Village of
Northbrook

Ad Hoc Facilities Committee

POLICE STATION, 1401 Landwehr Road
October 30, 2018, 6:30 P.M., TRAINING ROOM

The Ad Hoc Facilities Committee of the Village of Northbrook Board of Trustees will hold a meeting on Tuesday, October 30, 2018 at 6:30 p.m. in the Training Room of the Northbrook Police Station, 1401 Landwehr Road. The following will be discussed.

MEETING AGENDA

Please note: A light dinner will be provided for Board Members and Staff

1. Call To Order
2. Hear From The Audience
3. Space Needs Analysis Process and Methodology
4. Closed Session: Public Facilities Security
5. Space Needs Analysis Findings
6. Adjourn

Robert Israel, Chair
Ad Hoc Facilities Committee

Members: Trustee A.C. Buehler
Trustee Kathryn Ciesla

Village of Northbrook
Cook County, Illinois
October 30, 2018

The Village of Northbrook is subject to the requirements of the Americans with Disabilities Act of 1990. Individuals with disabilities who plan to attend this meeting and who require certain accommodations in order to allow them to observe and/or participate in this meeting, or who have questions regarding the accessibility of this meeting or the facilities, are requested to contact Greg Van Dahm or Debbie Ford (664-4014 or 4013respectively) promptly to allow the Village of Northbrook to make reasonable accommodations for those persons. Hearing impaired individuals may call the TDD number, 564-8645, for more information.

MEMORANDUM
VILLAGE OF NORTHBROOK
PUBLIC WORKS DEPARTMENT

TO: RICHARD A. NAHRSTADT, VILLAGE MANAGER

FROM: KELLY HAMILL, PUBLIC WORKS DIRECTOR

DATE: OCTOBER 30, 2018

SUBJECT: UPDATE ON FACILITIES ASSESSMENT AND SPACE NEEDS ANALYSIS

The Village Board established its Ad Hoc Facilities Committee to review the current conditions and operational uses of the Village's facilities and recommend a plan to the Village Board for the future management and maintenance of these facilities. After tours of the Village's facilities and discussions about the Committee's priorities, the Ad Hoc Facilities Committee directed staff to prepare a RFP for a condition assessment and space needs analysis of the Police Station, Fleet Maintenance Garage, and operations wing of Fire Station 11. Staff prepared an RFP and the project was awarded on October 10, 2017 to Healy, Bender & Associates of Naperville, Illinois.

The process established in the RFP included three key milestones for the project: (i) a condition assessment of the three facilities; (ii) a space needs analysis of the three facilities; and (iii) an evaluation of the current facilities to determine the most cost effective solution for the Village to meet its needs whether it is renovation, addition, reconstruction on the same site, or relocation of the facility.

The space needs analysis of the Police Station, Fleet Maintenance Garage and Fire Station 11 and preliminary cost estimates for potential options have been completed. This analysis examines the operations housed at each facility, identifies current problems the facility poses to those operations, and the total space needed for each function. Additionally, the analysis considers related topics such as the relative organization and proximity of different functions, the overall functionality of the current space and other considerations such as public access and security.

To prepare the analysis, the consultants have completed a review of the operations housed at each facility. Surveys and interviews were done with the employees at each facility to supplement the information provided during the review, capture feedback on the existing facility and aid in projecting future changes in personnel. Ultimately, the consultants developed "space standards" for each facility using the information collected during these reviews, their previous project experience and any applicable codes and standards. A detailed discussion of the methodology for the analysis can be found in the attached methodology memo.

Staff will provide a presentation on the findings and options outlined for the Police Station, Fire Station 11, and the Fleet Maintenance Garage at the Ad Hoc Facilities Committee meeting.

MEMORANDUM
VILLAGE OF NORTHBROOK
PUBLIC WORKS DEPARTMENT

TO: RICHARD A. NAHRSTADT, VILLAGE MANAGER

FROM: KELLY HAMILL, PUBLIC WORKS DIRECTOR

DATE: OCTOBER 30, 2018

SUBJECT: SPACE NEEDS ANALYSIS METHODOLOGY

As part of the Facilities Assessment project, the Village's consultant has completed a comprehensive Space Needs Analysis for the Police Department, Fire Station 11, and Fleet Maintenance Garage. This analysis was done to evaluate the amount of space available, the amount of space needed for the current operations at each facility, and the amount of space needed based on changes in operations or services in the future. The consultant has also prepared options to show how the space needs for the Village's operations at the three identified facilities can best be met. With the options to meet the Village's space needs, the consultant has provided cost estimates for construction as an order of magnitude. The consultant has also prepared "concept plans" for the options identified in the Space Needs Analysis, which are intended to show the amount of space needed and how that space could be organized with renovation of the existing facilities.

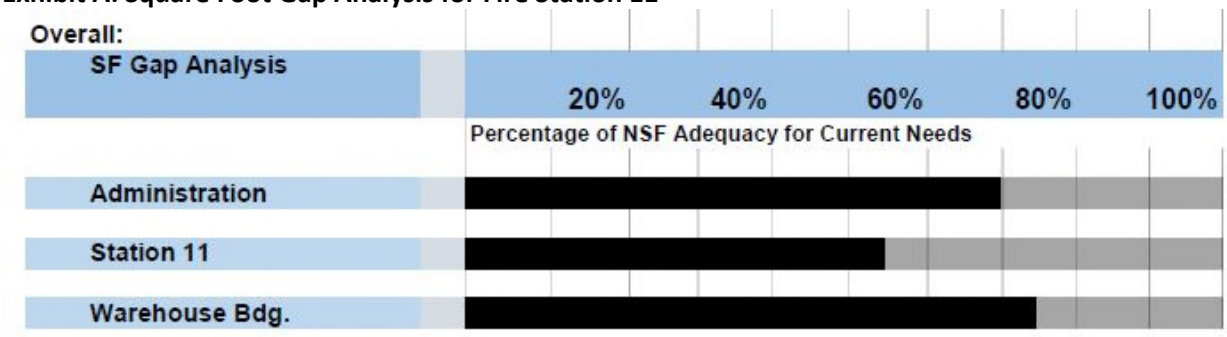
Review of Current Space and Development of Space Needs

As with any process, knowing where you are starting is the first step. The consultants began their review with a comprehensive assessment of the current space available at the Police Department, Fire Station 11 and the Fleet Maintenance Garage. Using walkthroughs, surveys and staff interviews; the consultants identified the various functions housed at each facility, the space available to them, and their needs. Understanding the needs of departments is a key component to understanding how work flows within an organization and how operations can/should be allocated. This information was coupled with operational data such as shift structures and the number and types of vehicles housed at each facility. Ultimately, this information provides the consultant with an understanding of both the current space and existing challenges within each facility.

Once the review of the existing facilities was complete, the consultants analyzed how much space would be needed for operations at the three facilities. For space such as offices, the consultant used accepted office space models tied to particular functions. For instances where a shared space existed (such as the spaces used by Patrol Officers), the consultant used an accepted standard and scaled it based on the number of employees using the space. For example, the number of lockers, which drives the calculation of space in the locker rooms, is scaled to the number of police officers and other applicable employees. Finally, when it came to more specialized components (such as the Fleet Maintenance Garage bays), the consultant drew upon their previous project experience. This is similar to the planning done for the renovations at Village Hall and the Public Works Center in 2008. To create an estimate of the total space needed, the consultants summed all of their standards and arrived at a total square footage. Finally, a "circulation factor" was added. This factor accounts for things such as hallways, mechanical space, the building envelope and related items which enable the building to operate but are not actual working space. For the purposes of estimation, the consultant used a standard, accepted estimating percentage to calculate the space needed.

The difference between the amount of space available and the amount of space identified for each of the facilities is displayed in several ways throughout the document. In each section, a square foot gap analysis illustrates the current amount of space available as a percentage of the current need. This is done for each function identified in the building as well as for the facility as a whole. An example of the overall building analysis from Fire Station 11 can be found below as Exhibit A.

Exhibit A: Square Foot Gap Analysis for Fire Station 11



Additionally, each section contains a listing of current spaces which compares their current square footage to their current and future needs. An example can be found below as Exhibit B. In order to ensure that any options presented could meet both the current and future need, the consultants worked to make simple projections of staffing based on their experience and staff feedback. These projections are critical due to the fact that space is often directly connected to the number of personnel working in a facility. Using staffing projections that were developed in conjunction with the Village's management team, the consultants sought to build enough capacity to not only accommodate current needs but any that may arise within the 20-year timespan of the study. These staffing numbers are not recommendations for more personnel and may not be ultimately needed. However, considering and planning for these potential changes will minimize any future work needed to accommodate additional staff. For that reason, the 20-year space need figures are utilized to create the facility options.

Exhibit B: Space & Staffing Projections for FS 11

	Summary		Staff	Need	Staff	Year	Staff	Year
A. Administration								
A1	Chief's Office	2,261	6	3,093	7	3,255	7	3,255
A2	Fire Prevention Bur.	1,782	9	2,059	9	2,113	11	2,215
A3	Training/EOC	1,716	3	2,192	4	2,192	4	2,192
A4	Administrative Supp.	982	0	1,666	0	1,666	0	1,666
	Subtotal	6,741		9,010		9,226		9,328
Building Grossing Factor- 35%		1,250		3,153		3,229		3,265
	Total GSF Admin.:	7,991		12,163		12,455		12,593
B. Operations								
B1	Shift Command	735		1,416		1,416		1,416
B2	Station 11	7,392		12,696		12,898		13,289
	Subtotal	8,127		14,112		14,314		14,705
Building Grossing Factor- 35%		2,414		4,939		5,010		5,147
	Total GSF Oper.:	10,541		19,051		19,324		19,852
C. Warehouse Bdg.								
C1	Storage/Garage	2920		3,750		3,750		3,750
	Subtotal	2,920		3,750		3,750		3,750
	Total GSF Stor.:	2,920		3,750		3,750		3,750

Facility Options:
For each facility, the consultants developed two options using the 20-year space projections: (i) Option 1, which examines potential ways to reuse the existing facility and site and (ii) Option 2, which reviews the possibility of building a new facility on a different site. Both options are designed to meet the space requirements outlined by the consultant and mitigate any problems in the existing facility that were identified. For example, if a problem was noted for a particular circulation pattern or something was found to be non-code compliant, the option would address the underlying issue.

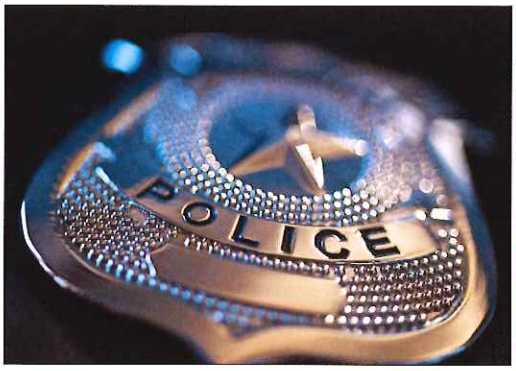
For Option 1, a series of conceptual plans illustrating both the potential layout of the new building and the traffic patterns is included. It should be noted that these are not final plans but merely guides to help visualize the new space. Where the exploration of different configurations was feasible, the consultant also included those. For example, in the Police Department, the consultant created Options 1 and 1A which review the feasibility of one and two-story configurations.

Costs:
For each option, the consultants created a cost estimate. True costing is not possible until a final design has been created, but the consultants can create an estimate based on the square footage of space either renovated or newly constructed. This estimate is based on industry averages and includes construction plus other expenses such as design, parking, furniture, fixtures and equipment. The numbers also include allowances for contingencies and inflation.

