The
Local Mitigation Strategy

Hazard Mitigation
for
Miami-Dade County
and its
Municipalities, Departments and Private Sector Partners

LMS
Miami-Dade

June, 2012

Part II – The Projects

Potential Mitigation Initiatives for Metropolitan Miami-Dade County

Part II of the Miami-Dade Local Mitigation Strategy – The Projects – is a compilation of countywide initiatives and projects. Each initiative or project is included herein as one or more descriptive paragraphs with a reasonable cost estimate where available. The idea of the project list is to let the world know that we thought of this before a disaster occurred. Each submitting jurisdiction or organization will also maintain a full, detailed project description as well as a detailed project budget, which may be required for a grant application. Projects included in the DPS will be considered to be LMS projects.

Project Administration and Implementation

The projects listed in this section reflect the mitigation initiatives identified by each member of the LMS Working Group. The initiator of the projects will be responsible for implementation and administration. Due to the variable nature of procurement and contracting procedures; availability of resources; and weather conditions, accurate implementation timelines are difficult to predict. Therefore, implementation timelines will be developed for each project once funding sources are identified and the factors above can be determined relative to the prevailing operating environment. Grant requirements may also dictate project implementation timelines for the appropriate recipient. If the project is funded through a grant, the grantee is responsible for implementing these projects as outlined in the grant's regulations.

Countywide Initiatives

In the course of developing the Local Mitigation Strategy, it became apparent that certain mitigation measures had a countywide scope while others were on a smaller scale and best dealt on the departmental, municipal or private sector level. The countywide measures are referred to in this document as "initiatives" while the departmental, municipal and private measures are referred to as "projects." The countywide initiatives can be employed by any entity that participates in the Miami-Dade Local Mitigation Strategy. The LMS Working Group has been reluctant to prioritize these initiatives because each is of vital importance to all entities taking part in the development of the Local Mitigation Strategy. However, in deference to the State Division of Emergency Management, all projects and initiatives have been prioritized using methods discussed earlier in this document. The county, municipalities and all other members of the LMS Working Group reserve the right to, at any time, add to, delete from and in other ways change the order of priorities presented here. All entities participating in this program have agreed to undertake these initiatives, as necessary.

Shuttering and Windstorm Protection

There is one mitigation method that far exceeds all others in effectiveness and in benefit-to-cost ratio and that is shuttering or the installation of window protection against windstorms. Window protection is required by code in Miami-Dade County for all new construction and any substantial renovation. The LMS residential shuttering program and the LMS institutional shuttering program are two examples of LMS projects aimed to completely protect every facility in the county. Any project undertaken by an LMS participant that provides window protection or any other means to protect the building envelop is encouraged and will always be considered as part of the Miami-Dade Local Mitigation Strategy. Shuttering and other windstorm protection not only protects the building and its contents but, in many cases, frees up one or more shelter spaces because the occupants of the building may no longer have to evacuate.

Initiative 1: Flood Control and Reduction

Almost all of our communities consider the stormwater drainage systems to be one of the top priorities for mitigation. Measures to consider are increased use of injection wells (allowed in salt intruded areas only), increased number of ground recharge systems (French drains) and new, improved storm sewers. Partnership with the private sector is vitally important to make improvements, for example, to private parking lots that flood along with the adjacent public street. Other measures include facility elevation and/or retrofit and repetitive-loss property buyouts. Additionally, the initiative will encourage all municipalities not now a part of the National Flood Insurance Program's Community Rating System to participate in the program in the future. This initiative will seek to include recommendations made by the Miami-Dade Flood Management Task Force that was formed following Hurricane Irene in 1999 and the Governor's South Florida Flood Task Force formed following the October 3, 2000 storm (T.S. Leslie).

Cooperating agencies should be Miami-Dade Department of Environmental Resources Management (DERM), Miami-Dade Office of Emergency Management (DEM), Miami-Dade Public Works, Miami-Dade Water and Sewer Department (WASD), Florida Department of Transportation (FDOT), South Florida Water Management District (SFWMD), U.S. Army Corps of Engineers (COE), United States Department of Agriculture (USDA), the National Park Service (NPS), FEMA including the National Flood Insurance Program (NFIP) and the municipalities.

Initiative 2: Sheltering and Evacuation

Miami-Dade County has far too few hurricane evacuation shelters. This initiative is to develop more evacuation centers, shelters of last resort and short-term shelters to be used for hazardous materials or other chemical, biological or radiological situations caused by spills, terrorism, vandalism, etc. Miami-Dade County Public Schools (MDCPS) currently provide the bulk of the shelter space. Transportation is currently provided by Miami-Dade Transit and

MDCPS school buses. Develop methods to increase volunteer personnel to work in shelters. The ultimate goal is for all to be able to safely shelter in place. Additionally, this initiative includes windstorm protection to every possible building in Miami-Dade County.

Cooperating agencies should be DEM, Miami-Dade Community Action Agency (CAA), the American Red Cross, Miami-Dade County Public Schools (MDCPS), Miami-Dade Transit (MDT), Miami-Dade Police (MDPD), Miami-Dade Fire Rescue (MDFR), the Humane Society, South Florida Regional Planning Council (SFRPC), National Weather Service (Miami Forecast Office and the Tropical Prediction Center), the United States Coast Guard (USCG), the municipalities and the private sector.

Initiative 3: Counter-Terrorism

Terrorist acts have been a concern in Miami-Dade County since the late 1950's and early 1960's when Fidel Castro came to power in Cuba, just 90 miles off the coast of Florida. At that time there was a wave of bombings, which have continued off and on ever since. As for the Al Qaeda type terrorist, Miami offers an ideal hiding place with our large foreign population, over ten million tourists each year, and a couple of large universities. The time has come to address the concept of mitigation of terrorism rather than just preparation and response.

Cooperating agencies should be DEM, American Red Cross, Health Department, MDFR, MDPD, MDT, FBI, ATF, USCG and, the municipalities.

Initiative 4: Debris Clearance

The hazard mitigation measure planned for debris is to reduce the cost of debris clearance by developing a plan of action prior to any event that generates large quantities of debris (hurricane or other severe windstorm). The tree trimming measure (see below) is a method to reduce any volume of debris.

Miami-Dade County has developed and will implement the "Coordinated Debris Clearance Plan" (CDC). The plan will be in place before any storm and reduces costs by eliminating competition or bidding wars for services of the contractor. Additionally, the plan locates staging area and storage sites and identifies removal methods. The plan also addresses hazardous materials handling, both pre-season pickup and amnesty days as well as post-event handling methods. This hazard mitigation initiative also addresses the acquisition of the necessary tools and equipment to handle debris. The plan was successfully implemented in the unincorporated part of the county following Hurricane Irene.

Cooperating agencies should be Miami-Dade Solid Waste Management (SWM), DEM, Public Works, FDOT, Miami-Dade Expressway Authority, Miami-Dade Park & Recreation Department (Parks), DERM, SFWMD, the Cooperative Extension Service and the municipalities.

Initiative 5: Canals and Waterways

The canals and waterways of metropolitan Miami-Dade County form a huge system and these canals and waterways directly affect more than eighty percent of the municipalities as well as the unincorporated (UMSA) portion of the county. This initiative is to clean and maintain included exotic weed control, dredge when and where needed, clear banks of potential debris, and stabilize banks to prevent erosion. Clean canals allow better control of water levels, which greatly improves storm water management and the drainage system. (Note: This initiative is closely tied to Initiative 1: Flood Control and Reduction.)

Cooperating agencies should be Public Works, DEM, Parks, WASD, DERM, SFWMD, COE, USDA Natural Resources Conservation Service (NRCS), USCG, National Park Service, Florida Inland Navigation District and the municipalities

Initiative 6: Tree Trimming

This initiative is to develop measures that reduce debris and protect the infrastructure from damaged sidewalks, curbs, water & sewer lines, power and phone lines (underground and overhead) and clogged storm drains. Also, the initiative identifies the best trees to plant; those that can stand wind, flood or drought. The concept is to develop specifications for contract pruning for unincorporated county and municipalities and to develop training classes in proper technique for homeowners and county/city employees.

Cooperating agencies should be the Cooperative Extension Service, SWM, DEM, Public Works, MDCPS, Parks, DERM, SFWMD, Miami-Dade Housing Agency, Florida Division of Forestry and the municipalities.

Initiative 7: Transportation Systems

Before, during and after a disaster event, it is imperative that transportation systems continue to operate. Roads must be passable for evacuation and later for emergency vehicles. The airports, rail and ocean terminals must be open to allow emergency operations to proceed.

Sometimes, the transportation becomes the event. There were 18 railroad accidents in Miami-Dade County between January and October of 1998. (Railroads serving Miami-Dade: Amtrak, Tri-rail, CSX, Florida East Coast, and Metrorail.) In the past ten years there have been three fatal airplane crashes: Value Jet, Fine Air and Chalk's Ocean plus many other minor incidents. (Airports in Miami-Dade County are: Miami International, Opa-locka, Tamiami, Homestead General, Opa-locka West, Training & Transition and Homestead ARB.)

The Seaport (Port of Miami) includes the world's busiest cruise ship terminal plus a major cargo center and the Miami River is a continuously operating working river which is, by itself, the fifth busiest port in the state of Florida. This shipping plus the small boat traffic also

rely upon unobstructed channels including the Intracoastal Waterway, Government Cut and Baker's Haulover inlet.

Mitigation measures include design and construction of highway systems, toll roads, expressways, bridges, traffic signs and signals that are disaster resistant and easily repairable. The same is also true of the entire countywide transportation systems.

Cooperating agencies should be Miami-Dade Aviation, Miami-Dade Seaport, MDT, MDPD, MDFR, DEM, Public Works, Miami-Dade Expressway Authority, Tri-rail, FDOT, SFRPC, USCG, COE, the municipalities and privately owned transportation companies.

Initiative 8: Mechanical Maintenance of Critical Facilities

Breakdown of sewer lift stations, water pumping stations, drawbridges and other important mechanical devices affects everyone in the county. A wide program of mitigation is planned to ensure that these critical facilities do not fail during a disaster event or, in the event of catastrophic disaster that critical facilities are in place that may be brought up and running in a minimum of time with a reliable power source readily available. This program must be coordinated between the municipalities, the unincorporated services area and county maintained facilities everywhere.

Cooperating agencies should be: DERM, DEM, Public Works, WASD, GSA, Seaport, FDOT, SFWMD, SFRPC, USCG and the municipalities

Initiative 9: Public Information & Education

Develop a "How To" manual for public use in dealing with all-hazards/disasters. [English, Spanish, Creole.] Determine the best format: one single book or a series of pamphlets and brochures? Or all of the above, as in loose leaf cover which can contain a series of how to publications? Develop television and radio presentations. Implement a method for coordination between the various municipalities; between municipalities and the county; and between governments and the private sector. Publish all relevant National Flood Insurance Program and Community Rating System information. Further develop specialized training programs such as CERT and shelter management, etc.

Cooperating agencies should be the DEM, DERM, Public Works, Animal Services, Miami-Dade Building Department. Miami-Dade Communications Department, SWM, MDT, MDFR and County Hazardous Materials teams, MDCPS, the American Red Cross, the Humane Society, The Marine Council, the municipalities, Cooperative Extension Service, FDEM, SFWMD, SFRPC, FEMA, U.S. Small Business Administration (SBA), USDA, COE, National Weather Service (Miami Forecast Office and Tropical Prediction Center), local universities, the media, and the private sector.

Initiative 10: Hazardous Materials Response
(Also see sheltering)

Miami-Dade County has at least 190 sites that must report under Section 302. Miami-Dade County also has eight "superfund" sites. Miami-Dade County and the cities of Hialeah and Miami have official hazardous materials response teams. A program must be developed to refine inspections, material handling, education and all other aspects of hazardous materials response. The Miami-Dade Department of Solid Waste Management (DSWM) operates a permanent home chemical collection center open for resident to safely dispose of hazardous materials generated from the household. Amnesty days are conducted twice yearly. The Working Group would like to see more pickup locations added perhaps one each at the far northeastern part of the county and another in south Miami-Dade.

Cooperating agencies should be MDFR, MDPD, DERM, MDT, DEM, Parks, SWM, MDCPS, WASD, USCG, American Red Cross, fire department hazardous materials teams (City of Hialeah, City of Miami and Miami-Dade County), Cooperative Extension Service and the municipalities.

Initiative 11: Controlled or Prescribed Burns

Wild fires/brush fires are becoming an increasing risk to metropolitan areas. The entire western and southern portion of the county is susceptible to this problem. DERM's EEL Program (Environmentally Endangered Lands) controls hundreds of acres of undeveloped land scattered throughout the community including lots within municipal boundaries. The Park and Recreation Department's Natural Areas Management controls thousands of acres as well as does Everglades National Park. Controlled burns reduce fuel load and promote proper growth with the added advantage of the controlled growth of exotic plants.

Other measures for consideration in this initiative is to study and recommend fireproofing measures such as new codes and standards for building materials, increased development and maintenance of fire breaks and better water transport and storage. Miami-Dade County will also strive to become a "Firewise" community.

Cooperating agencies should be MDFR, DERM, DEM, Parks Natural Areas Management, GSA Risk Management, Florida Division of Forestry, Florida Fish and Wildlife Conservation Commission, Florida Department of Environmental Protection (DEP), Cooperative Extension Service, FDOT, National Park Service and the Nature Conservancy.

Initiative 12: Beach & Dune Restoration and Maintenance

The county plans renourishment or restoration of beaches to promote tourism and protect coastal structures and the development of a beach and dune maintenance program, which will develop and enhance the coastal dune system.

Cooperating agencies should be: DERM, DEM, Public Works, Parks, COE, FLDEP, National Park Service, NOAA, Florida Inland Navigation District and the municipalities.

Miami-Dade County Departments

The various departments of the Miami-Dade County government make up a part of the LMS Working Group that represents the Unincorporated Municipal Service Area (UMSA), which is the unincorporated portion of the county, and those county provided services and facilities that operate within the municipal boundaries of the cities and towns such as the libraries, public transportation, roads, water and sewer and fire stations (in all but five of the cities) and many others. These projects supplement or are in addition to the countywide initiatives discussed in the previous section. The LMS Working Group has a committee that consists of the appointed representatives of the participating Miami-Dade County departments and is advised by the LMS Steering Committee. This departmental committee has formulated the county projects by department and each department is responsible to formally prioritize its own projects.

Miami-Dade Aviation Department

Project 1: Remote Employee Parking Lot Flood Attenuation

Purchase and install three 12-inch pumps and related appurtenances in the remote employee parking lot. Estimated cost: $300,000.

Project 2: Mid-field Runway Tunnel Flood Control

Purchase two 6-inch diesel pumps to be used as a backup to the existing storm water lift stations. Estimated cost: $130,000.

Project 3: Install Overflow Roof Drains

Additional emergency overflow roof drains to be installed on the existing MIA Terminal roof to increase rain water drainage rates and mitigate the possibility of roof leaks during significant (10 year) storm events. Estimated Cost: $1,960,000

Project 4: Repair Exterior Waterproofing

Stucco and exterior waterproofing repairs at Concourse A that will prevent stormwater penetration and infiltration through the walls and resulting damage to interior finishes. Estimated Cost: $1,100,000

Project 5: Dredge Stormwater Outfalls

Dredging of MIA stormwater outfalls No: 4 & No: 5 to restore/re-establish the permitted outfall cross section to optimize outfall capacity and reduce flooding at the MIA airport during hurricane and heavy rainstorm events. Estimated Cost: $3.0 Million

Project 6: Storm Shutter Replacement

Replacement of the existing and obsolete storm shutters at MIA Bldg. 3030 with an new code compliant storm protecting system shutters such as fixed screens, storm impact resistant windows, or similar. Estimated costs: $600,000.

Miami-Dade Community Action and Human Services

Project: Residential Shuttering Program

The residential shuttering program provides hurricane panels for the homes of low-income elderly. The program is to be expanded to include as eligible recipients, low-income disabled and low-income families with children as well as low-income elderly.
Estimated cost is an average of $1,600 per house protected.

Miami-Dade Elections Department

Project: Harden Elections Building

The area of the elections building measures approximately 115,000 sq. ft. housing several million dollars of electronic voting machines as well as critical election data; and thousands of dollars in computer and telephone equipment for Miami-Dade County 311 Answer Center. In order for the building to withstand minimal damages the strengthening of the roof infrastructure and a new shuttering system to include electrical roll down shutters on the second floor office space and accordion shutters for the first floor. Considering the number of buildings GSA is responsible for maintaining (34) and the minimal staff available, this improved shuttering system will allow maintenance crews to prepare and secure the building properly. This project will also include integrating the grounding system with a fully powered generator to supply the entire building with uninterrupted power. The purpose of this submittal is to meet regulatory requirements by preparing the building/roof and electrical components with the ability to withstand category four or five hurricanes. Estimated cost: $2,910,000

Miami-Dade Finance Department

Project 1: Remote Systems Backup Technology

The ability of the Finance Department to function effectively following a crisis is essential to the smooth functioning of all Miami-Dade County. At this time, our off-site daily backup capability for all our financial systems for the above named five divisions is inadequate. Funding is desperately urgently required to ensure that in the event of catastrophic systems failures

due to hurricane or other natural disaster we have sufficient off-site computer system backup and recovery technology in place so that systems can be restored promptly in existing or alternative temporary office facilities. Estimated cost: $100,000

Project 2: implementing 26th floor Emergency Power Circuits

Many of the financial systems that serve crucial daily Controller, Cash Management and Credit and Collection functions and upon which all Miami-Dade County's departments are dependent (e.g. paying vendors and county employees) are located on the 26th floor of the 111 NW 1st Street. This floor does not have an emergency power supply to support these and many other vital daily functions should the normal power supply to the building be interrupted.
Estimated cost: $40,000

Project 3: laptop computers with docking stations

In order for Senior and Middle Finance Department Management to function and access critical financial systems in the event of a crisis that results in closure of the 111 NW 1st Street building and/or the 140 W. Flagler Street building, portable laptop (wireless) computers with docking stations are essential. At this time the Department has sixteen laptops between 345 employees (less than 5%). Three of the existing laptops will need to be replaced within eighteen months. Estimated cost: $115,000

Miami-Dade Fire Rescue Department

Project 1: Replace Overhead Doors

Currently Miami Dade Fire Rescue has 64 fire stations that provide service to the residents of Miami Dade County. After conducting thorough inspections of each station we have determined that 38 out of the 64 fire stations have overhead doors that need to be replaced because the doors do not meet current hurricane codes. Due to the modification of codes in reference to storm protection it is recommended that we replace the 38 overhead that are were previously mentioned. Each overhead door protects the engines and rescue trucks that are vital to respond to fires and rescue calls. The average estimated value of the vehicles protected by these doors is $2,000,000. Estimated cost: $420,000

Project 2: Station Rehabilitation for Air Rescue South

The Miami-Dade Fire Rescue (MDFR) Air Rescue Unit provides regional aero-medical transport to MDFR operations, and those of local municipalities, state and federal government agencies. MDFR helicopters transport severely injured trauma patients to State approved Level I Trauma Centers, and flight crews are trained in additional tactical disciplines necessary to deploy personnel and equipment in search and rescue missions, firefighting operations, and reconnaissance on large incidents such as wildland fires and catastrophic events. Miami-Dade Fire Rescue conducted thorough inspections of each of its stations and determined that Air Rescue South, Station 24, requires roof hardening and structural retrofitting. The preservation of this station is

critical and necessary for Air Rescue to remain operational during an emergency situation. This project will enhance the county's emergency response capabilities in responding to citizens' immediate disaster and medical needs. The project involves the actual hardening of the roof and structure as well as the hanger for Air Rescue apparatus. This hardening will enable the structure to meet regulatory requirements and withstand category four or five hurricanes for facilities which maintain rescue apparatus and valuable MDFR equipment. The average estimated value of the apparatus and equipment is $3,000,000. Estimated cost $1,000,000.

Project 3: Fire Station Roof Rehabilitation

Currently Miami Dade Fire Rescue has 64 fire stations that provide service to the residents of Miami Dade County. After conducting thorough inspections of each station we have determined that five Miami-Dade Fire Rescue stations require hardening and structural retrofitting. The preservation of these stations is critical and necessary for first responders to remain operational during an emergency situation. This project will enhance the county's emergency response capabilities in responding to citizens' immediate disaster and medical needs. The project involves the actual hardening of the roof and structure to meet regulatory requirements and withstand category four or five hurricanes for facilities which maintain rescue engines, trucks and equipment, valuable personnel and computers. The average estimated value of the vehicles and equipment at these stations is $2,000,000. Estimated Cost: $ $600,000

Project 4: Roof Rehabilitation for Miami-Dade Fire Rescue Headquarters

During emergency situations Miami-Dade Fire Rescue headquarters serves as the base of operations for not only fire rescue operations, but also for the Department of Emergency Management. The headquarters building located at 9300 N.W. 41st Street is where essential staff (i.e. mayor of Miami-Dade, directors of various fire departments and many other essential personnel) oversees and implement plans of defense, decide strategies for deployment of emergency personnel and equipment, monitor events and distribute information to the public. Improvements and repairs that are essential in the orderly running of operations are much needed. During any type of heavy precipitation the roof on the headquarters building has extensive leakage which may pose significant water damage during severe weather conditions. The project involves the actual hardening of the roof and structure to meet regulatory requirements and withstand category four or five hurricanes. The average estimated cost: $1,000,000

Project 5: Drainage Improvements

During emergency situations Miami Dade Fire Rescue headquarters serves as the base of operations for not only fire rescue operations, but also for the Office of Emergency Management. The headquarters building located at 9300 N.W. 41 street is where essential staff (i.e. mayor of Miami Dade, directors of various fire departments and many other essential personnel) oversee and implement plans of defense, decide strategies for deployment of emergency personnel and equipment, monitor events and distribute information to the public. Improvements and repairs that are essential in the orderly running of operations are much needed. During any type of heavy rain the south end of the property floods. As a result the waters that accumulate pose the

risk of damaging millions of dollars of emergency equipment, personnel property and structural damage to the building itself. Estimated cost: $500,000

Emergency Management

Project 1: Prepare and Print a Hurricane Preparedness Guide

Residents of Southern Florida are inundated with information about hurricanes and hurricane preparedness each year, with sources ranging from government agencies to research centers and the private sector. The Miami-Dade Office of Emergency Management (DEM) must take the lead and prepare the single source of official, complete information for residents, thereby reducing confusion and clarifying recommendations. This document will be compiled by the different agencies that are the authorities on each relevant topic. For example, DEM is the authority on evacuations and evacuation zones in the county and so it is the best source for this information. The National Hurricane Center and the National Weather Service are the authorities on meteorological information regarding hurricanes and hazardous weather, so DEM will seek their endorsement for this topic. Contents will include how to understand relevant terminology, how to interpret forecasts, how to plan a disaster plan including a disaster supply kit, how to implement personal mitigation strategies, how to safely evacuate and shelter-in-place, how to protect oneself during storm recovery and clean-up, how to care for pets throughout all stages of a storm, and information about county programs such as the Emergency Evacuation Assistance Program for people with special needs and the Community Emergency Response Teams. These guides will be prepared in English, Spanish, and Creole, available in hard copy for distribution to the public and in electronic format for both distribution via e-mail and posting to appropriate websites. DEM is constantly sought out by a vast number of community groups to deliver presentations and share emergency preparedness information, especially prior to and during hurricane season, so this hurricane preparedness guide is a critical tool in the pool of resources available to residents. Estimated cost: $50,000.

Project 2: Hazardous Materials Emergency Planning & Response

Miami-Dade County has approximately 20,000 facilities that store or use hazardous materials, of which approximately 250 facilities store or use "extremely hazardous substances." These facilities pose a real threat to our community, both from the accidental release of chemicals into the environment and, the potential use of these facilities as targets of terrorism. Multiple county and municipal agencies share the responsibilities of emergency planning and/or response to these facilities. Each of these agencies maintains unique databases; however, due to technological limitations, these databases are unable to be accessed by the other agencies thereby increasing the risk to the responders and our communities.

Therefore, there is a need for a "state-of-the-market" information technology system that can consolidate this data into a format that removes the technological barriers that currently prohibits the sharing of this information. This system must be accessible to all public safety agen-

cies and jurisdictions (county and municipal) that provide the emergency planning and/or response to their communities and these hazardous material facilities. This system would also need to provide the private sector with a streamlined process for the submission of hazardous materials inventory data, in order to reduce errors and omissions. Estimated cost: $210,000

Project 3: Guide to Personal Mitigation Projects

Miami-Dade County has experienced continued success with large-scale mitigation projects to increase the development and resilience of infrastructure when confronting local disaster. The Office of Emergency Management is expanding this scope to apply to residents' personal property as well. Working through local experts involved in the LMS Steering Committee, DEM is compiling a guide of low-cost, non-labor intensive mitigation projects that residents can implement with little or no assistance. These projects will focus on individuals' houses, condominiums, apartments, businesses, lots, boats, etc, and may be applicable to any type of disaster(s) that threaten Miami-Dade County. Projects are submitted by government agencies, non-governmental organizations, and the private sector, all of which have a proven track record of successful mitigation planning and are members of the LMS. DEM will edit, format, and distribute this document, which will be available in both print and electronic format and ideally in Spanish and Creole. Funds will be needed for professional layout, translation, and printing. Estimated cost: $50,000.

Project 4: Develop and Construct CERT City

Develop and construct and training site for Community Emergency Response Teams (CERT) to include a classroom, a warehouse, and an urban search and rescue environment. The site will be on donated land and will utilize in-kind engineering and construction to offset total costs. Estimated cost: $3,000,000

Project 5: Storm Surge Protection Barrier

Design and construct a storm surge protective barrier to prevent salt-water intrusion from hurricane generated storm surge. This barrier should be built as an elevation to the existing salt-water barrier (L-31E) that runs from Cutler Ridge to Card Sound Road south of Turkey Point. An alternative is to install Jersey style barricades in the median of the Florida Turnpike from Cutler Ridge to Florida City. Estimated cost: $8,000,000

Project 6: Terrorism Prevention and Preparedness Outreach Program

Countywide terrorism awareness/education program to prepare citizens to confront incidents of terrorism, natural disasters and mass migrations through the CERT Program, Citizens Corps, Neighborhood Crime Watch and Volunteers in Police Service Programs, Medical Reserve Corps, public service announcements, multi-lingual brochures, materials/equipment and website enhancements. Estimated cost: $500,000

Project 7: Emergency Operations Center (EOC) Vulnerability Hardening

Hardening of the county's multidisciplinary, multi agency incident command and coordination center to reduce its vulnerability to terrorist attacks (includes bomb protection, security monitoring, access equipment, HEPA upgrades to the HVAC system, landscaping and paving to increase stand-off distances from traffic lanes, and heliport for state and federal officials), and provision and outfitting of a backup/alternate EOC. Estimated cost: $700,000

Project 8: Preparedness and Mitigation Website

As many as 75% of households (with a phone line) in the U.S. have access to the Internet, according to a Nielsen//NetRatings survey in February 2004. The Miami-Dade Office of Emergency Management (DEM) must utilize this tool for the dissemination of emergency preparedness information, mitigation recommendations, and other public education materials. DEM will contract with a web publisher or designer to rebuild its website to allow for maximum organization, clarity, and timeliness of information. As emergency management is constantly changing and progressing, a contracted publisher or designer will allow the website to be dynamic and therefore keep up with innovations in the field. The new website will provide information about emergency preparedness, mitigation, and recovery, offer downloadable forms for registration in key programs such as the Emergency Evacuation Assistance Program and Residential Shuttering Program, allow for on-line registration for preparedness and training programs such as Citizen Corps and one of its component programs, the Community Emergency Response Team (CERT), give the public easier access to web-based applications such as the SNAPSHOT Damage Assessment Tool that increases efficiency of response efforts, and other initiatives as they arise. Much of this information will be available in Spanish and Creole to increase the number of county residents who will benefit from the website. Specific materials will also be prepared for children. Estimated cost: $90,000.

Project 9: Elevate Herrick Residence

Elevate the home of Peter Herrick, address 3520 Crystal View Court, Miami, FL 33133, to National Flood Insurance Program (NFIP) standards. Estimate cost: $220,500

Project 10: Elevate Diaz Residence

Elevate the home of Sandra Diaz address 5800 SW 122 Avenue, Miami, FL 33183, to National Flood Insurance Program (NFIP) standards. Estimate cost: $95,000

Miami-Dade Internal Services

Employee Relations

Project 1: Protect Employee Records

The Employee Relations Department is the official custodian of all current and former county employees' personnel and medical records. Loss of these records due to a disaster would severely impact the County's operations. For example, many personnel actions require the review of an employee's file in order to effect the change; lawsuits may require files to be pulled. As long as these documents remain in hard-copy, the County is vulnerable to natural and man-made disasters, vandalism and theft. The official hard copy documents manually maintained by ERD are the sole copies of over 50 years of employee records. If a hurricane were to destroy these records, the County would have no means of restoring them. Electronically scanning, importing and saving these documents would eliminate this vulnerability.

Project 2: Reduce Loss Risk

There are many documents commonly used by County departments e.g. Personnel Change Document (PCD), performance evaluations, re-classification actions, tuition reimbursements, employment applications, which would be ideal for electronic workflow. Benefits of workflow include:

1. Ability to track and locate the document any point in the workflow
2. Improved accountability-escalation feature allows one to establish time parameters to accomplish each step of the workflow process
3. At the culmination of the workflow process, the document is electronically placed in an electronic folder.
4. Built in intelligence within form and work flow provide edits and information thereby reducing work and improving quality.
5. It is paperless, thus there are savings in labor costs (clerical) and physical storage.
6. Built in intelligence will route the form to the correct workgroup for processing.
7. Security features allow only authorized users to process the form
8. Reduces redundant data entry
9. Statistics on processing time and can assist in improving the business process.
10. Provides tighter controls over forms processing reducing potentials for errors;
11. Provides more efficient management and processing of transactions

The Employee Relations Department's (ERD) business activities impact all county departments, and the majority of our forms are prime candidates for on-line forms with workflow. The countywide impact of the implementation of any of these standardized forms would be multiplied, since all departments are required to use them. Thus, there would be a significant return on investment for projects such as these. Additionally, since the workflow process is paperless, it reduces the County's risks for loss of records due to disasters, vandalism, and theft.

Project 3: Emergency Payroll Processing

The Employee Relations Department's (ERD) Administrative Services Division (ASD) processes all payroll, personnel, and leave and attendance transactions for over 30,000 County

employees. In the event of a disaster, ASD must have the necessary resources to be able to process payroll- a critical operational function for the County. This project would consist of:

1. Developing the necessary programming to process an "emergency" payroll, that is, in the event of a disaster, all County employees would still receive a paycheck.
2. Securing back-up resources (computer equipment, emergency facility) that would allow staff to continue processing payroll in the event of an emergency.

Project 4: Install Time Collection System

The Employee Relations Department (ERD) is responsible for processing a $60 million bi-weekly payroll for over 30,000 County employees. In the event of a catastrophic disaster when a state of emergency is declared, FEMA's Damage Survey Reports are required in order for the County to be reimbursed for damage and recovery related expenses, including labor costs. A time collection system, with cost center accounting would facilitate the extensive reporting that is required by the federal government agencies. It would allow employees to record their time worked via time clock, computer, biometrics, PDA, telephone, etc. It captures the time in/out information, what type of time (sick, annual - all the things our current Payroll and attendance Record (PAR) sheet collects plus more) and creates a file that can then be sent to ETSD for payroll processing. A time collection system also offers far better security and protection from unauthorized time entries (there is an escalation feature plus authorized sign off, currently not available with the existing paper system), quick, easy to use management reports which can pinpoint problem areas concerning overtime, absences, etc. It also offers cost accounting payroll that many larger departments need. And finally, because the information is transferred electronically and not by truck (departments are currently having their employees submit the PAR sheets from the field as early as Wednesday for a pay period which ends on Sunday. The time from Thursday through Sunday is guessed at), the information will be more current and therefore more accurate. This should reduce the number of correcting time sheets we need to process (currently thousands are processed each pay period).

General Services Administration

Project 1: Replace the Integrated Command Center's Roof:

Replace roof at the Integrated Command Center that presently houses Miami-Dade County's 911 Fire/Dispatch Center. This category 5 building will host the county's EOC or DEM, 311 Information Center, Public Works Traffic & Signals and possibly be the home for a fusion center. Estimated Cost: $ 1,000,000

Project 2: Flood prevention for the Central Support Facility Building

This facility produces and/or distributes chilled water (air conditioning) and electricity to county buildings in the Downtown Government Center complex totaling in excess of 3,000,000 square feet, including County Hall, a State Civil Courthouse, a State Family Courthouse, two museums,

the main library, and other high-rise office towers and garages. Planned additional high-rises, one a State Juvenile Courthouse and the others office towers will add an additional 650,000 to 1 million square feet over the next five years. The ground floor of the facility houses all electrical connections and inter-ties with the local utility, the main electrical panels being fed from underground at 13,800 V AC, 60 Hz. And 480 V AC 60 Hz. In case of flooding, water can enter the main transformer vault, elevator pits, ground floor of the co-generation plant, and electrical switchgear rooms, where critical equipment lies to provide water to the cooling tower (52 feet height), and to the make-up water lines for chilled and condensing water loops, and for main power distribution to the Downtown Government Center complex. Storm drainage in the surrounding streets is extremely poor. Needed improvements include the installation of ground-level flood barriers, improved water extraction and/or the elevation of critical equipment within the facility. Estimated Cost: $ 200,000

Project 3: Hardening of the perimeter at the Integrated Command Center

This facility serves as the County's primary computer operations center, and houses police and fire emergency dispatch (9-1-1). The facility little set back from the surrounding streets, requiring a hardened property perimeter to properly protect the site. Installing a hardened fence (with a raised concrete base) or a bollards/planter combination will provide additional protection to this critical site. Reinforce entry gates by installing popup bollards or hydraulic lift systems similar to the ones being used at the downtown Federal building. Estimated Cost: $500,000

Project 4: Create Central GSA Control Center

Merge operations of the security central station with the building management system group and provide equipment for expanded security and BMS capabilities. Build the new control center at the Integrated Command Facility, a category 5 rated building, present location of Fire/Police 911 Dispatch and future location of EOC/DEM and 311 operations. The expanded role of the GSA control center will permit the monitoring of intrusion, fire, and other building related alarms through the use of updated technologies. Stations for other county departments to be provided as backups to their individual control centers (Water & Sewer, Seaport, Miami-Dade Transit, other). Estimated Cost: $850,000

Project 5: Install flood barriers for the basement of the Richard E. Gerstein Justice Building

The Richard E. Gerstein Justice Building, the sole location of State Criminal Court in Miami-Dade County, and the primary site for Traffic Court, has two driveway entries into the basement, both of which have previously permitted flooding of the basement from the elevated storm water from the surrounding streets. This flooding has previously damaged, or has the potential to dam-

age, electrical panels and equipment that are located flush or close to the basement floor, as well as equipment and systems located in the basement. Flood barriers should be installed at both entries, and critical equipment should be considered for elevation off the floor. Estimated Cost: $150,000

Project 6: Hardening of the Elections Headquarters Building

Elections must have continuity even after natural disasters. Providing impact glass or accordion/roll down shutters will mitigate potential windstorm damage. Increasing the generator capacity will provide power to the complete elections process, giving the department the ability to continue the elections process after natural disasters. Enhancing the roof rating will help mitigate windstorm damage to the roof and all election equipment located in the warehouse area. Estimated Cost: $1,000,000

Project 7: Hardening of the windows at Richard E. Gerstein Justice building

The Richard E. Gerstein Justice Building, the sole location of State Criminal Court in Miami-Dade County, and the primary site for Traffic Court, has two rows of large windows, with the bottom windows 4' in height, and the top windows 5' in height. There are approximately 500 windows on the upper eight floors. The first floor would require automatic roll down shutters ($300,000.00) and, since the upper floors need to have the windows replaced (due to water intrusive and structural failure), they should be replaced with impact resistant windows. Estimated Cost: $4,700,000

Project 8: Hardening of the windows at Court House Center

The Lawson E. Thomas Family Court Building, the sole location housing State Family Court in Miami-Dade County, is a thirty-story high-rise building. The upper floors all have impact resistant glass; however, the first floor and mezzanine windows are extremely large, and manual shuttering from the outside is next to impossible. These windows should either have automatic shutters or impact resistant windows installed. This building also has a large patio on the eleventh floor. The windows around the patio and the doors leading out on the patio should be shuttered. Cost Estimated: $450,000

Project 9: Hardening of the windows at North Dade Justice Building

This is a two-story building which consists of mostly glass exterior walls. The building is a heavily utilized branch court facility, serving the entire northern end of the county. The facility, although in the extreme northern end of the County, lies within 2 miles of the ocean, with no intervening barrier islands. It would be extremely valuable to protect this facility, either through the

installation of impact resistant windows or film, or with automatic shutters. The cost estimate shown is for the shutters. Estimated Cost: $300,000

Project 10: Flood barriers for the Miami-Dade Cultural Center basement

The Cultural Center houses the County's Main Library and two museums (Historical Museum of South Florida and the Miami Art Museum). These institutions house both public and private collections. The basement and basement-level floors of the institutions provide delivery access to the facilities, storage for museum exhibit and library book collections, as well as key electrical, mechanical and elevator equipment rooms for the facility.

The basement has one main service driveway that ramps down into the basement that should have a flood barrier installed to prevent substantial water intrusion from heavy rainfall and rising waters. The poor drainage in the surrounding streets makes flooding a very real potentiality. There is also a pedestrian entrance (with a door) on the north side of the building that leads into the basement, which should also be protected, since flooding occurs at that point as well. Estimated Cost: $60,000

Project 11: Flood prevention of the Elevator shaft in the Miami-Dade Cultural Center Historical Museum

The Historical Museum of South Florida is located in the Miami-Dade Cultural Center. Wind-driven rain, together with rainwater running down the roof, in heavy rainstorms can leak into the elevator shaft, and from there into the building through louvers, and into the ceiling plenum. A number of interior areas can be affected, which threatens public and private art collections housed in the building. This project would address these conditions. Estimated Cost: $80,000

Project 12: Hardening of the perimeter at the DPCC building

This facility serves as the County's primary computer operations center, and houses police and fire emergency dispatch (9-1-1). The facility is set well back from the surrounding streets, making the site ideal for providing optimum blast protection by means of a hardened property perimeter. The existing fenced perimeter should be reinforced by installing a hardened fence (with a raised concrete base) or a bollards/planter combination. Reinforce the two entry gates by installing popup bollards or hydraulic lift systems similar to the ones being used at the downtown Federal building. Estimated Cost: $350,000

Project 13: Purchase of Portable Emergency Power Generators

Purchase of three trailer-mounted, portable DIESEL emergency power generators, and made cable ready to provide emergency power to disabled facilities after a major disaster. Units are to be 300 KW, 60 Hz, 480/277/120 V, with fuel reserve of 470 gallons minimum of No. 2 diesel fuel.

This set-up will provide an approximate continuous runtime of 24 hours (per generator, at full load). Work includes prepping buildings to accept quick connections from generators and necessary load transfers. Purchase of Portable Emergency Power Generators: Estimated Cost: $1,500,000

Project 14: Purchase of trailer mounted portable chiller and associated cooling tower

Purchase of trailer-mounted portable chiller of 1200 Tons capacity, to provide emergency chilled water for air conditioning to disabled building(s) after a disaster, or major disruption in the building A/C system. Many of the current buildings in the inventory have been constructed for energy efficient operation, which has translated in recent years to a lack of direct access to the outside (i.e. reduced number and distribution of windows). The impact of this is that the buildings are rendered virtually unusable in the event that climate control is not available. Estimated Cost: $2,400,000

Project 15: Extending runtime of emergency power generators, by converting them to burn both gas and diesel fuel

The purpose of this conversion is to facilitate - at a lesser cost - the extended operation of emergency generators in those facilities that already have natural gas lines. If installed, the conversion will allow diesel engines to burn both fuels at a ratio of 20 % diesel fuel, 80% natural gas. Diesel fuel will be depleted 5 times slower, allowing for an extended run time on the same fuel storage. If Natural Gas is not available, engines can still run on Diesel fuel at 100% ratio. This conversion is recommended for generators of 400 KW or larger capacity only, of which the agency currently has 23 units. Estimated Cost: $1,200,000

Project 16: Purchase of portable lighting "towers" of various wattages

After an emergency, it may be necessary to work with the assistance of portable high intensity discharge lights. Depending on location, needs and use, requirements may vary from 1.5 to 7KW, which may be satisfied by the use of several units of the same size. Estimated Cost: $25,000

Project 17: Provide 32 satellite cellular phones for emergency service to facilities management and maintenance staff

During an emergency, local telephone and radio services are very likely to be fully or partially disrupted, leaving key departmental staff unable to communicate with each other or a central command station. This will significantly hinder staff's ability to respond in a timely, effective manner to emergency service calls, to call for parts needed for emergency repairs, or to secure needed assistance at sites impacted by the emergency. All field work will be so impacted, thus delaying the process of post-event damage assessment, site security in the short-term event af-

termath, temporary and permanent site mobilizations, and service delivery coordination. Beyond the obvious functions of assessing and remediating facility damage, the department also employs emergency generator field technicians that support emergency generator equipment located in all areas of the county, including numerous emergency response facilities, e.g. fire and police stations, fueling sites, and antennas/repeater stations required for County radio systems, many of which are located in extremely remote difficult-to-access areas. The cost estimate includes the procurement of 32 "Iridium" based Motorola satellite phones, 5-year emergency service contracts for each phone, and miscellaneous necessary accessories of the phones. Equipment are initially anticipated to be utilized only in emergency situations, and through distribution to key GSA facility managers, key management personnel, and various field teams of emergency generator, security, elevator inspector, and building maintenance personnel. Estimated Cost $85,000

Project 18: Adding Redundancy to GSA Building Management System Central Control Office

Create redundancy for the GSA's BMS Central Control, which monitors remotely on a continuous 24-hour basis all electronic building management systems (BMS) located in the department's main facilities. BMS systems are critical to all types of emergency response and post-event situations within these buildings, since they monitor and control fire alarms, smoke evacuation, air conditioning, and other critical systems throughout the buildings. The ability to maintain operational continuity through an event would enable critical systems to continue to be monitored and/or operated from a remote location out of harms way. To establish the redundancy necessary to mitigate potential loss from a disaster scenario, the optimum solution would be to procure 12 laptop computers, an Apogee server and related communications software, which would enable restarting operations from one of two geographically disparate back-up locations, currently designated as the Regional Data Processing & Communications Center and the Elections Processing / 3-1-1 Answer Center. Estimated Cost: $50,000

Project 19: Retrofit emergency generator technicians' vehicles to drive in flooded areas

The department's emergency generator team services and maintains equipment at some 250 locations, including a large number of emergency response sites, such as fire and police stations, vehicle fueling sites, and antennas/repeater stations required for County radio systems. Many of these are located in either extremely remote or otherwise flood-prone areas. If any of these areas see water levels high enough to reach the engine air intake, the vehicles will not operate, stranding technicians and hindering emergency response activities. Engine modifications to provide a higher air intake will provide significantly increased "range" in a flooded area. Estimated Cost: $25,000

Project 20: Enhanced security for the Medical Examiner's Facility

The medical examiner complex is a three building complex that consists of a three-story Administration Building, a large two-story Morgue building and a one-story Decomposition building. This is the only such facility in Miami-Dade County, and as such, it supports all local police agencies in the County, as well as the State Attorney's Office in criminal investigations. Loss of the facility or the exposure of evidence and bodies to theft or vandalism can have extremely serious or even catastrophic results. Security could be substantially enhanced through the replacement of the existing obsolete tape CCTV system with state-of-the-art digital recorder and an expanded number (total, 41) of high resolution IP cameras This will provide the ability to review and control the system from remote locations via the internet, including pan, tilt and zoom (PTZ) capability on selected cameras. Cost Estimated: $150,000

Project 21: Enhanced security for the Courthouse Center

The Lawson E. Thomas Family Court Building is a thirty-story high-rise office building that serves as the sole location in Miami-Dade County housing State Family Court. As such, the existing CCTV system should be expanded to cover additional areas around the building and interior security electronic screening stations. Procure and install a screening machine for the screening of deliveries to the delivery area. Estimated Cost: $205,000

Project 22: Hardening of the perimeter at the Medical Examiner's Facility

The medical examiner complex is a three building complex that consists of a three-story Administration Building, a large two-story Morgue building and a one-story Decomposition building. This is the only such facility in Miami-Dade County, and as such, it supports all local police agencies in the County, as well as the State Attorney's Office in criminal investigations. Loss of the facility or the exposure of evidence and bodies to theft or vandalism can have extremely serious or even catastrophic results. Currently, the facility does not have complete access control. There are four wood gate arms controlling vehicle traffic in and out of facility. These should be replaced with a metal frame sliding gate that, when closed, would prevent not only vehicular, but pedestrian access to the property. The existing perimeter chain link fence should be replaced with an 8-foot high picket fence. Estimated Cost: $110,000

Project 23: Provide safety equipment for emergency inspection of confined spaces

Provide "A" Frames, harnesses, life lines, lanyards, gas analyzers, SCBA apparatus, protective clothing, gas masks, ladders, human access/retrieval equipment, and hard hats for accessing flooded manholes, above-ground areas where diesel fuel tanks are installed, and other confined spaces in and around managed facilities. During and following natural or other disasters, it is common for natural gas or fuel lines to rupture, which will expose technicians having to access these areas to a harmful and potentially deadly environment. Estimated Cost: $150,000

Project 24: Enhance security for the Richard E. Gerstein building

The Richard E. Gerstein Justice Building, the sole location of State Criminal Court in Miami-Dade County, and the primary site for Traffic Court, is not as secure as it should be, given the criticality of its uses. Procure and install an electronic screening machine and walk-through magnetometer for the loading dock, to initiate the screening of personnel and oversized delivery packages that are not currently screened. Estimated Cost: $110,000

Project 25: Removal of the abandoned Cooling Towers from the Court House Center

The Lawson E. Thomas Family Court Building is a thirty-story high-rise office building in the center of the downtown government center complex. The building has large rooftop cooling towers that are no longer in use. These need to be removed from the roof, along with the wind breaker panels surrounding them. Failing to do so exposes the building and adjacent street to significant damage in the event of high wind conditions. Estimated Cost: $75,000

Project 26: Hardening of the perimeter at the SPCC building

This facility is home to the County's Commissioners, Mayor, County Manager and most directors from the various departments. Reinforce the perimeter by installing a hardened fence or bollards/planter combination. Reinforce gates by installing popup bollards or hydraulic lift system similar to the ones being used at the Federal building downtown. Install surveillance system that include cameras, recorders and additional lighting. Estimated Cost: $1,900,000

Miami-Dade Library Department

Project 1: North Dade Regional

Replace and strengthen roof system. This facility was built in 1979 and the roof was re-paired in 1999. An inspection of the roof found it beyond its useful life and in need of replacement. The North Dade Regional branch serves the municipalities of Miami Gardens, Opa Locka, and North Miami, as well as several communities within north Miami-Dade County. This 50,000 square foot facility serves as an important community resource offering library materials and services meeting the information and educational needs of these deserving communities. Department assets in this building are worth in excess of $40,000,000.00. This facility has motorized roll up shutters protecting its entrances and windows. However, replacing and reinforcing the roofing system is essential to maintaining the integrity of the building envelop and be able to withstand hurricane force winds. Estimated cost: $650,000.00

Project 2: West Dade Regional

The West Dade Regional branch of the Miami-Dade Public Library contains furniture, equipment and materials worth over $40,000,000.00. This building is of critical importance to the multi-ethnic and minority communities that it serves. This project will enable us to install impact resistant windows to withstand hurricane-level winds, as required by the new code, to se-cure the content of this

building and on-going services provided to the communities served by this facility. Estimated cost: $850,000.00

Project 3: Miami Lakes

The Miami Lakes branch of the Miami-Dade Public Library contains furniture, equipment and materials worth over $2,850,000.00. This building is of critical importance to the multi-ethnic and minority communities that it serves. This project will enable us to install impact resistant windows to withstand hurricane-level winds, as required by the new code, to secure the content of this building and on-going services provided to the communities served by this facility. Estimated cost: $225,000.00

Project 4: Coral Gables Library

The Coral Gables branch of the Miami-Dade Public Library contains furniture, equipment and materials worth over $25,000,000.00. This building is also critical to emergency operations by serving, as the backup facility for the administration should the Main library be rendered inaccessible or inoperable due to an emergency. This project will enable us to reinforce the windows to withstand hurricane-level winds, as required by the new code, to secure the con-tent of this building and on-going services provided to the communities served by this facility. Estimated cost: $650,000.00

Project 5: Key Biscayne

The Key Biscayne branch of the Miami-Dade Public Library contains furniture, equipment and materials worth over $2,750,000.00. This building is of critical importance to the multi-ethnic and minority communities that it serves. This project will enable us to install impact resistant windows to withstand hurricane-level winds, as required by the new code, to secure the content of this building and on-going services provided to the communities served by this facility. Estimated cost: $225,000.00

Project 6: North Central

The North Central branch of the Miami-Dade Public Library contains furniture, equipment and materials worth over $1,850,000.00. This building is of critical importance to the multi-ethnic and minority communities that it serves. This project will enable us to install impact resistant windows to withstand hurricane-level winds, as required by the new code, to secure the content of this building and on-going services provided to the communities served by this facility. Estimated cost: $135,000.00

Project 7: Kendall

The Kendall branch of the Miami-Dade Public Library contains furniture, equipment and materials worth over $2,850,000.00. This building is of critical importance to the multi-ethnic and minority communities that it serves. This project will enable us to install impact resistant windows to withstand hurricane-level winds, as required by the new code, to secure the content of this building and on-going services provided to the communities served by this facility.
Estimated cost: $225,000.00

Project 8: Edison Center

The Edison Center branch of the Miami-Dade Public Library contains furniture, equipment and materials worth over $2,000,000.00. This building is of critical importance as a valued to the multi-ethnic and minority communities that it serves. This project will enable us to install impact resistant windows to withstand hurricane-level winds, as required by the new code, to se-cure the content of this building and on-going services provided to the communities served by this facility. Estimated cost: $175,000.00

Project 9: Culmer/Overtown

The Culmer/Overtown branch of the Miami-Dade Public Library contains furniture, equipment and materials worth over $1,750,000.00. This building is of critical importance as a valued resource to the multi-ethnic and minority communities that it serves. This building is also of historical significance since it houses an early mural from the world renowned and award-winning African-American artist, Purvis Young, who was born and raised within the area of Culmer/Overtown. This project will enable us to install impact resistant windows to withstand hurricane-level winds, as required by the new code, to secure the content of this building and on-going services provided to the communities served by this facility. Estimated cost: $125,000.00

Project 10: Coral Reef

The Coral Reef branch of the Miami-Dade Public Library contains furniture, equipment and materials worth over $2,750,000.00. This building is of critical importance to the multi-ethnic and minority communities that it serves. This project will enable us to install impact resistant windows to withstand hurricane-level winds, as required by the new code, to secure the content of this building and on-going services provided to the communities served by this facility. Estimated cost: $150,000.00

Project 11: Allapattah

The Allapattah branch of the Miami-Dade Public Library contains furniture, equipment and materials worth over $2,750,000.00. This building is of critical importance to the multi-ethnic and minority communities that it serves. This project will enable us to install impact resistant windows to withstand hurricane-level winds, as required by the new code, to secure the content of this building and on-going services provided to the communities served by this facility. Estimated cost: $110,000.00

Project 12: Lemon City

The Lemon City branch of the Miami-Dade Public Library contains furniture, equipment and materials worth over $2,000,000.00. This building is of critical importance as a valued to the multi-ethnic and minority communities that it serves. This project will enable us to install impact resistant windows to withstand hurricane-level winds, as required by the new code, to se-cure the content of this building and on-going services provided to the communities served by this facility. Estimated cost: $135,000.00

Project 13: North Central, Roof redesign and replacement

The North Central branch of the Miami-Dade Public Library System serves several minority communities within north central Miami-Dade County. This 5,000 square foot facility is the primary source for library services within a 30-mile radius. Therefore, disruptions in service due to major damage would significantly impact a large portion of the most needed residents within the County. The project would include an analysis of the existing roofing system, modifications to bring the system to the current building code to include selection of new materials to increase wind resistance and strength; and construction of the new system under existing building code. $300,000

Project 14: North Dade Regional

The North Dade branch of the Miami-Dade Public Library System serves several minority communities within north Miami-Dade County. This 5,000 square foot facility is the primary source for library services within a 30-mile radius. Therefore, disruptions in service due to major damage would significantly impact a large portion of the most needed residents within the County. The project would include an analysis of the existing roofing system, modifications to bring the system to the current building code to include selection of new materials to increase wind resistance and strength; and construction of the new system under existing building code. $300,000

Project 15: South Miami

The South Miami branch of the Miami-Dade Public Library System serves several minority communities within south Miami-Dade County. This 5,000 square foot facility is the primary source for library services within a 30-mile radius. Therefore, disruptions in service due to major damage would significantly impact a large portion of the most needed residents within the County. The project would include an analysis of the existing roofing system, modifications to bring the system to the current building code to include selection of new materials to increase wind resistance and strength; and construction of the new system under existing building code. $250,000

Miami-Dade Park, Recreation and Open Spaces

Project 1: Sea Wall Replacements and Repairs

The following projects will mitigate flooding and erosion along the shoreline in several park locations. The Miami-Dade County Park, Recreation and Open Spaces Department (PROS) operate and maintain marinas and coastal parks from Homestead to Sunny Isles. Three of the five PROS operated marinas were constructed in the 1960s, and are now showing signs of seawall deterioration. For example, Haulover Park, on the Intracoastal Waterway with direct access to the ocean is in need of seawall repairs at the critical Intracoastal/Ocean Cut. A significant storm surge could result in total failure of portions of the sea walls and potentially endanger or significantly damage the more than 1,000 boats berthed in the marinas.

1. Crandon Marina- restore or replace 1,265 linear feet of seawall in the marina wet slip basin, estimated cost $3,921,500

2. Matheson Hammock Marina – restore or replace 675 linear feet of seawall in marina wet slip basin, estimated cost $1,554,000
3. Pelican Harbor Marina – restore or replace 115 linear feet of seawall in the marina wet slip basin, estimated cost $372,600
4. Haulover Marina – restore or replace 575 linear feet of seawall in Baker's Haulover Cut connecting the Intra Coastal Waterway and the Atlantic Ocean, estimated cost $1,363,000

Total estimated cost: $7,211,100

Project 2: Shutters

The PROS Department operates and maintains a total of 86 buildings in need of hurricane shutters to prevent storm damage to the buildings and their contents. Many of these buildings are recreation centers which need to be opened to the public as soon as possible after hurricanes to provide facilities for ice, water and food distribution, and places for safe child care until schools reopen.

1. Recreation Centers - 55 building, estimated cost $660,000
2. Field Centers – 16 buildings, estimated cost $192,000
3. Visitor Centers – 3 buildings, estimated cost $36,000
4. Field Houses – 4 buildings, estimated cost $48,000
5. Gyms – 2 buildings, estimated cost $24,000

Total estimated cost: $960,000

Project 3: Tree Trimming

The PROS Department maintains trees at over 300 park sites. Proper pruning and thinning of the tree canopy is important to minimize both the collateral damage that may result from improperly maintained trees to adjacent utilities, building structures and automobiles and to the tree canopy itself during hurricanes. Additionally, the tree damage resulting from hurricane events require extensive clean up after storms. Most of the trees damaged by the 2005 hurricanes had structural defects such as internal decay or root damage, which could have been prevented with proper tree maintenance. The costs are detailed as follows:

1. Tree trimming equipment for one crew: bucket truck, dump truck, bob cat with trailer, 4x4 heavy duty pick-up, chipper, stump grinder, estimated cost $343,000
2. Tree trimming equipment for a second crew: bucket truck, dump truck, bob cat with trailer, 4x4 heavy duty pick-up, chipper, stump grinder, estimated cost $343,000
3. Crew to trim and maintain trees to prevent damage in hurricanes: six crew members and one supervisor. Estimated annual cost of salary and fringes or contract cost is $254,053
4. Additional staff needed to maintain trees: one supervisor and one tree trimmer. Estimated annual cost of salary and fringes $76,798
5. Equipment and supplies for tree crews, including fuel, tools, safety shoes and uniforms, safety equipment and insurance, estimated cost $73,200

Total estimated cost: $1,090,051

Project 4: Matheson Hammock Parking

Matheson Hammock parking lot floods during heavy rains and storms. To mitigate for the effects of the flooding on the Park's traffic flow (ingress and egress) and the parking capacity a combination of raising the level of the parking lot addressing the existing shoreline edge conditions and storm water drainage system improvements will be needed. This project includes the boat ramp and picnic/boat overflow parking lots. Estimated cost: $2,000,000

Project 5: Harden Park Buildings

All existing buildings over 40 years old must undergo re-certification process through the Building Department to assess and certify the building's major systems (electrical, plumbing, structural) and confirm code compliance. Renovations to harden the buildings to reduce hurricane damage and to bring the electrical service into compliance with current code to prevent fire damage are needed. Estimated annual cost: $700,000.

Project 6: Haulover Parking

Parking lot #2 at the north end of the Haulover Marina floods during heavy rains and storms. To mitigate for the effect of the flooding on the parking lot's traffic flow (ingress and egress) and the parking capacity a combination of raising the level of the parking lot; addressing the edge condition and storm water drainage system improvements will be needed. Lighting improvements will be required to comply with the current code. Estimated cost: $1,500,000.

Project 7: Pelican Harbor Boat Ramp

The boat ramp parking lot at Pelican Harbor needs to be resurfaced and restriped. Also in other to mitigate for the flooding during heavy rains and storms, a new storm water drainage system will be needed. Additionally, lighting improvements will be required to comply with h the current codes. Estimated cost: $1,000,000.

Project 8: Replace Pier "A" at Pelican Harbor

Pier A at Pelican Harbor has been deemed structurally unsound resulting in the closing of portions of the pier. If the pier failed during a storm surge most of the remaining boats in the marina would be at significant risk of damage. Estimated cost: $540,500.

Miami-Dade Regulatory and Economic Resources

Cooperative Extension Service

Project 1: Mitigation of Street Tree Related Damage

Some $300 Million in underground infrastructure damage was attributed to street trees during hurricane Andrew. As a result of poor pruning practices, removal of structure integrity of the street root system due to inadequate or restrictive space for trees in rights-of-way, inappropriate tree species selection, or a combination of factors, many trees were uprooted and damaged underground utilities, sidewalks and curbing, sidewalks, and driveways, as well as private property damage to vehicles and structures.

