



PRELIMINARY DESIGN REPORT

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Coppin State University

Public Safety Facility

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A. INTRODUCTION

PROCESS AND STAKEHOLDER INPUT

Public safety facilities are expensive long-term investments that must be made to ensure the wellbeing of our community. They must be flexible enough to meet the demands of future standards and durable enough to withstand the most extreme abuse while conveying the core values of the first responders and the communities they serve. Through our previous experience in designing these facilities, we utilized an approach to this specific project that is the most beneficial to the University, the first responders, and ultimately the citizens of Baltimore.

Coppin State University (CSU), in conjunction with the Maryland Stadium Authority (MSA), solicited designs for the potential development of a new public safety facility to be located and constructed on the campus of CSU. Two sites were to be evaluated as part of this process. Given the complex nature of designing, building, and commissioning modern-day public safety facilities, our team completed a comprehensive needs assessment and site study. Following the results of this initial effort, we conducted a series of test fits to develop high-level conceptual design solutions. These solutions are accompanied by technical documentation that satisfies the requirements of the RFP, validating the requirements and establishing a budget and approach for moving the project forward in a fiscally responsible manner. The following outlines the steps performed to meet the specific objectives of this project.

1.) KICK-OFF

Our team conducted a kick-off meeting to discuss project procedures and objectives with all stakeholders. During this meeting, subject matters such as communication protocols, schedules, expectations, and delivery methods were addressed to ensure the process would be executed as smoothly and efficiently as possible. These same topics were addressed at each project meeting to facilitate a streamlined design process that yielded meaningful results.

2.) PRE-DESIGN

The pre-design phase intended to accomplish numerous specific goals revolving around collecting existing data and galvanizing the entire project team. Three distinct tasks comprised the pre-design phase.

1. Goal Setting Charrette: After the kick-off meeting, our team facilitated a discussion with executive stakeholders to determine the metrics upon which the success of this project will be measured. The objective of this Charrette was to develop a concise document that established the project's Critical Success Factors. This document served as the project's mission statement and guide for the programming, design, and management decisions. Our team reviewed this document at the start of various progress meetings to ensure that the project maintained a trajectory that satisfied these success factors. The goals as discussed are as follows:

This project will:

- a. Create safe Community Engagement Spaces that foster trust and build meaningful relationships by giving back to the community.
- b. Provide the necessary infrastructure to afford the highest level of training available.
- c. Support First Responder health, safety, and physical and mental wellness.

- d. Improve morale, recruitment & retention, and staff satisfaction by creating a diverse and professional working environment that reflects the City of Baltimore.
 - e. Solve current deficiencies and implement a solution that provides adequate space that is flexible and can adapt to new mission challenges for the next 50 years.
 - f. Be fiscally responsible at all levels.
 - g. Contribute to healing the wounds of the past.
 - h. Satisfy many facility and training-related criteria associated with the Consent Decree.
 - i. Successfully integrate into the urban and higher education environment.
 - j. Serve as a catalyst for public safety within the surrounding neighborhoods and the city at large.
2. Analysis of Existing Conditions: Given the complex nature of designing, building, and commissioning modern public safety facilities, our team proposed a phased design process to complete a quick yet thorough site study. During this task, our team collected applicable site data for both parcels of land. Reports for each of the below-referenced investigations can be found in the appendices. The site data includes, but is not necessarily limited to, the following:
- a. Traffic Analysis: The team performed a preliminary traffic analysis of on-site and adjacent off-site traffic conditions. The team also reviewed turning radius, grade issues, ingress, and egress requirements for fire-apparatus and specialized first responder vehicles that may present challenges.
 - b. Geotechnical Explorations: The team performed preliminary geotechnical exploratory borings to determine the composition of the soils. The geotechnical engineer developed an initial report outlining features, capacities, and challenges discovered on the site.
 - c. Environmental Impact Analysis: An environmental scientist visited both sites to perform an existing conditions report related to environmental concerns.
 - d. Archaeological Impact Analysis: An archaeologist visited the sites to complete cultural resource studies. The studies identified if any archaeological challenges were present.

Additional site information gathered influenced the designs and layouts of the buildings on each of the sites, the results of which can be seen on the site plans, also located in the appendix.

- a. Boundary & Topography: The team collected relevant data regarding the boundary and topography of the site.
- b. Utility & Infrastructure: The team analyzed the existing documents and available data to determine the extent of on-site utilities and adjacent off-site capacities.
- c. Zoning Analysis: The team reviewed the intended uses for each site and analyzed the feasibility of compliance with the current zoning code. The team documented zoning requirements through drawings and narratives outlining the zoning requirements.

3. Review Master Plan: It was anticipated that we would review the Coppin State University Master Plan in tandem with performing the design efforts; however, the master plan was being redeveloped and not distributed until closer to the end of the design. Upon review of the master plan, no significant conflicts appear to exist with either of the site options. The executive leadership from Coppin State was present at our stakeholder meetings to provide feedback on the design discussions.

3.) NEEDS ASSESSMENT

The needs assessment phase was the precursor to formalized building programming. We conducted a series of extensive and structured interviews with key stakeholders to define the project requirements. We collected data to better understand the specific goals the end-users have for the project, identified current operational challenges and their causes, enumerated the consequences of these shortcomings, and developed high-level strategies for solving these challenges. To create a concrete understanding of these fundamental issues, we completed the following tasks during this phase:

1. Executive Stake Holder Interviews: We conducted a series of meetings with executive stakeholders from Coppin State University (CSU), the Baltimore City Fire Department (BCFD), and the Baltimore Police Department (BPD) to discuss each agency's overall issues. The first meeting with the executive stakeholders aimed to determine the general challenges from the perspective of leadership positions.
2. Develop Outline Program: Our team developed preliminary program and organizational room diagram documents to capture and further memorialize the conversations and research performed during stakeholder interviews. The documents broadly outline the major spatial requirements, facility utilization rates, and how the previously faced critical challenges will be strategically resolved. We presented this information to the executive stakeholder group for review. After receiving a round of feedback from the end users, adjustments were made. This document served as the first significant step toward understanding the project's scale, organization, and potential cost. The final program spreadsheet can be found in the appendix.

4.) PROGRAMMING

The programming requirements associated with public safety facilities are unique to any other project. The design team must have a comprehensive understanding of the training classes and practicum evolutions planned to occur within the facility. Documenting the unique requirements through a formalized program of requirements allowed all users to agree on what the project should be. The deliverables for this aspect of the project consisted of the following:

1. Formalized Written Program & Space Diagrams: We met with personnel designated by the Maryland Stadium Authority (MSA), CSU, BPD, and BCFD to review further and refine the findings of the needs assessment phase. We strived to identify unnecessary redundancy and correctly size each space to mitigate wasted square footage. During this task, we annotated the programming spreadsheets with further details describing adjacency requirements, dimensions, square footage, major equipment, furniture, and storage needs for each space to demonstrate that each area is optimized in size and complexity to meet the intended use. Supplemental room diagram sheets were created and reviewed for each of the spaces identified in the program spreadsheets. These room diagrams show the potential layouts and furniture/equipment configurations for the areas and accompany the program spreadsheets.

2. Each area was analyzed to determine its impact on the building's gross square footage. Consideration was given to utilitarian support spaces, structural, circulation, and mechanical requirements that contribute to the total building area.
3. Our team continued to refine the data during progress meetings to serve as a living program document and presented a draft for preliminary approval. These documents also served as the basis for the project's site explorations, preliminary design, and preliminary budgeting. The program documents will serve as the roadmap for furthering the conceptual design and, ultimately, construction documentation.
4. Staffing Requirements: Public safety facilities often require unique staffing requirements. Understanding the staffing implication and long-term human resources costs can sometimes affect the feasibility of program spaces. We reviewed the anticipated staffing and student attendance for the building with CSU, BPD, and BCFD to develop the anticipated number of parking spaces needed on-site. The traffic consultant reviewed this information and further interviewed the groups to inform their report.
5. Bubble Adjacency Diagrams: Utilizing an approved draft of the formalized written program, our team developed a series of scaled adjacency diagrams that communicate the organization, flow, and functionality of the project. A series of options were developed to identify the ideal configuration for the building on each of the proposed project sites. These diagrams were presented to the stakeholders to validate the building program. Minor adjustments were made to the diagrams and program to reconcile them with the commentary received.

5.) INITIAL CONCEPT PLANNING

The initial concept planning phase served as the first milestone in which the program of requirements was rigorously tested against the conditions of each site. Our team intensively explored and reviewed a wide range of options during this effort. We identified the strongest contenders and further refined the solutions by conducting refined test fits to validate the feasibility of each approach.

1. Initial Architectural Site Planning and Building Massing: Our team developed multiple preliminary site diagrams for each site, seeking to determine and present the best overall site design approach related to functionality and cost. The layouts were blocking and staking diagrams of the critical programmatic elements and ancillary site features identified during the programming phase. During this development stage, the program elements were in the form of "block" massing and developed to a level that identifies heights, major functions, clearances (both vehicle maneuvering and safety setbacks), and other significant components. The site diagrams identify driving lanes, training zones, security zones, stand-off distances, intersections, sidewalks, and similar circulation/pathway characteristics. During this phase, our team also integrated passive Crime Prevention Through Environmental Design (CPTED) concepts to better secure the facility. The solutions were presented in a comparative manner that enabled the stakeholders to understand each associated site development and the overall scheme's potential benefits and/or constraints/ challenges.
2. Test Fitting / Proof of Concept: There are many possible solutions to the issues at hand. After narrowing down the site utilization approach, our team test fit the building program to demonstrate a proof of concept and further validate the program of requirements. As valid solutions began to materialize, we led the team in refining each program element's details to develop conceptual level floor plans and digital concept models.

