AGENDA ITEM 3

DOWNTOWN CHILLER PLANT

FPL Services™

Manatee County Performance Contracting and Energy Efficiency Program

Charlie Bishop, Director
Manatee County Government

Agenda

- **Conservation Measures**
- **Central Plant**
  - **Benefits**
  - **Rendering**
  - **Initial Prospects**
- **Financial Summary**

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What is an ESCO?

"*Energy Servings Company*" is a company that offers energy savings by providing a wide range of energy solutions.

How does an ESCO company provide these energy savings?

The ESCO company conducts an in-depth energy audit and based upon the results will install or redesign building and industrial systems to reduce energy use and finance their fees out of the energy cost savings.

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Measures

- ECM 1 – Lighting
  - Improved lighting, low energy
  - Administration, Property Appraiser, Desoto, Fair Grounds
- ECM 2 – Water
  - Reduce consumption
  - Administration, Main Library, Property Appraiser, Merrill Lynch, Fair Grounds
- ECM 3 - District Cooling Plant
- ECM 4 - AHU Replacement
  - Extend useful life, correct maintenance problems
  - Administration
- ECM 5 - HVAC Controls
  - Humidity, scheduling, efficient operation
  - Library

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Measures

- ECM 6 – Transformers
  - Efficient operation, reduce power quality, extend useful life
  - Administration, Property Appraiser, Main Library
- ECM 7 - Elevator Modernization
  - ADA compliance, efficiency gains
  - Administration
- ECM 8 - Electric Rate
  - Emergency operation (public safety), load mgmt, Utility partnership
  - Administration, Desoto, Public Safety Complex
- ECM 9 - Consolidated Meters
  - Cost savings
  - Merrill Lynch
- ECM 10- Maintenance Savings
- ECM 11 - County Wide Gas

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What is a Central Chiller Plant?

A “chiller” generates chilled water used by many large buildings to provide air conditioning. A “central chiller plant” houses larger, efficient chillers and distributes chilled water to affected buildings through underground piping. This central plant allows connected buildings to eliminate the need for individual chillers, decreases a significant amount of electrical load on the building, makes available usable space, and offers a far more efficient overall operation.

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Central Plant - Rendering

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Central Plant Project Benefits

- Eliminate need to own / operate primary AC equipment
  - Short / long term capital expense
- Increase useable sq footage of facility
- Reduced contracted or staff maintenance requirements
- Lower operating costs
- Improve reliability and storm redundancy
- Opportunity to add multiple customers
  - Museum, City Hall, SunTrust, First Union site, Merrill Lynch site, Bradenton Herald
- Environmentally friendly, sustainable option

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Value of Central Cooling Plant

- A/C units in downtown county buildings are at or near end of useful life
- Existing refrigerants currently used are being phased out
- Need for flexible alternatives for the old records building
- Required modification to the old First Union Bank building to sell / repurpose
- Need for flexible alternatives for the old Merrill Lynch building

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Timing

- Implement lower cost rate structures (through meter consolidation and load management)
- Reduce natural gas costs through revised purchasing structure
- Funding supported through savings from conservation
- Local businesses to provide revenue source to County

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Timing

- Electric, mechanical redundancy now requires remote rental chillers
- Opportunity to defer current capital requirements for incremental replacements and focus funds on long term solutions
- Partnering with FPL Services for operation support AND performance guarantees
- Improved environmental impact versus multiple, lower efficient equipment

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Financial Parameters

- Positive cash flow each year per statute
- 20 year maximum term for financing
- Percent of project used for private use
- Minimize buy down dollars
- Positive Internal Rate of Rate on capital buy down

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Twenty Year Financial Summary			
	Cost		Savings
ECM-1 Lighting	$ 717,748		$ 1,829,329
ECM-2 Water	7,945		146,292
ECM-3 District Cooling Plant	9,805,758		247,350
ECM-4 AHU Replacement	737,936		37,987
ECM-5 Controls	614,657		344,394
ECM-6 Transformers	132,448		216,441
ECM-7 Elevators	999,915		55,601
ECM-8 Load Control	21,704		3,227,027
ECM-9 Combined Meters	3,125		10,033
ECM-10 Maintenance Savings	-		282,384
ECM-11 Natural Gas Savings	-		3,259,134
Rebates (1)	(22,560)		-
Sub Total	$ 13,018,676		$ 9,655,973
District Cooling Plant Revenue	-		5,536,776
Totals	$ 13,018,676		$ 15,192,749
Debt Service			(12,632,505)
Positive Cash Flow			$ 2,560,244
Additional Revenue Components			
City Hall Humidity Unit Controller			$ 640,000

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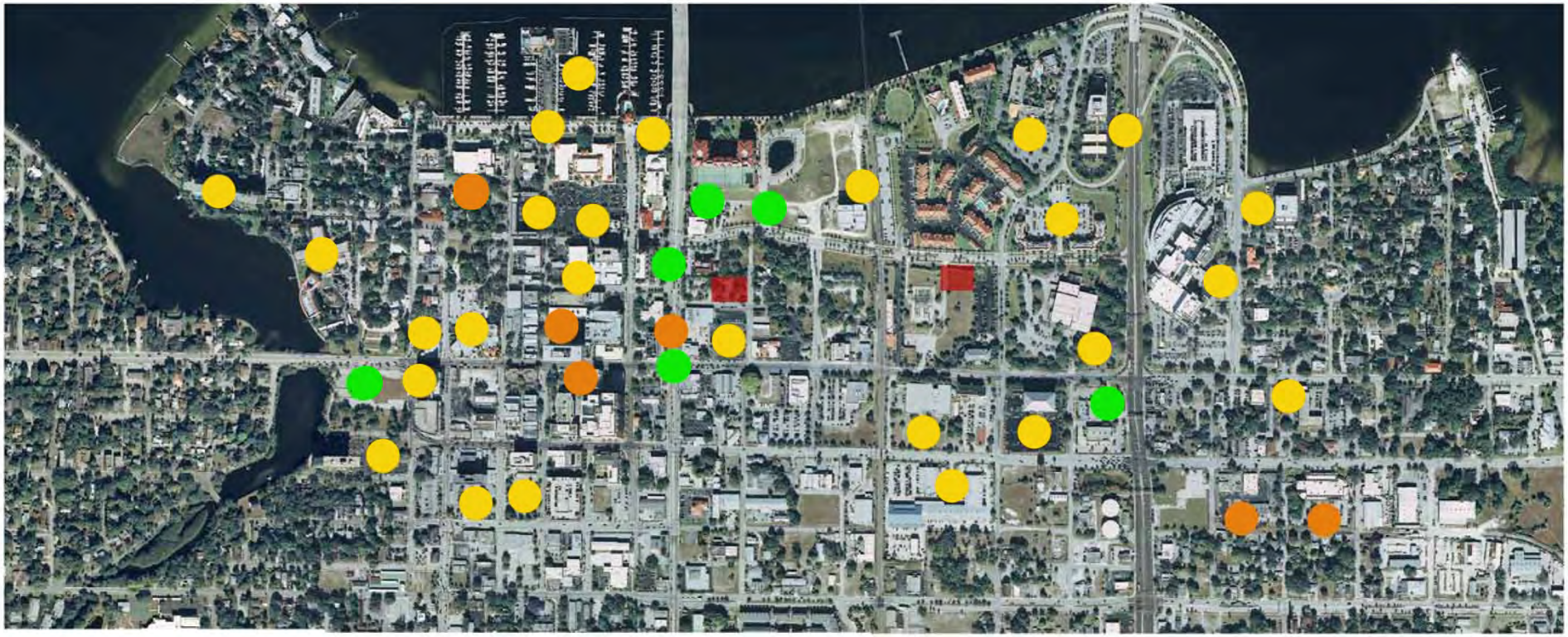