It is important to note that the costs here are only related to the facility itself and do not include any costs for land acquisition, site work requiring engineering (such as stormwater improvements) or relocation expenses if operations need to be temporarily relocated during construction. These costs also do not include any potential offsets from the sale of property.

Ad Hoc Facilities Meetings:
At this time, staff has completed its review of the analysis and the options created by the consultants. At the Ad Hoc Facilities Committee meeting staff will provide an overview of the methodology for this phase of the project; discuss the Police Station, Fire Station, and Fleet Maintenance Garage Findings; and answer any questions the Committee may have. The consultants will attend the meeting for any specific questions related to the analysis.

Facility Needs Assessments

Northbrook Police Department
Northbrook Fire Station #11
Northbrook Fleet Maintenance Garage

DRAFT

October 16, 2018

HEALY BENDER

TABLE OF CONTENTS

DRAFT

HEALY BENDER
Architects + Planners
www.healybender.com

Moyer Associates, Inc.
www.moyerassociates.com

This page has been removed pursuant to 5 ILCS 140 Sec 7(1)(e) and 7(1)(k).

Police Department - (cont'd) TAB-02

Fire Department - Station 11

TAB-03

Fleet Maintenance Garage **TAB-04**

1. Introduction / Process

DRAFT

INTRODUCTION / PROCESS

In October 2017, the Village of Northbrook asked the consultant team consisting of Healy, Bender & Associates, Inc. and Moyer Associates, Inc. to develop a Facility Needs Assessment Study for three (3) of their existing buildings:

- Police Station (1401 Landwehr Road)
- Fire Station No. 11 (740 Dundee Road)
- Fleet Maintenance Garage (1227 Cedar Lane)

The purpose of the Facility Needs Assessment Study was to provide an understanding of the existing conditions in respect to the functional operations for each facility, identify the deficiencies, and provide options to resolve the deficiencies. This study is the result of a collaborative process between the consultant team and the Village of Northbrook.

At the start of the project, a kick-off meeting was held with representatives from the Northbrook Police, Fire and Public Works Departments to establish the project's goals and lines of communication. Subsequent meetings were held with each applicable operation division within these Departments to communicate the purpose of the project and how the data would be collected for analysis.

Each building was analyzed separately and involved several different techniques for obtaining valuable information for integrating it into the needs assessment and master planning process.

Police Station & Fire Station No. 11:

Moyer Associates, Inc. lead the process individually with both the Police Department and the Fire Department. The team held subsequent meetings with personnel in operating components to provide information on the full range of activities that generate the need for space. The existing operational conditions of the facilities that interfere with the ability to effectively or efficiently carry out police and fire station operations were key components of study.

Staff survey/Interviews from all police and fire station operating areas were a vital source of information. The information gathering technique included the preparation of a Survey Questionnaire which

was administered on-line. The electronic survey proved to be the most efficient way to compile the vast amount of data generated from multiple departments within each facility. The information was reviewed, discussed, and incorporated into the decision-making process.

Parallel to this activity, the team toured the buildings with police and fire staff to see first-hand how the facilities operated on a day-to-day basis. This helped the team visualize the deficiencies and gain valuable insight to the needs of the facilities compared to various applicable industry practices.

Based on all the data that was gathered, the team developed existing space utilization descriptions. These documents defined the operational deficiencies within the existing buildings.

After a thorough understanding of the current conditions was achieved, the next step was to develop the space program for current and projected space needs. Each programmed space was assigned a square footage based on space standards based on the discussions with the staff, and project experience of professionally recognized guidelines such as Police Facility Planning Guidelines, issued by the International Association of Chiefs of Police (IAPC) for which Frederic Moyer FAIA was the principal Project Consultant, and the project experience from Moyer Associates, Inc. The draft space programs were reviewed with staff and refined based on their feedback.

Lastly, plans were prepared which offered strategies for both the reuse of the existing police and fire facilities or construction of new facilities on new sites. This phase was conducted in a collaborative manner, involving the Police and Fire staff in a process of critique and exploration of options for meeting space needs and supporting efficient operations.

<u>Fleet Maintenance Garage:</u>

Healy, Bender & Associates, Inc. lead the process with subsequent meetings with personnel in individual operating components of the Fleet Maintenance Garage to provide information on the full range of activities that generate the need for space. The existing operational conditions of the facility that interfere with the ability to effectively or efficiently carry out operations was a key component of study.

To begin the effort an initial kick-off meeting was held with Administration as well as the Northbrook Fleet Maintenance Department. The overall goals were discussed and confirmed, lines of communication were established, and planning steps described. Due to the size of the department, it was decided to hold a group interview/meeting to discuss the deficiencies of the existing facility. Additionally, each staff member was given the opportunity to express their thoughts and opinions through an individual survey to assure their valuable input was communicated. The information was reviewed, discussed, and incorporated into the decision-making process.

Parallel to this activity, the team toured the building with the fleet supervisor to see firsthand how the facilities operated on a day-to-day basis. This helped the consultant gain valuable insight into the needs of the facilities.

Based on all the data that was gathered, the team developed existing space utilization descriptions. These documents defined the operational deficiencies within the existing buildings.

After a thorough understanding of the current conditions was achieved, the next step was to develop the space program for current and projected space needs. Each programmed space was assigned a square footage based on space standards developed by the consultant team. These standards were based on discussions with the staff (including the surveys) and project experience from Healy, Bender & Associates, Inc. A second tour of the facilities with the fleet supervisor and staff members was conducted to discuss and confirm the various program spaces and potential opportunities to remedy deficiencies.

Lastly, exhibits were prepared which offered strategies for both the reuse of the existing fleet maintenance garage or the construction of a new facility on a new site. This phase was conducted in a collaborative manner, involving the Garage staff in a process of critique and exploration of options for meeting space needs and supporting efficient operations.

2. Northbrook Police Department

DRAFT

This page has been removed pursuant to 5 ILCS 140 Sec 7(1)(e) and 7(1)(k).

Option 1: *cont'd.*

- Re-uses existing space, reducing the amount of new construction required.
- Requires no property acquisition.
- Maintains existing communications tower services/location.
- Requires temporary relocation of police operations during renovation/construction.
- Requires cooperative agreements to hold prisoners at an other location during renovation/construction.
- Achieves optimal functional relationships of operational components at one floor level.
- Achieves weather protected parking for Police fleet vehicles, prolonging service life.

Police Department - Executive Summary

Option 1a: (a variation of Option 1)

Seeks to remedy the identified deficiencies and operational inadequacies of the Northbrook Police facility at the existing site, with major expansion of the building space by ***multi-floor construction****, and providing* ***outdoor surface parking for the majority of all police vehicles****.*

- This option does not re-use existing space. It ***requires demolition of the existing building*** and construction of a new two level building, plus basement, in the general location of the existing building.
- Requires no property acquisition.
- Maintains existing communications tower services/location.
- Requires temporary relocation of police operations during renovation/construction.
- Requires cooperative agreements to hold prisoners at another location during renovation/construction.
- Requires new grade level construction of a Firearms Training component, with ***issues of noise abatement.***
- Police fleet parking is required to be outside, ***not weather protected.***
- The basic operational components will not fit on one floor within the required Option 1A footprint, bringing ***increased movements, functional inefficiencies and loss of convenient access for both police personnel and the public.***

Option 2:

Construct a new Police facility at another location and sell the existing property, if not suitable for other Village uses.

- Requires site acquisition (potentially offset by sale of existing site).
- Allows Police to ***remain operational in the existing building throughout the construction period.***
- ***Avoids the need for a cooperative agreement with another jurisdiction for prisoner processing/holding*** during the construction period.

The preliminary review of potential construction costs between the Options yields the following:

Option **1**	$27,634,691
Option **1a**	$36,478,343
Option **2**	$37,682,280

These numbers include building construction/renovation costs only, excluding any site acquisition expenses, sitework (excluding parking), storm drainage features, and temporary relocation costs.

Note: A variation of Option 2 would be the purchase of a current building and potentially renovate that property to serve Northbrook Police Department needs. It is not possible to compare the operational feasibility or costs under this variation without the identification of the particular property and its analysis.

1.0

Overview of Police Department

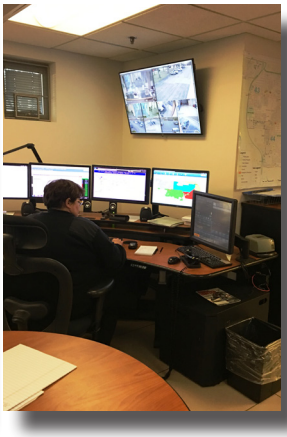
1.1 Study Scope

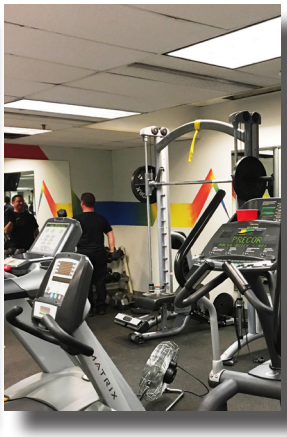
The consultant team, consisting of Moyer Associates Inc., and Healy, Bender and Associates, have addressed the specific circumstances of the Northbrook Police Department operations and facility resources, applying professionally recognized guidelines for law enforcement facilities. Among these references are the ***Police Facility Planning Guidelines***, issued by the International Association of Chiefs of Police (IACP), for which Frederic Moyer FAIA was the Principal Project Consultant. As a part of the Consultant study workscope, the assessment and evaluation of the existing Northbrook Police facility is an essential part. This work has been developed by the Moyer Associates Inc. Consultant team. During the course of its development, a close dialog and participation has been maintained between the consultant and Northbrook Police personnel in all operational areas as well as other Village staff.

The goal of this study is to determine the adequacy of the existing facility to meet current and projected needs, together with the development of solution alternatives that could be considered to respond to identified shortcomings.

Consulting activities have included the administration of a survey questionnaire followed up by individual interviews with personnel in each operational area and designated user entity. The process has involved inspection of the existing Northbrook Police building and the observation of current levels of activity in every area. The evaluation has included the extent to which the existing areas are capable of supporting these activities or, instead, impair the effective performance of their functions. The pages immediately following provide an overview of the operational problems that have been identified and the constraints that are presented by the existing building.

Accordingly, this first section of provides a description of current Northbrook Police facility space occupancies and an overview of existing operational and functional problems. It is followed by Sections 2 and 3 presenting the findings of needed space in all areas. It is next followed by Sections 4 and 5 describing Space Standards, Section 6 and 7 presenting solution Options and lastly by Section 8, which overviews cost estimates.



