



Construction Management Division

November 20, 2012

**MEMO TO: Russell Allen,
City Manager**

**FROM: Richard Kelly
City Construction Projects Administrator**

**Jay Lund
Project Engineer II**

SUBJECT: Agenda Item – Critical Public Safety Facilities – Update and Recommendations

MESSAGE:

On February 7, 2012, City Council authorized the City Manager to take several steps related to the potential development of a new Critical Public Safety facility on the vacant, City owned six acre parcel at the corner of North Raleigh Boulevard and Brentwood Road. The initial evaluation by City Administration had determined that this could be a suitable site for the development of critical public safety facilities to include a new Emergency Communications Center (ECC 911 Center), Emergency Operations Center (EOC), a substantial Information Technology Data Center, and a possible Raleigh Police Department component. The potential for the site to accommodate additional phased future public safety uses was also to be considered.

On February 27, 2012, the Request for Qualifications (RFQ) for project design services was advertised and on May 1, 2012, Council authorized the City Manager to negotiate a contract with Pearce, Brinkley, Cease and Lee / AECOM for Phase One Design Services associated with the initial development of this new Critical Public Safety Facility. This initial contract for Phase One Design Services included the evaluation and updating of the previous departmental programming, site evaluation, master planning and initial conceptual building design efforts.

In addition, Council authorized conducting a security and threat assessment as a component of this Critical Public Safety development. On March 26, 2012, the Request for Qualifications (RFQ) for project threat and security analysis services was advertised and on June 5, 2012, Council authorized the City Manager to negotiate a contract with Burns and McDonnell for Phase One Threat and Security analysis services associated with the initial development of a new facility. This initial contract for Phase One Threat and Security analysis service includes the evaluation of risks to the site and building as well as the development of design criteria to mitigate applicable risks

Programming workshops were held on August 21, 2012 thru August 24, 2012 with City of Raleigh Departments that includes 911 Emergency Communications, Emergency Operations, Information Technology, Traffic Control, and the Raleigh Police Department. During the course of the next three months, additional workshops were held on September 5, 2012 thru September 12, 2012, October 1, 2012, November 5, 2012 and November 6, 2012 with the above departments to further refine the initial programmatic requirements, as well as reviewing and commenting on preliminary site and three dimensional building layouts.

The Phase One Report Conclusions generated by these workshops will be presented to Council by Pearce, Brinkley, Cease and Lee/AECOM and Burns and McDonnell. In general the report concludes and recommends the following:

- The site is appropriate and satisfactory for the critical public safety functions as outlined above.
- The site can accommodate the necessary communications tower but will require a zoning variance
- There is sufficient capacity on the site for some future expansion but will require structured parking
- The facilities can accommodate a potential joint Emergency Operations Center with Wake County.
- Geographically and functionally the site is not well suited to accommodate police facilities.
- A recommended phase one facility is proposed at approximately 95,000 square feet with a cost of approximately \$69 Million. This includes \$15 Million for required technology components. In addition an allowance for potential County involvement is included.
- Current schedule indicates occupancy in the fourth quarter of 2015

The next step in the design process will be to negotiate a contract amendment with Pearce, Brinkley, Cease and Lee to proceed with Schematic Design and Design Development drawings for the project. In addition, the Construction Management office proposes to move ahead with soliciting requests for qualifications for Construction Manager at Risk (CMAR) services for this project. Due to the complex technology components of this project and associated coordination of trades, this delivery method will provide for the most potential to control costs, minimize conflicts and provide the most expeditious implementation of the project. It is estimated that proceeding with design documents through the Design Development phase and CMAR pre-construction services should not exceed \$3Million.

Funds are available in previously approved public safety center account 507-2210-790010-975-CIP00-99080000 and can be transferred to the new public safety project account established for this project 507-2210-790010-975-CIP00-86540070.

RECOMMENDATION:

(1)City Council accept the report and approve moving ahead with the proposed Critical Public Safety Facility as presented, as well as, the solicitation and selection of Construction Manager at Risk services for future approval by Council.

(2) Council authorize the transfer of \$3 Million from previously approved public safety projects (507-2210-790010-975-CIP00-99080000) to the new public safety project account already established for this project (507-2210-790010-975-CIP00-86540070) to provide for further project development and design through the Design Development phase and CMAR pre-construction services.

(3) Council authorize the City Manager to negotiate and execute Contract Amendment Number One with Pearce, Brinkley, Cease and Lee/AECOM to provide for further development of the project design documents through the Design Development phase.

City of Raleigh

Critical Public Safety Facility

Raleigh, North Carolina



Final Report - Executive Summary
Security and Threat Executive Summary
December 04, 2012

1 EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

The City of Raleigh commissioned Pearce Brinkley Cease and Lee (PBC+L) / AECOM in July 2012 to program and design the new Raleigh Critical Public Safety Facility, that would house the Emergency Communications Center, Emergency Operations Center and the City Primary Data Center. This Phase I effort of the design was initiated to develop the program, determine the design criteria, confirm the existing site viability, and determine the overall project cost and schedule as it moves forward into detailed design (Phase II).

METHODOLOGY

In a series of on-site workshops conducted with participants from all the respective departments, and a walk-through of existing facilities to understand the current operations, the PBC+L / AECOM team analyzed the existing spaces and projected future space requirements to a 25 year planning window. Additional workshops were conducted to understand and document all of the building related and communication based systems required for the facility. City space standards as well as national best practice guidelines were applied to the final project program and criteria.

In an effort to maximize efficiency and optimize the site, the City asked that the design team evaluate additional departments or agencies that could be co-located on the site. To that end, the City of Raleigh Northeast District Police Station and Wake County Emergency Operations Center were programmed and reviewed as a part of the process. During the process, it was the consensus of planning group (department representatives, city officials and the design team) that the Northeast District Police Station would not be included in this project and the Wake County Emergency Operations Center would be incorporated as a consolidated center with City EOC or would not be included in the project altogether. A final decision on the inclusion of Wake County EOC will occur during Phase II of the design.

PROGRAMMING SUMMARY

Following the intensive programming process, a program document was developed that was then reviewed and modified. Ultimately, the program document breaks the facility into 14 major components. The gross square footage program for the building (with the two aforementioned options) is as follows:

Main CPSF with City EOC Only

Lobby	1,980
ECC Administration	8,414
ECC Operations	17,587
ECC Staff Support	5,567
City of Raleigh EOC	9,781
Traffic Control Center	3,064
Shared Staff Support	3,266
Information Technology	3,713
Data Center	11,522
Facilities	1,550
Building Systems/Support	15,331
Vertical Circulation	4,000
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Main CPSF GSF	85,774 GSF

Receiving Building	1,800
Radio Freq Equip Bldg	1,520

Main CPSF with Combined City/County EOC

Lobby	1,980
ECC Administration	8,414
ECC Operations	17,587
ECC Staff Support	5,567
Combined City/County EOC	13,416
Traffic Control Center	3,064
Shared Staff Support	3,266
Information Technology	3,713
Data Center	11,582
Facilities	1,550
Building Systems/Support	17,034
Vertical Circulation	4,000
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Main CPSF GSF	91,173 GSF

SITE ANALYSIS

The City designated a site at the southwest corner of the intersection of Raleigh Boulevard and Brentwood Avenue that is already City owned as the prospective location for this new facility and asked the team to evaluate the viability of the site for the proposed mission critical functions. To accomplish this analysis the design team reviewed all the existing conditions including legal (zoning), access, environmental, and utilities along with existing documentation. Subsequently, program “test fit” concepts were applied to determine development limits and ancillary issues that might impact the current build out and future uses for the site. The geotechnical character of the site is the only remaining issue which

remains open at this time and this will be resolved in the early stages of the detailed design.

It appears that all the utilities (water, sewer, gas) servicing the site are adequate and will not require upgrades to fulfill the mission of the facility. A potential extension of the reuse water system would supplement the water system and provide some redundancy and conservation of potable water. Storm water would be handled on site for quantity and quality and then piped to the existing system.

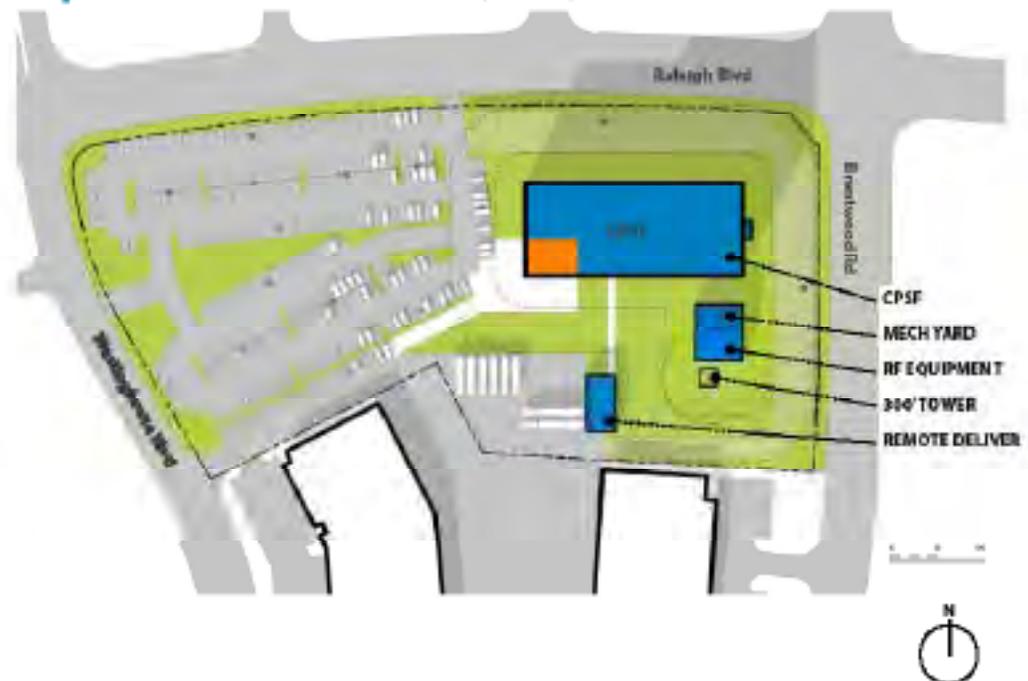
For electrical service there is adequate capacity but it is unlikely that a separate commercial power source which is desirable would be economically available to this site. The design team is therefore recommending additional on-site generation as the most reliable and economical.

Data and communications services to the site will require some upgrades to extend the fiber lines from the center city but this can be completed in conjunction with the City Remote Downtown Facility located directly across Raleigh Boulevard. In order to maintain connectivity with the radio system a self-supporting tower will be required for antenna and microwave links throughout the city.

In the program test fit studies, it became apparent early on that all the additional functions such as the City of Raleigh Northeast District Police Station could not co-exist on the site with the CPSF considering the required functional arrangements and security separations without compromising the secure integrity of the main facility. The parking requirements which swell to large numbers during activations could not be accomplished with all the functions without structured parking. It was deemed by the planning team that this was not the direction that this site should go. See the initial concept layouts A-F in the appendix. In these concepts it was clear that a main building location located to the eastern portion of the site with the secure parking directly accessible from Westinghouse Drive on western half was the most economical and practical solution to the site. This arrangement allowed the appropriate and recommended stand-off distances (25M) from all public vehicle access areas (as noted in Burns and McDonnell's Security and Threat Analysis). A single clear entrance could be placed along Westinghouse and an emergency entrance/exit could be provided along Raleigh Boulevard. To comply with security requirements the main part of the site would be protected by a decorative fence with only a limited opening and parking area for visitors. Further expansion of the facility in the future could be accomplished through an addition to the immediate south of the main building filling in the space adjacent to the Radio Frequency Building. Another important feature on the site is the provision of a separate Receiving Building for all deliveries (mail, parcel, etc) and it is clearly outside secure perimeter to limit the exposure of the main building to potential threats.

It is the consensus of the planning group that Option G and H provided the best overall site arrangement, minimized potential threats and maximized critical

Option G&H - CPSF combined city/county EOC



public safety functions.

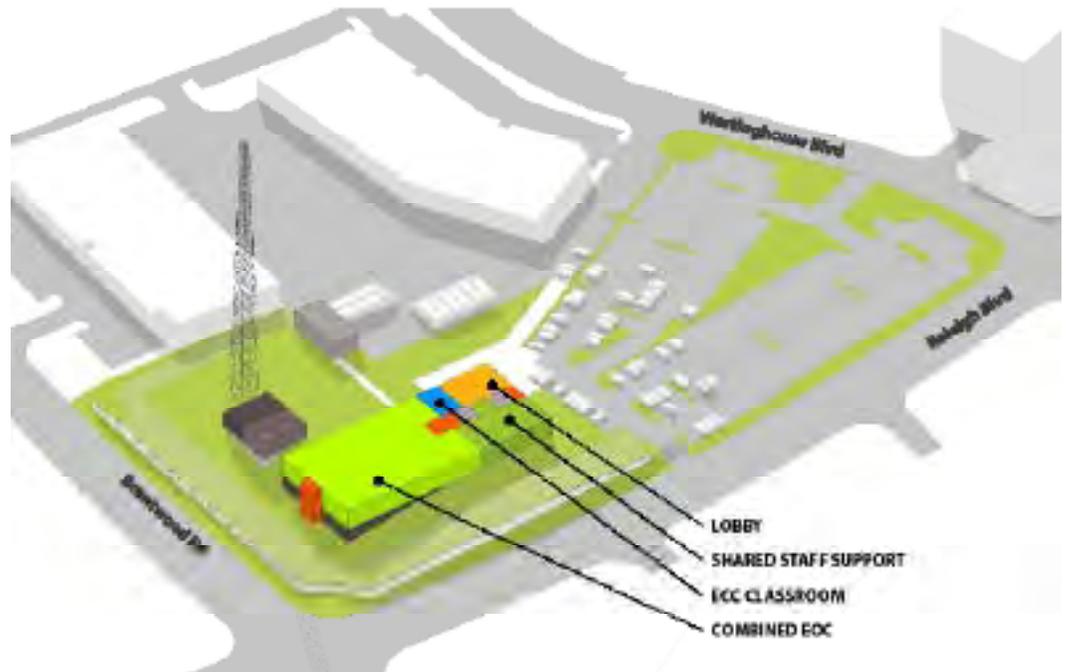
The design team carried these test fit plans a little further to establish some potential blocking and stacking arrangement of the program. These address critical adjacencies as well as vertical arrangements in order to maximize operational efficiencies. In the end the design team and planning group felt that option G best satisfies the adjacencies criteria. This option is described as follows:

Option G has the mechanical spaces and Facilities group on partial lower level. The Lobby including the Press Room and Joint Information Center (JIC) occupy the first floor along with all of the EOC functions and the Shared Staff Support. The second level would be comprised of the Information Technology group, Data Center and Traffic Control Center (TCC). The third level would be home to the Emergency Operations Center (ECC) and its support spaces. The ECC Administration offices would occupy a partial fourth floor. Other program elements on the site include a remote Receiving Building, a Radio Frequency (RF) Equipment Building with the tower, and a mechanical equipment enclosure.