In order to mitigate the hazards improper trees pose, the Cooperative Extension Division, will formalize a public right-of-way and public spaces tree training program for public agencies, arborists, landscape installation and maintenance industries, and landscape architects, including proper pruning, in accordance with ANSI A-300 standard practices for maintenance pruning, to encourage strength and sound structure, hurricane pruning, attributes and vulnerabilities of tree species for street plantings, grades and standards in purchasing and selection of new street trees, and current tree regulations. Standardized bi-lingual educational materials would be developed and multiple training sessions would be conducted for public employees, private tree maintenance industry, as well as other interested groups. This information would be shared with municipal governments responsible for street trees within their jurisdiction via Local Mitigation Strategy group and other means.

Project 2: Develop Structural Improvements

In August 1992 hurricane Andrew caused $1Billion losses to the agricultural industry of Miami-Dade County. Over half of the losses in this Category 5 storm were attributed to structural failure or damage such as packinghouses, irrigation equipment, farm equipment, and structures such as shade houses and greenhouses for the economically important which the ornamental plant industry produces the largest segment of agricultural sales from.

Designing and constructing "hurricane proof" greenhouse structures would be beyond the financial capability of the industry as the industry does use metal frame work with a "plastic" film or fine mesh shade cloth material, depending on the type of structure. Hardening these structures may prove impossible to prevent zero loss. However, development of some newer technology to allow for the collapsing of the structure prior to an approaching hurricane has been development internationally but has not been transferred to this country as of yet. The University of Florida/Miami-Dade Cooperative Extension Service proposes to construct a fully functional demonstration model greenhouse for the commercial ornamental industry of the county and south Florida and provide training for the 1148 plant nurseries within the county.
Estimated cost: $42,000

Environmental Resources Management

Project 1: Forest Management

Management of natural forest communities would include prescription burning, elimination of exotics to decrease fuel loading, preemptive trimming of trees at municipally owned

facilities, and workshops for the public and municipalities to detail proper tree trimming. (See countywide initiatives). Estimated cost: TBD

Project 2: Hazardous Waste

Create a task force in coordination with DERM, Solid Waste Management and Public Works to conduct pre-hurricane sweeps of chronic dumping areas, and facilitate collection of hazardous waste at Small Quantity Generators (SQG) and Conditionally Exempt Small Quantity Generators (CESQG) facilities. It is understood that SQGs and CESQGs are guaranteed the county price when using the county's contracted collector. (Also part of the debris clearance plan) Estimated cost: TBD

Project 3: Drainage Improvements to the Seaboard Acres Ditch

The Seaboard Acres Ditch is a drainage ditch located within the city of North Miami and unincorporated Miami-Dade County. The area it serves chronically floods, severely impacting residents in the area. The proposed project would enlarge the piping system currently in place, upgrade the pump stations that serve the system, and possibly dredge the remaining open ditch. Estimated cost: $2,000,000

Project 4: Pre-Disaster Removal of Hazardous Materials

DERM responds to hazardous materials incidents on a countywide basis, as this function is too specialized for any of the individual local cities to accomplish on their own. DERM also supports the local fire department Hazardous Materials Units in larger incidents, but DERM also averages approximately 300 incidents of its own per year where drums, buckets and discarded waste containers of unknown materials, often including waste oil, are abandoned on county rights-of-way, and properties accessible to the public. DERM personnel perform chemical field screening procedures to assess the hazards of these incidents, and either recover the material or call in hazardous materials emergency clean-up contractors as needed. Incidents reported or otherwise discovered quickly often can be managed with little or no discharge to the environment, whereas incidents exacerbated by hurricanes and other disasters require exponentially more expensive site cleanups. This application is for funding to support an intensive two-month preemptive sweep of known or suspected potential chronic dumping areas by two full-time DERM emergency response personnel. This sweep would be conducted across the county at the start of hurricane season, so that abandoned hazardous materials might be recovered in the most economical and cost-effective manner possible, and before a disaster can impact the location and materials in question, and in turn result in a more lengthy and expensive cleanup. This preemptive sweep would also help to avoid exposure of these wastes to the public during or after storm events, and thus reduce health costs to residents and insurance companies. The sweep would also reduce introduction of wastes into the environment in an uncontrolled fashion, and the subsequent damage to natural resources. Overall, this proposal would help to reduce and mitigate post-disaster cleanup costs, environmental remediation costs, and public health protection costs. Estimated cost: $100,000

Project 5: SW 122nd Ave Secondary Canal Enhancement Project SOW

This project addresses the flood problems in the area limited on the North by SW 184th St (Eureka Dr); on the East by Quail Roost Dr and SW 117th Ave; on the South by the C-1 Canal; and on the West by SW 127th Ave (Burr Rd). The project consists of the construction of the following structural improvements:

- Connection of the existing French drain system located NW from the Quail Roost Dr. The connection will consist of a 50-foot long, 6' 9" x 4' 11" corrugated arch-pipe culvert.
- One control structure at the above-mentioned French drain system discharge point, similar to a pollution control structure (three chambers with weir and baffle), with the weir at elevation 6.0 ft-NGVD. This control structure will provide water quality treatment of stormwater discharges and will control peak discharges to meet the South Florida Water Management District (SFWMD) maximum allowable discharge to the C-1 Canal.
- Replace two existing four-pipe culverts with a 6' 9" x 4' 11" corrugated arch-pipe at the canal intersection with SW 122nd Avenue, and SW 200th Street.
- Replace the existing slab cover trench from the downstream end of the SW 122nd Ave Canal to the C-1 Canal to provide for emergency overflow during severe storm events. The proposed conveyance system consists of approximately 1,200 linear feet of corrugated arch-pipe 6' 9" by 4' 11", and 370 linear feet of corrugated arch-pipe 7' by 5' 9" that will discharge the water into the C-1 Canal upstream of the SFWMD's S-149 structure.
- In the SW 122nd Ave Canal, the construction of culvert-canal transitions at four canal crossing locations: SW 122nd Avenue, SW 200th Street, SW 202nd Street, and SW 206th Street. Transitions will include concrete wall approaches. Estimated cost: $4,500,000

Project 6: Mitigation of Tree Related Damage to Infrastructure

The Miami-Dade Departments of Environmental Resources Management, Public Works RAAM Division in cooperation with the Cooperative Extension Service, will conduct an assessment of conditions of street trees throughout Miami-Dade County to determine the type, size, and structural integrity of right-of-way trees. This assessment will use a GIS database which can -then be used as a tool to determine hazard trees which are more susceptible to storm related uprooting or failure. This assessment can be overlaid with other GIS layers such as soils, flood zones and other special areas to prioritize areas where the roads need to be cleared of woody debris for emergency vehicle access during a event and for planning tree removal and replacement to mitigate the possibility of tree failure and the ensuing road blockage and debris disposal during a natural disaster. This can also be used to estimate woody debris amounts to assist in the debris removal planning post disaster. Additionally, this information's could also be used to track areas prone to flooding so that flood resistant trees are planted in these areas to increase transpiration. This map would also be used as a planning tool to replace those trees removed because of their hazardous condition and to target areas of low tree canopy. This database would be shared with other agencies, organizations and governments responsible for street trees and post disaster debris removal within their jurisdiction via the Local Mitigation Strategy group and other means. The Cooperative Extension Service will formalize a training program for public

agency, arborists, landscape installation and maintenance industries, and landscape architects, including proper pruning, in accordance with ANSI A-300 standard practices for pruning, to encourage strength and sound structure, hurricane pruning, attributes of street trees, grades and standards in selection of new street trees, and current tree regulations. Standardized tri-lingual educational materials would be developed and multiple training sessions would be conducted. This training would be required for all persons who trim trees in Miami-Dade County. This training would emphasis the correct way to prune and how to correct hazardous tree problems so that these trees do not fail and become projectiles and woody debris. Due to the large number of workers in this field, the training would have to be conducted on a routine basis for as well as the constant updating of the GIS maps. Estimated cost: TBD

Project 7: Removal of Obstructions to Evacuation Route

This project proposes to remove obstructions to an evacuation route right-of-way and attendant lands. The area of concern is along Card Sound Road in far south Miami-Dade, from the Dade-Monroe County Line to the mainland. Illegal structures have been built in these areas. If a hurricane or other disaster were to occur in this area, the evacuation route could be damaged or obstructed, leading to stranding of residents during an event, or residents could not escape the event, and would remain in harm's way, leading to damage of property and compromising our resident's health and safety. The project has an added advantage in that it is supported by four political entities, Miami-Dade and Monroe Counties, the Florida Dept. of Environmental Protection, and the state Bureau of State Lands. The subject project also would mitigate health costs for residents, in that sewage from the illegal structures discharges to wetland areas. The removal of the structures would reduce incidences of exposures of residents to pathogens in the public rights-of-way and other areas, thereby mitigating costs to state and county-supported hospitals. Estimated cost: TBD

Project 8: Flood Control Measure for Sub-Basin C1N-E-3

This project will add to flood control efforts in low-lying areas of the C1N Canal sub-basin. The project consists of construction of approximately 5,500 linear feet of French Drains and a conveyance system of 15,350 linear feet of piping, with emergency overflows and control structures with weirs. This will enhance flood protection by controlling peak discharges, will meet the SFWMD maximum allowable discharges for this area, and will provide water quality treatment as well. Estimated cost: $1,699,432

Project 9: Replacement of Culverts in C1-N Canal

This project would increase the capacity of the C1-N by enlarging the culverts in the sub-basin. Culverts to be enlarged are on the following canal crossings: SW 122 Avenue, SW 200 Street, SW 202 Street, and SW 206 Street. Estimated cost: $2,000,000

Project 10: Addition of Conveyance Pipe to French Drains in C1-S-5 Sub-Basin

This project proposes to construct 12,800 L.F. of french drains from SW 157 to SW 147 Avenue between SW 152 to SW 160 Street in the sub-basin C1-N-5 where FEMA drains are not continuous. Said conveyance pipe would provide additional capacity for the French Drains, thereby increasing flood protection for the local area. Estimated cost: $2,050,000

Project 11: Flap Gates on Existing Overflow Structures in C-1 Canal

This project proposes to construct flap gates on the existing overflow structures to the C1 Canal. These flap gates would protect the existing drainage systems from being surcharged by high tides and resulting backflow into the structures from high canal stages. This would allow the system to continue to function as designed, thereby keeping the level of flood protection at the increased standard. Estimated cost: $20,000

Project 12: Conveyance Pipe to Connect Two French Drain Systems

This project proposes, using conveyance pipe, to link two French drain systems in different sub-basins. This allows for equalization of the systems, and can help if rainfall occurs more heavily in a localized area, the system not receiving the rainfall can help absorb some of the volume of runoff. This again improves flood protection in the general areas of both sub-basins. This conveyance pipe will require jacking and boring under the existing railroad tracks.
Estimated cost: $146,000

Project 13: Beach and Dune Restoration and Maintenance

The majority of Miami-Dade County's beach areas have been restored to provide storm protection to coastal development and recreational areas for residents and tourists. Several localized segments of the beach located at approximately 29th, 44th, and 55th Streets in Miami Beach have been susceptible to erosion, leading to an almost complete loss of the beach in these areas. Due to the narrow beach width and lowered elevation in these areas, even minimal storm events can result in impacts to the dune system and beachfront infrastructure. Re-nourishment of these areas would provide a protective buffer during storms, and reduce impacts to adjacent beach areas. Estimated cost: $3,200,000

Project 14: 32nd Street Breakwater Rehabilitation and Stabilization

In 2002, Miami-Dade County constructed a series of three breakwater structures in the vicinity of 32nd Street in Miami Beach to stabilize a highly erosion susceptible area and maintain a protective beach. While the project has performed well, recent hurricanes have resulted in the movement and settlement of the boulders used to construct the breakwaters. This movement has altered the original design, and may compromise the protective functions of the breakwaters during future storm events. Rehabilitation and stabilization of the structures will enhance their ability to protect the adjacent shorelines. Estimated cost: $800,000

Project 15: 55th Street Erosion Control Breakwater

The 55th Street segment of Miami Beach has been one of the more erosion susceptible areas in the County, limiting the protective function of the beach in that area. A recently completed engineering assessment of that area recommended the construction of several small breakwater structures as the most effective way of stabilizing the shoreline and maintaining the protective beach. Estimated cost: $1,700,000

Project 16: Remleys Drainage Improvement Project

This project addresses the flooding problems in the area limited on the north by NE 111th St; on the east by NE 6th Ave; on the south by NE 109 St; and on the west by NE 4th Ave. The project consists of the construction of a full-onsite retention system consisting of approximately 3,000 linear feet of exfiltration pipe. Estimated cost: $357,000

Project 17: Drainage Improvements of the Ojus and J H GLISSONS Subdivisions

The area bounded by West Dixie Highway to the west, the railroad track to the east, N.W. 188th Street to the north, and N.E. 185th Street to the south is prone to flooding from moderate to heavy rain events due to the existing low land elevations. Based on an evaluation of the area in order to provide the intended 10-year/1-day storm event level of service to mitigate the flooding the existing drainage system would need to be upgraded with the construction of a 25 cfs capacity pump station on N.E. 186th Terrace. The pump station is to discharge into a series of eight (8) 24-inch diameter wells; two (2) of which are already in existence. As part of the upgrades, the system would require interconnecting pipes between N.E. 186th Terrace and NE 188th Street. The estimated cost to build these improvements in option one is $2,700,000.00

Project 18: Severe Repetitive Loss Projects

This project proposes to address all the remaining severe repetitive losses in Miami-Dade County through the Severe Repetitive Loss (SRL) grant program, authorized by the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004, which amended the National Flood Insurance Act of 1968 to provide funding to reduce or eliminate the long-term risk of flood damage to severe repetitive loss (SRL) structures insured under the National Flood Insurance Program (NFIP).

Most of the severe repetitive losses sites are routinely identified, funded and mitigated through several Miami-Dade County programs, such as the Stormwater Management Masterplan, Flood Inspections, Public Works Capital Budget, General Obligation Bond, Stormwater Utility and Secondary Canal Dredging Programs, through the construction of drainage improvements at various locations throughout Miami-Dade County. However some localized flooding problems cannot be fully addressed by any other existing programs.

The definition of severe repetitive loss as applied to this program was established in section 1361A of the National Flood Insurance Act, as amended (NFIA), 42 U.S.C. 4102a. An SRL property is defined as a residential property that is covered under an NFIP flood insurance policy and:

(a) That has at least four NFIP claim payments (including building and contents) over $5,000 each, and the cumulative amount of such claims payments exceeds $20,000; or

(b) For which at least two separate claims payments (building payments only) have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building.

For both (a) and (b) above, at least two of the referenced claims must have occurred within any ten-year period, and must be greater than 10 days apart.

The identified sites (residential/commercial or industrial facilities) are reported by the Federal Emergency Management Agency (FEMA), through the Community Rating System program, on a yearly basis.

The mitigation strategies are comprehensive and include:

a. Elevation of properties above Base Flood Elevation, complying with the Chapter 11-C of the Code of Miami-Dade County.
b. Flood proofing measures for commercial properties, complying with the Chapter 11-C of the Code of Miami-Dade County.
c. Demolition and Relocation.

The estimated average cost for the mitigation of each severe repetitive loss varies. FEMA may contribute up to 100 percent of the total amount approved under the Repetitive Flood Claims grant award to implement approved activities, if the Applicant has demonstrated that the proposed activities cannot be funded under the Flood Mitigation Assistance (FMA) program. The average cost of each severe repetitive loss mitigation project is estimated in $50,000.

Project 19: Construction of New Breakwater Structure in the Vicinity of FDEP R-Monument R60

This project proposes to design and construct a submerged breakwater structure consistent with the alternatives presented in the study, "Alternatives for 32nd Street Breakwater, PBS&J, November 2008 Study", and will include the removal of the existing southernmost breakwater located at State R-Monument R-60, and the construction of sand impoundment berm (minimum 30,000 cubic yards).

The design of the proposed breakwater will take into account the following objectives:
- Rubble-mound breakwater with protective stone material
- A life span of 50 years
- Design procedures according to Coastal Engineering Manual or Shore Protection Manual, Coastal Engineering Research Center, USACE, 1985, 2005; that will include:

A- Verification of the recommended length and offshore distance of the proposed breakwater (246.1 FT and 467.1 FT, respectively) by utilizing approximate calculation methods for tombolos and down drift performance (Bodge 1998, Silvester and Hsu 1993, Moreno and Klaus 1999, etc.)

B- Stillwater Elevation will be MHW, MSL, and MLW calculated from near-most NOAA stations

C- Design height of proposed breakwater structure and wave period determination shall be based on historical data from USACE and NOAA stations (hindcasting)

D- Dimensions and weight of boulders shall be dependent on the depth of the surrounding waters and their ability to reduce wave energy

E- Post Construction Monitoring Plan

The estimated cost of this project is $ 3,000,000.

Note: A progress report on DERM flood mitigation projects may be found at http://www.miamidade.gov/oem/library/LMS/LMS_Progress_Report-Activity_510.pdf

Project 20: Severe Repetitive Loss Area Projects

The Severe Repetitive Loss (SRL) grant program was authorized by the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004, which amended the National Flood Insurance Act of 1968 to provide funding to reduce or eliminate the long-term risk of flood damage to severe repetitive loss (SRL) structures insured under the National Flood Insurance Program (NFIP).

The definition of severe repetitive loss as applied to this program was established in section 1361A of the National Flood Insurance Act, as amended (NFIA), 42 U.S.C. 4102a. An SRL property is defined as a residential property that is covered under an NFIP flood insurance policy and:

(a) That has at least four NFIP claim payments (including building and contents) over $5,000 each, and the cumulative amount of such claims payments exceeds $20,000; or

(b) For which at least two separate claims payments (building payments only) have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building.

For both (a) and (b) above, at least two of the referenced claims must have occurred within any ten-year period, and must be greater than 10 days apart.

The identified sites (residential/commercial or industrial facilities) are reported by the Federal Emergency Management Agency (FEMA), through the Community Rating System program, on a yearly basis.

Most of the severe repetitive losses sites are routinely identified, funded and mitigated through several Miami-Dade County programs, such as the Stormwater Management Masterplan, Flood Inspections, Quality Neighborhoods Improvement, Public Works Capital Budget, General Obligation Bond, Stormwater Utility and Secondary Canal Dredging Programs, through the construction of drainage improvements at various locations throughout Miami-Dade County. However some localized flooding problems cannot be identified or addressed by any other programs.

The mitigation strategies are comprehensive and include:

a. Elevation of properties above Base Flood Elevation, complying with the Chapter 11-C of the Code of Miami-Dade County.
b. Flood proofing measures for commercial properties, complying with the Chapter 11-C of the Code of Miami-Dade County.
c. Demolition and Relocation.
d. Minor localized flood control projects.

The selection of project for funding and construction is based on based on the number of historical flood losses, severity of the flood problem and overall number of repetitive losses in the drainage area or sub-basin.

Miami-Dade Police Department

Project 1: Headquarter Complex Primary Entrance Hardening

The Headquarter Security Section of MDPD has a need to reconstruct the primary entrance for the Miami-Dade Police Department's Headquarters Building. The hardening of this facility will help facilitate the safety and security of the personnel who control ingress and egress to this building, increase security of the over 1,000 personnel who are assigned to this facility, and secure the highly sensitive information maintained on data systems managed at this location. This project has a direct connection to terrorist threats as relates to the physical access of the building, the personnel, and the information system access. Ultimately, a compromise of this facility could have exponential safety and security consequences, locally, statewide, and nationally. Additionally, this project will allow the Desk Operations Center and Control Room to be housed together, which would enhance security by having all related equipment and personnel in one centralized location. Estimated cost $560,000.

Project 2: MDPD Facilities Maintenance South Office Roof Replacement and Reinforcement

The Replacement/Reinforcement of the roof at MDPD’s Facility Section South Office: this facility was constructed years before stringent code requirements. The existing materials are inferior and are currently damaged which will not withstand in the event of a disaster. The facility will have the existing roof removed and replaced with upgraded materials to meet regulatory re-

quirements and withstand manmade and natural disasters. In addition, windows and doors will be replaced or reinforced, hardening the entire structure. Estimated cost $300,000

Project 3: Upgrade Network Infrastructure at MDPD Headquarter Complex for Data/Technology Protection

The Miami-Dade Police Department Headquarters complex is over 20 years old. At the time the complex was constructed, the network infrastructure was state of the art for the computer systems and data flow associated with the workload of 1990.
As technology has advanced, MDPD has increased its reliance on numerous data systems (international, federal, state, and local) to implement our law enforcement mission on a daily basis. In order to address a greater demand for these systems, the network infrastructure with the HQ complex must be updated to more effectively and efficiently access our current data system and prepare for future technology refreshes that will require increased bandwidth.
Current industry standards for network cabling is Category 6 (CAT6) network cabling. The vast majority of the HQ complex is supported by CAT 3 cabling. In order to recognize future cost saving by embracing the countywide thin client deployment, video conference capabilities and other emerging data platforms, it is necessary to replace our aging network cabling infrastructure. Estimated Cost $1,750,000

Project 4: MDPD Headquarters' Computer Lab Transfer switches and connections

Electrical installation of two (2) 400A non-automatic transfer switches to connect a portable generator to provide back-up emergency power to the facility's Computer lab UPS and the associated air conditioning in the room. Both transfer switches will be tied into one (1) 800A panel. The installation shall also include the generator connection box and plugs located in the northeast rear parking area with an approximate of 100' of extra cabling for the generator connection. The intent of this installation is to allow for the connection of a portable generator in the event that the facility's standby generator is nonoperational. Estimated cost $250,000

Project 5: MDPD Headquarters Complex Security Hardening

The building and compound area that will be affected was originally constructed in 1990. This funding will ensure the protection of police and emergency vehicles and equipment including the power supply to the Headquarters Complex emergency generator, and the diesel fuel tank that are vital for providing public safety services to the community.

Each of the eight security gates around the Headquarters complex, whether currently a barrier gate arm or rolling gate, is in need of enhancement to meet current code requirements for wind and water damage.

Security of the entire Headquarters Complex would be compromised in the event of a wind or hurricane event, terrorist attack or criminal breach the perimeter of the Complex. Barrier gates which are code compliant would harden the facility and increase the safety and security envelope

which safeguards over one thousand civilian and police personnel on duty at the complex. This is an essential facility hardening project which would enhance the security and protection against natural disasters, and also criminal or terrorist attacks. Estimated cost $650,000

Miami-Dade Public Housing and Community Development

Project 1: Harden Building and Improve Drainage

The following projects are to install window protection, replacement of roofs and/or drainage improvements throughout the various MDPHA properties.

PROJECT NAME	NO. OF BLDGS.	YEAR CONSTRUCTED	# OF WINDOWS	HURRICANE SHUTTER INSTALLATION ESTIMATED COST	WINDOW REPLACEMENT ESTIMATED COST	SITE DRAINAGE IMPROVEMENTS ESTIMATED COST	ROOF REPLACEMENT ESTIMATED COSTS
Liberty Square	45	1937	3888	$ 2,916,000.00	$ 2,527,200.00	$ 1,458,000.00	$ -
Liberty Square	48	1937	4320	$ 3,240,000.00	$ 2,808,000.00	$ 1,620,000.00	$ -
Liberty Square	37	1937	2880	$ -	$ -	$ 1,080,000.00	$ -
A. Coleman Gardens	47	1967	2940	$ 2,205,000.00	$ 1,911,000.00	$ 1,102,500.00	$ -
Haley Sofge Towers	2	1973	1650	$ 1,237,500.00	$ 1,072,500.00	$ -	$ 58,173.08
Haley Sofge Towers	2	1973	1200	$ 900,000.00	$ 780,000.00	$ -	$ 45,833.33
Harry Cain	1	1985	0	$ -	$ -		$ 62,000.00
Joe Moretti	36	1961	1344	$ 1,008,000.00	$ 873,600.00	$ -	$ -
Gwen Cherry 22	10	1973	120	$ 90,000.00	$ 78,000.00	$ -	$ -
Gwen Cherry 20	17	1973	138	$ 103,500.00	$ 89,700.00	$ -	$ -
Gwen Cherry 22	10	1973	120	$ 90,000.00	$ 78,000.00	$ -	$ -
Gwen Cherry 20	17	1973	138	$ 103,500.00	$ 89,700.00	$ -	$ -
Palm Towers	1	1978	618	$ 463,500.00	$ 401,700.00	$ 463,500.00	$ -
Ward Tower	1	1976	1200	$ -	$ -	$ 900,000.00	$ -
Martin Fine Villas	1	1979	300	$ 225,000.00	$ 195,000.00	$ 225,000.00	$ -
Lemon City	1	1971	600	$	$	$	$

PROJECT NAME	NO. OF BLDGS.	YEAR CONSTRUCTED	# OF WINDOWS	HURRICANE SHUTTER INSTALLATION ESTIMATED COST	WINDOW REPLACEMENT ESTIMATED COST	SITE DRAINAGE IMPROVEMENTS ESTIMATED COST	ROOF REPLACEPLACEMENT ESTIMATED COSTS
				450,000.00	390,000.00	450,000.00	68,750.00
Little River Pl.	1	1958	516	$ 387,000.00	$ 335,400.00	$ 387,000.00	$ 47,300.00
Opa-Locka Eld.	25	1985	300	$ 225,000.00	$ 195,000.00	$ 225,000.00	$ -
Three Round Towers	3	1977	600	$ 450,000.00	$ 390,000.00	$ -	$ -
Three Round Towers	3	1977	600	$ 450,000.00	$ 390,000.00	$ -	$ -
Three Round Towers	3	1977	546	$ 409,500.00	$ 354,900.00	$ -	$ -
A. Coleman Gardens	20	1966	1728	$ 1,296,000.00	$ 1,123,200.00	$ 648,000.00	$ -
A. Coleman Gardens	49	1967	2520	$ 1,890,000.00	$ 1,638,000.00	$ 945,000.00	$ -
Scattered Sites	24	1977	288	$ 216,000.00	$ 187,200.00	$ -	$ 60,000.00
Scattered Sites	5	1977	96	$ 72,000.00	$ 62,400.00	$ -	$ 20,000.00
Model Cities	8	1977	456	$ 342,000.00	$ 296,400.00	$ -	$ 190,000.00
Gwenn Cherry 13	16	1973	372	$ 279,000.00	$ 241,800.00	$ -	$ -
Gwenn Cherry 12	3	1973	72	$ 54,000.00	$ 46,800.00	$ -	$ -
Gwenn Cherry 08	11	1973	252	$ 189,000.00	$ 163,800.00	$ -	$ -
Gwen Cherry 07	17	1973	384	$ 288,000.00	$ 249,600.00	$ -	$ -
Gwen Cherry 06	6	1973	96	$ 72,000.00	$ 62,400.00	$ -	$ -
Gwen Cherry 05	41	1973	984	$ 738,000.00	$ 639,600.00	$ -	$ -
Gwen Cherry 23	36	1973	432	$ 324,000.00	$ 280,800.00	$ -	$ -
Gwen Cherry 09	16	1973	96	$ 72,000.00	$ 62,400.00	$ -	$ -
Gwen Cherry 11	40	1973	240	$ 180,000.00	$ 156,000.00	$ -	$ -

PROJECT NAME	NO. OF BLDGS.	YEAR CONSTRUCTED	# OF WINDOWS	HURRICANE SHUTTER INSTALLATION ESTIMATED COST	WINDOW REPLACEMENT ESTIMATED COST	SITE DRAINAGE IMPROVEMENTS ESTIMATED COST	ROOF REPLACEMENT ESTIMATED COSTS
Gwenn Cherry 15	14	1973	336	$ 252,000.00	$ 218,400.00	$ -	$ -
Gwenn Cherry 16	35	1973	840	$ 630,000.00	$ 546,000.00	$ -	$ -
Gwenn Cherry 14	38	1973	936	$ 702,000.00	$ 608,400.00	$ -	$ -
Green Turnkey	1	1968	0	$ -	$ -	$ -	$ -
Falk Turnkey	12	1968	288	$ 216,000.00	$ 187,200.00	$ -	$ -
Newberg	4	1968	354	$ 265,500.00	$ 230,100.00	$ -	$ -
Rainbow Village	50	1970	1200	$ 900,000.00	$ 780,000.00	$ -	$ 250,000.00
Dante Fascell	4	1973	0	$ -	$ -	$ -	$ -
Edison Courts	105	1939	4140	$ 3,105,000.00	$ 2,691,000.00	$ 1,552,500.00	$ -
Naranja	29	1972	1392	$ -	$ -	$ -	$ -
Twin Lakes	3	1971	456	$ 342,000.00	$ 296,400.00	$ -	$ -
Emmer Turnkey	1	1973	252	$ 189,000.00	$ 163,800.00	$ -	$ 38,500.00
Modello	17	1973	1440	$ -	$ -	$ 540,000.00	$ 300,000.00
Peters Plaza	1	1973	612	$ -	$ -	$ -	$ 46,750.00
Arthur Mays Village	45	1976	2208	$ 1,656,000.00	$ 1,435,200.00	$ 828,000.00	$ -
Jack Orr Plaza	1	1975	1200	$ 900,000.00	$ 780,000.00	$ -	$ -
Venetian Gdns.	42	1979	624	$ 468,000.00	$ 405,600.00	$ -	$ -
So Miami Plaza	1	1976	0	$ -	$ -	$ -	$ -
Culmer Place	22	1977	1812	$ 1,359,000.00	$ 1,177,800.00	$ -	$ -
Homestead Gardens	16	1977	1800	$ 1,350,000.00	$ 1,170,000.00	$ -	$ -
Parkside	1	1972	336	$ 252,000.00	$ 218,400.00	$ -	$ -
Edison Pla-	1	1976	864	$	$	$	$

PROJECT NAME	NO. OF BLDGS.	YEAR CONSTRUCTED	# OF WINDOWS	HURRICANE SHUTTER INSTALLATION ESTIMATED COST	WINDOW REPLACEMENT ESTIMATED COST	SITE DRAINAGE IMPROVEMENTS ESTIMATED COST	ROOF REPLACEMENT ESTIMATED COSTS
za				648,000.00	561,600.00	-	63,333.33
Highland Park	1	1976	624	$ 468,000.00	$ 405,600.00	$ -	$ 35,750.00
Stirrup Plaza	1	1977	0	$ -	$ -	$ -	$ -
South Miami Gardens	18	1977	696	$ 522,000.00	$ 452,400.00	$ -	$ -
Palm Court	1	1976	528	$ 396,000.00	$ 343,200.00	$ -	$ -
FHA Scattered Homes	2	1981	252	$ 189,000.00	$ 163,800.00	$ -	$ 105,000.00
Moody Village	64	1981	768	$ 576,000.00	$ 499,200.00	$ -	$ -
Wayside	15	1981	360	$ 270,000.00	$ 234,000.00	$ -	$ -
Southridge I	38	1980	912	$ 684,000.00	$ 592,800.00	$ -	$ -
Pine Island I	16	1980	960	$ 720,000.00	$ 624,000.00	$ -	$ -
Pine Island II	25	1981	600	$ 450,000.00	$ 390,000.00	$ -	$ -
Opa-Locka Fam.	1	1984	108	$ 81,000.00	$ 70,200.00	$ -	$ 45,000.00
Culmer Gardens	15	1984	900	$ 675,000.00	$ 585,000.00	$ -	$ -
Scattered Sites	25	1983	600	$ 450,000.00	$ 390,000.00	$ -	$ 250,000.00
Richmond Homes	32	1980	384	$ 288,000.00	$ 249,600.00	$ -	$ -
Florida City Family	26	1983	312	$ 234,000.00	$ 202,800.00	$ -	$ -
Goulds Plaza	25	1985	300	$ 225,000.00	$ 195,000.00	$ -	$ -
Florida City Gardens	25	1983	300	$ 225,000.00	$ 195,000.00	$ -	$ -
Moody Gardens	17	1984	204	$ 153,000.00	$ 132,600.00	$ -	$ -
Perrine Elderly	10	1984	120	$ 90,000.00	$ 78,000.00	$ -	$ 55,000.00
W. Homestead Gar-	6	1985	72	$ 54,000.00	$ 46,800.00	$ -	$ 33,000.

PROJECT NAME	NO. OF BLDGS.	YEAR CONSTRUCTED	# OF WINDOWS	HURRICANE SHUTTER INSTALLATION ESTIMATED COST	WINDOW REPLACEMENT ESTIMATED COST	SITE DRAINAGE IMPROVEMENTS ESTIMATED COST	ROOF REPLACEMENT ESTIMATED COSTS
dens							00
Homestead Village	6	1983	132	$ 99,000.00	$ 85,800.00	$ -	$ 55,000.00
Heritage Village II	17	1982	312	$ 234,000.00	$ 202,800.00	$ -	$ -
Southridge II	15	1980	360	$ 270,000.00	$ 234,000.00	$ -	$ -
Palmetto Gdns	1	1983	240	$ 180,000.00	$ 156,000.00	$ -	$ -
Jose Marti Plaza	1	1984	330	$ 247,500.00	$ 214,500.00	$ -	$ -
Phyllis Wheatley	1	1984	240	$ 180,000.00	$ 156,000.00	$ -	$ -
Grove Homes	23	1985	288	$ 216,000.00	$ 187,200.00	$ -	$ 120,000.00
Manor Park	32	1985	384	$ 288,000.00	$ 249,600.00	$ -	$ 160,000.00
Liberty Homes	44	1985	528	$ 396,000.00	$ 343,200.00	$ -	$ -
Orchard Villa	12	1985	144	$ 108,000.00	$ 93,600.00	$ -	$ 60,000.00
Wynwood Eld.	1	1985	432	$ 324,000.00	$ 280,800.00	$ -	$ -
Homestead West	5	1985	180	$ 135,000.00	$ 117,000.00	$ -	$ -
Little Havana Homes	1	1985	336	$ 252,000.00	$ 218,400.00	$ -	$ -
Santa Clara Homes	7	1985	156	$ 117,000.00	$ 101,400.00	$ -	$ -
Wynwood Homes	39	1985	234	$ 175,500.00	$ 152,100.00	$ -	$ 107,250.00
Biscayne Plaza	4	1984	312	$ 234,000.00	$ 202,800.00	$ -	$ -
				$ 13,815,000.00	**$ 11,973,000.00**	**$ 12,424,500.00**	**$ 2,276,639.74**

Project 2: Develop MDPHA Local Service Hubs

These service hubs (minimum of four) will allow MDPHA to have a quicker and more efficient response in dealing with the needs of our residents after an emergency or natural disas-

ter. These hubs will be strategically located throughout the MDPHA public housing developments. The following items will be needed to set up these service hubs:

- Trailer Mounted Generators
- Commercial Ice Machines
- Exterior Cold Storage Units
- Exterior Dry Storage Units

Project 3: Acquire Emergency Equipment

In addition to these service hubs, MDPHA needs the following items to better enhance the efficiency of our recovery from emergency or natural disaster situations:

- Equipment
    - Four portable generators – need to make sure our developments/offices are up and running after a storm.
    - Six portable lighting systems with generators – needed to supply lighting to sites after a storm or event to help prevent crime in the Public Housing area.
    - Spot coolers – to supply temporary A/C to offices that are running on generator power
- Heavy Equipment
    - Two Bucket Trucks for tree trimming
    - Two Dump Trucks for hauling debris
    - Two Wood Chippers
    - Two Stump Grinders
    - Four Diesel Water Pumps 4”
    - Trash Crane
- Shutters
    - Residential units
    - Offices
    - Community Center
- Communication - Radios

Miami-Dade Public Works and Waste Management

Project 1: Replacing Span Wire Signals with Mast Arm Signals

During Hurricane Andrews it was observed that traffic signals mounted on steel mast arms resisted hurricane winds much more efficiently than the traffic signals mounted on span wires and that the resulting damages to mast arm signals was much less severe. As a result, damaged mast arm signals could be repaired faster and with much less cost per signal, while repairs to span wire installations were costly, cumbersome and time consuming. Because of this, the county has adopted a policy of utilizing mast arm installations for all new signals or whenev-

er an existing signal has to be replaced; with the only exception being a few intersections where existing geometry does not permit the use of mast arms. However, there are still approximately 608 existing span wire mounted traffic signal installations throughout the county that need to be replaced with mast arms in order to reduce their potential for storm damage and expedite recovery times. The 28 existing span wire traffic signals listed below are the highest priority sites among the 608 locations requiring mitigation. The estimated average costs for mast arm conversion is approximately $110,000 per intersection. The total estimated cost or any amount in $110,000 increments will be used on a site per site basis until all span wire signals in Miami-Dade County have been replaced with mast arm.
Estimated cost **$**3,000,000 (28 potential intersections).

Signal #	Location	Signal #	Location
3524	Miller Dr. & SW 92 Av.	4564	Coral Way & SW 122 Av.
4304	Miller Dr. & SW 93 Av.	2334	Douglas Rd. & NW 7 St.
3525	Miller Dr. & SW 97 Av.	4175	Douglas Rd. & NW 11 St.
3526	Miller Dr. & SW 102 Av.	3949	Douglas Rd. & NW 17 St.
3528	Miller Dr. & SW 112 Av.	3797	Douglas Rd. & NW 21 St.
2903	Douglas Rd & NW 46 St.	4610	Miller Dr. & SW 132 Av.
2332	NW 22 Av. & NW 7 St.	3882	Miller Rd. & San Amaro Dr.
3616	NW 22 Av. & NW 11 St.	4358	Sunset Dr. & SW 132 Av.
4490	NW 22 Av. & NW 14 St.	4342	Sunset Dr. & SW 137 Av.
3275	NW 22 Av. & NW 20 St.	4611	Sunset Dr. & SW 142 Av.
3289	NW 22 Av. & NW 23 St.	3802	Coral Way & SW 92 Av.
2416	NW 22 Av. & NW 28 St.	4593	NW 22 Av. & NW 32 St.
4124	Coral Way & SW 102 Av.	3594	NW 22 Av. & NW 41 St.
4249	Coral Way & SW 112 Av.	2482	NW 22 Av. & NW 46 St.

Project 2: Larchmont Gardens Storm Water Pump Station

Modify the Larchmont Gardens storm-water pump station to protect it from the wind borne debris, inland flooding from storm surge and wind driven rain. Retrofit must be designed and constructed in accordance with the 2001 Florida Building Code – High Velocity Hurricane Zones criteria. Estimated cost: $700,000

Project 3: Seaboard Acres Storm Water Pump Station

Modify the Seaboard Acres storm-water pump station to protect it from wind borne debris, inland flooding from storm surge and wind driven rain. Retrofit must be designed and constructed in accordance with the 2001 Florida Building Code – High Velocity Hurricane Zones criteria. Estimated cost: $700,000

Project 4: Road, Bridge and Canal Maintenance Division NW 58 Street Facility

Protect the existing stand-by generator at 9301 NW 58th Street main office (emergency operation center for the Division). Currently this generator is exposed to the elements; including storm generated wind borne debris, and is therefore vulnerable to weather-related damage. With the loss of FP&L power should this generator be rendered inoperable Miami-Dade County debris clearing activities would be severely hampered. The work necessary consists of constructing a protective wall and roof in accordance with the 2001 Florida Building Code – High Velocity Hurricane Zone criteria. Estimated cost: $125,000

Project 5: Biscayne Shores Storm Water Pump Station Retrofit.

Protect the existing Biscayne Shores storm-water pump station stand-by generator, electrical and mechanical rooms to make them water-tight to an elevation above anticipated hurricane storm surge levels. At present, the standby generator exhaust pipe exits the pump station through the east exterior wall, exposed to Biscayne Bay at an elevation that is below the projected storm surge level. In addition, the existing station ventilation system is at risk to hurricane winds and wind driven surf; seawater could easily enter and severely damage the diesel engine of the generator, thereby rendering the pump station inoperable. The work necessary consists of relocating the through-wall generator exhaust pipe and modifying the existing ventilation system to a height above anticipated storm surge levels and be able to withstand hurricane force winds. Estimated cost: $250,000

Project 6: Road, Bridge and Canal Maintenance Division Vital Public Records Storage

The Public Works Department - Road, Bridge and Canal Maintenance Division has considerable vital documents such as original bridge drawings, one of a kind bridge documents, "As-Builts", historic bridge records and other vital public records, etc. which if destroyed or damaged cannot be replaced. A document safe room or stand along building along with scanning, server and record keeping materials is needed for the storage of such hard copy documents and electronic data. Estimated cost: $250,000.

Project 7: Preventive Pruning of Existing County Tree Inventory

This project's purpose is twofold: to minimize storm generated debris and protect the infrastructure from tree related storm damage pursuant to LMS Initiative 6. Studies show that by practicing proper structural pruning methods such as appropriate crown reduction and canopy thinning, tree and limb failures are reduced during storm events. Therefore, properly pruned trees produce less debris and minimize infrastructure damage. This project proposes to create a program that provides regularly scheduled pruning of trees planted by the county within the right of way in order to provide structural integrity and thereby mitigate the clean up costs and property damage caused by weather events. The department would utilize local contractor services to accomplish project goals. All pruning performed will conform to the International Society of Arboriculture and ANSI A-300 standards. Estimated cost: $2,570,000

Project 8: Mosquito Control Division Insecticide Storage Facility Upgrade

Upgrade the existing chemical storage facility to withstand hurricane force winds and wind born debris. These insecticides are necessary to control mosquitoes throughout the county. Consequences of the loss of the inventory of insecticide would increase the potential for mosquito transmitted disease, and significant discomfort from residents who will be exposed to the bite of the mosquito. Following a hurricane, many people have no shelter, increasing their exposure to biting mosquitoes. Estimated cost: $300,000

Project 9: Hurricane Protection for the Mosquito Control Building and Hanger.

Controlling mosquitoes following a hurricane is an essential and critical public service for the citizens of Miami-Dade County. Many people may be without shelter, exposing them to the bite of the mosquito, and the potential for contracting mosquito transmitted disease. In order for mosquito control to provide this necessary service, it is essential to protect the facility to prevent wind born damage to the building, equipment, insecticides and hangar. The mosquito control facility must be operational immediately following a hurricane or other natural disaster to control mosquitoes. This project will install storm shutters on all windows, reinforce overhead doors, and seal the breezeway where vehicles-equipment are stored to prevent them from being blown out by high winds. Estimated cost: $61,000

Project 10: Install removable bracing for hangar doors

The Mosquito Control Division's helicopter hangar has four sliding doors that require bracing to prevent them from being dislodged as a result of hurricane force winds. Bracing each of the doors will prevent the hangar and its contents from wind damage. There exists an immediate need following a hurricane for mosquito control. The tools and equipment used for aerial spraying are housed in the hangar. Minimizing any loss or damage to the equipment plays a vital role in being able to immediately conduct mosquito spraying operations in the aftermath of a hurricane. Estimated cost: $12,000

Project 11: Increase security at the Mosquito Control North Facility

The Mosquito Control Division uses mosquito spray equipment, trucks, and aircraft to apply insecticides throughout Miami Dade County to control mosquitoes. The insecticides used are not classified as highly toxic, and are safe when used by trained professionals according to label directions. The possibility exists that terrorists could gain entrance to the facility and use the equipment to spray insecticide (or other agent), creating fear and panic throughout Miami Dade County. Increasing security at the Mosquito Control facility will reduce the possibility of any such occurrence.
Estimated cost: $95,000

Project 12: Impressed Current Cathodic Protection Design

The Venetian Causeway is listed on the National Register of Historic Places and is a National Historical and Scenic Roadway. It is also an important as an evacuation route for Miami Beach and the island communities found along its length. A critical first step in the effort to rehabilitate this causeway is the design of an impressed current cathodic protection system (ICCP)

that will protect the rehabilitated bridges from the effects of corrosion. It will provide long-term protection of reinforcement steel within the bridges making up the Venetian Causeway by addressing the underlying cause of deterioration. Estimated cost: $280,000

Project 13: Replacing Wire Signal with Mast Arm Signal

The spanwire and concrete strain pole signal support system was a design standard for Miami-Dade County from the 1950's through the mid 1980's. It was then abandoned primarily due to its fragility. Light winds swing the heads and make their indications less visible to motorists. Medium force winds rotate and twist the heads, requiring follow-up repairs by field technicians, and also strain and weaken the cables and poles. Major windstorms, even those well below hurricane strength, often break the cables and cause signal heads to come crashing down at great danger to the public. Even when the cables-do not break, hurricane force winds often cause the concrete poles to break under the tension of the cables. The old mastarms do not comply with the existing hurricane wind loads requirements. In addition, since the signals are hanging, some of the same problems affecting spanwire signals also occur: light winds swing the heads and make their indications less visible to motorists; medium force winds rotate and twist the heads, requiring follow-up repairs by field technicians; and major windstorms, even those well below hurricane strength, cause signal heads to come crashing down at great danger to the public. Overall, the support systems are a fragile remnant of a past era and can no longer be relied upon to serve the citizens of Miami-Dade County.

South River Dr & NW 74 St.
East Dr & Royal Poinciana Blvd S
Pennsylvania Av & 14 St.
Aventura Blvd & NE 29 Pl.
Dickens Av & 77 St.
Euclid Av & 11 St.
Jefferson Av & 16 St.
Michigan Av & 16 St.
Royal Palm Av & W 40 St.
SE 9 Ct. & 8 St.
W 6 Av & W 29 St.
SW 152 Av. & SW 296 St.
SW 132 Av. & 47 St.
W 5 Av & W 29 St.
NW 14 Av. & 12 St.
W 16 Av. & 76 St.
SW 32 Av. & 6 St.
W 10 Av. & 29 St.
NW 32 Av. & NW 169 Terr.
Perimeter Rd. & NW 62 Av.
SW 162 Av. & SW 296 St.

Estimated cost: $3,984,000

Project 12: South Miami Avenue Security Cameras Installation

Currently, the bridges maintained and operated by Miami-Dade County are susceptible to sabotage by an individual or organization intent on doing great harm. The bridge we are proposing to secure, South Miami Avenue Bridge, spans across the Miami River, a vital economic engine to the County and the South Florida region. If this structure were to be heavily damaged and/or collapse, it would paralyze shipping traffic and negatively impact the regional economy. The view of bridge tenders is limited when it comes to the bridge itself. The installation of video surveillance will allow them to monitor sections of the bridge absent from their line of sight. This will enable local officials to react to any suspicious activities that may endanger the lives of the thousands of commuters who transverse these structures everyday. In addition, the visibility of this technology is a strong deterrent alone. The estimated cost for this project is $30,000.

Project 13: 2nd Avenue Security Camera Installation

Currently, the bridges maintained and operated by Miami-Dade County are susceptible to sabotage by an individual or organization intent on doing great harm. The bridge we are proposing to secure, Second Avenue Bridge, spans across the Miami River, a vital economic engine to the County and the South Florida region. If this structure were to be heavily damaged and/or collapse, it would paralyze shipping traffic and negatively impact the regional economy. The view of bridge tenders is limited when it comes to the bridge itself. The installation of video surveillance will allow them to monitor sections of the bridge absent from their line of sight. This will enable local officials to react to any suspicious activities that may endanger the lives of the thousands of commuters who transverse these structures everyday. In addition, the visibility of this technology is a strong deterrent alone. The estimated cost for this project is $30,000.

Project 14: 17th Avenue Security Camera Installation

Currently, the bridges maintained and operated by Miami-Dade County are susceptible to sabotage by an individual or organization intent on doing great harm. The bridge we are proposing to secure, 17th Avenue Bridge, spans across the Miami River, a vital economic engine to the County and the South Florida region. If this structure were to be heavily damaged and/or collapse, it would paralyze shipping traffic and negatively impact the regional economy. The view of bridge tenders is limited when it comes to the bridge itself. The installation of video surveillance will allow them to monitor sections of the bridge absent from their line of sight. This will enable local officials to react to any suspicious activities that may endanger the lives of the thousands of commuters who transverse these structures everyday. In addition, the visibility of this technology is a strong deterrent alone. The estimated cost for this project is $30,000.

Project 15: 22nd Avenue Bridge Security Camera Installation

Currently, the bridges maintained and operated by Miami-Dade County are susceptible to sabotage by an individual or organization intent on doing great harm. The bridge we are proposing to secure, 22nd Avenue Bridge, spans across the Miami River, a vital economic engine to the Coun-

ty and the South Florida region. If this structure were to be heavily damaged and/or collapse, it would paralyze shipping traffic and negatively impact the regional economy. The view of bridge tenders is limited when it comes to the bridge itself. The installation of video surveillance will allow them to monitor sections of the bridge absent from their line of sight. This will enable local officials to react to any suspicious activities that may endanger the lives of the thousands of commuters who transverse these structures everyday. In addition, the visibility of this technology is a strong deterrent alone. The estimated cost for this project is $30,000.

Project 16: West Venetian Security Camera Installation

Currently, the bridges maintained and operated by Miami-Dade County are susceptible to sabotage by an individual or organization intent on doing great harm. The bridge we are proposing to secure, West Venetian Causeway, spans across Biscayne Bay, a vital economic engine to the County and the South Florida region. The Causeway is also an important link to the City of Miami Beach, a worldwide tourist destination. If this structure were to be heavily damaged and/or collapse, it would paralyze shipping traffic and negatively impact the regional economy. The view of bridge tenders is limited when it comes to the bridge itself. The installation of video surveillance will allow them to monitor sections of the bridge absent from their line of sight. This will enable local officials to react to any suspicious activities that may endanger the lives of the thousands of commuters who transverse these structures everyday. In addition, the visibility of this technology is a strong deterrent alone. The estimated cost for this project is $30,000.

Project 17: East Venetian Security Camera Installation

Currently, the bridges maintained and operated by Miami-Dade County are susceptible to sabotage by an individual or organization intent on doing great harm. The bridge we are proposing to secure, East Venetian Causeway, spans across Biscayne Bay, a vital economic engine to the County and the South Florida region. The Causeway is also an important link to the City of Miami Beach, a worldwide tourist destination. If this structure were to be heavily damaged and/or collapse, it would paralyze shipping traffic and negatively impact the regional economy. The view of bridge tenders is limited when it comes to the bridge itself. The installation of video surveillance will allow them to monitor sections of the bridge absent from their line of sight. This will enable local officials to react to any suspicious activities that may endanger the lives of the thousands of commuters who transverse these structures everyday. In addition, the visibility of this technology is a strong deterrent alone. The estimated cost for this project is $30,000.

Project 18: NW 58th Street Facility Security Camera Installation

The location we are proposing to install additional cameras is at our NW 58th Street Facility. The facility sits on approximately 43 acres of property near a high commercial area and the adjacent to the City of Doral. It is the main staging area for road clearing operations after major storm events. In addition, several chemicals used in our routine operations are stored on site, such as insecticides and herbicides. While these chemical are harmless in their normal application, if introduced into the drinking water supply, the results could be deadly as many of these chemicals have a high toxicity if ingested. As of now, the rear of our property is void of elec-

tronic surveillance. This section of the yard is only protected by a mere 1,300 foot long chain link fence. Adding elevated cameras is essential in safeguarding our property and deterring those with nefarious intentions from entering the facility. In addition, the Miami-Dade Police Department (MDPD) Training Bureau is adjacent to our facility. Any breach in security would present a direct threat to their facility as well. The estimated cost for this project is $20,000.

Miami-Dade Seaport Department

Project 1: Drainage Mitigation Plan

Install and/or upgrade drainage systems throughout the Port of Miami in excess of current federal, state and local requirements in order to eliminate flooding and to treat storm water runoff to reduce the release of contaminants into Biscayne Bay and reduce the risk of loss of goods and property long-term at the Port. This project will be done as a phased project with an estimated cost of $1 million each. Estimated cost: $3, 500,000

Project 2: Systems Backup

The Port seeks to establish a presence at the Network Access Point (NAP) of the Americas from which to run systems to support Port operations in the event the Port's technology systems are unavailable due to a natural or man-made disaster. This would be similar to the agreement that ETSD has signed with New York to support mainframe systems in an emergency. The Port seeks funding to cover costs associated with establishing and maintaining a hot backup site to assure business continuity. Estimated cost: $150,000

Project 3: Roof-Top Structural Retrofitting

Implement rooftop and roofline modifications to reduce the risk of future damage and protect the structure from hurricanes and similar natural disasters. Estimated cost: $3,000,000.

Project 4: Electrical Feeder System Upgrade for Storm Surge Mitigation

Upgrade electrical feeders and manholes that are utilize to as ‘electrical plugs’ for refrigerated cargo to resist storm surge and protect goods as a long-term hazard mitigation effort. Estimated cost: $5,000,000

Project 5: Strengthening of Bulkheads

In order to prevent any hazard and endure severe wind, rain and storm surge events and any damage during inclement weather conditions to this heavy containerized area; the strengthening of the bulkhead wall system and pavement of the South Cargo Wharf from approximately berths 148-177 is imminent. The work includes design and construction for the removal and replacement of fenders, mooring bollards as well as bulkheads cap. The project also includes drainage, apron and pavement improvements in this area as a mitigation measure to reduce hazard impacts and manage floods. Apron work includes site preparation including excavation, placement of

sub grade and lime rock base, and resurfacing to accommodate heavy crane loads and prevent any catastrophe during a storm. This project will be done as a phased project with an estimated total cost of $24 million. Estimated cost: $8,000,000

Project 6: Construction of New Seawall- Area 2

The project consists of the retrofitting an existing rip rap shoreline protection area with an elevated 600 linear feet new seawall to connect the two existing seawalls on either side of the area (Bays 177 to 183). Work includes installation of steel sheet pile with concrete cap; site civil; excavation and back fill; drainage; asphalt paving; water services; fenders; mooring bollards, and environmental turbidity barriers. Environmental permits are in place from the Department of the Army (DOA) and the Florida Department of Environmental Protection (FDEP). The Professional Service Agreement, achieved through the County's established competitive bid process, is already in place to hire a firm to provide design, professional engineering and construction administration services for this long-term hazard mitigation project designed to reduce the loss of property and protect the port's critical facilities from natural disasters. Estimated cost: $5,000,000

Miami-Dade Transit

Project 1: Bulk Fuel Storage and Transfer Station

Since the terrorist attacks on the United States in September 2001, the safety and security of public facilities, including public transportation, have taken on an increased urgency. Additionally, the 2005 and 2004 hurricane season provided ample evidence of the necessity for local governmental agencies such as public transit to have backup infrastructure options in place when natural disasters strike in order to mitigate service interruptions to the greatest degree possible. One of the projects identified by Miami-Dade Transit (MDT) that could play a critical role in either terrorist attacks or natural disasters involves the design and construction of a bulk fuel storage and transfer station at MDT's William Lehman Center, located at 6601 NW 72nd Avenue. When completed, this facility would ensure that availability of diesel fuel for transit-related services for the large MDT bus fleet in the aftermath of a severe storm that might affect deliveries from MDT's normal fuel supply at Port Everglades. This actually did occur after hurricane Wilma during the 2005 hurricane season. Fuel at Port Everglades was not accessible. The back-up fuel supply source would also be significant in the time of any potential terrorist activity that might otherwise threaten key fuel locations such as Port Everglades. The station will store diesel fuel in four 30,000 gallon, double-wall, steel, horizontal, aboveground storage tanks. No vehicular fueling dispensers will be installed. Estimated cost: $2,750,000

Project 2: Storm Shield Hurricane Barriers

Purchase and install storm shield hurricane barriers on all windows and install accordion storm shutters on two entrance doors of the Miami-Dade Transit Coral Way division transportation building. This installation will provide protection to the employees and equipment during

hurricanes. MDT has emergency personnel working all natural disasters and they are stationed in this building. Estimated cost: $60,000

Project 3: Storm Shield Hurricane Barriers

Replace existing windows and doors with impact resistant windows and doors and install storm shield hurricane barriers to the Miami-Dade Transit Central Administration Building. This installation will provide protection to the employees and equipment during hurricanes. MDT has emergency personnel working all natural disasters and they are stationed in this building. Estimated cost: $200,000

Project 4: Reconfiguration – Critical Equipment

Install additional reconfiguration of present loads to bring the Miami-Dade Transit Northeast bus facility within 70% of critical equipment during hurricane emergencies and disasters. The loads will be added to the 400KW standby generator. Estimated cost: $158,000

Project 5: Emergency Portable Air Conditioner Units

Purchase emergency portable air conditioner units for computer rooms and office areas for all essential operating areas. The Government Center maintains computer systems, services, and the Sonnet system. The portable air conditioner units would prevent these systems and services from damage and malfunction. The bus areas would provide minimal cooling to permit essential operations to continue. Twelve units are necessary. Estimated cost: $48,000

Project 6: Emergency Power for entire MDT Facilities

Provide emergency power to the entire MDT Facilities during the loss of power from Florida Power & Light, especially during storms, hurricanes, and natural disasters. MDT provides emergency evacuation services for the entire Miami-Dade County area. This is necessary to operate during any loss of power. Emergency generators will provide power to all equipment and buildings. All equipment and the buildings must remain open and be manned by employees at all times. Estimated cost: $5,000,000

Miami-Dade Water and Sewer Department

Project 1: HEPA Filters at Water Storage Tanks

This project covers the retrofitting of eight storage tanks to incorporate HEPA filters at water storage tanks air vents to protect against chemical or bacteriological contamination. Estimated cost: $250,000.

Project 2: Physical Security Risk Reduction Measures at Water Treatment Plants

These projects include physical security improvements to detect, delay and respond to adversarial actions at the treatment plants, such as hardening of perimeters, high security fencing, intrusion sensors, high security doors and vehicle restraints. Estimated cost: $12,200,000

Project 3: Risk Reduction Measures at Treatment Plants and Facilities

These projects are capital improvements to modify treatment processes to reduce possible widespread damage and evacuation due to chlorine accidents. These consist of the following types of projects:

a. Change treatment process to sodium hypochlorite method to stop the transportation of chlorine through populated areas. Estimated cost: $58,000,000
b. Purchase spare high service pumps, motors and components: Estimated cost: $20,000,000
c. Construct booster pump station bypass in distribution network. Estimated cost: $500,000

Project 4: Satellite Phones

After Hurricane Andrew, communications were virtually non-existent. With satellite phones distributed to our field crews as well as regional command centers, better and faster recovery after a disaster can occur. Phones would be made available to our plant maintenance, pump station and pipeline divisions. Estimated cost: $15,000.