3. **SWOT & Value Engineering:** The process of preparing multiple options and combining the most successful elements was repeated for each approach to create the optimum solution for every aspect of the project. These options are the focus of a Performance Evaluation for each site. Working with the executive stakeholders, we tailored a set of evaluation criteria to the project goals and rated the options based on how well each met the objectives outlined in earlier meetings. This process helps focus attention on critical goals, targets financial resources toward the services and spaces that have the most significant impact on operations in the community, and galvanizes support for the project. Our team completed an initial comprehensive analysis of each potential solution through detailed Strength, Weakness, Opportunity, Threat (SWOT) analysis, further detailed in later sections. We evaluated each solution to determine the best approach for the project collectively. This analysis was completed with participation from key users and decision-makers to guide the project into the final concept design phase.

6.) FINAL CONCEPT PLANNING

After the initial concept planning phase was completed, one solution per site was further refined and developed into the final concept design. The final concept planning phase serves as an opportunity to create refined and rich visuals capable of clearly communicating the project intent to a wide audience. A refined final concept also provides additional details that can be utilized to hone project cost estimates and further articulate the technical requirements.

1. **Final Architectural Site Model:** Our team developed rendered architectural concept site models for each site depicting the building footprint, pedestrian paths, conceptual landscaping, vehicle access areas, mechanical yards, security provisions, and other key elements that demonstrate how the project will integrate into the context of the surrounding campus and neighborhood.
2. **Develop Exterior Concepts:** Our team developed an initial series of exterior massing concept solutions for each site. These were further refined based on commentary received to create an updated solution. The renderings consist of campus context, massing concepts, and entourage capable of communicating the project vision at a glance. Such images are ideal for community awareness and campaign building.
3. **Final Narrative & Technical Documents:** Within this report are the detailed project narratives outlining the technical requirements associated with the work's anticipated future scope. The narrative includes all applicable information obtained during the study. The narrative identifies current agency challenges, how this project resolves such challenges, and relates back to the critical success factors defined earlier in the project.
4. **Final Submission & Presentation:** Our team compiled all final documentation, inclusive of plans, programs, narratives, and technical documents necessary to generate this final report. Our team shall make any necessary adjustments based on the commentary received.

PROGRAM SUMMARY AND PROJECT INTENT

In the early meetings with project stakeholders, it was discussed that while the Baltimore Police Department (BPD) and Baltimore City Fire Department (BCFD) have adapted to their current building situations, they both are operating out of spaces that are undersized for their needs and not able to meet current codes due to building age. These issues can lead to recruitment and retention challenges and put a strain on the health, safety, and wellness of the first responders. This project will be a purpose-built facility for both of the departments and an opportunity to create a program with CSU that can benefit the surrounding community.

Public safety facilities, while secure, should also afford a degree of transparency and transmit a sense of invitation to the community. It has never been more critical to project and maintain a positive image in front of the communities they serve in today's era. Community policing concepts suggest the design of law enforcement facilities that are visually accessible and inviting to the public. Conversely, threat conditions call for a hardened, durable, and defensible design – much like a fortress. One of the significant challenges associated with this project will be to design an "Accessible Fortress" that engages the community and keeps public safety personnel safe.

Above all else, this facility's training aspects should be safe, realistic, and challenging for all experience levels. The safety of both students and instructors is a primary consideration in the design of our facilities. Facilities dedicated to public safety training and education should be designed and detailed so that instructors can craft unique training evolutions each time the center is used. No two real-life scenarios are identical - so training evolutions shouldn't be either.

The types of spaces indicated throughout the program fall into a couple of different categories, further described in the paragraphs below. In the program discussions with the stakeholders, various efficiencies were found and are enumerated in the graphic below.

Program Efficiencies

RFP	PRELIMINARY DESIGN
<p>BPD:</p> <p>100,000 SF PROGRAM OUTDOOR FITNESS INDOOR FIRING RANGE</p> <p>BCFD:</p> <p>35,240 SF PROGRAM 10 APPARATUS PARKING</p> <p>SHARED:</p> <p>NOT ACCOUNTED FOR</p> <p>CSU CJJ:</p> <p>NOT ACCOUNTED FOR</p>	<p>BPD:</p> <p>125,817 NSF PROGRAM OUTDOOR FITNESS IN SHARED PROGRAM FIRING RANGE INCLUDED IN PROGRAM SF</p> <p>BCFD:</p> <p>26,271 NSF PROGRAM 10 APPARATUS PARKING</p> <p>SHARED*:</p> <p>18,212 NSF FROM PROGRAM 54,954 NSF PRACTICAL TRAINING VILLAGE</p> <p>CSU CJJ:</p> <p>10,687 NSF PROGRAM</p>

SHARED = INDOOR FITNESS
 OUTDOOR FITNESS
 STUDENT/RECRUIT CAFETERIA
 INSTRUCTOR CAFETERIA
 CLASSROOMS
 PARKING GARAGE
 LOBBY & CIRCULATION

1. **Classrooms:** Classroom spaces were requested in the RFP for both the Police Department and the Fire Department, and for CSU in the kick-off meeting. Through the programming exercises with the executive stakeholders, we were able to ascertain if any of the classrooms could be used by multiple disciplines and reduce the overall square footage associated with the classrooms. We also reviewed the anticipated scheduling of classes and were able to reduce square footage by eliminating redundancies. The classrooms are variably sized, with associated storage rooms, to accommodate different class sizes. Current technology shall be integrated into the classrooms to facilitate virtual learning and modern instructional techniques.
2. **Administrative:** The various administrative spaces indicated in the program spreadsheet are for department personnel and instructors for the classes, along with any associated conference rooms, kitchenettes, and copy/print rooms. As part of the program validation process, the room sizes and designated furniture were reviewed to ensure the spaces were adequately sized.
3. **Firing Range:** A desired square footage for the indoor firing range was not indicated in the RFP. However, through our experience designing firing ranges and conversations with the Range Instructor, the programmatic elements were discussed and indicated in the room diagrams and program spreadsheets. This was an important piece of the program to size, as the location of the range needed to be intricately thought through as far as its relationship with the surrounding neighborhood and adjacent program. One of the potential challenges identified at the kick-off meeting was a lack of discretion with the presence of firearms on a higher education campus and in the surrounding residential community.

Firing ranges have many technical criteria to consider during the design process. These items include but are not limited to; the ventilation requirements necessary to supply clean air and remove contaminated air, lead reclamation and contamination, and sound containment and absorption.

Ventilation of the range is critical to the safety of comfort of users and staff. Ventilation serves two primary purposes. The first is to ventilate the range of airborne contaminants caused by gunfire. The second is to provide negative pressure relative to other areas of the building, preventing contaminants from blowing back into the rest of the building. Ventilation units and ductwork need proper forethought due to their size and to help reduce the overall cost of these systems.

Sound containment and absorption is another important consideration. Sound containment is imperative to maintaining a positive working relationship with the surrounding community. In addition, OSHA requires specific standards for noise exposure that must be met. Sound Transmission Class (STC) and Noise Reduction Coefficient (NRC) both need to be considered, as they will directly impact the containment and absorption values of the Firing Range.

4. **Practical Training Village:** Through early conversations with the executive stakeholders, we pursued the idea of a combined Practical Training Scenario Village. The village combines the typical street widths found in Baltimore (alley, street, avenue) with the building typologies that the first responders will typically experience in Baltimore, such as two-story rowhomes, liquor stores, garden apartments, and a convenience store. These buildings are modeled after real-world scenarios, enabling Fire and Police recruits to train independently and together. This village can locate the requested labs and training in rooms off the main streetscape. By locating the training on the same site as the remaining program, the practicum training and curriculum can be consolidated for efficiency.
5. **Indoor & Outdoor Fitness:** Both BPD and BCFD requested fitness training spaces. This was one of the programmatic spaces that could be joined together to have an overall lower square footage impact on the building while still meeting the demands and requirements of the Departments. Providing outdoor fitness training, where recruits are exposed to the elements, keeps the element of surprise and introduces real-life conditions that they may expect in the field. In both programmatic scenarios, the outdoor fitness is located away from the main entrance so that training is not directly adjacent to the flow of pedestrian traffic on the site.
6. **Community Plaza:** One of the project goals identified in the first meeting was to create a safe Community Engagement space that fosters trust and builds a meaningful relationship by giving back to the community. The intention of the public plaza in each of the proposed designs seeks to fulfill this goal by providing an environment in which interactions can occur. Local residents and university personnel can experience purposeful, positive interactions with first responders and alter preconceived perceptions. Conversely, integrating into a higher education setting allows the academy students the ability to become well-rounded individuals that can take advantage of an adjacent higher education campus.

B. CONCEPT SOLUTIONS AND OPERATIONAL IMPACT

In an effort to understand the current and future needs of the Baltimore Police Department, Baltimore City Fire Department, and Coppin State University, MW Studios worked with the organizations to identify and develop the building program that satisfies the needs of all parties. As outlined in the Process and Stakeholder Input section of this report, the current facilities for all organizations are not suitable for their operations and for any necessary training to occur. There are several operational challenges facing each organization that the new public safety facility will help solve.

Sites 1 and 2 were evaluated to determine their feasibility for constructing a new joint facility that would serve the Baltimore Police Department, Baltimore City Fire Department, and the higher education space needed for Coppin State University's Criminal Justice Institute.

This joint facility will foster a relationship with the surrounding community, promote collaboration between the Baltimore Police Department, Baltimore City Fire Department, and Coppin State University, and be a state-of-the-art training facility for first responders from around the state and country.

In addition, it is anticipated that this facility will need to comply with Maryland's Climate Solutions Now Act of 2022 to contribute to the state's goal of achieving a 60% reduction in greenhouse gas emissions by 2031 and full net zero by 2045. Additionally, Baltimore City regulates that any new construction is required to meet one of the three following compliance paths: the current version of LEED Silver, ASHRAE 189.1, or International Green Construction Code (IgCC) as amended by Baltimore City in Part XI of the Baltimore City Building, Fire, and Related Codes. These sustainability goals not only give an excellent opportunity for the project to be a state-of-the-art public safety facility in its program, but also in its design.

