

February 2003

Executive Summary

**AN ECONOMIC ANALYSIS OF
THE DISTRICT'S WATERWAYS
IN VOLUSIA COUNTY**

Submitted to



**Florida Inland Navigation District
Jupiter, Florida**



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GEC Project No. 22805105B

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IN VOLUSIA COUNTY**

Submitted to

Florida Inland Navigation District
Jupiter, Florida

Submitted by

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EXECUTIVE SUMMARY



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INTRODUCTION AND SUMMARY OF FINDINGS

The purpose of this report is twofold: (1) to identify and quantify the total economic impact of the waterways operated, maintained, or within the boundaries of the Florida Inland Navigation District (the District) in Volusia County; and (2) to estimate the influence of the waterways on property values in the county. For the purpose of this report, the District's waterways include the Intracoastal Waterway and all waterways that are physically connected to them. The expected impacts to the Volusia County economy and to property values for three waterway conditions were evaluated: (1) existing conditions; (2) cessation of maintenance of the waterways (resulting in vessel draft restrictions of three feet MLW on the waterways); and (3) increased maintenance of the waterways (resulting in vessel draft restrictions of 12 feet MLW). This analysis also addresses the influence that the waterways have had on the construction of larger, more expensive homes on the waterways.

The results of the analysis are summarized below:

- Impacts of the waterways under existing conditions:
 - \$267 million in business volume
 - \$86 million in personal income
 - 2,979 jobs
 - \$339 million to \$429 million in property values
- Expected impacts of the waterways assuming a cessation of waterways maintenance:
 - Decrease of \$43 million in business volume
 - Decrease of \$15 million in personal income
 - Decrease of 637 jobs
 - Decrease of \$143 million in property values
- Expected impacts of the waterways assuming an increase in waterways maintenance:
 - Increase of \$6 million in business volume
 - Increase of \$2 million in personal income
 - Increase of 84 jobs
 - Increase of nearly \$2 million in property values



Like most ocean inlets, shoaling at Ponce de Leon Inlet, as viewed here from the lighthouse, results in the need for periodic dredging. On average, \$7.8 million is spent annually maintaining the Atlantic Intracoastal Waterway in Florida.

Background

With reduced federal funding, the local sponsors of the nation's inland navigation systems are being required to shoulder a larger portion of the maintenance costs. For example, studies have shown that maintenance of the Atlantic Intracoastal Waterway Project in Florida requires expenditures of \$7.8 million each year while federal funding remains at \$3.2 million per

year. The District has made a decision not to allow the waterways to deteriorate by deferring maintenance projects and has elected to fund this budgetary shortfall. This investment by the District may total up to \$230 million over the 50-year planning period of the waterway. With such a large potential investment, the District needs to educate the general public as well as federal, state, and local public officials of the economic importance of expending these monies to meet the needs of the waterways.

The Atlantic Intracoastal Waterway is a 1,391-mile federally and locally maintained channel between Trenton, New Jersey, and Miami, Florida. The Florida segment, which was completed in 1965, is 370 miles long and follows coastal rivers and lagoons past numerous tourism-oriented communities.

The waterway from the Florida/Georgia border to Miami was constructed and is maintained by the Jacksonville District Corps of Engineers in cooperation with the Florida Inland Navigation District, the local sponsor for the waterway. Continued maintenance dredging is required because the channel is subject to sedimentation from upland erosion and coastal sediment migration through ocean inlets. A Long Range Dredged Material Management Plan for meeting dredged material management requirements over the next 50 years has been developed and is presently being implemented.

The Intracoastal Waterway in Volusia County

The Intracoastal Waterway extends about 49 miles through Volusia County. The waterway enters the county near Mile 815 via a land-cut section before entering the headwaters of the Halifax



Completed in 1887, the 175-foot Ponce de Leon Inlet Lighthouse designates the only ocean inlet in Volusia County.