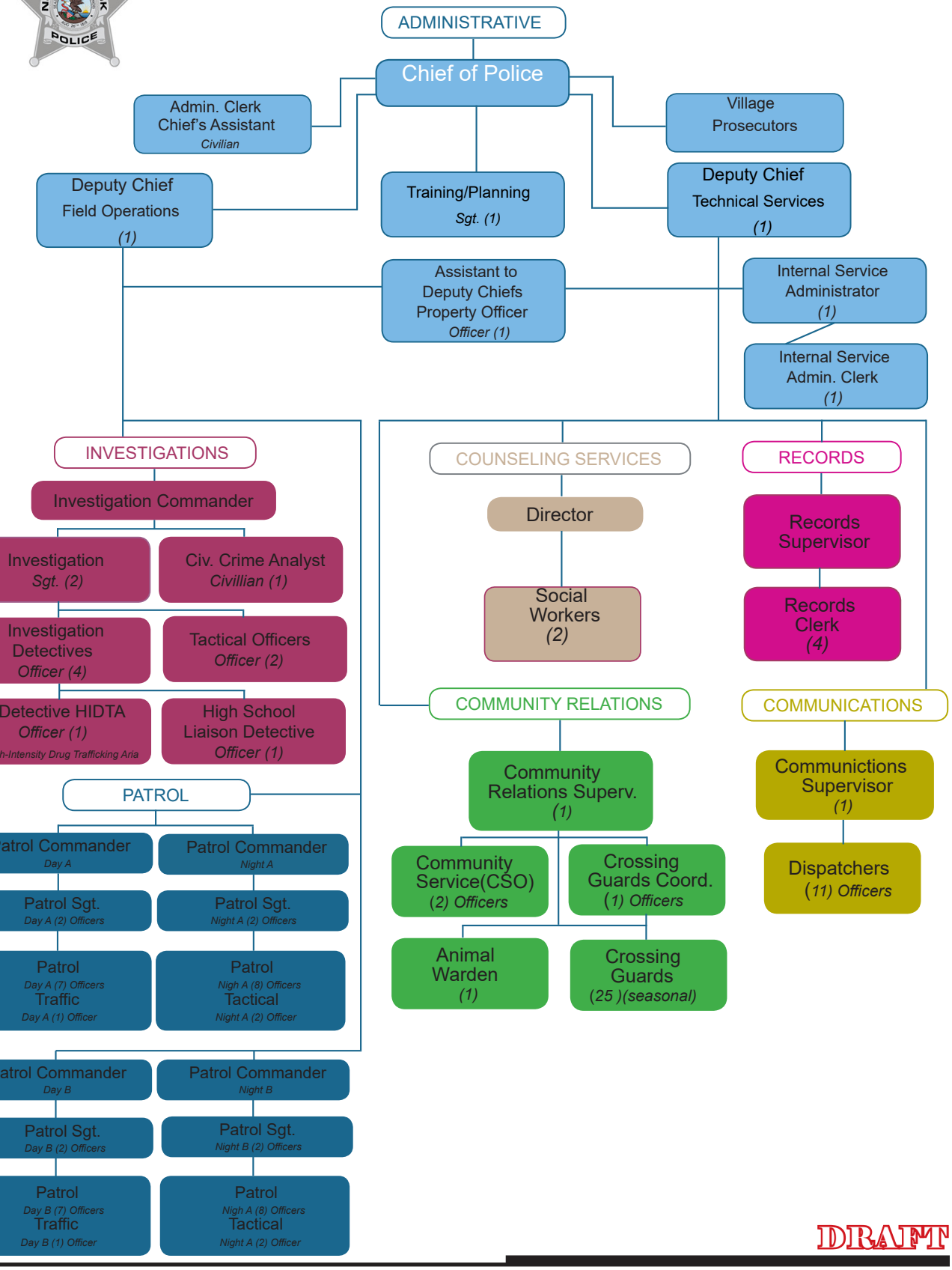


1.2 Functions

Responsibilities and Services:
The Northbrook Police Department's mission, 24 hours per day, is to serve those who live, work, shop, and play in the Village through the fair and effective delivery of services. The department is made up of the following divisions:

- ***Communications-*** Employees in this division act as the liaisons between the public and the department, performing the essential duty of answering 911 phone calls.
- ***Investigations-*** The Criminal Investigations Unit follows up upon criminal incidents. Investigators use state-of-the-art surveillance equipment, computer-imaging software, and extensive computer databases.
- ***Patrol-*** The Police Department's Patrol Division is the backbone of the Department and provides its most basic functions. The largest and most visible unit in the Police Department, Uniformed Patrol is responsible for providing continuous protection to the community.
- ***Records-*** The Records Unit is responsible for the administration and maintenance of all department records. All criminal histories, arrest records, and related information are maintained within this unit. All police reports, statistical data and traffic citations are stored in the Records Unit.
- ***Community Relations-*** Community Relations Unit provides a variety programs, including: Child Safety Seat Inspection Program, Citizen Police Academy, Home & Business Security Surveys, and Speakers Bureau.
- ***Counseling Services***-The Counseling Services Unit provides crisis intervention with police, criminal court advocacy with victims of crimes, short-term counseling for police referred cases, information and referral and consultation to local schools, social service agencies and clergy.
- ***Animal Control-***The Animal Control Officer is responsible for handling service calls involving both domestic and wild animals. Aside from enforcement duties, the Animal Control Officer monitors and develops programs that deal with Northbrook's animal concerns.
- ***Police officer Recruitment-*** The Northbrook Police Department provides opportunities for a number of special assignments to support officers' career development.
- ***Police Chaplain-*** The Chaplain Program provides spiritual assistance and crisis counseling to Department staff and members of the community in times of need.

1.3 *Police Department Organizational Chart*



DRAFT

2.0

Review of Existing Facility

This page has been removed pursuant to 5 ILCS 140 Sec 7(1)(e) and 7(1)(k).

This page has been removed pursuant to 5 ILCS 140 Sec 7(1)(e) and 7(1)(k).

3.0

Identified Problems

This page has been removed pursuant to 5 ILCS 140 Sec 7(1)(e) and 7(1)(k).

This page has been removed pursuant to 5 ILCS 140 Sec 7(1)(e) and 7(1)(k).

This page has been removed pursuant to 5 ILCS 140 Sec 7(1)(e) and 7(1)(k).

This page has been removed pursuant to 5 ILCS 140 Sec 7(1)(e) and 7(1)(k).

This page has been removed pursuant to 5 ILCS 140 Sec 7(1)(e) and 7(1)(k).

This page has been removed pursuant to 5 ILCS 140 Sec 7(1)(e) and 7(1)(k).

This page has been removed pursuant to 5 ILCS 140 Sec 7(1)(e) and 7(1)(k).

This page has been removed pursuant to 5 ILCS 140 Sec 7(1)(e) and 7(1)(k).

This page has been removed pursuant to 5 ILCS 140 Sec 7(1)(e) and 7(1)(k).

This page has been removed pursuant to 5 ILCS 140 Sec 7(1)(e) and 7(1)(k).

This page has been removed pursuant to 5 ILCS 140 Sec 7(1)(e) and 7(1)(k).

This page has been removed pursuant to 5 ILCS 140 Sec 7(1)(e) and 7(1)(k).

4.0

Space Program

4.1 Introduction

This section tabulates the functional components and space needed for the Northbrook Police Department operational units. The amount of space designated in each component has been developed through the interviewing of operations personnel in every unit, the inspection and evaluation of current deficiencies in all areas, and the application of relevant professional standards for the tasks and functions involved. Program development has incorporated efficiencies through task-specific space planning and space sharing where feasible. Reference is made to the following ***Section 5.0 Standards*** for this specific information.

In developing this component Space Program, the following process was employed. A web-based survey form prepared specifically for this project elicited information in a variety of areas from each office. The informational areas included such topics as the number of personnel, classification of personnel by task, types of working environments required, equipment and storage needs, hours of operation, amount of public visitor traffic and amount of internal traffic with other units, proximity and adjacency requirements with other functional areas, trends in activities (either increasing or decreasing), potential technology impacts upon operations, and other issues. The information obtained related directly to the amount of space required for the adequate support of personnel and their activities in the respective offices. Space standards were applied as applicable to the functional areas in order to generate square foot requirements. When functional requirements did not correspond to a space standard, industry standards for each functional area were applied using the minimum amount of space necessary to meet each functional requirement.

In addition, each area of the existing Northbrook Police facility was inspected and current occupancies observed. The degree of overcrowding and extent of space shortage existing was observed in every area. In conjunction with this, personnel were interviewed to provide further understanding of present demands upon the spaces in the various offices and units.

4.2 SF Gap Analysis

On the next page, a Space Adequacy Summary is presented in graphic form.

It summarizes the findings concerning the amount of space that is presently available in each of the functional components in the Northbrook Police Department facility in relation to the amount of space that is found to be currently needed in each of these components. As such, it presents the extent of current space adequacy in each area and expresses this in terms of a percentage.

Both individual component and overall facility space adequacy is shown.

Two important features need to be brought into the picture when considering this information:

1) The Space Adequacy bar chart is displaying adequacy on a current basis. As noted in Sections 2 and 3, space for many functions currently do not exist and have been accomodated by necessity causing operational and safety hazards. Without the provision of increased amounts of space going forward, the percentage of adequacy will be decreasing with each passing year for areas with anticipated future growth. This growth will compound on and intensify the existing deficiencies and conditions.
2) Space adequacy is only one of the important factors in evaluating the extent to which existing facilities are supporting operational needs. Other factors include the proximity of key components to one another, travel distances required of staff to perform their duties, code compliance, efficient grouping of functions, and convenience for the public in accessing services, among others, all contributing to how well departmental operations are able to function.

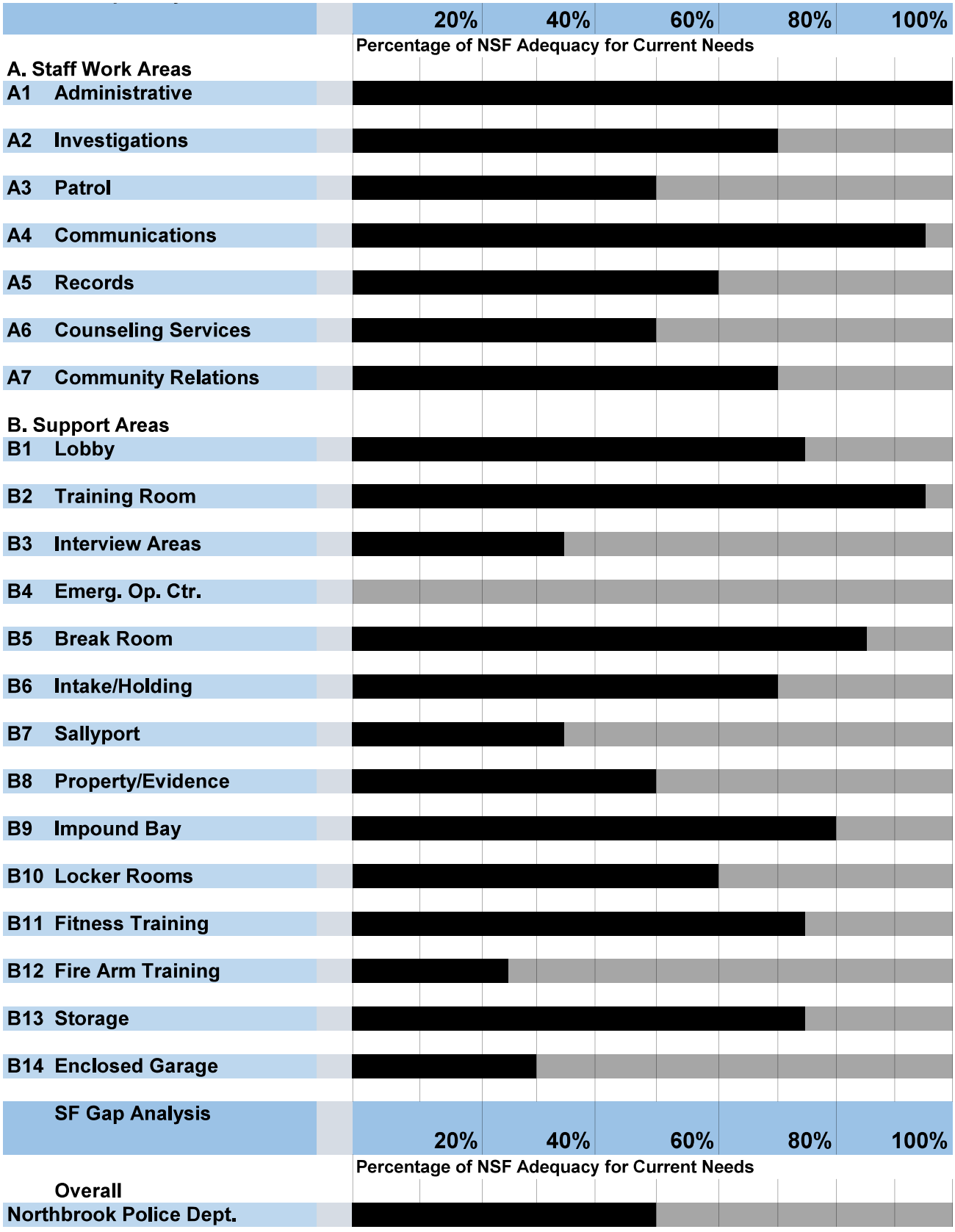
Accordingly, the space evaluation is a very important factor in considering existing facilities adequacy but needs to be supplemented with the consideration of other factors, mentioned above, as well. The full range of factors have been included in the development of the recommendations in this report.