This section aims to examine two distinct design approaches, one for Site 1 and one for Site 2, and the opportunities and challenges recognized in the evaluation of each site.

SITE 1 – BAKER STREET



1.) SITE AND BUILDING

Existing Site

Site 1 is the property located to the south of Coppin State University's Science and Technology Building. It is bordered by Presbury St, N Warwick Ave, and Baker St, with the rail line to the west. It is approximately 3.88 acres and is a partially fenced, grassy area. There are no existing buildings on the property. In addition to the existing University buildings, the site is also bordered by rowhouses that are along N Warwick Ave and Baker St. The grade slopes from the northeast corner 12' to the northwest, 18' to the southeast, and 28' to the southwest.

Geotechnical Impacts

Subsurface conditions in the proposed construction area generally indicate existing fill consisting of Silty Sand, sandy elastic Silt, and Gravel with debris in stratum A, underlain by Decomposed Rock and Bedrock in stratum B. Recommended foundation options for the feasibility of construction will be defined by the presence of fill and depth to the top of bedrock underlying the site. In order to evaluate the subsurface conditions of the site for the study, a total of five (5) standard penetration tests (SPT) borings (B-1 to B-5) were drilled at the site. The standard penetration test borings were originally planned to extend to 35 feet and 50 feet. All borings were terminated above the planned depths on refusal on rock or fill. Rock cores were obtained in three soil boring locations B-2, B-3, and B-5. Based on the results of the field subsurface investigation, deep fill and depth to bedrock will govern the foundation design. Due to the presence of groundwater, foundation drainage is recommended. Additionally, the existing fill is not suitable to support the new building. However, given the size of the building footprint, almost the entire site would be excavated, and almost no existing fill would be able to be conserved. Conversely, the relatively shallow bedrock will require rock excavation methods for the below-grade parking garage and basement planned for this project. The translucent orange area below the foundation indicates the approximate depth of bedrock.

Site 1 Building Perspective with Anticipated Bedrock Depths



Site 1 Boring Plan



Environmental Impacts

During the Phase 1 Environmental Site Assessment, it was found that a total of 210 rowhomes were located within the vicinity that were built between 1894 and 1914, and they were torn down between 2012 and 2014. The following conditions were found in connection with the property:

1. No Recognized Environmental Conditions were found on the site.
2. Controlled Recognized Environmental Conditions were found on the property. Three underground storage tanks and two underground waste oil drums were removed in 2012. Contaminated soils were removed, and due to the proposed site use of grass, and the area being on public drinking water, no additional clean-up was required by the Oil Control Program. Excavation in the area of investigation may create exposure pathways if impacted soil is encountered. This would need to be addressed to comply with State and local regulatory programs.
3. Historic Recognized Environmental Conditions were found. From the site's previous Phase 1 ESA, one property had an aboveground storage tank and two properties had heating oil tanks in the basements. However, no action is recommended, as these houses have been removed.
4. No Business Environmental Risks were found on the project site.



- Two De Minimus Conditions were found. Lead paint and asbestos were utilized in the rowhomes; however, since the buildings have been removed from the property there is no longer a threat, and no action is recommended. The site's groundwater quality is questioned by its proximity to Matrix Materials, a brownfield located within half a mile of Site 1, which is currently suspected of having contaminated the groundwater of another nearby site (Acme Business Center Rosemont). If further excavation is to be completed at this site, it may be retested for contamination, and best management practices with any excess soils. Upon visiting the site no visual remains of these chemicals were visible.

Archaeological Impacts

The archaeological assessment of Site 1 revealed that rowhomes had been constructed within the project site by 1914. Prior to this, there is no evidence of historic occupation within the project site. The rowhomes were demolished and the property was subsequently filled and leveled. Site 1 is located on the edge of a ridge spar overlooking a filled stream valley that would have provided fresh water and food resources to precontact populations, but the disturbance from construction, demolition, infilling, and leveling would dramatically impact the integrity of precontact sites within the site. This site is considered to have a low probability for potentially significant precontact archaeological resources and a low probability for potentially significant historic archaeological resources. No further archaeological investigation is recommended in Site 1.

Building Concept

Site 1 Southwest Perspective



Site Approach

The main pedestrian entrance of the facility is proposed to be located along the northern face of the property. Given the site's proximity to Coppin State University's campus, this entrance's location was chosen to align it with an existing primary pedestrian artery of the campus. This alignment allows for a direct connection between the new public safety facility and Coppin State University to aid in fostering a beneficial relationship for both entities. Below are descriptions outlining the proposed site, parking, and program/building composition for this site option.

Outdoor Site Features

Outdoor site features include an elevated Public Plaza, located on the corner of Presbury St and N Warwick Ave, and an Outdoor Fitness Space located on the southwestern portion of the site.

The Elevated Public Plaza is intended to be an extension of the Police and Fire Academies into the community, acting as a shared space for members of both Police and Fire to interact directly with the community. The plaza includes features such as seating, space for community gatherings, and a splash pad.

The Outdoor Fitness Space is a large open space for use by both Departments to be used for outdoor training. The space shall be constructed with a combination of turf, grass, and paving to satisfy the needs of both programs.

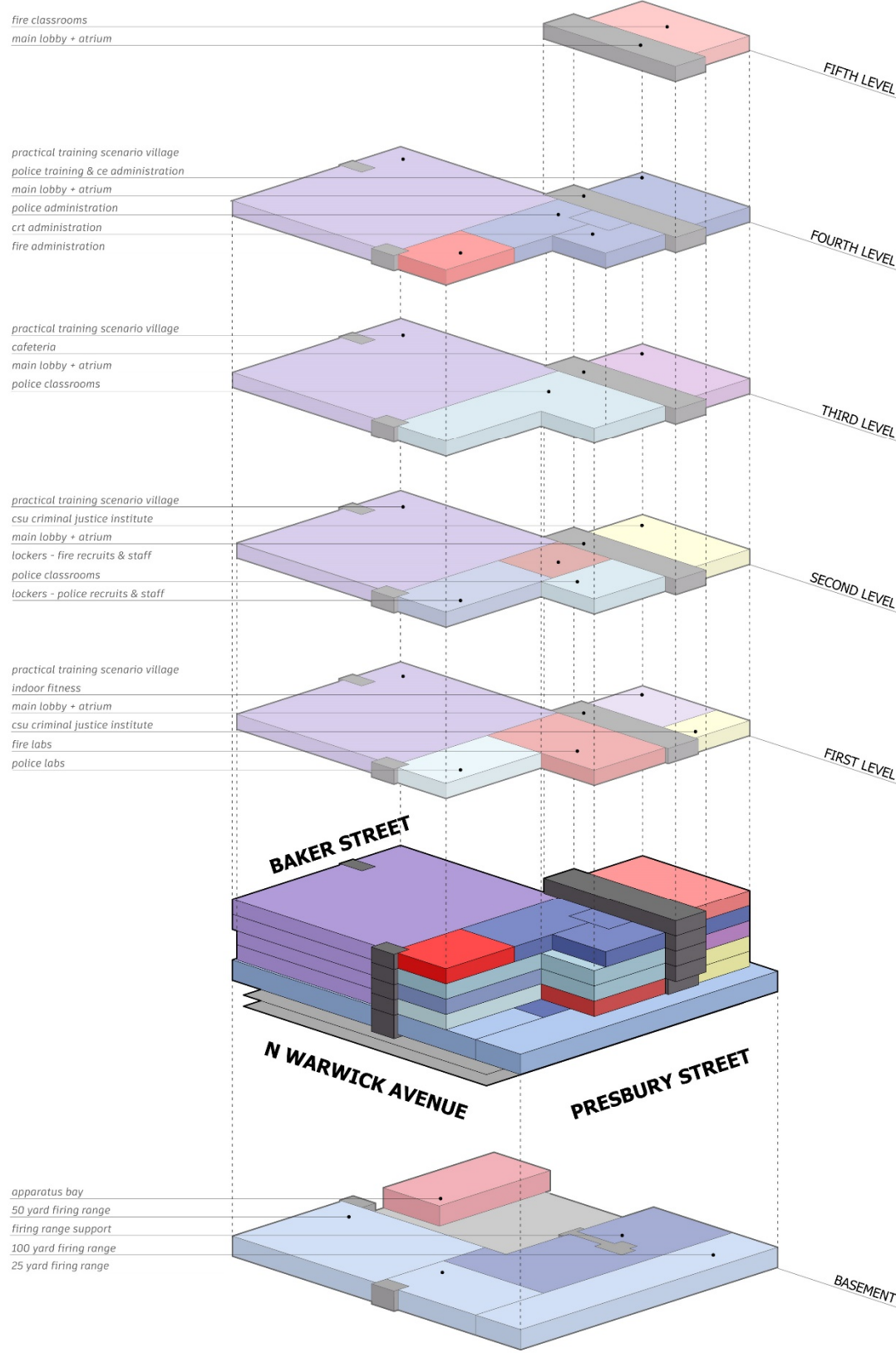
Parking and Traffic

The space constraints of the site necessitated a creative solution to meet the parking needs of Police, Fire, and Coppin State University. This site has three securely accessed below-grade parking levels with access off Baker Street. This structure provides approximately 550 spaces for use by Fire and Police. There is also a drive aisle connecting Presbury Street to Baker Street and providing vehicular access into the Practical Training Village.

In addition to a traditional vehicle parking structure, an enclosed Apparatus Bay provides space for approximately ten fire apparatus along Baker Street. Through extensive design experience, MW Studios understands that fire apparatus have significantly more parking requirements than the typical car. Some of these requirements include the general size and clearances necessary for apparatus, the larger turning radius needed to maneuver, vehicle exhaust requirements per NFPA 1500 9.1.6, and various MEP connections to fill and charge on-board systems.

Per the results of the Traffic Analysis, the facility on Site 1 has a minimal impact on the existing surrounding intersection operations. The proposed Intersection Capacity Level of Service for the peak travel times resulted in A and B levels (0-15 seconds wait time). This is well above the minimum F level (greater than 50 seconds of wait time) and acceptable for the facility. Concerning gate access, it is anticipated that two gates will be needed to have an acceptable wait time during peak levels of traffic. Further, it was documented that despite the existing pedestrian infrastructure available, there was relatively minimal pedestrian activity around the site.

