December 28, 2016

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Reference: Oregon City Annex Tennant Improvement
698 Linn Avenue, Oregon City

Subject: Evaluation and Feasibility Study

Per your request, ZCS Engineering, Inc. has investigated the existing City of Oregon City (City) owned facility located at 698 Linn Avenue in Oregon City, Oregon (Figure 1). The purpose of the investigation was to evaluate the existing facilities needs in order for it to be repurposed from former classrooms and a gym into annex City offices to hold the Community Development Department.

1.0 Introduction

The following scope of work was developed using information provided by Community Development Department, research, visual observation, and investigation of the building. We have performed a site visit to verify the construction of the building system and evaluated non-structural items such as architectural finishes, mechanical and electrical systems, and site access. All observations were nondestructive in nature. In this report we have outlined our assessment of the facility based on the existing condition of the building and upgrades required to meet current code. Schematic level floor plans were provided by the City to convey the proposed building program as developed by City staff. Our review of the building and code requirements are based on Chapter 34 of the current Oregon Structural Specialty Code (OSSC) along with visual observations of the existing building envelope systems.

Scope of Services

- Site visit to perform reconnaissance as required to verify existing conditions and geometry.
- Perform planning level structural assessment as required to identify all significant structural upgrades required based on any existing structural deficiencies and code mandated strengthening requirements. (does not include specific structural engineering solutions that may be required).

- Evaluate existing building envelope systems (exterior door and windows, roofing, insulation, waterproofing, damp proofing, etc.), and develop upgrade and/or repair recommendations as required.
- Develop architectural program narrative based on assumed future building use.
- Prepare rough order of magnitude costs for future project planning purposes.

2.0 Building Observations

2.1 Overall Description

ZCS representatives performed several site visits to investigate and verify the existing condition of the building and observe structural and architectural systems. The intent of these observations was to identify all upgrades required based on existing deficiencies and code mandated requirements based on the proposed use.

The building is a single story, type VB non-sprinklered building of approximately 7,080 sf with a mechanical penthouse located at the center of the building (Figure 1). The building is approximately 15-17 feet tall at the ridge line of the sloped roof creating the opportunity for some tall interior spaces. A portion of the building is presently used as a training facility for the City Police Department. The balance of the facility is lightly used as overflow storage for the City. It is our understanding that the building was originally utilized as additional classroom space for Mt. Pleasant Elementary School. The building currently houses two classrooms, the gym area, storage, and restrooms. The main corridor between the building entrances separates the classrooms on the north side of the building from the gym on the south side of the building. Accessory spaces such as restrooms are present along the corridor walls.

2.2 Construction

The building was constructed with fairly modern building techniques. It is a light framed timber structure that consists of exterior load bearing 2x6 walls and a stick framed roof system with 6x16 glue-laminated rafters spaced at 8-feet on center supporting 2x6 purlins. The purlins support plywood roof sheathing and bear on the rafters. The rafters bear on the exterior walls and an intermediate bearing wall that separates the classrooms in the northern and southern portions of the building. In the southern side of the building a large portion of the wall appears to have been removed at some point. An additional glue-laminated beam (6-3/4x36) just to the east of the center demising wall that now appears to support the roof structure (Figure 2). This solution is unconventional considering that the load transfer between the rafters now relies on a hinge connection at the ridge to support any roof loads. That being said, the roof appears to be performing adequately. No obvious damage to the structure was observed.

The foundation consists of slab-on-grade concrete foundation elements. In some locations finished floor is near grade and around some portions of the perimeter there is a significant turned-down edge because grade lies below finished floor by approximately two-feet. No damage to the foundation was observed.

2.3 Building Envelope

The building envelope consists of the following elements. Following each element we have provided an assessment of the current condition of each item:

