRW risk at this area is considered low.

PRELIMINARY ASSESSMENT SCREENING (PAS) STATEMENT OF FINDINGS

REAL PROPERTY TRANSACTION: This effort was not performed for a "Real Property Transaction", but rather for use in the development of the Feasibility Study. An intrusive soil and groundwater study is recommended for the Beyel Brothers property to evaluate whether the soil and groundwater have been impacted by operations performed there. Upon evaluation and possible remediation of the Beyel Brothers leased property, these sites may be used for the project purposes.

SUMMARY:
COMPREHENSIVE RECORD SEARCH: Several database searches were performed under subcontract to EDR. The following databases were included in the review: National and State Priority Listed Sites, landfills, Federal and State Conservation Environmental Restoration Comprehensive Liability Act (CERCLA) listed sites, listed violators, underground storage tanks (USTs) and leaking underground storage tanks (LUSTs), Treatment Storage and Disposal facilities (TSDs), listed spills, Small (SQG) and Large Quantity Generators (LQG), Transporters and aboveground storage tanks (ASTs). There are no reported hazardous or toxic waste present on the proposed right of way and source of material site.

SITE INVESTIGATION: CH2M HILL, Inc. Staff, Jacksonville Office visited the proposed areas on 20 December 2005.

In conclusion, the Proposed Canaveral Harbor widening may potentially have low to moderate concentration of hazardous and toxic waste. A further detail study is required for the property leased by Beyel Brothers, Inc. associated with the WTB area of the project. Additionally, a file review and summary of activities associated with Coastal Fuels and Mid-Florida Freezer should be performed.

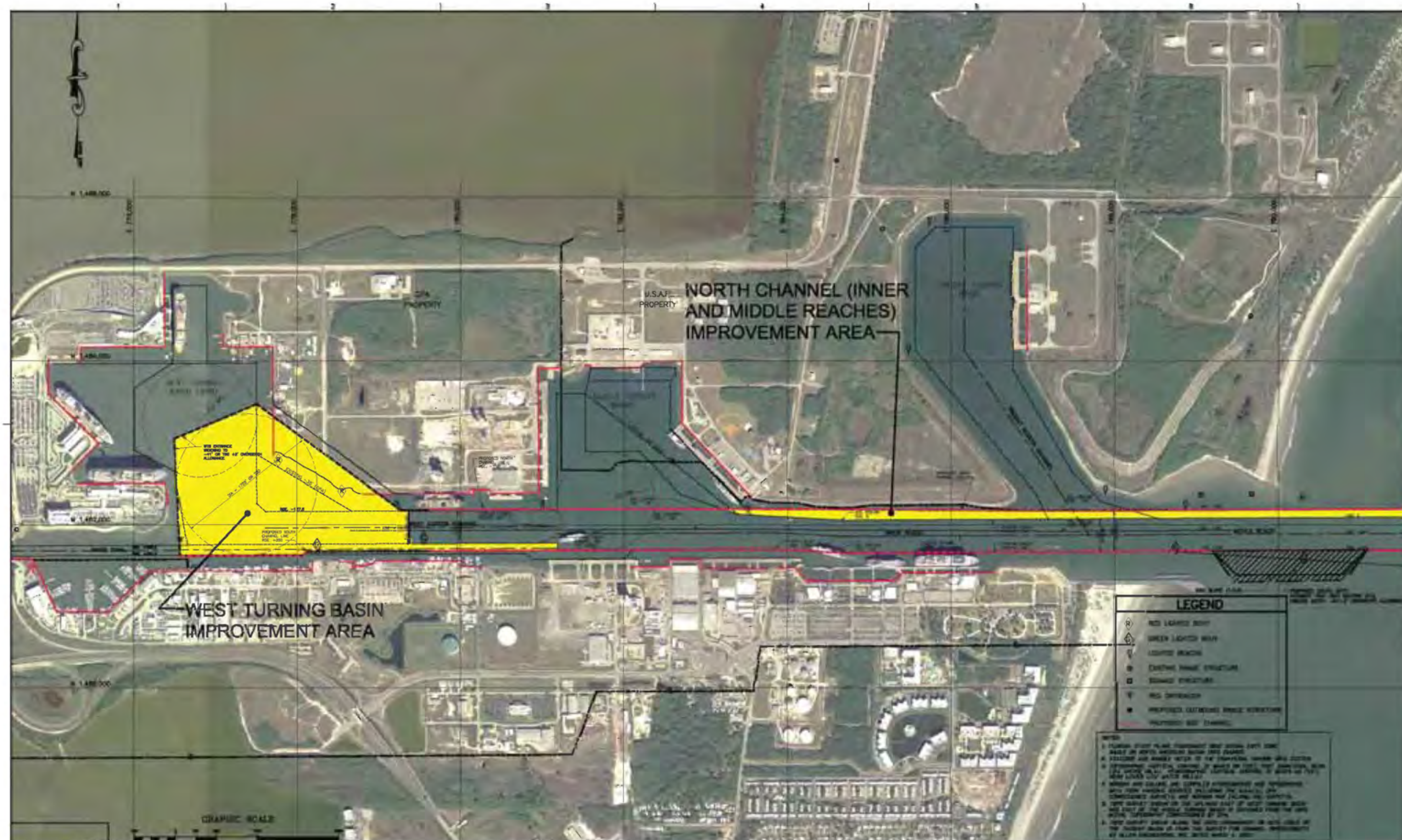
Signed: Allison T. Langille

Date: May 12, 2006

Prepared by: A. T. Langille, PG

Senior Hydrogeologist

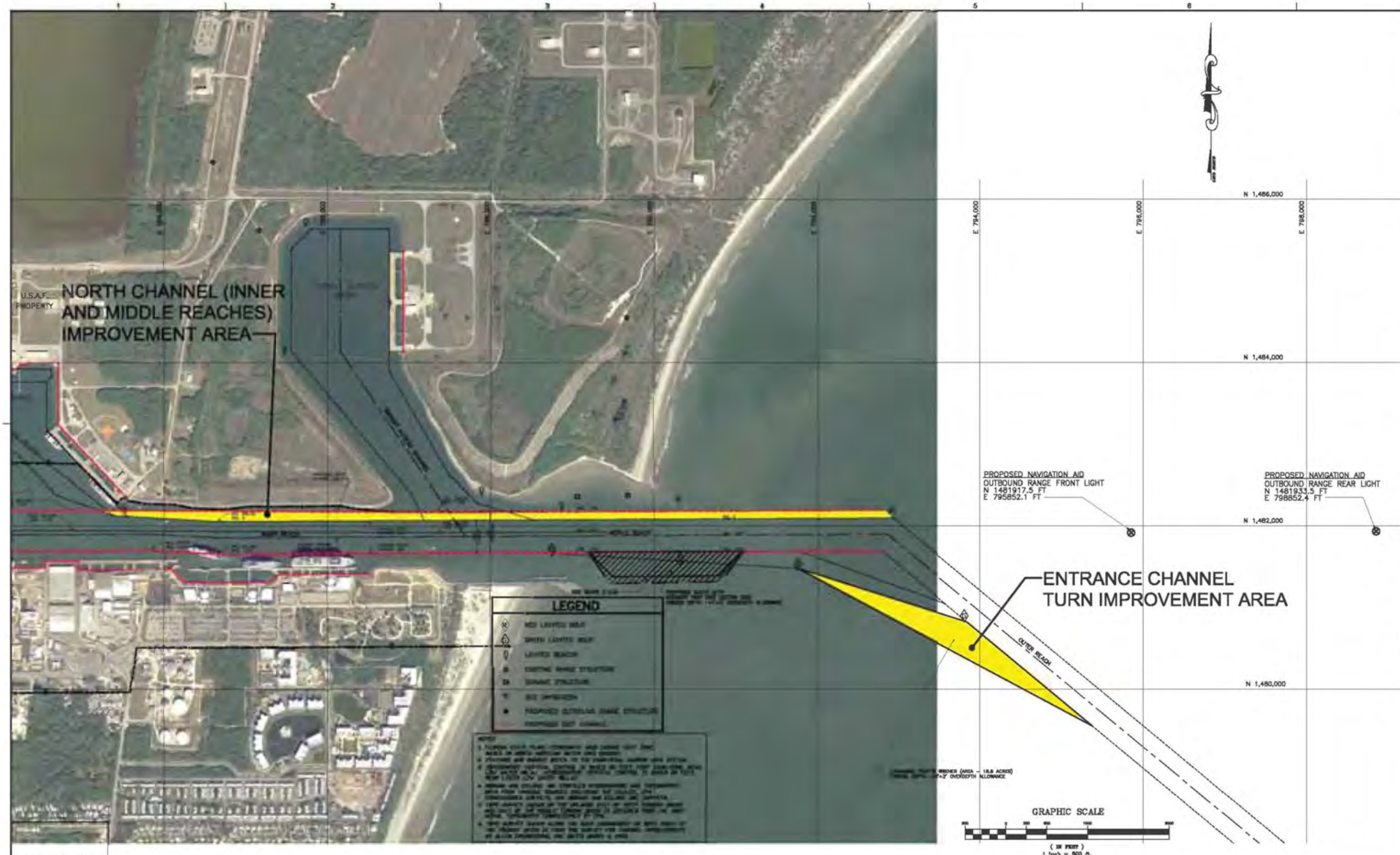
CH2M HILL, Inc.



PRELIMINARY NOT FOR CONSTRUCTION	DSGN SDR DR ARD CHK APVD	NO.	DATE	REVISION	BY	APVD	VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	CH2MHILL 730 MULLET RD. CAPE CANAVERAL, FLORIDA 32920 LB 0002934 AA C000656	PORT CANAVERAL	CANAVERAL PORT AUTHORITY PORT CANAVERAL HTRW SURVEY SECTION 203 FEASIBILITY STUDY FUTURE CONDITIONS	SHEET DWG FIGURE 1A DATE 2/01/08 PROJ 332981

HTRW 02/01/08

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2M HILL.



PRELIMINARY NOT FOR CONSTRUCTION	DSGN SDR DR ARD CHK APVD	NO.	DATE	REVISION	BY	APVD	VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	CH2MHILL 730 MULLET RD. CAPE CANAVERAL, FLORIDA 32920 LB 0002934 AA C000656	PORT CANAVERAL	CANAVERAL PORT AUTHORITY PORT CANAVERAL NTRW SURVEY SECTION 203 FEASIBILITY STUDY FUTURE CONDITIONS	SHEET DWG FIGURE 1B DATE 02/01/06 PROJ 332981

HTRW 02/01/06

02/01/06 2:49pm

WTB Area

South Side of Channel at WTB Area

Seawall Along South Side of Channel
(Adjacent to WTB Area)

Shoreline Along Beyel Brothers, Inc. Lease
(WTB Area Uplands)

Two-inch Pipe on Shoreline
(East of WTB)

Rip-Rap East of WTB

Uplands East of WTB

36-inch Stormwater Outlet (East of WTB)

Seawall Along East Side of WTB
(Beyel Brother, Inc. Lease)

Typical Equipment and Materials on Beyel Brother, Inc. Lease
(WTB Area Uplands)

North Side Shoreline and West Access Channel
(East of WTB)

Seawall Along South Side of Channel
(Adjacent to WTB Area)

WTB Entrance Shoreline and Channel
(West Access Channel)

Channel (Inner Reach) East of MTB

CCAFS Shoreline and Uplands East of MTB

CCAFS Shoreline and Uplands East of MTB

Shoreline Along South Side of West Access Channel

CCAFS Property (TTB on Right)

CCAFS Shoreline (West Side of TTB)

CCAFS Uplands at Port Entrance


21

Atlantic Ocean at Cocoa Beach

(ECT Area Approx. One-mile Offshore)

Daley Environmental Services, Inc.

RECEIVED CPA

696 Millwheel Drive
Merritt Island, FL 32952

Phone (321) 454-6899
Fax (321) 454-4319

November 27, 2007

Brevard County Board of Commissioners
Natural Resources Management Office
2725 Judge Fran Jamieson Drive, Bldg. A
Viera, FL 32940

Attention: Doug Divers

Reference: Source Removal Report
Beyel Bros. Lease
Grouper Road
Port Canaveral, Florida
FDEP ID# 059809163

Dear Mr. Divers:

On behalf of the property owner, Canaveral Port Authority Daley Environmental Services, Inc. has completed source removal operations at the referenced property.

The report documents the source removal operations completed August 22-23, 2007. Laboratory analyses of soil samples collected after the source removal indicate all petroleum-impacted soil above Residential Soil Cleanup Target Levels has been removed. Laboratory analyses of groundwater samples collected after the source removal did not detect petroleum impacts to the groundwater above allowable Residential Groundwater Cleanup Target Levels.

We are recommending a "No Further Action" status without conditions for the site.

Attached for your use are two copies of the Source Removal Report. If you have any questions or require additional information, please call.

Sincerely,
DALEY ENVIRONMENTAL SERVICES, INC.

Thomas L. Daley, P.G.
President

Enc.

Dist. Addressee - 2
Canaveral Port Authority - 2

SOURCE REMOVAL REPORT
BEYEL BROS. LEASE
GROUPER ROAD
PORT CANAVERAL, FLORIDA
FDEP ID# 059809163

Prepared For:

Canaveral Port Authority
PO Box 267
Cape Canaveral, FL 32920

Prepared by:

Daley Environmental Services, Inc.
696 Millwheel Drive
Merritt Island, FL 32952
(321) 454-6899

DES Project No. 07-105-12
DES Report No. 7028
Date: November 27, 2007

Thomas L. Daley, P.G.
President
FL Registration 1219

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TABLES

FIGURES

APPENDICES

1.0 INTRODUCTION

1.1 Purpose

Daley Environmental Services, Inc. (DES); on behalf the property owner, Canaveral Port Authority; DES has completed source removal operations at a former commercial crane operation on the west side of Grouper Road at Port Canaveral, Florida, Brevard County, Florida. The purpose of the project was to remove and dispose of soils impacted with petroleum products resulting from a discharge from a portable aboveground storage tank formerly located on the property. The location of the site is depicted on Figure 1, Site Location Topographic Map. The site FDEP ID number is 059809163.

The project was completed in accordance with provisions of Florida Administrative Code (FAC) 62-770.300, Source Removal. All field sampling activities were completed in accordance with FDEP Standard Operating Procedures for Field Activities (DEP-SOP-001/01).

1.2 Background

The site is the former location of Beyel Bros. a crane and rigging company who used the site as a base of operations. As part of their operations Beyel had a portable skid aboveground storage tank (AST) for fueling equipment with diesel fuel. Beyel Bros. relocated from the site in 2006. DES completed a Limited Scope Soil and Groundwater Assessment documented in a report dated October 17, 2006. The assessment identified the presence of petroleum impacted soil and groundwater. A Discharge Report Form was submitted to Brevard County Natural Resources Management Office on December 14, 2006. The property layout is shown on Figure 2, Site Layout Plan.

DES was later contracted to complete the source removal and assessment activity.

2.0 FIELD OPERATIONS

2.1 Pre-disposal Sampling and Analysis

DES personnel mobilized to the site on August 3, 2007. We completed a series of nine hand auger borings in the footprint of the known areas of petroleum impacts to the soil. The soil cuttings generated from the auger borings were composited. A representative sample of the composited soil was placed in a soil jar provided by the laboratory. The soil sample, designated, Comp-1, was shipped in an iced cooler with chain-of-custody to US Biosystems Laboratory in Boca Raton, Florida for analysis. Soil sample Comp-1 was analyzed for the pollutant metals, Arsenic, Barium, Cadmium, Chromium, Lead, Selenium and Silver (total and TCLP) as required by Omni Waste for disposal of soils in their Omni Waste Landfill near St. Cloud, Florida.

The results of the laboratory analysis were submitted to Omni Waste and a waste profile was approved allowing for disposal of the soil in their facility. The laboratory report is included in Appendix C.

2.2 Soil Screening and Excavation

DES personnel mobilized to the site on August 22-23, 2007. During this time we completed the excavation of all soils with an Organic Vapor levels in excess of one part per million as measured with a Mini Rae 2000 an Organic Vapor Meter with a photo ionization detector (OVM-PID) as the soil as was excavated. Soils exhibiting Volatile Organic Vapors were loaded directly into dump trucks for transportation from the site for disposal.

Representative soil samples were collected as the excavation proceeded. Samples were collected from the excavator bucket, the sidewall and base of the excavations and screened with the OVM. Confirmatory screening of soil samples was completed from samples collected directly from the sidewalls of the west excavation at a depth of approximately two feet which was above the groundwater table at approximately 4 feet bls. Confirmatory screening of soil samples was completed from samples collected directly from the sidewalls of the excavation at a depth of approximately two feet which was above the groundwater table. The field notes for the soil screening including results and locations collected are included in Appendix B.

The screenings indicated high levels of Volatile Organic Vapors from the surface to the groundwater table in all seven identified areas of petroleum-impacted soil. The excavation locations are shown on Figure 2.

2.3 Soil Transportation and Disposal

As the excavation proceeded the soil exhibiting Volatile Organic Vapor content greater than one ppm was placed in twenty-five rear dump trucks for transportation from the site. The excavated soil, totaling 778.86, tons was transported from the site for disposal at the Omni Waste Landfill near St. Cloud, Florida by Soil Tech Distributors.

The excavations were backfilled upon completion of the soil removal with clean sandy fill material. The manifest and scale tickets are included in Appendix A.

2.4 Soil Sampling

In an effort to confirm removal of petroleum impacts to the soil, twenty-four soil samples were collected for laboratory analysis. Three or four confirmatory soil samples (depending on size and shape) were collected for laboratory analysis from each of the sidewalls of the excavations. Soil screening from these eight locations indicated Volatile Organic Vapors concentrations below the instrument minimum detection level of one ppm. The soil samples, designated CS-1 through CS-24, were collected at the locations depicted on Figure 2. The samples were placed in containers provided by the laboratory and shipped in an iced cooler with chain-of-custody to US Biosystems in Boca Raton, Florida for analysis.

2.5 Monitor Well Installation and Groundwater Sampling

DES personnel returned to the site on September 6, 2007 with a drill rig and crew. One monitor well was installed at the site at each of the excavation locations. The monitor wells were designated MW-1 through MW-7. The locations of the monitor wells are depicted on Figure 2. The monitor wells were installed by advancing a hollow stem auger to a depth of approximately 13 feet. Into the hollow stem auger was placed a ten-foot section of 2" diameter PVC well screen with 0.006" slot openings. This screen was attached to a section of 2"-diameter PVC riser pipe. A filter pack of 30/40 silica sand was placed around and to one-foot above the well screen. A one-foot seal of 30/65 silica sand was placed above the filter pack and extended to the surface. The wellheads were not completed pending results of the initial sampling. The wells were developed by pumping groundwater from the wells until the discharge was free of sediment. The development water was spread on nearby pavement and allowed to evaporate. The Well Completion and Development Logs are included in Appendix B.

DES personnel returned to the site on October 5, 2007. In an effort to assess potential petroleum impacts to the groundwater, samples were collected for laboratory analysis from monitor wells MW-1 through MW-7. Each monitor well was purged in accordance with FDEP protocol. The groundwater samples were collected using a peristaltic pump. The groundwater samples were placed in containers provided by the laboratory and shipped in an iced cooler with chain-of-custody to USB for analysis.

The results of the first sampling event indicated petroleum impacts to the groundwater exceeded the Groundwater Cleanup Target Level for Benzene at MW-2 only. In order to confirm the results DES personnel returned to the site on October 17, 2007 and re-sampled monitor well MW-2 for BTEX compounds. The field procedures for the re-sampling were identical to that employed during the October 5, 2007 sampling event.

The purge water was spread on a nearby paved surface and allowed to evaporate.

The Groundwater Sampling Logs and Field Instrument Calibration Logs are included in Appendix B.

3.0 SOIL AND GROUNDWATER QUALITY

3.1 Post Source Removal Soil Quality

Contaminant impacts to the soil were assessed by laboratory analyses of the twenty-four soil samples collected from the sidewalls and base of the excavations at the locations described above.

The soil samples were analyzed by EPA Methods 8021 and 8310 and Florida Special Method FL-PRO which detect the presence of petroleum fuel constituents.

The laboratory results indicated all contaminants of concern were well below the most restrictive SCTL. The results of the laboratory analysis indicated the presence of Total Recoverable Petroleum Hydrocarbons (TRPH) in all twenty-two of the twenty-four samples, but below the most-restrictive Residential Soil Cleanup Target Level (SCTL) of 340 ppm. Additional petroleum fuel constituents were detected, but at trace levels well below the most restrictive Residential SCTLs. A summary of the detected analytes is presented on Table 1: Soil Analytical Summary.

The laboratory report is included in Appendix C.

3.2 Post Source Removal Groundwater Quality

Contaminant impacts to the groundwater were assessed by laboratory analyses of groundwater samples collected from monitor wells MW-1 and MW-2 by EPA Methods 8021 and 8310 and Florida Special Method FL-PRO which detect the presence of petroleum compounds.

Laboratory analysis of the groundwater samples collected from MW-1 through MW-7 indicated only trace levels of the contaminants of concern well below the state Groundwater Cleanup Target Levels (GCTLs), except at monitor well MW-2 where Benzene was detected at a level of 1.47 ug/l which exceeded the GCTL of 1.0 ug/l.

As discussed above DES re-sampled monitor well MW-2 on October 17, 2007 for analysis by EPA Method 8021B (BTEX). The laboratory results from the October 17, 2007 sampling indicated Benzene was not present at or above the Method Detection Level.

A summary of the detected analytes is presented on Table 2: Groundwater Monitoring Well Analytical Summary.

The laboratory report is included in Appendix C.

4.0 CONCLUSIONS AND RECOMMENDATIONS

On August 22-23, 2007 a total of 778.86 tons of petroleum contaminated soil was excavated from the source area at the site and transported from the site for disposal at the Omni Waste Landfill in St. Cloud, Florida.

Laboratory analysis of twenty-four confirmatory soil samples indicated the presence of petroleum fuel constituents, but at levels well below the most restrictive Residential Soil Cleanup Target Levels.

Laboratory analysis of groundwater samples collected from six of seven monitor wells installed at the excavation sites did not indicate the presence of petroleum impacts to the groundwater in excess of the most restrictive Residential Groundwater Cleanup Target Levels on October 5, 2007. A subsequent re-sampling and laboratory analysis of the one well exceeding the GCTL indicated the seventh monitor well location did not have groundwater impacts in excess of the GCTLs.

The site meets the FDEP criteria for a "No Further Action with Conditions" status.

We recommend a No Further Action status be granted the site in accordance with FAC 62-770.

TABLE 1: SOIL ANALYTICAL SUMMARY

Facility Name: Beyel Bros. **Facility ID#: 059809163**

Sample				OVA									
Sample No.	Date Collected	Depth to Water (ft)	Sample Interval (fbls)	Net OVA Reading (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Total Xylenes (ppm)	MTBE (ppm)	Naph-thalene (ppm)	2-Methyl naphth. (ppm)	1-Methyl naphth. (ppm)	TRPHs (ppm)
CS-1	8/22/2007	4'	2'	0	U 0.00034	U 0.00044	U 0.00056	U 0.0030	U 0.00052	U 0.025	U 0.032	U 0.031	7.26 I
CS-2	8/22/2007	4'	2'	0	U 0.00034	U 0.00045	U 0.00056	U 0.0030	U 0.00052	U 0.023	U 0.030	U 0.029	9.24 I
CS-3	8/22/2007	4'	2'	0	U 0.00034	U 0.00045	U 0.00057	U 0.0031	U 0.00053	U 0.023	U 0.030	U 0.029	49.6
CS-4	8/22/2007	4'	2'	0	U 0.00037	U 0.00048	U 0.00061	U 0.0033	U 0.00056	U 0.024	U 0.031	U 0.030	19.0
CS-5	8/22/2007	4'	2'	0	U 0.00042	U 0.00055	U 0.00069	U 0.0037	U 0.00064	U 0.028	U 0.037	U 0.036	11.2 I
CS-6	8/22/2007	4'	2'	0	U 0.00043	U 0.00056	U 0.00071	U 0.0038	U 0.00066	U 0.030	U 0.039	U 0.038	15.8 I
CS-7	8/22/2007	4'	2'	0	U 0.00036	U 0.00048	U 0.00060	U 0.0033	U 0.00056	U 0.027	U 0.035	U 0.034	4.98 I
CS-8	8/22/2007	4'	2'	0	U 0.00041	U 0.00054	U 0.00068	U 0.0037	U 0.00063	U 0.023	U 0.030	U 0.029	8.41 I
CS-9	8/22/2007	4'	2'	0	U 0.00043	U 0.00056	U 0.00071	U 0.0038	U 0.00065	U 0.025	U 0.032	U 0.031	13.6 I
CS-10	8/22/2007	4'	2'	0	U 0.00033	U 0.00044	U 0.00055	U 0.0030	U 0.00051	U 0.025	U 0.032	U 0.031	13.2 I
CS-11	8/22/2007	4'	2'	0	U 0.00037	U 0.00049	U 0.00062	U 0.0033	U 0.00057	U 0.025	U 0.032	U 0.031	5.97 I
CS-12	8/22/2007	4'	2'	0	U 0.00036	U 0.00047	U 0.00060	U 0.0032	U 0.00055	U 0.024	U 0.030	U 0.030	5.20 I
CS-13	8/22/2007	4'	2'	0	U 0.00032	U 0.00042	U 0.00052	U 0.0028	U 0.00049	U 0.023	U 0.030	U 0.030	14.4 I
CS-14	8/23/2007	4'	2'	0	U 0.00034	U 0.00044	U 0.00056	U 0.0030	U 0.00052	U 0.023	U 0.030	U 0.029	231
CS-15	8/23/2007	4'	2'	0	U 0.00044	U 0.00057	U 0.00072	U 0.0039	U 0.00067	U 0.028	U 0.036	U 0.035	9.28 I
CS-16	8/23/2007	4'	2'	0	U 0.00031	U 0.00041	U 0.00052	U 0.0028	U 0.00048	U 0.024	U 0.030	U 0.030	3.81 I
CS-17	8/23/2007	4'	2'	0	U 0.00034	U 0.00045	U 0.00056	U 0.0030	U 0.00052	U 0.026	U 0.033	U 0.033	24.8
CS-18	8/23/2007	4'	2'	0	U 0.00037	U 0.00049	U 0.00061	U 0.0033	U 0.00057	U 0.024	U 0.031	U 0.031	U 3.3
CS-19	8/23/2007	4'	2'	0	U 0.0003	U 0.00043	U 0.00054	U 0.029	U 0.00050	U 0.024	U 0.031	U 0.030	U 3.3
CS-20	8/23/2007	4'	2'	0	U 0.00035	U 0.00045	U 0.00057	U 0.0031	U 0.00053	U 0.025	U 0.032	U 0.032	3.63 I
CS-21	8/23/2007	4'	2'	0	U 0.00032	U 0.00043	U 0.00054	U 0.029	U 0.00050	U 0.025	U 0.032	U 0.031	25.5
CS-22	8/23/2007	4'	2'	0	U 0.00035	U 0.00045	U 0.00057	U 0.0031	U 0.00053	U 0.024	U 0.031	U 0.031	4.47 I
CS-23	8/23/2007	4'	2'	0	U 0.00033	U 0.00043	U 0.00052	U 0.0030	U 0.00052	U 0.025	U 0.032	U 0.032	4.58 I
CS-24	8/23/2007	4'	2'	0	U 0.00032	U 0.00042	U 0.00053	U 0.0028	U 0.00049	U 0.024	U 0.031	U 0.031	6.38 I
SCTL					0.007	0.5	0.6	0.2	0.09	1.2	8.5	3.1	340

NOTES: U = NOT DETECTED AT OR ABOVE METHOD DETECTION LEVEL

I = DETECTED BETWEEN METHOD DETECTION LEVEL AND PRACTICAL QUANTIFICATION LEVEL

If an analyte is not detected, state the detection limit (i.e. <1)
SoilAnalSum T1

Rev. 10/98

TABLE 2: GROUNDWATER MONITORING WELL ANALYTICAL SUMMARY

Facility Name: Beyel Bros. **Facility ID#: 059809163**

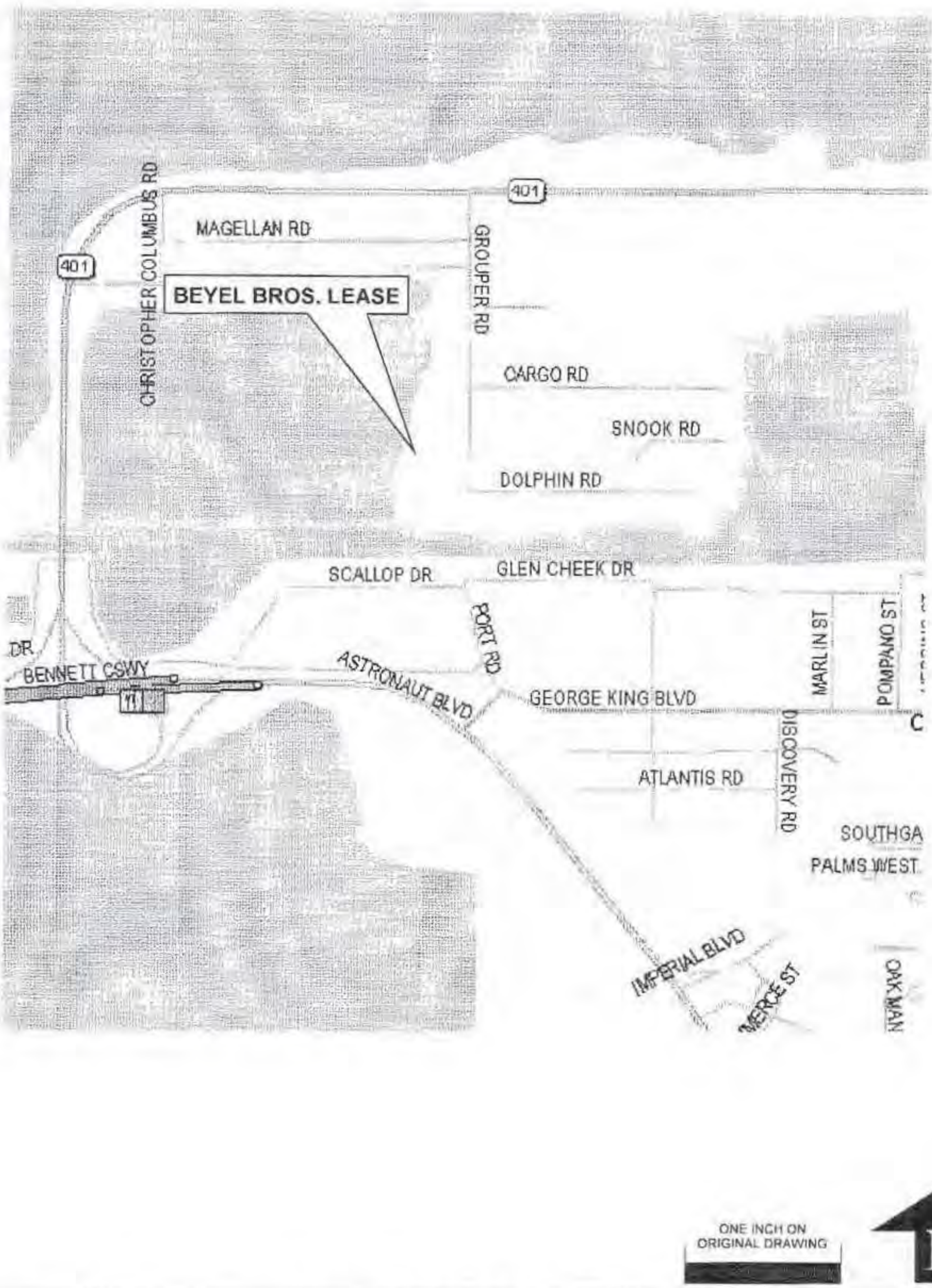
Not Sampled = NS
Analytical Results = ppb
Except TRPH = ppm

Sample Location	Sample Date	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Total VOA	MTBE	EDB	Total Lead	TRPHs	Naph-thalene	2-Methyl-naphth.	1-Methyl-naphth.
MW-1	10/5/2007	U 0.21	0.180	U 0.20	U 0.60	0.18	U 0.78	NS	NS	0.170 I	U 0.070	U 0.098	U 0.032
MW-2	10/5/2007	1.47	0.220 I	U 0.20	U 0.60	1.69	5.65	NS	NS	0.787	U 0.070	U 0.098	U 0.032
MW-2	10/17/2007	U 0.21	0.310 I	U 0.20	U 0.60	0.31	U 0.78	NS	NS	NS	NS	NS	NS
MW-3	10/5/2007	U 0.21	0.210	U 0.20	U 0.60	0.21	U 0.78	NS	NS	1.30	U 0.072	U 0.10	0.0593 I
MW-4	10/5/2007	U 0.21	0.190	U 0.20	U 0.60	0.19	U 0.78	NS	NS	0.629 I	U 0.070	U 0.098	U 0.032
MW-5	10/5/2007	U 0.21	0.160	U 0.20	0.0700	0.23	U 0.78	NS	NS	0.333 I	U 0.070	U 0.098	U 0.032
MW-6	10/5/2007	U 0.21	0.210	0.100	U 0.60	0.31	U 0.78	NS	NS	0.634 I	U 0.071	U 0.10	U 0.032
MW-7	10/5/2007	U 0.21	0.170	U 0.20	U 0.60	0.17	0.490	NS	NS	0.509 I	U 0.075	U 0.11	U 0.034
GCTL		1.0	40	30	20		20	0.02	15	5000	14	28	28

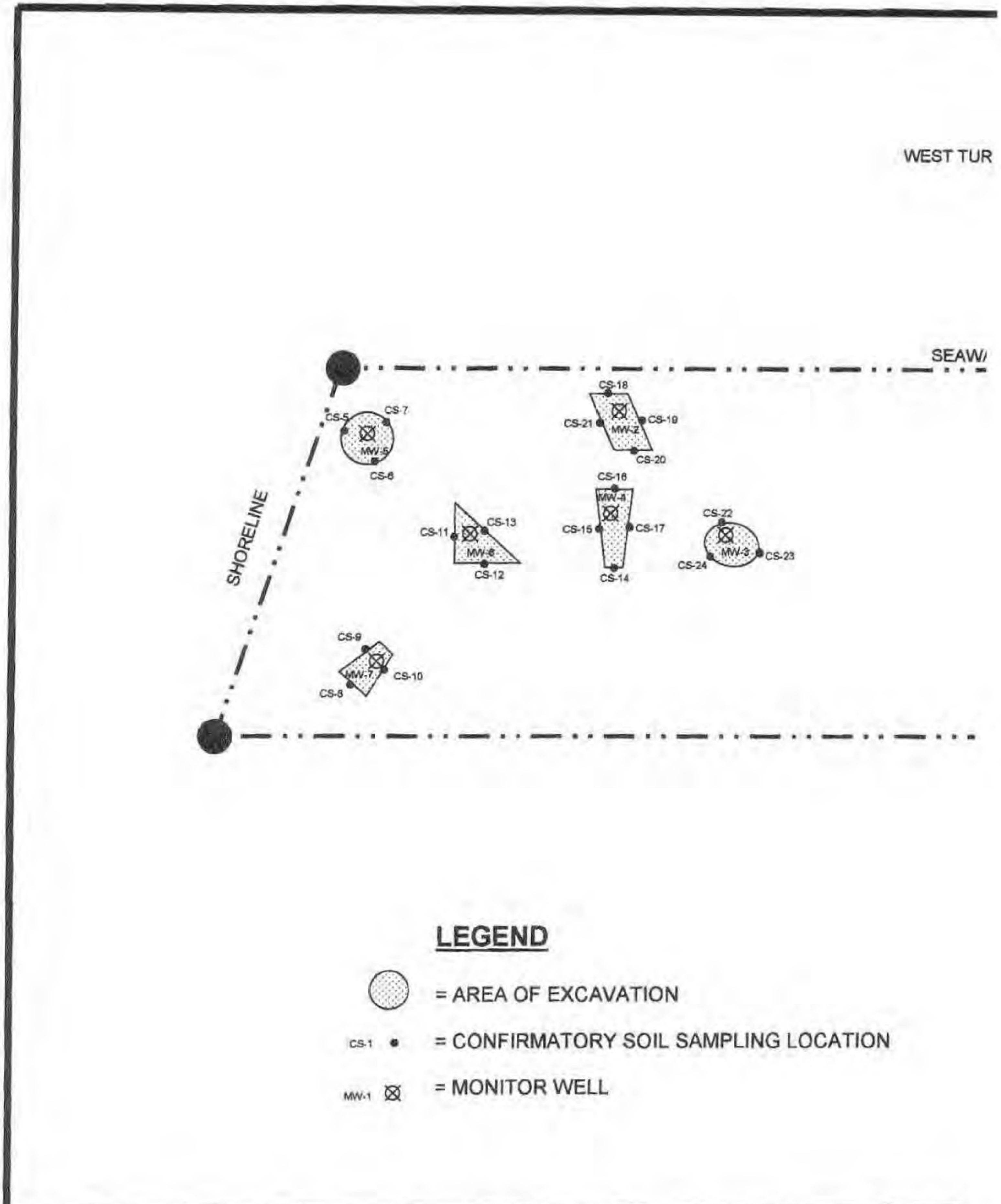
NOTES: U = NOT DETECTED AT OR ABOVE METHOD DETECTION LEVEL

I = DETECTED BETWEEN METHOD DETECTION LEVEL AND PRACTICAL QUANTIFICATION LEVEL

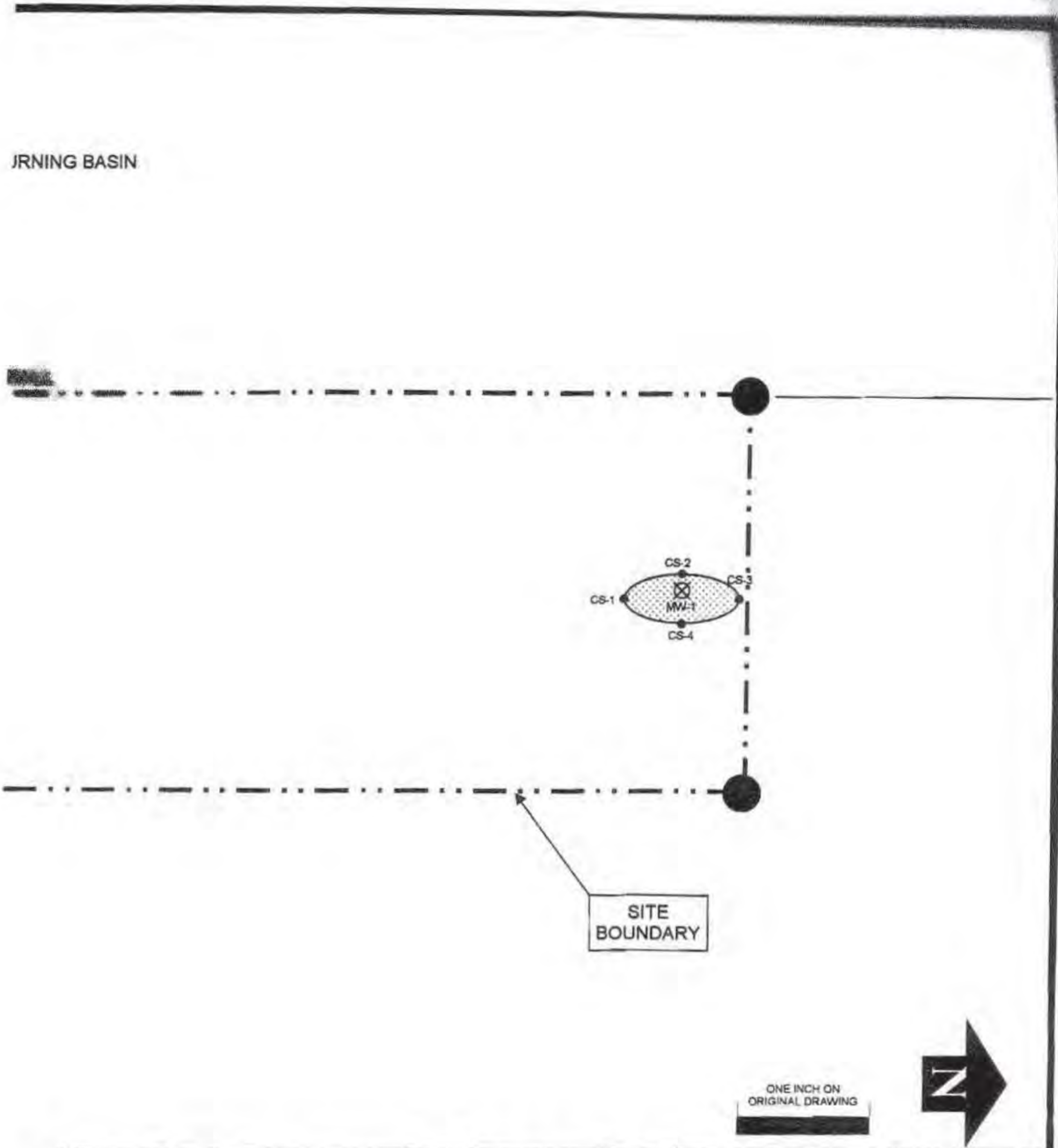
If an analyte is not detected, state the detection limit (i.e. <1), not BDL or ND.