Site 1 Programming Axonometric



Basement

The Police Firing Range program shares the basement level of the facility with the first level of the underground parking structure and enclosed Apparatus Bay. The three firing ranges include a 10 Lane 100-Yard-Long Gun Range, a 15 Lane 25 Yard Qualification Range, and a 25 Lane 50 Yard Range. In addition to the length of the lane identified in the description, further length is added to accommodate the firing line, bullet trap and reclamation systems, and range control booths.

In addition to the size requirements of these spaces, the proximity of the range to residential and higher learning institutions was a concern expressed in early conversations with the executive stakeholders. Placing the ranges below ground allows them to be visually obscured and acoustically dampened from the public, allowing the program to address the concerns of the stakeholders.

The remaining program in the below-grade basement level includes the Firing Range Support program, which includes spaces such as range classrooms, locker rooms, weapons cleaning rooms, and the armory. The basement also contains the simunition shoot house, which uses simulated ammunition for scenario training for the police recruits.

First Floor

As mentioned in the site approach, the main entrance lobby of the facility is located on the north façade along Presbury St, directly aligning with the existing pedestrian walkway on the university campus. The glazed atrium lobby extends through to the rear of the building mass, ending at the outdoor fitness plaza. This multi-level atrium serves as a vertical connector, incorporating the required vertical circulation to access the above and below-ground levels. The below-grade parking entrance is also located at this atrium, consolidating the required vertical circulation. The program is tiered with public spaces located on the lower levels that transition to semi-private and private spaces on the upper levels. Public program on the lower levels includes classrooms and labs, while private program on the upper levels includes the administration area with office spaces.

Site 1 Overall Perspective & Relationship to Campus



Located directly off of the main lobby and across the street from the University is a portion of the CSU Criminal Justice Institute. This program consists of classrooms, labs, and offices for use by students and staff of the University. Containing this program towards the front of the building allows it to be close to the rest of the University and accessible to the general public.

Located directly behind the first floor CSU Criminal Justice Institute program is the Indoor Fitness space. This program is to be used by both the Police and Fire departments. This program is adjacent to the Outdoor Fitness space, allowing for a direct connection to the exterior so exercises can occur between the two spaces. By locating the fitness room on the first floor, the amount of noise generated within the fitness room is contained and doesn't negatively impact any spaces below it. Additionally, doors to the exterior allow for easy access for the installation of fitness equipment.

On the other side of the main lobby are the Police and Fire Training Labs. Both of these programs include practical training labs and classrooms that allow for real-world experiential learning in a controlled environment. Police labs include spaces such as a Use of Force Simulator, Defensive Tactics, and a Black Box/VR Room. Fire labs include an Apparatus Driving Simulator, Command Scene Simulation, a 911 Dispatch Lab, and various EMS labs. These labs are placed strategically on the first floor as they are anticipated to be frequently used spaces by both departments.

Also located on the first floor is the main level of the Practical Training Scenario Village. This multi-story volume is a shared training space for first responders to train in additional real-world scenarios. A collaborative training environment such as this one allows for Police and Fire to work together and develop the necessary skills these situations require. Location on the first floor is important as an exterior entrance to the Training Village allows for vehicles and apparatus to be driven into the space and used for various training scenarios. Police can perform routine training such as traffic stops and more specialized scenarios like hostage negotiations and barricade situations. Structures are included for Fire to train for scenarios such as Urban Search and Rescue (USAR), confined space training, laddering, and rappelling.

Second Floor

Above the first floor Indoor Fitness and CSU Criminal Justice Institute program is the remaining CSU Criminal Justice Institute program. Across the atrium from this program are the lockers for Fire and Police Recruits and Instructors. This program is located in relative proximity to Classrooms, Labs, Fitness Spaces, and the Practical Training Scenario Village for convenient circulation throughout the building. Adjacent to the locker rooms are several of the Police Classrooms.

Third Floor

The third floor of the building contains the remaining Police Classrooms program and Cafeteria. The police classrooms include traditional class spaces in addition to computer labs. Classroom layouts vary in size to give complete flexibility to BPD. The cafeteria is a space intended for use by both Police and Fire recruits and instructors. In addition to seating, there is a Canteen that serves both departments. The location on the third floor allows the cafeteria to be a centrally located hub within the building that is conveniently accessed by the lower and upper floors.

Fourth Floor

The fourth floor contains the administrative program for both the Police and Fire Departments. The Fire Administration includes private offices, open offices, conference space, and necessary support spaces. The Police Administration programs include space for the Police Training and Continuing Education Administration, Academy Administration, and the Crisis Response Team Administration. Similar to the Fire Administration, these programs include private offices, open offices, and conference space. Additionally, there is a Shared Police Administration space that contains program that would be shared between all three Police Administration programs.

The advantage of housing all administration of both programs within one building and on one single floor allows for both programs to work closely together in a way that is not able to happen currently. A close working environment can lead to curriculum development that is more collaborative and constructive in nature. Resources such as kitchenettes and restrooms can be collocated or shared, creating utility and square footage efficiencies. Additionally, locating the offices at the upper levels ensures there are fewer disruptions from the public spaces. These spaces can also have direct views into the Practical Training Village, allowing instructors and department personnel to watch exercises being carried out.

Fifth Floor and Roof

The fifth floor of the building contains the Fire Classrooms. These fire training classrooms include rooms of varying sizes and recruit capacity for maximum flexibility for BCFD.

The remainder of the fifth floor is comprised of the rooftop. The roof construction is anticipated to be a metal deck supported by steel joists bearing on steel beams and columns. Given the space constraints of the site, mechanical equipment for the facility will need to be placed on the roof. In addition to the necessary equipment for the chosen building systems, special consideration will need to be made to ensure that firing range ventilation equipment will also fit on the roof. Placing mechanical equipment on the roof can also greatly reduce the risk of being damaged or tampered with.

A portion of the roof will be covered with extensive green roof. An extensive "low profile/performance" green roof is preferred to an intensive "rooftop garden" green roof as it has a lower weight comparatively. In addition, extensive green roofs require minimal maintenance and generally have lower installation costs. The green roof will help reach the quantity requirements for Stormwater Management and contribute to achieving sustainability goals set forth by Baltimore City. Solar panels are also located on the roof, furthering the achievement of sustainability goals.

Site 1 Southeast Perspective



Site Development

As indicated in the above building descriptions, the building massing occupies a majority of the site. There is an existing stormwater treatment pond adjacent to the western portion of the site that shall be modified to accommodate more pre-treatment volume, in addition to the green roof that is to be provided on the building. The existing riser structure shall be modified to accommodate quantity management for the proposed development. Two underground sand filters are planned for to be located under the drive aisle between Presbury and Baker Streets to capture additional stormwater. Existing utilities are sufficient and adequately located for the new connections that are required.

Site 1 Civil Site Plan & Stormwater Management



Community Context

As defined in the project goals, a successful project will cultivate a dialogue between the public safety personnel and the community they serve. The building's main entrance and lobby atrium faces Coppin State University's campus and visually connects to the existing pedestrian walkways. Designed out of glass, the entrance is inviting to the public, and clearly identifies an entry point. The elevated public plaza on the corner with the most pedestrian traffic ensures that there is a common area accessible to the public and the occupants of the building. A splash pad is designed to allow the surrounding neighbors the opportunity to interact in a positive environment with first responders using the facility.

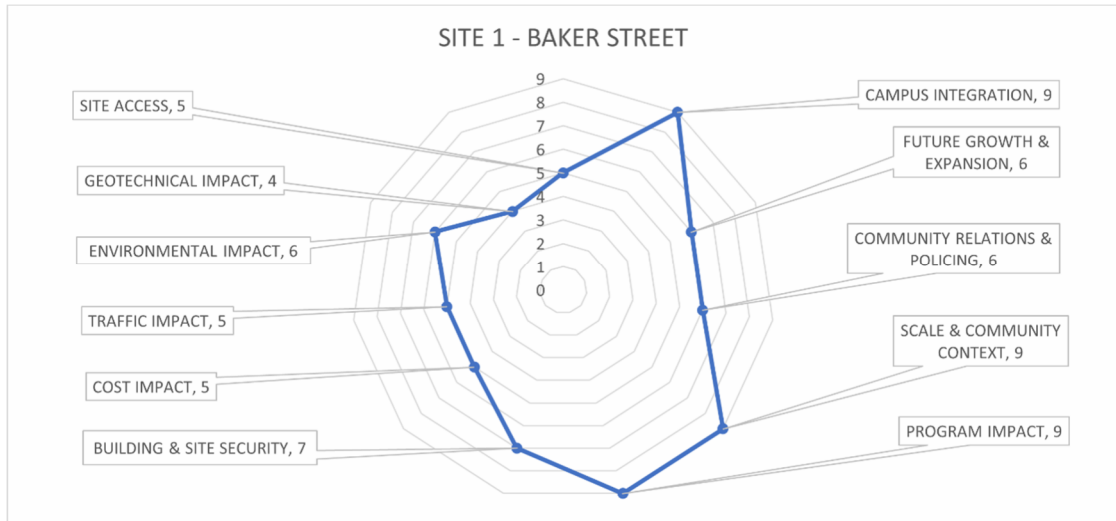
In order to encompass all of the desired program on the site, the building is several stories tall, and its footprint consumes most of the site. While landscaping and façade elements are used to visually reduce its mass, it is the proximity of the nearby university buildings that have its scale relatable. Additionally, with two of the other sides of the site bordered by an empty site and the train tracks, only one façade faces the residential community.

