

APPLICATION COVER PAGE – 1 OF 2 (PROJECT BASIC CRITERIA)

Section 1: Application Cover Page; Basic Criteria

Please use this page, or re-create as is.

1. **PROJECT TYPE:** *(As mandated by the RESTORE Act, funds may only be used for one or more of the allowable uses listed below, which the County cannot amend or change. Carefully review each criteria listed below and determine if your project will achieve one or more of the allowable uses below. Projects that do not meet at least one of the allowable uses below will not be considered for funding. Check all that apply.)*

- Restoration and protection of natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast Region.
- Mitigation of damage to fish, wildlife, and natural resources.
- Implementation of a federally approved marine/coastal management plan, including fisheries monitoring.
- Workforce development and job creation.
- Improvements to or on state parks in coastal areas affected by the Deepwater Horizon oil spill.
- Infrastructure projects benefitting economy or ecological resources, including port infrastructure.
- Coastal flood protection and related infrastructure.
- Planning assistance.
- Activities to promote tourism and seafood in the Gulf Coast region, for one or more of the following:
 - Promotion of tourism in the Gulf Region, including recreational fishing.
 - Promotion of the consumption of seafood harvested from the Gulf Coast region.

2. **CONTACT INFORMATION:** *(Include at least one name, phone number, email address, and organization name if applicable)*

- Organization: Islamorada, Village of Islands
- Address: 86800 Overseas Highway
- City, State, Zip Code: Islamorada, Florida 33036
- Contact Person
 - Name: Ed Koconis
 - Title: Director of Planning and Development Services
 - Phone: (305) 664-6410
 - Email Address: edward.koconis@islamorada.fl.us

Section 2. Application Cover Page; Project Summary Information

Please utilize this sheet or re-create, but keep format as is.

3. Project Name: *(Provide a short, succinct title for the project)*

Islamorada Village of Islands Impaired Canal Restoration and Water Quality Improvements

4. Project Executive Summary: *(Provide a concise summary or abstract in the space below; do not exceed the space below.)*

As an integral part of the island chain, the Village, along with the other governmental agencies in the region, recognizes the necessity (and the requirements) for water quality improvements. It has long been recognized that water quality in the Florida Keys has been deteriorating, particularly as it relates to our canal systems. Today most of our canals are listed as "impaired water bodies" by the Environmental Protection Agency (EPA) and are in need of restoration.

Canal restoration is the final "piece of the puzzle" that will assist in the restoration of water quality throughout the Florida Keys. The Village has identified 62 residential canals with the Village of Islamorada, 14 of which are considered "Poor Water Quality" and are the highest priority for implementing water quality improvements.

- The total estimated cost of restoring all 14 canals utilizing the least expensive restoration technologies first would be \$ 3,998 million dollars;
- The Village is requesting \$3,880 million (97%) from RESTORE Act funding to provide for the installation of the restoration projects;
- The Village has committed \$100,000 (3%) in its FY 2013-2014 General Fund Budget for design and construction of one canal restoration project located within the boundaries of the Village.

5. Range of Benefit: Does this project have a

- Local benefit?
- Keys-wide benefit?
- Regional benefit?
- Gulf-wide benefit?

(Provide the location of the project and a brief description of the area that is benefiting; do not exceed the space below.)

All projects are within the jurisdiction of Islamorada, Village of Islands including Plantation Key, Windley Key, Upper and Lower Matecumbe Key. This project will include 14 canals.

6. Project Cost: *(Provide the actual/estimated project cost, the amount being requested with this submission, and the amount of match committed to the project from any source. Please make clear the total project cost and the amount you are requesting. There is an opportunity to provide detailed cost/request/match information in the narrative section (see question 8.)*

• Total Project Cost:	\$ <u>3,988,000</u>	
• RESTORE Request Amount:	\$ <u>3,880,000</u>	% of project cost: <u>97 %</u>
• Secured Cash Match (committed funding from other sources):	\$ <u>100,000</u>	% of project cost: <u>3 %</u>
• In-kind Match value:	\$ <u>0</u>	% of project cost: <u>0</u>
• Funding Gap:	\$ <u>0</u>	% of project cost: <u>0</u>
• Anticipated Cash Match (potential funding from other sources)*:	\$ <u>0</u>	% of project cost: <u>0</u>

*These funds must be secured within 1 year of project award.