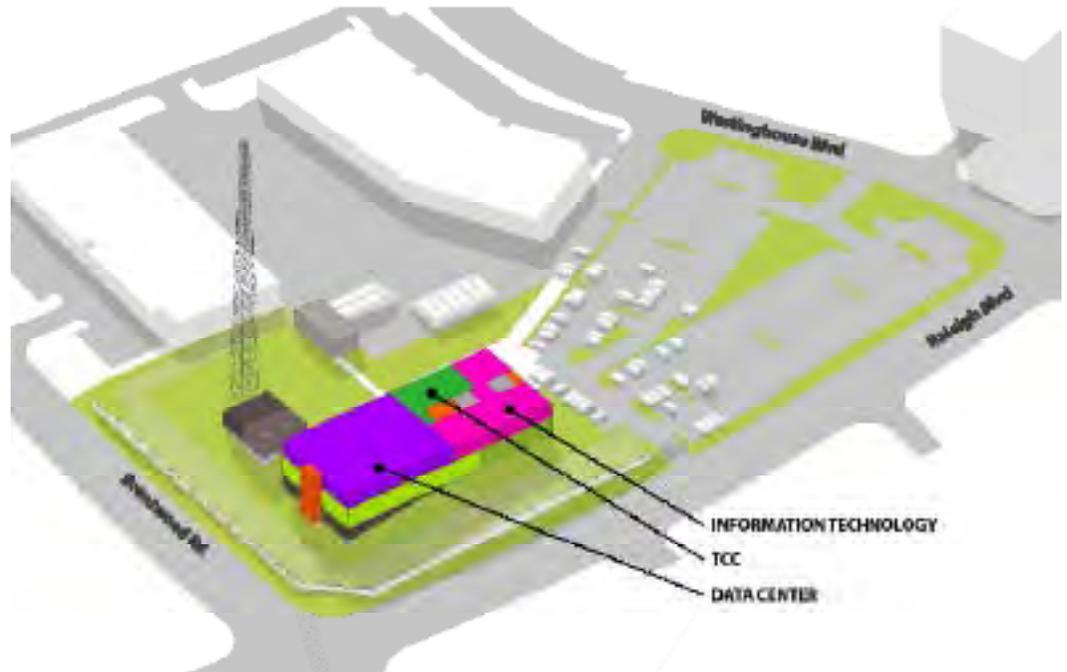
Option G - Lower Level



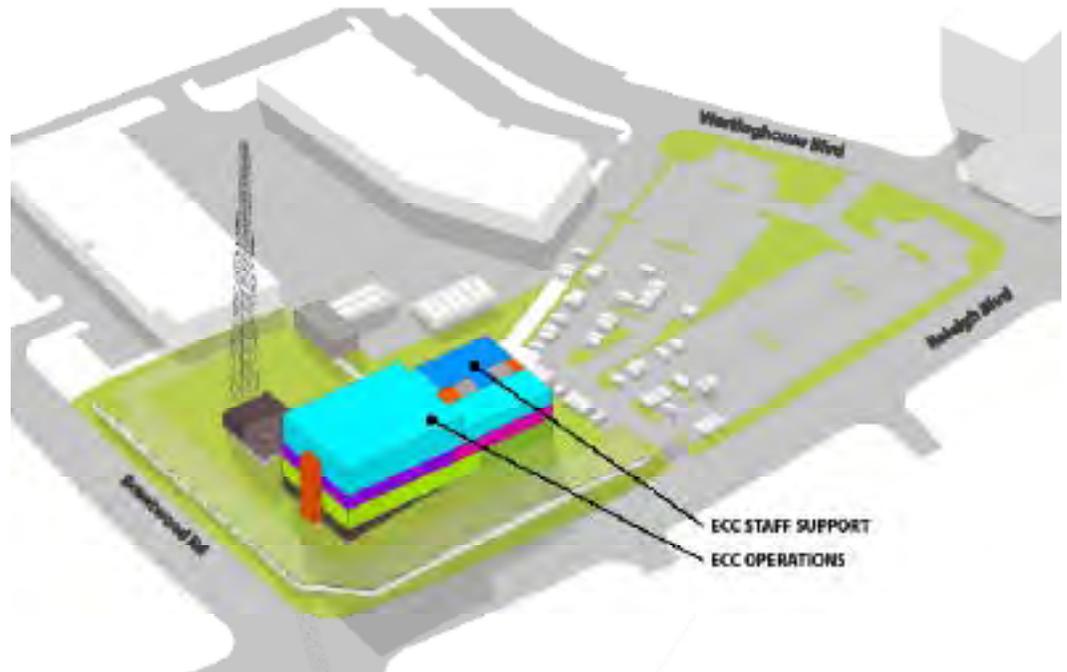
Option G - Level 1



Option G - Level 2



Option G - Level 3



Option G - Level 4



TECHNOLOGY SYSTEMS SUMMARY

The design team has reviewed much of the existing technology and has become familiar with the requirements and refreshments that may need to be undertaken as a part of this project process. Clearly there is a need to define and upgrade the Computer Aided Dispatch (CAD) system in conjunction with this process. To date, a detailed inventory of the current technology has not been completed but will be one of the first orders of business as the team begins the second phase of the project. It is recommended that any planned technology upgrades be coordinated with the relocation of this facility to provide cost savings. Significant coordination will be required to ensure timing of the planning, assessment, contracting, installation and finally testing, so as to coincide with the building schedules as they are developed. Specifications should be further defined as procurement schedules are determined. Any of the system under review for upgrade/purchase requiring action prior to a facility move should be identified as needed.

One of the key components to this mission critical facility will be the diverse communication routes and connectivity to the mobile radio and cellular networks. It was clear early in the programming and requirements assessment process that this site would require a communications tower to maintain this all important connectivity. The "over the air" connection coupled with a diverse fiber optic network both city owned and commercial will ensure that the mission critical

communications are carried out no matter what happens. The tower most likely will be a self supported structure and will support radio antennas for the public safety mobile radio system and microwaves dishes to the radio prime site and various other antenna.

THREAT AND RISK ASSESSMENT SUMMARY

Working in conjunction with the planning group and Burns & McDonnell for Security and Threat Analysis, the design team has set forth the general perimeters to protect this facility, its occupants and the mission critical data contained therein. These measures will form the basis on design for all the site, architectural, engineering and technological components of the project.

It is understood that this facility must take into account any potential threat to the building and site that the City of Raleigh considers significant. We have included within the project, design measures which will mitigate those identified threats. Many of the recommendations come out of the design teams' experience with these facilities throughout North America. In addition, we have applied the many national and industry standards and guidelines that are applicable to critical public safety facilities. Examples of the measures noted in the design narratives that are already incorporated into the planning and concept design include:

- 25 meter set back from the building to any public vehicular access
- Secure perimeter for the site and staff parking
- Limited public parking and access
- Remote Receiving Facility
- Utility Redundancy
- N+1 Emergency generation (N generators to meet emergency power needs plus 1 spare generator should any individual N generators fail)
- Parallel UPS (Uninterruptible Power Supply) Systems with extended back up time

As the detailed design progresses, additional measures will be incorporated into the project.

BUDGET ESTIMATE SUMMARY

The estimate included herein is a square foot budget estimate only and is broken down to depict several of the types of project costs. The types of cost areas are described as follows:

Overall Budget Description:

Hard Costs

- Construction Budget - Includes anticipated construction costs broken down to support the program area, and the value for site construction. This cost includes the escalation to the midpoint of construction
- Technology Systems – Includes anticipated communication, audio visual systems, telephones, cabling and security systems. This is the greatest variable at this point until a detailed inventory and analysis is completed for each system to be included. New radio consoles are anticipated along with a new Computer Aided Dispatch (CAD) System. Additional funding sources will be reviewed in the detailed design.
- Fixtures, Furniture and Equipment – Includes furniture, seating and data center racks required to outfit the complete facility.
- Communications Tower – Includes a self supporting tower initially anticipated to be 300 feet tall.

Soft Costs

- A/E FEE – Includes anticipated project design costs
- Construction Manager FEE – Includes anticipated preconstruction consulting fees
- Technology Integration /Implementation - Includes anticipated costs for the integration of the multiple technology systems and the final migration to the new center
- Owner's Design Contingency – Includes anticipated costs for potential design changes required during the detailed design
- Commissioning – Includes basic commissioning services usually around 1% of the construction cost
- Materials Testing – Includes anticipated costs for required testing during construction which is normally around 1.25% of construction
- Public Art – Included funding for the City required program at .5% of construction cost
- Permits and Miscellaneous Fees – Includes anticipated costs for permits, connection fees and other fees normally applicable to this project type. General anticipated costs for this is around 1.5% of construction
- Geotechnical/Survey – Includes anticipated costs for geotechnical exploration, ground resistivity testing and required land surveys.

Owner Construction Contingency

- Construction Contingency – Anticipated and Unanticipated Costs roughly equal to 10% of the construction cost

Based on historical cost data for this building type and local construction costs the design team developed the following estimate for the overall project cost. Many of the details particularly in the technology and FF&E will be further defined during the detailed design phase.

ANTICIPATED BUDGET

Hard Costs:

Construction	
Main Building with Combined EOC	\$36,340,000
Receiving/Radio Building	\$ 913,000
Technology	\$15,000,000
Furniture, Fixtures and Equipment (FF&E)	\$ 3,000,000
Communication Tower	\$ 500,000

SUBTOTAL \$55,753,000

2. Soft Costs:

A/E Fees	\$ 4,675,000
CM Fees	\$ 1,500,000
Technology Integration/Implementation	\$ 700,000
Owner's Design Contingency	\$ 300,000
Commissioning	\$ 350,000
Materials Testing	\$ 375,000
Public Art	\$ 190,000
Permits	\$ 550,000
Geotechnical/Survey	\$ 100,000

SUBTOTAL \$ 8,740,000

3. Owner Construction Contingency \$ 4,500,000

TOTAL \$68,993,000

PROJECT SCHEDULE

The design team is proposing the following schedule for the completion of the project.

Notice to Proceed - Design	February 1, 2013
CM at Risk Contract Approval	April 16, 2013 Council Review
Schematic Design Submittal (3 months)	May 1, 2013
Design Development Submittal (4 months)	September 2, 2013 Council Review
Contract Documents Submittal (6 months)	March 1, 2014 Council Review
Final Documents Complete (1 month)	April 1, 2014
Bid (6 weeks)	May 15, 2014 Council Review
Notice to Proceed - Construction	July 15, 2014
Beneficial Occupancy (15 months)	October 15, 2015
Final Completion (2 months)	December 15, 2015

The migration of the systems would take place after the beneficial completion and the final “hot-cutover” of the 9-1-1 center once all the systems are operational and tested. A key component of this process is the development of a detailed “hot-cutover” plan that allows for contingencies in the migration and redundant measures throughout the process to ensure that there are no missed 9-1-1 calls and no missed dispatches.

OVERALL SUMMARY

The PBC+L/AECOM team has been privileged to work with the City of Raleigh leadership, planning team and the multiple agencies and stakeholders involved with this project. The concern for continuing the level of service and maximizing operational efficiencies to the citizens of the capital city into the future was evident throughout the process. The course of action set forth here is duly considered and many options were analyzed in the process. The following factors led the planning group and design team to the conclusions reached above including:

- The subject site is City owned and therefore no property purchase is required.
- The site is large enough to accommodate the Critical Public Safety Facility with all of the security setbacks, secured parking, towers and ancillary buildings.
- There are sufficient utilities at our near the site to service the proposed facility.
- Reasonable accommodations can be accomplished to address known threats and risks within the building and site.
- The facility space program takes maximum advantage of shared spaces within and between each department.
- The incorporation of the technology and the flexibility for future change has been anticipated within the current planning.
- Anticipated project costs are reasonable and consistent with similar facilities throughout the country.
- The proposed schedule will allow for sufficient time to construct the facility, incorporate the technology and safely transition the critical functions to the new location.

We recommend that adoption of the results of this Phase I plan as the roadmap for the final detailed design of the Critical Public Safety Facility.

SECURITY & THREAT ANALYSIS EXECUTIVE SUMMARY

1.0 EXECUTIVE SUMMARY

1.1 PROJECT BACKGROUND

The City of Raleigh (the City) is evaluating the unimproved lot at 2425 Brentwood Road, Raleigh, NC 27604 for placement of a Critical Public Safety Facility (CPSF). This facility would house several agencies including the Emergency Communications Center (ECC), Emergency Management (EM), a joint Raleigh – Wake County Emergency Operations Center (EOC), an Information Technology (IT) Data Center, and other associated and affiliated offices.

In August, 2012, the City engaged Burns & McDonnell, Inc. (BMcD) to conduct a pre-design Security and Threat Analysis of the proposed site and analyze identified threats to the facility. The project involved analysis of the risk posed by various threat scenarios, the formulation of appropriate design criteria and recommendations to mitigate those risks, and an overall safety and security centric general opinion of the site selected. This security analysis and design criteria will be utilized to establish design and construction cost estimates for further evaluation of the proposed location, site layout, design, and construction.

This report documents our discussion and ranking of threat scenarios, security design criteria and consequent recommendations, and overall conclusions. Threat information by nature is perishable. Over a given time threats can change, thus increasing and decreasing the risk posed to an entity that may require additional security considerations in the future. The threats analyzed are as follows:

- Man-Made:
 - Arson
 - Ballistic Attack
 - Bomb Threat
 - Vehicle Bomb
 - Hand Delivered Bomb
 - Mail Package Bomb
 - Assault
 - Aggravated Assault
 - Nuclear, Biological, Chemical (NBC) Hand Delivered
 - NBC, Waterborne
 - NBC Airborne

- Sabotage
- Vandalism
- Kidnapping / Hostage
- Burglary
- Larceny / Theft
- Robbery
- Natural Threats
 - Flood
 - Ice
 - Fire (Accidental)
 - Seismic
 - Snow

1.2 AN OVERVIEW OF THE ASSESSMENT PROCESS

BMcD team members followed an established threat and risk evaluation methodology to provide a basis for evaluation of assets that were identified by the City project team. The detailed process is described in section Chapter 2.0 Overview of Methodology Used.