- Exterior walls:
  - Exterior walls consist of 2x studs and T1-11 siding that also functions as wall sheathing. The siding shows significant signs of weathering including delamination in some locations with deterioration along the bottom edge and peeling paint throughout (Figure 3). In several locations, it was observed that there was not adequate separation from the siding material and the soil at grade. This condition has caused the siding to deteriorate more rapidly at these locations because the material has a higher exposure to moisture.
- Exterior windows:
  - There are two types of exterior windows present around the perimeter of the building. Both systems are storefront style with double glazed glass units; however, one appears older than the other. It appears that at some point windows began to fail and a portion of the windows were replaced (Figure 4). The older style windows (approximately half of the total) are significantly weathered, are poorly flashed, and should be replaced. The newer style windows appear to be in reasonable condition and have adequate flashing. There are locations where the gaskets are beginning to fail and will need to be repaired if reused.
- Exterior doors:
  - The exterior doors are hollow metal with metal frames and appear to be in acceptable condition (Figure 5). The paint is weathered and hinges have been painted in the past, but can be refurbished and repainted.
- Roof covering and components:
  - The existing roof covering is a built-up system that appears to be fairly weathered. Sporadic interior roof tile replacement indicates that there has been a history of water intrusion through the roof. Around the perimeter of the roof the gutters leak in several locations and the fascia shows signs of decay both on the exposed rakes and behind the gutter (Figure 6). The flashing at the roof edge is showing signs of decay and delamination and should be replaced.

2.4 Building Interior

The building interior consists of the following elements. Following each element we have provided an assessment of the current condition of each item

- Partitions and wall finishes:
    - The existing wall partitions are wood framed with gypsum wall board. Significant damage to the walls was not observed and the walls that are not slated to be removed per the new floor plan will not likely have to be repaired unless removed for electrical rerouting.
- Interior doors:
    - The existing doors are solid core wood with wood veneer finish with painted metal frames and standard ADA compliant hardware. All components of the doors are in very good condition.
- Floor finishes:
    - The floor finishes in the northern portion of the building appear to be relatively new vinyl composite tile (VCT) that has been maintained and in good condition (Figure 7). The floor base throughout is a rubber base that is also in good condition. The corridor floor finish is not the same material and appears to be original sheet goods. With the removal of some corridor walls, the replacement of flooring material in some areas may be necessary.
- Ceiling finishes:

    The existing ceiling is a suspended acoustic ceiling tile (ACT) between exposed roof beams in most areas and a combination of dropped gypsum board ceilings and ACT ceilings in the corridors and smaller accessory areas (Figure 7). It appears that this ceiling is tightly suspended to the roof sheathing and has batt insulation placed between the ACT and roofing. Our initial observation indicates that this roof/ceiling may not meet the current code requirement of R-38 insulation. In addition, throughout the larger spaces there are mismatched tiles that are visually apparent and indicate some tile replacement was performed in the past. This could imply that there are different levels of acoustic performance of this material in the spaces.

2.5 HVAC and Electrical

The building is currently occupied and the existing systems serve the facility adequately based on observations. A mechanical penthouse in the roof framing and a boiler room on the ground floor are present to house the mechanical equipment. While the equipment is old and could likely use a thorough servicing, it was functioning at the time of the site visit and appears to adequately serve the building. Some of the distribution line routing is unconventional and should be rerouted during tenant improvements. Presently the building is not cooled. It is our understanding that if the project is to move forward that air conditioning will need to added as part of the project and it has been included below in the engineers opinion of probable cost. The assumption at this time is that the existing air handlers would be utilized with new condensing unit(s).

Initial comparisons between the proposed plumbing fixture configuration and the current plumbing locations indicate that moving of fixtures is likely. The existing facilities appear to be functioning acceptably and in reasonable condition.

The electrical system is currently functioning and does not appear to have been substantially modified since the original construction. To accommodate office use more electrical outlets will likely have to be installed. It should be noted that there is not a substantial amount of data wiring and connections and the low voltage will likely need to be increased through a tenant improvement project.

The lighting system in the larger spaces with high ceilings is a linear pendant style suspended from the ceiling that appear to be spaced at intervals that do not provide consistent light to the space. These lights could be reused in the new floor plan layout. The lighting in the suspended ACT/hard lid ceilings are recessed direct type fluorescent fixtures that provide adequate lighting. With the proposed renovation of the floor plan, some of the lighting will need to be relocated and new lighting will be required for the addition of perimeter offices.

3.0 Structural Deficiency Assessment

Presently, the structure appears to be performing adequately. There was no visible damage to existing structural elements beyond the siding deterioration noted above. The beam located in the police training portion of the structure is curious but appears to be functioning as intended. Without original drawings it is not possible to determine without a doubt the reason the beam was installed in its current location. It appears that there used to be a full height demising wall that split the training room in half similar to the north side of the structure. The wall would have supported the glulam rafters and when it was removed a beam was added adjacent to the wall rather than in its place. The connection between the rafters on either side of the ridge is suspect and should be evaluated further through selective destructive investigation if the project is advanced.