Section 3. Project Budget

APPLICATION PROJECT BUDGET

PROJECT BUDGET Activity/ Item	Cost	FUNDING		
		Anticipated RESTORE Funding	Cash Match	In-kind Match
Planning/Design/Permitting				
	\$875,000	\$830,000	\$45,000	
Administration*:	\$1,500			
Planning Subtotal:	\$876,500	\$830,000	\$45,000	\$1,500
Construction or Project Activity(ies)				
	\$3,005,000	\$2,950,000	\$55,000	
Administration*:	5,000			
Construction Subtotal:	\$3,010,000	\$2,950,000	\$55,000	\$5,000
Monitoring				
	\$100,000	\$100,000		
Administration*:	1,500			
Monitoring Subtotal:	\$101,500	\$100,000		\$1,500
Project Cost				
Total Administration*:				
TOTAL Project Cost:	\$3,988,000	\$3,880,000	\$100,000	\$8,000

Estimated Costs by Year	
Year 1	\$896,700
Year 2	\$2,392,800
Year 3	\$498,500
Year 4	\$200,000
Year 5	\$0
Year 6	\$0

*Notes: Only complete the sections of the budget that are applicable for your project. Please refer to question 8 to provide further explanation of budget details. *The RESTORE Act places a total 3% cap on administrative expenses. We are uncertain at this point how this will be applied, how "administration" will be defined or assigned, or whether projects may even be able to include administration. We are waiting on further guidance from US Treasury rules to define this. Please keep this in mind as you develop your budget. Administrative costs typically include but may not be limited to overhead costs for basic operational functions (insurance, utilities), as well as costs associated with admin staff such as accountants, legal, etc.*

APPLICATION QUESTIONS – DETAILED PROJECT INFORMATION

Section 4. Application Narrative; Detailed Project Information

Please respond clearly and specifically to each of the following questions. Use 12 pt. font, 1 inch margins, and pagination, to aid in readability. There is no page limit, but please be as brief as possible. To complete your submission, please attach your response to these questions to the application cover pages and the budget page.

7. **Project Description:** *(Describe all aspects of the project; what issue, need, concern or problem does the project address? Why is the issue/need/concern/problem important? Is there an urgency or immediacy to the need? Provide facts and data sources used to support the need for this project. What and/or who does the project impact, benefit or affect; what will it accomplish when completed? Provide facts and data sources to support the expected impacts. Provide any other relevant information needed to describe your project. Be sure you make the connection between your project and the RESTORE Act criteria selected on first page. Provide citations for all references quoted or used to support the need for and impacts of this project.)*

Maximum 20 pts. How important is this project in terms of the need it meets and the goals it is seeking to achieve? How critical is the need it addresses? Is the need supported by data/facts? Is this project likely to meet its goals? Is the project approach organized and well thought out?

8. **Budget Narrative/Financial Feasibility/Cost-Effectiveness:** *(Be sure that your responses to this question and dollar amounts used are consistent with those used in Application Project Budget, and those in Question 6.*
- *Clearly indicate and describe the estimated or actual costs of the project.*
 - *Clearly indicate and describe the amount and use of RESTORE Act funding request.*
 - *Identify amount and sources for your secured cash match funding. [“Cash match” is defined as actual cash contributions to project costs. “Secured cash match funding” is funding that has been committed to your project.] Please demonstrate secured match funding with documentation such as commitment letter(s) from the funder(s).*
 - *Identify amount and sources for your anticipated cash match. [“Anticipated cash match” is potential funding you have sought or will seek but is not confirmed.] Please note that an applicant must have its project’s “anticipated cash match” secured within one year of award of RESTORE Act funding. Explain, if applicable, how these RESTORE funds may be used to leverage additional funding.*
 - *If your project is also using in-kind match [“In-kind match” is defined as contribution to project costs other than cash], please identify what the in-kind match includes and how you calculated its value.*
 - *Explain how the project is financially feasible [ie, is there a plan to cover all costs?]*
 - *Explain how the project is cost-effective [ie, is this project a good value, is it economical in terms of the tangible benefits produced by the money being spent?]*

Maximum 15 pts. Several things will be evaluated with respect to the budget including match value, financial feasibility and cost-effectiveness.