Downtown Bradenton

Manatee County Facilities

- Administration Building
- Judicial Center Complex
- Property Appraiser Bldg.
- Central Library
- Environmental Services
- Manatee County Health Department

Future Devlopment Potential

- Ware's Creek Development Site
- First Union Development Site
- Riverpark Hotel
- ArtCenter Manatee
- BRP Development Site
- Manatee Avenue Development Site

Potential Consumers

- Wesminster Shores
- Westminser Towers
- Desoto Tower
- 1st Presbyterian Church
- Bradenton Financial Center
- First Bank Building
- Bank of America Building
- 1st Baptist Church Campus
- Courtyard Residences
- City Centre Complex
- Chamber of Commerce
- Pier 22
- South Florida Museum
- Suntrust Tower
- U.S. Post Office
- Manatee Players
- Champs Sports
- School District Administration
- Bradenton Herald Site
- Riverwalk Professional Park
- Courtyard Marriot Hotel
- Plaza del Sol Building
- Manatee Memorial Hospital
- Riverview Center
- Florida Blood Bank
- Contractor's Mall

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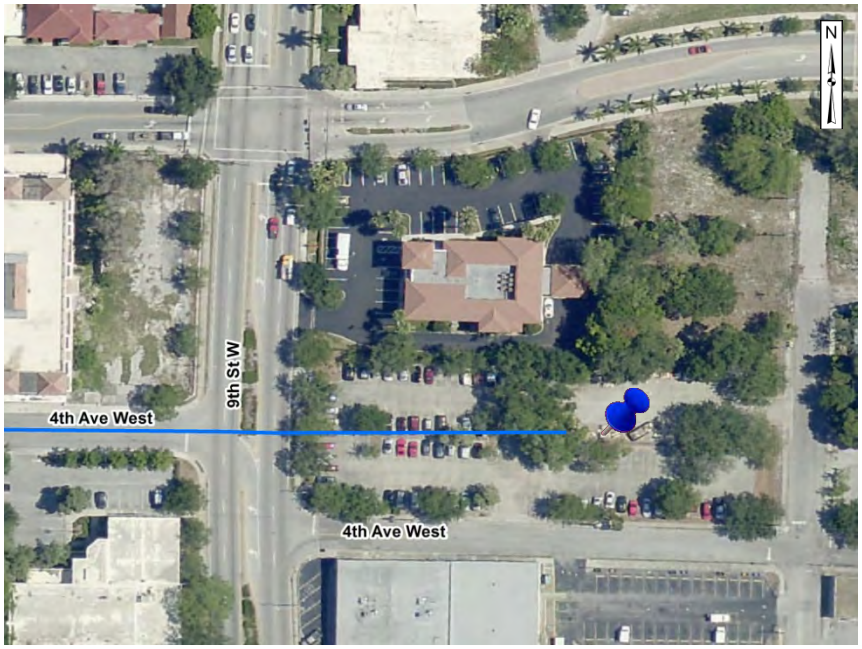
MCG Property Appraiser's Parking Lot



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Looking West on 4th Ave W

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Looking South on 10th St W

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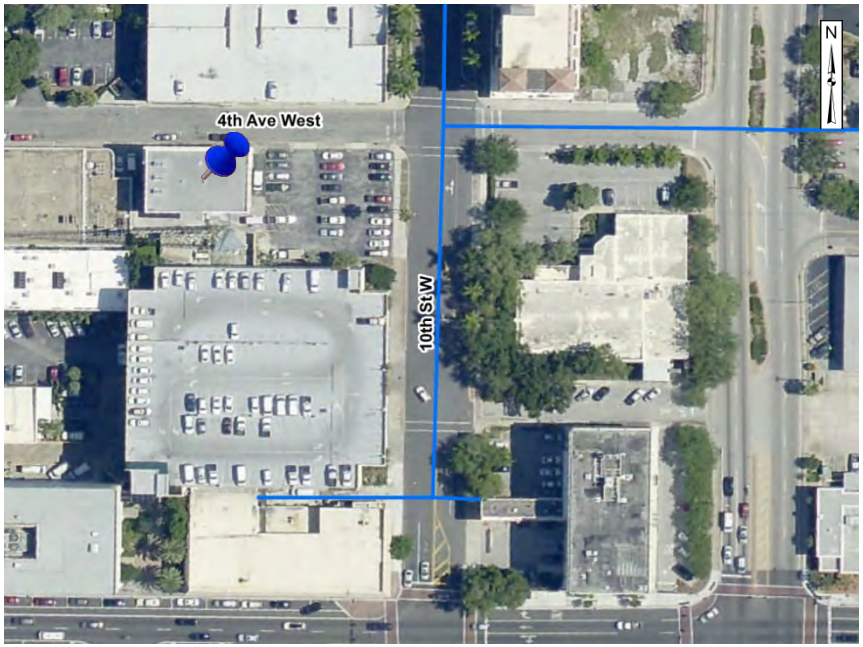
Central Records



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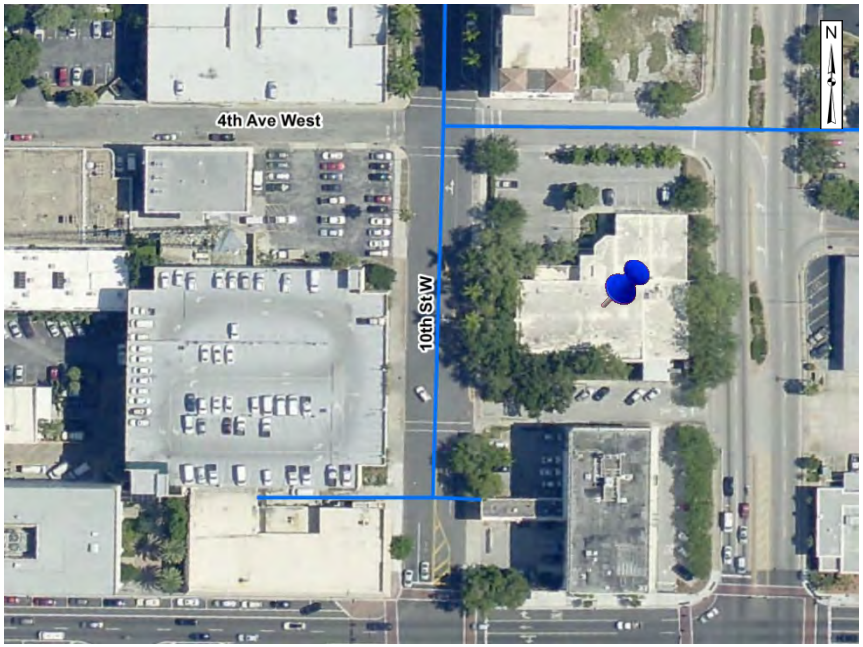
Property Appraiser's Office