Project 5: Hand-Held GPS Units

These will assist our field crews in the location of pump stations after a disaster, especially in the event of major devastation. In addition, these units would be helpful to personnel from other units that may provide assistance to MD-WASD. Estimated cost: $50,000

Project 6: Increased Wastewater Transmission and Treatment Capacity

During periods of heavy rainfall, MD-WASD wastewater system is subjected to peak flows from overloaded storm drainage systems throughout the county and its municipalities. Additional capacity is needed in the county's transmission and treatment system to handle the increased wet weather flows. This construction would significantly reduce sewage overflows throughout the county and alleviate public health concerns after storm events.
Estimated cost: $200,000,000

Project 7: Relocate Water Mains in Rear Easements:

Currently, there are 500 miles of mains located in rear easements. These mains are in the rear of properties and in alleys. Because of their location, access is oftentimes limited by, trees, sheds and other obstructions that have been placed over the main. After hurricane Wilma, there were 70 main breaks, 90% of them were located in the rear easements. By eliminating the rear easement mains and installing a new water main in front of the property, MD-WASD will reduce

the number of main breaks after natural disasters, as well as, increase fire protection, provide improved service and eliminate the need for meter readers to enter private property.
Estimated cost: $530,908,000

Project 8: Transfer Water Service from Rear to Front in Locations with Dual Systems

MD-WASD has estimated that approximately 20% of rear easement mains are dual feeds, i.e., there are existing mains, one in the front and the other in the rear of a customer's premises. Some customers have not changed their connection from the rear main to the main in front of the property. MD-WASD would propose an ordinance obligating the customers to transfer their service to the main located in front of their property. By using the main located in front of the property, WASD will reduce the number of main breaks after natural disasters, as well as, increase fire protection, provide improved service and eliminate the need for meter readers to enter private property. Estimated cost: $16,048,500

Project 9: Shelters for Critical Equipment

Much of MD-WASD's emergency equipment is currently stored outdoors: This item proposed the construction of shelters to store portable pumps and generators at sites already owner by MD-WASD. Estimated cost: $5,000,000

Project 10: Replacement of Canal and Bridge Crossing Pipes

Replace canal and bridge crossing pipes with sub-aqueous crossings.
Estimated cost: $2,500,000

Project 11: Harden Water and Sewer Department Buildings

A safe room is needed for MD-WASD employees who operate the wastewater treatment plants at the Central and South District wastewater treatment plants during storm or disaster events. Estimated cost: $20,000,000

Project 12: Construct New South Miami Heights Maintenance Facility

The Water Distribution Division located at South Miami Heights is currently housed in trailers. After a hurricane the Water Distribution Division cannot work out of the South Miami Maintenance Facility. The new building will provide a hurricane resistant structure with emergency backup generators to provide a staging and operations center for the emergency period in southern Miami-Dade County. Estimated cost: $35,000,000

Project 13: Replace Roof Mounted Exhaust Ventilation Fans

Replace the roof mounted ventilation fans at five (5) WASD facilities with reinforced roof mounted ventilation fans that will meet hurricane standards.
The facilities are:

a. Westwood Lake Maintenance Facility. Estimated cost $145,000
b. LeJeune Road Office. Estimated cost: $50,000
c. Medley Warehouse. Estimated cost: $50,000
d. 36th Street Maintenance Facility. Estimated cost: $30,000
e. Distribution Maintenance Facility. Estimated cost: $25,000

Project 14: Replace LeJeune Road Office Building HVAC

Convert the HVAC rooftop heating, ventilation and air conditioning system on the building's roof to an interior floor mounted system. Estimated cost: $350,000

Project 15: LeJeune Road Emergency Operations Center

Convert an existing room at the LeJeune road building into an emergency operations center for the department. Includes is an emergency generator to power the center in the event of a power failure. Estimated cost: $400,000

Project 16: Construct a Wind Barrier at the South District Wastewater Treatment Plant

Construct a wind barrier wall to the east of the on-site portable offices being used for the HLD and laboratory offices. These structures are protected on one side by existing structures. Constructing this wall would mitigate damage to the structures. Estimated cost: $85,000.

Vizcaya Museum and Gardens

Project 1: Basement Storm Flood Water Discharge System

The scope of this project entails the installation of seven pumps with sump pits in the basement of Vizcaya's main house to discharge hurricane flood water seepage. These pumps are necessary not only to protect the interior of the main house and its collections, but also to protect the air conditioning air handlers that maintain environmental control that is necessary to preserve the Museum's historic artifacts in the main house. The pump discharge will be purified by a grease/oil/water separator before it is discharged by a deep well injection system.
Estimated cost: $1,750,000

Project 2: Roof Replacement and Roof Structure Reinforcement

This project will involve the replacement of the tile roof and member on Vizcaya's main house that has been compromised from recent hurricanes. The roof wood structure and wood deck will be reinforced to comply with present day codes. The building structure will be reinforced to comply with the local 40-year re-certification requirement. The project will also include new insulation throughout the attic area that will help lower electrical costs.
Estimated cost: $5,500,000

Project 3: Exterior Window and Door Restoration and Reinforcement for Impact

The scope of this project entails the refurbishment of the historical windows in Vizcaya's main house and the addition of new hurricane protective impact windows to the exterior, as well as the installation of new impact door assemblies over the main house's East and West loggia and Tea Room. The project will provide a higher level of hurricane protection for the windows and doors in Vizcaya's main house while at the same time preserving the historic integrity and aesthetics of this National Historic Landmark. The impact windows and doors will also provide additional thermal protection that will help lower electrical costs. Estimated cost: $4,500,000

Project 4: Historic Garden Features Mitigation

The increasingly active hurricane seasons have resulted in the damage and deterioration of Vizcaya's historic garden statuary and architectural ornaments. Several mitigation measures are required in order to prevent further loss and damage to significant artifacts. These include: improvement of the corroded steel bracing system on the back of seven statues; removal of bio-growth that reacts with salt spray and deteriorates the crystalline composition of marble and limestone statues; insertion of non-corrosive reinforcing frames in deformed antique lead urns on the Casino Mound; replacement of two limestone statue bases that are structurally flawed; and repairs to weakened brachiated marble columns in public areas. In addition, the ancient Roman altar, Byzantine columns, and three other significant artifacts in the gardens must be removed and re-housed in a protected area in order to prevent additional damage or possible loss.
Estimated cost: $350,000

Project 5: Replacement of Glass Canopy over Courtyard

The present courtyard enclosure at Vizcaya was designed in 1982, prior to the implementation of stricter Miami-Dade building codes for wind-load capacity following Hurricane Andrew in 1992. Inherent design flaws – such as a plexiglass clerestory held in place solely by silicone caulking material – as well as nearly twenty-five years of exposure and deterioration have led to ever increasing areas of water intrusion, with consequent damage to surrounding wooden eaves and rafters. The failure of any single panel in the existing single-glazed structure in a direct-hit category 3 or above storm would result in depressurization of the interior of this National Historic Landmark structure, which would likely result in catastrophic damage to collections, historic fabric, and structure. An existing project proposal, developed in association with LORD Cultural resources and Richard Heisenbottle Architects as part of the Vizcaya Museum and Gardens master plan in 2005, would evaluate the existing structure for viability of foundations, reuse the substructural supports, and replace the glass and steel canopy with a new enclosure in accordance with current building codes. Estimated cost: $1,900,000

The Municipalities

There are thirty-five municipalities within Miami-Dade County. Each municipality has determined which hazard mitigation projects are appropriate to that individual community and what priority should be attached to each. No projects submitted for inclusion in the Local Mitigation Strategy have been edited in any way other than to conform to the format, font and typestyle used in the document. Each is included as submitted. Future studies may determine, however, that some of these individual projects may be better suited to or easier to complete if combined into a countywide initiative as outlined above. This type of decision will be made as required by the circumstances of the time.

Several of the municipalities have chosen to no longer participate in the Local Mitigation Strategy. The projects of these municipalities have been retained in this document as a matter of historical record. However, these municipalities and their projects will no longer be eligible for any benefit that may be available to members of the LMS Working Group.

City of Aventura

Project 1: Stormwater Drainage Projects

The city of Aventura is 3.2 square mile community located along the Intracoastal Waterway in northern Miami-Dade County. Since its inception, the city has emphasized the importance of drainage and stormwater management in minimizing the inconvenience to its residents during the annual hurricane season. The city has determined that the following areas are in need of storm drainage and roadway improvements:

NE 191st St. is a continuous problem area during heavy rainfall and it should be addressed.

The principal reason for NE 191st ST flooding during rain events can be explained with the following three statements:

1. Storm runoff into city ROW from the majority of adjacent private properties on both the north and south side of NE 191st ST.
2. In two areas, the adjacent property owner's are tied into/connected to the city's roadway drainage system. That is, when storm water reaches a certain elevation on their site, it begins to overflow into the NE 191st ST drainage system.
3. Existing capacity (pipe size and/or quantity) of the NE 191st drainage system is not adequate to handle both adjacent property runoff and roadway runoff.

Project 2: Development of Floodplain Management Plan

The city is interested in obtaining grant funds to hire a consultant to develop a floodplain management plan. Ordinance No. 97-19 created a Flood Damage Prevention Ordinance to enforce mitigation efforts throughout the city with regards to flooding. An ordinance is not a plan however and the creation of a floodplain management plan may benefit the community in a

more positive "rating" within the Community Rating System, thereby allowing residents to obtain lower flood insurance premiums. The floodplain management plan is a requirement of NFIP if repetitive loss properties are greater than 10. The city currently has 2 repetitive loss properties.

Project 3: Purchase Communications Information Equipment

During an emergency, it is critical that emergency personnel are able to communicate with one another. This project entails purchasing equipment, such as radios and additional cellular phones, to assist emergency personnel in responding to an emergency. The Aventura Police Department maintains a communication system that services the local community. The system also has redundancy through the Miami-Dade Police Department Communications system in case the Aventura system should fail to operate. The State of Florida is currently working to establish statewide frequencies that agencies would able to use to speak with each other when responding to calls for assistance. This is expected to be operational within the next year. During the four hurricanes that struck Florida in 2005, however, radios and cell phones were rendered inoperable in some areas after the initial strikes. Aventura police radios can operate for a short distance should the antenna be damaged or fail following an event.

The City of Aventura Police Department continues to fortify it's communications infrastructure on a yearly basis. Over the course of the past two years we have made substantial purchases of redundant infrastructure to support our emergency and critical incident needs. These purchases include a new "communications/command post trailer", and a second SCAT, (radio transmitter) which is now located on the North end of our city.

The communications/CP trailer is a completely self sustaining vehicle, with generator power, air conditioning, a portable radio repeater system, multiple radio gateways, and a radio interoperability device. In addition, this trailer is fully equipped with IT infrastructure, computer workstations, printers, HD television and video surveillance equipment. In the event of a loss of use of our police station or a critical incident, this trailer can be deployed and operational within minutes, offering full dispatch and command and control capabilities.

The new north end radio site (SCAT) is fully operational and linked to our main communications system. In the event of a failure of our system, we will now have the option to move radio operations to this single channel system, the existing single channel system at our station, or to the system contained within the communications/CP trailer.

Portable and mobile radios are all programmed with our new systems in addition to additional back up systems such as Miami Dade County PD, Coral Gables PD and North Miami Beach PD's back up single channel system.

Our agency maintains a ready and deployable fleet of portable back up radios that operate on all of these systems. Specific caches of radios are set aside for city hall staff and visiting agencies if needed.

As we grow and expand on these systems, additional projects currently on going offer us interoperability solutions to neighboring counties and jurisdictions.

Project 4: Develop Disaster Education Programs

The Aventura Police Department provides disaster preparedness outreach to the residents of Aventura. All members of the community, business and residential are offered information on how to prepare for respond to and recover from disasters. This outreach is conducted on a regular basis during the hurricane season. This outreach may consist of brochures (when available) seminars and training offered on an as needed basis. Disaster information is also distributed at safety fairs and school events. The Aventura Police make it a priority to be at every event possible to distribute this information.

Currently we have sixteen CERT members who have completed training. Four additional members have signed up and are awaiting the training schedule. Once these additional members are trained we will have representation in 10 different residential communities in Aventura. While conducting outreach one of our residential boards asked for advice on how to keep track of who was home during a storm and it was determined that a CERT Team on site would have a tremendous effect on their response and recovery from any possible storm. That Community is actively recruiting for the CERT Team for this storm season.

Many residents choose to remain in their homes during a Hurricane; these residents must be educated on what they need in their hurricane kits, choosing a safe room and how to remain safe after a storm. It is essential that we have the means to educate residents on how to prepare for and recover from a storm. Possible activities could include:

Additional training seminars for residents
Procuring additional printed material for the residents.
Business continuity seminars for our business community
Providing additional Community Emergency Response Team Training
Enhancing the CERT Teams already active and adding to their numbers.

Project 5: Development of Emergency Command Post within the City

Should a hurricane that is deemed to be a Category 2 or higher threaten the city, an evacuation order may be issued by Miami-Dade County. It is believed that for most storms, the majority of residents will elect to shelter-in-place in lieu of seeking shelter outside the area. Many of the residents are elderly and feel that they have no place to go and would rather remain in their home and take their chances than go to a public shelter. This poses a challenge for emergency personnel who must be prepared to respond to assist residents after the immediate threat passes.

The Police Department does have the capability to operate a part-time Emergency Operations Center (EOC) within the Government Facility. It is located adjacent to the Police 9-1-1 Emergency Dispatch Center and could be staffed to handle the basic functions of the Inci-

dent Command System. The Aventura EOC works in conjunction with the Miami-Dade County EOC system and protocols.

In the event it would be necessary for Aventura personnel to evacuate the Government facility where the EOC is located, there are informal contingency plans to relocate to one of several alternate locations. Aventura Hospital has agreed to provide a work area within their facility that is located inside of the Aventura City limits but outside of the evacuation zone. Other alternative locations include the Aventura Mall, the City of Aventura Community Center, and police facilities in adjoining municipalities. More formalized plans will be contained in a Comprehensive Emergency Management Plan (CEMP) that is currently being developed.

Bal Harbour

Note: Bal Harbour Village no longer participates in the Local Mitigation Strategy Working Group and is no longer eligible for the benefits thereof. The projects are retained in this document as a matter of historical record.

Project 1: Improved Sewer Pumping Station

One sewer pumping station, containing three different pumps, has been identified as a critical facility. It is essential that the station remain operational during an emergency. Currently, two of the station's three pumps are dependent on electricity. In the event of a power outage, one pump is configured to run on natural gas. Additionally, the facility has one mobile generator that can be used to power one pump in the event that both electrical and natural gas services are interrupted. An emergency situation would exist if the station's three pumps fail and no back-up power is available. As part of improving the station, this project includes the purchase of an additional, permanent, back-up generator to ensure the pump station will be able to continue to operate without interruption in the event of a disaster.

The existing sewer pumping station is not a "watertight" facility. If the station flooded, all of the generators would be damaged, possibly beyond use or repair. Improvements to the station include elevating and flood proofing generator and other essential electrical equipment and the replacing current pumps with wet pumps that can operate in submersed conditions.

Project 2: Beach Renourishment

Bal Harbour's ocean front beach is not only vital to the village's tourist industry, but it also acts as a buffer between the ocean and the eastside development. Current renourishment costs are enormous and depending on weather conditions, the beach must be renourished every few years. This project includes continuing to perform current re-nourishment activities as well as studying additional mechanisms that could be used to reduce the rate of beach erosion.

Project 3: Reduce Nuisance Flooding

The Village's current storm drainage system cannot adequately handle the quantity of water deposited by heavy storms and hurricanes, which leads to nuisance flooding throughout the village. This project includes studying Bal Harbour's current drainage system and drainage needs to determine the types of systems that could be implemented to remove standing water more quickly and make roadways passable (i.e., injection wells). After drainage projects have been identified, the Village plans to move ahead with implementation.

Project 4: Floodproof Village Hall/Public Works

The Bal Harbour Village Hall and Public Works Facility houses all of the village's records, offices, and the Police Department. As a result, the building has been identified as a critical facility that must remain operational during and immediately following a disaster. This project includes a study of what activities should be taken to adequately floodproof the facility as well as implementation of appropriate actions.

Town of Bay Harbor Islands

Project 1: Reverse 911- Interactive Community Notification System

In order to expedite evacuation notifications during emergency conditions such as hurricanes and hazmat incidents, the town of Bay Harbor Islands is installing the Reverse 911 – Interactive Community Notification Systems. The system will provide backup to current procedures available to city emergency operators. This system will enhance and ensure quick delivery of important messages during crisis situations where the town's 5000 citizens need immediate information. Estimated cost: $62,000

Project 2: Installation of Automated Water Meter System

In an attempt to reduce water loss, the town of Bay Harbor Islands will be replacing all of the water meters (approximately 750 meters) in town with an automated water meter system. Through the use of this system the town will be able to identify, respond and repair water leaks quicker than with the current water meters. Estimated cost: $400,000

Village of Biscayne Park

Project 1: Harden Recreation Center For Eoc.

The village's Recreation Center building is currently used as an EOC by our Police Department during hurricanes. The building is over 40 years old and needs a new roof which now leaks, storm shutters over windows and glass entry way, and an emergency generator. Estimated cost: $60.000.00

Project 2: New Municipal/Public Safety Building

Begin preliminary design work, on a new building to house administration, the police department and Miami-Dade Fire/Rescue (now under negotiations). The administration and police department are now temporarily housed in a historically designed real log cabin built in 1933. Estimated cost: $856,000.

Project 3: Storm Water Project

Continuation of an on-going project to provide an effective storm mater drainage system that will collect storm water runoff and disburse it through a series of French drains, reducing flooding and standing water in low lying residential areas. Estimated cost: $400,000.

Project 4: Landscape State Road 915 in Biscayne Park

Enhance and beautify State Road 915 (aka NE 6th Avenue) in Biscayne Park by landscaping, irrigation, and curbing, along the half mile section of highway that runs through a residential area of the Village. Estimated cost: $225,000.

Project 5: Facility Hardening

Enhance log cabin (village offices) survivability by installing storm proof doors, windows and shutters. Estimated cost: $125,000

Project 6: Municipal AM Radio Broadcast station.

Allow issuing of timely information 24/7. Has capacity broadcast, operate without grid power for 2 days, store repeat messages and ability to allow instant timely broadcast messages. Estimated cost: $50,000

Project 7: Bucket Truck.

Purchase bucket truck to facilitate trimming of canopy before and after hurricanes, reducing damage and debris volume. Also provides inexpensive portable location for overhead police surveillance of suspected criminal activities. Estimated cost: $95,000

Project 8: Eighteen Foot Tall Wall Along FEC right-of-way.

Reduces risk of damage to community by train wreck caused by sabotage or accident. Reduces crime risk from hobos moving through our community. Estimated cost: $700,000

City of Coral Gables

Project 1: Elevating Sanitary Sewer Lift Station Generators in Flood Prone Areas

Elevate existing sanitary sewer lift station generators in flood prone areas to comply with requirements of Miami-Dade County **Department of Environmental Resources Management**

(DERM) and to better ensure the operation of sanitary sewer lift stations in the event of inland flooding from storm surge and wind driven rain. It is essential that the stations remain operational during an emergency to prevent any sewage over-flows that would create a health hazard.
City Pump Station D- Estimated cost: $20,000
City Pump Station E- Estimated cost: $20,000
City Pump Station F- Estimated cost: $25,000

Project 2: Hardening Police Station/ Fire Station #1Buildings

Implement enhancements to the Police Station/Fire Station #1 buildings to reduce hurricane damage to these facilities that are critical to emergency operations. Improvements are needed because the building is vulnerable to high force winds. Work will include the design and construction of structural improvements to the exterior walls, 4th floor Emergency Center improvements, a reinforced bunker room, and reinforcement improvements on the third floor parking deck, apparatus room and entry approach deck. Estimated cost: $2,000,000.

Project 3: Hurricane Shutters

Install permanent hurricane window screens to protect:
Historical City Hall at 450 Biltmore Way- Estimated cost: $80,000
The City Hall Annex at 427 Biltmore Way- Estimated cost: $45,000
Fire Station #3- Estimated cost: $88,000

Project 4: Acquisition of Emergency Generators

Acquisition of power generators to support critical facilities/station throughout the town to ensure continued operation of critical town facilities/systems and the appropriate levels of service for city residents during and after a disaster event. Emergency generators are to provide emergency power during the loss of power from Florida Power & Light, especially during storms, hurricanes, and natural disasters. The generators will provide an approximate continuous runtime of 24 hours/day. These generators would supply power to the following facilities/station:

- City Hall requires a generator to ensure the accessibility of computerized records. Estimated cost: $80,000
- The Coral Gables Memorial Youth Center facility serves as a backup for the Emergency Organization Center, a command distribution post and a shelter. Estimated cost: $125,000
- The Coral Gables Public Works, Public Service and Automotive Department Facility This facility is critical to emergency operations as pre and post disaster coordination of all clean-up activities after a man-made or natural disaster occurs here and it houses the utilities telemetry and communications systems. The emergency generator will provide power to all equipment and buildings. Estimated cost: $175,000
- City Pump Station G is a sewer pumping station. The emergency generator will provide power to this station during a power outage to prevent any sewage over-flows that would create a health hazard. Estimated cost: $100,000

Project 5: Vacuum Truck for Drainage System Cleaning

Acquiring a vacuum truck for the cleaning of catch basis and drain systems will help to provide a well maintained, clean of debris system. A well maintained system is essential during the event of inland flooding from storm surge and wind driven rain. Estimated cost: $250,000

Project 6: Sewer Systems Improvements

Water proofing sewer manhole covers throughout the city. Installation of additional isolation valves on 10, 12 and 16 inch force mains, system wide, to minimize affected areas in the collection system is important should a pipeline failure occur. Estimated cost: $400,000

Project 7: Metal Freestanding Traffic Safety Signs & Trailer

Major storms result in power outages and obstructing debris on the roadways. Portable traffic safety signs will provide the safety needed for traffic control. An open trailer to house and transport the portable traffic signs is also needed. Estimated cost: $30,000

Project 8: Acquire Portable Pumps and Generators

Trailer- mounted portable pumps and accompanying generators are needed to remove floodwaters during and after major storms. Estimated cost: $20,000 @

Project 9: Test Storm Water Connections

Inspection and testing to determine if any additional cross-connections between sanitary sewer and storm water exist, as the separation of these two (2) systems is essential in the event of flooding. Estimated cost: $250,000

Project 10: Develop a Debris Plan

Develop a citywide debris management plan as an annex to the city's comprehensive emergency management plan. Estimated cost: $20,000

Project 11: Local Tree Trimming

The city will implement tree trimming to reduce debris and protect the infrastructure from damaged sidewalks, water and sewer lines, underground and overhead utility lines and prevent clogged storm drains. Well maintained systems are essential during storms, hurricanes, and natural disasters events. Estimated cost: $80,000

Project 12: Storm Water Outfalls

Clean and line positive outfalls to prevent future blockage caused by build-up of bi-valve organisms. Estimated cost: $500,000

Town of Cutler Bay

Project 1: Drainage Improvements

The purpose of the Town of Cutler Bay Stormwater Master Plan was to identify opportunities to protect surface water quality and reduce flooding within the limits of the Town of Cutler Bay, Florida. The following eighteen priority drainage sub-basins were identified and studied as part of the Stormwater Master Plan:

- Cutler Ridge Elementary area. Estimated cost: $700,000
- Saga Bay Section 1.3 Sub-Basin. Estimated cost: $330,000
- Saga Bay Section 1.4 Sub-Basin. Estimated cost: $90,000
- SW 87th Avenue Sub-Basin. Estimated cost $1,000,000
- SW 97th Avenue Sub-Basin. Estimated cost: $1,200,000
- Saga Bay Section 1.5 Sub-Basin. Estimated cost: $1,030,000
- Bel Aire Section 1.2 Sub-Basin. Estimated cost: $660,000
- Bel Aire Section 5.2 Sub-Basin. Estimated cost: $450,000
- Saga Bay Section 1.1 Sub-Basin. Estimated cost: $800,000
- Saga Bay Section 1.7 Sub-Basin. Estimated cost: $ 670,000
- Pine Tree Manor Sub-Basin. Estimated cost: $390,000
- Cutler Ridge Section 5 Sub-Basin. Estimated cost: $1,580,000
- Port Royale Section 5 Sub-Basin. Estimated cost: $360,000
- Bel Aire Section 1.1 Sub-Basin. Estimated cost: $820,000
- Saga Bay Section 1.8 Sub-Basin. Estimated cost: $240,000
- Saga Bay Section 1.6 Sub-Basin. Estimated cost: $170,000
- Saga Bay Section 1.2 Sub-Basin. Estimated cost: $ 300,000
- Bel Aire Section 6 Sub-Basin. Estimated cost: $310,000

Project 2: Canal Bank Erosion Protection

Design and construct erosion protection structures and bank stabilization projects along town canals which are vulnerable to bank erosion due to storm surge or inland flooding. This project includes the removal of undesirable debris, trees, predominantly Australian pines and fichus, located in close proximity to the canal bank. These trees are prone to falling during a severe windstorm or hurricane causing flow obstructions as well as damage to the canal bank resulting in increased erosion. We must also schedule regular maintenance of town canals to restore flow. Estimated cost: $350,000

Project 3: Flood Zone Data GIS System

This project will fund the creation of a GIS system to support several activities of the town's National Flood Insurance Community Rating System program including mapping, annual outreach and notification, and the maintenance of all flood zone designations and other data for all real property folio numbers within the town. In addition, the project will integrate town's data into Miami-Dade County's GIS system tailoring products generated for town use. The additional information generated by this system will be essential for the preparation of detailed flood mitigation reports and allow users to track conditions by specific property location. This data will then be utilized to clearly identify and designate low lying areas, which will streamline flood prevention efforts when designing new systems and upgrading existing drainage systems. Estimated cost: $140,000.

Project 4: Flood Insurance Research Project

This project will be part of the work required for the Community Rating System (CRS) and will involve the research of town properties, which do not have flood insurance and the reasons therefore. This effort would result in an action program designed to increase the number of properties covered by the flood insurance. The project will also review the validity of the BFE as reflected on the FIRM and explore the possibilities of variable flood insurance rates that distinguish within the same flood zone between properties that are flood prone and vulnerable to flooding hazards and those which are not and/or have taken steps to correct the potential problem. Estimated cost: $90,000.

Project 5: Development of Floodplain Management Plan

The town is interested in obtaining grant funds to hire a consultant to develop a floodplain management plan. Ordinance No. 09-10 created a Flood Damage Prevention Ordinance to enforce mitigation efforts throughout the town with regards to flooding. An ordinance is not a plan however and the creation of a floodplain management plan may benefit the community in a more positive "rating" within the Community Rating System, thereby allowing residents to obtain lower flood insurance premiums. The floodplain management plan is a requirement of NFIP if repetitive los properties are greater than 10. The town currently has over 100 repetitive loss properties. Estimated cost: $120,000.

Project 6: Purchase Communications Emergency Equipment

During an emergency, it is critical that emergency personnel are able to communicate with one another. This project entails purchasing equipment, such as radios and additional cellular phones, to assist emergency personnel in responding to an emergency. The State of Florida is currently working to establish statewide frequencies that agencies would be able to use to speak with each other when responding to calls for assistance. During the four hurricanes that struck Florida in 2005, however, radios and cell phones were rendered inoperable in some areas after the initial strikes. The emergency radios can operate for a short distance should the antenna be damaged or fail following and event. Estimated cost: $65,000.

Project 7: Reduction of Floating Debris

This proposal will demonstrate the usefulness of low-cost best management practice (BMP) devices in reducing the volume of floating debris that is being washed into Cutler Bay's canals. This floating refuse eventually ends up in the federally protected marine sanctuary of Biscayne Bay. The objective is to start a remedial program in Cutler Bay's urban drainage basin by installing or retrofitting the existing curb inlets with prefabricated curb grates and leaf collecting baskets. These BMP are expected to reduce the volume of floating trash and debris by as much as 20% and also prevent the clogging of the town stormwater system. Estimated cost: $60,000.

Project 8: Canal Cleaning and Shaping – Town wide

Dredging of the approximately 11 miles of inland canals located with the Town of Cutler Bay would restore depth and bottom contour. This restoration would directly impact the ability of the canal to hold tidal flooding and minimize flooding of surrounding properties during significant weather events. This dredging project would require funds for hydrographic surveys and bottom contours to determine the scope of work and cost. Dredging requires a State, ACE, and DERM permit. A hydrographic survey will be required along with soil sampling of the proposed dredged materials. Mitigation work may be required to compensate for damaged ecosystems and will be determined by DERM prior to dredging. Estimated cost: $750,000.

Project 9: Portable Traffic Light Signals

During power outages, the traffic lights are inoperable, causing a potential hazard. Portable traffic signals will provide the safety that is needed for traffic control. The town anticipates that it will need ten portable traffic signals to adequately handle an emergency situation. Estimated cost: $140,000.

Project 10: Town Hall/EOC Installation of Transfer Switch for Emergency Power

This project will provide for the installation of transfer switch to Town Hall. The facility was constructed to withstand category four hurricane winds, as a result this facility will be utilized as a location for the town to distribute and administer both force account labor as well as volunteers after an event. This is a mitigation project that ensures the continued operation of critical town facilities and the appropriate levels of service for town residents during and after a disaster event. Estimated cost: $210,000.

Project 11: Acquisition of Emergency Generators

This project would involve the acquisition of power generators to support critical facilities throughout the town. This is a mitigation project that ensures the continued operation of critical town facilities and the appropriate levels of service for town residents during and after a disaster event. These generators would supply the following facilities:

- Town Hall (Operations Center) – One generator. Includes a power back-up generator for computer system to prevent loss of records.
- Parks and Recreation – One generator. Supplies power to 3 parks that will serve as distribution centers.
- Police – One generator. Supplies power to the Police Department offices.
- Public Works – 7 generators. Supplies power for the operation of traffic control signals during power outage.

Total amount of generators is 10. Estimated cost: $185,000.

Project 12: Debris Removal

The town presently maintains a list of contractors that have agreed to provide debris removal services following a disaster. The town would develop a Comprehensive Debris Clearance (CDC) plan that would list the names and phone numbers of debris removal contractors, identify potential debris storage sites, removal methods, and provide for special programs. Contracts would be negotiated in advance and monetary damages would be due to the town if the contractor fails to perform. The study also would analyze how the town could best coordinate debris removal activities with related post-disaster service performed by Miami-Dade County. The town welcomes debris removal assistance along federal, state and county roadways, but recognizes that it will need to provide its own service along for most of the smaller, local roadways within the town. Estimated cost: TBD.

Project 13: Develop a Debris Plan

Develop and implement town wide debris removal plan using G.P.S. for data acquisition and G.I.S. for mapping. If the town's proposed debris management plan will coordinate the efforts of the Miami-Dade County's Coordinated Debris Clearance (CDC) Program. Estimated cost: $80,000

Project 14: Storm Water Outfalls

Clean and line positive outfalls to prevent future blockage caused by build-up of bivalve organisms throughout the town's 11 miles of canals. Estimated cost: $500,000

Project 15: Municipal AM Emergency Radio Broadcast Station

Allow issuing of timely information 24/7. Has capacity broadcast, operate without grid power for 2 days, store repeat messages and ability to allow instant timely broadcast messages. Estimated cost: $85,000.

Project 16: Cutler Bay Waterway Conveyance Improvements

Remove sediments from the Cutler Bay waterway that have built up over time which are causing bank flooding due to the major reduction in channel depth and cross section, as well as

causing impassable locations to boat traffic. Preliminary tests show sediment as clean. Estimated cost: $270,000.

Project 17: Removal of Australian Pines and other Exotics

Debris removal after a storm is an expensive and time-consuming process. Fallen trees can delay the re-entry process by blocking access to roads and properties. This project would create a permanent ongoing tree removal program. It would ensure removal of exotic trees on public rights of way. The exotics would be replaced by appropriate native trees that will enhance the town's tree canopy. The town will maintain the new native trees. Estimated cost: $85,000.

Project 18: Preventive Pruning of Existing Town Tree Inventory

This project's purpose is twofold: to minimize storm generated debris and protect infrastructure from tree related storm damage. Studies show that by practicing proper structural pruning methods such as appropriate crown reduction and canopy thinning, tree and limb failures are reduced during storm events. Therefore, properly pruned trees produce less debris and minimize infrastructure damage. This project proposes to create a program that provides regularly scheduled pruning of trees planted by the town within the right of way in order to provide structural integrity and thereby mitigate and clean up costs and property damage caused by weather events. The department would utilize local contractor services to accomplish project goals. All pruning performed will conform to the International Society of Arboriculture and ANSI A-300 standards. Estimated cost: $285,000.

Project 19: Emergency Portable Air Conditioner Units

Purchase emergency portable air conditioner units for computer rooms and office areas for all essential operating areas. Town Hall serves as the town's emergency operations center, maintains computer systems and services. The portable air conditioner units would prevent these systems and services from damage and malfunction. Four units are necessary. Estimated cost: $120,000.

Project 20: Satellite Phones

After Hurricane Andrew, communications were virtually non-existent. With satellite phones distributed to our field crews as well as regional command centers, better and faster recovery after a disaster can occur. Phones would be made available to our first responders emergency personnel. Estimated cost: $55,000.

Project 21: Community Emergency Response Teams (CERT)

This project's goal is to establish CERTS for the town. When an emergency or disaster occurs at anytime and anyplace in the town, trained CERT volunteers will be ready and able to respond to save lives and protect property. CERT members will be able to do the greatest good

for the greatest number after a disaster, while protecting them from becoming victims. This program will include but not be limited to basic medical treatment procedures, scene safely, securing utilities, and other hazards, and some rescue operations. Estimated cost: $40,000.

Project 22: Purchase Computerized Equipment Storage for Vital Public Records

The Town of Cutler Bay was incorporated in 2005. Adequate daily back-up and off-site storage of vital public records has not been addressed in the new town. Planning for storage and back-up of vital records is well timed while the town's computer systems are being created. Estimated cost: $75,000.

Project 23: Portable Traffic Control Signs

Effective and efficient communication is vital to allow for the rapid evacuation of citizens prior to the impact of a hurricane in Cutler Bay. With a residential population of 41,579 people and a commuter population that at least doubles the affected population during the work week, traffic jams are a certainty. Portable traffic control signs that provide scrolling text messages would allow traffic to be directed to alternative routes and to provide other vital information to motorists. The portable signs have other uses besides assisting in evacuations: they can be used to display information during events such as fire/rescue emergencies, hazardous material spills, special events and terrorist incidents. These signs display a test message that is easily programmed into the unit and can be moved using most any town vehicle with a trailer hitch. The town of Cutler Bay would purchase 4 of these units at a cost of about $50,000 each, plus additional trailer hitches for town vehicles. Estimated cost: $200,000.

Project 24: Storm Shutters for Town Buildings

This project would install hurricane shutters and reinforced doors on all municipal buildings not already so protected. The shutters and doors are designed to prevent hurricane force winds and debris from breaking the windows and allowing wind, water and debris to enter the structures. The proposed modifications would allow these buildings to not only survive the hurricane with less damage to the structure and the property stored inside, but also reduce the financial impact to the town. Estimated cost: $120,000.

Project 25: Town Hall/EOC Hardening Project (Impact Resistant Windows)

Town Hall / Emergency Operation Center Building existing exterior glazing – proposed scope would be to retrofit structural elements to reinforce the existing curtain wall system and install transparent interior polyester laminate which would be secured to the existing reinforced frames. The current glazed area is approx 14,000 SF which would put the overall cost for this work at $630,000.

Project 26: Town Hall/EOC Hardening Project (Exterior Walls)

Town Hall / Emergency Operation Center Building's glazing, the building also has an Exterior Insulating Finish System (EIFS) as its main enclosing system below the glazing. The current system will not meet either current wind or missile impact of any sort. This system will need to be completely replaced is the building envelope is to meet current hardening/category 5 storm by combining the structural reinforcement of the glazing with that of the wall below the cost of replacing this system with an approved exterior wind rated system could be mitigated. The approximate 26,000 SF would cost $728,000 for the entire building.

Project 27: Town Hall/EOC Hardening Project (Mechanical HVAC System)

Town Hall / Emergency Operation Center's the building envelope is composted of the roof and the roof equipment. Reroofing the 13,000 would cost approximately $158,000. Reinforcement of the building rooftop mechanical systems would include bracing, wind barriers and replacement of some outdated minor equipment. An estimate for this work would be approximately $70,000 total combined cost of $ 228,000.

Project 28: Town Hall/EOC HVAC System

Town Hall / Emergency Operation Center's current HVAC system cannot be operated during a storm event. Therefore, a new per floor dedicated HVAC system (a conventional direct expansion system with roof mounted air handler) would need to be installed for the first two floors which are designated as the EOC facility. The approximate cost for providing this retrofit system of HVAC would be approximately $275,000.00 per floor. Further, a chase/mechanical space would be required of approximately 200 SF per floor. Total Project cost: $ 610,000

City of Doral

Project 1: Hardening of new City of Doral Government Center

The new City of Doral Government Center will serve as symbol for the City and provide residents and businesses of Doral with a well-organized and accessible government facility. The Center will also serve as the City's gathering point and main operations center for all non-police employees at the moment of responding to a natural or manmade disaster. The hardening of this building will include the necessary means to protect the structure against heavy hurricane winds, such as window protection. Estimated cost: $300,000.

Project 2: Hardening of the new City of Doral Police Department Building

Safety, durability and continuity of citywide services are the prime motivations for establishing safe and durable structures. As the primary emergency operations center (EOC) for the City of Doral Police Department, the new Police Building will serve as gathering point for

all police personnel and as the main structure for managing natural or manmade emergencies. In order to harden the structure and protect against heavy winds window protection is required. Estimated cost: $200,000.

Project 3: City of Doral Police Department Emergency Operations Center

Disaster recovery and continuity of citywide services are the prime motivators for the establishment and building of an emergency operations center (EOC). The City of Doral urgently needs this facility so as to ensure that we can recover from any man-made or natural disaster. Construction of such facility is essential in a city that encompasses a wide array of governmental, commercial and media agencies. Our facility, if approved, could serve as a back-up center for any surrounding jurisdiction or Federal Agency. Estimated Cost: $4,025,000

Project 4: City of Doral Public Works Department Facility Emergency Generator

Provide emergency power to the entire Public Works Facility during the loss of power from Florida Power & Light, especially during storms, hurricanes, and natural disasters. Public Works provides pre and post disaster coordination of all clean-up activities after a man-made or natural disaster. This is necessary to operate during any loss of power. Emergency generators will provide power to all equipment and buildings. All equipment and the buildings must remain open and be manned by employees at all times after an event. Estimated cost: $200,000

Project 5: Retrofit of Traffic Signals to Include Transfer Switches

This project will provide for the installation of transfer switches for the traffic signals at each of the major intersections in the city of Doral. This will allow the use of generators to keep the signals operating during power outages and reduce the traffic fatalities due to absence of signalization. Estimated cost: $140,000

Project 6: Installation of Transfer Switch for Emergency Power

This project will provide for the installation of transfer switch to Doral Morgan Levy Park located in the city of Doral. The facility was constructed to withstand category four hurricane winds, as a result this facility will be utilized as a location for the city to distribute and administer both force account labor as well as volunteers after an event. This is a mitigation project that ensures the continued operation of critical city facilities and the appropriate level-of-service for city residents during and after a disaster event. Estimated cost: $60,000

Project 7: Pump Station to Address Repetitive Flooding Losses

The installation of improved storm water conveyance system and pump station required to relieve flooded streets, storm sewers, and properties that have shown repetitive loss during flooding events. This pump station is necessary to provide water transmission capabilities in case of severe flooding; thereby decreasing damage to low lying areas.
Estimated cost: $2,500,000

Project 8: Storm Water Master Plan and System Upgrade.

Update the existing Stormwater Master Plan by conducting a study to identify the storm drainage system needs and required improvements to prevent flooding. This mitigation project is essential in terms of protection against rainstorms and weather events of recurring frequency intervals of 25, 50 and 100 years. Estimated cost: $1,500,000

Project 9: Acquisition of Emergency Generators

This project would involve the acquisition of power generators to support critical facilities and operations throughout the city. This is a mitigation project that ensures the continued operation of critical City facilities and the appropriate level-of-service for city residents during and after a disaster event. These generators would supply the following facilities:
This would include a power back-up generator for computer system to prevent loss of records.
Parks. Quantity: 3
Supply power to 3 parks that will serve as distribution centers.
Police Department Building. Quantity: 1
Supplies power to the Police Department building.

Public Works Department: Quantity: 25
Supplies power for the operation of traffic control signals during power outage.
Total Generators: 30
Estimated cost: $685,000

Project 10: Installation of storm shutters at City of Doral Park Facilities.

This project involves the installation of storm shutters at the Parks and Recreation Buildings. The protection of these facilities is critical to ensure continuity of city services. Estimated cost: $100,000

Project 11: Point of Distribution Center

This project will include the construction and equipment for a building at JCB Park that will serve as the city of Doral, "Point of Distribution" center. This facility will serve as a center for information, services and supplies following a disaster. Estimated cost: $700,000

Project 12: Expansion of the City's GIS System to all Appropriate Facilities.

A GIS system would help the city retrieve helpful information for recovery activities in the event of a disaster. This project involves the expansion of the city's GIS system to also link different departments. The departments involved in this project are the IT Department, Police Department, Parks & Recreation, Public Works, and Building Department. Estimated cost: $350,000

Project 13: Acquisition of additional communication equipment

This project would involve the acquisition of communication equipment for additional personnel designated essential during a disaster event. The communication equipment will improve response time during an emergency and provide communication tools to additional personnel if needed in the following areas:
Equipment Department
- Radios Public Works and Services
Radios Public Works
- Radios Building Department & Code Enforcement
Radios Police
VHF Radio/ Administrative Services
Antennas/Repeaters
- Radios Parks and Recreation
- Satellite Radio System Essential Personnel
Estimated cost: $120,000

Project 14: Acquisition of emergency vehicles and equipment

This project would involve the acquisition of vehicles and support equipment to access and mitigate affected areas throughout the city. These vehicles will be assigned to the following departments:

Item	Department	Qty	Purpose
Front loaders with Grapplers	Public Works and Services	1	Debris pick-up
Wastewater Vac-Truck	Public Works and Services	1	Clean sewer debris
4WD Back Hoe w/ Clamp Bucket	Public Works and Services	1	Clear debris
Front Loader w/ Clamp Bucket	Public Works and Services	2	Clear debris
Stormwater Vac- Truck	Public Works and Services	1	Clear storm drains
50 Yard Roll-Off Containers	Public Works and Services	2	Debris clean-up/pick-up
Water Filtration Truck	City Hall (Operations Center)	1	Source of potable water
Ice Machines	City Hall (Operations Center)	2	Emergency Operations

Estimated cost: $1,700,000

Project 15: Economic Incentives – Information Package.

This mitigation project involves the creation of a package of economic incentives to encourage city property owners to undertake flood protection measures such as elevating structures above the BFE, flood proofing improvements and the like. This project would involve the re-search of funding sources and low interests loans to help owners pay to elevate or rebuild structures, and finding means of offsetting the costs of the flood mitigation work.
Estimated cost: $100,000

Project 16: Emergency Supplies and Equipment

This project involves the acquisition of tools, supplies, and small equipment to handle different emergencies during a storm event. These tools and equipment will help mitigate areas of the City that need cleaning, debris pick-up and removal before, during, and after a disaster event. Public Works and Parks and Recreation are the departments involved in this action.
Estimated cost: $120,000

Project 17: Educational Program to Reduce Damage of Property and/or Life

This project involves public education through advertising and awareness programs about the mitigation measures necessary that must be taken before a disaster event to minimize the threat to life and property. Estimated cost: $75,000

Village of El Portal

Project 1: Shutter City Hall

The village wished to install windstorm protection features including windows and doors to protect the building, and its contents. This building, the Village Hall houses the police department as well as vital village documents. Estimated cost: $125,000

Project 2: Local Tree Trimming

El Portal will implement Tree Trimming to reduce debris and protect the infrastructure from damaged sidewalks, curbs, water and sewer lines, underground and overhead utility lines and prevent clogged storm drains. Estimated cost: $12,000

City of Florida City

Project 1: Sealing the Palm Drive Canal

The Palm Drive Canal is the main drainage structure in the city to transmit storm runoff to the Atlantic Ocean. Most of the underground drainage in the city eventually ends up in this canal. The open canal collects trash and debris over time and requires constant cleaning to re-

main free flowing. It is also a safety hazard because of the two lanes of traffic on each side. In the floods of 2004-05, the canal overflowed due to its inability to handle the volume of storm water because of siltation and trash blocking the culverts. To cover the canal, it will cost approximately $3,500,000.

Project 2: Backup for the City's Drinking Water System

The city has discussed an inter connection to the water system operated by the Florida Keys Aqueduct Authority. The connection would provide a backup source of drinking water to the city should the city's water treatment plant suffer damage or should the city's elevated tanks be damaged in a hurricane. The city is near a possible inter-connect to the Florida Keys Aqueduct Authority and the estimated cost for the connecting line would be $2,100,000.

Project 3: Additional Water Tower

The city needs an additional water tower for additional storage capacity. During hurricanes and electrical power outages, the existing water tower go on backup generation to keep the water moving in the distribution system, but the pumps are unable to push water into the tower to keep the water pressure at optimum levels. An additional water tower would provide adequate storage in the event of an incident where the power was down for an extended period of time. The estimated cost for the water tower is $2,000,000.

Project 4: Water Works Systems Improvement Project

The city and its engineer have identified a number of scattered improvements required to eliminate problems of infiltration and exfiltration, which is clearly important for protection of water quality, to improve circulation of water within the system, to improve fire flow, and to insure compliance with current county code. The work involves replacing/repairing damaged sections of pipe, increasing sections of 2" pipe with 8" pipe, installing four fire hydrants, and related tasks. The estimated cost for this project is $630,020.

Project 5: Drainage at the Depot and Pioneer Museum

The City owns the Pioneer Museum and the Historic Depot on North Krome Avenue. Because of the elevation of US 1, the ground around the Depot and Museum will often be covered with water for an extended period following a major rain event. Because the parking is a grassed area surrounding the building, the parking area cannot be used until the ground dries out. The City desires to construct a porous surface parking area with French drains to deal with the flooding and parking issues simultaneously. It will also provide for a parking surface that will prevent the dripping from vehicles underside from falling on the ground and contaminating the groundwater. The estimated cost for this project is $500,000.

Project 6: Repair of Sewer Lines Based on the Evaluation Study

The city is required by the county's settlement order with DEP to undertake a full evaluation of the city's sewer lines to determine where infiltration and exfiltration may be occurring.

The study must be undertaken over time so that the system is tested in both the rainy season and the dry season. The City has completed that study and has determined where repairs are necessary. Repair of these lines will reduce the health hazards associated with septic tanks that pollute the groundwater.

Now that the city has determined where the sewer lines are allowing exfiltration and infiltration, the city must begin to address the repair or replacement of those lines. Because the city had undertaken a large multi-year sewer line replacement project following Hurricane Andrew, the City found that there are many sections of the city that have minimum issues. There are other parts of the city where the lines are very old and most of any problems that were discovered there. The city's best estimate for replacing the oldest lines is $2,000,000.

Project 7: Public Building Retrofit

The city owns several buildings that need to be shuttered to protect them from wind damage in the event of a major hurricane. The buildings are the Pioneer Museum and Depot Buildings, the city-owned building occupied by the Department of Juvenile Justice, and the city Water Treatment Plant. The estimated cost is $500,000.

Project 8: Sewer Hookups, Laterals, and Septic Tank Abandonment

Within the City there are a number of houses that are still on septic tanks for various reasons. Some are not adjacent to a sewer line and cannot hook up to the sanitary sewer system. Some families are very low income and cannot afford to pay the construction cost of hooking up to the sanitary sewer system and properly abandoning their septic system. There are a few commercial locations where no sewer service is available and businesses are operating on septic systems.

The CRA has funded the cost to hook up low income households in the Community Redevelopment Area and the City has used grant funding to hook up many more. However, the City needs the funding to address the remainder of the needed hookups, gravity lines, lift stations, and septic tank abandonments. In hurricanes as recent as 2005, there was flooding in neighborhoods that covered septic tanks and they no longer operated properly. In some instances, pollution from the septic tanks and field lines escaped from the system and contaminated yards. Correction of this problem will prevent pollution of the groundwater. The estimated cost is $2,200,000.

Project 9: Repair and Maintenance of Existing Water Tower

Water tower failures caused by lack of preventive maintenance have been recorded throughout the US. Entire Towns were suddenly without water due to unexpected failures caused by a combination of temperature, corrosion and metal fatigue. The City of Florida City (Florida) has only one water tower constructed in 1994 and this represents the only source of public water supply to the City. Visual inspections disclose significant deterioration in need of maintenance and repair. As a result, the tower is in desperate need for cleaning, repairing and

painting. These processes may include structural modifications; surface repairs; abrasive blasting and coating of the interior; exterior spot repair, power wash and coating. The estimated cost for this project is $500,000.

Project 10: Scattered Site French Drain Project

The City has several low areas that accumulate a moderate amount of standing water following a significant rain event. Water may stand for several days before it slowly percolates into the ground. Constructing drainage structures in these locations will reduce the potential damage to residential and commercial buildings. The estimated cost for this project is $750,000.

Project 11: Potable Water Gate Valve Project

The City provides potable water to the residents and businesses located in Florida City. Much of the system is older and the gate valves in some areas have failed. When a gate valve fails, the City can no longer shut off the water to a small area in the event of damage to a water line. Instead, a larger geographic area must be closed off during the repair period causing many more people to be without drinking water. The safety issue arises related to fire hydrants. There is a likelihood of greater damage from a fire during these times when closing gate valves causes a discontinuance of water service to large areas. Installing more gate valves and replacing those that are frozen open will provide a safety benefit to our community. The estimated cost for this project is $800,000.

Project 12: Demolition of Dilapidated Structures

Because of the housing crisis, there are a number of housing structures in the City that have been abandoned by property owners. These structures are rapidly deteriorating and could become a hazard in the event of a major storm. Because they are not being maintained, some have been vandalized and are frequently open to the elements. These housing structures need to be demolished to prevent parts of them from becoming debris in a major wind event. The estimated cost is $500,000.

Town of Golden Beach

Project 1: Storm Water Drainage System Improvements

The proposed project is the completion of the storm water facilities as per our storm water Master Plan. The project will mitigate the flooding and saltwater intrusion problems exhibited in the areas west of State Road A1A. This area includes the following five drainage basins: South Parkway Basin, North Parkway Basin, Massini Basin, Center Island Basin, and North Island Basin. The project will include the construction of catch basin inlets, manholes, storm sewer pipes, drainage wells, and three stormwater pump stations. In addition to the flooding mitigation, the proposed drainage systems will enhance the water quality of storm water discharges from the mainland to the Intracoastal Waterway by diverting the first stage of runoff to drainage wells. Estimated cost: $4,635,000.

Project 2: Underground Placement of Utilities

The electrical, telephone, and cable lines that serve both the town of Golden Beach and adjacent communities are currently affixed to aboveground poles. As a coastal community, the town is vulnerable to service disruptions caused by storms and hurricanes. Within the first phase of the storm water construction areas, the utility lines were underground; however there are insufficient funds available to continue this as the storm water phase's progress.
Estimated cost: $6,900,000

Project 3: Roadway/Streetscape Improvement

This project will provide safety for all pedestrian traffic including ADA compliance, pedestrians, bicyclists, and strollers use throughout the town of Golden Beach by reducing vehicular speeds, lane narrowing, radical reduction at corners, delineation and deviation, pavers, and the landscape effect and enhanced lighting. In addition to these aspects of the project, the Town plans to shift the current centerline of the Golden Beach Drive roadway pavement three (3) feet east to achieve a balanced impact on the private properties on either side of the roadway to accommodate new sidewalks, valley gutter curbing, landscaping, and much more. Currently, there are no sidewalks along this main thoroughfare and therefore; pedestrians, bicyclists, joggers, etc. all share the roadway with motorized traffic. This is a situation that is potentially unsafe, unfriendly, and poses serious concerns to the town's administrators, elected officials, and residents. This plan proposes constructing a new 4-foot sidewalk along the entire west side of the street. In addition to the aforementioned aspects of the roadway improvement project, this plan includes implementing traffic calming measures and minor street improvements.
Estimated cost: $2,897,310

Project 4: Emergency Generators

An emergency generator will guarantee continued operation of the storm water system and the Town Hall/Emergency Operation Center and Police Substation in the event of power outages. The town is located in a coastal environment, and is subject to storms and hurricanes.
Estimated cost: $50,000.

Project 5: The Town Hall/Emergency Operation Center

The existing Town Hall, which houses all of the Town's vital records and has been identified as a critical facility, is in need of significant modifications or replacement. The current Town Hall building has limited space, which hinders the ability for employees to adequately respond to the community's needs. A modification option would include the expansion of the current Town Hall building, providing much-needed expanded record storage, additional administration offices for the current staff, and will allow the Town to comply with all ADA requirements. This complex will provide an approved Emergency Operation Center which will enhance the health and life safety issues for residents. It will become a one-stop center for all emergency needs following a declared emergency event. A replacement facility, if constructed,

could be built on Town owned land on A1A, providing a Community Center which could include Town Administration offices, enabling the current Town Hall location to be converted to a recreation building or a recreation area and park.
Estimated cost: $150,000.00 for an addition to the existing Town Hall
$2,000,000.00 for a new two story Community Center/Emergency Operations Center on A1A.

Project 6: Bridge Replacement

The town of Golden Beach includes three islands that are accessible only by fixed bridges. The FDOT recently evaluated the three bridges and replaced the bridge #875700 - Verona Avenue and Golden Beach Canal:
• Bridge # 875701 – The Strand over Golden Beach Canal – Rating: 40.5
• Bridge # 875702 - Navona Ave. over Golden Beach Canal – Rating: 62.8

Additionally these bridges act as the only evacuation route for the island's residences in the event of disaster. Estimate cost per bridge: $2,250,000

City of Hialeah

Project 1: Drainage Improvements

The construction of drainage improvements in a low-lying area that is frequently subject to both right-of-way and partial private property flooding. This project may also include the construction of a lift station to provide overflow relief by discharging stormwater into an FDOT or city-owned positive drainage system located on Le Jeune Road. The following roadways are part of this project:

- East 18th Street between E. 8th Avenue (Le Jeune Road) and E. 10th Avenue
- East 19th Street between E. 8th Avenue (Le Jeune Road) and E. 10th Avenue
- East 20th Street between E. 8th Avenue (Le Jeune Road) and E. 10th Avenue
- East 9th Avenue between E. 17th Street and E. 21st Street
- West 27 Street – Palm Avenue to Red Road
- West 28 Street – Palm Avenue to Red Road
- West 29 Street – Palm Avenue to Red Road
- West 30 Street – Palm Avenue to Red Road
- West 31 Street – Palm Avenue to Red Road
- West 1, 2, and 3 Avenues – West 27 Street to West 32 Street
- West 3 Court – West 27 Street to West 29 Street

Project 2: Pump Stations

Get portable pump facilities (Sloan Pumps). Provide for emergency power to all eighty-four pump stations. Provide for by-pass ports at valve vaults for all pump stations. Complete the installation of a telemetry system. Establish a spare pump inventory.

Project 3: Police/Public Safety Equipment

Provide a police command post furnished with computers and furniture. Provide GPS receivers for police vehicles. Provide full electric power generation for all police buildings. Install GPS receivers and automatic vehicle locator equipment in all public safety vehicles.

Project 4: Community Outreach

Provide education programs to educate the public in all aspects of particular disasters using flyers, meetings, television, etc. Purchase and deploy a citywide reverse 911 system.

Project 5: Tree Trimming

Develop and implement a municipal tree-trimming program. Develop a method to provide money for private residents to have trees trimmed on private property.

Project 6: Storm Shutters

Upgrade to or purchase and install accordion style hurricane shutters the main city library, the branch library, the Fire Administration building/Emergency Operations Center and on all city owned subsidized housing properties. Install an upgraded hurricane resistant roof on the city's main library.

Project 7: Miscellaneous Programs

Develop and implement the following programs:

- Install fire hydrants at all trailer parks
- Acquire six high-water vehicles for use by emergency public safety employees.
- Purchase and install an in-focus projector for the Emergency Operations Center.
- Purchase and install protective anti-bacteriological filters for city owned ice machines.
- Purchase and implement a citywide computerized cost tracking system.
- Evaluate the ability of city owned buildings to serve as shelters
- Dredge canals as a part of Miami-Dade County countywide initiative
- Establish an emergency child care center for City employees

City of Hialeah Gardens

Project 1: Protect Records

Seek to remove all municipal records from their current place of storage and have them placed on CD. Have all records stored in a safe haven where risk of loss is diminished.

Project 2: Municipal Building

Seek to mitigate the temporary structure in which the emergency management code enforcement and planning and zoning departments are working out of including the municipalities main computer system, and seek to replace the temporary structure with a CBS structure.

Project 3: Stormwater Study

Seek funding for a stormwater/drainage study in order to determine the origins of the drainage crisis that currently predominates in the municipalities' southern district bounded by NW106 St, SR 826, US27, and 87 Avenue

Project 4: Drainage

Seek to mitigate the deteriorated drainage conditions that currently exist in the southern district of the municipality.

Project 5: Evacuation Routes

Seek funding for a feasibility study to evaluate alternative exit routes for the residents of Hialeah Gardens and western Hialeah in the instance of an emergency followed by an order of evacuation.

City of Homestead

Project 1: Storm Water System Upgrade.

This mitigation project is essential in terms of protection against rainstorms and weather events of recurring frequency intervals of 25, 50 and 100 years. The project involves among other things, a study to identify the storm drainage system needs to prevent flooding and to upgrade the existing system as recommended by the study.

1. Construct new and upgrade drainage elements: To increase drainage capability in the City such as the construction and upgrade of culverts, ditches, French drains, catch basins, etc. $21,252,000

2. Landscaping and right-of-way enhancement to prevent flooding: To create swales and landscape to reduce runoff and increase percolation by grading the ROW. Estimated cost: $500,000

3. Portable mobile pumps: Portable pumps are needed to relieve flooding in various areas around the City of Homestead before, during, and after a storm event. Estimated cost: $500.000

4. Storm water telemetry system: To monitor storm pump stations and main drainage structures before, during, and after a storm event. Estimated cost: $900,000

5. Culvert removal at Keys Gate: To remove an existing culvert in the middle of a drainage canal to enhance the flow and relieve flooding, during and after a storm event. Estimated cost: $200,000

6. Vegetation work and maintenance equipment: To clear aquatic vegetation around canals and ditches before, during, and after a storm event. Estimated cost: $100,000

7. Krome Avenue Historic District: This area is prone to flooding during high rain events and it became evident during Hurricane Katrina. This project will minimize destruction of valuable storefronts and businesses along Krome Avenue and its vicinity. Estimated cost: $ 5,740,000

8. GIS containing information on location of and capacity of all public utilities: Create GIS that locates all city utilities (water, sewer, drainage, electric) so problems can readily be located in an emergency. Estimated cost: $5,000,000

Total Estimated Cost: $ 34,192,000

Project 2: Security System Enhancements against Terrorist Attacks.

This mitigation project addresses security measures in and around the critical facilities. This project is designed to prepare the City against possible Terrorist attacks that affect public safety and other service provisions to the citizens of the City of Homestead.

