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# **Wentworth Estates Community Development District *Asset Replacement Costs***

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**CGA Project No. 17-9809**

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**Prepared by:**



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EXCEPTIONAL SOLUTIONS™

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## EXECUTIVE SUMMARY

Based on the field investigations and data collection, the total restoration costs for Wentworth Estates CDD owned Assets are projected at \$21,949,398.39. The replacement cost for the storwater assets, entry features, and irrigation pump station building is \$20,536,013.39. The total restoration cost of the landscape assets is \$1,413,385.00. These costs should be updated annually to account for construction industry changes due to inflation, labor rates, material availability, taxes and insurance. Reference can be made to the Exhibit A – Asset Replacement Costs Table (located in Section One – Wentworth Estates CDD Assets). The items listed as Sediment & Debris Removal Costs are maintenance items associated with clean-up after an emergency event when the Wentworth Estates CDD would need to address these clean-up items immediately to get the existing stormwater management system fully functioning. These High Probability Construction Cost items should be considered in the immediate future when determining funds available for restoration.

Furthermore, reference can be made to the Table A-Existing / Current Landscape Assets (located in Section One) for the replacement costs for all existing landscape assets. In addition, reference can also be made to the table B-Unit Landscape Replacement Costs (located in Section One) for the projected replacement costs for each type of plant material that may need to be replaced in the future.

## ABSTRACT

Wentworth Estates Community Development District (CDD) has retained Calvin, Giordano & Associates, Inc. (CGA) to quantify replacement costs for CDD owned assets in the Treviso Bay community located in Naples, Florida. Following an emergency event, these CDD owned and maintained assets could potentially be impacted and subsequently could need immediate repair. The review of these assets and costs associated with replacement are included to assist Wentworth Estates Community Development District plan and budget for future similar emergencies. Quantities included have been provided by Calvin, Giordano & Associates, Inc. (CGA). Furthermore, it is recommended that these costs are updated every 2 to 3 years to accurately estimate and budget for these future needs.

## BACKGROUND, PURPOSE, AND OBJECTIVE

The purpose of this report is to provide Wentworth Estates Community Development District with asset replacement construction costs necessary to establish a capital reserves program for the future. The process of preparing this report began with an on-site inspection by the CGA staff to quantify replacement costs to be used in the future. Items were identified by CGA's Asset Manager and Landscape Architect and are included in this report as described in subsequent sections below. It should be noted that this report may need to be modified if additional assets are to be incorporated. Using the list of takeoffs that were provided by CGA, confirmation of quantities was completed and verified by the review of available permit drawings, development plat drawings, maintenance records and discussion with various personnel. Investigation of the existing lake banks and associated assets were completed, and a value assigned for an overall construction replacement cost. Significant lengths of existing lake banks were quantified and assigned a value for replacement, which should be considered during potential future emergency events. These values are considered as complete restoration costs and certain emergency events may only require partial reconstruction. Pictures documenting various assets are included in Appendix A of this report.

The following items were analysed and replacement cost included, as part of this report:

- Lake and Water Features
- Stormwater drainage system pipes and structures
- Entry Features
- Landscaping
- Irrigation pump station building

Below is a discussion of each portion of the analysis and recommendations for asset replacement costs.

# WENTWORTH ESTATES CDD ASSETS

## General Assessment

Evaluation of the existing assets was the focus of reconstruction costs, due to the likelihood of restoration following an emergency event. Types of assets include lake bank restoration costs, lake aerator and fountains, drainage structures, headwalls, control structures, and entrance features were all included in the estimated replacement costs. Entrance Features include bridge, walls, entry fountains, roadway, curbing, landscaping, lighting and signage. Because of anticipated services following emergency events, the need for sediment and debris removal at various drainage components have also been considered.

The following Exhibit A – Asset Replacement Costs Table shows complete furnish and install costs for post-emergency conditions. The unit prices identified in this table were provided from past experiences with specific restorations within the Wentworth Estates CDD community, along with comparing other CDD's experiences with similar facilities. Costs associated with removal of sediment and debris were completed using \$7,966 per outfall and headwall structures, \$4,552 per drainage structure and \$11,380 per Lake. It is anticipated that all outfall structures, 10% of headwall and drainage structures, and 20% of all lakes will need removal of sediment and debris removal services.