Based upon all of the data that has been assembled and evaluated, it is found that the ***current facility does not meet the space needs of the Department or their use.***

SF (square foot) Note:

The referenced area depicted in the following chart cooresponds to NSF (net square feet) which includes usable SF for individual unit requirements plus secondary circulation around it (aisles between workstations). The black bar shown reflects the percentage of net square feet (NSF) currently occupied vs. that which is currently required for each listed unit.

DRAFT


20%
40%
60%
80%
100%
Percentage of NSF Adequacy for Current Needs
A. Staff Work Areas
A1 Administrative
A2 Investigations
A3 Patrol
A4 Communications
A5 Records
A6 Counseling Services
A7 Community Relations
B. Support Areas
B1 Lobby
B2 Training Room
B3 Interview Areas
B4 Emerg. Op. Ctr.
B5 Break Room
B6 Intake/Holding
B7 Sallyport
B8 Property/Evidence
B9 Impound Bay
B10 Locker Rooms
B11 Fitness Training
B12 Fire Arm Training
B13 Storage
B14 Enclosed Garage
SF Gap Analysis
20%
40%
60%
80%
100%
Percentage of NSF Adequacy for Current Needs
Overall
Northbrook Police Dept.

4.3 Individual Space Tabulation

Space Program Organization

A. Staff Work Areas

A1 Administrative
A2 Investigations
A3 Patrol
A4 Communications
A5 Records
A6 Counseling Services
A7 Community Resources

B. Support Areas

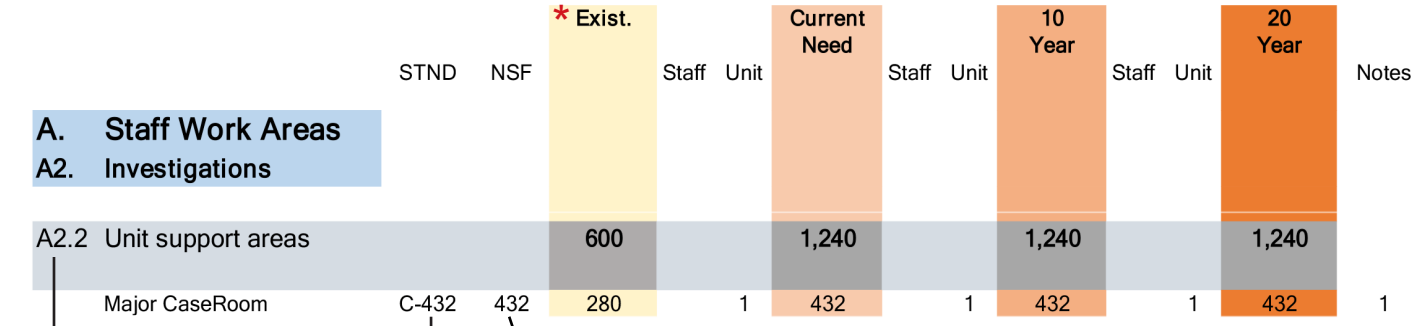
B1 Lobby
B2 Training Room
B3 Interview Area
B4 Incident Command Center
B5 Break Room
B6 Intake/Holding
B7 Sallyport
B8 Property/Evidence
B9 Impound Bay
B10 Locker Room
B11 Fitness Training
B12 Fire Arms Training
B13 Storage
B14 Enclosed Garage

Summary-Building Areas

C. Exterior Support/Parking

As an introduction to the material that follows in this section, and as a preface to the Space Program for the Northbrook Police Department which is presented in this section of the report, a description of its formatting and the codes used follows.

EXPLANATORY LEGEND



	STND	NSF	* Exist.	Staff	Unit	Current Need	Staff	Unit	10 Year	Staff	Unit	20 Year	Notes
A. Staff Work Areas													
A2. Investigations													
A2.2 Unit support areas			600			1,240			1,240			1,240	
Major CaseRoom	C-432	432	280		1	432		1	432		1	432	1

Comp. No.
Consultant Number used for component identification

STND
Space standard identification code, corresponds w/ Section 5.0 Standards

Unit Net Square Feet
Usable Square Footage per component unit code

Current Need
Unit/# Number of component units currently needed.

Staff/# Number of staff currently needed.

SF: Total component square footage currently needed.

10 Year Need
Unit/# Number of component units currently needed in 10 years.

Staff/# Number of staff support needed in 10 years.

SF: Total component square footage needed in 10 years.

20 Year Need
Unit/# Number of component units currently needed in 20 years.

Staff/# Number of staff support needed in 20 years.

SF: Total component square footage needed in 20 years.

* Note: " when appearing in the existing column reflects inclusion of existing SF for this item in the overall existing total. (Typ. currently mixed with other functions)

STAFFING PROJECTIONS: Projections for future staff in the twenty year increment came from supervisory staff in each operational area based upon their knowledge of service demand and trends in service delivery. The number of projected future staff is reflected in the tabulation, should the Village choose to approve the additional positions. Expansion space for future staff is reflected in the tabulation to ensure flexibility for the future.

CIRCULATION FACTORS:

DEPARTMENTAL CIRCULATION FACTOR: Consists of space required for circulation within each Department or operational unit. (i.e. aisles between workstation). The total arrived by adding this factor equals NSF (net square feet). This factor varies by nature of size, number and type of space and is documented accordingly within the program. Example below:

Appears at each operational unit:

Subtotal		2,388		2,479		2,479	2,479
Department Circulation Factor- 35%		976		868		868	868
Total Administrative:		**3,364**		**3,347**		**3,347**	**3,347**

Note: The circulation factor will vary according to type of space and is reflected as such through out the program. (ex.-Office space with numerous smaller areas requires a higher factor than a larger or more contiguous area such as storage)

BUILDING GROSSING FACTOR: Consists of a 35% allowance made up of the following:

- Building Circulation- 15%
- Building Envelope- 2%
- Building Mechanical/Electrical space- 10%
- Police Operations Support Space- 8%
  (emerg. power, generator, security equipment, communications)

  Total: 35%

The total arrived by adding this factor equals GSF (gross square feet)
Note- This factor is an allowance only. It has proven to be an accurate allowance for planning purposes however the design layout and specific equipment required will dictate the actual percentage. It is a goal in the design process to keep this number as minimal as possible. Example below:

Appears on the summary page:

Subtotal		32,671		63,371		64,174	64,775
Building Grossing Factor- 35%		12,444		22,180		22,461	22,671
(Mech. Allowance, circulation, structure, envelope)							
Total GSF:		**45,115**		**85,551**		**86,634**	**87,446**
Staff:			95		103		107

		STND	NSF	Exist.	Staff	Unit	Current Need	Staff	Unit	10 Year	Staff	Unit	20 Year
A.	**Staff Work Areas**												
A1.	**Administrative**												
A1.1	Individual work areas			**1,765**	8		**1,641**	8		**1,641**	8		**1,641**
	Chief	0-375	375	429	1	1	375	1	1	375	1	1	375
	Toilet		48	40		1	48		1	48		1	48
	Deputy Chief	0-300	300	590	2	2	600	2	2	600	2	2	600
	Internal Services Administrator	0-180	180	192	1	1	180	1	1	180	1	1	180
	Training/Planning Sergeant	0-150	150	208	1	1	150	1	1	150	1	1	150
	Admin. Assistant- Chief	0-120	120	105	1	1	120	1	1	120	1	1	120
	Assist./Prop. Officer- Dep. Chiefs	0-120	120	153	1	1	120	1	1	120	1	1	120
	Admin. Clerk	WS-48	48	48	1	1	48	1	1	48	1	1	48
A1.2	Unit support areas			**623**			**838**			**838**			**838**
	Wtg Area		100	63		1	100		1	100		1	100
	Executive Conference	C-432	432	354		1	432		1	432		1	432
	Coffee	B-36	36	"		1	36		1	36		1	36
	File/Copy	WA-120	120	206		1	120		1	120		1	120
	Storage		150	"		1	150		1	150		1	150
	Subtotal			2,388			2,479			2,479			2,479
	Department Circulation Factor- 35%			976			868			868			868
	Total Administrative:			**3,364**			**3,347**			**3,347**			**3,347**

		STND	NSF	Exist.	Staff	Unit	Current Need	Staff	Unit	10 Year	Staff	Unit	20 Year
A.	**Staff Work Areas**												
A2.	**Investigations**												
A2.1	Individual work areas			**1100**	14		**1,142**	15		**1,398**	16		**1,398**
	Commander	O-150	150	198	1	1	150	1	1	150	1	1	150
	Sergeant	O-120	120	141	2	2	240	2	2	240	2	2	240
	Crime Analyst	WS-64	64	761	1	1	64	1	1	64	1	1	64
*	Detective	WS-64	64	"	7	7	448	8	8	704	9	9	704
	Tactical Officer	WS-64	64	"	2	2	128	2	2	128	2	2	128
	High School Liason	WS-64	64	"	1	1	64	1	1	64	1	1	64
	Task Force	WS-48	48	"	1	1	48	1	1	48	1	1	48
A2.2	Unit support areas			**600**			**1,240**			**1,240**			**1,240**
**	Major Case Room	C-432	432	280		1	432		1	432		1	432
	Interview rooms	C-100	100	128		2	200		2	200		2	200
	Tech/Monitor room		150	0		1	150		1	150		1	150
	Secure Storage		80	0		1	80		1	80		1	80
	Juvenile File Room		100	64		1	100		1	100		1	100
	Coffee	B-36	36	20		1	36		1	36		1	36
	Survel. Equip.		100	64		1	100		1	100		1	100
	Equip stor		100	44		1	100		1	100		1	100
	Copy/Supplies	WA-42	42	0		1	42		1	42		1	42
	Subtotal			1,700			2,382			2,638			2,638
Department Circulation Factor- 35%				591			834			923			923
Total Investigations:				**2,291**			**3,216**			**3,561**			**3,561**

* Note: additional space (NSF) is added to the total in order to insure flexibility for future staff.