The process involved defining and prioritizing the critical missions, the proposed assets to be housed within the CPSF, and the ranking by criticality of each asset. Each of the threat scenarios was evaluated and scored on four criteria: Probability of occurrence, Impact to the facility should the scenario manifest itself, Vulnerability of the proposed facility to the threat scenario, and the asset criticality rating. The detailed evaluation process and scoring criteria for each is explained in section 6.0 Analysis of Threats, Impacts and Vulnerabilities.

As threat scenarios would likely impact multiple assets simultaneously, four main categories were proposed to include all individual assets as follows:

Asset Category 1	911 ECC (3rd Floor)
Asset Category 2	EOC Facilities (2nd Floor)
Asset Category 3	Data Center (1st Floor)
Asset Category 4	Facilities and Mechanical Rooms (1st Floor)

For each of the critical asset categories, the Probability, Impact, Vulnerability, and Consequence Factor (measure of asset criticality) were then used to calculate a Risk Score for each of the threat scenarios as follows:

$$\text{Risk} = \text{Probability} \times \text{Impact} \times \text{Vulnerability} \times \text{Consequence Factor}$$

The risk scores were evaluated in an iterative fashion based on various sets of countermeasures until the mitigated risk was believed to be in a tolerable range. The final set of countermeasures against these risks was compiled into our recommended security design criteria presented in section 5.0 Recommendations and Design Criteria. At the time of this assessment, the facility design is not yet finalized. Accordingly, the final risk scores assume design and construction in accordance with the recommended design criteria.

1.3 GENERAL RECOMMENDATIONS

The general recommendations below all contribute to lowering the overall risk to the facility from the threats evaluated. More specific and detailed recommendations and design criteria can be found in section 5.0 Recommendations and Design Criteria.

- Maximize Standoff Distance to minimize explosive threats at various distances (See 5.1.4 Standoff Distances)
- Establish a Controlled Perimeter to reduce risk of unobstructed access by unauthorized persons likely to carry out threat scenarios at the facility (See 5.1.1 Facility Perimeter)
- Restrict Public Access and Unscreened Parking (See 5.1.8 Parking areas)
- Provide Mass Notification inside and near the facility to reduce impacts and risk to personnel in the event of fire or other type of aggression requiring immediate response by occupants. (See 5.2.4 Life Safety)
- Establish Policies and Procedures (See 5.0 Recommendations and Design Criteria)
- Incorporate CPTED Theories (See 5.1.5 Landscaping)
- Restrict Access to the most Critical Assets by concentric rings of increasing levels of security to enhance thwarting capabilities (See 4.5 Recommended Security Tiers)

1.4 EVALUATED RISK MATRIX

The risk scores for each of the asset categories are displayed in a color coded format in Figure 1.1: Risk Matrix. This graphical display allows for risk prioritization and shows where additional mitigation measures, if desired, should be focused. The risk matrix represents the evaluated risk assuming proper

integration of the recommended security design criteria and security procedures in the design, construction, and operation of the facility.

Figure 1.1: Risk Matrix

	Category 1 (911 ECC)	Category 2 (EOC Areas)	Category 3 (Data Center)	Category 4 (Facility / Mech Rooms)
Arson	19	16	14	13
Ballistic Attack	11	10	1	1
Bomb Threat	14	12	1	1
Vehicle Bomb	17	14	5	5
Hand Delivered Bomb	6	5	4	4
Mail/Package Bomb	8	7	5	5
Assault	19	16	3	2
Aggravated Assault	17	14	5	5
NBC Hand Delivered	6	5	3	2
NBC Waterborne	5	4	3	2
NBC Airborne	6	5	3	2
Sabotage	22	19	42	38
Vandalism	4	4	16	19
Kidnapping/Hostage	6	5	1	1
Burglary	3	2	1	1
Larceny/Theft	19	17	20	4
Robbery	6	5	1	1
Flood	6	6	6	6
Ice	4	4	4	4
Fire (accidental)	25	22	19	17
Seismic	19	16	17	16
Snow	3	2	3	2

Risk Score	Risk Tier
100 and above	High
50-99	Medium
25 to 49	Low- Medium
10 to 24	Low
0 to 9	Very Low

1.5 SUITABILITY OF PROPOSED SITE

In the opinion of the BMcD team, based on the information and assumptions presented in this report and with the incorporation of recommended design criteria and a sound security procedural program, the proposed site is suitable for the proposed CPSF. This rating was derived from multiple considerations among them:

- The proposed site enables the facility to employ recommended standoff distance while not inhibiting operations or future growth.
- The proposed site was found to be above the 100 year flood plain, thus reducing the probability of severe impacts of heavy rains associated with large storms or hurricanes.

- This proposed site was found to afford effective access to those arriving during an activation while being outside of the downtown area..
- No facilities or businesses nearby were identified as having a high probability of adversely affecting the operation of the CPSF during their normal operations or emergency conditions such as an accidental chemical release or labor strike activity.

1.6 THREAT ASSESSMENT

During the course of this assessment the BMcD team met with local law enforcement and the North Carolina Fusion Center. The purpose of these meetings was to determine, if applicable, threats that are of immediacy to the City of Raleigh and could manifest themselves at the new CPSF. During these meetings no information was received that indicated a specific and credible threat against the proposed CPSF.

1.6.1 Man-Made Threat Risk

Man-made threat risks rated at LOW to MEDIUM or below were considered to be within the tolerable range for the purpose of selecting appropriate security design recommendations. Each threat risk was analyzed specific to the most-likely credible threat actor and scenario. Threat intelligence, by its nature, is perishable and can change significantly in a very short period of time. Therefore, the intelligence used in this assessment is subject to changing conditions at any time.

The risk scores shown in Figure 1.1: Risk Matrix indicate that the highest man-made risk posed to the CPSF is from Sabotage. The threat risk of sabotage was determined to be at a **LOW-MEDIUM** level for certain asset categories and at a **LOW** level for the remaining asset categories.

The risk a sabotage incident poses to the facility is appropriately lower for operationally populated areas, such as the ECC and EOC, than for areas that are typically unmanned, such as the Facility and Mechanical rooms, because of the presence of those typically working in those areas. Additional mitigation measures can be applied to further reduce the risk level associated and are discussed in the appropriate subsections of 5.0 Recommendations and Design Criteria.

The remaining Man-Made threats analyzed were rated at **LOW** or **VERY LOW** levels due to a variety of mitigations measures recommended including limited public access, appropriate standoff distances, and area occupancy. This is discussed in detail in the appropriate subsection of section 6.4 Man Made Threats.

1.6.2 Environmental Threat Risk

Environmental threat risks are not impacted by the presence or capability of specific threat actors and are not dependent on specific scenarios. Historic and geotechnical data can provide some insight into the general frequency and impact of environmental incidents, but cannot predict future occurrence or severity. Accordingly, those environmental threat risks rated above a VERY LOW tier are addressed below.

The evaluated risk scores shown in Figure 1.1: Risk Matrix indicate that the highest environmental threat risk posed to the CPSF is from an Accidental Fire which is rated **LOW - MEDIUM**. The risk posed by an accidental fire is slightly higher in areas where staff is present than unstaffed areas due to the higher potential for physical injuries or death prior to evacuation. Additional mitigation measures can be applied to further reduce the risk level associated and are discussed in the appropriate subsections of 5.0 Recommendations and Design Criteria.

The evaluated risk scores further indicate that a seismic incident poses a **LOW** risk to the CPSF. The probability of and vulnerability to a seismic incident impacting the facility is low. However, the facility could suffer a slight to significant reduction in functionality and / or non-disabling damage in a seismic incident, and thus received an impact rating of significant, raising the evaluated risk score from VERY LOW to LOW.

Intensity VI earthquakes are the most severe documented in North Carolina and typically result in broken windows, dishes, glassware; cause books to fall off shelves, and some heavy furniture to be moved or overturned, with a few instances of fallen plaster. The most property damage in North Carolina ever attributed to an earthquake was caused by the August 31, 1886 Charleston, South Carolina shock, with reports of chimneys thrown down, fallen plaster, and cracked walls. Assuming the design and construction of the proposed CPSF meets or exceeds currently applicable local building codes with regards to seismicity, such impact to the CPSF would not differ from other buildings or facilities in the region.

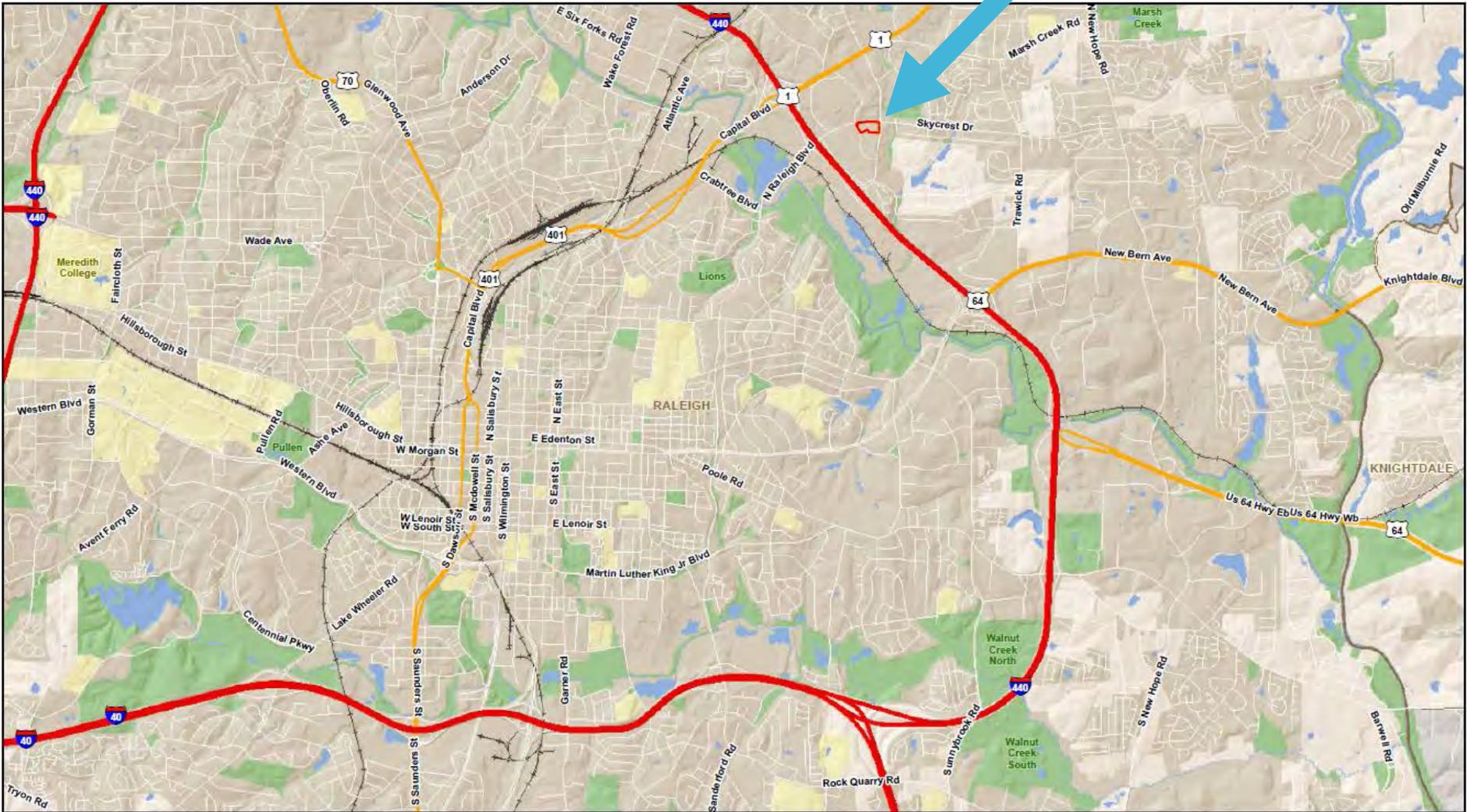
The remaining natural threats analyzed were rated at **LOW** or **VERY LOW**. This is discussed in detail in the appropriate subsection of section 6.5 Environmental Threats.

