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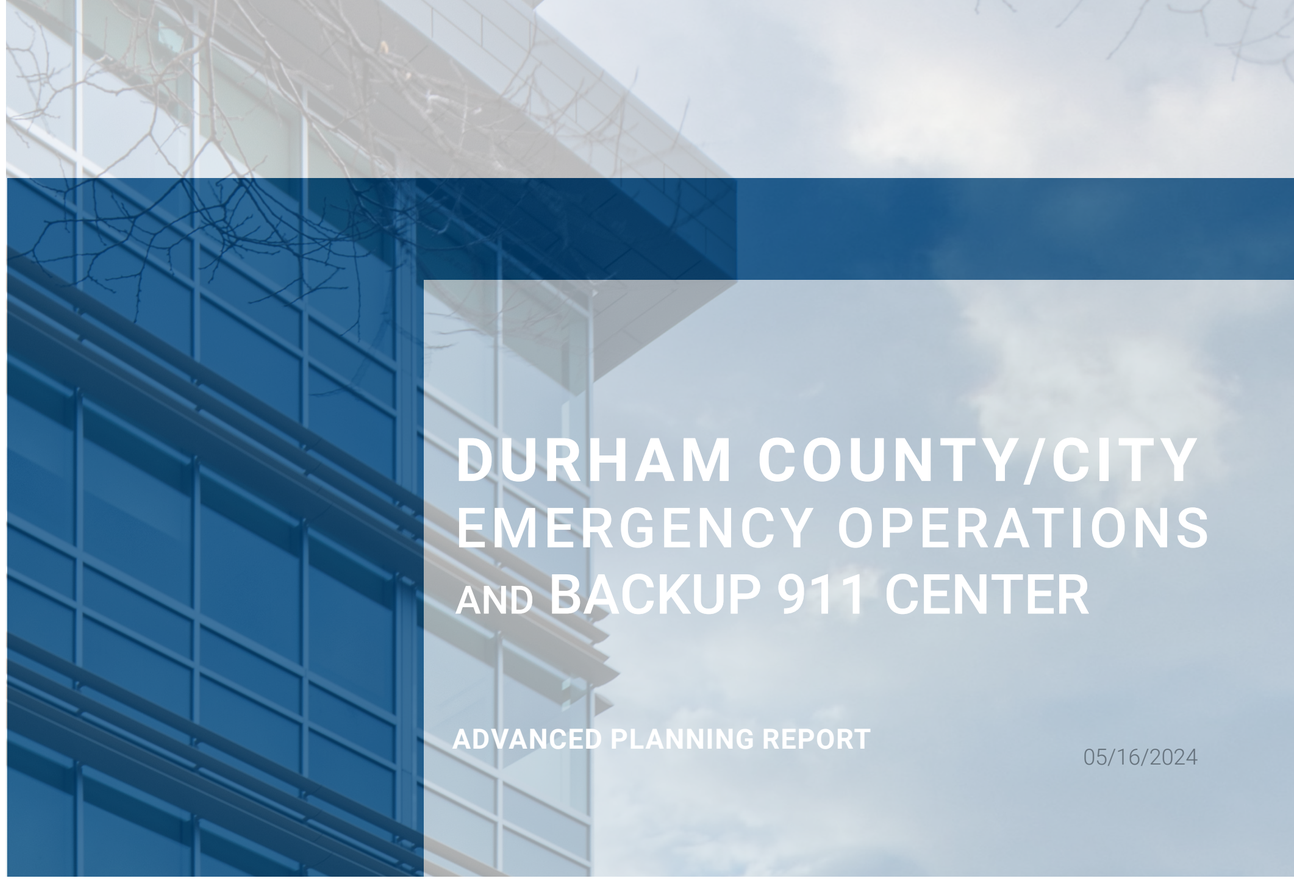

DURHAM COUNTY/CITY EMERGENCY OPERATIONS AND BACKUP 911 CENTER

ADVANCED PLANNING REPORT

05/16/2024

#2023031

TEAM MEMBERS

DURHAM COUNTY

Peri Mans
Joel Jones
Dan Nosbusch
James Faress

DURHAM COUNTY EMERGENCY MANAGEMENT

Elizabeth Schroeder

DURHAM COUNTY SHERIFF OFFICE

Sheriff Clarence Birkhead
David labarre
Vincent Ritter
Denise Pratt

CITY OF DURHAM

Henri Prosperi
Randy Beeman
Steven Carden
Tangela Walker

DESIGN TEAM

Kevin Montgomery
Jay Smith
Josh Brady
Steven Harris
Nixzali Salcedo
Kelly Wang
Paul J. Kitchens
Reade Daniel
Craig Schulz

PALACIO CONSULTING COST ESTIMATOR

Kaye Harris

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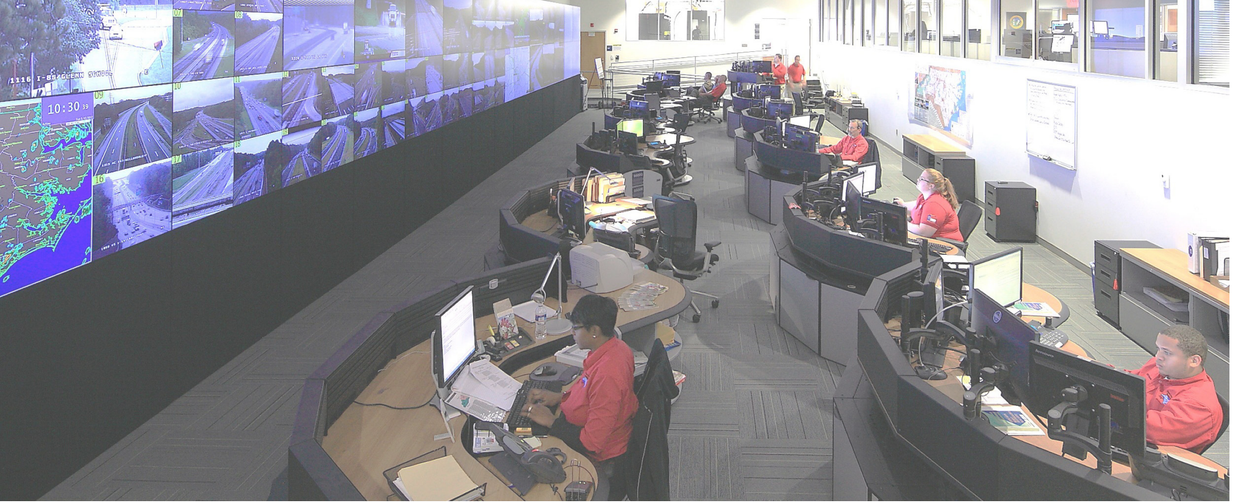
EXECUTIVE SUMMARY



OVERVIEW

The Durham County/City Emergency Operations Center (EOC) and Back-Up 911 Center is a combined facility consolidating the Durham County EOC with both the City of Durham and Durham County Sheriff's Office Back-Up 911 Centers. The OBJA design team includes Mission Critical as the telecommunications consultant along with Newcomb and Boyd design the building systems and sustainability consultant.

OBA completed a concept study in June 2021 that identified the primary project requirements. In that study it was determined the existing EOC facility should be demolished and replaced on the same site, with the Durham County Youth Home, currently under construction. In June 2022, Backup 911 for the City of Durham and Durham County Sheriffs Office were incorporated into the project.

SUSTAINABLE DESIGN

In compliance with Durham County's High Performance Building policy, the project will seek LEED Gold certification.

SITE

The facility will be placed on a compact site with just 1.5 acres of buildable area. Given the site constraints creative uses of land will need to be employed. The parking layout focused on the common daily demand, and during an activation the two-lane road moving through the site becomes one-way to accommodate parallel parking for additional vehicles. Also storm water control can incorporate underground collection devices, freeing more surface area for programmatic needs.

PROGRAM

The visioning and programming phase produced a total building size of approximately 38,500 GSF. The EOC and 911 Centers are separate within the building, each having their own dedicated support spaces such as workspaces, conference rooms, break rooms, infrastructure, and storage. The design team worked closely with each of the three entities to identify opportunities for shared program areas and other efficiencies in the overall space usage. These were spaces needed by each group, but also infrequently. This included a commercial kitchen, large dining room, multiple purpose training room, media briefing room, laundry facilities, and bunk rooms.

BUDGET

The project is estimated to cost between $49.2M to $67.6M depending on add alternates to base cost.

BUDGET SUMMARY

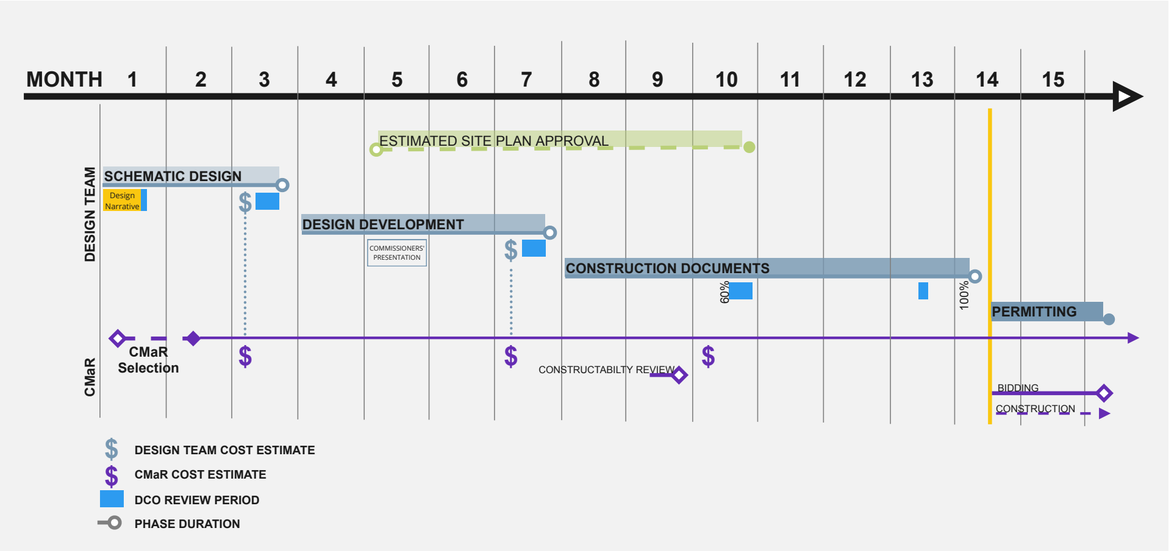
CONSTRUCTION COST SNAPSHOT				
PROJECT TYPE	**AREA**	**UNIT**	**COST/SF**	**TOTAL**
New Build	38,500	SF	$869.05	$33,458,596
Sitework	38,500	SF	$91.72	$3,531,128
TOTAL ESTIMATED CONSTRUCTION COST	**38,500**	**SF**	**$960.77**	**$36,989,724**

ALTERNATES (Includes all markups, contingencies & escalation)		
Underground stormwater device & additional asphalt paving	ADD	$630,000
Premium for LEED Platinum/Net Zero	ADD	$4,750,000
Hardened building premium (Ballistic wall panel & windows)	ADD	$3,461,000
NFPA 1225 blast resistant exterior premium	ADD	$8,456,000

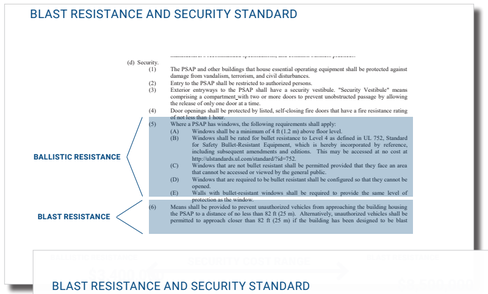
PROJECT COST RANGE
CONSTRUCTION COSTS +33% SOFT COST

$49,200,000 ⟷ **$67,600,000**

PROJECT SCHEDULE



SECURITY SUMMARY


BLAST RESISTANCE AND SECURITY STANDARD

(d) Security.

(1) The PSAP and other buildings that house essential operating equipment shall be protected against damage from vandalism, terrorism, and civil disturbances.

(2) Entry to the PSAP shall be restricted to authorized persons.

(3) Exterior entryways to the PSAP shall have a security vestibule. "Security Vestibule" means comprising a compartment, with two or more doors to prevent unobstructed passage by allowing the release of only one door at a time.

(4) Door openings shall be protected by listed, self-closing fire doors that have a fire resistance rating of not less than 1 hour.

(5) Where a PSAP has windows, the following requirements shall apply:

(A) Windows shall be a minimum of 4 ft (1.2 m) above floor level.

(B) Windows shall be rated for bullet resistance to Level 4 as defined in UL 752, Standard for Safety Bullet-Resistant Equipment, which is hereby incorporated by reference, including subsequent amendments and editions. This may be accessed at no cost at http://ulstandards.ul.com/standard/?id=752.

(C) Windows that are not bullet resistant shall be permitted provided that they face an area that cannot be accessed or viewed by the general public.

(D) Windows that are required to be bullet resistant shall be configured so that they cannot be opened.

(E) Walls with bullet-resistant windows shall be required to provide the same level of protection as the window.

(6) Means shall be provided to prevent unauthorized vehicles from approaching the building housing the PSAP to a distance of no less than 82 ft (25 m). Alternatively, unauthorized vehicles shall be permitted to approach closer than 82 ft (25 m) if the building has been designed to be blast

BALLISTIC RESISTANCE

BLAST RESISTANCE

BLAST RESISTANCE AND SECURITY STANDARD

STANDARDS

09 NCAC 06C .0402	NFPA 1225
REQUIRED FOR PSAP'S RECEIVING FUNDING FROM NORTH CAROLINA 911 BOARD OR GRANTS	**RECOMMENDED** STANDARD BASED ON RISK ASSESSMENT.

BOTH STANDARDS ADDRESS THE FOLLOWING

- HVAC
- FIRE PROTECTION
- **SECURITY**
- LIGHTING
- UNDERGROUND CABLES
- AERIAL CABLES
- WIRING INSIDE BUILDING
- CIRCUIT PROTECTION
- GROUNDING
- ACCESS

HOW TO DETERMINE WHAT IS PRUDENT

1. DO ANY OF THE FUNDING SOURCES REQUIRE COMPLIANCE?
2. DURHAM COUNTY / CITY OF DURHAM DETERMINE RISK POTENTIAL AND CRITERIA
3. DESIGN TEAM ENGAGES A SECURITY CONSULTANT TO PERFORM A RISK ASSESSMENT

BALLISTIC RESISTANCE
$3,400,000

SECURITY COST RANGE

BLAST RESISTANCE
$8,500,000

SECURITY OPTIONS

Security design for critical facilities are guided by state statute and NFPA guidelines. This facility is not required to adhere to either standard, but they do represent recommendations. Durham County has chosen a consultant to further evaluate the most prudent direction related to security design.

SUSTAINABILITY OPTIONS

OPTION 1

LEED CERTIFIED /

LEED SILVER

BASELINE (~$37,000,000)

INCLUDED SUSTAINABLE DESIGN OPTIONS:

- ASHRAE 90.1-13 Envelope
- Packaged rooftop units (refrigerant based)
- Electric instantaneous water heaters
- High efficiency water consumption fixtures

OPTION 2

SELECTED OPTION

LEED GOLD

ADDITIONAL COST: ~$3,000,000

INCLUDED SUSTAINABLE DESIGN OPTIONS:

- Enhanced envelope
- Air source variable refrigerant flow system with dedicated outside air unit for ventilation
- Reclaimed for irrigation
- Photovoltaics on 25% of the roof
- 20% of parking spaces ev installed
- Air source heat pump water heater
- High efficiency water consumption fixtures

OPTION 3

LEED PLATINUM/

NET ZERO

ADDITIONAL COST: ~$4,750,000

INCLUDED SUSTAINABLE DESIGN OPTIONS:

- Enhanced envelope
- Water source variable refrigerant flow system that utilizes geothermal wells with dedicated outside air unit for ventilation
- Reclaimed for irrigation and flushing fixtures
- Photovoltaics on 100% of roof
- 30% of parking spaces EV installed
- Water source heat pump water heater
- High efficiency water consumption fixtures

SUSTAINABILITY

The Design Team evaluated three scenarios to achieve the County's High Performance Building Policy and Renewable Energy goals at a conceptual level. These options weighed performance criteria and costs. Durham County selected Option 2 as the preferred sustainability goal.

