

8. Implementation Strategy

Although there are several policies and programs already in place within the Village to improve sustainability and help the Village mitigate sea level rise impacts, the recommendations provided in this Plan exceed the scale of existing efforts. Implementation of the recommendations in this Plan is critical to ensuring that real improvements are made. The recommendations provided in this Plan can be implemented in several ways, including: integration with the capital planning process, securing newer partnered funding sources, integration with the Comprehensive Plan and Code, and other mechanisms. The Implementation Matrix provided in Appendix F illustrates specific methods of implementation for each individual recommendation per Focus Area, as does the narrative below.

A) Integration with Capital Planning Process

i. Village of Islamorada

As a strategy for implementing adaptation recommendations outlined in this Plan, the Proposed FY 2015/16 Islamorada Budget and five-year CIP were reviewed to identify scheduled public infrastructure investments that could be adapted to prevent damage associated with rising sea levels (Appendix H).

Each year, Islamorada undertakes a budgeting process that includes the proposed financing of the upcoming Fiscal Year critical capital improvements. The capital improvement projects proposed to be budgeted must be consistent with the five-year CIP, updated and adopted annually as part of the CIE of the Comprehensive Plan, in accordance with Section 163.3177, Fla. Stat. and Comprehensive Plan Policy 9-1.1.4. The 5-year CIP may be amended by ordinance and does not have to undergo a Comprehensive Plan Amendment. Section 163.3177, Fla. Stat. requires that the CIE be designed to consider deficiencies, needs, or increases in capacity of public facilities including estimated public facility costs, timelines, and projected revenue sources. Because the budget and CIP are adopted annually, adaptation strategies recommended in this Plan can be incorporated into the annual process. Below are the proposed capital planning projects for the FY 2015/16 budget cycle and suggestions for how the Village could consider integrating various adaptation strategies into this and future capital planning and budgeting processes.

Case Study: City of Miami Beach Stormwater Utility Assessment

The City of Miami Beach is combatting sea level rise in the near term with new pump stations. The City plans to have 60 to 80 pumps installed and running by 2020. The pumps will be placed in locations where a large amount of water from high tide spills onto the streets, and will pump 14,000 gallons of water back into the sea every minute.

This project comes with a \$300 million price tag, which the City Commission will fund with three \$100 million bond issuances to allow Miami Beach to borrow money at a low interest rate.

Also, a new Stormwater Utility Fee is being collected from all homeowners, businesses and hotels to help fund the pump project. Passed in September 2014, through Ordinance 2014-3894, the stormwater utility service charge for all customers increased from \$9.06 to \$16.67 per month. This increase will provide financial coverage for the Commission to issue the first bonds. Additional increases will be seen in fiscal years 2016/17, 2017/18 and 2018/19 to cover the issuance of subsequent bonds.

Table 14. Capital Projects Proposed for Funding in FY2015/16

Funding Source	Capital Project Funded	How recommendations in this Plan can influence capital project implementation
General Fund	<ul style="list-style-type: none"> • Repair and Maintenance to Building Department Vehicles - \$2,500. • Lighting in Anne’s Beach, Library Beach, Green Turtle Hammock, Hurricane Monument, partial maintenance building & community center; neighborhood security lighting - \$66,000. • Park Complex public works maintenance shop - \$4,800. • Sewer connection, Green Turtle Hammock, Administrative Center, Anne’s Beach, Library Beach - \$100,000. • Hurricane Monument, Anne’s Beach, Library Beach Park, Plantation Tropical Preserve, Green Turtle Hammock - \$33,000. • Green Turtle Hammock main house repairs, electrical, insulation, drywall, windows, A/C, cottage and outbuilding maintenance - \$50,000. • Administrative Center interior repairs; elevator, sprinkler system and fire alarm maintenance - \$20,000. • Mabbs Hammock regrading and gravel - \$9,000. • Hurricane Monument replacement sod - \$6,500. • Anne’s Beach boardwalk piling replacement project - \$50,000. • Parks & Recreation grounds repair and maintenance - \$40,000. • Parks & Recreation building repair and maintenance - \$25,000. • Parks & Recreation equipment repair and maintenance - \$25,000. 	<ul style="list-style-type: none"> • Continue phasing out inefficient Village vehicles and replacing them with more fuel efficient, hybrid or electric vehicles. • Ensure that energy efficient fixtures (e.g. LED bulbs, occupancy sensors) and water conserving fixture (e.g low-flow toilets, faucet and shower fixtures) are used in Village maintenance, repair and construction activities. • Increase building insulation and upgrade to energy efficient windows where possible when making building repairs. • Use sustainable materials or recycled products where possible. • Ensure that sea level rise is considered for all larger-scale maintenance and renovation of Village facilities.
Transportation Fund	<ul style="list-style-type: none"> • Venetian Shores & Venetian Way guardrails, trees and coral boulders along canals and canal ends - \$ 115,000. 	<ul style="list-style-type: none"> • Continue using native plants and ecosystem appropriate flora in replanting efforts. • Ensure that sea level rise is considered for all major transportation planning projects within the Village.