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Existing Site

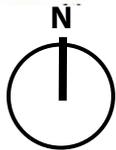
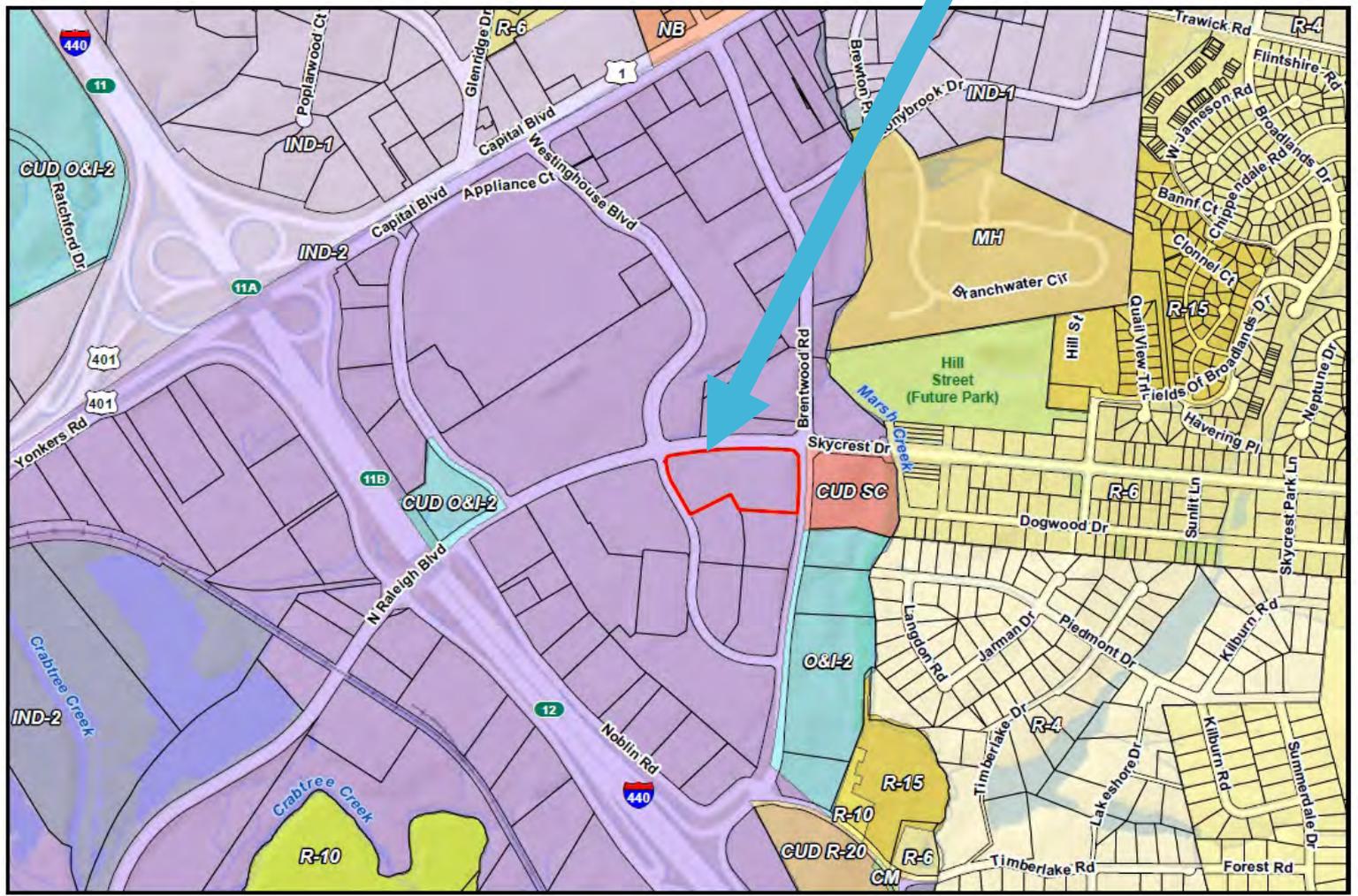
Overall Vicinity Map

PROPOSED CPSF SITE

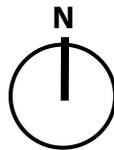


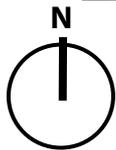
Zoning Map

PROPOSED CPSF SITE (IND-2)



Aerial View





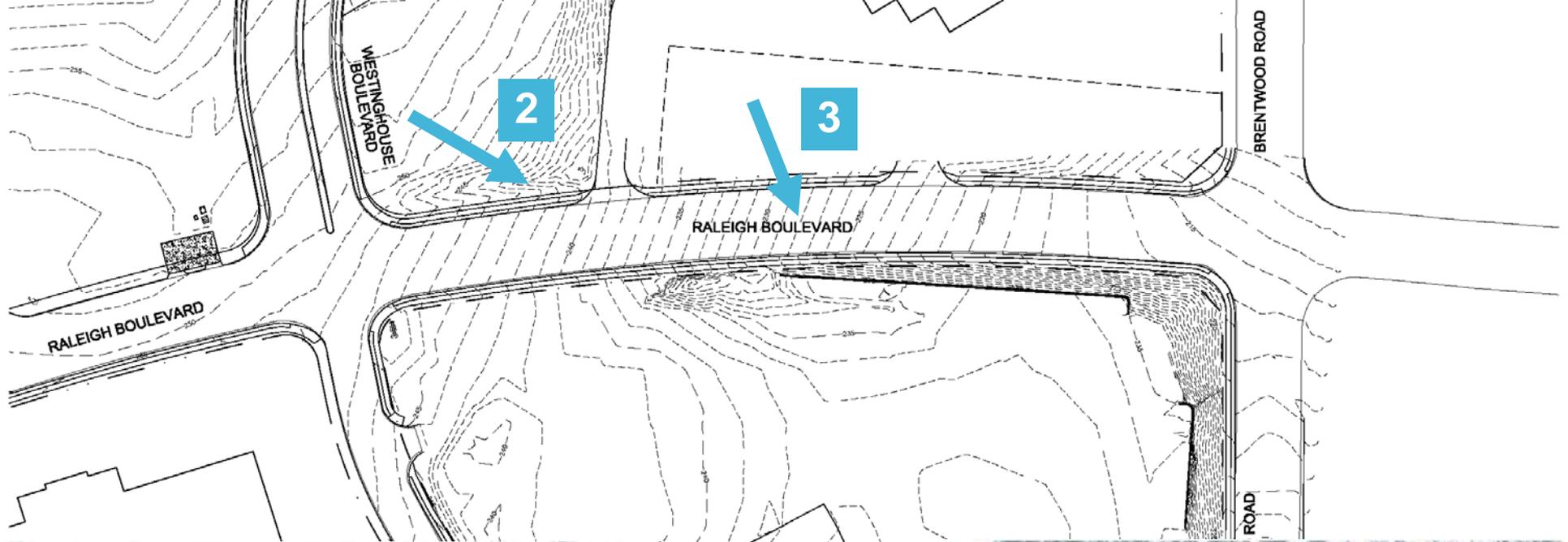


Photo 2



Photo 3

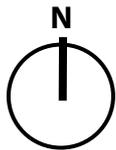
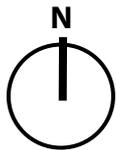
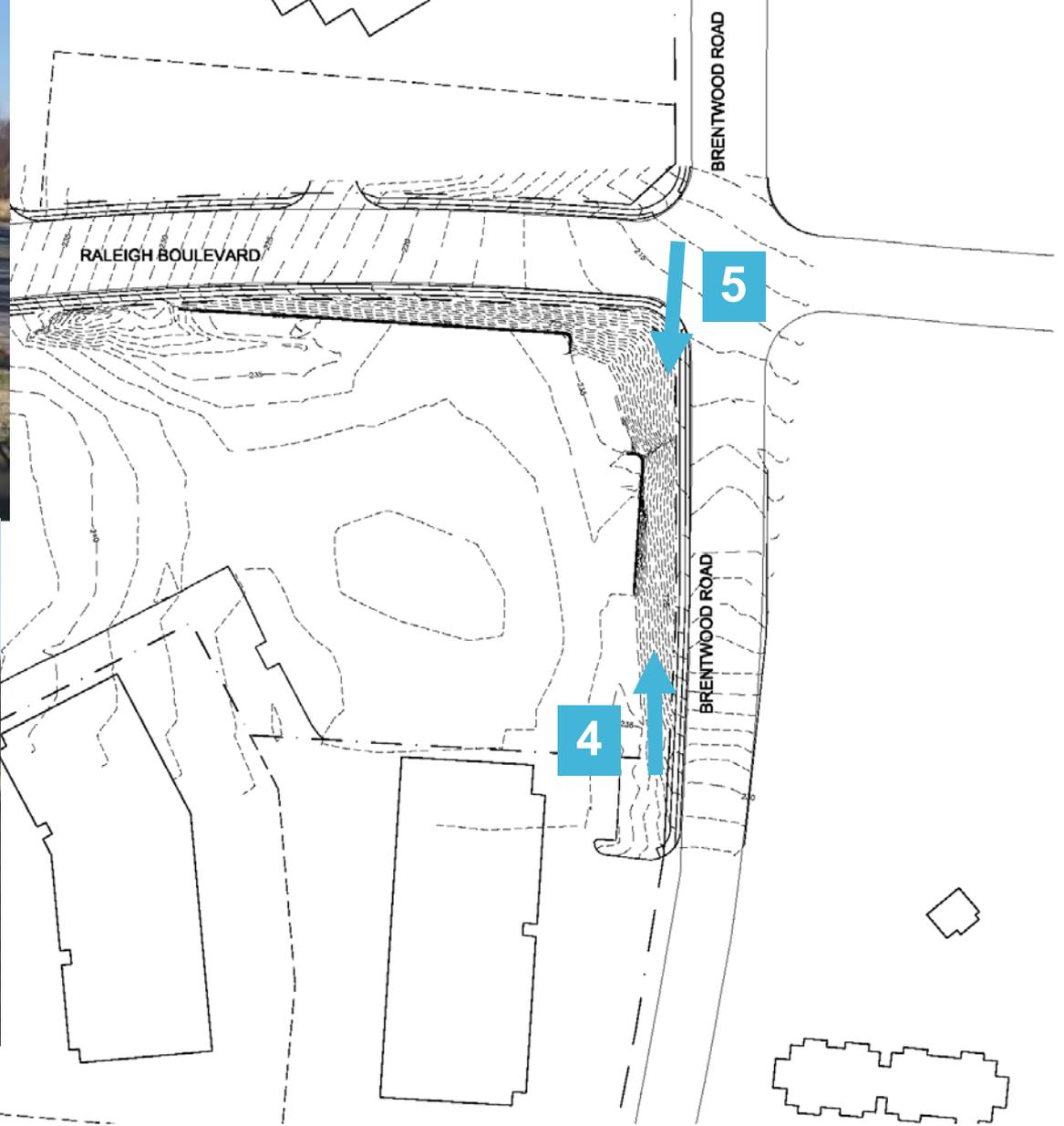




Photo 4



Photo 5



Threat & Risk Analysis

- Arson
- Ballistic Attack
- Bomb Threat
- Vehicle Bomb
- Hand Delivered Bomb
- Mail Package Bomb
- Assault
- Aggravated Assault
- Nuclear, Biological, Chemical (NBC) Hand Delivered
- NBC, Waterborne
- NBC Airborne
- Sabotage
- Vandalism
- Kidnapping / Hostage
- Burglary
- Larceny / Theft
- Robbery

- **Overall Rating – Low-Medium**
 - **Within Tolerable Range**

- **Highest Rating - Sabotage**
 - **Lower Operationally Populated Areas**

- Flood
- Ice
- Fire (Accidental)
- Seismic
- Snow

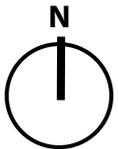
- **Overall Rating – Very Low**
 - **Within Tolerable Range**

- **Highest Rating – Accidental Fire**
 - **Potential for Injuries**

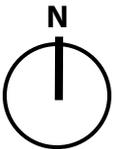
- **Site is Suitable**
 - **Utilization of Effective Standoff Distance**
 - **Above 100 Year Flood Plain**
 - **Provides Effective Access**
 - **Low Likelihood of Effects from Neighboring Businesses**

Site Strategies

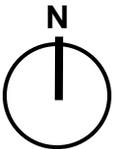
Site Analysis



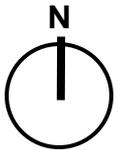
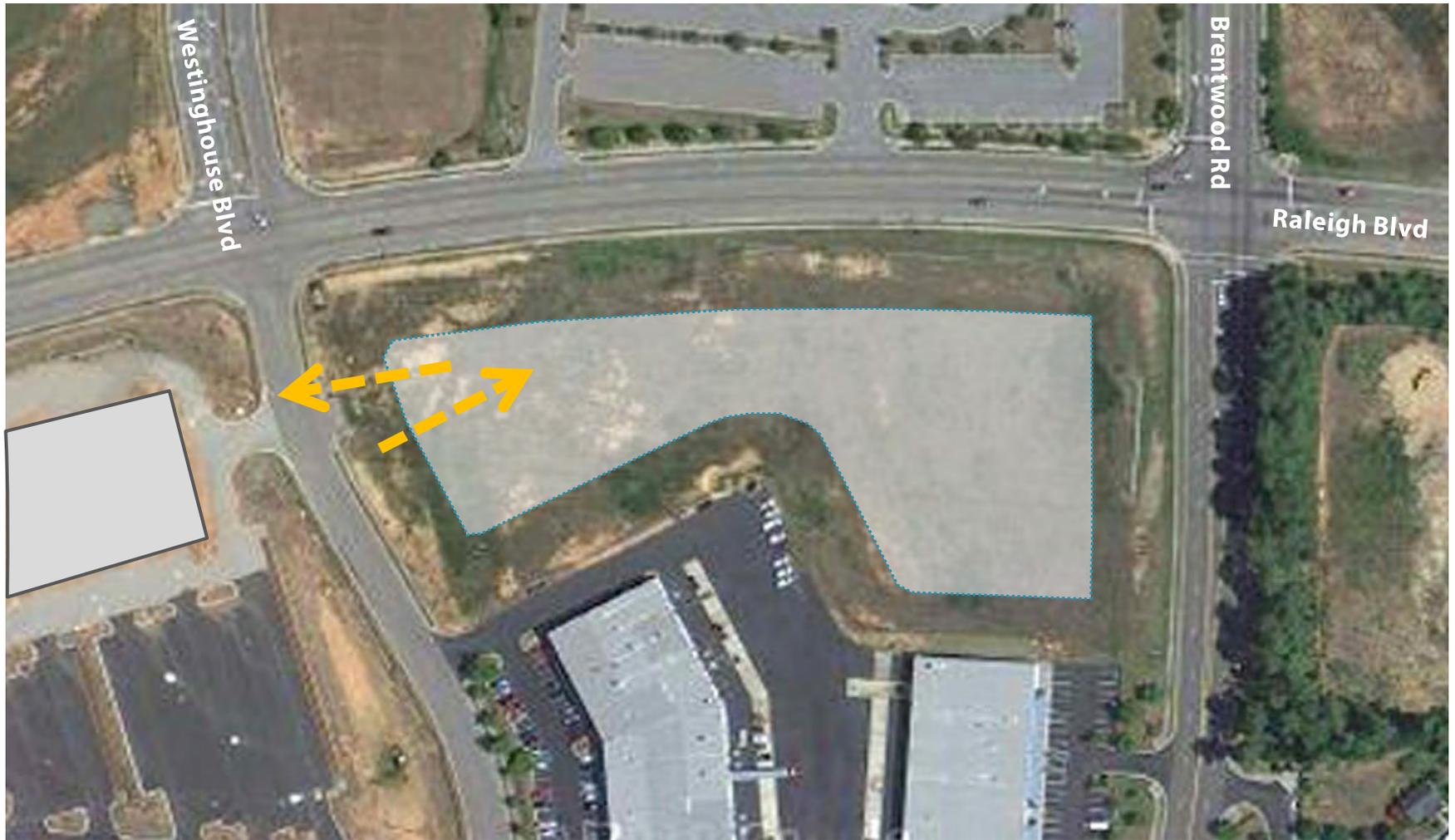
Site Analysis – Security Setback