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02

VISIONING SESSION

ASPIRATIONS + PRIORITIES

METAPHORS EXERCISE

METAPHORS EXERCISE

Describing the vision for the EOC/Backup 911 center

Participants selected 1-2 images from a larger collection that represented the goals an EOC / Backup 911 Center aim to achieve.

COLLABORATION EXERCISE

EMERGENCY MANAGEMENT	SHARED SPACES		CITY 911	SHERIFF'S 911
DEDICATED OFFICES	Breakout	Media briefing space	CALL STATIONS	CALL STATIONS
DEDICATED BREAKOUT ROOM	Kitchen	Common responsibility common areas		4 STATIONS FULL CAPACITY OF NORMAL CENTER, SUSTAINABILITY FOR LONGER EVENTS AND SUSTAINABILITY FOR LONGER EVENTS
PRIVATE/ACCESS CONTROLLED "FUSION CENTER"	Command Center	Training Spaces		
	Gym/fitness Center/ locker rooms	Meeting/Conference Rooms		
	Bathroom	Large meeting areas/ spaces for large scale events.		

COLLABORATION EXERCISE

Describing the vision for the EOC/Backup 911 center

Participants were asked to provide examples to components that should be specifically dedicated to their respective portion of the project, and one component that could be shared.

ASPIRATIONS EXERCISE

OPERATIONS	• Functionality • Operational continuity • Collaboration space • Process Oriented • Clear systems of communications • Reliable+ Redundant communication ability • Flow & General Milieu • Continuity of service • Continuity/Information Flow in fluid situations • Design a facility that provides the items needed to serve the community
FUTURE PROOFING	• Technology • Future Growth
COLLABORATIVE SPACES	• Convenience-Functionality (of having emergency operations together) • Central Break Area: An area that encompass divisions to come together
INNOVATIVE	• Advanced Technology: Redundancy incorporation of real-time situational awareness dashboard to support mini "fusion center" concept. • Improved Communication & information gathering.
STAFF WELLBEING	• Create a modern space for the organization that increases both functional ability and staff appreciation • Mental Health • Occupant Comfort
AMENITIES	• Big Kitchen w/ enough seating • Special space for mothers (pre- and post partum) • Gym (treadmill, bikes, weights) • "Like home" (feeling, sleeping, exercising, relaxing)
SUSTAINABLE DESIGN	• Have a long service life • Use resources wisely • High performance • Renewable Energy • Meeting Durham's Sustainability Goals
MAINTENANCE	• Maintainable end product • Reliable Systems
SECURITY AND SAFETY	• Resilient to/from all hazards • Resilient: appropriate safety, security and facility hardening to withstand all hazards • Robust/Safe • Secure Side vs. Public Side

ASPIRATIONAL GOALS

Identifying the objectives the project should achieve

Project aspirations asks participants what should be included so that the project can reach its goals. The design team then shared 9 categories where the participants placed each of the individual goals.

ASPIRATIONAL GOALS

Identifying the objectives the project should achieve

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03

PROGRAMMING

PROGRAM DEVELOPMENT

To develop the program, the OBA team organized a series of meetings with the staff of the different groups to understand their spatial needs and the adjacencies of such spaces.

Additionally, during those meetings, the staff identified the spaces that should be occupied exclusively by their departments, and listed building.

SUMMARY

	Personnel Total	DGSF	*2022 Program*		
Emergency Management	11	4,013	*6,052*	Reduced interns. Moved some items over to EOC program	
Emergency Operations Center		15,973	*14,292*	Net add after combination of additions and reductions	
Backup 911 Center (Combined)		10,436	*7,995*	Add Sheriff's 911 and City Adminstrative staff	
Subtotal	**-**	**30,421**	*28,339*		
Building Gross Factor (BGF)	25%	7,605	Revised GF for 2-story building from 1-story building		
Building Total (BGSF)		**38,027**	***31,400***		6,627

Note: The current program exceeds the pre-design program totals. This is driven by added scope, the addition of Sheriff's Backup 911, and an increased grossing factor for a 2-story building. The design team will continue to work with the County to reconcile the program totals, and produce test fits for key spaces to verify potential reductions.

EMERGENCY OPERATIONS CENTER PROGRAM

EOC	2040 Staff	Area Assignment	Area GSF	
EOC Ambassadors	**4**	48	**384**	Elevated platform
Operations Center (3 Branches)	**35**	25	**2,188**	Flexible tables
Workstations (Planning 3, Logistics 5, Admin 3, Joint Infc Center)	**11**	25	**688**	Flexible tables
Subtotal	**50**		**3,259**	Confirm shift change capacity
				81.475

Fusion Center	Count	Area Assignment	Area GSF	
Workstations	**4**	64	**640**	
Conference Table	**1**	360	**468**	12 people; center of space
Private Office	**1**	120	**156**	can reduce
Subtotal			**1,264**	

Support	Count	Area Assignment	Area GSF	
Health / Mother's Room	**1**	80	**104**	
Gym	**1**	300	**390**	
Locker Room	**2**	300	**780**	
Showers	**2**	100	**260**	
Bunk Room	**8**	80	**832**	Bunk beds
Laundry	**1**	120	**156**	
Entry Lobby	**1**	200	**300**	
Support Total			**2,822**	

EOC Ancillary	Count	Area Assignment	Area GSF	
Small Conference Room (4-6P)	**0**	180	**0**	30 SF/person
Medium Conference Room (10P)	**4**	300	**1,560**	
Large Conference Room (20P)	**1**	600	**780**	
Functions in Breakout Rooms				
Command Briefing	Medium Conference Rooms			
Finance	Medium Conference Rooms			
Logs Meeting	Medium Conference Rooms			
Joint Coordination Center (JCC)	Large Conference Room			
MAC Group/ Elected Officials	Large Conference Room			
Joint Information Center (JIC)	**1**	300	**600**	15P in 4-5 workstation pods; 5x4 workstations
Media Briefing Room	**1**	500	**650**	
Business Center	**1**	150	**195**	
Radio Room	**1**	100	**130**	consider outside the secure zone, off the lobby; ARES
Radio Equipment Room	**1**	100	**130**	
Call Room	**1**	200	**260**	4 consoles
IT Help Desk	**1**	150	**195**	Open desk in hallway
Phone room	**2**	50	**130**	
Small breakroom	**1**	150	**195**	
Hallway Storage	**1**	100	**130**	Embed within wall
Snack Stations	**2**	50	**130**	
EOC Storage	**1**	150	**195**	phones, laptops,
EOC Server Room	**1**	150	**195**	consider combining all server rooms
AV Control Room	**1**	150	**195**	
Kitchen	**1**	400	**520**	
EOC Dining / Training	**1**	1500	**1,950**	50 people in tables/chairs; With operable partition
Training Room Storage	**1**	375	**488**	25% of training room
Subtotal			**8,628**	

BACKUP 911 CENTER PROGRAM

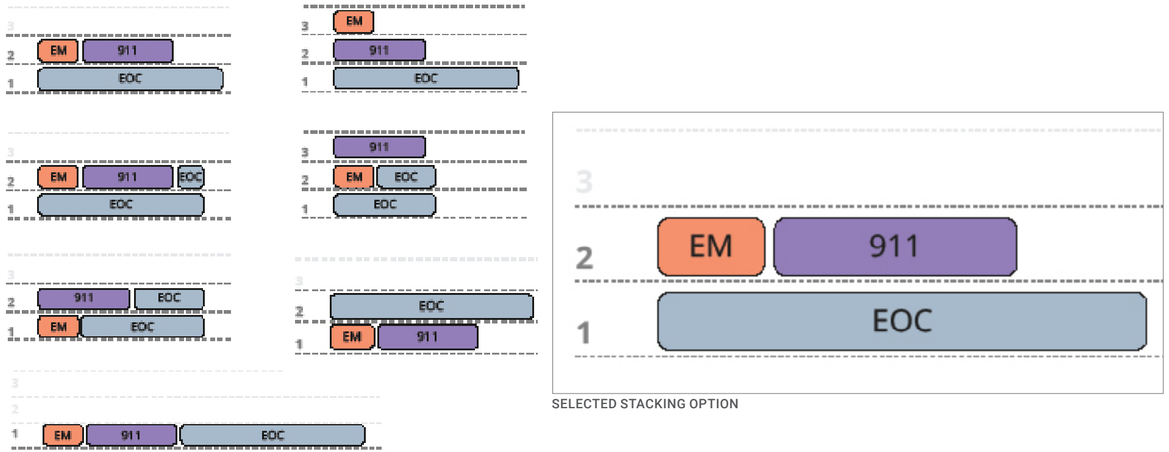
City of Durham 911		2044 Counts	Area Assignment	Area NSF	Gross Factor	Area GSF	
Consoles		**20**	100	2,000	100%	**4,000**	
Supervisors		**2**	100	200	100%	**400**	
Administrative Staff		**5**	64	320	100%	**640**	Workstations in/adjecent to 911 Center
Sheriff's Communications Division		**2044 Counts**	Area Assignment	Area NSF	Gross Factor	**Area GSF**	
Consoles		**8**	100	800	100%	**1,600**	Sheriff's annex number / 4 at current facility
Subtotal	0	**35**				**6,640**	
Backup 911 Support		**Count**	Area Assignment	Area NSF	Gross Factor	**Area GSF**	
Server Room		**2**	500	1,000	30%	**1,300**	One each City/County; 8-10 racks; 6 radio racks
Conference Room (6P)		**1**	180	180	30%	**234**	
Toilet		**2**	120	240	30%	**312**	NFPA 1225 says in the secure zone; consider shower within the room
Secured Storage		**2**	200	400	30%	**520**	One each City/County
City Activiation Storage		**1**	300	300	30%	**390**	Cardsets, materials, CAD cards CONFIRM NEED
Copy/Print		**1**	100	100	30%	**130**	
Breakroom		**1**	300	300	30%	**390**	adjacent to 911 Center;
Quiet Area		**4**	100	400	30%	**520**	wellness rooms/ Mother's room
Laundry Room							In EOC Program
Training Space							In EOC Program
Subtotal						**3,796**	
Department Total (DGSF)						**10,436**	

EMERGENCY MANAGEMENT DIVISION OFFICE PROGRAM

Staff	2022 Staff	2040 Staff	Area Assignment	Area NSF	Gross Factor	Area GSF	
Chief Office	1	**1**	260	260	30%	**338**	Includes toilet room
Deputy	1	**2**	120	240	30%	**312**	
Staff Office	3	**6**	120	720	30%	**936**	
Shared Office	0	**2**	180	360	30%	**468**	2 worksations per office; shared among 2-3 staff
Subtotal	5	**11**				**2,054**	Intern staff was removed from program

Staff Support	Count	Area Assignment	Area NSF	Gross Factor	Area GSF	
Small Conference Room (4-6P)	**1**	180	180	30%	**234**	30 SF/person
General Storage	**1**	103	103	30%	**134**	5% of staff area
File Storage	**1**	99	99	30%	**129**	9 sf/person
Overall Department Storage	**1**	375	375	30%	**488**	50% increase over current
Equipment Storage	**2**	300	600	30%	**780**	
Prevent/Preparedness Storage	**1**	150	150	30%	**195**	
Subtotal					**1,959**	
2040 Department Total (DGSF)					**4,013**	

ADJACENCIES/STACKING

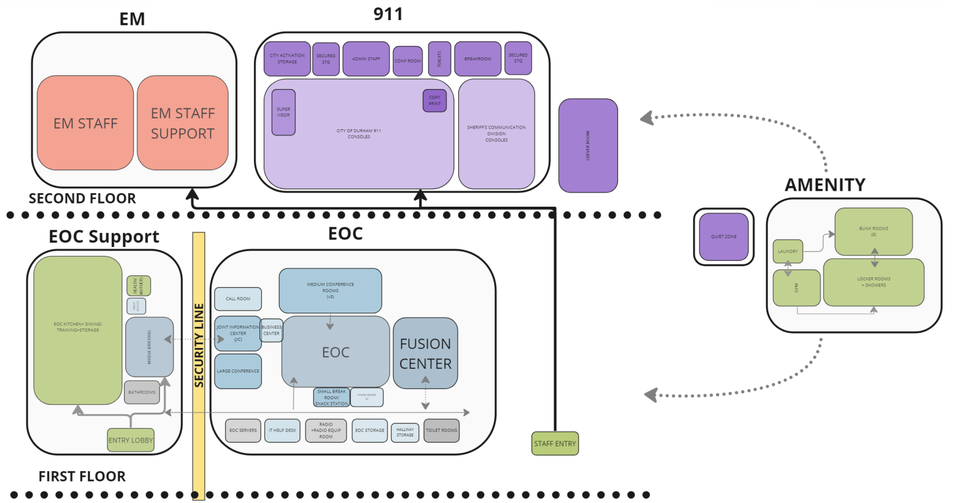


SELECTED STACKING OPTION

The team created a series of diagrams to study different ways to stack the program components. The options range from 1 to 3 levels.

The preferred scheme has 2 levels, and it locates the EOC spaces at the lower level, and emergency management and 911 backup office at the upper level.

FLOW DIAGRAMS



The design team took a step further and created a series of diagrams to study circulation/flow between the spaces in the program for each of the options presented in the adjacencies/stack studies.

The preferred scheme is shown enlarged on the right.

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04

SITE ANALYSIS

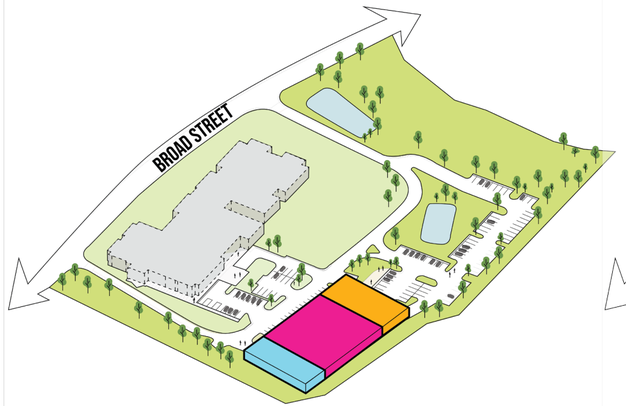
MASSING STUDIES

The design team explored different options to stack up the program, and how those option's footprints would look like on the site.

To minimize the building footprint and allow for more parking, the design team opted for option c- a two story building option.