2.) SWOT ANALYSIS

The project's mission and goals, as informed by the RFP and the Goal Setting Charette with the Baltimore Police Department, Baltimore City Fire Department, and Coppin State University, are to have a purpose-built public safety facility with available training that is successfully integrated into the adjacent neighborhood and campus. Practicum training shall be consolidated on the same site for efficiency, and there shall be discretion regarding the presence of firearms. The facility shall align with the initiatives specified under the consent decree and be a bridge to the community through shared community spaces and community policing.

With these goals in mind, a list of parameters and criteria were determined to evaluate each of the sites. These parameters are Campus Integration, Future Growth & Expansion, Community Relations & Policing, Scale & Community Context, Program Impact, and Building & Site Security. Additional criteria analyzed by consultants includes Site Access (vehicular and pedestrian), Archaeological Impact, Geotechnical Impact, Environmental Impact, Traffic Impact, and Cost Impact.

Site Evaluation Parameters Chart for Site 1



With Site 1 directly across the street from the campus, it ranked very high on the scale for Campus Integration. While the site is small and the Future Growth and Expansion are limited, there is an available parcel of land across the street that could be utilized for any expansion needs, whether it be more classroom space or outdoor training for Fire and Police. The design for Site 1 includes a public plaza on the northeast corner of the site, which was found to have the highest amount of foot traffic in the traffic analysis and can readily engage the surrounding community. With the University buildings located across the street, the scale of the proposed facility fits within the surrounding context. Residences, an empty parcel of land, and the train tracks border the other sides of the site. This site is able to accommodate all of the program, resulting in a high score for that criterion.

Concerning Site Access, the site is very pedestrian-friendly. However, due to the steep grades surrounding the site and the adjacent train tracks, there are limited vehicular access points. The geotechnical borings hit rock; therefore, the below-grade parking garage and firing range will necessitate the removal of portions of this rock. The environmental impact is minimal, and there are no archaeological concerns with digging below grade on this site. Building and Site Security are enhanced due to the limited vehicular access to the site and the limited number of entry points into the facility.

3.) COST-BENEFIT ANALYSIS

As indicated in the cost estimate appendix, the total site and building cost plus soft costs for Site 1 escalated to the mid-point of construction (assumed to be 2026) is \$338,550,000. Soft costs included are various regulatory processes, anticipated design fees, and anticipated FFE (Furniture, Fixtures, and Equipment). The parking garage cost for this site does include rock excavation required for the below-grade parking garage and associated grading. The solar panels are planned for the roof on Site 1, which is a less costly installation than installing them over parking. The remaining costs for the project generally fell in line with the expected costs for a facility of this size and complexity.

4.) SUMMARY



Site 1 is a smaller site, and therefore, in order to accommodate the program, it must be a tall structure that occupies most of the site. However, given the proximity of the university buildings, its scale is proportional to the surrounding context. Additionally, many of the programmatic spaces have access to natural daylight. Existing utilities are adequate, and there are no traffic or archaeological concerns. The findings from the geotechnical report indicate that bedrock is likely; however, minimal rock excavation is anticipated at the proposed below-grade construction. The presence of the existing stormwater management pond means that space does not need to be carved out on the site to accommodate the increase in stormwater, as long as the green roof is utilized for additional stormwater capture. This site is successful in accommodating the required program for CSU, BCFD, and BPD.

SITE 2 – BRADDISH AVE



1.) SITE AND BUILDING

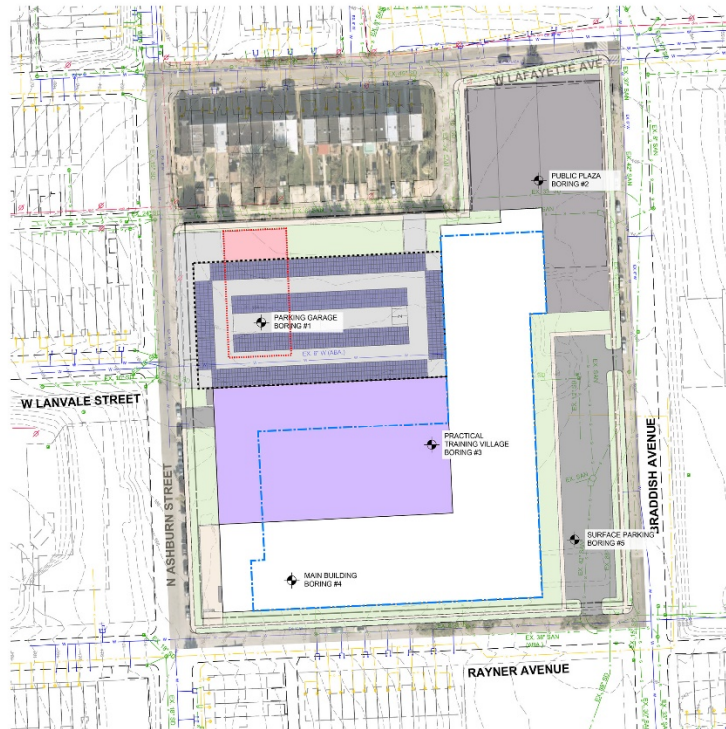
Existing Site

Site 2 is the property located several blocks south of Coppin State University's campus. The site is bordered by W Lafayette Ave, Braddish Ave, Rayner Ave, and Ashburton St. It is approximately 6.39 acres and a primarily grassy area bordered with shrubs, small trees, and a chainlink fence. Portions of existing pavement are visible on the site, but no buildings are present. Rowhomes border the property to the north along W Lafayette Ave, an elementary school to the east along Braddish Ave, rowhomes to the south along Rayner Ave, and the Old Hebrew Orphanage and rowhomes to the west along Ashburton St. The grade slopes from the southwest corner 15' to the northwest, 20' to the northeast, and 31' to the southeast.

Geotechnical Impacts

Subsurface conditions in the proposed construction area generally indicate existing fill consisting of Silty Sand, sandy Silt, Gravel with debris in stratum A, and residual soil consisting of silty Sand and sandy Silt (ML) in stratum B underlain by Decomposed Rock in stratum C. In order to evaluate the subsurface conditions of the site for the study, a total of five (5) standard penetration tests (SPT) borings (B-1 to B-5) were drilled at the site. The standard penetration test borings were originally planned to extend to 35 feet and 50 feet. All borings were terminated above the planned depths on refusal; this could be an indication of bedrock in these locations. Rock coring was not performed on this site. Based on the results of the field subsurface investigation, deep fill and depth to disintegrated rock or bedrock will govern the foundation design. The existing fill is not suitable to support the new building. However, due to the depth of the building design, the existing fill would need to be excavated regardless. Additionally, the relatively shallow disintegrated rock may require rock excavation methods for the two below-grade levels of parking garage and basement planned for this site. Due to the presence of groundwater, foundation drainage is recommended.

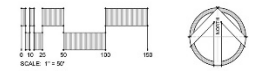
Site 2 Boring Plan



EX ZONING BE-2
 EDUCATIONAL CAMPUS ZONING A CAMPUS DISTRICT FOR
 COLLEGES AND UNIVERSITIES THAT ALLOW FOR CERTAIN
 NON-EDUCATIONAL USES AND DOMESTORIES FOR STUDENTS.
 REQUIRED SETBACKS
 NONE IF BUILDING DOES NOT ADJUT ANOTHER ZONING DISTRICT
 OTHERWISE:
 FRONT- 25'
 INTERIOR SIDE- 10'
 CORNER SIDE- 15'
 REAR- 10'
 REQUIRED PARKING FOR POST SECONDARY EDUCATIONAL
 FACILITY:
 1 PER 4 BSM CHIEFS ON PEAK SHIFT +
 1 PER 25 STUDENTS BASED ON THE MAXIMUM STUDENT CAPACITY

LEGEND

- MAIN BUILDING STRUCTURE
3 ABOVE GROUND STORIES
- PRACTICAL TRAINING VILLAGE STRUCTURE
4 ABOVE GROUND STORIES
- PARKING GARAGE STRUCTURE
5 ABOVE GROUND STORIES
2 BELOW GROUND STORIES
- APPARATUS BAY STRUCTURE
1 ABOVE GROUND STORY
- FIRING RANGE STRUCTURE
1 BELOW GROUND STORY
- BORING LOCATIONS



Environmental Impacts

During the Phase 1 Environmental Site Assessment, no endangered species, ecological resources, or wetlands were found. The following conditions were found in connection with the property:

1. A Recognized Environmental Condition was found on the site. Two of the four previously decommissioned aboveground storage tanks were not up to standard, and fuel oil may have leaked into the soil. Further soil testing is recommended, and remediation may be required.
2. No Controlled recognized Environmental Conditions were found on the property, although the adjacent Hebrew Orphanage is under environmental covenant due to soil contamination. Further investigation into tis covenant is recommended.
3. A Historic Recognized Environmental Condition that was found concerned the three underground storage tanks. However, all of them are recorded to be properly decommissioned and pose no risk to the site.
4. No Business Environmental Risks were found on the project site, although the adjacent Lafayette Elementary School is listed as having very small particulate matter. While there is no environmental risk for Site 2, this could contribute to reduced air quality and increased respiratory stress. Air quality testing is recommended to determine whether further attention is needed.