River. The waterway proceeds down the Halifax River as it widens to Daytona Beach, a highly developed area with numerous marinas serving area boaters. South of Daytona Beach the waterway passes the City of Port Orange to the Ponce de Leon Inlet. The inlet supplies the only offshore access from the waterway within the county. North of the Ponce de Leon Inlet, at Mile 840, the waterway leaves the Halifax River and proceeds through a two-mile landcut, entering the North Indian River just south of the Ponce de Leon Inlet. The waterway proceeds south past the City of New Smyrna Beach, at which point the waterway extends about 10 miles as a straight, dredged channel between the mainland and numerous small islands. This dredged channel proceeds past the community of Edgewater to the Mosquito

Lagoon, a shallow body of water; the Intracoastal Waterway is dredged on the western side of the Lagoon.

The waterway leaves Volusia County near Mile 864. Ten bridges span the waterway on its course through the county, connecting numerous urban centers on the mainland with the island.

THE ECONOMIC IMPACT OF MARINE RELATED BUSINESS IN VOLUSIA COUNTY

In general terms, there are two types of economic impacts or benefits associated with an inland navigation system, National Economic Development (NED) benefits and Regional Economic Development (RED) benefits. Inland waterway systems have historically been evaluated to determine economic feasibility based on NED benefits, which are economic benefits to the nation and not a particular region. The purpose of this analysis is to estimate the regional benefits generated by the waterways in Volusia County.

Regional benefits can be classified as direct, indirect, induced, and total. The direct impacts of the waterways are the goods and services purchased from marine related businesses in Volusia County. Direct impacts include the initial round of spending and employment generated by business activity that is directly dependent on the waterways. Indirect impacts consist of the goods and services purchased by marine related businesses in Volusia County. These impacts are the additional

“rounds” of spending that result from the initial sales by waterway-impacted businesses. Induced impacts consist of increased household purchases of goods and services (such as food, clothing, and housing) by employees of businesses directly and indirectly impacted by the waterways. In short, navigation on the waterways results in dollars being pumped into the region that generate primary and secondary economic benefits to the area, benefits that include increased business activity (sales), personal income (wages), and employment (jobs).

Many techniques have been developed to estimate types and levels of regional economic impacts. These models are based on the understanding of a regional economy as an interdependent entity. IMPLAN is a regional impact model that enables the evaluation of the economic impact of specific activities such as retail, wholesale, manufacturing, and service sales and the construction or operation of public works projects within an economy. IMPLAN was used in this analysis to estimate the regional economic impacts of the waterway.

Identifying and Quantifying Current Marine Related Business Volume

A database of 284 marine related businesses in Volusia County was developed from various sources. These businesses were surveyed by mail and telephone to obtain information on their marine related business patterns and practices. A total of 116 completed surveys were obtained, resulting in a response rate of 41 percent.

Characteristics of Marine Related Business

Selected findings of the marine related business survey are presented below:

- About 60 percent of the businesses are located on or adjacent to the waterway.
- 47 percent are dependent on being on or adjacent to the waterway.
- The three most prominent lines of business are manufacturing, retail trade, and services.
- 85 percent of the respondents’ business volume is marine or water related.
- Most marine industry firms employ fewer than four people and have annual revenues of less than \$500,000.
- 68 percent of the firms believe their revenue would decrease if vessel drafts were restricted to three feet.



284 marine related businesses were identified in Volusia County, serving the nearly 26,000 registered vessels in the county.

- 37 percent of the firms believe their revenue would increase if vessel drafts were 12 feet.

The 284 businesses in the database were aggregated to 27 similar business types, which were classified as generating a commercial benefit or a recreational benefit. Commercial business types were assumed to consist of boat charters/rentals. The remaining business types were classified as recreational.

The total marine related sales in Volusia County, as calculated from the survey responses, is estimated at \$203.8 million, of which only \$8.5 million is expected to be commercial benefits.