1. City Hall: Cameras will be placed to view the entire area of City Hall, reconstruct all exit doors with bullet-resistant doors, installation of intruder detection devices and additional needs, public message boards. Estimated cost: $60,000

2. Public Works & Services: Vulnerability Assessment/Emergency Plan for the Wastewater Treatment Plant as required by EPA. This is necessary to assess the vulnerability of international threats and natural disasters. Estimated cost: $400,000

3. Police: Cameras will be placed to view the entire area of the Police Department, reconstruct the rear door of the P.D. with a bullet-resistant door, installation of three concrete poles in the front of the Police Station protecting the front door entrance. Estimated cost: $50,000

4. Utilities & Plant: Installation of a telephone and camera at each gate, cameras will all also be placed to view the entire perimeter of the Electric Utilities Dept. and Power Plant. Estimated cost: $100,000

5. Customer Service & Finance: Installation of cameras, intruder detection devices, and additional security needs. Estimated cost: $65,000

6. Parks & Recreation: Each gate to be operated remotely and there will be a telephone and camera at each gate to include: Harris Field, William F. Dickinson Center, Phichol Williams Center, JD Redd and Roby George Park, cameras will also be placed to view the entire Perimeter of the building. Estimated cost: $220,000

Total Estimated Cost: $ 895,000

Project 3: Water & Wastewater System Improvements

This mitigation project is essential in terms of maintaining continuity of service and system reliability during and after a disaster. The project consists of acquiring a new elevated water storage tank and equipment to ensure adequate chlorine residuals throughout the water distribution system. In addition, we would need to make improvements to pump stations and water mains.

7. Update Risk Mgmt Plan: As required by the EPA, the report will inform personnel of procedures and recommend actions to ensure there is no release of dangerous chemicals into the environment. Estimated cost: $60,000

8. Motorsports Water Storage Tank Equipment: This equipment will help maintain Chlorine residual in the SE quadrant of the City through its loop distribution system. Estimated cost: $500,000

9. Water Main Improvements: To upgrade water mains/lines to eliminate any unacceptable materials and maintain the integrity of the system. Estimated cost: $2,000,000

10. Sewer Pump Stations Upgrades: The pump stations will require funding to purchase mechanical, electrical, plumbing, and equipment for pump stations. Estimated cost: $ 1,500,000

Total Estimated Cost $ 4,060,000

Project 4. Acquisition of additional equipment for Emergency Operations Center.

The City of Homestead Emergency Operation Center (EOC) is host to representatives from the City of Homestead, City of Florida City, City of Cutler Bay, the Miccosukee Tribe, Florida Power and Light's Turkey Point Nuclear Facility, Homestead Air Reserve Base, Metropolitan Dade County Police and Fire Rescue, BellSouth, and citizens from the area of unincorporated South Miami-Dade. It has been in operation since Hurricane Andrew in 1992 and provides emergency information to southern Miami-Dade County.

Since it was first activated in 1992, the EOC has operated with equipment from other City facilities and temporary telecommunications and computer connections. When the EOC activation is issued, employees must move equipment from other departments and reconfigure the equipment to meet the needs of the EOC. Hundreds of feet of temporary cable must also be run from the network hub to the center. These activities are very time consuming and expose the equipment to possible damage and/or loss of data.

The proposed project will facilitate the purchase of equipment that will be designated specifically to the EOC. The equipment will also provide the much-needed infrastructure that will greatly reduce the setup and breakdown time required when the center is activated. The equipment purchased will consist of:

* Servers
* Laptop computers with docking stations
* Laser printers
* Software tailored to EOC operations
* Geographic Information System (GIS)
* Handheld VHF radios
* Base station VHF radios
* VHF repeater units
* Telephones
* Satellite communications
* Multi-media equipment / projectors
* FAX equipment and software
* Enhanced Internet connectivity
* Rewiring / hardening of facilities for redundant electrical power
* Infrastructure to support these systems

Estimated Cost: $450,000

Project 5. Acquisition of emergency generators to supply different critical facilities during a disaster event.

This project would involve the acquisition of power generators to support critical facilities throughout the City. This is a mitigation project that ensures the continued operation of critical

City facilities and the appropriate levels-of service for City residents during and after a disaster event. These generators would supply the following facilities:

1. Police: 18 Generators -These generators would supply power at 18 critical traffic intersections. The cost is for the generators, transfer switches, and security boxes for the generators.
2. Public Works and Services: 16 Generators - Includes generators to supply power to the (1) solid waste building; (2) sewer pump station mobile generators; and (3) a generator for the entire facility at the WWTP.
3. City Hall (Emergency Operations Center): 1 Generator - Includes a power back-up generator for computer system to prevent loss of records.
4. Electric Utilities: 3 Generators - Supplies power to 3 substations.
5. General Services: 1 Generator - Supplies power to the computer room; Emergency generator to support the Fleet Mgmt. Facility.
6. Procurement: 1 Generator - Supplies power to the Procurement warehouse.

Total = 40 Generators Total Estimated Cost: $ 2,335,260

Project 6 Comprehensive review, modification, and enforcement of local laws and regulations software

Including the review of the City's Comprehensive Plan, Zoning Ordinance (currently under review), Building Code, Subdivision Regulations and other applicable local codes, ordinances and regulations. This project would involve:

1. Update the City's Geographic Information System (GIS) and infrastructure to facilitate the analyses and identification of sensitive areas; and
2. Drafting proposals for improvements, including the enactment of legislation as necessary

Estimated Cost: $ 1,150,000

Project 7: Secure three (3) existing water tanks from structural damage

This mitigation project would involve a structural analysis to determine the best method to reinforce the structural members of the three (3) existing water tanks, preventing structural collapse during a hurricane event, therefore ensuring proper function of the City's water distribution system.

Estimated Cost: $ 600,000

Project 8: Build concrete enclosures around City critical facility systems.

This project is a mitigating measure that involves the design and construction of concrete enclosures around certain vital systems (as described below) to prevent any damage that may affect the system(s) proper performance during and after a hurricane or any other destructive event.

1. Three (3) concrete enclosures with proper ventilation for existing chlorine feed systems (water treatment plant).
2. Enclosures for two (2) fluoride tanks (water treatment plant).
3. One (1) concrete enclosure for water well #4 (water treatment plant).
4. One (1) polymer concrete enclosure to provide continues service of sludge system (wastewater treatment plant).
5. Storage sheds concrete enclosures (field operations).
6. One (1) concrete enclosure for fuel tank (fleet).

Estimated Cost: $ 1,000,000

Project 9: Economic Incentives & Education Information Package.

This mitigation project involves the creation of a package of economic incentives to encourage City property owners to undertake flood protection measures such as elevating structures above the Base Flood Elevation (BFE), flood proofing improvements and the like. This project would involve the research of funding sources and low interests loans to help owners pay to elevate or rebuild structures, and finding means of offsetting the costs of the flood mitigation work.

This project also involves public education through advertising and awareness programs about the mitigation measures necessary that must be taken before a disaster event to minimize the threat to life and property.

Estimated Cost: $ 175,000

Project 10: Flood Insurance Research Project

This project is an on-going part of the work required for the Community Rating System (CRS) and will involve the research of City properties, which do not have flood insurance and the reasons therefore. This effort would result in an action program designed to increase the number of properties covered by the flood insurance.

The project will also review the validity of the Base Flood Elevation (BFE) as reflected on the Flood Insurance Rate Map (FIRM) and explore the possibilities of variable flood insurance rates that distinguish within the same flood zone between properties that are flood prone and vulnerable to flooding hazards and those which are not and/or have taken steps to correct the potential problem.

Estimated Cost: $ 25,000

Project 11: Acquisition of airboats and flat boats

Both, airboats and flat boats are required to access areas of extensive flooding to assist residents during the disaster event and in the recovery phase. These boats will be used by the Homestead Police Department.

1. Flat boats: Seven (7)	
2. Airboats: Six (6)	
Total	13
Estimated Cost:	$ 154,000

Project 12: Construction of a Structure to store Emergency Vehicles and Equipment

This mitigation project would be a joint effort between Florida City and Homestead to provide shelter for emergency vehicles for both cities. This structure is necessary to ensure readily available emergency vehicles before, during, and after a disaster event.

Estimated Cost: $ 1,200,000

Project 13: Acquisition of emergency vehicles and equipment to access critical facilities and areas affected during and after a disaster event.

This project would involve the acquisition of vehicles and support equipment to access and mitigate affected areas throughout the City. These vehicles will be assigned to the following departments:

1. Vehicle: General Services (fleet)	1	Emergency Operations
2. Vehicle: City Hall (Emergency Operations Center)	5	Emergency Operations
3. Vehicle: Police Department	12	Emergency Operations
4. Unifold Decontamination Shelter System	1	Emergency Operations
5. Vehicle: Parks and Recreation	1	Emergency Operations
6. Flat Tire Equipment: General Services (Fleet)	1	Assist Road Problems
7. Front loaders with Grapplers: Public Works	2	Debris/Trash pick-up
8. Wastewater Vac Truck: Public Works	1	Clean Sewer Debris
9. 4 WD Back Hoe with Clamp Bucket: Public Works	1	Clear Debris
10. Front Loader with Clamp Bucket: Public Works	2	Clear Debris
11. Stormwater Vac Truck: Public Works	1	Clear Storm Drains
12. 50 Yard Roll-Off Containers: Public Works	3	Debris Clean-up/Pickup
13. Stormwater TV Truck: Public Works	1	Televise damaged lines

Estimated Cost: $ 2,288,000

Project 14: Improvements to Existing Buildings

This project involves the improvement to critical department buildings that are below the flood level to prevent flooding during and after a storm event.

Estimated Cost: $ 500,000

Project 15: Installation of storm shutters and/or Impact Resistant Windows at different locations

This project involves the installation of storm shutters on different City facilities such as the Police Department, Parks and Recreation Buildings and Sports Complex, and Public Works and Services. The protection of these facilities is critical to ensure continuance of City services such as electric, water, sewer, police, etc.

Estimated Cost: $ 1,000,000

Project 16: Emergency Supplies and Equipment

This project involves the acquisition of tools, supplies, and small equipment to handle different emergencies during a disaster event. These tools and equipment will help in the mitigation process for areas of the City that need cleaning, debris pick-up and removal before, during, and after a disaster event. The Police, Public Works and Services, Development Services and Parks and Recreation are the departments involved in this action.

Among these tools and equipment are 48 hour emergency supply kits for 150 essential personnel and damage assessment teams such as cameras, first aid kits, weather gear, communications equipment and debris removal power equipment, along with mobile flood relief pumps will be needed.

Estimated Cost: $ 200,000

Project 17: Drop-Off Site

Designation and or acquisition of a 1.5-acre debris and trash drop-off site and its related mulching equipment for the convenience of City residents during and after disaster. This site is needed as an additional mitigation tool to dispose unwanted materials and debris before and after a disaster event that would otherwise become a threat to the life and property of City and area residents. Intergovernmental coordination with Miami-Dade County and Florida City is crucial in the site selection process.

Estimated Cost: $ 900,000

Project 18: Water and Wastewater Telemetry/RTUs

This project consists of the purchase and installation of telemetry equipment. Radio transmittal units (RTUs)/Telemetry in all pump stations send flow/performance data and alarm situations to

a central location which will increase reliability and control before, during, and after a storm disaster. These systems will also control elevation of water tanks, well pumps, and identify pressure points throughout the system.

Pump station RTUs/telemetry will significantly increase reliability and diminish sewage back up and overflow occurrences which could result in contamination from raw sewage leaking into the water table.

Estimated Cost: $ 1,000,000

Project 19: Installation of Automatic Circuit Reclosers in the Electric Distribution System

This project will enhance the Distribution Feeders over current protection with the objective of; to prevent damage to the equipment and circuits, to prevent hazard to the public and utility personnel, and to maintain a high level of service by preventing power interruptions when possible and minimizing their effects when they do occur.

The installation of Circuit Reclosers will mitigate the loss of services for the residential, commercial and industrial customers that are heavily dependent on the availability of electric power. These equipments will reduce significantly the frequency and duration of electric outages in the system.

Estimated Cost: $ 100,000

Project 20: Upgrade OCB's (Oil Circuit Breakers) with VCB's (Vacuum Circuit Breakers)

This mitigation project involves the replacement of Medium and High Voltage oil circuit breakers in three of the City Electric Substations. The oil breakers are potential hazard environmental equipment that in the event of a failure, they will cause a great environmental damage due the oil spill caused by the circuit breaker tank rupture.

The changing to Vacuum Circuit breakers with a clean interruption device other than oil will reduce the City exposure to the cost associate with the_Environmental Response Action that must be taken after mineral oil discharge on the grounds from a failure of a Transmission or Distribution oil filled Circuit Breaker

Estimated Cost: $ 200,000

Project 21: Upgrade Protection Feeders – Substation Schemes

This project involves upgrading all electro-mechanical Protective Relays within the Substations to state of the art Intelligent Electronic Devices (IED).

A Protective Relay is a device that will monitor the power system for abnormal conditions and take appropriate action to reduce system stress, equipment damage and personal injury.

The process of upgrading the Protective Relays has already begun at the McMinn and Lucy Substations. These new microprocessor relays have proven themselves in the field under trying conditions. Whenever there is a system disturbance, these relays have given an abundance of data, which is used to analyze the situation. These IEDs are multi protection devices in which one unit can replace at least five relays that are in service. They also perform monitoring functions for power quality.

This project would involve: Installation of microprocessor relays, compatible to the ones already in services.

Estimated Cost: $ 80,000

Project 22: Hazard Material Containers

This project is a mitigating measure against any type of disaster event, and involves the design and construction of a concrete enclosure w/ cover roof to confine hazard material used in the Electric Utility and Solid Waste. The container will prevent any liquid spill on the ground and reduce the chemical hazard material exposure to the workers.
The concrete enclosure must meet or comply with the DERM building criteria or other State/County hazard requirement.

Estimated Cost: $ 900,000

Project 23: Additional Digester and Blowers

The additional digester system is needed in order to obtain Class "A" standard for the waste sludge. By meeting a Class "A" standard, the sludge can be utilized in agricultural applications; therefore reducing the amount of waste sludge sent to the South Dade Landfill.

Estimated Cost: $ 750,000

Project 24: Wastewater Infiltration/Inflow

This project is needed to conduct a study and the purchase of materials and equipment in order to continue implementing corrective measures to prevent storm and ground water intrusion into the sewer system by performing maintenance and inspections and to protect the groundwater from possible contamination as a result of wastewater exfiltration.

Estimated Cost: $ 3,200,000

Project 25: NE Quadrant Water Storage Tank

In light of newly developed areas and the rapid increase of population, it is essential to provide adequate water pressure, fire flow, water quality, and capacity to the area.

Estimated Cost: $ 4,000,000

Project 26: Increase Wastewater Treatment Plant Capacity

This project would involve the expansion of the current WWTP to increase capacity to accommodate the expected growth. It will also give the City the capability of treating wastewater from surrounding areas in the event of an emergency.

1. WWTP Expansion: Design and construction of an additional Wastewater treatment plant to increase and meet expected capacity of the City in the next 7- 10 years. $ 40,000,000

2. Additional Effluent Trenches: To enable the WWTP to efficiently dispose of its effluent in the foreseeable future. $ 500,000

3. WWTP Inspection and Preventive Maintenance: Required structural inspections for defects of the SBR & digester tanks and repairs based on recommendations. $ 500,000

4. New Sewer Mains: To upgrade sewer main/lines to eliminate raw sewage from leaking into the water table. $ 2,000,000

Total Estimated Cost $43,000,000

Project 27: Improve Transportation Infrastructure.

This project consists of a citywide roadway/sidewalk/bridge evaluation to identify and improve weak points in the infrastructure. These projects are crucial due to main roadways being used by many as evacuation routes before, during, and after emergency events.

1. Sidewalks/Roadway Improvements: To implement a citywide evaluation to target areas in need. $ 2,000,000

2. Bridge Repairs: This project would involve the repairs of existing, City-owned bridges that are in structurally unsafe and/or poor conditions. $ 2,000,000

Total Estimated Cost $ 4,000,000

Project 28: Tree Trimming in City of Homestead

This project involves the acquisition of contractual services for tree trimming at City parks, facilities and roadways. The proper pruning and thinning of tree canopies would be extremely beneficial in minimizing potential damage to buildings, electrical components, vehicles, and other property; and result in a pay back in a reduction of post-event casualty pay-outs.

Estimated Cost: $ 150,000

Project 29: Acquisition of property for the expansion of Losner Park

This project involves the acquisition and demolition of several structures to the west of Losner Park in the Downtown Area. By acquiring the properties and clearing the building and slabs, addition land is available for percolation of storm water to help prevent flooding in the Historic Downtown. After dedication as park land, it would be forever removed from development.

Estimated Cost: $ 3,000,000

Project 30: Sewer lines in the Northwest Neighborhood and the West Industrial Area

This project would lessen the possibility of flood during times of heavy rain and prevent the saturation of the ground causing the overflow of septic tanks in these areas. By installing additional sewer lines where they do not now exist, the potential contamination from sewage overflow would be eliminated.

Estimated Cost: $ 3,300,000

Project 31: Under-grounding 13kv Distribution

This project will enhance system reliability by installing/replacing/under grounding of the existing overhead distribution system across the entire service area.

The under grounding of the distribution system will dramatically enhance and increase the Utility Department's ability to provide uninterrupted services to our customers before, during, and after a hurricane, terrorist, or any other destructive event.

Estimated Cost: $ 12,500,000

Project 32: Strategy for increasing the flood insurance discount for City of Homestead property owners by improving the CRS rating

Step 1. Organize
- Identify other offices/staff to involve in mitigation planning.
- Draft and adopt the resolution creating the planning committee.

Step 2. Involve the public
- Identify members of the public to serve on the planning committee, stakeholders and committee chair.
- Draft a questionnaire to residents.
- Draft newsletter article(s) and news release(s).

Step 3. Coordinate

- Identify, collect, and review existing studies, plans, and reports that address natural hazards
  and your community's needs and goals
- Distribute the notice that you are preparing the plan.

Step 4. Assess the hazard
- Write a master list of all hazards faced by your community.
- Check that your FIRM still accurately depicts the base and 500-year floodplains.
- Map additional areas subject to flooding and drainage problems.
- Record other available flood data, such as velocities and warning time.
- Collect available data on the other hazards.
- Summarize the hazard data with maps, descriptions, and historical experiences for Committee review and to form the basis of the plan's section on the hazards.]

Step 5. Assess the problem
- Review and summarize the impact of EACH hazard
- Prepare an overall summary of the impacts. Step 6. Set goals.

Step 7. Review possible activities.
- Draft appropriate sections of the plan for committee review

Step 8. Draft an action plan.
- Send the draft to the state hazard mitigation office for a courtesy review.
- Schedule the public meeting

Step 9. Adopt the plan

Step 10. Implement, evaluate, and revise

Step 11. Make Infrastructure Improvements
- Purchase software to improve building and all trades plans review.
- Purchase hardware to improve building and all trades plans review.

Estimated Cost: $ 50,000

Project 33: Retrofitting The New City Hall/Divisional Eoc To Withstand A Category 5 Hurricane Through Structure Hardening And Impact Resistant Windows And Doors

The City of Homestead has always used City Hall as the Emergency Operations Center. The old/current City Hall was used as the EOC at the time of Hurricane Andrew in 1992. This works well since it is the hub of city government which Citizens look to for answers in a time of crisis. The City of Homestead's Divisional Emergency Operation Center operates under the Miami- Dade Office of Emergency Management as one of seven divisional EOC's in Miami-Dade County.

The new EOC will be located on the second floor of the new City Hall building. It is a rectangular shaped layout providing 1600 SF (57'x28') of useable space. The Homestead EOC is designed to accommodate four major sections (Operations, Planning, Logistics, and Human Needs) encompassing 16 Emergency Functions.

The Homestead Divisional EOC when activated serves the residents of the City of Homestead, Florida City, Cutler Bay, Islandia, and the Miccosukee Tribe.

Estimated Cost: $ 3, 958,500

Priority Ranking of the City of Homestead Projects (Floodplain Management Plan).
The City of Homestead has identified the following five (5) projects as the most immediate needs in terms of mitigation areas against disaster events:

1. Storm Water System Upgrade.
2. Security System Enhancements against Terrorist Attacks.
3. Water and Wastewater System Improvements.
4. Acquisition of additional equipment for Emergency Operations Center.
5. Acquisition of emergency generators to supply different critical facilities during a disaster event.

Indian Creek Village

Note: Indian Creek Village no longer participates in the Local Mitigation Strategy Working Group and is no longer eligible for the benefits thereof. The projects are retained in this document as a matter of historical record.

Project 1: Stormwater Improvement

Replacement of Stormwater System installed in 1935 including the stormwater catch basins, pipes and outfalls discharging to Biscayne Bay with the installation of pollution control boxes and reinforced concrete pipe.

The Indian Creek Stormwater Utility System constructed of 3,750 lineal feet of pipe along Indian Creek Drive, eighteen outfalls having a total length of 9,500 L.F. and thirty-seven catch basins and French drains. The existing drainage system consists of a combination of positive drainage and seepage systems. Portions of the system were video taped showing the reinforced concrete pipe is deteriorating and failing at the joints, which are separating causing erosion over and around the pipe. Soil is entering the line and flowing to Biscayne Bay. The audit has fully depreciated the system.

Reduction in total suspended solids, nitrogen, phosphorus and other metals into Biscayne Bay, repair the deteriorating system and alleviate flooding conditions.
Estimated cost: $1,000,000

Project 2: Repair Surfside Bridge

Repair deck, superstructure and substructure including slab and beam repairs, bearing and expansion joint replacement, traffic railing and light plaster repairs, pier and abutment repairs. Estimated cost: $850,000

City of Islandia

The City of Islandia no longer participates in the Miami-Dade Local Mitigation Strategy. However, it lies entirely within the boundaries Biscayne National Park and all essential infrastructures is provided and maintained by the National Park Service.

Village of Key Biscayne

Project 1: Comprehensive Review of Local Laws and Regulations

The Village completed the initial priority of the Floodplain Management Plan adopted in 1998 with respect to the review of related floodplain management laws and regulations. Additional ordinances have been adopted since the implementation of the original Storm Drainage Management Master Plan completed in 1997. This is an ongoing activity and is part of the scope of work for the Stormwater Master Plan Update currently being drafted for adoption by the Village. Those Local Regulations pertaining to the mitigation of hurricane and flooding hazards will be evaluated and updated, including analysis of issues, for opportunities and formulation of proposals with respect to the existing provisions related to "Base Flood Elevations", "Substantial Improvements", Flood Insurance Rate Maps (FIRM) and the consideration of a Freeboard Regulation. Estimated cost: $5,000.00

Project 2: Stormwater Master Plan Update

The original Storm Drainage System Master Plan project adopted in 1993 was designed, constructed and completed in July 1997. An update to the existing Stormwater Master Plan has been drafted by a consultant and is currently under review for adoption of the final draft by the Village Council. The update includes Hydraulic and Hydrologic modeling and the preparation of the mapping in the GIS platform. The following objectives are included as part of the update: 1) The development of topographical survey information with respect to the districts within Key Biscayne that contain the most flood prone properties; 2) The design of changes in the existing topography, including, a system of swales among other earthworks, at selected locations within the drainage basins, to improve the behavior of stormwater, particularly in areas where surface drainage problems tend to exist; and, 3) The development of an implementation program including the identification of potential funding sources, and a timelines the incremental execution of this project. Estimated cost: $150,000

Project 3: Flap Gates at Outfalls

This project is one of the alternatives resulting from the Stormwater Master Plan Update 2010. It proposes flap gates to be installed at each of the Village's outfalls. A total of 16. Flap gates work by closing when the water elevation downstream is higher than the elevation upstream. The minimum downstream increase in depth above the upstream depth required to trigger closing the gate varies depending on the type of gate or valve used. The installation of these gates on the Village's outfalls could reduce the impact of high tide conditions for those periodic events that coincide with an inland storm event. The gates could help prevent the inflow of

seawater in the conveyance system, thereby allowing stormwater runoff on the island to enter the stormsewer system instead of ponding on private property and public right of ways. All ponding will not be eliminated; however, the depth and duration of ponding can be reduced. Estimated cost: $626,700.00

Project 4: Drainage Improvements on East Heather Drive

This project is the recommended alternative resulting from the Stormwater Master Plan Update 2010. The problem area studied in detail involved the flooding in the vicinity of the East Heather Drive between Crandon Blvd and Ocean Drive. Conveyance testing on existing drainage wells in the Village has shown to be very effective. Therefore, this proposes installation of three (3) drainage wells to be located along the intersections of East Heather Drive and Caribbean, Gulf and Pacific Roads. The stormsewer system along East Heather Drive is connected to the systems on Caribbean Road, Gulf Road, Pacific Road and Atlantic Road. This system connects with Crandon Blvd to the West and an existing drainage well to the East. Much of this system has experienced repetitive flooding in the past including 10-year and 100-year storm events. This can mainly be attributed to the low-lying, relatively flat elevations. In addition, the existing drainage well appears to be insufficient to receive the overall flow from this area. As a result stormwater backs up and ponds on the surface. Estimated construction cost: $839,225.00

Project 5: Drainage Improvements on Fernwood Road & Hampton Road

Another alternative resulting from the Stormwater Master Plan Update 2010 involves the installation of a drainage wells along Fernwood Road and one (1) along Hampton Road. Both of these locations contain repetitive loss properties. The stormsewer system in this area is located along Fernwood Road and branches to the West down West Heather Drive and Woodcrest Lane. The system has two drainage wells and an outfall to Biscayne Bay, both located north of the property. Due to low-lying elevations, this project will alleviate flooding in this area with the installation of a drainage well along the West side of Fernwood Road.

The drainage system at the Hampton property connects and runs westward along W. Enid to two (2) drainage wells and two (2) outfalls to the Biscayne Bay. This project proposes the installation of a drainage well near the corner of West Enid Drive and Ridgewood Road. This would allow the flood waters that would otherwise back-up along the Hampton Road repetitive loss properties a new path to exit the drainage system. Estimated cost: $465,275.00 each area.

Project 6: Village Hall Courtyard Improvement

This project seeks to resolve the flooding that occurs from the rain gutter overflow along the perimeter of the roof opening over the Village Hall courtyard. It will include two parts. First, to raise the elevation of the wall of the center water fountain to increase holding capacity as a receiving basin for the second part. Decorative rain cisterns can be located as such where the catchments can then overflow into the fountain. Estimated cost: $ 6,500.00

Project 7: Stormwater Outfall Rehabilitation

This project proposes rehabilitation of 175 LF of 12-inch RCP stormwater outfall with associated relining of piping leading to outfall due to deterioration from salinity. This outfall was installed over 40 years ago and has a potential of collapsing thereby reducing the outflow necessary for drainage. This would entail removal and replacement of pollution control devices within the drainage structure leading to the outfall pipe in order to remain in compliance with the NPDES permit. Replacement of outfall may impact existing seawalls. If this occurs, the seawall will need to be repaired or replaced. Seawall repair may require a Miami-Dade permit, which typically required a hydrographic survey to determine possible impacts to the adjacent waterway ecosystems, specifically seagrass. Any additional damage may require mitigation work to be determined by DERM in advance of the project. Estimated cost: $50,000.00

Project 8: New Stormwater Outfall Construction

This project proposes construction of 1,800 LF of 18-inch RCP stormwater outfall with associated relining of piping leading to outfall as part of the drainage improvement plan to mitigate the repetitive flood claims at 24 Crandon Boulevard. This site is also adjacent to the Village Storage Facility for maintenance equipment. The proposed path of the drainage outfall pipe would entail significant environmental permitting and mitigation since the property is adjacent to state protected preservation area and FPL easement. Estimated Cost: $210,000.00

Project 9: Hardening of Village Hall Generator

This project involves enhancing hazard protection by installing storm proof shutters and doors to protect the existing generator structure adjacent to the Village Hall. This generator is currently exposed and can be damaged or destroyed during a severe storm event. The generator is essential to providing emergency power to the Village Police Department. Estimated Cost: $60,000 to $200,000.00

Project 10: Ocean Lane Drive – Drainage Wells

This project will propose improvements to the existing storm drainage system along Ocean Lane Drive. The improvements will consist of adding two (2) drainage wells to alleviate the capacity strain on the existing pump station, undergoing continuous maintenance. Estimated Cost: $465,000.00

Project 11: Traffic Signage & Pavement Marking Improvements Master Plan

This project will propose improvements to existing signage and pavement markings throughout the Village in order to provide consistency for safety of all pedestrian traffic including ADA compliance, pedestrians, bicyclists, strollers and golf cart users. Delineation and definition of crosswalks will be enhanced as necessary. An inventory map of the existing configurations will be prepared to then be analyzes as to compliance with MUTCD, local and state requirements. The intersections with vehicular accident occurrences or incidences will be priori-

tized. A recommendation for standardized intersection pavement markings, signage, lane widths, etc. will be identified to establish consistency. This project is crucial due to main roadways being used as evacuation routes and for public bus transit routes before, during and after emergency events. Estimated Cost: $40,000.00

Project 12: Feasibility Study for Additional Open Space Preservation

This ongoing project relates to the "Prescribed Burns" initiative, including comprehensive search of new opportunities for Key Biscayne to increase its inventory of areas to be preserved as open space, as well as proposals and programs to assure the preservation of open space areas already identified. The study would include benefit-cost and related economic analysis for each potential transaction; identification of implementation tools and resources; analysis of incentives and potential business arrangements and agreement among the parties at interest of policy context for the implementation of this activity. Estimated cost: $35,000.00

Project 13: Demonstration Project

This project has evolved under the renamed county initiative called "Project Impact" involving the selection of one or more flood prone properties to be used as a demonstration for the application of "elevation", "flood proofing" and other measures available for the mitigation of flood hazards and problems. The Village Hall as a municipal facility will be the site selected. It will be in conjunction with Project 6 – Village Hall Courtyard Rehabilitation. Estimated Cost: $10,000.00

The demonstration will serve a number of purposes:

- It will test state-of-the-art technology, various methods for elevating buildings and various other flood proofing measures;
- It will provide a firm basis for measuring all of the costs involved;
- It will provide a physical model to which the public can relate when subjects such as retrofitting and flood proofing are discussed;
- It will represent a laboratory where other flood damage prevention measures can be illustrated; and,
- It will enable a benefit-cost analysis that will provide a well-documented assessment of the measure's cost effectiveness.

Project 14: Erosion Control Web Q&A and Response System

This project involves establishing a standard operating procedure for inspection program, focused on construction sites, as well as public areas within the village, to assure that policies and regulations with respect to erosion and sedimentation control are effectively followed and enforced, as per NPDES regulation requirements. The program would be designed to operate in tandem with normal storm sewer maintenance activities and normal construction site inspection activity. The intent is to create a second, primarily volunteer-based, line of defense for the protection of storm water management facilities. It would involve public education for the Village residents and would establish a public reporting process. Coordination and call num-

bers will be provided via the Questions & Answer Village website. Estimated Cost: $10,000.00

Project 15: CRS Outreach Program

This project involves establishing a community outreach program to comply with Community Rating System (CRS) requirements under Activity 330. The intent of the program is to establish a procedure to provide public information via website, telephone and personal assistance for those residents whose flood insurance company does not automatically provide the premium discount for the community category and participation in the CRS Program. The process will allow residents to obtain the necessary documents (i.e. Elevation Certificates, surveys, etc.) to present to flood insurance companies to request their premium reduction. Estimate Cost: $10,000.00

Project 16: Environmental Forum

This project involves the continued participation of the ongoing programs of lectures and events, including field trips, as necessary, bringing the public together with speakers from the various agencies whose concerns straddle floodplain management and environmental issues. Attendance of the lecture programs would be supplemented with the production of publications, and, if affordable, a video promoting awareness of environmental issues such as beach erosion, non-point source pollution, hydrology/hydraulics, BMP benefits, and the like. The programs include attendance at Miami-Dade County LMS meetings, Floodplain Roundtable Discussions, Hurricane Conferences, FDEP and FEMA training seminars and others. Estimated cost: $10,000.00

Town of Medley

Project 1: Paving and Drainage Improvements

The work for these projects can be done either by using the Town's personnel and equipment or by hiring an outside contractor.

1. NW South River Drive and NW 116th Way – from NW South River Drive to the FEC Railway right-of-way. Drainage installation and paving. Estimated construction cost of $400,000.

2. Intersection of NW South River Drive and NW 109th Street – new drainage installation and concrete paving. Estimated construction cost of $190,000.

3. NW 95th Avenue from the northeastern end of Waste Management, Inc. to NW 106th Street. Drainage installation and paving. Estimated construction cost of $870,000.

4. NW 100th Street from NW 95th Avenue to NW 91st Court. Drainage installation and paving. Estimated construction cost of $271,000.

5. NW 101st Street from NW 95th Avenue to NW 91st Court. Drainage installation and paving. Estimated construction cost of $315,000.

6. NW 102nd Street from NW 95th Avenue to FEC Railway right-of-way and NW 104th Street from NW 95th Avenue to FEC Railway right-of-way. Drainage installation and paving. Estimated construction cost of $450,000.

7. NW 91st Court from NW 100th Street to NW 101st Street. Drainage installation and paving. Estimated construction cost of $270,000.

8. NW 138th Street from the FEC Railway right-of-way heading northeast for approximately 1, 500 linear feet. New drainage installation and paving. Estimated construction cost of $300,000.

9. NW 96th Street from its intersection with NW 89th Avenue to its terminus, and NW 97th Street from its intersection with NW 89th Avenue to its terminus. Drainage installation and paving. Estimated construction cost of $900,000.

Project 2: Wastewater System Mitigation

1. Elevate seven (7) entrance hatches into the dry pits and wet wells to above flood stage experienced during Hurricane Irene in 1999. Estimated construction cost of $21,000.

City of Miami

Project 1: Debris Removal

The city presently maintains a list of contractors that have agreed to provide debris removal services following a disaster. The city would develop a Comprehensive Debris Clearance (CDC) plan that would list the names and phone numbers of debris removal contractors, identify potential debris storage sites, removal methods, and provide for special programs, such as hazardous materials pickup and "amnesty" days for residents. Contracts would be negotiated in advance and monetary damages would be due to the city if the contractor fails to perform. The study also would analyze how the city could best coordinate debris removal activities with related post-disaster services performed by Miami-Dade County. The city welcomes debris removal assistance along federal, state, and county roadways, but recognizes that it will need to provide its own service along most of the smaller, local roadways in Miami. Estimated cost: TBD.

Project 2: Public Education and Information Distribution

The city recognizes the need to educate the public about the threat of natural and man-made disasters and proposes a multifaceted program to educate its residents about disaster preparedness

and response. These actions would have a direct impact of the health and safety of Miami's residents:

- Literature – consisting of handouts, mailers, advisory notices, booklets, etc. that would be distributed widely to city residents. Estimated cost: $300,000
- Public Meetings – these meetings would provide residents with an opportunity to learn more about resources available at the city and to learn about other 97 neighborhood-based city programs (e.g., Community Emergency Response Teams, NET Centers). Estimated cost: $150,000
- Web Site – the city would develop a web site to provide disaster-related information to residents. The site would help people prepare for disasters, and could provide a vital source of information to people about storm alerts, evacuation routes, shelters, etc. The site would be integrated with the web site already being developed by the police department for community policing and other internal record management purposes. Estimated cost: $150,000
- Cable Television – The city would provide information through its cable access channel (Channel 9) during disasters. Estimated cost: $50,000

Total estimated cost: $650,000.

Project 3: Storm Shelter for Families of City Employees

During a disaster, the separation stress of employees being away from their families and loved ones is a critical issue that adversely affects the city's ability to respond during a disaster. Employees' job performance may suffer because of this concern and some employees may elect to remain with their families instead of responding to city needs. One way to solve this problem is to create a shelter specifically dedicated to city personnel and their families. This would help assure the city's emergency workers that their families will be safe during a disaster and allow them to concentrate on providing essential services. As part of this project, the city would conduct a study to determine the best location for such a shelter, whether one large shelter or multiple smaller shelters should be constructed, if there is an existing facility (or multiple facilities) that could meet these requirements, and estimated costs. Resources and services needed include safety and security, medical care, food and lodging, and communications. The study also would examine the effect of these new, dedicated shelters on the larger shelter deficit that exists throughout Miami-Dade County. Estimated cost: $750,000.

Project 4: Storage Facilities for Critical Equipment

Currently, the city of Miami has a severe shortage of hardened storage locations for city equipment during a major disaster. Equipment such as the fire department's urban search and rescue trailers, Public Works' heavy equipment, parks department buses, and other similar items are stored outside on a normal day-to-day basis and could be damaged and destroyed during a storm. Much of this equipment is vital during a disaster to serve functions such as rescuing trapped citizens, clearing roadways, and providing support to other disaster recovery operations. The city of Miami has identified a need for three hardened facilities, located in three different areas of the city that would allow for the proper protection of this equipment and allow for the rapid deployment following a disaster. The facility would need to meet, and in most cases ex-

ceed current construction and protective equipment requirements and have emergency power and communications equipment for workers at these facilities. Estimated cost: TBD.

Project 5: Clean and Dredge Canals and Waterways

Within the city of Miami, there are numerous canals and waterways that provide storm water drainage to Biscayne Bay. Debris, sand, and other materials that block the canals threaten their ability to provide essential drainage of stormwater to outfalls. The city proposes to mitigate this threat by performing maintenance dredging on these canals, removing exotic (non-native) trees from the banks, and cleaning up accumulated debris. The most important affected waterways, listed in order of priority, are:

- Wagner Creek, which drains approximately 600 acres of residential and commercial property. Activities already completed include removal of household refuse and sediments, installation of new fencing, and bank stabilization activities. Pollution control measures will be added to the outfalls and any illegal connections identified during the cleanup will be disconnected and plugged. The canal sediments are also contaminated with dioxins/furans, and dredging the canal sediments will significantly reduce the dioxins amounts. This open channel creek extends from NW 20 Street to NW 11 Street. Estimated cost: $16,000,000
- Seybold Canal, a navigable waterway that drains approximately 500 acres of residential and commercial property. This canal extends from NW 11 Street to the Miami River. The canal sediments are also contaminated with dioxins/furans, and dredging the canal sediments will significantly reduce the dioxins amounts. Estimated cost: $8,000,000
- Lawrence Waterway, which drains approximately 64 acres of residential and commercial property. Some of the work already has been completed as part of the city's regular maintenance program. This waterway extends from NW 7 Street to the Miami River. The canal sediments are also contaminated with dioxins/furans, and dredging the canal sediments will significantly reduce the dioxins amounts. Estimated cost: $20,000,000
- Miami River - South Fork, requires the dredging of sediment material along approximately 4,900 linear feet of the canal's bottom including removal of debris, and exotic tree removal from the banks between N.W. 27th Avenue to the Miami River. Further sampling will be conducted to determine if contamination exist in this area. Estimated cost: $5,000,000

  Total estimated costs: $45,000,000.

Project 6: Harden Neighborhood Enhancement Team Centers

The city of Miami operates 13 Neighborhood Enhancement Team (NET) centers located throughout the city. These centers are designed to provide essential services and disaster information to the local communities, improve communication between the city and its citizens, and provide a central source for services, supplies, and information. Originally developed in 1992, these centers have been well received by the citizens and have shown their value repeatedly in non-disaster applications. The NET Centers are well equipped to serve as disaster field offices for the city and a distribution site for relief goods such as ice, food, and water. Because these centers can provide such a vital service to the city's residents, the city is proposing to make the

buildings more resistant to damage from a hurricane or other disasters. Improvements that could be made to these structures include providing emergency generators, storm shutters, flood proofing, and structural strengthening. All of these improvements would allow the centers to become fully operational immediately after the disasters. Estimated cost:
$100,000 per NET Center.

Project 7: Flood-Proofing Government Buildings – GSA/Miami Riverside Center

The main Police Building and the Riverside Government Building (444 SW 2nd Avenue) need the installation of waterproofing elements. The areas critical to address in the Riverside building are the first, ninth, and tenth floor glass window areas. This will protect against flying debris, explosions, firebombs, glass shattering, and ultra-violet protection. Building is used during emergency activation for EOC functions. Estimated cost: $7,000,000.

Project 8: Backup for Essential City Mainframe Functions

The city of Miami currently does not have a backup computer for the mainframe that provides core city services the city on day-to-day basis. Loss of the computer center at the Miami Riverside Center building would affect the city's ability to respond to and recover from a disaster by preventing access to critical functions such as payroll, purchasing, fire and police records, and other essential city services. A new backup computer system is needed to allow critical functions to be quickly restored and allow the city to continue operations while the main system is relocated or repaired. The new computer, to be installed in the city's emergency operations center, would replicate essential functions currently performed on the city's primary mainframe computer, but would not provide all of the functions needed by the city. Estimated cost: $1,000,000.

Project 9: Backup System for City Communications

Communication is vital for the success of city in responding to and coordinating the efforts of various departments and agencies following a disaster. The city currently does not have sufficient redundancy designed or built into its radio and telecommunication systems. The city is proposing a three-level approach to ensure that it is able to maintain an effective communication system following a disaster. The first level is the use of satellite telephones (such as Iridium), which do not require any ground-based facilities. Each of these phones can communicate with other Iridium phones by using only the satellite system. Approximately 20 of these phones would provide a basic level of critical communications among the EOC, fire, police and the 13 NET centers located throughout the city. The second level of backup communication is to acquire a temporary radio tower, such as the portable trailers used following Hurricane Andrew to provide cellular phone service, that can be deployed and setup within a few hours of a disaster and restore some, if not most, of the capability of the radio system. The final phase would be a more comprehensive project that would backup all of the communication capabilities normally available to the city of Miami. Estimated cost: TBD.

Project 10: Acquire Portable Pumps and Generators

Trailer-mounted portable pumps are needed to remove floodwaters during and after major storms. The City's Public Works Department has recently acquired four (4) portable trailer mounted pumps (6 inch suction pipe). In addition portable generators are needed to supply power to tools that are used in a variety of applications following a disaster. The city has identified a need for six of these portable generators. Estimated cost: $70,000.

Project 11: Community Emergency Response Teams

The Community Emergency Response Team (CERT) is a program in which local citizens are trained to provide basic emergency services after a disaster until professional assistance arrives from the city's emergency response personnel. The training is such that CERT members can handle basic items for the first 36 hours of a disaster. The training would consist of learning basic medical treatment procedures, scene safety, securing utilities and other hazards, and some rescue operations. To initiate the program, the city would need a training staff to develop and present the material, market the program using a variety of methods, coordinate the registration process and other logistical matters, deliver the classes to the citizens, and schedule some type of annual refresher training program. The city would capitalize on the experience already gained by the 25 CERT teams currently in place in Miami-Dade County. Estimated cost: $150,000.

Project 12: Loans to Private Owners to Improve Seawalls & Stabilize Shorelines

The majority of the city's canal and bay shoreline (70 percent) is privately owned and maintained, much of which is in poor or overgrown condition. In the event of a major storm, there could be tremendous loss of property into the city's drainage canals, causing upstream flooding. This project recognizes the need to harden seawalls on private property within the city and would complement the replacement and improvement of city-owned seawalls. The city would establish a loan program that would provide an incentive for private property owners to replace or improve areas of deteriorating seawall on their property, allowing for a greater overall level of mitigation citywide. The project includes establishing and administering the loan program but not actually providing city funding to borrowers. Estimated cost: $250,000.

Project 13: Replace and Improve City-owned Seawalls

This project would improve or replace, as necessary, seawalls located at fifteen city owned parks along Biscayne Bay and the Miami River. These seawalls are currently in fair to poor condition. Failure of the seawalls would result in the loss of city property, increased risk to nearby structures, and an increase in safety hazards. All of the affected seawalls are made of concrete. The specific design of seawalls to be replaced has not yet been determined, although it is likely that boulders and riprap would be included to serve as wave baffles. The areas in greatest need of repair and improvement are the seawalls at Antonio Maceo Park, Legion Park, Lummus Park, Baywood Park, and Pallot Park. In addition to the city parks, two other areas owned by the city of Miami contain concrete seawalls that either are failing or are in poor condition. These locations are on the north side of the Florida East Coast (FEC) Railroad boat slip and the Bicentennial Center. In conjunction with the proposed seawall replacement and im-

provements, two city-owned boat ramps (at the Watson Island Marina and the Seminole boat ramp in Coconut Grove) need to be improved to allow faster removal of boats in the event of a major storm. In addition, the Stadium Marina needs docks that would serve as a staging area while boats wait their turn to be removed from the water. Both to these actions would reduce the amount of damage not only to the boats left in the water, but also to city-owned structures and private property that could result from boats being blown inland. Estimated cost: $4,000,000.

Project 14: Portable Traffic Control Signs

Effective and efficient communication is vital to allow for the rapid evacuation of citizens prior to the impact of a hurricane in the city of Miami. With a residential population of about 400,000 people and a commuter population that at least doubles the affected population during the work week, traffic jams are a certainty. Portable traffic control signs that provide scrolling text messages would allow traffic to be directed to alternative routes and to provide other vital information to motorists. The portable signs have other uses besides assisting in evacuations: they can be used to display information during events such as fire/rescue emergencies, hazardous material spills, special events, terrorist incidents, and special police events such as SWAT operations. These signs display a text message that is easily programmed into the unit and can be moved using most any city vehicle with a trailer hitch. The city of Miami would purchase ten of these units at a cost of about $50,000 each, plus additional trailer hitches for police vehicles. Estimated Cost: $500,000.

Project 15: Storm Shutters for City Buildings

This project would install hurricane shutters and reinforced doors on the manifold municipal buildings without this protection. These shutters and doors are designed to prevent hurricane force winds and debris from breaking the windows and allowing wind, water, and debris to enter the structures. These proposed modifications would allow these buildings to not only survive the hurricane with less damage to the structure and the property stored inside, but also reduce the financial impact to the city. From a purely practical standpoint, the hurricane shutters and doors also would allow the buildings to remain functional during a storm and help ensure that they could be used immediately afterwards in the response and recovery phase. The city of Miami has a critical need to protect the following facilities:

- Athletic Club building – used as a city employee deployment center
- Convention Center
- 26 park buildings & structures located throughout the city

Estimated cost: TBD.

Project 16: Flood-Proof First Floor of Main Police Building

The first floor of the main Police Building (located at 400 NW 2nd Street) is below grade and is currently being used to store the records, property, and evidence for the city of Miami. These items must be maintained in a secure area to prevent improper access while allowing use by police for on-going investigations. The proposed mitigation project would prevent water from entering the first floor and provide a water removal system to protect the building from flooding.

The project would include installation of floodgates that would be put into place during high-risk periods for flooding. This would not only protect vital police records, but would ensure the continuous operation of this critical facility both during the disaster and during the response and recovery phase of the disaster. Estimated cost: $750,000.

Project 17: Low Power Portable Radio Stations

Low power portable radio stations would allow for the transmission of vital and time critical information to the public. These units are small trailer units similar to those used to provide information to motorists about a variety of topics, such as airport information, roadway construction warnings, parks and recreation information, etc. They have a short range (approximately three miles in most cases) and can be set up quickly. The units would be used throughout a disaster. Initially, they would be used during evacuations to provide information about traffic routes, blocked roadways and other key information. Following a disaster, these units could be used in conjunction with Miami's NET Centers and broadcast information about the locations of food and medical centers, ice distribution centers, and other critical information without the delays associated with other media. Another benefit is that this information can be specifically targeted to the local people (e.g., those within a single NET service area) and not the entire region. The mobile radio stations also could be used to provide information about hazardous material spills, other police or fire emergencies, and special events. The city of Miami proposes to acquire seven of these units to properly cover the city. Estimated cost: TBD.

Project 18: Protect Vital City Records

This project is a study to investigate ways to best preserve the city's vital records and other documents having archival or historical value. The city has been storing approximately 1,300 boxes of records in the basement of the Miami city hall, an area that is subject to flooding during a major storm. More than 700 boxes already have been moved to temporary storage in the Coconut Grove Convention Center, but approximately 600 boxes still need to be moved. All of the boxes need to be inventoried for vital records (i.e., those related to business continuity), records of historical or archival value, and inactive records. The city already has identified an outside contractor to provide storage for inactive records that can be disposed of once a required holding time has been met. The city estimates that approximately two to three percent of the existing records will need to be retained in a controlled environment where temperature and humidity are monitored and where security of the documents can be assured. The proposed study would identify the number of current and future records that need to be protected in an environmentally controlled area, alternatives for providing the needed storage, and the estimated cost. Estimated cost: $60,000.

Project 19: Anchor Park Fixtures

This project would replace unsecured park furnishings, such as tables and chairs, with permanently installed ones, such as those with concrete footings. This would help prevent damages caused by high winds and water that could mobilize these items, causing unnecessary damage to people and property. Estimated cost: $150,000.

Project 20: Study to Reduce Erosion on Virginia Key Beach

This project is a study of measures that could be used to protect the beach and reduce the loss of sand from Virginia Key Beach. The city of Miami owns approximately 42 acres of ocean front beach on Virginia Key, approximately one mile long. The beach area is currently part of a beach improvement plan that will include importing sand to the area. The city recognizes that offshore groins (corrugated steel piles driven into the ocean floor) have been used in other areas with only limited success. The city is seeking a solution that will help reduce sand loss while allowing for maximum public enjoyment of the beach. Estimated cost: $75,000.

Project 21: Study Potential Fire Hazards on City-owned Islands

The city of Miami owns approximately ten islands in Biscayne Bay and other locations near the coast in the northern part of Miami that may pose a threat to nearby residents and commercial buildings in the event of a brush fire. While the city recognizes that these islands provide a barrier to winds and other potential threats, it is seeking a study to determine the magnitude of any potential threat of fire on these islands. Potential actions could include controlled burns to remove non-native species and replace them with native species in a manner that provides for greater fire safety. Estimated cost: $40,000.

Project 22: Communications Systems Generator

Communications Services Division 50 kilowatt emergency generator and transfer switch project that encompasses the following:

- Purchase and installation of a new 5 KW and transfer switch to provide electricity for the city's communications system in case of catastrophic electronic failure. This replaces the 31 KW generator and transfer switches that are inadequate for the city's existing needs. The generator is located at the city's fire garage.
- The existing area housing the 31 KW generator can accommodate the new generator that is compliant with current codes.

Estimated cost: $60,000

Project 23: Property Maintenance Division Upgrades

Property Maintenance Division 105-kilowatt emergency generator project that encompasses the following: Purchase and installation of a new 105 KW stand-by generator, transfer switch, and electrical upgrades to bring the building up to code (the Florida Building Code), to provide electricity for the city's Property Maintenance Division building in case of catastrophic electrical failure. The building is the operations base fir trade personnel that provide services throughout the city for other departments. The installation includes all required improvements necessary to meet current codes. There is no existing generator at this location. Estimated cost: $160,000.

Project 24: Generator for Riverside Center Building

Request is for a 1600 KVA emergency power generator; this will provide constant electrical power to the Miami Riverside Center Building. This will minimize downtime and allow operations to continue at the MRC without interruption. This estimate was based on a cost of $500 per KVA plus $200,000 for labor and materials for the installation. Estimated cost: $1,000,000.

Project 25: Little Haiti Park

Upon the successful completion of land acquisition for the subject property, that is, the one-block area bounded on west by NE 2nd Avenue, on the north by NE 61st Street, on the east by the FEC Railway corridor and on the south by NE 60th Street, the city of Miami proposes to create the following, as is also depicted on the site plan. The historic buildings at the northwest corner of the block, the former DuPuis Medical Office and Pharmacy will remain in place and be incorporated into a cultural and recreation center as an adaptive re-use, with restoration to follow historic preservation guidelines. Similarly the small cottages located now in the southwest area of the block will be relocated closer to the DuPuis building and restored for adaptive re-use as classrooms, interpretive exhibit spaces and/or studios as part of the cultural and recreation center. All other structures that presently exist on the property are proposed for demolition. Parking for this facility will likely be located in an area to the south, outside of the grant-funded boundary. The central area of the site would be utilized as an open meadow or multi-purpose field, which would be graded and landscaped with sod and native trees at its perimeter. In the eastern third of the block, the existing hardwood, rockland hammock would be enhanced by the removal of exotic plant species and the planting of additional native trees. Nature trails and interpretive signage would be introduced throughout the hammock, and will connect to trails along the perimeter of the site. Within the hammock, we propose to place picnic tables, and just outside the hammock to the west, will be a small children's playground. Park bench seating will occur at appropriate areas along the trails and at the playground. Defined park entries will be placed at the four corners of this site. To address potential hazard mitigation, shutters or impact resistant windows will be used in the historic structures, at a total estimated cost of $20,000, as required under the Florida Building Code. Likewise, the trailers, non-historic buildings and other site features will be removed at an estimated cost of $100,000, reducing potential flooding damage. The entire site will be graded and swales will be created to retain water on site. Estimated cost: $60,000.

Project 26: Little River Storm Sewers Retrofitting Project, Phase II

This project will provide a modern drainage system for the area bordered by NW 79th Street, Little River Canal, and N. Miami Avenue. The existing system will be expanded and upgraded. The new drainage facilities will consist of a combination of ex-filtration drain, deep drainage wells, grease & oil interceptors and other pollution control structures. Any storm sewers identified as illegally connected to a sanitary sewer will be disconnected. Estimated Cost: $3,000,000.

Project 27: Englewood Storm Sewers Project -Phase III

This project will provide a modern drainage system for the area bordered by S.W. 16th Street, S.W. 22nd Street, S.W. 27th Avenue and S.W.32nd Avenue. At the present time, this area is

served by scattered localized drainage structures that are old and inadequate to properly drain the area. The new drainage facilities may consist of a combination of exfiltration drains, deep drainage wells, grease & oil interceptors and other pollution control structures. Road improvements include milling and resurfacing, new or repair sidewalks, curb and gutter, ADA ramps, re-grade or re-sodding swale areas, repair or replace damaged or disfigured traffic signs, and tree planting. Estimated cost: $5,400,000.

Project 28: Garden Storm Sewers Project -Phase II

This project will provide a modern drainage system for the area bordered by NW 26th Street, NW 38th Street, NW 22nd Avenue and NW 27th Avenue. The new drainage facilities will consist of a combination of ex-filtration drains, grease & oil interceptors and other pollution control structures. Estimated Cost: $4,300,000.

Project 29: Liberty Storm Sewers Project

This project involves the design and construction of a local drainage system in the area bounded by NW 17th Avenue, NW 71st Street, NW 12th Avenue, and NW 62nd Street. Estimated cost: $4,200,000.

Project 30: Grove Park (formerly known as Glenroyal) Storm Sewers Project

This project involves three tasks: (1) construction of a positive storm sewer system for the area bounded by W. Flagler Street, and N.W. 22nd Avenue, N.W. 7th Street, and N.W. 17th Avenue including an additional area known as the Edenholmes Subdivision, bounded by NW 7th Street and SR 836, NW 17th Avenue and NW 22nd Avenue. This area also requires the construction of a subterranean pump station within the vicinity of NW 18th Avenue and NW 9th Street. Another area block has been added and borders NW 7th Street to NW 9th Street (SR-836), and from NW 14th Court and NW 17th Avenue; (2) road improvements for these areas include milling and resurfacing, new or repair sidewalks, curb and gutter, ADA ramps, re-grade or re-sodding swale areas, repair or replace damaged or disfigured traffic signs, and tree planting; and (3) NW 3rd Street one-way conversion and traffic circle that includes but not limited to a traffic study, public relations and other agency coordination and participation. Estimated cost: $6,000,000.

Project 31: Lawnview Storm Sewers Project

This project involves construction of a local drainage system for the area bounded by SW 8th Street, and SW 17th Avenue, W. Flagler Street, and SW 22nd Avenue. Road improvements include milling and resurfacing, new or repair sidewalks, curb and gutter, ADA ramps, re-grade or re-sodding swale areas, repair or replace damaged or disfigured traffic signs, and tree planting. Estimated cost: $4,300,000.

Project 32: Auburn Storm Sewers Project - Phase I and Phase II

This project involves construction of a local drainage system for the area bounded by N.W. 7th Street, N.W. 27th Avenue, W. Flagler Street, and N.W. 37th Avenue. Road improvements include milling and resurfacing, new or repair sidewalks, curb and gutter, ADA ramps, re-grade or re-sodding swale areas, repair or replace damaged or disfigured traffic signs, and tree planting. Estimated cost: $4,000,000.

Project 33: Reid Acres Storm Sewers Project

This project will provide a positive drainage system to the area bounded by NE 71st Street, FEC Railroad, NE 62 Street and NE 2nd Avenue. Bore and jack construction under the FEC Railroad at NE 71 Street will be required. The positive outfall line will be constructed on NE 5th Avenue to the Little River Canal. Road improvements include milling and resurfacing, new or repair sidewalks, curb and gutter, ADA ramps, re-grade or re-sodding swale areas, repair or replace damaged or disfigured traffic signs, and tree planting. Estimated cost: $4,300,000.

Project 34: Belle Meade Storm Sewers Project, Phase I

This project will provide storm sewers to the area bounded by NE 83rd Street, East Dixie Highway, North City limits and Biscayne Boulevard. Road improvements include milling and resurfacing, new or repair sidewalks, curb and gutter, ADA ramps, re-grade or re-sodding swale areas, repair or replace damaged or disfigured traffic signs, and tree planting. Estimated cost: $4,200,000.

Project 35: Fairway Storm Sewers Project

This project involves the design and construction of a local drainage system in the area bounded by NW 2nd Avenue, FEC Railroad, N 73rd Street, and N 62nd Street. Road improvements include milling and resurfacing, new or repair sidewalks, curb and gutter, ADA ramps, re-grade or re-sodding swale areas, repair or replace damaged or disfigured traffic signs, and tree planting. Estimated Cost: $4,200,000.

Project 36: Avalon Storm Sewers Project - Phase III

This project will provide a modern drainage system for the area bordered by SW 22nd Street, SW 27th Street, SW 27th Avenue and SW 32nd Avenue. Currently, this area is served by scattered localized drainage structures that are old and inadequate to properly drain the area. The new drainage facilities will consist of a combination of ex-filtration drains, deep drainage wells, grease & oil interceptors and other pollution control structures. Road improvements include milling and resurfacing, new or repair sidewalks, curb and gutter, ADA ramps, re-grade or re-sodding swale areas, repair or replace damaged or disfigured traffic signs, and tree planting. Estimated cost: $5,300,000.

Project 37: Auburn Storm Sewers Project - Phase III

This project will provide a modern drainage system for the area bordered by W. Flagler Street, SW 8th Street, SW 27th Avenue and SW 32nd Avenue. At the present time, this area is served by scattered localized drainage structures that are old and inadequate to properly drain the area. The new drainage facilities will consist of a combination of ex-filtration drains, deep drainage wells, grease & oil interceptors and other pollution control structures. Road improvements include milling and resurfacing, new or repair sidewalks, curb and gutter, ADA ramps, re-grade or re-sodding swale areas, repair or replace damaged or disfigured traffic signs, and tree planting. Estimated cost: $5,300,000.

Project 38: N.W. 71st Street Main Trunk Storm Sewer Project

This project will provide positive drainage for N 71st Street between NW 17 Avenue and Miami Avenue and also provide a relief system and overflow connection for the Liberty, Fairway, and Northwest storm sewer district project. This project is a recommendation of the Storm Drainage Master Plan. The trunk main will be constructed in N. 71st Street to either N. Miami Avenue or NE 2nd Avenue at which point the main will be extended north to the Little River Canal. Estimated cost: $7,500,000

Project 39: Hurricane Window Barriers for Park Recreation Buildings

As a significant component of the 2001 Homeland Defense Neighborhood Improvement Bond Program, the Department of Capital Improvements will undertake the renovation and/or expansion of over 27 recreation buildings in city of Miami parks, and will construct 3 new additional recreation buildings. As part of this construction, we will include new Storm Shield hurricane barriers that comply with the Florida Building Code and Miami-Dade County Hurricane Product Approval Program. This will not only provide sufficient storm protection for the buildings and their contents, but will also eliminate or dramatically reduce costly pre-storm event labor charges associated with the installation of traditional storm shutters. Estimated cost: $250,000.

