

Natural Resource Damage Assessment (NRDA) PCB-Beach Outfalls to Gulf

A. General Information

Organization: City of Panama City Beach

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B. Project Information

Project Name: Beach Outfall Restoration with Environmental Enhancements

Location: Panama City Beach – Front Beach Road, US 98

State: FL County: Bay

Watershed/Basin: Outfall to Gulf of Mexico

Lat/Longitude: 30° 15'6.34"N To: 30° 11'0.44"N
85°57'9.24"W 85°49'12.51"W

Affected Area: ~9.5 miles of Shoreline

C. Project Description

This project includes the restoration, replacement and enhancement of fourteen continuous stormwater outfalls. These outfalls are located along and discharge to the Gulf of Mexico along approximately 9.5 miles of shoreline. The outfalls convey discharge from stormwater ponds and other small bodies of water on the north side of Front Beach Road south to the Gulf of Mexico. These outfall systems also collect and discharge stormwater from roadways, parking lots and other developed areas, which typically have a high pollution loading. Enhancement to the beach outfalls will consist of installation of nutrient separating baffle boxes to provide sediment, nutrient and pollution removal prior to discharge to the Gulf. They will also screen debris such as plastics, trash and other materials which are a direct threat to marine life. In addition, past monitoring records have shown that bacteria concentrations at these outfall locations are often in excess of allowable limits. Therefore, a filtration system will be installed in series with the baffle box to effectively reduce the bacterial concentrations, particularly those associated with solids, while also further removing dissolved phosphorus, dissolved nitrogen, total suspended solids and metals. This

reduction of pollutant and bacterial loading will greatly improve the quality of the stormwater being discharged to the Gulf, helping to preserve and protect fish and marine life. As part of this project, the continuous beach outfalls are proposed to extend further towards the water line of the Gulf of Mexico which will reduce a chronic problem of beach erosion and meandering. Depending on the severity and location of a rainfall event, the stormwater runoff can cut a channel parallel to the beach meandering as much as 200 yards east or west of the outfalls. This erosion and induced meandering threatens turtle nesting sites because in a matter of days it can remove several hundred cubic yards of beach sand.

D. Project Type(s)

- | | |
|--------------------------|--------------------|
| ✓ Restoration | ✓ Protection |
| ✓ Debris Removal | ✓ Land Acquisition |
| ✓ Maintenance/Management | Education |

E. Project Habitat(s)

- | | |
|-----------------------------|---------------------------------|
| ✓ Upland | Riverine |
| ✓ Marine/Estuarine Wetlands | ✓ Freshwater Wetlands |
| ✓ Beach/Dune | ✓ Subtidal (Nearshore/Offshore) |

F. Resource Benefit(s)

- | | |
|------------------------|--------------------------------------|
| ✓ Marine Mammals | Corals (no corals in NW Fl. waters) |
| ✓ Shellfish | ✓ Shoreline |
| ✓ Water Column | ✓ Fish |
| ✓ Birds | ✓ Vegetation |
| ✓ Terrestrial Wildlife | ✓ Human Use (Recreational, Cultural) |
| ✓ Sediment/Benthos | ✓ The project will directly benefit: |
| ✓ Reptiles/Amphibians | ✓ Sea Turtles and Dune Nesting Birds |

G. Project Status

- | | |
|-------------------------------|--|
| Project/Resource Acquisition: | Not Started |
| Project Planning/Design: | Preliminary stormwater modeling of the basins that discharge to the outfalls have been completed. A conceptual outfall cost estimate has been completed based on a typical preliminary design. |
| Permitting: | Not Started |
| Time to implement: | Construction could start within 9 months of funding |
| Time to Project Completion: | 18 month construction duration |