The \$203.8 million in business revenue was distributed by type of activity as follows:

- \$6.8 million in construction activity
- \$1.4 million in transportation activities
- \$56.6 million in retail trade
- \$5.1 million in used boat sales
- \$82.1 million in manufacturing activities
- \$13.1 million in wholesale trade
- \$336,000 in finance activity
- \$37.4 million in service activities

The locations of the 284 businesses in the county are presented in Figure 1, color-coded by business activity. Businesses conducting more than one type of activity were classified according to their predominate activity.

Current Purchases of Non-Marine Related Items

To estimate the economic impacts of non-marine related items purchased from businesses not located on the waterways, 298 recreational boaters and fishermen were interviewed on the waterway throughout Volusia County. A summary of purchasing patterns of recreational boaters who were interviewed are presented below:

- Survey respondents purchased an average of \$39.84 per day of boating at establishments not located on the waterway.
- Larger boats that are not trailered tend to spend less money at establishments not located on the waterways.
- Smaller vessels spend almost all their expenditures at establishments not located on the waterways.



- Total expenditures on non-marine items at establishments not located on the waterways include \$26.9 million for gasoline and \$18.1 million for food, drinks, and ice.

Characteristics of Recreational Boaters

Highlights of the results of the interviews of the 298 recreational boaters are presented below:

- The primary local residence of boaters:
 - Volusia County - 67 percent
 - Seminole County - 11 percent
 - Orange County - 5 percent
 - Duval County - 3 percent
 - Lake County - 3 percent
 - Other - 11 percent
- The primary permanent residence of the boaters:
 - Florida - 97 percent
 - Maryland - 1 percent
 - Other - 2 percent
- There was an average of 3 persons per boat; the most common occurrence was two persons per boat.
- 28 percent owned a second boat, and 4 percent owned two other boats.
- 57 percent of boaters used an outboard boat, 32 percent used an inboard, and 6 percent used “other boat” types (namely personal watercraft).
- Of the boaters who owned more than one boat, the boats that were not being used on the day of the interview were typically outboards, followed by personal watercraft.
- The length of boats owned by the boaters ranged between 6 feet and 70 feet, with most being between 16 and 26 feet.
- 51 percent of the boaters were on half-day trips, 40 percent were on full-day trips, and 9 percent were on multiple day trips.
- Pleasure boating was the most frequent primary purpose of the boating trip, followed by fishing.
- 75 percent of the boaters intended to stay in inland waters.
- 25 percent of boaters launching in Volusia County intended to access offshore waters.

- 77 percent of all boats are stored at home on a trailer, 9 percent are stored at some type of commercial storage facility, and 4 percent are at a private wet slip.
- Boaters that store their boat at a commercial storage facility pay an average of \$2,317 per year.
- Boaters annually spend an average of \$1,006 on maintenance and \$495 on boat insurance premiums.
- 7 percent of the people interviewed had incurred damage to their boat while using the waterway in the past year.
- The most frequent type of damage was to the propeller, followed by damage to the vessel's lower unit or outdrive, then by grounding their vessel to the point of incurring towing fees.
- The most frequent cause of damage was running aground, followed by damage from an unknown source or object in the water, then by hitting a submerged object or piling.

Current Economic Impact of Marine Related Activities

The retail sales of the 284 marine related businesses in Volusia County generate a total of \$220.1 million in local business volume, \$78.3 million in personal income (wages), and 2,683 jobs. The greatest impacts are generated by the manufacturing activities.

The \$45 million in retail purchases (\$26.9 million for gasoline sales and \$18.1 million for food, drinks, and ice) by recreational boaters from establishments not located on the waterways were estimated to generate economic impacts of \$47.2 million in business volume, \$7.9 million in personal income, and 296 jobs.



If maintenance of the waterways were to cease, shoaling would quickly restrict vessel drafts on the county's waterways such as the Halifax River, resulting in the loss of 2,342 jobs and \$71 million in wages in the county.

The current total economic impact of the waterways (marine related businesses and the purchase of non-marine related items) consist of \$267.3 million in business volume, \$86.3 million in personal income, and 2,979 jobs (Table 1).