Project 40: Street Sweeping Program Improvement

The city currently has minimal staff and equipment assigned to sweep streets so as to minimize blockage of storm drains. This project includes the acquisition of five additional pieces of equipment, one year of equipment maintenance, tipping fees and the hiring of equipment operators. Street sweeping program would be conducted citywide on a systematic, programmed basis. Estimated cost: $900,000.

Project 41: Watson Island Baywalk

The Watson Island Shoreline Stabilization Project, located on the southeastern section of Watson Island will stabilize a 500-foot section of the Biscayne Bay shoreline along the southeastern shoreline of Watson Island. The project will entail installation of rip-rap along this shoreline and construction of a seawall to stabilize and contain erosion to this shoreline, along a proposed bay-walk which will run parallel to this seawall. Complementary public access features will be constructed and installed to enhance this waterfront area. Estimated cost: $300,000.

Project 42: Restoration of Native Species

At Virginia Key, a portion of the scope of work in a Coastal Partnership Initiative proposal will include natural erosion prevention/mitigation by replacing exotics with native species along the mangrove hammock area. These native species have root systems that stabilized the soil in the uplands and contribute reducing beach erosion. The project includes other elements not related to LMS but at least $75,000 in hard-costs as well as volunteer time will be allocated to exotic removal. Estimated cost: TBD.

Project 43: Replacement of Channel Markers

Dinner Key marina will submit a grant request to the Florida Boating Infrastructure program for channel markers on the Brennan Channel. These new markers replace deteriorated structures. The markers are vital for navigation and are especially significant for transient boaters seeking shelter from hurricanes, storms, and other inclement weather. Estimated cost: $65,000.

Project 44: Master Plan for Virginia Key

Planning will submit a proposal under the Coastal Partnership Initiative for a Virginia Key master plan. That plan will include provisions for restoring natural tidal action near the historic African American beach. Such restoration would contribute towards a mitigation of beach erosion. The plan recognizes the importance of natural plant communities and habitats and the role each play in stabilizing the soil for this natural barrier island. As stated in the proposal: "The process of a new master plan, taking into account the entire island, while including all stake holders and the public, will allow for a comprehensive process to address a very complex barrier island. The plan which includes economic, environmental, architectural, design, traffic, and landscaping criteria will give the new master plan concrete proposals to insure sound land use decisions for this unique uninhabited barrier island." Estimated cost: $550,000.

Project 45: City Hall/Protection of Vital Records

The project requires flood and wind-damage proofing of City Hall, a government hub, and historic structure that is significant to Florida and Aviation history as the Pan American Seaplane Terminal; City Hall's basement has flooded many times over the years with the most significant damage arising from Hurricane Andrew in 1992. The hurricane allowed seawater and wind to destroy historical records stored in the basement. The project has two inter-related elements to safeguard the structure from storm surge and wind damage. The first includes adding storm-proof doors and seals on doors facing the bay; the second is replacing the entrance store front with front impact resistant glass doors and windows that meet 100-year storm code specifications and given the historic properties of the building, Secretary of the Interior Preservation standards. Estimated cost: $650,000.

Project 46: Fire Station Hardening

The Miami Fire Department provides on-going E.M.S., fire suppression and fire prevention services to our 362,470 residents and the 480,000 individuals who traverse our city daily. Most of these services begin with a call to and response from one of 14 fire stations. The impact of a hurricane could severely damage fire stations as well as the expensive apparatus that is housed within these stations. Some fire stations are more vulnerable than others; therefore, they are more susceptible to impending hurricane damages. To mitigate these impending hurricane damages, the city of Miami Fire Rescue Department proposes a hurricane hardening project to protect key stations and facilities. This project includes the installation of Miami-Dade County hurricane-code approved, perforated, stainless steel hurricane barriers, e.g., Exeter Storm Shield or better. Estimated cost: $144,000.

Project 47: Station/Facility Apparatus Room Doors

The city of Miami has an approximately 72 apparatus room overhead rolling doors that are prone to failure and should be replaced with a more secure door. These doors are the main egress for Fire-Rescue vehicles and they protect emergency equipment worth at least $2,000,000 per facility. Estimated cost: $252,000.

Project 48: Citywide North-South Storm Sewer Cleaning

The city of Miami has 25,000 inlets and 1,800,000 linear feet of various pipe size that require cleaning twice a year. Currently, in a normal year the Public Works Department is able to perform this cleaning using their own fleet of four Vac-trucks and also by subcontracting this service. However, this task has been made even more difficult by the huge amount of debris and leaves that got blown, or drained inside the inlets following Hurricane Katrina. Cleaning of these inlets and pipes is necessary to maintain the conveyance of the system and the level of protection against flooding. Estimated cost: $5,000,000.

Project 49: Citywide Outfalls Cleaning

The city of Miami has 300 outfalls that stage control the amount of runoff and pollutant discharging into adjacent water bodies. After Hurricane Katrina, the amount of debris flushed into the drainage systems have been accumulated inside these control structure boxes and causing the headwater to rise, therefore increasing the likelihood of street flooding. These structures are being cleaned on a yearly basis. Estimated Cost: $600,000.

Project 50: Citywide Deep Drainage Wells Cleaning

The city of Miami drainage basins are drained by a sizable number of deep drainage wells ranging in depth of 80 feet to 160 feet. A total of 90 deep drainage wells are scattered throughout the city. Periodic annual cleaning is required especially after a hurricane in the magnitude of Katrina where a tremendous amount of windblown leaves and debris clogged these wells. This project consists of the cleaning and jetting of these wells, and the installation of grates to prevent further clogging. Estimated cost: $500,000.

Project 51: Over town Greenway – Phase I

The project's concept is to create a greenway within the city's right-of-way. The work will be performed along NW 11th Terrace, from NW 3rd Avenue and NW 7th Avenue. The scope of work shall include and is not limited to landscaping, widening sidewalks, pedestrian and street lighting and way-finding signage. Drainage improvements shall involve an evaluation of existing drainage conditions, developing and recommending cost-effective alternative design alternatives to alleviate flooding in the area. Estimated cost: $3,000,000

Project 52: NE/NW 14th Street from NE 2ndAvenue to FECTrack; North Miami Avenue from NE/NW 15th Street to I-395 Right-of-way Line.

This project is being developed and implemented for the Overtown/Park Community Redevelopment Agency (CRA). Located within the CRA limits, the scope includes reconstruction of streets, new sidewalks, new drainage, landscaping and street lighting to match the treatment of the adjacent Performing Arts Center superblock project and to conform to the Multi-media and Entertainment District Plan that is produced by Zyscovich for the CRA. Estimated cost: $4,000,000

Project 53: Public Works Maintenance Yard Building

Currently, vital tools (i.e. chain saws, cutters, etc.) and personnel are housed in portable trailers. During an emergency situation, these trailers are not being used for obvious safety reason. As a result, the department's first-response crews wait at home until the emergency situation is lifted. A hurricane-proof facility would allow Public Works to have the crews available on board right after an emergency condition. Estimated cost: $1,000,000

Project 54: Vehicle Tracking Devices

During emergency situations, it is very difficult to efficiently track Public Works equipment and direct their operators to the disaster area most in need. As a result, some disaster areas are not being addressed in a timely manner. A solution to these deficiencies will be to install vehicle tracking devices which will relay their position to the emergency operations center. This would allow the more timely and efficient dispatch of equipment. Estimated cost: $250,000

Project 55: Bird Avenue Road Improvement

Located in the outskirts of Coconut Grove, the improvement works are mainly performed along Bird Avenue between Aviation Avenue and US 1. The main components of the project include the construction of drainage facilities consisting of a combination but not limited to exfiltration trenches (french drains), storm sewer pipes for gravity conveyance, baffles, manholes, catch basins, cross drains, swale trenches, re-grading and re-sodding swale areas. Road improvements include and not limited to roadway milling and resurfacing, ADA ramps, repair damaged side-

walks, curb and/or gutter, replacement of damaged or disfigured traffic signs and tree planting. Estimated cost: $1,728,000

Project 56: Miami River Greenway – NW 5th Street Bridge Approach

To comply with Miami River Greenway Standard Guidelines, road and drainage improvements will be performed at the NW 5th Street Bridge. The project area is located along the NW South River Drive within the vicinity of NW 5th Street. At a minimum, the new drainage facilities will have a combination of exfiltration trenches (French drains), storm sewer pipes for gravity conveyance, baffles, manholes, catch basins, cross drains, swale trenches, re-grading and re-sodding swale areas. Miscellaneous road improvements include but not limited to roadway milling and resurfacing, ADA ramps, repair damaged sidewalks, curb and/or gutter, replacement of damaged or disfigured traffic signs and tree planting. Estimated cost: $640,000.

Project 57: Miami River Greenway – SE 5th Street Extension

In an effort to provide infrastructure upgrades, the project consists of road and drainage improvements along SE 5th Street - from South Miami Avenue up to and including a portion of Brickell Avenue and SE 1 Avenue from SE 6 Street to Miami River. The new drainage facilities will have a combination but not limited to exfiltration trenches (French drains), storm sewer pipes for gravity conveyance, baffles, manholes, catch basins, cross drains, swale trenches, re-grading and re-sodding swale areas. Miscellaneous road improvements include but not limited to roadway milling and resurfacing, ADA ramps, repair damaged sidewalks, curb and/or gutter, replacement of damaged or disfigured traffic signs and tree planting. Estimated cost: $2,200,000.

Project 58: Mary Brickell Village Drainage Improvements

Road and drainage infrastructure improvements will be performed in the area bounded by the Miami River, SW 9th Street, SE 1st Avenue, SW 12th Street and SW 1st Court. At a minimum, the new drainage facilities include a combination of exfiltration trenches (French drains), storm sewer pipes for gravity conveyance, baffles, manholes, catch basins, cross drains, swale trenches, re-grading and re-sodding swale areas. Miscellaneous road improvements include but not limited to roadway milling and resurfacing, ADA ramps repair damaged sidewalks, curb and/or gutter, replacement of damaged or disfigured traffic signs and tree planting. Estimated cost: $1,400,000.

Project 59: NW 2nd Avenue (11th to I-395)

Located in downtown Miami, the improvement works are mainly performed along NW 2nd Avenue between NW 11th Street to I-395. The main components of the project include the construction of additional drainage facilities consisting of a combination but not limited to exfiltration trenches (french drains), storm sewer pipes for gravity conveyance, baffles, manholes, catch basins, cross drains, swale trenches, re-grading and re-sodding swale areas. Road improvements include and not limited to roadway milling and resurfacing, ADA ramps repair

damaged sidewalks, curb and/or gutter, replacement of damaged or disfigured traffic signs and tree planting. Estimated cost: $2,000,000.

Project 60: SW 3rd Avenue Road Improvement Project

Located in downtown Miami, the improvement works are mainly performed along SW 3rd Avenue from SW 16th Avenue to SW 22nd Avenue Street and SW 13th Avenue from SW 3rd Avenue to SW 22nd Street. The main components of the project include the construction of additional drainage facilities consisting of a combination but not limited to exfiltration trenches (french drains), storm sewer pipes for gravity conveyance, baffles, manholes, catch basins, cross drains, swale trenches, re-grading and re-sodding swale areas. Road improvements include and are not limited to roadway milling and resurfacing, ADA ramps, repair damaged sidewalks, curb and/or gutter, replacement of damaged or disfigured traffic signs and tree planting. Estimated cost: $1,450,000.

Project 61: NW 14th Street Streetscape Project

Located in the Media Entertainment District in downtown Miami, the project involves the installation of roadway improvements to NW 14th Street that stretches from NW 7th Court to the F.E.C. Track. Road improvements include and are not limited to roadway milling and resurfacing, ADA ramps, repair damaged sidewalks, curb and/or gutter, replacement of damaged or disfigured traffic signs and tree planting. Other improvements include the construction of additional drainage facilities consisting of a combination but not limited to exfiltration trenches (french drains), storm sewer pipes for gravity conveyance, baffles, manholes, catch basins, cross drains, swale trenches, re-grading and re-sodding swale areas (Note: This project is located outside the CRA limits and therefore the City is responsible for the complete funding of this project). Estimated cost: $3,000,000.

Project 62: Miami River Greenway (NW 10th Avenue to NW 12th Avenue)

Located on the south side of the Miami River, from NW 10th Avenue to NW 12th Avenue, infrastructure improvements involve the construction of drainage facilities that include a combination but not limited to exfiltration trenches (french drains), storm sewer pipes for gravity conveyance, baffles, manholes, catch basins, cross drains, swale trenches, re-grading and re-sodding swale areas. Road improvements include and are not limited to roadway milling and resurfacing, ADA ramps, repair damaged sidewalks, curb and/or gutter, replacement of damaged or disfigured traffic signs and tree planting. Estimated cost: $3,000,000.

Project 63: Securing the City of Miami GSA Property Maintenance Facility

The City of Miami General Services Administration (GSA) property maintenance building has a warehouse and storage facility that houses building materials, supplies, trucks, and equipment to maintain, repair, and remodel city facilities. Building trade shops, administrative offices, and emergency response supplies and equipment are also located within this facility. This facility needs to be secured from unauthorized vehicle entries. The existing entrance gate does not allow restricting of unauthorized vehicle entry. Either a motorized sliding gate or a traffic arm gate along with remote operation for authorized vehicles and an automated system to allow author-

ized business visitor vehicle entry (deliveries, shipments, etc.) needs to be installed to secure this facility and restrict unauthorized entries. Estimated cost: $16,000.00

Project 64: SE 3rd Street Road Improvements

This project will improve mobility and accessibility between the Interstate Highway System (I-95) and the core Downtown Central Business District (CBD) particularly during Brickell Bridge openings to marine traffic via a two-way conversion of SE 3rd Street and SE 3rd Avenue. The project involves the coordination and corporation from stakeholders to widen and redirect traffic circulation along SE 3rd Street in downtown Miami. Road widening activities include but not limited to reconstruction, sidewalk installation, pavement striping, traffic study and signalization, coordination between stakeholders, Florida Department of Transportation and Miami-Dade County. Estimated Cost: $1,800,000

Project 65: South Bayshore Drive Road Improvements

Located between the limits of Darwin Street and Mercy Way, improvement works along South Bayshore Drive include the construction of drainage facilities consisting of a combination but not limited to exfiltration trenches (French drains), deep drainage wells, pump stations, storm sewer pipes for gravity conveyance, baffles, manholes, catch basins, cross drains, swale trenches, re-grading and re-sodding swale areas. Road improvements include and not limited to roadway milling and resurfacing, ADA ramps, bike and walkway lanes, repair damaged sidewalks, curb and/or gutter, replacement of damaged or disfigured traffic signs and tree planting. Estimated cost: $4,000,000.

Project 66: Kennedy Park Shoreline Stabilization, Phase I

This shoreline restoration project is necessary to return the tidal flow to the mangroves along the shoreline of Kennedy Park in Coconut Grove. Shoreline stabilization will allow greater public access to the water from the upland and bring a tremendous public benefit to a highly used park located on Biscayne Bay and the Atlantic Intracoastal Waterway. Estimated cost: $2,000,000.

Project 67: Kennedy Park Floating Dock, Phase I

The City of Miami's Kennedy Park is approximate to the Atlantic Intracoastal Waterway and offers the public use of a floating dock for small craft use. The dock can no longer be repaired and must be replaced with a new dock. This will require the demolition of the existing dock and design, permitting and construction of a new floating dock. Estimated cost: $2,000,000.

Project 68: Training Center Elevator Refurbishment

The Miami Fire Department Training Center is a six story facility, primarily for recruit and in-service training. This facility is comprised of one elevator that is 25 years old and in serious need of repair or replacement. This aged and undependable elevator is the primary means for

employees and visitors to access the upper floors of this building. More importantly, on a daily basis, this elevator is the indispensable means for EMS and handicapped individuals to access floors above ground level. During hurricane season, the Miami Fire Department Training Center (FTC) is designated as a replacement city of Miami Emergency Operations Center; therefore, a functional elevator is crucial to facilitating the city's preparation and response during hurricane emergencies. Of equal significance, the FTC is crucial to strengthening our department's capability to train area members to prepare for, respond to, and recover from regional, state, and/or federal emergencies that may arise. These emergencies include, but are not limited to, terrorist, weather, and other man-made or environmental emergencies. To address the need for a reliable elevator in the fire training facility, the city of Miami Fire Rescue Department proposes a total refurbishment of its 25 year old elevator. The estimated cost of this project is $150,000.

Project 69: Rockerman Canal Dredging and Stabilization

Located in the City of Miami's Coconut Grove area, the canal serves as a channel to allow the public boat access into Biscayne Bay. The goal is to improve navigable waters for boats traveling within the canal. The scope of work includes and is not limited to canal dredging, trimming of mangrove and other exotic trees, shoreline stabilization and possible planting and/or relocating mangrove trees. The estimated cost of this project is $900,000.

Project 70: Miami Police Department Central Headquarters Roof Hardening Helipad Project

The City of Miami is seeking funding to "harden" the roof of its police headquarters building. The headquarters building which is 5 stories in height and approximately 400,000 square feet, houses the 911 call center for both police and fire, an Emergency Operations Center, all administrative offices of the police department, including the office of the Chief of Police and the Deputy and Assistant Chiefs, Crime Scene investigations, a computer server room and numerous other critical functions.

A direct hit by a hurricane or strong windstorm could cause serious damage to the building and its contents and render this 31 million dollar building un-useable. The roof of the Police headquarters serves a dual function of protecting the building and serving as a Helipad for multiagency first responders in the event of a disaster.

The total cost of the project is 1.6 million dollars.

Project 71: Citywide Non-Standard Drainage System Improvements

There are existing slab-covered trench, open-joint pipes, and others that are ineffective and do not comply with current City Standards. The City of Miami is seeking funding to replace the out-dated systems with appropriate drainage infrastructure to address flooding concerns and reduce maintenance costs. Estimated cost: $3,000,000.

Project 72: SE 3 Street Straddle Bent Replacement

The City plans to widen SE 3 Street from SE 3 Avenue to Biscayne Boulevard by providing one additional lane on the south side of SE 3 Street. There is a Metromover elevated guideway lo-

cated above SE 3 Street at this location typically supported by single columns with a hammerhead pier cap supporting both guideway tracks. Along this stretch of roadway, these columns are located between the two eastbound lanes. However, there is an existing straddle bent pier (P192) located on the south side of SE 3 Street which conflicts with the additional lane. The City is proposing to replace the existing straddle bent with a single column hammerhead pier similar to those utilized to support the elevated guideway, The City of Miami is seeking funding to replace the pier with appropriate structural infrastructure to allow for the street widening. Estimated cost: $3,000,000.

Project 73: Citywide Auger Hole Replacement

There are existing auger hole drainage systems that do not comply with current City Standards and State Regulations. The City of Miami is seeking funding to replace the non-complaint systems with appropriate drainage infrastructure to address flooding concerns and reduce maintenance costs. Estimated cost: $2,500,000.

Project 74: Silver Bluff Drainage Improvements

This project will provide drainage improvements for the area bordered by US-1, SW 22nd Street, SW 16th Avenue and SW 27th Avenue. The new drainage facilities will include but may not be limited to a combination of exfiltration drains, deep drainage wells, and storm water pump station(s). Road improvements include milling and resurfacing, reconstruction, new or repair sidewalks, curb and gutter, ADA ramps, re-grade or re-sodding swale areas, repair or replace damaged or disfigured traffic signs, and tree plantings. Estimated cost: $2,000,000.

Project No. 75: Douglas Park Neighborhood Drainage Improvements

This project will provide drainage improvements for the area bordered by US-1, SW 22nd Street, SW 32th Avenue and SW 37th Avenue. The new drainage facilities will include but may not be limited to a combination of exfiltration drains, deep drainage wells, and storm water pump station(s). Road improvements include milling and resurfacing, reconstruction, new or repair sidewalks, curb and gutter, ADA ramps, re-grade or re-sodding swale areas, repair or replace damaged or disfigured traffic signs, and tree plantings. Estimated cost: $2,000,000.

Project No. 76: Bayhomes Drive Neighborhood Drainage Improvements

This project will provide drainage improvements for the area approximately bounded by Biscayne Bay, ~750 ft. northwest from N. Bayhomes Rd., N. Bayhomes Dr. and S. Bayhomes Drive. The new drainage facilities will include but may not be limited to a combination of exfiltration drains, deep drainage wells, and storm water pump station(s). Road improvements include milling and resurfacing, reconstruction, new or repair sidewalks, curb and gutter, ADA ramps, re-grade or re-sodding swale areas, repair or replace damaged or disfigured traffic signs, and tree plantings. Estimated cost: $3,000,000.

Project No. 77: S. Miami Ave and Side Street Drainage Improvements

This project will provide drainage improvements for the area approximately bounded by I-95 and East Coast Greenway, S. Miami Ave., SW 16 Rd., and SW 25 Rd. The new drainage facilities will include but may not be limited to a combination of exfiltration drains, deep drainage wells, and storm water pump station(s). Road improvements include milling and resurfacing, reconstruction, new or repair sidewalks, curb and gutter, ADA ramps, re-grade or re-sodding swale areas, repair or replace damaged or disfigured traffic signs, and tree plantings. Estimated cost: $3,500,000.

Project No. 78: City of Miami - Solid Waste Building Window/Doors Hardening Project

This wind retrofit project will include: obtaining a structural adequacy report from a qualified registered Professional Engineer for the Solid Waste Main and Shop Building, located at 1290 N.W. 20th Street, Miami, FL 33142; installing approximately 3,200 square feet of "Sure Guard Plus 200" Window Security Barrier System for all existing glass windows; replacement of two (2) Solid Swing-Out Metal Doors at the Main Building and (2) Solid Swing-Out Metal Doors at the Shop Building; an Accordion shutter at the entrance of the Main Building; and tie downs for roof equipment at both buildings. Estimated cost: $160,000.

City of Miami Beach

Project 1: Storm Shutters and Protective Glass for City Buildings

The buildings listed below require protection for windows during a significant weather event. The city is a barrier island that is subject to high winds, missile hazards and significant impact damage.

	Building	Location	Windows	Cost
1	Log Cabin	Collins Avenue	10	30,000
2	Miami Beach Botanical Garden	Convention Ctr Dr.	24	117,000

Total Project Cost: $ 147,000

Project 2: Flamingo / Lummus Drainage Improvements

Drainage improvements are proposed for the Flamingo neighborhood which consists of additional drainage collection, conveyance, treatment and disposal facilities. The project includes construction of new catch basins, associated piping, outfalls and gravity Class V Group 6 disposal wells for stormwater water quality treatment. The Flamingo / Lummus neighborhood is bounded along the west by Alton Road, along the east by Washington Avenue, along the north by Lincoln Road / 14th Place and 5th Street along the South. This project is part of a comprehensive program of drainage improvement projects which will alleviate chronic neighbor-

hood flooding situations and will alleviate flooding concerns along the only east / west rights-of-ways that connect designated emergency evacuation rights-of-way in the South Beach area. The drainage project will mitigate street level flooding to reduce residential / commercial / public facility flooding concerns and improves emergency response vehicle access along evacuation routes within the neighborhood boundary. Estimated cost: $35,000,000.

Project 3: West Avenue Drainage Improvements

Drainage improvements are proposed for the West Avenue / Bay Road neighborhood which consist of additional drainage collection, conveyance, treatment, and disposal facilities. The project includes construction of new pump stations, catch basins, associated piping, outfalls and pressurized Class V Group 6 disposal wells. The West Avenue neighborhood is bounded along the west by Biscayne Bay, along the east by Alton Road, along the north by Dade Boulevard and along the South by 5th Street. This project is part of a comprehensive program of drainage improvement projects which will alleviate chronic neighborhood flooding situations and will alleviate flooding concerns to the only access points to the only hospital in the area (South Shore Medical Center). The drainage project will mitigate street level flooding to reduce residential / commercial flooding concerns and improves emergency response vehicle access to the South Shore Medical Center. Estimated cost: $ 15,600,000.

Project 4: Sunset Harbor Pump Station Upgrades

As a result of changed stormwater regulations, this project will provide a higher level of storm water service to the Sunset Harbor neighborhood. The project will upgrade three neighborhood pump stations and include three drainage injection wells (Purdy Ave/Dade Blv.) (Purdy Mains) (20th Street/West Ave). Estimated cost: $550,000.

Project 5: Extensive Repairs to Seawalls

Approximately twenty-five (25) seawalls in Miami Beach are in need extensive repairs. Funding and completion of these seawalls would mitigate the damage to the inland shoreline located throughout the city. The seawalls provide the "armor" protection from the effects of tidal and wave action along the waterways. Present conditions will lead to erosion of the banks and eventual loss of property into the canals. The loss of property into the canals contributes to flooding due the reduction in canal depth. In order to be in compliance with environmental concerns, seawall & bulkhead repairs will require a Miami-Dade DERM permit, which typically requires a hydrographic survey to determine any possible impacts to the adjacent waterway ecosystems, particularly seagrass. Seawall & Bulkhead construction equipment and/or work may damage adjacent ecosystems. Any damage to riprap or seagrass will require mitigation work to be determined by DERM in advance of the project. Mitigation work may include placement of riprap at a new location. A State FDEP and Army Corps of Engineers permit will also be required. Any damage to riprap or seagrass will require mitigation work. Including, but not limited to the following projects:

Location	Scope of Work	Estimated Cost

Wofford Park	Construct a cap and seal all cracks. Remove trees bordering the seawall.	790,000
Muss Park	Fill cavities at East and West ends. Seal crack	674,000
Henedon Avenue	Seal the wall and remove banyan tree	30,000
Rue Notre Dame	Seal all cracks, replace top of seawall	45,000
Bay Road	Replace the cap. Replace the guardrail	275,000
10th St Streetend	Repair the seawall	945,000
Alton Road & I-195	Repair the seawall	1,270,000
Lincoln Court	Repair the seawall	548,000
Seawall Replacement		Total: 4,577,000

Project 6: Flood Proofing Sewer and Pump Stations

Relining and sealing 31 pump stations and 500 manholes to prevent water intrusion which would damage pump station equipment and structures and would prevent failure of stations thereby avoiding flooding. In the past five pump stations have failed during storms and resulted in flooding. Estimated Cost: $1,785,000.

Project 7: Canal Cleaning and Shaping – Citywide

Dredging of the approximately 12 miles of inland canals located within the city of Miami Beach would restore depth and bottom contour. This restoration would directly impact the ability of the canal to hold tidal flooding and minimize flooding of surrounding properties during significant weather events. This dredging project would require funds for hydrographic surveys and bottom contours to determine the scope of work and cost. Dredging requires a State, ACE, and DERM permit. A hydrographic survey will be required along with soil sampling of the proposed dredged materials. Mitigation work may be required to compensate for damaged ecosystems and will be determined by DERM prior to dredging. Mitigation may include placement of new riprap, creation of new seagrass beds, or creation of artificial reefs. Estimated Cost: $4,775,000.

Project 8: Parkview Canal Seawall Revetment

In 2002, a city-wide survey was conducted to determine the condition of 99 seawalls and bulkheads within the city of Miami Beach. All have been prioritized according to condition and location. Approximately twenty-five (25) need extensive repairs. Funding and completion of these seawalls would mitigate the damage to the inland shoreline located throughout the city. The seawalls provide the "armor" protection from the effects of tidal and wave action along the

waterways. Present conditions will lead to erosion of the banks and eventual loss of property into the canals. The loss of property into the canals contributes to flooding due the reduction in canal depth. This project includes constructing revetment along eroded bank areas. In order to be in compliance with environmental concerns, seawall & bulkhead repairs will require a Miami-Dade DERM permit, which typically requires a hydrographic survey to determine any possible impacts to the adjacent waterway ecosystems, particularly seagrass. A State FDEP and Army Corps of Engineers permit will also be required. Any damage to riprap or seagrass will require mitigation work to be determined in advance of the project. Mitigation work may include placement of riprap at a new location. Project is part of Dickens Ave. Shoreline Restoration Project. Estimated Cost: $1,800,000.

Project 9: Middle North Bay Road Drainage Improvements

This project addresses numerous resident complaints and staff observations regarding a low storm water service level in the neighborhood. Drainage improvements would include additional drainage collection, conveyance, treatment and disposal facilities. Estimated Cost: $7,280,000.

Project 10: Belle Island Outfall Replacement

Replacement of three (3) outfall pipes along the Venetian Causeway East Bridge and Farrey Lane, from Control Structures 1, 2 and 3. Approximately 125 linear feet of existing 12 inch outfall pipe at the southeast side of the Venetian Causeway east bridge to the outfall with 18 inch pipe (CS-3). Approximately 86 linear feet of 15 inch pipe located on Farrey Lane to the outfall From CS-2. Approximately 242 linear feet of pipe located on the south west side of Venetian Causeway east bridge to the outfall (CS-1). The project is divided into two phases. Phase I will replace the outfall pipe from CS-3 to the east, and Phase II will replace the outfall pipes from CS-1 and CS-2. The outfall pipes need to be replaced to complete the Belle Isle Stormwater Improvements, to alleviate the recirculation of water at CS-3 located in the vicinity of the easternmost Venetian Causeway Bridge, and to replace the deteriorated outfall pipes at CS-1 and CS-2. Estimated cost: $374,000.

Project 11: 48” Outfall at Easement 4180 – 4200 Chase Ave.

Improvements include building a new 48" outfall and installing approximately 450 linear feet of 48" HDPE pipe, one manhole and one catch basin; traffic control and all ancillary and miscellaneous work. This project will improve the performance of the existing stormwater system and provide adequate flood protection in the area. The proposed improvements to the stormwater system identified at this location based on recommendation in a study requested by the Public Works Department to address localized flooding under current conditions. When completed this project will produce a stormwater system capable of providing a high level of service in the area. Estimated Cost: $200,000.

Project 12: Stormwater Outfall and Seawall Reconstruction

Replacement of seawalls and 150 stormwater outfalls with associated relining of piping leading to outfalls as part of a comprehensive program of drainage improvement projects which will alleviate chronic neighborhood flooding situations. Overall, the outfalls impact drainage in areas that have three properties with repetitive flood claims. Environmental Impacts of the re-construction will be mitigated by including a pollution control device at the outfall, for example an oil separator, to remain in compliance with the NPDES permit. Replacement of outfalls may require demolition of existing seawalls. If this occurs, the seawall will need to be repaired. New stormwater infrastructure should take into consideration site history, water tables, and any previous ammonia or arsenic contamination. Seawall & bulkhead repairs will require a Miami-Dade DERM permit, which typically requires a hydrographic survey to determine any possible impacts to the adjacent waterway ecosystems, particularly seagrass. Any damage to riprap or seagrass will require mitigation work to be determined by DERM in advance of the project. Mitigation work may include placement of riprap at a new location Estimated Cost: $1,800,000.

Project 13: Citywide Dune Enhancement Project

The goal of this project is to enhance and restore the city's dune system. The project will identify where exotic plant species are invading the dune system and variations in dune height and stabilize the dune system through dune enhancement projects that remove exotic species, plant native species, and build up dune height where necessary, thereby improving the overall health of the dune system and its ability to retain sand and protect upland structures from storm surges and flooding impacts. Baseline data for the height and width and species variation of the dune will be gathered through extensive surveying work and an overall landscape-scale dune enhancement project will be developed based on survey results. All work will be designed and completed within local, state, and federal regulations governing the Miami Beach land east of the CCCL. A rope and post fence system will be placed along with signage throughout the project to educate and protect the project results and minimize impacts to the protected area.

Aerials	160,000
Bi-Annual Profiles	95,400
Vegetation survey	40,680
GIS Map and Database	50,000
Non-native removal	10,000
Sand dune for development	36,610
New Dune vegetation	107,310
Project Administration	15,000
Estimated Cost:	$515,000

Project 14: Streetlight System Upgrade

There are approximately 4,000 streetlight poles that the electrical system connection at the pole base does not meet the Miami Dade County Code. When flooding occurs in low areas both residential and commercial, water intrusion occurs inside the bases of the streetlight poles and creates short circuits resulting in the malfunction of the lighting system.

This project improvement will include re-wiring and placing individual fuses at each pole base. It will eliminate streetlight service interruptions, and reduce repetitive interruptions and/or damages to the street lighting infrastructure system. Once immersed, the system will fault and turn off the grid for either specific city blocks of neighborhoods. Estimated Cost: $1,600,000

Project 15: Portable Traffic Light Signals

During power outages, the traffic lights are inoperable, causing a potential hazard. Portable traffic signals will provide the safety that is needed for traffic control. The city anticipates that it will need ten (10) portable traffic signals to adequately handle an emergency situation. Estimated Cost: $160,000.

Project 16: Lakeview Drainage Improvements

Construction of drainage improvements for the Lakeview Area bounded by 51st Street to North, N. Bay Road to West, Cherokee Ave. To East and Lake View Drive to South as part of a comprehensive program of drainage improvement projects which will alleviate chronic neighborhood flooding situations. The project includes construction of new catchbasins and outfalls with associated piping. The stormwater will be treated using gravity wells. The Lakeview area contains at least one property with repetitive flood claims. Estimated cost: $ 1,100,000.

Project 17: Sunset Islands I & II Drainage Improvements

Construction of drainage improvements on these islands are part of a comprehensive program of drainage improvement projects, which will alleviate chronic neighborhood flooding situations. The project includes construction of new catch basins and outfalls with associated piping. The storm water will be treated using new exfiltration trenches. Estimated cost of storm water improvements: $1,916,000

Project 18: Sunset Islands III & IV Drainage Improvements

Construction of drainage improvements on these islands are part of a comprehensive program of drainage improvement projects, which will alleviate chronic neighborhood flooding situations. The project includes construction of new catchbasins and outfalls with associated piping. The storm water will be treated using new gravity wells and/or exfiltration trenches. Estimated cost of storm water improvements: $2,737,000

Project 19: Star Island Drainage Improvements

Construction of drainage improvements on the island are part of a comprehensive program of drainage improvement projects, which will alleviate chronic neighborhood flooding situations. The project includes construction of new catchbasins and associated piping. The stormwater will be treated using new gravity wells and/or exfiltration trenches. Estimated cost of stormwater improvements: $703,000

Project 20: Oceanfront Drainage Improvements

Construction of drainage improvements from 27th Street on the south, Indian Creek on the west, 44st Street on the north, and Miami Beach Drive on the east are part of a comprehensive program of drainage improvement projects, which will alleviate chronic neighborhood flooding situations. The project includes construction of new catchbasins and outfalls with associated piping. The storm water will be treated using new gravity wells and/or exfiltration trenches. Estimated cost of storm water improvements: $550,000

Project 21: Central Bayshore Drainage Improvements

Construction of drainage improvements from 28th Street on the south, Alton Road on the west, 41st Street on the north, and Pine Tree Drive on the east are part of a comprehensive program of drainage improvement projects, which will alleviate chronic neighborhood flooding situations. The project includes construction of new catchbasins and outfalls with associated piping. The storm water will be treated using new gravity and pumped wells. The project is undergoing final design review by permitting agencies. Estimated cost of storm water improvements: $9,800,000

Project 22: Biscayne Point Drainage Improvements

Construction of drainage improvements at Stillwater Drive and 85th and 86th street in Biscayne Beach as part of a comprehensive program of drainage improvement projects which will alleviate chronic neighborhood flooding situations. The project includes construction of new pump stations, catch basins and outfalls with associated piping. The storm water will be treated using pressurized wells. The Biscayne Point area contains several properties with repetitive flood claims and flooding impedes the single means of access to the homes in the area, including access for emergency vehicles. Estimated cost: $6,600,000.

Project 23: La Gorce Drainage Improvements

Construction of drainage improvements for the La Gorce Park Area bounded 63rd Street on South, N. Bay Road, West and intercostals on East and North as part of a comprehensive program of drainage improvement projects which will alleviate chronic neighborhood flooding situations. The project includes construction of new catch basins and outfalls with associated piping. The stormwater will be treated using gravity wells. The project is undergoing final design review by permitting agencies. Estimated cost: $ 5,900,000.

Project 24: Bayshore Drainage Improvements

Construction of drainage improvements from Lower Bay Road between 21st to 23rd Streets and also between 27th and Alton Road as part of a comprehensive program of drainage improvement projects which will alleviate chronic neighborhood flooding situations. The project includes construction of new catch basins and outfalls with associated piping. The storm water will be treated using gravity wells. The Bayshore area contains several properties with repetitive flood claims. Estimated cost: $3,700,000.

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Project 25: Lake Pancoast Area Drainage Improvements

Construction of drainage improvements for West 24th Street and Lake Pancoast Drive and West 25th Street as part of a comprehensive program of drainage improvement projects which will alleviate chronic neighborhood flooding situations. The project includes construction of new catch basins and outfalls with associated piping. The storm water will be treated using a pumped well. This area contains at least one property with repetitive flood claims. Estimated cost: $1,600,000

Project 26: Venetian Islands Drainage Improvements

Construction of drainage improvements on the islands are part of a comprehensive program of drainage improvement projects, which will alleviate chronic neighborhood flooding situations. The project includes construction of new catchbasins and outfalls with associated piping. The stormwater will be treated using new gravity wells and/or exfiltration trenches. Estimated cost of stormwater improvements: $2,016,000

Project 27: Palm and Hibiscus Area Drainage Improvements

Construction of drainage improvements for Palm and Hibiscus Islands as part of a comprehensive program of drainage improvement projects which will alleviate chronic neighborhood flooding situations. The project includes construction of new catchbasins and outfalls with associated piping. The stormwater will be treated using gravity wells. Project is currently under design and in coordination with HOA initiative to underground overhead utilities. Estimated cost: $ 5,900,000.

Project 28: Miami Beach Interoperability | Communications | EOC Program

This project continues the city's investment in enhancing the interoperability and communication aspects of the city's homeland security initiatives. The City has completed enhancements to the Emergency Operations Center, a Computer Aided Dispatch/Records Management System, 911 workstations, a microwave radio system and PSCU upgrade. Projects still ongoing include SWAT response capabilities, Video surveillance, regional waterborne response, interoperable wireless communications systems and a regional Crime Scene Vehicle to provide regional response to crime scene investigations. The City also would like to procure an emergency generator for one of our radio communication sites. Estimated Cost: $997,200.

Project 29: West Avenue Bridge

The West Avenue Bridge project is of regional significance and will help relieve congestion on State road 907 (Alton Road). West Avenue parallels the busiest segment of SR 907/Alton Road, where level of service (LOS) E is normal occurrence; intersects with US 41/McArthur Causewayp with an urban collector road (17th Street), and a minor arterial road (Dade Boulevard) which lead to the Venetian Causeway and downtown Miami. A connected West Avenue would help reduce the volume of local traffic at the busiest intersections. In addition , it would provide a safer venue for cyclists, pedestrians and

motorists making their way to the causeway to Miami, than other existing traffic congested. Estimated Cost: $ 5,400,000

Project 30: Citywide Wastewater Infrastructure Improvements

The city's wastewater system provides collection and transmission service to the city's population. The city's wastewater is treated at the County's treatment plant. The wastewater is collected and transmitted through wastewater force mains and directed across Government Cut to Fisher Island and then South to Virginia Key Treatment Plant. The wastewater lines were built between 1926 and 1956, making them approximately between 50-80 years old. The useful life of these force mains is approximately 50 years and the pipes are either beyond or at the end of their useful life. The iron pipes are significantly tuberculated, resulting in hydraulic problems and water quality problems. This project will implement the city's Water System Master Plan, which will replace aging water lines (60 years old +). This project is fully programmed through neighborhood projects and other projects in the City's 5-year Capital Improvement Plan, subject to appropriation of additional programmed funding. Estimated Cost: $2,250,000

Project 31: Citywide Stormwater Infrastructure Improvements

The city's Master Plan effort identified over 160 drainage basins in the city of Miami Beach. Approximately 34 of these basins were identified as a priority, based upon pollutant loading, pollutant concentration, flooding potential, citizen complaints and city operational staff rankings. Many of the priority drainage basins are barely above sea level and the city's stormwater system is not capable of handling a 5-year storm event, as a result, flooding occurs in many of the basins, with even higher flooding levels during high tide. Flooding has a significant environmental, health and economic impact, causing businesses to be inaccessible to customers, and resulting in the additional cost of replacing and repairing damaged property. In addition, due to high groundwater elevation, drainage is slow, in these areas, requiring extensive periods of time to dissipate. Continuous excessive ponding over the long term has caused deterioration and then failure of paved roads, mosquito breeding areas, and other public health issues. The city has committed to improving the facilities within the 34 priority basins. Stormwater will be collected and treated through either gravity and pressurized wells or exfiltration trenches, where pollutants will be filtered or treated. This project is fully programmed through neighborhood projects and other projects in the City's 5-year Capital Improvement Plan, subject to appropriation of additional programmed funding. Estimated Cost: $ 100,000,000

Project 32: Citywide Water Infrastructure Improvements

This project will implement the city of Miami Beach Water System Master Plan; the project includes the replacement of aging water lines (60+ years old). These iron pipes are significantly tuberculated which has resulted in diminished water quality and hydraulic problems. Under certain conditions, iron pipe can release iron either as a soluble or particulate into drinking water supplies, resulting in water quality problems. This project is fully programmed through neighborhood projects and other projects in the City's 5-year Capital Improvement Plan, subject to appropriation of additional programmed funding. Estimated Cost: $ 55,000,000.

Project 33: Regional Communication/Command Van

Regional Communications/Command Van for Miami Beach and neighboring barrier island communities. This Regional capability is crucial as with a natural disaster or terrorist incident, our ability to receive assistance from the mainland can be non-existent. The ability to communicate and continue to operate public safety is crucial to mitigating damage and/or injuries caused by a major incident. As the largest of the barrier island communities, Miami Beach would be in position to provide public safety services to our neighboring municipalities as well as provide command and control for a unified operation. The Fire Department has targeted $85,000.00 in UASI funds for this unified approach and is in need of additional funding to complete this purchase. The estimated cost for a fully equipped Command Van is $500,000

Project 34: South Pointe III – V Drainage Improvements

Construction of drainage improvements south of 5th Street is part of a comprehensive program of drainage improvement projects, which will alleviate chronic neighborhood flooding situations. The project includes construction of new catch basins and outfalls with associated piping. The storm water will be treated using new gravity wells and/or exfiltration trenches. Estimated cost of storm water improvements: $3,000,000

Project 34: South Pointe II Drainage Improvements

Construction of drainage improvements south of 5th Street is part of a comprehensive program of drainage improvement projects, which will alleviate chronic neighborhood flooding situations. The project includes construction of new catch basins and outfalls with associated piping. The storm water will be treated using new gravity wells and/or exfiltration trenches. Estimated cost of stormwater improvements: $2,000,000.

Project 35: City Center – Historic District Drainage Improvements

Construction of drainage improvements from Lincoln Lane North on the south, Washington Avenue on the west, 21st St on the north, and Collins Avenue on the east are part of a comprehensive program of drainage improvement projects, which will alleviate chronic neighborhood flooding situations. The project includes construction of new catch basins and outfalls with associated piping. The storm water will be treated using new gravity wells. This project is in construction. Estimated cost of storm water improvements: $2,800,000

Project 36: Talmudic University

Protective storm shutters and impact resistant glass for the Talmudic University located at 4000 Alton Road. Estimated cost: $1,000,000

Project 37: Mount Sinai Hospital

Protective storm shutters and impact resistant glass; completion of Energy Center project and other improvements for Mount Sinai Hospital located at 4300 Alton Road. Estimated cost: $8,000,000

City of Miami Gardens

Project One: Storm Shutter Program

Scope of work: The City will provide financial assistance to twenty owner-occupied single family homeowners to install hurricane shutters on all windows. The financial assistance will be in the form of a deferred forgive-able loan for five years. The City has an existing process for qualifying residents to participate in the program. The shutters will be installed by a City-approved licensed and insured
contractor. Estimated cost: $100,000.00.
Timeline to complete project is < than one year.

Project Two: Livable Neighborhoods Initiative

The livable neighborhoods initiative is an infrastructure improvement project
consisting of the provision of new drainage, sewer, roadway paving, sidewalk, lighting, and landscaping of three low-to-moderate income residential neighborhoods in the City. The project will be implemented in phases, depending
upon funding availability. Estimated cost: $12,500,000.00.
Timeline to complete project is > than one year.

Project Three: Drainage Improvements

The following areas have been identified as having severe flooding problems, and the stated improvements will reduce property damage and repetitive losses from future rain events. These projects also improve water quality of stormwater runoff, which is a requirement of the County and federal permits. All projects will consist of French Drain systems, with emergency overflow outfalls where needed. French Drains capture the first inch of stormwater runoff on the property site, and allow treatment for pollution, and then percolation into the ground.

NW 38 Court, 210 Street to 210 Terrace. Estimated cost: $121,000.00.
Timeline to complete this project is < than one year.
Low bid approved in September 2011, construction 90% complete, swale restoration and sodding left.

NW 170 Street and west of 22 Avenue. Estimated Cost: $950,000, this site will need retention area or pumped system to Marco Canal.
Timeline to completion is > than one year

1311 NW 195 Street. Estimated cost: $100,000
Time to completion is > than one year.

NW 151-159 Street and 27-32 Avenues
Cost: $258,500

Design complete October 2011, Construction to start January 2012
Timeline to completion is < than one year. Advertised for bid October 2011

NW 205-207 Streets, from NW 28-33 Avenues
Cost: $300,000
Timeline to complete is > than one year.

NW 191Street-196 Terrace, from NW Sunshine State Parkway East to NW 12 Avenue
Cost: $84,000
Advertised for bid in October 2011
Timeline to completion is < than one year.

NW 7 Ave Improvements New roads, drainage and median
Cost: 5.2 million dollars
Timeline to complete < than one year.
Construction has started. Expected completion: June 2012

NW 27Avenue and 207 Street
Cost: $634,885 Timeline to complete < one year
Construction started September 2011

NW 25 Ave. and 167 Street north Road, drainage and streetlight construction
Cost: $400,000 Timeline to complete < one year
Design 100% complete, awaiting funding

Venetian Gardens Drainage and Road Improvement
NW 161-164 ST and 37-38 Place
Cost: $315,800
Estimated completion date: October 2011

Secondary Canal Bank Stabilization and Sediment Removal
Carol City Canals A and B, Real Site Canal, and NW 17 Avenue Canal.

- Project was included in drainage improvements for ease of reference.

Scope of work includes sediment removal and canal stabilization, and headwall and culvert repairs.
Estimated cost: 1.3 Million dollars
Funds have been secured through NCRS. City will contribute 25% from Stormwater Funds.
Estimated completion is < than one year.
Notice to Proceed issued October 2011

Vista Verde Phase Ia
Area from NW 38-39 Ave and NW 40 Ave Rd to NW 207 Street
Cost: $$670,885.70
Construction to start after January 3, 2012
Estimated to be complete within one year.

Phase Ib
Area along NW 39 Ave., from 207-209 Street
Cost: $425,000.00
Construction estimated to start after January 3, 2012
Estimated to take > than one year to complete.

Vista Verde, Remaining Phase
Area from Snake Creek Canal to NW 41 Ave Road
Estimated cost: $5,229,264.30
Project estimated to be complete > than one year.

Drainage and other mitigation projects completed by the City:

NW 194 Street and 21 Ave. Estimated cost: $350,000
Timeline to complete this project is < than one year.
Status: Completed late 2011

NW 175 Street and 12 Ave. Estimated cost: $113,200

NW 38 Place and NW 208-209 Streets. Estimated cost: $150,977.00.
Cost share funded through grant from South Florida Water Management District

Bunche Park Neighborhood Revitalization Project Estimated cost: $325,000.00.
Funded with a CDBG Grant.
Project expanded to include south Palmetto Access Road, NW 167 St., from 17-27 Avenues, and from NW151-167 Streets

King's Garden Phases I and II: This also includes road renovations
Estimated cost: $480,000

NW 171 Terrace from NW 44 Avenue to 45 Court. Estimated cost: $225,000.00.
Completed 082009

Golden Glades Elementary School Swale Restoration
Cost: $32,098.60

NW 17 Avenue and 194 Street swale restoration
Cost: $3,500

NW 159 Drive and 12 Avenue, east swale restoration
Cost: $2,758

441 from County Line south 100 feet
Cost $68,700

NW 211 St and 29 Court/30 Avenue, inlets and swale restoration
Cost: $30,000

NW 38 Court and 185 St., inlets and swale restoration
Cost: $20,000

NW 167 and Palmetto East Ramp Road.
Constructed right turn lane, drainage improvements, sidewalk and signage
Estimated cost: $366,070

Project Seven: Emergency Broadcast System

Install an emergency broadcast system to give residents and businesses emergency and evacuation information. Estimated cost: $271,000.00.
Project completed.

Project Four: Swale Tree Trimming and Debris Clearance

Develop and implement a citywide program to trim trees prior to hurricane season, which will allow for increased survivability of trees and will reduce safety concerns of residents. This initiative will also reduce debris and protect infrastructure such as sidewalks and roads. Estimated cost: $275,000.00.
Timeline to complete this project is > than one year.

Project Five: Removal of Australian Pines and other Exotics

Debris removal after a storm is an expensive and time-consuming process. Fallen trees can delay the re-entry process by blocking access to roads and properties. This project would create a permanent ongoing tree removal program. It would ensure removal of exotic trees on public rights-of-way. The exotics would be replaced by appropriate native trees that will enhance the City's tree canopy. The City will maintain the new native trees. Estimated cost: $1,000,000.00.
Timeline to complete this project is > than one year.

Project Six: Community Emergency Response Teams (CERT)

This project's goal is to continue CERTS for the City. When an emergency or disaster occurs at anytime and anyplace in the City, trained CERT volunteers will be ready and able to respond to save lives and protect property. CERT members will be able to do the greatest good for the greatest number after a disaster, while protecting them from becoming victims. This program will include but not be limited to basic medical treatment procedures, scene safety, securing utilities, and other hazards, and some rescue operations. Estimated cost: $50,000.00.
Timeline to complete this project is > than one year.

Project Eight: Burial of Power Lines

Due to wind storms, the burial of main electrical lines (FPL, cable, telephone, etc.) is essential to the community. This will minimize damage to property and loss of life, and gain a faster return to normal operations as soon as possible. Estimated
Cost: $10,000,000.00.
Timeline to complete this project is > than one year.

Project Nine: Floodproofing Police Department Building

This Project consists of applying floodproofing techniques to all the doors and low-lying windows of the City's Police Department. This will reduce damage to the building and its contents during a major rain event. Estimated cost: $50,000.00.
Timeline to complete this project is > than one year.

Project Ten: Pre-emptive Tree Trimming at City Parks

This project consists of trimming trees in City parks to ISA standards. This includes: Removing dead and diseased wood from all tree specimens within the park system; removing trees that exhibit a geotropic growth pattern and that pose a public health and safety hazard to citizens in the parks; and remove weak and deformed crotches as well as major branches that have been broken in previous storms. Estimated cost: $40,000.00.
Timeline to complete this project is > than one year.

Project Eleven: Create GIS Layer for Storm Sewer Infrastructure

This project aims to update the City's GIS for storm sewer infrastructure, to get the latest information possible. This will mitigate flooding if a major event occurs, through the City having accurate information on which drainage systems to investigate, maintain, and clean before flood events occur.
Estimated Cost: Timeline to complete >one year

Project Twelve: Correct Stormwater Utility Fees for Commercial Properties

The goal of this project is to more accurately assess stormwater utility fees at commercial properties. By more accurately assessing commercial properties, the City can use the added revenue to complete more of the needed drainage improvement projects.
Estimated cost: Timeline to complete>one year

Project Thirteen: Bridge Replacement

This project will replace the bridge at NW 42 Ave and 179 Street. Replacement of this bridge will ensure continued and greater capacity for the secondary canal it serves, and quicker evacuation times for residents to the north and south, should an evacuation be ordered.
Status: Design/build to be awarded in July 2011, project estimated to be completed by March 2012.

Estimated cost: $930,000
Timeline to complete project is < one year.

Town of Miami Lakes

Project 1: Public Information and Education

Develop a "How To" manual specifically for Miami Lakes‟ citizens. Through the use of grant funds, the town can develop community disaster education programs to promote emergency awareness and educate residents on the appropriate response and necessary preparations to take in the threat of an emergency. This effort should reduce demands on the local government and facilitate recovery after the event. During the town's first few years when both the town and the county are responsible for various city services, this can be a key issue.
Estimated cost: $10,000.

Project 2: Lake Patricia Drainage Improvements

The Lake Patricia Drainage Improvements addresses the drainage deficiencies presented within the geographic boundaries of this fully developed, residential neighborhood with existing drainage facilities that include inlets, gravity pipes and outfalls that connect to Lake Patricia and surrounding Canals. The 131 Acre neighborhood has a history of flooding due to its low elevation and insufficient drainage system. Currently, during the heaviest predicted rainfall, models predict there are approximately 60 acres of flooding, which will be reduced to 6 acres after the improvements are implemented. The proposed exfiltration trench will provide water quality and storage capacity as the stormwater is collected and discharged through outfalls into Lake Patricia and the Graham's Dairy Canal. Estimated Cost: $967,663.

Project 3: Lake Martha Drainage Improvements

The Lake Martha drainage improvements address the drainage deficiencies in the neighborhood. It includes approximately 12.6 acres of road right-of-way. None of the drainage areas meet the water quality requirements and several either do not meet water quality goals for the 5, 10, 25 and 100-year storm events or were observed to flood over the crown of the road during an average summer storm. These roads experience localized drainage problems. The existing storm drainage systems for these areas often takes several days to discharge runoff that is on the roads, creating a nuisance and potential danger to the motoring public. Estimated cost: $1,260,000.

Project 4: Lake Sarah Drainage Improvements

The Lake Sarah drainage improvements address the drainage deficiencies in the neighborhood. None of the drainage areas meet the water quality requirements. Several areas fail to meet performance goals for the 5, 10, 25 and 100-year storm events and observed drainage deficiencies during and average summer storm. These roads experience localized drainage problems. The existing storm drainage systems for these areas often takes several days to discharge runoff

that is on the roads, creating a nuisance and potential danger to the motoring public. Estimated cost: $710,000.

Project 5: West Lakes Drainage Improvements

The West Lakes drainage improvements address the drainage deficiencies in the neighborhood. These roads experience localized drainage problems. The existing storm drainage systems for these areas often takes several days to discharge runoff that is on the roads, creating a nuisance and potential danger to the motoring public. Components include NW 89th Avenue, Olivia Gardens, Genesis Gardens, and Florida Tropical Estates. Estimated cost: $850,000.

Project 6: Royal Oaks Drainage Improvements

The Royal Oaks drainage improvements address the drainage deficiencies in the neighborhood. These roads experience localized drainage problems. The existing storm drainage systems for these areas often takes several days to discharge runoff that is on the roads, creating a nuisance and potential danger to the motoring public. Components include Dunhill Cove/Swan's Landing, 2nd Addition and 5th Addition. Estimated cost: $600,000.

Project 7: Purchase and Install Emergency Radio System

During an emergency, it is critical that the town manager and key employees communicate with each other, county police, public works, and the county Emergency Operations Center. This project involved the purchase of a back up emergency interoperable communication system for police, including a mobile command center, and installation of a small-sized system (5 to 8 radios) and base station. Estimated cost: $115,000.

Project 8: Tree Trimming

The goal of this project is to effectively manage the town's tree canopy, reducing debris and protecting the infrastructure from damaged side-walks, curbs, and clogged storm drains due to excessive tree leaves and branch accumulations. The tree trimming program's objective is to trim all the trees in the swale areas in all residential neighborhoods and park areas every three years, and main access roads annually including several hurricane shelter routes. Estimated cost: $125,000.

Project 9: Local Radio Station

The town of Miami Lakes in order to provide valuable information to the local business and residents would provide that information through the use of a small AM radio broadcast system. This consists of a fixed antenna and radio equipment to broadcast on a low frequency AM radio band. The information would be concerning hazard conditions, where to find assistance, traffic conditions and any other relevant information that pertains to the local township. Estimated cost: $50,000.

Project 10: Purchase Barricades

Purchase type II barricades with flashing lights and French barricades. In addition, purchase a trailer for transporting the barricades towed behind a pickup truck and a storage container for all supplies. The town has a need for barricades to block hazard road conditions damages or other incidents that the use of barricades is necessary. This is a safety issue. After a hurricane, roadways that have fallen power lines, downed trees, or deep standing water are a hazard to the public and the barricades will assist in limiting access. Estimated cost: $18,000.

Project 11: Traffic Control

To provide for public safety, the town seeks to purchase mobile stop signs, mounted on square bases to control traffic in the event that traffic lights are inoperable. These will be placed as four-way stops at an estimated 15 unmanned intersections. Estimated cost: $9,000.

Project 12: Traffic Signal Emergency Power

In the event of power outages, the town wishes to obtain and install transfer switches for additional energy sources on electrical boxes connected to traffic signals. This will allow the town to disconnect the electricity and connect to portable generators to power the traffic signals, thus eliminating the dangers from power surges when the electricity is repaired. Estimated cost: $25,000.

Miami Shores Village

Project 1: Harden Windows in 2nd Floor Police Department

Hurricane-rated protection is needed for the windows of the Miami Shores Village Police Station's 2nd Floor. Estimated Cost: $50,000

Project 2: Harden Windows in the Village Community Center

Hurricane-rated protection is needed for the windows of the Miami Shores Village Community Center. Estimated Cost: $50,000

Project 3: Harden Windows in the Recreation Field House

Hurricane-rated protection is needed for the windows of the Miami Shores Village Recreation Field House. Estimated Cost: $50,000

Project 4: Harden Windows in the Miami Shores Golf & Country Club

Hurricane-rated protection is needed for the windows of the Miami Shores Village Golf & Country Club. Estimated Cost: $50,000

Project 5: Redesign Bayfront Park Seawall

Design and construct new seawall system using poured concrete and tiebacks to replace existing 900 foot seawall, currently in poor condition. Explore more hurricane resistant design, including the angling of the seawall to allow better deflection of wave action. Re-engineer pylons to accept pedestrian safety rails. Estimated cost: $810,000

Project 6: Harden and Flood Proof Public Works Facility

Strengthen the existing Butler Aluminum Building with structural reinforcements including raising the floor elevation; adding injection well / exfiltration drainage system to protect administrative/inventory storage from flooding. Make existing offices hurricane proof by using poured concrete roofing and steel reinforced doors, enabling the facility to augment Village Hall as an employee hurricane shelter during storms. Replace existing overhead garage doors with hurricane proof doors. Strengthen UHF radio tower to withstand hurricane force wind loads. Estimated cost $710,000

Project 7: Hurricane Proof Emergency Generator Room (Police Department)

Replace the aluminum cover currently housing the generator used for emergency power to support public safety operations during and after hurricanes. Replace with a hardened poured concrete structure. Estimated cost: $61,000

City of Miami Springs

Project 1: Stormwater Management Master Plan

The city retained PBS&J to prepare a stormwater master plan. The plan has established eight (8) drainage projects within the city. Thus far the city has completed the first three projects and Phase I of Project 4 is in design. The city wishes to include Phase 2 of Project 4 and Projects 5 through 8 in LMS. The projects are as follows with the projected cost:

Project	**Cost**
Phase 2 of Project #4 (Basin 14) Cost	$ 654,480
Project #5 (Basin 13)	91,125
Project #6 (Basin 19B)	364,500
Project #7 (Basin 9)	457,313
Project #8 (Basin 25)	747,225

Estimated total cost**:** $2,300,000

Project 2: Storm Shutters for Municipal Buildings

The city intends to install storm shutters at the following critical and non-critical municipal buildings: Cavalier Annex, the swimming pool office, Stafford Park office, the Country

Club building (this building cooks with gas and could prepare food for city employees during post storm conditions), and public works lunch and meeting room, and the community police office. Note: the last building is privately owned and leased to the city. Estimated cost: $30,000.