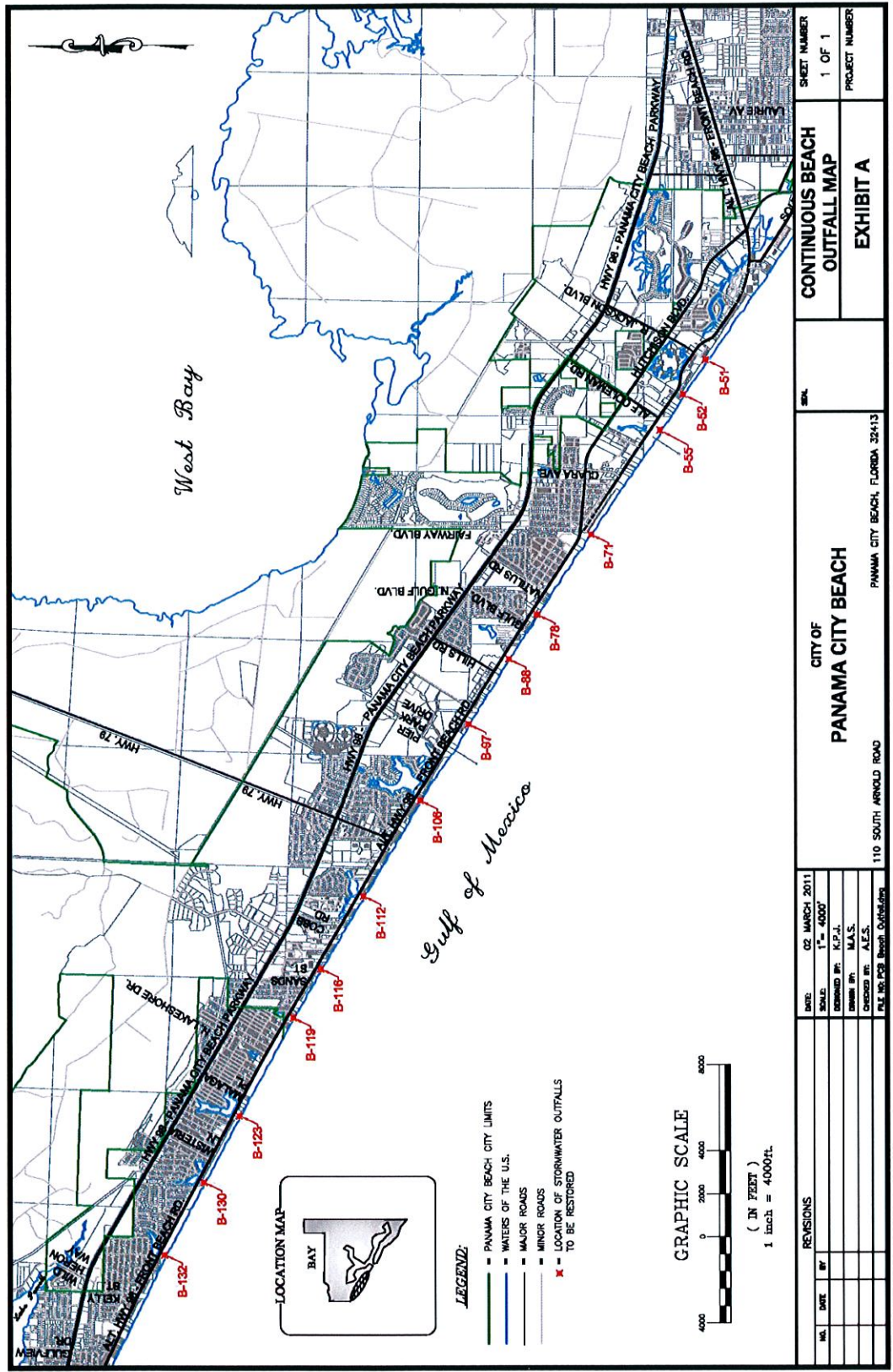
The project is part of a joint venture with the City of Panama City Beach and Bay County along with support from the Panama City Beach Convention and Visitors Bureau. Out of the 14 outfalls, Panama City Beach maintains 10 and Bay County maintains 4.