## Lakes and Water Features

Wentworth Estates Community Development District includes an overall stormwater management system that utilizes surface lakes for the ultimate discharge and storage of water quantity. The originally permitted drainage system is one of the main responsibilities of the District and the maintenance of this system is considered a critical responsibility. The Wentworth Estates CDD has a total of 42 lakes, each with a variety of lake bank types. Types include sodded banks, either with or without geotextile components (geotubes). A total of 20,332 linear feet (LF) of hardened (geotube) lake banks have already been replaced and a total of 73,324 LF of grass lake banks exist in the remainder of the system. Estimated asset costs are based on emergency conditions restoration, with geotubes replacement costing approximately \$58.61/ft and natural grass lake bank restoration costing approximately \$51.15/ft. In addition to the lake bank restoration costs, lake aerators and water fountains were included in the estimated replacement costs. Replacement costs of an aerator includes complete replacement of the aerator, aerator fan, and tubing servicing each unit. Three lakes include fountains, which have been included in the CDD's asset replacement costs. Listed items in this category are critical components of the stormwater management system for water quality and the maintenance of these items are required to be considered in good working condition. Furthermore, fountains help keep lakes from developing algae and maintain a healthy ecological system.

## Stormwater Drainage System Pipes and Structures

The above-mentioned lakes are all interconnected with drainage structures located in roadways or nearby subbasins, which drain via piping into the lake system. In addition to the lake bank restoration costs, drainage structures, headwalls, control structures, and pipes are included in the asset replacement cost estimate. The overall Wentworth Estates CDD has four (4) outfalls or control structures, 532 drainage structures, and 44,190 linear feet of various diameter stormwater pipe interconnecting the 42 lakes. Each pipe to lake and/or preserve connection includes a concrete

headwall to prevent erosion of the existing sloped bank. The number of headwalls included in the CDD's responsibility totals 129 headwalls. In addition to the replacement costs for the aforementioned stormwater drainage system items, sediment and debris removal has been included due to the need of anticipated maintenance services following emergency events such as hurricanes. These costs have been included on a separate line in the Asset Replacement Cost Table.

