CHARLOTTESVILLE-UVA-ALBEMARLE ECC

PROGRAMMING, PLANNING AND FACILITY ASSESSMENT

2306 Ivy Rd, Charlottesville, VA

for
Albemarle County
2306 Ivy Road
Charlottesville, VA 22903

DRAFT JUNE 2024

MissionCriticalPartners

SCHRADERGROUP

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01 EXECUTIVE SUMMARY

BACKGROUND

Albemarle County, Virgina, is in the Piedmont region of the state and has a land area of about 726 square miles. According to the United state census Bureau, the estimated population of Albemarle County in 2020 was 112,395—an increase of 11.9% over the 2010 Census count of 98,970.

Charlottesville is an independent city, and the Albemarle County seat. The city has a population of over 45,000 residents, including roughly 18,000 at the University of Virgina (UVA). CUAECC is the primary PSAP to Albemarle County.

Charlottesville-UVA-Albemarle County Emergency Communications Center (CUAECC) is currently housed at 2306 Ivy Road. CUAECC has 13 positions (ten radio & phone, and three phone only) and is a primary consolidated safety answering point (PSAP).

CUAECC is the primary dispatch for three law enforcement (Charlottesville Police Department, Albemarle Police Department, UVA Police Department), and two fire/rescue agencies (Charlottesville Fire Department and Albemarle County Fire Rescue). CUAECC provides services for the city and county sheriff's offices, airport police, Piedmont Virginia Community College police and the town of Scottsville police, as well as several volunteer fire and rescue agencies that operate under the CUAECC umbrella. CUAECC provides and receives mutual aid from the 8 counties bordering Albemarle County. and works with Virginia state police for incidents on the highways and interstates within the Albemarle County jurisdiction.

As the primary PSAP, CUAECC receives requests for service through a Motorola VESTA® shared environment. CUAECC services the caller and dispatches Charlottesville, UVA and Albemarle County, first responders.

Additionally, CUAECC has and offsite storage space for various records and equipment, a training facility with a small administrative office area and training space for new hires, and in the event an evacuation of the primary ECC, a dedicated and fully equipped back-up facility is located in the police building that can support 24hour operations at 50% operational capacity.

INTRODUCTION

Mission Critical Partners (MCP) was engaged in January 2023, by Albemarle County to conduct a programming verification, building assessment and planning exercise for the ECC and to test-fit the new program onto the existing Ivy Road site. The study included considerations for as many as two other sites as alternative location considerations. The ECC was experiencing increased call volume and technology demands but the facility potential had been utilized to maximum capacity. As the study unfolded, regional partners found themselves struggling to accommodate growing demand and their needs were also folded into the study. As a component to the ECC study, consideration for staff wellness, health, and convivences were introduced for programming consideration. To evaluate the capability of the existing facility and site to support the expanding needs of Charlottesville, UVA and Albemarle County's Emergency Management and 911 Communications

(PSAP), the planning team utilized the objectives defined below. The summary of each of these objectives and the related issues observed are considered the project scope of this Programming and Planning Study. The team developed this Study to support the following tasks:

- Conduct a separate walk-through and assessment of the existing CUAECC, Ivy Road property to evaluate the existing facility from a site, architectural and engineering perspective.
- Conduct a thorough programming verification effort to determine current and future space needs for the Emergency Management and 911 Communications (PSAP) using current industry best practices.
- Develop a concept site plan and blocking plan for the proposed facility expansion utilizing the property and facility available at the Ivy Road site.
- Develop limited structural analysis of the existing buildings and the impact and requirements necessary to meet current codes and requirements for an essential facility.
- Develop limited mechanical and electrical analysis of the existing buildings systems and the impact and requirements necessary to meet current codes and requirements for an essential facility.
- Develop technology requirements to support the emergency operations and communication systems. As part of this review, the following common applications utilized by PSAPs and EOCs were evaluated for potential upgrades, enhancements, or replacement:
  - Computer-aided dispatch (CAD) system
  - Call-handling equipment (CHE)
  - Radio consoles
  - Radio system
  - Logging recorder
  - Data circuits
  - Master time source
  - EOC audiovisual (AV) technology
- Develop a conceptual budget from the design concept.

Mission Critical Partners and the SCHRADERGROUP met with the Albemarle County ECC Team to understand the needs of the organization in January of 2023.

The team visited the proposed building to conduct a facility evaluation of the existing CUAECC facility at 2306 Ivy Road. This meeting included an overall visioning session to define the future goals of CUAECC to understand the current operations.

Following the building walk-thru and assessment the next meeting included a programming session to verify the space needs for each agency to carry out its current operations and anticipate future needs and staffing support as the community continues to develop.

MCP and SCHRADERGROUP then held individual strategic planning sessions with key public safety stakeholders to understand their needs as they relate to both an improved ECC and potential programming needs for their agency should there be an opportunity to co-locate some functions inside the building's footprint. This included emergency managers, public information officers, and fire agencies.

After a program confirmation session, the team developed concept diagrams to test-fit the proposed program within the existing site. The diagram provided in this study attempts to provide some form to the programming effort undertaken in

August of 2023. It indicates how the proposed program might fit within the confines of the proposed site.

The balance of this document supports the overall programming effort undertaken by the team and provides conclusions reached through this process.

BUILDING DESIGN PHILOSOPHY

The proposed building renovations and additions will be developed to house the functions of Charlottesville, UVA and Albemarle County's Emergency Management and 911 Communication with current facility best practices, all administrative, secure functions and common spaces required to support the operations are also included in this study.

Since the facility will house emergency operations and emergency communications, the building must provide for all disaster related operations. Disaster related operations are defined as periods of natural and civil disaster where normal building access and services may be temporarily disrupted. It is recommended the building comply with Risk Category IV requirements of the IBC Essential Facility guidelines. Those issues and other site related security goals were considered as part of this process.

Goals for the construction should include:

- Provide the space required to adequately deliver emergency management services to the county and city.
- Provide appropriate levels of survivability to maintain the critical operations of the facility.
- Consider the most economical solution to the proposed construction project.
- Consider the cost effectiveness of operations when evaluating capital expenditures.
- Consider the near and long-term environmental impact.
- Provide an ergonomically appropriate facility that considers the extended periods of use by personnel.

The balance of this section provides a summary of each of the topics included in the remainder of this document.

SUMMARIES + CONCLUSIONS

SITE AND BUILDING OVERVIEW

The existing facilities are located at 2304 and 2306 Ivy Road in a central location within Albemarle County. The Ivy Road site provides access to route 29 and is close to interstate highway 64. The site is currently accessed by staff and the public from Ivy Road (east bound). There are three points of access into the site, two at the building frontage the other by maintenance road that access the back of the site.

The buildings are in a prominent position along Ivy Road and will serve as an accessible location for Emergency Management services. The site offers several opportunities that are typically critical to mission critical facilities. The site has access to major arterials; it has a proximity to other government buildings and geographically it provides relatively similar distance access to various parts of the county. The existing buildings sit close to the roadway which does not allow for the recommended standoff distance for a critical infrastructure facility. It is recommended the site be supplemented with some level of force protection along Ivy Road. The location of the buildings on site helps with the site design, allowing for more space on the site for facility expansion. The proximity to the roadway will require careful planning of site deterrents to minimize the opportunity for

accidental or intentional vehicular penetration of the site and building. Cast concrete seating walls, heavy concrete planters or other devices will provide the requisite level of protection.

The existing CUAECC building at 2306 Ivy Road was constructed in 1997 and designed by Hayes, Seay, Mattern and Mattern Architects. The existing UVA police building at 2304 Ivy Road predates the CUAECC building, its exact date of construction could not be ascertained. It is believed the building was originally constructed as a convenience store before being renovated by the UVA police department. While both buildings are currently mission critical facilities their existing systems are largely antiquated and in need of replacement. The builds interiors will need to be significantly altered and additions will be needed to accommodate the program outlined.

The CUAECC building structure appears in good condition, but further investigation will be needed to determine if reinforcement is needed to bring it up to current risk category 4 levels. Little information on the UVA police building was available.

At minimum it is recommended the "hardened" components of the building program technology infrastructure be located in the new construction of the buildings addition that would meet the Essential Facility Code compliance construction.

The positioning of the existing buildings on site and the capabilities of the site to accommodate expansion provides a promising opportunity for the location of CUAECC.

PROGRAM SUMMARY

MCP/SG planning team worked with a team comprised of representatives from CUAECC January of 2023 to verify a preliminary space program for a facility representing current standards in the industry. The goal was to determine anticipated future space needs for the proposed CUAECC Facility.

The programming information is used as the basis for locating needed functions within the concept site and blocking plan developed later in this document. What follows are the building elements anticipated for the proposed facility. The concept design and concept budgets in this document reflect the building program outlined herein.

Following the programming workshop, a program document was developed. Ultimately the program document shown in Section 4 breaks the facility into 4 major components. The gross square footage program for a state-of-the-art facility to serve the needs of the County is as follows:

EOC/COMMUNICATION

Regional Communications Center	15,813 SF
**Operations, administrative offices, technology, etc.*	
Regional Emergency Management and EOC	18,608 SF
**Operations, breakouts, conference and training, etc.*	
Regional Public Safety Resources Center	12,126 SF
**Light daycare, health clinic, behavior health, etc.*	
Regional Information Technology Division	7,819 SF
**Tech lab, storage, data center, offices, etc.*	
Subtotal	**54,366 NSF**
Net to Gross Conversion	5,437 SF
TOTAL PROPOSED BUILDING AREA	**59,803 GSF**

The complete program is provided beginning in Section 4. These building components are used in the concept site blocking diagrams and budget exercises developed for Section 5.

CONCEPT DESIGN SUMMARY

The focus of this study was to develop a state-of-the-art program specifically for the region and the CUAECC Facility and then to test it on the existing site currently occupied by the CUAECC and UVA police. The planning team was tasked with developing a concept blocking diagram reflecting the programming effort outlined in this document.

The option includes test-fitting the program within the confines of the existing site located at 2304-2306 Ivy Road plus the adjacent plot of land directly south of the site to accommodate the balance of the proposed program.

The plan also identifies a front "visitor" entry to the facility as well as a separate "staff" entry to the facility. Public access provides a secure entry vestibule through a secure and monitored front door. Staff access will allow for an access-controlled point of entry/egress with reduced control and observation function.

In the interest of reducing overall construction costs, the team proposes to construct the hardened portions within the new construction of the building expansion for the core PSAP and EOC functions as well as the equipment room needed to house the building technology infrastructure. The thought is that the office-type spaces can remain non-hardened while protecting the critical spaces and expensive equipment operating the function of the building program.

Secure parking for the CUAECC facility can be achieved by designating a fenced area controlled by gate access along the eastern and/or west side of the site, utilizing existing roadways adjacent to the site.

From a site perspective, the conceptualized site is arranged in layers of hardening. Since the existing building standoff is less than the recommended 25 meters for non-cleared vehicle parking bollards or other site impediments restricting vehicular access any further towards the building should be evaluated. The cleared parking area on the south side of the building, behind the security fence and gates provides for parking closer than 10 meters from portions of the facility.

