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Architecture
Planning
Interior Design

November 11, 2014

Public Safety Building Assessment
Executive Summary

The Stantec/FGSS Team have performed a basic assessment and programming study of the Public Safety Building. The assessment included investigations by waterproofing specialists Building Enclosure Council, structural engineers Douglas Wood & Associates, MEP engineering consultants EMTec Corporation and the environmental engineering firm of PSI. The cost estimator, Stonehenge Construction, analyzed the cost and duration of construction for each of these options, taking into account the need to maintain building occupancy during construction.

The information gathered in the assessment was used by the Stantec/FGSS Team to develop three possible options this project. The attached exhibits summarize these three options for improvement of the facilities that house the Fire Department, Police Department, EOC, Human Resources, Information Technology, Parking Department and Gables CATV. The Scope of Work Summary lists the major work items required for the facility, a description of these and comments on the pros and cons of each solution. The attached site plan schematics illustrate these three options, as well as the existing site and floor plans.

The scope of Option A includes the basic renovations needed to remedy building waterproofing and life-safety issues within the existing building footprint. Existing program space needs exceed the current building footprint area. For this reason, in this option the Human Resources and Parking Departments would be relocated to other City facilities or leased office space to allow for expansion of the public safety functions. The interior would be renovated/remodeled and would re-distribute the existing areas to better serve the needs of the Fire, Police, EOC, IT and Gables CATV. In Option A full program requirements will not be met. The exterior brick veneer will be removed and replaced with a combination of painted stucco and EIFS. The sidewalks will be removed to apply waterproofing for the basement. Storefronts/windows/doors will be replaced within existing openings. The structure of the Apparatus Bays and their approaches will be repaired. Refer to Scope of Work Summary for more detailed descriptions. The renovations required will be expensive and will result in a short life-cycle solution that will not meet the program requirements of the City's public safety departments.

The scope of Option B includes the basic renovations necessary to remedy the existing building waterproofing and life-safety issues and supplementing the existing building area with additions. The added areas will meet current and projected program requirements with restraints on adjacencies. The existing interiors will be remodeled/renovated. The footprint of the building will be expanded at the perimeter to edge of curb above the existing sidewalks which will result in added square footage, provide a remedy to water infiltration from walls, harden the building exterior walls and improve aesthetics. Two floor levels will be added above a portion of the existing lower garage decks as well as one partial floor above the 4th floor offices. Two parking

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decks will be added above the existing garage to replace those spaces removed by the additions. The structure of the Apparatus Bays and their approaches will be repaired. Refer to Scope of Work Summary for more detailed descriptions. The renovations and additions required by this Option B will be expensive and will result in a limited life-cycle solution that will not fully meet the adjacencies required by the program, nor result in a fully hardened building envelope.

The scope of Option C includes demolition of the existing facility to provide an efficient new public safety operations and parking facility. The building design would allow for phased construction, permitting the existing departments to move within the new and existing areas. The resulting facility would be efficient in program and energy use, hardened, and would meet the program and operational requirements of a modern public safety and government operations facility. The building aesthetics would be a source of pride for the community. In addition, the added parking spaces in the garage would serve to support economic development of the surrounding area. Option C would provide the best value for the dollar to the City. It would achieve a long life-cycle building solution that would meet the adjacencies and square footages required for the public safety departments, HR and Parking. This solution would also result in a hardened building envelope and offer current technology and security solutions. The proposed sustainable design will lead to increased employee productivity, health and quality of life. Energy savings can be maximized while minimizing maintenance and operations costs. The resulting aesthetics will be a source of pride for the community.

Critical factors that must be considered in the evaluation and decision as to what Option to pursue include:

- Continued operations of the Public Safety components housed in this building
- Life Safety
- ADA accessibility for public and employees
- Achieving efficient adjacencies of program areas
- Security - Distinct and controlled entrances to each department for employees and the public.
- Increased employee productivity and health through design solutions
- Achieving hardening and structural integrity of the complete structure
- Energy savings opportunities
- Meeting technology needs of program areas
- Life Cycle cost of investment
- Revenue from parking garage rental (loss/increase)
- Relocation and leasing costs vs. expansion
- Aesthetics and community pride in facility
- Potential for unforeseen costs during remodeling