Table 1. Summary of Total Economic Impacts Attributable to the Waterways

Activity	Recreational Economic Impacts				Commercial Economic Impacts				Total Economic Impacts			
	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
Business Volume (Millions)	183.47	31.86	38.94	254.27	8.57	1.9	2.6	13.07	\$192.04	\$33.76	\$41.54	\$267.34
Personal Income (Millions)	54.75	11.30	14.83	80.88	3.7	0.74	0.99	5.43	\$58.45	\$12.04	\$15.82	\$86.31
Employment	1,752	380	553	2,685	232	25	37	294	1,984	405	590	2,979

Economic Impact of a Cessation of Waterways Maintenance

If maintenance of the waterways in Volusia County was to cease, it is believed that shoaling would eventually result in an effective vessel draft limitation of three feet. This in turn would result in a reduction of marine related business generated by vessels drafting in excess of three feet.

Based on the responses of businesses surveyed for this analysis, an average of 76.8 percent of marine related business activity would be lost if vessel drafts were limited to three feet MLW. The largest impacts are expected in the manufacturing sector, followed by the retail trade sector, then by the service sector.

The total economic impact expected to be generated with three-foot vessel draft restrictions on the waterways (marine related businesses and the purchases of non-marine related items) is presented in Table 2. The total impact includes \$223 million in business volume, \$71 million in personal income, and 2,342 jobs. *This is a reduction of \$43 million in business volume, \$15 million in personal income, and 637 jobs compared to existing conditions on the waterways.*

Table 2. Summary of Total Economic Impacts Attributable to the Waterways Assuming Vessel Draft Restrictions of Three Feet

Activity	Recreational Economic Impacts				Commercial Economic Impacts				Total Economic Impacts			
	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
Business Volume (Millions)	159.01	26.26	33.10	218.37	3.58	0.79	1.09	5.46	\$162.59	\$27.05	\$34.19	\$223.83
Personal Income (Millions)	46.89	9.26	12.61	68.76	1.54	0.31	0.41	2.26	\$48.43	\$9.57	\$13.02	\$71.02
Employment	1,436	311	471	2,218	97	11	16	124	1,533	322	487	2,342

Economic Impact of an Increase in Waterways Maintenance

The full implementation of the District’s Dredge Material Management Plan would result in a higher state of maintenance of the waterways and an increase in vessel draft restrictions to 12 feet MLW. This increase in draft allowance would permit deeper draft vessels to fully utilize the waterways in Volusia County.

According to marine related businesses surveyed for this analysis, increasing vessel drafts on the waterways to 12 feet MLW would result in an overall average increase in direct business sales of 3.8 percent, from the current level of \$203.8 million to \$211.6 million (a \$7.8 million increase). The increase is expected to be distributed as:

- \$50,000 in construction activity
- \$4.0 million in retail trade
- \$366,000 in used boat sales
- \$52,000 in manufacturing
- \$898,000 in wholesale trade
- \$2.4 million in services activities.

This higher maintenance scenario should not significantly impact the sale of non-marine related items by businesses that are not located on the waterways. These impacts should be equivalent to those under current waterways conditions.

The combined total impacts (marine related businesses and purchases of non-marine related items) under this scenario are presented in Table 3. Total impacts include \$273 million in business volume, \$88 million in personal income, and 3,063 jobs. *This is an increase of \$6 million in business volume, nearly \$2 million in personal income, and 84 jobs compared to existing conditions on the waterways.*

Table 3. Summary of Total Economic Impacts Attributable to the Waterways Assuming Vessel Draft Restrictions of 12 Feet