BUDGET DESCRIPTION

Section 4 provides an architectural program developed through the Programming Workshop.

For the costs identified in Section 6, SCHRADERGROUP utilized high-level line-item cost estimating techniques to complete an estimate that correlates to the concept site diagram. Local construction costs, general site information and knowledge of current construction pricing of communication facilities are included (as much as can be anticipated) in the estimates shown on the following pages. The cost are developed for three optional site types to help determine if the current CUAECC site is the most economical. The costs included are for budgeting purposes only as no final design has been derived at this time. More accurate cost estimate information will be generated when the design process has begun.

The Summary TOTAL CONCEPT PROJECT BUDGETS are expanded upon in the individual budget worksheets further in Section 6.

Overall Budget Description

The overall budget includes the following:

- CONSTRUCTION BUDGET – Includes anticipated construction costs broken down to support the program area. HVAC and Electrical systems will be one of the

greatest variables depending upon what type of HVAC system is selected.

- DESIGN COSTS – Includes anticipated project design costs including the testing services normally anticipated for a project of this type.
- TECHNOLOGY SYSTEMS & OTHER COSTS –The required technology and costs will vary as the Town does not have a full assessment of technology systems vs what new systems might be required. General building furniture is included in this breakout as well. As the project evolves there may be further development that modifies the technological needs.

The programming phase budget cannot anticipate all the project costs that may arise during a design and construction process however the SCHRADERGROUP team's knowledge of this project type provides significant insight into the various project costs typically experienced. The hope is that these budgets provide a good foundation from which the ECC and regional partners can begin their decision-making process.

The Summary TOTAL CONCEPT PROJECT BUDGETS are shown on the pages of Section 6. The costs are then expanded upon in the individual budget worksheets to further describe the potential costs for each portion of the work following those pages.

Renovations and Additions with Sitework

Cost Breakout per Site

Current Site (Ivy Rd)	$36,785,688
Renovation Site	$50,825,092
Green Site	$51,323,092

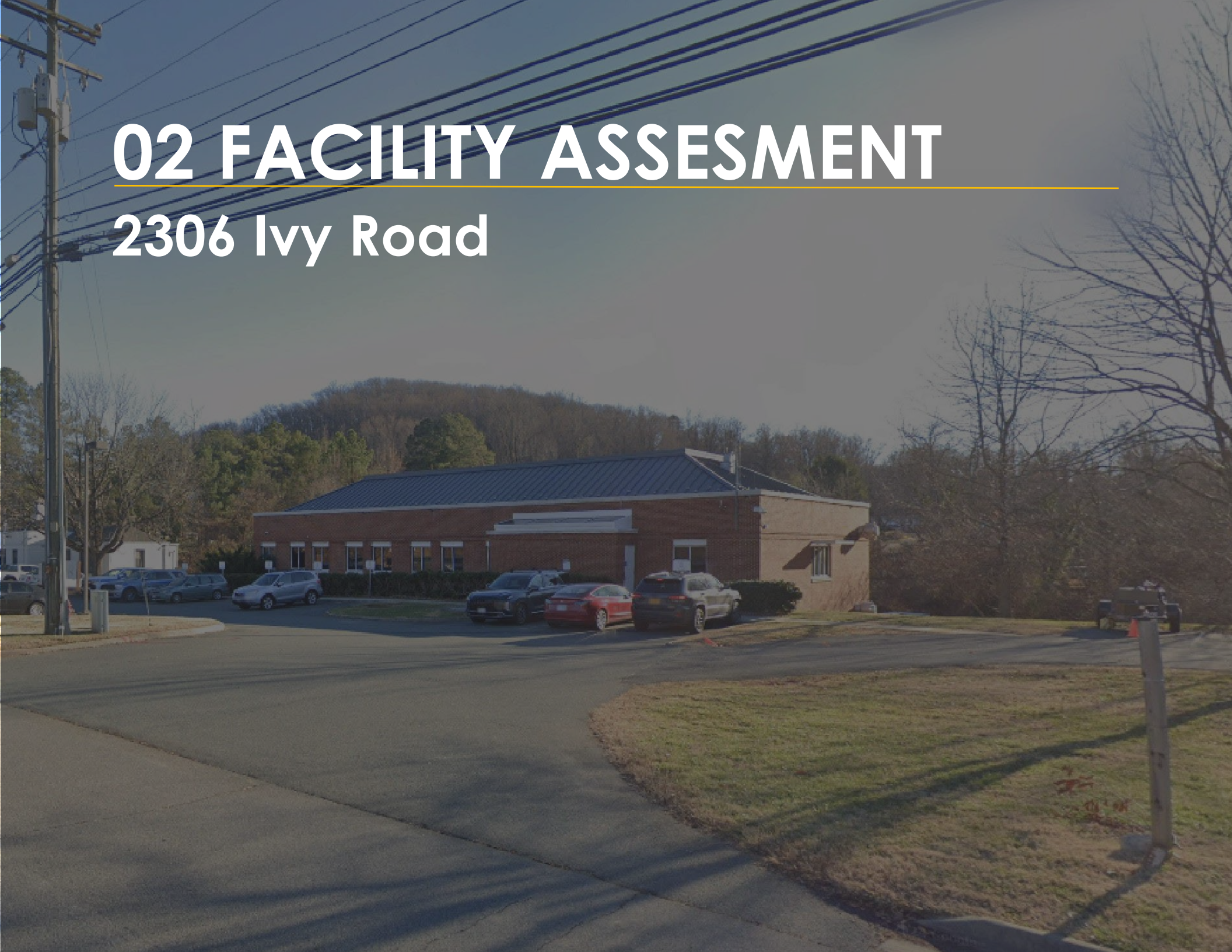
A separate set of worksheets is provided in Section 06 describing all portions of the project further.

OVERALL SUMMARY

The Planning Team has been privileged to work with CUAECC on this Study. The concern for enhancing the level of service for the region's residents and visitors was evident throughout the process. We look forward to an opportunity to further support the CUAECC with respect to this Study and its outcomes in any way that we can.

02 FACILITY ASSESMENT

2306 Ivy Road



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SITE + BUILDING OVERVIEW

INTRODUCTION

The existing facilities are located at 2304 and 2306 Ivy Road in a central location within Albemarle County. The Ivy Road site provides access to route 29 and is close to interstate highway 64. The site is currently accessed by staff and the public from Ivy Road (east bound). There are three points of access from Ivy Road into the site, two at the building frontage the other by maintenance road that access the back of the site.

The buildings are located prominently along Ivy Road and will serve as an accessible location for Emergency Management services. The site offers several opportunities that are typically critical to mission critical facilities. It has access to major arterials; it has proximity to other government buildings and geographically it provides relatively similar distance access to various parts of the county. The existing buildings sit close to the roadway which does not allow for the recommended standoff distance for a critical infrastructure facility. It is recommended the site be supplemented with some level of force protection along Ivy Road. The location of the buildings on site helps with the site design, allowing for more space on the site for additions and expansions. The proximity to the roadway will require careful planning of site deterrents to minimize the opportunity for accidental or intentional vehicular penetration of the site and building. Cast concrete seating walls, heavy concrete planters or other devices will provide the requisite level of protection.

The CUAECC building at 2306 Ivy Road was constructed in 1997 and designed by Hayes, Seay, Mattern and Mattern Architects. The existing UVA police building at 2304 Ivy Road predates the CUAECC building and does not appear on historic maps until after the 1960s, its exact date of construction could not be determined. It is believed the building was originally constructed as a convenience store before being renovated into the current UVA police department. While both buildings are currently mission critical facilities their existing systems are largely antiquated and in need of replacement. The builds interiors will need to be significantly altered and additions will be needed to accommodate the program outlined.

The CUAECC building structure appears in good condition, but additional investigation will be needed to determine if reinforcement is needed to bring it up to current risk category 4 levels. Little information on the UVA police building was available, and the condition of its structure was not obtainable.

At minimum it is recommended the "hardened" components of the building program technology infrastructure be located in the new construction of the buildings addition that would meet the Essential Facility Code compliance construction.

The available area for building expansion is one of the greatest attributes of the site. The location of the Ivy Road site within the community, the positioning of the existing building on the site and the capabilities of the site to accommodate expansion provides a promising opportunity for the location of CUAECC.

SITE OBSERVATIONS

SITE ACCESS

The site is accessible directly from Ivy Road. There is access to the parking area from the roadway at three locations. Dual access is desirable from a security and control perspective to allow for separation of the general public parking from the secure entry for emergency personnel.

SITE ASPHALT + CURBING

The parking lot is graded and sloped to storm drainage swale locations along the front and rear of the property. Drainage appears to be positive away from the building. In general, the site appears to function well. The existing asphalt paving shows signs of cracking throughout and parking space need re-stripping. The asphalt and curbing will need to be replaced to accommodate the building expansion. A new parking lot will be needed on site to accommodate the parking needs of the facility.

RECEIVING AREA

There is currently not a primary receiving area. A new receiving area will need to be evaluated for the emergency management and communication facility during the design phase. It is recommended a portion of the site be secured for the facility need and separated from the existing site. The need for a loading dock within the secured area will also need to be evaluated during the design phase. A yard enclosure would also be recommended to securely contain the emergency generator and trash receptacles.

SITE SIGNAGE

Existing site signage was observed. Site directional signage will need to be added updated following the design process.

PEDESTRIAN CIRCULATION + ADA ACCESS

There are existing pedestrian walkways from the parking lots to the building entrances. Employees and visitors exiting their cars can access the entrance thru the parking lot and sidewalk to approach the building. ADA parking spaces are marked. The concrete sidewalks appear to be in good condition. The building entrances appear to be located on accessible routes that meet ADA code requirements.

LANDSCAPING

Site landscaping appears to be in good condition. Trees and shrubbery near the main entry should be pruned and cut back. New landscaping will be needed to accommodate the facility expansion once security systems are evaluated for visual control of the exterior building perimeter.

Figure 1:CUAECC building at 2306 Ivy Road – front entrance.

Figure 2: CUAECC building at 2306 Ivy Road - back entrance.

Figure 3: UVA police building at 2304 Ivy Road - front entrance.

Figure 4: UVA police building at 2304 Ivy Road - back.

ARCHITECTURAL OBSERVATIONS

The building has been updated and outfitted several times over the past several years to accommodate the functions contained inside. However, building systems such as HVAC and plumbing still present limitations, and maintenance issues due to age. Even with water main and sewer system replacements, these issues haven't been resolved. Overall, the building envelopes (exterior wall and roofs) appear generally to be in good condition and will only be replaced to accommodate new program area as needed. The interior configuration of both buildings will need to be substantially redeveloped to accommodate the program and create a modern PSAP, EOC, and regional partner space. Interior walls, floors and ceiling finishes will be replaced as part of the building renovations and expansion.

CUAECC OBSERVATIONS

EXTERIOR

The existing building is a reinforced masonry wall construction with a brick masonry veneer that continues around the perimeter of the building. The primary entrance to the building is on the south side (opposite Ivy Road) and is defined by masonry wingwall and canopy overhang with roofed balcony above. The entrance is comprised of aluminum storefront framing and insulated glazing and transom.