Project 3: Emergency Generator for the Senior Center

The Miami Springs Senior Center serves the nutritional and social needs of our senior residents. If the area was to be affected by a hurricane or other climatic condition and there was no electricity, a generator would allow the city to continue serving the needs of these individuals during such a stressful period. Estimated cost: $30,000.

Project 4: Creation of a Disaster Shelter

The City of Miami Springs has no designated shelter to house victims in an emergency. The senior high school was a designated "Civil Defense" shelter and later a Red Cross hurricane shelter, but that was years ago. The city-owned gymnasium would be a suitable structure and has a fairly central location in the city. However, the structure currently has extensive physical fatigue and is in need of being replaced. Estimated cost: $3,000,000.

Project 5: Telemetry System

Install a telemetry system for the city's twelve pump stations. Estimated cost $150,000.

Project 6: Purchase and Install a Radio Repeater System

This project would improve the communication of city forces and enable a faster response time in an emergency situation. The current system does not have sufficient range for vehicle mounted or handheld radios. The current system does not even have adequate power to cover the city boundaries. Estimated cost: $45,000.

Project 7: Removal of Hazardous Australian Pines

The city has a large number of old, deteriorated Australian pines that easily become a hazard during high winds. The removal of these conifers requires specialized equipment and skills that city crews do not possess. This project would enable the city to hire a professional firm to remove approximately 30 Australian pines. Estimated cost: $90,000.

Project 8: GIS System for Maintenance of Flood Zone Data

The implementation of a GIS system would allow the city to coordinate with Miami-Dade County and other agencies in managing and mapping flood zones.

Project 9: Engineering Study to Determine Sites of Canal Bank Restoration

The Melrose Canal runs through the city and acts as one of the main conveyors of storm water. The canal was recently dredged through FEMA mitigation funds, but the funding was not adequate to address the restoration of the eroding canal banks along the length of the canal. The dredging efforts will, over time, lose their intended purpose of increasing conveyance capacity if the canal banks continue to erode at the current rate. This canal bank stabilization project would reduce flooding hazards and help to maintain adequate conveyance. Estimated cost: $60,000.

Project 10: Storm Sewer Cleaning Program Improvements

The NPDES requirements for storm draining are straining the existing capacity of city resources to comply. This project would be for the addition of one *Vaccon* truck with an equipment operator. Equipment maintenance would also be included. Estimated cost: $350,000.

City of North Bay Village

Project 1: Storm Drainage, Sewage, Bay Restoration

This will be the biggest environmentally focused project the city has encountered. Biscayne Bay is currently exposed to almost 10,000 linear feet of North Bay Village-Miami Beach bound sewage pipe. This project involves a new Miami bound pipe. The new force main will originate at the city's main sewer pump station (Galleon Street) and travel to N. Treasure Drive turn north at Adventure Avenue and west on J.F. Kennedy Causeway (SR 934). It will turn south in NE 6th St. (Miami) and end at Miami-Dade County's sewer lift station just south of SR 934. This project involves storm water improvements to all roadways affected. The environment will benefit the most by replacing the current eastbound 10,000 linear feet of raw sewage pipe that crosses Biscayne Bay to only 300 linear feet of new westbound pipe. If horizontal directional drilling is used to cross under Biscayne Bay there would be zero pipe exposure to the bay. Estimated cost: $6,500,000

Project 2: Existing Sewer Force Main

This is a Department of Environmental Resource Management mandated project. In order for the city to continue day-to-day construction development the sole existing sewer force main must be inspected for leaks, structurally analyzed and protected. This project consist of performing a dye-test which will reveal any leaks in the pipe; As well as an ultrasonic scan which will provide the existing cross-sectional thickness of the pipe at several locations. The final step is the installation of 40 buoys marking the sewer force main trajectory. This will alert and prohibit vessels from damaging the brittle 38 year old force main. All previous breaks have been man endues. The first was an anchor, the second was a ship that ran ashore and the third was a vessel that stroke the main leaving a clear deformation, the forth was a 40' wooden pile that caused a perforation after Hurricanes Charlie and Frances. Estimated cost: $66,600

Project 3: Storm Drainage Outfall Protection

This project involves video recording the existing storm drainage system, rehabilitating all portions needed, and the installation of backflow preventors at all stormwater outfalls in the city. This will prevent build up of barnacles which decrease the cross-sectional diameter of the pipes in turn decreasing the flow capacity. The valves will maintain the high water table bay waters out of our storm system allowing our pipes to act as additional containment volume. Most importantly they will maintain flow moving in a positive flow and prohibit contaminants to enter Biscayne Bay and the waters of the United States. Estimated cost: $100,000

Project 4: North Bay Island Stormwater Pump Station Rehabilitation

When North Bay Island is affected by a serve storm, storm surge or heavy rains, which can cause a great deal of damage the public right of way and residential homes. Therefore we are proposing that the following project to be included in the Local Mitigation Strategy. Rehabilitation of the stormwater station located on North Bay Island. Estimated costs: $124,840

Project 5: Underground Electrical Power Lines

This project involves the removal of above ground electrical power lines and the replacement of a complete underground electrical power line system for the entire city. The city of North Bay Village is within the hurricane evacuation Red Zone, which means it is exposed to possible severe damage. Having an underground electrical power system will tremendously lower the power outages caused by hurricane force winds. Estimated cost: $7,070,000

Project 6: Municipal Park

The city of North Bay Village serves over seven thousand residents and yet only has one very small "tot-lot." The future of a city depends on the well being of its young residents. A city park is greatly needed. This project will fund the acquisition of a lot and its conversion to a municipal Park. Estimated cost: $1,400,000

Project 7: Hispaniola Sewage Pump Station

The city's wastewater system is made up of only four pump stations. The busiest pump station next to the main pump station is the Hispaniola pump station. This is a wet well/dry well station located on Treasure Island. A recent pump station inspection found the dry well to be in bad condition. The wall lining has peeled away, and in several areas, the wall itself has deteriorated to the point of exposing the rebar. Both pumps are barely operational and the pump controls were disintegrating. The calculated average daily flow to the station is 576 Gallons per minute (gpm). The station pumping capacity must be increased by a factor of 1.2 to meet EPA ten-hour criteria. This translates to a flow rate of 1383 gpm per pump to meet current needs and to account for the potential growth on Treasure Island. The project consist of converting the existing dry/wet pit station to a fully wet station. This will nearly double its holding capacity.

Two new chopper pumps, which devourer any debris introduced in the sewer system, will be installed. Estimated cost: $100,000

Project 8: Digital City Survey

This project encompasses the creation of a complete city electronic topographic survey in *MicroStation* or *AutoCAD*. This will help incorporate the recently created geo-referenced wastewater system. By obtaining the global satellite positions for all wastewater manholes, pump stations, and force mains, the entire wastewater system for the city is now digitized. The city's water distribution system will be digitized once an entire city survey is created by obtaining the global satellite positions for all water valves, water meters, and water mains. Estimated cost: $35,500

Project 9: Smart Meters

This project consist of the acquisition of four "smart meters" that immediately advise of a power outage. telephoning up to three individuals and entering a trouble-ticket to Florida Power and Light. This will prevent drastic environmental disasters caused by sewage over flow out of the city's four sewage pump stations. Estimated cost: $5,000

City of North Miami

Project 1: Flood Prevention and Mitigation: Drainage Basins 12 and 13

Stormwater Master Plan Priority Basin 12 includes two sub-basins in the Biscayne East system. The area is bounded by the Biscayne Canal and NE 6 Avenue, between NE 135th and NE 129th Streets. Stormwater Master Plan Priority Basin 13 includes two sub-basins in the Biscayne East system. The area is bounded by Biscayne Canal and NE Miami Ct., between NE 119th and NE 123rd Streets. While there currently exists a limited number of drainage structures in these two areas, they require critical updates including the installation of baffles and replacement of grates. The installation of additional structures with French drainage systems, as outlined in the Master Plan conceptual design, will prevent repetitive flooding, reduce damages to residential properties, and decrease the number of recurring insurance claims. Estimated cost: $1,000,000

Project 2: Non-critical Facilities Hazard Mitigation

The city has identified eight of its buildings as non-critical facilities. These facilities support the restoration of essential city services after major storm events and other emergencies. Non-critical facilities include five community centers (Enchanted Forest Community Center, Griffing Senior Adult Center, Gwen Margolis Community Center, Keystone Center and Sunkist Grove Community Center) the Building and Zoning Facility, the Museum of Contemporary Art and the Parks Operation Center. Non-critical buildings are used as staging facilities by city staff, FEMA, Red Cross, and other emergency response agencies. Over the years, building officials and staff have researched various types of protection, ranging from plywood to roll down fixed

metal shutters and shields. Non-critical city facilities, currently secure their windows and doors with plywood. Plywood requires considerable storage space and time-consuming installation. The installation of a combination high impact/shatterproof windows, roll downs and/or hurricane proof screens in these facilities will reduce significantly the time, manpower and storage currently required to secure them. Estimated cost: $450,000

Project 3: Embankment stabilization at Keystone Point Bridge #2

Keystone Bridge #2 is a functioning bridge that provides access to Keystone Point Islands #5 and #2. The Florida Department of Transportation (FDOT) inspects this bridge annually. While FDOT has determined that the bridge is in fair working condition, the surrounding embankment is highly susceptible to severe damage from storm surges. Once the embankments are destabilized, residents are effectively cut off from the mainland and emergency response teams cannot reach the islands. The city is therefore proposing to hire a firm to design a stabilization protocol and install an embankment stabilization system. Estimated cost: $1,800,000

Project 4: Surge Resistance and Flood Mitigation at Keystone Point and Sans Souci

The eastern boundary of North Miami borders Biscayne Bay for approximately three miles. Keystone Point and Sans Souci are the two subdivisions located along this eastern shoreline. There are five canal ends in Sans Souci currently in good condition. and are twenty-three canal ends in Keystone Point that have been repaired. When these subdivisions were developed, these canal ends were constructed to prevent soil erosion. The canal ends were not designed as seawalls and their structural integrity was not considered at the time. In 1998, the city received a Federal Emergency Management Agency grant to reconstruct nineteen of the twenty-eight seawalls. While two existing retaining walls do not need repairs, the remaining seven retaining walls need reconstruction to ensure structural integrity in the event of storm-related tidal surges. Approximately 50 homes will be affected if the remaining retaining walls are damaged by a tidal surge. In addition, any surface or subterranean deterioration to the existing retaining walls will adversely impact the structural integrity of the swales directly behind the seawalls and subsequently damage underground utilities in close proximity to the retaining walls. This project will prevent repetitive flooding, reduce damages to residential properties, decrease the number of recurring insurance claims, and provide uninterrupted telephone, water and sanitary sewer services to residents. Estimated cost: $2,000,000

Project 5: Sanitary Sewer Backup

The city maintains and operates forty-five sanitary sewer lift stations. These lift stations, located throughout the city, vary in size and configuration and allow sanitary sewage to flow through a pressurized sewer main system. This sewer system infrastructure is monitored regularly to ensure it functions properly. In the event that any lift station ceases to operate due to power failure or malfunction, the entire system fails as required pressures cannot be maintained. Sanitary sewage, then backs up into the system eventually entering homes as inflow/outflow pressures are reversed. More than half of the city's forty-five sanitary sewer lift

stations have high priority needs for generators. Ten lift stations are constructed with the capability to house permanent stationary generators. Four of these ten lift stations currently have emergency back up generators that are permanently affixed to the facility. The remaining six require emergency generator back up to be installed. Estimated cost: $1,000,000

Project 6: Safeguarding Availability of Potable Water

Six remote raw water wells provide water to the city's Winson Water Plant at Sunkist Grove and supply the water necessary to operate the Water Plant at full capacity. This project will provide emergency power to the six remote raw water wells. These emergency generators will ensure that the remote water wells remain operational during power outages caused by storm events, and that the Plant will operate at full capacity. This will provide an uninterrupted source of potable water for North Miami residents as well as residents in surrounding water service areas. In addition, it will also ensure interconnectivity with other municipalities and service areas including the city of Opalocka, the city of North Miami Beach and Miami-Dade County. Estimated cost: $325,000

Project 7: Flood Zone Data Maintenance: GIS System

This project will fund the creation of a GIS system to support several activities of the city's National Flood Insurance Community Rating System program including mapping, annual outreach and notification, and the maintenance of all flood zone designations and other data for all real property folio numbers within the city. In addition, the project will integrate city's data into Miami-Dade County's GIS system tailoring products generated for city use. The additional information generated by this system will be essential for the preparation of detailed flood mitigation reports and allow users to track conditions by specific property location. This data will then be utilized to clearly identify and designate low lying areas, which will streamline flood prevention efforts when designing new systems and upgrading existing drainage systems. Estimated cost: $125,000

Project 8: Global Positioning System

The city of North Miami has purchased a set of base maps from Florida Power and Light that are currently utilized by all city Departments. The city is seeking funds to purchase a Global Positioning System (GPS) that would facilitate and streamline the updating and retrofitting of water, sewer and stormwater utilities.

The city of North Miami has municipal boundaries along Biscayne Bay. The positioning and maintenance of channel markers and other safety signs could be implemented more using a GPS instead of conventional surveying methods. Estimated cost: $12,000

Project 9: Emergency Portable Stormwater Pumps

The easternmost boundary of North Miami borders Biscayne Bay for approximately 3 miles. There are, therefore, several low-lying areas that flood during regular rainfall and major storm events. The city is seeking funds to purchase four portable emergency pumps to assist in

the discharge of stormwater runoff. These four portable pumps will be housed at the Utility Operation Center located near low-lying coastal areas to ensure a timely response. These portable stormwater pumps will help prevent repetitive flooding, reduce damages to residential properties, and decrease the number of recurring insurance claims. Estimated cost: $225,000

Project 10: Gravity Sewer Systems Improvements for Groundwater Infiltration Reduction

The city is seeking funds to implement remedial protocols, namely sanitary sewer pipe lining and manhole rehabilitation to reduce groundwater infiltration into the sanitary sewer collection system. The project calls for lining the interior of existing sewer lines. Lining the system will significantly reduce the inflow and infiltration of ground water into the sewer collection system. This, in turn, will reduce the total volume of water being treated at the Miami-Dade County Sewage Treatment Facility consequently reducing processing costs. In addition, this project will also reduce leakage of raw sewage from existing compromised lines into the environment, prevent groundwater contamination and ensure the public health, safety and general welfare of are residents. Estimated cost: $6,000,000

Project 11: Emergency Power for Water and Sewer Utility Operations Center.

The city's Water and Sewer Utility Operations Center is not manned during major storm events. The Center, however, must be operational immediately after an "all-clear" notice is issued. All Water and Sewer equipment, materials and supplies are stored at this location. In addition, repair crews are dispatched and monitored from the Center during storm events and other emergencies. The city is therefore seeking funds to install a stationary emergency generator at the Center. Estimated cost: $90,000

Project 12: Replacement Generator for Police Station

The current generator, which is 15 years old, supplies back up power for the North Miami Police Station. The Police Station is an integral part of Miami-Dade County's Emergency Management's Divisional Response Plan. The city of North Miami is one of seven municipalities identified as host cities (Division 2) housing a Divisional Emergency Operations Center and serving not only city residents but also residents from the Town of Bay Harbor Islands, the Village of Biscayne Park, the town of Surfside, Indian Creek and North Bay Village. The ability to operate and provide communications from a functional facility during manmade or natural disasters is of vital importance to the overall safety of the community and neighboring municipalities. The City is therefore seeking funds to replace the back-up generator at the Police Station. Estimated cost: $325,000.

Project 13: Security for City Hall

City Hall is a Miami-Dade County designated Regional Emergency Operations Command Center. Constructed in 1963, City Hall is located at 776 NE 125 Street in the center of North Miami. City Hall is open daily, Monday through Friday to residents and business owners

that require local government services and assistance. The building houses the offices of the Mayor and Council as well as the City Manager and several key departments such as Finance, Parks and Recreation, Public Works and Risk Management. These offices must be secured from external intrusion during emergencies. Currently the only security measure provided is restricted access to the 3rd and 4th floors after 5:00 pm via a user key. Stairwells are locked and a camera monitors the first floor lobby only. This camera does not record and is visually monitored at the Police Department. Listed below are needed security measures and an estimated cost.

- Install security cameras and monitors that are connected to a security company. ($35,000)
- Keyless entry system to all protected areas. ($27,750)

Estimated cost: $62,750

Project 14: Correct Water Infiltration at City Hall (EOC) Basement

Constructed in 1963, City Hall was designed to house a civil defense bomb shelter in the basement. Over the years, the need for a bomb shelter has become obsolete and the basement has been used for offices, classrooms, employee break rooms and storage space for department supplies. City records are also stored in the basement. Currently, the basement also contains office space for five municipalities which participate in the North Miami Divisional Emergency Operations Center. These municipalities house emergency response teams and are the link to the Miami-Dade EOC during natural disasters. Since the basement is below the natural water table, the structural integrity of the walls and flooring has diminished causing water intrusion. The walls and flooring should be sealed and possibly excavated and sealed along exterior walls. Correcting the flooding problem in the basement, will ensure that vital facilities and staff are secure during major storm events
Estimated cost**:** $45,300

Project 15: Replacement of U.P.S. for Police Station

The city of North Miami is an integral part of Miami-Dade County's Emergency Divisional Response Plan. The city of North Miami is one of seven municipalities identified as host cities, serving the Town of Bay Harbor Islands, the Village of Biscayne Park, the Town of Surfside, and the Town of Indian Creek. The Divisional Emergency Operations Center (EOC) facility houses staff and provides emergency planning, communication, and information receipt and dissemination services. During manmade or natural disasters, the ability to operate and provide communications from a protected and safe facility is of vital importance to the overall safety of the community and neighboring municipalities. The current Uninterruptible Power Supply (UPS) provides power during power failures and safeguards all communications equipment, computers and other vital electrical equipment. The current UPS is over five (5) years old; all batteries have reached the end of useful service life; and it is at its maximum capacity. The city is therefore seeking funds to replace the Uninterruptible Power Supply.
Estimated cost: $80,000

PROJECT 16: UTILITY OPERATION CENTER SURGE SUPPRESSION SYSTEM

The city maintains and operates forty-five sanitary sewer lift stations. Most lift stations are monitored from the city's operation center located at 1815 NE 150th Street through a supervisory control and data acquisition (SCADA) system. All SCADA information is routed electronically through a server located at City Hall and relayed to either the operation center or the lift stations by way of radio. The SCADA system is susceptible to power fluctuations and spikes that damage equipment and disrupt communication between the operation center, City Hall and subsequently the lift stations. Surge suppression equipment will protect the system against damaging power fluctuations. eliminate the need for new equipment purchases and reduce personnel costs to manually control lift stations during storm events. Estimated cost: $20,000

City of North Miami Beach

Project 1: City of North Miami Beach Emergency Operations Center

The City of North Miami Beach EOC is the Divisional EOC for Northeastern Miami-Dade County and serves the following cities: North Miami Beach, Golden Beach, Sunny Isles Beach, Aventura, North Bay Village, Bal Harbour Village, and Miami Gardens. In addition, several support agencies such as, FP&L, BellSouth, TECO Gas, and other are encompassed as well. The NMB EOC is responsible for a population of approximately 180,000 residents. Critical structures under the NMB EOC purview include municipal drinking water supply, wastewater treatment, major corridor highways, railroad, natural gas and chemical plants as well as industrial warehouses. The NMB EOC activates to ensure proper Response and Recovery in the event of Hurricanes, major flooding and other disasters whether natural or manmade. To this end, the NMB EOC is in need of upgrading and renewing its capabilities with new equipment to include computers, monitors, satellite communications, fax machines, printer and other needed equipment.
Estimated cost: $43,000.00.

Project 2: Establishment of Emergency Operations Center for Public Services

The proposal is to upgrade the power generating capacity of the Carter Tyree Public Services Operations Center to be self-sustaining during and after a disaster. This facility was constructed in 1997 to withstand winds exceeding 180 MPH but lacks the power generation capacity to power crucial functions that operate from this facility. This the facility from which, emergency preparedness and disaster recovery crews are headquartered. The scope of work would include an upgraded generator, conversion of empty "bunker" room into command center, installation of radio and communication equipment, enhancement of on site fueling station and installation of remote fueling facility at Water Plant. Estimate cost: $385,000

Project 3: Construct DIRC Center/Establish CERTs

Establish Community Emergency Response Teams (CERTs). This will affect all the northeast Divisional EOC areas of Miami-Dade.

Project 4: Develop Evacuation Procedures & Contractual Agreements

In addition to posting evacuation routes on the Internet, the city would like to develop evacuation procedures to facilitate and expedite activities during an evacuation. This would include setting up contractual agreements with potential partners prior to a disaster so essential services (tree trimming, additional transportation, etc.) would be immediately available.

Project 5: Perform Free Hurricane Inspections for City Residents

By performing free hurricane inspections for city residents, the city would help to mitigate damages to individual residences as well as educate the public on issues related to hurricane and storm safety, evacuation routes, and other essential topics. This project has the potential to benefit 100 percent of the city; however, the actual percentage depends on the number of individuals who participate in the program.

Project 6: Secure Shelter for Dependents of City Employees

This will affect up to 250 individuals, including employees and their families.

Project 7: Establish Additional Hurricane Shelters

Due to the geographic location of the city and its surrounding communities, there is a high demand for shelter space during hurricanes classified as Category 2 or higher. Residents of both the city of North Miami and the surrounding communities depend on the city to provide shelter space in the event of a disaster. The current shelters are inadequate to accommodate the large numbers of people who require these services. Identifying, establishing, and performing any other activities to ensure additional shelter space is available in the event of a disaster would provide a significant benefit to residents.

Project 8: Provide Disaster Training for Public Works Employee

By providing disaster training for public works employees prior to a disaster, the city would have at its disposal a trained, knowledgeable group of individuals who could deal with the problems associated with disasters in a more efficient and effective manner, thereby reducing total costs and delays often associated with disasters.

Project 9: Establish a Community Outreach Program & Public Information Campaign

- Post evacuation routes on its web site
- City sponsored Flood Awareness Week to partner with other agencies (and community groups) and provide information about flood risk potential, safety tips, and steps to take in a flood.
- Create a children's coloring book as an interagency initiative (can also be placed on our website)

- Publish a floodplain or pre-disaster preparedness brochure and post on website
- Send flood related articles in utility bills
- Broadcast on our local cable channel FEMA's "Best Build" video & other local flood plain videos.
- Publish a Flood safety section in the yellow pages
- Offer flood safety and hazard information recording on the city's phone system
- Develop an educational program for local schools
- Sponsor a "Name the Park" contest as an organized community project/event
- Establish a flood audit program to serve as a pre-disaster vulnerability and planning effort
- Maintain elevation certificate data on our website and a link to FEMA's website
- Provide material on how to select a qualified contractor and the property owner's recourse if dissatisfied with the contractor's performance

Project 10: Remove Australian Pines within City Limits

Australian pines have shallow root structures that make the trees susceptible to uprooting in high winds and heavy storms. Removing these trees would mitigate future damages caused by fallen trees and help to reduce the amount of debris present after a storm. This project would benefit the city.
Estimated cost: $250,000.

Project 11: Proactive Hurricane Tree Trimming and Pruning

This proposal is for the funding of tree trimming services to properly prune and maintain over 16,000 trees throughout the city of North Miami Beach. As an aging city, where trees are considered part of our infrastructure, they require regular hurricane pruning maintenance. The City Forester recommends trimming and/or removing those trees that pose a threat or public danger in the event of a storm such as a hurricane. Of particular importance are trees along drainage canals and evacuation routes. Properly pruning and thinning of trees canopy would be especially beneficial in minimizing damage to utilities, building structures, and automobiles as a result of downed trees during severe storm systems. Tree trimming services can be performed by a contractor at an estimated cost of $150,000 annually. Alternatively, tree trimming and pruning can be accomplished with the purchase of a bucket truck, an initial capital cost of $180,000, and a two-person crew with annual operating cost of $60,000.

Project 12: Clean and Improve Drainage Systems

Cleaning and improving the city's drainage system, including 2,500 catch basins, would help dispose of stormwater and benefit all residents of the municipality, as well as approximately 20 percent of Miami-Dade County. The cost to clean the catch basins once is $83,640 (based on a cost of $60 per catch basin) and installing a new drainage system is approximately $1 million per 200 properties.

Project 13: Install Additional Stormwater Basins, or Increase Existing Basins

Installing additional stormwater management basins will help the city reduce the potential for flooding after storms and heavy rains. Installation of additional basins will affect the entire municipality, as well about 20 percent of Miami-Dade County.
Estimated cost: $30,000 per basin.

Project 14: Well Field Stormwater System Improvement

In order to protect public water supply wells #13 and #19 from contamination, the city needs to modify the stormwater system previously constructed in the vicinity of the wells. Approximately 300 ft of 30-inch French drain needs to be removed and replaced with solid pipe. The associated inlet structures also need to be modified. Estimated cost: $29,000.

Project 15: Construct Injection Wells in Areas Prone to Flooding

Installing deep-well injection wells to reduce flooding would benefit approximately 30 percent of the city. This type project is allowed only where the substrate in saltwater intruded.
Estimated cost: $21,000 per well.

Project 16: Extend Sanitary Sewer System/Remove Septic Tank Systems

Flooding in areas with septic tank systems poses significant environmental and health risks to the immediate residents and the community at large because flooded septic systems have the potential to contaminate both groundwater and surface water. Extending the sanitary sewer system to residents currently utilizing septic systems would benefit approximately 25% of the city of North Miami Beach.
Estimated cost: $15,000 per removal and replacement.

Location Specific Flood Prevention Mitigation Projects

Project 17: Renovation of Eastern Shores Outfall pipes

The entire stormwater system of this neighborhood, Eastern Shores located east of US1 depends on the proper functioning of the outfall pipes that discharge in the canal and Intracoastal waterway. There is a total of approximately 5,018 linear feet of existing outfall pipes in 44 locations in the neighborhood of Eastern Shores and Western Eastern Shores. Most of these outfall pipes were installed in the early 1960's up to the late 1970's. These pipes have deteriorated and are collapsing due to age and salinity of the ground water in the area. Estimated cost: $550,000.

Project 18: Eastern Shores Drainage Repair / Replacement

This project consists of the repair and replacement of the existing drainage in the Eastern Shores neighborhood.
Estimated cost: $ 450,000

Project 19: NE 172 Street Drainage Improvement

This project consists of the installation of 10 deep injection wells, storm structure, conveyance system (pumping station), and road resurfacing. This project will significantly reduce flooding in the area and make it safe for residents to travel. Estimated cost: $1,600,000

Project 20: West Dixie Highway Industrial District Drainage & Roadway Improvement

This project consists of the installation of a French Drain, road resurfacing, curbing and landscape.
Estimated cost: $ 800,000

Project 21: NE 161 Street Drainage Improvement

This project consists of the installation of a French Drain System, swale improvement and road resurfacing.
Estimated cost: $ 350,000

Project 22: Highland Village Drainage Improvement

This project consists of the installation of 10 deep injection wells, storm structure, and road resurfacing. This project will significantly reduce flooding in the area and make it safe for residents to travel.
Estimated cost: $800,000

Project 23: NE 173 Street Drainage Improvement

This project consists of the installation of a French Drain System, swale improvement and road resurfacing.
Estimated cost: $ 550,000

City of Opa-locka

Project 1: Canal Clean-up

Remove debris and silt from Opa-locka Canal. Dredge to required depth. Set up and continue a canal maintenance system.

Project 2: Improved Storm Water Drainage System

Cleaning and improving the city's drainage system, including catch basins, would help dispose of stormwater and benefit all residents of the municipality, as well as Miami-Dade County and adjacent municipalities. Drainage and street improvements are as follows:

- Cairo Street – install 2,700 lf of storm sewer lines with an outfall to the 127th Street Canal. Also install 2,200 lf of sanitary sewer, 1,100 lf of 8" force main and one pump station. Total cost $2,500,000.

- 127th Street; south and North Alexandria Drive improvements – install 3,600 lf storm sewers, 3,400 lf water main with hydrants, sewer system with 2,400 lf 8" mains, 1000 lf 6" main and one 250 gpm pump. Cost $3,400,000
- Port Said Road – install 2,700 lf of storm sewer lines with outfall to 128th Street Canal. 1,400 lf sanitary sewer and 800 lf of 8" force main with pump. Cost $2,000,000.
- Other drainage systems for Arabia Avenue, Curtis Drive, Sultan Avenue, Bahman Avenue, Rutland Avenue, Wilmington street, York Street and NW 21st Court.

Project 3: Pump System at Alexandria Gardens Apartments

The proposed project consists of the construction of a stormwater pumping system that will discharge south from the project site to an outfall at the Dade County Canal located approximately 1200 ft. south of the site. The work will also include the replacement of an existing stormwater control structure located approximately 2200 ft. east of the proposed outfall in the canal. This structure is a manually operated structure that is currently in disrepair. The proposed structure will include gates that open automatically to ensure the conveyance of stormwater in the canal during heavy rainfall events. Preliminary surface water management calculations indicate that the proposed flood mitigation will provide protection from the 100-year storm event. The estimated cost of construction is $1,713,600.00 and the estimated cost for professional services is $479,808.00. Estimated total cost: $2,193,000

Project 4: Acquire Generators

Acquire generators for the Public Works Department and for each of the municipal sewer lift stations.

Project 5: Storm Shutters

Purchase and install storm shutters for the public works building, city hall, the library, the old fire station and the Police Department.

Project 6: Tree Trimming

Create a tree-trimming program throughout the entire city. Purchase or otherwise acquire a 60ft. boom truck and other tree trimming equipment.

Project 7: Mobile Emergency Command Center

The city of Opa-locka proposes to construct a local mobile emergency command center that will allow our City officials to maintain connections with the Miami-Dade County EOC before and after an emergency, organize pre and post disaster activities, and provide immediate assistance where needed. The proposed mobile EOC will allow for adequate and prompt emergency response not only locally but also on a statewide basis. In addition, the center may be utilized by other safety-related agencies as necessary when local EOC's are inoperable.
Estimated cost: $300,000

Project 8: Construct Hurricane Shelter

The City of Opa-locka would like to construct a gymnasium which will act as an Emergency Hurricane shelter for the residents of the City of Opa-locka and the surrounding areas of unincorporated Miami-Dade County and the City of Miami Gardens. Currently the City of Opa-locka doesn't have a shelter. Estimated cost: $4,000,000

Village of Palmetto Bay

Project 1: Improvements to Public Works Facility

Some Village buildings do not have hurricane impact windows. Install hurricane impact windows to secure facilities for emergency response team, village employees and equipment. Estimated cost: $100,000.00

Project 2: Localized Drainage Improvements

These roadway drainage basins are closed systems with only minimal existing drainage facilities. Construct additional catch basins and exfiltration trench at low points in the roadway swales of the localized areas and connect to drainage wells. Estimated cost: $600,000.

Project 3: Drainage Improvements for Sub-Basin #3

Drainage sub-basin #3 located south of SW 158th Street, north of SW 164th Street and SW 163rd Terrace, east of Dixie Highway (US1) and west of SW 87th Avenue. Sub-basin #3 is part of the C100-C-17 Basin. The sub-basin consists of approximately 72.7 acres of existing detached single family residential development and commercial development with approximately 11,500 linear feet of roadway. Construct additional catch basins and exfiltration trench at low points in the roadway swales of the sub-basin. Estimated Cost: $250,000

Project 4: Drainage Improvements for Sub-Basin #10

Drainage sub-basin #10 located south of SW 152nd Street, north of SW 156th Terrace, west of SW 87th Avenue and east of SW 89th Avenue. The sub-basin consists of approximately 72.7 acres of existing detached single family residential development and commercial development with approximately 10,000 linear feet of roadway. Construct additional catch basins and exfiltration trench at low points in the roadway swales of the sub-basin and connect to drainage wells. Estimated cost: $790,000

Project 5: Drainage Improvements for Sub-Basin #12

Drainage sub-basin #12 located south of SW 168th Street, north of SW 171th Street, west of Old Cutler, and east of SW 75th Avenue. The sub-basin consists of approximately 25.3 acres of existing detached single family residential development with approximately 6,600 linear feet of roadway. Construct additional catch basins and exfiltration trench at low points in the roadway swales of the sub-basin and connect to drainage wells. Estimated cost: $65,000.

Project 6: Drainage Improvements – SW 87th Ave. (from SW 168th St. to SW 184th St.)

The drainage system is undersized and its existing drainage system consists of several isolated small exfiltration systems at low points in the roadway. Construct additional catch basins and exfiltration trench at low points in the roadway swales of the sub-basin and connect to drainage wells. Estimated cost: $1,500,000.

Project 7: Canal Bank Erosion Protection

Design and construct erosion protection structures and bank stabilization projects along village canals which are vulnerable to bank erosion due to storm surge or inland flooding. This project includes the removal of undesirable debris, trees, predominantly Australian pines and ficus, located in close proximity to the canal bank. These trees are prone to falling during a severe windstorm or hurricane causing flow obstructions as well as damage to the canal bank resulting in increased erosion. We must also schedule regular maintenance of village canals to restore flow. Estimated cost: $300,000

Project 8: Canals and Waterways

Clean and maintain included exotic weed control, dredge when and where needed, clear banks of potential debris, and stabilize banks to prevent erosion. Clean canals allow better control of water levels, which greatly improves storm water management and the drainage system. Estimated cost: $250,000

Project 9: Back-up Generators and Transfer Switches:

It is essential that certain village section lines and half section line traffic signals be upgraded with emergency transfer switches to provide mobility and safety during and after disaster event, with uninterrupted electrical services. Having back-up generators and transfer switches at signalized intersections will allow city staff and police to immediately respond and provide assistance to village residents. Estimated cost: $75,000

Project 10: Purchase of Portable Emergency Traffic Lights

Purchase portable solar-powered emergency traffic lights to be used at main intersections throughout the Village of Palmetto Bay, including US 1. Estimated cost: $150,000

Project 11: Pre-Disaster Employee Response Plan

Create an Emergency Management pre-disaster/disaster response plan to ensure the best practices are in place prior to a disaster and after. Estimated cost: $100,000.00

Project 12: Public Information & Educational Campaign

Develop a "How To" manual specifically for Palmetto Bay citizens. Through the use of grant funds, the Village can develop community disaster education programs to promote awareness of emergencies and educate residents on the appropriate response and necessary preparation when an emergency threatens. This effort should reduce demands on the local government and facilitate recovery after the event. This is a key item since both the Village and the county are responsible for various city services. Estimated cost: $16,500

Project 13: Emergency Supplies and Equipment

This project involves the acquisition of tools, supplies, and small equipment to handle different emergencies during a storm event. These tools and equipment will help mitigate areas of the Village that need cleaning, debris pick-up and removal before, during, and after a disaster event. Public Works and Parks and Recreation are the departments involved in this action. Estimated cost: $132,000

Project 14: Acquisition of additional communication equipment

During an emergency, it is critical that the village manager and key staff communicate with each other, police, public works, and county EOC. This project would involve the acquisition of communication equipment for additional personnel designated essential during a disaster event. The communication equipment will improve the response time during an emergency and provide communication tools to additional personnel if needed in the following areas:

- Equipment / Department
- Radios Public Works
- Radios Building Department & Code Enforcement
- Radios Police
- VHF Radio/ Administrative Services
- Antennas/Repeaters
- Radios Parks and Recreation
- Satellite Radio System Essential Personnel
  Estimated cost: $132,000

Project 15: Emergency Warning Phone Call System (Reverse 911)

Install a computerized telephone call system to call each phone to indicate emergency operations warnings. Estimated cost: $100,000.00

Project 16: Flood Zone Data Maintenance: GIS System

This project will fund the creation of a GIS system to support several activities of the Village's National Flood Insurance Community Rating System program including mapping, annual outreach and notification, and the maintenance of all flood zone designations and other data for all real property folio numbers within the Village. In addition, the project will integrate Village's data into Miami-Dade County's GIS system tailoring products generated for Village use. The additional information generated by this system will be essential for the preparation of detailed

flood mitigation reports and allow users to track conditions by specific property location. This data will then be utilized to clearly identify and designate low lying areas, which will streamline flood prevention efforts when designing new systems and upgrading existing drainage systems. Estimated cost: $100,000

Project 17: Drainage Improvements for Sub-Basin #6

Drainage sub-basin #6 located south of SW 144th Street, north of SW 148th Street, west of SW 83rd Avenue and east of SW 79th Avenue. The sub-basin consists of approximately 56.5 acres of existing detached single family residential development with approximately 12,000 linear feet of roadway. Construct additional catch basins and exfiltration trench at low points in the roadway swales of the sub-basin. Estimate cost: $490,000

Project 18: Drainage Improvements to Sub-Basin # 11

Sub-basin #11 consists of approximately 48.3 acres of existing residential and commercial development located south of SW 152nd Street, north of SW 156th Street, west of SW 89th Avenue, and east of Dixie Highway (US1). Construct additional catch basins and exfiltration trench at low points in the roadway swales of the sub-basin and connect to drainage wells. The total budget for improvements is $330,000.

Project 19: Annual Operation and Maintenance of Sub-Basins

Clean and flush all sediment and debris from catch basins, pipe, and exfiltration trench. Existing catch basins should be modified or reconstructed as required to provide sediment traps and pollution retardant baffles to protect the exfiltration trench and canal outfalls. The estimated cost for annual maintenance of sub-basins is $413,000.

Project 20: Street Sweeping Program

In order to minimize blockage of storm drains, the village will be required to clean the debris from its roadways before it washes into the drain. A Street Sweeping program will comply with provisions of the federal mandated Clean Water Act. In addition, street sweeping helps to remove pollutants that potentially can drain into the Stormwater System. Estimated cost of this project is $150,000.

Project 21: Swale and Tree Trimming Program (Funding Approved - Katrina Tier 1)

Develop and implement a program to trim trees prior to hurricane season and allow for an increase in survivability of the trees and reduce the safety concerns of residents. In addition, proper trimming and pruning would benefit in minimizing damage to utility, building structures, and vehicles as a result of down trees during a severe storm. This initiative will also reduce debris and protect the infrastructure from damage to sidewalks and roads. Estimated cost of this project is $300,000.

Project 22: Community Rating System

Apply and establish the Village as a participant of the Community Rating System for insurance reductions (In process)

Project 23: Flooding/Wind/Water- Retrofit

Mitigate properties on the Repetitive Loss Inventory or Severe Repetitive Loss Inventory to reduce flooding $150,000 per Structure

Project 24: Purchase Hurricane Preparedness & Debris Clearance Equipment

- Vacon Drain Truck - $193,200
- Trash Grabber, 20-Yard Dump Bed - $89,250
  Total cost of project $282,450

Project 25: Debris Storage Area

Develop/identify an area for emergency management debris removal and storage, including construction of infrastructure to reach site. This effort should reduce demands on the local government and facilitate recovery after the event. This is a key item since both the Village and the county are responsible for various city services. Estimated cost: $40,000

Project 26: Hazardous Material Containment

Purchase cabinets (and other containment) to house and contain chemicals, oils, fuels, and batteries that that may spill or cause runoff during a hurricane. Estimated Cost $4,000.

Project 27: Acquire a High Water Vehicle

The village needs a vehicle capable of movement through flooded areas to assist citizens in distress. Estimated cost for this item $50,000.

Village of Pinecrest

Project 1: Purchase of Portable Emergency Traffic Lights

Purchase portable solar-powered emergency traffic lights to be used at main intersections throughout the Village of Pinecrest, including US1. Estimated cost: $100,000

Project 2: Improvements to Pinecrest Gardens – Main Entrance Building

Installation of hurricane impact windows in the main entrance building of Pinecrest Gardens. This building contains the offices for the Parks and Recreation Department as well as two multi-purpose rooms. Pinecrest Gardens is historically designated and this building was built in 1954. Estimated cost: $75,000

Project 3: Improvements to Pinecrest Gardens – Banyan Bowl

Structural improvements to the Banyan Bowl which is part of the historical Pinecrest Gardens. Estimated cost: $50,000

Project 4: Improvements to Pinecrest Gardens – Lower Garden

Dredging to the historically designated Pinecrest Gardens lower garden waterway system to prevent flooding. Estimated cost: $30,000

Project 5: Improvements to Pinecrest Gardens – Generator

Purchase a portable generator for the historically designated Pinecrest Gardens lower garden waterway system. This would avoid the loss of wildlife by allowing the water to circulate throughout the area. Estimated cost: $5,000

Project 6: Tree Trimming

This project would develop and implement a tree-trimming program throughout the village to resolve safety hazards involving trees in the rights-of-way and on private property prior to a disaster event. With proper pruning, the village can control tree growth around power lines and avoid the number of fallen trees during storm events. This project would require close coordination with FPL. Estimated cost: $300,000

Project 7: Community Disaster Education Program

Develop education materials such as brochures and newsletters, and improve communication with the community through streaming video and radio station improvements to promote emergency preparation awareness and provide information to the residents of the Village of Pinecrest urging them to act proactively in the preparation of properties and structures in the event of a disaster. Estimated cost: $30,000

Project 8: Reverse 911 System

To purchase a reverse 911 system that would allow the Village of Pinecrest Police Department to provide emergency information to village residents. Estimated cost: $75,000

Project 9: Purchase Computerized Equipment Storage of Vital Public Records

Regularly backing up of vital electronic files is essential to the quick restoration of operations after a storm event. The loss of public records could impact the operations for months or even years after such an event and cost thousands of dollars to restore. Some proprietary data may be completely unrecoverable. Therefore, back-ups will be performed on a daily basis; they will be done overnight as not to interfere with daily operations; they will be automated; and weekly exchanges of tapes will be performed and put in the safe to prevent fire, flood or wind damage. Estimated cost: $50,000

Project 10: Canal Bank Erosion Protection

Design and construct erosion protection structures and bank stabilization projects along village canals which are vulnerable to bank erosion due to storm surge or inland flooding. This project includes the removal of undesirable debris, trees, predominantly Australian pines and ficus, located in close proximity to the canal bank. These trees are prone to falling during a severe windstorm or hurricane causing flow obstructions as well as damage to the canal bank resulting in increased erosion. We must also schedule regular maintenance of village canals to restore flow. Estimated cost: $100,000

Project 11: Burial of Over-head Power Lines along Arterial Roadway

Design and construct the burial of all over-head power lines along the municipal arterial roadways. This project would mitigate the potential for loss of power during severe weather events and would enhance the response to areas of the Village during emergencies by limiting obstacles and life-safety issues on critical transportation infrastructure. Power loss in the Village is critical since the majority of residents obtain water from wells which use electricity to power their pumps. Estimated cost: $50,000,000

Project 12: Public Works EOC Facility

The construction of a fully functional EOC facility on the second floor of the existing Public Works Department. Currently, the 2-story building is structurally safe and provides a lunch room and shop on the first floor. However, the 2nd floor is currently unused and not sufficiently equipped to provide electricity, air conditioning or any sleeping accommodations. In the event of a disaster, it is imperative that all Village Public Works Department employees report to duty. Public Works must be operable before, during and immediately after any disaster to provide residents access to streets and deal with other safety issues. Estimated cost: $150,000

City of South Miami

Project 1: Improvement of the Stormwater Drainage System

To upgrade the City‟ s drainage system by implementing engineering design and construction plans preparation needed to retrofit existing positive drain system and construction of new

drainage system, in an effort to meet the flood protection responsibilities. The program will also include removal of slit from the canal system and creating needed depth for proper flow (estimated cost of $1.75 million).

Project 2: Acquisition of Vacuum Truck for Drainage System Cleaning

To complement the continued improvement to the drainage system, acquiring a vacuum truck for the cleaning of the catch basins and drain system will help to provide well maintained system clean of debris (estimated cost of $350,000).

Project 3: Installation of Hurricane Shutters in City Buildings

Currently, some of the City's buildings do not have shutters. Installing shutters in these buildings would provide secured facilities for emergency response team, city employees and equipment (estimated cost of $100,000).

Project 4: 5801 Sunset Drive Alleyway Drainage Improvement Project

The absence of drainage compounded by poor surface grading led to the accumulation and ponding of water in the area. As asphalt on the alleyway's road surface crack under the heat of the day and with the constant stresses of traffic, rainwater seeps into the underlying gravel layer eventually creating potholes. The property is city owned and plans for drainage improvements are underway. Scope of work includes drainage design, permitting, and construction. Construction cost estimate (estimated cost of $25,000).

Project 5: Placing Utility Lines Underground

Placing overhead utility lines underground would reduce power outages during disaster. Electrical, telephone and cable television are considered necessity today. Protecting these utilities will ensure a standard level of services our residents deserve (estimated cost of $3.9 million – business district only).

Project 6: Watermain Upgrades / Relocation & Extensions

Upgrading of undersized watermain and relocation of the lines presently located in backyard easements to the paved right-of-way, will reduce loss of services from the uprooting of trees and provide needed water pressure for potable water and fire protection (estimated cost of $1.5 million).

Project 7: Sanitary Sewer Extension & Removal of Septic Tank System

This is a very important safety issue that is often overlooked because it is out of site (underground). A flood disaster within an area with septic tank system could pose a major environmental and health risk to the residents and the entire potable drinking water community as a whole. Flooded septic tanks have a potential to contaminate both drinking water and surface

water. As a result, eliminating septic tanks and extending sanitary sewer system is very essential for the safety of our residents (estimated cost of $6.5 million).

Project 8: Retrofit Existing Roof

At present time, some municipal buildings are in need of roof reinforcement to decrease vulnerability in the event of a storm or natural disaster. These building would provide secured facilities for emergency response teams, city employees and equipment (estimated cost of $1.5 million).

Project 9: Commerce Lane Streetscape and Drainage Improvements

Pursuant to associated drainage and percolation study and input provided by the SMCRA Members and local business owners, the design portion of the Commerce Lane Infrastructure Improvement Project including the completion of the full set of construction drawings of the project. At this time, scheduled improvements include the installation of one drainage inlet and associated exfiltration system and restoration. (Estimate cost of $150,000).

Project 10: Progress Road and Drainage Improvements

Pursuant to associated drainage and percolation study and input provided by the SMCRA Board members and local business owners, a city-designated design firm completed the design portion of the Progress Road Infrastructure Improvement Project including a full set of construction drawings for the project. Scheduled improvements include the removal of three (3) existing drainage inlets, the installation of six (6) new drainage inlets. 5 new storm water manholes and associated exfiltration systems, roadway milling and resurfacing, street signage and striping. (Estimate cost of $180,000).

City of Sunny Isles Beach

Project 1: Central Island Drainage Project – Pump Station/Rainwater Catchment System used as an Alternative to Assist with Flooding and Irrigating

This project consists of a rainwater catchment system and a permanent pump in a chronically flooded area of the City. This system combines a pump station along with the creation of a rainwater catchment system to irrigate and pressure clean roads and sidewalks.

The area to be served by this project is from North Bay Road to Collins Avenue and from NE 174 Street to NE183 Street. The area is mainly residential, with commercial strip shops on Collins Avenue. This project will mitigate flooding and damage to residential and commercial structures, and will conserve and re-use water through the recycling process. This project is estimated to cost 1.15 million dollars, and the estimated time frame to complete this project is greater than one year.

Project 2: Relocation and Purchase of Generator at the Government Center

The city is located on a barrier island with an average elevation of six feet above sea level, making it particularly vulnerable to flooding and storm surge events. The emergency generator room and telecommunications room for the Sunny Isles Beach Government Center are located on the first floor of the building, putting these critical functions at risk for flooding. The City considers this building a critical facility, as it is the command center and location of the City's Emergency Disaster Response Plan participants.

This project would consist of relocating the telecommunication equipment and purchasing a new generator to be installed on the 2nd floor. The area would be properly ventilated and reinforced to support the weight of the unit. A Maintenance and Implementation Plan would be generated to ensure the equipment is functioning properly and ready for use when the threat of a hurricane arises. Estimated cost: $150,000. Estimated time frame is less than one year.

Project 3: Hardening the Government Center Emergency Exit

The emergency exit located on the east side of the building is also an area of potential problems during a severe weather event. A stairwell on the exterior of the building leads from the ground floor directly into the interior with no barrier or emergency door in between. This increases the risk of wind and water damage to the building, as wind and water can be blown from the outside, through the stairwell, and into the interior of the building with no barrier to stop them. Estimated cost to make the necessary modifications of enclosing the stairwell is $50,000. Estimated time to complete this project is less than one year.

Project 4: Emergency Pedestrian Bridge

The city has one main exit route off the island, which is through Collins Avenue, and then two bridges that go to the mainland west on both sides of the island. The residents located west of Collins between 174 Street and 183 Street must exit onto Collins. The western north/south road, North Bay Road, connects to Sunny Isles Beach Blvd. However, this road does not run continuously between 163 Street to 183 Street. The road from the north ends at 174 Street and the road from the south end at 172 Street.

This project will build a bridge to connect North Bay Road. Once a bridge is built to connect North Bay Road, emergency vehicles will have an alternative and quicker means to access the area. Constructing an emergency pedestrian bridge would also assist with evacuation of the area and provide access to emergency vehicles. Hurricanes pose imminent danger to the residents of this area and providing them with alternative roads would reduce evacuation time and better protect the lives of residents, business owners and visitors. Estimated cost to construct the bridge is $3.7 million. Estimated time frame to complete this project is greater than one year.

Project 5: Heritage Park Rainwater Catchment Systems

The city continues to seek alternative ways of managing rainwater which causes a substantial amount of flooding in the Heritage Park area of the City. The park is located at 19200 Collins Avenue.

This project would construct a rainwater catchment system near the Heritage Park parking garage adjacent to the William Lehman Causeway on the southwest corner of the park. Heritage Park has a parking garage which holds approximately 460 vehicles and the runoff creates flooding to the adjacent development. In order to mitigate this issue the city is proposing containing the excess rainwater that would be expelled by the parking garage and contain it to be filtered and used for landscape irrigation and pressure cleaning of the parking garage and sidewalks throughout the park. Estimated cost to develop and construct this system is $150,000. Estimated time to complete this project is less than one year.

Town of Surfside

Project 1: Remove Overhead Utility Lines

Burying overhead utility lines would reduce future power outages during disaster and improve the aesthetics of the town.

Project 2: Obtain Backup Generators

The biggest need for these generators is to provide backup power to two sewer-pumping stations.

Project 3: Stormwater Management System Improvements

There are areas of Surfside that flood repeatedly. This project would improve the stormwater management system in those areas to reduce flooding in future disasters.

Project 4: Conduct a Study of Storm Surge Mitigation Measures

The town is subject to the loss of sand from its beaches and has proposed a study to determine if any measures are available to mitigate the effects of storm surges.
Estimated cost: $50,000.

Project 5: Install Storm Shutters on the Town Hall

The town of Surfside would like to install storm shutters at our Town Hall building which also serves as the Police Department headquarters. The storm shutters would allow the Police Department to remain in the building during Category 1 and 2 storms and possibly even a category 3 storm. This would be a tremendous benefit to the community as the police department would not have to relocate to an off-site facility and would be readily available to respond

to emergency calls and provide order maintenance once the storm passes. It should be noted that Town Hall is located one block from the ocean. Estimated cost: $147,000

Project 6: Generator Relocation

In order to maintain vital and essential functions at the town of Surfside's Town Hall and Public Safety Building after a hurricane or flooding event we are proposing moving the existing 225KVA back-up diesel generator from its present location, where it is vulnerable to the possibility of flooding, to a location several feet above the first floor level of the existing building. The work would entail the construction of a superstructure to support the generator, the construction of a weather proof enclosure built to withstand hurricane force winds with enough room to properly service the equipment. It would also include the demolition of the existing enclosure, the rerouting of the existing diesel fuel lines and electrical conductors. In order to complete the project some of the existing electrical switch gear and associated equipment need be raised several feet in the existing electrical room. Estimated cost: $48,000

City of Sweetwater

Project 1: Comprehensive Stormwater Drainage Project

East Side Project:

The city is preparing for ground breaking on the east side portion of a citywide comprehensive drainage project. The east side portion has been fully planned and permitted and encompasses two large stormwater pumping stations, seventy drainage structures, 7700 lf of drainage pipe and 15,000 sq yd of asphalt overlay. The project area is bounded on the south by the Tamiami (C-4) canal, on the north by Flagler Street, on the west by SW 104th Avenue and on the east by SW 102nd Avenue. The total drainage area for this portion is 104 acres or about 20% of the city's current land area. The project will provide new drainage to several hundred homes. Stormwater will be pumped directly into the C-4 canal by means of a single, manatee protected, 54" outfall. Estimated cost: $2,170,000

Central Area Project**:**

The city is currently planning for the central area portion of a citywide comprehensive drainage project. The central portion is currently in the planning and development stage. This portion will encompass the largest pro-rata area of the city, approximately 160 acres or 31% of the city's current land area. The project area is bounded on the south by the Tamiami (C-4) canal, on the north by Flagler Street, on the west SW 112th Avenue and on the east by SW 107th Avenue. The project will provide new drainage to numerous homes and businesses in the area. Preliminary plans indicate four stormwater pump stations with discharge directly into the C-4 canal. Additional features include one hundred and fifty drainage structures, 13,000 lf of drainage pipe and 35,000 sq yd of asphalt overlay. Estimated cost: $4,300,000

Northside Project**:**

The city is currently in the design and permitting phase of the proposed north area of a citywide comprehensive drainage project. The north side portion encompasses the area know as the Lil' Abner Trailer Park. It is bounded on the south by Flagler Street, on the north by NW 7th Street on the west by NW 114th Avenue and the east by NW 110th Avenue. The total drainage area is approximately 125 acres or 24% of the city's current land area. The project will provide new drainage to numerous homes in the area. Three stormwater pump stations are proposed as well as thirty drainage structures 4800 lf of drainage pipe, new 112th Avenue roadway, new sidewalk and drainage retention area. The stormwater will discharge through a force main network extending westward to the C-2 canal. Estimated cost: $2,100,000

Project 2: Community Outreach

Provide a public education program using various media in cooperation with Miami-Dade County and other members of the Divisional EOC.

Project 3: City Hall

Harden the city hall building that also contains the municipal Police Department. This project would include replacement of the roof and roof system and the installation of hurricane shutters throughout the building.

Project 4: Purchase City Vehicles

Purchase of ten GMC Jimmys, one crane truck, one dump truck and five heavy-duty pickups for police, public works and administration. We continue to lose vehicles during each rainstorm that results in flooding. With the purchase of these higher vehicles, we will be able to provide necessary services during floods and not lose more vehicles. The vehicles will facilitate the emergency evacuation of our residents, assist in the debris removal and mobilization of emergency equipment during the storms and assist in the recovery efforts.

Village of Virginia Gardens

Project 1: Flood Mitigation Project

The village of Virginia Gardens has developed a three phase Flood Mitigation Project (FMP) that will improve the existing storm water infrastructure system by means of designing, constructing, and implementing additional flood abatement measures to the existing storm water drainage system in accordance with federal, state, and local stormwater management requirements.

The FMP is comprised of three phases. Phase 1 involves the construction of an exfiltration trench system to catch the first inch of rainfall as a pretreatment and interconnected to a receiving wet well for further discharge through a force main that will be constructed as part of the FMP into the FEC Borrow Ditch. Phase 2 includes with the construction of additional exfil-

tration trenches and one overflow to the FEC Borrow Ditch. Phase 3 entails the construction of the storm water pumping station and force main with a discharge structure. Preparation of a Storm Water Management Master Plan (SWMMP) and documentation for bidding, permitting, and construction purposes will also be prepared as part of Phase I of the FMP. The estimated cost of Phase I of the FMP is approximately $600,000. The estimated cost of Phase 2 of the FMP is approximately $900,000. The estimated cost of Phase 3 of the FMP is approximately $1,200,000. Phase I of the FMP has been funded through the South Florida Water Management District with a State of Florida Grant of $550,000.

Project 2: Acquire Generator

Virginia Gardens intends to acquire a 150-200 kilowatt generator to increase the capacity of the emergency generator at the Village Hall-Police Department in order to ensure full operation of the facility. Estimated cost: $55,000.

Project 3: Acquire Trailer Mounted Flood Pump

Virginia Gardens intends to acquire a trailer mounted pump, hoses, and accessories to aid Virginia Gardens for immediate flood relief. Estimated cost: $20,000.

Project 4: Debris Removal

Virginia Gardens currently relies on other Miami-Dade County cities to remove debris caused by severe storm events, so Virginia Gardens intends to acquire a front-end loader, a utility truck, and additional debris removal tools and equipment. The estimated cost of the front-end loader is approximately $45,000. Estimated cost: $25,000.

City of West Miami

Project 1: Impact Resistant Windows and Doors for West Miami City Hall

The windows and doors currently installed are not impact resistant. The project entails the replacement of a total of 26 existing windows and 4 existing doors (3 storefront and 1 front door) on the West Miami city hall building, with impact resistant windows and doors.
Estimated cost: $52,000

Project 2: Citywide Drainage Improvements

The area included in this project has been historically flood-prone for storm events exceeding the 10-year frequency. Drainage improvements from SW 62nd Avenue to SW 59th Avenue and from SW 8th Street to SW 18th Street consisting of construction of storm sewer collection and exfiltration systems including street and surface restorations.
Estimated cost: $6,000,000

Project 3: Reconstruction/Raising of the Public Works/Motor Pool Building

This facility floods frequently due to its low finished floor elevation. This flooding occurs for storm events exceeding the 10-year frequency. Demolish a single story CMU/concrete structure (approx. 1900 sq. ft. area) and construction of a two-story CMU/concrete structure with 2000 sq. ft. area per floor. The first floor will accommodate vehicle parking, vehicle maintenance bays and toilet rooms to service existing adjacent vehicle maintenance building. The second floor, which will be above the 100-year flood level, will accommodate office spaces and toilets. Required elevator access will be included. The building will have similar finishes and aesthetics to match the existing administration building. Estimated cost: $550,000

Project 4: Reconstruction/Raising of the Recreational Center Building

This facility floods frequently due to its low finished floor elevation. This flooding occurs for storm events exceeding the 10-year frequency. Demolish a single story CMU/concrete structure (approx. 2200 sq. ft. area) and construction of a single story CMU/concrete structure with 2200 sq. ft. with a finished floor elevation above the 100-year flood level. The building's primary function is to accommodate the parks recreational operations but will have the capability to serve as a storm shelter. The buildings design will be sensitive to the spatial and aesthetic needs of the park's surrounding areas and will reflect an approach that fully enhances the neighborhood. Estimated cost: $380,000

Private Sector & Other Participants

The municipalities are not the only LMS Working Group members that have developed hazard mitigation projects. Participation has included private not-for-profit corporations, schools and universities, civic associations and organizations and state of Florida agencies located within Miami-Dade County.