H. Project Costs

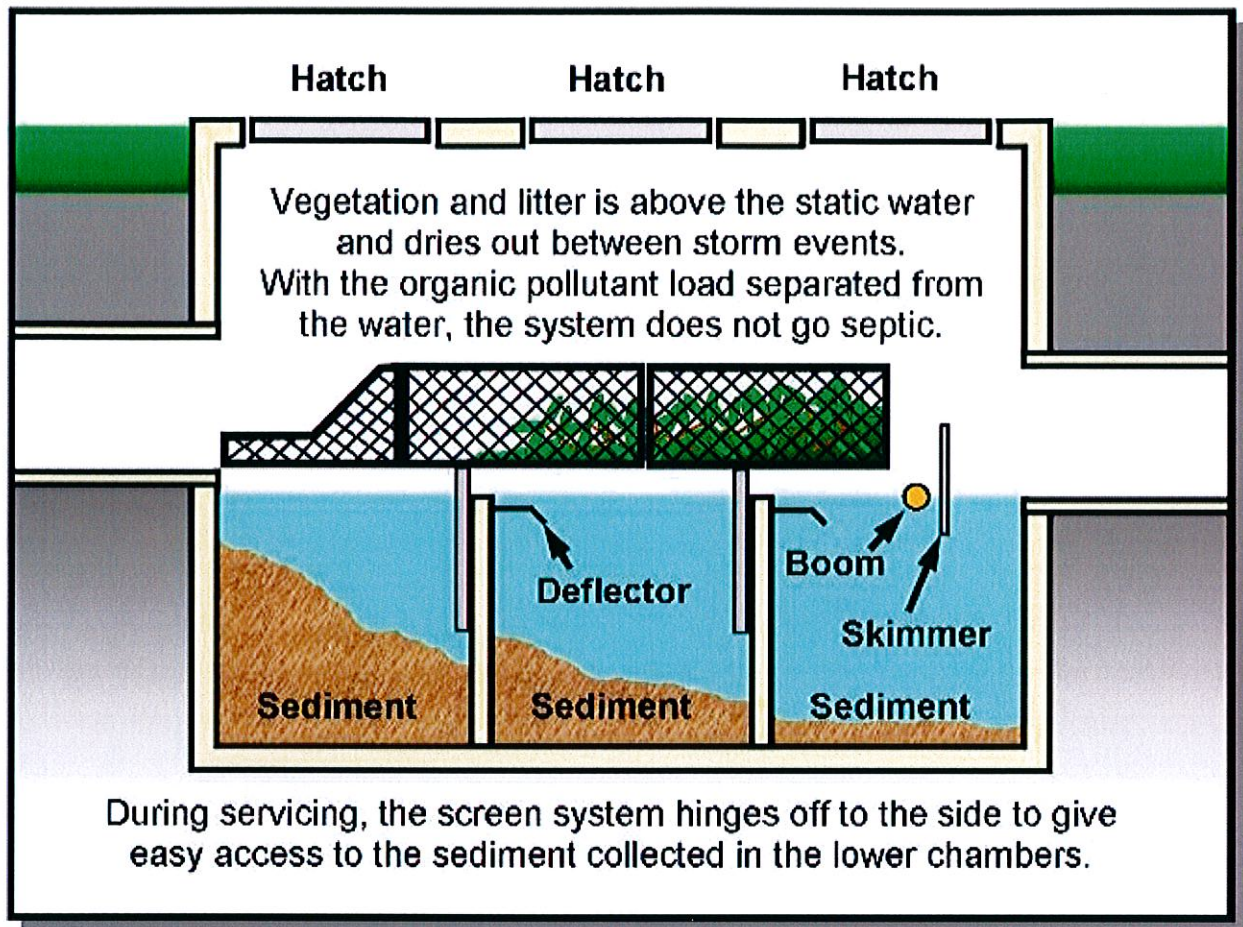
Estimated Cost: \$950,000: Typical Outfall
\$1,600,000: Large Diameter Pipe or Box Culverts
\$16,550,000: Total

Funding Available: None Currently

Note: Project can be considered as a full package or per individual Outfall



PCB Beach Outfalls - Continuous Outfall Location Map



PCB Beach Outfalls – Proposed Nutrient Separating Baffle Box

No	Work Items	Note	LS	Unit	Quant	Cost	Ext (Rounded)
1	New Pond Outfall Structure	Includes temp sheet pile	1	EA		\$ 25,000	\$ 25,000
2	Pipe Run "a": Open Cut	36" RCP		LF	60	\$ 140	\$ 8,000
3	J Box	72" J box	1	EA		\$ 6,000	\$ 6,000
4	Pipe Run "b": Open Cut	36" RCP		LF	60	\$ 140	\$ 8,000
5	J Box	72" J box	1	EA		\$ 6,000	\$ 6,000
6	Pipe Run "c": Jack and Bore	36" RCP		LF	50	\$ 672	\$ 34,000
7	Installation of Baffle Box	Designed for Site	1	EA		\$ 90,000	\$ 90,000
8	Utility Relocation	Could Vary	1	EA		\$ 50,000	\$ 50,000
9	Pipe Run "d" Open Cut	36" RCP		LF	50	\$ 140	\$ 7,000
10	Upstream J Box	72" J box	1	EA		\$ 6,000	\$ 6,000
11	Pipe Run "e" Jack and Bore	36" RCP		LF	150	\$ 672	\$ 101,000
12	Downstream J Box	72" pile supported J box	1	EA		\$ 18,000	\$ 18,000
13	Pipe Run "F" Open Cut	36" RCP		LF	100	\$ 140	\$ 14,000
14	Outfall Supports and Cable		1	EA	15	\$ 2,822	\$ 45,000
15	Miscellaneous Work	Landscaping, etc.	1	EA			\$ 50,000
	Subtotal						\$ 468,000
16	Contractor O & P			15%			\$ 70,000
17	Potential Land Acquisition		1	EA			\$ 150,000
	Subtotal						\$ 688,000
	Contingency			20%			\$ 138,000
	Subtotal						\$ 826,000
	Engineering, Survey, Permitting			15%			\$ 124,000

Note: This is for an average section. Four of the outfalls are Box Culverts and one is a 60" RCP. Therefore, we are doubling the cost of replacement and the total for these larger outfalls are each \$1,600,000.

PCB Beach Outfalls – Typical Baffle Box and Pipe Replacement (EA)