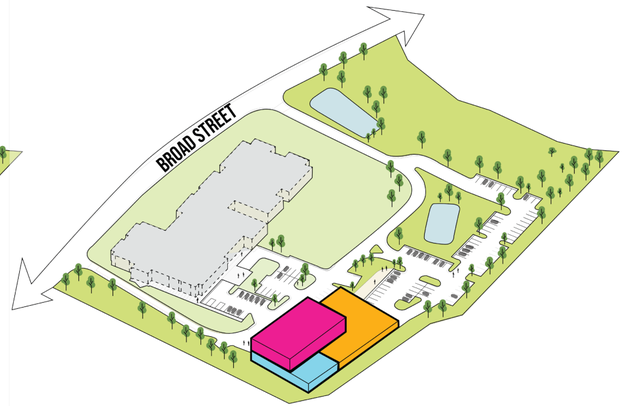
LEGEND

- 911 center
- Emergency management
- EOC



OPTION A

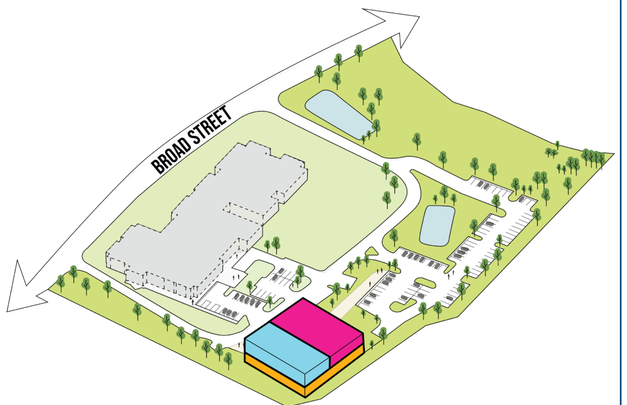
This one story option provides the opportunity to apply security options, like blast resistance to a zone of the building, however parking area is reduced.



OPTION B

This option moves the 911 center to the upper level, reducing the building footprint. However, this option represents a challenge for blast resistance and the building layout is inefficient.

CURRENT DIRECTION



OPTION C

This two story option moves the 911 center and emergency management to the upper level, reducing the building footprint and making layout more efficient. However, this option also represents a challenge for blast resistance

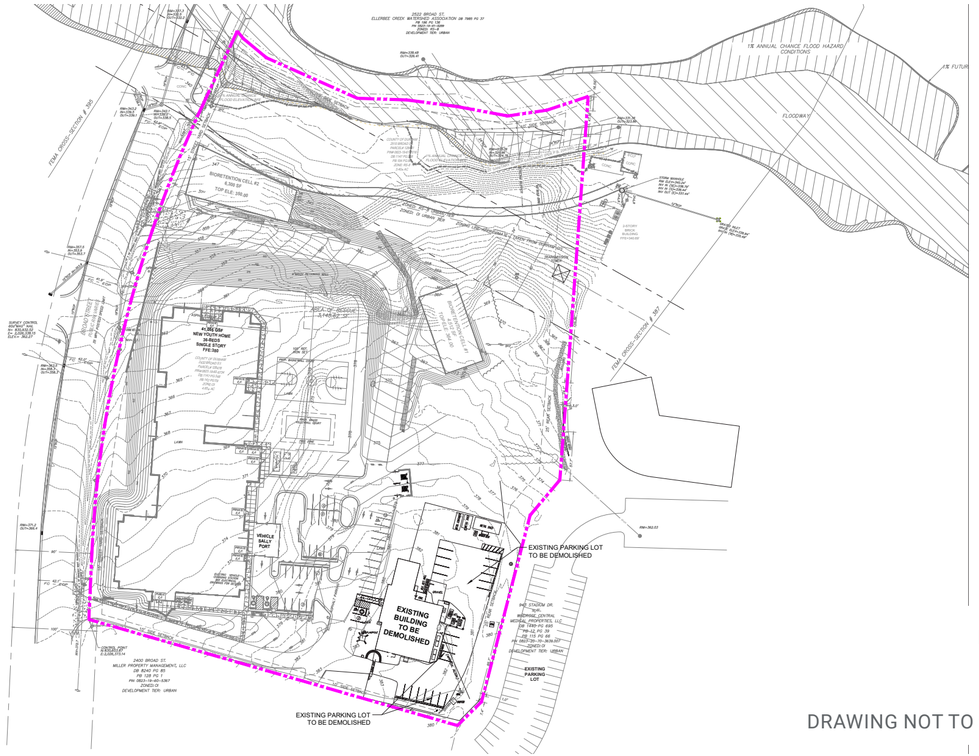
SITE ANALYSIS

AERIAL VIEW

google map aerial imagery- January 2024

SITE ANALYSIS

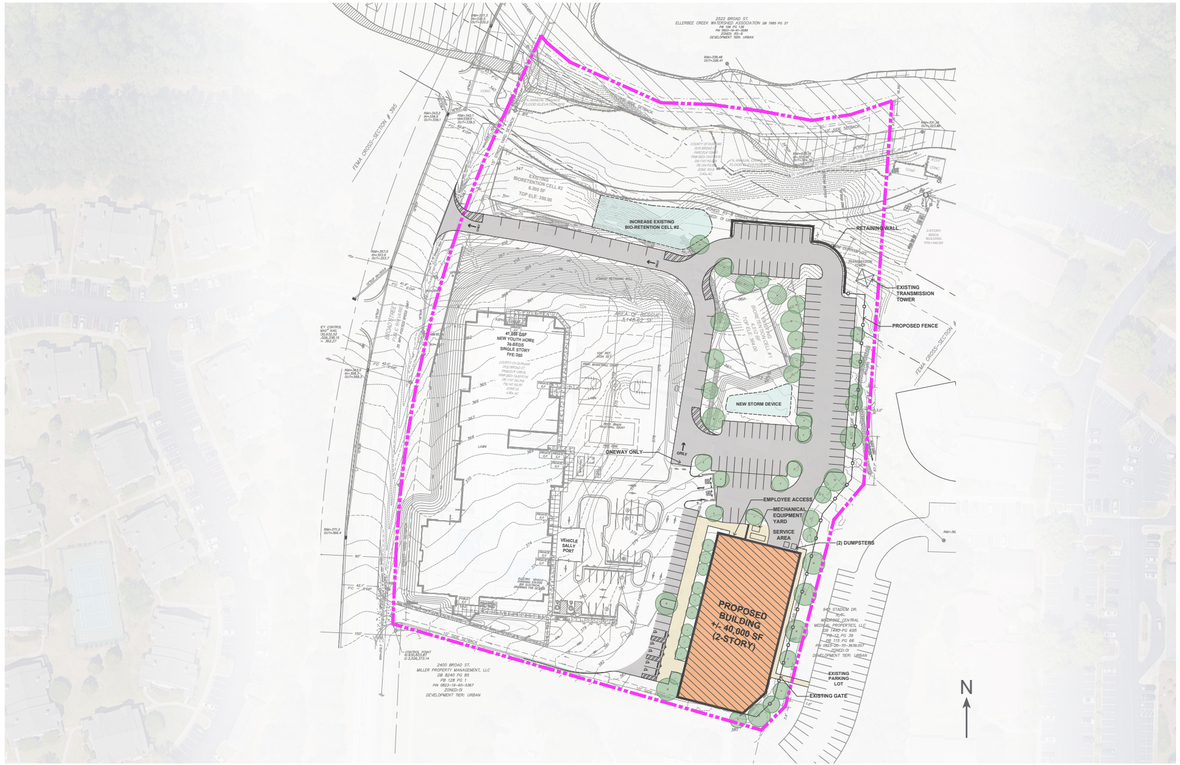
EXISTING CONDITIONS



DRAWING NOT TO SCALE

CONCEPT SITE PLAN

PRELIMINARY SITE PLAN



CONCEPT SITE PLAN

An updated UDO affected in January 2024 removed the minimum parking requirements for the site. This allows the County to provide parking based on anticipated needs. The highest demand scenario is an activation of the and the staff overlap that happens at shift change. The counts below are best on that potential. The average daily parking need and potential Backup 911 Center activation has a lower parking demand.

Parking Counts

- 15 Spaces EM Staff
- 50 Spaces EOC Activation
- 50 Spaces shift change
- 115 Spaces total

* Possibility to reduce parking further with temporary parking spaces or using the adjacent parking lot.

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05

BUILDING NARRATIVES

BUILDING NARRATIVE: ARCHITECTURAL

BUILDING CODES AND STANDARDS

- 2024 North Carolina Building Code (based on the 2021 IBC)
- 2018 North Carolina Energy Conservation Code
- 2018 ANSI A117.1

BUILDING PARAMETERS

- Area: 38,500 square feet
- Height: 2-Story, 15 feet floor-to-floor
- Construction Type: II-B.
- Occupancy Type: Business (B), Assembly (A-3)

STRUCTURAL SYSTEM

An Emergency Operations Center is considered an essential facility. Per Table 1604.5 of the NC Building Code, the structure is placed in Risk Category IV. This increases the safety factor on all design loads to ensure functionality during potential natural disasters.

EXTERIOR ENVELOPE

The exterior envelope will be constructed using a combination brick veneer wall system, metal plate wall systems, and exterior aluminum curtainwall and storefront systems.

The typical wall system layers will consist of gypsum sheathing, fluid-applied air barrier, polyisocyanurate rigid board insulation, and the exterior veneer supported on 8" CMU. Exterior walls will have an R-value of R13 + R7.5 ci. Brick veneer wall will include through-wall flashing with open weeps are installed at the base of wall, and the head of all openings. Metal wall systems will be a pressure equalized rain screen, following the manufacturers recommendations for water removal details.

Curtainwall and storefront windows will be made of extruded aluminum frames, that are thermally broken with an internal drainage system. Glazing will be 1.5" insulated with a Low-E coating and tempered. All exterior glass will be Class 4 bullet-resistant.

Approximately 60% of the exterior walls will be brick veneer, 20% curtainwall/ storefront, an 20% metal panels.

The roof system will have a minimum of R-32 ci thermal value. There are two roof systems planned for the building. One will use a single-ply PVC membrane roof on ¼" protection board, polyisocyanurate roof insulation, and gypsum roof sheathing. Sloped roof steel and tapered insulation will direct water to a roof rain system. Perimeter scuppers serve as the secondary drainage system.

The second roof type will be a standing-seam metal roof system. Water will be removed through an integrated gutter and downspout system.

Ground floor slab on grade will include 24 inches of perimeter insulation providing R7.5 ci. The slab substrate is compact soil or fill, gravel drainage fill, and a vapor barrier. The Phase II Environmental study indicated the potential need soil vapor removal system.

BUILDING INTERIOR

When activated, the new EOC will experience a high volume of people. The quality of the interior spaces will reflect Durham County's vision of creating a comprehensive facility for collaboration when coordinating emergency responses, along with being durable to maintain that quality over time.

High volume public areas should incorporate porcelain floor tile (PFT). Abuse resistant gypsum board and corner guards preserve finishes in areas of increase traffic flow. Acoustical ceiling tile systems is the primary ceiling type throughout the building, with cloud ceilings of gypsum board or other specialty materials in strategic places.

The majority of spaces will use carpet floor tile, painted gypsum walls, and ACT ceilings. A wall rating of STC-45 provides an appropriate level of acoustical separation between these spaces and an NRC-35 to control reverberation. Dining areas will use vinyl floor tile (VCT). The Kitchen area will have quarry tile flooring, FRP wall coverings, and vinyl covered gypsum ceiling tiles to resist moisture and provided easy to clean surfaces.

The EOC and 911 Centers will use carpet floor tile, painted gypsum walls, and ACT ceilings. A wall rating of STC-45 provides an appropriate level of acoustical separation between these spaces and an NRC-35 to control reverberation. These spaces will be on a 8" raised floor system.

VERTICAL CIRCULATION

The primary means of vertical circulation are stairways. A minimum of two stairs are required. These will the metal pan, concrete filled with painted steel handrails and guardrails. The thread will have rubber thread coverings. Stairs will be conveniently located in the building to encourage their use and associated with gathering spaces.

Elevators will be a machine-room-less, hole-less hydraulic, service elevator. These offer a decreased footprint within the building, and eliminates drilling a shaft for a piston. The travel speed of 125 FPM and 3500# capacity. PFT and stainless-steel wall panels are durable and maintainable finishes.

NPFA 1225 COMPLIANCE (LINE ITEM)

The building will consider compliance with NFPA 1225 and meet the definition of a blast-resistant building. This will increase the load requirements on the structural system, exterior walls, and window systems.

LEED GOLD / NET ZERO EXTERIOR ENVELOPE (LINE ITEM)

The following information applies to the enhanced building envelope beyond what is outlined above to support both the LEED Gold and Net Zero target options:

- Exterior wall: R13 +R8.5 ci
- Ground floor slab: R12 for 24" below finish floor
- Glazing: "Highly selective" Low-E coating with argon gas fill.

BUILDING NARRATIVE: CRITICAL SYSTEMS

INTRODUCTION

The Durham County Emergency Operations Center (EOC), Durham County Sheriff 911 Communications and the City of Durham 911 Communications are planning for a new facility that will involve the demolition of an existing building and the construction of a purpose-built EOC and 911 spaces. This construction will include the required data center areas to house the critical equipment, along with mechanical, electrical, fire protection, etc. The areas within this hardened facility will be designed for 24x7 staffed operations.

This narrative will identify key areas that should be considered during the initial phases of design. These specific areas within this document are considered more robust and/or more stringent than typical facilities.

Briefly, as an overview, the components of public safety answering point (PSAP) technology required for this project are:

- 911 Call-Handling Equipment (CHE)
- Computer-Aided Dispatch (CAD) server(s) and associated personal computer (PC) workstation equipment
- Logging recorder
- Master clock time server and displays (NetClock)
- Building access and control
- City / County network
- Radio tower / Antenna support structure
- Radio consoles / Backup radios
- Uninterruptible power supply (UPS)
- Generator
- Computer Room Air Conditioning (CRAC) units
- Dispatch (workstation) furniture
- Audiovisual (AV) system
- Furnishings, fixtures, and equipment (FF&E)

STRUCTURED CABLING SYSTEM (SCS)

A structured cabling system (SCS) will be utilized to provide maximum flexibility as technology evolves. The SCS design will support connections to telephones, workstations, network wireless access points (WAPs), security cameras, and other networked devices. The connectivity is based on Category 6 (CAT 6) unshielded twisted pair (UTP) cables and must include specifications for performance requirements, terminations, labeling, testing, and certification.

The public safety network infrastructure will be centralized in a data network room with 42/45U network cabinets to support both current equipment and future needs. Each rack will be lockable and include power distribution, grounding capability, and patch panel capacity.

Power-over-Ethernet (POE) data drops for access control hardware, NetClock display(s), desktop phones, and other devices will be coordinated with the County/ CIty during design.

These critical spaces, including the EOC and 911 Operations rooms will host many public safety applications, each requiring redundancy for data and power needs. Due to the critical nature of these spaces, an increased count of data cables should be considered to meet current, backup and future needs. Each of the 911 Operations dispatch furniture positions will have between 12 and 18 data drops to support the data needs.

RADIO TOWER / ANTENNA SUPPORT

Successful radio communications from the EOC/PSAP require the construction of a solidly build radio tower or facility mounted antenna support. A structure supporting necessary radio equipment will be connected via conduit to the radio cabinets in the data center. This structure will require precise positioning to minimize interference and ensure the security posture of the project. Structural integrity, lightning protection, physical security, and optimal signal transmission will be coordinated during design.

MOTOROLA R56 GROUNDING STANDARD

NFPA 1225, Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems, is the standard that specially addresses the construction of an emergency services center (ESC). NFPA 1225 Grounding section, states the grounding requirements for an ESC's sensitive electronic communications equipment. This section states the grounding of the equipment shall be to a single-point facility ground as indicated in NEC®, Article 647, Sensitive Electronic Equipment System.

Manufacturers that supply equipment to the end user may require their publication to be followed for grounding guidelines; i.e., Harris would require its grounding standard, Harris AE/LZT 123 4618/1, and Motorola, Motorola R56®. In this project, Motorola equipment is being used, thus the Motorola R56 grounding standard will be followed. It is necessary to understand several key points about grounding as it pertains to a communications center.