DES DALEY ENVIRONMENTAL SERVICES, INC.	SITE LOCATION MAP	SCALE 1" = 1,500'
	BEYEL BROS. LEASE GROUPER ROAD PORT CANAVERAL, FLORIDA	DATE 10/31/07 REPORT # 7028 FIGURE 1



WEST TUR
SEAW/
SHORELINE
CS-18
CS-21
MW-2
CS-19
CS-20
CS-5
CS-7
MW-5
CS-6
CS-16
MW-4
CS-15
CS-17
CS-14
CS-11
CS-13
MW-6
CS-12
CS-22
MW-3
CS-23
CS-24
CS-9
MW-7
CS-10
CS-8
LEGEND
= AREA OF EXCAVATION
CS-1
= CONFIRMATORY SOIL SAMPLING LOCATION
MW-1
= MONITOR WELL



DES DALEY ENVIRONMENTAL SERVICES, INC.	SITE PLAN	SCALE 1" = 50
	BEYEL BROS. LEASE GROUPER ROAD PORT CANAVERAL, FLORIDA	DATE 10/31/07
		REPORT # [illegible]
		FIGURE [illegible]

Port Canaveral Section 203 Feasibility Study

Engineering Appendix

Attachment L

Cost Estimates

Rev Date: September 2012

(contains Cost DX Feb 2012 certification/TPCS/MCACES and revised Sept 2012 TPCS/MCACES per SAD comments)

WALLA WALLA COST ENGINEERING TECHNICAL CENTER OF EXPERTISE

COST AGENCY TECHNICAL REVIEW

CERTIFICATION STATEMENT

for

SAJ – Port Canaveral Section 203

The Port Canaveral Section 203 as presented by the SAJ Sponsor has undergone a successful Cost Agency Technical Review (Cost ATR), performed by the Walla Walla District Cost Engineering Technical Center of Expertise (Cost TCX) team. The Cost ATR included study of the project scope, report, cost estimates, schedules, escalation, and risk-based contingencies. This certification signifies the products meet the quality standards as prescribed in ER 1110-2-1150 Engineering and Design for Civil Works Projects and ER 1110-2-1302 Civil Works Cost Engineering.

As of February 8, 2012, the Cost TCX certifies the estimated total project cost of:

FY 2012 Price Level:	\$43,340,000 (excluding Sponsor spent costs)
Fully Funded Amount:	\$58,741,000 (including Sponsor spent costs)

Note that the certified TPCS is dependent upon sufficient, confident design and resulting Technical ATR. Further, it remains the responsibility of the District to correctly reflect these cost values within the Final Report and to implement effective project management controls and implementation procedures including risk management throughout the life of the project.

for **Kim C. Callan, PE, CCE, PM1**
Chief, Cost Engineering
Walla Walla District

US Army Corps of Engineers®

Date Feb 8 2012

**** TOTAL PROJECT COST SUMMARY ****

PROJECT: Canaveral Harbor, Section 203 Study
LOCATION: Port Canaveral, Brevard County, Florida

DISTRICT: SAJ Jacksonville PREPARED: 2/8/2012
POC: CHIEF, COST ENGINEERING, Tracy T. Leeser, P.E.

This Estimate reflects the scope and schedule in report: Integrated Section 203 Navigation Study Report

Program Year (Budget EC): 2012
Effective Price Level Date: 1 OCT 11

		ESTIMATED COST				PROJECT FIRST COST				TOTAL PROJECT COST (FULLY FUNDED)				
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	TOTAL ($K)	Spent Thru: 12-Dec-11 ($K)		COST ($K)	CNTG ($K)	FULL ($K)
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
02	RELOCATIONS	$2,008	$421	21%	$2,429		$2,008	$421	**$2,429**			$2,100	$440	$2,541
12	NAVIGATION PORTS & HARBORS	$27,715	$5,812	21%	$33,527		$27,715	$5,812	**$33,527**	$ 13,775		$28,738	$6,026	$48,539
	CONSTRUCTION ESTIMATE TOTALS:	$29,723	$6,233		**$35,956**		$29,723	$6,233	**$35,956**	$ 13,775		$30,838	$6,467	$51,080
01	LANDS AND DAMAGES	$1,645	$345	21%	$1,990		$1,645	$345	**$1,990**			$1,665	$349	$2,015
30	PLANNING, ENGINEERING & DESIGN	$2,229	$467	21%	$2,697		$2,229	$467	**$2,697**			$2,267	$475	$2,743
31	CONSTRUCTION MANAGEMENT	$2,229	$467	21%	$2,697		$2,229	$467	**$2,697**			$2,400	$503	$2,904
	PROJECT COST TOTALS:	$35,827	$7,513	21%	**$43,340**		$35,827	$7,513	**$43,340**	$ 13,775		$37,171	$7,795	$58,741

ESTIMATED FEDERAL COST:	65%	**$38,181**
ESTIMATED NON-FEDERAL COST:	35%	**$20,559**
ESTIMATED TOTAL PROJECT COST:		**$58,741**

Percentage basis:
Navigation Depths 20'-45' @ 75/25
Navigation Depths 45' & greater 50/50
Lands & damages 100% non-federal
Aids to Navigation 100% federal

O&M OUTSIDE OF TOTAL PROJECT COST:

________________ CHIEF, COST ENGINEERING, Tracy T. Leeser, P.E.

________________ PROJECT MANAGER, Osvaldo Rodriguez, P.E.

________________ CHIEF, REAL ESTATE, Clyde H. Sellers

________________ CHIEF, PLANNING, Stuart J. Appelbaum, P.E.

________________ CHIEF, ENGINEERING, Luis A. Ruiz, P.E.

________________ CHIEF, OPERATIONS, Jim W. Jeffords, P.E.

________________ CHIEF, CONSTRUCTION, Jack Rintoul, P.E., PMP

________________ CHIEF, CONTRACTING, Cynthia S. Tolle

________________ CHIEF, PM-PB, Karen S Tippett

________________ CHIEF, DPM, David S. Hobbie, PMP

**** TOTAL PROJECT COST SUMMARY ****

**** CONTRACT COST SUMMARY ****

PROJECT: Canaveral Harbor, Section 203 Study
LOCATION: Port Canaveral, Brevard County, Florida
This Estimate reflects the scope and schedule in report: Integrated Section 203 Navigation Study Report

DISTRICT: SAJ Jacksonville
POC: CHIEF, COST ENGINEERING, Tracy T. Leeser, P.E.
PREPARED: 2/8/2012

	Estimate Prepared: 12-Dec-11 / Effective Price Level: 12-Dec-11					Program Year (Budget EC): 2012 / Effective Price Level Date: 1 OCT 11				FULLY FUNDED PROJECT ESTIMATE				
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	RISK BASED CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	TOTAL ($K)	Mid-Point Date	ESC (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	*B*	*C*	*D*	*20.97*	*F*	*G*	*H*	*I*	*J*	*P*	*L*	*M*	*N*	*O*
	REMAINING CONSTRUCTION BY PORT													
02	RELOCATIONS	$2,008	$421	21%	$2,429		$2,008	$421	$2,429	2014Q4	4.6%	$2,100	$440	$2,541
12	NAVIGATION PORTS & HARBORS	$27,715	$5,812	21%	$33,527		$27,715	$5,812	$33,527	2014Q2	3.7%	$28,738	$6,026	$34,764
	CONSTRUCTION ESTIMATE TOTALS:	$29,723	$6,233	21%	$35,956		$29,723	$6,233	$35,956			$30,838	$6,467	$37,305
01	LANDS AND DAMAGES	$1,645	$345	21%	$1,990		$1,645	$345	$1,990	2012Q4	1.2%	$1,665	$349	$2,015
30	PLANNING, ENGINEERING & DESIGN													
	Project Management													
	Planning & Environmental Compliance													
7.5%	Engineering & Design	$2,229	$467	21%	$2,697		$2,229	$467	$2,697	2012Q4	1.7%	$2,267	$475	$2,743
	Engineering Tech Review ITR & VE													
	Contracting & Reprographics													
	Engineering During Construction													
	Planning During Construction													
	Project Operations													
31	CONSTRUCTION MANAGEMENT													
7.5%	Construction Management	$2,229	$467	21%	$2,697		$2,229	$467	$2,697	2014Q2	7.7%	$2,400	$503	$2,904
	Project Operation:													
	Project Management													
	CONTRACT COST TOTALS:	$35,827	$7,513		$43,340		$35,827	$7,513	$43,340			$37,171	$7,795	**$44,965**

Port Canaveral Section port work omited REV 2-8-2012

Estimated by Jeff McWilliams
Designed by Jim Moore
Prepared by Kathleen Roy

Preparation Date 2/8/2012
Effective Date of Pricing 2/8/2012
Estimated Construction Time 400 Days

Designed by
Jim Moore
Estimated by
Jeff McWilliams
Prepared by
Kathleen Roy

Design Document	
Document Date	2/8/2012
District	
Contact	Kathleen Roy
Budget Year	2012
UOM System	Original

Direct Costs

LaborCost
EQCost
MatlCost
SubBidCost

Timeline/Currency

Preparation Date	2/8/2012
Escalation Date	2/8/2012
Eff. Pricing Date	2/8/2012
Estimated Duration	400 Day(s)
Currency	US dollars
Exchange Rate	1.000000

Costbook CB10EB: MII English Cost Book 2010

Labor NLS2010: National Labor Library - Seattle 2010

the website for current Davis Bacon & Service Labor Rates. Fringes paid to the laborers are taxable. In a non-union job the whole fringes are taxable. In a union job, the vacation p

Labor Rates

LaborCost1
LaborCost2
LaborCost3
LaborCost4

Equipment EP09R03: MII Equipment Region 3 2009

03 SOUTHEAST

Sales Tax	8.50
Working Hours per Year	1,530
Labor Adjustment Factor	0.86
Cost of Money	2.50
Cost of Money Discount	25.00
Tire Recap Cost Factor	1.50
Tire Recap Wear Factor	1.80
Tire Repair Factor	0.15
Equipment Cost Factor	1.00
Standby Depreciation Factor	0.50

Fuel

Electricity	0.089
Gas	2.950
Diesel Off-Road	3.040
Diesel On-Road	3.490

Shipping Rates

Over 0 CWT	14.96
Over 240 CWT	13.61
Over 300 CWT	11.62
Over 400 CWT	9.72
Over 500 CWT	5.42
Over 700 CWT	5.42
Over 800 CWT	8.01

Labor ID: NLS2010 EQ ID: EP09R03 Currency in US dollars TRACES MII Version 4.1

Description	Quantity	UOM	CostToPrime	PrimeCMU	ContractCost	Escalation	Contingency	SIOH	ProjectCost
Project Cost Summary Report			**49,601,804**	**0**	**49,601,804**	**0**	**0**	**0**	**49,601,804**
			13,775,063.00		*13,775,063.00*				*13,775,063.00*
Completed Work	**1.00**	**EA**	**13,775,063**	**0**	**13,775,063**	**0**	**0**	**0**	**13,775,063**
			13,775,063.00		*13,775,063.00*				*13,775,063.00*
Port Work	**1.00**	**EA**	**13,775,063**	**0**	**13,775,063**	**0**	**0**	**0**	**13,775,063**
			13,775,063.00		*13,775,063.00*				*13,775,063.00*
Work Completed By the Port	**1.00**	**EA**	**13,775,063**	**0**	**13,775,063**	**0**	**0**	**0**	**13,775,063**
			35,826,740.86		*35,826,740.86*				*35,826,740.86*
Remaining Work	**1.00**	**EA**	**35,826,741**	**0**	**35,826,741**	**0**	**0**	**0**	**35,826,741**
			1,645,245.00		*1,645,245.00*				*1,645,245.00*
01 Lands and Damages	**1.00**	**EA**	**1,645,245**	**0**	**1,645,245**	**0**	**0**	**0**	**1,645,245**
			1,645,245.00		*1,645,245.00*				*1,645,245.00*
Property Purchase	**1.00**	**EA**	**1,645,245**	**0**	**1,645,245**	**0**	**0**	**0**	**1,645,245**
			2,008,262.00		*2,008,262.00*				*2,008,262.00*
02 Relocations	**1.00**	**EA**	**2,008,262**	**0**	**2,008,262**	**0**	**0**	**0**	**2,008,262**
			2,008,262.00		*2,008,262.00*				*2,008,262.00*
0203 Utilities, & Structure	**1.00**	**EA**	**2,008,262**	**0**	**2,008,262**	**0**	**0**	**0**	**2,008,262**
			2,008,262.00		*2,008,262.00*				*2,008,262.00*
020326 Gvmt Furnished Materials & Equip	**1.00**	**EA**	**2,008,262**	**0**	**2,008,262**	**0**	**0**	**0**	**2,008,262**
			2,008,262.00		*2,008,262.00*				*2,008,262.00*
Navigation Aids	**1.00**	**EA**	**2,008,262**	**0**	**2,008,262**	**0**	**0**	**0**	**2,008,262**
			1,975,000.00		*1,975,000.00*				*1,975,000.00*
Inbound/Outbound Navigation Aids	**1.00**	**EA**	**1,975,000**	**0**	**1,975,000**	**0**	**0**	**0**	**1,975,000**
			33,262.00		*33,262.00*				*33,262.00*
West Surge Warning Sign Replacement	**1.00**	**EA**	**33,262**	**0**	**33,262**	**0**	**0**	**0**	**33,262**
			27,714,777.88		*27,714,777.88*				*27,714,777.88*
12 Navigation Ports & Harbors	**1.00**	**EA**	**27,714,778**	**0**	**27,714,778**	**0**	**0**	**0**	**27,714,778**
			27,714,777.88		*27,714,777.88*				*27,714,777.88*
1201 Ports	**1.00**	**EA**	**27,714,778**	**0**	**27,714,778**	**0**	**0**	**0**	**27,714,778**
			18,637,508.94		*18,637,508.94*				*18,637,508.94*
120115 Mechanical Dredging	**1.00**	**EA**	**18,637,509**	**0**	**18,637,509**	**0**	**0**	**0**	**18,637,509**
			18,637,508.94		*18,637,508.94*				*18,637,508.94*
12011502 Site Work	**1.00**	**EA**	**18,637,509**	**0**	**18,637,509**	**0**	**0**	**0**	**18,637,509**

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Description	Quantity	UOM	CostToPrime	PrimeCMU	ContractCost	Escalation	Contingency	SIOH	ProjectCost
120101 Mob, Demob & Preparatory Work	1.00	EA	*1,781,000.00* 1,781,000	0	*1,781,000.00* 1,781,000	0	0	0	*1,781,000.00* 1,781,000
12011502 01 Mechanical Dredging	1.00	EA	*16,856,508.94* 16,856,509	0	*16,856,508.94* 16,856,509	0	0	0	*16,856,508.94* 16,856,509
120199 Associated General Items	1.00	EA	*9,077,268.94* 9,077,269	0	*9,077,268.94* 9,077,269	0	0	0	*9,077,268.94* 9,077,269
090130 Site Work	1.00	EA	*9,033,381.19* 9,033,381	0	*9,033,381.19* 9,033,381	0	0	0	*9,033,381.19* 9,033,381
Boresight Tower Guy Foundation Demolition	1.00	EA	*17,266.60* 17,267	0	*17,266.60* 17,267	0	0	0	*17,266.60* 17,267
Sign Relocation	1.00	EA	*57,038.94* 57,039	0	*57,038.94* 57,039	0	0	0	*57,038.94* 57,039
09019902 02 Dolphins	1.00	EA	*190,000.00* 190,000	0	*190,000.00* 190,000	0	0	0	*190,000.00* 190,000
09013002 09 Steel Sheet Piling	1.00	EA	*1,189,695.84* 1,189,696	0	*1,189,695.84* 1,189,696	0	0	0	*1,189,695.84* 1,189,696
New SSP Wall At Boat Ramp	1.00	EA	*1,189,695.84* 1,189,696	0	*1,189,695.84* 1,189,696	0	0	0	*1,189,695.84* 1,189,696
09013002 06 Riprap	71,100.00	TON	*40.65* 2,890,370	0	*40.65* 2,890,370	0	0	0	*40.65* 2,890,370
Revetments	71,100.00	TON	*40.65* 2,890,370	0	*40.65* 2,890,370	0	0	0	*40.65* 2,890,370
Mob/Demob	1.00	EA	*22,800.00* 22,800	0	*22,800.00* 22,800	0	0	0	*22,800.00* 22,800
Environmental Protection	1.00	EA	*46,862.01* 46,862	0	*46,862.01* 46,862	0	0	0	*46,862.01* 46,862
Rock Recovery/Replacement	1.00	EA	*1,263,433.66* 1,263,434	0	*1,263,433.66* 1,263,434	0	0	0	*1,263,433.66* 1,263,434
New Filter Stone (Furnish & Install)	1.00	EA	*1,557,274.63* 1,557,275	0	*1,557,274.63* 1,557,275	0	0	0	*1,557,274.63* 1,557,275
09013002 03 Upland Excavation	1.00	EA	*4,588,251.25* 4,588,251	0	*4,588,251.25* 4,588,251	0	0	0	*4,588,251.25* 4,588,251
			932,972.47		*932,972.47*				*932,972.47*

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Description	Quantity	UOM	CostToPrime	PrimeCMU	ContractCost	Escalation	Contingency	SIOH	ProjectCost
Existing Rock Revetment Removal/Replacement	**1.00**	**EA**	**932,972**	**0**	**932,972**	**0**	**0**	**0**	**932,972**
Northside Channel Widener	**1.00**	**EA**	*3,655,278.78* **3,655,279**	**0**	*3,655,278.78* **3,655,279**	**0**	**0**	**0**	*3,655,278.78* **3,655,279**
Chain Link Fence	**1.00**	**EA**	*100,758.26* **100,758**	**0**	*100,758.26* **100,758**	**0**	**0**	**0**	*100,758.26* **100,758**
Monument Relocation	**1.00**	**EA**	*43,887.75* **43,888**	**0**	*43,887.75* **43,888**	**0**	**0**	**0**	*43,887.75* **43,888**
Submarine Monumnet	**1.00**	**EA**	*43,887.75* **43,888**	**0**	*43,887.75* **43,888**	**0**	**0**	**0**	*43,887.75* **43,888**
30 Planning, Engineering and Design	**1.00**	**EA**	*2,229,227.99* **2,229,228**	**0**	*2,229,227.99* **2,229,228**	**0**	**0**	**0**	*2,229,227.99* **2,229,228**
3023 Constructn Contracts(s) Documnts	**1.00**	**EA**	*2,229,227.99* **2,229,228**	**0**	*2,229,227.99* **2,229,228**	**0**	**0**	**0**	*2,229,227.99* **2,229,228**
302301 Plans and Specifications (P&S)	**1.00**	**EA**	*2,229,227.99* **2,229,228**	**0**	*2,229,227.99* **2,229,228**	**0**	**0**	**0**	*2,229,227.99* **2,229,228**
30230102 Plans and Specifications	**1.00**	**EA**	*2,229,227.99* **2,229,228**	**0**	*2,229,227.99* **2,229,228**	**0**	**0**	**0**	*2,229,227.99* **2,229,228**
31 Construction Management	**1.00**	**EA**	*2,229,227.99* **2,229,228**	**0**	*2,229,227.99* **2,229,228**	**0**	**0**	**0**	*2,229,227.99* **2,229,228**
3123 Construction Contracts	**1.00**	**EA**	*2,229,227.99* **2,229,228**	**0**	*2,229,227.99* **2,229,228**	**0**	**0**	**0**	*2,229,227.99* **2,229,228**
312311 Supervision and Administration	**1.00**	**EA**	*2,229,227.99* **2,229,228**	**0**	*2,229,227.99* **2,229,228**	**0**	**0**	**0**	*2,229,227.99* **2,229,228**
31231103 District Office S&A Documents	**1.00**	**EA**	*2,229,227.99* **2,229,228**	**0**	*2,229,227.99* **2,229,228**	**0**	**0**	**0**	*2,229,227.99* **2,229,228**

Currency in US dollars

Description	Quantity	UOM	DirectLabor	DirectEQ	DirectMatl	DirectSubBid	DirectCost
Project Direct Costs Report			**3,287,830**	**3,306,901**	**3,660,560**	**39,346,513**	**49,601,804**
			0.00	*0.00*	*0.00*	*13,775,063.00*	*13,775,063.00*
Completed Work	**1.00**	**EA**	**0**	**0**	**0**	**13,775,063**	**13,775,063**
			0.00	*0.00*	*0.00*	*13,775,063.00*	*13,775,063.00*
Port Work	**1.00**	**EA**	**0**	**0**	**0**	**13,775,063**	**13,775,063**
			0.00	*0.00*	*0.00*	*13,775,063.00*	*13,775,063.00*
Work Completed By the Port	**1.00**	**EA**	**0**	**0**	**0**	**13,775,063**	**13,775,063**
(Note: The West Turning Basin (WTB) Corner Cut-Off (CCO) and Grouper Road relocation have been constructed in advance by the Canaveral Port Authority. This work precedes the Section 203 project out of necessity to accommodate classes of vessels smaller in size than the Section 203 design vessels, but greater than vessels currently calling on, or home-porting at Port Canaveral. Starting in September 2008, through completion in September 2011, the Canaveral Port Authority competitively bid and awarded contracts for construction of the Grouper Road relocation and CCO.)							
			0.00	*0.00*	*0.00*	*7,028,340.00*	*7,028,340.00*
USR Interim Corner Cut Off	1.00	EA	0	0	0	7,028,340	7,028,340
(Note: Results of Actual Contracts Awarded plus Engineering & Design Cost)							
			0.00	*0.00*	*0.00*	*6,292,539.00*	*6,292,539.00*
RSM 023154420330 Corner Cut Off Phase 2	1.00	EA	0	0	0	6,292,539	6,292,539
(Note: Results of Actual Contracts Awarded plus Engineering & Design Cost)							
			0.00	*0.00*	*0.00*	*454,184.00*	*454,184.00*
RSM 023252500510 Grouper Road Relocation	1.00	EA	0	0	0	454,184	454,184
(Note: Results of Actual Contracts Awarded plus Engineering & Design Cost)							
			3,287,829.53	*3,306,900.99*	*3,660,560.00*	*25,571,450.34*	*35,826,740.86*
Remaining Work	**1.00**	**EA**	**3,287,830**	**3,306,901**	**3,660,560**	**25,571,450**	**35,826,741**
			0.00	*0.00*	*1,645,245.00*	*0.00*	*1,645,245.00*
01 Lands and Damages	**1.00**	**EA**	**0**	**0**	**1,645,245**	**0**	**1,645,245**
			0.00	*0.00*	*1,645,245.00*	*0.00*	*1,645,245.00*
Property Purchase	**1.00**	**EA**	**0**	**0**	**1,645,245**	**0**	**1,645,245**
			0.00	*0.00*	*1,645,245.00*	*0.00*	*1,645,245.00*
USR AF Property	1.00	EA	0	0	1,645,245	0	1,645,245
			0.00	*0.00*	*0.00*	*2,008,262.00*	*2,008,262.00*
02 Relocations	**1.00**	**EA**	**0**	**0**	**0**	**2,008,262**	**2,008,262**
			0.00	*0.00*	*0.00*	*2,008,262.00*	*2,008,262.00*
0203 Utilities, & Structure	**1.00**	**EA**	**0**	**0**	**0**	**2,008,262**	**2,008,262**
(Note: USCG Aids to Navigation impacted by project construction.)							

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Description	Quantity	UOM	DirectLabor	DirectEQ	DirectMatl	DirectSubBid	DirectCost
			0.00	*0.00*	*0.00*	*2,008,262.00*	*2,008,262.00*
020326 Gvmt Furnished Materials & Equip	**1.00**	**EA**	**0**	**0**	**0**	**2,008,262**	**2,008,262**
			0.00	*0.00*	*0.00*	*2,008,262.00*	*2,008,262.00*
Navigation Aids	**1.00**	**EA**	**0**	**0**	**0**	**2,008,262**	**2,008,262**
			0.00	*0.00*	*0.00*	*1,975,000.00*	*1,975,000.00*
Inbound/Outbound Navigation Aids	**1.00**	**EA**	**0**	**0**	**0**	**1,975,000**	**1,975,000**
			0.00	*0.00*	*0.00*	*137,500.00*	*137,500.00*
RSM 023252500020 Dredging Aids to Navigation, Inbound, Relocate	2.00	EA	0	0	0	275,000	275,000
(Note: Price developed by CH2M HILL per Attachment N (USCG Coordination On Navigation Aids (Range Markers)))							
			0.00	*0.00*	*0.00*	*850,000.00*	*850,000.00*
RSM 023252500020 Dredging Aids to Navigation, Outbound, New	2.00	EA	0	0	0	1,700,000	1,700,000
(Note: Price developed by CH2M HILL per Attachment N (USCG Coordination On Navigation Aids (Range Markers)))							
			0.00	*0.00*	*0.00*	*33,262.00*	*33,262.00*
West Surge Warning Sign Replacement	**1.00**	**EA**	**0**	**0**	**0**	**33,262**	**33,262**
			0.00	*0.00*	*0.00*	*33,262.00*	*33,262.00*
HNC 344313100740 West Surge Warning Sign Replacement	1.00	EA	0	0	0	33,262	33,262
(Note: In 2001, Olsen & Associates, Jacksonville, Florida, prepared a cost estimate for installing the two Surge Warning Signs. The engineer’s estimate in 2001 for installing the two signs was $44,000. Using one-half of this value for one sign, and escalating to 2007 using 3% per year up to 2006 and 4.6 percent for 2007 and 2008, the estimate for installing one new Surge Warning Sign is approximately $30,000 in 2008 dollars. This value was then escalated by 3.5% to arrive at a cost 0f $33,262 in 2012 dollars.)							
			3,287,829.53	*3,306,900.99*	*2,015,315.00*	*19,104,732.36*	*27,714,777.88*
12 Navigation Ports & Harbors	**1.00**	**EA**	**3,287,830**	**3,306,901**	**2,015,315**	**19,104,732**	**27,714,778**
			3,287,829.53	*3,306,900.99*	*2,015,315.00*	*19,104,732.36*	*27,714,777.88*
1201 Ports	**1.00**	**EA**	**3,287,830**	**3,306,901**	**2,015,315**	**19,104,732**	**27,714,778**
			0.00	*0.00*	*0.00*	*18,637,508.94*	*18,637,508.94*
120115 Mechanical Dredging	**1.00**	**EA**	**0**	**0**	**0**	**18,637,509**	**18,637,509**
			0.00	*0.00*	*0.00*	*18,637,508.94*	*18,637,508.94*
12011502 Site Work	**1.00**	**EA**	**0**	**0**	**0**	**18,637,509**	**18,637,509**
			0.00	*0.00*	*0.00*	*1,781,000.00*	*1,781,000.00*
120101 Mob, Demob & Preparatory Work	**1.00**	**EA**	**0**	**0**	**0**	**1,781,000**	**1,781,000**
RSM 023252500020 Dredging, mobilization and demobilization	1.00	LS	0	0	0	1,781,000	1,781,000
(Note: All dredging costs and the cost estimating procedure were performed in accordance with EP-1110-1-8; SADDM 1110-1-1; ER-1110-1-1300; ER 1110-2-1302, which provide the guidelines necessary to calculate the dredging costs. Assumptions regarding equipment values are given in the estimate. Ownership and operating costs for all dredging and marine equipment were calculated using the USACE “Checkrate” Excel program, with applicable cost adjustments for FY 2012 and USACE regional factors. Port Canaveral is located within Region III.The total overall cost was divided by the quantity to obtain a dredging cost of $5.42 per CY in 2012 dollars. The detailed dredging cost estimating spreadsheet performed by Mr. McWilliams is included in this Attachment L.)							

Labor ID: NLS2010 EQ ID: EP09R03 Currency in US dollars TRACES MII Version 4.1

Description	Quantity	UOM	DirectLabor	DirectEQ	DirectMatl	DirectSubBid	DirectCost
			0.00	*0.00*	*0.00*	*16,856,508.94*	*16,856,508.94*
12011502 01 Mechanical Dredging	**1.00**	**EA**	**0**	**0**	**0**	**16,856,509**	**16,856,509**
			0.00	*0.00*	*0.00*	*5.42*	*5.42*
RSM 023252500510 Dredging, dragline or clamshell, harbor channel, middle basin and ocean access channel	3,110,057.00	BCY	0	0	0	16,856,509	16,856,509

(Note: All dredging costs and the cost estimating procedure were performed in accordance with EP-1110-1-8; SADDM 1110-1-1; ER-1110-1-1300; ER 1110-2-1302, which provide the guidelines necessary to calculate the dredging costs. Assumptions regarding equipment values are given in the estimate. Ownership and operating costs for all dredging and marine equipment were calculated using the USACE “Checkrate” Excel program, with applicable cost adjustments for FY 2011 and USACE regional factors. Port Canaveral is located within Region III.The total overall cost was divided by the quantity to obtain a dredging cost of $5.42 per CY in 2012 dollars. The detailed dredging cost estimating spreadsheet performed by Mr. McWilliams is included in this Attachment L.)

Description	Quantity	UOM	DirectLabor	DirectEQ	DirectMatl	DirectSubBid	DirectCost
			3,287,829.53	*3,306,900.99*	*2,015,315.00*	*467,223.42*	*9,077,268.94*
120199 Associated General Items	**1.00**	**EA**	**3,287,830**	**3,306,901**	**2,015,315**	**467,223**	**9,077,269**
			3,267,074.50	*3,297,751.69*	*2,004,755.00*	*463,800.00*	*9,033,381.19*
090130 Site Work	**1.00**	**EA**	**3,267,074**	**3,297,752**	**2,004,755**	**463,800**	**9,033,381**
			11,230.07	*6,036.53*	*0.00*	*0.00*	*17,266.60*
Boresight Tower Guy Foundation Demolition	**1.00**	**EA**	**11,230**	**6,037**	**0**	**0**	**17,267**
			112.30	*60.37*	*0.00*	*0.00*	*172.67*
HTW 024116138011 Structural demolition, concrete pulverizer, 14.5" thick	100.00	CF	11,230	6,037	0	0	17,267
			45,150.54	*6,013.40*	*5,875.00*	*0.00*	*57,038.94*
Sign Relocation	**1.00**	**EA**	**45,151**	**6,013**	**5,875**	**0**	**57,039**
			9,030.11	*1,202.68*	*1,175.00*	*0.00*	*11,407.79*
RSM 101453205240 Signs, traffic sign removal and relocation, 41 S.F. to 100 S.F., including supports	5.00	EA	45,151	6,013	5,875	0	57,039

(Note: Several property notification signs with electrical support are located along the shoreline which will require relocation with the shoreline adjustment.)

Description	Quantity	UOM	DirectLabor	DirectEQ	DirectMatl	DirectSubBid	DirectCost
			0.00	*0.00*	*0.00*	*190,000.00*	*190,000.00*
09019902 02 Dolphins	**1.00**	**EA**	**0**	**0**	**0**	**190,000**	**190,000**
			0.00	*0.00*	*0.00*	*150,000.00*	*150,000.00*
USR Monopile Doplin With Cap and Bollard	1.00	EA	0	0	0	150,000	150,000

(Note: The mooring dolphin to be removed is located along the northside widening just east of the Trident Wharf. It consists of prestressed concrete pilings with a concrete cap and a pile supported walkway to the uplands. It will be replaced in a new location with a large diameter steel monopile with a concrete cap and mooring bollard. This element is estimated using knowledge of many similar small demolition project performed at the port. The demolition and replacement cost estimate is $190,000 Lump sum.)