Exterior windows are framed with a steel c-channel and hss-tube header and precast concrete sill. Exterior windows are individual framed units consisting of fixed white aluminum frames with insulated glass. Exterior window frames appear to be in good condition. Aluminum sunshades are provided at windows on the East, South and West elevations.

The existing sloped standing seam metal roof appears to be in good condition. The membrane portion of the roof could not be evaluated. Roofs slope to internal roof gutter drainage system with thru-wall overflow scuppers. There was no indication of any ponding areas on the roof.

Currently, roof penetration appears to be limited. Historically there have been repeated roof leaks. Frequent roof patching and associated interior repairs to dry wall and ceiling tiles have been necessary. There are no rooftop units present.

There is one stair tower supporting means of egress in the building along with one elevator for vertical circulation. Elevators appear to be in good working condition.

The building structure appears solid, no structural cracking or displacement was observed.

TYPICAL EXTERIOR WALL CONSTRUCTION

Exterior wall construction is 4-inch brick masonry veneer over 2-inch cavity space (with 1-inch insulation board) over 8-inch concrete masonry block back-up. The exterior envelope of the building is generally in good condition. There is evidence of effervescent at multiple locations, which could indicate failing flashing and should be investigated further. New flashing should be installed under the precast copings and replacement of all exterior sealant at control joint, expansion joint, and at thru-wall penetration locations should be considered and raked out and new backer-rod and sealant installed as part of the renovation and expansion project.

TYPICAL INTERIOR WALL CONSTRUCTION

Interior wall types mainly consisted of metal framed drywall partitions with a finished paint surface and painted masonry block painted. The interior metal framed drywall partitions used for construction typically extend from the concrete floor slab to the underside of the roof deck or structure above. Metal stud wall framing is beneficial in that it permits and accelerated retrofit of any wall reconfiguration necessary to accommodate program requirements. In general, many spaces and wall surfaces could use a fresh coat of paint where they are intended to remain.

BUILDING SYSTEMS

The facility has been upfitted several times over the past decade to accommodate the functions contained inside. However, building systems such as HVAC and plumbing still present limitations. System failures issues due to the age of the facility frequently present themselves. Even with replacements to both the water main and sewer system, these issues haven't been resolved.

WINDOW SYSTEMS

Existing window systems are 1-inch-thick insulated glass set within a white finish aluminum storefront window systems that are original to the building. These window systems appear to be in good condition. To provide better thermal and acoustic performance replacement of the existing insulated glass with high performance insulated glazing units is recommended.

TYPICAL INTERIOR DOOR

The interior doors are generally a heavy-duty commercial wood (with a stained finish) set within painted hollow metal knock-down or hollow metal frames (painted). All existing door hardware appears to meet ADA compliant (lever type) standards. ADA compliant door hardware is required for all new doors.

TYPICAL EXTERIOR DOOR

Exterior doors are aluminum as part of aluminum storefront assembly or painted hollow metal with a hollow metal frame. Exterior doors appear to be in good condition.

TYPICAL SIGNAGE

Interior signage is limited throughout the building and would be replaced to meet current ADA criteria (including height and location at door openings).

TOILET ROOMS

All Toilet Rooms' existing toilet rooms are in good condition and appear to meet current ADA criteria and clear dimensional requirements. This includes all toilet room fixtures and accessories, grab bar arrangements, and partition hardware. Toilet rooms are to be cleaned for future use.

WINDOW SHADES

The existing window shades are dated although appear to be functional. Replacement of the existing window shading device with Hunter Douglas or Meco Shades is recommended.

CUAECC PHOTOGRAPHS

Photographs of the CUAECC building located at 2306 Ivy Road, Charlottesville, VA .

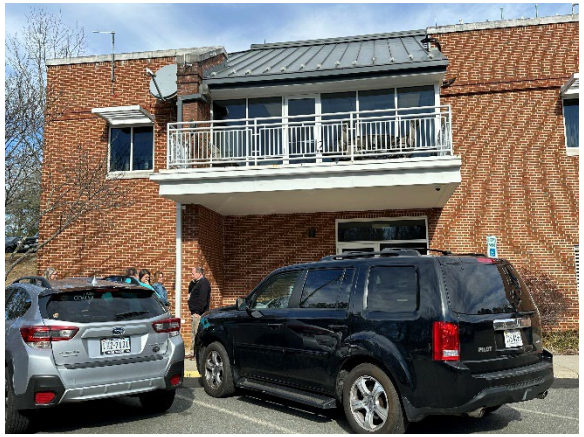

Figure 1: Primary Entrance - South Elevation

Figure 2: South Elevation

Figure 3: Accessory building (occupied by UVA police)

Figure 4: Multipurpose Room

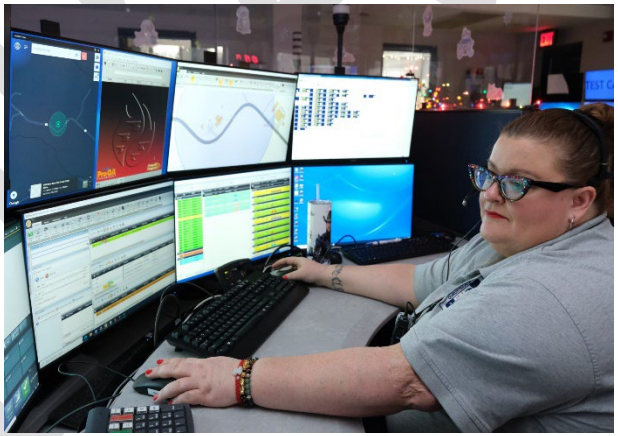

Figure 5: Communications center (PSAP)

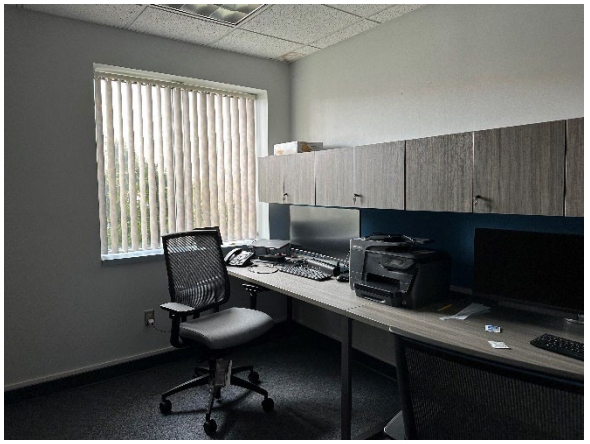

Figure 6: Typical Office

UVA POLICE OBSERVATIONS

EXTERIOR

The existing building is a painted brick masonry veneer that continues around the perimeter of the building. The primary entrance to the building is on the north façade (facing Ivy Road) and is defined by aluminum storefront framing and insulated glazing and transom.

Exterior windows are framed with brick sills. Exterior windows are individual framed units consisting of fixed white aluminum frames with insulated glass. Exterior window frames appear to be in relatively decent condition.

The existing sloped shingle roof appears to be in good condition. The membrane portion of the roof could not be evaluated. Roofs slope to roof gutter drainage system.

There was no indication of any ponding areas on the roof. Roof penetration appears to be limited. There are no rooftop units present.

INTERIOR

The design team was not permitted to enter the UVA police building and could not evaluate the condition of the interior or validate structural integrity. It is understood that the station was renovated within the last five years.

Figure 6: Primary Entrance - North Facade

Figure 8: East Elevation

Figure 9: South Elevation

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03 STRUCTURAL OVERVIEW

STRUCTURAL OBSERVATIONS

GENERAL

SCHRADERGROUP was requested to review site #3 and determine feasibility of using the structure as an essential services building. The structural observations are based on the drawings provided for the building.

STRUCTURAL ASSESSMENT

We have received and reviewed portions of the original structural construction documents for the referenced building. It is our understanding you are considering two renovation options: 1) feasibility of meeting ICC 500 requirements for a hardened facility, or 2) feasibility of meeting the International Building Code (IBC) and American Society of Civil Engineers (ASCE) Standard 7 requirements for a Risk Occupancy Category (ROC) IV, Essential Facility.

DESCRIPTION AND ANALYSIS

Existing drawings date from 1979 and do not contain any data relative to original design load criteria or applicable design code(s). The superstructure is a light-weight structural steel framework (wide-flange columns and roof girders) supporting open-web bar joists that are covered with a 1½"-deep, 22-gauge metal roof deck. Perimeter walls are a mixture of cold-formed metal framing (metal studs) and concrete masonry units (CMU).

We offer the following observations and comments based on our review of the drawings and experience with similar projects:

- Most of the roof structure is supported by 22H7 joists, spanning 36 feet, spaced approximately 5.8 feet apart. This component of the overall system has a live load capacity of about 27 PSF. The current IBC/ASCE snow load for a ROC-IV facility in this area is 26 PSF.

- Model codes from this era indicate that this building was likely designed for a 15 PSF laterally imparted wind load. The current IBC/ASCE ROC-IV wind loading for this building is 28 PSF for the Main Wind-Force Resisting system and will likely be higher for individual component and cladding elements, and the roof.

- At the time this building was designed, the only codified requirements for seismic design were in the Uniform Building Code (UBC). Following the UBC methods, the design base shear for this building is approximately 5% of the building weight. The current IBC/ASCE seismic loading for this facility is 11% of the building weight. We don't know if the UBC was in-effect when this building was designed; thus, these requirements may not have been considered.

CONCLUSIONS

Based on our review of available documents and cursory analyses, it is physically improbable and cost-prohibitive to rehabilitate this existing building to meet the requirements of an ICC-500 Storm Shelter facility. Loading requirements for this type of facility are orders-of-magnitude beyond the original design loads.

While it is possible to achieve a load-rating consistent with the current IBC/ASCE requirements for an ROC-IV facility, it will require a significant amount of rehabilitation and reinforcement

work to all the existing structural elements (e.g., roof, walls, steel framing, foundations, etc.).

- While the snow load capacity of the existing roof is sufficient for the current IBC/ASCE code loading requirements, there is no excess capacity for any newly applied loads beyond a lightweight ceiling/lights, miscellaneous ductwork and electrical conduit. Moreover, joist elements are not well-suited to in-place reinforcement for any more than small increases in load-carrying capacity.

- The metal roof deck provides almost no resistance to flying debris impact and penetration during high-wind events. Further, because of the limited structural capacity, there is no reasonable potential to add penetration resistance layering (e.g., plywood) to the existing deck without exceeding the load-carrying capacity.

- In both cases of wind and seismic loads, the current code loading is roughly double the apparent original design. It is not uncommon for buildings to have inherent safety factors and excess load-carrying capacity on the order of ±20%. In this case, the current load values far exceed any potential excess capacity.