Funding Source	Capital Project Funded	How recommendations in this Plan can influence capital project implementation
Capital Project Fund	<ul style="list-style-type: none"> • Parks & Recreation– \$41,200. • Public Works - \$52,000. • Planning - \$10,000 for CityView enhancements. 	<ul style="list-style-type: none"> • Use results of the vulnerability analysis conducted as part of the Islamorada Matters Plan to inform capital project funding within the Village. • Ensure that sea level rise is considered for all capital improvements.
Affordable Housing Fund	<ul style="list-style-type: none"> • Sewer Connection Subsidies- \$30,000. 	<ul style="list-style-type: none"> • Use results of the vulnerability analysis conducted as part of the Islamorada Matters Plan to inform wastewater project funding within the Village. • Ensure that sea level rise is considered for all capital improvements.
Stormwater Enterprise Fund	<ul style="list-style-type: none"> • Individual stormwater project throughout Village - \$300,000. 	<ul style="list-style-type: none"> • Use results of the vulnerability analysis conducted as part of the Islamorada Matters Plan to design stormwater project funding within the Village. • Ensure that sea level rise is considered for improvements to vulnerable stormwater infrastructure.
Wastewater Utility Enterprise Fund	<ul style="list-style-type: none"> • No capital outlays listed. 	<ul style="list-style-type: none"> • For future capital outlays, ensure that sea level rise is considered for large improvements to vulnerable wastewater infrastructure.
5-year Capital Improvement Program	<ul style="list-style-type: none"> • Transportation Projects: Village-wide Public Road Asphalt Overlay Project - \$325,000. • Wastewater Projects: Remaining Service Area Wastewater Collection System - \$5,286,060. • Stormwater Projects: Neighborhood Stormwater Projects - \$300,000. 	<ul style="list-style-type: none"> • For future capital improvements, ensure that sea level rise is considered. This is especially true for transportation, wastewater and stormwater projects to maintain wise investment of capital funds.

New Budget Item recommendations are broken down by Focus Area below. Additionally, recommendations with budgetary implications that may be funded with existing Village funds and staff time are identified below. Additional details for the recommendations in this Focus Area are also provided in the Implementation Matrix in Appendix F.



Habitat

Use internal resources or allocate funds for outside assistance if needed:

- Update Stormwater Master Plan to include sea level rise assumptions and incorporate green infrastructure features.
- Conduct a habitat analysis to document species, condition, size and location of trees within the Village.
- Identify the areas where living shorelines are appropriate and develop guidance for implementation & monitoring.
- Identify vulnerable habitats and open space for prioritized land acquisition and maintenance.
- Identify and map natural inundation buffers which could also provide sea level rise adaptation benefits.
- Identify areas for habitat maintenance where removal of exotics could improve the quality of the area.
- Identify impacts to public access and recreation that might result from sea level rise.
- Identify and protect “core areas” within the Village with the best chance of persistence during sea level rise.



Infrastructure &
Built Environment

Use internal resources or allocate funds for outside assistance if needed:

- Improve data related to properties and infrastructure facilities including digitizing all building footprints.
- Identify key segments for retrofits; develop database of real-time flood impacts to road segments; explore funding.
- Update any required BMPs for water quality improvement; increase natural, on-site drainage to minimize runoff.
- Update Landscape Manual and landscaping requirements to more specifically require water conservation.
- Work with FDOT to develop survey of road bed elevations and suggest portions of roads most vulnerable for improvement.
- Utilize tidal vulnerability maps for roads as a guide for a public outreach campaign to develop record of flooding events.



Village Buildings and
Key Facilities

Three (3) new budget items are recommended, as provided below. Four (4) additional recommendations with budgetary implications are included in the Implementation Matrix.

- Conduct detailed site-level flood exposure audits for the wastewater pump station facility at 142 Sunshine Boulevard and the Islamorada Master Repump Station to determine above ground elevations and, as appropriate, structural flood resistance for electronics and mechanical components. Develop detailed GIS datasets, including bottom of invert elevation for access and junction points, to support site-level vulnerability assessments of underground wastewater infrastructure within the Village of Islamorada.
- Develop long-term flood resilience alternatives for Fire Station #19, located at 74070 U.S. Highway 1.
- Development of maintenance recording protocols and, as necessary, engineering assessments to assess resilience of below-grade pipes and pump infrastructure to increased saltwater incursion associated with sea level rise.