- A low impedance (low resistance) path to ground (earth) is the backbone of the system. Providing a path for electrical currents to flow unimpeded, in the event of a surge, is vital to discharging a dangerous surge safely away from personnel, facility and equipment.

- A single-point (one electrical path) ground system is paramount in providing a path to ground from individual pieces of equipment without a difference in electrical potential.

- Bonding (joining) of equipment in the ground system using the proper conductors ensures continuity and the capacity to conduct a surge safely to ground.

The exterior ground electrode system is the backbone of the communications site ground system.

The exterior grounding system provides a low impedance path to earth where currents and surges can be dispersed through electrodes down and away from buildings, people and equipment. A ground ring around the facility including a Class 2 LPS is the best solution for protecting the facility and dissipating unwanted electrical currents into the earth.

To fortify the grounding and bonding system, surge protection devices (SPD) need to be installed for all conductive electrical, data, telephone, radio frequency (RF), and other conductors and cabling. In most cases, SPDs are best installed using a cascading method. As an example, the alternating current (AC) electrical system, minimally, would have an SPD installed at the service entrance, on critical equipment

BUILDING NARRATIVE: CRITICAL SYSTEMS

power panels, and at the critical equipment's point-of-use.

Protecting a facility from unwanted external electrical currents is important. However interior building systems may cause their own unwanted electrical charges and transients. These include, although not limited to, electrical switching components, large motors, and electrostatic discharge.

Critical areas within the communications center need to be properly grounded to inhibit harm to personnel and equipment. Downtime in a EOC/dispatch area must be avoided always. Thus, the installation of backup systems; e.g., generator; uninterruptible power supply (UPS); heating, ventilation, and air conditioning; and a grounding system to eliminate unwanted equipment failures. An interior grounding system built to eliminate differences in electrical potential and properly drain off stray currents is paramount.

AUDIOVISUAL

A multi-source AV system with a majority of the spaces having integrated displays should be planned for this facility. The core of the system could be a matrix switch with locally programmed sources for switched distribution to attached large monitors and video walls. Local television channels, coaxial cable feed, computer input via a High-Definition Multimedia Interface (HDMI), and wireless streaming sources will all be considered to maximize content options.

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BUILDING NARRATIVE: MEP

The following concept narrative includes a base level design and (2) levels of enhancement to help achieve additional LEED points and project sustainability goals. The following narrative is based on known information during advanced planning and approximates what is required to achieve the noted LEED rating. Energy modeling and other studies informing exact impact of various sustainability strategies will be performed at later stages of design.

Base Design – LEED Certified / Silver

I. HEATING, VENTILATING, AND AIR CONDITIONING SYSTEMS

A. Outdoor design conditions are 95°F db, 78°F wb during the summer and 10°F db during the winter. The building setpoints will be 75°F db, 50% relative humidity during the summer and 70°F db during the winter.

B. Cooling will be provided by direct expansion rooftop air conditioning units.

C. Heating will be provided by electric resistance heating coils in new rooftop units, terminal units, unit heaters, and fan-coil units. All heating coils will include SCR Electric unit heaters will provide spot heating in unconditioned mechanical spaces and storage rooms.

D. Rooftop Air Conditioning Units:

1. Heating and air conditioning will be provided by a rooftop air conditioning Rooftop units will be high-efficiency packaged, factory-fabricated, variable volume draw-through type. Heating coil will be electric with SCR controls, and refrigeration will be air-cooled direct-expansion. Units will be located within a structural screen wall to protect from projectiles.

2. Zoning:
   a). Unit will be zoned and located as follows:

E. Ductwork:

1. All ductwork will be galvanized steel. Supply ductwork will be insulated and return will be a plenum style design.

II. ELECTRICAL

A. Future Provisions

1. Provide infrastructure so that a full photovoltaic system can be installed on the roof.

2. Provide infrastructure for Level 2 electric vehicle battery chargers for at least 20% of the available parking spaces.

B. Electrical Distribution System:

1. Normal power electrical service for the building will originate from a pad-mount service transformer located outside the building. Duke Energy will furnish and install the primary service conductors and service transformer. Service to the building will be 480/277 V, 3-phase, 4-wire, wye connected, grounded neutral.

2. Service equipment will consist of a 1,200 ere floor-mounted distribution Panelboard bussing will be copper, and will be braced for the available fault current. The service panelboard will be provided with a surge protective device as described herein.

3. Ground fault protection will be provided for the main and feeder breakers in both the service panelboard and the generator power system panelboard

4. All wiring will be installed in raceways. Neither type NM nor MC/AC cable will be used.

5. A green identified grounding conductor will be installed in raceways with the phase conductors.

C. Lighting:

1. Interior and exterior lighting will be LED. Exit signs will be stencil face Aluminum or recessed edge-lit type.

2. Building Lighting Controls:
   a) Automatic control devices will be provided to shut off building lighting in all spaces. Automatic control devices will be occupancy sensor type.

   b) Exterior lighting will be controlled by a combination of a photosensor and time switch.

D. Generator Power Supply System:

1. The essential power supply system will include two 300 kW diesel engine-generator sets, each with control panel, on-board paralleling and control equipment, automatic transfer switch systems, remote annunciator panel, and accessories to automatically parallel and supply power during a utility power failure. The system will assume the emergency power load within 10 seconds after a utility power loss.

   a. Engine-Generator Sets:

   1) Generators: generators will be 480/277 V, 3-phase, 4-wire, single-bearing, synchronous type, wet-wound, tropicalized with Class H insulation with permanent magnet pilot exciter.

   2) Power rating: engine-generator sets will have standby Nrating. Rating will be based on operation at rated rpm when equipped with operating accessories, including air cleaners, lubricating oil pump, fuel transfer pump, fuel injection pumps, jacket water pump, governor, alternating current generator, radiator fan, and exciter regulator.

   3) Fuel tank: fuel tank base, sized to supply power at 100% generator output for 48 hours, with adequate structural steel to support the dynamic weight of the engine-generator set and accessory equipment. Tank will be double-wall with rupture alarm and will incorporate a locking exterior fill, vent, supply/return, and level gauge. Tank and accessories will comply with UL 142-2019 and meet state and local code requirements.

   4) Enclosures: metal weatherproof exterior enclosures, complete with louvers, dampers, lockable hinged service and maintenance access doors, interior lighting and

maintenance receptacles, completely finished and painted. Maintenance platforms with steel stairs shall be included with the enclosure package to allow maintenance access.

b. Automatic transfer switches: automatic transfer switches will include a switched neutral, and pretransfer signal load control. The Priority 1 switch will contain a 2-way bypass isolation switch.

c. Uninterruptible power supply system: the UPS will be a 100 kVA continuous duty, on-line, solid state type consisting of inverter, rectifier/ battery charger, static bypass transfer switch, internal maintenance bypass switch, synchronizing circuitry, external lithium-ion battery, protective devices and accessories. The UPS will automatically maintain continuity of electric power without interruption, upon failure or deterioration of the input AC power source. The battery protection time for the UPS will be 10 minutes.

2. Emergency Power Supply System Loads:

a) The generator power electrical system will be comprised of three separate branches, the emergency branch, the Priority 1 branch, and the Priority 2 branch. The wiring of the emergency branch will be kept separate from other wiring and equipment as required by code. Loads will be connected to the emergency electrical system in compliance with NFPA 70 Article 700 and state code requirements. The Priority 1 branch will feed loads critical to the operations of the 911, EOC, and other critical operations occupancies. The Priority 2 branch will serve all other loads.

E. Surge Protective Devices:

1. Surge protective devices (SPDs) will be installed at the main and distribution panelboards, panelboards that supply exterior circuits, telephone service entrance, fire alarm control panel, and other selected equipment. In addition, other underground cabling entering the building will be provided with SPDs.

2. Devices will be internally mounted and provided with coordinated overcurrent protection.

F. A lightning protection system will be provided and will be the concealed type installed in compliance with NFPA 780 and UL lightning protection inspection certificate requirements.

G. Short-Circuit and Coordination Study:

1. A complete short-circuit and coordination study incorporating equipment furnished will be provided by the Contractor to confirm the interrupting and withstand capacities of the final equipment selection and to determine the final settings of adjustable overcurrent protection devices.

2. An arc-fault study will also be provided to identify potential fault energy levels at each switchboard, switchgear, panelboard, and motor control center, and from that study labels on that equipment will be provided describing the hazard level and required personnel protective equipment when working within the equipment.

H. Raceways, backboards and outlet boxes will be provided for structured cabling systems.

III. PLUMBING

A. Water Systems:

1. Domestic water supply will be provided from municipal sources, from 5' outside the building, with service separate from the fire protection service. The domestic water service will include utility water meter, backflow preventer, pressure reducing valve, and auxiliary building water meter. It is anticipated that the city domestic water pressure will be sufficient to serve the building, therefore a central water pressure booster system will not be required.

2. Domestic hot water will be generated using electric, instantaneous water heaters located at each fixture or fixture group. Electric, instantaneous water heaters shall be the type with thermostatic temperature control capability.

B. Drainage Systems:

1. Sanitary drain, waste, and vent systems will extend from 5' outside the building to all plumbing fixtures and equipment requiring service. Drainage and vent stacks will extend vertically through the roof, and the system will be provided with traps, vents, and cleanouts as required by code. Trap primers will be provided for drains susceptible to loss of water seal by evaporation.

2. Elevator pits will be provided with sump pumps with the discharge indirectly piped to the sanitary system.

3. Rainwater primary and secondary drainage systems will be provided for the building. Drain bodies and horizontal rainwater primary and secondary piping above grade and within heated spaces will be insulated to prevent condensation. Rainwater secondary drainage piping will be routed independent of other drainage systems and discharge above grade at an observable location. Cleanouts will be provided as required by code.

C. Plumbing Fixtures:

1. Plumbing fixtures will be high efficiency type.

2. Plumbing fixture flow and consumption rates below:

a. Water Closets: 1.28 gallons per flush.
b. Lavatories: 0.5 gallons per minute.
c. Urinals: 0.125 gallons per flush.
d. Breakroom Sinks: 1.5 gallons per minute.
e. Showers: 1.5 gallons per minute.

3. Plumbing fixtures required to be WaterSense certified:

a. Water closet flush valves.
b. Urinal flush valves.
c. Showers.

IV. FIRE ALARM

A. The fire alarm system will be a supervised, local protective signaling system employing multiplex communication and individually addressable initiating devices.

BUILDING NARRATIVE: MEP

B. Preaction sprinkler control panels, smoke detectors, heat detectors, and connections to preaction valves will be provided in the server room.

C. Wiring will be installed in metallic raceways.

D. The main fire alarm control panel will include solid state construction, plug-in modules and dead front construction. Signaling line circuits and initiating device circuits will be arranged so that the number of connected devices does not exceed 75% of circuit capacity. The fire alarm annunciator will be an LCD display with minimum 40 character capacity.

E. Alarm Initiating Devices:

1. Alarm initiating devices will include addressable manual pull stations, monitor modules, duct detectors, heat detectors, and smoke detectors. Addressable monitor modules will be provided for nonaddressable devices including sprinkler water flow switches, sprinkler pressure switches, and valve tamper switches.

2. Air sampling smoke detectors, employing laser-based sensors and a sampling pipe network, will be provided in server room.

F. Alarm signaling devices will consist of speakers and strobe lights.

G. Operation of heat detectors in the elevator equipment room and server room will disconnect electrical power to the affected area prior to sprinkler system discharge.

V. FIRE PROTECTION

A. The building will be protected throughout by a combined system of Class I wet standpipes and automatic sprinklers. A fire pump is not anticipated to be needed.

B. The server room will be protected by double-interlocked preaction sprinkler systems. The need for an additional clean agent fire protection systems for this space will be evaluated further in the schematic design phase, but should be carried as a pricing option for this phase.

C. Systems will comply with the requirements of the Owner's insurance underwriter.

D. Piping will be sized by hydraulic calculations. Mechanical rooms and storage areas will be classified Ordinary Hazard Group 1. Other areas will be classified light hazard. Hydraulic design criteria will be in accordance with NFPA 13-2019, Paragraph 11.2.3. Sprinkler spacing will not exceed 225 ft² in light hazard areas and 130 ft² in ordinary hazard areas. Heads will be quick response type.

VI. SUSTAINABILITY ENHANCEMENTS

The follow portions of the narrative are in addition to the information already provided unless otherwise noted. Provide pricing for each numbered point.

Enhancement #1 – LEED Gold

1. Provide an air source variable refrigerant flow (VRF) system in lieu of RTUs. Outdoor condenser units will be located within the utility yard. Provide a 6,000 CFM dedicated outside air unit for ventilation.

2. Utilize city reclaimed water for irrigation.

3. Provide a photovoltaic system that covers at least 25% of the available roof space.

4. Level 2 electric vehicle battery chargers will be provided for at least 20% of parking spaces.

5. Provide advanced energy metering, which includes lighting, receptacle loads, domestic water load, VRF system power consumption, pump power consumption, EV chargers, PV system output, and fan energy.

6. Provide an air source heat pump water heater in lieu of the instantaneous water heaters located at each fixture.

7. Provide infrastructure for a battery system that could be integrated into the photovoltaic system to store unused solar power for use during night hours and emergency situations.

8. Provide enhanced systems commissioning in accordance with USGBC requirements.

Enhancement # 2 – LEED Platinum / Net Zero

1. Provide a water source VRF system that utilizes geothermal in lieu of RTUs. Geothermal system will require approximately 40 wells at 400-500' deep each. Provide a 6,000 CFM dedicated outside air unit for ventilation.

2. Utilize city reclaimed water for irrigation and flushing fixtures.

3. Provide a full photovoltaic system that covers the entirety of the roof space.

4. Level 2 and level 3 "DC Fast Charging" electric vehicle battery chargers will be provided for at least 30% of parking spaces.

5. Provide advanced energy metering, which includes lighting, receptacle loads, domestic water load, VRF system power consumption, pump power consumption, EV chargers, PV system output, and fan energy.

6. Provide high SRI hardscapes and open grid pavement.

7. Provide an 8,000 CFM dedicated outside air unit in lieu of 6,000 CFM for additional ventilation and provide indoor air quality monitors.

8. Provide a water source heat pump water heater in lieu of the instantaneous water heaters located at each fixture. Water heater will be connected to the geothermal system.

9. Provide infrastructure for a battery system that could be integrated into the photovoltaic system to store unused solar power for use during night hours and emergency situations.

10. Provide enhanced system, monitoring based, and envelope commissioning in accordance with USGBC requirements.

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APPENDIX

PALACIO

GENESYS CONCEPTUAL COST MODELING TOOL

EXECUTIVE SUMMARY

Prepared For: O'Brien Atkins Associates

Project Name: Emergency Operations & 911 Backup Center

Location: Durham, NC
Estimate Date: 2/18/2024
Area: 38,500 GSF
Construction Date: 3/1/2025
Project #: 24039
Palacio Lead Contact: Michael D. Palacio, CPE
Scope: New 2-story building to include emergency operations and 911 centers, offices, conference rooms, server room, etc. and associated sitework.