- To withstand the current wind and seismic loads, new lateral load-resisting elements are required within the building. These may take the form of structural steel bracing or masonry shear walls at various locations. Further, with no information regarding any vertical reinforcement in the perimeter masonry walls, these elements will need to be reinforced in place. There are a variety of options to perform this work; however, in all instances, these methods are all significantly disruptive and costly, particularly for a building this size

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04 TECHNOLOGY OVERVIEW

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TECHNOLOGY INFRASTRUCTURE

INTRODUCTION

The Charlottesville-UVA-Albemarle Emergency Communications Center (CUAECC) is a medium sized public safety answer point designed to support 911 call-taking and first responder dispatch. The center holds multiple professional accreditations and certifications. The staff of 60+ individuals process over 235,000 incoming 911 and administrative calls annually. Telecommunicators are responsible for call-handling and dispatching for Albemarle County and Charlottesville Fire Departments, multiple volunteer fire departments, Albemarle County, City of Charlottesville, and University of Virginia Police Departments. Currently, CUAECC is a two-level facility with a lobby and network room on the first floor and a 24 x 7 staffed operations floor, conference room, a kitchen, and various offices on the second floor. Additional CUAECC technology and communication infrastructure is located at the satellite office and a backup facility identified earlier.

Over the course of a year, Mission Critical Partners, and Schrader Group Architecture (SGA) have worked closely with the CUAECC leadership team to conduct a space programming analysis and technology assessment of their facility and prioritize agency needs. This brief identifies opportunities to meet those needs through systems and infrastructure improvements and defines how to best implement and safeguard systems in a new facility.

To be successful, the facility should conform to standards from organizations such as the National Fire Protection Association (NFPA), Telecommunications Industry Association (TIA), and National Emergency Number Association (NENA) and best practices from organizations such as the Federal Emergency Management Agency (FEMA) and L3 Harris.

NFPA 75, Standard for the Fire Protection of Information Technology Equipment	TIA-569, Telecommunications Pathways and Spaces	TIA-607, Generic Telecommunications Bonding and Grounding (Earthing) for Customer Premises
Criminal Justice Information Service (CJIS) Security Policy	NFPA 1225, Standard for Emergency Services Communications	NFPA 37, Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines
International Building Code (IBC)	NFPA 70, National Electrical Code®	International Code Council® (ICC®) 500, ICC/NSSA.1 Standard for the Design and Construction of Storm Shelters

Providing a 911 center with technology protected by these standards is a process that begins with schematic design and continues through design development, construction documents, and construction. When selecting a contractor, stakeholders should seek those experienced in public safety facilities and technology including radio infrastructure, fiber, power, lightning protection, and grounding.

1 National Storm Shelter Association (NASA®)

The components of critical Emergency Communications Centers (ECC) guided by these standards include building, technology, and communications systems defined below.

SYSTEMS		
BUILDING	**TECHNOLOGY**	**COMMUNICATIONS**
Uninterruptible power supply (UPS) system	Structured Cabling	Logging recorder
Generator	Cybersecurity	911 call-handling equipment (CHE)
Secure Data Center	Redundant pathways	Dispatch workstations Furniture
Computer room air conditioning (CRAC) unit(s)	Audiovisual (AV) system	Radio tower
NetClock	Network connectivity	Radio consoles and equipment
Building access, control, and security	Dispatch Workstations	Communications network microwave system
Furnishings, fixtures, and equipment (FF&E)	Computer-aided dispatch system and server(s)	EOC/MAC Tools

BUILDING SYSTEMS

A Public Safety Answering Point (PSAP) is considered infrastructure critical to emergency response and disaster recovery in any community. As such, building systems should be redundant, reliable, and of public safety grade. Beyond enhanced mechanical, electrical, and plumbing (MEP) systems, characteristics of the facility related to data security and continuity of operations were evaluated.

UPS & Generator

Currently, backup power is through dedicated UPS in the data center. A second component for resilience includes a diesel-powered generator dedicated to the same critical and life-safety systems.

Data Center

CUAECC has a geo-diverse data center containing a combination of cabinets and four-post racks. They contain a combination of both decommissioned and active equipment. Cable organization could be improved with enclosed units incorporating horizontal cable management. However, such clean-up presents a challenge for staff wishing to remove old equipment as the data center has new connections and older unlabeled ones, increasing the risk of an accidental disconnect of active equipment.

Additionally, network connectivity, ECC servers, and necessary radio equipment are housed on the main level of the facility just off the lobby. This location minimally protects the equipment from manmade threats, including physical security best practices. Storm threats are not addressed in the non-hardened facility. Space limitations force staff to also utilize the space as storage, which increases the dust and unnecessary foot-traffic in the data center.

To support the activity and future growth of the ECC, its public safety network infrastructure should be centralized on a raised floor data center with 20 server rack enclosures. Each rack must be lockable and include redundant power distribution, grounding, and patch panel capacity.

Netclock

A single source time server is being utilized in the facility and critical systems are tied into the equipment. This aligns with best practices in the industry. These servers typically have a useful life of five to seven years. A new server and displays with Power-over-Ethernet (POE) cabling backed up with generator power can be installed throughout any new facility to maximize awareness. Modern displays provide day, date, weather, local time and additional time zones. Given the entities dispatched by the ECC are all inside the Eastern Standard Time Zone, the ECC could purchase the simplest , *local time* displays and place them in several shared areas and key locations throughout the facility.

Building Access Control and Security

Set-backs and security systems in the current facility do not meet NFPA 1221 critical-infrastructure standards. Any future facility (property and building) should be protected through integrated building security system components. This includes strict access control, security fencing, building systems barriers, and video surveillance.

All exterior, operations floor, and data center doors should be restricted, locked, and controlled by proximity card readers with PIN capability. All exterior doors and gates must be equipped with electronic locks and a camera with an intercom. By NFPA 1225 standards, any door allowing ingress to the facility must have a security vestibule. Any egress-only doors require audible alarm detection through door contacts.

The surveillance system will observe the building perimeter and parking areas, as well as specific points inside the facility, including entry points, storage, equipment areas, and other owner-defined locations.

The security system should include the ability to retain video recordings on network storage for retention and recall of footage. The cameras should be high-resolution, IP-based cameras that automatically handle low-light situations.

FFE

A recent purchase of furniture in the conference room and kitchen provide useful seating for activities in these spaces. The recommendation would be to purchase new furniture for the new PSAP, and spaces used for both critical operations and daily activity. A single procurement under a buyer's agreement would allow a single vendor to work with the county for seating, surfaces, and soft space furniture. This is ideal for coordination leading up to building occupancy, inventory tracking, and maintenance and warranty claims.

TECHNOLOGY SYSTEMS

Structured Cabling

A structured cabling system (SCS) will provide maximum flexibility as technology evolves. The SCS design would support evolving connections to telephones, workstations, wireless access points (WAPs), security cameras, and other Internet Protocol (IP) devices. Future connectivity should be based on Category 6 (CAT 6) or CAT 6A cables with appropriate labeling. Any installation can be added to a general contractor's scope but must include specifications for performance requirements, terminations, labelling, testing, and certification.

Cybersecurity

CUAECC conducts penetration testing, installs critical system updates routinely and shares industry updates and reminders with the staff regarding this vital infrastructure protection. In

addition to firewalls, encryption, and audits, the ECC should continue their hybrid approach to their infrastructure to reduce disruption while allowing technologies to continue to evolve. End-user protection and many endpoint protections are in place in the ECC. A deep-dive defense review that includes Governance and Risk Management, Security Information Event Management (SIEM), and Perimeter, Platform, Endpoint Security may be considered to identify any gaps in the current defense protocols.

Redundant Pathways

The core of the ECC network can be supported over four 48-port switches, which will support power over Ethernet (PoE) for network devices including WAPs. PoE and other data drops for computers, printers, access control and security camera hardware, WAPs, AV and NetClock displays should be coordinated with ECC leadership in any future design effort. Any technology plan should include the consideration for expanded data cabling due to evolving public safety needs and industry standards compliance.

Additionally, dedicating both pathways to a single internet provider creates a single point of failure. The ECC currently has only one vendor for these critical services. An additional vendor should be considered in future facility continuity planning.

Audiovisual (AV)

A multi-source AV system with displays throughout the ECC including the training room and on the operations floor. The core of the system could be a matrix switch with locally programed sources for switched distribution to attached large monitors. Local channels, coax cable feed, computer input via high-definition multimedia interface (HDMI), and wireless streaming sources should all be accessible to maximize content options.

Telecommunicators are tethered to the 911 systems via individual headsets. Promoting the safety of staff means protecting the equipment—and by extension the telecommunicators—from any power surge or lightning strike. Vigorous grounding requirements throughout the facility, including the operations floor and the data center, must be adhered to. The communications tower and fencing also require stringent protection from lightning threats. All connectivity at the current site supports this effort and, upon initial inspection, appears to comply with technology requirements and industry standards.

Another important consideration is the need for appropriate distancing to reduce airborne transmission of viruses; the current facility does not allow for such spacing. The purchase of all new workstation furniture is suggested to maintain a cohesive visual space and to ensure consistent data cabling installations.

COMMUNICATIONS SYSTEMS

Logging Recorder

Both telephone and radio transmissions are recorded on a logging recorder that is capable of retaining the records required by statue. CUAECC has a vendor warranty and maintenance agreement for repairs and updates as needed. The recorder may transition to a new facility based on the remaining life of the equipment.

911 call handling equipment (CHE)

The ECC utilizes on-premises Motorola VESTA equipment in a CHE cabinet in the data center. This public safety call-handling solution is a geo-diverse system with redundant pathways into the current facility. Given the hybrid solution is both cloud and on-premises, the ability to route 911 calls during an evacuation of the CUAECC would be a significant advantage should the community decide to relocate during any construction or renovation. The transition to the Emergency Services IP network (ESInet) is part of future facility upgrades. The transition can easily be incorporated into any facility project as part of the technology migration plan.

Dispatch Workstations

The 911 workstation furniture has recently been replaced and is in good condition. Any facility project should incorporate current needs and allow for growth to accommodate additional staff. Based on the recent call volume and staffing studies, 15 positions with three for growth is appropriate for the ECC. However, the current space prohibits more than ten positions. This maxed out square footage prohibits the installation of the appropriate number of positions needed today.

Radio Tower

The on-site CUAECC radio tower was constructed in 2000 and is stand-alone tower complete with a ground ring and ample capability. There is significant life remaining in the structure. the site will be reliable with capacity for expansion well into the future.

Radio Consoles & Equipment: Microwave

MCP supported the implementation of a microwave system during the CUAECC transition to Harris radio. This system has a life of 10-15 years. While it would be possible to move some of the equipment should CUAECC decide to relocate their ECC, it could be cost prohibitive, may require environmental impact study, and engagement of a radio vendor for reengineering.

Wellness

CUAECC is well ahead of many ECC's when it comes to their consideration of employee wellness. With the adoption of an ECC companion animal, sit-stand furniture, and mindfulness apps available on-site, it is clearly a priority for leadership. In the renovation of the current ECC, some considerations were unavailable due to space limitation. These include:

- Proximity to food preparation, filtered water, and restroom facilities
- Adequate spacing between workstations
- Building systems that include HEPA filtration and shut-off ventilation
- Properly equipped stress-reduction, lactation, and work-out rooms
- Access to a secure outdoor space with lawn or plants

In addition to space constraints, a new facility would allow for the incorporation of these wellness items.