Scope of Work Summary

OPTION	Comments	
	Summary of Scope	Pros / Cons
OPTIONS A & B - RENOVATION SCOPE		
BASIC IMPROVEMENTS (APPLICABLE TO OPTIONS A AND B)		
ADA Upgrades Restrooms & Public Access	Required ADA compliance for the facility for public and employees. Existing restrooms at each level are not compliant. Exterior and interior doors are not compliant. Elevators do not meet current accessibility requirements.	Existing restroom structural space is insufficient to accommodate accessibility. Accessible restrooms to be developed in other building locations.
Civil - Basement Floodproofing	It is our understanding that MD-WASD drainage systems outside the building can affect this building. Depending on how MDW handles storm drainage water flows in the neighborhood can cause this building's catch basins to saturate too quickly. This building should have it's own (new) deep wells to be receptors of storm water.	Traffic and access disruptions to building operations during construction.
Waterproofing - Basement Flood Prevention	The basement has experienced flooding during strom conditions. The existing basement storm sump pump system has operational issues. It is recommended that operational functions currently housed in the basement be relocated at ground floor or above level. Parking can be expanded on the areas vacated. Storm sump pump system should be replaced to maintain basement during storm conditions.	Existing building square footage does not provide necessary relocation space. Provide addition to building to accommodate these areas.
Waterproofing - Basement	Remove sidewalk at perimeter and and install waterproofing	Traffic and access disruptions to building operations during construction.
Waterproofing - Decks	Install a redundant waterproofing membrane with a drainage composite, and the reinforced topping slab tied to the structural decks to meet the HVHZ uplift requirements. Add bi-level drains where necessary.	Noise to building occupants, Disruption to upper floors for drainage install

OPTION	Comments	
	Summary of Scope	Pros / Cons
Waterproofing - Canopies	Replace with a seamless liquid reinforced roofing system, which is better suited for detailing of the existing conditions. Reslope to avoid ponding water, and simplify at flashings, copings, and terminations. Plexiglas skylights to be replaced.	
Waterproofing - Roof	Existing roof drainage is inadequate. Install additional roof drains, tapered insulation, overflow scuppers and roofing. Roofing would be best replaced with a seamless liquid reinforced roofing system, which is better suited for detailing of the existing conditions. Roofs should be resloped to avoid ponding water, and simplified at flashings, copings, and terminations.	
Hardening - Exterior Swing & Overhead Doors	Exterior swinging and overhead doors to be replaced with impact resistant systems. Reinforce structure at overhead doors to meet structural needs	

OPTION	Comments	
	Summary of Scope	Pros / Cons
Structural - Fire Apparatus Bay Structural Repairs	Fire apparatus bay floor structure does not sufficient design capacity to meet the loading requirements of the Fire Department apparatus housed in this facility. Floor slabs, joists and beams must be strenghened to meet operational requirements. Slabs inadequate relative to accepted structural engineering practice. Joist design information is unavailable, it is suspected that aequate shear capacity of single joists is doubtful. Beams depending on loading assumptions and on analysis basis (ACI 318-63 vs. ACI 318-08), two to eight beams are overstressed in shear. Repair Option 1 - Remove existing structural slabs and replace with properly designed slabs; conduct load testing on joists and soffit beams. Enhance as indicated; provide shear enhancement to eight main beams. Repair Option 2 - Enhance slabs with structural steel members throughout; abandon existing joists and soffit beams in place and install steel joists/beams; Provide shear enhancement to eight main beams.	Displacement for Fire Station during construction.
Structural Repairs - Parking Garage (above grade)	Many locations with corroded reinforcement and spalled concrete need repair. To slow future deterioration, consider applications of: Migrating corrosion inhibitor to exposed concrete (plus waterproofing noted in waterproofing item). Numerous failing previous patches need repair. Topping Slabs garage Roof Ground Floor to be removed and replaced in coordination with waterproofing improvements. Vehicle Barrier Wall appears to be structurally inadequate relative to current design loads and structural practice and must be either replaced or proper system installed. Garage floors must be re-sloped with appropriate toppings and/or add drains. Other items - Miscellaneous broken planter/curb to be repaird or replaced; Cracks througout to be repaired and sealed.	