Adaptation Strategies

Use internal resources or allocate funds for outside assistance if needed:

- Continue discussing sea level rise vulnerability with residents/stakeholders through annual workshops on Plan progress.
- Develop and implement geographic database for Village employees and residents to document nuisance flood events.
- Ensure that future flood vulnerability assessments in Islamorada build upon the work in the Islamorada Matters project; use, integrate and improve Elevation Certificate record to promote higher confidence in flood risk assessments.
- Develop framework to engage with residents so that consensus on adaptation actions is data and stakeholder driven.
- Conduct additional study of an initiative to elevate and floodproof most vulnerable buildings within Islamorada.
- In future modeling efforts, model benefits and costs of joint action for adapting roads and buildings.
- Develop incentive program for developers and property owners who relocate structures landward, conserve or preserve.



Sustainability

Use internal resources or allocate funds for outside assistance if needed:

- Achieve recognition as a Bicycle Friendly Community or Walk Friendly Community.
- Train inspectors to enforce energy/water efficiency standards in adopted building codes.
- Implement specific programs/services or create facility upgrades to transition toward use of alternative transportation.
- Create incentives to help relocate residents from hazardous areas.
- Adopt a waste management plan that identifies greatest sources of waste and sets reduction targets.
- Collaboratively create/run two targeted recycling programs in the community.
- Implement specific programs and services or create facility upgrades that reduce waste in the community.

Figure 7: Recommendations with Budgetary Implications

Based upon the results of the vulnerability analysis completed as part of this project, only two (2) facilities, the wastewater pump station located at 142 Sunshine Boulevard and Fire Station #19 located at 74070 U.S. Highway 1, appear to be vulnerable under the highest sea level rise scenarios modeled by 2030. While not necessary for incorporation into the capital planning or budgeting process in the near term cycles, it is important to consider that these projected impacts are only fifteen (15) years out. But in terms of tidal flooding creating stormwater or road impacts, between 1.9 miles (low sea level rise) and 3.4 miles (high sea level rise) of non-U.S. Highway 1 road segments show potential nuisance flooding impacts by 2030.

The following guidance is provided for implementing the three (3) new capital budget items for Village buildings and facilities:

1. Conduct detailed site-level flood exposure audits for the wastewater pump station facility at 142 Sunshine Boulevard and the Islamorada Master Repump Station to determine above ground elevations and, as appropriate, structural flood resistance for electronics and mechanical components. Develop detailed GIS datasets, including bottom of invert elevation for access and junction points, to support site-level vulnerability assessments of underground wastewater infrastructure within the Village of Islamorada. (Recommendation VB.2)

In 2014, the Environmental Protection Agency released a guidance document for auditing site-level flood resilience of wastewater infrastructure.³⁸ Following this guide, the Team specifically recommends that the Village of Islamorada's Floodplain Coordinator be supplied with site-level assessments that characterize resistance of above-ground structures and associated electrical components to damages from extreme event flooding.

2. Development of maintenance recording protocols and, as necessary, engineering assessments to assess resilience of below-grade pipes and pump infrastructure to increased saltwater incursion associated with sea level rise. (Recommendation VB.4)

There may also be the need for the development of recording protocols and/or engineering assessments to further address resilience of other infrastructure associated with the most vulnerable facilities. Funding for these budget item can potentially be obtained from several sources, including: FEMA's Pre-Disaster Mitigation Grant Program; FEMA's Hazard Mitigation Grant Program (after disaster only) and FEMA's Flood Mitigation Assistance Program. See Section 8(d) and the Implementation Matrix in Appendix F for additional information on funding specific recommendations in this Plan.

3. Develop long-term flood resilience alternatives for Fire Station #19, located at 74070 U.S. Highway 1. (Recommendation VB.3)

The vulnerability assessment results suggest that future sea level rise not only has the potential to expose the Fire Station #19 structure to extreme event flooding, but also that the site is located on a low grade with potential susceptibility to future nuisance-level flooding in transport corridors. If sea level rise rates tend toward the higher scenario projected by the SFRCCC, there may be compelling need to elevate transportation lanes between Fire Station #19 and U.S. Highway 1 before 2030 in order to ensure safe access of emergency vehicles in the aftermath of extreme flooding events. Additionally, because U.S. Highway 1 is built to a low grade between White Marlin Boulevard and Palm Drive, long-term flood resilience and sea level rise adaptation planning for Fire Station #19 should therefore be closely coordinated with drainage improvements and increased grade elevation of U.S. Highway 1 within this low-lying corridor.

Funding for this budget item can potentially be obtained from several sources, including: FEMA's Pre-Disaster Mitigation Grant Program; FEMA's Hazard Mitigation Grant Program (after disaster only) and FEMA's Flood Mitigation Assistance Program. Transportation and U.S. Highway 1 improvement coordination related to these facilities should occur with FDOT through the State Transportation Five-Year Work Program discussed in the following section. See section 8(d) and the Implementation Matrix in Appendix F for additional information on funding specific recommendations in this Plan.