Load calculations for the main roof gravity elements (beams, purlins, rafters) indicate that the roof structure is acceptable to carry code mandated loads. Structural construction drawings were not available from the original construction so the foundation elements could not be verified through calculations. No foundation damage was observed and indicates that the foundation is adequate to carry the imposed loads.

The lateral system consists of a plywood roof diaphragm and plywood shearwalls. Given the substantial interior alterations and proposed additional windows in the exterior walls, the lateral system will have to be altered to accommodate the new structure. The proposed exterior wall openings should allow adequate length of wall for plywood shearwalls. The removal of the existing T1-11 will necessitate the installation of new sheathing prior to exterior finishes. This sequencing will allow for lateral strengthening from the exterior without impacts to the interior finishes.

In addition to altering the shearwall configuration through the other work, it will likely be necessary to add in-plane shear transfer devices. This will consist of blocking and clips at the roof to wall connection. With the replacement of the roof and removal of exterior siding installation of this hardware should be a minimal impact.

4.0 Code Required Upgrades: Change of Occupancy

Historically the structure was classified as a Group E structure given its use as a school facility. The proposed tenant improvements and movement of the Community Development Department into the building will change its occupancy to Group B. In cases like this the building code requires the building to be updated to current code for the new occupancy. The building size (+/-7,000 sf) and type of construction (VB) are very common for a structure classified as a business occupancy and as such will not require any changes to comply with the size and area requirements for Group B buildings. Further, there is a substantial reduction in occupants given the occupant load factors for a group B building are higher than those for a Group E building. This results in lower code demands for items such as restroom fixtures and exits so no additional work is required to accommodate the change of occupancy with respect to these items. Additionally, buildings of this size and construction type are not required to be sprinkled under either occupancy designation.

The building currently meets most requirements for accessibility. Accessible parking and curb breaks will be required to provide access to the entrances of the building. The interior components of the building such as toilet rooms, floor material and slopes, appear to be code compliant.

Structurally speaking, there is a requirement that the building be upgraded for current seismic loading. Given the notes above about the need for replacing the T1-11 siding as well as the proposed installation of new windows along all of the building faces, the lateral system of the building will be required to be upgraded regardless of this section.

In summary, given the higher demands on the prior use, code mandated upgrades beyond those already planned are minimal for this project.

5.0 Tenant Improvement Recommendations

In order for the building to function ideally for the proposed use some changes have been suggested by City staff and conveyed through the attached schematic program. ZCS has reviewed the proposed program and has the following comments and recommendations:

- The installation of a porte cochere to the front of the building would create a true entry and dramatically increase the curb appeal of the building. Ultimate design decisions should be finalized through the design process; however, our initial recommendation would include a gable ended structure with expressed timber or steel structural elements.
- The existing exterior envelope package is compromised and in need of repair. Adding the proposed windows is an excellent idea and will both improve the exterior elevations and allow more natural light into the work areas. We recommend replacement of the roof with a more durable and aesthetically appealing product such as metal roofing or an architectural composition shingle. By removing the existing T1-11 siding there are substantial opportunities to change the siding package. Fiber cement panel siding and stucco are both legitimate options that we

feel would improve the appearance of the building. Some existing windows can be rehabilitated while others should be replaced to match the new window packages.

- Review of the proposed floor plan against the existing floor plan indicates the desire to reconfigure the plumbing fixtures in the restrooms to better accommodate the floor plan. These changes would be particularly costly and it is our recommendation to revise the floor plan to leave the existing fixtures in place rather than relocate them. This will allow the City to capitalize on the budget and spend money in more intentional locations. In the event that some of the fixtures need removed to accommodate other program space this can likely be done without substantial increases in costs. The reduction in occupants through the occupancy change will reduce the number of facilities required.
- It is our understanding that the existing roof covering needs replacement. This provides an interesting opportunity. Currently the roof insulation is between the purlins and is not deep enough to meet energy code requirements. When removing the roof system a rigid insulation roof package can be installed over the roof sheathing. This would allow the removal of the suspended ceiling in the main work area of the building and the removal of the suspended ceiling along with the insulation between the purlins exposing the roof structure while increasing the insulation values.
- Presently the permit counter does not have a reception/waiting area. We would recommend adjusting the floor plan to provide a small space for reception in the event that there are multiple individuals waiting for staff.
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6.0 Rough Order of Magnitude Costs

Based on the above information, ZCS has prepared an engineer's opinion of probable cost to perform the necessary upgrades to the building outlined in the prior sections of this report. In addition to the hard costs we have included 12% for soft costs such as architecture, engineering and permitting and 15% for contingency. If you decided to advance the plans and pursue the project, the contingency percentage could be reduced as the design is advanced. The table below outlines our opinion of the costs associated with designing and constructing this project.