CONSTRUCTION COST SNAPSHOT

PROJECT TYPE	AREA	UNIT	COST/SF	TOTAL
New Build	38,500	SF	$869.05	$33,458,596
Sitework	38,500	SF	$91.72	$3,531,128
TOTAL ESTIMATED CONSTRUCTION COST	**38,500**	**SF**	**$960.77**	**$36,989,724**

ALTERNATES (Includes all markups, contingencies & escalation)

Underground stormwater device & additional asphalt paving	ADD	$630,000
Premium for LEED Platinum/Net Zero	ADD	$4,750,000
Hardened building premium (Ballistic wall panel & windows)	ADD	$3,461,000
NFPA 1225 blast resistant exterior premium	ADD	$8,456,000

ESTIMATE ASSUMPTIONS

- Anticipated Bid Date: 4th Quarter 2024 (Add 1.5% per quarter for market escalation beyond this point)
- CM-at-risk delivery method
- CM to receive bids from at least three (3) qualified subcontractors per trade
- Most of the bidders will be from the local market (within 1 hour driving distance)
- Assumes normal working hours

PALACIO

GENESYS CONCEPTUAL COST MODELING TOOL

Name: Emergency Operations & 911 Backup Center
Location: Durham, NC
Date: 2/18/2024
Area: 38,500 GSF
Construction Date: 3/1/2025

ESTIMATE SUMMARY					12.4 MONTHS
DESCRIPTION		AREA	UNIT	COST	TOTAL
1000	GENERAL TRADES & FINAL CLEANING	38,500	SF	6.00	$231,000
2000	BUILDING & SITE DEMOLITION	38,500	SF	3.48	$134,037
2400	DEEP FOUNDATIONS	38,500	SF	0.00	$0
3000	CAST IN PLACE CONCRETE	38,500	SF	15.72	$605,349
3400	PRECAST CONCRETE	38,500	SF	0.00	$0
4000	MASONRY	38,500	SF	38.90	$1,497,463
5000	STRUCTURAL & MISCELLANEOUS STEEL	38,500	SF	56.00	$2,155,930
6100	ROUGH CARPENTRY	38,500	SF	2.50	$96,250
6400	CABINETRY & CASEWORK	38,500	SF	2.04	$78,614
7100	WATERPROOFING & SEALANTS	38,500	SF	5.28	$203,132
7400	METAL/CEMENT WALL PANELS & INSULATION	38,500	SF	15.37	$591,557
7500	ROOFING & ACCESSORIES	38,500	SF	15.00	$577,500
7800	FIREPROOFING	38,500	SF	3.50	$134,750
8100	PASSAGE DOOR ASSEMBLIES	38,500	SF	10.93	$420,900
8300	SERVICE DOORS	38,500	SF	0.00	$0
8800	GLASS ASSEMBLIES	38,500	SF	17.37	$668,916
9200	DRYWALL ASSEMBLIES & STUCCO	38,500	SF	28.46	$1,095,615
9300	HARD TILE	38,500	SF	3.60	$138,750
9500	ACOUSTICAL CEILINGS & WALL PANELS	38,500	SF	13.60	$523,463
9600	RESILIENT FLOORING & CARPET	38,500	SF	5.58	$214,898
9900	PAINTING & WALL COVERING	38,500	SF	3.85	$148,225
10000	SPECIALTIES	38,500	SF	17.21	$662,726
11000	EQUIPMENT	38,500	SF	5.16	$198,683
12000	FURNISHINGS	38,500	SF	2.59	$99,578
13000	SPECIAL CONSTRUCTION	38,500	SF	0.00	$0
14000	ELEVATORS AND ESCALATORS	38,500	SF	6.75	$260,000
21000	FIRE PROTECTION SYSTEMS	38,500	SF	11.13	$428,573
22000	PLUMBING	38,500	SF	18.90	$727,509
23000	HVAC	38,500	SF	127.87	$4,922,975
26000	ELECTRICAL DISTRIBUTION	38,500	SF	110.87	$4,268,635
26500	LIGHTING	38,500	SF	20.90	$804,835
27000	COMMUNICATIONS	38,500	SF	9.74	$375,000
28000	ELECTRONIC SAFETY & SECURITY	38,500	SF	18.48	$711,625
31000	EARTHWORK	38,500	SF	9.24	$355,760
32000	EXTERIOR IMPROVEMENTS	38,500	SF	25.16	$968,818
32900	LANDSCAPING AND IRRIGATION	38,500	SF	7.56	$291,156
33000	SITE UTILITES	38,500	SF	21.02	$809,142
	SUBTOTAL				**$25,401,362**
	GC/CM GENERAL CONDITIONS AS %		7%		$1,778,095
	SUBCONTRACTOR BONDS OR DEFAULT INSURANCE AS %		1%		$271,795
	CM BOND & INSURANCE AS %		3%		$823,538
	CONTRACTOR FEE AS %		4%		$1,130,992
	DESIGN/ESTIMATING CONTINGENCY AS %		15%		$4,410,867
	CM CONTINGENCY AS %		3%		$1,014,499
	SUBTOTAL (CURRENT DOLLARS)				**$34,831,147**
					$904.71
Escalation to Start of Construction - Add 1.5% per quarter beyond this point					
2/18/24	to 3/1/25 6.2%				$2,158,577
	TOTAL ESTIMATED CONSTRUCTION COST				**$36,989,724**
	Cost per SF				**$960.77**

COST ESTIMATE

3/20/2024 3

PALACIO

GENESYS CONCEPTUAL COST MODELING TOOL

Name: Emergency Operations & 911 Backup Center

Location: Durham, NC | Date: 2/18/2024

GSF: 38,500 | Construction Date: 3/1/2025

Cost per SF: $960.77 | Construction Cost: $36,989,724

PROGRAM/AREA CALCULATION				H=High Partition/Door Density, M=Medium, L=Low
Restroom/Janitor	H	1,200	NSF	
Conference/Meeting Room	H	3,276	NSF	
Media Briefing Room	H	650	NSF	
Storage/File Rooms	H	3,449	NSF	
Work/Copy/Mail Room	H	325	NSF	
Break Room	H	715	NSF	
A/V Control Room	H	195	NSF	
Laundry Room	H	156	NSF	
Office	H	2,461	NSF	
Executive Office	H	650	NSF	
Office, Other	H	0	NSF	
Open Office	M	3,296	NSF	
Lab, Dry	M	0	NSF	
Lab, Chemistry	M	0	NSF	
Lab, Biology	M	0	NSF	
Lab, A&P	M	0	NSF	
Lab, Other	M	0	NSF	
Vivarium	M	0	NSF	
Lab Prep, Dry	M	0	NSF	
Lab Prep, Wet	M	0	NSF	
Bunk Room	M	832	NSF	
Server Room	M	1,495	NSF	
Computer Lab	M	0	NSF	
Tiered Classroom/Educational Auditorium	L	0	NSF	
Auditorium (Performance)	L	0	NSF	
Emergency Operations Center	L	2,188	NSF	
911 Center	L	5,600	NSF	
Student Lounge/Collaboration Space	L	0	NSF	
Lobby/Reception/Vestibules	L	300	NSF	
Secondary/Elevator Lobby	L	0	NSF	
Kitchen	L	520	NSF	
Servery Area	L	0	NSF	
Dining/Seating Area	L	1,950	NSF	
Retail Area (Book Store)	L	0	NSF	
Inventory/Receiving (Book Store)	L	0	NSF	
Library, Stacks/Reference	L	0	NSF	
Library, Circulation/Reading	L	0	NSF	
Gymnasium	L	390	NSF	
Locker Room	L	780	NSF	
Maintenance/Storage	L	0	NSF	
Other	L	0	NSF	
Other	L	0	NSF	
Total Building Net Area		30,428	NSF	
Circulation/Support Area				
Grossing Factor (by %):	27%	8,072	NSF	
Mechanical Penthouse		0	GSF	
Shell Space		0	GSF	

COST ESTIMATE

3/20/2024 4

TOTAL BUILDING GROSS AREA	38,500	GSF					

COST ESTIMATE

3/20/2024 5

PALACIO GENESYS

Name: Emergency Operations & 911 Backup Center
Location: Durham, NC | Date: 2/18/2024
GSF: 38,500 | Construction Date: 3/1/2025
Cost per SF: $960.77 | Construction Cost: $36,989,724

BUILDING SPECIFICS									
Gross Building Area		38,500	GSF						
Project Type		New-Build							
Basement Area		0	SF	50%	Daylight	Basement Type			
Basement Perimeter		0	LF	% Ratio					
Penthouse Area		0	SF	Penthouse Ext Wall Ht:		20	FT		
Penthouse Perimeter		0	LF						
Roof Area		19,250	HSF	Average Roof Overhang		0	FT		
# of Floors (Attic/P'house/B'ment not included)		2	EACH						
Average Floor Level Perimeter		710	LF	3.6%	Perimeter to	2.9%	3.4%	3.9%	
				% Ratio	Area Ratio	Square	Rectangle	Bar/L-Shape	
Average Floor to Floor Height		15.0	FT			1:1	3:1	5:1	
Sustainable Design Level		LEED Gold							
Delivery Method		CM-at-Risk							

ISOLATED BUILDING SYSTEMS							
STRUCTURAL SYSTEM							
Podium Floor Structure	Concrete	0	SF				
Floor Structure	Steel	19,250	SF				
Attic/Penthouse Floor Structure	Steel	0	SF				
Roof Structure	Steel/Joist	19,250	SF				
Pre-Engineered Bldg (% of Total Roof Area)	0%	0	SF			20	' Eave Height
Sloped Interior Balcony Structure		0	SF			Assumes Cantilevered Structure	
Exterior Balcony or Other Structure	Steel	0	SF				
Reinforce Existing Str (Repurpose)	No Work	0	SF			Steel	
EXTERIOR WALL							
Wall Assemblies							
Structural Precast Concrete	0%	0	SF			100%	
12" CMU Back-Up	100%	25,226	SF			Total	
Wood Stud Framing	0%	0	SF				
Metal Wall Framing	0%	0	SF				
Wall Cladding							
Precast Concrete Wall Panel, 4"	0%	0	SF				
Cast Stone Wall Panel, 4"	0%	0	SF				
Brick Veneer w/Rigid Insulation	65%	16,397	SF				
Stone Veneer w/Rigid Insulation	0%	0	SF			100%	
Synthetic Stone Veneer w/Rigid Insulation	0%	0	SF			Total	
Metal Wall Panel w/Insulation, PEMB	0%	0	SF				
Metal Wall Panel, Utilitarian	0%	0	SF				
Metal Panel	0%	0	SF				
Composite Metal Panel	35%	8,829	SF				
Fiber Cement Wall Panel (Equitone)	0%	0	SF				
Cementitious Wall Panel (Nichiha)	0%	0	SF				
Cement Board Wall Siding (Hardie or Similar)	0%	0	SF				
Stucco	0%	0	SF				
Penthouse Wall Cladding (Metal Panel)	0%	0	SF				
Soffit & Fascia w/Framing	Metal Panel	0	SF				
Demo Along Addition/Existing Bldg (Addition Bldg Type Only)				0.00	0	0	0
INTERIOR PARTITIONS							
Partitions						SF of Partition to Room NSF Ratio	
Room Type (High Density)		30,824	SF			2.36	SF of Part'n per Plan SF
Room Type (Medium Density)		9,037	SF			1.61	
Room Type (Low Density)		12,566	SF			1.07	
Grossing Area		7,351	SF			0.91	
Drywall Partitions w/Sound Batts	60%	35,867	SF			100%	
Rated Drywall Partitions w/Sound Batts	30%	17,933	SF			Total	
CMU Partitions	10%	5,978	SF				

COST ESTIMATE

3/20/2024 6

PALACIO GENESYS

Name: Emergency Operations & 911 Backup Center
Location: Durham, NC | Date: 2/18/2024
GSF: 38,500 | Construction Date: 3/1/2025
Cost per SF: $960.77 | Construction Cost: $36,989,724

BUILDING DETAIL BY DIVISION

DESCRIPTION		QTY	UNIT	PRICE	TOTAL	
1000 GENERAL TRADES & FINAL CLEANING						
General Trades		38,500	SF	5.00	192,500	
Final Cleaning		38,500	SF	1.00	38,500	
				TOTAL GENERAL TRADES & FINAL CLEANING	$231,000	
2000 BUILDING & SITE DEMOLITION						
Building Demolition		6,000	SF	15.00	90,000	
Selective Interior Demolition		0	SF	0.00	0	
Comprehensive Interior Demolition/Gut		0	SF	0.00	0	
Hazardous Abatement Allowance	Medium	0	SF	7.50	0	
Remove Exterior Wall/Cladding		0	SF	0.00	0	
Remove Exterior Windows		0	SF	0.00	0	
Remove Roofing		0	SF	0.00	0	
Site Demolition-Asphalt		29,358	SF	1.50	44,037	
Site Demolition-Concrete Paving/Sidewalk		0	SF	0.00	0	
Site Utility Demolition		0	LF	0.00	0	
				TOTAL BUILDING & SITE DEMOLITION	$134,037	
2400 DEEP FOUNDATIONS						
Deep Foundations Premium	0%	0	SF	0.00	0	Pile & Cap / Deep Foundation Type
				TOTAL DEEP FOUNDATIONS	$0	
3000 CAST IN PLACE CONCRETE						
Slab on Grade		19,250	SF	11.00	211,750	
Elevator Pit		2	EACH	15,000.00	30,000	
Foundation System						
Spread Footings		19,250	SF	10.01	192,694	
Basement Construction						
Foundation Wall		0	SF	0.00	0	
Excavation (Dirt)		0	CY	0.00	0	
Slab on Floor Deck		19,250	SF	8.50	163,625	
Concrete Topping Floor Slab		0	SF	0.00	0	Hollow Core & Mass Timber Str
Concrete Podium Floor Structure		0	SF	0.00	0	
Concrete Floor Structure		0	SF	0.00	0	
Concrete Attic/Penthouse Floor Structure		0	SF	0.00	0	
Concrete Sloped Balcony Structure		0	SF	0.00	0	Assumes Cantilevered Structure
Concrete Roof Structure		0	SF	0.00	0	
Concrete Exterior Balcony or Other Structure		0	SF	0.00	0	
Concrete Stair & Landing Pan Fill		3	FLT	2,600.00	7,280	
Reinforce Existing Str (Repurpose)		0	SF	0.00	0	
				TOTAL CAST IN PLACE CONCRETE	$605,349	
3400 PRECAST CONCRETE						
Hollow Core Plank Podium Floor Structure		0	SF	0.00	0	
Hollow Core Plank Floor Structure		0	SF	0.00	0	
Hollow Core Plank Attic/Penthouse Floor Structure		0	SF	0.00	0	
Hollow Core Roof Structure		0	SF	0.00	0	
Structural Precast Concrete Wall Panel		0	SF	0.00	0	
Precast Concrete Wall Panel, 4"		0	SF	0.00	0	
Cast Stone Wall Panel, 4"		0	SF	0.00	0	
				TOTAL PRECAST CONCRETE	$0	

PALACIO

GENESYS CONCEPTION. COST MODELING. XXX

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4000 MASONRY						
Brick Veneer w/Rigid Insulation		16,397	SF	38.00	623,090	
Stone Veneer w/Rigid Insulation		0	SF	0.00	0	
Synthetic Stone Veneer w/Rigid Insulation		0	SF	0.00	0	
8" CMU Back-Up	0%	0	SF	0.00	0	
12" CMU Back-Up	100%	25,226	SF	28.50	718,950	
CMU Partitions	0%	0	SF	0.00	0	
CMU Partitions, Rated	100%	5,978	SF	26.00	155,424	
				TOTAL MASONRY	$1,497,463	