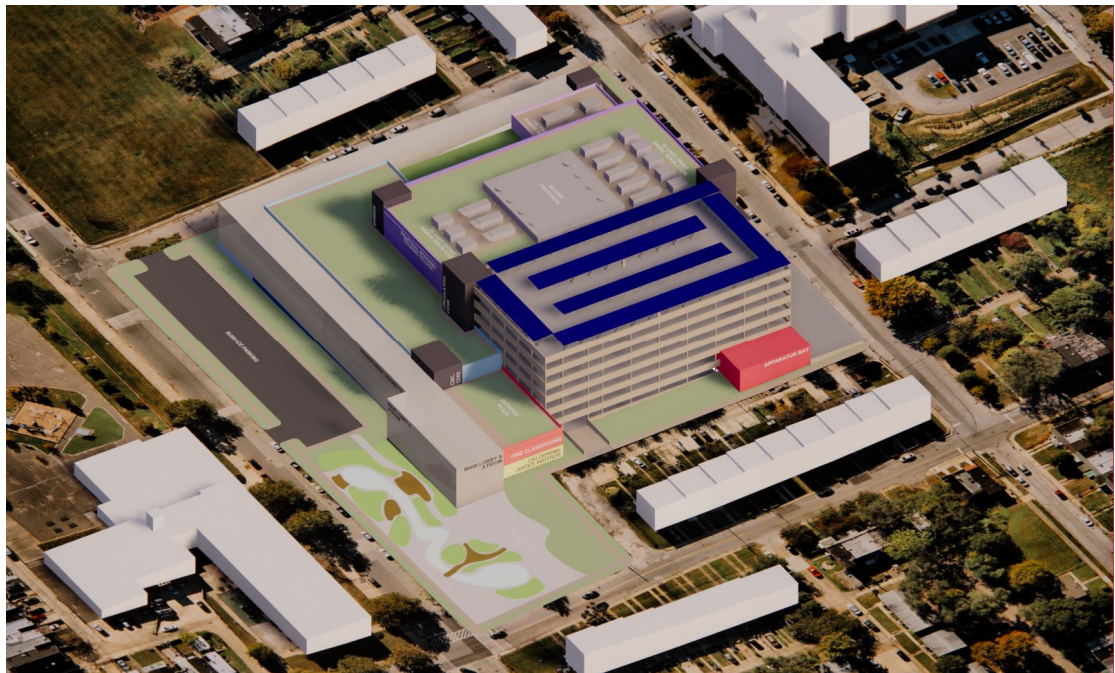
5. Several De Minimus Conditions were found. Historical topographic maps and aerial imagery demonstrate that a stream once passed through the eastern half of the plot. While this stream is no longer active, historic hydrologic activity implies the local storm drains anticipated the potential for high flow during rainstorms within the neighborhood. Future stormwater management plans should consider this during design. From the site's previous Phase 1 ESA, Lutheran Hospital is known to have stored and used miscellaneous hazardous chemicals. However, no action is recommended, as these are assumed to pose no threat. Friable asbestos-based building materials and lead-based paint were found in the previous Phase 1 ESA as well, and there are no confirmed records of its remediation. Further records review and soil testing are recommended.

Archaeological Impacts

The archaeological assessment of Site 2 revealed that a dwelling structure and a large frame structure were present within the Project Site by 1914. Prior to this, there is no evidence of historic occupation within the Project Site. The Lutheran Hospital, which occupied the southern portion of the project site, appears to have been constructed between 1944 and 1953 and was demolished between 2007 and 2008. The parking lot associated with this hospital was constructed between 1957 and 1981 using techniques that do not appear to have significantly impacted underlying soils. Project Site 2 is located within a filled stream valley, which are typically not considered high probability for precontact occupation. Site 2 is considered to have a low probability for potentially significant precontact archaeological resources and a moderate probability for potentially significant historic archaeological resources. Archaeological monitoring is recommended during ground-disturbing activity in Project Site 2 to document construction impacts on potential intact archaeological resources.

Building Concept

Site 2 Northeast Perspective



Site Approach

The main entrance of the facility is proposed to be located along the northeastern portion of the property along Braddish Avenue. The northeastern corner of the site shares the West Lafayette Avenue and Braddish Avenue intersection with Empowerment Academy and Calverton Elementary-Middle School. Placing the main entrance on this active corner aids in fostering a relationship with the local community. Below are descriptions outlining the proposed site, parking, and program/building composition for this site option.

Outdoor Site Features

A slightly elevated public plaza, located on the corner of West Lafayette Avenue and Braddish Avenue, is intended to be an extension of the Police and Fire Academies into the community, acting as a shared space for members of both Police and Fire to interact directly with the community. The plaza includes features such as seating, landscaping, space for community gatherings, and a splash pad intertwined with shallow wading pools. Stormwater management design is incorporated throughout the site as various micro-bioretenion ponds and bioretention ponds.

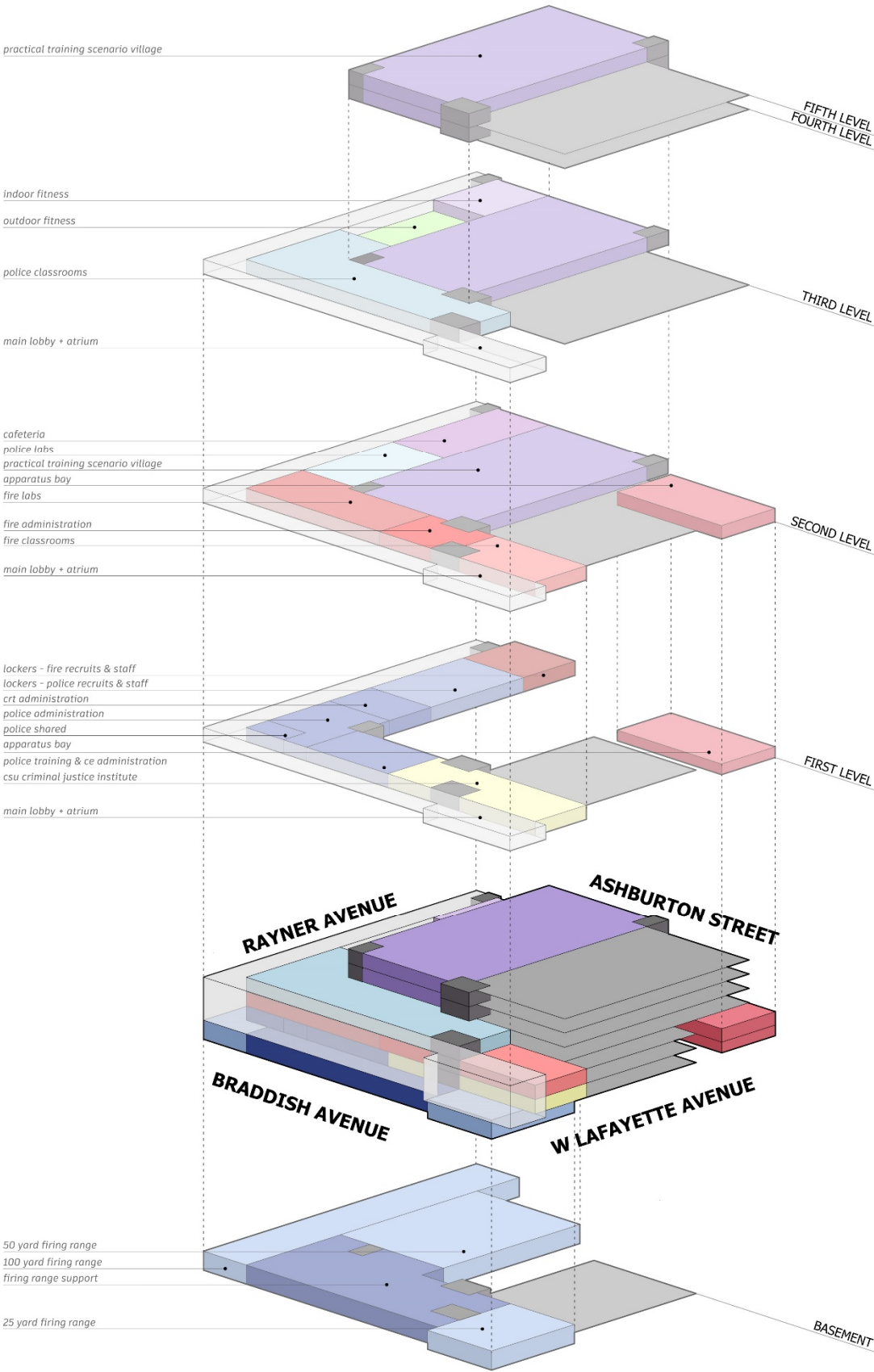
Parking and Traffic

Parking consists of a securely accessed multi-level parking structure that has a single below-grade level with several aboveground levels with entrances located on Ashburton Street and Jordan Street. This structure provides approximately 600 spaces for use by Fire and Police. Additionally, there is a visitor surface parking lot with entrances off Braddish Avenue and Rayner Avenue with approximately 35 spaces.

In addition to a traditional vehicle parking structure, located along Ashburton Street is the enclosed Apparatus Bay that provides space for approximately ten fire apparatus. Through extensive design experience, MW Studios understands that fire apparatus have significantly more requirements for parking than the typical car. Some of these requirements include the general size and clearances necessary for apparatus, the larger turning radius needed to maneuver, vehicle exhaust requirements per NFPA 1500 9.1.6, and various MEP connections to fill and charge on-board systems.

Though the existing vehicular traffic volume was higher, the facility on Site 2 has a minimal impact on the existing surrounding intersection operations. The proposed Intersection Capacity Level of Service for the peak travel times resulted in A and B levels (0-15 seconds of wait time), with one level C (15-25 seconds of wait time). This is well above the minimum F level (greater than 50 seconds of wait time) and acceptable for the facility. Concerning gate access, it is anticipated that one gate at each garage entry point will be needed to accommodate the peak levels of traffic with an acceptable wait time. Further, it was documented that despite the existing pedestrian infrastructure available, there was relatively minimal pedestrian activity around the site, with the exception of the intersection of Braddish Ave at Lafayette Ave, which had a higher count. This reinforced the location of the elevated public plaza on this corner.

Site 2 Programming Axonometric



Basement

The Police Firing Range program comprises the basement level of the facility. The three firing ranges include a 10 Lane 100-Yard-Long Gun Range, a 15 Lane 25 Yard Qualification Range, and a 25 Lane 50 Yard Range. In addition to the length of the lane identified in the description, further length is added to accommodate the firing line, bullet trap and reclamation systems, and range control booths.

In addition to the size requirements of these spaces, the proximity of the range to residential and educational institutions was a concern expressed in early conversations with the executive stakeholders. Placing the ranges below ground allows them to be visually obscured and acoustically dampened from the public, allowing the program to address the concerns of the stakeholders.