Description	Quantity	UOM	DirectLabor	DirectEQ	DirectMatl	DirectSubBid	DirectCost
			0.00	*0.00*	*0.00*	*40,000.00*	*40,000.00*
USR Demolish Existing Open Pile Dolphin	1.00	EA	0	0	0	40,000	40,000
			480,059.91	*91,935.93*	*366,700.00*	*251,000.00*	*1,189,695.84*
09013002 09 Steel Sheet Piling	**1.00**	**EA**	**480,060**	**91,936**	**366,700**	**251,000**	**1,189,696**

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Description	Quantity	UOM	DirectLabor	DirectEQ	DirectMatl	DirectSubBid	DirectCost
			480,059.91	*91,935.93*	*366,700.00*	*251,000.00*	*1,189,695.84*
New SSP Wall At Boat Ramp	**1.00**	**EA**	**480,060**	**91,936**	**366,700**	**251,000**	**1,189,696**
RSM 023252500020 Mobilization and Demobilization, add to below, minimum	1.00	LS	0	0	0	50,000	50,000
			2.20	*0.14*	*0.00*	*0.00*	*2.35*
RSM 312316141450 Excavating, chain trencher, utility trench, common earth, 6" wide, 36" deep, backfill by hand, add	1,100.00	LF	2,421	159	0	0	2,581
			249.02	*17.46*	*97.00*	*0.00*	*363.48*
RSM 323213103100 Cast-in place retaining walls, reinforced concrete cantilever, 33 degree slope embankment, 10' high, includes excavation, backfill & reinforcing	1,100.00	LF	273,924	19,206	106,700	0	399,830
			140.99	*57.95*	*84.00*	*0.00*	*282.95*
RSM 353116190210 Steel sheet piling seawalls, steel sheeting, 12' high, shore driven	1,100.00	LF	155,091	63,749	92,400	0	311,240
			0.00	*0.00*	*2.00*	*0.00*	*2.00*
RSM 314116102500 Sheet piling, wales, connections and struts, 2/3 salvage	15,000.00	LB	0	0	30,000	0	30,000
			0.00	*0.00*	*0.00*	*1,000.00*	*1,000.00*
RSM 033105704000 Structural concrete, placing, pile caps, direct chute, over 10 CY, includes strike off & consolidation, includes material	201.00	CY	0	0	0	201,000	201,000
			3,000.00	*550.00*	*8,450.00*	*0.00*	*12,000.00*
RSM 032105102820 Screw anchor eye bolts, plain steel, for CIP concrete, 1" x 9" long, includes material only	16.00	EA	48,000	8,800	135,200	0	192,000
			15.59	*0.54*	*60.00*	*0.00*	*76.14*
RSM 055213500150 Railing, pipe, aluminum, clear finish, 3 rails, 3'-6" high, posts @ 5' O.C., 1-1/4" dia, shop fabricated	40.00	LF	624	22	2,400	0	3,045
			9.54	*9.11*	*21.69*	*0.32*	*40.65*
09013002 06 Riprap	**71,100.00**	**TON**	**678,220**	**647,505**	**1,541,845**	**22,800**	**2,890,370**
			9.54	*9.11*	*21.69*	*0.32*	*40.65*
Revetments	**71,100.00**	**TON**	**678,220**	**647,505**	**1,541,845**	**22,800**	**2,890,370**
(Note: The existing rock revetment is approximately 3,000 feet in length along the north side of the harbor channel between the Trident Basin and Middle Turning Basin. The estimated tonnage of rock work is 71,100 tons. The area of channel widening is referred to as Areas 9A and 9B in the survey drawings. The structure is an existing granite rock revetment extending up to the natural grade of +10 NGVD +/-.)							
			0.00	*0.00*	*0.00*	*22,800.00*	*22,800.00*
Mob/Demob	**1.00**	**EA**	**0**	**0**	**0**	**22,800**	**22,800**

Labor ID: NLS2010 EQ ID: EP09R03 Currency in US dollars TRACES MII Version 4.1

Description	Quantity	UOM	DirectLabor	DirectEQ	DirectMatl	DirectSubBid	DirectCost
			0.00	*0.00*	*0.00*	*22,800.00*	*22,800.00*
RSM 015436500900 Mobilization/Demobilization	1.00	EA	0	0	0	22,800	22,800
(Note: Per Revetment Engineer's Estimate)							
			28,062.29	*759.72*	*18,040.00*	*0.00*	*46,862.01*
Environmental Protection	**1.00**	**EA**	**28,062**	**760**	**18,040**	**0**	**46,862**
			0.33	*0.00*	*0.26*	*0.00*	*0.59*
RSM 334626100170 Geotextile Subsurface Drainage Filtration, fabric ply bonded to 3-dimensional nylon mat, ideal conditions, 0.4" thk	40,000.00	SF	13,373	0	10,400	0	23,773
			0.70	*0.00*	*0.40*	*0.00*	*1.10*
RSM 312513101100 Synthetic erosion control, silt fence, polypropylene, adverse conditions, 3' high	15,000.00	LF	10,558	0	6,000	0	16,558
			413.14	*75.97*	*164.00*	*0.00*	*653.11*
RSM 312513101200 Synthetic erosion control, place and remove hay bales	10.00	TON	4,131	760	1,640	0	6,531
			628,798.61	*634,635.05*	*0.00*	*0.00*	*1,263,433.66*
Rock Recovery/Replacement	**1.00**	**EA**	**628,799**	**634,635**	**0**	**0**	**1,263,434**
			1.50	*2.39*	*0.00*	*0.00*	*3.89*
HNC 312316440170 Excavate and load, bank measure, blasted rock, 3 -1/2 C.Y. bucket, hydraulic excavator	33,186.00	BCY	49,691	79,342	0	0	129,033
			2.02	*1.27*	*0.00*	*0.00*	*3.30*
HNC 312323180470 Hauling, excavated or borrow material, loose cubic yards, 4 mile round trip @ base wide rate, 12 C.Y. truck, highway haulers, excludes loading	33,186.00	LCY	67,185	42,164	0	0	109,349
			14.37	*14.87*	*0.00*	*0.00*	*29.24*
RSM 313713100100 Rip-rap and rock lining, random, broken stone, machine placed for slope protection	33,186.00	LCY	476,860	493,355	0	0	970,215
			1.06	*0.60*	*0.00*	*0.00*	*1.65*
HNC 312316165000 Excavating, structural, bank measure, 140 H.P., dozer, rough grade, push to stockpile	33,186.00	BCY	35,063	19,774	0	0	54,837
			21,359.18	*12,110.45*	*1,523,805.00*	*0.00*	*1,557,274.63*
New Filter Stone (Furnish & Install)	**1.00**	**EA**	**21,359**	**12,110**	**1,523,805**	**0**	**1,557,275**
			1.19	*0.67*	*84.75*	*0.00*	*86.61*
HTW 312323160041 Backfill with Crushed Stone	17,980.00	CY	21,359	12,110	1,523,805	0	1,557,275
			2,035,625.65	*2,543,290.60*	*9,335.00*	*0.00*	*4,588,251.25*
09013002 03 Upland Excavation	**1.00**	**EA**	**2,035,626**	**2,543,291**	**9,335**	**0**	**4,588,251**
			471,033.86	*458,471.11*	*3,467.50*	*0.00*	*932,972.47*

Labor ID: NLS2010 EQ ID: EP09R03 Currency in US dollars TRACES MII Version 4.1

Description	Quantity	UOM	DirectLabor	DirectEQ	DirectMatl	DirectSubBid	DirectCost
Existing Rock Revetment Removal/Replacement	**1.00**	**EA**	**471,034**	**458,471**	**3,468**	**0**	**932,972**
			4.30	*3.99*	*0.00*	*0.00*	*8.29*
HNC 312316463850 Excavating, bulk, open site, bank measure, loose rock, 140 H.P. dozer, 300' push	100,000.00	BCY	429,886	399,379	0	0	829,265
			0.29	*0.52*	*0.00*	*0.00*	*0.81*
HNC 312213103020 Rough grading, open site, large area, 300 H.P., dozer	100,000.00	BCY	28,659	52,278	0	0	80,937
			0.53	*0.26*	*0.00*	*0.00*	*0.79*
RSM 312216101020 Fine grading, loam or topsoil fine grade for large area, 15,000 S.Y. or more	18,250.00	SY	9,738	4,682	0	0	14,420
			0.15	*0.12*	*0.19*	*0.00*	*0.46*
RSM 329219131000 Seeding, mechanical seeding hydro or air seeding for large areas, includes lime, fertilizer and seed	18,250.00	SY	2,751	2,132	3,468	0	8,350
			1,564,591.79	*2,084,819.49*	*5,867.50*	*0.00*	*3,655,278.78*
Northside Channel Widener	**1.00**	**EA**	**1,564,592**	**2,084,819**	**5,868**	**0**	**3,655,279**
			3.56	*3.61*	*0.00*	*0.00*	*7.18*
RSM 312316480110 Excavation, bulk, dragline, bank measure, heavy clay, 3/4 C.Y. bucket, excavate and load on truck	354,069.00	BCY	1,261,757	1,279,306	0	0	2,541,063
			0.29	*0.52*	*0.00*	*0.00*	*0.81*
HNC 312213103020 Rough grading, open site, large area, 300 H.P., dozer	364,069.00	BCY	104,339	190,327	0	0	294,666
			0.53	*1.68*	*0.00*	*0.00*	*2.21*
HNC 312323182310 Hauling, excavated or borrow material, loose cubic yards, 1 mile round trip @ 20 MPH (4.2 cycles/hour), 40 C.Y., off highway haulers, excludes loading	364,069.00	LCY	191,720	611,536	0	0	803,256
			0.42	*0.00*	*0.40*	*0.00*	*0.82*
RSM 312513101000 Synthetic erosion control, silt fence, polypropylene, ideal conditions, 3' high	6,000.00	LF	2,507	0	2,400	0	4,907
			151.84	*151.78*	*0.00*	*0.00*	*303.62*
RSM 015436500100 Mobilization or demobilization, dozer, loader, backhoe or excavator, above 150 H.P., up to 50 miles	10.00	EA	1,518	1,518	0	0	3,036
			0.15	*0.12*	*0.19*	*0.00*	*0.46*
RSM 329219131000 Seeding, mechanical seeding hydro or air seeding for large areas, includes lime, fertilizer and seed	18,250.00	SY	2,751	2,132	3,468	0	8,350
			16,788.26	*2,970.00*	*81,000.00*	*0.00*	*100,758.26*
Chain Link Fence	**1.00**	**EA**	**16,788**	**2,970**	**81,000**	**0**	**100,758**
			5.60	*0.99*	*27.00*	*0.00*	*33.59*

Labor ID: NLS2010 EQ ID: EP09R03 Currency in US dollars TRACES MII Version 4.1

Description	Quantity	UOM	DirectLabor	DirectEQ	DirectMatl	DirectSubBid	DirectCost
RSM 323113201200 Fence, chain link industrial, aluminized steel, add for corner post, 6 ga. wire, 2-1/2" posts @ 10' OC, 8' high, 3" diameter, includes excavation, in concrete, add for corner posts	3,000.00	EA	16,788	2,970	81,000	0	100,758
			20,755.03	*9,149.30*	*10,560.00*	*3,423.42*	*43,887.75*
Monument Relocation	**1.00**	**EA**	**20,755**	**9,149**	**10,560**	**3,423**	**43,888**
			20,755.03	*9,149.30*	*10,560.00*	*3,423.42*	*43,887.75*
Submarine Monumnet	**1.00**	**EA**	**20,755**	**9,149**	**10,560**	**3,423**	**43,888**
			97.55	*11.33*	*0.00*	*0.00*	*108.88*
HNC 024113332110 Minor site demolition, concrete, unreinforced, 7" to 24" thick, remove with backhoe, excludes hauling	77.00	CY	7,511	872	0	0	8,384
			7.58	*0.58*	*6.60*	*0.00*	*14.75*
RSM 033053405250 Structural concrete, in place, lift slab (4000 psi) above the foundation, average, includes columns, forms(4 uses), reinforcing steel, concrete, placing and finishing	1,600.00	SF	12,121	925	10,560	0	23,606
			898.41	*7,228.37*	*0.00*	*0.00*	*8,126.78*
RSM 015419500500 Crane crew, daily use for small jobs, 80-ton truck-mounted hydraulic crane, portal to portal	1.00	DAY	898	7,228	0	0	8,127
(Note: Crane to relocate Submarine Sail)							
			2.92	*1.61*	*0.00*	*0.00*	*4.52*
HNC 312323184200 Hauling, rock, 12 C.Y. truck, 5 mile haul, includes loading	77.00	LCY	225	124	0	0	348
			0.00	*0.00*	*0.00*	*44.46*	*44.46*
HTW 028110301236 Commercial RCRA landfills, solid, non-hazardous, sanitary landfill	77.00	CY	0	0	0	3,423	3,423
			0.00	*0.00*	*0.00*	*2,229,227.99*	*2,229,227.99*
30 Planning, Engineering and Design	**1.00**	**EA**	**0**	**0**	**0**	**2,229,228**	**2,229,228**
			0.00	*0.00*	*0.00*	*2,229,227.99*	*2,229,227.99*
3023 Constructn Contracts(s) Documnts	**1.00**	**EA**	**0**	**0**	**0**	**2,229,228**	**2,229,228**
			0.00	*0.00*	*0.00*	*2,229,227.99*	*2,229,227.99*
302301 Plans and Specifications (P&S)	**1.00**	**EA**	**0**	**0**	**0**	**2,229,228**	**2,229,228**
			0.00	*0.00*	*0.00*	*2,229,227.99*	*2,229,227.99*
30230102 Plans and Specifications	**1.00**	**EA**	**0**	**0**	**0**	**2,229,228**	**2,229,228**
			0.00	*0.00*	*0.00*	*2,229,227.99*	*2,229,227.99*
USR 7.5 percent of Construction Cost of Remaining Work (excluding cost for Lands and Damages)	1.00	EA	0	0	0	2,229,228	2,229,228

(Note: Per Cost Engineering Appendix which indicates a total of 15 percent for PED and S&A.)

Labor ID: NLS2010 EQ ID: EP09R03 Currency in US dollars TRACES MII Version 4.1

Description	Quantity	UOM	DirectLabor	DirectEQ	DirectMatl	DirectSubBid	DirectCost
			0.00	*0.00*	*0.00*	*2,229,227.99*	*2,229,227.99*
31 Construction Management	**1.00**	**EA**	**0**	**0**	**0**	**2,229,228**	**2,229,228**
			0.00	*0.00*	*0.00*	*2,229,227.99*	*2,229,227.99*
3123 Construction Contracts	**1.00**	**EA**	**0**	**0**	**0**	**2,229,228**	**2,229,228**
			0.00	*0.00*	*0.00*	*2,229,227.99*	*2,229,227.99*
312311 Supervision and Administration	**1.00**	**EA**	**0**	**0**	**0**	**2,229,228**	**2,229,228**
			0.00	*0.00*	*0.00*	*2,229,227.99*	*2,229,227.99*
31231103 District Office S&A Documents	**1.00**	**EA**	**0**	**0**	**0**	**2,229,228**	**2,229,228**
(Note: Technical Management S&A All Other District Office S&A)							
			0.00	*0.00*	*0.00*	*2,229,227.99*	*2,229,227.99*
USR 7.5 percent of Construction Cost of Remaining Work (excluding cost for Lands and Damages)	1.00	EA	0	0	0	2,229,228	2,229,228

(Note: Per Cost Engineering Appendix which indicates a total of 15 percent for PED and S&A.)

Labor ID: NLS2010 EQ ID: EP09R03 Currency in US dollars TRACES MII Version 4.1

PORT CANAVERAL DEEPENING AND WIDENING
BUCKET DREDGE PRODUCTION ESTIMATE RECAP - VOLUMES UPDATED 2011
CH2M HILL, INC.
Nov. 2011
Estimated By: J. McWilliams

Dredge Area	Grade + OD MLLW	Available to Grade CY	Available Overdepth CY	Total Available CY	Removed to Grade CY	Removed Overdepth CY	Total Removed CY	Production per Day Paid CY/Day	Duration Weeks	Unit Price/Area $/CY
13-OR	-46 + 2	0	629,041	629,041	0	629,041	629,041	9,897	9.1	$ 6.26
11-MR; 12-MRW; 9B-NCW	-46 + 2	796,605	602,918	1,399,523	796,605	602,918	1,399,523	13,408	14.9	$ 4.62
10-IR; 9A-NCW	-44 + 1	508,689	91,643	600,332	508,689	91,643	600,332	10,730	8.0	$ 5.77
7-WAC; 8-MTB; 6B-BC	-43 + 1	192,822	123,305	316,127	192,822	123,305	316,127	9,272	4.9	$ 6.68
6A-BC	-35 + 1	113,501	7,733	121,234	113,501	7,733	121,234	12,975	1.3	$ 4.77
S. Jetty Sediment Trap	-46 + 2	26,300	17,500	43,800	26,300	17,500	43,800	9,339	0.7	$ 6.63
Totals		**1,637,917**	**1,472,140**	**3,110,057**	**1,637,917**	**1,472,140**	**3,110,057**		**38.9**	

Unit Price Calculation, Dredging

Duration, Weeks	38.9		
Weekly Cost	$ 433,596	*See "Cost" Tab*	
Total Cost, Dredging (Weekly Cost X Wks)	$ 16,849,809		
Quantity/Unit Price	3,110,057	$ 5.418	Per CY

Summary

Description	Quantity	Unit	Unit Price	Total
Mobilization/Demobilization	**1**	**LS**		**$ 1,781,000**
Dredging and Disposal	**3,110,057**	**CY**	**$ 5.42**	**$ 16,856,509**
TOTAL				**$ 18,637,509**

PORT CANAVERAL DEEPENING AND WIDENING
BUCKET DREDGE PRODUCTION ESTIMATE RECAP - VOLUMES UPDATE
CH2M HILL, INC.
ADJUSTMENTS TO COST ESTIMATE 2011
Nov. 2011

Update	Description
1	Fuel price increased to $3.05 per gallon, based on prices for 50,000 gallon lots (Marine Diesel), July - September, FOB Port Canaveral, FL.
2	Economic index for equipment costs updated for 2011 based on EP 1110-1-8, Appendix E (value = 8102 for marine equipment), November 2009
3	Labor costs updated based on Davis-Bacon Wages for Heavy Construction/Dredging, Brevard County, FL (latest decision), + benefits and vacation
4	Marine insurance costs (Hull and Machinery, Protection and Indemnity) updated based on quote from Marsh-McLennan, Inc., New Orleans, LA
5	Production rates were adjusted based on updated quantities, slope dredging, and adjusted average bank heights
6	Sales tax rate adjusted for 2011 (6% sales tax)
7	Cost of Money rate adjusted for June - December 2011 (2.5%)

PORT CANAVERAL DEEPENING AND WIDENING
BUCKET DREDGE PRODUCTION ESTIMATE
CH2M HILL, INC. **Nov. 2011**

Equipment Costs (Calculated using "CkRate")

Equipment	Monthly	Weekly	Daily
Large Clamshell Dredge (24 CY and up)	$ 294,255	$ 67,957	$ 9,708
Dump Scow, 5000 CY	$ 84,475	$ 19,509	$ 2,787
Dump Scow, 5000 CY	$ 84,475	$ 19,509	$ 2,787
Tender Tug, 1500 HP	$ 164,345	$ 37,955	$ 5,422
Survey Vessel, 24 Ft.	$ 32,506	$ 7,507	$ 1,072
Towing Vessel, 3000 HP+ (Charter)	$ 347,165	$ 80,177	$ 11,454
Labor Costs (Dredging)	$ 355,069	$ 82,002	$ 11,715
Totals, Ownership & Operating Costs	**$ 1,362,290**	**$ 314,617**	**$ 44,945**

Supervision and Survey/Management Costs

Item		Monthly	Weekly	Daily
Project Management		$ 108,351	$ 25,023	$ 3,575
Manatee Observers		$ 22,733	$ 5,250	$ 750
Office Costs		$ 4,000	$ 924	$ 132
Vehicles	6 Each	$ 5,456	$ 1,260	$ 180
Survey Equipment		$ 5,000	$ 1,155	$ 165
Office Equipment		$ 1,000	$ 231	$ 33
Consumables		$ 1,000	$ 231	$ 33
Totals, Management Expenses		**$ 147,539**	**$ 34,074**	**$ 4,868**

Total Job Costs		$ 1,509,829	$ 348,690	$ 49,813
Overhead	16.0%	$ 241,573	$ 55,790	$ 7,970
Profit	8.4%	$ 126,071	$ 29,116	$ 4,159
Subtotal Cost, Dredging Operations		**$ 1,877,472**	**$ 433,596**	**$ 61,942**
Grand Total, Dredging Operations		**$ 1,877,472**	**$ 433,596**	**$ 61,942**

Mobilization and Demobilization

Item	Distance/Qty.	Number	Unit	Rate	Total Cost
Bonds			1.0	$ 160,000	$ 160,000
Project Startup			10.0	$ 4,868	$ 48,677
Tow Dredge	1,000	5	8.3	$ 11,454	$ 95,448
Dredge Hire Under Tow	1,000	5	8.3	$ 7,767	$ 64,721
Tow Scows (Tandem)	1,000	5	8.3	$ 11,454	$ 95,448
Lightboat Back	1,000	10	4.2	$ 11,454	$ 47,724
Scow Hire Under Tow	1,000	5	8.3	$ 4,459	$ 37,160
Mobilize Tender	1,000	10	4.2	$ 5,422	$ 22,592
Mobilize Survey Vessel			5.0	$ 1,000	$ 5,000
Set up on site			4.0	$ 49,813	$ 199,252
Dismantle			4.0	$ 49,813	$ 199,252
Tow Dredge	1,000	5	8.3	$ 11,454	$ 95,448
Dredge Hire Under Tow	1,000	5	8.3	$ 7,767	$ 64,721
Tow Scows (Tandem)	1,000	5	8.3	$ 11,454	$ 95,448
Lightboat Up	1,000	10	4.2	$ 11,454	$ 47,724
Scow Hire Under Tow	1,000	5	8.3	$ 4,459	$ 37,160
Demobilize Tender	1,000	10	4.2	$ 5,422	$ 22,592
Demobilize Survey Vessel			5.0	$ 1,000	$ 5,000
Project Closure			15.0	$ 4,868	$ 73,015

Subtotal, Mob/Demob		$ 1,416,385
Overhead	16.0%	$ 226,622
Profit	8.4%	$ 137,191
Subtotal Cost, Mob/Demob		**$ 1,780,197**
Grand Total, Mob/Demob		**$ 1,780,197**

Cost Basis, Equipment Cost (Per USACE Methods)

Item	Basis
Large Clamshell Dredge (24 CY and up)	Plant Value $5.5M in 1985
Dump Scow, 5000 CY	Plant Value $7.0M in 2000
Dump Scow, 5000 CY	Plant Value $7.0M in 2000
Tender Tug, 1500 HP	Plant Value $1.0M in 1990
Survey Vessel, 24 Ft.	Plant Value $100K in 2000
Towing Vessel, 3000 HP+ (Charter)	Plant Value $2.0M in 1990
Labor Costs (Dredging)	Davis Bacon Brevard Co.

SADDM 1110-1-1 Profit guidelines

Risk	0.07	20%	1.4%
Difficulty	0.10	15%	1.5%
Size	0.03	15%	0.5%
Duration	0.07	15%	1.1%
Investment	0.12	5%	0.6%
Govt. Asst.	0.07	5%	0.4%
Subcontract	0.12	25%	3.0%
Contractor's Profit:			8.4%

PORT CANAVERAL DEEPENING AND WIDENING

Dredge Area	**13-OR**	

Parameter	Depth	Volume (CY)
Grade MLLW	-46.0	-
Allowable OD	2.0	629,041
Total Volume (CY)		629,041

Dredge Parameters

Dredge Area (SF)	SF	8,738,000
Length (LF)	LF	21,500
Avg. CY/LF	CY/LF	29.3
Avg. Width (Ft)	Ft	406.4
Cut Width (Ft)	Ft	80.0
Setting Distance (Ft)	Ft	40.0
Avg. Top El	MLLW	-46.0
Avg. Dredge El.	MLLW	-48.0
Cut	Ft	2.0
Avg. CY/Set	CY	230.4

Bucket Volume	CY	26.0
Bucket Area	SF	260.0
Fill Efficiency	%	0.8
Volume/Set	CY	19.3
No. Buckets/Set	Ea	12.0

Cycle Time	Min	1.2
Dredge time/set	Min	14.6
Set time	Min	5.0
Total Time/Set	Min	19.6
No. Sets	Ea	2,730.6
Total Oper Time	NOH	889.9

Daily Working Time	NOH/Day	14.0
No. Days Required	Days	63.6

Production/Day	**CY/Day**	**9,896.6**
Daily Operating Cost		**$ 61,942.34**
Cost/CY		**$ 6.26**

Category	Weekly Hrs	Pct	Day
Weather	16.0	10%	2.3
Scow Chg	10.5	6%	1.5
Traffic	10.5	6%	1.5
Crew Chg	7.0	4%	1.0
Mechanical	12.0	7%	1.7
Repairs	12.0	7%	1.7
Relocating	2.0	1%	0.3

Delays, Day	10.0
NOH Day	14.0

PORT CANAVERAL DEEPENING AND WIDENING

Dredge Area	**11-MR; 12-MRW; 9B-NCW**

Parameter	Depth	Volume (CY)
Grade MLLW	-46.0	796,605
Allowable OD	2.0	602,918
Total Volume (CY)		1,399,523

Dredge Parameters

Dredge Area (SF)	SF	7,427,000
Length (LF)	LF	12,700
Avg. CY/LF	CY/LF	110.2
Avg. Width (Ft)	Ft	584.8
Cut Width (Ft)	Ft	80.0
Setting Distance (Ft)	Ft	40.0
Avg. Top El	MLLW	-43.1
Avg. Dredge El.	MLLW	-48.0
Bank Height	Ft	4.9
Avg. CY/Set	CY	603.0

Bucket Volume	CY	26.0
Bucket Area	SF	260.0
Fill Efficiency	%	0.8
Avail. Volume/Set	CY	47.1
No. Buckets/Set	Ea	29.0

Cycle Time	Min	1.2
Dredge time/set	Min	35.3
Set time	Min	5.0
Total Time/Set	Min	40.3
No. Sets	Ea	2,321.0
Total Oper Time	NOH	1,558.3
Daily Working Time	NOH/Day	14.9
No. Days Required	Days	104.4
Production/Day	**CY/Day**	**13,407.5**
Daily Operating Cost		**$ 61,942.34**
Cost/CY		**$ 4.62**

Category	Weekly Hrs	Pct	Day
Weather	12.0	7%	1.7
Scow Chg	10.5	6%	1.5
Traffic	8.0	5%	1.1
Crew Chg	7.0	4%	1.0
Mechanical	12.0	7%	1.7
Repairs	12.0	7%	1.7
Relocating	2.0	1%	0.3
	Delays, Day		9.1
	NOH Day		14.9

PORT CANAVERAL DEEPENING AND WIDENING

Dredge Area	**10-IR; 9A-NCW**

Parameter	Depth	Volume (CY)
Grade MLLW	-44.0	508,689
Allowable OD	1.0	91,643
Total Volume (CY)		600,332

Dredge Parameters

Dredge Area (SF)	SF	1,755,000
Length (LF)	LF	3,300
Avg. CY/LF	CY/LF	181.9
Avg. Width (Ft)	Ft	531.8
Cut Width (Ft)	Ft	80.0
Setting Distance (Ft)	Ft	40.0
Avg. Top El	MLLW	-36.2
Avg. Dredge El.	MLLW	-45.0
Bank Height	Ft	8.8
Avg. CY/Set	CY	1,094.6

Bucket Volume	CY	18.0
Bucket Area	SF	180.0
Fill Efficiency	%	0.8
Avail. Volume/Set	CY	58.8
No. Buckets/Set	Ea	77.0

Cycle Time	Min	1.2
Dredge time/set	Min	92.4
Set time	Min	5.0
Total Time/Set	Min	97.4
No. Sets	Ea	549.0
Total Oper Time	NOH	891.2
Daily Working Time	NOH/Day	15.9
No. Days Required	Days	56.0
Production/Day	**CY/Day**	**10,729.7**
Daily Operating Cost		**$ 61,942.34**
Cost/CY		**$ 5.77**

Category	Weekly Hrs	Pct	Day
Weather	7.0	4%	1.0
Scow Chg	10.5	6%	1.5
Traffic	6.0	4%	0.9
Crew Chg	7.0	4%	1.0
Mechanical	12.0	7%	1.7
Repairs	12.0	7%	1.7
Relocating	2.0	1%	0.3
	Delays, Day		8.1
	NOH Day		15.9

PORT CANAVERAL DEEPENING AND WIDENING

Dredge Area	**7-WAC; 8-MTB; 6B-BC**	

Parameter	Depth	Volume (CY)
Grade MLLW	-43.0	192,822
Allowable OD	1.0	123,305
Total Volume (CY)		316,127

Dredge Parameters

Dredge Area (SF)	SF	3,920,000
Length (LF)	LF	4,200
Avg. CY/LF	CY/LF	75.3
Avg. Width (Ft)	Ft	933.3
Cut Width (Ft)	Ft	80.0
Setting Distance (Ft)	Ft	40.0
Avg. Top El	MLLW	-41.7
Avg. Dredge El.	MLLW	-44.0
Bank Height	Ft	2.3
Avg. CY/Set	CY	258.1

Bucket Volume	CY	18.0
Bucket Area	SF	180.0
Fill Efficiency	%	0.8
Avail. Volume/Set	CY	15.5
No. Buckets/Set	Ea	18.0

Cycle Time	Min	1.2
Dredge time/set	Min	21.6
Set time	Min	5.0
Total Time/Set	Min	26.6
No. Sets	Ea	1,225.0
Total Oper Time	NOH	543.1
Daily Working Time	NOH/Day	15.9
No. Days Required	Days	34.1
Production/Day	**CY/Day**	**9,272.0**
Daily Operating Cost		**$ 61,942.34**
Cost/CY		**$ 6.68**

Category	Weekly Hrs	Pct	Day
Weather	7.0	4%	1.0
Scow Chg	10.5	6%	1.5
Traffic	6.0	4%	0.9
Crew Chg	7.0	4%	1.0
Mechanical	12.0	7%	1.7
Repairs	12.0	7%	1.7
Relocating	2.0	1%	0.3
	Delays, Day		8.1
	NOH Day		15.9

PORT CANAVERAL DEEPENING AND WIDENING

Dredge Area	**6A-BC**

Parameter	Depth	Volume (CY)
Grade MLLW	-35.0	113,501
Allowable OD	1.0	7,733
Total Volume (CY)		121,234

Dredge Parameters

Dredge Area (SF)	SF	300,000
Length (LF)	LF	2,700
Avg. CY/LF	CY/LF	44.9
Avg. Width (Ft)	Ft	111.1
Cut Width (Ft)	Ft	80.0
Setting Distance (Ft)	Ft	40.0
Avg. Top El	MLLW	-24.8
Avg. Dredge El.	MLLW	-36.0
Bank Height	Ft	11.2
Avg. CY/Set	CY	1,293.2

Bucket Volume	CY	18.0
Bucket Area	SF	180.0
Fill Efficiency	%	0.8
Avail. Volume/Set	CY	74.8
No. Buckets/Set	Ea	90.0

Cycle Time	Min	1.0
Dredge time/set	Min	90.0
Set time	Min	5.0
Total Time/Set	Min	95.0
No. Sets	Ea	94.0
Total Oper Time	NOH	148.8
Daily Working Time	NOH/Day	15.9
No. Days Required	Days	9.3
Production/Day	**CY/Day**	**12,974.8**
Daily Operating Cost		**$ 61,942.34**
Cost/CY		**$ 4.77**

Category	Weekly Hrs	Pct	Day
Weather	7.0	4%	1.0
Scow Chg	10.5	6%	1.5
Traffic	6.0	4%	0.9
Crew Chg	7.0	4%	1.0
Mechanical	12.0	7%	1.7
Repairs	12.0	7%	1.7
Relocating	2.0	1%	0.3
	Delays, Day		8.1
	NOH Day		15.9

PORT CANAVERAL DEEPENING AND WIDENING

Dredge Area	**S Jetty Sediment Trap**

Parameter	Depth	Volume (CY)
Grade MLLW	-46.0	26,300
Allowable OD	2.0	17,500
Total Volume (CY)		43,800

Dredge Parameters

Dredge Area (SF)	SF	260,000
Length (LF)	LF	1,000
Avg. CY/LF	CY/LF	43.8
Avg. Width (Ft)	Ft	260.0
Cut Width (Ft)	Ft	80.0
Setting Distance (Ft)	Ft	40.0
Avg. Top El	MLLW	-43.3
Avg. Dredge El.	MLLW	-48.0
Bank Height	Ft	4.7
Avg. CY/Set	CY	539.1

Bucket Volume	CY	18.0
Bucket Area	SF	180.0
Fill Efficiency	%	0.8
Avail. Volume/Set	CY	31.5
No. Buckets/Set	Ea	38.0

Cycle Time	Min	1.2
Dredge time/set	Min	46.2
Set time	Min	5.0
Total Time/Set	Min	51.2
No. Sets	Ea	82.0
Total Oper Time	NOH	70.0
Daily Working Time	NOH/Day	14.9
No. Days Required	Days	4.7
Production/Day	**CY/Day**	**9,338.5**
Daily Operating Cost		**$ 61,942.34**
Cost/CY		**$ 6.63**

Category	Weekly Hrs	Pct	Day
Weather	12.0	7%	1.7
Scow Chg	10.5	6%	1.5
Traffic	8.0	5%	1.1
Crew Chg	7.0	4%	1.0
Mechanical	12.0	7%	1.7
Repairs	12.0	7%	1.7
Relocating	2.0	1%	0.3
	Delays, Day		9.1
	NOH Day		14.9

PORT CANAVERAL DEEPENING AND WIDENING
BUCKET DREDGE PRODUCTION ESTIMATE
CH2M HILL, INC.
Nov. 2011

No. of Employees	No. of Sub. Employees	Classification	Hours per Week	Weekly/Hourly Rate	Total Weekly	Total Daily	Total Monthly	Fringes Monthly $ 6.50	Vacation Monthly 8%
1	1	Captain	84	$ 29.00	$ 2,436.00	$ 348.00	$ 10,547.88	$ 2,364.18	$ 843.83
3	2	Operator	106	$ 28.20	$ 8,967.60	$ 1,281.09	$ 38,829.71	$ 4,728.36	$ 3,106.38
3	2	Mate	106	$ 22.58	$ 7,180.44	$ 1,025.78	$ 31,091.31	$ 4,728.36	$ 2,487.30
6	4	Deckhand	106	$ 18.26	$ 11,613.36	$ 1,659.05	$ 50,285.85	$ 9,456.72	$ 4,022.87
3	2	Mechanic	106	$ 24.70	$ 7,854.60	$ 1,122.09	$ 34,010.42	$ 4,728.36	$ 2,720.83
6	4	Boatman	106	$ 24.70	$ 15,709.20	$ 2,244.17	$ 68,020.84	$ 9,456.72	$ 5,441.67
	15								
					$ 53,761.20	$ 7,680.17	$ 232,786.00	$ 35,462.70	$ 18,622.88

Total Labor		$ 232,786.00
Fringes		$ 35,462.70
Vacation		$ 18,622.88
Per Diem/Travel	$ 150.00	$ 68,197.50
Total Per Month		$ 355,069.08
Total Per Week		$ 82,002.10
Total Per Day		$ 11,714.59

Note: Rates and fringes from Davis-Bacon Wage Rates, Brevard County, FL

Management Costs	Yearly Salary	Benefits	Monthly
Project Manager	$ 100,000	$ 140,000	$ 11,667
Project Engineer	$ 80,000	$ 112,000	$ 9,333
Engineer	$ 70,000	$ 98,000	$ 8,167
Survey	$ 60,000	$ 84,000	$ 7,000
Survey	$ 60,000	$ 84,000	$ 7,000
QC/Survey	$ 75,000	$ 105,000	$ 8,750
Superintendent	$ 90,000	$ 126,000	$ 10,500
Office Assistant	$ 30,000	$ 42,000	$ 3,500
Travel & Per Diem	7	$ 200	$ 42,434
Total, Management			$ 108,351

**** TOTAL PROJECT COST SUMMARY ****

PROJECT: Canaveral Harbor, Section 203 Study
LOCATION: Port Canaveral, Brevard County, Florida

DISTRICT: SAJ Jacksonville PREPARED: 9/10/2012
POC: CHIEF, COST ENGINEERING, Tracy T. Leeser, P.E.

This Estimate reflects the scope and schedule in report; Integrated Section 203 Navigation Study Report

Program Year (Budget EC): 2012
Effective Price Level Date: 1 OCT 11

		ESTIMATED COST				PROJECT FIRST COST				TOTAL PROJECT COST (FULLY FUNDED)				
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	**TOTAL ($K)**	Spent Thru: 12-Dec-11 ($K)		COST ($K)	CNTG ($K)	FULL ($K)
A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*	*K*	*L*	*M*	*N*	*O*
	#N/A		-			-								
12	NAVIGATION PORTS & HARBORS	$29,723	$6,233	21%	$35,956		$29,723	$6,233	**$35,956**	$ 13,775		$30,820	$6,463	$51,058
	CONSTRUCTION ESTIMATE TOTALS:	$29,723	$6,233		**$35,956**		$29,723	$6,233	**$35,956**	$ 13,775		$30,820	$6,463	$51,058
01	LANDS AND DAMAGES		-			-								
30	PLANNING, ENGINEERING & DESIGN	$2,229	$467	21%	$2,697		$2,229	$467	**$2,697**			$2,267	$475	$2,743
31	CONSTRUCTION MANAGEMENT	$2,229	$467	21%	$2,697		$2,229	$467	**$2,697**			$2,400	$503	$2,904
	PROJECT COST TOTALS:	$34,181	$7,168	21%	**$41,349**		$34,181	$7,168	**$41,349**	$ 13,775		$35,488	$7,442	$56,705

______________________ CHIEF, COST ENGINEERING, Tracy T. Leeser, P.E.

______________________ PROJECT MANAGER, Osvaldo Rodriguez, P.E.

______________________ CHIEF, REAL ESTATE, Clyde H. Sellers

______________________ CHIEF, PLANNING, Stuart J. Appelbaum, P.E.

______________________ CHIEF, ENGINEERING, Luis A. Ruiz, P.E.

______________________ CHIEF, OPERATIONS, Jim W. Jeffords, P.E.

______________________ CHIEF, CONSTRUCTION, Jack Rintoul, P.E., PMP

______________________ CHIEF, CONTRACTING, Cynthia S. Tolle

______________________ CHIEF, PM-PB, Karen.S.Tippett

______________________ CHIEF, DPM, David S. Hobbie, PMP

ESTIMATED FEDERAL COST:	65%	**$36,858**
ESTIMATED NON-FEDERAL COST:	35%	**$19,847**
ESTIMATED TOTAL PROJECT COST:		**$56,705**

Percentage basis:
Navigation Depths 20'-45' @ 75/25
Navigation Depths 45' & greater 50/50
Lands & damages 100% non-federal
Aids to Navigation 100% federal

O&M OUTSIDE OF TOTAL PROJECT COST:

**** TOTAL PROJECT COST SUMMARY ****

**** CONTRACT COST SUMMARY ****

PROJECT: Canaveral Harbor, Section 203 Study
LOCATION: Port Canaveral, Brevard County, Florida
This Estimate reflects the scope and schedule in report; Integrated Section 203 Navigation Study Report

DISTRICT: SAJ Jacksonville PREPARED: 9/10/2012
POC: CHIEF, COST ENGINEERING, Tracy T. Leeser, P.E.