American Red Cross of Greater Miami and the Keys

Project 1: American Red Cross Shelter Operations

The Red Cross plays a critical emergency response role for mass care under the Federal Response Plan (primary), the state of Florida CEMP, the Terrorism Response Plan and the Miami-Dade County Change in Caribbean Government Plan and mass migration plans at all levels. Further safety measures are needed as the lead non government community agency providing disaster assistance incorporates multiple levels of disaster preparedness, antiterrorism, multi-hazards training, security measures, first aid, CPR and AED training and retraining. Further development of specialized training programs such as CERT and shelter management and evacuation plans is also critical. This project seeks to increase the agency's operational capability to perform sheltering/evacuation activities by increasing the number and skills of mass care volunteers and by providing specific equipment and supplies. Project funds will support training and deployment of shelter volunteers; the acquisition of shelter equipment and supplies; (such as shelter trailers, pick-up trucks, ERVs, cots, blankets, cambros, shelter management kits, first aid kits, and shelter signage kits), logistics vehicles and communications; equipment (such as radios, mobile phones, antennas and chargers) to be used by Red Cross shelter managers and disaster function leads and volunteers deployed in evacuation centers. Further, the agency must be prepared to provide alternate shelter and mass feeding sites needing generators, flashlights, communication and associated shelter equipment. Estimated cost: $500,000

Project 2: American Red Cross Physical Plant Retrofitting

The Red Cross is working within neighborhoods within Miami Dade County and its facilities to serve as the agency's training and operations centers for preparation and response to all types of disasters/hazards that affect Miami-Dade County. These critical facilities differ in age and strength and will require strengthening and retrofitting, shuttering and windstorm protection, computer and communications improvements to ensure continuity of operations in the event of a natural or human made disaster. These facilities might also be able to be used by residents within these at risk communities as safe shelters for disaster survivors. Major improvements will include the acquisition and installation of generators, electrical rewiring, roof improvements, upgrades of wheelchair access ramps, ADA compliance, pavement replacement, back-up computer equipment and telecommunications capabilities to remain operational before, during and after major disasters. The Red Cross actively communicates with the media, government agencies, and the public during times of crisis and must maintain its ability to connect to these audiences

and to possess the capability to have redundant communication systems and file maintenance available, building access controls and security measures in place. Estimated cost: $750,000

Project 3: American Red Cross Preventative Education and Outreach

The American Red Cross Greater Miami & The Keys serves as the only nonprofit agency providing emergency preparedness and recovery from natural and manmade disasters in Miami-Dade County for the general population. Past hurricane seasons demonstrated the need for our community to be prepared to respond to all disasters, from those affecting single families, such as fires, to those that threaten all of Miami-Dade and Monroe Counties, such as hurricanes, transportation accidents, flooding and terrorist attacks. This project will increase the capacity of individuals to take responsibility to be able to prevent, prepare for and respond to disasters and emergencies so they can help themselves, their families, their friends and their neighbors and gain better control of their own situations. The project will support the implementation of the preparedness education and outreach projects in Miami-Dade County. Funds will finance program implementation and the acquisition and distribution of education materials and supplies in English, Spanish and Creole. Estimated cost: TBD

Project 4: Public Information & Education

Develop and create brochures for disaster prevention in English, Spanish and Creole and develop television and radio presentations to the diverse population throughout the county. Enhance disaster preparedness website information for mitigation and hurricane preparedness tips and guidelines, links, telephone contact phone bank and manual to use before and after hurricanes containing important evacuation information. Implement a method for coordination of communication between the various municipalities; between municipalities and the county; and between governments and the private sector. Estimated cost: $350,000

Baptist Health South Florida

Project 1: South Miami Hospital Structure Enhancement

South Miami Hospital, a 445-bed hospital, is in the early design stage of an expansion of the existing Emergency Department. Baptist Health South Florida (BHSF) would like to enhance the structure so that it can survive a 3 Second 185 MPH Wind Gust without requiring evacuation of the new Emergency Department addition. BHSF will fund the construction of the expansion to current codes and standards and request a funding grant for the upgraded enhancements.
Estimated cost: $7,000,000

Project 2: Doctors Hospital Medical Arts Building Wind Mitigation

Doctor's Hospital is a 281-bed hospital. The adjoining Medical Arts building, in which the Hospital provides clinical out-patient services, lacks hurricane rated window protection throughout. This project will install Impact Resistant Windows or roll down shutters, replace exterior doors and frames with Impact Resistant assemblies, replace existing Mechanical Room

Louvers with Impact Resistant Louvers, retrofit Tie-Downs and add Protective Structures Rooftop Mounted Mechanical Equipment. Estimated Cost: $3,000,000

Project 3: Doctors Hospital Medical Arts Building Wind Mitigation

Doctor's Hospital is a 281-bed hospital. The adjoining Medical Arts building, in which the hospital provides clinical out-patient services, lacks hurricane rated window protection throughout. This project will install impact resistant windows or roll down shutters, replace exterior doors and frames with impact resistant assemblies, replace existing mechanical room louvers with impact resistant louvers, retrofit tie-downs and add protective structures rooftop mounted mechanical equipment. Estimated cost: $1,556,000

Barry University

Project 1: Windstorm Protection for Thompson Hall

The university plans to reinforce the doors and roof and install electrically operated roll-down hurricane shutters on Thompson Hall to make it secure as a hurricane shelter. In the event of a hurricane, this 50,000 SF building would shelter half the resident students, non-resident students without adequate shelter, plus staff and administrators who would be required to remain on campus in an emergency – a total of approximately 500 persons. In addition to providing shelter for students, Thompson Hall houses critical personnel records, and equipment that is vital to the operation of the university. The telecommunications center houses the main telephone server and is the central core for the network. Estimated cost: $325,000

Project 2: Windstorm Protection & Power Upgrade for Monsignor William Barry Library

The university plans to reinforce the doors and roof and install electrically operated roll-down shutters on Monsignor William Barry Library to make it secure as a hurricane shelter, and provide emergency power for critical building components. In the event of a hurricane, this 82,000 SF building would shelter half the resident students, non-resident students without adequate shelter, plus staff and administrators who would be required to remain on campus in an emergency – a total of approximately 500 – 700 persons. In addition to providing shelter for students, the library houses books, records and equipment valued at more than the building structure. In addition the university archives are stored in this building. Estimated cost: $575,000

Project 3: Windstorm Protection for LaVoie Hall

The university plans to install impact-resistant windows on LaVoie Hall to make it secure from hurricane and high winds. LaVoie Hall houses the offices of the senior administration of the university, including its president and vice presidents, and staff, equipment and files. These are valuable assets to the University that must be protected. Estimated cost: $275,000.

Project 4: Windstorm Protection for Residence Halls

Residence halls built before 1992 do not have windstorm protection. Wind damage could be mitigated through the installation of impact-resistant windows. The following residence halls have no windstorm protection: Weber Hall, Flood Hall, Mottram-Doss Hall, Dalton Hall, Dunspaugh Hall, Browne Hall, and Sage Hall. Estimated cost: $950,000

Project 5: Hardened Roof and Windstorm Protection for Adrian Hall

Adrian Hall is used by the School of Health and Natural Sciences and houses numerous pieces of expensive research equipment and several hundred thousand dollars in research projects. As part of the hardening process, the roof should be upgraded and replaced and impact-resistant windows should be installed. Estimated cost: $500,000

Project 6: Hardened Roof and Windstorm Protection for Garner Hall

Garner Hall houses the university's computer and technology center. It is the central hub for all Internet, e-mail and computer learning at the university. By re-roofing and adding impact-resistant windows to the computer center, the University can maintain communications and central network functionality. Estimated cost: $750,000

Project 7: Convert Existing Space for EOC

The University currently does not have an EOC where "command" and "control" of a large scale emergency occur. A new EOC will be equipped with the technology and infrastructure essential to ensure a coordinated response in an emergency. It would be a "ready to go" facility the university's leadership and emergency response staff could walk into when en emergency occurs. There would not be any set-up required, which means that staff can begin assessing and responding to the emergency right away. Estimated cost: $150,000

Project 8: Purchase of Portable Emergency Power Generators

Purchase of two trailer-mounted, portable diesel emergency power generators to provide emergency power to disabled facilities after a major disaster. Estimated cost: $300,000

Project 9: Purchase of Trailer Mounted Chiller

Purchase two trailer-mounted, air cooled, portable chillers of 200-ton capacity, to provide emergency chilled water for air conditioning to disabled building(s) after a disaster, or major disruption in the building A/C system. Estimated cost: $800,000

Project 10: Drainage Improvements

During heavy rains, the north and south entrances to the campus flood. Provide engineering study and construct drainage improvements. Estimated cost: $300,000

Camillus House, Inc.

Project 1: Construction of New Homeless Facility to "Code Plus" Standards

Camillus House is about to construct a new campus housing homeless persons, to be located on NW 7th Avenue and NW 15th Street in Miami. The facility will house 340 persons on a normal night, with extra capacity of up to 680 during emergency situations. The campus will include three connected buildings, with one of those buildings constructed "above code," so that it is able to withstand a Category 5 hurricane. Camillus already operates several other homeless facilities located in flood-zones requiring evacuation during hurricanes. The new facility will be able to house those evacuees as well as persons living on the streets during hurricanes. Camillus will fund construction of the facility to code from other sources, and will use mitigation funds for the above-code enhancements. Estimated cost: $4,000,000.

Project 2: Emergency Power Supply for New Homeless Facility

Camillus House intends that the new facility referenced above will be able to serve as an emergency shelter post-disaster, housing up to 680 people for some period of time. In order to provide appropriate care and services, including meals, showers, and shelter, to the emergency residents and the street-based homeless population, the facility will need to be equipped with generators capable of powering the entire facility. Estimated cost: $700,000.

Project 3: Window Protection for Matt Talbot House

Camillus House operates the Matt Talbot House program, located at 2136 NW 8th Avenue in Allapattah, within the city of Miami. The facility provides transitional housing to formerly homeless adults in 27 efficiency-style units. The facility also serves as an emergency shelter for homeless persons who live in other Camillus-operated facilities that are located within flood zones. During the past several hurricanes, Matt Talbot House has sheltered approximately 100 homeless individuals throughout the storm. However, the facility, which was constructed in 1925, lacks hurricane shutters. Staff has been protecting the windows with plywood. In order to install hurricane shutters, the facility must also have central air conditioning installed so that the window-units don't interfere with the shutters. Estimated cost: $250,000.

Project 4: Roof for Matt Talbot House

The 7,680 square foot roof for this facility is over 20 years old. It is currently in very bad condition and will not withstand hurricane force winds. This is a flat wooden roof surrounded by a 4 foot parapet wall. In order to withstand hurricane force winds the entire roof, including much of the wood and air conditioning support stands, must be completely replaced and brought up to code. Otherwise, significant wind and water damage will almost certainly place the entire facility at risk. Estimated cost: $53,000.

Project 5: Emergency Power Supply for Shelter and Food Storage at Matt Talbot House

Since this facility serves as an emergency shelter for up to 100 homeless individuals during and after hurricanes, it is essential that the facility maintain power in order to be able to pre-

pare meals for its temporary residents. This project would purchase a generator able to power the entire facility. Estimated cost: $50,000.

Project 6: Window Protection for Good Shepherd Villas

The Good Shepherd Villas program provides transitional housing for formerly homeless persons in nine duplex buildings, located at 3030-3048 NW 77th Avenue. This project would install hurricane shutters on each of the buildings. Estimated cost: $30,000.

Project 7: Drainage for Mother Seton Residence, St. Michael's Place & Naranja Cottages

These three facilities house individuals who are homeless in South Miami-Dade County. Mother Seton Residence (located at 12360 SW 283rd Street) houses families, St. Michael's place (located at 28200 SW 125th Avenue) houses veterans and Naranja Cottages (located at 27940 South Dixie Highway) provides transitional housing for individuals who are homeless. All three facilities are in need of drainage mitigation. Due to aging and other factors, storm water draining from the roofs is penetrating the exterior walls. In a hurricane-like storm, the potential for interior flooding is evident. Such flooding could render these facilities, collectively housing up to 257 residents, virtually unusable. Constructing storm gutters connected to appropriate drain fields would effectively mitigate this hazard. Estimated cost: $56,000.

Project 8: Emergency Power Supply for Naranja Cottages

Located just west of US1 in Naranja, this facility has the capacity to house up to 65 individuals who are homeless. In an emergency, the kitchen located on the premises provides essential meals for the surrounding community. In order to maintain this important capacity, a reliable power supply is needed for food refrigeration and preparation purposes. In addition to those housed at the facility, an estimated 300 community members, including the elderly and handicapped, are potential beneficiaries of this capacity. Estimated cost: $65,000.

Project 9: Emergency Power Supply for Central Warehouse

Located at 2020 NW 23rd Street in the city of Miami, this central warehouse facility is used to store essential food and clothing for approximately 10,000 individuals who are homeless housed throughout Miami-Dade County. Nearly 27,100 pounds of food are stored at any given time. A reliable power supply is critical if we are to maintain our capacity to store and distribute food and clothing in emergency situations. Providing an emergency power supply would ensure that these resources are available whenever they are needed. Estimated cost: $32,000.

Catholic Charities of the Archdiocese of Miami

Project 1: Storm Shutter or Storm Window Installation.

St. Luke's Center is located 7707 NW 2nd Avenue in Little Haiti, Miami, F, and is situated on some of the highest ground in the county. Shuttering or installing storm windows at St. Luke's will allow the organization to keep up to 50 disabled residents in recovery on-site during a storm, thereby reducing their risk and that of the community. Many residents are dually diagnosed (substance abuse and mental health illnesses), have HIV/AIDS, and/or are homeless and can therefore be counted among the disabled. The federal government through executive order 13347 (2004) requires the support and safety of individuals with disabilities in situations involving disasters, severe storms and hurricanes. Any funds received for the purpose of protecting these disabled consumers through this application will satisfy the safety requirements of the executive order.

Estimated cost for storm shutter installation: $130,000.
Estimated cost for storm window installation: $150,000.
Total estimated cost: $280,000

Project 2: Emergency Power Back-Up

In order to keep the disabled consumers on-site after a storm, the facility needs electric power; we are therefore requesting funds for the acquisition and installation of an electric generator. Electricity would allow for the continuation of treatment and the use of private areas such as resident rooms and bathrooms without the risk of consumer endangerment. Our facility has complete kitchen facilities which also require electricity. Executive Order 13347 requires the Federal government to encourage consideration of the needs of individuals with disabilities served by State, local, and tribal governments in emergency preparedness planning.
Estimated cost: $100,000

CHARLEE of Dade County, Inc.

Project: Install Hurricane Shutters

CHARLEE (Children Have All Rights: Legal, Educational and Emotional) is a private not-for-profit agency that cares for children in Miami-Dade County who have been placed in foster care due to abuse, abandonment, and neglect. CHARLEE currently has over 1000 children in our care. CHARLEE has three group homes, each of which is in need of hurricane shutters. The addresses and cost of each is:

1. 11174 SW 112 Terrace, Miami – Estimated cost: $8,300
2. 11390 SW 112 Terrace, Miami – Estimated cost: $8,300
3. 7550 SW 69 Court, Miami – Estimated cost: $7,280

Community Partnership for Homeless Inc.

Project: Harden Facility

Community Partnership for Homeless' south facility encompasses 13 buildings, including administrative offices; residential dormitories housing 302 homeless men, women and children; and a medical clinic. Built in 1999 under pre-Hurricane Andrew building codes, the 364 windows throughout the facility do not have windstorm protection, and highly expose vulnerable clients and staff to potential harm as a result of windstorm damage, including projectile objects. During the active 2005 hurricane season, the American Red Cross and Community Partnership for Homeless (CPH) executed a formal written agreement whereby the south facility is contracted as an American Red Cross food distribution center during a declared disaster. Based on declared disasters in 2005, CPH nightly served 125,000 meals to Homestead residents on behalf of the American Red Cross, in addition to housing and feeding its 302 residential clients. CPH's efforts at Hazard Mitigation include retrofitting its south facility with Storm Shield Hurricane Barriers, fully egressable shutters offering the maximum level of protection from violent storms and hurricanes. Estimated cost: $307,000

The Economic Opportunity Family Health Center, Inc.

Project 1: Harden Facilities

The Economic Opportunity Family Health Center, Inc., is a Florida non-profit, federally qualified community health center that provides comprehensive primary healthcare services to mostly uninsured and underinsured individuals residing in Miami-Dade County communities such as Liberty City, Hialeah, Little Haiti, and North Miami. We operate several health clinic locations including Family Health Center North, Flamingo Center, Norland Family Health Center and provide immunizations for adults and children, physical examinations, and other disease prevention programs. We look to harden these facilities to support our current facilities emergency preparedness program. This will allow us to maintain our clinical operations and increase community access to health services to individuals that would otherwise go without healthcare and increase hospital emergency room visits for non-urgent reasons during times of natural disasters, crises or other related emergency situations.

- Family Health Center North, 1220 NW 95th Street, Miami, FL 33147
- Flamingo Center, 901 E. 10th Avenue, Bay 39, Hialeah, FL 33010
- Norland Family Health Center, 18360 NW 7th Avenue, Miami, FL 33169

Estimated cost: $75,000

Project 2: Harden Jefferson Reeves House

The Economic Opportunity Family Health Center, Inc., is a Florida non-profit, federally qualified community health center that provides comprehensive primary healthcare services to mostly uninsured and underinsured individuals residing in Miami-Dade County communities such as Liberty City, Hialeah, Little Haiti, and North Miami. Since 1989, we have operated the Jefferson Reaves House Women's Residential Program, a 24-hour substance abuse treatment program for women. This is a unique program that allows women to go through the treatment program with their child (from infant to 5 years) on-site, so that the relationship between mother and child is maintained during the transition process. A full-time registered nurse and other per-

sonnel remains on site to provide health services and medication management, and doctor's visits are coordinated between our other health clinic locations. The program is located in a two-story 20,000 sq. ft. facility with a total of 40 beds. We look to harden the facility and enhance the Reaves House emergency preparedness in order to maintain services for women in the program and continue program operations. These women including their children would otherwise go without treatment and increase hospital emergency room visits for non-urgent reasons during times of natural disasters, crises or other related emergency situations.
Estimated cost: $150,000

Florida Atlantic University
Small Business Development Center

In the wake of September's hurricane assault, there is an opportunity for outreach to the South Florida business community. Many in that community are now aware of the devastation storms can wreak on business operations.

The Small Business Development Center (SBDC) has pioneered storm preparedness seminars over the last two years. It is now in an excellent position to reach out to Miami-Dade County business owners with useful advice about how to prepare both physically and operationally to resume commerce as soon as possible after a natural disaster.

The Florida Atlantic University/SBDC proposes hiring a Business Analyst in Miami-Dade to meet with business owners, directors or managers at their place of business and assist in devising hurricane preparedness plans that meet the specific needs of individual businesses. Businesses are the lifeblood of communities; therefore, business owners need to know that there is help and professional guidance to develop an emergency and recovery plan. Then, financial support to promote this assistance is also a key part of this proposal.

Clearly, businesses that resume operations quickly benefit owners, employees and consumers. For this reason, the potential benefit to the business community suggests that each dollar spent on this analyst's wages and promotional methods will be reflected in a multiple - perhaps exponential - dollar benefit to the local economy. Estimated cost: $75,000

Florida International University

Project 1: Public Safety Code Plus Building Construction

A Public Safety building is slated to be constructed in 2009 – 2010 on the University Park Campus which will incorporate the new Emergency Operations Center for the institution. This new facility will enable the university to better mitigate disasters of any type as Emergency Management and Public Safety will be situated in the same building, thus decreasing communication time and increasing productivity. To ensure that this new facility is built to withstand all hazards, enhanced construction to code plus will be incorporated in every aspect of its external envelope design. This includes additional structural supports in the walls, stronger roofing attachments fortified window and door assemblies. Further, the fortified construction supports the

university's goals to design and implement enhanced building standards for new construction to maximize protection from high wind and risk hazards. The overall strengthening of this facility would enable FIU to better mitigate future disasters and would benefit Miami-Dade County, particularly the surrounding communities, local law enforcement and Monroe County and will ultimately serve to better protect students, personnel and property. Estimated cost: $750,000

Project 2: Harden Health and Life Sciences (HLS) Building I

The HLS building serves as one of the principal laboratories for medical research for the new FIU medical school program on the University Park campus. Though constructed to meet current building code, the facility has vulnerable roof top equipment including fume hood stacks that extend horizontally up 25 feet that require enhanced safeguarding. In addition, FA intakes and MECH air handlers on the main roof are in need of a protective enclosure. The emergency back up power for the facility is a generator unit that sits unprotected at ground level and needs to be elevated & enclosed. In addition the associated fuel tanks also require an enclosure. Combined this will ensure continuity of operations during and following a high wind or other disaster event. By hardening the HLS building, the vital medical research being conducted daily will be safeguarded and the new FIU medical program better secured. Estimated cost: $ 625,000

Project 3: Harden Primera Casa/Charles Perry (01 PC) Building

The Primera Casa/Charles Perry building on the University Park campus serves as the main public shelter for residents of Monroe County. As such, the building demands enhanced protection of the structural envelop including hardened glazing on the storefront and other external protective measures. Additionally the building houses multiple laboratories which require proper ventilation equipment in the form of roof mounted fume hood stacks and other critical mechanical equipment; all of which necessitates hardening. Additionally other roof mounted equipment will be better secured. Hardening the 01 PC building will ensure the safety and security of all occupants and the protection of essential property and other important assets.
Estimated cost: $250,000

Project 4: Harden Bay View Housing

The Biscayne Bay campus is located in directly adjacent to Biscayne Bay and has the Bay View Housing buildings as resident halls for student housing. While full student evacuation occurs at a category 2 or higher hurricane, the building structures still require overall hardening to minimize displacement and critical asset losses. Reinforcing vulnerable areas of the structure will assist FIU in better protecting students, reducing potential losses and assuring a swift recovery. Estimated cost: TBD

Project 5: Harden Health and Life Sciences (HLS) II

The HLS II building serves as one of the key laboratories for medical research for the new FIU medical school program on the University Park campus. Though constructed to meet current building code, the facility has vulnerable roof top equipment including fume hood stacks

that extend horizontally up 25 feet that require enhanced safeguarding. In addition, FA intakes and MECH air handlers on the main roof are in need of a protective enclosure. The emergency back up power for the facility is a generator unit that sits unprotected at ground level and needs to be elevated & enclosed. In addition the associated fuel tanks also require an enclosure. Combined this will ensure continuity of operations during and following a high wind or other disaster event. By hardening the HLS building, the vital medical research being conducted daily will be safeguarded and the new FIU medical program secured. Estimated cost: $500,000.

Project 6: Harden Owa Ehan Building

The Owa Ehan building on the University Park campus requires hardening of its external envelop including all windows, doors & other openings. In addition, the structure houses multiple research and teaching laboratories which require proper ventilation equipment in the form of roof mounted fume hood stacks and other critical mechanical equipment; all of which necessitates hardening. Additionally other roof mounted equipment will be better secured and added external protective measures undertaken. The facility supports numerous marine biology research labs, which contribute to the survival and understanding of South Florida's ecological system. Hardening the Owa Ehan building will ensure the safety and security of all occupants and the protection of essential property and other important assets. Estimated cost: $250,000

Project 7: Harden BBC Library

The Biscayne Bay campus is located directly adjacent to Biscayne Bay and has a campus library that houses over one million books, many of which are rare or irreplaceable. To better mitigate against the potential for damages the structure requires an overall hardening of its external envelop including all windows, doors and other openings. Additionally roof mounted equipment will be better secured and other external protective measures undertaken. Hardening of the BBC Library will protect invaluable property and important assets and will ensure the uninterrupted delivery of educational support services to FIU students immediately following a disaster. Estimated cost: $750,000

Project 8: Harden Engineering and Computer Science Building

The Engineering and Computer Science building on the University Park campus requires hardening of its external envelop including all windows, doors, other openings and roof. In addition, the structure houses multiple research and teaching laboratories which require proper ventilation equipment in the form of roof mounted fume hood stacks and other critical mechanical equipment; all of which necessitates hardening. Additionally other roof mounted equipment will be better secured and added external protective measures undertaken. Finally the facility has a vulnerable emergency power back up system. The generator sits unprotected at ground level and needs to be elevated and enclosed. The associated fuel tanks also require a protective enclosure. Both projects will ensure continuity of operations during and following a high wind or other disaster event. ECS houses numerous computer science research activities, networking projects, the computer science department and college of arts and sciences. The facility also supports numerous marine biology research labs, which contribute to the survival and understanding of South

Florida's ecological system. The support of this facility is critical to the academics of the university, as well as the future members of information technology fields.
Estimated cost: $160,000

Project 9: Harden Chemistry and Physics Building

The Engineering and Computer Science building on the University Park campus requires hardening of its external envelop including all windows, doors, other openings and roof assemblies. Further, the building needs to enclose the roof at the ends of the structure to better reduce wind loads over a roofed over internal courtyard. In addition, the facility houses multiple research and teaching laboratories which require proper ventilation equipment in the form of approximately twelve existing roof mounted fume hood stacks and other critical mechanical equipment; all of which necessitates hardening. Additionally other roof mounted equipment will be better secured and added external protective measures undertaken. Finally, the building's supporting emergency generator and the MECH air handlers at the main roof requires a re-routing of the air intake to avoid the potential for electrical shorts by water infiltration. Chemistry and Physics houses all of the primary chemistry instructional labs, as well as the chemistry department's stockroom. Estimated cost: $1,000,000

Project 10: Harden Graham University Center

The Graham University Center building on the University Park campus necessitates overall structural hardening including the fortification of the building frame assembly, windows, doors, other openings and roofing system. Additionally roof mounted equipment will be better secured and other external protective measures undertaken. The Graham Center also serves as the backup shelter for Monroe County residents, and as such, demands additional strengthening. Hardening the Graham University Center will ensure the safety and security of all occupants and the protection of essential property and other important assets. Estimated cost: $3,750,000

Project 11: Harden Academic One (ACI) Building

The Academic One building on the Biscayne Bay campus requires strengthening of its external envelop including all windows, doors and other openings. In addition roof mounted equipment will be better secured and other external protective measures undertaken. While full student evacuation occurs at a Category 2 or higher hurricane, the building structure still requires overall hardening to minimize displacement and critical asset losses. Reinforcing vulnerable areas of the structure will assist FIU in better protecting students, reducing potential losses and assuring a swift recovery. Estimated cost: $750,000

Project 12: Harden the Wolfe University Center

The Wolfe University Center on the Biscayne Bay campus needs to harden its external envelope including all windows, doors and other openings. Additionally roof mounted equipment will be better secured. While full student evacuation occurs at a Category 2 or higher hurricane, the building structure still requires overall hardening to minimize displacement and critical

asset losses. Reinforcing vulnerable areas of the structure will assist FIU in better protecting students, reducing potential losses and assuring a swift recovery. Estimated cost: $750,000

Project 13: Harden Academic II Building

The Academic II Building on the Biscayne Bay campus necessitates hardening of its external envelope including all windows, doors and other openings. Additionally roof mounted equipment will be better secured. While full student evacuation occurs at a Category 2 or higher hurricane, the building structure still requires overall hardening to minimize displacement and critical asset losses. Reinforcing vulnerable areas of the structure will assist FIU in better protecting students, reducing potential losses and assuring a swift recovery.
Estimated cost: $600,000

Project 14: Harden Viertes Haus Building

The Viertes Haus Building on the University Park campus requires overall fortification of its external envelope including all windows, doors and other openings. Additionally roof mounted equipment will be better secured. While full student evacuation occurs at a Category 2 or higher hurricane, the building structure still requires overall hardening to minimize displacement and critical asset losses. Reinforcing vulnerable areas of the structure will assist FIU in better protecting students, reducing potential losses and assuring a swift recovery.
Estimated cost: $750,000

Project 15: Harden Wolfsonian Annex

The Wolfsonian Annex is located on Miami Beach in close proximity to the Atlantic Ocean. The facility houses a priceless art collection of design objects from the early 1900's and is housed in facilities from the same historic era as its artifacts. As such, the facility is in urgent need of fortification to ensure the preservation of both its invaluable contents and protection of its historic structures. Specifically, all windows, doors & other openings will be hardened. Hardening the Wolfsonian Annex will ensure the security and protection of precious artwork and other essential assets. Estimated cost: $100,000.

Project 16: Harden Wolfsonian Museum

The Wolfsonian Museum is located on Miami Beach in close proximity to the Atlantic Ocean. The facility houses a priceless art collection of design objects from the early 1900's and is housed in facilities from the same historic era as its artifacts. As such, the facility is in urgent need of fortification to ensure the preservation of both its invaluable contents and protection of its historic structures. Specifically, all windows, doors & other openings will be hardened. Hardening the Wolfsonian Museum will ensure the security and protection of precious artwork and other essential assets. Estimated cost: $200,000.

Project 17: Develop Warning, Education, and Traffic Management Plans

A challenge for emergency management is to mitigate potential loss of life and suffering that could result from failures by the public to respond appropriately to evacuation orders. Studies show that households will often delay evacuation until the point when the road system becomes jammed, and then give up on leaving. The wide range of income, family composition, age, health, culture, and other demographic differences in the South Florida population make evacuation response hard to predict (particularly non-evacuation vs. shadow evacuation). Current understanding is inadequate to predict and plan for problems in evacuation response behavior. Without this understanding, it is difficult to adequately model traffic congestion and clearance times for evacuation zones. Evacuation for a major hurricane will be as bad or worse and impossible to model without knowing evacuation rates, timing, destinations, and routes. In less densely populated areas much of this information can be obtained from current behavioral studies but, in South Florida, large-scale in-depth surveys are needed to get the required information. For a number of years the Institute for Public Opinion Research (IPOR) at Florida International University has been discussing these issues with Miami-Dade County emergency management and doing such behavioral studies as research funding allows. This activity has pointed to the need for a comprehensive behavioral study connected to dynamic transportation modeling carried out in close collaboration with local authorities to produce an evacuation plan that can be relied on to mitigate loss of life. Estimated cost: $400,000.

Project 18: Hurricane Andrew – 20 Year Anniversary Miami Science Museum Exhibition

The hurricane exhibition will explore the extent to which these powerful storms have shaped the physical and social landscape of South Florida. Featuring the technologies and expertise of the Florida International University based International Hurricane Research Center, aspects of this exhibition will give visitors the opportunity to investigate the instruments and methods used to predict, track and measure these awesome storms. Dramatic images and incredible video provide graphic evidence of the enormous impact of hurricanes throughout the region. Historic artifacts provide evidence of the intensity of the storm and document the local devastation caused by Hurricane Andrew and other epic storms. An interactive wind tunnel allows visitors to physically experience increasing levels of wind speed, while virtual world exhibits provide opportunities to explore the eye of a hurricane, or manipulate wind speed to observe the exponential increase in damage. Hands-on interactives explain the basic concepts of evaporation, convection and rotation underlying the genesis of hurricanes. Practical information is also available here, including examples of the latest in alert systems, construction technologies, protective materials and emergency kits. Tapping into the breadth and depth of personal experiences and sentiments related to hurricanes, Miami Science Museum will invite visitors to share their stories, creating a changing array of objects, images, narratives and recordings. Estimated Cost: TBD.

Florida Memorial University

Project 1: Windstorm Protection for Residence Halls

In an effort to mitigate wind damage, it is necessary to retrofit our existing residence halls, J.T. Brown Residence Hall, A.B. Coleman Sr. Residence Hall and Willie C. Robinson Residence Hall with accordion style hurricane shutters.

Estimated cost: Brown & Coleman at $129,000 each, Robinson at $48,000

Project 2: Create On-campus Hurricane Shelter

To protect our staff and students, it is necessary to harden the shell of the Albert E. and Sadie B. Smith Dining Hall and Conference Center building to serve as an evacuation center by installing window protection and adding auxiliary power. Estimated cost: $108,000

Haitian American Disaster Resource Center, Inc

Note: Haitian American Disaster Resource Center, Inc no longer participates in the Local Mitigation Strategy Working Group and is no longer eligible for the benefits thereof. The projects are retained in this document as a matter of historical record.

Project 1: All Hazard Haitian Preparedness

This project will take on the task of liaison between the Miami-Dade Haitian Community and all existing foundations, community based organizations, and local to federal governmental agencies. The HADRC will use the already existing local mitigation measures to reduce the loss of live and property in the Haitian community by creating an avenue of communication and collaboration with all existing agencies and institutions that already provide the groundwork for mitigation, recovery, response, and relief. We will ensure that these information networks have the resources necessary to get their message across, as well as ensure that their message is brought to the Haitian community in a culturally sensitive and linguistic manner. This project is one that will assist in solving an independent problem in the Haitian community and constitute a functional component of a larger solution within Miami-Dade County. Areas of example include: Hurricane preparation, family disaster plans, food and water emergencies, fire and flood preparation, terrorism, power outages, etc. Estimated cost: $100,000

Project 2: Special Needs in the Haitian Community

The HADRC will ensure that Haitians with special needs throughout Miami Dade County which includes individuals and families with infants, elderly and persons with disabilities, have the proper information to prepare for their needs in the case of an emergency such as a major hurricane. Aside from the communication gap, this group usually needs more attention and information in order to be prepared for any emergency. Estimated cost: $40,000

Project 3: Haitian Media Campaign

The HADRC will work will all Haitian media toward ensuring that all new and existing information as well as services from governmental Emergency Management organizations are communicated in a clear, efficient, and most importantly, effective manger. The HADRC will also work towards the participation of all Haitian Media as part of the information network and provide that link to the entire Haitian community that is desperately lacking. As part of this pro-

ject, a spokesperson will be identified to be the representative liaison between the Haitian media and emergency management agencies. Estimated cost: $25,000

Project 4: Little Haiti Shutter and Information Program

The HADRC will work with the existing shutter mitigation program and assist in the communication, application, and follow-up for Haitian families living within Miami-Dade County. The Haitian community is unaware of the effectiveness and benefits of shuttering and or the installation of other home and window protection devices. The HADRC will also work with low income families and elderly to apply for the free shuttering program and other home preparation programs provided by foundations, non-profits, and governmental agencies.
Estimated cost: $5,000

Hialeah Housing Authority

Project 1: Ashley Plaza

199 Units – Public housing located at 70 East 7th Street, Hialeah, Florida. 564 windows and 201 glass panels. Estimated cost: $255,000

Project 2: Patterson Pavilion

100 Units – Project based Section 8 housing located at 1875 West 44th Place, Hialeah, Florida. 221 windows. Estimated cost: $73,250

Project 3: Holland Hall

101 Units – Public housing 555 East 1st Avenue, Hialeah, Florida. 121 windows and 187 glass panels. Estimated cost: $170,750

Project 4: Hoffman Gardens

188 Units – Public housing located at 7650 West 8th Avenue, Hialeah, Florida. Hurricane resistant windows and doors. Estimated cost: $1,470,900

Project 5: Milander Manor

60 Units – Public housing located at 815 West 75th Street, Hialeah, Florida. 129 windows and 39 glass panels. Estimated cost: $48,384

Project 6: La Esperanza

133 Units – Public housing located at 1770 West 44th Place, Hialeah, Florida. 556 windows and 21 glass panels. Estimated cost: $93,600

Project 7: Bright Villas

50 Units – Public housing located at 5215 West 25th Avenue, Hialeah, Florida. 223 windows and 2 glass panels. Estimated cost: $64,800

Project 8: Dale Bennett

50 Units – Public housing located at 2850 West 71 Street, Hialeah, Florida. Accordion style hurricane shutters. Estimated cost: $116,400

Project 9: Project 16

60 Units – Public Housing located at 6325 West 24th Avenue, Hialeah, Florida. Accordion style hurricane shutters. Estimated cost: $125,200

Project 10: Ruth Tinsman

100 Units – Public Housing located at 6545 West 24th Avenue, Hialeah, Florida. 229 windows and 6 Glass Panels. Estimated cost: $67,680

Project 11: Project 21

14 Units – Public Housing located at 2324 West 5th Way, Hialeah, Florida. Accordion style hurricane shutters. Estimated cost: $29,500

Project 12: 56 Street

360 Units-affordable housing in 4 buildings – 1650 West 56th Street, 1655 West 56th Street, 1675 West 56th Street, and 1680 West 56th Street, Hialeah, Florida.
Estimated cost: $232,704

Each Building.	150 Windows	600 Windows
	52 Glass Panels	208 Glass Panels

Project 13: 68 Street

78 Units – Affordable housing in 2 Buildings) – 6830 West 7th Avenue, 183 windows and 6870 West 7TH Avenue , 366 Windows, Hialeah Florida. Estimated cost: $105,408

Project 14: 28 Street

16 Units – Affordable housing in 2 Buildings located at 1415 West 28th Street, 42 windows, and 1425 West 28th Street, 84 windows, Hialeah, Florida.
Estimated cost per building: $24,192

Project 15: 32 Street

16 Units – Affordable housing located at 30 West 32nd Street, Hialeah, Florida. 40 windows. Estimated cost: $11,520

Project 16: 33 Street

16 Units – Affordable housing located at 35 West 33rd Street, Hialeah, Florida. 39 windows. Estimated cost: $11,232

Project 17: E. 4th Avenue

59 Units – Affordable Housing located at 3275 East 4th Avenue and 700 East 4th Avenue, Hialeah, Florida. 103 windows. Estimated cost: $29,644

Project 18: Bright Villas

50 Units – Affordable Housing located at 5215 West 25 th Avenue, Hialeah, Florida 33016, accordion style Hurricane shutters. Estimated cost: $116,800

The Humane Society of Greater Miami

Note: The Humane Society of Greater Miami no longer participates in the Local Mitigation Strategy Working Group and is no longer eligible for the benefits thereof. This project is retained in this document as a matter of historical record.

Many citizens of the area refuse to evacuate to shelters unless they know their pets are safe. The Humane Society's hazard mitigation projects involve the adaptation of their animal shelters to accommodate the human workers who must stay and care for the animals during a hurricane or other disaster event. This will also provide shelter for household pets during an evacuation that will encourage our citizens to seek the evacuation centers.

Jackson Health System

Project 1: Oil Switch Gear Relocation

The objective of the proposed project is to relocate the critical oil switch gears currently located in the West Wing basement. In their current location, the oil switch gears are vulnerable to flooding and potential catastrophic failure. The relocation of the switch gears to an above ground location will ensure their functionality during a major storm.
Estimated Cost $7,350,000

Project 2: Emergency Power for Kitchen Jackson Memorial Hospital

Most kitchen equipment used to prepare food for patients is not on emergency power. It is necessary for JHS to ensure continuity of food service in the event of an extended power outage. Portions of the kitchen refrigeration are not powered from emergency power and will require other options to maintain refrigerated food storage. We have identified equipment compatible with the existing electrical infrastructure to be connected on emergency power.
Estimated Cost: $1,500, 000

Project 3: West Wing Roof Replacement at Jackson Memorial Hospital

Replace 21,108 SF of roof on West Wing Jackson Memorial Hospital's 15-story Patient Bed Tower. The building is 35 years old and the Roof is approximately 20 years old. Replacing the roof would eliminate the potential for damage resulting from breaching of the building envelope during a hurricane. The roof is past its useful life expectancy.
Estimated Cost: $650,000

Project 4: Additional Generator Fuel Storage Tank at JMH

During a disaster critical power is utilized by the hospital to care for the residents of Miami-Dade County. An additional 10,000 gallon underground storage tank to supply fuel to the generators at JMH is necessary to maintain this high level of care during a hurricane and disaster situations.
Estimated Cost: $1,350,000

Project 5: Institute Annex Roof Replacement at Main Campus

Replace 13,566 SF of roof on the Institute Annex Building. The Roof is approximately 25 years old and is past its useful life expectancy. Replacing it would eliminate the potential for damage resulting from breaching of the building envelope during a hurricane.
Estimated Cost: $150,000

Project 6: Rehab Annex Roof Replacement at Main Campus

Replace 10,000 SF of roof on the Rehab Annex Building. The Roof is approximately 20 years old and is past its useful life expectancy. Replacing it would eliminate the potential for damage resulting from breaching of the building envelope during a hurricane.
Estimated Cost: $300,000

Project 7: Rehab Building Roof Replacement at Main Campus

Replace 39,110 SF of roof on the Rehab Building. The Roof is approximately 20 years old and is past its useful life expectancy. Replacing it would eliminate the potential for damage resulting from breaching of the building envelope during a hurricane.
Estimated Cost: $300,000

Project 8: Installation of Shutters at Highland Pavilion

Highland Pavilion is an in-patient residential mental health facility. Clients at Highland Pavilion often have significant mental health concerns and remain some of the most vulnerable members of our community. Coverings included: perforated stainless steel shutters for all external windows and accordion shutters on doors. The proposed project will take into account the unique population housed in the facility.
Estimated Cost $1,072,000

Project 9: Installation of Impact Resistant Windows at Institute Annex

Install high impact windows at Institute Annex on the main campus of Jackson Health System.
Estimated Cost: $2,000,000

Project 10: Installation of High Impact Resistant Windows at Rehab Annex

Install high impact windows at Rehab Annex on the main campus of Jackson Health System.
Estimated Cost: $1,000,000

Project 11: Securing Critical Equipment at Jackson North Medical

Loss of critical equipment may occur during and immediately after a disaster. The objective of the proposed project is to secure, using a variety of methods and available best practices, critical equipment located and/or stored at JNMC.
Estimated Cost: $500,000

Project 12: Cooling Towers Enclosures at Jackson North Medical Center

Damages to the cooling towers at JNMC may significantly and adversely impact the hospital's ability to operate and can have life threatening implications for high risk patients and/or patients with certain chronic ailments. JHS is proposing to enclose the towers in order to mitigate and guard against possible damages.
Estimated Cost: $300,000

Project 13: Generator and Control Elevation JNCMHC

The facility is located in the city of Opa-Locka and provides outpatient services as well as nursing services for 24 patients, 24 hours a day 7-days a week. During hurricane season this facility is used as a shelter by the clinics in the area. A new emergency generator will back up electricity for the facility in case of power loss. The generator is capable of providing electricity for up to one week.
Estimated Cost: $400,000

Project 14: Oil Switch Gear Relocation ACC East Basement

The objective of the proposed project is to relocate the critical oil switch gear currently located in the ACC East Basement. In their current location, the oil switch gears are vulnerable to flooding and potential catastrophic failure. The relocation of the switch gears to an above ground location will ensure their functionality during a major storm.
Estimated Cost $2,500,000

Project 15: East Tower Helipad

The objective of the proposed activity is to restore to operational level the existing helipad on the East Tower building roof. The East Tower helipad will serve as an alternate helicopter landing site at Jackson Memorial Hospital. This alternate site will allow for the acceptance of multiple emergency aircraft during a mass casualty event as well as ensure continued operation in the event the current helipad (Ryder Trauma Center) suffers damage or is otherwise incapacitated by a storm or other event.
Estimated Cost $2,500,000

Project 16: Diagnostic Treatment Center (DTC) Roof

Replace 71,000 SF of roof on the Diagnostic Treatment Center. The Roof is approximately 15 years old and while it is not past its useful life expectancy, it is important that the roof be brought into compliance with the latest codes for resistance to wind damage. Replacing it would eliminate the potential for damage resulting from breaching of the building envelope during a hurricane.
Estimated Cost: $250,000

Awaiting Contract

Project: Enclosure of Jackson Memorial Hospital Tank Farm

Tanks farms are critical to healthcare resources. Enclosing tank farms is one of the identified JHS pre-disaster mitigation strategies.

Estimated Cost: $300,000

Project: Tank Farm Protective Enclosure at Jackson North Medical Center

Tanks farms are critical to healthcare resources. Enclosing tank farms is one of the identified JHS pre-disaster mitigation strategies.
Estimated Cost: $300,000

Johnson & Wales University

This private university has been approved at the state level for a Hazard Mitigation Grant Program grant to harden a portion of their classroom building that includes the library to serve as an evacuation center for boarding students. The University wishes to expand the hardening program to include the remainder of the campus buildings. This would include shuttering, reinforcement for doors and roof systems and relocation of vital equipment.

Mercy Hospital

Project 1: Wind Retrofit: Replace roof - Surgical Mechanical Penthouse

Eliminate source of flying debris and reduce potential for damage from breaching of the building envelope during hurricanes by replacing 6,303 s.f. of gravel roof built in 1977, with new two-ply SBS system over new coverboard, over new tapered Polyiso insulation (R-20) over new temporary roof over new primer over existing concrete deck, designed to a basic wind speed of 160 mph 3-sec. gusts exceeding requirements of FBC HVHZ. Finish roof with high-reflectivity elastomeric coating. Install 18 ga. galvanized steel metal coping over building parapet. Increase roof-drainage capacity, as needed, to enhance performance under extreme rain events. Prior to work conduct engineering study and core tests to determine as-built-conditions. After completion of work conduct roof-uplift tests at corners, perimeter and field using FBC HVHZ testing protocols. Estimated cost: $298,000.

Project 2: Wind retrofit: Replace roof – South Wing Building

Eliminate source of flying debris and reduce potential for damage from breaching of the building envelope during hurricanes by replacing 19,778 s.f. of gravel roof, built in 1964, with two-ply SBS system over new coverboard, over new tapered Polyiso insulation (R-20) over new temporary roof over new primer over existing concrete deck, designed to a basic wind speed of 160 mph 3-sec. gusts exceeding requirements of the FBC HVHZ. Finish roof with high-reflectivity elastomeric coating. Install 18 ga. galvanized steel metal coping over building parapet. Increase roof-drainage capacity, as needed, to enhance performance under extreme rain events. Provide enhanced means of anchoring for all roof-mounted mechanical equipment.. Prior to work conduct engineering study and core tests to determine as-built-conditions. After completion of work conduct roof-uplift tests at corners, perimeter and field using FBC HVHZ testing protocols. Estimated cost: $775,000.

Project 3: Wind retrofit: Harden exterior Walls – Kohly Building

Complete mitigation of building envelope by hardening and remediating all exterior walls to prevent water penetration during hurricanes from wind driven rain or during extreme rain events reducing potential for damage to building interior and contents. The building built in 1996 has sustained wall damage during hurricanes Katrina and Wilma that has lead to water penetration issues. Conduct engineering study and soundings to determine extent of wall deterioration and identify suitable and effective wall remediation and weatherproofing methods and specifications. Estimated cost: $675,800.

Project 4: **Design and built Code Plus new Patient Tower**

Enhance design and construction of new 250-bed patient tower to be built by using Code Plus method. Elevate structure and ground floor above Cat 5 still-water surge elevation, by grading, compacting and effectively armoring the building site terrain. Use design criteria on the basis of 165 mph basic wind speed for structural and architectural design to achieve hardened building envelope. Estimated cost $2,500,000.

Project 5: Mercy Hospital Hazard Mitigation Plan

Draft, adopt and implement hazard mitigation plan for the Mercy Hospital campus. Plan will identify the natural hazards to which the campus is vulnerable, and it will also identify the actions and activities to reduce the potential for damage and losses from those hazards, while also establishing a coordinated process for implementing the plan, and for timely and periodic reviews. Estimated cost $135,000.

Project 6: Wind retrofit: Replace/harden all roofs built prior to 1994 Building Code

Replace/harden approximately 50,000 s.f. of roofs throughout the hospital facility including the following four buildings: Carroll, Huntley, Hurley, North, which date back to before the enhanced requirements of the 1994 South Florida Building Code. Use two-ply SBS system over new coverboard, over new tapered Polyiso insulation (R-20) over new temporary roof over new primer over existing concrete deck, designed to a basic wind speed of 160 mph 3-sec. gusts exceeding requirements of FBC HVHZ. Finish roof with high-reflectivity elastomeric coating. Install 18 ga. galvanized steel metal coping over building parapet. Increase roof-drainage capacity, as needed, to enhance performance under extreme rain events. Provide enhanced means of anchoring for all roof-mounted mechanical equipment. Prior to work conduct engineering study and core tests to determine as-built-conditions. After completion of work conduct roof-uplift tests at corners, perimeter and field using FBC HVHZ testing protocols. Estimates cost $1,600.000.

Project 7: Reconfigure Windows – East Wing Building

Replace and resize thirty windows on the west elevation of the third floor of the East Wing Building looking over the roof of the Surgical Pavilion, which are highly vulnerable to water penetration as a result of having their sills below the level of the adjacent roof. This will elim-

inate the potential for water penetration during hurricanes or extreme rain events and thus reducing the potential for damage to the building interior. Estimated cost: $90,000.

Project 8: Wind retrofit: Replace Windows with Pressure-rated Units

Replace all windows on the Carroll, Huntley and Surgical Pavilion buildings, which do not meet current minimum requirements of the Florida Building Code HVHZ for wind-velocity pressure, with non-operable fixed-glass units that will equal or exceed the wind-velocity pressure ratings of the Florida Building Code HVHZ for the location and above-ground elevation in each case. Although all windows are protected by deployable impact-resistant hurricane shutters, which are neither wind-pressure nor water tight, some breakage occurred during hurricanes Katrina and Wilma in 2005. This will reduce the potential for damage through breaching of the building envelope resulting from window breakage during hurricanes. Estimated cost: $1,500,000.

Project 9: Wind retrofit: Harden Carroll Building Envelope

Reinforce exterior walls to enhance performance under wind loads and improve connections between building envelope and building structure, to meet or exceed wind-velocity design criteria under the Florida Building Code High Velocity Hurricane Zone for Miami-Dade County [146 mph 3-second gusts]. This will reduce potential for damage from the impact of major hurricanes. Estimated cost: $980,000.

Project 10: Storm Surge Mitigation

Reinforce seawall. Install surge-deflector atop seawall bulkhead, and backflow gates on all storm drains through the seawall. This will dampen energy of storm surge, deflect or stop impact of floating debris and prevent surge penetration through storm drain system into the campus. This will reduce potential for damage from hydrodynamic pressure, wave impact and the impact of floating debris during hurricanes. With SLOSH model projections of a worst-case storm surge of 14.5 ft NGVD net of wave action, which will only be exacerbated in years to come as a result of sea level rise, the potential for damage from storm surge in high. Estimated cost: $1,200,000.

Project 11: Protection of Crawl Spaces

Build flood walls outfitted with permanently installed flood gates to isolate four locations where crawl spaces exist, which are highly vulnerable to flooding during rain events and from storm surge. Replace all pipe and utility anchors and hangers in such crawl spaces with corrosion-resistant devices such as stainless steel or fiberglass hangers and anchors. This will eliminate an existing problem and reduce the potential for damage to critical utilities and piping in such crawl spaces. Estimated cost: $60,000.

University of Miami

Project 1: Bascom Palmer Eye Institute Wind Protection

This project involves hurricane resistant wind retrofit measures to include wind resistant glass windows, shutters, and anchoring of equipment. Estimated cost: $3,300,000

Project 2: University of Miami Hospital Wind Protection

The University of Miami Hospital is a 560 bed hospital serving the community as a multiple practice facility. This project involves hurricane resistant wind retrofit measures to include wind resistant glass windows and/or shutters, and anchoring of roof-top equipment.
Estimated cost: $2,900,000

Project 3 - University of Miami Sylvester Comprehensive Cancer Center Hardening

The University of Miami – Sylvester Comprehensive Cancer Center (SCCC) is a clinical treatment facility with clinical laboratories and offices serving the community as a comprehensive cancer treatment facility. This project involves hurricane resistant wind retrofit measures to include wind resistant glass windows and/or shutters.

Project 4 - University of Miami Hospital Facility Hardening

The University of Miami Hospital, located in the Health District, provides critical care, including inpatient and outpatient care. Existing emergency power equipment at this critical facility is obsolete and housed at ground level and prone to flooding damage. The proposed project would include abandoning old equipment and installing all the cabling and switch gear connections from a newly built and existing 14 Megawatt ACHA approved district wide emergency power grid. The connections would be made to a new generator located at a separate site located above the 100 year flood plain and housed in a Category 5 structure. Estimated Cost: $4,000,000

Project 5 - University of Miami Hospitals' Chill Water Cat 5 Level Infrastructure Hardening

With 5 hospitals and over 6,000 beds serving the most severe medical cases in Miami-Dade County, the UM/Jackson Health District is perhaps one of the most important facilities that must not fail during a disaster event. The need for uninterrupted medical care, in a sterile and cool environment is of the utmost importance in order to treat victims, maintain stability of patients and combat the spread of disease. To alleviate the electrical load required to cool hospital buildings and ensure a supply of clean cool water, the best solution is a to build a pair of deep underground wells at a depth of 3,500 feet that tap into a natural source of abundant cold seawater. This project will sustain chill water cooling to all University of Miami Hospitals at a Cat 5 level in the event of a chiller plant failure, cooling tower structure compromise due to wind damage, and/or municipal water source interruptions. In addition, the project will conserve approximately 55 million gallons of potable water annually and reduce energy consumption of the UM/Jackson Health District by 25% or 14 megawatt hours – allowing the hospitals to operate an additional 48 hours, or 100% longer on generator power. Estimated Cost $4,000,000.

Project 6: University of Miami Hospital Flood Protection

This project is to elevate the critical electrical systems to a higher elevation for protection against storm surge and flooding for continual operations. Estimated cost: $800,000

Project 7: Business School Building Code Plus Wind Protection

To strengthen the overall wind protection of the new Business School Building which will be used to shelter off-campus University of Miami students during an event, thus freeing public shelter space, from current code protection of 146 mph to 185 mph with explosion/wind resistant glass windows. Estimated cost: $4,434,000.

Project 8: Business School Building Code Plus Building Fortification

To strengthen and harden the overall building structure from current code protection to structural reinforcement protection to withstand a Category 5 hurricane.
Estimated cost: $1,400,000

Project 9: Business School Building Code Plus Power and Water

To fortify the overall power and water supply from current code requirements to code plus protection by providing a dedicated generator and chiller to carry normal and critical loads of entire building. Estimated cost: $750,000

Project 10: Smathers Wellness Center Wind Retrofit

To strengthen the overall wind protection of the new Smathers Wellness Center which will be used to shelter off-campus University of Miami students during an event, thus freeing public shelter space, and then becoming the critical operations center for the university after an event, from current code protection of 146 mph to 185 mph with explosion/wind resistant glass windows. Estimated cost: $4,500,000.

Project 11: Smathers Wellness Center Power and Water Fortification

To fortify the overall power and water supply of the new Smathers Wellness Center which will be used to shelter off-campus University of Miami students during an event, thus freeing public shelter space, and then becoming the critical operations center for the university after an event, from current code requirements to code plus protection by providing a dedicated generator and chiller to carry normal and critical loads of entire building.
Estimated cost: $1,000,000

Project 12: Hardening of Medical Campus Power and Chiller Plant to Code Plus

The new University Medical Campus power and chiller plant will provide power and air conditioning to critical research buildings, which include freezer farms with research specimens.

The project is to harden the building to code plus protection and upgrade the chillers to ensure continuity of operations for these critical research buildings. Estimated cost: $2,000,000

Project 13: Flood Protection for the Rosenstiel Medical Science Building Steam Plant

This project involves the expansion and upgrade to the Campus Central Steam plant to support the new Interdisciplinary Wet Lab building and the New Medical Practice Building. This will fortify the central steam plant from flooding and increase the redundancy serving all of the research and animal facilities as well self generation of building power for the facility.
Estimated cost: $1,750,000.

Project 14: Wind Retrofit, Flood Protection, & Power Upgrade for Eaton Hall

Eaton Hall provides shelter for approximately 300 on campus students during an event that would otherwise have to be evacuated. The university plans to provide wind resistant glass, flood gates, and upgrade emergency power for critical building components.
Estimated cost: $2,000,000

Project 15: Wind Retrofit and Flood Protection for Mahoney-Pearson Residential Halls

Mahoney-Pearson Halls provide shelter for approximately 500 on campus students during an event that would otherwise have to be evacuated. The university plans to provide wind resistant glass and flood protection for the building. Estimated cost: $2,500,000

Project 16: Wind Retrofit and Flood Protection for Stanford Towers

Stanford Tower provides shelter for approximately 200 on campus students during an event that would otherwise have to be evacuated. The university plans to provide wind resistant glass, anchor equipment, and upgrade emergency power for critical building components.
Estimated cost: $1,700,000

Project 17: Medical Campus Fuel Tank

This project is for the installation of an Aboveground Fuel Storage Tank to provide uninterruptible fuel supply for emergency generator power for critical facilities throughout the Medical Campus and fuel for essential and emergency personnel. Estimated cost: $120,000

Project 8: Wind Retrofit and Flood Protection for Sewell Building

This project involves hurricane resistant wind retrofit measures for wind protection, and anchoring of equipment and upgrade roof. Estimated cost: $500,000

Project 18: Retrofit Marine Campus Auditorium as Emergency Command Center

Space will be pre-wired for fifty work stations, and configured to house staff/faculty & students displaced from other buildings. New restrooms and showers will be added. The work stations will allow students and faculty to continue their research and work and serve as the Emergency Command Center in case of a major disaster/hurricane. This center could also be a backup location for the school administration to manage the school's business in case we lose the administration building. The Emergency Center can also be used to house one of the School's Department's or Divisions that loses its space due to fire, hurricane, etc. The Auditorium features a bunker like construction - no windows and very strong perimeter wall. Since this space is not normally occupied, it can easily serve an emergency function without displacing anyone. The space already has full backup power generator service. Estimated cost: $750,000

Project 19: Wind Retrofit and Flood Protection for McArthur Annex

This project involves hurricane resistant wind retrofit measures for wind protection, and anchoring of equipment. Estimated cost: $500,000

Project 20: Wind Retrofit and Flood Protection for Ferre Building

This project involves hurricane resistant wind retrofit measures for wind protection, and anchoring of equipment. Estimated cost: $500,000

Project 22: Wind Retrofit and Flood Protection for Gables One Building

This project involves hurricane resistant wind retrofit measures to include wind resistant glass windows, shutters, and anchoring of equipment. Estimated cost: $3,300,000

Project 23: Wind Retrofit and Flood Protection for Panhellenic Building

This project involves hurricane resistant wind retrofit measures for wind protection, and anchoring of equipment. Estimated cost: $500,000

Project 24: Wind Retrofit and Flood Protection for Law Buildings C and E

This project involves hurricane resistant wind retrofit measures for wind protection, and anchoring of equipment. Estimated cost: $500,000

Project 25: Wind Retrofit and Flood Protection for Fillmore Building

This project involves hurricane resistant wind retrofit measures for wind protection, and anchoring of equipment. Estimated cost: $500,000

Project 26: Wind Retrofit and Flood Protection for Volpe Building

This project involves hurricane resistant wind retrofit measures for wind protection, and anchoring of equipment. Estimated cost: $500,000

Project 27: Wind Retrofit and Flood Protection for Weeks Building

This project involves hurricane resistant wind retrofit measures for wind protection, and anchoring of equipment. Estimated cost: $500,000

Project 28: Wind Retrofit and Flood Protection for Architecture Buildings 48 and 49

This project involves hurricane resistant wind retrofit measures for wind protection, and anchoring of equipment. Estimated cost: $900,000

Project 29: Upgrade Emergency Power for Max Orovitz Building

This project involves the upgrading of the emergency power supply to handle critical operations during and after an event. Estimated cost: $300,000

Project 30: Wind Retrofit Protection for Koubek Auditorium

This project involves hurricane resistant wind retrofit measures for wind protection in the form of accordion shutters for all openings of the Auditorium. Estimated cost: $200,000

Project 31: Wind Retrofit Protection for Koubek Center Mansion

This project involves the use of hurricane resistant glass windows for wind protection of all building openings. The Mansion is a historic building and cannot have permanent shutters as wind protection. Estimated cost: $300,000

Miami Bridge Youth and Family Services, Inc.