- Anti-bacterial surfaces
- Soft sight considerations in lighting and design

The ECC's companion animal may also be considered by including a fenced-in egress-only door near the operations floor.

Emergency Operations and Multi-Agency Coordination Centers

Additional emergency management and coordination space is included in the conceptual space and overall programming of this facility. Currently, stakeholder agencies gather in an open space that will be unavailable in future months.

Some building systems designed for PSAP operations and safety such as, access control, data center space, redundant systems, low voltage cabling, and network connectivity can be shared with these centers. Independent servers, audio/visual displays, computers, and antenna will be required to maximize operations and are technology costs that have not been included in this report.

Cost and Budget

ECC technology costs are estimated at $4,170,800.

During cost estimating the migration to a new facility, consideration was given to various technologies that won't have reached end-of-life and can migrate to a new facility.

These include Call handling equipment, and the recent radio system. Considerations are dependent upon the start date of construction, many components have a useful life of 5-7 years. The most significant technology cost savings was realized when the existing communications tower was be utilized.

When considering alternate facility sites, both a renovation site and "green" site, the benefit of communication pathways already established at the current site saved significant cost. Therefore, an addition of a radio tower, microwave, and redundant fiber pathways must be added to this estimate, increasing technology costs by approximately $1,375,000.

*Emergency Operations Center technology in the form of monitors, laptops, situational displays, and connectivity are not included in this cost estimate.

Data management and security should comply with state and federal requirements to ensure the physical and data security of critical systems.

PSAP Technology	Current Site	Renovation Site	Green site	Reno-Current
CAD / Mapping Software (*18)	$ 270,000.00	$ 270,000.00	$ 270,000.00	$ -
EMD/EFD/EPD Protocols (*5)	$ 75,000.00	$ 75,000.00	$ 75,000.00	$ -
Radio Consoles (*18)	$ 1,800,000.00	$ 1,800,000.00	$ 1,800,000.00	$ -
Radio Backup	$ -	$ -	$ -	$ -
Radio Tower	$ -	$ 800,000.00	$ 800,000.00	$ 800,000.00
Microwave	$ -	$ 200,000.00	$ 200,000.00	$ 200,000.00
Logging Recorder	$ 120,000.00	$ 120,000.00	$ 120,000.00	$ -
PSAP A/V	$ 550,000.00	$ 550,000.00	$ 550,000.00	$ -
PSAP Computer Monitors (*18)	$ 86,400.00	$ 86,400.00	$ 86,400.00	
PSAP Computers (*54)	$ 124,200.00	$ 124,200.00	$ 124,200.00	$ -
KVM (*18)	$ 16,200.00	$ 16,200.00	$ 16,200.00	$ -
Cabinets / Racks (*20)	$ 60,000.00	$ 60,000.00	$ 60,000.00	$ -
Connectivity to County Network	$ 125,000.00	$ 500,000.00	$ 500,000.00	$ 375,000.00
Dispatch Furniture (*18)	$ 360,000.00	$ 360,000.00	$ 360,000.00	$ -
24/7 Chairs (*18)	$ 55,000.00	$ 55,000.00	$ 55,000.00	$ -
Netclock & Displays	$ 29,000.00	$ 29,000.00	$ 29,000.00	$ -
Structured Cabling	Possible inclusion in facility cost			
Distributed Antenna system (DAS)	Possible inclusion in facility cost			
911 Call Handling Equipment (*18)	$ -	$ -	$ -	$ -
Technology Contingency	$ 500,000.00	$ 500,000.00	$ 500,000.00	$ -
PSAP Technology Total	**$ 4,170,800.00**	**$ 5,545,800.00**	**$ 5,545,800.00**	**$ 1,375,000.00**

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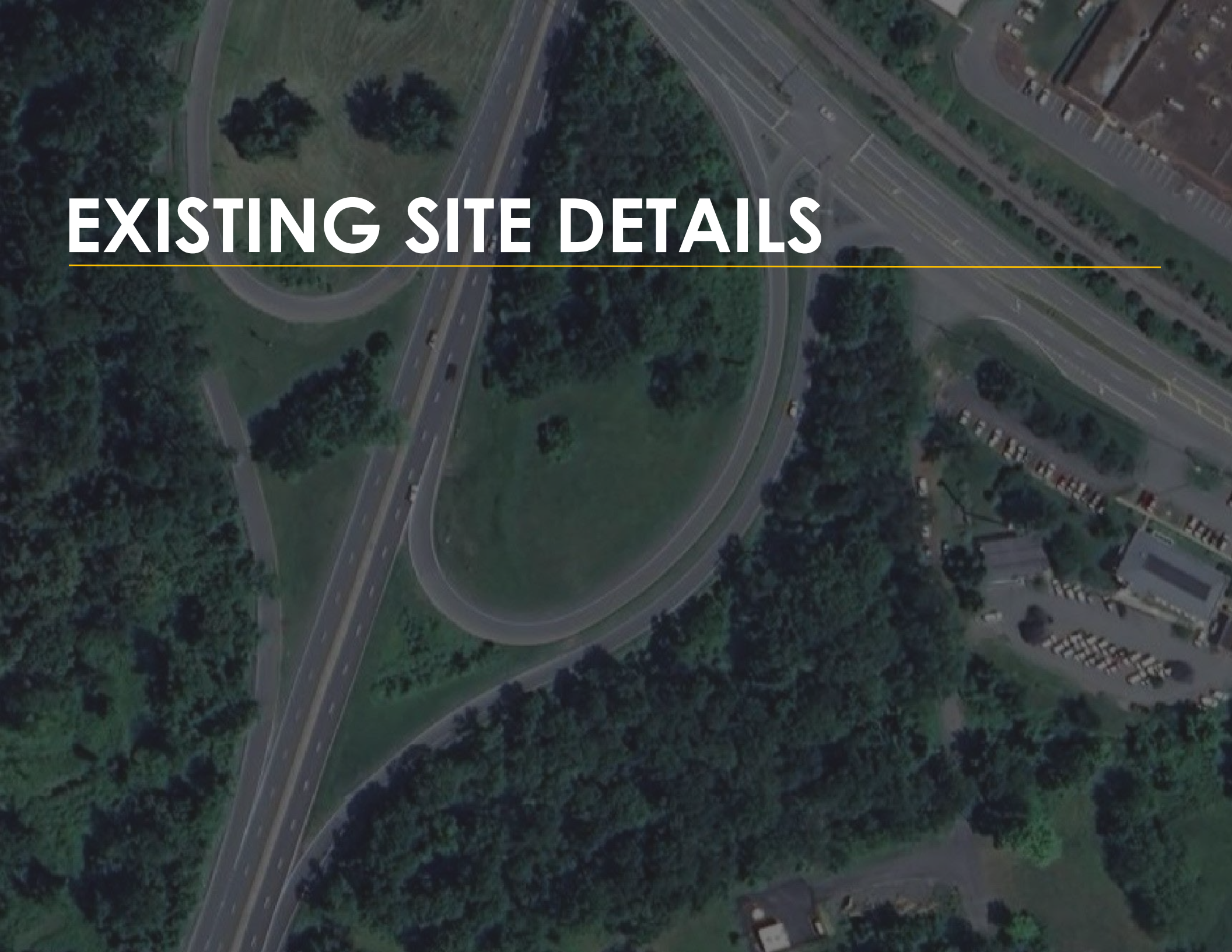
EXISTING SITE DETAILS



SITE

SUMMARY

SG has collected available data and visually inspected the existing CUAECC site located at 2304-2306 Ivy Road, Charlotteville VA. The existing location is generally central to Albemarle County, the City of Charlottesville, and the University of Virginia.

The site has been evaluated to determine general site suitability including factors such as: access, adequate available space, security, topography, soils, flooding potential, wetland impacts, and utility availability. It should be noted that thew site is zoned Residential (R1) by Albemarle and permits by special use construction of civic facilities.

Proposed Existing Ivy Road (CUAECC/UVA Police) Site

Proposed Site is runs largely parallel with Ivy Road. The site is made up of two plots, 60-30C and 60-30F with a combined acreage of approximately 4.46 acres. Two buildings occupy the site, the current CUAECC and the UVA police department, along with three temporary trailers. The proximity of the site to Route 29 and interstate highway 64 provides convenient access to all portions of Albemarle County.

The site frontage is cleared and wooded to the rear (south) of the buildings. The topography of the site varies with some portions being relatively flat, with a steeper slopped ridge running through the middle of the two existing buildings. The site is not located in a flood hazard zone. Additional research will be needed to determine wetland status. There are no identified streams adjacent to or crossing through the site per the USGS Topographic Map.

Electricity is provided to the site via aerial power lines along Ivy Road then underground utility conduits from the pole to the existing buildings from the north side of the site. Additional investigation is needed to determine public water main and branch pipe.

Both buildings appear to be connected to the public sewer. Additional investigation is needed to determine sanitary line connections.

Natural gas is available at the UVA Police building.

Figure 7: Site Boundary Map and total acreage 4.46 acres.

Alternate Site

As part of the study an alternate site was reviewed as part of the feasibility study. Two adjoined sites were reviewed, located at an undisclosed location in Charlottesville VA. with a combined acreage of approximately 3.892 acres. One commercial building occupies the site The proximity of the site to Route 250 and interstate highway 64 provides convenient access to all portions of Albemarle County.

The site is largely wooded. The topography of the site varies with some portions being relatively flat, with a steep slopped ridge running through a portion of the site. A large portion of the site is in a flood hazard zone. Additional research will be needed to determine wetland status. There is a stream crossing through the site per the USGS Topographic Map.

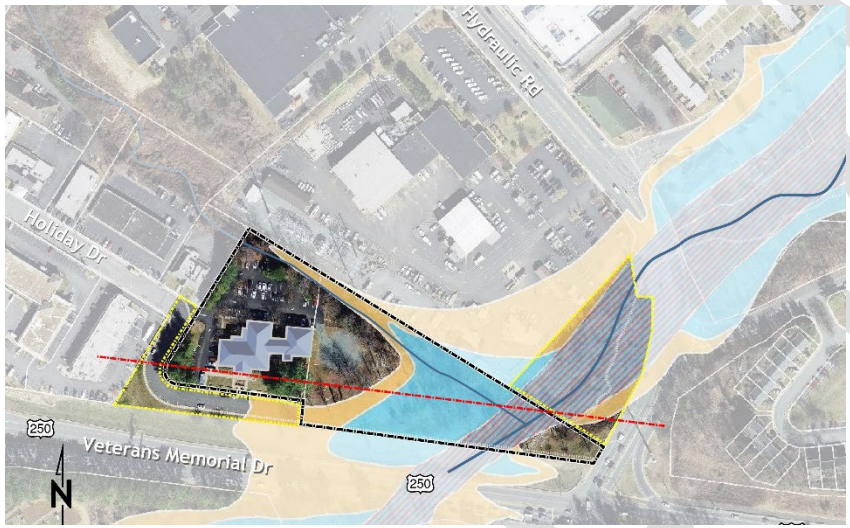


Figure 8: Site Boundary Map with flood zone comparison.