** Note: Accommodates 14 at table with peripheral surrounding seating

		STND	NSF	Exist.	Staff	Unit	Current Need	Staff	Unit	10 Year	Staff	Unit	20 Year
A.	**Staff Work Areas**												
A3.	**Patrol**												
A3.1	Individual work areas			**855**	49		**1,680**	55		**1,800**	57		**1,800**
	Commander	O-150	150	360	4	4	600	4	4	600	4	4	600
*	Sergeant	O-120	120	495	8	8	960	9	9	1,080	9	9	1,080
*	Patrol Officer				30		0	35		0	35		0
*	Patrol TAC				4		0	4		0	4		0
*	Traffic Officer	O-120	120	0	2	1	120	2	1	120	4	1	120
	K-9 Officer				1		0	1		0	1		0
A3.2	Unit support areas			**594**			**880**			**880**			**880**
	Roll Call/Briefing	C-608	608	414		1	608		1	608		1	608
	Report Writing	WA-180	180	180		1	180		1	180		1	180
	Duty Bag Lockers		50	0		1	50		1	50		1	50
	Copy	WA-42	42	0		1	42		1	42		1	42
	Battery Charge Station		36	"									
	Subtotal			1,449			2,560			2,680			2,680
Department Circulation Factor- 35%				267			896			938			938
Total Patrol:				**1,716**			**3,456**			**3,618**			**3,618**

* Note: Staff number includes multiple shifts

Gen. Note: SF requirements for field officers such as Patrol and Traffic are minimal as they utilize shared work and conference areas. Locker space would be the dedicated requirement per officer.

		STND	NSF	Exist.	Staff	Unit	Current Need	Staff	Unit	10 Year	Staff	Unit	20 Year
A.	**Staff Work Areas**												
A4.	**Communications**												
A4.1	Individual work areas			**470**	12		**470**	12		**470**	12		**470**
	Supervisor	O-150	150	150	1	1	150	1	1	150	1	1	150
*	Dispatcher	WS-64	64	320	11	5	320	11	5	320	11	5	320
A4.2	Unit support areas			**157**			**288**			**288**			**288**
	Break Area	B-100	100	42		1	100		1	100		1	100
	Toilet		48	40		1	48		1	48		1	48
	Lockers		50	"		1	50		1	50		1	50
	File/Reference		12	50		4	48		4	48		4	48
	Scanner/Printer	WA-42	42	25		1	42		1	42		1	42
	(Computer Equip. appears in B.13)												
	Subtotal			627			758			758			758
Department Circulation Factor- 35%				378			265			265			265
Total Communications:				**1,005**			**1,023**			**1,023**			**1,023**

* Note: Staff number includes multiple shifts, sufficient space for staff is available in the area provided should the Village take on client agencies.

		STND	NSF	Exist.	Staff	Unit	Current Need	Staff	Unit	10 Year	Staff	Unit	20 Year
A.	**Staff Work Areas**												
A5.	**Records**												
A5.1	Individual work areas			**294**	5		**342**	5		**342**	6		**390**
	Supervisor	O-150	150	144	1	1	150	1	1	150	1	1	150
	Clerk	WS-48	48	150	4	4	192	4	4	192	5	5	240
A5.2	Unit support areas			**231**			**548**			**548**			**548**
	Public Counter		36	50		3	108		3	108		3	108
	Copy		36	12		1	36		1	36		1	36
	Microfilm/scanner workstation	WS-36	36	0		1	36		1	36		1	36
	Secure Storage		36	12		1	36		1	36		1	36
	Temporary work area	WS-36	36	0		2	72		2	72		2	72
	File Cabinet		12	36		5	60		5	60		5	60
	General storage		100	121		1	100		1	100		1	100
	Mail/copy/sort	WA-120	100	"		1	100		1	100		1	100
	Subtotal			525			890			890			938
Department Circulation Factor- 35%				195			312			312			328
Total Records:				**720**			**1,202**			**1,202**			**1,266**

		STND	NSF	Exist.	Staff	Unit	Current Need	Staff	Unit	10 Year	Staff	Unit	20 Year
A.	**Staff Work Areas**												
A6.	**Counseling Services**												
A6.1	Individual work areas			**289**	3		**321**	4		**369**	4		**369**
	Director	O-225	225	189	1	1	225	1	1	225	1	1	225
	Social worker	WS-48	48	100	2	2	96	3	3	144	3	3	144
A6.2	Unit support areas			**349**			**750**			**750**			**750**
	Large soft interview	C-S220	220	216		1	220		1	220		1	220
	Soft interview	C-S150	150	0		2	300		2	300		2	300
	Reference area/library		48	"		1	48		1	48		1	48
	Client work area	WS-36	36	24		1	36		1	36		1	36
	printer/scanner/copy	WA-42	42	24		1	42		1	42		1	42
	Coffee		24	0		1	24		1	24		1	24
	storage		80	85		1	80		1	80		1	80
	Subtotal			638			1,071			1,119			1,119
Department Circulation Factor- 35%				97			375			392			392
Total Counseling Services:				**735**			**1,446**			**1,511**			**1,511**

	STND	NSF	Exist.	Staff	Unit	Current Need	Staff	Unit	10 Year	Staff	Unit	20 Year
A. Staff Work Areas												
A7. Community Relations												
A7.1 Individual work areas			**350**	4		**310**	4		**310**	4		**310**
Supervisor	O-150	150	164	1	1	150	1	1	150	1	1	150
Service Officer	WS-48	48	120	2	2	96	2	2	96	2	2	96
Animal Warden	WS-64	64	66	1	1	64	1	1	64	1	1	64
Crossing Guards												
A7.2 Unit support areas			**186**			**440**			**440**			**440**
* Animal Control Work Rm/lab		120	0		1	120		1	120		1	120
* Animal Control Equip. Storage		120	0		1	120		1	120		1	120
Crossing Guard Storage		80	108		1	80		1	80		1	80
Community Relations Storage		120	78		1	120		1	120		1	120
Subtotal			536			750			750			750
Department Circulation Factor- 35%			178			263			263			263
Total Community Relations:			**714**			**1,013**			**1,013**			**1,013**

* Note: this function has moved into area not intended for it's use, no dedicated, separated space exists.

		STND	NSF	Exist.	Staff	Unit	Current Need	Staff	Unit	10 Year	Staff	Unit	20 Year
B.	**Support Areas**												
B1	**Lobby**			**838**			**1,099**			**1,099**			**1,099**
	Entry Vestibule		80		1		80	1		80	1		80
	General Lobby		250		1		250	1		250	1		250
	Service Counter		30		3		90	3		90	3		90
	Visitor Work Area		30		1		30	1		30	1		30
	Public Seating		12		8		96	8		96	8		96
	Public Toilets		120		2		240	2		240	2		240
	Interview Room	C-100	100		1		100	1		100	1		100
*	Public Fingerprint Area		30	0	1		30	1		30	1		30
	Circulation Factor- 20%						183			183			183
B2	**Training Room**			**1210**			**1,287**			**1,287**			**1,287**
	Training Room	C-990	990	962	1		990	1		990	1		990
	Storage		120	138	1		120	1		120	1		120
	AV Storage		60	60	1		60	1		60	1		60
	Circulation Factor- 10%						117			117			117
B3	**Interview Areas**			**168**			**473**			**473**			**473**
	Interview	C-150	150	0	1		150	1		150	1		150
	Soft Interview	C-S200	200	168	1		200	1		200	1		200
	Circulation Factor- 35%						123			123			123
B4	**Emerg. Op. Center**			**0**			**1,480**			**1,480**			**1,480**
**	Command Center	C-1035	1,035		1		1,035	1		1,035	1		1,035
	Equipment Storage		150		1		150	1		150	1		150
	Dispatch Station	WS-64	64		1		64	1		64	1		64
	Toilets		48		2		96	2		96	2		96
	Circulation Factor- 10%						135			135			135
B5	**Break Room**			**930**			**1,080**			**1,080**			**1,080**
	Break Room	BA-660	660		1		660	1		660	1		660
	Toilets		120		2		240	2		240	2		240
	Circulation Factor-20%						180			180			180

* Second fingerprint area located near lobby, away from holding area.

** Note: EOC functions are planned for locations in both the Police Department and Fire Administration Building in order to allow for back up insurance.

		STND	NSF	Exist.	Staff	Unit	Current Need	Staff	Unit	10 Year	Staff	Unit	20 Year
B.	**Support Areas**												
B6	**Intake/Holding**			**1726**			**2,547**			**2,547**			**2,547**
	Secure Vestibule		80		2		160	2		160	2		160
	Intake/Processing		250	210	1		250	1		250	1		250
	Officer Workstation		36	"	2		72	2		72	2		72
	Staff Toilet		48	"	1		48	1		48	1		48
	Detainee Staging		24	0	2		48	2		48	2		48
	Property Storage		24	0	1		24	1		24	1		24
	Breathalyzer		100	66	1		100	1		100	1		100
	Holding Cell		80	625	8		640	8		640	8		640
	Detainee shower		36		1		36	1		36	1		36
	Interview		100	119	2		200	2		200	2		200
	Bond Out Area		120	0	1		120	1		120	1		120
	Circulation Factor- 50%						849			849			849
B7	**Sallyport**			**744**			**1,987**			**1,987**			**1,987**
	Vehicle Bay		375	"	4		1,500	4		1,500	4		1,500
	Circ./Ramp		120	"	1		120	1		120	1		120
	Prisoner Shower		36	"	1		36	1		36	1		36
	Circulation Factor- 20%						331			331			331
B8	**Property/Evidence**			**1793**			**3,542**			**3,692**			**3,692**
	Staff Bag/Tag Area		150	0	1		150	1		150	1		150
	Evidence Lockers		100	30	1		100	1.5		150	1.5		150
	Tech Sorting Area		150	144	1		150	1.5		225	1.5		225
	Custodian Office	O-120	120	90	1		120	1		120	1		120
	Staff Counter		24	0	1		24	1		24	1		24
	General Storage (2-3x)		1600	800	1		1,600	1		1,600	1		1,600
	Large Object Storage Area		200	0	1		200	1		200	1		200
	Bike Storage		200	200	1		200	1		200	1		200
	Evidence Tech Processing	WA-408	408	200	1		408	1		408	1		408
	Circulation Factor- 20%						590			615			615
B9	**Impound Bay**			**585**			**743**			**743**			**743**
	Impound Bay		375	"	1		375	1		375	1		375
	Work Bench		100	"	1		100	1		100	1		100
	Storage		200	"	1		200	1		200	1		200
	Circulation Factor- 10%						68			68			68

		STND	NSF	Exist.	Staff	Unit	Current Need	Staff	Unit	10 Year	Staff	Unit	20 Year
	Support Areas												
10	**Locker Rooms**			**1880**			**3,018**			**3,066**			**3,132**
	Male Sworn Locker		15	"	70		1,050	71		1,065	73		1,095
	Male Civilian Locker		5	"	14		70	14		70	14		70
	Male Shower		48	"	3		144	3		144	3		144
	Male Toilet		200	"	1		200	1		200	1		200
*	Female Sworn Locker		15	0	12		180	13		195	14		210
*	Female Civilian Locker		5	0	15		75	17		85	19		95
*	Female Shower		48	0	2		96	2		96	2		96
*	Female Toilet		200	0	1		200	1		200	1		200
	Bunk Room		100	0	5		500	5		500	5		500
	Circulation Factor- 20%						503			511			522
11	**Fitness Training**			**1458**			**1,980**			**1,980**			**1,980**
	Weights/Equip. Room		1000	936	1		1,000	1		1,000	1		1,000
	Defensive Tactics Room		800	522	1		800	1		800	1		800
	Circulation Factor- 10%						180			180			180
12	**Fire Arm Training**			**2318**			**8,543**			**8,543**			**8,543**
	Firing Range-8 Lane 100'		6,500	1820	1		6,500	1		6,500	1		6,500
	Range Master		200	36	1		200	1		200	1		200
	Simulator Training Area		500	0	1		500	1		500	1		500
	Armory		250	210	1		250	1		250	1		250
	Weapons Cleaning/Ready Rm		36	252	6		216	6		216	6		216
	Storage		100	"	1		100	1		100	1		100
	Circulation Factor- 10%						777			777			777
13	**Storage**			**1718**			**2,217**			**2,217**			**2,217**
	General Storage		400	437	1		400	1		400	1		400
	Equipment/Quartermaster		200	0	1		200	1		200	1		200
	Riot Gear Storage		150	0	1		150	1		150	1		150
	BuildingStorage		200	210	1		200	1		200	1		200
	K-9 Storage		120	120	1		120	1		120	1		120
	Records Storage		300	290	1		300	1		300	1		300
	Vehicle Storage		200	220	1		200	1		200	1		200
	Comm./911 Storage		225	225	1		225	1		225	1		225
	Commun. Equip.		220	216	1		220	1		220	1		220
	Circulation Factor- 10%						202			202			202

* Note: This function has moved into an area not intended for its use. No dedicated, separated space exists.