9. **Technical Feasibility:** *(Explain how this project is technically feasible; ie, how do you know that this is a feasible project that can be implemented and that will result in success. Describe the technologies involved. Describe relevant past experience or proven success with this type of technology and this type of project. Describe why this project is likely to succeed?)*

Maximum 5 pts. Is this approach likely to work

10. **Readiness for Implementation/Permitting Considerations:** *(What steps are necessary and how long will it take to implement this project? Describe the required design and permitting work required for implementation. How far along is the design and permitting? Has it started? Is it complete? If required permits have already been obtained, please attach copies. If the design has been completed, please attach copy of the design work. If the design work has not yet begun, please tell us how long this will take. If permits are required, but not yet obtained, please discuss how you know your project will qualify for the required permits and how long will this permit process take. In other words, if your project is not shovel-ready, what is entailed and how long will it take to before it becomes shovel-ready? Identify the specific milestones and timeframe for each.)*

Maximum 10 pts. Is the timeframe realistic? Is the permitting achievable? Is the timeframe acceptable?

11. **Project Completion Timetable:** *(Once the project can be implemented, what are the steps and how long will it take to complete the project? Identify milestones and timeframe for each.)*

Maximum 10 pts. Timeframe realistic? Is the timeframe acceptable?

12. **Environmental Benefits:** *(Describe the nature, magnitude, and timing of any environmental benefits attributable to the project. Identify and quantify all environmental benefits expected. How will these benefits be measured and evaluated? How long before benefits are realized? Are these benefits short-term? Long-term? Identify the party responsible for the achievement of these benefits. Describe how your project is sustainable. (In other words, how much or what percentage of the project's services and/or benefits will still be delivered and maintained after the project is complete and/or funding has ended.) How will you monitor and ensure sustainability after the funding has ended. Please address any potential environmental impacts (ie, loss of habitat) associated with implementing or maintaining the project.)*

Maximum 10 pts. Are the benefits impactful? Do the benefits address/correct/mitigate/advance a critical need/issue? Likelihood of achieving these benefits? Acceptable timeframe for achieving the benefits? Does the project have long-term sustainability?

13. **Economic Benefits:** *(Describe the economic benefits that will be achieved. Identify and quantify all economic benefits expected. How will these benefits be measured and evaluated? When do you expect to see the results? Are these benefits short-term? Long-term? How will you ensure the achievement of long-term benefits? Identify the party responsible for the achievement of these benefits. Describe how your project is sustainable. (In other words, how much or what percentage of the project's services and/or benefits will still be delivered and maintained after the project is complete and/or funding has ended.) How will you monitor and ensure sustainability after the funding has ended. If this is a workforce development project please describe how the project will result in new, expanded or retained business development opportunities and job creation. Please include detail about what types of jobs will be created? How many and when? What is the anticipated annual salary or hourly rate, are the jobs full time or part time, are benefits included, etc.?)*

Maximum 10 pts. Level of benefits? Do they address/correct/mitigate/advance a critical need/issue? Likelihood of achieving these benefits? Acceptable timeframe for achieving the benefits? Does the project have long-term sustainability?