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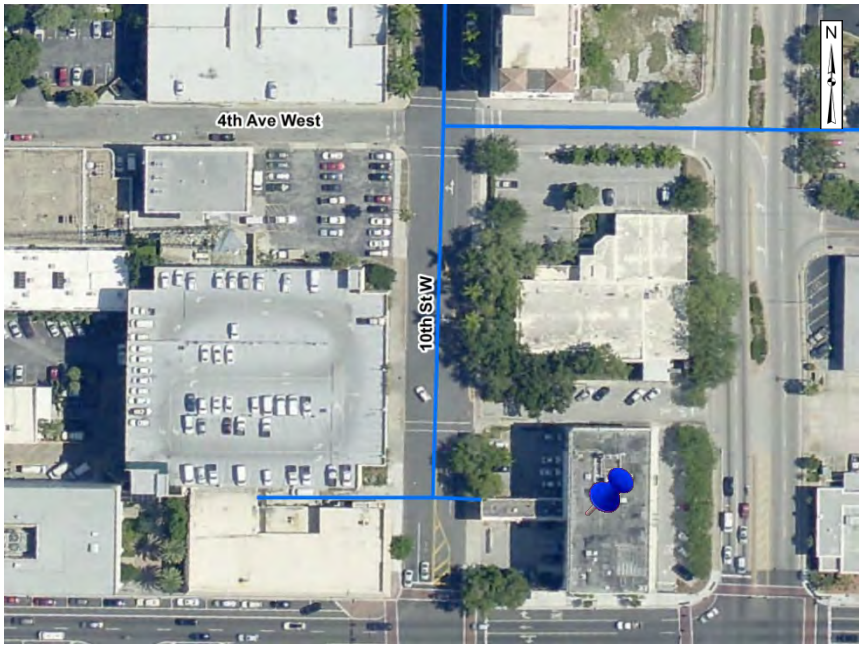
First Union Bank



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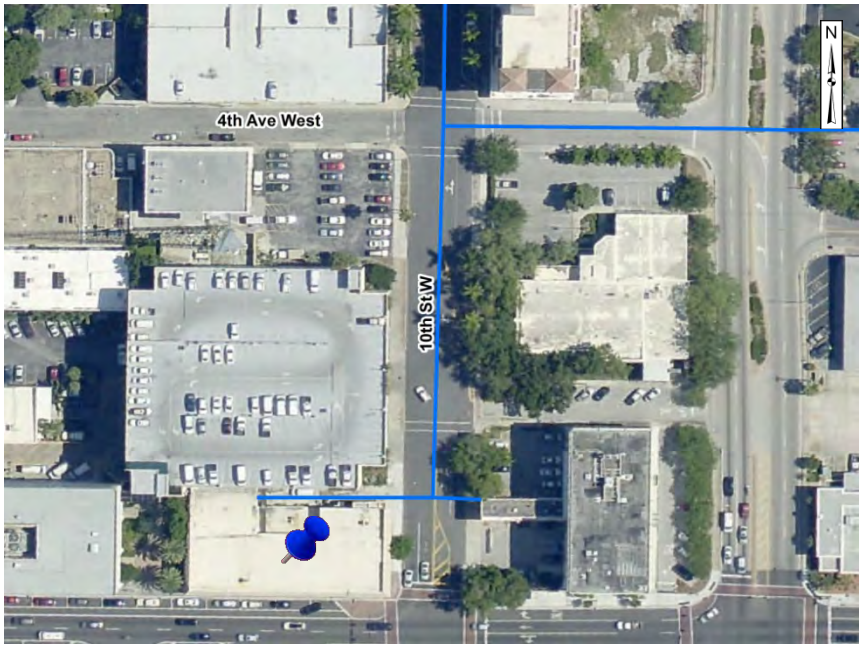
Merrill Lynch Building



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Looking North on 10th St W

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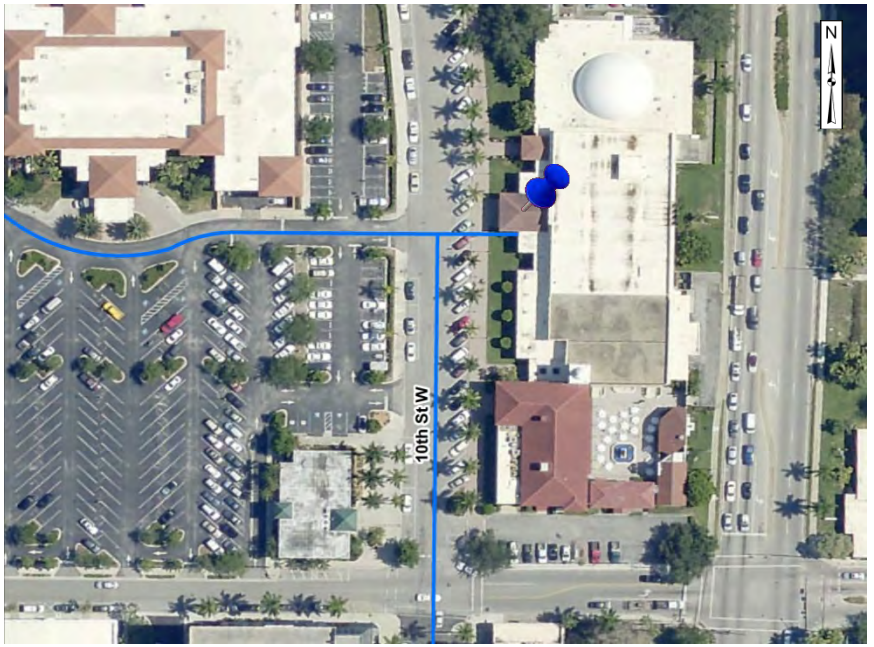
South Florida Museum



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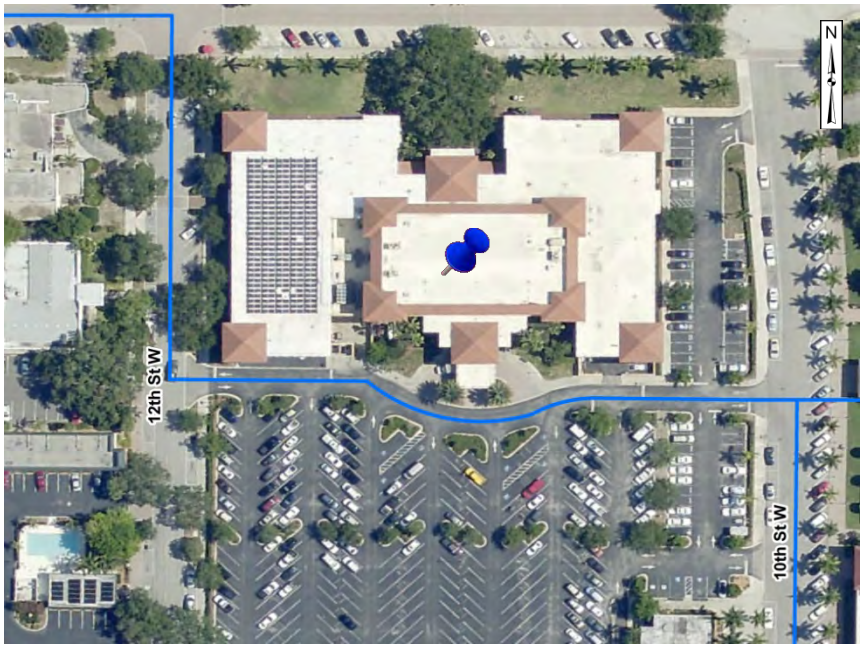
Bradenton Municipal Auditorium