OPTION	Comments	
	Summary of Scope	Pros / Cons
Structural Repairs - Basement	Floor Cracks, corroded reinforcement and spalled concrete must be repaired. This condition is particularly significant at northside columns/walls. Elevated chloride ion concentrations were found indicating water intrusion damage. After waterproofing is completed repair concrete. To slow future deterioration, consider applications of migrating corrosion inhibitor to exposed concrete. Opening in wall at southeast corner stair needs further investigation and repairs. Miscellaneous - Honeycombing from original construction should be patched; Wall at south ramp to be repaired.	

Scope of Work Summary

OPTION	Comments	
	Summary of Scope	**Pros / Cons**
Structural Repair - Building (other than Parking & Basement)	Miscellaneous Cracks to be repaired and/or sealed, as appropriate. Concrete Toppings and Waterproofing (Apparatus Room, Apparatus Room roof, all traffic areas) are significantly cracked, waterproofing has failed, evidence of leaks in several areas. Topping to be removed and replaced in coordination with structural repairs and waterproofing installations. Second Floor Window in Kitchen is not functioning properly and must be replaced. C.M.U. Wall at East End of Gym is improperly supported - provide full bearing to slab. Steel stairs, Etc. in Hose Tower are corroded - clean and paint. Several Locations of Corroded Reinforcement and Spalled Concrete need repair and to slow the progression of future deterioration provide application of a migrating corrosion inhibitor. Wide Wall Cracks Above Southern Entrance Ramp in Basement need structural repairs (wall reinforcement, waterproofing, finishes). Miscellaneous repairs and sealing is needed for cracks at various locations; repair open C.M.U. in parapet; clean and paint roof ladders; patch concrete stair at added conduits; clean, repair and paint exterior railings; remove flimsy wood planter cover and waterproof planter or provide proper cover.	Occupants in affected areas will need to be relocated during improvements.
HVAC - Chiller Replacement / Modifications	Existing chillers are obsolete, are not energy efficient and air handlers lack proper controlled fresh air supplies. Install new systems. Chiller replacement should be lieu with FPL for possible load shifting & ice storage rebates	Temporary HVAC required during replacement. New openings in exterior for fresh air. Ductwork installation disrupts occupants.

OPTION	Comments	
	Summary of Scope	Pros / Cons
HVAC - Outside Air / Returns Modifications	AHU's do not have direct, controllable, outside air connections to them. There is no control of the outside air flow into the building as many observed vent openings freely pass air directly to the ceiling (return air) plenum. This allows untreated outside air in and releases treated air out unimpeded, depending on pressurization differences. IAQ suffers and musty odors prevail. It is likely, mold growth could be found. Outside air systems should be ducted/fitted with airflow stations and directly connected only to AHUs before being allowed into building.	Occupants in affected areas will need to be relocated during improvements.
HVAC - AHU Replacement / Modifications	Main building AHU's considered beyond useful life should be replaced	Temporary HVAC required during replacement. New openings in exterior for fresh air. Ductwork installation may disrupt occupants.
HVAC - VAV Systems Replacements	VAV box systems are considered beyond useful life should be replaced	Temporary HVAC required during replacement. New openings in exterior for fresh air. Work will disrupt occupants.
HVAC - Controls	Existing HVAC systems are not monitored properly, chiller adjustments made seasonally by an outside vendor, controls are beyond useful life. Provide building EMS for Chiller / AHU / Outside Air control & monitoring. Provide new comprehensive controls for all systems.	
HVAC - EOC-IT Functions	Existing cooling in EOC-IT Room is inadequate for its critical operation. System should be replaced with dedicated engineered controllable system.	Temporary provisions must be made for EOC during construction.
Plumbing - Storm Drainage - Basement	Concrete floor slope to has minimal slope to floor drains. In addition, drainage pipes clog and fill with debris, and it is suspected that the piping slope is deficient. Add drains, replace piping.	Existing functions to be displaced during construction.