5000 STRUCTURAL & MISCELLANEOUS STEEL						
Structural Steel Podium Structure		0	SF	0.00	0	Includes Metal Floor Deck
Structural Steel Floor Structure		19,250	SF	61.00	1,174,250	Includes Metal Floor Deck
Structural Steel Attic/Penthouse Floor Structure		0	SF	0.00	0	Includes Metal Floor Deck
Structural Steel Roof Structure		0	SF	0.00	0	Includes Metal Roof Deck
Structural Steel/Joist Roof Structure		19,250	SF	48.00	924,000	Includes Metal Roof Deck & Bridging
Long Span Joist Premium	0%	0	SF	0.00	0	
Steel Sloped Balcony Structure		0	SF	0.00	0	Assumes Cantilevered Structure
Steel Exterior Balcony or Other Structure		0	SF	0.00	0	
Green Roof/Roof Terrace Structure Premium		0	SF	0.00	0	
Prefabricated Metal Roof Truss		0	SF	0.00	0	Includes Metal Roof Deck
Tiered Floor Structure (Tiered Classroom & Auditorium)		0	SF	0.00	0	Includes Handrailing
Exit Stairs & Railings (At Basement & Penthouse)		0	FLT	0.00	0	
Upgraded Exit Stairs & Railings		3	FLT	20,600.00	57,680	
Replace Exit Stairs & Railings (Repurpose)		0	FLT	0.00	0	
Monumental Stairs & Railings		0	FLT	0.00	0	
Upgraded Railing at Overlook		0	LF	0.00	0	
Exterior Guard Railing (Roof Terrace, Balcony, Etc)		0	LF	0.00	0	
Reinforce Existing Str (Repurpose)		0	SF	0.00	0	
				TOTAL STRUCTURAL & MISCELLANEOUS STEEL	$2,155,930	

6100 ROUGH CARPENTRY					
Miscellaneous Wood Blocking & Nailers		38,500	SF	2.50	96,250
Wood Stud Wall Framing, 2x6		0	SF	0.00	0
Wood Floor Joists w/Plywood Subfloor (Podium)		0	SF	0.00	0
Wood Floor Joists w/Plywood Subfloor		0	SF	0.00	0
Wood Roof Framing w/Plywood Deck		0	SF	0.00	0
Wood Exterior Balcony or Other Structure		0	SF	0.00	0
Mass Timber Podium Floor Structure		0	SF	0.00	0
Mass Timber Floor Structure		0	SF	0.00	0
Mass Timber Attic/Penthouse Floor Structure		0	SF	0.00	0
Mass Timber Roof Structure		0	SF	0.00	0
Mass Timber Exterior Balcony or Other Structure		0	SF	0.00	0
Reinforce Existing Str (Repurpose)		0	SF	0.00	0
				TOTAL ROUGH CARPENTRY	$96,250

6400 CABINETRY & CASEWORK					
Restrooms		1	LS	12,000.00	12,000
Work/Copy/Mail Rooms		1	LS	22,750.00	22,750
Break Rooms		1	LS	18,768.75	18,769
Other Millwork		1	LS	14,795.00	14,795
Miscellaneous Millwork Allowance		1	LS	10,300.00	10,300
				TOTAL CABINETRY & CASEWORK	$78,614

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7100 WATERPROOFING & SEALANTS					
Foundation Wall Waterproofing & Drainage Mat	0	SF	0.00	0	
Weather Barrier	25,226	SF	5.00	126,132	
Caulking & Sealants	38,500	SF	2.00	77,000	
			TOTAL WATERPROOFING & SEALANTS	$203,132	

7400 METAL/CEMENT WALL PANELS & INSULATION						
Metal Wall Panel w/Insulation, PEMB	0	SF	0.00	0	Included with PEMB (Div 13000)	
Metal Wall Panel, Utilitarian	0	SF	0.00	0		
Metal Panel	0	SF	0.00	0		
Composite Metal Panel	8,829	SF	55.00	485,606		
Fiber Cement Wall Panel (Equitone)	0	SF	0.00	0		
Cementitious Wall Panel (Nichiha)	0	SF	0.00	0		
Cement Board Wall Siding (Hardie or Similar)	0	SF	0.00	0		
Subframing	8,829	SF	7.50	66,219		
Metal Panel Soffit & Fascia w/Framing	0	SF	0.00	0		
Rigid Wall Insulation	8,829	SF	4.50	39,731		
Batt Wall Insulation	0	SF	0.00	0		
Batt Floor Insulation/Separation (Podium)	0	SF	0.00	0		
			TOTAL METAL/CEMENT WALL PANELS & INSULATION	$591,557		

7500 ROOFING & ACCESSORIES								
Flat Membrane Roof w/Tapered Insulation	100%	19,250	SF	30.00	577,500			
Metal Roof w/Rigid Laminated Insulation	0%	0	SF	32.25	0	Roof Pitch:	3	:12
Asphalt Shingles w/Rigid Laminated Insulation	0%	0	SF	13.25	0	Roof Pitch:	6	:12
Pre-Engineered Building Metal Roof w/Insul	0%	0	SF	0.00	0	Included with PEMB (Div 13000)		
Gutters (Prefin Metal)		0	LF	0.00	0			
Downspouts		0	LF	0.00	0			
Green Roof Premium (Shallow)		0	SF	0.00	0			
Green Roof/Roof Terrace Premium		0	SF	0.00	0			
Skylights		0	SF	0.00	0			
Roof Monitors		0	SF	0	0	Monitor Ht:	5	FT
				TOTAL ROOFING & ACCESSORIES	$577,500			

7800 FIREPROOFING					
Spray Fireproofing at Steel Structure	Y	38,500	SF	3.50	134,750
Intumescent Fireproofing		0	SF	0.00	0
				TOTAL FIREPROOFING	$134,750

8100 PASSAGE DOOR ASSEMBLIES							
Exterior Doors		9	EACH	4,000.00	36,000		
Interior Doors						Door per Room NSF Ratio	
Room Type (High Density)		88	EACH	3,000.00	264,000	150	SF of Part'n per Plan SF
Room Type (Medium Density)		15	EACH	3,000.00	45,000	400	
Room Type (Low Density)		16	EACH	3,000.00	48,000	750	
Grossing Area		9	EACH	3,100.00	27,900	1000	
Special Door		0	EACH	0.00	0		
				TOTAL PASSAGE DOOR ASSEMBLIES	$420,900		

8300 SERVICE DOORS					
Overhead Door (10x10)	0	EACH	0.00	0	
Overhead Door, High Speed (10x10)	0	EACH	0.00	0	
Hangar Door	0	SF	0.00	0	
			TOTAL SERVICE DOORS	$0	

COST ESTIMATE

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8800 GLASS ASSEMBLIES								
Curtainwall	5%	1,328	SF	125.00	165,963	Total Glazing by % of Exterior Wall		
Upgraded Curtainwall	0%	0	SF	0.00	0	Low	Medium	High
Storefront/Aluminum Windows	15%	3,983	SF	85.00	338,564	20% to 35%	35% to 45%	+45%
Upgraded/Historic Windows	0%	0	SF	0.00	0			
Skylight		0	SF	0.00	0			
Roof Monitor		0	SF	0	0	Monitor Ht:	5	FT
Interior Storefront & Sidelites	5%	2,989	SF	55.00	164,390	Low: 2%	Med: 5%	High: +8%
				TOTAL GLASS ASSEMBLIES	$668,916			

9200 DRYWALL ASSEMBLIES & STUCCO						
Stucco Wall		0	SF	0.00	0	
Stucco Soffit & Fascia w/Framing		0	SF	0.00	0	
Exterior Wall Framing, 6"		0	SF	0.00	0	
Sheathing, Densglass		0	SF	0.00	0	
Drywall Layer on Wall Framing (Exterior Wall)		0	SF	0.00	0	
Drywall on Framing at CMU/Precast (Ext Wall)	Y	25,226	SF	5.00	126,132	
Drywall Partitions w/Sound Batts		35,867	SF	16.00	573,872	Includes impact gyp & upgraded SAB
Rated Drywall Partitions w/Sound Batts		17,933	SF	17.50	313,836	Includes impact gyp & upgraded SAB
Suspended Drywall Ceiling		1,200	SF	12.00	14,400	
Drywall Ceiling Attached to Wood Structure		0	SF	0.00	0	
Drywall Soffits & Bulkheads	10%	3,850	SF	17.50	67,375	
				TOTAL DRYWALL ASSEMBLIES & STUCCO	$1,095,615	

9300 HARD TILE					
Floor Tile w/Base		2,500	SF	18.00	45,000
Upgraded Floor Tile w/Base		2,250	SF	25.00	56,250
Terrazzo w/Base		0	SF	0.00	0
Wall Tile		1	LS	37,500.00	37,500
				TOTAL HARD TILE	$138,750

9500 ACOUSTIC CEILINGS & WALL PANELS					
ACT Ceiling, 2x2		25,962	SF	7.50	194,715
Upgraded ACT Ceilings		11,038	SF	20.00	220,760
Specialty Ceilings, Metal or Wood		300	SF	55.00	16,500
Acoustic Wall Panel/General Upgraded Wall Finish		1	LS	36,400.00	36,400
Specialty Wall Panel, Metal or Wood		1	LS	7,500.00	7,500
Special/Upgraded Ceiling & Wall Finish Allow	10%	1	LS	47,587.50	47,588
				TOTAL ACOUSTIC CEILINGS & WALL PANELS	$523,463

9600 RESILIENT FLOORING & CARPET					
Carpet Tile or VCT w/Rubber Base		32,294	SF	5.50	177,617
LVT or Stained/Sealed Concrete w/Rubber Base		1,066	SF	7.50	7,995
Wood/Athletic Floor w/Wood Base		390	SF	25.00	9,750
Epoxy Flooring w/Integral Base		0	SF	0.00	0
Sealed Concrete w/Rubber Base		0	SF	0.00	0
Special/Upgraded Flooring Allowance	10%	1	LS	19,536.20	19,536
				TOTAL RESILIENT FLOORING & CARPET	$214,898

PALACIO

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9900 PAINTING & WALL COVERING					
Exterior Paint-Siding		0	SF	0.00	0
Interior Paint-Walls, Doors, Drywall Ceilings, Etc		38,500	PSF	3.50	134,750
Interior Paint-Epoxy at Walls		0	SF	0.00	0
Interior Paint-Epoxy at Ceilings		0	SF	0.00	0
Interior Paint-Structure		0	SF	0.00	0
Special/Upgraded Wall Finish Allowance	10%	1	LS	13,475.00	13,475
				TOTAL PAINTING & WALL COVERING	$148,225

10000 SPECIALTIES						
Sunscreens, Horizontal	0%	0	SF	0.00	0	% of Glazing Protected by Sunscreen
Sunscreens, Vertical	0%	0	SF	0.00	0	% of Glazing Protected by Sunscreen
Entry Canopy/Covered Walkway		0	SF	0.00	0	
Mechanical Roof Screen Wall, 10' Tall		355	LF	600.00	213,000	
Visual Display Boards & Projection Screens		1	LS	33,371.00	33,371	
Lockers		1	LS	38,480.00	38,480	
Interior Signage (Door ID & Code Required)		1	LS	12,800.00	12,800	
Folding Partitions, Horizontal (EOC Dining/Training)		500	SF	95.00	47,500	
Raised Access Floor System		9,283	SF	25.00	232,075	
Toilet Compartment, Urinal Scrn & Accessories		1	LS	32,000.00	32,000	
Wall Protection Allowance		1	LS	15,000.00	15,000	
Miscellaneous Building Specialties		1	LS	38,500.00	38,500	
				TOTAL SPECIALTIES	$662,726	

11000 EQUIPMENT					
Lab Casework Allow (Base, Wall, Reagent)		0	SF	0.00	0
Lab Casework Allow (Base Cabinets & Shelf)		0	SF	0.00	0
Prep Lab Casework Allow. (Base & Wall Cabinets)		0	SF	0.00	0
Fume Hoods		0	EACH	0.00	0
Biosafety Cabinets		0	EACH	0.00	0
Snorkels		0	EACH	0.00	0
Autoclaves		0	EACH	0.00	0
Vivarium Equipment Allowance		0	LS	0.00	0
Miscellaneous Fixed Lab Equipment Allowance		1	LS	0.00	0
Loading Dock Equipment		0	LS	0.00	0
Food Service Equipment		520	SF	350.00	182,000
Breakroom/Kitchen Appliance Allowance		1	LS	16,683.33	16,683
Gym Equipment Allowance		0	LS	0.00	0
				TOTAL EQUIPMENT	$198,683

12000 FURNISHINGS					
Window Covering, Electric Roller Shades		1,328	SF	30.00	39,831
Window Covering, Manual Roller Shades		3,983	SF	15.00	59,747
Fixed Seminar Tables at Tiered Classrooms		0	SEAT	0.00	0
Fixed Auditorium Seats		0	SEAT	0.00	0
				TOTAL FURNISHINGS	$99,578

13000 SPECIAL CONSTRUCTION					
Pre-Engineered Bldg (Structure Only)		0	SF	0.00	0
Pre-Engineered Bldg (Standard PEMB Wall Panels w/Insul)		0	SF	0.00	0
Pre-Engineered Bldg (Standard PEMB Roof Panels w/Insul)		0	SF	0.00	0
Pre-Engineered Bldg (Ext Wall Liner Panels)	0%	0	SF	0.00	0
Pre-Engineered Storage Shed Building		0	SF	0.00	0
Pre-Engineered Pavilion Structure (No Walls)		0	SF	0.00	0
				TOTAL SPECIAL CONSTRUCTION	$0

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14000 ELEVATORS & ESCALATORS						
Passenger Elevator		4	STOP	65,000.00	260,000	
Freight Elevator	N	0	STOP	0.00	0	
Hospital/Oversized Elevator		0	STOP	0.00	0	
Wheelchair Lift		0	EACH	0.00	0	
				TOTAL ELEVATORS & ESCALATORS	$260,000	

21000 FIRE PROTECTION SYSTEM							
Wet System	New	38,500	SF	6.50	250,250		
Double Pre-Action System-Premium		7,788	SF	8.50	66,198	EOC &911	
Fire Pump	N	0	EACH	50,000.00	0		
Clean Agent Fire Protection System (Server)		1	LS	112,125.00	112,125	1,495 SF	$5.00/CF No less than $32,500/rm
				TOTAL FIRE PROTECTION SYSTEM	$428,573		

22000 PLUMBING						
Restroom/Convenience Fixts		46	FIXT	10,000.00	460,000	850 GSF per Fixture
Wet Lab/Lab Prep Plumbing		0	SF	0.00	0	
Lab Plumbing, Other		0	SF	0.00	0	
Vivarium Plumbing		0	SF	0.00	0	
Kitchen & Servery Plumbing		520	SF	50.00	26,000	
Roof Drain System		19,250	SF	2.99	57,509	
Sustainable Design Premium	LEED Gold	46	FIXT	4,000.00	184,000	
				TOTAL PLUMBING	$727,509	

23000 HVAC								
General Area	VRF/RTU	28,697	SF	75.00	2,152,275	DX	VRF/RTU	VAV
EOC & 911		7,788	SF	125.00	973,500	DX Split or WSHP	Variable Refrigerant Flow or RTU	Variable Air Vol. (Chiller, Boiler, VAV)
Server Room		1,495	SF	400.00	598,000			
Lab Prep, Wet		0	SF	0.00	0			
Lab, Other		0	SF	0.00	0	$40	$75	$85
Lab, Dry		0	SF	0.00	0			
Vivarium		0	SF	0.00	0			
Auditorium (Performance)		0	SF	0.00	0			
Kitchen		520	SF	85.00	44,200			
Attic/Mechanical Penthouse		0	SF	0.00	0			
Shell Space (Heat & Ventilation Only)		0	SF	0.00	0			
Atrium Exhaust System Allowance		0	LS	0.00	0			
Sustainable Design Premium	LEED Gold	38,500	SF	30.00	1,155,000			
				TOTAL HVAC	$4,922,975			