## Entry Features

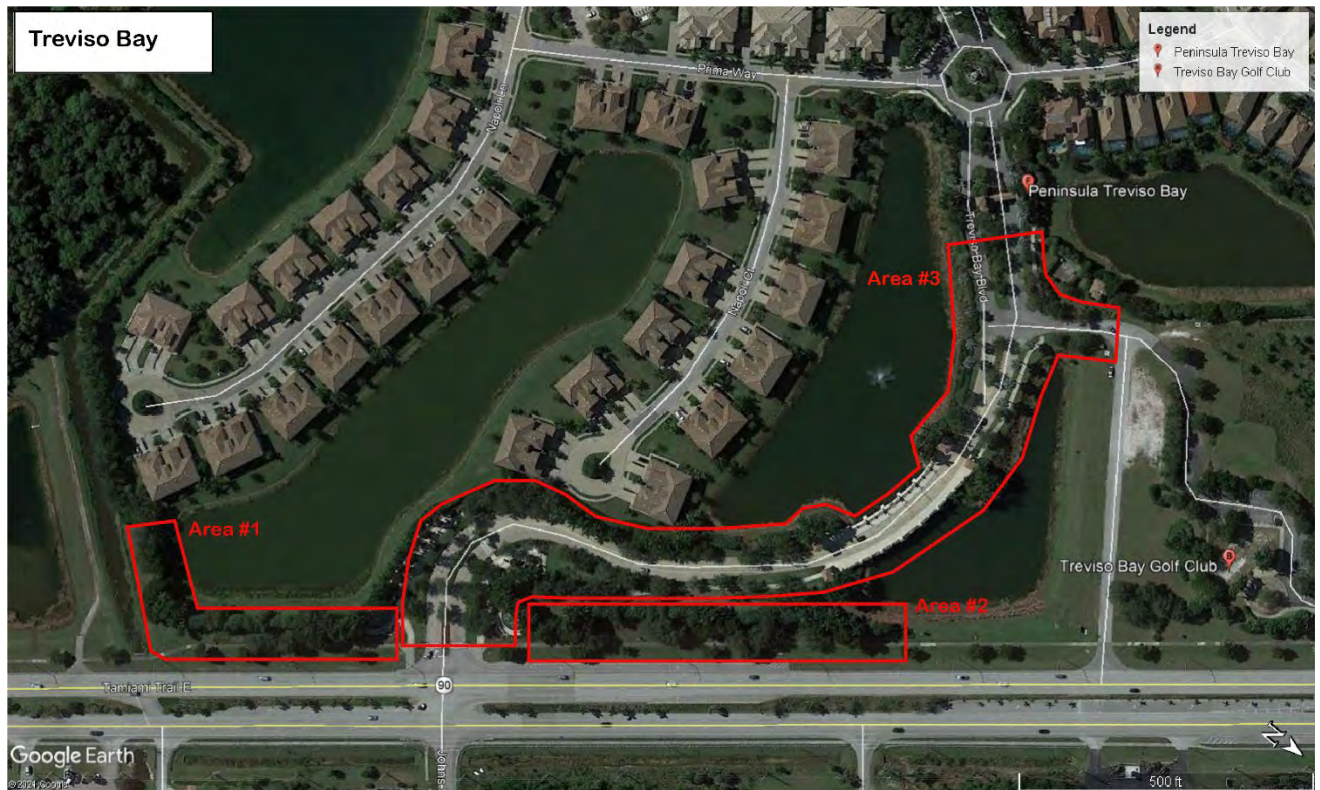
Wentworth Estates Community Development District maintenance responsibilities begin at the Treviso Bay Golf and Country Club main entrance from Tamiami Trail E (US-41) and end at the security gate. Main entrance is both a paver brick and asphalt roadway, which includes curb & gutter, pavement markings & striping. This entrance also includes visual features such as a neighborhood entry marquee signage with water fountains. The water fountains include various related components such as pumps and electrical services to keep operational. Lastly the main entrance features a prominent vehicular bridge which separates roadway connection intersection at the highway and provides privacy via interconnection over a large lake before security entrance to the neighborhood. The vehicular bridge includes structural and surface components which should be inspected and reported for any ongoing maintenance requirements by a qualified structural engineering firm. All entry features have associated lighting fixtures and poles to highlight the ambiance and provide safety to residents and guest which enter the neighborhood from the main entrance.

## Landscaping

A review was conducted of the estimated asset values for the landscape materials located at the main entrance into Treviso Bay within the Wentworth Estates Community Development District (CDD). The total restoration costs of the landscape assets are projected at \$1,413,385.00. It should be noted that with the exception of some palm species the term "replacement" in this section means that the landscape areas will be re-planted with similar plant materials at sizes that are readily available in the industry at the time, and shall not mean that the existing trees and hedges will be replaced at the same size of their current, mature sizes. In addition, if the replacement of the landscape assets is due to damage from a future storm event then the cost should also take into account the costs for debris removal and clean up activities after a storm event in addition to just the replacement costs for the materials. See Part B in this section for more information on these possible costs.

### A. Existing /Current Landscape Assets

Figure 1 below shows the locations of all existing landscape assets within the Wentworth Estates C.D.D.



Area #1 = Landscape Along Entrance Wall - South of Entrance

Area #2 = Landscape Along Entrance Wall - North of Entrance

Area #3 = Landscape Along Treviso Bay Blvd. from Entrance to Security Gates

Figure 1 - Location Map of Existing Landscape Assets

The table below (Table A) shows the estimated asset values of all of the landscape materials within the Wentworth Estates C.D.D. for the current landscape assets.