Islamorada, FL
Photo Source: Ariana Lawson

ii. Other Capital Planning Efforts

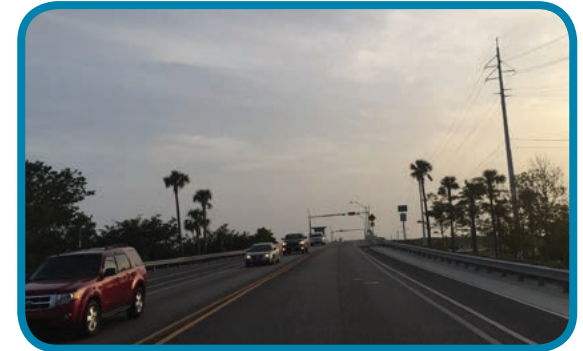
In addition to the Village's own capital planning efforts, there are other assets within Islamorada that are vulnerable to sea level rise but outside the jurisdiction of the Village. For example, Monroe County owns and manages several assets and the FDOT manages several miles of public roadway within the Village, primarily U.S. Highway 1. U.S. Highway 1 is the sole road transport and emergency evacuation route in the Florida Keys portion of Monroe County. For this reason, increased exposure to even low-level (i.e., nuisance) flood conditions along U.S. Highway 1 is highly problematic for public safety, health, and welfare. For nuisance flooding, such concerns include decreased traffic flow due to flooding of traffic lanes, increased risk of traffic accidents due to the hazard of tidal flooding conditions, and the likelihood of higher long-term maintenance costs due to saltwater overwash and saturation that may together accelerate degradation of the road bed.³⁹ In emergency situations, the potential for any flood blockage of low-lying sections of U.S. Highway 1 during an evacuation period would clearly raise a very high level of public safety concern. The seriousness of these issues compels near-term action to address and alleviate negative impacts.

Because these assets are physically located within the bounds of Islamorada, but outside their direct control, the Village needs to ensure coordinated efforts with these entities so that the vulnerabilities of these assets are addressed through their respective capital planning processes. Entities that the Village should continue to coordinate with include: Monroe County, Monroe County Emergency Management & Fire Rescue, FDOT, FDEP, USGS, and FDEM. Such collaboration will provide the Village with an opportunity to provide input on capital improvements affecting their residents and also allow the Village to strategically time its own improvements with relevant projects being implemented by these entities.

Coordination regarding transportation assets within the Village will be critical as sea level rise continues. The FDOT is responsible for the development of a State Transportation Five-Year Work Program ("Program")⁴⁰ which meets the mission, goals and objectives of the FDOT⁴¹ and the Florida Transportation Plan.⁴² The Program is the tentative list of projects that will be funded and carried out in District 6, which includes Miami-Dade and Monroe counties, during the next five (5) years. The Program is developed through extensive coordination with local governments, Metropolitan Planning Organizations ("MPOs"), regional planning groups and the public. In District 6, the Program is finalized in collaboration with the Miami-Dade County MPO and Monroe County Board of County Commissioners (because Monroe County is not part of an official MPO). The FDOT meets with MPO members and the Monroe County Board of County Commissioners throughout the year to determine projects that they and their constituents would like added to the Program. Public hearings are held in the Fall to give citizens and representatives from smaller municipalities the opportunity to comment on the tentative program. Following these hearings, FDOT submits the final draft of the Program to the MPO and Monroe County Board of County Commissioners. In February, the FDOT submits the tentative work Program to the governor's office and Legislature, as well as the Florida Transportation Commission and the DEO. In March, additional hearings are held to receive public input on the tentative work Program. After appropriations are approved by the Legislature, the Program is formally adopted by the FDOT in July. The Village should supply road-related vulnerability analysis from this plan to FDOT for consideration in these and future projects.



Administrative Center and Public Safety Headquarters, Islamorada, FL



Snake Creek Bridge, Islamorada, FL
Photo Source: Project Team

The following Islamorada projects are listed in the Tentative Work Program Fiscal Years 2016/2017 thru 2020/2021⁴³:

- Snake Creek Bridge – painting (2020);
- SR-5/U.S. Highway 1 from north of Old Highway (MM 77.5) to Jerome Avenue (MM 81.42) – resurfacing (2016);
- Tea Table Channel Bridge – bridge repair/rehabilitation (2016);
- Channel 2 Bridge – repair/rehabilitation (2016);
- Plantation Key Weigh Station – scale replacement (2016);
- SR5/U.S. Highway 1 from MM 81.44 to MM 77.47 – landscaping (2015); and
- SR5/U.S. Highway 1 from MM 77.47 to MM 81.44 – landscaping (2018).