Activity	Recreational Economic Impacts				Commercial Economic Impacts				Total Economic Impacts			
	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
Business Volume (Millions)	183.47	31.86	38.94	254.27	12.57	3.04	3.60	19.21	\$196.04	\$34.90	\$42.54	\$273.49
Personal Income (Millions)	54.75	11.30	14.83	80.88	5.01	1.14	1.19	7.33	\$59.76	\$12.44	\$16.02	\$88.21
Employment	1,752	380	553	2,685	286	40	52	378	2,038	420	605	3,063

THE IMPACT OF THE WATERWAYS ON PROPERTY VALUES IN VOLUSIA COUNTY

The impact of the waterways (under current conditions and two maintenance scenarios) on property values is evaluated to illustrate the importance of the waterways on property valuations and property tax collections. The expected impacts to property values are evaluated for existing conditions, cessation of maintenance of the waterways, and a higher state of maintenance.

Current Impact of the Waterways on Property Values

Residential Property

The impact of the waterways in Volusia County on property values was estimated by comparing values of property located directly on the Intracoastal Waterway to values of properties located on waterways connected to the Intracoastal Waterway that have varying vessel draft restrictions and to properties that have no access to the waterways. The comparison focused on subdivisions having at least one property on the waterways.



A significant premium is paid for waterfront homes. Riverfront homes have an average market value of over \$384,000 compared to an average value of just under \$125,000 for homes without waterway access.

Two methods were used to estimate the impact of the waterways on single family residential property values in Volusia County. The first method assumes that if the waterways did not exist, waterfront property

would have been developed with the same size and value

characteristics as existing non-waterfront parcels. This would have led to the development of more smaller lots containing smaller, less valuable homes. The existing 826 canal front parcels in Volusia County with houses that average 1,836 square feet would have been developed as 869 parcels containing 1,639 square feet houses, similar to existing non-waterfront property. The current 1,893 riverfront parcels in the county containing houses that average 2,642 square feet would have been developed as 3,831 parcels containing smaller, less expensive houses. As a result, the 826 canal front properties that are currently valued at \$161.3 million would have been developed as 869 non-waterfront parcels valued at \$108.5 million, for a reduction of \$52.8 million. The 1,893 riverfront properties that are currently valued at \$727.5 million would have been developed as 3,831 non-waterfront parcels valued at \$478.5 million, for a reduction of \$279.0 million. The total impact of the waterways on single family residential property values is approximately \$301.7 million.

The second methodology is based on the difference in the market value per square foot of building area (including land value) between houses on the waterways versus those removed from the waterways. It is assumed that the number and size of houses are the same as they are today, but the value of these houses, on a per-square-foot basis, reflects the current value of non-waterway property. The current average market value is \$76.22 per square foot of building area for non-waterfront parcels, \$106.32 per square foot of building area for parcels on connecting canals (a difference of \$30.10 per square foot versus parcels without waterway access), and \$145.43 per square

foot of building area for riverfront parcels (a difference of \$69.21 per square foot versus parcels without waterway access).

The impact of the waterways on residential property values can be estimated by multiplying the difference in property value per square foot of building area by the total square feet of building area of single family waterfront residences. Under this methodology, the waterways have increased single family residential property values in Volusia County by approximately \$391.8 million.

Other Residential Property

Vacant Land

The influence of the waterways on vacant residential parcels was estimated by comparing the value of waterfront parcels to non-waterfront parcels in the same subdivision. There are 66.55 acres of subdivided canal front vacant land with an average value of \$154,068 per acre, 266.32 acres of riverfront vacant land with an average value of \$155,959 per acre, and 544.9 acres of vacant subdivided land removed from the waterway with an average value of \$57,510 per acre. Applying the difference between the current value of waterfront vacant land and non-waterfront vacant land to the identified waterfront acres of vacant land results in a total impact of \$32.6 million.

Vacant subdivided land is only a portion of the vacant land in the county that may eventually be developed for residential use. Large areas in the southern part of the county are undeveloped and may eventually be subdivided into residential waterfront subdivisions. However, due to data constraints, the impact of these undivided lands cannot be determined at this time.