The remaining program in the below-grade basement level includes the Firing Range Support program, which includes range classrooms, locker rooms, weapons cleaning rooms, and armory. The basement also includes the simunition shoot house, which uses simulated ammunition for scenario training for the police recruits.

First Floor

As mentioned in the site approach, the main entrance lobby of the facility is located on the northeastern corner along Braddish Avenue and West Lafayette Avenue. This places the focal point of the building on the same corner as two local schools and is the façade first seen as driving to the site from CSU's campus. The glazed atrium lobby extends around the eastern and southern exterior of the building mass. This multi-level atrium and transparent connector serve as both the horizontal and vertical circulation hub, incorporating the required circulation to access the above and below-ground levels. The program is tiered with public spaces located on the lower levels that transition to semi-private and private spaces on the upper levels. Public program on the lower levels includes spaces such as classrooms and labs while private program on the upper levels includes the administration area with office spaces.

Site 2 Southeast Perspective



Located directly off the main lobby is the CSU Criminal Justice Institute. This program consists of classrooms, labs, and offices for use by students and staff of the University. Containing this program towards the front of the building allows it to be easily accessible to the general public.

Located directly behind the CSU Criminal Justice Institute are the three Police Administration programs. The Police Administration programs include space for the Police Training and Continuing Education Administration, Academy Administration, and the Crisis Response Team Administration. Similar to the Fire Administration, these programs include private offices, open offices, conference rooms, and the necessary support spaces. Additionally, there is a Shared Police Administration space that contains program that would be shared between all three Police Administration programs.

The advantage of housing all administration of both programs within one building allows for both programs to work closely together in a way that is not able to happen at their current facilities. A close working environment can lead to curriculum development that is more collaborative and constructive in nature. Resources such as kitchenettes and restrooms can be collocated or shared, creating utility and square footage efficiencies.

Behind the Police Administration program are the lockers for Fire and Police Recruits and Instructors. This program is located in relative proximity to Classrooms, Labs, Fitness Spaces, and the Practical Training Scenario Village for convenient circulation throughout the building. Due to site grades, this portion of the building is located partially underground, giving further privacy to the locker rooms.

Second Floor

The second floor of the building contains Fire Classrooms, Fire Administration, the Police and Fire Labs, Cafeteria, and main level of the Practical Training Scenario Village.

The Fire Classrooms are located above the CSU Criminal Justice Institute program, and include rooms of varying sizes and recruit capacity for maximum flexibility for BCFD. The Fire Administration program includes private offices, open offices, conference space, and necessary support spaces.

Located next to each other are the Police and Fire Training Labs. Both programs include practical training labs and classrooms that allow for real-world experiential learning in a controlled environment. Police labs include spaces such as a Use of Force Simulator, Defensive Tactics, and a Black Box/VR Room. Fire labs include an Apparatus Driving Simulator, Command Scene Simulation, a 911 Dispatch Lab, and various EMS labs. These labs are placed strategically on the same level as the main level of the Practical Training Village as they are anticipated to be frequently used spaces by both departments.

The cafeteria is a space intended for use by both Police and Fire recruits and instructors. In addition to seating, there is a Canteen that serves both departments. Located on an exterior wall, the cafeteria is able to have natural daylight and there is space to accommodate an outdoor eating area.

Also located on the second floor is the main level of the Practical Training Scenario Village. This multi-story volume is a shared training space for first responders to train in additional real-world scenarios. A collaborative training environment such as this one allows for Police and Fire to work together and develop the necessary skills these situations require. Due to the site grades, the location of this program on this level enables a direct access to the exterior for vehicles and apparatus to be driven into the space and used for various training scenarios. Police can perform routine training such as traffic stops and more specialized scenarios such as hostage negotiations and barricade situations. Structures are included for Fire to train for scenarios such as Urban Search and Rescue (USAR), confined space training, laddering, and rappelling.

Third Floor

The third floor of the facility contains the Police Classrooms as well as the Indoor and Outdoor Fitness spaces. The police classrooms include multiple traditional class spaces in addition to several computer labs. Classroom layouts vary in size to give complete flexibility to BPD.

The Outdoor Fitness Space is a large open space for use by both Departments to be used for outdoor training. The space shall be constructed with a combination of turf, grass, and paving to satisfy the needs of both programs. This program is adjacent to the indoor fitness space, allowing for a direct connection to the exterior so exercises can occur between the two spaces. By locating the Indoor Fitness space above the cafeteria, the amount of noise generated within the fitness room is contained and doesn't negatively impact any classroom or office spaces below it.

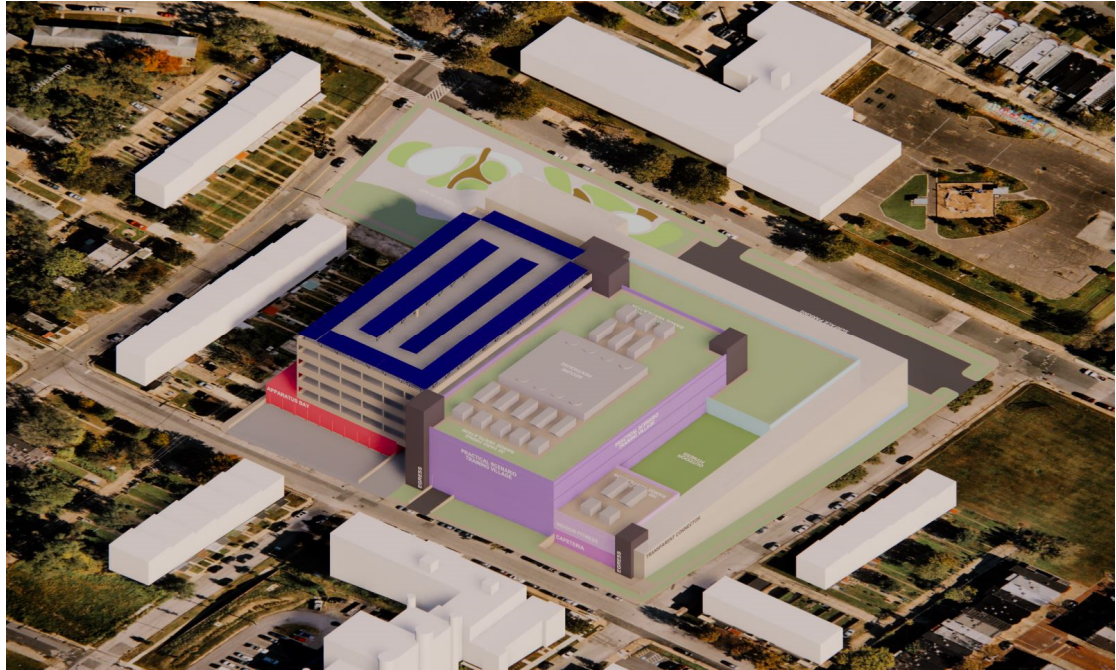
Additionally, there is an outdoor patio space that shall be constructed with a combination of grass, paving, and plantings to create an inviting lounge space that also contributes to stormwater management. This space can be used by recruits and staff of the building.

Roof and Rooftop Spaces

The roof construction is anticipated to be a metal deck supported by steel joists bearing on steel beams and columns. Given the building's footprint and the stormwater management required on the site, mechanical equipment for the facility will need to be placed on the roof. In addition to the necessary equipment for the chosen building systems, special consideration will need to be made to ensure that firing range ventilation equipment will also fit on the roof. Placing mechanical equipment on the roof can also greatly reduce the risk of being damaged or tampered with.

A portion of the roof will be covered with extensive green roof. An extensive "low profile/performance" green roof is preferred to an intensive "rooftop garden" green roof as it has a lower weight comparatively. In addition, extensive green roofs require minimal maintenance and generally have lower installation costs. The green roof will help reach the quantity requirements for Stormwater Management and contribute to achieving sustainability goals set forth by Baltimore City. Depending on how much space remains on the rooftop, there is also the opportunity to install solar panels, furthering the achievement of sustainability goals. Solar panels are also anticipated to be located above the top level of the aboveground parking garage.

Site 2 Southwest Perspective

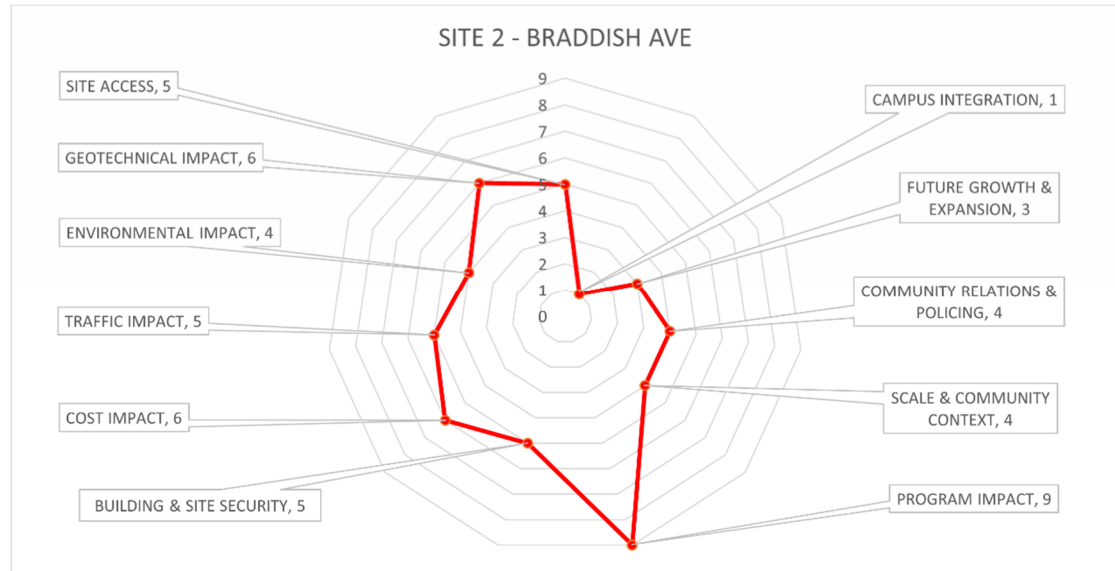


Site Development

As indicated in the above building descriptions, the building massing occupies a good portion of the site. There are no existing stormwater treatment ponds on the site, so micro-bioretenion and bioretention ponds are planned for the available green space. The project's green roof and outdoor patio landscaping is planned for use to meet the stormwater requirements as well. An underground stormwater management detention chamber is planned for beneath the visitor parking lot. Existing utilities are sufficient and adequately located for the new connections that are required.