**Table A**

Wentworth Estates C.D.D. Landscape Areas							
Tree/ Palms and Groundcover	Area # 3 Entrance to Gate	Area # 2 - North	Area # 1 - South	U.S. 41 Swale	Total	Unit Replacement Cost	Total Cost
Sabal Palms	47	68	43	0	158	\$350.00	\$ 55,300.00
Royal Palms	70	15	13	0	98	\$5,000.00	\$ 490,000.00
Chinese Fan Palms	6	0	0	0	6	\$600.00	\$ 3,600.00
Triple, Pygmy Date Palms	13	2	2	0	17	\$250.00	\$ 4,250.00
Silver Bismarckia Palms	11	3	0	0	14	\$900.00	\$ 12,600.00
Live Oaks	73	10	12	0	95	\$2,500.00	\$ 237,500.00
Cypress Trees	4	0	0	0	4	\$1,000.00	\$ 4,000.00
Black Olives	14	15	15	12	56	\$2,500.00	\$ 140,000.00
Magnolias	8	10	5	0	23	\$1,000.00	\$ 23,000.00
Ligustrum	42	22	7	0	71	\$700.00	\$ 49,700.00
Bulnesia	0	5	0	0	5	\$700.00	\$ 3,500.00
Gumbo Limbo	0	5	0	0	5	\$700.00	\$ 3,500.00
Shrubs/Groundcover Total Area:	4,250	6,341	7,838		18,429	\$15.00	\$ 276,435.00
Sod-Zoysia Grass (S.F.)	13,000	25,000	72,000		110,000	\$1.00	\$ 110,000.00
						Grand Total	\$ 1,413,385.00

## B. Unit Prices for Replacement Costs

The table below (Table B) – Landscape Replacement Costs shows the complete furnish and install cost for post-emergency conditions. The unit prices identified in this table were provided from CGA's past experience with storm restoration within other communities in the area as well as current pricing for routine landscape and irrigation materials that are being installed on projects now.

It should be noted that the size replacement of the new landscape plant material will be similar in size to that of the plant materials when they were originally planted within the landscape areas. With the exception of some palm species the new landscape material will not be installed at maturity or the size of the existing, mature plants. For example, Live Oaks at time of planting might be approx. 18'-20' H.T. with a 5" DBH, instead of an existing, mature Live Oak with an 18" diameter (DBH) size.

**Table B – Unit Landscape Replacement Costs:**

Item/Description	Unit Cost
1. Large, Royal Palm - 30' to 40' greywood ht.	\$5,000.00
2. Medium Palm - 18' to 20' ht. Silver Bismarckia, or similar	\$900.00
3. Small Palm -12' to 14' ht. Alexander Palm, or similar	\$600.00
4. Sabal (Cabbage) Palm – 12'-20' ht	\$350.00
5. Larger Mature Trees - 5" DBH, 18' to 20' ht. Live Oak, or similar	\$2,500.00
6. Medium Trees - 3" to 4" DBH, 14' to 16' ht. Magnolia, or similar	\$1,000.00
7. Small Trees - 1-1/2" to 2" DBH, 10' to 12' ht. Ligustrum, or similar	\$700.00
8. Accent Plants - 25 gallons plus, Hibiscus standard, or similar	\$250.00
9. Large Hedges - 7 to 15 gallon size shrubs	\$125.00
10. Shrubs – 3 gallon size shrubs	\$15.00
11. Ground Covers - 1 gallon size ground cover plants	\$6.00
12. Zoysia Grass (SOD)	\$1.00/ S.F
13. St. Augustine (SOD)	\$.75 / S.F



Note: In addition to the replacement costs for the landscape materials listed above, the landscape restoration should also take into account the costs for debris removal and cleanup activities. Debris removal and clean-up costs after a storm can vary widely depending on the intensity of the storm event, accessibility to the downed trees, and other factors. It is estimated that debris removal costs from a Category 1, or higher, hurricane could range from \$50,000-\$60,000 to well over \$100,000 based on the current landscape assets within the Wentworth Estates C.D.D. Additionally, any necessary repairs to the irrigation system after a storm can vary – and can be up to \$10,000 or more.

### **Irrigation Pump Station Building**

Wentworth Estates CDD is not responsible for the irrigation pump station, but the building / structure in which the irrigation pump station is located, is the responsibility of the Wentworth Estates CDD. This structure was built to replicate a residential building and hides the irrigation utility equipment from the public's view. The irrigation pump station building is located just before the security gate at the main entry and is well landscaped and maintained by the CDD. In the worst-case scenario, if this building is damaged or needs replacement due to an emergency event, a value has been placed on its replacement cost, which is the responsibility of the Wentworth Estates CDD.