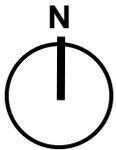
Site Analysis – Site Features



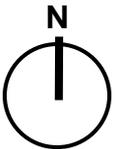
Site Analysis – Major Vehicular Access



Site Analysis – Secondary Vehicular Access

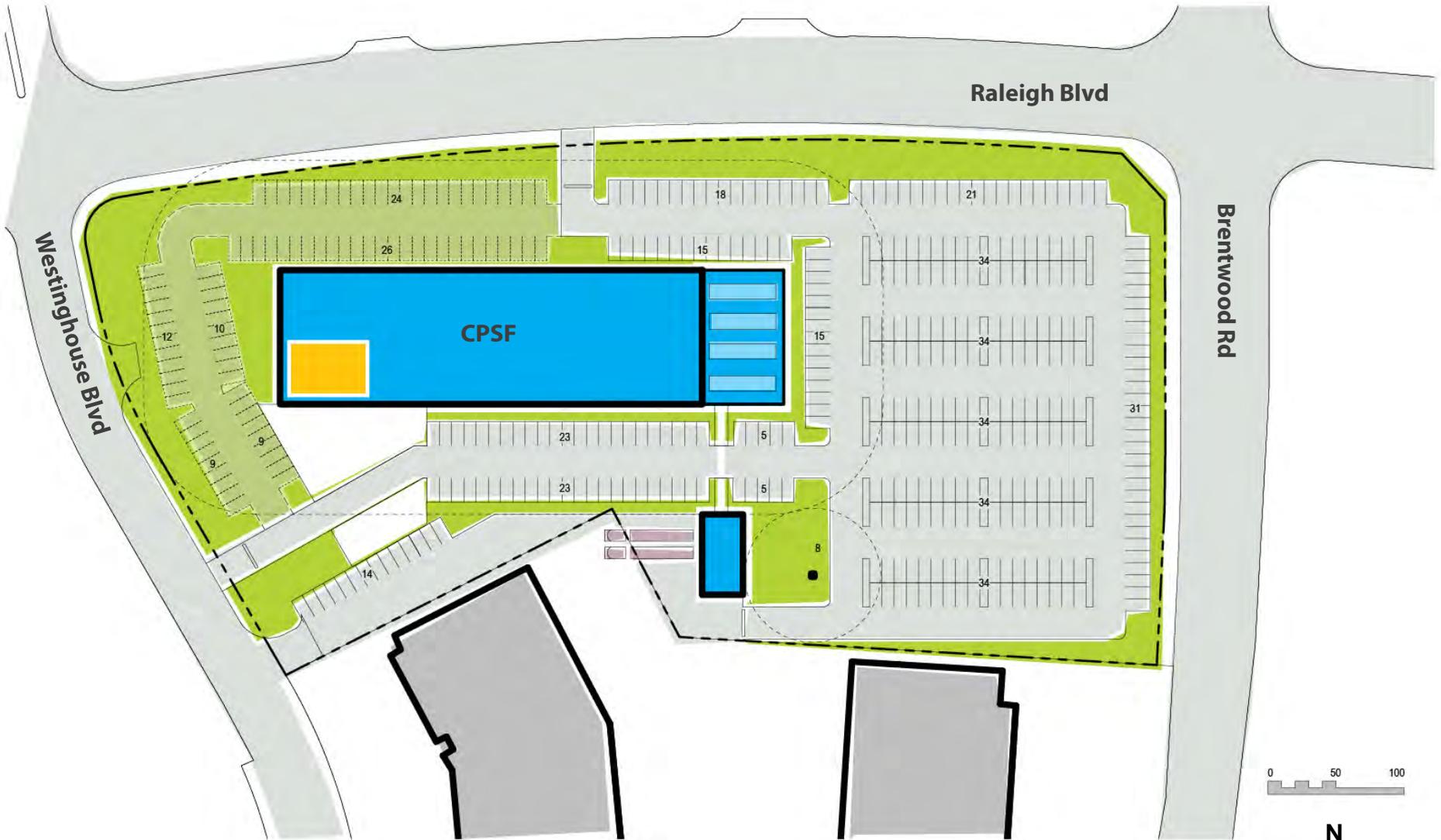


Site Analysis – Functional Siting



Site Layout Options

Option A - CPSF only



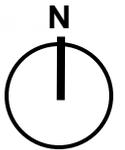
Raleigh Blvd

Brentwood Rd

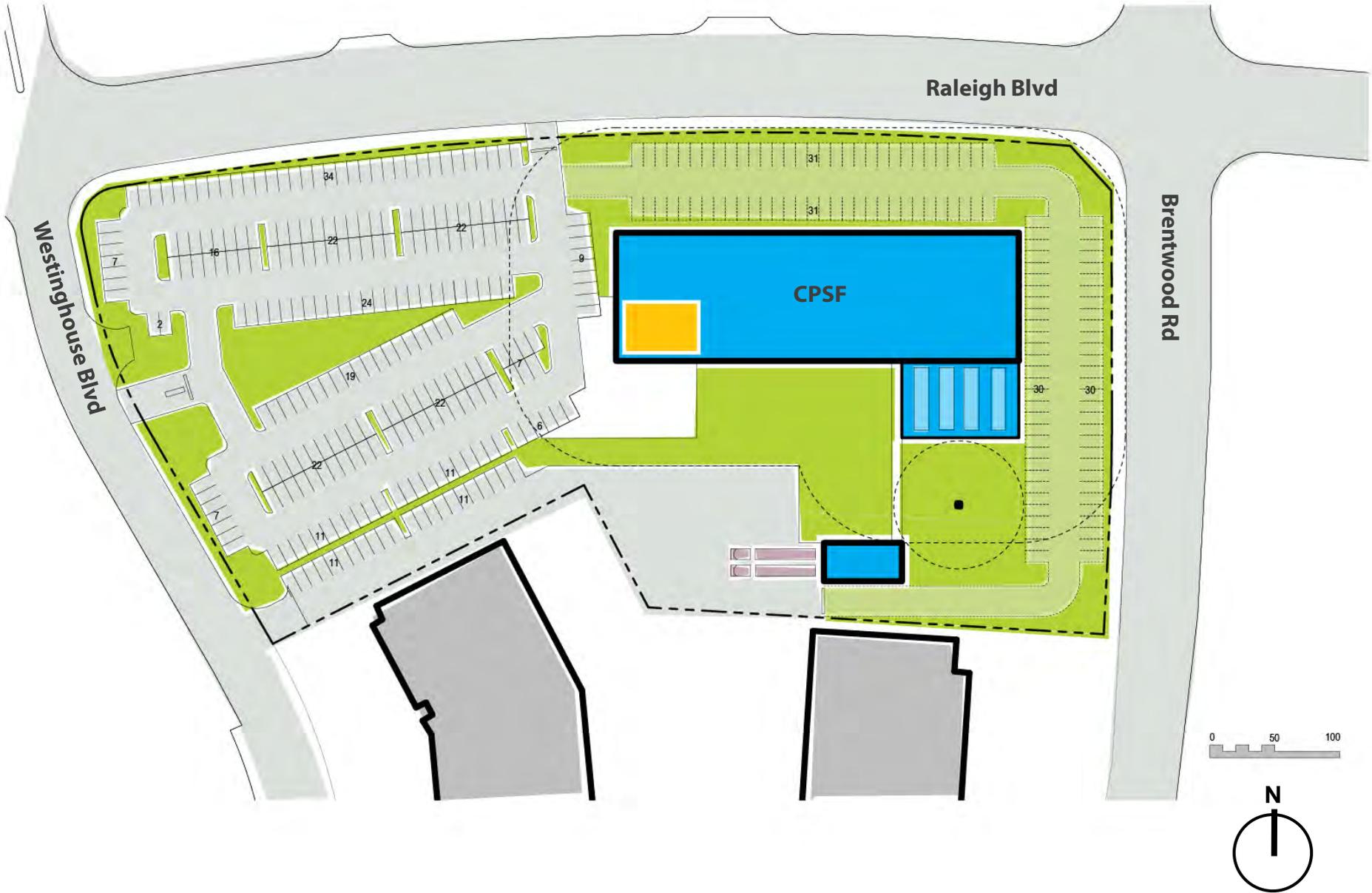
Westinghouse Blvd

CPSF

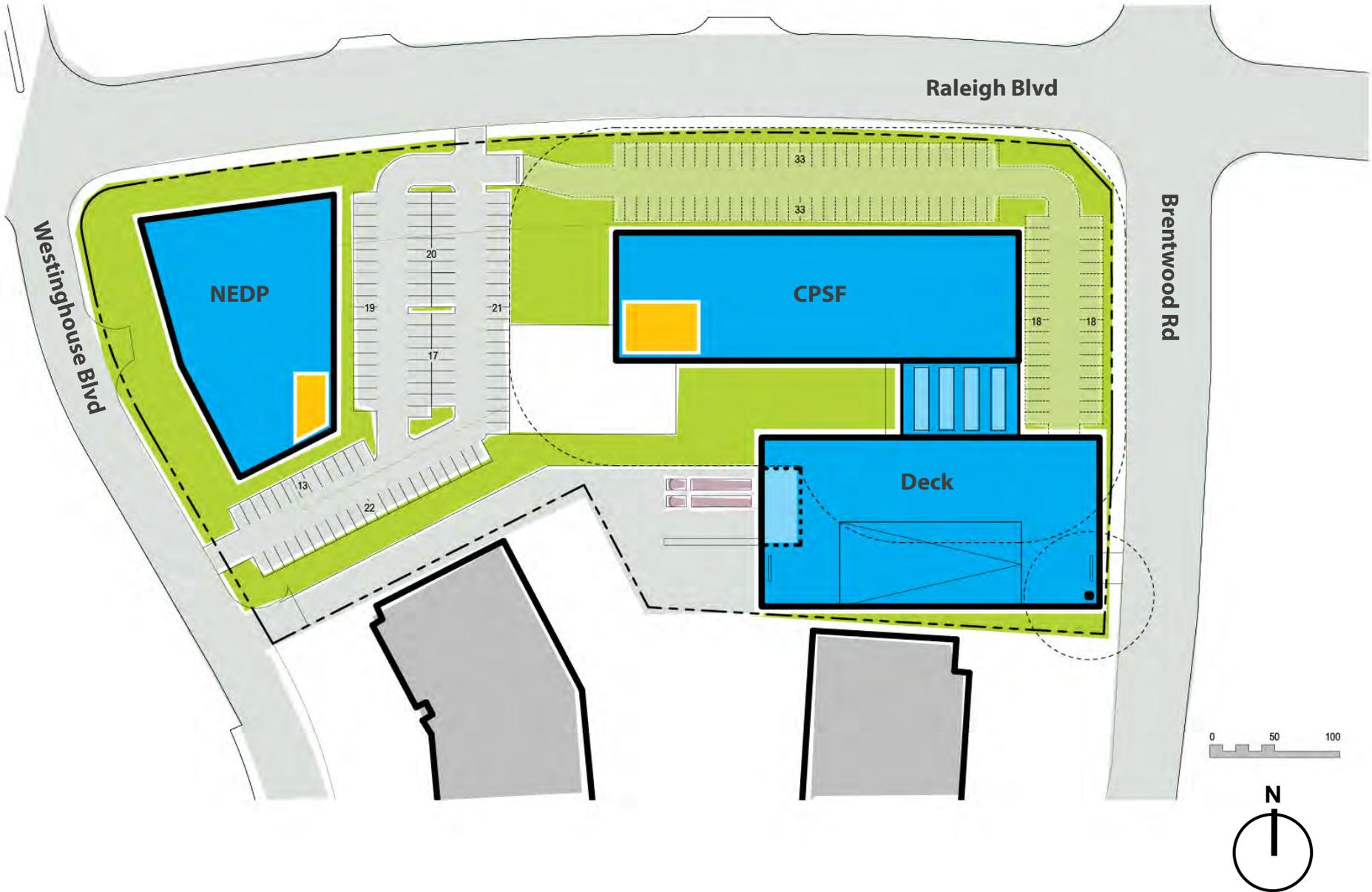
0 50 100



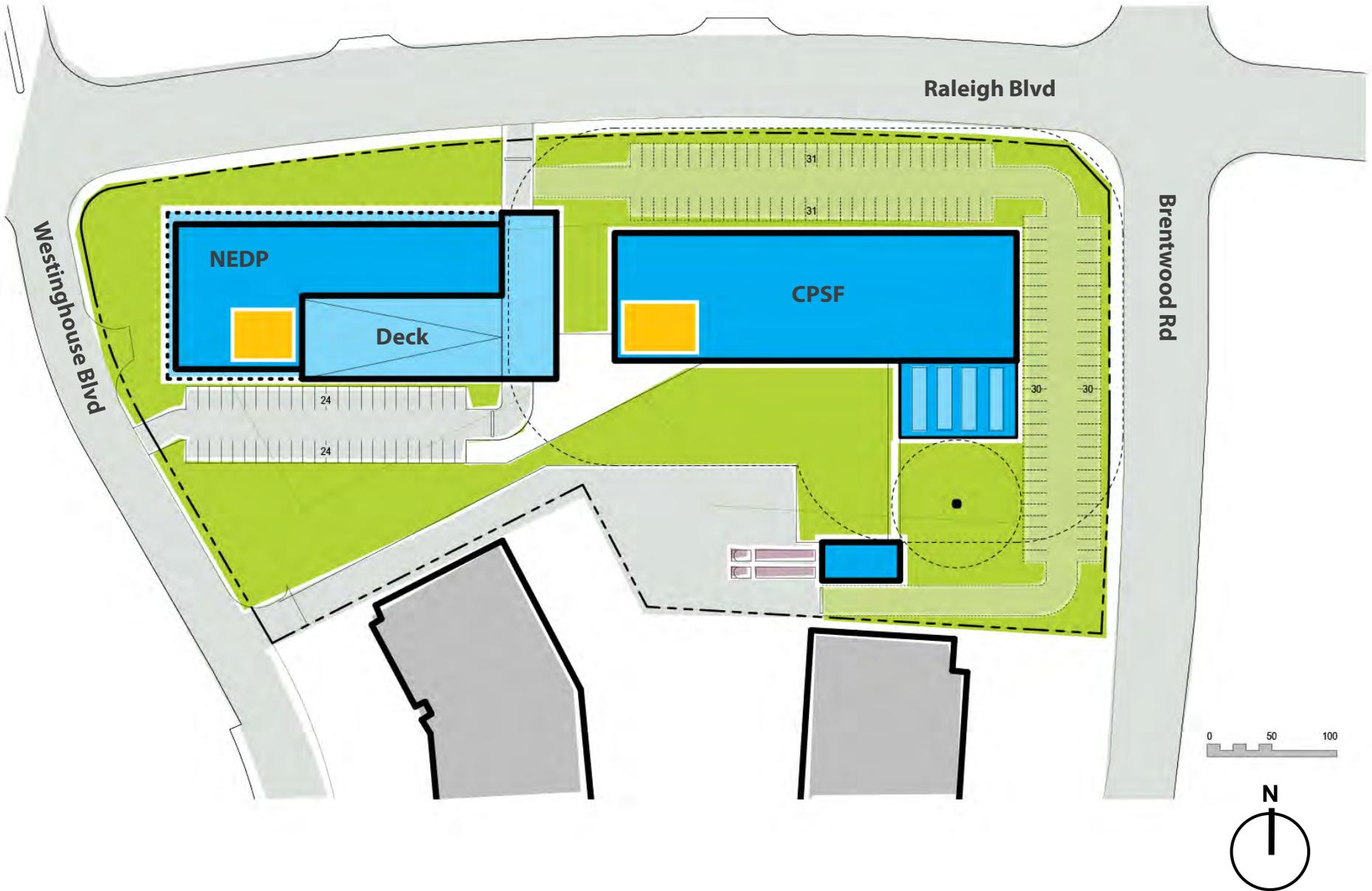
Option B - CPSF only



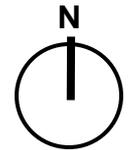
Option C – CPSF and NE District Police



Option D – CPSF and NE District Police