Estimate Prepared: 12-Dec-11
Effective Price Level: 12-Dec-11

Program Year (Budget EC): 2012
Effective Price Level Date: 1 OCT 11

FULLY FUNDED PROJECT ESTIMATE

WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	RISK BASED CNTG (%) 20.97	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	TOTAL ($K)	Mid-Point Date	ESC (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	*B*	*C*	*D*	*20.97*	*F*	*G*	*H*	*I*	*J*	*P*	*L*	*M*	*N*	*O*
	REMAINING CONSTRUCTION BY PORT													
	#N/A													
12	NAVIGATION PORTS & HARBORS	$29,723	$6,233	21%	$35,956		$29,723	$6,233	$35,956	2014Q2	3.7%	$30,820	$6,463	$37,283
	CONSTRUCTION ESTIMATE TOTALS:	$29,723	$6,233	21%	**$35,956**		$29,723	$6,233	$35,956			$30,820	$6,463	$37,283
01	LANDS AND DAMAGES													
30	PLANNING, ENGINEERING & DESIGN													
	Project Management													
	Planning & Environmental Compliance													
7.5%	Engineering & Design	$2,229	$467	21%	$2,697		$2,229	$467	$2,697	2012Q4	1.7%	$2,267	$475	$2,743
	Engineering Tech Review ITR & VE													
	Contracting & Reprographics													
	Engineering During Construction													
	Planning During Construction													
	Project Operations													
31	CONSTRUCTION MANAGEMENT													
7.5%	Construction Management	$2,229	$467	21%	$2,697		$2,229	$467	$2,697	2014Q2	7.7%	$2,400	$503	$2,904
	Project Operation:													
	Project Management													
	CONTRACT COST TOTALS:	$34,181	$7,168		**$41,349**		$34,181	$7,168	$41,349			$35,488	$7,442	**$42,929**

Canaveral Harbor, Florida - Section 203 Study REV 9-11-2012

Estimated by	Jeff McWilliams
Designed by	Jim Moore
Prepared by	Kathleen Roy
Preparation Date	9/11/2012
Effective Date of Pricing	9/11/2012
Estimated Construction Time	400 Days

Designed by
Jim Moore
Estimated by
Jeff McWilliams
Prepared by
Kathleen Roy

Design Document	
Document Date	9/11/2012
District	
Contact	Jim Moore
Budget Year	2012
UOM System	Original

Direct Costs
LaborCost
EQCost
MatlCost
SubBidCost

Timeline/Currency

Preparation Date	9/11/2012
Escalation Date	9/11/2012
Eff. Pricing Date	9/11/2012
Estimated Duration	400 Day(s)
Currency	US dollars
Exchange Rate	1.000000

Costbook CB10EB: MII English Cost Book 2010

Labor NLS2010: National Labor Library - Seattle 2010

wdol.gov is the website for current Davis Bacon & Service Labor Rates. Fringes paid to the laborers are taxable. In a non-union job the whole fringes are taxable. In a union job, the vacation pay fringes i

Labor Rates
LaborCost1
LaborCost2
LaborCost3
LaborCost4

Equipment EP09R03: MII Equipment Region 3 2009

03 SOUTHEAST

Sales Tax	8.50
Working Hours per Year	1,530
Labor Adjustment Factor	0.86
Cost of Money	2.50
Cost of Money Discount	25.00
Tire Recap Cost Factor	1.50
Tire Recap Wear Factor	1.80
Tire Repair Factor	0.15
Equipment Cost Factor	1.00
Standby Depreciation Factor	0.50

Fuel

Electricity	0.089
Gas	2.950
Diesel Off-Road	3.040
Diesel On-Road	3.490

Shipping Rates

Over 0 CWT	14.96
Over 240 CWT	13.61
Over 300 CWT	11.62
Over 400 CWT	9.72
Over 500 CWT	5.42
Over 700 CWT	5.42
Over 800 CWT	8.01

Labor ID: NLS2010 EQ ID: EP09R03 Currency in US dollars TRACES MII Version 4.1

Description	Quantity	UOM	CostToPrime	PrimeCMU	ContractCost	Escalation	Contingency	SIOH	ProjectCost
Project Cost Summary Report			47,956,558.86	0.00	47,956,558.86	0.00	0.00	0.00	47,956,558.86
Completed Work	1.0000	EA	13,775,063.00	0.00	13,775,063.00	0.00	0.00	0.00	13,775,063.00
Port Work	1.0000	EA	13,775,063.00	0.00	13,775,063.00	0.00	0.00	0.00	13,775,063.00
Work Completed By the Port	1.0000	EA	13,775,063.00	0.00	13,775,063.00	0.00	0.00	0.00	13,775,063.00
Remaining Work	1.0000	EA	34,181,495.86	0.00	34,181,495.86	0.00	0.00	0.00	34,181,495.86
12 Navigation Ports & Harbors	1.0000	EA	29,723,039.88	0.00	29,723,039.88	0.00	0.00	0.00	29,723,039.88
1201 Ports	1.0000	EA	27,714,777.88	0.00	27,714,777.88	0.00	0.00	0.00	27,714,777.88
120115 Mechanical Dredging	1.0000	EA	18,637,508.94	0.00	18,637,508.94	0.00	0.00	0.00	18,637,508.94
12011502 Site Work	1.0000	EA	18,637,508.94	0.00	18,637,508.94	0.00	0.00	0.00	18,637,508.94
120101 Mob, Demob & Preparatory Work	1.0000	EA	1,781,000.00	0.00	1,781,000.00	0.00	0.00	0.00	1,781,000.00
12011502 01 Mechanical Dredging	1.0000	EA	16,856,508.94	0.00	16,856,508.94	0.00	0.00	0.00	16,856,508.94
120199 Associated General Items	1.0000	EA	9,077,268.94	0.00	9,077,268.94	0.00	0.00	0.00	9,077,268.94
090130 Site Work	1.0000	EA	9,033,381.19	0.00	9,033,381.19	0.00	0.00	0.00	9,033,381.19
Boresight Tower Guy Foundation Demolition	1.0000	EA	17,266.60	0.00	17,266.60	0.00	0.00	0.00	17,266.60
Sign Relocation	1.0000	EA	57,038.94	0.00	57,038.94	0.00	0.00	0.00	57,038.94
09019902 02 Dolphins	1.0000	EA	190,000.00	0.00	190,000.00	0.00	0.00	0.00	190,000.00
09013002 09 Steel Sheet Piling	1.0000	EA	1,189,695.84	0.00	1,189,695.84	0.00	0.00	0.00	1,189,695.84
New SSP Wall At Boat Ramp	1.0000	EA	1,189,695.84	0.00	1,189,695.84	0.00	0.00	0.00	1,189,695.84
09013002 06 Riprap	71,100.0000	TON	2,890,370.30	0.00	2,890,370.30	0.00	0.00	0.00	2,890,370.30
Revetments	71,100.0000	TON	2,890,370.30	0.00	2,890,370.30	0.00	0.00	0.00	2,890,370.30
Mob/Demob	1.0000	EA	22,800.00	0.00	22,800.00	0.00	0.00	0.00	22,800.00
Environmental Protection	1.0000	EA	46,862.01	0.00	46,862.01	0.00	0.00	0.00	46,862.01
Rock Recovery/Replacement	1.0000	EA	1,263,433.66	0.00	1,263,433.66	0.00	0.00	0.00	1,263,433.66
New Filter Stone (Furnish & Install)	1.0000	EA	1,557,274.63	0.00	1,557,274.63	0.00	0.00	0.00	1,557,274.63
09013002 03 Upland Excavation	1.0000	EA	4,588,251.25	0.00	4,588,251.25	0.00	0.00	0.00	4,588,251.25
Existing Rock Revetment Removal/Replacement	1.0000	EA	932,972.47	0.00	932,972.47	0.00	0.00	0.00	932,972.47
Northside Channel Widener	1.0000	EA	3,655,278.78	0.00	3,655,278.78	0.00	0.00	0.00	3,655,278.78
Chain Link Fence	1.0000	EA	100,758.26	0.00	100,758.26	0.00	0.00	0.00	100,758.26
Monument Relocation	1.0000	EA	43,887.75	0.00	43,887.75	0.00	0.00	0.00	43,887.75
Submarine Monumnet	1.0000	EA	43,887.75	0.00	43,887.75	0.00	0.00	0.00	43,887.75

Currency in US dollars

Description	Quantity	UOM	CostToPrime	PrimeCMU	ContractCost	Escalation	Contingency	SIOH	ProjectCost
Navigation Aids	**1.0000**	**EA**	**2,008,262.00**	**0.00**	**2,008,262.00**	**0.00**	**0.00**	**0.00**	**2,008,262.00**
Inbound/Outbound Navigation Aids	**1.0000**	**EA**	**1,975,000.00**	**0.00**	**1,975,000.00**	**0.00**	**0.00**	**0.00**	**1,975,000.00**
West Surge Warning Sign Replacement	**1.0000**	**EA**	**33,262.00**	**0.00**	**33,262.00**	**0.00**	**0.00**	**0.00**	**33,262.00**
30 Planning, Engineering and Design	**1.0000**	**EA**	**2,229,227.99**	**0.00**	**2,229,227.99**	**0.00**	**0.00**	**0.00**	**2,229,227.99**
3023 Constructn Contracts(s) Documnts	**1.0000**	**EA**	**2,229,227.99**	**0.00**	**2,229,227.99**	**0.00**	**0.00**	**0.00**	**2,229,227.99**
302301 Plans and Specifications (P&S)	**1.0000**	**EA**	**2,229,227.99**	**0.00**	**2,229,227.99**	**0.00**	**0.00**	**0.00**	**2,229,227.99**
30230102 Plans and Specifications	**1.0000**	**EA**	**2,229,227.99**	**0.00**	**2,229,227.99**	**0.00**	**0.00**	**0.00**	**2,229,227.99**
31 Construction Management	**1.0000**	**EA**	**2,229,227.99**	**0.00**	**2,229,227.99**	**0.00**	**0.00**	**0.00**	**2,229,227.99**
3123 Construction Contracts	**1.0000**	**EA**	**2,229,227.99**	**0.00**	**2,229,227.99**	**0.00**	**0.00**	**0.00**	**2,229,227.99**
312311 Supervision and Administration	**1.0000**	**EA**	**2,229,227.99**	**0.00**	**2,229,227.99**	**0.00**	**0.00**	**0.00**	**2,229,227.99**
31231103 District Office S&A Documents	**1.0000**	**EA**	**2,229,227.99**	**0.00**	**2,229,227.99**	**0.00**	**0.00**	**0.00**	**2,229,227.99**

Currency in US dollars

Description	Quantity	UOM	DirectLabor	DirectEQ	DirectMatl	DirectSubBid	DirectCost	CostToPrime	ContractCost
Detail Base Bid			**3,287,829.53**	**3,306,900.99**	**2,015,315.00**	**39,346,513.34**	**47,956,558.86**	**47,956,558.86**	**47,956,558.86**
Completed Work	**1.0**	**EA**	**0.00**	**0.00**	**0.00**	**13,775,063.00**	**13,775,063.00**	**13,775,063.00**	**13,775,063.00**
Port Work	**1.0**	**EA**	**0.00**	**0.00**	**0.00**	**13,775,063.00**	**13,775,063.00**	**13,775,063.00**	**13,775,063.00**
Work Completed By the Port	**1.0**	**EA**	**0.00**	**0.00**	**0.00**	**13,775,063.00**	**13,775,063.00**	**13,775,063.00**	**13,775,063.00**
(Note: The West Turning Basin (WTB) Corner Cut-Off (CCO) and Grouper Road relocation have been constructed in advance by the Canaveral Port Authority. This work precedes the Section 203 project out of necessity to accommodate classes of vessels smaller in size than the Section 203 design vessels, but greater than vessels currently calling on, or home-porting at Port Canaveral. Starting in September 2008, through completion in September 2011, the Canaveral Port Authority competitively bid and awarded contracts for construction of the Grouper Road relocation and CCO.)									
Interim Corner Cut Off	1.0	EA	0.00	0.00	0.00	7,028,340.00	7,028,340.00	7,028,340.00	7,028,340.00
(Note: Results of Actual Contracts Awarded plus Engineering & Design Cost)									
Corner Cut Off Phase 2	1.0	EA	0.00	0.00	0.00	6,292,539.00	6,292,539.00	6,292,539.00	6,292,539.00
(Note: Results of Actual Contracts Awarded plus Engineering & Design Cost)									
Grouper Road Relocation	1.0	EA	0.00	0.00	0.00	454,184.00	454,184.00	454,184.00	454,184.00
(Note: Results of Actual Contracts Awarded plus Engineering & Design Cost)									
Remaining Work	**1.0**	**EA**	**3,287,829.53**	**3,306,900.99**	**2,015,315.00**	**25,571,450.34**	**34,181,495.86**	**34,181,495.86**	**34,181,495.86**
Navigation Ports & Harbors	**1.0**	**EA**	**3,287,829.53**	**3,306,900.99**	**2,015,315.00**	**21,112,994.36**	**29,723,039.88**	**29,723,039.88**	**29,723,039.88**
Ports	**1.0**	**EA**	**3,287,829.53**	**3,306,900.99**	**2,015,315.00**	**19,104,732.36**	**27,714,777.88**	**27,714,777.88**	**27,714,777.88**
Mechanical Dredging	**1.0**	**EA**	**0.00**	**0.00**	**0.00**	**18,637,508.94**	**18,637,508.94**	**18,637,508.94**	**18,637,508.94**
Site Work	**1.0**	**EA**	**0.00**	**0.00**	**0.00**	**18,637,508.94**	**18,637,508.94**	**18,637,508.94**	**18,637,508.94**
Mob, Demob & Preparatory Work	**1.0**	**EA**	**0.00**	**0.00**	**0.00**	**1,781,000.00**	**1,781,000.00**	**1,781,000.00**	**1,781,000.00**
Dredging, mobilization and demobilization	1.0	LS	0.00	0.00	0.00	1,781,000.00	1,781,000.00	1,781,000.00	1,781,000.00
(Note: All dredging costs and the cost estimating procedure were performed in accordance with EP-1110-1-8; SADDM 1110-1-1; ER-1110-1-1300; ER 1110-2-1302, which provide the guidelines necessary to calculate the dredging costs. Assumptions regarding equipment values are given in the estimate. Ownership and operating costs for all dredging and marine equipment were calculated using the USACE “Checkrate” Excel program, with applicable cost adjustments for FY 2012 and USACE regional factors. Port Canaveral is located within Region III.The total overall cost was divided by the quantity to obtain a dredging cost of $5.42 per CY in 2012 dollars. The detailed dredging cost estimating spreadsheet performed by Mr. McWilliams is included in this Attachment L.)									
Mechanical Dredging	**1.0**	**EA**	**0.00**	**0.00**	**0.00**	**16,856,508.94**	**16,856,508.94**	**16,856,508.94**	**16,856,508.94**
Dredging, dragline or clamshell, harbor channel, middle basin and ocean access channel	3,110,057.0	BCY	0.00	0.00	0.00	16,856,508.94	16,856,508.94	16,856,508.94	16,856,508.94
(Note: All dredging costs and the cost estimating procedure were performed in accordance with EP-1110-1-8; SADDM 1110-1-1; ER-1110-1-1300; ER 1110-2-1302, which provide the guidelines necessary to calculate the dredging costs. Assumptions regarding equipment values are given in the estimate. Ownership and operating costs for all dredging and marine equipment were calculated using the USACE “Checkrate” Excel program, with applicable cost adjustments for FY 2011 and USACE regional factors. Port Canaveral is located within Region III.The total overall cost was divided by the quantity to obtain a dredging cost of $5.42 per CY in 2012 dollars. The detailed dredging cost estimating spreadsheet performed by Mr. McWilliams is included in this Attachment L.)									

Labor ID: NLS2010 EQ ID: EP09R03 Currency in US dollars TRACES MII Version 4.1

Description	Quantity	UOM	DirectLabor	DirectEQ	DirectMatl	DirectSubBid	DirectCost	CostToPrime	ContractCost
Associated General Items	**1.0**	**EA**	**3,287,829.53**	**3,306,900.99**	**2,015,315.00**	**467,223.42**	**9,077,268.94**	**9,077,268.94**	**9,077,268.94**
Site Work	**1.0**	**EA**	**3,267,074.50**	**3,297,751.69**	**2,004,755.00**	**463,800.00**	**9,033,381.19**	**9,033,381.19**	**9,033,381.19**
Boresight Tower Guy Foundation Demolition	**1.0**	**EA**	**11,230.07**	**6,036.53**	**0.00**	**0.00**	**17,266.60**	**17,266.60**	**17,266.60**
Structural demolition, concrete pulverizer, 14.5" thick	100.0	CF	11,230.07	6,036.53	0.00	0.00	17,266.60	17,266.60	17,266.60
Sign Relocation	**1.0**	**EA**	**45,150.54**	**6,013.40**	**5,875.00**	**0.00**	**57,038.94**	**57,038.94**	**57,038.94**
Signs, traffic sign removal and relocation, 41 S.F. to 100 S.F., including supports	5.0	EA	45,150.54	6,013.40	5,875.00	0.00	57,038.94	57,038.94	57,038.94
(Note: Several property notification signs with electrical support are located along the shoreline which will require relocation with the shoreline adjustment.)									
Dolphins	**1.0**	**EA**	**0.00**	**0.00**	**0.00**	**190,000.00**	**190,000.00**	**190,000.00**	**190,000.00**
Monopile Doplin With Cap and Bollard	1.0	EA	0.00	0.00	0.00	150,000.00	150,000.00	150,000.00	150,000.00
(Note: The mooring dolphin to be removed is located along the northside widening just east of the Trident Wharf. It consists of prestressed concrete pilings with a concrete cap and a pile supported walkway to the uplands. It will be replaced in a new location with a large diameter steel monopile with a concrete cap and mooring bollard. This element is estimated using knowledge of many similar small demolition project performed at the port. The demolition and replacement cost estimate is $190,000 Lump sum.)									
Demolish Existing Open Pile Dolphin	1.0	EA	0.00	0.00	0.00	40,000.00	40,000.00	40,000.00	40,000.00
Steel Sheet Piling	**1.0**	**EA**	**480,059.91**	**91,935.93**	**366,700.00**	**251,000.00**	**1,189,695.84**	**1,189,695.84**	**1,189,695.84**
New SSP Wall At Boat Ramp	**1.0**	**EA**	**480,059.91**	**91,935.93**	**366,700.00**	**251,000.00**	**1,189,695.84**	**1,189,695.84**	**1,189,695.84**
Mobilization and Demobilization, add to below, minimum	1.0	LS	0.00	0.00	0.00	50,000.00	50,000.00	50,000.00	50,000.00
Excavating, chain trencher, utility trench, common earth, 6" wide, 36" deep, backfill by hand, add	1,100.0	LF	2,421.32	159.21	0.00	0.00	2,580.53	2,580.53	2,580.53
Cast-in place retaining walls, reinforced concrete cantilever, 33 degree slope embankment, 10' high, includes excavation, backfill & reinforcing	1,100.0	LF	273,923.68	19,206.14	106,700.00	0.00	399,829.82	399,829.82	399,829.82
Steel sheet piling seawalls, steel sheeting, 12' high, shore driven	1,100.0	LF	155,091.11	63,748.89	92,400.00	0.00	311,239.99	311,239.99	311,239.99
Sheet piling, wales, connections and struts, 2/3 salvage	15,000.0	LB	0.00	0.00	30,000.00	0.00	30,000.00	30,000.00	30,000.00
Structural concrete, placing, pile caps, direct chute, over 10 CY, includes strike off & consolidation, includes material	201.0	CY	0.00	0.00	0.00	201,000.00	201,000.00	201,000.00	201,000.00
Screw anchor eye bolts, plain steel, for CIP concrete, 1" x 9" long, includes material only	16.0	EA	48,000.00	8,800.00	135,200.00	0.00	192,000.00	192,000.00	192,000.00

Labor ID: NLS2010 EQ ID: EP09R03 Currency in US dollars TRACES MII Version 4.1

Description	Quantity	UOM	DirectLabor	DirectEQ	DirectMatl	DirectSubBid	DirectCost	CostToPrime	ContractCost
Railing, pipe, aluminum, clear finish, 3 rails, 3'-6" high, posts @ 5' O.C., 1-1/4" dia, shop fabricated	40.0	LF	623.79	21.70	2,400.00	0.00	3,045.49	3,045.49	3,045.49
Riprap	**71,100.0**	**TON**	**678,220.08**	**647,505.22**	**1,541,845.00**	**22,800.00**	**2,890,370.30**	**2,890,370.30**	**2,890,370.30**
Revetments	**71,100.0**	**TON**	**678,220.08**	**647,505.22**	**1,541,845.00**	**22,800.00**	**2,890,370.30**	**2,890,370.30**	**2,890,370.30**
(Note: The existing rock revetment is approximately 3,000 feet in length along the north side of the harbor channel between the Trident Basin and Middle Turning Basin. The estimated tonnage of rock work is 71,100 tons. The area of channel widening is referred to as Areas 9A and 9B in the survey drawings. The structure is an existing granite rock revetment extending up to the natural grade of +10 NGVD +/-.)									
Mob/Demob	**1.0**	**EA**	**0.00**	**0.00**	**0.00**	**22,800.00**	**22,800.00**	**22,800.00**	**22,800.00**
Mobilization/Demobilization	1.0	EA	0.00	0.00	0.00	22,800.00	22,800.00	22,800.00	22,800.00
(Note: Per Revetment Engineer's Estimate)									
Environmental Protection	**1.0**	**EA**	**28,062.29**	**759.72**	**18,040.00**	**0.00**	**46,862.01**	**46,862.01**	**46,862.01**
Geotextile Subsurface Drainage Filtration, fabric ply bonded to 3-dimensional nylon mat, ideal conditions, 0.4" thk	40,000.0	SF	13,373.14	0.00	10,400.00	0.00	23,773.14	23,773.14	23,773.14
Synthetic erosion control, silt fence, polypropylene, adverse conditions, 3' high	15,000.0	LF	10,557.74	0.00	6,000.00	0.00	16,557.74	16,557.74	16,557.74
Synthetic erosion control, place and remove hay bales	10.0	TON	4,131.41	759.72	1,640.00	0.00	6,531.12	6,531.12	6,531.12
Rock Recovery/Replacement	**1.0**	**EA**	**628,798.61**	**634,635.05**	**0.00**	**0.00**	**1,263,433.66**	**1,263,433.66**	**1,263,433.66**
Excavate and load, bank measure, blasted rock, 3-1/2 C.Y. bucket, hydraulic excavator	33,186.0	BCY	49,690.80	79,342.08	0.00	0.00	129,032.87	129,032.87	129,032.87
Hauling, excavated or borrow material, loose cubic yards, 4 mile round trip @ base wide rate, 12 C.Y. truck, highway haulers, excludes loading	33,186.0	LCY	67,184.86	42,163.93	0.00	0.00	109,348.79	109,348.79	109,348.79
Rip-rap and rock lining, random, broken stone, machine placed for slope protection	33,186.0	LCY	476,860.09	493,355.00	0.00	0.00	970,215.09	970,215.09	970,215.09
Excavating, structural, bank measure, 140 H.P., dozer, rough grade, push to stockpile	33,186.0	BCY	35,062.86	19,774.04	0.00	0.00	54,836.90	54,836.90	54,836.90
New Filter Stone (Furnish & Install)	**1.0**	**EA**	**21,359.18**	**12,110.45**	**1,523,805.00**	**0.00**	**1,557,274.63**	**1,557,274.63**	**1,557,274.63**
Backfill with Crushed Stone	17,980.0	CY	21,359.18	12,110.45	1,523,805.00	0.00	1,557,274.63	1,557,274.63	1,557,274.63
Upland Excavation	**1.0**	**EA**	**2,035,625.65**	**2,543,290.60**	**9,335.00**	**0.00**	**4,588,251.25**	**4,588,251.25**	**4,588,251.25**
Existing Rock Revetment Removal/Replacement	**1.0**	**EA**	**471,033.86**	**458,471.11**	**3,467.50**	**0.00**	**932,972.47**	**932,972.47**	**932,972.47**

Currency in US dollars

Description	Quantity	UOM	DirectLabor	DirectEQ	DirectMatl	DirectSubBid	DirectCost	CostToPrime	ContractCost
Excavating, bulk, open site, bank measure, loose rock, 140 H.P. dozer, 300' push	100,000.0	BCY	429,886.16	399,379.01	0.00	0.00	829,265.17	829,265.17	829,265.17
Rough grading, open site, large area, 300 H.P., dozer	100,000.0	BCY	28,659.08	52,277.85	0.00	0.00	80,936.93	80,936.93	80,936.93
Fine grading, loam or topsoil fine grade for large area, 15,000 S.Y. or more	18,250.0	SY	9,737.92	4,682.34	0.00	0.00	14,420.27	14,420.27	14,420.27
Seeding, mechanical seeding hydro or air seeding for large areas, includes lime, fertilizer and seed	18,250.0	SY	2,750.70	2,131.91	3,467.50	0.00	8,350.11	8,350.11	8,350.11
Northside Channel Widener	**1.0**	**EA**	**1,564,591.79**	**2,084,819.49**	**5,867.50**	**0.00**	**3,655,278.78**	**3,655,278.78**	**3,655,278.78**
Excavation, bulk, dragline, bank measure, heavy clay, 3/4 C.Y. bucket, excavate and load on truck	354,069.0	BCY	1,261,756.80	1,279,306.40	0.00	0.00	2,541,063.19	2,541,063.19	2,541,063.19
Rough grading, open site, large area, 300 H.P., dozer	364,069.0	BCY	104,338.82	190,327.45	0.00	0.00	294,666.27	294,666.27	294,666.27
Hauling, excavated or borrow material, loose cubic yards, 1 mile round trip @ 20 MPH (4.2 cycles/hour), 40 C.Y., off highway haulers, excludes loading	364,069.0	LCY	191,719.64	611,535.91	0.00	0.00	803,255.55	803,255.55	803,255.55
Synthetic erosion control, silt fence, polypropylene, ideal conditions, 3' high	6,000.0	LF	2,507.46	0.00	2,400.00	0.00	4,907.46	4,907.46	4,907.46
Mobilization or demobilization, dozer, loader, backhoe or excavator, above 150 H.P., up to 50 miles	10.0	EA	1,518.37	1,517.82	0.00	0.00	3,036.19	3,036.19	3,036.19
Seeding, mechanical seeding hydro or air seeding for large areas, includes lime, fertilizer and seed	18,250.0	SY	2,750.70	2,131.91	3,467.50	0.00	8,350.11	8,350.11	8,350.11
Chain Link Fence	**1.0**	**EA**	**16,788.26**	**2,970.00**	**81,000.00**	**0.00**	**100,758.26**	**100,758.26**	**100,758.26**
Fence, chain link industrial, aluminized steel, add for corner post, 6 ga. wire, 2-1/2" posts @ 10' OC, 8' high, 3" diameter, includes excavation, in concrete, add for corner posts	3,000.0	EA	16,788.26	2,970.00	81,000.00	0.00	100,758.26	100,758.26	100,758.26
Monument Relocation	**1.0**	**EA**	**20,755.03**	**9,149.30**	**10,560.00**	**3,423.42**	**43,887.75**	**43,887.75**	**43,887.75**
Submarine Monumnet	**1.0**	**EA**	**20,755.03**	**9,149.30**	**10,560.00**	**3,423.42**	**43,887.75**	**43,887.75**	**43,887.75**
Minor site demolition, concrete, unreinforced, 7" to 24" thick, remove with backhoe, excludes hauling	77.0	CY	7,511.21	872.40	0.00	0.00	8,383.62	8,383.62	8,383.62

Currency in US dollars

Description	Quantity	UOM	DirectLabor	DirectEQ	DirectMatl	DirectSubBid	DirectCost	CostToPrime	ContractCost
Structural concrete, in place, lift slab (4000 psi) above the foundation, average, includes columns, forms(4 uses), reinforcing steel, concrete, placing and finishing	1,600.0	SF	12,120.71	924.87	10,560.00	0.00	23,605.58	23,605.58	23,605.58
Crane crew, daily use for small jobs, 80-ton truck-mounted hydraulic crane, portal to portal	1.0	DAY	898.41	7,228.37	0.00	0.00	8,126.78	8,126.78	8,126.78
(Note: Crane to relocate Submarine Sail)									
Hauling, rock, 12 C.Y. truck, 5 mile haul, includes loading	77.0	LCY	224.70	123.66	0.00	0.00	348.36	348.36	348.36
Commercial RCRA landfills, solid, non-hazardous, sanitary landfill	77.0	CY	0.00	0.00	0.00	3,423.42	3,423.42	3,423.42	3,423.42
Navigation Aids	**1.0**	**EA**	**0.00**	**0.00**	**0.00**	**2,008,262.00**	**2,008,262.00**	**2,008,262.00**	**2,008,262.00**
Inbound/Outbound Navigation Aids	**1.0**	**EA**	**0.00**	**0.00**	**0.00**	**1,975,000.00**	**1,975,000.00**	**1,975,000.00**	**1,975,000.00**
Dredging Aids to Navigation, Inbound, Relocate	2.0	EA	0.00	0.00	0.00	275,000.00	275,000.00	275,000.00	275,000.00
(Note: Price developed by CH2M HILL per Attachment N (USCG Coordination On Navigation Aids (Range Markers)))									
Dredging Aids to Navigation, Outbound, New	2.0	EA	0.00	0.00	0.00	1,700,000.00	1,700,000.00	1,700,000.00	1,700,000.00
(Note: Price developed by CH2M HILL per Attachment N (USCG Coordination On Navigation Aids (Range Markers)))									
West Surge Warning Sign Replacement	**1.0**	**EA**	**0.00**	**0.00**	**0.00**	**33,262.00**	**33,262.00**	**33,262.00**	**33,262.00**
West Surge Warning Sign Replacement	1.0	EA	0.00	0.00	0.00	33,262.00	33,262.00	33,262.00	33,262.00
(Note: In 2001, Olsen & Associates, Jacksonville, Florida, prepared a cost estimate for installing the two Surge Warning Signs. The engineer's estimate in 2001 for installing the two signs was $44,000. Using one-half of this value for one sign, and escalating to 2007 using 3% per year up to 2006 and 4.6 percent for 2007 and 2008, the estimate for installing one new Surge Warning Sign is approximately $30,000 in 2008 dollars. This value was then escalated by 3.5% to arrive at a cost 0f $33,262 in 2012 dollars.)									
Planning, Engineering and Design	**1.0**	**EA**	**0.00**	**0.00**	**0.00**	**2,229,227.99**	**2,229,227.99**	**2,229,227.99**	**2,229,227.99**
Constructn Contracts(s) Documnts	**1.0**	**EA**	**0.00**	**0.00**	**0.00**	**2,229,227.99**	**2,229,227.99**	**2,229,227.99**	**2,229,227.99**
Plans and Specifications (P&S)	**1.0**	**EA**	**0.00**	**0.00**	**0.00**	**2,229,227.99**	**2,229,227.99**	**2,229,227.99**	**2,229,227.99**
Plans and Specifications	**1.0**	**EA**	**0.00**	**0.00**	**0.00**	**2,229,227.99**	**2,229,227.99**	**2,229,227.99**	**2,229,227.99**
7.5 percent of Construction Cost of Remaining Work (excluding cost for Lands and Damages)	1.0	EA	0.00	0.00	0.00	2,229,227.99	2,229,227.99	2,229,227.99	2,229,227.99
(Note: Per Cost Engineering Appendix which indicates a total of 15 percent for PED and S&A.)									
Construction Management	**1.0**	**EA**	**0.00**	**0.00**	**0.00**	**2,229,227.99**	**2,229,227.99**	**2,229,227.99**	**2,229,227.99**
Construction Contracts	**1.0**	**EA**	**0.00**	**0.00**	**0.00**	**2,229,227.99**	**2,229,227.99**	**2,229,227.99**	**2,229,227.99**
Supervision and Administration	**1.0**	**EA**	**0.00**	**0.00**	**0.00**	**2,229,227.99**	**2,229,227.99**	**2,229,227.99**	**2,229,227.99**
District Office S&A Documents	**1.0**	**EA**	**0.00**	**0.00**	**0.00**	**2,229,227.99**	**2,229,227.99**	**2,229,227.99**	**2,229,227.99**
(Note: Technical Management S&A All Other District Office S&A)									

Labor ID: NLS2010 EQ ID: EP09R03 Currency in US dollars TRACES MII Version 4.1

Description	Quantity	UOM	DirectLabor	DirectEQ	DirectMatl	DirectSubBid	DirectCost	CostToPrime	ContractCost
7.5 percent of Construction Cost of Remaining Work (excluding cost for Lands and Damages)	1.0	EA	0.00	0.00	0.00	2,229,227.99	2,229,227.99	2,229,227.99	2,229,227.99

(Note: Per Cost Engineering Appendix which indicates a total of 15 percent for PED and S&A.)

Labor ID: NLS2010 EQ ID: EP09R03 Currency in US dollars TRACES MII Version 4.1

Port Canaveral Section 203 Feasibility Study

Engineering Appendix

Attachment M

Cost and Schedule Risk Analysis Report

Rev Date: February 2012

Canaveral Port Authority

Section 203 Feasibility Study
for
Widening and Deepening Canaveral Harbor and Channel
Preferred Alternative

COST & SCHEDULE RISK ANALYSIS

Analysis Date:	February 2, 2012
Reference Estimate ID:	10222008
Class Estimate:	Class 4
Estimate Date:	December 8, 2011
Requested By:	HQUSACE Review Committee
CSR Analysis By:	Robert Wells / PDX / 503.872.4622

Overview

This Analysis was prepared to meet the request of the client and intends to ascertain the probability of cost and schedule overruns, and to assign a studied growth potential as a value applied as a contingency. This analysis included input and guidance from the project delivery team (PDT), and utilized Crystal Ball software to perform the Monte Carlo analysis. It should be noted that this analysis does not intend to recreate the estimate.

Specific Outcomes

The Cost and Schedule Risk Analysis has the following outcomes:

(1) Cost and schedule risk register.
(2) The "most likely" total project cost estimate.
(3) The "best case" and "worst case" estimates.
(4) Cost and Schedule Risk assessment models using Crystal Ball

General Project Description

This project is predominantly a Feature 12 (dredging) project at Port Canaveral, Florida. This Analysis references the related Basis of Estimate for relevant project information, including Project Description, Scope of Work, Markups, Escalation, Market Conditions, Allowances, Major Assumptions, Exclusions and pricing information.

Cost and Schedule Risk Analysis

The specifics of this analysis were executed with guidance provided by James Neubauer, P.E., C.C.E, PM1, U.S. Army Corps of Engineers, Walla Walla District, National Civil Works Cost Center. Mr. Neubauer provided the procedure for determining the additional cost escalation impact resulting from schedule risk, and for determining the additional escalation cost resulting from Feature 12 projects, where such projects are unduly influenced by volatile fuel escalation.

In order, these steps were followed in order to arrive at a studied contingency amount:

1. The estimate was validated and examined for and removed contingencies at top and lower levels.
2. The analyst, the project manager and the estimator conferred with USACE on specific cost risk analysis methods and issues specific to this study.

3. The analyst, the project manager and the estimator conferred on the PDT membership, the PDT was formed and instructed on the process, and risk concerns and discussion were recorded on the Risk Register.
4. The analyst compiled and organized the Risk Register, determining Risk Levels from reported likelihoods and consequences.
5. The identified High Risk items were selected for market study and inclusion in the Monte Carlo analysis.
6. The preliminary results were communicated and discussed among the analyst, the project manager and the estimator.
7. The draft report was issued, reviewed, and published.

Specifically, the PDT concerns pointed to

- bid market volatility,
- fuel cost uncertainty,
- presence or exposure to rocket fuel,
- and associated delay risks with risk level to warrant inclusion in the study.

All of these are considered risk to cost occurring outside of the base estimate escalation calculation. Therefore the procedure to capture the cost and schedule risk is to assign as contingency the cost risk resulting from uncertain delays or unexpected escalation of key materials, commodities or consumables.

Findings and Recommendations

The findings of this study include:

- Cost and schedule risk register addressing all project features. This register is appended to this report as Appendix A.
- The cost contingency in percentages, where that percentage is the amount to be added to the base estimate prior to escalation. This is shown in Table: Contingency Analysis, below.
- Cost and schedule risk assessment model using Crystal Ball is appended to this report as Appendix B.

The contingency calculations (as shown in the Table below) are predominantly influenced by the bid market and fuel forecast modeling.

Recommendations relevant to the sensitivity analysis include:

- Bid Market. The model examined the possibility the bid market would influence cost of the project. This is understood as driven by the scarcity or surplus of dredging equipment required for the project. Mitigation or avoidance measures include determining scarcity or surplus by interviewing prospective bidders or through local trade associations, or by requesting proposals with foreknowledge that bids may not reflect advantageous market conditions, and are rejected and postponed until the market is seeking projects.