OPTION	Comments	
	Summary of Scope	**Pros / Cons**
Plumbing - Storm Drainage - Building	Replace and expand (to new roof drains) roof drainage piping from 4th floor roof down through basement and to new deep wells (see Civil notes above).	Existing occupants/functions to be displaced during construction.
Plumbing - Sanitary Sewer Piping - Basement	Basement sanitary sewer drain pipe slope problems. Pipes appear to be too close to level and tend to clog / fill with toilet waste debris. Under floor slab drain piping should be re-worked.	Existing functions to be displaced during construction.
Plumbing - Sanitary Sewer Pump System	Basement sanitary sewer sump pump system / float switch issues and they sometimes overflow. System should be be replaced.	Affects building occupancy during this construction work.
Plumbing - Domestic Water	Domestic water system has been refitted with newer booster pump system in other location. Old abandoned system should be removed.	
Life Safety - Emergency Generator Replacement	Generator in basement is located in a space that does not provide NFPA required clearances. Generator needs to be relocated to an area that provides code required clearances. Generator should also be relocated above highest anticipated ground water table elevation (out of the basement).	Temporary generator power required in interim. Disruption to occupants for necessary re-wiring.
Life Safety - Emergency Electrical System	Emergency electrical system has had a number of non-emergency circuits added to the system over the years which have not been labelled such that it is unknown what all the loads connected to the system are. All circuitry on the emergency system should be traced and non-emergency (legally required) circuits need to be removed from the emergency panels.	Disruption to building occupants.

OPTION	Comments	
	Summary of Scope	Pros / Cons
Electrical - Power	Much of the electrical system is original from when the building was built in the 1970s. Replacement parts and breakers are no longer manufactured for this equipment, any replacement of worn out or damaged parts has to be done with after-market devices which typically are not UL listed for use in this older equipment. Electrical system should be upgraded with current manufactured equipment.	Operations in the building affected during construction.
Electrical - Lighting	Building is provided with many different types of light sources, most of which are not energy efficient. Entire building requires lighting retrofit to bring building to meet Florida Energy Code.	Disruption to building occupants.
Life Safety - Fire Alarm	Existing fire alarm system is very old and does not meet all NFPA requirements. New fire alarm system is required for entire building.	Needs fire watch during installation. Disruption to building occupants during construction.
Life Safety - Fire Sprinkler	Current code compliant fire sprinkers for this use and height building should be installed. New code requires 2 separate water service feeds from different mains from different streets for fire protection pump, each with their own BFP. System currently has one.	Disruption to building occupants.
Security	A monitored master control system covering all entrance and security-sensitive doors should be installed. The current system is localized and obsolete	
Environmental - Mold	Because of the water infiltration issues of this building it is anticipated that removal of mold growth will be necessary in basement areas, first, second, third and fourth levels of the building.	Occupants in affected areas will need to be relocated during improvements.
Environmental - Asbestos	The age of the building indicates that asbestos may be present in mastic at HVAC ductwork. This material will need to be removed as part of the HVAC replacements.	Occupants in affected areas will need to be relocated during improvements.

Scope of Work Summary

OPTION	Comments	
	Summary of Scope	**Pros / Cons**
RENOVATION OPTION A - RENOVATION / RETROFIT SCOPE		
Refinish Exterior	110790 gsf / 294 parking spaces. Remove existing brick veneer and support angles; remove existing waterproofing; Stucco and paint at lower levels; install EIFS on upper levels.	**Cons -** Does not accommodate building program needs. Building perimeter walls and roof not hardened; building remains vulnerable to cracking/leaks; continued maintenance costs (cracking, painting, etc.) short life cycle solution (10 years).
Hardening - Replace Windows and Louvers	Windows leak within systems and perimeters, are not impact resistant nor energy efficient. Louvers are not impact or rain resistant and allow water and windload infiltration. Fenestration to be replaced with impact resistant systems. Louvers would need to be replaced or replaced. Those louvers which form part of the enclosure of the building would need to be replaced to meet or exceed the HVHZ requirements and have structural dampers. Other louvers can be strengthened, to avoid becoming windborne projectiles. All substandard masonry openings will require perimeter opening reinforcement.	**Pros -** increased energy performance; **Cons -** Occupants must be relocated from affected areas; requires structural improvements to supporting structures; no additional windows for occupants.
RENOVATION OPTION B - MEDITERRANEAN RENOVATION / RETROFIT SCOPE		
Building Expansion Scope	125,990 gsf / 394 parking spaces. Build an addition around building perimeter and above a portion of the existing garage. Exterior Wall hardening; added square footage, provide added windows throughout, achieve some energy savings, improved aesthetics	**Pros** - Increased employeed productivity and quality of life; energy savings; improved aesthetics; exterior perimeter hardening. **Cons** - Noise during construction. Impacts vehicular (fire and auto) drives, does not harden roof structure, limited parking garage improvements. Short life cycle to high cost.