Engineer's Opinion of Probable Cost

Item	Description	Cost Per Sq. Ft.	Probable Cost
1	General Conditions	$20	$141,600.00
2	Demolition/Abatement	$10	$70,800.00
3	Floor	$5	$35,400.00
4	Walls (Interior/Exterior)	$30	$212,400.00
5	Roof/Ceiling	$25	$177,000.00
6	MEP	$15	$106,200.00
7	Air Conditioning	$15	$106,200.00

Subtotal:	**$849,600.00**
12% Soft Costs:	**$101,950.00**
15% Contingency:	**$127,440.00**
TOTAL:	**$1,078,990.00**

The values above result in an estimated project cost of approximately $1,080,000 to provide the City with a building that will function as envisioned. If the City intends to advance the project, these numbers can be fine-tuned through the design process. It is also our understanding that current budgets may not allow the entire project to be fully funded. In the event that the entire project cannot be fully funded we have prepared a second opinion of probable cost based on the removal of scope to come closer to the target budget. The following items have been removed from the budget in an attempt to align the project necessities with the City's needs and the desired budget:

- The exterior envelop package has been substantially scaled back.
  - Siding removal and replacement has been removed from the scope. Only selective siding replacement is included for the areas with the worst deterioration.
  - Roof removal and replacement has been removed from the scope.
  - This is not an ideal solution, but at this time there are no obvious signs of consistent roof leaks and replacement of the severely damaged siding will help to prolong the life of the siding package.
- The conference room within the footprint of the current workout area has been removed.
- The porte cochere at the front of the building has been removed.
- The addition of air conditioning to the building has been removed.

The table below outlines our opinion of the costs associated with designing and constructing this project reflecting the deletions noted above.

Engineer's Opinion of Probable Cost (Reduced)

Item	Description	Cost Per Sq. Ft.	Probable Cost
1	General Conditions	$10	$70,800.00
2	Demolition/Abatement	$3	$21,240.00
3	Floor	$2	$14,160.00
4	Walls (Interior/Exterior)	$15	$106,200.00
5	Roof/Ceiling	$5	$35,400.00
6	MEP	$15	$106,200.00
		Subtotal:	**$354,000.00**
		12% Soft Costs:	**$42,480.00**
		15% Contingency:	**$53,100.00**
		TOTAL:	**$449,580.00**

We recognize that this may still be higher than current budgets allow. Additional areas for cost reduction could come through the removal of additional windows or further reduction of footprint impacts. These concepts can be further vetted and a true cost estimate can be developed through a schematic design process.

7.0 Conclusion and Recommendations

As discussed above, the existing structure is generally in good condition. It should be anticipated that substantial architectural upgrades will be necessary and that the noted alterations to the HVAC, electrical, and plumbing alterations will be required. We recommend that the City analyze the information provided in this report and determine if the repurposing of this property is feasible within their constraints.

In the event this project moves forward we would suggest selecting a consultant team to perform schematic design for the project and advance the space plan prepared by City staff. If the City elects to contract the design work related to the alterations, ZCS is available to assist with preparation of construction documents and contractor selection.

After you have the opportunity to review this report and digest the information presented please let us know if you would like to discuss our findings in more detail.

Sincerely,

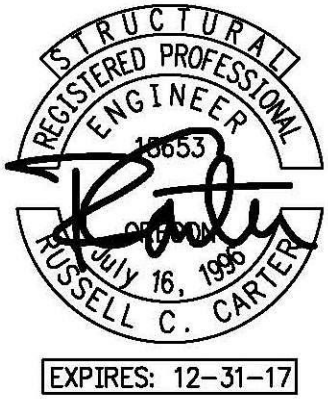
Russell C Carter, PE, SE

RCC/zas

Enclosures:

Appendix A: Figures

Appendix B: Schematic Floor Plan



Appendix A:

Figures

Figure 1:

Northeast Building Elevation

Figure 2:

Beam at Training Room

Figure 3:

Siding Damage

Figure 4:

Replaced Window

Figure 5:

Exterior Door

Figure 6:

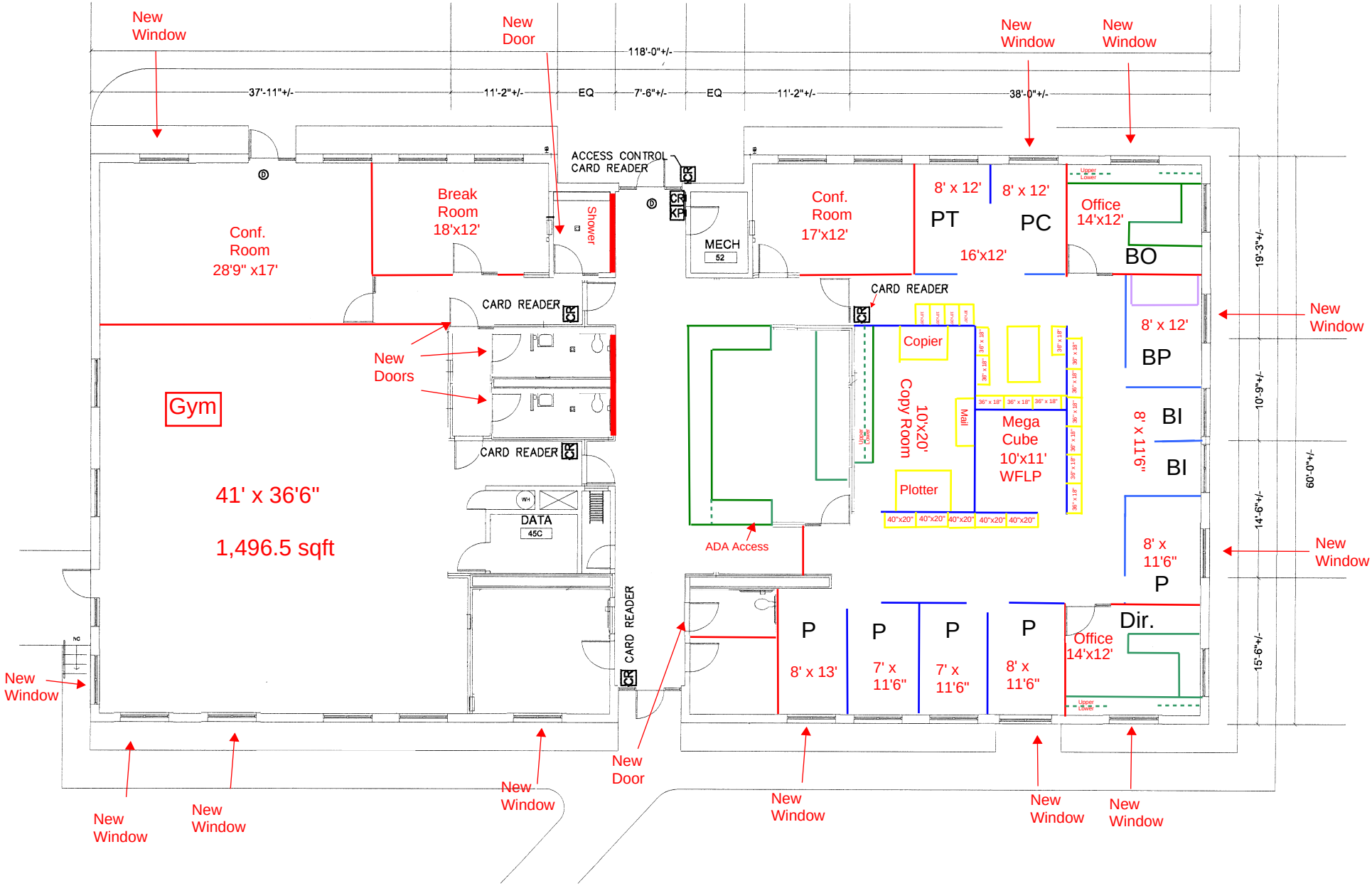
Fascia Damage

Figure 7:

Typical Interior

Appendix B:

Floor Plan



Mt. Pleasant Elementary School Annex
Draft Layout for Community Development Relocation
PRELIMINARY DRAFT - Likely to Change

NORTH

= File Cabinets/Equipment

= New Construction

= Counters

= Modular Furniture

Building Size 7,080 sqft