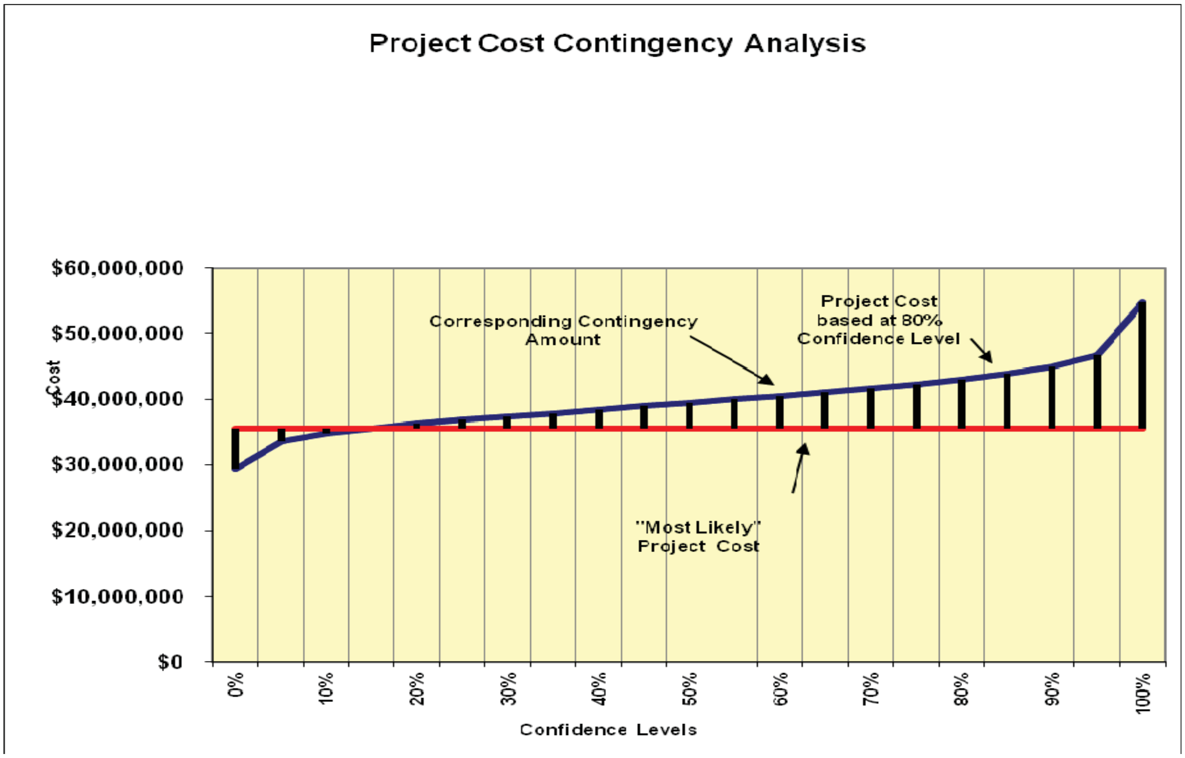
- Material escalation. The concern is primarily a consumable, diesel fuel, which is of concern, rather than a material placed as a scope deliverable. Diesel fuel, crude oil and related products are known to be volatile and unpredictable. A mitigation method proposed during our PDT discussion is to identify fuel as a separate bid item. This will remove the risk for fuel escalation from the contractor and place it on the project owner. However, the contractor's premium for risk will be avoided. The strategy of bidding fuel separately must be well thought out and utilizing a proved method in order to avoid exposing the owner to more risk.
- Rocket motor fuel. As this is an unlikely event outside the control of the project, mitigation in the form of insurance or by means of project or program reserves is recommended.

Table: Contingency Analysis

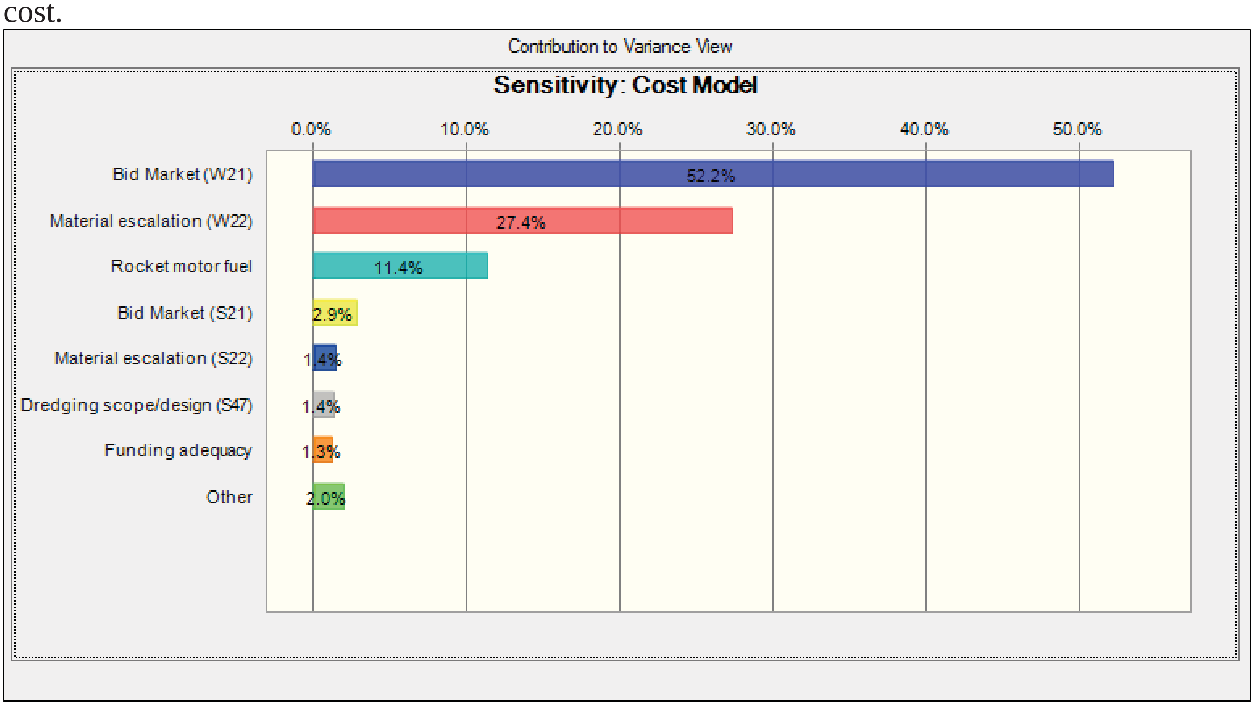
Contingency Analysis

Most Likely Cost Estimate	$35,555,343	
Confidence Level	Value	Contingency
0%	**$29,262,851**	**-17.70%**
5%	**$33,644,299**	**-5.37%**
10%	**$34,723,938**	**-2.34%**
15%	**$35,546,233**	**-0.03%**
20%	**$36,278,428**	**2.03%**
25%	**$36,831,733**	**3.59%**
30%	**$37,322,064**	**4.97%**
35%	**$37,833,692**	**6.41%**
40%	**$38,333,898**	**7.81%**
45%	**$38,933,619**	**9.50%**
50%	**$39,475,431**	**11.03%**
55%	**$39,986,087**	**12.46%**
60%	**$40,481,471**	**13.85%**
65%	**$41,051,987**	**15.46%**
70%	**$41,615,286**	**17.04%**
75%	**$42,296,386**	**18.96%**
80%	**$43,009,622**	**20.97%**
85%	**$43,831,039**	**23.28%**
90%	**$44,974,780**	**26.49%**
95%	**$46,635,066**	**31.16%**
100%	**$54,671,528**	**53.76%**

Further to the above chart, the Total Project Cost chart is displayed graphically below, showing the selection of the 80th percentile and the corresponding total project cost values.



Additionally, the sensitivity analysis (Tornado Chart below) is as is expected with a large proportion of the Feature 12 sensitivity to variance dependent on bid market and fuel cost.



List of Appendices:

Appendix A: Risk Register.
Appendix B: Cost and Schedule Model.
Appendix C: Market Study and Opinion Basis

Reference Documents

Excel file with Crystal Ball data:
CSRA_RiskAnalysis_CPA_Section_203_Cost 2012-01-27 0730.xlsx

USACE EM 1110-2-1304 - Civil Works Construction Cost Index System
USACE ER 1110-2-1302 – Civil Works Cost Engineering
USACE ECB 2007-17 Cost Risk Analysis Methods for Civil Works Projects

APPENDIX A – RISK REGISTER

Port Canaveral Section 203 - PDT Risk Register (Draft)

Risk Level

Likelihood of Occurrence	Negligible	Marginal	Significant	Critical	Crisis
Very Likely	Low	Moderate	High	High	High
Likely	Low	Moderate	High	High	High
Unlikely	Low	Low	Moderate	Moderate	High
Very Unlikely	Low	Low	Low	Low	High

Impact or Consequence of Occurrence

Overall Project Scope
Feature 12 at Port Canaveral

Thresholds for cost and time

Impact	Cost	Time
Negligible	- 50K +	- 1 MO +
Marginal	- 300K +	- 3 MO +
Significant	- 1.5M +	- 6-8 MO +
Critical	- 4M +	- 12 - 24 MO +
Crisis	- 10M +	36 MO +

Risk No.	Risk/Opportunity Event	Concerns	PDT Discussions	Project Cost: Likelihood*	Project Cost: Impact*	Project Cost: Risk Level*	Project Cost: Rough Order Impact ($)	Project Schedule: Likelihood*	Project Schedule: Impact*	Project Schedule: Risk Level*	Project Schedule: Rough Order Impact (mo)	Variance Distribution	Correlation to Other(s)	Responsibility / POC	Affected Project Component
Contract Risks (Internal Risk Items are those that are generated, caused, or controlled within the PDT's sphere of influence.)															
CR-1	Innovative project construction	Estimate assumes ordinary production	If hopper dredge restrictions for outer reach are lifted in new BO by NMFS, costs and schedule could be reduced by use of alternative equipment.	VERY UNLIKELY	SIGNIFICANT	LOW	($1,000,000)	VERY UNLIKELY	MARGINAL	LOW	-1 to -3 MO	Uniform		Construction	Cost & Schedule
CR-2	Section 203 assignment to USACE	Delay in approved Study Report	CWRB or HQ policy issue may delay congressional approval.	UNLIKELY	SIGNIFICANT	MODERATE	<5%	UNLIKELY	Critical	HIGH	6-12 MO	Uniform	PR-1	Project Manager	Project Cost & Schedule
CR-3	Incomplete Studies	PED may require additional information.	Data developed by local sponsor may require supplementation for PED development.	UNLIKELY	MARGINAL	LOW	$144,000	UNLIKELY	MARGINAL	LOW	4			Project Sponsor(s)	Project Cost & Schedule
CR-4	Market conditions and bidding competition	Project susceptible to supply-demand forces	Could be a swing either way based on estimated production rates and markups; -9.4% to +15%, per J McWilliams original elicitation	LIKELY	CRITICAL	HIGH	- $4M to + $6M	LIKELY	SIGNIFICANT	HIGH	-2 - +6 MO	Uniform		Contracting	Project Cost & Schedule
CR-5	Unexpected escalation on key materials	Fuel pricing is volatile	Cost of fuels as determined by bidders in an uncertain market (volatility and unexpected escalation or de-escalation are unable to be modeled with current price and escalation calculations).	LIKELY	CRITICAL	HIGH	-3M to 4.5M	LIKELY	NEGLIGIBLE	LOW		Uniform		Contracting	Project Cost
CR-6	Bulkhead Stability	Dredging induced bulkhead wall failure	Dredging near existing bulkhead walls might cause movement or failure of walls. However, previous analysis of walls has shown only two wall sections to be at risk (NCP#3 & 4 and wall "L"). Local sponsor is committed to replace walls concurrently with project, and provide Hold Harmless Agreement for replacement costs if wall(s) incur damage as a result of dredging prior to replacement by Local Sponsor. Risk to project cost and schedule is therefore considered zero dollars or time added.	UNLIKELY	NEGLIGIBLE	LOW	$0	UNLIKELY	NEGLIGIBLE	LOW	0		Scope	Structural Design	Project Cost & Schedule
CR-7	Additional Simulations	Requirement of additional simulations.	Additional simulations have been performed with ERDC input on run matrices. Results accepted by ATR. Risk of supplemental work considered negligible based on accepted methodology and results.	VERY UNLIKELY	NEGLIGIBLE	LOW	$75,000	VERY UNLIKELY	MARGINAL	LOW	2			Project Manager	Project Cost & Schedule
CR-8	Jetty impact from dredging	Risk to jetty	The possibility of this outcome was examined in the study and the project is designed to minimize the likelihood of this outcome. Should it occur, repairs to structures would be required and minor adjustments to channel geometry may be required. Catastrophic impacts are not anticipated. Refer to Engineering Appendix Attachment G for detailed report.	VERY UNLIKELY	SIGNIFICANT	LOW	$1,600,000	VERY UNLIKELY	MARGINAL	LOW	2		Scope	Project Sponsor(s)	Project Cost & Schedule
CR-9	Increase dredging from Jetty shoaling.	Sand shoaling around N. Jetty	Sand bypassing in 2007 and 2010 by the USACE, and in 2011 by USAF, removed sand accumulation at north jetty. Sand could accumulate and shoal north bank of channel prior to future periodic bypass events; but amount would be less than 60,000 cy/yr and would exist for 1 or 2 years at most before elimination by next bypass event. Experience over last 10 years and USACE commitment to sand bypassing results in Likelihood changed to unlikely.	UNLIKELY	MARGINAL	LOW	$600,000	UNLIKELY	MARGINAL	LOW	2			Project Sponsor(s)	Project Cost & Schedule
CR-10	Unanticipated soil conditions	Limited Geotechnical Data	265 historic and 8 supplemental borings were reviewed and analyzed during the soil investigation. Geotechnical properties of proposed deepening and widening areas is considered well understood. However, additional borings and soils report may be needed along the proposed AF property bulkhead and dike relocation during PED to facilitate final design of these structural features.	LIKELY	NEGLIGIBLE	MODERATE	$50,000	LIKELY	MARGINAL	MODERATE	2	Uniform		Technical Lead	Project Cost
CR-11	Survey information	Scope may not be properly represented	AF upland property and overall channel bathymetry requires survey update for PED. Quantity disputes, possible price adjustment	LIKELY	MARGINAL	MODERATE	$250,000	LIKELY	MARGINAL	LOW	2	Uniform		Project Manager	Project Cost & Schedule
CR-12	Tropical storm during construction causes sediment trap to infill and/or impacts navigation channel.	Tropical storm damage	Hurricane shoaling could be on order of 300,000 cy, slightly exceeding nominal capacity of the dredged trap (~250,000 cy). Impacts to navigation channel, beyond the trap, could be on order of 50,000 cy. Though not expected to close channel, this channel shoaling would require prompt dredging, followed by dredging of trap when possible. The possibility of this shoaling -- and the need to mitigate it -- will occur regardless of the project improvements, and represents a cost and obligation independent of the project. Removal of this shoaling would, however, temporarily divert dredging resources and potentially lengthen schedule. model as half the production at the worst, 300KCY.	VERY UNLIKELY	CRITICAL	LOW	$3,200,000	VERY UNLIKELY	SIGNIFICANT	LOW	3-6 MO			Contracting	Project Cost & Schedule

CR-13a	Permits, licenses, submittal approvals	Regulatory approval delays	Costs are estimated at $75,000 based on previous flushing analysis performed in Canaveral Harbor. Anticipate requests for additional information from state regulatory agencies during permitting.	LIKELY	NEGLIGIBLE	LOW	$75,000	LIKELY	SIGNIFICANT	HIGH	6	Uniform		Project Manager	Project Cost & Schedule
CR-13b	Permits, licenses, submittal approvals	Regulatory approval delays	ODMDS disposal concurrence from EPA required. MPRSA Section 103 Tier III testing and evaluation for new work dredged material from non-exclusionary locations have historically demonstrated general compliance with disposal criteria. Costs are estimated at $300,000 based on recent efforts in Canaveral Harbor.	LIKELY	MARGINAL	MODERATE	$300,000	LIKELY	SIGNIFICANT	HIGH	6	Uniform		Project Manager	Project Cost & Schedule
CR-14	Environmental work windows	Regulatory constraints on dredging	Environmental work windows could extend work period if required by resource agencies. Currently, standard manatee, sea turtle, and Right whale protection measures and compliance with the Canaveral Harbor light management plan do not restrict working hours for dredging projects.	UNLIKELY	MARGINAL	LOW	<1%	UNLIKELY	MARGINAL	LOW	1				Project Cost & Schedule
CR-15	Rocket explosion deposits solid rocket motor fuel in dredge area	Presence of solid rocket motor fuel	A similar event in 1997 caused a 1 year delay of sand bypassing when motor fuel from an exploded Delta rocket was found in the dredge area north of the inlet. Less likely to occur further south, in inlet/entrance area. Also, more is now known about the interaction of fuel and dredging, since the 1997 event. Cost would be limited to dredging areas outside the jetties (approximately half the total ODMDS disposal volume per the quantity estimate).	VERY UNLIKELY	SIGNIFICANT	LOW	$2,400,000	VERY UNLIKELY	SIGNIFICANT	LOW	9	Uniform		Project Manager	Project Cost & Schedule
CR-16	Dredging - Turtles	Presence of turtles	If turtle taken can cause dredging to stop	LIKELY	NEGLIGIBLE	LOW	$75,000	LIKELY	NEGLIGIBLE	LOW	<1				Project Cost & Schedule
CR-17	Permitting – Turtles	Permitting for turtles	NMFS may require additional monitoring to prevent sea turtle take during removal of the riprap	UNLIKELY	MARGINAL	LOW	$100,000	UNLIKELY	NEGLIGIBLE	LOW					Project Cost & Schedule
CR-18	Permitting - Turtles	Habitat Replacement	Shoreline rip-rap along AF property has been reported in BA to NMFS as foraging habitat by sea turtles (Dial Cordy 2007). Report indicates relocation of rip-rap with result in temporary loss of habitat considered not likely to affect sea turtles due to other available habitat in the area.	UNLIKELY	MARGINAL	LOW	$0	UNLIKELY	NEGLIGIBLE	LOW	0			Resource Management	Project Cost & Schedule
CR-19	Dredging – Manatee	Presence of Manatees	If a manatee death occurred due to dredging	UNLIKELY	NEGLIGIBLE	LOW	$75,000	UNLIKELY	NEGLIGIBLE	LOW	<1				Project Cost & Schedule
CR-20	Dredging - Whales	Presence of whales	NMFS requires at-sea monitoring during vessel transits to ODMDS to ensure potential vessel strikes are minimized. No impacts due to dredging disposal operations have been previously reported.	VERY UNLIKELY	NEGLIGIBLE	LOW	$0	VERY UNLIKELY	NEGLIGIBLE	LOW	0				Project Cost & Schedule
CR-21	Dredged Material	Unsuitable dredged material for ODMDS disposal	Potential for some dredged material from military property to be evaluated unsuitable for ODMDS disposal during Section 103 analysis. Historically some isolated areas in the upper MTB have not passed testing criteria due to unkown anthropogenic or synergistic effects requiring alternate (upland) disposal methods. Recently, however, all DMU's within the Civil Works maintenance dredging project limits have been approved for ODMDS disposal. Survey areas 8,9A,9B bound the military property. These locations are 876,801 CY of proposed ODMDS disposal. Assuming 5% of ths material (43,840 CY) may be deemed unsuitable, it would require upland placement. A contingent excavation costs from the MII cost estimate is applied for this volume.	UNLIKELY	MARGINAL	LOW	>$447200	UNLIKELY	NEGLIGIBLE	LOW	1				
CR-22	Site Access	DOD restricted access property	Could lead to schedule delays if access is constrained for security purposes.	UNLIKELY	NEGLIGIBLE	LOW	$0	UNLIKELY	NEGLIGIBLE	LOW	1			Construction	Project Cost & Schedule
CR-23	Unknown utilities	Existing utilities unforeseen	Could lead to work stoppage, costs for repairs	UNLIKELY	NEGLIGIBLE	LOW	$11,500	UNLIKELY	NEGLIGIBLE	LOW	0.5			Construction	Project Cost & Schedule
CR-24	Unidentified hazardous waste	Possibility of hazardous waste	Could stop work and require remediation	VERY UNLIKELY	SIGNIFICANT	LOW	$1,000,000	VERY UNLIKELY	SIGNIFICANT	LOW	3-6 MO	Uniform		Project Manager	Project Cost & Schedule
CR-25	Consideration for standard weather impact	Weather affecting production	Impacts production rate provided in "Checkrate"	UNLIKELY	NEGLIGIBLE	LOW	$0	UNLIKELY	MARGINAL	LOW				Construction	Project Cost & Schedule
CR-26	Labor disruptions	Labor issues	Self explanatory	UNLIKELY	NEGLIGIBLE	LOW		UNLIKELY	MARGINAL	LOW				Construction	Project Cost & Schedule
CR-27	Existence of debris	Debris other than hazardous	Concrete, metal or other debris might exist in the proposed dredge area. Depending on the dredge method or equipment, dredging activities might get delayed.	VERY LIKELY	MARGINAL	MODERATE	$185,000	VERY LIKELY	NEGLIGIBLE	LOW	1			Cost Engineering	Project Cost & Schedule
CR-28	Slope Sloughing	Sloughing of material	Slope Sloughing might cause the dredge contractor to remove more material than anticipated. Contractor may have to dredge wider or make more passes to achieve design depth at the edge of project.	UNLIKELY	MARGINAL	LOW	$0	UNLIKELY	MARGINAL	LOW	2			Cost Engineering	Project Cost & Schedule

CR-29	Dredging scope/design	Design does not capture all anticipated work	Result in change orders/claims for additional dredging in excess of 200,000CY	UNLIKELY	SIGNIFICANT	MODERATE	$1,000,000	UNLIKELY	SIGNIFICANT	MODERATE	4 - 6 MO	Uniform		Cost Engineering	Project Cost & Schedule
CR-30	Estimate reasonableness of crews and productivities	Productivity assumptions	"Checkrate" estimate based on dredging industry experience, current fleet availability, and local knowledge of site conditions. Impact contingency of 2% of dredging costs if market conditions constrain availability.	UNLIKELY	MARGINAL	LOW	$375,000	UNLIKELY	NEGLIGIBLE	LOW	0.5			Cost Engineering	Project Cost & Schedule
CR-31	Consideration and local quotes for special equipment (cranes, barges, tugs, diving)	Local equipment quotes	Minor item for dredging projects	UNLIKELY	NEGLIGIBLE	LOW	$0	UNLIKELY	NEGLIGIBLE	LOW	0			Cost Engineering	Project Cost & Schedule
	Programmatic Risks (External Risk Items are those that are generated, caused, or controlled exclusively outside the PDT's sphere of influence.)														
PR-1	Adequacy of project funding (delayed, incremental or full funding)	Funding delay	Demobilize, remobilize, additional scope/shoaling, delay of initial funding	UNLIKELY	SIGNIFICANT	MODERATE	$2,000,000	UNLIKELY	CRITICAL	MODERATE	24	Triangular		Contracting	Project Cost & Schedule
PR-2	Priorities change on existing program	Priorities	Self explanatory	UNLIKELY	MARGINAL	LOW		UNLIKELY	MARGINAL	LOW				Contracting	Project Cost & Schedule
PR-3	Local communities pose objections	Locals	Self explanatory	UNLIKELY	MARGINAL	LOW		UNLIKELY	MARGINAL	LOW				Contracting	Project Cost & Schedule
PR-4	Loss of public trust / goodwill	Trust	Self explanatory	UNLIKELY	MARGINAL	LOW		UNLIKELY	MARGINAL	LOW				Contracting	Project Cost & Schedule
PR-5	Political factors change at local, state or federal	Political changes	Self explanatory	UNLIKELY	NEGLIGIBLE	LOW		UNLIKELY	NEGLIGIBLE	LOW				Contracting	Project Cost & Schedule
PR-6	Stakeholders request late changes	Late changes	Self explanatory	UNLIKELY	MARGINAL	LOW		UNLIKELY	MARGINAL	LOW				Contracting	Project Cost & Schedule
PR-7	New stakeholders emerge and demand new work	Growth through politics	Self explanatory	UNLIKELY	MARGINAL	LOW		UNLIKELY	MARGINAL	LOW				Contracting	Project Cost & Schedule
PR-8	Influential stakeholders request additional needs to serve other purposes	Growth through politics	Self explanatory	UNLIKELY	MARGINAL	LOW		UNLIKELY	MARGINAL	LOW				Contracting	Project Cost & Schedule
PR-9	Political opposition / threat of lawsuits	Political issues	Self explanatory	UNLIKELY	MARGINAL	LOW		UNLIKELY	MARGINAL	LOW				Project Manager	Project Cost & Schedule
PR-10	Stakeholders choose time and / or cost over quality	Quality jeopardized	Self explanatory	UNLIKELY	MARGINAL	LOW		UNLIKELY	MARGINAL	LOW				Contracting	Project Cost & Schedule
PR-11	Acts of God (seismic events: volcanic activity, earthquakes, tsunamis; or severe weather: freezing, flooding or hurricane)	Force majeure	Self explanatory	UNLIKELY	NEGLIGIBLE	LOW		UNLIKELY	MARGINAL	LOW				Contracting	Project Cost & Schedule
PR-12	Federal government does not fund Corps to construct sand bypass project in future.	Sand shoaling	Will result in significant shoaling of sand around and southward of north jetty at anticipated rate of under 60,000 cy/yr.	UNLIKELY	MARGINAL	LOW	$600,000	UNLIKELY	MARGINAL	LOW	3			Project Manager	Project Cost & Schedule

*Likelihood, Impact, and Risk Level to be verified through market research and analysis (conducted by cost engineer).

1. Risk/Opportunity identified with reference to the Risk Identification Checklist and through deliberation and study of the PDT.
2. Discussions and Concerns elaborates on Risk/Opportunity Events and includes any assumptions or findings (should contain information pertinent to eventual study and analysis of event's impact to project).
3. Likelihood is a measure of the probability of the event occurring --**Very Unlikely**, **Unlikely**, **Moderately Likely**, **Likely**, **Very Likely.** The likelihood of the event will be the same for both Cost and Schedule, regardless of impact.
4. Impact is a measure of the event's effect on project objectives with relation to scope, cost, and/or schedule --**Negligible**, **Marginal**, **Significant**, **Critical**, or **Crisis.** Impacts on Project Cost may vary in severity from impacts on Project Schedule.
5. Risk Level is the resultant of Likelihood and Impact**Low**, **Moderate**, or **High**. Refer to the matrix located at top of page.
6. Variance Distribution refers to the behavior of the individual risk item with respect to its potential effects on Project Cost and Schedule. For example, an item with clearly defined parameters and a solid most likely scenario would probably follow a triangular or normal distribution. A risk item for which the PDT has little data or probability of modeling with respect to effects on cost or schedule (i.e. "anyone's guess") would probably follow a uniform or discrete uniform distribution.
7. The responsibility or POC is the entity responsible as the Subject Matter Expert (SME) for action, monitoring, or information on the PDT for the identified risk or opportunity.
8. Correlation recognizes those risk events that may be related to one another. Care should be given to ensure the risks are handled correctly without a "double counting."
9. Affected Project Component identifies the specific item of the project to which the risk directly or strongly correlates.
10. Project Implications identifies whether or not the risk item affects project cost, project schedule, or both. The PDT is responsible for conducting studies for both Project Cost and for Project Schedule.
11. Results of the risk identification process are studied and further developed by the Cost Engineer, then analyzed through the Monte Carlo Analysis Method for Cost (Contingency) and Schedule (Escalation) Growth.

Likelihood	**Probability of occurance (range)**
Very Unlikely	1-15%
Unlikely	15%-35%
Moderately Likely	35%-65%
Likely	65%-85%
Very Likely	85%-99%

These occurrence ranges were used to convert qualitative statements of occurrence to quantified ranges of probability

APPENDIX B – COST AND SCHEDULE MODEL

COST MODEL RESULTS		
Sum of assumptions		0
Estimated value		35,555,343
Project forecast		35,555,343
0%	**29,330,621**	-17.51%
5%	**33,461,682**	-5.89%
10%	**34,476,691**	-3.03%
15%	**35,219,219**	-0.95%
20%	**35,886,832**	0.93%
25%	**36,371,605**	2.30%
30%	**36,793,645**	3.48%
35%	**37,251,430**	4.77%
40%	**37,707,760**	6.05%
45%	**38,216,022**	7.48%
50%	**38,698,334**	8.84%
55%	**39,153,944**	10.12%
60%	**39,589,016**	11.34%
65%	**40,090,933**	12.76%
70%	**40,570,641**	14.11%
75%	**41,143,380**	15.72%
80%	**41,755,842**	**17.44%**
85%	**42,454,937**	19.41%
90%	**43,333,586**	21.88%
95%	**44,646,573**	25.57%
100%	**51,105,944**	43.74%
Minimum	**29,330,621**	
Maximum	**51,105,944**	
Trials	10,000	
Mean	**38,809,047**	

SCHEDULE MODEL RESULTS			**TOTAL SCHED MODEL**
Sum of assumptions	**0.0 MO**	**0.0 MO**	Total Schedule Forecast
		Half of duration assumed elapsed	
Project forecast	**0.0 MO**	**0.0 MO**	
0%	-2.0 MO	0.0 MO	-2.0 MO
5%	4.6 MO	0.0 MO	4.6 MO
10%	6.0 MO	0.0 MO	6.0 MO
15%	6.9 MO	0.8 MO	7.8 MO
20%	8.2 MO	0.9 MO	9.1 MO
25%	9.5 MO	1.0 MO	10.5 MO
30%	10.8 MO	1.1 MO	11.9 MO
35%	11.8 MO	1.1 MO	12.9 MO
40%	12.5 MO	1.2 MO	13.7 MO
45%	13.1 MO	2.4 MO	15.4 MO
50%	13.6 MO	2.9 MO	16.5 MO
55%	14.2 MO	3.2 MO	17.4 MO
60%	15.0 MO	3.5 MO	18.4 MO
65%	15.8 MO	3.7 MO	19.6 MO
70%	16.8 MO	4.1 MO	21.0 MO
75%	17.8 MO	5.0 MO	22.8 MO
80%	**18.9 MO**	**5.5 MO**	**24.3 MO**
85%	20.4 MO	5.8 MO	26.2 MO
90%	23.5 MO	6.9 MO	30.4 MO
95%	27.6 MO	7.9 MO	35.6 MO
100%	42.6 MO	11.8 MO	54.3 MO
Minimum	-2.0 MO	0.0 MO	
Maximum	42.6 MO	11.8 MO	
Trials	10,000	10,000	
Mean	14.2 MO	3.1 MO	

ESCALATION COST IMPACT CALCULATIONS

Escalation Per Month at 1.61% Per Year (fuel excluded)*	Project cost less gals fuel 1,288,808 at $ per gal (in est) $3.05	Escalation Cost for Percentile
-0.267%	**25,399,757**	**-67,770**
0.618%	**29,530,818**	**182,617**
0.809%	**30,545,827**	**247,246**
1.045%	**31,288,354**	**327,014**
1.225%	**31,955,967**	**391,596**
1.418%	**32,440,741**	**460,128**
1.608%	**32,862,781**	**528,419**
1.747%	**33,320,565**	**582,263**
1.854%	**33,776,896**	**626,138**
2.093%	**34,285,158**	**717,597**
2.235%	**34,767,469**	**777,097**
2.362%	**35,223,079**	**832,143**
2.503%	**35,658,152**	**892,454**
2.658%	**36,160,069**	**961,054**
2.851%	**36,639,777**	**1,044,645**
3.098%	**37,212,516**	**1,153,006**
3.315%	**37,824,978**	**1,253,780**
3.572%	**38,524,073**	**1,376,102**
4.165%	**39,402,721**	**1,641,194**
4.884%	**40,715,708**	**1,988,493**
7.558%	**47,175,080**	**3,565,583**

*Fuel escalation is considered a separate risk (see: CR-5)
1.61%/yr escalation based on published table for feature

TOTAL PROJECT COST CALCULATIONS - ESC

Percentile	Total Cost including cost risk and cost of schedule risk (no estimate esc)	Derived contingency % on base estimate of 35,555,343
0%	**29,262,851**	-17.70%
5%	**33,644,299**	-5.37%
10%	**34,723,938**	-2.34%
15%	**35,546,233**	-0.03%
20%	**36,278,428**	2.03%
25%	**36,831,733**	3.59%
30%	**37,322,064**	4.97%
35%	**37,833,692**	6.41%
40%	**38,333,898**	7.81%
45%	**38,933,619**	9.50%
50%	**39,475,431**	11.03%
55%	**39,986,087**	12.46%
60%	**40,481,471**	13.85%
65%	**41,051,987**	15.46%
70%	**41,615,286**	17.04%
75%	**42,296,386**	18.96%
80%	**43,009,622**	**20.97%**
85%	**43,831,039**	23.28%
90%	**44,974,780**	26.49%
95%	**46,635,066**	31.16%
100%	**54,671,528**	53.76%

This table would be used if contingency % is to be figured **prior** to the $347,788 escalation in the estimate

TOTAL PROJECT COST CALCULATIONS + ESC

Percentile	*Total Cost including cost risk cost of schedule risk and estimate escalation	*Derived contingency % on base estimate (with esc) of 35,903,131
0%	**29,610,639**	-17.53%
5%	**33,992,087**	-5.32%
10%	**35,071,726**	-2.32%
15%	**35,894,021**	-0.03%
20%	**36,626,216**	2.01%
25%	**37,179,521**	3.56%
30%	**37,669,852**	4.92%
35%	**38,181,480**	6.35%
40%	**38,681,686**	7.74%
45%	**39,281,407**	9.41%
50%	**39,823,219**	10.92%
55%	**40,333,875**	12.34%
60%	**40,829,259**	13.72%
65%	**41,399,775**	15.31%
70%	**41,963,074**	16.88%
75%	**42,644,174**	18.78%
80%	**43,357,410**	**20.76%**
85%	**44,178,827**	23.05%
90%	**45,322,568**	26.24%
95%	**46,982,854**	30.86%
100%	**55,019,316**	53.24%

This table would be used if contingency % is to be figured **after** to the $347,788 escalation in the estimate

Risk No.	Risk/Opportunity Event	MODELING, STUDY AND RESEARCH, EXPERT OPINION INFORMATION AND EVENT CALCULATIONS				COST MODELING				SCHEDULE MODELING				
Contract Risks (Internal Risk		Study, Research, Basis of Expert Opinion	Prob of Occur.	Event occur?	Short Name	Range Low	Range High	CB Cost Assumption	Cost Trial Result	Range Low	Range High	CB Sched Assumption	Start Impact Result	Midpoint Impact Result
CR-1	Innovative project construction	Production rates are presented by J. McWilliams, P.E., refer to CR-1	0.08	0.08	Innovation	($1,000,000)	($500,000)	-750000	$0					
CR-2	Section 203 assignment to USACE	uncertain range of 2% to 5%												
CR-3	Incomplete Studies	Based on $150 average hourly rate for additional studies.												
CR-4	Market conditions and bidding competition	Market tends to be boom or bust, forcing wide swings in response to equipment supply and market demand.	0.75	0.75	Bid Market	($4,000,000)	$6,000,000	1000000	$0	-2.0 MO	6.0 MO	2.0 MO	0.0 MO	
CR-5	Unexpected escalation on key materials	DOE forecast for schedule period suggests only moderate escalation, however the volatility of diesel fuel deserves consideration (Link to DOE - note: prices shown include road tax (approx $0.60) Estimate includes approx 3m gal of fuel. Range considered is -$1 to +1.50	0.75	0.75	Material escalation	($3,000,000)	$4,500,000	750000	$0					
CR-6	Bulkhead Stability													
CR-7	Additional Simulations	$75,000 and 2 month time of performance based on previous simulation effort by STAR Center												
CR-8	Jetty impact from dredging	4500 tons of boulders for repair at $150/t plus $450K mobilization plus 15% EDSA plus 20% contingency. Estimate prepared by Kevin Bodge, Ph.D., P.E.												
CR-9	Increase dredging from Jetty shoaling.	Based on an estimated unit rate of $10 per CY from sand by-pass dredging completed in this location previously. Source: Kevin Bodge, PhD.,P.E.												
CR-10	Unanticipated soil conditions	Based on previous cost and time estimates for similar work completed for this project. Escalation Impact is considered the only schedule impact cost exposure as cost is captured in historical.	0.75	0.75	Soil Conditions	$25,000	$75,000	50000	$0	1.5 MO	2.5 MO	2.0 MO		0.0 MO
CR-11	Survey information	Based on survey costs from previous efforts.	0.75	0.75	Survey information	$125,000	$375,000	250000	$0					

CR-12	Tropical storm during construction causes sediment trap to infill and/or impacts navigation channel.													
CR-13a	Permits, licenses, submittal approvals	Cost and schedule estimates are based on previous work performed by ANAMAR and CH2M HILL in Canaveral Harbor for the Local Sponsor in non-federal dredging projects	0.75	0.75	Regulatory approvals	$250,000	$500,000	375000	$0	5.0 MO	7.0 MO	6.0 MO	0.0 MO	
CR-13b	Permits, licenses, submittal approvals	Cost and schedule estimates are based on previous work performed by ANAMAR and CH2M HILL in Canaveral Harbor for the Local Sponsor in non-federal dredging projects	0.75	0.75	Regulatory approvals	$250,000	$500,000	375000	$0	6.0 MO	9.0 MO	7.5 MO	0.0 MO	
CR-14	Environmental work windows													
CR-15	Rocket explosion deposits solid rocket motor fuel in dredge area	Cost increase and delay is presented as a contract contingency allowance if fuel is encountered in the approximately 1.5 MCY of dredging to occur outside the jetties and requires additional monitoring.	0.25	0.25	Rocket motor fuel	$2,000,000	$2,800,000	2400000	$0	8.0 MO	10.0 MO	9.0 MO		0.0 MO
CR-16	Dredging - Turtles	Based on a $3,125 dredging hourly standby rate for up to 24 hours.												
CR-17	Permitting – Turtles	Based on cost for similar monitoring performed in Canaveral Harbor.												
CR-18	Permitting - Turtles													
CR-19	Dredging – Manatee	Based on a $3,125 dredging hourly standby rate for up to 24 hours.												
CR-20	Dredging - Whales													

CR-21	Dredged Material	Based on $10.20 unit rate for excavation provided in MII estimate.												
CR-22	Site Access													
CR-23	Unknown utilities	Applied as a 20% contingency on electrical sign relocations (RSM 101453205240) from MII cost estimate.												
CR-24	Unidentified hazardous waste	Applied as 5% contingency of total dredging costs.	0.25	0.25	Hazardous Waste	$421,413	$842,825	632119.0875	$0	3.0 MO	6.0 MO	4.5 MO		0.0 MO
CR-25	Consideration for standard weather impact	Applied as 5% contingency of total dredging costs.												
CR-26	Labor disruptions													
CR-27	Existence of debris	Applied as 1% of overall dredging costs.	0.25	0.25	Existence of debris	$0	$250,000	125000.125	$0					
CR-28	Slope Sloughing													
CR-29	Dredging scope/design	Based on 200,000 CY at $5.42 dredging unit rate provided in "Checkrate" and MII.	0.25	0.25	Dredging scope/design	$722,667	$1,084,000	903333.3333	$0	4.0 MO	6.0 MO	5.0 MO		0.0 MO
CR-30	Estimate reasonableness of crews and productivities													
CR-31	Consideration and local quotes for special equipment (cranes, barges, tugs, diving)													
Programmatic Risks (Extern														
PR-1	Adequacy of project funding (delayed, incremental or full funding)	Range of 3 to 24 months depending on approval cycle availability, MODELED AS TRIANGULAR (LOW, LOW, HIGH)	0.25	0.25	Funding adequacy	$250,000	$2,000,000	833333.3333	$0	3.0 MO	24.0 MO	10.0 MO	0.0 MO	
PR-2	Priorities change on existing program													
PR-3	Local communities pose objections													
PR-4	Loss of public trust / goodwill													
PR-5	Political factors change at local, state or federal													
PR-6	Stakeholders request late changes													
PR-7	New stakeholders emerge and demand new work													
PR-8	Influential stakeholders request additional needs to serve other purposes													

PR-9	Political opposition / threat of lawsuits				
PR-10	Stakeholders choose time and / or cost over quality				
PR-11	Acts of God (seismic events: volcanic activity, earthquakes, tsunamis; or severe weather: freezing, flooding or hurricane)				
PR-12	Federal government does not fund Corps to construct sand bypass project in future.	Based on an estimated unit rate of $10 per CY from sand by-pass dredging completed in this location previously. Source: Kevin Bodge, PhD.,P.E.			