## **CONCLUSION**

The following Exhibit quantifies replacement costs for the CDD owned assets in the Treviso Bay community. Wentworth Estates Community Development District (CDD) owns and maintains these assets, which could potentially be impacted by a hurricane or an emergency event. Review of these assets and associated replacement should be included in Wentworth Estates CDD's plan and budgeted for future emergencies.

## Exhibit A – Asset Replacement Costs Table

EXHIBIT A - Asset Replacement Costs Table

Lake Bank Restoration (CDD maintained)				Strom Water System Assets (CDD maintained)				Additional Assets (CDD maintained)					
Lake ID	Perimeter Footage (ft)	Hardened Lake Banks - Geo Tubes (ft)	Grass - No GeoTube (LF)	Outfalls and Control Structures (EA)	Concrete Headwalls (EA)	Drainage Structures (EA)	Drainage Pipe (LF)	Aerator, fan and tubing (EA)	Entrance Water Fountains	Fountains (\$)	Irrigation Pump Station (\$)	Entrance Features* (\$)	
1	1,410		1,410										
2	1,815		1,815							\$22,380.67			
3	1,238	142	1,096										
4	1,579		1,579										
5	2,545	773	1,772										
6	2,153	736	1,417										
7	2,649	1,440	1,209										
8	769	699	70										
9	2,437	142	2,295							\$22,380.67			
10	2,957		2,957										
11	982		982										
12	4,014		4,014										
13	2,030	1,138	892										
14	1,985	830	1,155										
15	6,215	1,582	4,633										
16	1,851		1,851										
17	2,534		2,534										
18	1,166	1,133	33										
19	1,141	861	280										
20	4,066	3,170	896										
21	2,490	1,037	1,453										
22	2,401	1,480	921										
23	606	400	206										
24	1,705	1,320	385										
25	2,316	2,140	176										
26	1,528		1,528							\$22,380.67			
27	2,884	414	2,470										
28	2,394		2,394										
29	590		590										
30	814		814										
31	843	375	468										
32	3,342	520	2,822										
33	4,082		4,082										
34	1,496		1,496										
35	1,013		1,013										
36	1,995		1,995										
37	2,299		2,299										
38	1,415		1,415										
39	860		860										
40	1,180		1,180										
41	995		995										
42	10,872		10,872										
42	93,656	20,332	73,324	4	129	532	44,190	4	4	\$67,142	1	\$7,972,714	
TOTALS													
High Probability Totals													
Restoration Unit Prices (\$)													
	REFERENCE	\$58.61	\$51.15	\$17,525.20	\$5,234.80	\$3,877.54	\$72.08	\$9,673	\$139,405	Lump Sum	\$491,616	Lump Sum	Total Costs
Total Restoration Costs (\$)		\$1,191,597.52	\$3,750,749.90	\$70,101	\$675,289	\$2,062,852	\$3,185,256	\$38,692	\$557,620	\$67,142	\$491,616	\$7,972,714	\$20,063,629.59
Sediment & Debris Removal Unit Price (\$)	\$11,380			\$7,966	\$7,966	\$4,552							
Total Sediment & Debris Removal Costs* * (\$)	\$95,592.0			\$31,864	\$102,761	\$242,166							\$472,383.8
\$20,536,013.39													

## APPENDIX – PICTURES OF CDD ASSETS



Hardened Lake Banks – Geo Tubes



Hardened Lake Banks – Geo Tubes





Grass Lake Bank (No Geo Tube Hardening)



Outfall and Control Structure w/ Drainage Pipe





Outfall and Control Structure w/ Drainage Pipe



Outfall and Control Structure w/ Drainage Pipe





Concrete Headwalls



Concrete Headwalls w/ Pipe





Drainage Structure



Drainage Structure





Aerator, Fan and Tubing



Aerator, Fan and Tubing





Aerator, Fan and Tubing



Entrance Water Fountains





Entrance Water Fountains – Pumps



Entrance Water Fountains – Electric





Lake Fountains



Irrigation Pump Station





Entrance Features – Walls and Landscaping



Entrance Features – Roadway, Curbing & Landscaping





Entrance Features – Roadway, Curbing & Landscaping



Entrance Features – Roadway, Curbing & Landscaping





Entrance Features – Bridge



Entrance Features – Bridge





Landscaping along Treviso Bay Boulevard



Landscaping along U.S. 41 south of Entrance