Condominiums

The impact of the waterways on condominium values cannot be estimated with the data available from the Florida property files; however, it is likely to be minimal. A comparison of the condominiums coded as riverfront with those coded non-riverfront in the same subdivisions did not indicate that riverfront condominium property values were influenced by the waterways. This may be due in part to the fact that unlike single family residential parcels, where property owners have access to boat docking facilities on the waterways, condominium owners must secure separate access to a boat dock.

Mobile Homes

A review of Property Appraiser data on the value of mobile home parcels indicates that the waterways have had an impact on the value of riverfront mobile homes, but apparently not on the value of mobile homes on connecting canals. The 75 riverfront mobile home parcels in the county are appraised at an average of \$99.62 per square foot and have a total appraised

value of \$10.1 million. Mobile home parcels that do not have access to the waterways, but are located in waterfront subdivisions, are appraised at an average value of \$49.68 per square foot. If the waterways did not exist, it is assumed that the 75 riverfront mobile homes would be valued similar to existing homes that are removed from the waterway, or \$49.94 per square foot less than their current value. Applying this value to the seventy-five 1,362 square-foot mobile homes results in a reduction of \$68,018 per mobile home, or a total impact of \$5.1 million.

Commercial Property

Marina revenue is totally dependent on the existence of the waterways. Without the waterways, the value of these parcels would decrease to the value of nearby non-waterfront parcels. The total appraised value of the 15 marina parcels in coastal sections of the county, including boat slips, is \$9.4 million, or \$340,911 per acre, including land and buildings. If the waterways did not exist, it is assumed that the land currently occupied by the marinas would have been developed as residential property, with per-acre values that reflect existing residential developments near the waterways. The current market value of developed residential non-waterfront parcels in waterfront subdivisions is \$350,121 per acre, including land and buildings. Based on this comparison, the marinas have not significantly impacted the value of commercial property in Volusia County.

Total Current Impacts to Property Values

It is estimated that the waterways in Volusia County have resulted in a total increase in property values of between \$339 million and \$429 million. This total includes an increase of between \$301.7 million and \$391.8 million in residential property values and \$32.1 million in vacant residential land. The impact of the waterways on condominiums appears to be minimal, but the impact on riverfront mobile home values is estimated at \$5.1 million.

The impact of the waterways on commercial property appears to be minimal, with property values increasing slightly assuming that the land currently occupied by commercial property would have been developed as residential land. However, because of the small value of commercial property compared with the total appraised value of residential property, any impact to commercial property value would be minimal compared to the overall impact to residential property.

Changes in Property Values Due to a Cessation of Waterways Maintenance

If vessel drafts were restricted to three feet MLW, the value of property on the waterways would decrease. In order to estimate the impacts of reduced waterway depths, property values of parcels with access to waterways with varying vessel drafts must be compared to each other. For the purpose of this analysis, it was assumed that properties on the Intracoastal Waterway have access to a channel at least six feet deep. Vessel draft restrictions vary for canals connected to the Intracoastal

Waterway. A comparison of the difference in property values on restricted draft waterways to property values on the Intracoastal Waterway illustrates part of the expected change in property values if vessel drafts were restricted to three feet MLW on the Intracoastal Waterway.

Residential Property

It is assumed that if vessel drafts were restricted, the amenities that influence the value of structures on waterfront parcels would not be impacted. The amenity that influences land values, namely the location amenity, would be impacted. Therefore, any impact on property values as a result of draft restrictions would primarily be reflected in decreased land values. The value, or replacement cost, of the structure would not significantly change as a result of reducing the depth of an adjacent waterway.

In Volusia County, as in most waterway areas, there is a premium for parcels on the waterway in comparison to parcels removed from the waterway. Since only land values are expected to be significantly impacted by reduced vessel drafts, the value of the land portion of waterfront property was evaluated. The premium for developed land values is \$121,021 per acre for parcels on connecting canals and \$196,182 per acre for riverfront parcels. Any decrease in land values as a result of three-foot draft restrictions would have to be less than \$121,021 per acre for property on connecting canals and \$196,182 per acre for riverfront parcels, because the value of property on a restricted draft waterway should be greater than property without any waterway access.