APPENDIX C - MARKET RESEARCH

PORT CANAVERAL DEEPENING/WIDENING
HOPPER DREDGE CONCEPTUAL ESTIMATE
SECTIONS 13-OR, 12-MRW, 11-MR, 9-B

Back to Register

Volumes	Grade	OD	Total	
13-OR	-	629,041	629,041	
12. 11. 9	796,605	602,918	1,399,523	
Total	796,605	1,231,959	2,028,564	
Removed	796,605	1,231,959	2,028,564	(Assume pay plus unpaid = total available)

Assumptions: Generic Large Hopper Dredge 7,600 CY Hopper Capacity (Water)

Load Ratio (hopper to soft clay):			30%		
Mud Capacity/Hopper			2,280	CY	(Does not assume agitation dredging)
Mud Production Rate			4,200	CY/NOH	(33" suction diameter)

Production Details:

Loading			33	Minutes	
Turning	2 each	5 min	10	Minutes	
Sail Loaded	8 mi	10 mph	48	Minutes	
Sail Light	8 mi	12 mph	40	Minutes	
Discharge/Washout			10	Minutes	
Total Cycle			141	Minutes	
			2.3	Hours	
Production (Net)			973	CY/NOH	
Efficiency (NOH)		90%	22	Hours/Day	Net Operating Hours
Total Production/Day (Net)			21,020	CY/Day	

Cost Details:

Daily Cost (Dredge)		$	78,000	Per Day	
Supervision/Field OH		$	3,612	Per Day	From Dredge Estimate
Survey Vessel		$	1,072	Per Day	From Dredge Estimate
Subtotal		$	82,684	Per Day	
Markup	24.4%	$	20,175	Per Day	(16.0% OH and 8.4% Profit as per estimate)
Total Cost/Day		$	102,859	Per Day	
Total Cost/CY		$	4.89		

Mob/Demob	4	Days	$	102,859	$	411,434	
Dredge Cost	2,028,564	CY	$	4.89	$	9,919,678	
TOTAL COST, HOPPER DREDGE:					**$**	**10,331,112**	
Clamshell Dredge Cost					$	11,337,360	From Dredge Estimate
Savings by Hopper Dredge:					**$**	**1,006,248**	
				Say:	**$**	**1,000,000**	

Port Canaveral Section 203 Feasibility Study

Engineering Appendix

Attachment N

USCG Coordination on Navigation Aids (Range Markers)

CANAVERAL
PORT AUTHORITY

December 7, 2007

Commander, 7th Coast Guard District (DPW)
Attn: Mr. Joe Embres
909 SE 1st Avenue
Miami, FL 33131

RE: Port Canaveral Section 203 Feasibility Study – Navigation Improvements & Aids

A study of potential navigation improvements at Port Canaveral, Florida has been prepared by the Canaveral Port Authority (CPA) under the authority granted by Section 203 of Water Resources Development Act (WRDA) of 1986 (P.L. 99-662). The study evaluated the feasibility of improvements to the existing Federal navigation project at Port Canaveral and identified the solution that best meets the economic, environmental, physical, and social needs of the region and the nation.

Since the last major navigation improvements to the Federal navigation project at Port Canaveral were completed by the Corps of Engineers in 1995, the use of the Port by larger and deeper cruise ships and cargo vessels has resulted in a need to provide deeper and wider channels and expanded turning basins. There are great opportunities for increasing the efficiency of existing operations by providing deeper and wider channels that allow larger cruise ships to use the Port, and larger cargo vessels to carry greater loads. There are vessels presently calling at Port Canaveral that could benefit from deeper, wider channels, as well as new vessels currently on order that would use Port Canaveral if existing channels were improved.

Since construction of the 400-ft wide channel in 1995 and the increase in ever larger cruise ship traffic homeported at Port Canaveral's West Basin, the pilots have made several requests to the U.S. Coast Guard to provide outbound transit navigation aids (range structures) similar to the inbound range structures presently located west of the West Basin and aligned with the 400-ft channel centerline. To date, no federal funds have been available for the range structures and nothing has been constructed.

In addition to deepening all channel reaches, the Section 203 Feasibility Study proposes to widen the federal channel inside the jetties from 400 to 500 ft. A 100-ft widener is to be constructed on the north side of the existing channel between Middle and Trident Basins. Achieving the 100-ft widening for the west access channel, west of the Middle Basin, results from redefining the northern channel boundary 12 ft north of the existing northern boundary and widening the channel by 88 ft along the south side of the channel, deepening a portion of the barge canal.

Port Canaveral
445 Challenger Road P.O. Box 267 Cape Canaveral, Florida 32920 USA
321.783.7831 888.767.8226 www.portcanaveral.org

The enclosures depict and describe all of the features of the preferred alternative for the federal navigation project including the location of the existing inbound and proposed outbound range structures relative to the existing 400-ft and proposed 500-ft channel centerlines. While the proposed project serves to further straighten the main east-west channels within Canaveral Harbor, the 500-ft channel centerlines in the vicinity of the inbound and proposed outbound range structures do not share the same alignment.

Irrespective of whether these aids to navigation are federally or non-federally funded, the federal project costs must include budgetary estimates of the cost to relocate and replace the inbound structures and to construct new outbound structures on the new channel alignment. It is our understanding that significant technology improvements in lights and powering may notably affect the design and therefore the construction cost of these structures as compared to any cost estimates prepared previously.

We respectfully request that an updated design and construction cost estimate be provided in support of this project at the Coast Guard's earliest convenience and no later than December 31, 2007, if at all possible.

The tentative project schedule for milestone completion is as follows:

Construction Authorization – October 2008;
Engineering Design, Permitting, Construction Bid/Award – January 2010
Federal Project Construction – April 2011.

Should you have any questions or need additional information, please contact the undersigned at (321) 783-7831, ext 217. We look forward to your response.

Sincerely,

Jon O. Brazee, P.E.
Deputy Executive Director, Chief Engineer
Canaveral Port Authority

Encl

cc: Collins K. McKay, P.E.
CH2M HILL, Cape Canaveral Office
Consultant to the Canaveral Port Authority

McKay, Collins/CCG

From: Joseph.B.Embres@uscg.mil on behalf of Embres, Joseph [Joseph.B.Embres@uscg.mil]
Sent: Tuesday, June 17, 2008 9:07 AM
To: McKay, Collins/CCG
Cc: Pantelakos, Charlie
Subject: FW: Status of Prot Canaveral navigation aids estimate

Sorry this is the best we can do at this time

-----Original Message-----
From: Pantelakos, Charlie
Sent: Tuesday, June 17, 2008 8:19 AM
To: Embres, Joseph
Subject: RE: Status of Prot Canaveral navigation aids estimate

Sir,

I reviewed the aid folders and spoke with the OIC of ANT Ponce. The RFL was rehab by CGC Hammer in 06. The RRL was inspected in 07. Both structures are in very good condition. I estimate the remaining service life of both structures to be 20 yrs. The only upgrade that may be considered is converting the range to a 24 hour configuration. The upgrade would cost less than 10K.

v/r
Charlie

-----Original Message-----
From: Embres, Joseph
Sent: Monday, June 16, 2008 1:04 PM
To: Pantelakos, Charlie
Subject: FW: Status of Prot Canaveral navigation aids estimate

Can you help me with this??

-----Original Message-----
From: Collins.McKay@CH2M.com [mailto:Collins.McKay@CH2M.com]
Sent: Monday, June 16, 2008 12:40 PM
To: Embres, Joseph
Cc: Jdiamantides@dma-us.com
Subject: FW: Status of Prot Canaveral navigation aids estimate

Joe

I know you are short-handed from your last email. However, we are trying to incorporate the "latest and greatest" coordination we can get at this time from USCG since, according to the ASA/HQUSACE review of our draft study, such coordination is a requirement of the Section 203 Feasibility Study program.

Have you been able to confer with your USCG colleagues regarding the two questions below?

Thanks again Joe.

Collins

-----Original Message-----
From: McKay, Collins/CCG
Sent: Wednesday, June 11, 2008 3:30 PM
To: Joseph.B.Embres@uscg.mil
Subject: RE: Status of Prot Canaveral navigation aids estimate

Joe

Thank you for your prompt response to my last email. We are preparing to re-submit our

Section 203 Feasibility Study to the ASA/HQUSACE and are updating our project cost estimates. We have two question for you.

1. Your recent estimate included relocation of the existing inbound range. We initially assumed the USCG would take this opportunity to replace them due to age and newer technology available. We are not familiar with the USCG criteria for replacing range markers and wanted to check if you considered this option when making your estimate?

2. Has the one responsible estimator at USCG been able to work on this any further? And, if not, would it be possible over the next week?

As always, thank you for your assistance on our project.

Collins

-----Original Message-----
From: Joseph.B.Embres@uscg.mil [mailto:Joseph.B.Embres@uscg.mil]
Sent: Monday, May 05, 2008 9:37 AM
To: McKay, Collins/CCG
Subject: RE: Status of Prot Canaveral navigation aids estimate

Family emergency is still ongoing, just not as intense for me at this time, thanks for asking.

Getting exact cost for the navigation improvement is extremely difficult. If you would believe the CG has only 1 individual that can supply those numbers and he is responsible for not only the Seventh District but also the Eighth District. That said, we have come up with the following cost estimates (give or take 25%): Establish the outgoing range $ 1.7 million, relocate the inbound range $ 275K. We will continue our attempt to obtain more accurate figures.

We have looked at your plan for the reconfiguration of the channel and have some concerns regarding the changing center-line and how it affects CG standard methodology of marking channels. We will need to discuss this with pilots.

Please keep me informed as to the progress.

-----Original Message-----
From: Collins.McKay@ch2m.com [mailto:Collins.McKay@ch2m.com]
Sent: Thursday, May 01, 2008 4:11 PM
To: Embres, Joseph
Subject: RE: Status of Prot Canaveral navigation aids estimate

Joe

The last time we exchanged emails you had a family emergency. I hope that all is well with you and your family now.

If you are back to work, I was wondering if you have had a chance to re-kindle the cost estimating for the navigation aids at Port Canaveral.
We have received comments from the Assistant Secretary of the Army on our Section 203 Feasibility Study. They have asked for documentation of our coordination with USCG re navigation improvements. If not, maybe there is a person you could pass it on to.

Again, I sincerely hope that all is well with you and look forward to working with you on this matter.

Collins

-----Original Message-----
From: Joseph.B.Embres@uscg.mil [mailto:Joseph.B.Embres@uscg.mil]

Sent: Wednesday, February 20, 2008 1:33 PM
To: McKay, Collins/CCG
Subject: RE: Status of Prot Canaveral navigation aids estimate

Sorry for the delay on this but I have had a major family medical emergency and have been out for several weeks. I should be back, at least for partial days, next week.

-----Original Message-----
From: Collins.McKay@ch2m.com [mailto:Collins.McKay@ch2m.com]
Sent: Monday, February 18, 2008 12:08 PM
To: Embres, Joseph
Subject: Status of Prot Canaveral navigation aids estimate

Mr. Embres

As consultant to the Canaveral Port Authority (CPA), I send you this email alerting you of a FedEx package coming your way. I want to make sure you understand its context. Back in December, CPA sent you a letter, with attachments, requesting an update of the construction cost estimate for the Port Canaveral navigation aids (inbound and outbound). After receipt of the letter you requested an overlay drawing at 1:10,000 scale to overlay onto the navigation chart for the location. The FedEx package you should receive today is that document.

We also inquire into the status of the estimate. We are a few days away from our response to the USACE comments on our draft Section 203 Feasibility Study and would like to incorporate the figures if you have them. At this time, we have estimated their cost by escalating the estimates from several years ago. This may not be accurate since technology has changed and escalation rates have not been steady with certain market factors such as fuel cost causing major fluctuations.

On behalf of the Canaveral Port Authority,

Thank you.

Collins

Collins K. McKay, P.E.

Picture (Metafile)
445 Challenger Road - Suite 130
Cape Canaveral, Florida 32920

Office: 321-799-1236
Fax: 321-799-1183
Email: cmckay@ch2m.com <mailto:cmckay@ch2m.com>

Port Canaveral Section 203 Feasibility Study
Engineering Appendix

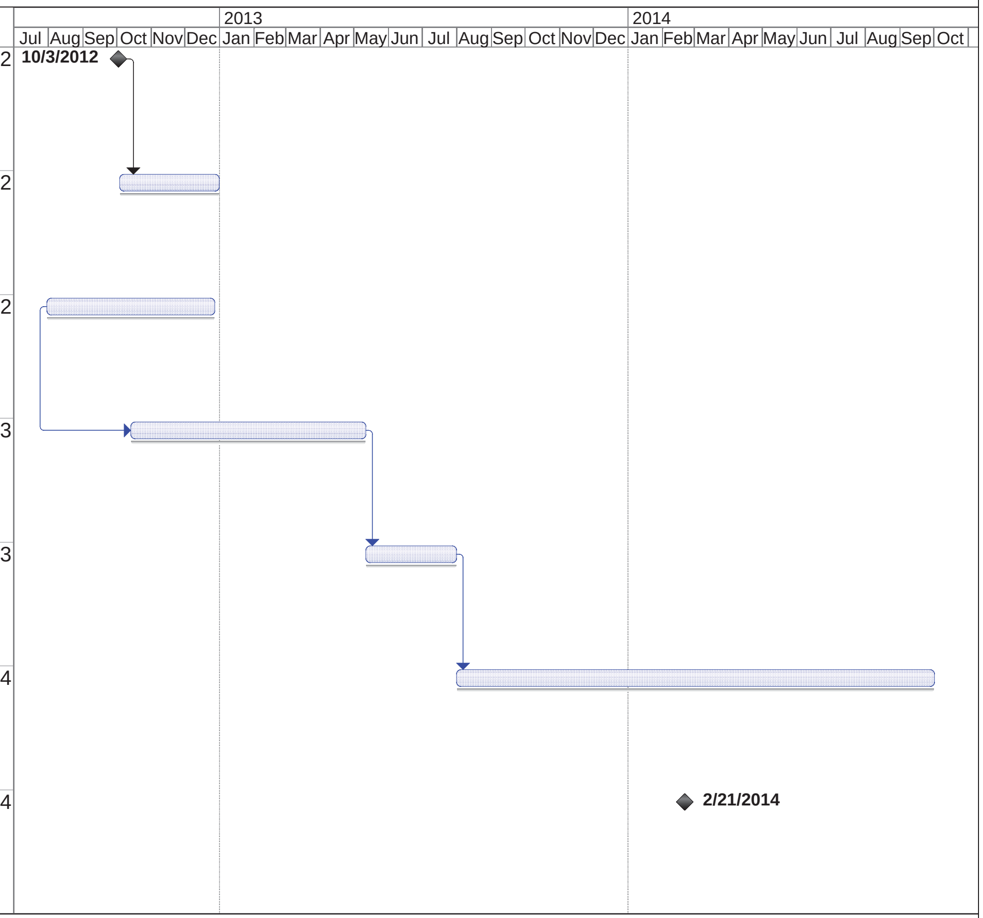
Attachment O

Project Schedule

Rev Date: October 2012

Schedule
Canaveral Port Authority
Section 203 Feasibility Study
Harbor Widening and Deepening Project

ID	Task Name	Duration	Start	Finish
1	CWRB BRIEFING	1 day	Wed 10/3/12	Wed 10/3/12
2	CONSTRUCTION AUTHORIZATION. NEGOTIATE AND SIGN PROJECT COOPERATION AGREEMENT	89 days	Thu 10/4/12	Mon 12/31/12
3	ENGINEERING DESIGN, CONSTRUCTION PLANS & SPECIFICATIONS.	150 days	Tue 7/31/12	Thu 12/27/12
4	ENVIRONMENTAL PERMITS & EASEMENTS ACQUIRED.	210 days	Sun 10/14/12	Sat 5/11/13
5	BIDDING & AWARD CONSTRUCTION CONTRACT.	81 days	Sun 5/12/13	Wed 7/31/13
6	CONSTRUCTION INCLUDING MOBILIZATION/DEMOBILIZATION, UPLAND EXCAVATION, DREDGING AND NON-DREDGING WORK AS DESCRIBED IN ENGINEERING APPENDIX.	427 days	Thu 8/1/13	Wed 10/1/14
7	CONSTRUCTION MIDPOINT	0 days	Fri 2/21/14	Fri 2/21/14



Project: Canaveral Port Authority
Date: Tue 10/9/12

Task		Progress		Summary		External Tasks		Deadline	
Split		Milestone		Project Summary		External Milestone			

Port Canaveral Section 203 Feasibility Study

Engineering Appendix

Attachment P

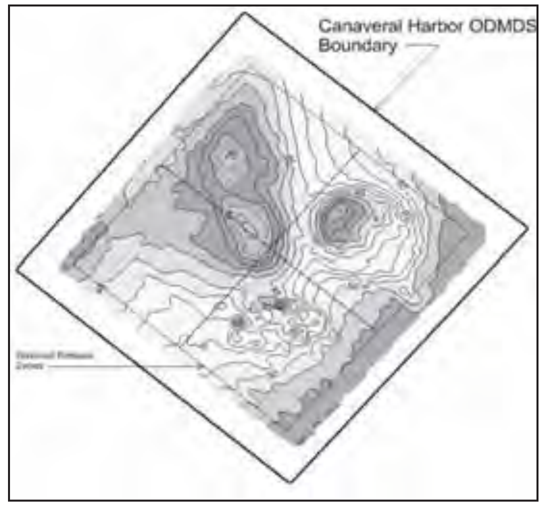
Canaveral Ocean Dredged Material Disposal Site (ODMDS)
Site Management and Monitoring Plan (SMMP)

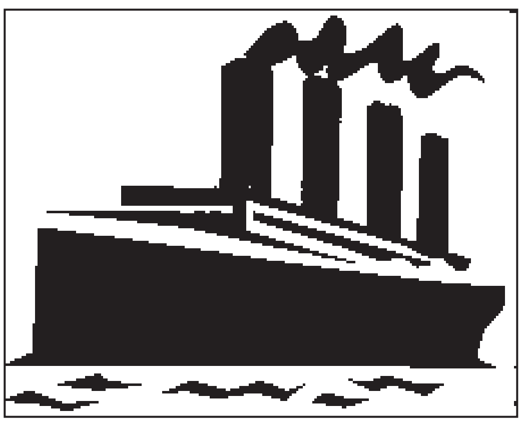
February 2012

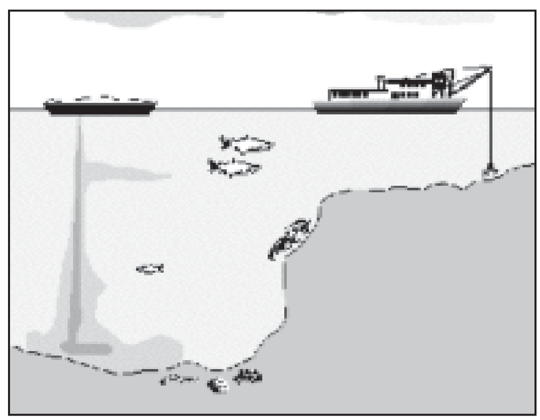
CANAVERAL HARBOR
OCEAN DREDGED MATERIAL DISPOSAL SITE

U.S. Army Corps
of Engineers

SITE MANAGEMENT AND MONITORING PLAN







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The following Site Management and Monitoring Plan for the Canaveral Harbor ODMDS has been developed and agreed to pursuant to the Water Resources Development Act Amendments of 1992 (WRDA 92) to the Marine Protection, Research, and Sanctuaries Act of 1972 for the management and monitoring of ocean disposal activities, as resources allow, by the U.S. Environmental Protection Agency and the U.S. Army Corps of Engineers.

	2/29/12		2/21/2012
Colonel Alfred A. Pantano District Commander Jacksonville District U.S. Army Corps of Engineers Jacksonville, Florida	Date	Gwendolyn Keyes Fleming Regional Administrator U.S. Environmental Protection Agency Region 4 Atlanta, Georgia	Date

This plan is effective from the date of signature for a period not to exceed 10 years. The plan shall be reviewed and revised more frequently if site use and conditions at site indicate a need for revision.

CANAVERAL HARBOR OCEAN DREDGED MATERIAL DISPOSAL SITE
SITE MANAGEMENT AND MONITORING PLAN

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1.0 INTRODUCTION

It is the responsibility of the U.S. Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (USACE) under the Marine Protection, Research, and Sanctuaries Act (MPRSA) of 1972 to manage and monitor each of the Ocean Dredged Material Disposal Sites (ODMDSs) designated by the EPA pursuant to Section 102 of MPRSA. Section 102(c)(3) of the MPRSA requires development of a Site Management and Monitoring Plan (SMMP) for each ODMDS and review and revision of the SMMP not less frequently than every 10 years. The 1996 document, *Guidance Document for Development of Site Management Plans for Ocean Dredged Material Disposal Sites* (EPA/USACE, 1996) and the EPA Region 4 and USACE South Atlantic Division Memorandum of Understanding (EPA/USACE, 2007) have been used as guidance in developing this SMMP.

A SMMP was originally developed as part of the designation process and was published in August 1990 as part of, *Final EIS Canaveral Harbor, Florida Ocean Dredged Material Disposal Site Designation* (EPA, 1990). It was revised in 2001 to incorporate the provisions of the 1992 Water Resources Development Act, which requires the SMMPs to be reviewed and revised not less frequently than every ten years. This revision to the Canaveral Harbor ODMDS SMMP incorporates monitoring results since the 2001 SMMP and updates management strategies for the ODMDS based on those results. The SMMP provisions shall be requirements for all dredged material disposal activities at the site. All Section 103 (MPRSA) ocean disposal permits or contract specifications shall be conditioned as necessary to assure consistency with the SMMP.

1.1 Site Management and Monitoring Plan Team. An interagency SMMP team was established to assist EPA and USACE in developing the 2001 Canaveral Harbor ODMDS SMMP. The team consisted of the following agencies and their respective representatives:

- Jacksonville District U.S. Army Corps of Engineers
- State of Florida (Coastal Zone Management Office)
- EPA Region 4
- U.S. Navy
- Canaveral Port Authority
- National Marine Fisheries Service (NMFS)
- U.S. Coast Guard

These agencies will continue to be consulted in revisions to the Canaveral Harbor ODMDS SMMP. Other agencies such as the Bureau of Ocean Energy Management (BOEM) will be asked to participate where appropriate. The team will assist EPA and USACE on deciding on appropriate disposal practices, appropriate monitoring techniques, the level of monitoring, the significance of results and potential management options.

Specific responsibilities of EPA and the Jacksonville District Corps of Engineers are:

> EPA: EPA is responsible for designating/dedesignating MPRSA Section 102 Ocean Dredged Material Disposal Sites, for evaluating environmental effects of disposal dredged material at these sites and for reviewing and concurring on dredged material suitability determinations.
>
> USACE: The USACE is responsible for evaluating dredged material suitability, issuing MPRSA Section 103 permits, regulating site use and developing and implementing disposal monitoring programs.

2.0 SITE MANAGEMENT

Section 228.3 of the Ocean Dumping Regulations (40 CFR 220-229) states: "Management of a site consists of regulating times, rates, and methods of disposal and quantities and types of materials disposed of; developing and maintaining effective ambient monitoring programs for the site; conducting disposal site evaluation studies; and recommending modifications in site use and/or designation."

2.1 Disposal Site Characteristics

The designation of the Canaveral Harbor ODMDS can be found in 40 CFR 228.15(h)(10). Coordinates in the CFR are provided in NAD 27. They have been converted to NAD83 in this document. The Canaveral Harbor ODMDS is a 2 nautical mile (nmi) by 2 nmi area centered at 28°18.750'N latitude and 80°30.986'W longitude (NAD 83) or state plane coordinates 1,446,630 ft N and 811,757 ft E (NAD83). The site coordinates are as follows:

	Geographic NAD 83		State Plane (Florida East 0901 U.S. Ft) NAD 83	
North	28° 20.267'N	80° 31.170'W	1,455,819 N	810,734 E
East	28° 18.867'N	80° 29.236'W	1,447,378 N	821,139 E
South	28° 17.234'N	80° 30.870'W	1,437,446 N	812,416 E
West	28° 18.617'N	80° 32.736'W	1,445,788 N	802,376 E

The site (see Figure 1) lies in the Canaveral Bight on the shallow continental shelf, centered 4.5 nmi offshore Cocoa Beach, Florida, has a depth range of 12 meters (39 feet) to 17 meters (54 feet) and an area of 4 nmi^2. Physical and biological conditions at the ODMDS are described in, *Final Environmental Impact Statement Canaveral Harbor, Florida Ocean Dredged Material Disposal Site Designation* (EPA, 1990).

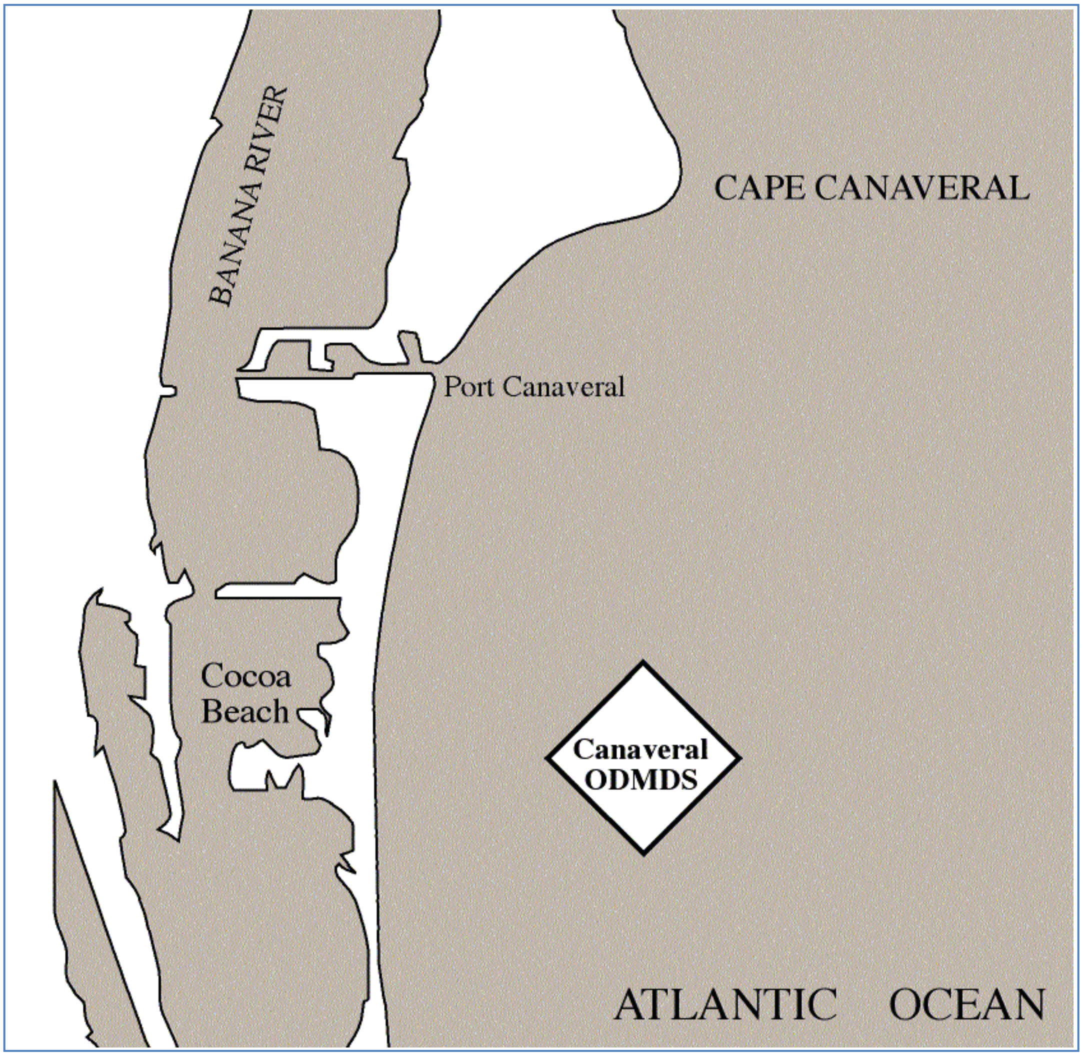

Figure 1: Canaveral Harbor ODMDS Location Map.

2.2 Management Objectives. Appropriate management of an ODMDS is aimed at assuring that disposal activities will not unreasonably degrade or endanger human health, welfare, the marine environment or economic potentialities (MPRSA §103(a)). The primary objectives in the management of the Canaveral Harbor ODMDS are:

- Protection of the marine environment;
- Documentation of disposal activities and compliance; and
- Maintenance of a long term disposal alternative for dredged material generated in the

Canaveral, Florida vicinity

The following sections provide the framework for meeting these objectives to the extent possible.

2.3 Disposal History and Dredged Material Volumes. It is intended that the Canaveral Harbor ODMDS will be used for dredged material from the greater Canaveral, Florida vicinity. The three primary users of the Canaveral Harbor ODMDS are:

- U.S. Army Corps of Engineers for Civil Works (West and Middle Turning Basins, Entrance Channel (Cut 1), Inner Channel (Cuts 2 and 3), and the Barge Canal)
- U.S. Navy (Trident Access Channel and Turning Basin, Cut 1A, Entrance Channel Widener)
- Canaveral Port Authority (West and Middle Turning Basins and Berthing Areas, Sand Trap)

Since 1974, approximately 28 million cubic yards of dredged materials have been disposed in the Canaveral Harbor ODMDS (Tables 1 and 2 and Appendix A). Since 1990 (the date of site designation), approximately 14.6 million cubic yards of dredged materials have been disposed in the Canaveral Harbor ODMDS. Between 1974 and 1990, the average annual volume of dredged material disposed in the ocean was about 943,000 cubic yards and between 1990 and 2000 the average annual disposal volume was about 847,000 cubic yards. Over the last ten years, the annual average has decreased to 550,000 cubic yards per year. The reduction in annual volumes is due to a lack of significant construction dredging projects, beneficial use of material at the nearshore site and sand tightening of the north jetty structure, which has resulted in a reduction in the amount of shoaling. Figure 2 shows the yearly record of ocean dredged material disposal in the Canaveral Harbor ODMDS for the period 1990 through 2011.

Table 1: Dredged Material Disposal Projects 2002-2011

Dates	Dredging Area	Permitee	Permit No.	Characteristics	Maintenance/ NewWork	Volume Disposed Per Zone				ODMDS Total
						North	South	East	West	
8/25/02-9/14/02	CT5,CT10,NCP1-2,NCP4,SCP1-2,WTB	CPA	200005030	silt with sand	Maintenance		91,079			91,079
6/15/02-8/28/02	Cuts2b&2c,MTB-4	CW/Navy	199904378		Maintenance			665,396		665,396
6/27/03-7/23/03	WTB,MTB,TAC,CT8	CPA	200005030	silt/clay/sand	Maintenance		133,804			133,804
5/11/03-6/26/03	Cut1,WTB,WAC,Cut 2b	CW/Navy	199904378	silt/clay/sand	Maintenance			526,500		526,500
6/15/04-8/1/04	Cut2,Cut1,TAC,TTB	CW/Navy	199904378	silt/clay	Maintenance			263,643		263,643
12/21/04-12/22/04	NCP3,CT8	CPA	200005030	silt/clay/sand	Maintenance		10,565			10,565
6/15/05-10/29/05	Cut2,Cut1	CW/Navy	199904378	silt/clay	Maintenance			417,995		417,995
6/20/06-11/11/06	Cuts1b&1&2&3,MT B	CW		silts/clays/san d	Maintenance			378,060		378,060
9/10/06-11/2/06	WTB,CT8,CT10,CT5, NCP1/2	CPA	200005030		Maintenance	104,471				104,471
5/1/07-7/9/07	South Jetty Sediment Trap	CPA	2005-3195		New Work		368,160			368,160
11/5/07-11/26/07	CT6/7,CT10,NCP3/4	CPA	200005030	mud		124,756				124,756
6/30/07-2/6/08	EC,TAC,TTB,MTB	CW/Navy			Maintenance			436,627		436,627
7/17/2008-10/6/08	Cuts1b&1&2,TAC,T TB,Poseidon Wharf	CW/Navy	20075637	mud,sand,clay ,soft clay	Maintenance			286,230		286,230
2/11/09-2/28/09	WTB	CPA	200005030		Maintenance			92,160		92,160
2/28/09-4/4/09	ICCO	CPA	19871217		New Work		239,714			239,714
5/12/10-8/5/10	Cuts1,&2,TAC,TTB	CW/Navy	20075637	mud,clay,sand ,soft-clay	Maintenance			1,170,762		1,170,762
5/14/11-6/14/11	South Jetty Sediment Trap	CPA	2005-3195	Sand,silt,clay	Maintenance	172,130				172,130
5/27/11-9/3/2011	WTB CCO Phase 2	CPA	19871217	Silt,clay,silty sand	New Work		322,580			322,580
Total						**401,357**	**1,165,902**	**4,237,373**	**0**	**5,804,632**

Table 2: Annual Disposal Volumes 2002-2011

Year	CPA	CW	Navy	Total
2002	91,079	624,407	40,989	756,475
2003	133,804	526,500	-	660,304
2004	10,565	238,162	25,481	274,208
2005		416,257	1,738	417,995
2006	104,471	378,060	-	482,531
2007	492,916	305,535	131,092	929,543
2008		263,683	22,547	286,230
2009	331,874	-	-	331,874
2010		1,152,022	18,740	1,170,762
2011	494,710	-	-	494,710
Total	1,659,419	3,904,626	240,587	5,804,632
Percent	29%	67%	4%	100%

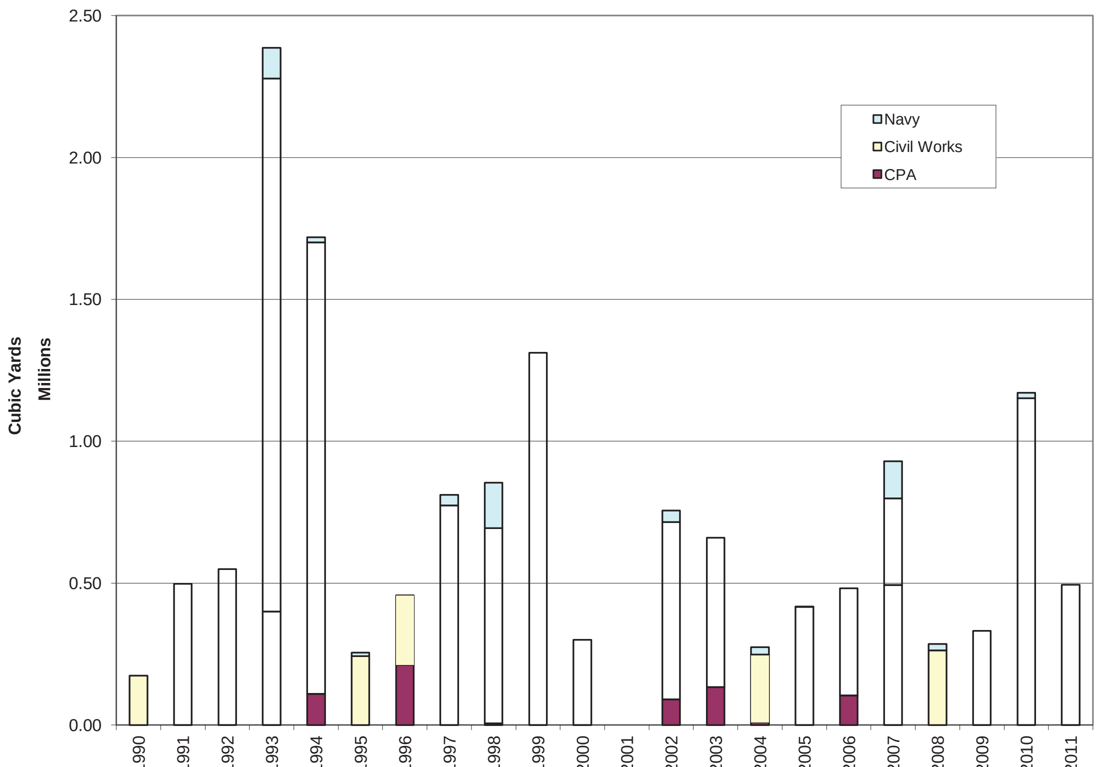

Figure 2: Volume and Sources of Dredged Material Disposed at the Canaveral Harbor ODMDS

Future volumes and rates of disposal, from both Federal and non-federal applicants, are expected to average around 900,000 cubic yards per year. Short term (10 year) projected disposal volumes are shown in Table 3 and total 9.2 million cubic yards over ten years. Civil works projects for Canaveral Harbor are anticipated to account for a majority of the total volume of material to be disposed at the ODMDS.