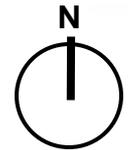
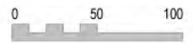
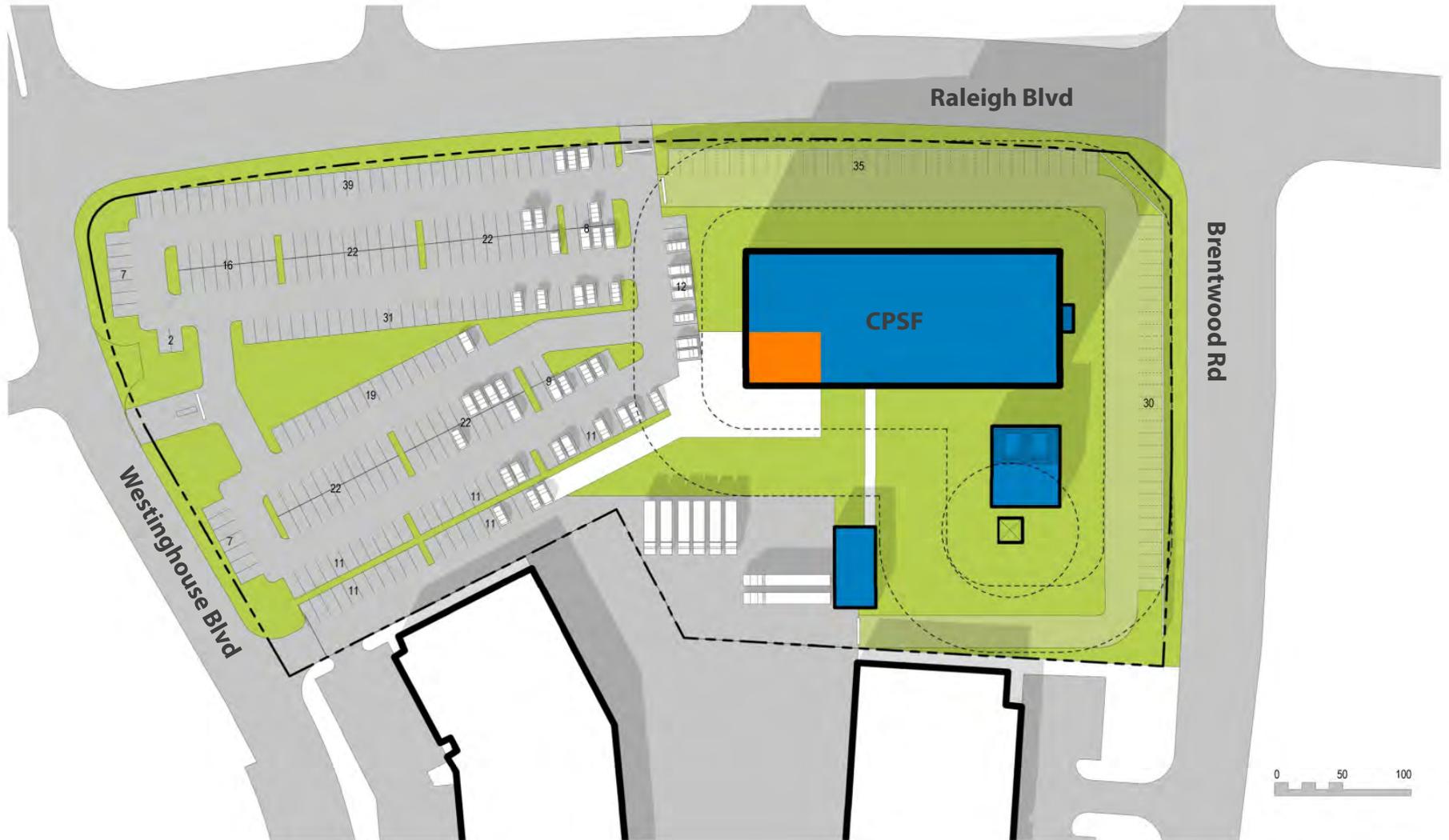


Option E & F – CPSF combined city/county EOC



Final Option G Site Layout

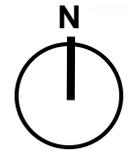
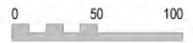
Option G – CPSF combined city/county EOC



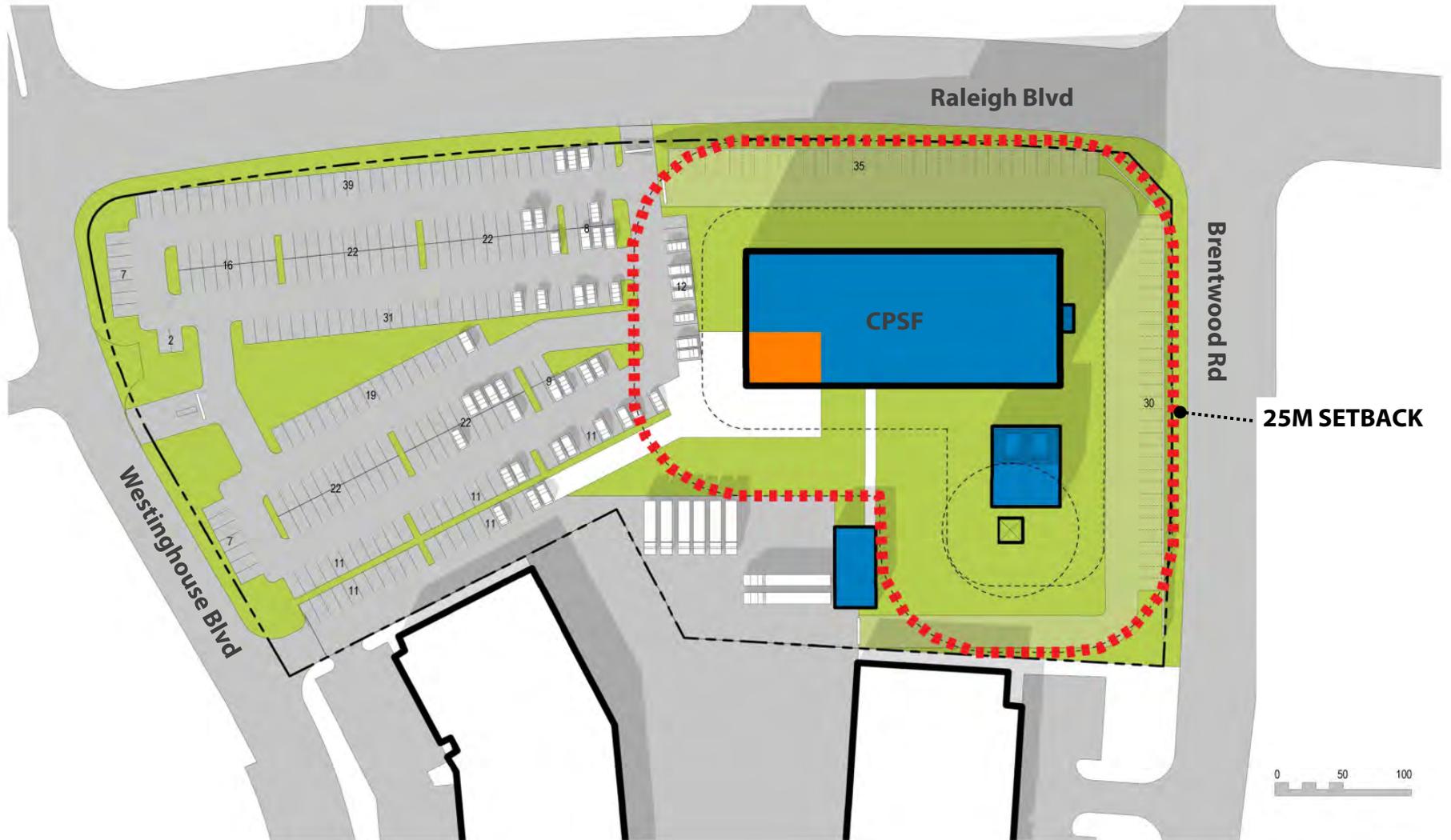
Option G – CPSF combined city/county EOC



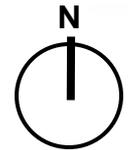
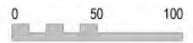
- CPSF
- MECH YARD
- RF EQUIPMENT
- 300' TOWER
- REMOTE DELIVER



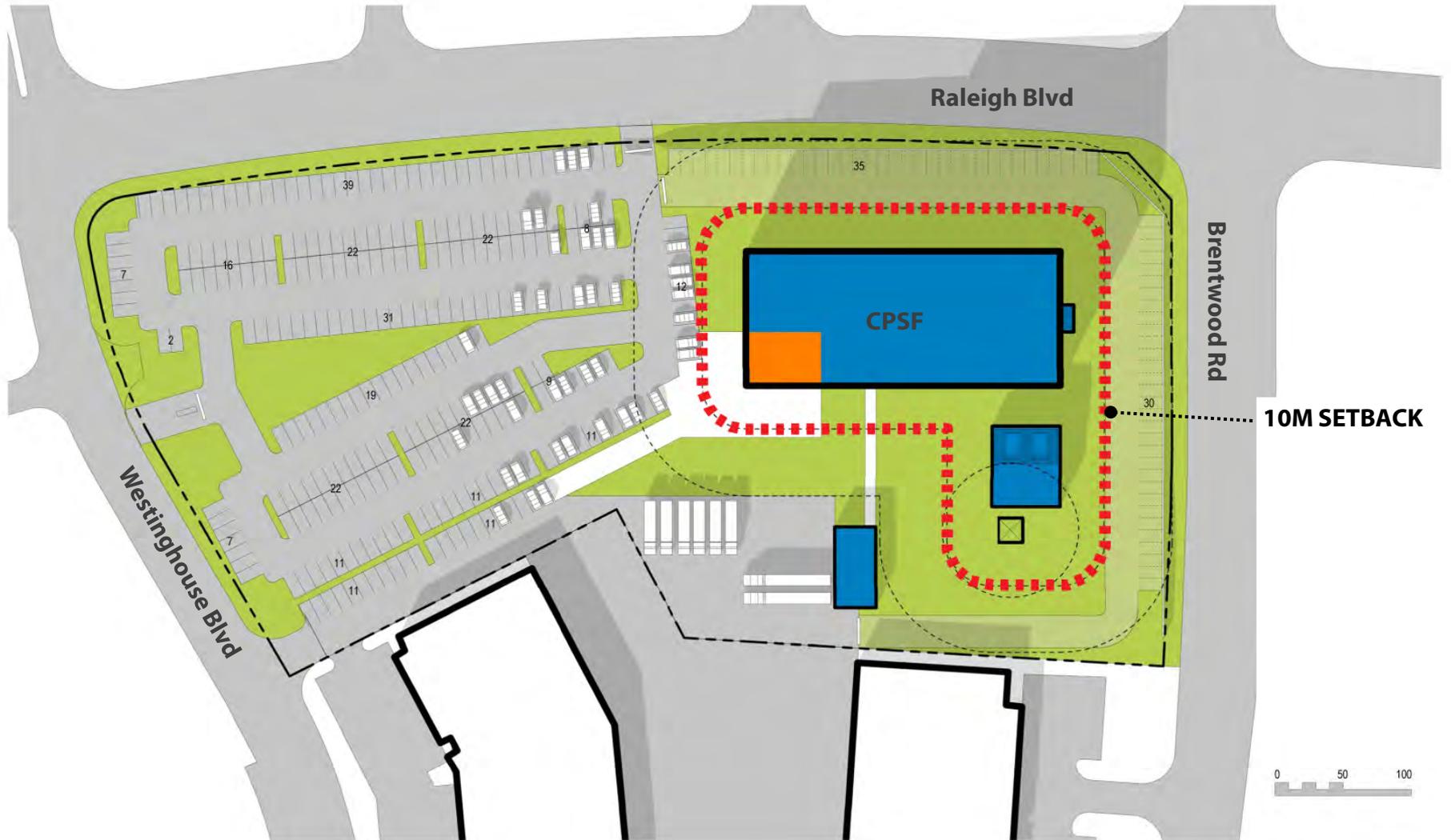
Option G – Security Setback 25 meter



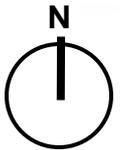
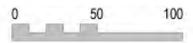
25M SETBACK