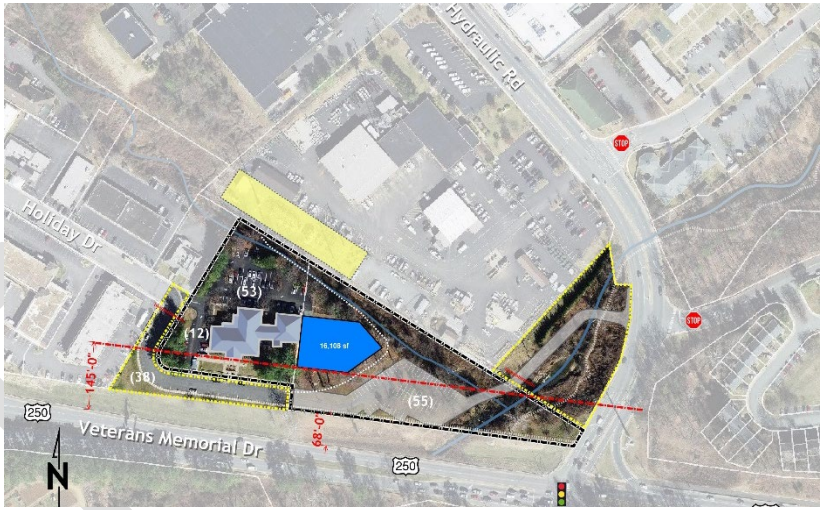


Figure 9: Site building area.

After the site analysis was complete the site was determined to be unusable for the CUAECC facility.

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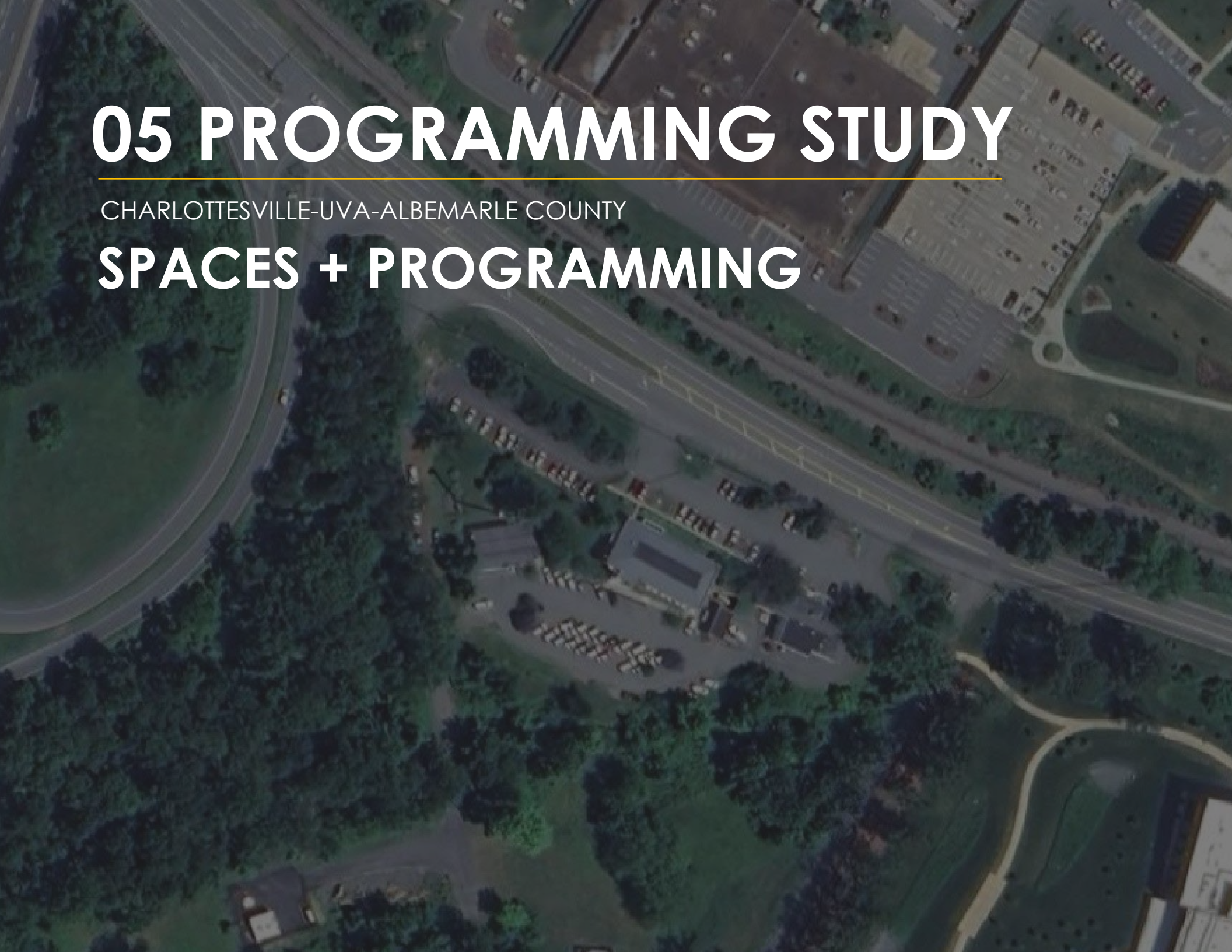

05 PROGRAMMING STUDY

CHARLOTTESVILLE-UVA-ALBEMARLE COUNTY

SPACES + PROGRAMMING

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05 PROGRAMMING STUDY

INTRODUCTION

The Mission Critical Partners (MCP) and SCHRADERGROUP (SG) planning team worked with a team comprised of representatives from Albemarle County in January of 2023 to verify a space program for a facility representing current standards in the industry. The goal was to determine anticipated future space needs for the proposed UVAECC Facility.

The programming information is used as the basis for locating functions within the concept blocking plans developed later in this document. What follows are the building elements anticipated for the proposed facility. The Concept Design Options identified in Section 5 and the Concept Budgets described in Section 6 reflect the building program outlined here.

SPACE STANDARDS

The program study uses Space Standards agreed to with the planning team at the meeting in MONTH. The standards utilized are as follows:

POSITION	STANDARD AREA (SF)
Director Office	180 SF
Manager Office	120 SF
Private Office	120 SF
Office Workstation	100 SF
EOC Workstation	35 SF
ECC Supervisor Workstation	100 SF
ECC Communication Workstation	100 SF
Conference/Training	25 SF per person

The programming worksheet then utilizes a net to gross square footage conversion for each workstation or office type. Typically, our worksheet will show a 50% NSF to GSF conversion for workstation spaces and a 30% NSF to GSF conversion for office spaces. Various other spaces receive other conversion factors. This tallies into a total GSF for each of the parts of the facility and then a total building NSF to GSF allocation of 10% is applied to cover exterior walls and other utility spaces.

PROGRAM SUMMARY

Following the programming workshop, a program document was developed. Ultimately the program document breaks the facility into four major components. The gross square footage program for a state-of-the-art facility to serve the needs of the County is as follows:

MAIN BUILDING

Regional Communications Center	15,813 SF
Regional Emergency Management and EOC	18,608 SF
Regional Public Safety Resources Center	12,126 SF
Regional Information Technology Division	7,819 SF
Subtotal	**54,366 NSF**
Net to Gross Conversion	5,437 SF
TOTAL PROPOSED BUILDING AREA	**59,803 GSF**

Charlottesville-UVA-Albemarle County, VA
PROGRAMMING & PLANNING STUDY

24-Oct-23

PROGRAM SUMMARY		NSF	Factor		GSF	Total
1.0	REGIONAL COMMUNICATION CENTER	11622	33	%	4081	15813
2.0	REGIONAL EMERGENCY MANAGEMENT AND EOC	13157	37	%	5451	18608
3.0	REGIONAL PUBLIC SAFETY RESOURCE CENTER	8780	28	%	3346	12126
4.0	REGIONAL INFORMATION TECHNOLOGY DIVISION	5945	34	%	1874	7819
	SUBTOTAL BUILDING	39504	33	%	14752	54366
	Building GSF @ 10%				5437	
	TOTAL BUILDING	39504			20189	59803
	GRAND TOTAL COMPLEX	39504			20189	59803

		Space Code	Area/ Unit	Proposed # Units	NSF	Grossing Factor		GSF	Total	Comments
1.0	REGIONAL COMMUNICATION CENTER									
1.1	Administration									
1.1.1	Executive Director	CO	240	1	240	30	%	72	312	
1.1.2	Deputy Director - Operations	CO	180	1	180	30	%	54	234	
1.1.3	Deputy Director - Support Services	CO	180	1	180	30	%	54	234	
1.1.4	Deputy Director - IT	CO	180	1	180	30	%	54	234	
1.1.5	Executive Assistant	WS	100	1	100	50	%	50	150	
1.1.6	Small Conference Room	CO	650	1	650	30	%	195	845	6/8 people
1.1.7	Storage	CO	60	1	60	30	%	18	78	
1.2	Support Services Branch									
1.2.1	HR Manager	CO	180	1	180	30	%	54	234	
1.2.2	HR Assistant	CO	120	1	120	30	%	36	156	
1.2.3	Finance Manager	CO	120	1	120	30	%	36	156	
1.2.4	Finance Assistant - Growth	CO	120	1	120	30	%	36	156	
1.2.5	Copy/Fax/ Records /Work Area		100	1	100	10	%	10	110	
1.2.6	Records - Small	CO	120	1	120	30	%	36	156	
1.2.7	Storage - Large	CO	240	1	240	25	%	60	300	
1.2.8	Restroom (All-Gender)		80	2	160	30	%	48	208	Design considerations for all-gender facilities
1.2.9	Janitorial		50	1	50	25	%	13	63	
1.3	Training Branch									
1.3.1	Training Manager	CO	120	1	120	30	%	36	156	Near training room
1.3.2	Course Coordinator	CO	120	1	120	30	%	36	156	
1.3.3	Instructor Office - Growth	WS	100	2	200	50	%	100	300	
1.3.4	Dedicated Training Console Lab		64	12	768	30	%	230	998	
1.3.5	Vending		40	1	90	10	%	9	99	
1.3.6	Training Storage		100	1	150	25	%	38	188	
1.4	Center Operations Branch									
1.4.1	Operations Managers	CO	120	2	240	30	%	72	312	
1.4.2	Supervisor Lead with Supervisor	CO	200	4	800	30	%	240	1040	2 per office on communication floor
1.4.3	Performance Improvement & Accreditation	CO	120	1	120	30	%	36	156	
1.4.4	Quality Assurance -Small	CO	120	1	120	30	%	36	156	
1.5	Center Ops - Workstations									
1.5.1	Radio Workstations	WS	100	8	800	50	%	400	1200	
1.5.2	Radio Workstations - Growth	WS	100	2	200	50	%	100	300	
1.5.3	Supervisor	WS	150	2	300	50	%	150	450	radio + call-taking, prefer raised access floor
1.5.4	Supervisor - Growth	WS	150	1	150	50	%	75	225	radio + call-taking, prefer raised access floor
1.5.5	Call Taker	WS	100	3	300	50	%	150	450	
1.5.6	Call Taker - Growth	WS	100	4	400	50	%	200	600	
1.5.7	New Call-Taking/Dispatch - Growth	WS	100	4	400	50	%	200	600	verify need for additional call-taking