Table 3. Projected Volume of Dredged Material Disposed in the Canaveral Harbor ODMDS (10 year)

Year	Type of Action	Source	Volume[1] (yd^3)	Sponsor [2]	Composition
2012-2022	MD	Entrance Channel, West and Middle Turning Basins, Inner Channel and Barge Canal	364,000 per year	Civil Works	Silt and Fine Sand
2012-2022	MD	Entrance Channel Widener, Cut 1A & Trident Access Channel and Turning Basin	26,000 per year	Navy	Silt and Fine Sand
2012-2022	MD	Berthing Areas	74,000 per year	CPA	Silt and Fine Sand
2012	NW	CT5&6	178,000	CPA	Silty Sand
2012-2022	NW	Canaveral Shoals I offshore borrow area access lane	200,000	CW/KSC/ PAFB/BC	Silty Sand
2012-2022	MD	S. Jetty Sed. Trap	50,000 per year	CPA	Silt and Fine Sand
2012	NW	NCB8	139,000	CPA	Silts and Sands
2012	NW	Permitted CCO Ph 2 Deepening	202,000	CPA	Silt and Fine Sand
2012	NW	NCB 5/6	36,000	CPA	Silts and Fine Sand
2013-2014	NW	NCB 8 Expansion Setback	166,000	CPA	Silt and Fine Sand
2014	NW	Deepening and Widening of the Entrance Channel and Channel to MTB	3,100,000	Civil Works	Unknown

[1]*In situ*
[2]NW: New Work; MD: Maintenance Dredging; CPA: Canaveral Port Authority; KSC: Kennedy Space Center; PAFB: Patrick Air Force Base; BC: Brevard County

The Canaveral Harbor ODMDS has been determined to be a dispersive site (EPA, 1990). However, the dispersiveness of the site and consequently the long-term capacity of the ODMDS has yet to be determined. Site-specific field data has been collected to facilitate modeling the long-term capacity of the ODMDS (see Section 3.4.1). Capacity estimates based on the available fill volume using existing bathymetry and a maximum depth of –40 feet MLLW have been conducted for each release zone (see Table 4). Dispersion and consolidation of the disposed dredged material was not considered, nor was the need for side-slopes of the disposal mound. Therefore, use of these estimates for long range planning purposes should be cautioned. The capacity to a depth of –40 feet MLLW was estimated at 23.9 million cubic yards or 18.4 million cubic yards *in situ* based on a bulking factor of 1.3 (Hensch, 2011).

Table 4: Capacity Estimates Based on Existing Bathymetry and a Minimum Allowable Depth of -40 feet (MLLW).

Release Zone[1]	Capacity (million cubic yards)	*In Situ* Capacity (million cubic yards)
North	3.6	2.8
East	7.6	5.9
West	4.3	3.3
South	8.2	6.3
Total	**23.9**	**18.4**

[1]See Section 2.7

Until the capacity of the ODMDS has been determined utilizing USACE approved models, use of the ODMDS should not exceed half the estimated remaining site capacity (9.2 million cubic yards). This will allow sufficient time for a more detailed assessment of site capacity, implementation of management options, or environmental studies for site expansion to be conducted if necessary without adversely impacting maintenance dredging of the Port. Based on current estimates, exceedence of this volume is not anticipated. Should the approval of any project cause the exceedence of this value, an analysis of the remaining capacity of the ODMDS will have to be conducted by the USACE or permit applicant, as the case may be, prior to approval for ocean disposal of the project. The analysis should demonstrate that more than half the remaining capacity will not be consumed within the next ten years from the date of the analysis.

2.4 Dredged Material Characteristics.

2.4.1 Previously Placed Materials. Materials placed in the Canaveral Harbor ODMDS have historically consisted of silty sand, and silts and clay. Since 1992, most dredged material with less than 20 percent silt has been placed in a nearshore area rather than the ODMDS.

2.4.2. Anticipated Materials. Two basic sources of material are expected to be placed at the site; new work dredged material and maintenance material. These materials will consist of mixtures of silt, clay and sand in varying percentages. Dredged material with less than 20 percent silt is anticipated to be placed at the nearshore area rather than the ODMDS.

2.4.3 Associated Beach Quality Materials. USACE Beneficial Use of Dredged Material EM 1110-2-5026 requires dredged material be maximized within the coastal system. Dredged materials that qualify for beach or near-shore placement per the FDEP's 'Sand Rule' shall be beneficially placed in such location, to the maximum extent practicable. It is expected that the State of Florida will exercise its authority and responsibility, regarding beach nourishment, to the full extent during any future permitting activities. Beneficial use of beach compatible dredged material for beach nourishment is strongly encouraged and supported by EPA.

2.4.4 Dredge Material Quality Verification. The suitability of dredged material for ocean disposal must be verified by the USACE and agreed to via written concurrence from EPA prior to disposal. Verification will be valid for three years from the most current verification.

Verification process:

1) Case-specific evaluation against the exclusion criteria (40 CFR 227.13(b))
2) Determination of testing requirements for non-excluded material based on the potential of sediment contamination since last verification.
3) When applicable, execute testing and determination of suitability of non-excluded material for ocean disposal.

Verification documentation for suitability will be completed prior to use of the Canaveral Harbor ODMDS. Documentation will be in the form of a MPRSA Section 103 Evaluation. Potential testing and the Evaluation will follow the procedures outlined in the 1991 EPA/USACE Dredged Material Testing Manual and 2008 Southeast Regional Implementation Manual (SERIM) or the appropriate updated versions. This includes how dredging projects will be subdivided into project segments for sampling and analysis. The MPRSA Section 103 Evaluation will be in the form outlined in Appendix C of the SERIM. Water Quality Compliance determinations will be made using the STFATE (ADDAMS) model and the input parameters provided in Appendix B of this document. Only material determined to be suitable through the verification process by the USACE and EPA, Region 4 will be placed at the Canaveral Harbor ODMDS.

2.5 Time of disposal. At present no restrictions have been determined to be necessary for disposal related to seasonal variations in ocean current or biotic activity. As monitoring results are compiled, should any such restrictions appear necessary, disposal activities will be scheduled so as to avoid adverse impacts. During the winter, precautions necessary to protect whales, as described in Section 2.6, are required. Additionally, if new information indicates that endangered or threatened species are being adversely impacted, restrictions may be incurred.

2.6 Disposal Technique. No specific disposal technique is required for this site. However, in order to protect North Atlantic right whales, disposal vessel (either hopper dredge or tug and scow) speed and operation will be restricted in accordance with the most recent USACE South Atlantic Division Endangered Species Act Section 7 Consultation Regional Biological Opinion for Dredging of Channels and Borrow Areas in the Southeastern United States. In addition, the disposal vessel's captain should be aware of the vessel approach restrictions in 50 CFR §224.103 which at the time of this SMMP prohibits approach within 500 yards of a right whale by vessel, aircraft, or any other means.

2.7 Disposal Location. 40 CFR §227.28 requires that disposal occur no less than 330 feet (100 meters) inside the designated site boundaries. Release zones have been established to satisfy this criterion as well as manage dredged material disposal from multiple site users and multiple projects. The release zones are described below in Table 5 and shown in Figure 3. Disposal shall be initiated within the applicable release zone boundary and completed (i.e. doors closed) prior to leaving the ODMDS boundaries. Placement methods, which prevent mounding of dredged materials from becoming an unacceptable navigation hazard, will be used. Dredged material shall be disposed so that at no point will depths less than -40 feet Mean Lower Low Water (MLLW) occur (i.e., a clearance of 40 feet above the bottom will be maintained) until further studies have been completed (see Section 2.3).

Table 5: Canaveral Harbor ODMDS Disposal Release Zones

North Zone

Vertices	Geographic NAD 83		State Plane (Florida East 0901 U.S. Ft) NAD 83	
North	28 ° 19.921'N	80 ° 31.133'W	810,940	1,453,721
East	28 ° 19.380'N	80 ° 30.386'W	814,961	1,450,458
South	28 ° 18.746'N	80 ° 31.003'W	811,666	1,446,607
West	28 ° 19.120'N	80 ° 31.503'W	807,714	1,449,851
The north zone is for disposal of material from the Canaveral Port Authority maintenance projects.				

South Zone

Vertices	Geographic NAD 83		State Plane (Florida East 0901 U.S. Ft) NAD 83	
North	28 ° 18.746'N	80 ° 31.003'W	811,666	1,446,607
East	28 ° 18.208'N	80 ° 30.269'W	815,618	1,443,364
South	28 ° 17.578'N	80 ° 30.899'W	812,525	1,439,532
West	28 ° 18.113'N	80 ° 31.620'W	808,372	1,442,757
The south zone is for disposal of material from the Canaveral Port Authority construction projects and any civil works construction projects such as the proposed port widening and deepening.				

East Zone

Vertices	Geographic NAD 83		State Plane (Florida East 0901 U.S. Ft) NAD 83	
North	28 o 19.380’N	80 o 30.386’W	814,961	1,450,458
East	28 o 18.839’N	80 o 39.638’W	818,982	1,447,196
South	28 o 18.208’N	80 o 30.269’W	815,618	1,443,364
West	28 o 18.746’N	80 o 31.003’W	811,666	1,446,607
The east zone is for disposal of material from the U.S. Navy and USACE Civil Works maintenance projects.				

West Zone

Vertices	Geographic NAD 83		State Plane (Florida East 0901 U.S. Ft) NAD 83	
North	28 o 19.284’N	80 o 31.738’W	807,714	1,449,851
West	28 o 18.746’N	80 o 31.003’W	811,666	1,446,607
South	28 o 18.113’N	80 o 31.620’W	808,372	1,442,757
East	28 o 18.648’N	80 o 32.342’W	804,488	1,445,982
The west zone is for disposal of material from the U.S. Navy and USACE Civil Works maintenance projects.				

While control of placement to minimize mounding is preferred, the physical removal or leveling of material above -30 feet MLLW is a management alternative.

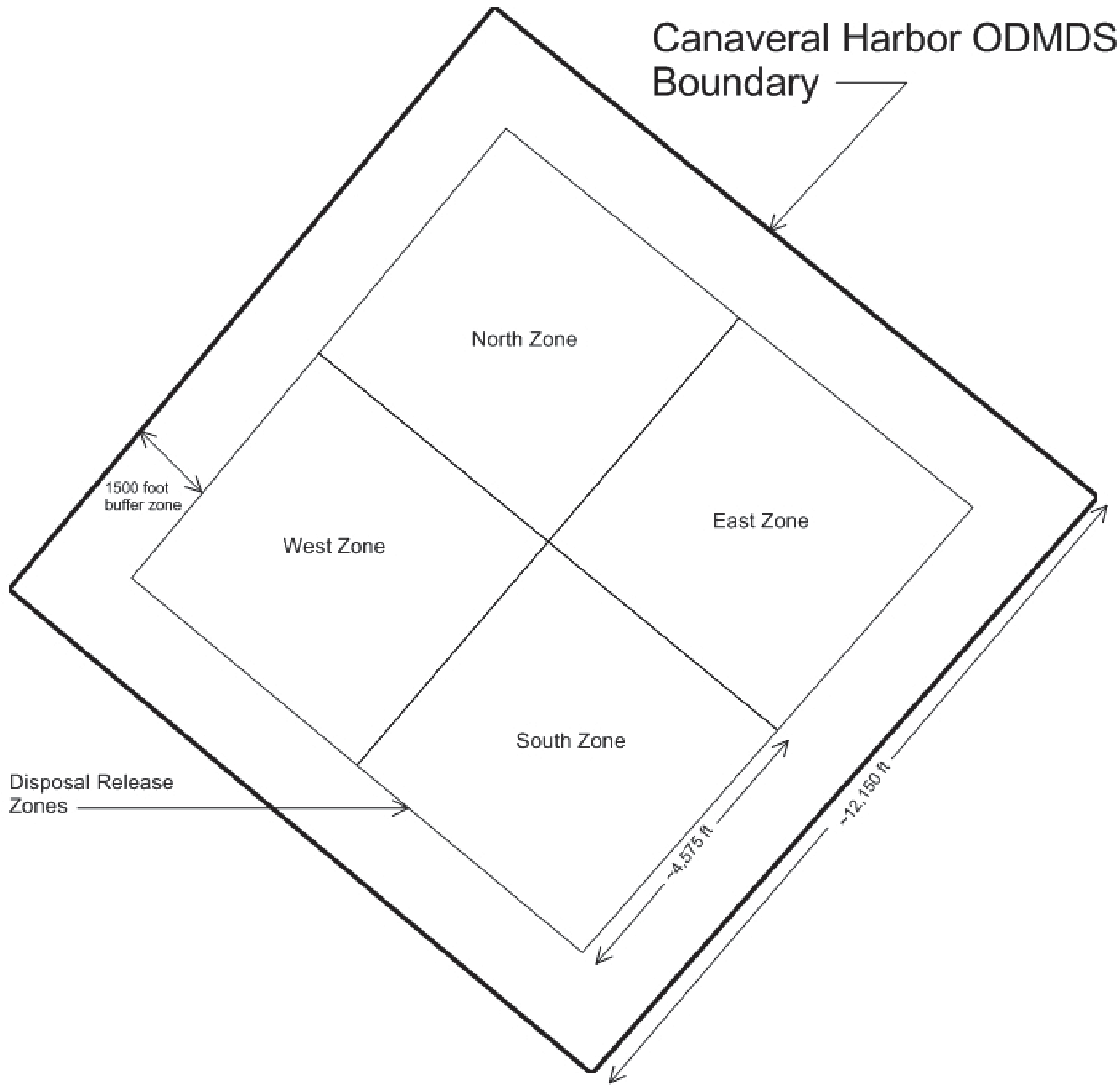

Figure 3: Canaveral Harbor ODMDS Disposal Release Zones

2.8 Permit and Contract Conditions. The disposal monitoring and post-disposal monitoring requirements described under Site Monitoring will be included as permit conditions on all MPRSA Section 103 permits and will be incorporated in the contract language for all federal projects. A summary of the management and monitoring requirements to be included are listed in Table 6. Template language that can be used is included in appendices (see Appendix C and D).

Table 6. Summary of Permit and Contract Conditions

Condition	Reference
Dredged Material Suitability and Term of Verification	Canaveral Harbor ODMDS SMMP page 9, Southeast Regional Implementation Manual
Disposal within Appropriate Zones	Canaveral Harbor ODMDS SMMP page 9-11
Northern Right Whale Avoidance	Canaveral Harbor ODMDS SMMP page 9
Post Bathymetric Surveys within 30 days of Project Completion	Canaveral Harbor ODMDS SMMP page 18
Biannual Full Site Bathymetry Surveys	Canaveral Harbor ODMDS SMMP page 22
Disposal Monitoring and Recording of Disposal Locations	Canaveral Harbor ODMDS SMMP page 18
Reporting Requirements: Disposal Summary Reports within 90 Days of Project Completion	Canaveral Harbor ODMDS SMMP page 24

2.9 Permit Process. All disposal of dredged material in the ocean, with the exception of Federal Civil Works projects, requires an ocean dumping permit issued by the USACE pursuant to Section 103 of the MPRSA. A summary of the permitting process can be found at: http://www.epa.gov/region4/water/oceans/Dredged_Material_Permit_Process.htm.

2.10 Information Management of Dredged Material Placement Activities. As discussed in the following sections, a substantial amount of diverse data regarding use of the Canaveral Harbor ODMDS and effects of disposal is required from many sources. If this information is readily available and in a useable format it can be used to answer many questions typically asked about a disposal site:

- What is being dredged?
- How much is being dredged?
- Where did the dredged material come from?
- Where was the dredged material placed?
- Was dredged material dredged and disposed correctly?
- What will happen to the environment at the disposal site?

In an attempt to streamline data sharing, EPA Region 4 and USACE South Atlantic Division have agreed on an eXtensible Markup Language (XML) standard for sharing of disposal monitoring data (see also Section 3.5). Additional standards will continue to be investigated for sharing of other disposal site related information (e.g. environmental monitoring data, testing data, etc.).

3.0 SITE MONITORING

The MPRSA establishes the need for including a monitoring program as part of the Site Management Plan. Site monitoring is conducted to ensure the environmental integrity of a disposal site and the areas surrounding the site and to verify compliance with the site designation criteria, any special management conditions, and with permit requirements. Monitoring programs should be flexible, cost effective, and based on scientifically sound procedures and methods to meet site-specific monitoring needs. The intent of the program is to provide the following:

(1) Information indicating whether the disposal activities are occurring in compliance with the permit and site restrictions;

(2) Information indicating the short-term and long-term fate of materials disposed of in the marine environment.

(3) Information concerning the short-term and long-term environmental impacts of the disposal;

The main purpose of a disposal site monitoring program is to determine whether dredged material site management practices, including disposal operations, at the site need to be changed to avoid significant adverse impacts.

3.1 Baseline Monitoring. Disposal has occurred at the present site since 1974 and predates any data gathering at the site. Therefore, no true baseline information has or can be collected. The results of investigations presented in the designation EIS (See FEIS Appendices A, B, C, D, F, and G) and subsequent surveys listed in Appendix E and Table 7 will serve as the main body of data for the monitoring of the impacts associated with the use of the Canaveral Harbor ODMDS.

Table 7. Surveys and Studies Conducted at the Canaveral Harbor ODMDS (2001-present)

Survey/Study Title	Conducted By:	Date	Purpose	Results
Canaveral Harbor ODMDS Dredged Material Erosion Rate Analysis	EPA Region 4 / Sandia National Laboratories	2001	Determine erosive properties of dredged material as a function of density, consolidation and shear stress as input to long term fate models.	- Disposed dredged material reaches full consolidation within 2 months. - Disposed dredged material is susceptible to erosion until full consolidation. - Parameters for LTFATE model calculated
Spatial Analysis of Sediment Grain Size in the Vicinity of the Canaveral Harbor ODMD	EPA Region 4	2003	Determine extent of physical impact due to dredged material disposal as determined by changes in grain size distribution.	-fine grain material in the vicinity of the Canaveral Harbor ODMDS does not appear to be originating from the ODMDS.
Ocean Current & Wave Measurements at the Canaveral Harbor ODMDS	EPA	2004	Determine site specific wave and current parameters for long and short term dredged material fate models.	-Currents are predominately northerly directed & of sufficient magnitude to initiate mound erosion 20% of the time. -Highest waves occur during late hurricane season and winter and are in excess of 3 meters. -Median wave height: 0.75 meters -Median wave period: 8.5 seconds -Wave periods are of sufficient length to influence near bottom currents.

Table 7. Surveys and Studies Conducted at the Canaveral Harbor ODMDS (2001-present)

Survey/Study Title	Conducted By:	Date	Purpose	Results
Trend Assessment Survey at the Canaveral Harbor ODMDS	EPA Region 4	2007	Periodically evaluate the impact of disposal on the marine environment (40CFR 228.9)	-Organic tins elevated in northern disposal zone. -No significant differences identified between biological stations inside and outside the ODMDS. -Lower number of taxa and density of organisms in active disposal zones (north & east zones).
Cape Canaveral Tributyltin Study	EPA Region 4	2010	Determine bioavailability of organic tin through measurement of pore water concentrations.	-Organic tins not detected in the pore water. -Organic tins no longer elevated in the sediments in north disposal zone.
Post Disposal Bathymetry Surveys	USACE, Canaveral Port Authority	Annually 2001-2011	- Insure safe navigation depth. - Monitor bathymetric trends. - Determine the aerial extent of the disposal mounds.	- Minimum depth has increased at center of ODMDS from –30.5 feet (2000) to -39.3 feet (2010) - Mounds approaching –40 feet in north and east zones. - see Figure 4.

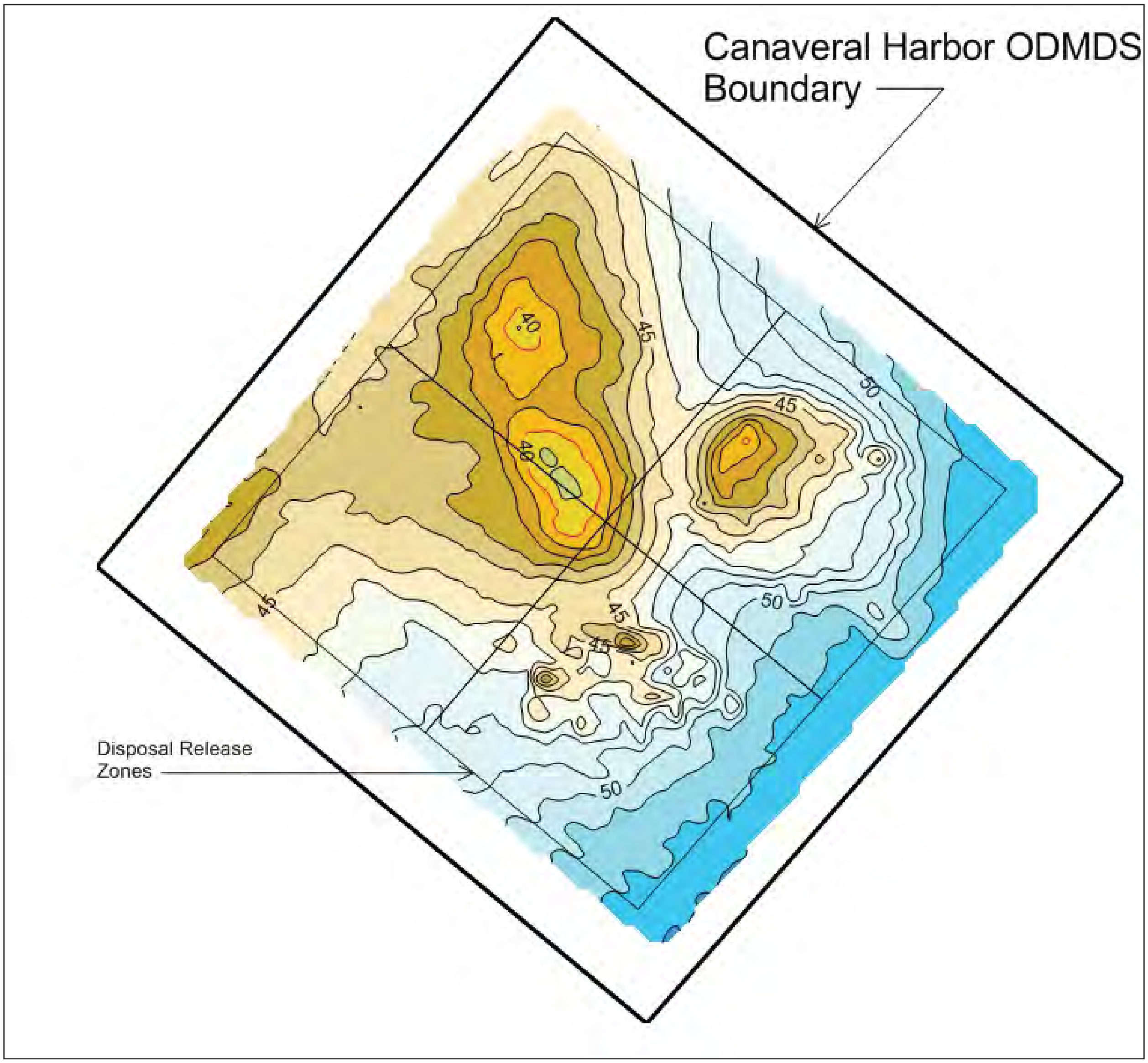

Figure 4: Canaveral Harbor ODMDS October 2010 Bathymetry

<u>3.2 Disposal Monitoring</u>. For all disposal activities, an electronic tracking system (ETS) must be utilized. The ETS will provide surveillance of the transportation and disposal of dredged material. The ETS will be maintained and operated to continuously track the horizontal location and draft condition (nearest 0.5 foot) of the disposal vessel (i.e. hopper dredge or disposal scow) from the point of dredging to the disposal site and return to the point of dredging. Data shall be collected at least every 500 feet during travel to and from the ODMDS and every minute or every 200 feet of travel, whichever is smaller, while approaching within 1,000 feet of the ODMDS and within the ODMDS. In addition to the continuous tracking data, the following trip

information shall be electronically recorded for each disposal cycle:

a. Load Number
b. Disposal Vessel Name and Type (e.g. scow)
c. Tow Vessel Name (if applicable)
d. Captain of Disposal or Tow Vessel
e. Estimated volume of Load
f. Description of Material Disposed
g. Source of Dredged Material
h. Date, Time and Location at Start at Initiation and Completion of Disposal Event

It is expected that disposal monitoring will be conducted utilizing the Dredge Quality Management (DQM) system for Civil Works projects [see http://dqm.usace.army.mil/Specifications/Index.aspx], although other systems are acceptable. Disposal monitoring and ETS data will be reported to EPA Region 4 on a weekly basis utilizing the eXtensible Markup Language (XML) specification and protocol per Section 3.5. EPA Region 4 and the USACE District shall be notified within 24 hours if disposal occurs outside of the ODMDS or specified disposal zone or if excessive leakage occurs.

3.3 Post Discharge Monitoring. The USACE or other site user will conduct a bathymetric survey within 30 days after disposal project completion. Surveys will not be required for projects less than 50,000 cubic yards. Bathymetric surveys will be used to monitor the disposal mound to insure a navigation hazard is not produced, to assist in verification of material placement, to monitor bathymetry changes and trends and to insure that the site capacity is not exceeded, i.e., the mound does not exceed the site boundaries. Surveys will conform to the minimum performance standards for Corps of Engineers Hydrographic Surveys for “Other General Surveys & Studies” as described in the USACE Engineering Manual, EM1110-2-1003, *Hydrographic Surveying* dated January 1, 2002 [http://140.194.76.129/publications/eng-manuals/em1110-2-1003/toc.htm]. The number and length of transects required will be sufficient to encompass the release zone utilized and a 500 foot wide area around it. The surveys will be taken along lines spaced at 500-foot intervals or less. The minimum performance standards from table 3-1 *Hydrographic Surveying* shall be followed. Horizontal location of the survey lines and depth sounding points will be determined by an automated positioning system utilizing a differential global positioning system. The vertical datum will be referenced to prescribed NOAA Mean Lower Low Water (MLLW) datum. The horizontal datum should be referenced to the local State Plane Coordinate System (SPCS) for that area or in Geographical Coordinates (latitude-longitude). The horizontal reference datum should be the North American Datum of 1983 (NAD 83).

3.4 Material Tracking and Disposal Effects Monitoring. Surveys can be used to address possible changes in bathymetric, sedimentological, chemical, and biological aspects of the ODMDS and surrounding area as a result of the disposal of dredged material at the site. The 2001 Canaveral

Harbor ODMDS SMMP included a Long-Term Monitoring Strategy aimed at primarily addressing capacity and the long-term fate of dredged material disposed at the ODMDS. Most of the tasks were completed. However, the modeling to address capacity issues and the long-term fate of the material was not initiated.

3.4.1 Summary of Results of Past Monitoring Surveys

Appendix E and Table 7 lists the past surveys at the Canaveral Harbor ODMDS. In general, the surface of the site is covered by rippled very fine sand below which fine grained mud exists. The surface sands probably represent *in-situ* washing of the sediment with removal of fines from the upper surface. However, it is difficult to determine if the observed sand-over-mud stratigraphy is: 1) uniquely related to surficial washing of muddy dredged materials, 2) a natural phenomenon reflecting existing sedimentation of fines derived from coastal erosion or riverine input, 3) a result of reworking of ancient muddy sediments, or 4) a reflection of all of the above sources.

The surveys/studies listed in appendix E and table 7 have indicated that the ODMDS is a dispersive site for fine grained material and as a result dredged material may extend beyond the designated site boundaries. Indicators of dredged material (from the sediment mapping, REMOTS, sidescan sonar and bathymetric surveys) appear within the ODMDS and to the northwest. Dredged material to the northwest of the site is likely either a result of offsite transport or historic short dumping. Current measurements indicate predominate currents are to the north. Erosion of fine-grained material from the bottom appears to be taking place within the center of the disposal site and is apparently related to the presence of dredged material deposits over consolidated clays. A bathymetric survey conducted in January 2000 indicated significant mounding occurring near the center of the ODMDS. Since 2000, the mound height has decreased by nine feet as disposal has been diverted from this location. However, a mound with a relief of approximately 7 feet has developed in the northwest portion of the east release zone. See figure 4 for the most recent site bathymetry.

Erosion rate analysis has indicated that disposed dredged material is most susceptible to erosion within 60 days following disposal. Currents in the vicinity of the Canaveral Harbor ODMDS tend to the north-northeast paralleling the coast. Maximum surface currents exceeded 40 cm/sec. The median surface current was 10 cm/sec whereas the median bottom current was 6 cm/sec. The depth averaged median current was 7 cm/sec. Currents are not dominated by tides although there exists a tidal component. Velocities on the order of 16 cm/sec are needed to initiate erosion of Canaveral Harbor dredged material. Near bottom currents of this magnitude or greater occur approximately 20 percent of the time. If storms or other high current/wave events occur shortly after disposal, offsite transport of disposed dredged material is likely to occur.

A 2007 Trend Assessment Study of the Canaveral Harbor ODMDS indicated elevated organic tins in the sediments within the north release zone. Concentrations of tributyltin were as high as 57µg/kg compared to background levels of less than 0.7µg/kg. All other analytes were at background levels. There were no significant differences identified between biological stations inside and outside the ODMDS. However, there were a lower number of taxa and density of organisms observed in the active release zones (North and East).

As a follow-up to the 2007 Trend Assessment Study, a study of the pore water concentration of organic tins was conducted in 2010. Organic tin partitioning is highly complex and the relationship between concentrations and observed effects is much stronger for pore water. Five sediment samples and five pore water samples were collected within the north release zone. Organic tins were not detected in either the pore water or sediment samples indicating that organic tin levels are no longer elevated due to degradation, dispersion or burial.

3.4.2 Future Monitoring Surveys

Based on the type and volume of material disposed and impacts of concern, various monitoring surveys can be used to examine if and the direction the disposed dredged material is moving, and what environmental effect the material is having on the site and adjacent areas.

At the current time, no nearby biological resources have been identified that are of concern for potential impact. The Canaveral Harbor ODMDS is at least one nautical mile from all known fish havens, artificial reefs, and fishing areas. The site has been identified as partially dispersive. This means that it is expected that material will be moved outside the site boundaries. It is also expected that this material will not move in distinct mounds, but instead will blend with the surrounding environment causing a progressive transition to sediments containing a higher percentage of silt and clay. Changes in sediment composition will likely alter the benthic community structure. However, based on previous benthic studies, it is unlikely that permanent or long-term adverse impacts will result due to changes in sediment composition.

Concern has been raised regarding the potential for disposed dredged material impacting offshore sand sources and the magnitude and extent of disposed dredged material dispersal outside of the ODMDS boundaries. Additionally, mounding at the site has raised capacity concerns. Future surveys as outlined in Table 8 will focus on monitoring for adverse environmental effects and determining the rate and direction of disposed dredged material dispersal and the capacity of the ODMDS. Should future disposal at the Canaveral Harbor ODMDS result in unacceptable adverse impacts, further studies may be required to determine the persistence of these impacts, the extent of the impacts within the marine system, and/or possible means of mitigation. In addition, the management plan presented may require revision based on the outcome of any monitoring program.

Table 8. Canaveral Harbor ODMDS Monitoring Strategies and Thresholds for Action

Goal	Technique	Sponsor	Rationale	Frequency	Threshold for Action	Management Options	
						Threshold Not Exceeded	Threshold Exceeded
Trend Assessment	Water and Sediment Quality, Benthic Community Analysis (40CFR228.13)	U.S. EPA	Periodically evaluate the impact of disposal on the marine environment (40CFR 228.9)	Approximately every 10 years.	-Absence from the site of pollution sensitive biota -Progressive non-seasonal changes in water or sediment quality	Continue Monitoring	-Conduct Environmental Effects Monitoring or Advanced Environmental Effects Monitoring -Review dredged material evaluation procedures
Environmental Effects Monitoring	Chemical Monitoring	EPA/ USACE	Determine if chemical contaminants are significantly elevated[1] within and outside of site boundaries	Implement if disposal footprint extends beyond the site boundaries or if Trend Assessment results warrant.	Contaminants are found to be elevated[1]	Discontinue monitoring.	- Institute Advanced Environmental Effects Monitoring - Implement case specific management options (ie. Remediation, limits on quantities or types of material). -Consider isolating dredged material (capping)
	Benthic Monitoring	EPA/ USACE	Determine whether there are adverse changes in the benthic populations outside of the site and evaluate recovery rates		Adverse changes observed outside of the site that may endanger the marine environment		

[1] Significantly elevated: Concentrations above the range of contaminant levels in dredged sediments that the Regional Administrator and the District Engineer found to be suitable for disposal at the ODMDS.
[2] Examples of sub-lethal effects include without limitation the development of lesions, tumors, development abnormality, and/or decreased fecundity.

Table 8. Canaveral Harbor ODMDS Monitoring Strategies and Thresholds for Action

Goal	Technique	Sponsor	Rationale	Frequency	Threshold for Action	Management Options	
						Threshold Not Exceeded	Threshold Exceeded
Advanced Environmental Effects Monitoring	Tissue Chemical Analysis	EPA/ USACE	Determine if the site is a source of adverse bioaccumulation which may endanger the marine environment	Implement if Environmental Effects Monitoring warrants.	Benthic body burdens and risk assessment models indicate potential for food chain impacts.	Discontinue monitoring	-Discontinue site use - Implement case specific management options (i.e. Remediation, limits on quantities or types of material).
	Benthic Monitoring		Determine if the site is a source of adverse sub-lethal[2] changes in benthic organisms which may endanger the marine environment		Sub-lethal effects are unacceptable.		
Monitor Bathymetric Trends	Bathymetry	USACE	Determine the extent of the disposal mound and major bathymetric changes	Every 2 years	Disposal mound occurs outside ODMDS boundaries	Continue Monitoring	-Modify disposal method/placement -Restrict disposal volumes -Enlarge site
Insure Safe Navigation Depth	Bathymetry	Site User	Determine height of mound and any excessive mounding	Post disposal for projects greater than 50,000 cy	Mound height > -40 feet mean lower low water (MLLW)	Continue Monitoring	-Modify disposal method/placement -Restrict disposal volumes
					Mound height > -30 feet MLLW	Continue Monitoring	- Physically level material

Table 8. Canaveral Harbor ODMDS Monitoring Strategies and Thresholds for Action

Goal	Technique	Sponsor	Rationale	Frequency	Threshold for Action	Management Options	
						Threshold Not Exceeded	Threshold Exceeded
Long-term Fate	LTFATE Modeling	CPA/ USACE	Determine dispersivenes of site and potential aerial extent of impact	-As resources allow	Measurable deposition (>5cm) outside of site boundaries	-Reduce buffer size to increase capacity -Continue site use without restrictions	-Increase buffer as needed. -Restrict disposal volumes. -Create sand berms to retard dredged material transport.
	Regional Grain Size Analysis or SPI	CPA/ USACE	Determine if site use if affecting grain size outside of the ODMDS	10 years	Significant decrease in mean grain size outside of ODMDS	Continue site use without restrictions	
Site Capacity	MDFATE Modeling	CPA/ USACE	Determine capacity of the site	-As resources allow - See section 2.3	Volumes exceed estimated capacity	Continue to use site without restrictions	-Enlarge site or designate new site. -Decrease depth restriction to –30 feet.
Compliance	Disposal Site Use Records in EPA Region 4's XML format	Site User	-Insure management requirements are being met -To assist in site monitoring	Weekly during the project	Disposal records required by SMMP are not submitted or are incomplete	Continue Monitoring	-Restrict site use until requirements are met

3.5 Reporting and Data Formatting.

3.5.1 Project Initiation and Violation Reporting. The USACE or other site user shall notify EPA 15 days prior to the beginning of a dredging cycle or project disposal. The user is also required to notify the USACE and the EPA within 24 hours if a violation of the permit and/or contract conditions related to MPRSA Section 103 or SMMP requirements occur during disposal operations.

3.5.2 Disposal Monitoring Data. Disposal monitoring data shall be provided to EPA Region 4 electronically on a weekly basis. Data shall be provided per the EPA Region 4 XML format and delivered as an attachment to an email to DisposalData.R4@epa.gov. The XML format is available from EPA Region 4.

3.5.3 Post Disposal Summary Reports. A Post Disposal Summary Report shall be provided to EPA within 90 days after project completion. These reports should include: dredging project title; permit number and expiration date (if applicable); contract number; name of contractor(s) conducting the work, name and type of vessel(s) disposing material in the ODMDS; disposal timeframes for each vessel; volume disposed at the ODMDS (as paid *in situ* volume, total paid and un paid *in situ* volume, and gross volume reported by dredging contractor), number of loads to ODMDS, type of material disposed at the ODMDS; identification by load number of any misplaced material; dates of pre and post disposal bathymetric surveys of the ODMDS and a narrative discussing any violation(s) of the 103 concurrency and/or permit (if applicable). The narrative should include a description of the violation, indicate the time it occurred and when it was reported to the EPA and USACE, discuss the circumstances surrounding the violation, and identify specific measures taken to prevent reoccurrence. The Post Disposal Summary Report should be accompanied by the bathymetry survey results (plot and X,Y,Z ASCII data file), a summary scatter plot of all disposal start locations, and a summary table of the trip information required by Section 3.2 with the exception of the disposal completion data. If all data is provided in the required XML format, scatter plots and summary tables will not be necessary.