The Florida Transportation Plan (“FTP”) establishes long range goals to provide a policy framework for the expenditure of federal and state transportation funds in the state of Florida. Every five (5) years, the FDOT takes the lead in updating the plan to respond to new trends and challenges to meet the future mobility needs of Florida’s residents, visitors and businesses. The 2060 Florida Transportation Plan, released in 2010, is the first statewide transportation plan for Florida to cover a 50 year period. The 2060 plan was developed by a committee of twenty-nine (29) people, representing all levels of government, multiple modes of transportation, business and economic development organizations, community and environmental interests, the military and the public. The committee was supported by four (4) advisory groups with an additional seventy-four (74) people assisting in the development of the plan. The FTP is currently in the process of being updated to a 2015 version.

The Village should maintain coordination with Monroe County to advance projects that will address future sea level rise.

B) Integration with Comprehensive Plan & Code Recommendations

This Plan can be implemented by incorporating recommendations into Policies and LDRs in the Comprehensive Plan and Code. Islamorada’s Comprehensive Plan was reviewed as part of this planning process for two (2) purposes. First, it was reviewed to glean additional data and analysis that would contribute to the overall sea level rise and sustainability analysis and recommendations. Second, it was reviewed to provide a blueprint for implementation that would allow each recommendation to be integrated into the appropriate location within the Comprehensive Plan or Code depending on the nature of the recommendation.

The Implementation Matrix, attached as Appendix F, outlines the methodology to integrate the recommendations of this Plan within its existing long-term and short-term policy structures. The Implementation Matrix provides specific policy and Code sections recommended for revision or update based on the recommendations made in this Plan.

This effort should be led and supervised by the Village Planning Department. Recommended Comprehensive Plan updates and amendments should be implemented in the next Comprehensive Plan Update undertaken by the Village to ensure that the next iteration of the Village Comprehensive Plan begins to integrate sea level rise and future flood risk. Additionally, all future updates to the Village’s Comprehensive Plan should continue the process of more fully integrating sea level rise and resiliency. This full integration can be accomplished through several options:

- Including maps of potential future flood risks during the planning process;
- Creating core values around the general safety of citizens and the community with a need to plan for future threats; and
- Including sea level rise and natural hazards data in the background information, making sure to specifically call out impacts already experienced by the Village, as well as the future flood threats.

Similarly, Code additions and amendments should be adopted in accordance with the timeline provided in the Implementation Matrix.



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COMPREHENSIVE PLAN JANUARY 2001

Comprehensive Plan and Code revisions can likely be implemented with existing staff resources or additional outside resources if needed. Select new or modified Comprehensive Plan and Code recommendations are broken down by Focus Area below. All recommendations for this Focus Area are provided in the Implementation Matrix in Appendix F.



Figure 8: Recommended Ordinance and Comprehensive Plan Amendments by Focus Area

C) Integration with FEMA Community Rating System

Implementing the recommendations of this Plan will help Islamorada meet several self-initiated goals, including becoming a more resilient community and maintaining membership in the FEMA CRS program.

Meeting the various criteria for good standing within the CRS program compliments many of the recommendations provided in this Plan, including managing development in areas that are vulnerable to flooding and preserving areas of the natural floodplain. Achieving a Class 7 rating and potentially improving that score over time could further assist in lowering flood insurance rates community-wide.

Each year, the Village will be required to undergo recertification to verify that it is continuing to perform the activities that are being credited by the CRS. In addition, the Village can continue to improve its Class rating by undertaking new mitigation and floodplain management activities that earn even more points. Some of the data and implementation of recommendations in this Plan can be used to gain more points and ultimately result in a lower (better) Class rating within the CRS program.

Communities can get additional points in the CRS program by undertaking various activities not already credited. FEMA will also review activities not listed in the Coordinator's Manual for credit based upon how well those activities increase public safety, reduce property damage, avoid economic disruption and loss, and protect the environment. A community can work with FEMA upfront on any of these additional activities to assure they will translate into scored points and result in actual improvement in the rating process.⁴⁴

The 2013 Coordinator's Manual includes new provisions related to credit for sea level rise and future flood risk planning. This recognizes that the future of how floodplains will look and be managed is an important consideration in planning. Factors listed affecting future flood risk are included in the Manual such as: increased impervious surfaces in developing watersheds, beach nourishment projects, new fill in floodways, rising sea levels and changes in natural functions of floodplains. While FIRMs do not consider these future impacts on the regulatory side, CRS incentivizes their consideration for credits in the following ways:

- Credit is provided under Section 322.c for communities that provide information about areas (not mapped on the FIRM) that are predicted to be susceptible to flooding in the future because of climate change or sea level rise;
- To become a Class 4 or better community, a community must (among other criteria) demonstrate that it has programs that minimize increases in future flooding;
- To achieve CRS Class 1, a community must receive credit for using regulatory flood elevations in the V and coastal A Zones that reflect future conditions, including sea level rise;
- Credit is provided under Section 342.d when prospective buyers of a property are advised of the potential for flooding due to climate changes and/or sea level rise;
- Credit is provided under Section 412.d when the community's regulatory map is based on future-conditions hydrology, including sea level rise;
- Credit is provided under Section 452.a if a community's stormwater program regulates runoff from future development;
- Credit is provided under Section 452.b for a community whose watershed master plan manages future peak flows so that they do not exceed present values; and
- Credit is provided under Section 512.a, Steps 4 and 5, for flood hazard assessment and problem analysis that address areas likely to flood and flood problems that are likely to get worse in the future, including (1) changes in floodplain development and demographics, (2) development in the watershed, and (3) climate change or sea level rise.