With these goals in mind, a list of parameters and criteria were determined to evaluate each of the sites. These parameters are Campus Integration, Future Growth & Expansion, Community Relations & Policing, Scale & Community Context, Program Impact, and Building & Site Security. Additional criteria analyzed by consultants includes Site Access (vehicular and pedestrian), Archaeological Impact, Geotechnical Impact, Environmental Impact, Traffic Impact, and Cost Impact.

Site Evaluation Parameters Chart for Site 2



With Site 2 several blocks away from the CSU campus, it ranked very low on the scale for Campus Integration. There are no other university buildings nearby, and primary access will be by vehicle. With the current building massing and stormwater management requirements, the Future Growth and Expansion are limited. Concerning Community Relations & Policing, the design for Site 2 includes a public plaza on the northeast corner of the site, which was found to have the highest amount of foot traffic in the traffic analysis and can readily engage the surrounding community. All of the surrounding context is relatively short in height, and this project is sized significantly larger. However, this site can accommodate all of the program with no significant challenges, resulting in a high score for that criterion.

Concerning Site Access, the site is very pedestrian-friendly, and there are multiple vehicular access points. The geotechnical borings hit refusal; therefore, it is anticipated that the below-grade parking garage and firing range could necessitate the removal of portions of bedrock. There are several environmental impact concerns, and the archaeologist recommended site monitoring during construction, which lower the score for this criterion. Building and Site Security is average due to multiple vehicular access points to the site and the visitor parking lot. However, limited pedestrian entry points into the facility allow for better security oversight.

3.) COST-BENEFIT ANALYSIS

As indicated in the cost estimate appendix, the total site and building cost plus soft costs for Site 2 escalated to the mid-point of construction (assumed to be 2026) is \$333,130,000. Soft costs included are various regulatory processes, anticipated design fees, and anticipated FFE (Furniture, Fixtures, and Equipment). The parking garage cost for this site does include some rock excavation required for the below-grade parking garage and associated grading. The solar panels are limited to the above the top floor of the parking garage on Site 2. This type of solar panel is more costly than those installed over a roof. The remaining costs for the project generally fell in line with the expected costs for a facility of this size and complexity.

4.) SUMMARY



Site 2 is a larger site and therefore, can accommodate a shorter building structure and not have to go as far below grade to contain the program and parking needs. However, given the proximity of many residences, its scale is not proportional to the surrounding context. Most of the program spaces wrap around the Practical Training Village, allowing better access to natural daylight. Existing utilities are adequate, and there are no traffic concerns. There are some environmental concerns and archaeological considerations that need to be taken into account and further researched or tested if construction was to occur on this site. The findings from the geotechnical report indicate that bedrock is likely; however, minimal rock excavation is anticipated at the proposed below-grade construction. The absence of any existing stormwater management means that space needs to be carved out on the site to accommodate the increase in impervious area. Most of the roof will also be needed to be utilized as a green roof for additional stormwater capture. With all of these considerations, this site is successful in accommodating the required program for CSU, BCFD, and BPD.

C. RECOMMENDATION AND CONCLUSION

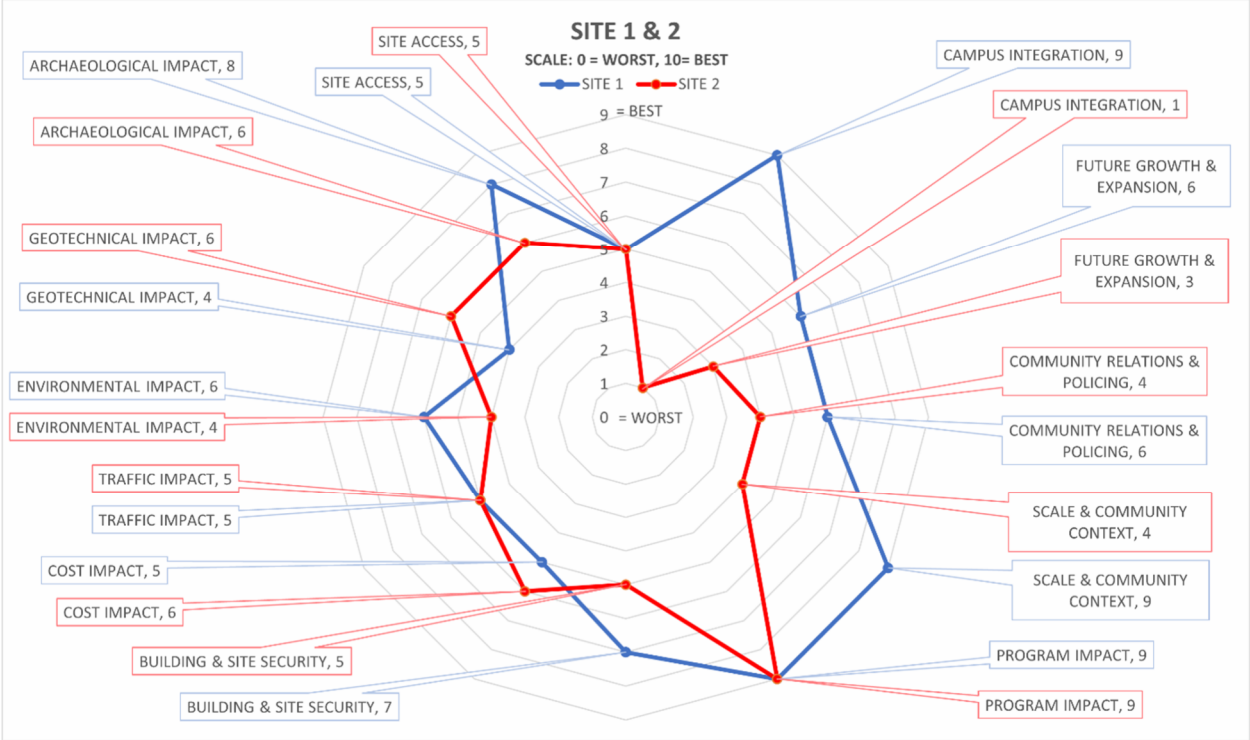
Here lies an opportunity to design a facility that will encourage a diverse group of skilled and educated first responders to serve their community. We can leverage design as an opportunity to serve as a conversation table for public safety officials and community members to come together and forge meaningful relationships built upon trust and respect.

The cost of this facility is a significant investment. However, the cost of doing nothing is exponentially more. A state-of-the-art public safety facility will attract the most qualified candidates and leave them well-prepared to serve their communities. Law Enforcement officials will be better prepared to engage in de-escalation tactics. The use of force may be appropriately tempered. Firefighters and EMTs will be better trained to recognize dangerous situations. How many lives might be saved with better-educated and trained public safety personnel? How many lawsuits might be avoided? How many children will develop relationships built on trust that keeps them out of trouble?

Public safety personnel are often asked to learn and train independently and then work together in the field. How might eliminating this silo result in improved operational efficiency? The Baltimore Police Department and Baltimore City Fire Department have struggled to recruit and retain public safety personnel. Baltimore spends a significant amount of money to train candidates, later losing them to surrounding jurisdictions. A public safety facility that exemplifies dignity, discipline, and respect, carries value. A professional learning and work environment directly correlate to satisfaction. How might a new public safety facility create an influx of qualified students? How might this facility serve as a proof of concept to City officials, thus catalyzing the renovations or replacing dozens of firehouses and police stations?

The Preliminary Design performed by our team evaluated the program on two different sites selected by Coppin State University and the Maryland Stadium Authority. After presenting the designs, existing conditions, and site evaluation parameters to the executive stakeholders, the overwhelming consensus from the stakeholders was that Site 1 better fulfilled the project goals than Site 2. Coppin State University raised concerns about parking challenges and the future needs of the campus that would arise with the facility occupying Site 1. However, they agreed Site 1 had a stronger relationship with the existing campus. With the feedback of the executive stakeholders in mind, our team's recommendation is that while both sites are valid options, Site 1 provides a stronger community benefit and campus integration, as long as the parking concerns can be addressed.

Site Evaluation Parameters Chart for Sites 1 & 2



Site 1 CSU Alternate Parking Options



This new public safety facility will be a catalyst for the immediate community, Baltimore, and the surrounding region. A state-of-the-art public safety facility will aid in attracting the most qualified personnel and ensuring they receive the highest level of training possible. These individuals will serve our citizens with pride, integrity, discipline, and honor. These heroes will embed themselves in our neighborhoods, build trust, and nurture relationships – thus creating safer communities. Cultivating safer neighborhoods promotes tourism, attracts businesses, and encourages residency. We firmly believe that this project has the potential to affect change and render Baltimore one of the safest and most inviting cities in North America.

POTENTIAL FUNDING SOURCES

Opportunities for potential funding sources include, but are not limited to:

- Federal (i.e. federal legislation, FEMA, Department of Homeland Security)
- State and local contributions, including possible cost savings associated with consolidating operations into a single facility and revenue from charging for facility use from regional partners.

D. APPENDICES

- A. Program Spreadsheets
- B. Room Diagrams
- C. Site Plans
- D. Consultant Reports
 - 1. Owner's Estimate Summary & Cost Estimate
 - 2. Structural
 - 3. Traffic
 - 4. Geotechnical
 - 5. Environmental Impact
 - 6. Archaeological
- E. Synchronous Charrette Notes
- F. CSU Master Plan
- G. Comparable Facilities
- H. Funding Sources
- I. Anticipated Savings