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Looking North on 10th St W

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Looking West on Barcarrota Blvd

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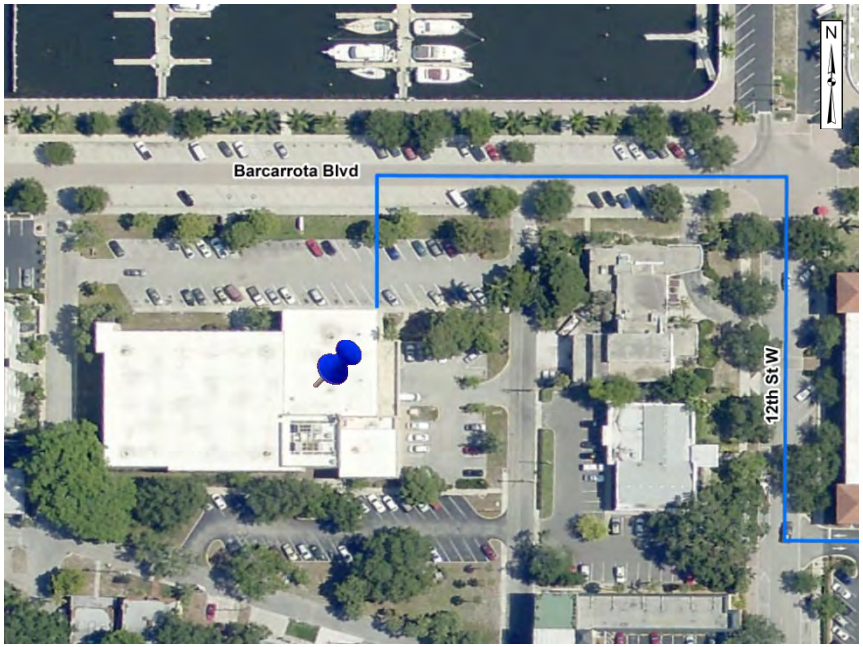
Central Library



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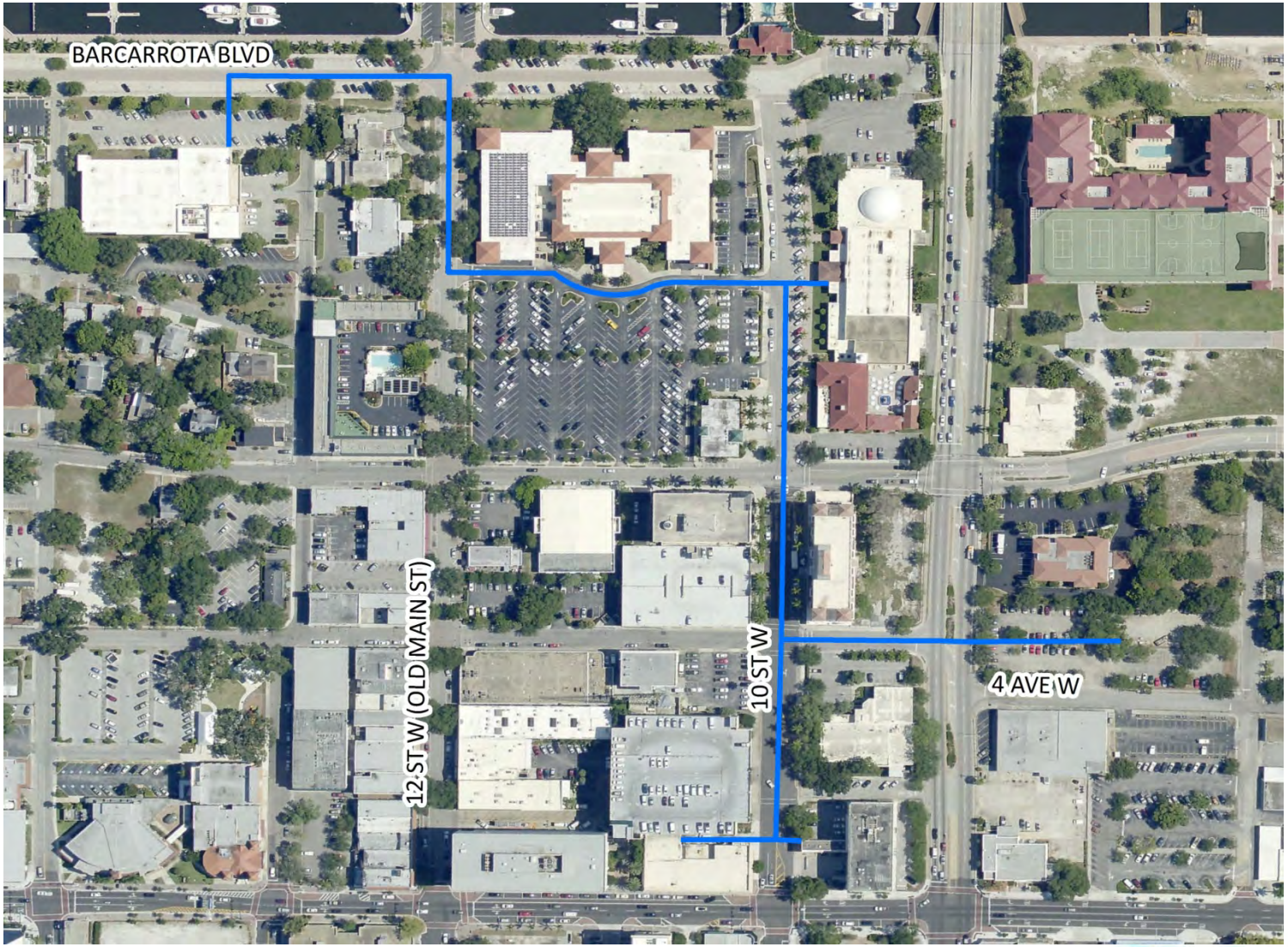
Site Overview



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FPL Services ESCO Project

A Business Case Analysis

(This is a working draft copy.)

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY

This business case outlines how the FPL Services' (FPLS) ESCO project will address current Manatee County energy concerns, the benefits of the project, and recommendations and justification of the project. The business case also discusses detailed project goals, performance measures, assumptions, constraints, and alternative options.

The impetus to perform this study is the potential energy cost savings and operational improvements that could be obtained by implementing energy efficient changes primarily to the County's HVAC, lighting and water systems.

FPLS will provide all project development, management expertise, and employee training to ensure that the project is built on time and on budget, and that is performs not only as expected, but also as a productive asset for the County.

The project, as recommended by FPLS, will have a total cost of $13,018,676, which will allow the County to forego the expenditure of over $3,125,000 in planned capital improvements and provide total savings of $9,655,973 over contract term. Three county buildings will be initially connected to the plant. Accommodations will be made to add three additional county buildings pending future use. In addition, the plant makes available air conditioning capacity to downtown businesses offering a revenue source to the county projected to be in excess of $5.5M based on initial prospects.