It should be noted that credit for some of the above CRS activities requires higher standards, such as adopting Village-specific maps and regulating to higher standards than currently required by FEMA. One way to enhance the Village's rating in the future would be to apply for the above listed credits related to future flood risk analysis. Further analysis shows that upwards of 518 points could be available through addressing sea level rise in the CRS process.⁴⁵ Again, these additional 518 points would require higher regulatory standards adopted by the Village and enforced by the community, but could be attainable. Islamorada came in as a Class 7, so the Village would be looking at potentially a Class 6 rating with these additional points.

Only eighteen (18) out of 235 communities in Florida have achieved a Class Rating of 5 and no communities in Florida as of May 2014 had achieved a Class Rating of 4. Given that these future flood risk criteria are relatively new in the CRS evaluation process, FEMA should be consulted to determine examples of where these points have been awarded and what data was used to achieve them.

Additional funds may be necessary for CRS improvement activities, which may be available from FEMA, FDEP or other entities. The Village will need to create a desired timeline for CRS rating score improvement so that potential funding sources can be identified to implement required improvement activities in advance of that score improvement deadline.

D) Funding Opportunities

As part of the Islamorada Matters planning project, the Team identified several funding sources for the recommendations provided in this Plan, including pre-disaster mitigation planning funds, impact fees, local government infrastructure sources, government funds, special revenue funds, landscape mitigation fees, stormwater utility enterprise funds, and grants. In addition to outside funding, another tool could include developing incentive programs for developers and property owners who retrofit structures to be more resilient to sea level rise impacts than state and county building codes and floodplain regulations require. Each potential funding source is described in greater detail in Table below.

A couple of key concepts are going to become important in future budgeting for adaptation planning. Public investment in sea level rise adaptation should be directed toward endeavors that benefit as many citizens as possible. Additionally, fee based funding options, if developed, should be user-related.

Table 110-1. CRS classes, credit points, and premium discounts.

CRS Class	Credit Points (cT)	Premium Reduction	
		In SFHA	Outside SFHA
1	4,500+	45%	10%
2	4,000–4,499	40%	10%
3	3,500–3,999	35%	10%
4	3,000–3,499	30%	10%
5	2,500–2,999	25%	10%
6	2,000–2,499	20%	10%
7	1,500–1,999	15%	5%
8	1,000–1,499	10%	5%
9	500–999	5%	5%
10	0–499	0	0

SFHA: Zones A, AE, A1–A30, V, V1–V30, AO, and AH

Outside the SFHA: Zones X, B, C, A99, AR, and D

Preferred Risk Policies are not eligible for CRS premium discounts because they already have premiums lower than other policies. Preferred Risk Policies are available only in B, C, and X Zones for properties that are shown to have a minimal risk of flood damage.

Some minus-rated policies may not be eligible for CRS premium discounts.

Premium discounts are subject to change.

CRS Classes, FEMA NFIP Coordinator's Manual

Photo Source: http://www.fema.gov/media-library-data/1406897194816-fc66ac50a3af-94634751342cb35666cd/FIA-15_NFIP-Coordinators-Manual_2014.pdf