Analysis of property values in some of the District's other counties suggests that the decrease would be about half of the premium paid for parcels on navigable waterways. For the purpose of this analysis, it was assumed that the value of land on connecting canals in Volusia County would decrease by about \$60,510 per acre from its current value and riverfront land would decrease by \$98,091 per acre from its current value, or about half of the current premium paid on the land portion of waterfront property. Applying these decreases per acre to the total number of developed acres of canal front and riverfront land, respectively, the total impact to property values in Volusia County would be a decrease of \$124.3 million (including \$15.3 million for parcels on connecting canals and \$109.0 million for riverfront parcels).

Other Residential Property

Vacant Land

Similar to residential property, a premium is paid for vacant land on the waterway versus land removed from the waterway. This premium is estimated at \$96,558 per acre (a difference of 63 percent) for parcels on connecting canals and \$98,449 per acre (also a difference of 63 percent) for riverfront parcels. Any decrease in vacant land values as a result of three-foot draft

restrictions would have to be less than 63 percent for waterfront property, because the value of property on a restricted draft waterway should be greater than property without any waterway access.

It is assumed that the resulting decrease in property values due to reduced draft restrictions will be about half of the premium paid, on a per-acre basis, for parcels on navigable waterways. Therefore, the value of vacant waterfront land was assumed to decrease by about 31 percent from its current value, or about half of the current premium paid for waterfront land. The total adjusted market value of all vacant subdivided waterfront land in Volusia County is estimated at \$51.8 million. If vessel drafts were restricted to three feet and waterfront property values decreased by an estimated 31 percent, the total impact to vacant land values in Volusia County would be a decrease of \$16.1 million (including \$3.2 million for land on connecting canals and \$12.9 million for riverfront land).

Condominiums

The impact of the District's waterways on condominium property values could not be estimated, but was considered minimal. Waterfront condominium property values would not be impacted significantly by 3-foot draft restrictions because not all condominium owners have access to the waterway or are able to participate in boating due to the limited supply of available boat slips at the condominium complexes.

Mobile Homes

A premium is paid for riverfront mobile homes on the waterway versus those removed from the waterway; however, the premium does not extend to mobile homes on connecting canals. Only the 75 riverfront mobile homes should experience a decrease in value if vessel drafts were restricted on the waterways. A premium of \$49.94 per square foot (a difference of 50 percent) is currently paid for riverfront mobile homes versus those removed from the waterway. It is assumed that the resulting decrease in property values due to reduced draft restrictions will be about half of the premium paid for parcels on navigable waterways. This results in a reduction of about 25 percent from their current value. The total current value of the 75 riverfront mobile homes is estimated at \$10.1 million. If vessel drafts were restricted to three feet and waterfront property values decreased by an estimated 25 percent, the total impact to mobile home values would be a decrease of \$2.5 million.

Commercial Property

If maintenance of the waterways ceased, a portion of the income of the marinas would be lost because vessels drafting in excess of three feet would not be able to access their facilities. If the marinas remained open, their property values would decline because of the resulting

decrease in income. Marina owners indicated that 66 percent of their existing business volume would be lost under this maintenance scenario. The existing landside property value of marinas is appraised at about \$9.4 million. Under the assumption that appraised commercial property values are directly impacted by business revenue, a reduction of 66 percent of business revenue at marinas should result in a reduction of 66 percent of the current appraised value of these facilities. Such a reduction in property value assumes that the property remains in its current use. However, since these businesses are not likely to continue operating after such a drastic reduction in income, the property will probably be converted to other uses, namely residential use. If the marinas ceased operation and the land was converted to residential use, the appraised value of the parcels might increase. Nevertheless, the overall impact on property values of closing the marinas would probably be negative, because boat owners of waterfront residential property would no longer be able to obtain marina services.