Staff recommends moving forward with this second ESCO project (the first was recently approved by the board in August of this year) in partnership with FPL Services.

1.1. Issue

The County is facing significant costs associated with aging facilities and equipment in its building operations. Chiller equipment is failing (requiring periodic short term fixes), buildings are not able to be effectively controlled, building occupancy is restricted by existing building infrastructure, and changes in operation of many County buildings are forcing some expensive decisions. Many of these cost decisions are impacting immediate opportunities to react to market and community needs for changes to the building stock operated by the County. Examples include:

- The Property Appraisers building is currently being cooled with primary equipment housed in the old First Union building, which is vacant and cannot be occupied per the fire marshal due to ADA compliance issues
- The old records building has limited options for space conditioning, regardless of proposed use and configuration, with existing systems.
- The old Merrill Lynch building requires significant modifications to allow any marketable options reasonable use.

Additionally, equipment and operating efficiencies with piece meal modifications to existing building systems are not likely to result in buildings meeting increasingly stringent standards for efficient buildings, nor do these options support the leadership role the County must maintain with sustainable environmental stewardship. Many other

entities in downtown Bradenton, also with aging buildings and equipment, are looking to the County for leadership in support of efficient and cost effective air conditioning options.

Code compliance issues include refrigerant purchase and disposal of R-11 and R-22. For example, the Administration building chiller is R-11 (phased out) and the Library, Property Appraiser and old records building chillers all use R-22 (no new equipment with R22 since 2010 and production/import phase out in 2020).

Finally, the County's continuity of operations with regard to maintaining critical building functions in the downtown area are limited by the available conditioned building space and electrical load capacity of each facility.

1.2. Anticipated Outcomes

The County faces two significant options to satisfy current and future air conditioning needs to maintain an efficient and flexible building stock in downtown Bradenton. These options will likely impact future downtown growth options, flexibility with existing building stock, hurricane preparedness options, and those options of other downtown building owners. Primary options include:

1. Conventional Board appropriations requested for incremental improvements required to meet facility needs. This approach offers the benefit of allowing the Board to prioritize individual facility requirements based on immediacy as budgets allow. Examples of these improvements included repair/replacement of non working chillers to allow removal of temporary chillers, replacement of DX systems which are at the end of their useful life at the old records building, removal of phased out refrigerants and increased availability of the First Union property by removing the Property Appraiser chiller plant from site. However, this option still limits building occupancy and flexibility with fixed cooling plant size; limits potential efficiency gains to incremental improvements; places restrictions on emergency preparedness options for County staff; and, communicates to area constituents that the County is OK with status quo with regard to environmental concerns.
2. Centralized chilled water capacity within a single, high efficiency plant. By consolidating production of cooling water, efficiencies can be significantly improved; a single plant would be more easily operated (as opposed to five plants); production capacity can be leveraged to provide redundancy for ALL connected buildings; emergency generation can be provided; alternate electrical feeders can be made available from FPL; and cooling capacity can be made available to an increasing number of interested community building owners. Aside from benefits with environmental stewardship, flexibility with current and future building options, and disaster preparedness, the County can realize long term cost benefits and future revenues.

1.3. Recommendation

The County has recently entered into a Guaranteed Energy and Water Savings Program at the jail facility. This program ensures construction of an agreed scope of building improvement and conservation measures. Our partner in this program is also required to monitor performance of the new systems and provide guarantees that savings exceed the County's debt service throughout the term of the contract.

A downtown central chiller plant can be included in a similar program offered by Florida Power and Light Services. What is a central chiller plant and how does it function?

A "chiller" generates chilled water used by many large buildings to provide air conditioning. A "central chiller plant" houses larger, efficient chillers and distributes chilled water to affected buildings through underground piping. This central plant allows connected buildings to eliminate the need for individual chillers, decreases a significant amount of electrical load on the building, makes available usable space, and offers a far more efficient overall operation.

Serving as the County's partner in this project, FPLS will build, maintain, and monitor this plant, at the County's direction. FPLS staff has completed designs and site renderings, they have solicited competitive funding alternatives, and they have provided community outreach in support of the County's options to provide chilled water to area business owners.

1.4. Justification

District Cooling allows Manatee County Government to take a leadership role in Downtown development. In a thriving downtown area it will be easier for district cooling customers to increase their usable square footage by eliminating the requirement for mechanical and electrical infrastructure.

Economic and operational benefits are described in more detail within this document. The following list includes many of the reasons used to justify the recommendation to build a district cooling plant.

Facilities:

- Improved environmental impact versus multiple, lower efficient equipment
- A/C units in downtown County buildings are at or near end of useful life
- Existing refrigerants currently used are being phased out
- One plant to maintain and operate verses five existing plants
- Need for flexible alternatives for the records building
- Required modification to the old First Union Bank building to sell
- Need for flexible alternatives for the old Merrill Lynch building
- Electric, mechanical redundancy to be significantly improved

Potential chilled water customers:

- Bradenton City Hall
- The South Florida Museum
- The SunTrust building
- Potential old records building occupant
- Potential Merrill Lynch building occupant
- Potential First Union building occupant / purchaser
- Manatee Schools administration buildings
- Old Bradenton Herald building
- Champs headquarters building
- Bank of America building
- First United Methodist Church
- First Baptist Church campus
- Desoto Tower
- Future development opportunities
    - Ware's Creek development site
    - Art Center Manatee
    - Bradenton Riverfront Partners development site
- Others

Economic benefits:

- Opportunity to defer current capital requirements for incremental replacements and focus funds on long term sustainable solutions
- Program partnering with FPL Services for operation support AND performance guarantees
- Implement lower cost rate structures (through meter consolidation and load management)
- Reduce natural gas costs through revised purchasing structure
- Local businesses to provide revenue source to County

2. BUSINESS CASE ANALYSIS TEAM

FPL Services was contracted to perform an audit consistent with Florida's Performance Contracting statute (FS 489.145). The result of this audit will be a mix of conservation and cost reduction measures that can be fully implemented, funded, and guaranteed by FPLS. As such, FPLS will serve as a long term contributor to this initiative under a true public-private partnership. The following are individuals included from the FPLS team:

Role	Description	Name/Title
FPLS Lead	Provide POC for all activities. Contracts negotiation, finance administration, engineering coordination, public relations	Rob Risley, Sales Manager
Finance Coordination	Define terms, solicit lenders, recommend lender, coordinate finance documentation	Keith Williams-Goldman, Finance Consultant
Development Lead	Engineering and field design lead	Elizabeth Goll, P.E.
Architectural lead	Support design and local permit and code compliance support	Rick Fawley, Architect

County Individuals participating include:

Role	Description	Name/Title
Executive Support	Provide executive support for the project	Charlie Bishop, Director Property Management
Project Manager	Advises team on project status and management oversight	David Thompson, Building Services Division Manager
Fiscal Project Manager	Manages the business case and fiscal project components	Maggie Daniell, Senior Fiscal Services Manager
Project Support	Provides all operational support for the project	Darryl Blair, Facilities Maintenance Coordinator

3. PROBLEM DEFINITION

3.1. Problem Statement

The County faces significant costs to maintain its existing aging and inefficient building stock. Additionally, growing operational needs require new and flexible alternatives for existing County-owned buildings as well as future building acquisition options. Examples include buildings that rely on each other to maintain air conditioning thereby limiting operational flexibility and resale options.