Project: Windstorm Protection

Miami Bridge is a not-for profit agency incorporated in 1985. Miami Bridge operates 2 emergency youth shelters that are licensed by the Florida Department of Children and Families. One shelter houses 28 youth and is located at 2810 NW South River Drive, Miami, Florida 33125. The second shelter houses 20 youth and is located at 326 NW Third Avenue, Homestead, Florida 33030. Each shelter facility is located on a campus that also contains two additional buildings. One building is utilized as an educational facility and the other building is utilized to house the organization's family crisis intervention social service support program. Miami Bridge requests funding to purchase and install hurricane shutters and other building protection upgrades. This will enable the 48 emergency youth shelter residents and 11 supervisory staff to remain in the Miami Bridge facility and not evacuate to a local county hurricane shelters. Total: 6 buildings. Estimated cost: TBD

Miami Beach Community Health Center, Inc.

Project 1: Roofing Project SCM

The Stanley C. Meyers Center is in need of a new roof. The existing roof is of more than 20 years in age. We are presently experiencing many leaks throughout the facility. Should there be a tropical storm we would undergo severe damage to our patient common areas, staff work stations, medical records room, warehouse, medical equipment areas. We have been experiencing heavy leaks during rain storms in areas such as pediatrics, prenatal services and in our electrical room. Estimated cost: $180,000.

Project 2: Install Generator Platform

The Stanley C. Meyers Center is in need of a base or platform for the generator. The platform is needed in case of storm, disaster or power outage. Estimated cost: $15,000.

Miami Beach Housing Authority

Project 1: Windstorm Protection for Rebecca Towers South

200 Units – Public Housing located at 150 Alton Road, Miami Beach. 686 windows that need hurricane impact glass. Accordion shutters can be utilized on the first floor for doors and storefronts. Estimated cost: $755,640

Project 2: Windstorm Protection for Rebecca Towers North

200 Units – Section 8 New Construction located at 150 Alton Road, Miami Beach. 686 windows that need hurricane impact glass. Accordion shutters can be utilized on the first floor for doors and storefronts. Estimated cost: $755,640

Project 3: Shutter 211 Collins

16 Units – Affordable Housing located at 211 Collins Avenue, Miami Beach. 98 windows that need hurricane impact glass. Accordion shutters can be utilized on the first floor for doors and storefronts. Estimated cost: $150,000

Project 4: Replace Generator, Rebecca Towers South

200 Units – Public Housing located at 150 Alton Road, Miami Beach. Replacement of a 30 year old, 115 kilowatt, 400 amp, 1800 rpm generator to run one elevator during a power outage. It also provides emergency lighting and the fire system. Estimated cost: $100,000

Project 5: Replace Generator, Rebecca Towers North

200 Units – Section 8 New Construction located at 200 Alton Road, Miami Beach. Replacement of a 30 year old, 115 kilowatt, 400 amp, 1800 rpm generator to run one elevator during a power outage. It also provides emergency lighting and the fire system. Estimated cost: $100,000

Miami Children's Hospital

Project 1: Patient Bed Tower - Code Plus Construction

A new state-of-the-art Patient Bed Tower is currently in the design phase and is anticipated to be built in the coming years. The intent is to construct the facility above current Florida Building Code to ensure maximum protection in the face of extreme weather occurrences. The project will represent the difference between constructing the facility to exceed versus meet current building code. Estimated cost: $4,300,000.

Project 2: Harden Northeast Building

The Northeast Building houses the Hematology/Oncology Wing, CICU and in-patient rooms with approximately 22,000 square feet per floor on three floors with a total square footage of about 70,000. While constructed of concrete block, the building was built before current code requirements and is not reinforced with adequate steel rebar. Should the hospital sustain a direct or near direct hurricane, the structure and valuable contents would be at risk. The intent of this project is to increase the exterior skin to a higher hurricane protection level. Estimated cost: $ 3,330,260.

Project 3: Harden Warehouse / Supply Building

The Essential Services Annex is the central warehouse for the main campus and contains critical support services and functions for the institution. To improve the structural strength of the building tested reinforcements such as lateral bracing and roof clips need to be installed. Estimated cost: $1,100,000.

Project 4: Variety Central Hardening

The Variety Central Building is part of the original hospital structure that serves as an in-patient care psychiatric facility. At present, its external envelop is vulnerable to damage from high winds. The project involves the installation of a new high impact roof, the reinforcement of all rooftop equipment, windows, walls, doors and other external elements. Estimated Cost: $1,000,000

Project 5: Harden IT Department Facility

The IT Department is currently located in a penthouse structure constructed originally in a mechanical room fashion. This area houses the primary data center and technology infrastruc-

ture for the hospital, including patient information. The penthouse has non-reinforced exterior walls and facing door openings that suffer ongoing repetitive damage from water seepage. The project will externally harden the IT Department facility including the walls, windows, doors and other exterior elements. Estimated cost: $ 1,000,000.

Project 6: Harden Research Building Exterior

The Research Building, as indicated, serves as the center of the hospital's research initiatives and includes administrative offices for the senior management of the institution. It is constructed of EIFS, a lightweight building material which in the event of a high category hurricane would put the building at risk for serious damages. To prevent this occurrence, the intent of this project would be to harden the building's exterior. Estimated cost: $3,000,000.

Project 7: Harden Variety East Wing – Inpatient Center

The Variety East Wing of Miami Children's Hospital is part of the original hospital building built decades before current hurricane codes were implemented, and as such, does not meet current code. This building, which houses such critical medical functions as the Psychiatry, Orthopedics and Audiology Departments, requires external hardening to sustain and mitigate damages in a high wind velocity event. Estimated cost: $3,000,000.

Project 8: Harden Variety West

The Variety West Wing of Miami Children's Hospital is part of the original hospital building built decades before current hurricane codes were implemented, and as such, does not meet current code. This building, which houses such critical medical functions as Biomedical Photography, the hospital's IT Department, and the hospital morgue, requires external hardening to sustain and mitigate damages in a high wind velocity event. Estimated Cost: $1,000,000

Project 9: Electrical Panel & Emergency Power Hardening & Elevation – Variety Central Building

The Variety Central Building contains multiple critical functions of the institution, including Dietary and the in-patient psychiatric ward. The electrical panel and emergency back up power for the building are in need of elevation & hardening to reduce the risk of water damage during hurricanes and other extreme weather events. Estimated Cost: $1,700,000

Project 10: Electrical Panel & Emergency Power Hardening & Elevation - South Dade Campus

The South Dade Campus has an electrical panel and emergency back up power system for the building are in need of elevation & hardening to reduce the risk of water damage during hurricanes and other extreme weather events. Estimated Cost: $500,000

Project 11: Main Campus Equipment Tie Downs

The main campus has externally situated equipment such as a mobile MRI unit that necessitates tie down fortification to ensure greater protection and security in the event of high category hurricane. Estimated Cost: $100,000

Project 12: Electrical Panel & Emergency Power Hardening & Elevation – Northeast Building

The Variety Central Building contains multiple critical functions of the institution, including Dietary and the in-patient psychiatric ward. The electrical panel and emergency back up power for the building are in need of elevation & hardening to reduce the risk of water damage during hurricanes and other extreme weather events. Estimated Cost: $1,300,000

Project 13: Electrical Panel & Emergency Power Hardening & Elevation – Ambulatory Care Building

The Ambulatory Care Building is a predominantly outpatient facility, though critical services such as cardiology and neurology are present in the building. The electrical panel and emergency back up power for the building are in need of elevation & hardening to reduce the risk of water damage during hurricanes and other extreme weather events. Estimated Cost: $1,000,000

Project 14: Tie Down Central Energy Plant Rooftop Equipment

A variety of rooftop equipment on the Central Energy Plant is in need to better securing through tie downs, bolts and other methods. This includes mechanical, exhaust and other equipment. Estimated Cost: $TBD

Miami Christian School

Provide hurricane window protection throughout the campus. Estimated cost: $200,000. **Note:** Miami Christian School has successfully mitigated all campus buildings for windstorm protection. Congratulations from the Miami-Dade Local Mitigation Strategy Working Group.

Miami Dade College

Project 1: Entrepreneurial Education Center Building 1000 Wind Mitigation

Installation of hurricane shutters/window screen protection on the two floors of the Entreprenurial Education Center Building 1000. The Miami Dade College Entreprenurial Education Center Classroom Building has many large glass windows and doors that are currently unprotected. MDC will protect the glass windows and doors in vulnerable areas around the building. The building houses instructional spaces, food services, and student services. The main electrical systems, chiller plant, and generator are also housed in this building. If windstorm

damage occurs, vital infrastructure will suffer, and the damage will cause a shutdown of the campus. Installation of windstorm damage protection will mitigate hurricane and tornado damage and ensure that the campus infrastructure is able to weather a disaster.
Estimated cost: $114,400

Project 2: Medical Center Campus Building 1000 Wind Mitigation

Installation of hurricane shutters/window screen protection on the Medical Center Campus Building 1000. The Miami Dade College Medical Center Campus Building 1000 has many large glass windows and doors that are currently unprotected. MDC will protect the glass windows and doors in vulnerable areas around the building. The building houses instructional spaces, administrative offices, and student services. If windstorm damage occurs, vital infrastructure will suffer, and the damage will cause a shutdown of the campus. Installation of windstorm damage protection will mitigate hurricane and tornado damage and ensure that the campus infrastructure is able to weather a disaster. Estimated cost: $200,000

Project 3: Medical Center Campus Building 2000 Wind Mitigation

Installation of hurricane shutters/window screen protection on the Medical Center Campus Building 2000.

The Miami Dade College Medical Center Campus Building 2000 has many large glass windows and doors that are currently unprotected. MDC will protect the glass windows and doors in vulnerable areas around the building. The building houses instructional spaces, administrative offices, and student services. If windstorm damage occurs, vital infrastructure will suffer, and the damage will cause a shutdown of the campus. Installation of windstorm damage protection will mitigate hurricane and tornado damage and ensure that the campus infrastructure is able to weather a disaster. Estimated cost: $263,000

Project 4: Hialeah Campus Building 1000 (Classroom Building) Wind Mitigation

Installation of hurricane shutters/window screen protection on the Hialeah Campus Building 1000. The Miami Dade College Hialeah Campus is located in a Hialeah neiborhood. The Hialeah Campus Classroom Building has many large glass windows and doors that are currently unprotected. MDC will protect the glass windows and doors in vulnerable areas around the building. The building houses instructional spaces, food services, and student services. The main electrical systems, chiller plant, and generator are also housed in this building. If windstorm damage occurs, vital infrastructure will suffer, and the damage will cause a shutdown of the campus. Installation of windstorm damage protection will mitigate hurricane and tornado damage and ensure that the campus infrastructure is able to weather a disaster.
Estimated cost: $250,000

Project 5: Hialeah Campus Building 2000 (Support Building) Wind Mitigation

Installation of hurricane shutters/window screen protection on the Hialeah Campus Building 2000. The Miami Dade College Hialeah Campus is located in a Hialeah neighborhood. The Hialeah Campus Support Building has many large glass windows and doors that are currently unprotected. MDC will protect the glass windows and doors in vulnerable areas around the building. The building houses all administrsative spaces, the main electrical systems, and air conditioning systems. If windstorm damage occurs, vital infrastructure will suffer, and the damage will cause a shutdown of the campus. Installation of windstorm damage protection will mitigate hurricane and tornado damage and ensure that the campus infrastructure is able to weather a disaster. Estimated cost: $41,000

Project 6: North Campus Building 1000 Wind Mitigation

Installation of hurricane shutters/window screen protection on the North Campus Building 1000. The Miami Dade College North Campus is located in the North Miami neighborhood. The North Campus Building 1000 has many large openings and doors that are currently unprotected. MDC will protect the openings and doors in vulnerable areas on the north and south sides on all three floors (breezeway area). The building houses the campus administrative offices and support services. The main electrical systems, chiller plant, and generator are also housed in this area. If windstorm damage occurs, vital infrastructure will suffer, and the damage will cause a shutdown of the campus. Installation of windstorm damage protection will mitigate hurricane and tornado damage and ensure that the center infrastructure is able to weather a disaster. Estimated cost: $374,200

Project 7: Wolfson Campus Building 1000 Wind Mitigation

The District and campus administrative offices, support services and instructional rooms are housed in the building. The main electrical systems and generator are also located in the building. The Wolfson maintenance department, work order system and storage are in the basement of this building. District and campus administrative offices are housed in this building. If windstorm damage occurs, vital infrastructure will suffer causing a shutdown of most of Miami Dade College Wolfson Campus. Installing windstorm damage protection will mitigate damage and facilitate recovery. The building is the hub of the instructional and administrative activities for this center and other satellite centers in the area. Windstorm mitigation of this facility will assure quicker recovery of services provided. Install protective hurricane (permanent type) screens on windows or impact resistant glass and supporting structure or other hurricane protection as designed and replace fourth floor sliding glass doors with impact resistance glass and structure or other hurricane protection that will protect against wind and flying debris damage. Design, specify and install impact resistant sliding glass doors or other hurricane protection for Miami Dade College Wolfson Campus Building 1000 windows and fourth floor sliding glass doors. Estimated cost: $400,000

Project 8: Wolfson Campus Building 2000 Wind Mitigation

Instructional spaces, offices, and food service are housed in the building. Windstorm mitigation of this building will assure quicker recovery of services provided. Install protective

hurricane (permanent type) screens on windows or impact resistant glass and supporting structure or other hurricane protection as designed. Design, specify and install impact resistant hurricane screens or impact resistant glass and supporting structure or other hurricane protection for Miami Dade College Wolfson Campus Building 2000. Estimated cost: $200,000

Project 9: West Campus Administrative and Classroom Building Wind Mitigation

Administrative offices, instructional spaces, offices, and food service are housed in the building. The building is the hub of the instructional and administrative activities for this campus in the area. Windstorm mitigation of this facility will assure quicker recovery of services provided. Install protective hurricane (permanent type) screens or other hurricane protection on windows. Design, specify and install impact resistant hurricane screens or other hurricane protection for Miami Dade College West Campus. Estimated cost: $75,000

Project 10: Wolfson Campus Building 1000 Flood Mitigation

The basement of building 1000 is below street level and is subject to flooding. Located in the basement is the main (central) chiller equipment for buildings 1000, 2000, 3000, and 4000. The main electrical systems and generator are also located in the basement. The Wolfson maintenance department, work order system and storage are in this basement. District and Campus administrative offices are housed in this building. If flooding occurs in this basement, vital infrastructure will suffer causing a shutdown of most of Miami Dade College Wolfson Campus. Install the backup pump to relieve the basement of flooding and damage to the equipment. In the case of a major flooding event, this pump will facilitate recovery of this campus and mitigate associated costs. Design, specify and install a water pump at Miami Dade College Wolfson Campus Building 1000 basement. The job will include all necessary equipment, electrical, and mechanical needs. Estimated cost: $150,000

Project 11: Wolfson Campus Building 5000 (NWSA) Flood Mitigation

The basement of building 5000 is below street level. Located in the basement are instructional rooms, mechanical equipment and storage. Install a backup pump to relieve the basement of water and damage to equipment. In the case of a major flooding event, this pump will facilitate recovery of this building and mitigate associated costs. Design, specify and install a water pump at Miami Dade College Wolfson Campus Building 5000 basement. The job will include all necessary equipment, electrical, and mechanical needs. Estimated cost: $135,000

Project 12: Kendall Campus, Building 100 Wind Mitigation

This project involves hurricane resistant wind retrofit measures for wind protection. The proposed activity will mitigate wind damage to Miami Dade College's Kendall Campus Building 100, which has many large windows and doors that are currently unprotected. The building houses instructional spaces, administrative offices, and student services. If windstorm damage occurs, vital infrastructure will suffer, and damage will cause a shutdown of the building. Instal-

lation of windstorm damage protection will mitigate hurricane and tornado damage and ensure that the infrastructure is able to weather a disaster.
Estimated cost: $89,999

Project 13: Kendall Campus, Building 7000 Wind Mitigation

This project involves hurricane resistant wind retrofit measures for wind protection, including the removal of existing non-code compliant hurricane shutters and replacement with code-compliant aluminum accordion shutters and impact glass. The project will install impact glass and hurricane shutters on windows and doors at Miami Dade College Kendall Campus Building 7000. The building houses administrative offices, student services, and classrooms. The activity will protect the College from property damage.
Estimated cost: $189,866

Miami Dade County Health Department

Project 1: Enhanced Drainage at Miami-Dade County Health Department (MDCHD) ESF-8 Command Center

The Miami-Dade County Health Department (MDCHD) is responsible for Emergency Support Function 8 (ESF-8) and has established a command center at Environmental Health Divisions Golden Glades facility located at 1725 NW 167 Street, Miami, FL 33056. The site is susceptible to flooding, which hinders emergency response, command center staff, employees and visitor access and egress. In addition, during heavy rainfall the facility floods which causes water intrusion in the hurricane preparedness storage warehouse. Enhancement needs include contracting a Professional Engineer, percolation testing, asphalt repairs, upgrades and installation in piping and french drains. Estimated Cost: $100,000

Project 2: Harden Miami-Dade County Health Departments ESF-8 Generator

Construct hardened protective wall and secure Generator. The generator was installed in 2009 and powers the Miami-Dade County Health Department (MDCHD) Emergency Support Function 8 (ESF-8) command center should the FPL power grid become inoperative. The generator is located at 1725 NW 167 Street, Miami, FL 33056. The generator needs to be protected from elements of weather and potential on-lookers. Cost: 25,000

Project 3: Installation of Above Ground 500 Gallon Back-up Generator Diesel Tank at (MDCHD) ESF-8 Command Center

Design and construct an above ground 500 gallon Diesel tank at the MDCHD ESF-8 Command Center located at 1725 NW 167 Street, Miami, FL 33056. The tank will compliment the new generator that was installed in 2009 and will act as a back-up fuel source should contractor not be able to access site due to inclement weather or physical conditions. Estimated Cost: $100,000

Project 4: Removal and Installation of Fuel Dispensing Station

Remediate underground gasoline storage tank and install new gasoline tank, secondary containment and monitoring for new fuel island for Miami-Dade County Health Department ESF-8 response personnel. The project is located at 1725 NW 167 Street, Miami, FL 33056. The new fueling station would be utilized for emergency fueling purposes and those actively participating in remedial actions to hurricanes or other disasters. This facility can be used by State and Local Emergency Response Personnel. The upgrade and installation is needed as fuel is in short supply during emergency situations. Cost: $400,000

Project 5: Generator Enhancement Secondary Command Center

The Miami Dade County Health Department is currently constructing a 64,000 sq. ft. facility, located at 1350 NW 14 Street, which will act as a secondary ESF-8 Command Center. Currently, the installed generator will not power the entire building. Enhancement or installation of a secondary generator, with back-up fuel supply, is needed to support the ESF-8 function should our Primary ESF-8 Command Center become affected by hurricanes or other related events. Estimated Cost: $350,000

Project 6: Vulnerability Hardening of Perimeter at New Miami-Dade County Health Department Secondary Command Center

This is new construction and hardening of the perimeter at the Miami-Dade County Health Department (MDCHD) ESF-8 back-up emergency command center is to reduce and control its vulnerability to threats, attacks and trespassing during emergency situations and daily activities. The new medical center is located at 1350 NW 14th Street adjacent from the jail and courthouse. Reinforce the perimeter by installing a hardened fence and video surveillance system. Estimated Cost: $400,000

Project 7: Installation of Generator at West Perrine Health Center

Although this location is in the south, it acts as part of the overall Miami-Dade County Health Departments (MDCHD) Continuity of Operations Plan (COOP) and it's to be used as one of the MDCHD ESF-8 backup emergency command centers. The facility is located at 18255 Homestead Avenue, Miami, FL 33158. Purchase, install and secure, with retaining wall and cameras, emergency power generator with automatic transfer switch. Minimum standards, for each are: 202 KW/252KVA, 700 amp @ 120/208. Estimated Cost: $350.000

Project 8: Installation of Generator at Rosie Lee Wesley Health Center

This location consists of approximately 9,000 sq. ft. and acts as part of the overall Miami-Dade County Health Departments (MDCHD) Continuity of Operations Plan (COOP). The facility is located at 6601 SW 62 Avenue, Miami, FL 33143. Purchase, install and secure, with retaining wall and cameras, emergency power generator with automatic transfer switch. Minimum standards, for each are: 202 KW/252KVA, 700 amp @ 120/208. Estimated Cost: $350,000

Project 9: Installation of Generator at Little Haiti Health Center

This location consists of approximately 10,000 sq. ft. and acts as part of the overall Miami-Dade County Health Departments (MDCHD) Continuity of Operations Plan (COOP). The facility is located at 300 NE 80 Terrace, Miami, FL 33138. Purchase, install and secure, with retaining wall and cameras, emergency power generator with automatic transfer switch. Minimum standards are: 202 KW/252KVA, 700 amp @ 120/208. Estimated Cost: $350,000

Project 10: Vulnerability Hardening of Perimeter at West Perrine Health Center

Hardening of the perimeter is essential as the site will act as 1 of 3 Miami-Dade County Health Department ESF-8 back-up emergency command centers. The facility is located at 18255 Homestead Avenue, Miami, FL 33158. It's needed to reduce and control its vulnerability to threats, attacks and trespassing during emergency situations. Reinforce the perimeter by installing a hardened fence, surveillance and access control system. Estimated Cost: $370,000

Project 11: Repair of Asphalt and Parking Lots

Beginning with hurricane Andrew several parking lots have been damaged as trees were uprooted and water seepage/flooding created additional swelling and cracks in parking areas. The parking areas listed create several hazards to emergency personnel, visitors, clients and employees. The following locations are in need of asphalt repair and tree removal: MDCHD Command Center-Golden Glades located at 1725 NW 167 Street, Environmental Health Southside Office located at 5798 SW 68 Street, North Miami Health Center located at 14101 NW 8th Avenue and the Rosie Lee Wesley Health Center located at 6601 SW 62 Avenue. Estimated Cost: $800,000

Project 12: Install Used Generator on Portable Trailer

Provide a 100 gallon diesel fuel trailer, install existing generator on top of new trailer. Provide all needed equipment in order to mount generator on top of trailer. Anchor generator to trailer and connect fuel lines. Estimated Cost: $20,000

Project 13: Hardening of Environmental Health Office Exterior and Roof

The Environmental Health Building located at 5798 SW 68th Street, Miami, FL 33143 is over 40 years old and must undergo the 40 year recertification process. The building houses Environmental Health Staff who conduct pre, present and post hurricane assessments related to ESF-8. Renovations will include hardening the structure and roof to reduce hurricane damage and to bring the electrical services to code; therefore, preventing potential fires. Estimated Cost: $600,000

Project 14: Installation of Generator at Environmental Health Office

Purchase, install and secure, with retaining wall and cameras, emergency power generator and automatic transfer switch for the Environmental Health Building (5798 SW 68th Street, Miami,

FL 33143). Minimum consideration for generator type should be diesel generator 200 KW, 120/208V, 3 phase 600 amp with built in 300 gallon tank. Estimated Cost: $150,000

Project 15: Hardening of Exterior Windows

This single story building is located at 5798 SW 68th Street, Miami, FL 33143 which was constructed in 1953 and consists of exterior non-rated glass windows. The building houses Environmental Health Specialists who conduct emergency support and relief for MDCHD ESF-8. It would be extremely valuable to protect this building by installing impact resistant windows. Estimated Cost: $175,000

Project 16: Hardening of the Windows at North Miami Unit

This is a single story building located at 14101 NW 8th Avenue, Miami, FL 33168 which consists of exterior glass windows. The facility houses three medical programs for the surrounding community and may act as a temporary shelter for ESF-8 command staff and employees should the need arise. The facility is located within 3 miles of the ocean and it would be extremely valuable to protect this building by installing impact resistant windows. Estimated Cost: $ 100,000

Project 17: Installation of Generator at North Miami Unit

This facility is approximately 5,000 sq. ft. and is structurally sound, not prone to flooding and may act as a temporary shelter-in place for ESF-8 command staff and employees should the need arise. The facility is located at 14101 NW 8th Avenue, Miami, FL 33168. Purchase, install and secure, with retaining wall and cameras, emergency power generator and automatic transfer switch. Minimum consideration for generator type should be diesel generator 200 KW, 120/208V, 3 phase 600 amp with built in 300 gallon tank. Estimated Cost: $150,000

Project 18: Emergency Portable Air Conditioning Units

Purchase five portable emergency air conditioning units for computer rooms and essential office areas. The Miami-Dade County Health Department ESF-8 relies heavily on its Information Technology (IT) server rooms and temperatures should be maintained accordingly. Approximately Estimated cost: $50,000

Project 19: Tree Trimming

The initiative is to develop an internal tree trimming training course for the Miami-Dade County Health Departments Facilities Maintenance and Building and Grounds team. With over 25 locations we would be able to work with local contractors and landlords to ensure correct and proactive tree trimming, at applicable sites, are taken prior to hurricane season. Estimated Cost: $10,000

Miami-Dade County Public Schools

Project 1: Harden Schools as Evacuation Shelters

It is the intention of Miami-Dade County Public Schools to install shutters on all unshuttered Red Cross-designated hurricane evacuation centers by the opening of the 2004 hurricane season. This is the primary objective within our shelter program. Of nearly equal import is the protection of the remaining structures that comprise the administrative hub located at N.E. 2nd Avenue between 14 and 16 streets. The district would also like to complete shutter installation on all school buildings when funds become available. The current facilities under consideration are:

1. Arcola Lake Elementary
2. Arvida Middle (on Red Cross Evacuation Shelter list) Original Facility
3. Bob Graham Educational Center
4. Campbell Drive Middle, Original Facility Addition
5. G. W. Carver Middle Learning Center – Building 12 (A-0706)
6. Coral Reef Senior
7. Dorothy M. Wallace COPE Center Original Facility – Building 01
8. Kinloch Park Elementary
9. Kinloch Park Middle
10. Dr. Michael M. Krop Senior
11. Nautilus Middle
12. Ponce De Leon Middle – Middle Learning Center – Building 17
13. Richmond Heights Middle – Original Facility – Building 1 & 3
    Addition to original facility (A-0399)
    Addition – Building 02 (A-0710)
14. Shenandoah Elementary Original Facility
15. Shenandoah Middle – Middle Learning Center – Building 02
16. Maintenance & Operations Center, 12525 NW 28th Avenue, Opa-locka, 33167

Project 2: Flood Proof Lindsay Hopkins Technical Education Center

Stormwater runoff from all the building roofs is collected by a series of rainwater leaders and discharged to two soakage pits. The roof runoff from the south half of Building D flows onto the existing sidewalk and is discharged via overland flow to a series of yard drains located between Building D and the parking garage. These yard drains are interconnected with the parking garage drainage system via a series of 12-inch polyvinyl chloride (PVC) pipes that connect to a 12-inch PVC equalizer pipe at the South end of the site. The parking garage drainage system is comprised of a series of area drains that discharge the collected runoff via a series of roof drains to a 15-inch corrugated aluminum pipe (CAP). Stormwater runoff at the east and west ends of the Technical Education Center (TEC) are collected by grass swales and discharged to two soakage pits. This site does not have a positive outfall system. Therefore, all runoff is collected and retained on site. The collected runoff is dissipated from the site via exfiltration and evaporation. Hydrologic/hydraulic modeling of the existing TEC drainage system shows that there is a significant amount of flooding that would be anticipated during a 100-year, 3-day design storm event. These results are substantiated by visual observations during similar storm events. Drainage sys-

tems are typically designed to avoid flooding of building ground floors during such a storm event. It is recommended that the attached cost proposal be considered because it is the only alternative evaluated that will prevent flooding of the building during a 100-year, 3-day storm event. This alternative will eliminate the costs associated with long term flooding of the existing buildings and also eliminate the need for constructing French drain systems adjacent to existing buildings, which can create the potential of foundation undermining during construction. Estimated cost: $449,000

Project 3: Add Roof Tie-downs, Window and Door Protection, Flood Barriers

Install roof tie-downs, add window and door protect and install flood barriers on the following buildings owned by the Miami-Dade County Public Schools: Cost TBD

1. Stores and Mail Distribution Warehouse: 7001 S.W. 4th Street, Miami. FL 33144
2. Main Transportation Center: 15401 S. W. 117 Ave., Miami FL 33177.
3. Northeast Transportation Center: 5901 N.W. 27 Ave., Miami, FL 33142.
4. South Transportation Center: 660 S.W. 3rd Ave., Florida City, FL 33034.
5. John Schee Transportation Center: 2755 N. W. 122 St., Miami FL 33167.
6. Central East Transportation: 7011 S.W. 4th Street, Miami, FL 33144.
7. Food & Nutrition Administration Building: 7042 West Flagler, Miami, FL 33144.

Project 4: Windstorm Protect for the Ana Brener Myers Building

This building houses the public access radio and T.V. stations. We want to 1) protect the windows with storm shields 2) replace the door assemblies with product-approved doors and 3) develop an engineered system for tying down satellite equipment on the roof as several disappeared during Wilma. Estimated cost: $1,031,185.82

Project 5: Windstorm Protection for School Board Administration Complex

This building houses school district administrative offices and records. The application concerns storm shield applications to the windows and impact-resistant door assemblies. Destruction of this building would severely hamper the district's ability to recover from a disaster. Estimated cost: $3,297.834.00

Project 6: Jefferson-Annex Parking Garage

This building houses school district administrative offices and records. The application concerns storm shield applications to the windows and impact-resistant door assemblies. Destruction of this building would severely hamper the district's ability to recover from a disaster. Estimated cost: $2,483,376.13

Miami Lighthouse for the Blind

Project: Install Window Protection

Install window protect for older section of the main facility – approximately 60 windows. Estimated cost $160,000

Miami Museum of Science & Space Transit Planetarium

Note: The Miami Museum of Science no longer participates in the Local Mitigation Strategy Working Group and is no longer eligible for the benefits thereof. The projects are retained in this document as a matter of historical record.

Project 1: Surge and Lightening Protection

To mitigate damage in a storm to the computers, data warehouse and local area network of the museum, the three phase motor systems of the HVAC system and crucial environmental and refrigeration systems to maintain our living and refrigerated research collections, a surge and lightening protection system is required. The facility has been struck by an electrical discharge three times in the last five years, further indicating the need for the protection system.
Estimated cost: $60,000.

Project 2: Backup Generator for HVAC and Collections Protection

The Miami Museum of Science houses the largest natural history collection in South Florida, a large living collection including birds of prey, a refrigerated research collection, as well as collections from the Smithsonian Institution. It is essential that the environmental systems remain operational, with uninterrupted electrical service, during and after a disaster event. A diesel generator and fuel sufficient to provide 72 hours of continuous operations would be provided to maintain these functions during power loss periods. Estimated cost: $125,000.

Project 3: Portable Defibrillator

With over 300,000 residents and visitors to the Museum of Science facility, a portable defibrillator would add an additional safety factor to the Museum operations. Also it would provide added protection to the volunteers and staff in the event of disaster and injuries incurred in the recovery. Staff, presently trained in CPR and First Aid by the Red Cross, would also need to complete Red Cross training in the use of the defibrillator. Estimated cost: $10,000.

Mount Sinai Medical Center

Project 1: Protect the Energy Center Facility 1

Retrofit and harden the Energy facility including the installation of Miami-Dade County Hurricane Zone hurricane rated wall, window, door, roof, exterior insulation and finishing, stairwell pressurization, special protective IT infrastructure and mitigation systems. Estimated Cost: $6,750,000

Project 2: Code Plus Construction Enhancements to Protect the Energy Supply

Retrofit the Energy facility with code plus wind, storm surge and flood enhancements above the current Florida building code standards. Estimated cost: $5,750,000.

Project 3: Protect the Energy Center Facility 2

Retrofit and harden the Energy facility including the installation of Miami-Dade County Hurricane Zone hurricane rated wall, window, door, roof, exterior insulation and finishing, stairwell pressurization, special protective IT infrastructure and mitigation systems. Estimated Cost: $6,000,000

Project 4: Code Plus Construction Energy Center Facility 2 Protect Redundant Power Supply

Retrofit the Oxygen supply and redundant centralized ER and patient tower energy supply with code plus wind, storm surge and flood enhancements above the current Florida building code standards. Estimated Cost: $2,950,000

Project 5: Harden Warner Building Envelope

Harden the exterior envelope of the Warner Building – including hurricane rated walls, windows, doors and other openings to protect against high wind velocity events. Estimated Cost: $2,700,000

Project 6: Protect Patient Power Supply

Relocate generators into a hurricane rated enclosure above storm surge within the Energy facility to mitigate the effects of high velocity wind, storm surge and flooding events. Estimated Cost: $2,700,000

Project 7: Mitigate the Impact of Storm Surge

Repair the existing seawall and install a surge deflector and to dampen the energy of the surge and stop floating debris. Install backflow gates at the storm drainage openings. Estimated cost: $750,000.

Project 8: Harden Avenutra Emergency Room Buildings

Harden Mount Sinai Avenutra and Emergency Room– including installing hurricane rated walls, windows, doors, EIFS, stairwell pressurization and other systems to protect against high velocity, floor and storm surge events. Estimated Cost: $3,550,000

Project 9: Harden Knight MRI/Wien Center Building

Harden the Knight Buildings– including installing hurricane rated walls, windows, doors, EIFS, stairwell pressurization and other systems to protect against high velocity wind, floor and storm surge events and to raise valuable equipment. Estimated Cost: $3,750,000

Project 10: Harden Child Care Building

Harden the Child Care Building – including installing hurricane rated walls, windows, doors, EIFS, stairwell pressurization and other systems to protect against high velocity wind, floor and storm surge events. Estimated Cost: $750,000

Project 11: Harden Research and Education Building

Harden the Education and Research Buildings– including installing hurricane rated walls, windows, doors, EIFS, stairwell pressurization and other systems to protect against high velocity wind , floor and storm surge events. Estimated Cost: $1,750,000

Project 12: Mitigate Storm Drainage

Mitigate the effects of storm surge and flooding by installing new drainage structures from buildings through surface lots, milling and resurfacing pavement to graduate surfaces and aid gravity water removal Estimated cost: $1,230,000

Project 13: Elevation of Medical Equipment

Relocate and install valuable medical machinery and diagnostic equipment above-flood levels. Estimated cost: $2,500,000

Project 14: Protect Critical Services

Relocate critical services to above flood level locations. Estimated cost: $2,000,000

Project 15: Code Plus Construction Enhancements Surgical Tower

Construct a new surgical facility with code plus wind, storm surge and flood enhancements above the current Florida building code standards. Estimated cost: $6,500,000.

Project 16: Code Plus Construction Enhancements New Medical Office Tower

Construct a Primary Care and Medical Home Tower with code plus wind, storm surge and flood enhancements above the current Florida building code standards. Estimated cost: $3,750,000.

Project 17: Relocate Operating Rooms

Relocate operating rooms, contents, equipment and critical functions from ground floor to wind rated protective above ground addition. Estimated cost: $16,500,000

Project 18: Greenspan Roof and Enclosures

Remove roof and replace all roof top enclosures with Miami-Dade County Hurricane Zone rated systems. Estimated cost: $550,000

Project 19: Mitigate Debris – Remove Chimney Structure

Remove an out of commission incinerator and smoke stack/chimney that could serve as a missile projectile and retrofit roof. Estimated cost: $950,000

Project 20: Protect the Power Supply

Mitigate the effect of natural disaster by the retrofit and relocation of power lines to protect the power supply against natural disaster and water intrusion using investigative camera techniques to check the condition of conduits protecting electric lines and vaults. Estimated: $1,450,000

Project 21: Protect the Power Supply

Purchase synchronized generators to protect the patient power supply.
Estimated: $3,000,000

Quality Response Solutions, Inc.

Project: Develop High Rise Safety Program

QRS will develop a comprehensive emergency awareness program for hi-rise communities of Miami-Dade County. The program will include strategies for a multitude of hazardous situations that a hi-rise community may encounter. This program will include a multi-hazard preparedness approach to include fire safety, sheltering-in-place requirements, weather related evacuation decisions, special needs resident considerations among several other related topics. The program will address building safety and regulations, proper staff training, and capabilities of the local emergency response agencies. Also factors like building structure, staff size, building location, tenant demographics, and local building laws and regulations will be taking into account during the creation of this program. Estimated cost $30,000

St. Lawrence School

Project 1: Harden/Replace Day Care Center Building

Harden by way on encapsulation with SFBC-HVHZ :Code Plus" new building envelope or replace with Code Plus traditional construction, such as reinforced masonry, existing single story 3,750 square foot manufactured building on permanent foundation occupied by the non-profit St.

Lawrence Day Care Center. Building has been in service since 1957 and it is highly vulnerable to structural damage and damage to its interior and contents, and interruption of function from the impact of hurricanes. Estimated cost including soft costs (i.e.: architectural/engineering design costs, projects inspection and management, soil tests, permitting, bid process) and code plus elements is $675,000.

Project 2: Harden Building Envelope - K-8 School Building

Wind retrofit existing two-story 17,900 square-foot building housing grades K-8. Building has reinforced concrete structure with a combination of CBS and light wood panels exterior walls, and a flat roof consisting of double-tee precast concrete members with a built-up covering. Retrofit will include a combination of accordion shutters and perforated metal hurricane barriers supported by a steel structure to protect all exterior openings; also tie downs to anchor exterior mechanical equipment; and replacing existing jalousie aluminum and glass hallway windows on 9 classrooms with aluminum and polycarbonate units rated for wind-pressure having NOA from Miami-Dade County. Estimated cost $197,200.

Project 3: Harden Building Envelope - Kindergarten Building

Wind retrofit existing two-story 4,600 square-foot building housing the kindergarten classroom and offices for various services (i.e.: counseling, accounting etc.) Building has reinforced concrete structure with CBS exterior walls, and a gable wood structure/plywood sheathing asphalt shingle roof. Retrofit will include a combination of accordion shutters and perforated metal hurricane barriers supported by a steel structure to protect all exterior openings; also tie downs to anchor exterior mechanical equipment; reroofing by adding rink-shank nails to roof sheathing, replacing roof covering with Miami-Dade NOA fiberglass-reinforced shingles; also installing flood barriers on four basement windows. Estimated cost $89,375.

St. Thomas University

Project 1: Shuttering and Windstorm Protection of the Law School $389,635

The CARVER model was used to establish weighted scores for critical buildings and infrastructure, as part of St. Thomas University's Vulnerability Assessment*. The Law School building and its adjoining Library tied for #1 with another building as being the most critical to the university's operations. The building has neither shutters nor impact resistant glass windows/doors. Its criticality to university operations (e.g., conduct of law school classes in accordance with American Bar Association guidelines) places it squarely into Miami-Dade County's Institutional Shuttering and Windstorm Protection initiative, which aims to "protect every facility in the county." The protection of this critical building and its contents helps assure a faster return to normal operations. Estimated cost: $389,635. Timeline to complete this project is: < 1 year.

Project 2: Shuttering and Windstorm Protection of the Main Library ($364,000)

St. Thomas University's main library is a two-story masonry/metal building, with windows on all sides on both stories which are not hurricane-proof. The library houses the collection of more than 400,000 volumes, the Archbishop John C. Favalora Archive and Museum containing the history of the Archdiocese of Miami, and the archives of the university. It also contains the offices of the President of the University and the Vice President for Advancement, Marketing and Communications, which is responsible for fundraising for the university and contains all donor records. Also in the library are five computer laboratories containing a total of more than 200 computers and the Jorge Sardinas Art Gallery which contains the University's permanent collection and the current collection on loan, from a prominent artist, at any given time. We propose to install a total of 128 fixed or egress hurricane screens to protect all openings. The screens are Energy Star Rated, comply with Florida fire codes and meet or exceed Miami –Dade building and hurricane specifications. These fixed screens also serve as solar screens and will save money on utility bills. They will also save money on man power, as maintenance personnel will have more time to prepare the University for the storm. The cost includes installation and is estimated at $364,000.

Project 3: Upgrade of Lift Station Pump ($30,000)

St. Thomas University's Vulnerability Assessment determined that the university must avoid continued loss of campus wastewater operation by upgrading the lift station pump. Wastewater utility is identified as critical node in Vulnerability Assessment (VA)* conducted in April, 2010 (* VA funded by a U.S. Department of Education Emergency Management in Higher Education grant and prepared by The O'Gara Group in April, 2010):
Consistent with Miami-Dade County's Initiative 8: Mechanical Maintenance of Critical Facilities, St. Thomas University must ensure that its critical facility (i.e., lift station), which services 300+ resident students and the campus community, does not fail during a significant rain event. The university is designated and approved as a location intended for sheltering in place during tropical events. Multiple times each year the lift station pump is incapable of overcoming the pressure in the Miami-Dade Water and Sewer Department (MDWS) line. The university owns the lift station and all associated lines on campus, which were inspected and repaired and are being monitored as mandated by the county. A generator was installed at the university's expense to power the lift station, but the pump on this critical facility must be replaced to avoid a disaster event. Estimated cost: $30,000.00 Timeline to complete this project is: < 1 year

Project 4: Electric Power redundancy ($300,000)

Electric power redundancy is identified as a critical node in the Vulnerability Assessment (VA)* conducted in April, 2010 (* VA funded by a U.S. Department of Education Emergency Management in Higher Education grant and prepared by The O'Gara Group in April, 2010):

Presently, the university has a single power feed, which serves as the rationale for creating a redundant power feed for the campus. The Vulnerability Assessment specifically suggests configuring in redundant routing paths to enhance the reliability of service. FPL has advised that the installation of an automatic transfer switch will require $300,000. Like The City of Miami Gar-

dens' Project 8: Burial of Power Lines, this mitigation action will assure a faster return to normal operations. Estimated cost: $300,000. Timeline to complete this project is: < 1 year.

Project 5: Replacement of wood electric power pole ($5,000)

Electric Power pole identified as a critical node in Vulnerability Assessment (VA)* conducted in April, 2010 (* VA funded by a U.S. Department of Education Emergency Management in Higher Education grant and prepared by The O'Gara Group in April, 2010):

The electric power pole located just outside of the Side-C perimeter fence along 32nd Avenue offers a particular vulnerability. Damage to or destruction of this main power distribution wood-pole can cause a prolonged cessation (from several days to a couple of weeks) of 90-percent of the university's electrical power. Enhancing the reliability of the power system can be achieved by installing a concrete-pole, thereby hardening the power system as recommended by "option for consideration" #8 in the Vulnerability Assessment. Estimated cost: $5,000. Timeline to complete this project is: < 1 year

South Florida Regional Planning Council

Project 1: South Florida Regional Hurricane Evacuation Study Update

The SFRPC intends to update the 1996 regional study by utilizing current data regarding housing units, roadway capacity and new evacuation area boundaries. The current plan is useful for local governments to assess the impacts on hurricane evacuation clearance times of individual development decisions prior to approval. The SFRPC and Florida Department of Community Affairs has used numbers from the existing study to determine whether some changes to land use designations in local government comprehensive plans are appropriate. The Broward County Planning Council has already adopted regulations requiring the information the new study would provide. Mitigation value: assist in the reduction of development decisions that increase residential dwelling units in coastal high hazard areas.
Estimated cost: $50,000 grant, $50,000 SFRPC match.

Project 2: Disaster Resistant Economic Activity for Mitigation (DREAM) Teams

The SFRPC intends to partner with county emergency management agencies, the Florida Insurance Commissioner's office, and chambers of commerce to organize small businesses to develop business emergency preparedness and mitigation plans, form mutual support networks, and negotiate group rates for business insurance and shutter installation, among other activities. Mitigation value: reduce damage to local businesses from emergencies, protect jobs and regional economy from disasters, reduce time and costs for regional physical and economic recovery. Estimated cost: $75,000 grant, $75,000 SFRPC match.

Project 3: South Miami-Dade Watershed Study

The SFRPC is managing a long-term, large-scale land use and water management study for the south half of Miami-Dade County. Project partners include Miami-Dade County Planning and Zoning Department and the South Florida Water Management District. Other assistance and participation is provided by Florida Department of Environmental Protection and Miami-Dade County Department of Environmental Resources Management. Approximately $2,000,000 is funded, but project requires an additional approximately $1,500,000.00. Project scope of work and notice to consultants are nearing completion. Mitigation value: Hazard mitigation component to direct future development away from vulnerable areas such as storm surge areas and floodways, reduce potential flooding from cumulative new development by identifying mitigation measures in advance, and identify appropriate locations for critical facilities to serve projected population growth in area. Estimated cost: $250,000 grant, $250,000 SFRPC match.

South Florida Water Management District

Project 1: C-2 Canal Conveyance Improvements

The C-2 basin has an area of approximately 53 square miles and is located in eastern Miami-Dade County. The C-2 is also known as the Snapper Creek Canal.

The C-2 canal is the only project canal in the C-2 basin. It has three functions: 1) to provide drainage and flood protection for the basin; 2) to supply water to the C-2 and the C-100 basins for irrigation, and 3) to maintain a groundwater table elevation near the lower reach of the C-2 adequate to prevent saltwater intrusion into local groundwater. During periods of low natural flow, water is supplied to the basin from the C-4, and water supply is made to the C-100 basin from C-2 by way of C-100C and S-121.

The SFWMD is proposing conveyance improvements of a 7 mile reach of the C-2 canal from where S-121 connects with the C-2 Canal and the intersection of C-2 and C-4 canals. Dredging of shoals in this reach will lower the surface water elevation in the C-2 canal thus providing enhanced flood protection for both the C-2 and C-4 basins.
Estimated cost: $2,480,000

Project 2: C-5 Canal Conveyance Improvements

The C-5 basin has an area of approximately 2.3 square miles and is located in eastern Miami-Dade County. The C-5 is also known as the Comfort Canal.

The C-5 canal is the only project canal in the C-5 basin. It provides drainage and flood protection for the basin. C-5 begins as a bifurcation of C-4 at Blue Lagoon northwest of Coral Gables. Flow in the canal is to the east to the canal's confluence with the C-6, three quarters of a mile downstream of S-26.

There are two project control structures in the C-5 basin: S-25A and S-25. S-25A is a gated culvert located in the C-5 east of Blue Lagoon and under NW 45th Avenue. S-25A is a divide structure between the C-4 and C-5 basins. It is normally closed. If the quality of water in

C-5 becomes poor during periods of low natural flow, S-25A may be opened as necessary to dilute the poor water quality and to flush out the canal.

The SFWMD is proposing conveyance improvements of a 1-mile reach of the C-5 canal between structures S-25A and S-25. Dredging of shoals in this reach will lower the surface water elevation in the C-5 canal thus providing enhanced flood protection for both the C-5 and C-4 basins. Estimated cost: $1,060,000

Project 3: Forward Pumping at S-27 on the C-7 Canal

The cities of Hialeah, Miami Shores and El Portal are subject to flooding following periods of above average rainfall. The C-7 canal that drains the area is unable to convey the excess water thus resulting in flooding. An estimated population of 750, 917 reside in the affected basin. The SFWMD has proposed the following improvement that will enhance the conveyance through the C-7 Canal: The construction of an up to 600 CFS pump station in the vicinity of S-27 water control structure. The pump station will allow for forward pumping under high tide conditions and increase the discharge capacity of S-27 under low tide condition. The current discharge capacity of the water control structure is 2800 cfs. The pump station will include 3-54" pumps with their intakes located just upstream of S-27. The pumped water will be conveyed through a box culvert downstream. The discharge downstream will be enabled through a discharge bay. All construction activities may not be confined within district right-of-way. Land acquisition may be required to obtain approximately 1 acre of land for construction of the pump station on the west side of the C-7 canal. The approximate cost of $400,000 is for land acquisition. The estimated cost of the pump station is $4.0 million. An additional $200,000 is being requested for architectural and engineering services. Estimated cost: $4,600,000

Project 4: G-93 Structure Improvements

The G-93 structure is located on the C-3 Canal (Coral Gables Canal), which is owned and maintained by Miami-Dade County. The structure is operated and maintained by the SFWMD. It is a gated spillway and the gate is manually operated. This structure maintains optimum upstream water control stages; it passes the design flood flows, resulting from a 10 year storm (about 40% of the Standard Project Flood), plus a small discharge from the C-4 basin, without exceeding the upstream flood design stage and restricts downstream flood stages and discharge velocities to non-damaging levels; and it prevents saline intrusion during periods of high flood tides. The SFWMD is proposing to convert this structure to an automated one with manatee protection. This allows the district to operate the structure under extreme storm conditions from a remote site instead of sending staff from the Miami Field Station to operate the structure manually. The advantage of having a remotely operated structure is the SFWMD can react quickly to flooding conditions in urban areas. Estimated cost: $150,000

Project 5: Raise Bank Elevation on C-4

The work for the project from the Palmetto Expressway to SW 87th Ave consists of constructing a 5,250 linear feet of concrete wall to raise the top of the embankment to an acceptable

elevation of +8.0 ft with limited impact on semi-permanent and permanent encroachments or adjacent properties. Estimated cost: $2,000,000

Project 6: Forward Pumping at S-28 on the C-8 Canal

Areas in the C-8 Basin are subject to periodic flooding following above average rainfall events. The C-8 Canal that drains the area is unable to convey the excess water, thus resulting in flooding conditions. The SFWMD is proposing to construct a pump station in the vicinity of the S-28 water control structure. The pump station will allow for forward pumping under high tide conditions and will increase the discharge capacity of S-28 under low tide conditions. This cost estimate includes, but is not limited to, potential land acquisition needs, A/E design services and construction. Estimated cost: $5,000,000

Project 7: Forward Pumping at S-29 on the C-9 Canal

Areas in the C-9 Basin are subject to periodic flooding following above average rainfall events. The C-9 Canal that drains the area is unable to convey the excess water, thus resulting in flooding conditions. The SFWMD is proposing to construct a pump station in the vicinity of the S-29 water control structure. The pump station will allow for forward pumping under high tide conditions and will increase the discharge capacity of S-29 under low tide conditions. This cost estimate includes, but is not limited to potential land acquisition needs, A/E design services and construction. Estimated cost: $5,000,000

Project 8: Install Berm on C-1 Canal South of SW 168th Street

Install 1,200 linear feet of berm south from SW 168th Street to approximately SW 171st Terrace along the east bank of the C-1N canal with a minimum elevation of 8.42 feet NGVD to protect against a 10-year storm event. Estimated cost: $46,500

Project 9: Install Berm on C-1 Canal West of SW 122nd Avenue

Install 1,500 linear feet of containment berm west from SW 122nd Avenue to SW 123rd Place along the north bank of the C-1N canal with a minimum elevation of 6.8 feet NGVD to protect against a 10-year storm event. Estimated cost: $51,600

Project 10: Install Berm on C-1 Canal East of SW 155nd Avenue

Install 6,000 linear feet of containment berm east and south from SW 155nd Avenue to SW 152 Street along the south bank of the C-1W canal with a minimum elevation of 9.0 feet NGVD to protect against a 10-year storm event. Estimated cost: $172,000

Project 10: Install Berm on C-1 Canal South of SW 167th Street

Install 2,150 linear feet of containment berm east and south from SW 137nd Avenue to SW 184th Street along the east bank of the C1 canal with a minimum elevation of 8.6 feet NGVD

to protect against a 10-year storm event and install 4,000 linear feet of containment berm east and south from SW 167th[nd] Street to SW 137[th] Avenue along the west bank of the C1 canal with a minimum elevation of 8.6 feet NGVD to protect against a 10-year storm event.
Estimated cost: $137,000.

Project 11: Conveyance Improvements on theC-1 Canal

Complete conveyance improvements on the C-1 canal from Old Cutler Road Bridge south to the S-21 structure located at approximately SW 87[th] Avenue.
Estimated cost: $2,200,000

Project 12: Berm on C-1 Canal

This project would raise the berm along the C1 Canal, for approximately 1200 linear feet, from SW 168 Street, to SW 171 Terrace, on the east bank of the Canal. Residents in this area would enjoy a greater level of flood protection by berming this area, thereby reducing flood losses and repetitive loss claims. Estimated cost: $47,000

Project 13: Containment Berm on the C-1-N

This project would construct a berm of 1,500 linear feet to improve the level of flood protection for residents in this immediate area. The area is SW 122 Avenue, to SW 123 Place, along the north bank of the C-1-N Canal. Estimated cost: $52,000

Project 14: Containment Berm on the C-1-W

This project would add a berm of 6,000 linear feet from SW 155 Avenue to SW 152 Street, along the south bank of the C-1-W Canal. Estimated cost: $172,000

Project 15: Containment Berm on the C-1-S

This project would add flood protection for residents by adding a berm of 2,150 linear feet, along the east side of the canal, from SW 137 Avenue, to SW 184 Street. Adding this berm would reduce flood losses for residents, and would reduce repetitive losses in the area.
Estimated cost: $137,000

Project 16: Canal Conveyance Improvements, South Portion of the C-1 Canal

This project would assist in controlling canal stages during extreme rain events, and improving capacity of the C1 Canal. The scope of improvements would be from the Old Cutler Road Bridge to the S21 structure located at approximately SW 87 Avenue.
Estimated cost: $2,197,000

Project 17: Reduce Water Levels Throughout the C-1 Basin

This project will assist in controlling canal stages during extreme rain events throughout the C1 basin, by reducing head losses and improving canal conveyance. This project would cover the area of 700 feet north of the Caribbean Blvd Bridge to the intersection with the C1 Canal. Estimated cost: $1,414,000

Project 18: Raising canal banks on the C-102

This project raises all canal banks that overtop the banks during the 10-year storm. A berm would be placed along the right-of-way for 66,500 linear feet. This would eliminate all bank overtopping, arterial street flooding and local flooding for the ten-year storm. These improvements would reduce flood loss and repetitive losses in this area. Estimated cost: $742,000

Project 19: Improvements to a Stretch of C-102 Canal

This project will construct 9,600 linear feet of conveyance improvements to the C102 Canal, from SW Florida Avenue to SW 107 Avenue. This project will mitigate flooding from the 100-year storm, thereby providing flood protection exceeding the County standard.
Estimated cost: $4,801,000

Project 20: Raising Canal Banks on Segments of the C-102

This project will raise canal banks along several stretches of the C102 Canal. Three separate sub-basin areas will be raised to provide a level of service where the 100-year event will only flood canal rights-of-way. This extra protection should reduce dramatically flood losses for residents in this area. Estimated cost: $355,000

Project 21: Improve Canal Restriction along C-102N

This project will mitigate a restriction found in the C102N from 700 feet north of SW 821 to SW 312 Street. Conveyance improvements will widen the canal bank in this area. This will improve canal capacity for the area and adjacent basins. The resulting increase in capacity will reduce flood losses in this area. Estimated cost: $1,642,000

Project 22: Improvements on the C-103 Canal

This project proposes to construct a series of improvements on the C-103 Canal. This project would improve canal conveyance of two stretches of the canal, and mitigate a restriction caused by structure S167, by widening and deepening the existing structure opening.
Estimated cost: $2,000,000

Project 23: Install Forward Pump on the C-1

This project will relieve pressure from major storm events that occur when heavy rainfall occurs at the same time as high tide conditions. The project allows for water to be discharged to tide, when salinity control structures are closed, or tide prevents or restricts flow east.

Estimated cost: $3,000,000 (Approximate)

Project 24: Capacity Improvements of S-148 Structure

This project would increase the ability of the S-148 structure to allow flow of water to the east, to provide additional flood relief and prevent overtopping of banks in the C-1 Basin in times of major rain events. The project would consist of constructing additional pumps, and/or enlarging the gate itself. Estimated cost: TBD

Project 25: Replace Caribbean Boulevard Bridge

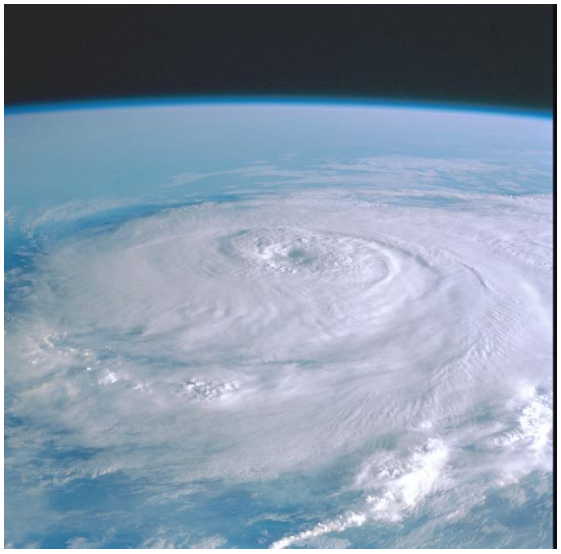
Replace the undersized Caribbean Boulevard Bridge over the C-1N Canal to promote the same conveyance capacity as the proposed 60-foot wide canal cross section depicted in Project 11 above. Estimated cost: $1,400,000

Project 26: Construction of Wetland Storage Area

This project will construct a wetlands storage area in a sub-basin of the C-102 Canal. During extreme storm events, runoff would enter the wetlands through a control gate and weirs, then discharge using a smaller 24-inch pipe. Maximizing wetland storage will allow fro greater capacity along this stretch of the C-102, thereby providing greater flood protection for resident in this area. Estimated cost: $22,000,000

The Local Mitigation Strategy

Miami-Dade County, Florida



For further information please contact:

Raymond Misomali
LMS Coordinator
9300 NW 41st Street
Miami, FL 33178
(305) 468-5400
raymond.misomali@miamidade.gov