Since only a small portion of the income of the hotels and restaurants is directly related to the waterways, decreasing draft restrictions should have a minimal impact on their property values.

Total Impact to Property Values of a Cessation of Waterways Maintenance

If maintenance of the waterways were to cease and vessel drafts were restricted to three feet MLW, it is estimated that property values would decrease in excess of \$142.9 million.

Residential property values along the waterways could decrease by up to \$124.3 million. The impact to vacant subdivided land is estimated at \$16.1 million. The impact on condominium values is expected to be minimal. Mobile home values are expected to decrease by \$2.5 million. An impact to commercial property is questionable. If business volume decreased by the amount that the business owners expect, their businesses would no longer be viable, and the land would probably be converted to residential use. If the land is converted to residential use, there may be a slight increase in the appraised value of the land and structures. However, the combined appraised value of these assets is \$9.4 million; therefore, any change in values should be less than that amount and will be minimal in comparison to the decrease expected to occur in residential property values.

Change in Property Values Due to Increased Waterways Maintenance

Residential Property

A comparison of residential riverfront parcels with deep water access to those parcels with six feet of water depth indicates that an increase in waterway maintenance and vessel draft restrictions to 12 feet at MLW would increase property values in Volusia County. However, the available data is insufficient to estimate the impact on a county-wide basis. The impact would

probably not be significant, because the number of properties that would be impacted by deeper channels is limited. A deeper channel would only benefit owners of mega yachts and commercial vessels. Because of the cost of these vessels, there are only a limited number of people who can afford them. People who can afford them would also tend to reside in existing prestigious, exclusive, and expensive neighborhoods in the region. There is currently not a significant amount of this type of development in Volusia County.

Other Residential Property

The same influences that preclude significant increases in residential single family property values in Volusia County also preclude vacant residential land, condominiums, and mobile homes from realizing significant gains in property values.

Commercial Property

The impact to commercial property values is assumed to be minimal. Any increase in property values will be based on an increase in business income from seasonal traffic in transit between south Florida and northern destinations. Increasing the vessel draft restriction to 12 feet MLW on the waterway would allow larger vessels to access commercial facilities and may result in an increase in income generated by marinas. The income method of assessing property tax, which is used by the Property Appraiser's Office as an alternative assessment method, results in property values increasing in conjunction with business revenue. Marina owners surveyed during the conduct of this analysis expect an increase in revenue of about 20 percent if vessels drafting up to 12 feet could access their facility. It was assumed that a proportional increase in property values would also occur. Marinas are currently appraised at \$9.4 million. An increase of 20 percent in property values resulting from an increase in business volumes would produce a \$1.9 million increase in property values.

Deepening the waterways should not significantly impact the operations at the hotel and restaurants on the waterways.

Total Impact to Property Values of Increased Waterways Maintenance

If maintenance of the waterways were to increase and vessel draft restrictions were increased to 12 feet MLW, property values in the county can be expected to increase by less than \$2 million. Data is not available that would allow an estimate of the expected increase in residential, vacant land, condominium, and mobile home values. However, any increase in value should be minimal. Commercial property values may increase slightly, by \$1.9 million.

SUMMARY

Current Impacts

The current impacts of the waterways in Volusia County include \$267 million in business volume, \$86 million in personal income, 2,979 jobs, and \$339 to \$429 million in property values.

Furthermore, the waterways result in the construction of larger, more luxurious homes in the county.

Impacts of a Cessation of Waterways Maintenance

If maintenance of the waterways ceases and vessel drafts are restricted to three feet MLW, there is expected to be a reduction of \$43 million in businesses volume, \$15 million in personal income, 637 jobs, and up to \$142.9 million in property values.

Impacts of Increased Waterways Maintenance

If maintenance of the waterways increased and vessel drafts were increased to 12 feet MLW, there is expected to be an increase of \$6 million in business volume, \$2 million in personal income, 84 jobs, and \$1.9 million in property values.