Incremental approaches to replacing primary air conditioning equipment provide little opportunity for flexibility in building operations, allowance for disaster preparedness, improved efficiencies or lower costs.

3.2. Organizational Impact

Centralized chilled water production will eliminate, or minimize the need for County facilities personnel to maintain individual air conditioning units throughout its buildings. Staff resources required to operate chilled water equipment can now be diverted to prioritize other functions to improve County operations elsewhere.

Further efficiency gains are available by minimizing technical contracted maintenance services. Centralized equipment is expected to be larger in scale than multiple units it will replace. Single site equipment will minimize "ancillary" equipment and processes such as water treatment and central equipment controls. It is anticipated that associated contracted maintenance costs will decrease by 60%.

3.3. Technology

Existing chilled water equipment is expected to be maintained through the construction of the central plant, located adjacent to the Post Office within an existing parking area. Existing equipment includes 7 individual chiller and unitary systems. In some cases, rental equipment will be employed in the event degrading chillers are unable to last through the expected 18 month construction period.

In most cases, existing chiller equipment is anticipated to be removed from individual buildings. Consideration was given to maintaining equipment as redundant capacity for some buildings, however, benefits of eliminating this equipment includes:

- Elimination of maintenance requirements, and costs, associate with these older chillers, including maintaining older machines with refrigerants that are phasing out
- Elimination of ancillary equipment, such as control panels and valves
- Reduction in building electrical load requirements and equipment. This benefit includes potential reallocation of individual building emergency generation capacity to better serve emergency and non-emergency loads. This also has the potential to allow some County facilities to apply for better electric rate structures offered by FPL.
- Increased usable space within buildings and on roofs
- A central chiller plant will cut peak electrical demand and take advantage of peak cooling diversity for buildings connected to the loop.

Distribution piping will be installed through sidewalks to target County buildings. Routing has been established to minimize costs while providing flexible options for all County buildings. When practical, routing options were developed to accommodate many of the initial chilled water customers and future customers that are anticipating connection to the loop.

4. PROJECT OVERVIEW

The central chiller plant project will be designed to accommodate current and future chilled water needs of County buildings within downtown Bradenton. It will include redundancies and disaster preparedness options to allow for cooling capacity to buildings in the event of storm or other emergencies. The plant will include flexibility to increase capacity, as needed, to accommodate additional downtown businesses to use chilled water supplied by the County-owned plant at agreed upon pricing over a long term contract.

Benefits the County, and expected local building owners, may realize from centralized chilled water production include:

- Improved energy efficiency
- Enhanced environmental protection
- Fuel flexibility
- Ease of operation and maintenance
- Reliability
- Comfort and convenience for customers
- Decreased life-cycle costs
- Decreased building capital costs
- Improved architectural design flexibility within participating buildings
- Smaller carbon footprint

4.1. Project Description

The plant will be initially designed to accommodate three chillers at 500 Tons capacity each (initial County buildings expected to be tied to the plant total 450 Tons). The chillers will be water-cooled, high efficiency units enclosed within a building built along the north central area of the County parking lot on the corner of 9th Street West and 4th Avenue West. Water cooling towers will be placed on the roof of the plant and surrounded by acoustic reduction barriers and aesthetic trim in accordance with Bradenton's downtown redevelopment plans and the City's Form-Based Code. Primary pumps, valves, controls, water treatment, and a small work space will also be included within the plant building.

Distribution piping will be installed at varying diameters to accommodate projected water flow rates. Direct connect for each County Building will be tied to the plant with tertiary pump, controls and bypass. Each customer contract will be structured to pay for costs to tie the building to the plant and will include a heat exchanger, on-site tertiary pumping system and billing meter. Customer will maintain their existing chilled water pump to provide chilled water to all areas in that building. The heat exchanger will serve to separate the water loop from the plant from the individual loops of all buildings tied to the plant. Aside from allowing for the various temperature and pressure requirements of each building, this will support chilled water controls, monitoring, and billing for non-County users.

City of Bradenton has expressed an interest in supporting the project in several ways. First, they have indicated support for the opportunity to improve area walk ways and foliage in areas that chilled water pipe is likely to be routed. Second, any beautification and noise concerns around the plant itself will be developed in coordination with City staff. Finally, the City Hall is an excellent candidate (as demonstrated by a letter of intent issued by City staff) to tie to the plant with many of the same benefits as the County is expected to realize.

4.2. Goals and Objectives

Business Goal/Objective	Description
Reduce Operational Costs	Operational costs continue to rise as equipment is past useful life
Improve Plant Efficiency	Install or redesign building and systems to reduce energy consumption through energy sustainable measures by reducing water, sewer and electrical costs
Environmental	Producing a sustainable and energy efficient community while simultaneously reducing the County's carbon footprint
Finance Neutral	Remain cash flow positive by guaranteed savings from energy savings

4.3. Project Performance

The Guaranteed Energy and Water Savings Program proposed by FPLS adheres to performance requirements obligated by several Florida statutes. FS 489.145 (2013 revision) requires that our Energy Service Company (ESCO) chosen for this project, FPL Services must:

- Provide an audit that serves as a project scope of work and includes monitoring and verification of savings plans for each proposed measure;
- Provide a contract guarantee that savings meet, or exceed projects for each contract year;
- Provide a cash flow that demonstrates the County debt service is fully paid by the guaranteed savings generated from the measures installed under this program.

A state term contract administered by the Florida Department of Management Services (973-320-08-1) authorizes qualified ESCOs to administer this program to state, educational, and other public agencies within Florida.

Both, the state term contract and Florida statute point to independent protocols to guide monitoring and verification procedures for this process. Two primary protocols, FEMP v3.0 M&V Protocol, and the International Performance Measurement and Verification Protocol (IPMVP) serve and guiding documents for the basis of savings verification.

4.4. Project Assumptions

There are integral assumptions used to support this recommendation that include equipment, regional growth, finance options, and local business interest in support for the plant. A brief itemization of the primary assumptions follows.

Facilities:

- Many of the primary air conditioning units are currently failing. As of the date of this draft, at least one temporary rental unit is being employed to provide chilled water to a County facility. Where long term life expectancy of equipment was assessed to estimate life cycle cost alternatives, ASHRAE American Society of Heating, Refrigerating, and Air Conditioning Engineers) average life expectancy figures were used. It was noted in ASHRAE documentation that environmental impacts (such as salt spray areas, within which Bradenton lies) are likely to affect useful life. As a conservative effort, no discount was given to expected life due to environmental issues.
- Questions of future use of the old records building have currently eliminated this building from an initial tie to the plant. Immediate plans will include an underground stub-out from the newly installed distribution piping near the building in anticipation that it will be connected to the plant in the future. This flexibility offers the County clear advantages in future functionality of the building as well as the opportunity to entertain the prospect of lease or sale to a broad range of business interests.
- The old First Union Bank building currently includes a two chiller plant; one that provides cooling water for itself and the second for the neighboring Property Appraisers building. Options for sale of this building are significantly impacted by the changes that are assumed to be required to offer an independent sale of one building while maintaining cooling at the other. Assumptions include a central plant tie to the Property Appraiser and a stub out for the First Union.
- The old Merrill Lynch building includes various cooling systems and configurations that do not offer flexibility in potential building uses or lease / sale options. It is assumed that a central plant tie will be needed in the near future with additional internal HVAC improvements regardless of the eventual use of this facility. An underground stub-out is planned during initial construction.
- Capacity of the plant is initially designed for two, 500 Ton chillers allowing for redundancy for the initial County load of 450 Tons. The plant is designed to accommodate an additional 500 Ton chiller and expandable well beyond that. In addition, infrastructure was put in plant to allow for a tie to the newly built

Judicial Building which is expected to add an additional 400 Tons to the loop (after that building is completed). The combinations of these alternatives are expected to accommodate chilled water to all County loads and near term business interests.