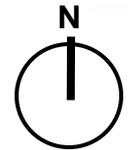
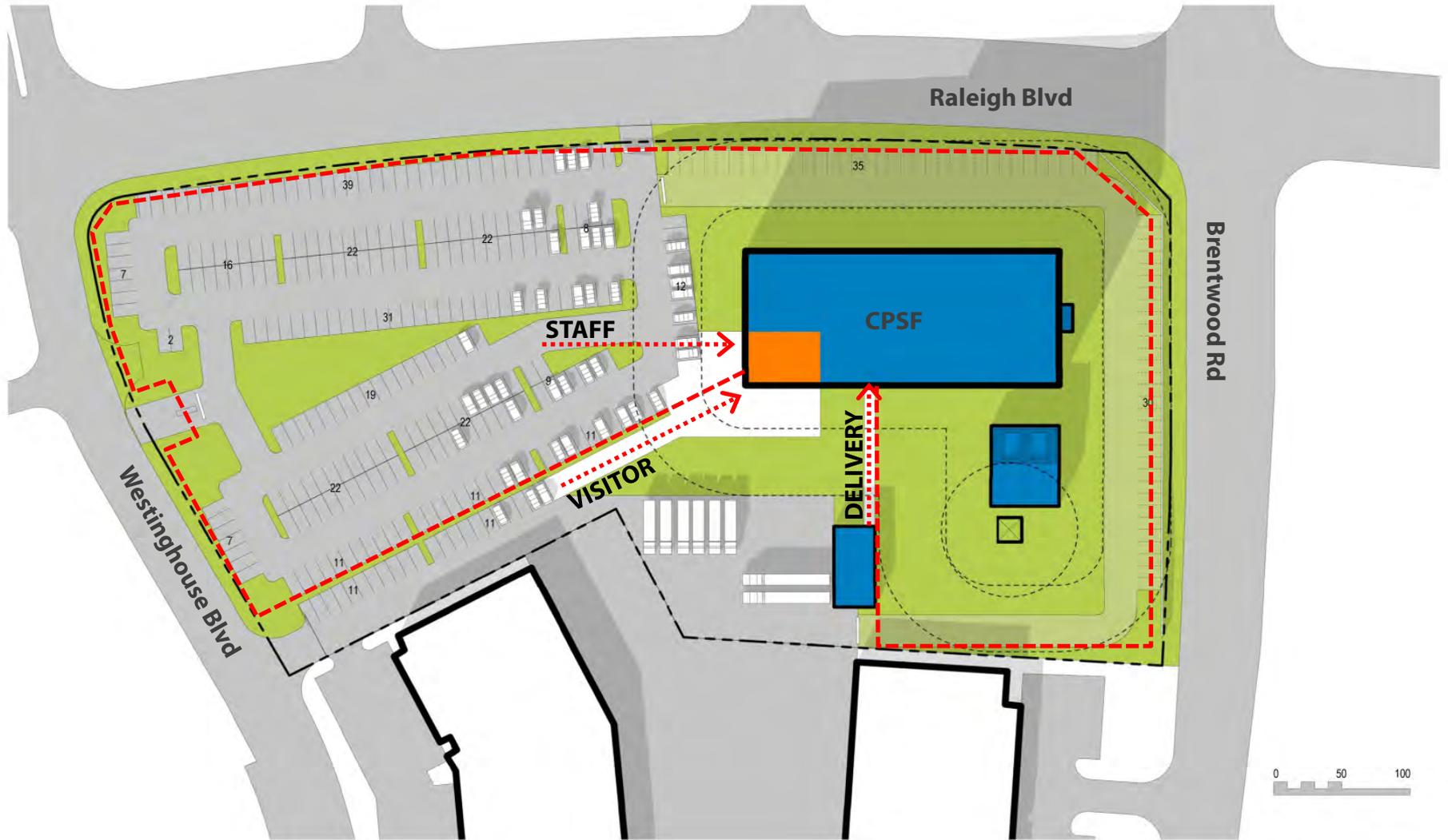
Option G – Security Setback 10 meter