26000 ELECTRICAL DISTRIBUTION					
Distribution					
General Area		37,979	SF	65.00	2,468,635
Upgraded Grounding System		1	LS	100,000.00	100,000
Auditorium (Performance)		0	SF	0.00	0
Kitchen		520	SF	75.00	39,000
Attic/Mechanical Penthouse		0	SF	0.00	0
Shell Space		0	SF	0.00	0
Emergency Power Generators, Diesel		600	KW	725.00	435,000
Emergency Panels, Transfer Switches, Etc.		1	LS	100,000.00	100,000
UPS System, 100 KVA		1	EACH	125,000.00	125,000
Sustainable Design Premium	LEED Gold	38,500	SF	26.00	1,001,000
				TOTAL ELECTRICAL DISTRIBUTION	$4,268,635

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26500 LIGHTING					
General Area		36,250	SF	14.50	525,625
Classroom & Lab		0	SF	0.00	0
Auditorium & Tiered Classroom		0	SF	0.00	0
Multipurpose Room		0	SF	0.00	0
Student Lounge/Collaboration Space		0	SF	0.00	0
Lobby		300	SF	20.00	6,000
Dining & Servery		1,950	SF	17.50	34,125
Attic/Mechanical Penthouse		0	SF	0.00	0
Shell Space		0	SF	0.00	0
Exterior Building Lighting	Y	38,500	SF	0.50	19,250
Architectural Lighting Allowance	Medium	1	LS	1.00	38,500
Daylighting System	Y	23,100	SF	2.85	65,835
Sustainable Design Premium	LEED Gold	38,500	SF	3.00	115,500
				TOTAL LIGHTING	$804,835

27000 COMMUNICATIONS					
Telephone/Data System	Wired	500	EACH	750.00	375,000
Telephone/Data Equipment, NIC					
				TOTAL COMMUNICATIONS	$375,000

28000 ELECTRONIC SAFETY & SECURITY					
Audio/Visual Equipment, Rough-In		38,500	SF	1.50	57,750
Audio/Visual Equip Rough-In (Performance Auditorium)		0	SF	0.00	0
Audio/Visual Equipment Allowance	NIC	0	SF	0.00	0
Security System, Rough-In		38,500	SF	2.50	96,250
Card Reader Access Allowance	Complete	20	EACH	5,500.00	110,000
Security Camera Allowance	Complete	20	EACH	6,500.00	130,000
Fire Alarm System		38,500	SF	5.00	192,500
Intercom System		0	SF	0.00	0
Nurse Call System		0	SF	0.00	0
Emergency Responder System	N	0	LS	0.00	0
Distributed Antenna Sys (DAS)	Y	38,500	SF	2.50	96,250
Lightning Protection (Roof Area)	Y	19,250	SF	1.50	28,875
				TOTAL ELECTRONIC SAFETY & SECURITY	$711,625

COST ESTIMATE

PALACIO

GENESYS CONCEPTION. COST MODELING. XXX

Name: Emergency Operations & 911 Backup Center
Location: Durham, NC
GSF: 38,500
Cost per SF: $960.77
Date: 2/18/2024
Construction Date: 3/1/2025
Construction Cost: $36,989,724

SITEWORK SPECIFICS						
Total Impacted Area			150,000	SF		
Building Footprint			19,250	SF		
TOTAL DEVELOPED SITE AREA			**130,750**	SF		

31000 EARTHWORK							
Site Layout			3.4	ACRE	5,000.00	17,200	
Site Mobilization			3.4	ACRE	10,000.00	34,400	
Site Clearing			3.4	ACRE	5,000.00	17,200	
Erosion Control (Silt Fence, Temp Pond, Const Entrance, Etc)			3.4	ACRE	9,000.00	30,960	
Earthwork	Feet Deep	2	12,800	CY	20.00	256,000	
Bad Soils	Feet Deep	0	0	CY	0.00	0	
Rock Excav	Feet Deep	0	0	CY	100.00	0	Blast
					TOTAL EARTHWORK	**$355,760**	

32000 EXTERIOR IMPROVEMENTS						
Parking Spaces		113	SPACE	2,750.00	310,750	
Driveway to Parking		797	LF	185.00	147,445	
Loop Road		0	LF	0.00	0	
Sidewalk % of Site	4.5%	5,884	SF	10.00	58,838	
Concrete Paving, Standard	0%	0	SF	0.00	0	
Concrete Paving, Heavy	1%	1,308	SF	18.00	23,535	
Pavers	0%	0	SF	0.00	0	
Pervious Pavers	0%	0	SF	0.00	0	
Fire Lane (Grasscrete)	0%	0	SF	0.00	0	
Paving, Other	0%	0	SF	0.00	0	
Steps at Grade & Ramps w/Railings	0%	0	SF	0.00	0	
Covered Walkway (10' Wide)		0	LF	0.00	0	
Retaining Wall Allowance	Concrete	1,400	SF	100.00	140,000	
Seat Wall Allowance	Veneered	0	LF	550.00	0	
Mechanical Screen Wall		75	LF	600.00	45,000	
Dumpster Pad, Screen Wall & Gates		1	EACH	45,000.00	45,000	
Fencing & Gates (Brick Pier w/Metal Picket)		575	LF	310.00	178,250	
Site Furnishings Allowance		1	LS	5,000.00	5,000	
Site Signage Allowance		1	LS	15,000.00	15,000	
				TOTAL EXTERIOR IMPROVEMENTS	**$968,818**	

32900 LANDSCAPING & IRRIGATION					
Landscaping Allowance	Y	3.0	ACRE	75,000.00	225,121
Irrigation Allowance	Y	3.0	ACRE	22,000.00	66,035
				TOTAL LANDSCAPING & IRRIGATION	**$291,156**

33000 SITE UTILITIES						
Storm Drainage (Paved Area + Slab on Grade)		64,275	SF	6.02	386,757	Include expanding of bioretention
Underground Storm Water Detention	N	0	CF	0.00	0	Assumes 1 CF/4 SF of Impervious
Site Utilities Allowance		650	LF	390.00	253,500	Domestic & Fire Water, San Sewer
Site Lighting at Parking & Driveway Allowance		38	EACH	4,500.00	168,885	
Site Lighting at Walkways Allowance		0	EACH	0.00	0	
Site Utilities Relocation Allowance		0	LS	0.00	0	
Special Site Consideration		0	SF	0.00	0	
				TOTAL SITE UTILITIES	**$809,142**	

COST ESTIMATE

PALACIO

GENESYS CONCEPTION. COST MODELING. XXX

Name: Emergency Operations & 911 Backup Center
Location: Durham, NC
GSF: 38,500
Cost per SF: $960.77
Date: 2/18/2024
Construction Date: 3/1/2025
Construction Cost: $36,989,724

COMPONENT					
Underground stormwater device & additional asphalt paving					
U/G Detention Structure Allowance		10,000	CF	25.00	250,000
Additional Asphalt Paving		2,057	SY	65.00	133,698
Lighting Allowance		5	EACH	4,500.00	22,500
Miscellaneous		1	LS	25,000.00	25,000
Subtotal					**431,198**
LEED Gold Premium					
Additional Wall Insulation		25,226	SF	3.50	88,292
Insulation for Ground Floor SOG		19,250	SF	6.50	125,125
Argon Gas at Exterior Glazing		5,311	SF	10.00	53,108
MEP Impact (Difference between Silver & Gold selection)		1	LS	2,730,218.00	2,730,218
Subtotal					**2,996,743**
LEED Platinum/Net Zero					
Additional Wall Insulation		25,226	SF	3.50	88,292
Insulation for Ground Floor SOG		19,250	SF	6.50	125,125
Argon Gas at Exterior Glazing		5,311	SF	10.00	53,108
MEP Impact (Difference between Silver & Platinum selection)		1	LS	4,476,292.00	4,476,292
Subtotal					**4,742,817**
Hardened building premium (Ballistic wall panel & windows)					
Ballistic Wall Panel Premium		25,226	SF	50.00	1,261,315
Ballistic Window Premium (Level 5)		5,311	SF	210.00	1,115,268
Ballistic Door Premium (Level 5)		9	EACH	3,500.00	31,500
Subtotal					**2,376,583**
NFPA 1225 blast resistant exterior premium					
Concrete Floor Structure Premium		19,250	SF	0.00	0
Concretet Roof Structure Premium		19,250	SF	12.00	231,000
Concrete Wall Premium (Blast Proof)		25,226	SF	71.50	1,803,680
Blast Resistant Window Premium		5,311	SF	700.00	3,717,560
Blast Door Premium		9	EACH	6,000.00	54,000
Subtotal					**5,806,240**
Item		0	SF	0.00	0
Item		0	SF	0.00	0
Item		0	SF	0.00	0
Item		0	SF	0.00	0
Item		0	SF	0.00	0
Item		0	SF	0.00	0
Item		0	SF	0.00	0
Item		0	SF	0.00	0
Item		0	SF	0.00	0
Item		0	SF	0.00	0
				TOTAL	**$32,738,663**

COST ESTIMATE

3/20/2024

15

PALACIO

GENESYS

Name:	Emergency Operations & 911 Backup Center		
Location:	Durham, NC	Date:	2/18/2024
GSF:	38,500	Construction Date:	3/1/2025
Cost per SF:	$960.77	Construction Cost:	$36,989,724

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O'BRIEN ATKINS

Meeting Minutes

Project: **Durham EOC and 911 Backup Center**

OBA Project Number: 2023031.00

Purpose: IT Coordination Meeting
Meeting Location: Virtual
Meeting Date: 1/12/2023 – 9:00am (EST)

Prepared By: Steven Harris/Craig Schulz

Attendees:					
Name	*Company*	*Initials*	*Name*	*Company*	*Initials*
Steven Harris	OBA	SH	Dan Nosbusch	DCO - Engineering	DN
Josh Brady	OBA	JBr	Renee Pierce	City of Durham - 911	RP
Nix Salcedo	OBA	NS	Reade Daniel	N+B	RD
Craig Schulz	MC	CS	Robert Laria	Durham	RL
Josh Beizer	Durham	JBe	Jill Sanders	Durham	JS
Natalie Bynum	Durham City Transp.	NB	Mohammad Islam	City of Durham - IT	MI
Steven Carden	Durham City Radio	SC	David Labarre	DCSO	DL
Keith Clark	DCO – I&T	KC	Clarence Birkhead	DCSO - Sheriff	CB
Thomas Cote	DCSO	TC	Motiryo Keambiroiro	DCSO - GS Director	MK
Joel Jones	DCO - Engineering	JJ	Randy Beeman	City of Durham - 911	RB
Vincent Ritter	DCSO - IT	VR	Tangela Walker	City of Durham - 911	TW
Logan Smalls	City of Durham - Security	LS	Henri Prosperi	City of Durham PM	HP

ITEMS	NOTES/ ISSUES/ ACTION	RESP	DUE DATE
1.0	**Team Updates and Logistics**		
1.1	Henri Prosperi replaces Chris Hilditch		

MEETING MINUTES

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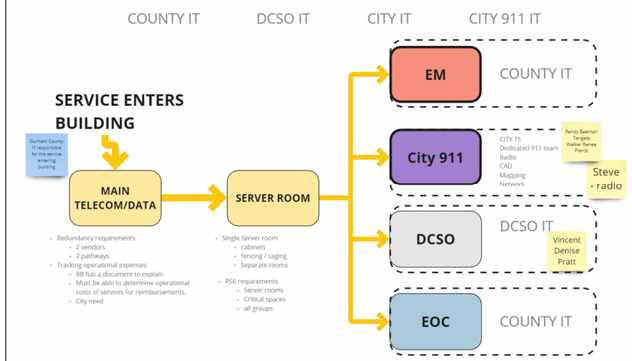
2.0	**Design**		
2.1	JB reviewed this diagram in the meeting and updated per the conversation. 	**RECORD**	
2.2	CS asked about internet circuit scenario. The response from group was: Primary internet services for the facility will be managed by Durham County. There have been discussions about utilizing infrastructure that has been utilized for the Youth Home, along with potential to utilize a secondary path. The question was asked about using NC DIT services and that was clarified as not an option.	**RECORD**	
2.3	CS posed the question of how the group felt about security within the main datacenter. There are various options which included keyed cabinets, access control readers on the cabinets and/or actual physical separation with fencing or physical walls. RB advised that discussion would need to include others including NC 911 Board, NC Division of Criminal Information (DCI) and others. RB also discussed the need to clearly identify the equipment that serviced the City of Durham 911, as that would allow for clear reimbursement of 911 funds. Segmentation, redundancy requirements, fiber, vendors, pathways, server room management, expenses, UPS, and EOCs are all considerations for these expenditure reports.	**RECORD**	

2.4	RB – noted fire suppression system. No water in server room.	**RECORD**	
2.5	Motorola R56 Standards and Guidelines for Communications Sites would be the grounding standard used for the critical spaces (911 Operations Room, EOC, Equipment rooms, exterior antennas, etc) within the facility. This standard would provide the single point grounding system required by NC 911 rules and Motorola radio system users.	**RECORD**	
2.6	Discussed the need for redundant and diverse systems and infrastructure within the facility. AT&T and other vendors would require fiber and other infrastructure to take geographically diverse paths into the facility which creates the redundancies needed for these critical environments.	**RECORD**	
2.7	AT&T is the selected vendor for the State of NC 911 Boards hosted call-handling and Emergency Services IP Network (ESInet). This is the 911 phone system used by the City of Durham.	**RECORD**	
2.8	The participants discussed the use of POTS lines or other telephone circuits for call handling equipment. RB mentioned the transition to SIP lines for their 911 telephone system admin purposes and the use of VoIP for other desk phone needs. Vincent mentioned the transition to SIP trunks for their call handling equipment and the involvement of County IT for VoIP services. More discussion on POTS will need to be held to determine any services not discussed today.	**RECORD**	
2.9	Recording Systems: City of Durham is in the process of transitioning to Nice Systems recording platform and the County utilizes Carolina Recording Systems, Eventide product.	**RECORD**	
2.10	Radio and CAD Systems CS confirmed that the City and the County utilized the same CAD vendor, however separate instances which are hosted on separate servers. JBr raises concerns about the management of the radio and the involvement of multiple hands in the equipment. The participants mention that the radio side would be rather easy to handle. JBr asks about the presence of multiple dispatch sites and the support for	**RECORD**	

MEETING MINUTES

	different versions of the CAD system. SC explains that they currently maintain the equipment at the Sheriff's Office and it would be a matter of changing the consoles for the phone line portion.		
2.11	County IT will be responsible for the S2 system. City also uses S2 system. Credentials can be shared. More discussion between City and County to determine how to proceed with this.	**RECORD**	
2.12	Lessons for malware attached in March 2020. CISA and CJIS requirements will play a large role, including a cyber security evaluation as the plans come together.	**RECORD**	
2.13	The group discussed a new web interface video feed system for traffic camera video feeds. May sync up with construction deadline.	**RECORD**	
3.0	**Schedule**		
3.1	Dec 2026 – old backup center is planned to be shut down.		
3.2	Noted infrastructure has lead times that need to be factored. Need to share schedule with everyone so these things can be procured at appropriate times once developed.		
4.0	**Budget/Estimating**		
4.1	N/A		
5.0	**Other**		
5.1	N/A		

This represents the architect's understanding of the principal matters discussed as related to action items for the architect and their consultants. If there are any additions or corrections, please notify the architect immediately. If not, these minutes will stand as a record of the items discussed.

