County of Ventura Watershed Protection District Proposition 1E Grant Application South Oxnard Stormwater Flood Management Project Attachment 8: Benefit-Cost Analysis

Benefit Cost Analysis

The existing J Street Drain was constructed in 1961. The life of a concrete channel in a marine environment is 50 years due to alkali-aggregate reaction, sulfate attack, and corrosion of steel. There is limited life remaining so the present value of the existing facility is the current replacement cost. The cost of the betterment is the difference between upgraded box culvert that will provide 100-year protection and the replacement value of the existing trapezoidal open channel facility that currently only offers a 10-year level of flood protection. Overhead and non-construction costs including pre-design, design, engineering and project management are assumed to be equivalent.

	Upgrade Costs ($)	Current Replacement Costs ($)	Difference ($)
Phase 1	11,000,000	3,500,000	7,500,000
Phase 2	15,500,000	4,000,000	11,500,000
		Total	**19,000,000**

URS prepared a preliminary study in 2005. The total potential damage due to flooding to structures and contents without implementation of Phases 1 and 2 is $30.9 million. Implementation of Phases 1 and 2 will provide 100-year level of flood protection to 58 single-family units, 13 multi-family units, 5 commercial units and the critical regional infrastructure of the Oxnard Wastewater Treatment, serving a greater population of 225,000.

Categories	Potential Units Flooded	Total Building Replacement Value ($)	Potential Building Damages from Flooding ($)	Content Damages ($)	Total Potential Flood Damages ($)
Single-Family Unit	58	26,285,832	4,765,776	2,306,017	7,071,794
Multi-Family Unit	13	22,037,500	5,130,078	2,369,059	7,499,137
Commercial Unit	5	7,772,040	383,668	195,915	579,583
Oxnard WWTP	-	78,000,000	11,700,000	4,095,000	15,795,000
Total	**77**	**134,095,372**	**21,979,522**	**8,965,992**	**30,945,514**

Displacement costs including rental and disruption for a senior/assisted living home at 5225 J Street is $2/ft^2/month. The cost is $194,592 for two months.

Economic impacts of loss of utilities are worth what it costs to provide the service to the public. Assuming the Wastewater Treatment Plant operates on a yearly budget of $10 million, the loss of service is approximately $55,000 for two days.

The cost to repair a damaged sewer trunk line due to erosion damage is assumed to be $100,000.

The total damages due to flooding, displacement costs of the senior assisted living home, loss of wastewater service and repair of a utility is $31,295,106. The expected prevented annual damage by the project is estimated to be approximately $1,708,794. The estimated present worth of future benefits of the project is approximately $21,143,477. The benefit cost ratio of implementing the project is 1.1.

The ratio increases with a fully realized project including future Phases 3 and 4. Creation of a linear park will inflate the property values of the adjacent residential properties by 5% due to open space and recreational opportunities. URS determined an average sale price of 426,563 for a single family home. The benefit from the 58 single family homes is $1,237,032.

Additional benefits include the increase in property taxes. There is a benefit to the railroad that transfers goods from Port Hueneme. The B/C ratio increases much more when non-monetized secondary benefits resulting from the creation of a linear park over Phase 2 are considered. According to 2010 US Census block data, there are 59,103 people within a 1.5 mile buffer of the proposed linear park in the City of Oxnard and Port Hueneme. There is a direct use recreational value of the linear park. Covering the channel creates a more attractive and cohesive community that will stimulate urban redevelopment, provide health benefits and safer routes for bicyclists, pedestrians, and children going to school. The linear park will provide an enhancement to an industrial and poverty-stricken area and create a nexus to the future restored estuary at Ormond Beach.

The half-mile park will provide non-monetized water quality benefits by removing pollutants that otherwise enter the lagoon and affect the coastal habitat. The linear footprint of the project will provide an opportunity to construct bioswales to capture and infiltrate surface runoff and trash currently littered or blown into the open channel will be eliminated.