Chilled water customers (letters of intent have been received from the following initial prospects for ties to the central plant):

- Bradenton City Hall maintains a chiller and separate AC unit designed to control humidity. Both these units are beyond ASHRAE's guidelines for expected useful life and are costing the City significant maintenance and operating costs. A tie to a central loop would eliminate the need to appropriate funds to replace this equipment, would significantly reduce the electrical load (and consumptions costs) on the building, and would improve the redundancy for emergency preparedness. The City Council has approved preliminary commitment for this project.
- The South Florida Museum maintains a chiller that is beyond ASHRAE's guidelines for expected useful life. There are additional air conditioning technologies that serve areas of the Museum and a water dehumidification system dedicated to the manatee tank. A tie to the central loop would allow the Museum to eliminate the primary chiller and allow the Board to expedite tentative plans for expansion without the costs to increase on-site chiller capacity. The Museum Board has approved preliminary commitment for this project.
- The SunTrust building, owned and operated by NDC / Riverside, recently appropriated emergency funds to replace a cooling tower. This retrofit is a short term fix to a more significant cooling problem(s) within the building that can be largely resolved by tying to the central loop. The company owners have issued a letter of support for a tie to this plant, as well as support for an additional building in the event a distribution system expands to the east.

Funding alternatives are described more specifically elsewhere in this report. An overview of assumptions includes:

- All funding sources are compliant with required statute provisions of FS 489.145 rev. 2013. A key component of this statute requires the ESCO (FPLS) to provide a savings guarantee for generated by the measures installed under this program.
- Primary funding source is a low interest, tax exempt municipal lease. Solicitation has resulted in proposed lender based on best available terms and indexed rate. A combination of taxable / tax exempt funding options are also available pending bond council opinion.
- Utility incentives are being maximized under FPL's incentive program.
- EPAct 179d offers a federal tax incentive available to the contractor and authorized by the County. This incentive carries restrictions based on technical criteria that will be installed. Although the designs of proposed measures have been based on maximizing efficiency and operational savings, the County has secured a third party consultant to determine the extent of opportunity this program may make available.

Other economic concerns:

- Electric and natural gas rates were assumed to apply to current utility offerings. Where applicable, reductions in building electric loads due to the elimination of large cooling equipment was modeled and applied to rate structures.
- FPL's Load Management rates, and other applicable rate structures, were applied where building operations allowed. These rates offer the County significant reductions in utility costs in exchange for support to FPL for reducing load (turning on emergency generators) in the event of major power shortfalls, or system emergencies.
- Forecasts for expected increases in long term rate, maintenance, and revenues were assumed to follow an estimated Consumer Price Index (CPI) of 3%.

4.5. Project Constraints

Potential constraints can be categorized similarly to the above discussion of assumptions.

Facilities:

- Both, County and local building owners each have different types and ages of equipment currently in operation. Each building has a different maintenance history, usage pattern, market potential, and governing procedures for capital improvements. As such, the timing and financial decision making varies.
- The City of Bradenton has generated a new "Form Based Code" (FBC) within which this project will need to comply. Discussions with City staff and inclusion of members of the public FBC review and development committee have been included in the design and consulting team for this project.

Chilled water customers:

- Prospective area building owners have demonstrated a strong interest in this plant. No building owner has offered to enter into a contract for long term chilled water purchase as yet. At least three of the initial owners approached have issued Board approved Letters of Intent to take service from this plant under the draft terms offered at this stage of project development. Others are at various stages of review (including assessment of building needs and timelines).
- Those customers that current use air conditioning technologies requiring chilled water are the most cost effective opportunities for short term ties to the district loop. Others may apply depending on condition of facilities and the economics of individual facilities.
- Many excellent prospects are over a mile from this site (Riverside Medical Center owners have offered to execute a letter of intent now). One mile is considered a threshold for cost effective (and technically applicable) distance within which to run chilled water. Building groups (such as the Bradenton Herald, Manatee County School Board administration, and Champs buildings) are likely to serve as excellent customers as individual circumstances show good technical and financial sense.

Funding alternatives:

- One interpretation of the tax exempt status of this project suggests that a portion would need to be funded from taxable options. If that interpretation holds, financing would change somewhat to ensure compliance. Depending on the

opinion and portion of the project requiring taxable funding, there are several options to comply including a split tax exempt and taxable lease which has the interest of several lenders, applying any buy down funds to the taxable portion or obtaining an allocation from the state for a private participation bond. The latter has longer lead time, potentially higher legal costs and risk that no allocation is available.

- EPAct 179 d tax incentive value is not yet clear. Although this is offered as a potential constraint, no funds from this option have been included in the financial models as yet.
- The primary statutes regulating this process carry several constraints:
    - Each individual year must demonstrate positive cash flow (savings versus debt). Because savings vary by year, an amortization schedule must be developed to demonstrate that guaranteed savings meet, or exceed payments in each year.
    - Protocols for Guarantees of savings typically look for an ESCO to assume the risk of performance. ESCOs and customers agree on what those savings are and then discount the guaranteed portion (typically at 85 to 90%) to allow for a conservative level of savings. Regardless, the ESCO is obligated to pay any shortfall on an annual basis.
    - Interest rates are not constant. Finance models developed for this project are based on indexed rates quoted by the lender offering best terms through a competitive solicitation. During technical review, contracts review, and finance reviews, actual rates have changed requiring regular updates to financial models and assumptions. In all cases, FPLS has offered assumptions using indicative rates with a conservative buffer allowing for discussion until actual rates can be quoted at or near contract execution.

Other:

- Although this process has been used by US public entities for over 30 years (supported by FPLS for nearly 25 years), it is new to Manatee County. Review processes and contract development has taken longer than the typical design-build and appropriations process.

4.6. Major Project Milestones

The following are the major project milestones identified at this time. As the project planning moves forward and the schedule is developed, the milestones and their target completion dates will be modified, adjusted, and finalized as necessary to establish the baseline schedule.

Primary milestones are consistent with statute requirements for funding and implementing all measures associated with project. Measurement and FPLS guarantees will be maintained for 20 years after implementation is complete.

Milestones/Deliverables	Target Date
Board approval	10/20/13
NTP	11/1/13
Building ECMs complete	11/1/14
Chilled water plant complete	4/1/15
Initial district cooling customers connected	6/1/15
Public interest campaign initiated for downtown chilled water	6/1/16

5. STRATEGIC ALIGNMENT

This ESCO Project is in direct support of several of Manatee County's strategic plans. By directly supporting these strategic plans, this project will improve County operations and help move the County forward.