		Space Code	Area/ Unit	Proposed # Units	NSF	Grossing Factor		GSF	Total	Comments
1.5.8	Non-Emergency/311 - Growth	WS	100	2	200	50	%	100	300	
1.5.9	Non-Emergency/311 Supervisor - Growth	WS	150	1	150	50	%	75	225	
1.6	Center Ops - Special & Sim Lab									Separate secure area adjacent to main floor
1.6.1	Call-Taking/Dispatch Workstations - Growth	WS	100	2	200	50	%	100	300	
1.6.2	General Workspace - Growth	WS	64	2	128	50	%	64	192	
1.7	Center Ops - Common									
1.7.1	Lateral Files		12	20	240	25	%	60	300	
1.7.2	Storage		150	1	150	25	%	38	188	Chair corral and storage
1.7.3	Restroom (All-Gender)		80	2	160	30	%	48	208	Design considerations for all-gender facilities
1.7.4	Copy/Fax/Records		100	1	100	30	%	30	130	
1.7.5	Cubbie / Mailboxes (65)		150	1	150	30	%	45	195	Need 65 total
1.7.6	Kitchenette		100	1	100	30	%	30	130	coffee, sink, microwave, filtered water (bottle filler)
1.8	Shared Common Space									
1.8.1	Conference Room - Large		450	1	450	30	%	135	585	
1.8.2	Mothers Room		160	1	160	30	%	48	208	
1.8.3	Quiet Room		144	1	144	30	%	43	187	
1.8.4	Restroom (All-Gender)		80	2	160	30	%	48	208	Design considerations for all-gender facilities
1.8.5	Shared Lockers (65)		150	1	150	30	%	45	195	Double height locker
1.8.6	Kitchen/Break Room - Seat 10		325	1	325	30	%	98	423	Commercial appliances, (4) commercial refrigerators, one for each platoon, three microwaves, dishwasher, ice maker, coffee bar, filtered water
1.8.7	Vending Machine Area		9	2	18	10	%	2	20	
1.8.8	Pantry Space		175	1	175	25	%	44	219	separation space for 4 platoons
1.8.9	Storage - Large		240	1	240	25	%	60	300	
1.8.10	Admin Work / Copy Print		144	1	144	25	%	36	180	
1.8.11	Bike Storage Closet		100	1	100	10	%	10	110	
1.8.12	Exterior Small Courtyard		0	1	0	30	%	0	0	260 sq. ft. Secure area for people and service animals, connected to
				Subtotal	11622	33	%	4081	15813	Excludes outdoor

		Space Code Space Code	Area/ Unit Area/ Unit	Proposed # Units Proposed # Units	NSF NSF	Grossing Factor Grossing Factor		GSF GSF	Total Total	Comments Comments
2.0	REGIONAL EMERGENCY MANAGEMENT AND EOC									
2.1	Regional Emergency Management									
2.1.1	Lobby with 1 Admin - Growth		175	1	175	30	%	53	228	Secured Public Entry to EOC & PSAP (transaction window)
2.1.2	Regional EM Resource	CO	240	1	240	30	%	72	312	
2.1.3	Planner/Exercise Support - Growth	CO	120	1	120	30	%	36	156	growth position
2.2	Participant EM Satellite									
2.2.1	Locality EM Manager Satellite Office	CO	240	1	240	30	%	72	312	one for each participant
2.2.2	Locality EOC - 20 Seats		20	20	400	75	%	300	700	
2.3	Participant EM Satellite									
2.3.1	Locality EM Manager Satellite Office	CO	240	1	240	30	%	72	312	one for each participant
2.3.2	Locality EOC - 20 Seats		20	20	400	75	%	300	700	
2.4	Multi Agency Coordination									
2.4.1	MAC/EOC - 75 Seats		20	75	1500	75	%	1125	2625	
2.4.2	Breakout Room 1 / Training Space		35	20	750	50	%	375	1125	confirm capacity needed
2.4.3	Breakout Room 2 / Training Space		35	20	750	50	%	375	1125	confirm capacity needed
2.4.4	Breakout Room 3 / Training Space		35	20	750	50	%	375	1125	confirm capacity needed
2.4.5	Control/Production Room		250	1	300	30	%	90	390	
2.5	Special Operations / Other Agencies									
2.5.1	Large Conference Room	CO	500	1	500	30	%	150	650	
2.5.2	Small Conference Room	CO	250	1	250	30	%	75	325	Capacity for 12 (Secure for federal partners)
2.5.3	Restroom (All-Gender)		80	2	160	30	%	48	208	Design considerations for all-gender facilities
2.5.4	Logistics - Small		120	1	120	30	%	36	156	Needed?
2.5.5	Police Chief		120	3	360	30	%	108	468	Needed?
2.5.6	Fire/EMS Chief		120	2	240	30	%	72	312	Needed?
2.5.7	VA State Police Office		240	1	240	30	%	72	312	Needed?
2.6	Joint Information Center (JIC)									Pedestal, seating, PIO
2.6.1	JIC Coordinator	WS	32	1	32	40	%	13	45	
2.6.2	Writing, Gathering and Production	WS	32	1	32	40	%	13	45	
2.6.3	Dissemination Group Lead	WS	32	1	32	40	%	13	45	
2.6.4	Public Affairs Liaison	WS	32	4	32	40	%	13	45	
2.6.5	AV, Technical, Electronic Support	WS	32	1	32	40	%	13	45	
2.6.6	Media and Rapid Response	WS	32	1	32	40	%	13	45	
2.6.7	Briefing Room		250	1	250	30	%	75	325	pedestal, separate egress, access ports, separate bathrooms?
2.6.8	Pre-Brief Room		150	1	150	30	%	45	195	
2.6.9	Hot Line/Tip Line Room		45	15	675	30	%	203	878	15 people (confirm size of space)
2.6.10	Storage		150	1	150	30	%	45	195	
2.7	Common Space - Building									
2.7.1	Kitchen		800	1	800	30	%	240	1040	self contained cafeteria & catering
2.7.2	Break Room / Dining - Seat 30		950	1	950	30	%	285	1235	Available to use for training/meeting space
2.7.3	Bunkrooms - 2 single beds each		110	9	990	30	%	297	1287	verify usage and quantity, shared with PSAP
2.7.4	Restroom (All-Gender)		80	4	320	30	%	96	416	Design considerations for all-gender facilities
2.7.5	Shower (All-Gender)		120	4	480	30	%	144	624	Design considerations for all-gender facilities, shared with PSAP
2.7.6	Washer/ Dryer / Storage		225	1	225	30	%	68	293	Shared with PSAP
2.7.7	Table / Chair Storage		240	1	240	30	%	72	312	
				Subtotal	13157	37	%	5451	18608	

		Space Code Space Code	Area/ Unit Area/ Unit	Proposed # Units Proposed # Units	NSF NSF	Grossing Factor Grossing Factor		GSF GSF	Total Total	Comments Comments
3.0	REGIONAL PUBLIC SAFETY RESOURCE CENTER									
3.1	Wellness Center									
3.1.1	Lobby/Administration Area - Reception, Records		300	1	300	10	%	30	330	Separate entrance
3.1.2	Clinic Room		150	2	300	30	%	90	390	
3.1.3	Office		150	1	150	30	%	45	195	
3.1.4	Fitness Area		500	1	500	10	%	50	550	
3.1.5	Storage		80	1	80	25	%	20	100	
3.1.6	Restroom (All-Gender)		80	2	160	30	%	48	208	Design considerations for all-gender facilities; changing
3.1.7	Shower (All-Gender)		120	2	240	30	%	72	312	Design considerations for all-gender facilities; changing
3.1.8	Copy/Fax/Records		100	1	100	30	%	30	130	
3.1.9	Kitchenette		100	1	100	30	%	30	130	
3.2	Early Childhood Education									
3.2.1	Lobby		100	1	100	10	%	10	110	Separate entrance
3.2.2	Administration Area - Reception, Records		100	3	300	30	%	90	390	
3.2.3	Newborn to 1yr olds Classroom		400	1	400	30	%	120	520	including space for cribs, diaper changing stations, and play areas.
3.2.4	2 to 3yr olds Classroom		700	1	700	30	%	210	910	including space for play areas, reading nooks, and activity tables.
3.2.5	4 to 5yr olds Classroom		800	1	800	30	%	240	1040	including space for play areas, reading nooks, and activity tables.
3.2.5	Commons/After School Program		700	1	700	30	%	210	910	after school program
3.2.6	Quiet Room		200	3	600	30	%	180	780	
3.2.7	Kitchenette		150	2	300	30	%	90	390	
3.2.8	Storage		50	3	150	30	%	45	195	
3.2.9	Staff Break Room		100	3	300	30	%	90	390	
3.2.10	Restroom Child (All-Gender)		80	2	160	30	%	48	208	Design considerations for all-gender facilities
3.2.11	Restroom (All-Gender)		80	2	160	30	%	48	208	Design considerations for all-gender facilities
3.2.12	Outdoor Play Area		0	1	0	0	%	0	0	2300 sq. ft. Outdoor Space for Child Care
3.3	Training									
3.3.1	Shared Training		20	100	2000	75	%	1500	3500	
3.3.2	Kitchenette		100	1	100	30	%	30	130	
3.3.3	Storage		80	1	80	25	%	20	100	
				Subtotal	8780	28	%	3346	12126	Excludes outdoor

06 CONCEPT OPTION

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06 CONCEPT OPTION

INTRODUCTION

Planning for an ECC transitioned to a programming that included additional public safety considerations, such as a training facility, Emergency Operations Center, Joint Information Center, and a suite of liaison offices organically. The concept of co-location of these functions has proven to be best practices across the county. The concept would offer significant operational and mitigation value for the region as existing spaces are being reassigned and open training, conference hosting, and collaboration space is at a premium. Maintaining the existing central location became priority for this reason.

Planning for this type of mission-critical facility involves organizing various "zones" within the facility and on the site to ensure crucial and smooth operations. The Ivy Road site provides ample space to effectively accommodate many activities. The two existing two-story structures will undergo modification, renovation, and additions to accommodate the new program's essential functions, including the incorporation of hardened sections crucial for emergency management and communication functions.

The proposed concept for the existing buildings aligns with the program outlined in Section 04, serving as the foundation for budget estimates detailed in Section 06. While the final project designer will adjust certain elements within the facility or on the site, the feasibility of adapting the site and facility into an emergency management and communication facility is solid. Below, we provide a basic description of the concept site and floor plans.

SITE CONCEPT

Essential to any mission-critical facility is the ability to establish secure and non-secure activity zones on the site. Emergency Management and Communications staff rely on a secure parking area for breaks and shift changes, while still requiring secure access for site circulation and operational activities such as deliveries and waste disposal.