Table 15. Potential Funding Sources for Plan Recommendations

Funding Source	Funding Description
Impact Fees	<p>Commercial and residential development affects Islamorada infrastructure and levels of service. Islamorada levies impact fees on building permits to fund capital infrastructure improvement projects or capital purchases needed to meet demands resulting from increased growth and usage. Impact fees for parks and recreation, transportation, public safety, and library activities and services are levied. Accumulated unspent revenues are segregated in committed fund balances and can only be spent for capital improvements which benefit that area of Islamorada activity.</p> <p>The following could be employed in Islamorada to fund the implementation of Plan recommendations:</p> <ul style="list-style-type: none"> • Development impact fees could be restructured to cover costs incurred by the Village for maintaining vital infrastructure vulnerable to rising seas; and • Impact fees used for coastal flood protection measures could be tied to particular geographic areas by using an adaptation action area overlay zone (if created).
Assessments	<p>The following could also be implemented in Islamorada to fund Plan recommendations:</p> <ul style="list-style-type: none"> • Special assessments could be imposed on those specifically benefitted by the retrofits; • A risk-based overlay, like an adaptation action area, could provide justification for a targeted assessment that is earmarked for infrastructure improvements like elevating roads, coastal armoring, or conservation purchases; and • Escrow accounts could be used to foster resilience to sea level rise.⁴⁶
Local Government Infrastructure Surtax	<p>Islamorada receives a portion of the additional sales surtax of one percent levied by Monroe County and distributed among the various municipalities and the County according to an allocation formula. Original surtax levy started January 1, 2004 and continues through December 31, 2018. In 2012, voters approved extension of the surtax to 2033. The surtax revenue collected and the related interest accrued may be expended for the following capital infrastructure projects, all of which have a life expectancy in excess of five (5) years: wastewater, recreation and conservation lands, marinas, courthouses, parking, offices, roads, bridges, airports, libraries, piers, auditoriums, riprap/seawalls, solid waste, jails, police/fire facilities, land acquisition, and stormwater. In addition to capital infrastructure projects, funds and interest accrued may also be expended on any public purpose, including maintenance of recreation and conservation lands.</p>
General Fund	<p>Used to account for all financial resources except those required to be accounted for in another fund. A government can report only one (1) general fund.</p>

Funding Source	Funding Description
Special Revenue Funds	<p>Used to account for the proceeds of specific revenue sources that are legally restricted or committed to expenditures for specified purposes (other than debt service or capital projects). Islamorada has the following Special Revenue Funds:</p> <ul style="list-style-type: none"> ● Transportation Fund – revenue sources restricted for use on transportation-related expenditures, like local option gas taxes, a portion of state revenue sharing, FDOT grants and revenues resulting from ILAs with Monroe County. ● Solid Waste Fund – primary revenue source is the annual non-ad valorem assessment levied to pay for solid waste collection services; primary expenditure is the cost of garbage, yard waste and recycling collection services. ● Affordable Housing Fund – established to account for use of affordable housing impact fees charged by Islamorada as part of building permit fees; restricted for subsidizing, planning and developing affordable housing. ● Enterprise Funds – used to account for operations that provide a service to citizens; funded primarily by a user charge or fee, and periodic measurement of net income is deemed appropriate for capital maintenance, public policy, management control, and accountability. Islamorada has 1) PYH Marina Enterprise Fund, 2) Wastewater Utility Enterprise Fund, and 3) Stormwater Utility Enterprise Fund.
Landscape Mitigation Fees	<p>As part of a development application on tropical hardwood hammock lands, applicants prepare and submit a habitat analysis that evaluates the distribution and quality of tropical hardwood hammock and/or wetlands within the parcel proposed to be developed. When existing noninvasive vegetation is removed or when vegetation that was to be preserved or relocated is damaged or destroyed during development activities, such vegetation shall be replaced, mitigated or restored. Mitigation fees are recorded in this account in the General Fund.</p>
Stormwater Utility Enterprise Fund	<p>Established to account for Islamorada’s stormwater improvement projects and services funded by annual non-ad valorem assessments. The current non-ad valorem assessment amount is \$32.00 per equivalent stormwater unit (“ESU”). Expenses accounted for relate to salary and benefits costs for staff to implement and manage stormwater repair projects and for the direct costs of those stormwater relief projects. Payments to Islamorada’s assessment consultant to draft the annual assessment roll and assist Islamorada in levying the assessments are also accounted for in this Fund.</p>

Funding Source	Funding Description
Grants	<p>Several sources of funding are potentially available for Islamorada through both state and federal grants. For example, grants are currently available for infrastructure improvements (transportation, water quality and land protection), hazard resiliency, parks and natural resources and sea level rise and climate planning:</p> <ul style="list-style-type: none"> ● Transportation infrastructure - to improve bicycle and pedestrian pathways (including paths, lanes, trails, rest facilities, advocacy programs), promote reductions in vehicle miles travelled and carbon use (including vehicle standard policy development and policy analysis of electric vehicles), and develop alternative transportation methods (including bicycle/pedestrian trails, alternative transportation safety campaigns, and conversion of old corridors for trails). ● Water quality and land conservation - to reduce non-point source pollution originating in stormwater runoff (through bioswales, bank stabilization, pervious surfaces, green roofs, and BMPs), reduce pollutant loads to known impaired waters (stormwater management projects, construction of BMPs, and stormwater runoff monitoring), and wetland protection and enhancement (through wetland programs, training and outreach, and studies to evaluate wetland performance). ● Park and natural resource preservation - for habitat restoration and wildlife conservation (on the ground restoration and planning, environmental outreach, and result monitoring), sustainable community development (including critical resource conservation, habitat restoration, investment in green infrastructure, and private land stewardship), energy conservation (through building code revisions, appliance standards, programs to rate energy consumption, and incentives to reduce energy demands), and forest health promotion (forest surveys and monitoring and pest species eradication programs). ● Hazard resiliency - for hazard mitigation efforts (drainage systems improvements, structural and road elevation, floodproofing, acquisition and relocation, and mitigation plan development), emergency management preparedness (including projects to enhance emergency preparedness and response), flood mitigation (acquisition and demolition or relocation, elevation, floodproofing, mitigation reconstruction, and flood reduction projects), pre-disaster mitigation (projects that reduce risk to population and structures prior to a disaster), and residential construction mitigation (building retrofits and modifications and public outreach to educate residents about wind mitigation techniques). ● Sea level rise and climate planning – for climate adaptation (wildlife adaptation management and planning, resilience efforts to protect natural habitat, and enhancement of adaptive capacity of ecosystems, landscape functionality and critical biological processes) and climate mitigation efforts (climate adaptation and mitigation research and projects, weather readiness initiatives, marine fisheries sustainability, and resilient coastal community efforts). ● Coastal resilience – for resiliency efforts to help coastal communities become more resilient to the effects of extreme weather events, climate hazards, and changing ocean conditions. Funding is available to help communities prepare for and recover from adverse effects and promotion of healthy and sustainable coastal ecosystems through habitat restoration and conservation.