14. **Community Economic and/or Environmental Resilience Benefits:** *(Describe if the project assists with our community's ability to anticipate, withstand, or recover (environmentally and/or economically) from hazards or threats, eg. hurricane evacuation, flood mitigation and prevention, future oil spills, shoreline protection, etc.)*
- Maximum 5 pts. Level of benefits? Do they address/correct/mitigate/advance a critical need/issue? Likelihood of achieving these benefits? Acceptable timeframe for achieving the benefits?**
15. **Complements to Existing Efforts/Public Acceptance:** *(How does the project complement existing local, regional or state efforts/plans/objectives or on-going efforts/activities. Explain why your project does not interfere or conflict with any existing efforts, and why your project is not duplicative of any existing efforts. Also, please explain whether your project is consistent with/included in a local government Comprehensive plan, Capital plan, Mitigation Plan, Wastewater or Storm Water Master Plan, etc. If not part of an already approved plan, please describe any known or potential public approval or opposition to the project. Explain any efforts to determine public acceptance.)*
- 5 pts. Does the project align with county and/or municipal priorities? Is there clear public support?**
16. **Compliance with Federal, State, Local Regulations:** *(Describe how the project complies with all regulations. Note: Additional restrictions and requirements may be applicable based on US Treasury guidance to be established pursuant to the RESTORE Act.)* **No points awarded, since compliance with regulations is a requirement.**
17. **Project Management Capacity:** *(We expect that all funded projects will receive a high degree of scrutiny from both state and federal agencies throughout their duration both programmatically and financially, and will be required to comply with a rigorous standard for monitoring, reporting and auditing of both results and expenditures. Please also note that the framework for RESTORE Act project funding has not yet defined but will likely draw significantly from federal grant guidelines, rules, regulations and requirements. Therefore, assuming the applicant entity will be responsible for implementing and administering its project according to federal grant guidelines, concisely:*
1. *Describe the expertise, experience and prior success of the organization and persons to implement the type and size project proposed here.*
 2. *Describe the organization's experience with federal grant requirements, and with management of government grant-funded projects of this type and size, including financial and outcomes, monitoring, reporting and auditing.*
 3. *Describe your plan for programmatic and financial management, oversight and monitoring.*
 4. *Describe the project management team, including the names, qualifications, experience and prior success of those responsible for design, implementation, outcomes achievement, and financial management.)*
- Maximum 10 pts. Does the organization or sponsor have the demonstrated ability and experience to implement/administer this project, and deliver on the outcomes?**
18. **Additional Information:** *(Please include any maps, designs, drawings, photos, or background resources that may assist in understanding the project. Please be mindful of the electronic file size of your application. We will be forwarding this application to various reviewers/recipients electronically. Many servers do not accept large file sizes. Also limit attachments to those measuring 8x11 that can reproduced with little or no expense (limit color photos, blueprint type documents, etc.)*

SCORING RUBRIC

Project Description	20
Project Budget (Match, Financial Feasibility, Cost- effectiveness)	15
Technical Feasibility	5
Readiness for Implementation	10
Completion Time	10
Environmental Benefits	10
Economic Benefits	10
Community Resilience Benefits	5
Complements Existing Efforts/Public Support	5
Management Capacity	10
Maximum Points	100

SOLICITATION TIMEFRAME

- Funding Solicitation Opens: July 22, 2013
- Funding Solicitation Closes: August 30, 2013

TENTATIVE PROJECT REVIEW/AWARD TIMEFRAME

- Local Advisory Committee Review/Ranking Meeting(s): September/October, 2013
- BOCC Decision of Project Awards: October/November, 2013

7. Project Description:

Islamorada, Village of Islands (the "Village") is a small municipality that comprises four islands in the Upper Keys: Plantation Key, Windley Key, Upper Matecumbe Key & Lower Matecumbe Key. As an integral part of the island chain, the Village, along with the other governmental agencies in the region, recognizes the necessity (and the requirements) for water quality improvements. It has long been recognized that water quality in the Florida Keys has been deteriorating, particularly as it relates to our canal systems. Today most of our canals are listed as "impaired water bodies" by the Environmental Protection Agency (EPA) and are in need of restoration. In 1999, the Florida Watershed Restoration Act, (Section 403.067 F.S.) was established to implement Florida's water body restoration program and thereby set forth a requirement for a Total Maximum Daily Loads (TDML's) to be established for all impaired water bodies.

The Village, in cooperation with local governments, state agencies, and federal agencies within the Florida Keys became part of the DEP Florida Keys Reasonable Assurance Plan (FKRAD) and agreed to accelerate and implement projects that were already planned in order to work towards a water quality standard that will help restore water quality. Specifically, the FKRAD addresses the need to return our near shore water quality to "targets" set for total nitrogen (TN) total phosphorous (TP) and in some impaired systems, dissolved oxygen (DO). Dissolved oxygen is one of the primary concerns within our impaired canal systems and is of utmost importance to water quality restoration since canals discharge directly into our near shore waters.