Scope of Work Summary

OPTION	Comments	
	Summary of Scope	Pros / Cons
OPTION C - DEMOLITION & NEW CONSTRUCTION		
New Public Safety Building	125,990 g.s.f.	Fully meet programming needs in efficient space layouts. Achieve an anticipated minimum 60 year Life Cycle. Maximize energy savings. Increased employee productivity, health and quality of life. Miminize maintenance and operations costs. Aesthetics to meet City goals.
New Parking Garage	500 parking spaces	increased revenue and economic stimulus to neighboring area effected by added parking.

STONEHENGE CONSTRUCTION

Date: 11/10/14

Coral Gables Safety Building

Option A - Renovation / Retrofit

Location: 2801 Salzedo Street (Folio # 03-4117-005-5110)

Lot Area: 63,000 SF

Estimated Footprint of all Buildings (Garage / Offices / Fire Department): 59,723 SF

Estimated Gross Building Area: 100,790 SF

Estimated Parking Garage Area: 130,778 SF / 294 Cars

Estimated # of Floors incl. Basement: Varies; 5 Story Parking Garage / 4 -7 Story Office Building

Opinion of Probable Construction Costs

Project Duration:	**32 Months**
Direct Construction Costs:	**$ 13,200,000**
General Conditions:	**$ 1,188,000**
General Requirements:	**$ 1,320,000**
10% Contingency:	**$ 1,570,800**
Total Costs:	**$17,278,800**

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STONEHENGE CONSTRUCTION

Date: 11/10/14

Coral Gables Safety Building

Option B – Mediterranean Renovation / Retrofit

Location: 2801 Salzedo Street (Folio # 03-4117-005-5110)

Lot Area: 63,000 SF

Estimated Footprint of all Buildings (Garage / Offices / Fire Department): 59,723 SF

Estimated Gross Office Building Area: 100,790 SF + 25,200 SF = 125,990 SF

Estimated Parking Garage Area: 130,778 SF + 45,503 SF = 176,281 SF / 394 Cars

Estimated # of Floors incl. Basement: Varies; 7 Story Parking Garage / 4 & 5 Story Office Building

Opinion of Probable Construction Costs

Project Duration:	**38 Months**
Direct Construction Costs:	**$ 19,540,000**
General Conditions:	**$ 1,758,600**
General Requirements:	**$ 1,490,000**
10% Contingency:	**$ 2,278,860**
Total Costs:	**$25,067,460**

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STONEHENGE CONSTRUCTION

Date: 11/10/14

Coral Gables Safety Building

Option C – Demolition & New Construction

Location: 2801 Salzedo Street (Folio # 03-4117-005-5110)

Lot Area: 63,000 SF

Estimated Footprint of all Buildings (Garage / Offices / Fire Department): 59,723 SF

Estimated Gross Office Building Area: 100,790 SF + 25,200 SF = 125,990 SF

Estimated Parking Mix Use Garage Area: 250,000 SF / 500 Cars

Estimated # of Floors incl. Basement: Varies; 9 Story Mixed Use Garage (Offices) / 5 Story Office Building

Opinion of Probable Construction Costs

Project Duration:	**29 Months**
Direct Construction Costs:	**$ 22,500,000**
General Conditions:	**$ 1,125,000**
General Requirements:	**$ 1,575,000**
5% Contingency:	**$ 1,260,000**
Total Costs:	**$26,460,000**

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STONEHENGE CONSTRUCTION

Date: 11/10/14

Coral Gables Safety Building

Option B – Mediterranean Renovation / Retrofit

Location: 2801 Salzedo Street (Folio # 03-4117-005-5110)

Lot Area: 63,000 SF

Estimated Footprint of all Buildings (Garage / Offices / Fire Department): 59,723 SF

Estimated Gross Office Building Area: 100,790 SF + 25,200 SF = 125,990 SF

Estimated Parking Garage Area: 130,778 SF + 45,503 SF = 176,281 SF / 394 Cars

Estimated # of Floors incl. Basement: Varies; 7 Story Parking Garage / 4 & 5 Story Office Building

Opinion of Probable Construction Costs

Project Duration:	**38 Months**
Direct Construction Costs:	**$ 19,540,000**
General Conditions:	**$ 1,758,600**
General Requirements:	**$ 1,490,000**
10% Contingency:	**$ 2,278,860**
Total Costs:	**$25,067,460**

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