		STND	NSF	Exist.	Staff	Unit	Current Need	Staff	Unit	10 Year	Staff	Unit	20 Year
B.	**Support Areas**												
B14	**Enclosed Garage**			**5042**			**16,875**			**16,875**			**16,875**
*	Dept. Vehicles		250			45	11,250		45	11,250		45	11,250
	Unmarked Cars		250				0			0			0
	Specialty Vehicles		250				0			0			0
	Motorcycles		150				0			0			0
	Patrol Bicycles/Maint		200				0			0			0
	Vehicle Equip. Storage		200				0			0			0
	Circulation Factor- 50%						5,625			5,625			5,625

* Note: Includes all Village fleet vehicles for the Police Department

Summary

		Exist.	Staff	Current Need	Staff	10 Year	Staff	20 Year
A. Staff Work Areas								
A1	Administrative	3,364	8	3,347	8	3,347	8	3,347
A2	Investigations	2,291	14	3,216	15	3,561	16	3,561
A3	Patrol	1,716	49	3,456	55	3,618	57	3,618
A4	Communications	1,005	12	1,023	12	1,023	12	1,023
A5	Records	720	5	1,202	5	1,202	6	1,266
A6	Counseling Services	735	3	1,446	4	1,511	4	1,511
A7	Community Relations	714	4	1,013	4	1,013	4	1,013
B. Support Areas								
B1	Lobby	838		1,099		1,099		1,099
B2	Training Room	1,210		1,287		1,287		1,287
B3	Interview Areas	168		473		473		473
B4	Emerg. Op. Ctr.	0		1,480		1,480		1,480
B5	Break Room	930		1,080		1,080		1,080
B6	Intake/Holding	1,726		2,547		2,547		2,547
B7	Sallyport	744		1,987		1,987		1,987
B8	Property/Evidence	1,793		3,542		3,692		3,692
B9	Impound Bay	585		743		743		743
B10	Locker Rooms	1,880		3,018		3,066		3,132
B11	Fitness Training	1,458		1,980		1,980		1,980
B12	Fire Arm Training	2,318		8,543		8,543		8,543
B13	Storage	1,718		2,217		2,217		2,217
B14	Enclosed Garage	5,042		16,875		16,875		16,875
	Subtotal	30,955		61,571		62,341		62,472
	Building Grossing Factor- 35% (Mech. Allowance, Circulation, Structure, Envelope)	14,160		21,550		21,819		21,865
	Total GSF:	45,115		83,121		84,161		84,337
	Staff:		95		103		107	

DRAFT

		STND	NSF	Exist.	Staff	Unit	Current Need	Staff	Unit	10 Year	Staff	Unit	20 Year
C.	**Exterior Support**												
C1	**Parking**			**15,552**			**25,800**			**25,800**			**25,800**
	Visitor Parking		200			40	8,000		40	8,000		40	8,000
	Shift Parking		200			46	9,200		46	9,200		46	9,200
	Circulation Factor- 50%						8,600			8,600			8,600
C2	**Support**			**0**			**282**			**282**			**282**
	Trash/Recycling		120			1	120		1	120		1	120
	Loading Dock												
	Hazardous Storage		150			1	150		1	150		1	150
	Circulation Factor- 10%						12			12			12
C3	**Antenna Related Area**						**1,800**			**1,800**			**1,800**
	Antenna		700	616		1	700		1	700		1	700
	Equipment		1,100	1100		1	1,100		1	1,100		1	1,100

5.0

Space Standards

5.1 Introduction

In this section, Individual Space Standards are illustrated which describe assignable areas together with their furnishings and equipment capabilities.

In the development of the Northbrook Police Facility Program, it was determined that similar work area requirements are needed for certain functions on a recurring basis throughout the different operating units. For these situations, maximum efficiency will be achieved by the standardization of the workstation and furnishings provision response. Accordingly, a series of space standards are presented in this section which are utilized in the Space Tabulations section for similar staff work assignments throughout the Northbrook Police Facility operating units. Among the examples, the office space allocations at the supervisory level in the respective areas have incorporated "in-office" conferencing space. In essence, it combines an office space and a conference room into one more efficient space than would be achieved with two separate spaces. Other office standards isolate the conferencing function and reduce the office size. In these cases, the programming concept includes appropriate scheduling and sharing of these conferencing spaces between units. Except for unit supervision, work areas space standards emphasize "open office" workstations. This kind of accommodation allows the greatest flexibility for changes in staffing and staff groupings, and are more economical in their requirement for overall building space.

In the various workspace standards, alternative furnishings arrangements are shown. These are not intended to limit or recommend the adoption of particular patterns of space utilizations, but instead are shown to help in conveying the capabilities of particular space sizes to support personnel activities.

The Space standards which follow in this section have also been prepared to accommodate Federal ADA (Americans With Disabilities Act) requirements and recognized professional requirements. Accordingly, they represent mandated minimums in certain of their dimensional tolerances.

Finally, the standards which follow present the more repeated types of spaces and do not attempt to depict every space that is described in the program. Various specialized space standards, however, are depicted.

Table of Contents:

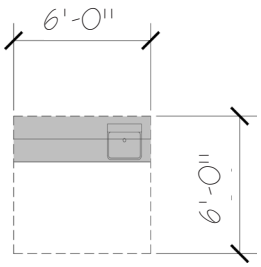
Key:

.....Telephone

.....Printer

.....Computer

.....Handicap Circulation Radius

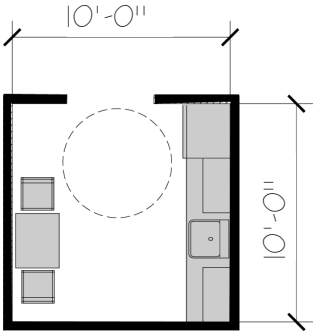


B-36

Designated Area:

Admin.
Invest.

Net Square Feet: 36

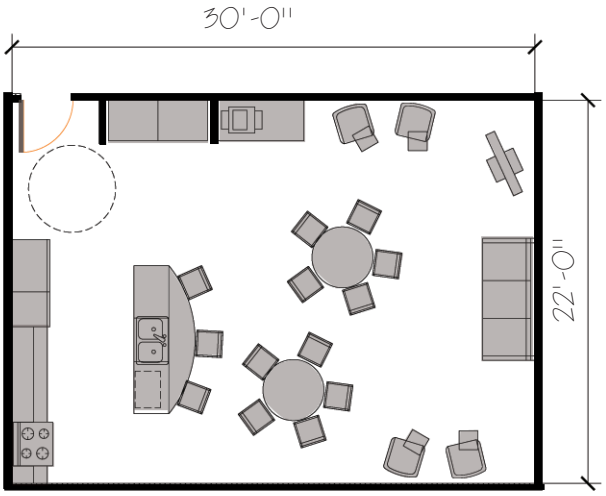


B-100

Designated Area:

Communications

Net Square Feet: 100



B-660

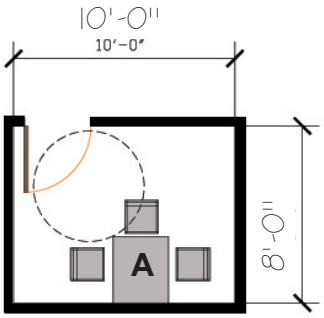
Designated Area:

Break Room

Net Square Feet: 660

Legend:

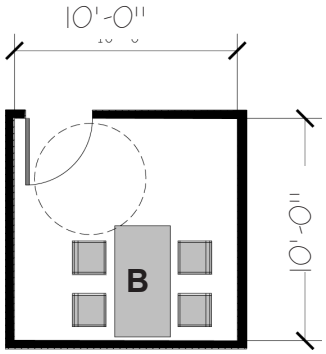
A	36x30" Table
B	30"x60" Table
C	36"x60" Table
D	72"x24" Table
E	White Board/Screen
F	90"x24" Table
G	Counter/Desk
H	Credenza/Side Table
I	Side Table
J	Lounge Seating
K	Lecturn
L	Sink/UnderCounter Refrig.
M	Shelving



C-80

Designated Area:

Net Square Feet: 80

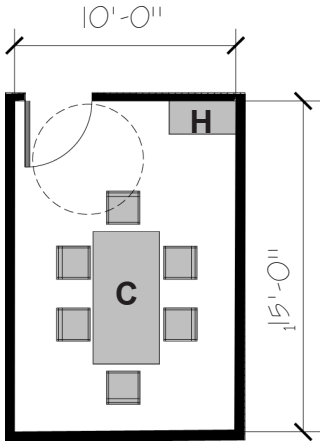


C-100

Designated Area:

Investigations: (2)
Lobby: (1)
Intake/Holding: (2)

Net Square Feet:100



C-150

Designated Area:

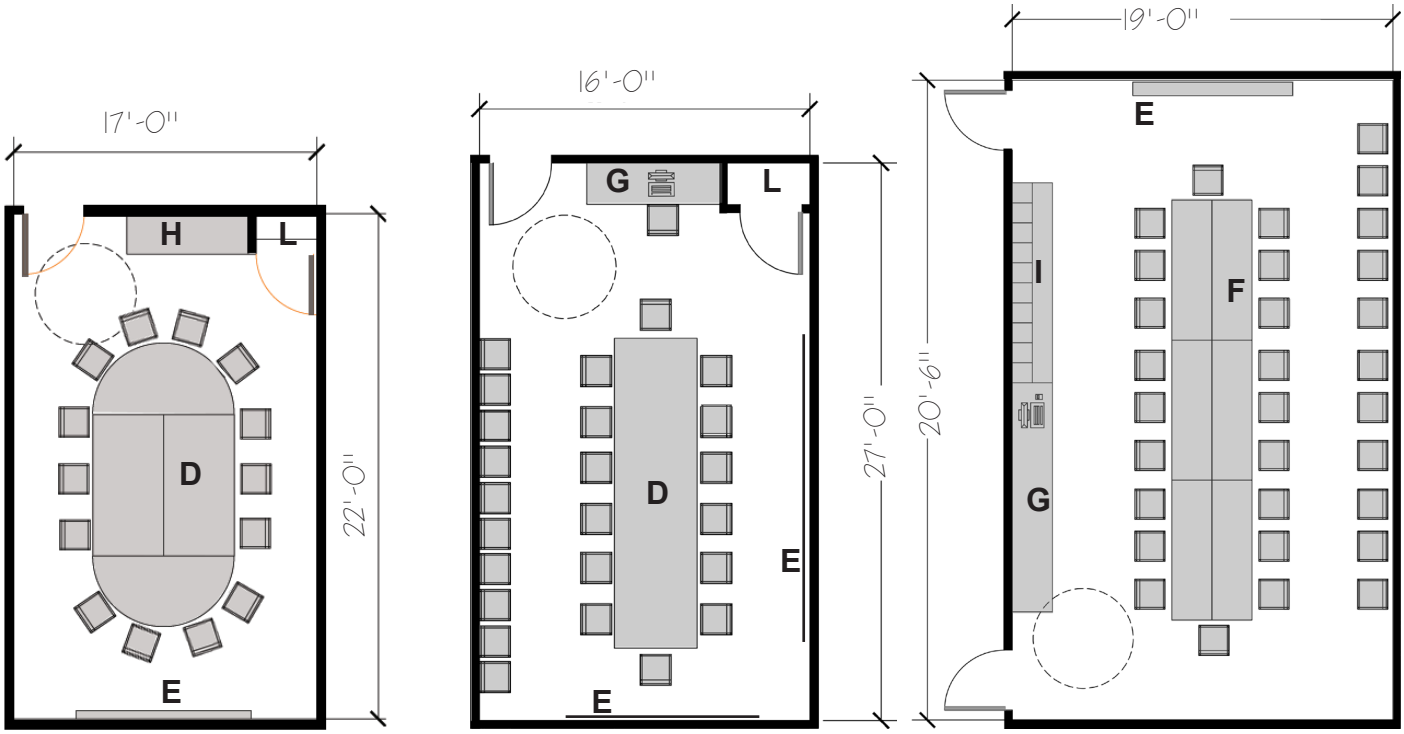
Interview Area: (1)