Local governments recognize that water quality is essential for the restoration of our natural resources and initially have been addressing this fact through projects dealing with wastewater and stormwater. On August 21, 2012 the Village entered into a Design Build Operate (DBO) Agreement with Reynolds Water Islamorada, LLC (Reynolds) to provide design, construction, and operation of a village-wide central wastewater system. This Agreement stipulates substantial completion by July of 2015 and final completion by December 21, 2015. As of September 2013, the project is on schedule and will likely be completed by the end of 2015.

Canal restoration is the final "piece of the puzzle" that will assist in the restoration of water quality throughout the Florida Keys. The Monroe County Board of County Commissioner's dedicated 5 million dollars towards canal restoration, and the City of Marathon has included budgeted funds within its capital infrastructure plan for future restoration efforts. The Village has dedicated \$100,000 towards implementing canal restoration and is an active member of the Canal Restoration Subcommittee, which is under the Water Quality Protection Program of the Florida Keys National Marine Sanctuary. As a member of that committee, the Village has been involved with the development of the Canal Management Master Plan (CMMP), which is a County-wide assessment of our residential canal systems. The CMMP has identified 62 residential canals with the Village of Islamorada, 14 of which are considered "Poor Water Quality" and are the highest priority for implementing water quality improvements (Figures 1, 2 & 3). Based on this assessment, the Village has begun preliminary work on restoring the canals with the poorest water quality first. Table 1 provides a list of the canals and recommended restoration techniques. A more detailed description of the restoration techniques can be found in the (9.) Technical Feasibility section of this document.

Table 1: Poor Water Quality Canals in Islamorada CMMP 2013

Canal Name*	Mile Marker	Bayside Oceanside	Weed Gate	Culvert	Backfill	Organic Removal	Pumping
108 PLANTATION KEY	91	B				X	
110 PLANTATION KEY	91	B			X		
116 PLANTATION KEY	90	O			X		
116 PLANTATION KEY ADDED	90	O					
120 PLANTATION KEY	89	B	X	X	X		X
132 PLANTATION KEY	87	O		X			
137 PLANTATION KEY	87	O		X	X		
139 WINDLEY KEY ADDED	85	O				X	
139 WINDLEY KEY ADDED 2	85	O			X		
143 UPPER MATECUMBE	81	O	X		X		
145 LOWER MATECUMBE KEY	76	O	X		X	X	
147 LOWER MATECUMBE KEY	76	O	X			X	
148 LOWER MATECUMBE KEY	76	O	X			X	
157 LOWER MATECUMBE KEY	74	O		X		X	

*note: Canal names are for reference only and are identified on the GIS Canal Layer map included in the 2003 Monroe County Residential Canal Inventory and Assessment and the final CMMP Report dated September 2013.

The restoration technologies presently under consideration as identified in the CMMP focus on improving the canal water quality conditions of related to reduced dissolved oxygen and lack of flushing. They include:

- **Removal of accumulated organics** from within canals
- **Weed gates, air curtains or other physical barriers** to minimize additional organic accumulation in the canals
- **Culvert connections** to facilitate flushing
- **Pumping systems** to facilitate flushing, and
- **Backfilling** to prevent occurrence of deep stagnant zones.

A more detailed description of the restoration techniques can be found in the (9.) Technical Feasibility section of this document. The selection of the appropriate and most effective restoration for each canal may involve multiple technologies as is indicated in the CMMP recommended restoration Table 2.

8. Budget Narrative / Financial Feasibility / Cost-Effectiveness:

Restoring water quality is necessary to ensure the health and welfare of our natural resources, our economy and our quality of life. Canal restoration is an important "piece of the puzzle" that will require a long-term effort and commitment from many sources, not just the Village.

The Village is dedicated to implementing canal restoration, and for the purposes of this application, only the 14 canals listed by the CMMP as "poor quality" will be addressed. The canal restoration costs are based upon the existing GIS data base and conceptual designs developed during the CMMP. Preliminary assessment of canal conditions and assumptions regarding design and construction costs were utilized to develop the estimates. The total estimated cost of restoring all 14 canals would be \$17.5 million dollars, however if we selected and implemented the least expensive restoration technologies first, the overall cost would be substantially reduced.