O'BRIEN ATKINS

Meeting Minutes

Project: **Durham EOC and 911 Backup Center**

OBA Project Number: 2023031.00

Purpose: Advanced Planning Progress
Meeting Location: Virtual
Meeting Date: 1/19/2023 – 10:00am (EST)

Prepared By: Steven Harris

Attendees:					
Name	*Company*	*Initials*	*Name*	*Company*	*Initials*
Steven Harris	**OBA**	**SH**	**Dan Nosbusch**	**DCO - Engineering**	**DN**
Josh Brady	**OBA**	**JBr**	**Joel Jones**	**DCO - Engineering**	**JJ**
Nix Salcedo	**OBA**	**NS**	**Peri Manns**	**Durham County**	**PM**
Jay Smith	**OBA**	**JS**	**Elizabeth Schroeder**	**Durham EM**	**ES**
Craig Schulz	**MC**	**CS**	**Steven Carden**	**Durham City Radio**	**SC**
Brendon Gardes	**N+B**	**BG**	**Randy Beeman**	**City of Durham - 911**	**RB**
Danna Richey	**N+B**	**DR**	**Renee Pierce**	**City of Durham - 911**	**RN**
Reade Daniel	**N+B**	**RD**	**Tobin Fried**	**DCO - Sustainability**	**TF**
Paul Kitchens	**N+B**	**PK**	**Megan Pendell**	**DCO- Sustainability**	**MP**
Vincent Ritter	**DCSO - IT**	**VR**	**Nathaniel Hammond**	**Durham**	**NH**
Denise Pratt	**DCSO**	**DP**	**Andy Moffit**	**N+B**	**AM**
Thomas Cote	**DCSO**	**TC**	**April Silvera**	**City of Durham Emergency Communications Center**	**AS**
James Faress	**DCO**	**JF**	**Haley Williamson**	**Durham**	**HW**
Keith Clark	**DCO – I&T**	**KC**			

ITEMS	NOTES/ ISSUES/ ACTION	RESP	DUE DATE
1.0	**Team Updates and Logistics**		
1.1	The design team will follow-up with the next meeting once they have time to process today's discussion.		
2.0	**Program**		
2.1	JB – reviewed summary of program sent out before Christmas Holiday	**RECORD**	
2.2	Question about 15 person JIC. ES noted the count could be reduced to 12 so there is no unused space.	**RECORD**	

MEETING MINUTES

O'BRIEN ATKINS

2.3	JB noted the combination of the training with dining, which were very large spaces. And the operations will be different when the EOC is activated. When it is not activated, it can be used as a training space, and when it is, it can be a dining space.	**RECORD**	
2.4	The participants discussed the stacking options for the building and decided to go with a two-story building configuration. They mentioned that the Emergency Operations Center (EOC) would take up the entire first floor, which is slightly bigger than the emergency management office space.	**RECORD**	
2.5	Discussion about higher ceilings in the EOC space and the possibility of having windows to look down into the EOC operations.	**RECORD**	
2.6	ES requests to switch EM and 911 so they can have windows to look down on the EOC space.	**RECORD**	
2.7	ES noted that sound transmission should be considered in the design of the spaces.	**RECORD**	
2.8	JB: Bunkrooms, are they just for the EM staff, or anyone else? ES mentioned that it is not intended for normal operations, but for longer operations when needed, for ex: an ice storm.	**RECORD**	
2.9	CS recommends the quiet rooms to be close to 911. He says it is best to keep it on the same floor. Also mentioned to be mindful of the noise. RB agrees	**RECORD**	
3.0	**Site**		
3.1	JS shared the site plan. The site is adjacent to the Youth Home. He pointed out site features such as streams, buffers, and power easements. He explained that we are short on parking, and there are options, such as enlarging the existing basin, or placing it underground, but this second option is more expensive. Another option is to switch to a one-way road when the EOC is activated and have parallel parking on one side. This will allow us to be closer to the parking goal, and we could request a 30% reduction from Durham, which may likely be approved.	**RECORD**	

3.2	ES concerned about traffic flow and potential overlap with youth home operations	**RECORD**	
3.3	TF shared that she understands the requirements from zoning/ parking needs. Can we look at the amount of parking that is needed by the building? Rather than what the code requirements? JB explained that there are a lot of factors that affect that number, given the different operations that happen at the building, and it is unlikely that they will happen simultaneously. (training vs when EOC is activated) Tobin recommends trying to get that 30% parking reduction. She pointed out that there is a lot of parking area that will not be used at full capacity all the time, but also consider the amount of parking needed when EOC is activated. ES noted the parking should be designed to be flexible for everyone.	**RECORD**	
3.4	ES - Discussion of the possibility of planning for a future parking structure – Design team noted that there would be some challenges on this constrained site.	**RECORD**	
3.5	JS noted stormwater will be tricky on this site because the site current houses the BMPS for the youth home. May need to look at underground stormwater storage.	**RECORD**	
4.0	**Sustainability**		
4.1	The participants discussed the greenhouse gas emissions reduction targets, renewable energy goals, and building electrification plans for the city and county.	**RECORD**	
4.2	The pursuit of building electrification and fleet electrification was discussed; however, TF emphasized the need to achieve these goals rather than just pursue them.	**RECORD**	
4.3	Applicable county and city policies were briefly reviewed. TF mentioned the possibility of a pollinator habitat policy not included in the list. N&B agreed to review.	**RECORD**	
4.4	TF mentioned that the county is working on updating their high-performance building policy, but it is not ready for public release yet. The current policy was written in 2008 and is quite basic. It was also noted that the city's high performance building policy should be reviewed as well.	**RECORD**	
4.5	TF shared a city requirement that is soon to be released that all projects will be required to achieve all 18 LEED points for energy performance.	**RECORD**	

MEETING MINUTES

4.6	Different levels of energy performance, ranging from code minimum to net zero were discussed. It was noted that the city and county have goals to achieve net zero and the project team should pursue this goal. It was also discussed that net zero will likely be a premium and alternates should be considered during design to help with the Owners review.	**RECORD**	
4.7	Electrical vehicle charging stations were discussed. TF mentioned that the county will soon require 20% of parking spaces to be for electrical vehicles and that all city and county vehicles will be EV by 2040.	**RECORD**	
4.8	PM mentioned that it's difficult to gauge how fast conversion to EV will happen and emphasized the need for infrastructure to achieve the county and city goals.	**RECORD**	
4.9	Level 2 and level 3 EV chargers were briefly discussed. The county and city appeared to have some interest and should be discussed more later in design.	**RECORD**	
4.10	DR discussed different aspects of indoor environmental quality. TF mentioned that the county and city have a standard for setpoints and do not support local control.	**RECORD**	
4.11	DR discussed water quantity and water use reduction goals, including low flow plumbing fixtures and the possibility of using reclaimed water. It was noted in the meeting that Durham does have reclaimed water that could be connected to.	**RECORD**	
4.12	DN mentioned that high efficiency fixtures are preferred over low flow and clarified the county is pro non-potable. City and county preferred flow rates were unknown during the meeting. N&B will follow up later in design to confirm desired flow rates.	**RECORD**	
4.13	Mechanical systems were discussed briefly. PK shared that a range of systems were being studied and will be refined based on information received during the meeting. TB asked if a cooling tower is planned to be used which RD shared that it is a possibility but would be a small cooling tower.	**RECORD**	
4.14	Site water management, storm water retention, and use of non-potable for irrigation was discussed briefly. The civil team was not present during the call. The use of irrigation was mentioned to not be needed, however SH mentioned that it should be considered to help with the establishment period.	**RECORD**	
4.15	DR explained embodied carbon and its significance to the project. TF mentioned that there are now concrete products that absorb carbon, and the city has used them before.	**RECORD**	
4.16	Site benefits were discussed. PM mentioned that he hoped for a grill and picnic table. ES shared with the group that the current building has a small outdoor table with 4 chairs along a fence, and that they used to have a field where they could	**RECORD**	

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	play ball during breaks. It was determined that a fresh outdoor space is important to help with mental and physical health.		
4.17	The possibility of a space to smoke was discussed, however the county is smoke free. It was determined that a dedicated smoking space would have to be unofficial.	**RECORD**	
4.18	Although it was not discussed during the meeting. TF asked a question in the meeting chat asking about geothermal. The design team is continuing to study system options that include geothermal.	**RECORD**	
4.19	TF mentioned the possibility of utilizing covered solar in the parking lot. Coordination with trucks and vans would be required.	**RECORD**	
4.20	PM shared that he was surprised that public transit was limited nearby. N&B to investigate further later in design to see if LEED points can be achieved.	**RECORD**	
4.21	Reduction of heat island affect was discussed. Site understanding is limited at this stage and should be reconsidered later in design to help achieve this LEED credit.	**RECORD**	
4.22	For the upcoming pricing narrative, solar should be included. Alternates may be provided to help with understanding the cost for solar. TB mentioned the possibility of battery storage or infrastructure for battery storage could be beneficial.	**RECORD**	

This represents the architect's understanding of the principal matters discussed as related to action items for the architect and their consultants. If there are any additions or corrections, please notify the architect immediately. If not, these minutes will stand as a record of the items discussed.

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MEETING MINUTES

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Meeting Minutes

Project: **Durham County / City EOC and Backup 911 Center**

Project Number: 2023031

Purpose: Workshop #4
Meeting Location: Virtual
Meeting Date: 03/28/2024 – 2:00pm - 3:00pm

Prepared By: Josh Brady and Team

Distribution List:

Name	*Company*	*Initials*	*Name*	*Company*	*Initials*
Steven Harris	OBA	SH	Dan Nosbusch	DCO - Engineering	DN
Josh Brady	OBA	JBr	Renee Pierce	City of Durham - 911	RP
Nix Salcedo	OBA	NS	Reade Daniel	N+B	RD
Craig Schulz	MC	CS	Bo Laria	N+B	RL
Josh Beizer	Durham	JBe	Jill Sanders	Durham	JS
Natalie Bynum	Durham City Transp.	NB	Mohammad Islam	City of Durham - IT	MI
Steven Carden	Durham City Radio	SC	David Labarre	DCSO	DL
Keith Clark	DCO – I&T	KC	Clarence Birkhead	DCSO - Sheriff	CB
Thomas Cote	DCSO	TC	Motiryo Keambiroiro	DCSO - GS Director	MK
Joel Jones	DCO - Engineering	JJ	Randy Beeman	City of Durham - 911	RB
Vincent Ritter	DCSO - IT	VR	Tangela Walker	City of Durham - 911	TW
Logan Smalls	City of Durham - Security	LS	Henri Prosperi	City of Durham PM	HP

ITEMS	NOTES/ ISSUES/ ACTION	RESP	DUE DATE
1.0	The primary purpose of Workshop #4 was to review the project cost estimate and determine direction from Durham County on moving the project forward		
1.1	JB reviewed the previous program information including total square footage, stacking diagrams, and conceptual layout diagrams. That information was unchanged from the previous meetings.		
2.0	Conceptual Cost Estimate		
2.1	The baseline construction estimate (hard costs only) is $36,989,724 not including soft costs. Soft costs from the County's spreadsheet is calculating at 33%.		

MEETING MINUTES

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ITEMS	NOTES/ ISSUES/ ACTION	RESP	DUE DATE
2.2	4 alternates were priced for underground stormwater, LEED Platinum/Net Zero, hardened building, and blast resistant building.		
2.3	**The design team is seeking direction from the County on the target building for the project, and which alternates should be included in the project.**	**DCO**	**TBD**
2.4	JJ shared the County's project cost model that combines construction costs, soft costs, and cost share responsibility for each based on the County/City agreements.		
3.0	**Site Layout**		
3.1	JS gave an overview of the conceptual site layout.		
3.2	The site add alternate includes $630,000 for a underground stormwater device. The device frees surface area on a very compact site by eliminating new stormwater ponds. It also moves the existing stormwater controls for the Youth Home underground.		
3.3	**PM requested information on the underground storm water device and associated maintenance.**	**OB|A**	**04/12/24**
3.4	RB inquired about the security standoff distance of 82'. The site constraints do not allow the building to meet those distances, but other means on compliance are being explored and were discussed in the Security portion of the meeting.		
3.5	The new Durham UDO has removed the minimum parking requirement and parking can be provided at the anticipated demand. The current site plan shows 15 spaces for EM, 50 Spaces for EOC, and 50 Spaces for shift change.		
3.6	There is more flexibility in the parking counts with alternative solutions for shift change such as temporary parking or sharing parking with the property next door. These opportunities will be addressed in SDs.		
3.7			
4.0	Sustainability		
4.1	RD gave an overview of the (3) sustainability options.		
4.2	The premium for LEED Gold was noted to be ~$3,000,000 and the premium for LEED Platinum/Net Zero was noted to be ~$4,500,000.		
4.3	PM discussed the need for further internal Owner discussion before a decision could be made and that the chosen option may be a hybrid of the presented options.		
4.4	RD mentioned that if a hybrid is considered that some sustainability options could be deferred to a later date, while others would be better to have day one. An enhanced envelope and HVAC system was recommended to be		

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O'BRIEN ATKINS

ITEMS	NOTES/ ISSUES/ ACTION	RESP	DUE DATE
	installed on day one as these would be more difficult to change later. Options such as EV ready spaces and photovoltaics could be deferred to a later date long as electrical infrastructure is in place.		
4.5	PM asked if geothermal was being considered in any of the design options. RD confirmed that geothermal is being studied and is included in sustainable design option 3.		
5.0	Security		
5.1	The design team shared the design standards that provide guidance and how they apply to the project. 09 NCAC 06C.0402 is **REQUIRED** when funding comes from NC 911 Board and Grants. NFPA 1225 is a **RECOMMENDED** standard aimed at defending against potential risks.		
5.2	The cost estimate focused on costs associated with the security portion of the standards and impact on the design. This ranges from ballistic protection ($3,461,000) to blast resistance designs ($8,456,000). The design team presented 3 pathways to guide the team toward a prudent direction for the project.		
5.3	Pathway 1: Do any funding sources require compliance? • The NCAC that is applicable to this project would be 09 NCAC 06C.0402 Grants for construction or renovation. These rules govern projects that have been awarded a NC 911 grant during the annual cycle. • RB stated the NC 911 Board does not fund Backup facilities, but is seeking other grants for equipment or furniture. • ES has a meeting on April 11th on grant funding. **Durham County to provide funding information and design requirements related to each.**	**DCO**	**TBD**
5.4	Pathway 2: Durham County / City of Durham determines risk potential and the design criteria.	**DCO**	**TBD**
5.5	Pathway 3: The design team engages a security consultant to perform a risk assessment. • OB|A is talking with 2 consultants the week on April 1st. • The design team and County will follow up the week of April 8th.	**OB|A**	**04/12/24**
5.6	PM raised a question about the maintenance cost for the below grade stormwater device. The below grade vault will likely need to treat the storm water for quality – not just detain the quantity, and as such will need an annual cleaning involving accessing its MH and clearing debris. At some interval, possible annually, sand in the filter portion of the vault will need to be removed and replaced. This is not very different than a septic tank type	**Record**	

MEETING MINUTES

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	of vacuuming / cleaning. We estimate an annual cost of $2,000 to $ 3,000 for this maintenance.		
6.0	Decisions to move forward		
6.1	Site: Design team will move forward with the underground stormwater devices. This decision will be evaluated again in SDs and the site layout is more defined.	RECORD	
6.2	Sustainability: County/City to provide direction on the target sustainability goals. **Durham County directed the design team to proceed with LEED Gold Certification on 04/08/24**	RECORD	
6.3	Security: County/City to provide direction on items 5.3, 5.4, and 5.5.	DCO	04/26/24
6.4	Budget: County/City to determine the project budgets and selected add alternates.	DCO	04/26/24

This represents the architect's understanding of the principal matters discussed. If there are any additions or corrections, please notify the architect immediately. If not, these minutes will stand as a record of the items discussed.