10M SETBACK



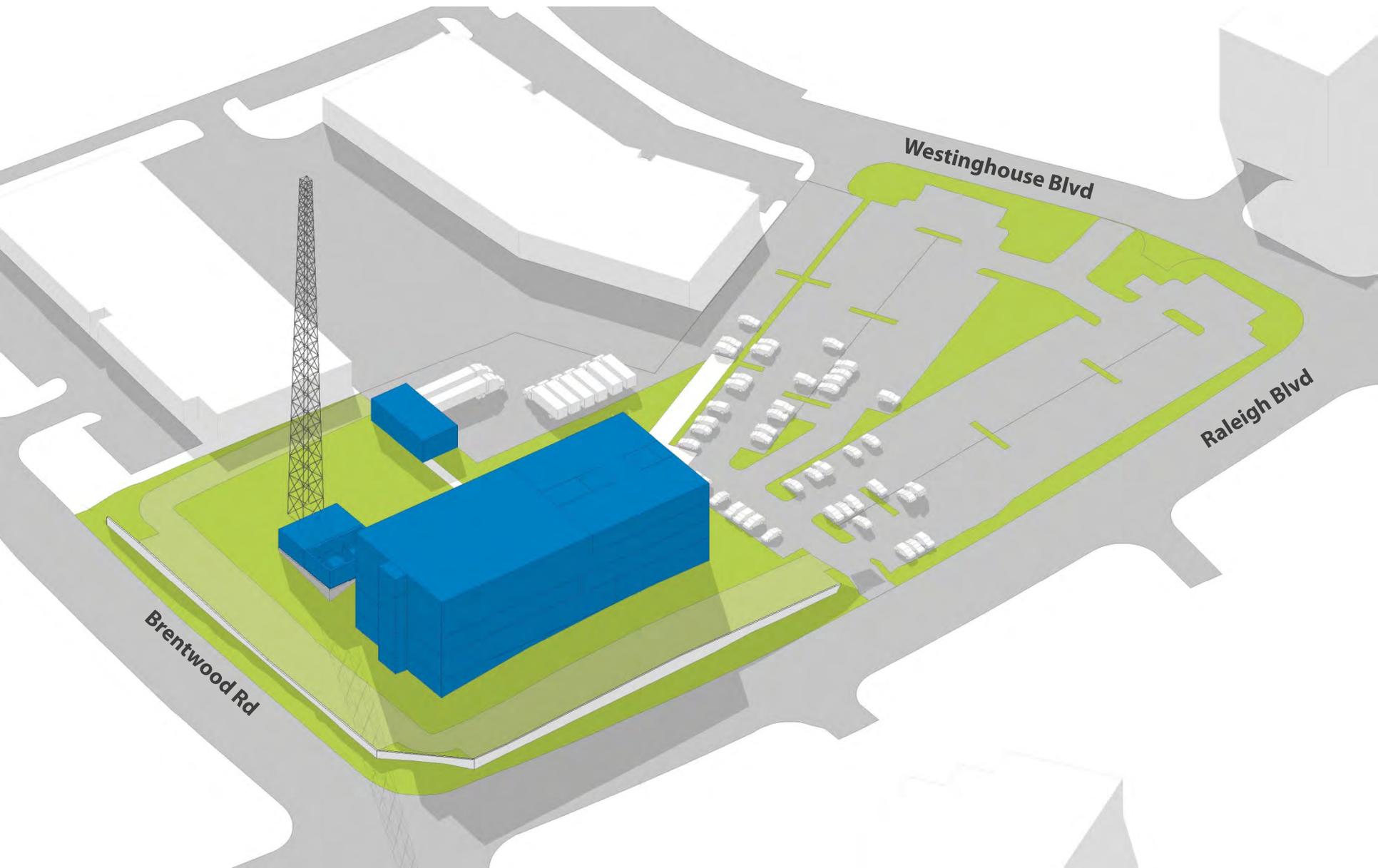
Option G – Building Access



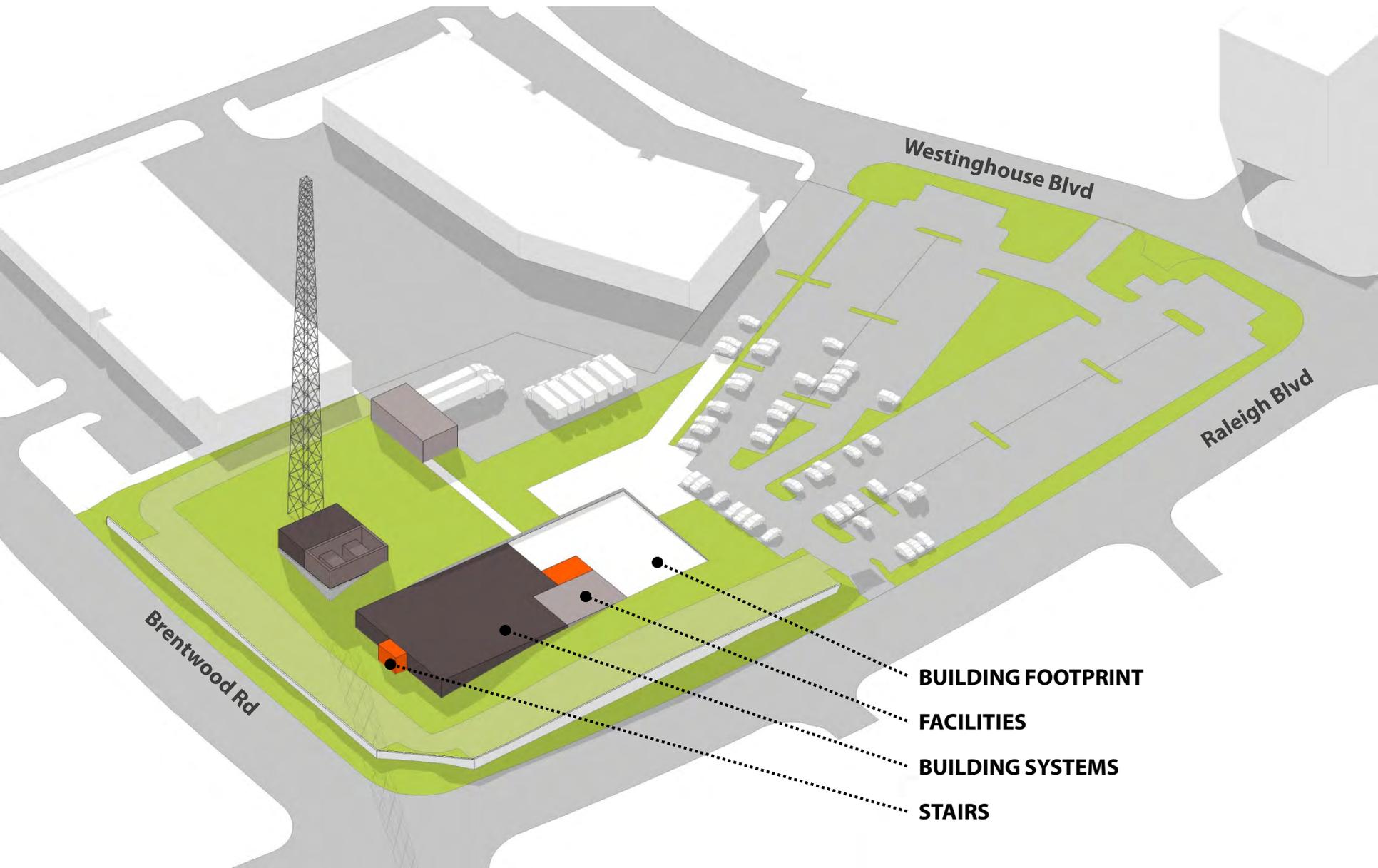
Final Option G

Blocking & Stacking

Option G – Blocking Stacking 3D diagram



Option G - Lower Level



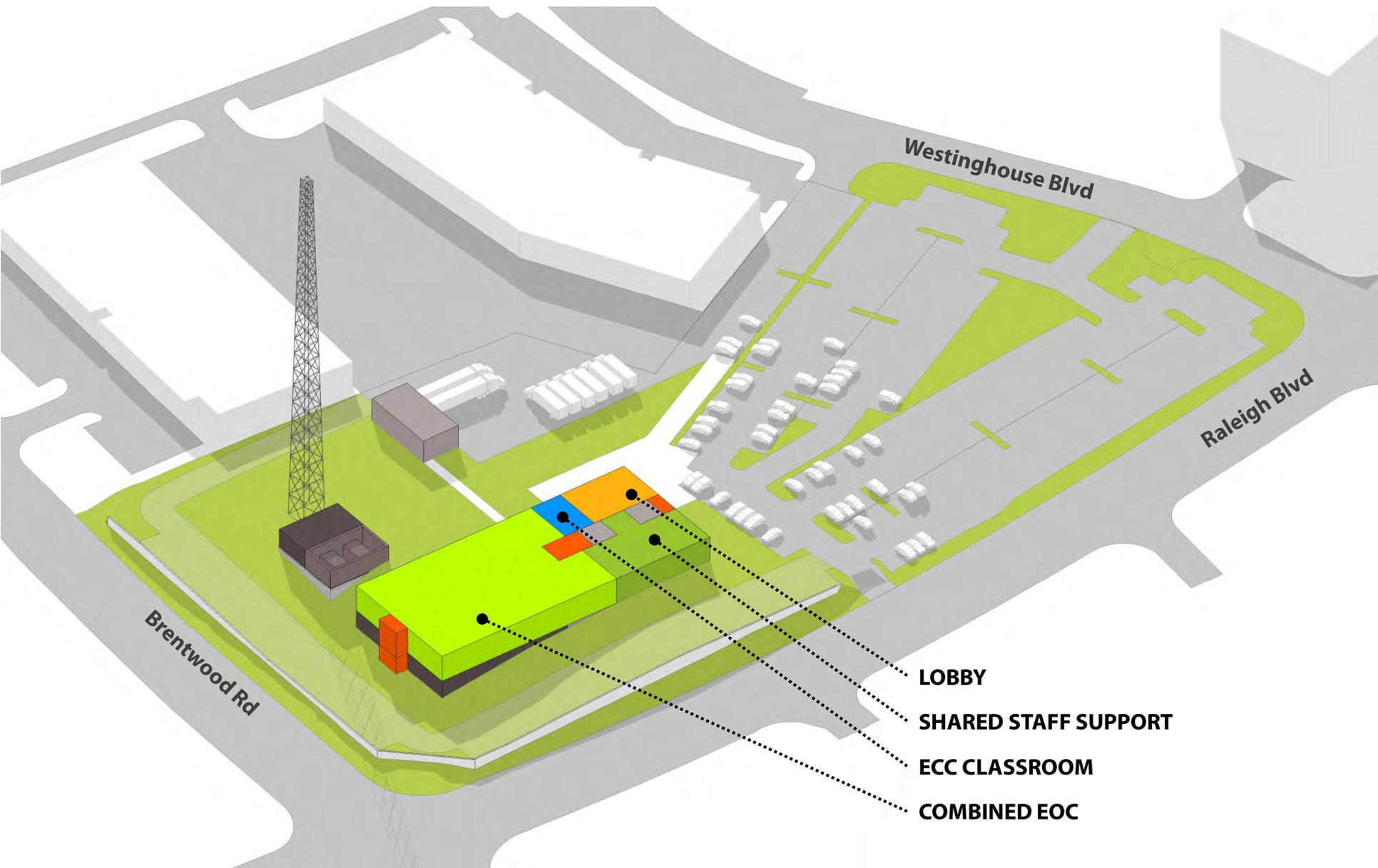
BUILDING FOOTPRINT

FACILITIES

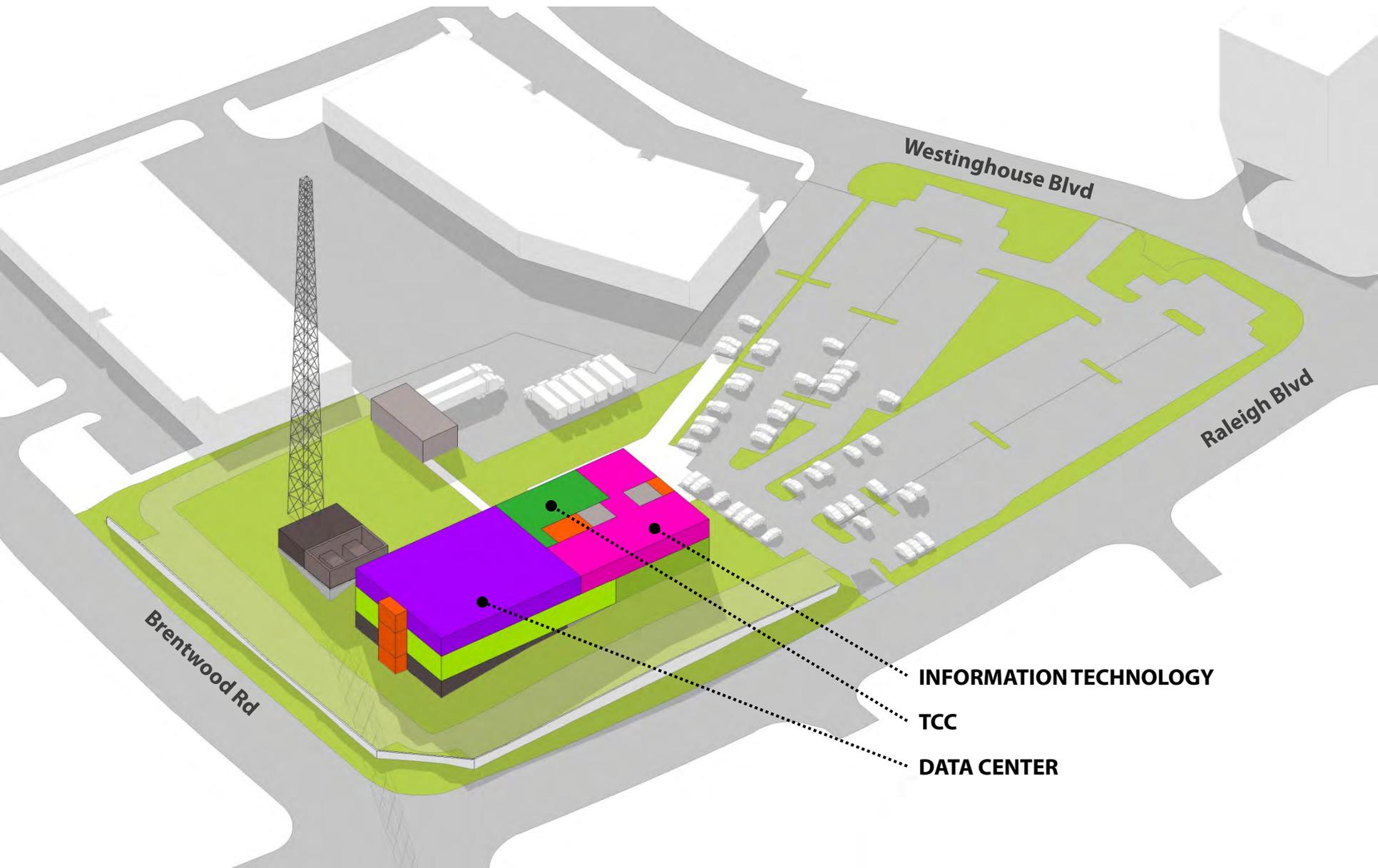
BUILDING SYSTEMS

STAIRS

Option G - Level 1

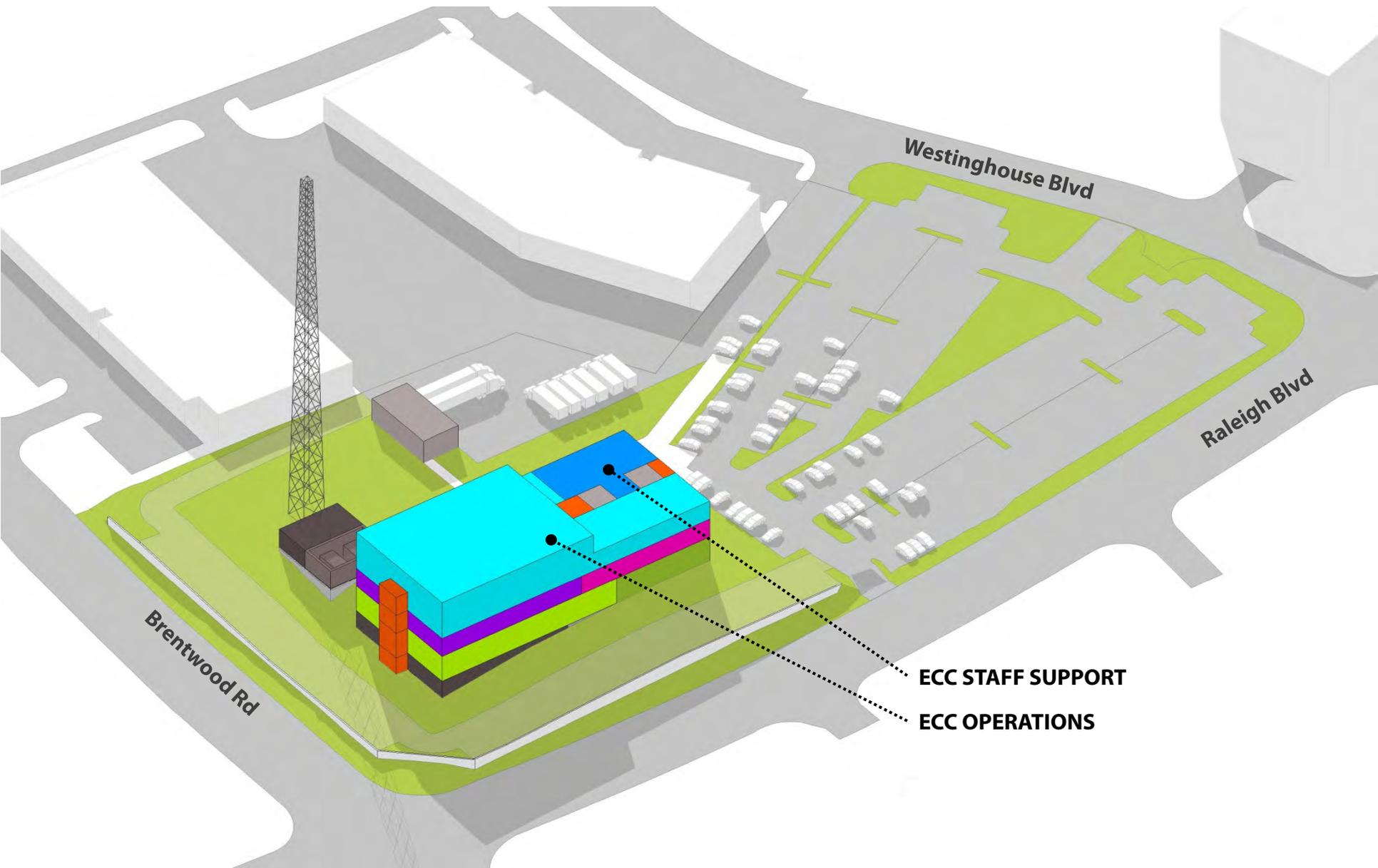


Option G - Level 2



- INFORMATION TECHNOLOGY
- TCC
- DATA CENTER

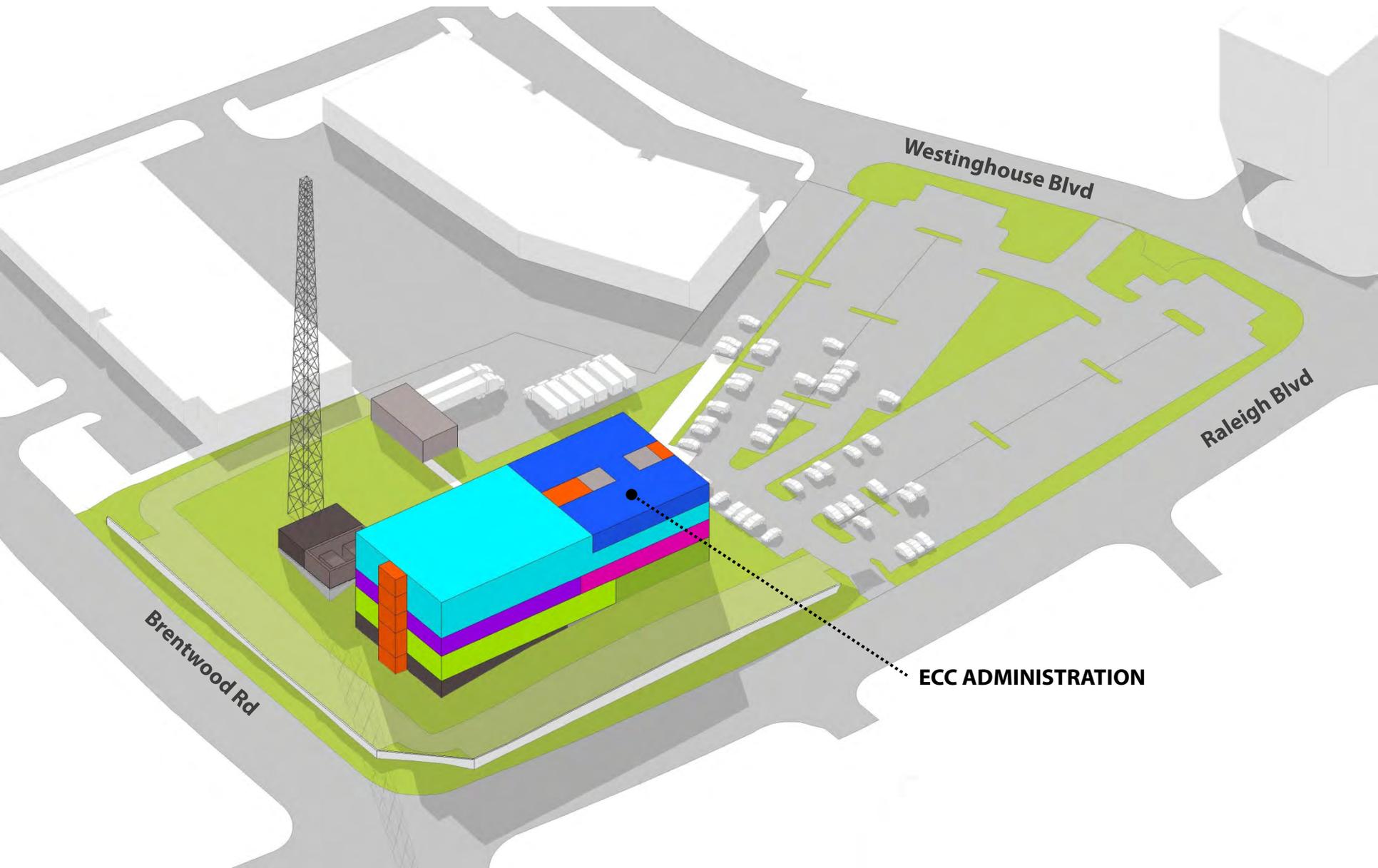
Option G - Level 3



ECC STAFF SUPPORT

ECC OPERATIONS

Option G - Level 4



Westinghouse Blvd

Raleigh Blvd

Brentwood Rd

ECC ADMINISTRATION

Budget & Schedule

Budget

Hard Costs

Construction Cost	
ECC/EOC (Raleigh and Wake County combined) 93,000sf @ \$395/sf =	\$ 36,340,000
Receiving/ Radio Building 3320sf @ \$275/sf =	\$ 913,000
	<u>\$ 37,253,000</u>
Technology	\$ 15,000,000
Furniture, Fixtures and Equipment	\$ 3,000,000
<u>Communications Tower</u>	<u>\$ 500,000</u>
	Subtotal \$ 55,753,000

Soft Costs

Design Procurement Fees (Incl. Pre-Design)	\$ 4,675,000
CM Fees (Incl. Preconstruction)	\$ 1,500,000
Technology Integration/ Implementation	\$ 700,000
Owner's Design Contingency	\$ 300,000
Commissioning	\$ 350,000
Materials Testing/ Special Inspections	\$ 375,000
Public Art	\$ 190,000
Permits	\$ 550,000
<u>Geotech/ Survey</u>	<u>\$ 100,000</u>
	Subtotal \$ 8,740,000

Contingency

\$ 4,500,000

Total \$68,993,000

Schedule

Notice to Proceed - Design	February 1, 2013	
CM at Risk Contract Approval	April 16, 2013	Council Review
Schematic Design Submittal (3 months)	May 1, 2013	
Design Development Submittal (4 months)	September 2, 2013	Council Review
Contract Documents Submittal (6 months)	March 1, 2014	Council Review
Final Documents Complete (1 month)	April 1, 2014	
Bid / Award	May 15, 2014	Council Review
Notice to Proceed - Construction	July 15, 2014	
Beneficial Occupancy (15 months)	October 15, 2015	
Final Completion (2 months)	December 15, 2015	