- The total estimated cost of restoring all 14 canals utilizing the least expensive restoration technologies first would be \$ 3,998 million dollars;
- The Village is requesting \$3,880 million (97%) from RESTORE Act funding to provide for the installation of the restoration projects;
- The Village has committed \$100,000 (3%) in its FY 2013-2014 General Fund Budget for design and construction of one canal restoration project located within the boundaries of the Village.

Table 2 & 3 below provide the total estimated installation costs for the project as well as cost per each technology as identified in Table 1. It is assumed that the long term operation and maintenance of the canal restorations will be paid for by the local residents. Many homeowner associations have already stepped forward indicating their commitment to contribute toward restoration costs including long-term operation and maintenance.

Table 2: Estimated Number of Technologies Required for Improving Water Quality in the 14 Poor Water Quality Canals

Technology	Weed Wrack Gate	Organics Removal	Pumping	Culverts	Backfilling
Number of Canals	5	6	1	5	7

Table 3: Likely Restoration Cost by Selected Technologies for the 14 Poor Water Quality Canals

Weed Wrack Gate/Barrier	Organics Removal	Pumping	Culverts	2 Year Monitoring Program	Total Application Project Cost
\$310,000	\$2,180,000	\$240,000	\$1,150,000	\$100,000	\$ 3,980,000.00*

*Note: Does NOT include \$8,000 Administration Fee – construction cost only

The proposed project is financially feasible with the proper allocation of funds and is cost effective since the entire region will benefit from improved water quality. Improved water quality through canal restoration will enhance and restore our natural resources, which will in turn enhance our economy, which will in turn raise our property values.

9. Technical Feasibility:

The canal restoration technologies being proposed have been identified in the CMMP and address two major water quality issues: (1) seaweed loading (both prevention of future impacts and removal of existing accumulated organics) and (2) improvement in canal flushing and circulation via culverts or pumps. Each of the proposed technologies has been implemented at one or more canal sites in the Keys.

Weed Wrack Gates/Air Bubble Curtains: Excessive amounts of weed wrack (floating seaweed) entering the canals fouls the water, and becomes trapped in the dead end sections of the canals. The orientation and prevailing winds at many canals do not allow the weed wrack to float back out of the canals, so it becomes trapped, decays and drops to the canal bottom, where it uses up dissolved oxygen and emits hydrogen sulfide and methane gases. Weed wrack gates in combination with air bubble curtains have been shown to be the most effective method for preventing weed wrack from entering the canals. The CMMP includes conceptual designs of this system. The design was based upon numerous discussions with local homeowners concerning existing systems. Big Pine Fish Camp and Ave J in Big Pine Key are good examples of existing weed reduction systems, which are both a combination weed gate/air bubble curtain system.

Removal of Accumulated Organics: Even when seaweed is prevented from entering a canal, the existing accumulated organics are still an on-going source of water quality impairment. The removal of organics from the canal bottoms through hydraulic dredging or other technique will remove this on-going source. Under a FDEP Grant # S0640, surveyors have

collected canal bathymetry data to determine the natural depth of the canals and the amount of accumulated organics. The Florida Department of Environmental Protection (FDEP) grant scope also included sampling the organic material to determine the physical and chemical properties to assist in final design for removal, dewatering and disposal options. Although each organic sediment removal project varies depending on specific objectives, local conditions, and disposal options, similar projects have recently been completed in Florida with positive water quality response. Two similarly-scaled projects have been designed and successfully implemented by AMEC Environment & Infrastructure including the Lake Griffin Canal Restoration project (\$7.2 million construction cost, completed 2008), and the Lake Beauclair Aquatic Enhancement project (\$10.2 million construction cost, 90% complete).