Plan	Goals/Objectives	Relationship to Project
Sustainable Energy Fund	Improve other energy efficiencies that are less costly	This project will allow for other energy savings initiatives less costly to reduce electrical power
How Do We Grow	Maximize Growth Opportunities	Sale of the First Union building, Merrill Lynch building, GTE building, and Library
Downtown Revitalization	Increase Downtown Commerce	Drives a stronger green footprint, vastly improves downtown esthetic landscape, 30 years of sustainability and stability

6. COST BENEFIT ANALYSIS

Funding Constraints on Cost Benefit Analysis

a) Positive cash flow each year per statute
b) 20 year maximum term for financing
c) 16 year maximum term if District Cooling financing analysis uses avoided capital
d) % of Project used for private use and whether that requires taxable financing piece or allocation of private participation bond from the state.
e) Minimize buydown dollars
f) Positive IRR on the buy down amount when compared to cash flows/district cooling revenues.
g) % of CEP cost allocated to District Cooling and whether CEP remains viable without those funds

As originally structured, the energy efficiency project including the CEP was able to show positive cash flow each year over a 20 term using a tax exempt (appropriation) lease without the use of any district cooling revenues. This met the statutes but required a $3.7M buy down including a tie in to the Justice Center (the buy down is required to keep the cash flows positive each year as required by Florida Statute 489.145). The $3.7M buy down shows a 4% IRR when compared to the district cooling revenues based upon .17 cents/ton.

Due to the initial opinion that a portion of the CEP project may be considered "private use" and in order to show the "district cooling" component of the CEP is a prudent investment, the project analysis has been split to shows two options separating the CEP from the energy efficiency project ("EE"). The first option is a 100% separation of the CEP including related energy savings and deferred capital (the CEP Option) and the second is a separation of 10% of the CEP into a District Cooling ("DC") project which is solely reliant on DC revenues (the District Cooling Option).

Base Case CEP Option- Stand Alone Project Economics for Full CEP

The table below captures the 100% separation scenario and shows the cost and savings during year one of the financing. It shows a $10,000 positive cash flow year one and on a cumulative 20 year basis $3.1M of positive cash flow.

Action	Action Type	Description	First year costs (- indicates anticipated savings)
Commit to 20 year financing	Cost	First Year Debt Service	-$963,000
Avoided Capital Expenditures	Savings	The current chiller facilities are antiquated and will require on average this amount of capital upgrades over the next 5 years	$625,000
Gas Rate Savings	Savings	The project includes a conversion in the way the County purchases natural gas	$117,000
District Cooling Revenues	Savings	With planned chiller plant redundancy with capacity to expand and access to redundancy via Justice Center, we can set up contracts to sell excess chilled water to other downtown buildings. Three prospects offering initial commitments to purchase btu's	$212,000
O&M Savings	Savings	Reduced staff man hours for maintaining exiting chillers	$10,000
Utility Savings	Savings	Electric savings due to improved cooling system efficiencies	$9,000
Net First Year Savings			**$10,000**

Based upon the cost benefit analysis above, we show that the CEP plant will save $10,000 in the first year of operations. In order to minimize the debt service associated with the financing, the debt service payments will be sized to maintain a $10,000 per year benefit (noting that gas, O&M and Utility savings are guaranteed by utility). With debt service minimized, the project debt is paid off in 15 years at which point the savings to Manatee exceed $530,000 per year.

The anticipated construction time for the CEP is 18 months during which time Manatee County would realize an additional $135k in construction period savings. The proposed structure captures these savings, allowing for a proposed payment to include $110k prior to construction completion while still realizing $25k in positive cash flow. In addition, the CEP

would be implemented in conjunction with other energy efficiency measures which would also carry a 20 year savings guarantee. When combined the excess cash flows from these two projects total $4,817,000 over 20 years and provide a 4.2% rate of return on an initial $2.4M buy down (the buy down in this scenario is lower as less funds are required to meet the positive cash flow statute).

Stand Alone Project Economics for District Cooling Portion of CEP

In order to provide clarity on the district cooling option on a stand-alone basis, we have split out 10% of the CEP costs from the energy efficiency project into a separate district cooling cash flow. With 10% of District Cooling separated, the cash buy down requirement on the remaining EE is $2.7M. Similar to the above scenarios, included in the district cooling cash flow and the buy down amount is $250K of costs to tie out the CEP to the excess capacity at the Justice Center as this may keep the private use below 10% under the original structure. Because this separated project is using only private customer revenues it is assumed to be financed as taxable. Here is a summary of the year one cash flow.

Action	Action Type	Description	First year costs (- indicates anticipated savings)
Commit to 11 year financing	Cost	First Year Debt Service	-$211,000
District Cooling Revenues	Savings	With planned chiller plant redundancy with capacity to expand and access to redundancy via Justice Center, we can set up contracts to sell excess chilled water to other downtown buildings. Three prospects offering initial commitments to purchase btu's	$212,000
Net First Year Savings			**$1,000**

Based upon the cost benefit analysis above, we show that the District Cooling portion of the CEP plant will save $1,000 in the first year of operations. In order to minimize the debt service associated with the financing, the debt service payments will be sized to maintain a $1,000 per year excess. With debt service minimized, the District Cooling portion of the project debt is paid off in 6 years at which point the revenues to Manatee average nearly $300,000 per year. The IRR for the District Cooling project on a standalone basis is 3.8% (lower than the combined project due to taxable finance rate).

Plant Expansion

In the event that sufficient District Cooling customers are under contract, the CEP is expected to be expanded in two ways, described in order of proposed implementation:

1. Adding a third 500 Ton chiller to the central plant as currently designed.
2. Increasing the footprint of the proposed plant beyond current design. This option is fully available to the County to accommodate future load but is not contemplated at this stage

If these assumptions are factored into the original base case cash flow, the rate of return on the $3.7M buydown increases to 6.9%.

Beyond Twenty Years

Existing chiller equipment is in excess of 30 years old, requires expensive maintenance to operate, and is very inefficient. The contract is structured to eliminate this equipment while providing a positive cash flow over a 20 year term. After expiration of the contract with FPL Services, the County will retain ALL savings in addition to revenues from the sale of chilled water.

7. ALTERNATIVES ANALYSIS

The following alternative options have been considered to address the business problem. These alternatives were not selected for a number of reasons which are also explained below.

No Project (Status Quo)	Reasons For Not Selecting Alternative
Continue with incremental appropriations for cooling equipment within County's current building stock	• Immediate appropriations required for over $3.125M CIP • Increases existing maintenance budget • Reduced value and flexibility with First Union, GTE, and Merrill Lynch buildings • Limited show of environmental leadership • No opportunities to support downtown business with economic development & cost reduction options via chilled water • No revenue opportunities from chilled water sales • Does not reduce carbon footprint • Will not stringent efficiency standards • Does not address compliance issues concerning refrigerant purchase and disposal • Buildings remain limited for continuity of operations

8. APPROVALS

A capital decision that potentially consolidates multiple buildings (even considering only County buildings) requires assumptions based on sound engineering and reliable indices. The assumptions used to base technical and financial success of this process have been thoroughly vetted by staff and consultants to ensure best available information from which to allow the board to make informed decisions.

The signatures of the people below indicate an understanding in the purpose and content of this document by those signing it. By signing this document you indicate that you approve of the proposed project outlined in this business case and that the next steps may be taken to create a formal project in accordance with the details outline herein.

Approve Name	Title	Signature	Date