The site concept facilitates circulation on both sides of the facility for public access and secure gated access supported by an access control system. A fence will enclose the south side of the site, spanning from edge to edge of the building, fulfilling the security requirements of an EM/911 facility. Parking at the south side accommodates day-to-day operations and staff, while parking in front (along Ivy Road) before the fence line serves the public and visitors attending training or other activities.

Building access is designed to facilitate two basic activities, one for civilians and the other for EM/911 staff. Civilian access at the front (Ivy Road) leads to a main entry lobby with a secure vestibule. Civilians will enter an outer secure lobby before being cleared and buzzed in by personnel at the front desk prior to accessing the secure lobby space. A second entrance leading to the same primary lobby space will be accessible from the south side of the site from within the secure perimeter.

While the building's proximity to Ivy Road offers visibility for the facility, it also poses vulnerabilities. To mitigate this, concrete seating walls, planters, or heavy precast planters along the Ivy Road façade will be integrated into the design to create an appropriate stand-off from the heavily trafficked road.

BUILDING CONCEPT

The existing buildings will accommodate a portion of the Emergency Management and Communications functions outlined in Section 04 of the program. Additional space requirements will be accommodated by a new building addition, wrapping, and connecting the two facilities. To address any structural inefficiencies in the existing building, the new addition will be designed to Category IV construction type, meeting the Essential Facility building requirements. Portions of the additions may undergo further reinforcement to create hardened secure spaces for the facility.

Discussions with the MCP/SG team have led to a concept design and the identification of significant program elements within the facility. The concept design proposes locating Regional Emergency Management and Emergency Operations Center (EOC) spaces on the upper floor. The lower floor will house the Regional Information Technology Divisions and the Regional Communication Center. To accommodate the required technology infrastructure for emergency management and communication functions while considering the structural limitations and layout of the existing building, the design team suggests placing the equipment in a secure hardened addition. The existing UVA police building will house the Regional Public Safety Resource center. It is crucial for the continuing design team to further define the location and design of each element in the plan. The objective was to program an emergency management and communications facility to meet the needs of Charlottesville, UVA, and Albemarle County and to fit those activities within the Ivy Road site using the existing facility. The functions fit within the site's confines and within the existing facility's building additions, indicating the site's viability for the prescribed use.

Conceptual site plans and building plans are provided following this narrative. These concepts will naturally evolve as the design process progresses.

CONCEPTUAL SITE PLAN

CONCEPTUAL MASSING

CONCEPTUAL MASSING

CONCEPTUAL MASSING

CONCEPTUAL MASSING

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07 CONCEPTUAL BUDGET

PROJECT COSTS

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07 CONCEPTUAL BUDGET

INTRODUCTION

Section 04 provides an architectural program developed through the Programming Workshop held in January 2023. Technology considerations are also located in this section. A cost savings of approximately $1,375,000 based on the continued use of an on-site radio tower, microwave, and redundant fiber pathways was significant in the consideration of a conceptual budget. It is captured in the per site breakout.

Section 05 test-fits the program within the confines of the Ivy Road site utilizing the existing facilities located on the site. The goal to determine if the site is a suitable for this function and what the cost may be to allow for the addition and consolidation.

Using the concept developed in Section 05, this portion of the document provides a conceptual budget for the proposed project. The estimating is intended to provide Albemarle County with a budget number to begin the process of allocating or seeking funding for the project. Since the concept design developed in Section 05 suggests that the site and building may provide for the functions described in this document, a budget estimate has been developed around the knowns of this project. There are items that have not been investigated as part of this effort that could create additional costs for a possible renovation but those are unknown until a design process begins.

It should be noted that environmental concerns were not part of the investigation of this study.

For the costs identified in this Section, SCHRADERGROUP utilized high-level cost estimating techniques based on the CSI format to complete estimates that correlate to the concept diagrams and site diagrams provided in Section 05 along with two additional sites to help determine the feasibility of the Ivy Road Site. Local construction costs, escalation, general site information and knowledge of current construction pricing of mission critical facilities are included (as much as can be anticipated) in the estimates shown on the following pages. The costs included are for budgeting purposes only as no final design has been derived at this time, but the team obviously had the benefit of the concept diagram to work from. It should be noted that escalation is not included in the estimate. More accurate cost estimate information will be generated after the design process has begun.

BUDGET DESCRIPTION

Budget estimating includes items discussed in the Workshop Sessions and in other sections of this document. Note that all costs described in this document and all associated systems are part of this conceptual budget.

The estimates included herein are high-level line-item conceptual budget estimates and are broken down to depict several of the types of project costs as follows:

OVERALL BUDGET DESCRIPTION

The overall budget includes the following:

- CONSTRUCTION BUDGET – Includes anticipated construction costs broken down to support the program area. HVAC and Electrical systems will be one of the greatest variables depending upon what type of HVAC system is selected.
- DESIGN COSTS – Includes anticipated project design costs including the testing services normally anticipated for a project of this type.
- TECHNOLOGY SYSTEMS & OTHER COSTS – The required technology and costs will vary as the county completes a full assessment of technology systems vs what new systems might be required. The technology budget considers a full system approach and includes general building furniture in this breakout as well. As the project evolves there may be further development that modifies the technology needs.

The programming phase budget cannot anticipate all project costs that may arise during the design and construction process. However, the SCHRADERGROUP team's expertise in this project type offers valuable insight into the various project costs typically encountered. It is hoped that these budgets provide a solid foundation from which the Town and agencies can initiate their decision-making process.

SUMMARY BUDGET ESTIMATES

The Summary TOTAL CONCEPT PROJECT BUDGETS are shown on the pages to follow for the Concept Option. The costs are then expanded upon in the individual budget worksheet to further describe the potential costs for each portion of the work following those pages.

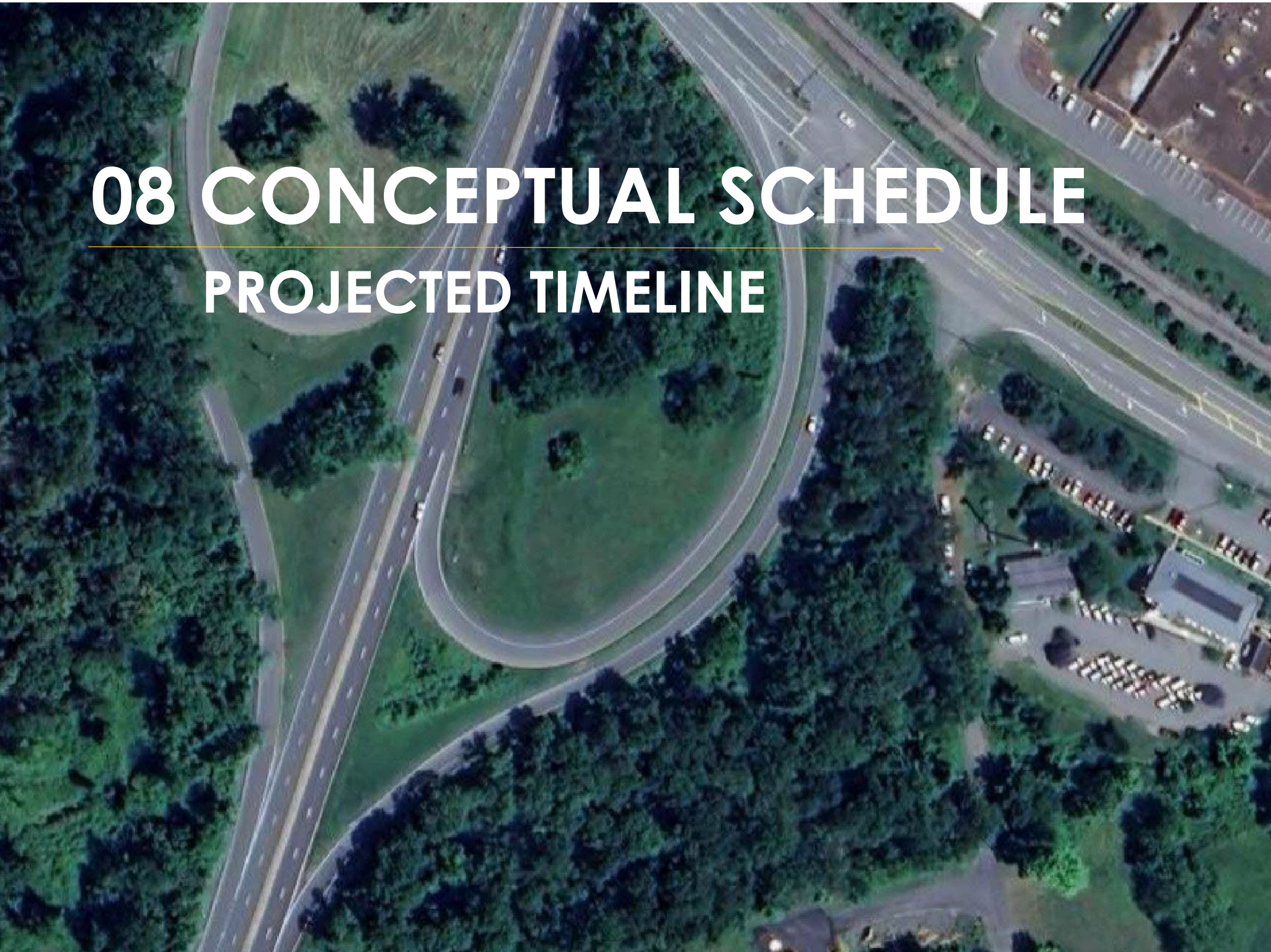
OVERALL BUDGET ESTIMATE

Renovations and Additions with Sitework, Design Costs, Fees, and Technology estimates.

Cost Breakout per Site

Ivy Road Site	$44,811,488
Undisclosed renovation site	$61,428,892
Green Site	$61,928.892

Additional detail is provided on the following pages describing all portions of the project further.



08 CONCEPTUAL SCHEDULE

PROJECTED TIMELINE

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08 CONCEPTUAL TIMELINE

PROJECT SCHEDULE

The provided schedule is estimated based on the current information; further refinement of the schedule will be needed once the design of the project is started. Site preparation, demolition of the old police building and permitting may change the estimated schedule timeframes.

Scenario 1 (40 Months)

Current ECC is left operational the new portion of the facility constructed prior to the old facility being renovated.:

- **Design and Bidding** **12 Months**
- **Demolition Police bldg.** **2 Months**
- **Construction** **12-14 Month**
- **ECC System Migration** **1-2 Months**
- **Renovation** **10 Months**

Scenario 2 (34 Months)

Current ECC vacated and renovation and construction occur at the same time:

- **Design and Bidding** **12 Months**
- **Demolition Police Bldg.** **2 Months**
- **Construction and Renovation** **16-18 Months**
- **ECC System Migration** **1-2 Months**

Note: An early demolition package could be done to remove the old police facility during the design phase to reduce the schedule. Permitting and Site Construction could increase schedule. Having an active construction around a function ECC could cause interruptions of service.

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APPENDIX A

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MissionCriticalPartners