Culverts to Enhance Tidal Flow and Improve Circulation: The construction of homes in many parts of the Keys created long, multi-segmented, dead-end canal networks which maximize waterfront property but provide little or no tidal flushing and thus accumulate nutrients and decomposing organic material. Now that nutrient loading from septic tanks has been significantly reduced there are many canal systems that still have water quality impairment due to lack of natural flushing. The Keys have a natural tidal flow that can be utilized to improve water quality. Culverts, typically concrete box type, can be installed between canals or between canals and thin land strips to improve flushing. Jolly Roger Estates in Little Torch Key is an example of an effective box culvert installation that has greatly improved water quality.

Pumping to Improve Circulation: For canal systems that do not have an accessible area to install a culvert, a pump can be installed to promote water circulation within a canal. Water can be pumped from a 'dead end' canal to an enhanced mangrove water treatment area or water from a nearby near shore area can be pumped into the canal to increase dissolved oxygen levels and assist with flushing. Pump installations will be designed to prevent adverse secondary effects such as re-suspension of sediments, bottom scouring, or negative impacts to the near shore waters. The CMMP contains a conceptual design for a pumping system in Marathon, which was designed to pump in Florida Bay water to the dead end of the canal.

10. Readiness for Implementation/Permitting Considerations:

The CMMP contains conceptual designs that have already been developed and can provide a "boilerplate" for use in any canal system. Specifically, the proposed Village projects would involve: weed wrack barriers/air curtains, organic sediment removal and pumping to enhance flushing. As discussed in section (9.) Technical Feasibility, the proposed restoration technologies have been utilized in canals throughout the Keys, as well as in Florida.

11. Project Completion Timetable:

Below is the estimated project completion timetable by activity.

Activity	Duration (months)
Planning	3
Engineering/Design	6
Permitting	6
Bid Solicitation	2
Construction	12
Monitoring	Years 2.5-4.5 (baseline through 2 years of system operation)

12. Environmental Benefits:

Florida is the only state in the continental United States to have extensive shallow coral reef formations near its coasts. Coral reefs create specialized habitats that provide shelter, food and breeding sites for numerous plants and animals, including spiny lobster, snapper and other commercial and recreational species. The Florida Reef Tract (FRT) stretches 358 miles from the Dry Tortugas National Park off of the Florida Keys to the St. Lucie Inlet in Martin County. Roughly two thirds of the Florida Reef Tract lies within the Florida Keys National Marine Sanctuary (FKNMS) (FDEP, 2013). This project is located within Monroe County which is the only section of the Florida Reef Tract that is located within the Gulf of Mexico’s waters.

Coral reef, as well as seagrass bed health, is directly linked to near shore marine water quality. Both corals and seagrasses thrive in areas where water is clear (low turbidity), low in nutrients, and high in dissolved oxygen (DO). High levels of nutrients and low DO have been directly linked to extensive die-off in coral reefs in the coastal waters of Puerto Rico and Jamaica. Similarly, seagrasses show die-back in areas where turbidity and nutrients are high, favoring the growth of algae that can smother seagrasses.

Improvements in the canal water quality will improve the receiving waters and also the adjacent benthic communities including seagrass and coral reefs (Lapointe and Clark 1992; Lapointe *et al.* 1994).

13. Economic Benefits:

The socioeconomic importance of the reef to Monroe County was documented in a 2007-2008 socioeconomic study performed by the FKNMS which concluded that more than 33,000 jobs and \$2.3 billion dollars in annual added revenue are directly attributed to Florida Reef Tract (National Marine Sanctuaries, 2013). Islamorada is in the center of Monroe County and supports a large tourism and charter boat fishing industry which are both dependent on the FKNMS and good water quality. Improvements in the canal water quality will ensure continued dollars from these industries. Additionally, canal water quality improvement will increase the value of canal front properties.

14. Community Economic and/or Environmental Resilience Benefits:

Water quality is directly related to all aspects of our local economy. The need to restore and sustain our marine environment is critical in maintaining our livelihood. Tourism relies on clean beaches, thriving fisheries and healthy natural resources. Our fishing industry as well as our tax base (property values) demand stewardship of our surroundings. The Village has long been an advocate of local businesses and proudly promotes us as the “Fishing Capital of the World”. The Village’s economic impact is also regional; since many of our visitors continue to travel down the Keys thereby providing a positive experience Keys-wide and hopefully encourage future visits.