3.5.4 Environmental Monitoring. Material tracking, disposal effects monitoring, and any other data collected shall be coordinated with and be provided to SMMP team members and federal and state agencies as appropriate. Data will be provided to other interested parties requesting such data to the extent possible. Data will be provided for all surveys in a report generated by the action agency.

The report should indicate:

1) How the survey relates to the SMMP and previous surveys at the Canaveral Harbor ODMDS
2) Provide data interpretations, conclusions, and recommendations
3) Project the next phase of the SMMP

Monitoring results will be summarized in subsequent revisions to the SMMP.

4.0 MODIFICATION OF THE CANAVERAL HARBOR ODMDS SMMP

Should the results of the monitoring surveys or reports from other sources indicate that continued use of the ODMDS would lead to unacceptable effects as determined by EPA and USACE; the ODMDS SMMP will be modified to mitigate the adverse impacts. The SMMP will be reviewed and revised at a minimum of every ten years. The SMMP will be reviewed and updated as necessary if site use changes significantly. For example, the SMMP will be reviewed if the quantity or type of dredged material placed at the site changes significantly or if conditions at the site indicate a need for revision.

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APPENDIX A

VOLUME OF DREDGED MATERIAL DISPOSED IN THE CANAVERAL ODMDS (1974-2000)

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Volume of Dredged Material Disposed in the Canaveral ODMDS (1974-2000)

Year	Type of Action	Source	Volume (yd^3)	Sponsor	Composition
1974	NW	Entrance Channel Trident Basin	645,198	Navy	Sandy Silt
1974	MD	Entrance Channel Trident Basin	223,986	Navy	Sandy Silt
1975	NW	Entrance Channel Trident Basin	2,196,470	Navy	Sandy Silt
1975	MD	Entrance Channel Trident Basin	187,212	Navy	Silty Sand
1975	MD	Trident Basin	63,077	Navy	Sandy Silt
1976	NW	Entrance Channel	1,343,121	Civil Works	Sandy Silt
1976	MD	Entrance Channel	341,888	Civil Works	Sandy Silt
1977	MD	Entrance Channel	48,017	Civil Works	Sandy Silt
1978	MD	Entrance Channel	282,517	Civil Works	Sandy Silt
1980	MD	Entrance Channel	1,402,547	Civil Works	Sandy Silt
1981	MD	Entrance Channel	257,326	Civil Works	Sandy Silt
1983	MD	Entrance Channel	929,555	Civil Works	Sandy Silt
1985	MD	Entrance Channel	2,958,827	Civil Works	Silty Sand
1986	NW	Entrance Channel	63,370	Civil Works	Silty Sand
1986	MD	Entrance Channel	351,535	Civil Works	Silty Sand
1988	MD	Entrance Channel	442,750	Civil Works	Silty Sand
1988	MD	Entrance Channel	1,200,188	Civil Works	Silt
1989	MD	Entrance Channel	203,000	Civil Works	Silt
1990	MD	Entrance Channel	173,772	Civil Works	Silt
1991	MD	Middle Turning Basin	497,380	Civil Works	Silt
1992	MD	Entrance Channel	342,000	Civil Works	Silt
1992	MD	Middle Turning Basin	208,000	Civil Works	Silt
1993	MD	Entrance Channel	1,878,460	Civil Works	Silt
1993	MD	Trident Access Channel	108,410	Navy	Silty Sand
1993	NW	W. Turning Basin SE Corner Cutoff	400,000	CPA	Clay
1994	NW	Entrance Channel	454,000	Civil Works	Silty Sand
1994	NW	Middle Turning Basin	1,039,000	Civil Works	Silty Sand

Year	Type of Action	Source	Volume (yd^3)	Sponsor	Composition
1994	MD	Entrance Channel	98,820	Civil Works	Silt
1994	MD	Trident Access Channel	17,510	Navy	Sandy Silt
1994	MD	W. Turning Basin CT5	24,000	CPA	Sandy Clay
1994	NW	W. Turning Basin CT10	86,000	CPA	Silty Sand
1995	MD	Entrance Channel	243,180	Civil Works	Silt
1995	MD	Trident Access Channel Turning Basin	12,090	Navy	Silt
1996	MD	Entrance Channel	245,274	Civil	Sandy Silt
1996	NW	W. Turning Basin CT8	212,000	CPA	Silty Sand
1997	MD	Entrance Channel	773,999	Civil Works	Sandy Silt
1997	MD	Trident Turning Basin	36,965	Navy	Silts & Clays
1998	MD	Entrance Channel	688,839	Civil Works	Sandy Silt
1998	MD	Entrance Channel, TTB, & Poseidon Wharf	160,044	Navy	Sandy Silts Clays
1998	MD	W. Turning Basin CT5	5,600	CPA	Sandy Clay
1999	MD	Entrance Channel	1,312,703	Navy	Sandy Silt
2000	MD	Entrance Channel	300,320	Civil Works	Silt

NW: New Work MD: Maintenance Dredging CPA: Canaveral Port Authority
All volumes are *in situ* volumes from surveys conducted at the dredging site.

APPENDIX B

WATER COLUMN EVALUATIONS NUMERICAL MODEL (STFATE) INPUT PARAMETERS

Water Column Evaluations
Numerical Model (STFATE) Input Parameters
Canaveral ODMDS

SITE DESCRIPTION

Parameter	Value	Units
Number of Grid Points (left to right)	45	
Number of Grid Points (top to bottom)	45	
Spacing Between Grid Points (left to right)	350	ft
Spacing Between Grid Points (top to bottom)	350	ft
Constant Water Depth	47	ft
Roughness Height at Bottom of Disposal Site	.005[1]	ft
Slope of Bottom in X-Direction	0	Deg.
Slope of Bottom in Z-Direction	0	Deg.
Number of Points in Ambient Density Profile Point	3	
Ambient Density at Depth = 3 ft	1.0257	g/cc
Ambient Density at Depth = 26 ft	1.0257	g/cc
Ambient Density at Depth = 47 ft	1.0259	g/cc

AMBIENT VELOCITY DATA

Parameter	Value	Units
Profile	2-Point at constant depth	
X-Direction Velocity = 8 feet	-0.17	ft/sec
Z-Direction Velocity = 8 feet	0.29	ft/sec
X-Direction Velocity = 38 feet	-0.17	ft/sec
Z-Direction Velocity = 38 feet	0.11	ft/sec

DISPOSAL OPERATION DATA

Parameter	Value	Units
Location of Disposal Point from Top of Grid	7,875	ft
Location of Disposal Point from Left Edge of Grid	7,875	ft
Dumping Over Depression	0	

INPUT, EXECUTION AND OUTPUT

Parameter	Value	Units
Location of the Upper Left Corner of the Disposal Site - Distance from Top Edge	1,800	ft
Location of the Upper Left Corner of the Disposal Site - Distance from Left Edge	1,800	ft
Location of the Lower Right Corner of the Disposal Site - Distance from Top Edge	13,950	ft
Location of the Lower Right Corner of the Disposal Site - Distance from Left Edge	13,950	ft
Duration of Simulation	14,400	sec
Long Term Time Step	600	sec

COEFFICIENTS

Parameter	Keyword	Value
Settling Coefficient	BETA	0.000[1]
Apparant Mass Coefficient	CM	1.000[1]
Drag Coefficient	CD	0.500[1]
Form Drag for Collapsing Cloud	CDRAG	1.000[1]
Skin Friction for Collapsing Cloud	CFRIC	0.010[1]
Drag for an Ellipsoidal Wedge	CD3	0.100[1]
Drag for a Plate	CD4	1.000[1]
Friction Between Cloud and Bottom	FRICTN	0.010[1]
4/3 Law Horizontal Diffusion Dissipation Factor	ALAMDA	0.001[1]
Unstratified Water Vertical Diffusion Coefficient	AKYO	Pritchard Expression
Cloud/Ambient Density Gradient Ratio	GAMA	0.250[1]
Turbulent Thermal Entrainment	ALPHAO	0.235[1]
Entrainment in Collapse	ALPHAC	0.100[1]
Stripping Factor	CSTRIP	0.003[1]

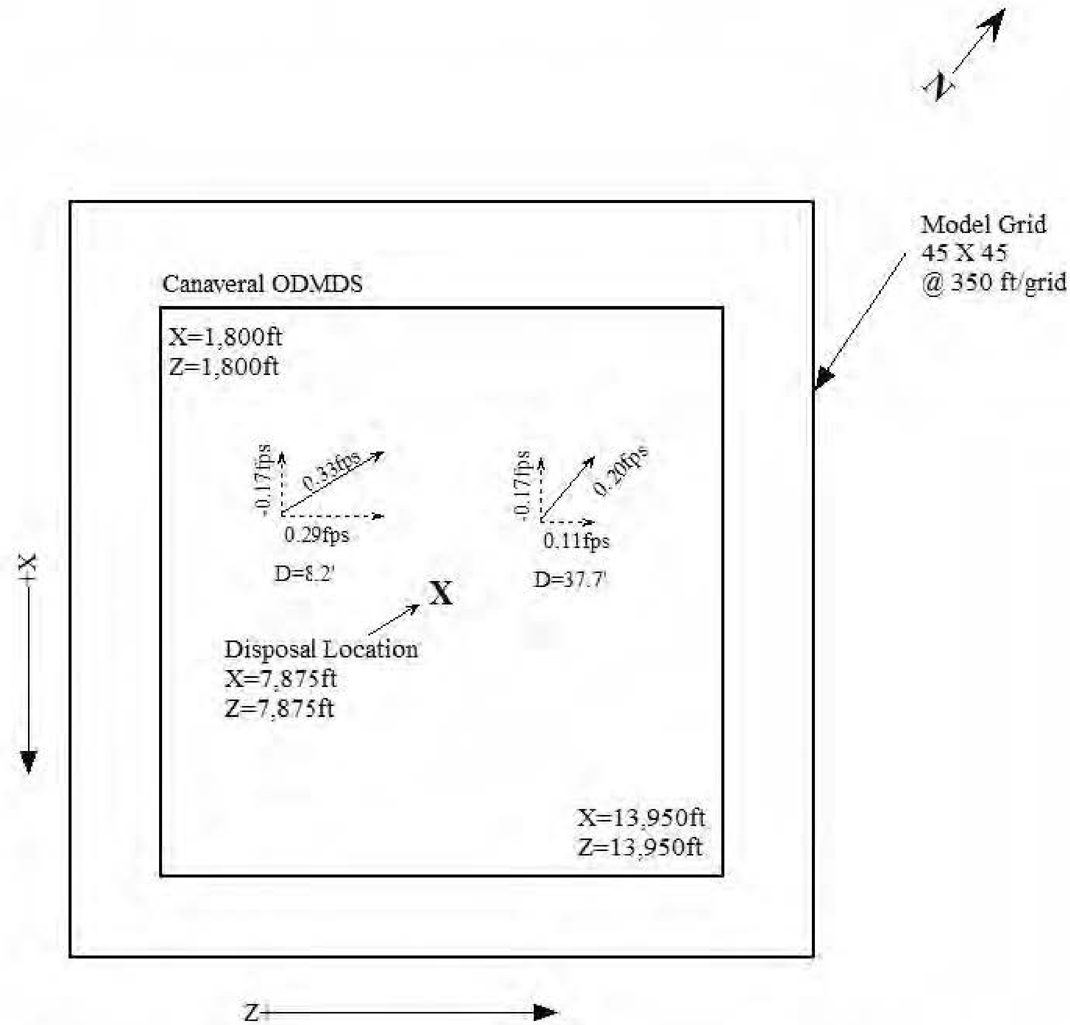
[1] Model Default Value

Expected dilution at 4 hours = 2,500:1.

Expected dilution at edge of disposal site > 60,000:1

Dilution will be dependent on the characteristics of the dredged material and the size of the disposal vessel. These values are for a very silty material with high water content and a 4,000 cubic yard scow.

Canaveral ODMDS STFATE Input Parameters



Canaveral Harbor ODMDS Background Water Concentration.	
Chemicals of Concern	**Background Concentration Levels (µg/l)**
Arsenic	1.36 [1]
Cadmium	0.008 [1]
Chromium (VI)	0.29 [2]
Copper	0.34 [1]
Lead	0.076 [2]
Mercury	0.01 [2,4]
Nickel	0.25 [2]
Selenium	5.0 [1,4]
Silver	0.009[1]
Zinc	2.33[1]
Cyanide	0 [5]
Tributyltin (TBT)	0.01 [1,4]
Aldrin	0.005 [1,4]
Chlordane	0.005 [1,4]
DDT	0.012 [1,4]
Dieldrin	0.005 [1,4]
alpha - Endosulfan	0.005 [1,4]
beta - Endosulfan	0.010 [1,4]
Endrin	0.010 [1,4]
gamma-BHC (Lindane)	0.002 [1,4]
Heptachlor	0.004 [1,4]
Heptachlor Epoxide	0.005 [1,4]
Toxaphene	0 [5]
Pentachlorophenol	4.85 [1,4]

[1] 2007 EPA Status and Trends Survey at the Canaveral ODMDS
[2] Site Designation Studies for a New Ocean Dredged Material Disposal Site off Jacksonville, Florida: Spring and Fall 2010 Survey Results
[3] Reference Station Water from the 2006 Mayport Harbor 103 Evaluation
[4] Analyte not detected. Value based on one half the reporting limit.
[5]Analyte detection limits are well above WQC. If analytes are detected in the dredged material elutriate, a concentration of zero will be assumed at the ODMDS.

APPENDIX C

TEMPLATE
GENERIC SPECIAL CONDITIONS
FOR MPRSA SECTION 103 PERMITS
CANAVERAL HARBOR, FL ODMDS

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GENERIC SPECIAL CONDITIONS
FOR MPRSA SECTION 103 PERMITS

I. DISPOSAL OPERATIONS

A. For this permit, the term disposal operations shall mean: navigation of any vessel used in disposal of operations, transportation of dredged material from the dredging site to the Canaveral Harbor ODMDS, proper disposal of dredged material at the disposal area within the Canaveral Harbor ODMDS, and transportation of the hopper dredge or disposal barge or scow back to the dredging site.

B. The Canaveral Harbor ODMDS is defined as the rectangle with center coordinates of 28°18.750'N latitude and 80°30.986’W longitude (NAD 83) or state plane coordinates 1,446,630 ft N and 811,757 ft E (NAD83). The site coordinates are as follows:

	Geographic NAD 83		State Plane (Florida East 0901 U.S. Ft) NAD 83	
North	28 ° 20.267’N	80 ° 31.170’W	1,455,819 N	810,734 E
East	28 ° 18.867’N	80 ° 29.236’W	1,447,378 N	821,139 E
South	28 ° 17.234’N	80 ° 30.870’W	1,437,446 N	812,416 E
West	28 ° 18.617’N	80 ° 32.736’W	1,445,788 N	802,376 E

C. No more than [NUMBER] cubic yards of dredged material excavated at the location defined in [REFERENCE LOCATION IN PERMIT] are authorized for disposal at the Canaveral Harbor ODMDS.

D. The permittee shall use an electronic positioning system to navigate to and from the Canaveral Harbor ODMDS. For this section of the permit, the electronic positioning system is defined as: a differential global positioning system or a microwave line of site system. Use of LORAN-C alone is not an acceptable electronic positioning system for disposal operations at the Canaveral Harbor ODMDS. If the electronic positioning system fails or navigation problems are detected, all disposal operations shall cease until the failure or navigation problems are corrected.

E. The permittee shall certify the accuracy of the electronic positioning system proposed for use during disposal operations at the Canaveral Harbor ODMDS. The certification shall be accomplished by direct comparison of the electronic positioning system’s accuracy with a known fixed point.

F. The permittee shall not allow any water or dredged material placed in a hopper dredge or disposal barge or scow to flow over the sides or leak from such vessels during transportation to the Canaveral Harbor ODMDS.

G. A disposal operations inspector and/or captain of any tug boat, hopper dredge or other vessel used to transport dredged material to the Canaveral Harbor ODMDS shall insure compliance with disposal operation conditions defined in this permit.

1. If the disposal operations inspector or the captain detects a violation, he shall report the violation to the permittee immediately.

2. The permittee shall contact the U.S. Army Corps of Engineers, Jacksonville District's Regulatory Division [TELEPHONE NUMBER] and EPA Region 4 at (404) 562-9391 to report the violation within twenty-four (24) hours after the violation occurs. A complete written explanation of any permit violation shall be included in the disposal summary report.

H. When dredged material is disposed, no portion of the hopper dredge or disposal barge or scow shall be outside of the boundaries of the Canaveral Harbor ODMDS as defined in Special Condition B. Additionally, disposal shall be initiated within the disposal release zone defined by the following coordinates:

[insert coordinates for appropriate release zone]

Vertices	Geographic NAD 83		State Plane (Florida East 0901 U.S. Ft) NAD 83	
Center				
North				
West				
South				
East				

I. [Reserved]

J. The permittee shall use an electronic tracking system (ETS) that will continuously track the horizontal location and draft condition of the disposal vessel (hopper dredge or disposal barge or scow) to and from the Canaveral Harbor ODMDS. Data shall be collected at least every 500 feet during travel to and from the ODMDS and every minute or every 200 feet of travel, whichever is smaller, while approaching within 1,000 feet and within the ODMDS. The permittee shall use Florida State Plane or latitude and longitude coordinates (North American Datum 1983). State Plane coordinates shall be reported to the nearest foot and latitude and longitude coordinates shall be reported as decimal degrees out to 6 decimals. Westerly longitudes are to be reported as negative. Draft readings shall be recorded in feet out to 2 decimals.

K. The permittee shall record electronically for each load the following information:

a. Load Number
b. Disposal Vessel or Scow Name
c. Tow Vessel Name (if scow used)
d. Captain of Disposal or Tow Vessel

e. Estimated volume of Load
f. Description of Material Disposed
g. Source of Dredged Material
h. Date, Time and Location at Start at Initiation and Completion of Disposal Event
i. The ETS data required by Special Condition I.J.

L. The permittee shall conduct a bathymetric survey of the Canaveral Harbor ODMDS within 30 days following project completion.

1. The number and length of the survey transects shall be sufficient to encompass the release zone specified in Special Condition H and a 500 foot wide area around the site. The transects shall be spaced at 500-foot intervals or less.

2. Vertical accuracy of the survey shall be ±0.5 feet. Horizontal location of the survey lines and depth sounding points will be determined by an automated positioning system utilizing either microwave line of site system or differential global positioning system. The vertical datum shall be mean lower low water (m.l.l.w) and the horizontal datum shall use Florida State Plane or latitude and longitude coordinates (North American Datum 1983). State Plane coordinates shall be reported to the nearest 0.10 foot and latitude and longitude coordinates shall be reported as decimal degrees to 6 decimal points.

M. Enclosed is the Regional Biological Opinion (RBO) dated [INSERT DATE], for swimming sea turtles, whales, and sturgeon. The RBO contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that is also specified in the RBO. Your authorization under the Corps permit is conditional upon your compliance with all of the mandatory terms and conditions associated with the incidental take of the attached RBO, which terms and conditions are incorporated by reference in the permit. Failure to comply with the terms and conditions associated with the incidental take of the RBO, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute non-compliance with your Corps permit. However, depending on the affected species NMFS is the appropriate authority to determine compliance with the terms and conditions of its RBO and with the Endangered Species Act (ESA). For further clarification on this point, you should contact the appropriate agency. Should they determine that the conditions of the RBO have been violated; normally they will enforce the violation of the ESA, or refer the matter to the Department of Justice.

II. REPORTING REQUIREMENTS

A. All reports, documentation and correspondence required by the conditions of this permit shall be submitted to the following addresses: U.S. Army Corps of Engineers (Corps), Regulatory Division, Enforcement Section, P.O. Box 4970, Jacksonville, Florida 32232-0019 and U. S. Environmental Protection Agency (EPA) Region 4 s Wetlands, Coastal and Oceans Branch, 61 Forsyth Street, Atlanta, GA 30303. The Permittee shall reference this permit number, [INSERT PERMIT NUMBER], on all submittals.

B. At least 15 days before initiating any dredging operations authorized by this permit, the Permittee shall provide to the Corps and EPA a written notification of the date of commencement of work authorized by this permit.

C. Electronic data required by Special Conditions I.J and I.K shall be provided to EPA Region 4 on a weekly basis. Data shall be submitted as an eXtensible Markup Language (XML) document via Internet e-mail to DisposalData.R4@epa.gov. XML data file format specifications are available from EPA Region 4.

D. The permittee shall send one (1) copy of the disposal summary report to the Jacksonville District's Regulatory Division and one (1) copy of the disposal summary report to EPA Region 4 documenting compliance with all general and special conditions defined in this permit. The disposal summary report shall be sent within 90 days after completion of the disposal operations authorized by this permit. The disposal summary report shall include the following information:

1. The report shall indicate whether all general and special permit conditions were met. Any violations of the permit shall be explained in detail.

2. The disposal summary report shall include the following information: dredging project title; dates of disposal; permit number and expiration date; name of contractor(s) conducting the work, name and type of vessel(s) disposing material in the ODMDS; disposal timeframes for each vessel; volume disposed at the ODMDS (as paid *in situ* volume, total paid and un paid *in situ* volume, and gross volume reported by dredging contractor), number of loads to ODMDS, type of material disposed at the ODMDS; identification of any misplaced material (outside disposal zone or the ODMDS boundaries); dates of pre and post disposal bathymetric surveys of the ODMDS and a narrative discussing any violation(s) of the 103 permit. The disposal summary report should be accompanied by the bathymetry survey results (plot and X,Y,Z ASCII data file).

III. PERMIT LIABILITY

A. The permittee shall be responsible for ensuring compliance with all conditions of this permit.

B. The permittee and all contractors or other third parties who perform an activity authorized by this permit on behalf of the permittee shall be separately liable for a civil penalty of up to $50,000 for each violation of any term of this permit thy commit alone or in concert with the permittee or other parties. This liability shall be individual, rather than joint and several, and shall not be reduced in any fashion to reflect the liability assigned to and civil penalty assessed against the permittee or any other third party as defined in 33 U.S.C. Section 1415(a).

C. If the permittee or any contractor or other third party knowingly violates any term of this permit (either alone or in concert), the permittee, contractor or other party shall be individually liable for the criminal penalties set forth in 33 U.S.C. Section 1415(b).

APPENDIX D

TYPICAL CONTRACT LANGUAGE
FOR IMPEMENTING THE
CANAVERAL HARBOR ODMDS SMMP
REQUIREMENTS

TYPICAL CONTRACT LANGUAGE FOR IMPEMENTING SMMP REQUIREMENTS

3.3 DISPOSAL OF DREDGED MATERIAL

3.3.1 General

All material dredged shall be transported to and deposited in the disposal area(s) designated on the drawings. The approximate maximum and average distance to which the material will have to be transported are as follows:

Disposal Area&	Maximum Distance Statute Miles	Average Distance Statute Miles
Canaveral Harbor ODMDS		
[INSERT DISPOSAL AREA 2]	[XX miles]	[XX miles]

[IF MATERIAL FROM DIFFERENT PROJECT AREAS GO TO DIFFERENT DISOSAL AREAS, IT COULD BE SPECIFIED HERE]

3.3.2 Ocean Disposal Notification

a.&The Corps or the contractor shall notify EPA Region 4 's Wetlands, Coastal and Oceans Branch (61 Forsyth Street, Atlanta, GA 30303) at least 15 calendar days and the local Coast Guard Captain of the Port at least 5 calendar days prior to the first ocean disposal. The notification will be by certified mail with a copy to the Contracting Officer. The following information shall be included in the notification:

(1) Project designation; Corps of Engineers' Contracting Officer's name and contract number; and, the Contractor's name, address, and telephone number.
(2) Port of departure.
(3) Location of ocean disposal area (and disposal zone if required).
(4) Schedule for ocean disposal, giving date and time proposed for first ocean disposal.

3.3.3 Ocean Dredged Material Disposal Sites (ODMDS)

The material excavated shall be transported to and deposited in the Canaveral Harbor ODMDS shown on the drawings. When dredged material is disposed, no portion of the hopper dredge or disposal barge or scow shall be outside of the boundaries of the Canaveral Harbor ODMDS as shown on the drawings. Additionally, disposal shall be initiated within the disposal release zone defined by the following coordinates:
[insert coordinates for appropriate release zone]

Vertices	Geographic NAD 83		State Plane (Florida East 0901 U.S. Ft) NAD 83	
Center				
North				
West				
South				
East				

3.3.4 Logs

The Contractor shall keep a log for each load placed in the Canaveral Harbor ODMDS. The log entry for each load shall include:

a. Load Number
b. Disposal Vessel or Scow Name
c. Tow Vessel Name (if scow used)
d. Captain of Disposal or Tow Vessel
e. Estimated volume of Load
f. Description of Material Disposed
g. Source of Dredged Material
h. Date, Time and Location (coordinates) at Start of Initiation and Completion of Disposal Event

At the completion of dredging and at any time upon request, the log(s) shall be submitted in paper and electronic formats to the Contracting Officer for forwarding to the appropriate agencies.

3.3.5 Overflow, Spills and Leaks

Water and dredged materials shall not be permitted to overflow or spill out of barges, hopper dredges, or dump scows during transport to the disposal site(s). Failure to repair leaks or change the method of operation which is resulting in overflow of spillage will result in suspension of dredging operations and require prompt repair or change of operation to prevent overflow or spillage as a prerequisite to the resumption of dredging.

3.3.6 Electronic Tracking System (ETS) for Ocean Disposal Vessels

The Contractor shall furnish an ETS for surveillance of the movement and disposition of dredged material during dredging and ocean disposal. This ETS shall be established, operated and maintained by the Contractor to continuously track in real-time the horizontal location and draft condition of the disposal vessel (hopper dredge or disposal barge or scow) for the entire dredging cycle, including dredging area and disposal area. The ETS shall be capable of displaying and recording in real-time the disposal vessel's draft and location.

[USE LANGUAGE BELOW FOR NON DQM PROJECTS]

3.3.6.1 ETS Standards

The Contractor shall provide automated (computer) system and components to perform in accordance with COE EM 1110-1-2909. A copy of the EM can be downloaded from the following web site: http://www.usace.army.mil/inet/usace-docs eng-manuals/em.htm. Horizontal location shall have an accuracy equal to or better than a standard DGPS system, equal to or better than plus/minus 10 feet (horizontal repeatability). Vertical (draft) data shall have an accuracy of plus/minus 0.5 foot. Horizontal location and vertical data shall be collected in sets and each data set shall be referenced in real-time to date and local time (to nearest minute), and shall be referenced to the same state plane coordinate system used for the survey(s) shown in the contract plans. The ETS shall be calibrated, as required, in the presence of the Contracting Officer at the work location before disposal operations have started, and at 30-day intervals while work is in progress. The Contracting Officer shall have access to the ETS in order to observe its operation. Disposal operations will not commence until the ETS to be used by the Contractor is certified by the Contracting Officer to be operational and within acceptable accuracy. It is the Contractor s responsibility to select a system that will operate properly at the work location. The complete system shall be subject to the Contracting Officer s approval.

3.3.6.2 ETS Data Requirements and Submissions

a.&The ETS for each disposal vessel shall be in operation for all dredging and disposal activities and shall record the full round trip for each loading and disposal cycle. (NOTE: A dredging and disposal cycle constitutes the time from commencement of dredging to complete discharge of the material.) The Contracting Officer shall be notified immediately in the event of ETS failure and all dredging operations for the vessel shall cease until the ETS is fully operational. Any delays resulting from ETS failure shall be at the Contractor s expense.

b.&Data shall be collected, during the dredging and disposal cycle, every 500 feet (at least) during travel to the disposal area, and every minute or every 200 feet, whichever is smaller, while approaching within 1,000 feet and within the disposal area.

c.&Plot Reporting (2 types):

a. Tracking Plot - For each disposal event, data collected while the disposal vessel is in the vicinity of the disposal area shall be plotted in chart form, in 200-foot intervals, to show the track and draft of the disposal vessel approaching and traversing the disposal area. The plot shall identify the exact position at which the dump commenced. A sample Track and Draft Plot Diagram is on the web site indicated in paragraph CONSTRUCTION FORMS AND DETAILS below.

b. Scatter Plot - Following completion of all disposal events, a single and separate plot will be prepared to show the exact disposal locations of all dumps. Every plotted location shall coincide with the beginning of the respective dump. Each dump shall be labeled with the corresponding Trip Number and shall be at a small but readable scale. A sample Scatter Plot Diagram is on the web site indicated in paragraph CONSTRUCTION FORMS AND DETAILS below.

c. Summary Table – A spreadsheet which contains all of the information in the log(s) [Section 3.3.4] above shall be prepared and shall correspond to the exact dump locations represented on the Scatter Plot. A sample Summary Table spreadsheet is on the web site indicated in paragraph CONSTRUCTION FORMS AND DETAILS below.

d.&ETS data and log data required by Section 3.3.4 shall be provided to EPA Region 4 on a weekly or more frequent basis. Data shall be submitted to EPA Region 4 as an eXtensible Markup Language (XML) document via Internet e-mail to DisposalData.R4@epa.gov. XML data file format specifications are available from EPA Region 4. All digital ETS data shall be furnished to the Contracting Officer within 24 hours of collection. The digital plot files should be in an easily readable format such as Adobe Acrobat PDF file, Microstation DGN file, JPEG, BMP, TIFF, or similar. The hard copy of the ETS data and tracking plots shall be both maintained onboard the vessel and submitted to the Contracting Officer on a weekly basis.

[FOR DQM PROJECTS]

See: http://dqm.usace.army.mil/Specifications/Index.aspx

For scows, the monitoring profile, TDS profile or Ullage profile shall be used.

3.3.6.3 Misplaced Materials

Materials deposited outside of the disposal zone specified in 3.3.3 will be classified as misplaced material and will result in a suspension of dredging operations. Redredging of such materials will be required as a prerequisite to the resumption of dredging unless the Contracting Officer, at his discretion, determines that redredging of such material is not practical. If redredging of such material is not required then the quantity of such misplaced material shall be deducted from the Contractor's pay quantity. If the quantity for each misplaced load to be deducted cannot initially be agreed to by both the Contractor and Contracting Officer, then an average hopper/scow load quantity for the entire contract will be used in the determination. Misplaced loads may also be subject to penalty under the Marine, Protection, Research and Sanctuaries Act. Materials deposited above the maximum indicated elevation or outside of the disposal area template shown will require the redredging or removal of such materials at the Contractor's expense. In addition, the Contractor must notify the Contracting Officer and the Environmental Protection Agency Region 4 's Wetlands, Coastal and Oceans Branch (61 Forsyth Street, Atlanta, GA 30303) within 24 hours of a misplaced dump or any other violation of the Site Management and Monitoring Plan for the Canaveral Harbor ODMDS. Corrective actions must be implemented by the next dump and the Contracting Officer must be informed of actions taken.

APPENDIX E

SURVEYS AND STUDIES CONDUCTED AT THE CANAVERAL HARBOR ODMDS 1984-2000

Surveys and Studies Conducted at the Canaveral Harbor ODMDS

Survey/Study Title	Conducted By:	Date	Purpose	Results
Interpretative Analysis of Surficial Sediments as an Aid in Transport Studies of Dredged Materials in Cape Canaveral, FL	U.S. COE Waterways Experiment Station	1984	Determine the direction and amount of sediment transport from a dredged material disposal site.	-No trends in sediment distribution -Sand waves indicate recent current activity capable of transporting sediment. -Detailed site-specific data are necessary in order to make conclusive statements about sediment transport off the disposal site.
Field Survey of the Canaveral Harbor ODMDS	Continental Shelf Associates for COE	1986	Video, Bathymetry, Hydrography, Water Quality, Sediment Benthic Survey, Tissue Analysis	-Baseline Survey -All data collected except could not obtain video due to poor clarity.
Sediment Mapping at Charleston, SC and Canaveral, FL	UGA Center for Applied Isotopes for EPA	1988	Characterization of bottom sediments using gamma spectrometery	-Showed possible presence of dredged material west of the site (low gamma activity). -Showed a mound of dredged material in the center of the site (low gamma activity).
Sidescan Sonar	EPA	July 1988	Clear candidate site with respect to obstructions and outcrops (live bottom)	-Areas of differing sediment character identified coincidental with low gamma activity.

Surveys and Studies Conducted at the Canaveral Harbor ODMDS

Survey/Study Title	Conducted By:	Date	Purpose	Results
Video & Still Photography	EPA	July 1988	Visually observe the nature of the sediment exhibiting unique gamma isotope signatures as well as differing sonar returns.	-Could not obtain video due to poor clarity. -Photo's verified that the areas identified in sediment mapping and sidescan sonar surveys contained dredged material. -The dredged material identified to the west of the site appears to be from direct disposal and not transport.
Sediment Mapping Rapid Surveillance of Fernandina Beach Canaveral, FL ODMDSs	UGA Center for Applied Isotopes for EPA	April 1989	Examine areas identified in previous survey and areas to the northwest of the site boundaries	-Area of low gamma activity extends beyond the site boundaries to the northwest
REMOTS (Remote Ecological Monitoring of the Seafloor)	Science Applications International Corp. for EPA	1990	Delineate the areal extent of dredged material at the Canaveral ODMDS, assess the biological status of the area, compare the mapped results of the gamma sled with those of REMOTS.	-Verified sediment mapping results. -Concluded site is dispersive for fines. Fines are eroded from the surface of the deposited material. -Dredged material may extend well beyond designated site boundaries. -Recommend precision bathymetric and sidescan survey and current meters and wave gauges.
Canaveral Harbor, FL ODMDS Benthic Communities Study	Battelle Ocean Sciences/Barry Vittor & Associates for	1990	Benthic community characterization	-Sampled 15 sites based on REMOTS data. -Species abundance very high and individual abundance moderately high.

Surveys and Studies Conducted at the Canaveral Harbor ODMDS

Survey/Study Title	Conducted By:	Date	Purpose	Results
	EPA			
Bathymetric Survey	COE - Jacksonville District	December 1991	Monitor bathymetry changes	-Minimum depth of 39.6 feet northwest of center of ODMDS -Depth at southern corner of ODMDS = 52.4 feet
Bathymetric Survey	COE - Jacksonville District	January 1993	Monitor bathymetry changes	-Minimum depth of 40.2 feet northwest of center of ODMDS -Depth at southern corner of ODMDS = 52.7 feet
Bathymetric Survey	COE - Jacksonville District	March 1994	Monitor bathymetry changes	-Minimum depth of 40.0 feet northwest of center of ODMDS -Depth at southern corner of ODMDS = 51.0 feet
Disposal Monitoring	Lyman Burk	October 1994	-Compliance	-Disposal occurred throughout site. -No disposal occurred outside of site.
Post Disposal Sediment Mapping at the Canaveral, FL ODMDS	UGA Center for Applied Isotopes for EPA	March 1995	Document changes in seafloor environment since 1989.	-Mound in center of site is still present. -Western & northwestern extensions of dredged material still present. -New deposit of dredged material detected just inside the eastern corner of the ODMDS. -Possible presence of dredged material still exists to west of site. This material does not match material in site or surrounding ambient material.

Surveys and Studies Conducted at the Canaveral Harbor ODMDS

Survey/Study Title	Conducted By:	Date	Purpose	Results
Thesis: A Study of Dredged Material Dispersion on the Inner Continental Shelf, Cape Canaveral, FL	Julie Ellen Vann: Florida Institute of Technology	August 1995	Estimate potential for burial of the inner shelf sediments and benthic communities by disposed dredged material	-Dispersion of plume phase of disposal the significant factor in overall dispersion. -Erosion of bulk or solid phase is less significant. More current data is necessary to assess this phase. -Dredged material has dispersed to cover a 596 km^2 area.
Disposal Monitoring	Gahagan Bryant Assoc.	August 1995		-Disposal occurred mostly at the center of the site. -No disposal occurred outside of site.
Bathymetric Survey	COE - Jacksonville District	July 1996	Monitor bathymetry changes	-Minimum depth of 42.2 feet north corner of ODMDS -Depth at southern corner of ODMDS = 52.9 feet
Disposal Monitoring	CPA	August 1996	Compliance for CT#8 (permit #199101718)	-Disposal occurred mostly at the center of the site. -No disposal occurred outside of site.
Bathymetric Survey	COE - Jacksonville District	January 2000	Monitor bathymetry changes	-Minimum depth of 33.2 feet northwest of center of ODMDS -Depth at southern corner of ODMDS = 50.5 feet -Significant shoaling occurring
Acoustic Plume	EPA/NOAA	August	Estimate Dispersion	-Results inconclusive. Leakage plumes and

Surveys and Studies Conducted at the Canaveral Harbor ODMDS

Survey/Study Title	Conducted By:	Date	Purpose	Results
Tracking		2000	Coefficient	barge malfunction interfered with ability to measure plumes.
Erosion Rate Study	EPA / Sandia National Laboratories	October 2000	Determine Erodibility of Dredged Material as function of bulk density and shear stress for use in long term fate models.	- Disposed dredged material reaches full consolidation within 2 months. - Disposed dredged material is susceptible to erosion until full consolidation. - Parameters for LTFATE model calculated
Bathymetric Survey	COE - Jacksonville District	November 2000	Monitor bathymetry changes	-Minimum depth of 30.5 feet northwest of center of ODMDS -Depth at southern corner of ODMDS = 52.0 feet -Significant shoaling occurring