See the Implementation Matrix in Appendix F for a list of specific funding sources applicable to the individual recommendations in this Plan.

E) Intergovernmental Coordination

Permitting processes for projects that involve several different agencies, particularly those for transportation, wastewater and shoreline protection can be challenging when agencies lack a common set of goals or have conflicting regulatory requirements. As sea level rise adaptation becomes incorporated into project proposals, conflicting regulations may delay permitting processes. Early coordination of projects between applicable agencies can help minimize regulatory conflicts and delays.

There is also concern that there may be challenges if regulations do not consider the potential impacts of sea level rise; both because sea level rise can change the ability of a project to meet regulatory standards and because adapting to sea level rise may require regulatory flexibility that does not yet exist. A variety of adaptation measures, such as incorporating migrating shorelines into the planning process, may be a new concept and take longer to permit than measures which do not include sea level rise considerations. This could present a real obstacle to implementing an adaptation measure. While this planning process has tried to capture many of those issues, the Village's Code should be more thoroughly reviewed in order to assure that there are no obstacles to implementing the recommendations in this Plan. There should also be a focus on incentivizing the type of actions that are recommended in each of the Focus Areas within this Plan.

F) Implementation Performance Tracking

To ensure that the Islamorada Matters planning project is successful, it is recommended that implementation progress be monitored annually to assess efforts and evaluate recommendations yet to be implemented. Ideally, updates on progress should occur before or in conjunction with the Capital Planning process. This review will provide an opportunity for Village staff to determine implementation priorities and resource allocation, present updates on efforts initiated within the previous year, and to report progress of larger scale recommendations for tracking purposes. A sample Report Card to be used for implementation tracking purposes is provided in Appendix I.

Additionally, to ensure recommendations are implemented appropriately, especially medium- and long-term recommendations, trigger points should be developed. Trigger points are essentially monitoring thresholds used to avoid environmental or socioeconomic tipping points, points where the impacts become so severe that they are irreversible. These trigger points can be used to justify and initiate proactive policy changes at the initial onset of a problem or in some instances avoid consequences entirely. This is especially important since many of the adaptation actions recommended in this Plan are designed to address problems associated with the projected rapid sea level rise, not the current slower rate of change. Since sea level rise is expected to accelerate in the future, establishing trigger points for adaptation actions allows the Village to balance policies that will preserve the status quo for as long as possible, while making a forward commitment to protect future populations.

Case Study: Thames Estuary, London

In 2002, the Thames Estuary 2100 project ("TE2100") was established to develop a long-term tidal flood risk management plan for London and the Thames estuary.

The TE2100 Plan contains recommendations on actions the Environment Agency and others will need to take in the short, medium and long term to manage flood risks.

Each zone within the flood risk area was assigned one (1) of five (5) policies to set the strategic direction of flood risk management in each part of the Estuary. The strategy was to then manage the flood risk according to risk level set by the policy, via a number of adaptation actions.

The TE2100 Plan identifies ten (10) key indicators of the changes which will affect flood risk management. These "triggers for change" will be monitored throughout the life of the TE2100 Plan.

Example triggers of change include:

- mean sea level
- peak surge tide level
- extent of erosion
- public attitudes to flood risk
- land use planning and development activities

The outputs from this monitoring will inform regular reviews and they will also trigger decision-making if rapid change occurs in one or more of the indicators. When one intervention ceases to be effective, another will be implemented.

This case study provides a good illustration of how trigger points can be used to adjust policies in response to real-time condition changes, like flooding and sea level rise.