The restoration of our canal systems is crucial in maintaining our economy and to ensure our resources are sustainable. Improvements in our water quality will increase our capacity to sustain storm events without significant damage to our natural resources by ensuring the water that is within our canals is “healthy”. Storm events can “remove” the water from within a canal system and directly deposit it into our near shore waters. Therefore, environmental resilience will increase if the water quality is high within our canals.

15. Complements to Existing Efforts/Public Acceptance:

The Florida Keys National Marine Sanctuary (FKNMS) developed a canal water quality improvement strategy in 1997. This was a concerted effort to implement strategies for canal restoration throughout the Florida Keys. In addition, the Water Quality Protection Program, as part of the FKNMS, has actively pursued water quality issues and has recently formed the canal restoration subcommittee to further implement these strategies. Along with other local governments and agencies, Monroe County has also invested considerable time and money into canal inventories and assessments on a Keys-wide basis. The Village believes our effort in canal restoration will enhance and complement the county-wide effort that must be achieved to ensure our natural resources are protected.

The Village has actively been involved with the subcommittee for canal restoration and during that time has received several positive comments from the public with regards to restoring canals. Many homeowners are encouraged about the prospect of clean water and increased property values.

16. Compliance with Federal, State, Local Regulations:

The project will comply with all Federal, State, and local regulations.

17. Project Management Capacity:

The Village is currently involved with managing a 133 M wastewater project throughout the four islands. Our project team is very experienced in large scale projects and is very skilled in implementing a project of this size.

18. Additional Information:

References cited:

AMEC Environment & Infrastructure, 2013. Monroe County Canal Management Master Plan (CMMP) Summary Report.

Department of Environmental Protection, 2011. Florida Keys Reasonable Assurance Plan (FKRAD).

Florida Department of Environmental Protection, 2013. Background Information & History of TMDL Program. September 2013, <http://www.dep.state.fl.us/water/tmdl/background.htm>

Florida Keys National Marine Sanctuary, 1997, as amended.

Florida Keys National Marine Sanctuary, 2007. Florida Keys National Marine Sanctuary Revised Management Plan. FKNMS. Marathon, FL.

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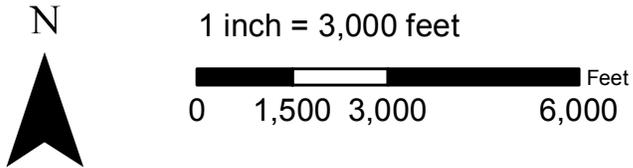
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Legend

Islamorada Poor Water Quality Canals

Source: FDOT, 2010 (aerial);
NRCS, 2010; AMEC, 2012



Monroe County Canal Management Master Plan			
POOR WATER QUALITY CANALS IN UPPER ISLAMORADA			
Drawn	Date		MIAMI, FL Project # 13MKTG0010
SJH	09/16/2013		
Checked	Date		
WCL	09/16/2013		
			Figure 1



Legend

Islamorada Poor Water Quality Canals

Source: FDOT, 2010 (aerial);
NRCS, 2010; AMEC, 2012

N

1 inch = 3,000 feet

0 1,500 3,000 6,000 Feet

Monroe County Canal Management Master Plan			
POOR WATER QUALITY CANALS IN CENTRAL ISLAMORADA			
Drawn	Date		MIAMI, FL Project # 13MKTG0010
SJH	09/16/2013		
Checked	Date		
WCL	09/16/2013		
			Figure 2



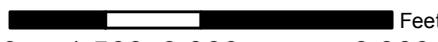
Legend

 Islamorada Poor Water Quality Canals

Source: FDOT, 2010 (aerial);
NRCS, 2010; AMEC, 2012

N

1 inch = 3,000 feet

 Feet

0 1,500 3,000 6,000

Monroe County Canal Management Master Plan			
POOR WATER QUALITY CANALS IN LOWER ISLAMORADA			
Drawn	Date		MIAMI, FL Project # 13MKTG0010
SJH	09/16/2013		
Checked	Date	Figure	3
WCL	09/16/2013		