Net Square Feet:150

Legend:

A.....36x30" Table
B..... 30"x60" Table
C..... 36"x72" Table
D.....Modular Training Table
E..... White Board/Screen/Tack Bd
F .....84"x24" Training Table
G..... Counter/Computer Desk
H.....Credenza/Side Table
I.....Mail Boxes
J.....Lounge Seating
K..... Lecturn
L.....Storage
M..... Shelving

Conference Area **C-1** DRAFT



C-375

Designated Area:

Administration: Executive Conf.

Net Square Feet: 375

C-432

Designated Area:

Investigations: Major Case

Net Square Feet: 432

C-608

Designated Area:

32x19
Patrol: Roll Call/ Briefing

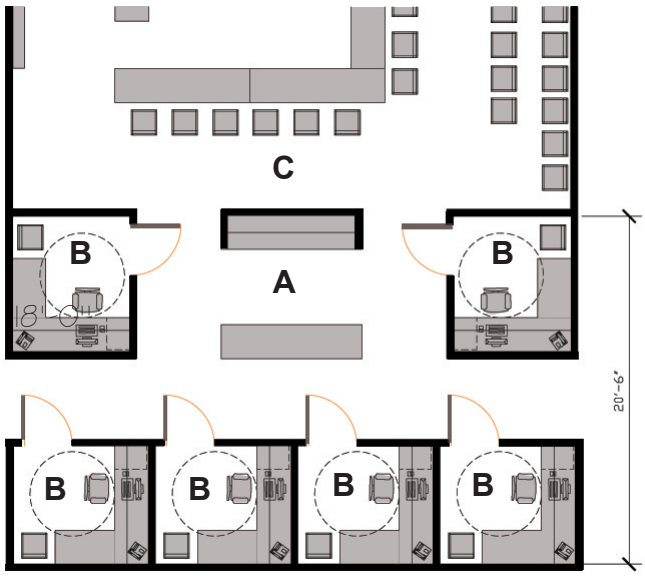
Net Square Feet: 608

Legend:

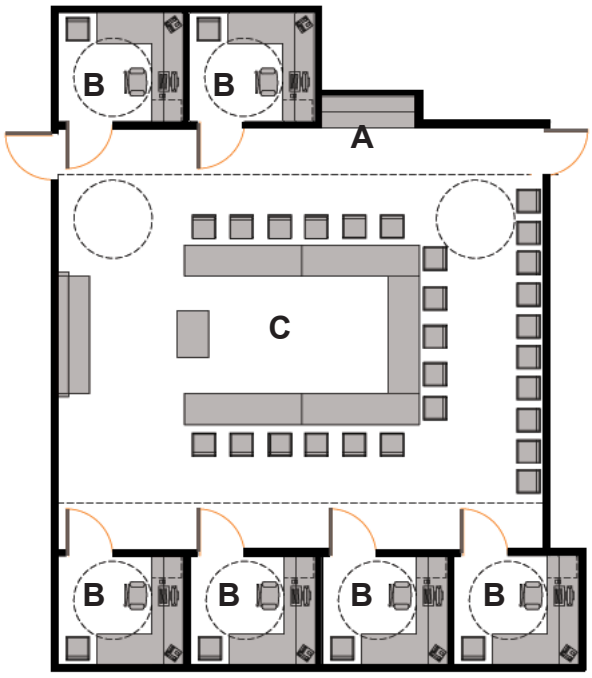
A	36x30" Table
B	30"x60" Table
C	36"x72" Table
D	Modular Training Table
E	White Board/Screen/Tack Bd
F	84"x24" Training Table
G	Counter/Computer Desk
H	Credenza/Side Table
I	Mail Boxes
J	Lounge Seating
K	Lecturn
L	Storage
M	Shelving

Conference Area **C-2**

DRAFT



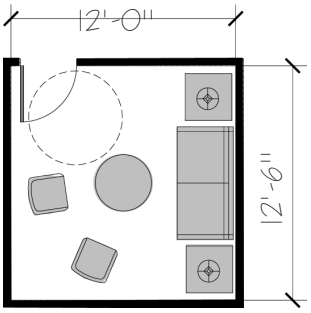
(1)



(2)

Legend:

A..... Forms/Copy/Storage
B..... Sergeant Work Area
C..... Roll Call Room

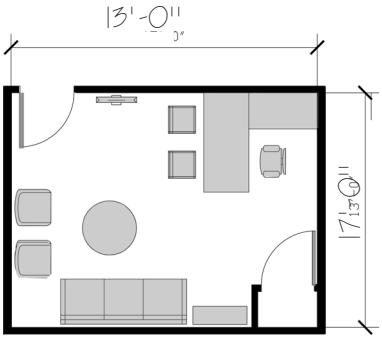


C-S150

Designated Area:

Counsel. Serv.: (2)

Net Square Feet: 150



C-S220

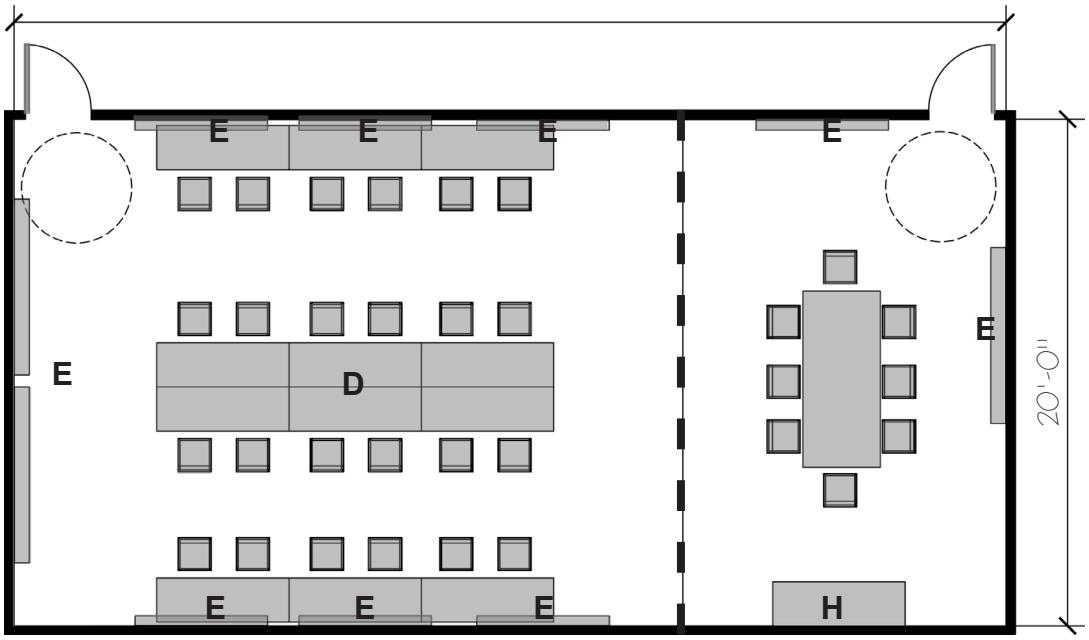
Designated Area:

Counsel. Serv.: (1)
Interview Area: (1)

Net Square Feet: 220

Legend:

A.....36x30" Table
B.....30"x60" Table
C.....36"x72" Table
D.....Modular Training Table
E.....White Board/Screen/Tack Bd
F.....84"x24" Training Table
G.....Counter/Computer Desk
H.....Credenza/Side Table
I.....Mail Boxes
J.....Lounge Seating
K.....Lecturn
L.....Storage
M.....Shelving



C-1035

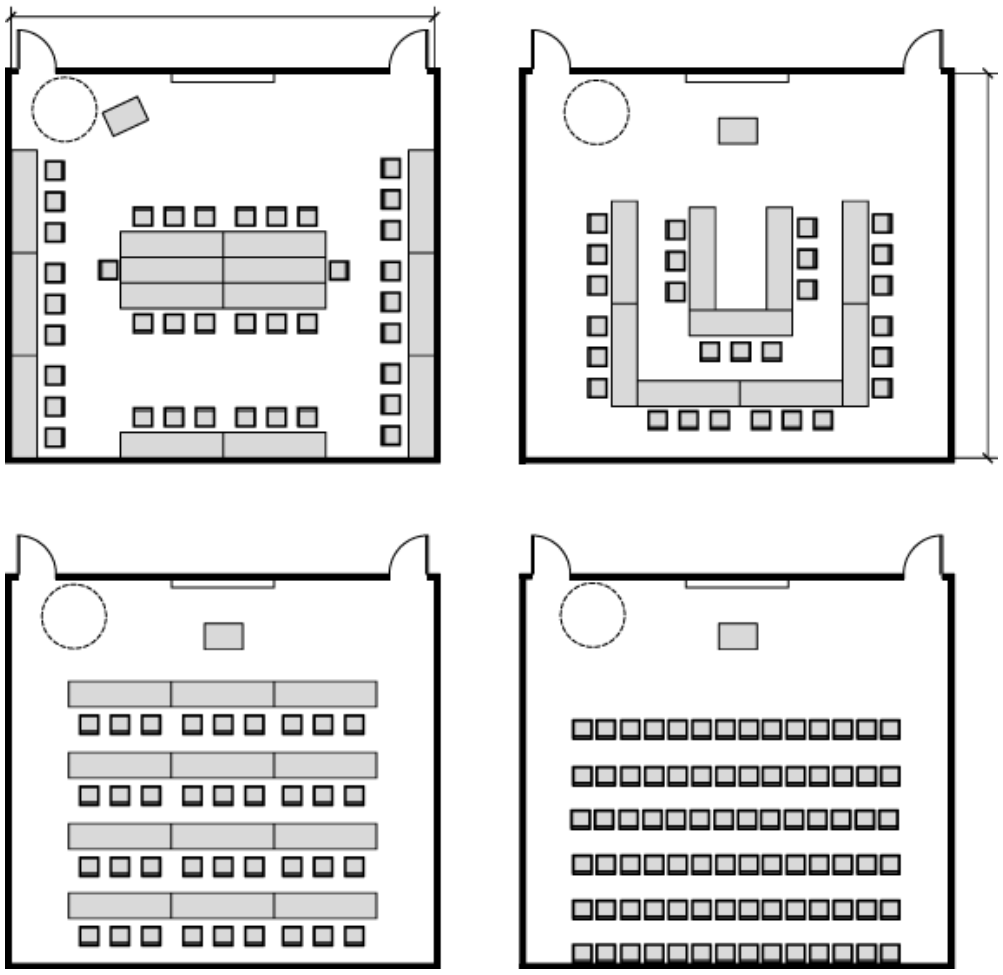
Designated Area:

Emergency Operations Center

Net Square Feet: 1035

Legend:

A	36x30" Table
B	30"x60" Table
C	36"x72" Table
D	Modular Training Table
E	White Board/Screen/Tack Bd
F	84"x24" Training Table
G	Counter/Computer Desk
H	Credenza/Side Table
I	Mail Boxes
J	Lounge Seating
K	Lecturn
L	Storage
M	Shelving
N	Modular Wall Partition



C-990

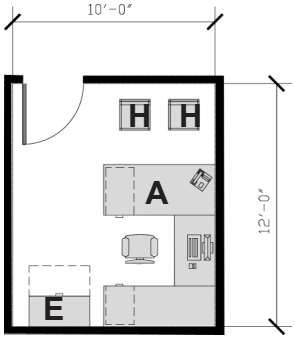
Designated Area:

Training Room

Net Square Feet: 990

Legend:

A.....36x30" Table
B..... 30"x60" Table
C..... 36"x72" Table
D.....Modular Training Table
E..... White Board/Screen/Tack Bd
F .....84"x24" Training Table
G..... Counter/Computer Desk
H.....Credenza/Side Table
I.....Mail Boxes
J.....Lounge Seating
K..... Lecturn
L.....Storage
M..... Shelving

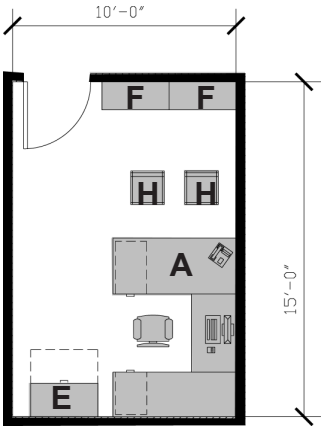


O-120

Designated Area:

Admin: Admin. Asst.-Chief
Admin: Asst./ Prop. Off.- DC
Invest.: Sqt.
Patrol: Sqt
Property/ Evid.: Custodian Off.

Net Square Feet: 120

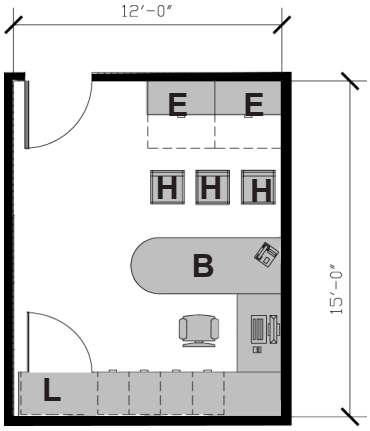


O-150

Designated Area:

Admin.: Training/ Planning Sqt.
Investigations: Commander
Patrol: Commander
Records: Supervisor
Communications: Supervisor
Community Relations: Supervisor

Net Square Feet: 150



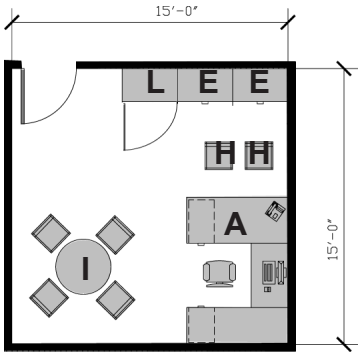
O-180

Admin: Internal Serv. Admin.

Net Square Feet: 180

Legend:

A..... 66"W U-Shaped Work Area w/ Files
B .....U-Shaped Work Area With Conf. Top
C .....72"W Double Pedestal Desk
D .....Credenza Work Area w/ Files
E ..... 36"W Lateral File Cabinet
F .....Book Case
G.....Printer/Tackboard
H.....Guest Chair
I.....36"D Conf. Table/Seating
J.....Lounge Seating
K.....Side Table
L.....Storage Wardrobe

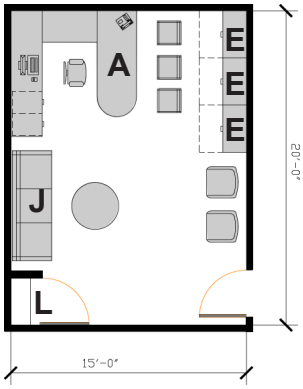


O-225

Designated Area:

Couns. Serv.: Director

Net Square Feet: 225

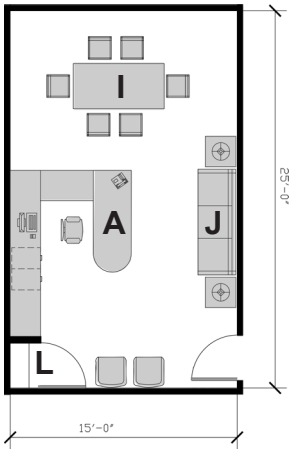


O-300

Designated Area:

Admin.: Deputy Chief

Net Square Feet: 300



O-375

Designated Area:

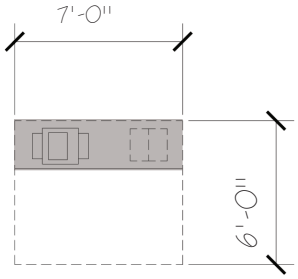
Admin.: Chief

Net Square Feet: 375

Legend:

A..... 66"W U-Shaped Work Area w/ Files
B .....U-Shaped Work Area With Conf. Top
C .....72"W Double Pedestal Desk
D .....Credenza Work Area w/ Files
E ..... 36"W Lateral File Cabinet
F .....Book Case
G.....Printer/Tackboard
H.....Guest Chair
I.....Conf. Table/Seating
J.....Lounge Seating
K .....Side Table
L.....Storage Wardrobe

Office Work Area **O-2** DRAFT

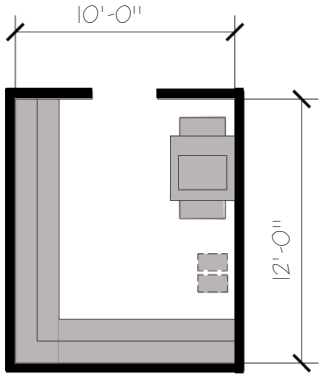


WA-42

Designated Area:

Copy/ Printer:
Investigations
Patrol
Communications
Counseling Services

Net Square Feet: 42

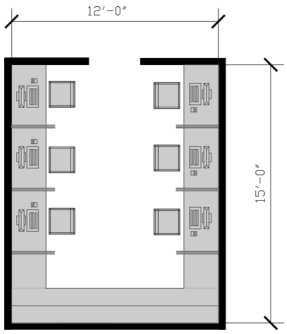


WA-120

Designated Area:

Copy/ Work:
Admin.
Records

Net Square Feet: 120

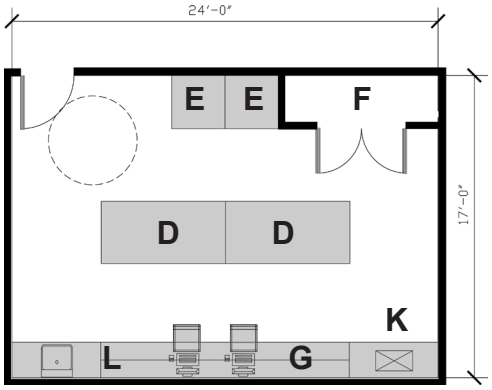


WA-180

Designated Area:

Patrol: Report Writing Room

Net Square Feet: 180



WA-408

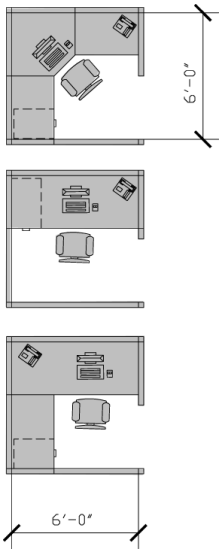
Designated Area:

Evidence Tech. Processing

Net Square Feet: 408

Legend:

A	36x30" Table
B	30"x60" Table
C	36"x60" Table
D	72"x36" Table
E	Drying
F	Storage
G	Counter/Desk
H	Credenza/Side Table
I	Side Table
J	Lounge Seating
K	Fume Hood
L	Sink/UnderCounter Refrig.
M	Shelving

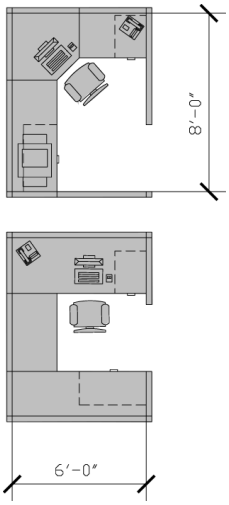


WS-36

Designated Area:

Records: Intern
Records: Microfilm Scanner
Records: Patrol Off. Temp. Station
Couns. Serv: Client Work Area
Intake/ Hold: Officer Work Area

Net Square Feet: 36

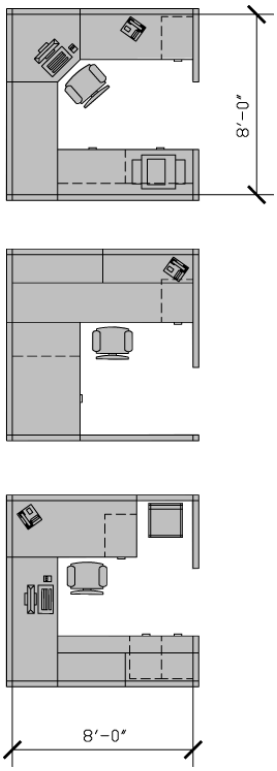


WS-48

Designated Area:

Admin: Clerk
Patrol: Traffic Officer
Records: Clerk
Couns. Serv: Social Worker
Commun. Rel: Service Officer

Net Square Feet: 48



WS-64

Designated Area:

Investigations: Crime Analyst
Investigations: Detective
Investigations: Tact. Officer
Investigations: HS Liason
Communications: Dispatch
Commun. Rel: Animal Warden

Net Square Feet: 64

Legend:

Possible Components Include:

Under Counter Pedestal/File
Under Counter Lateral File
Overhead Shelving
Guest Seating
Wardrobe Closet
Task Lighting
Tack Surface

6.0

Options

6.1 Introduction of Options

Following the development of the Space Needs Program for the Northbrook Police Department, together with completion of the Existing Facility Problems analysis, attention was turned to the options that could be considered to meet these needs.

The following options are identified and reported upon:

Option 1:

Remedy the identified deficiencies and operational inadequacies of the Northbrook Police facility at the existing building, expanding building space as needed while maintaining all operational units at the ground floor level. This option incorporated re-use of the existing garage for police vehicle parking, expanded under the new construction to provide all weather protection for police vehicles and equipment.

Option 1a:

Address the identified deficiencies and operational inadequacies of the Northbrook Police facility at the existing site, with major expansion of the building space by multi-floor construction construction, and providing outdoor surface parking for the majority of all police vehicles.

6.1 Introduction of Options Cont.

Option 2:

Construct a new Police facility at another location and sell the existing property, if not suitable for other Village uses.

In order to provide the Village of Northbrook with information that will be important for decision-making, the next activities undertaken in the development of this consultant study have been in the exploration of the feasibility of Option **1**, followed by the review of Option **1a** and Option **2.**

It is recognized at the outset that if Option **1** or Option **1a** cannot be developed to meet the Police Department space needs, the required functional relationships, and on-site parking capacities for public and staff, then Option **2** will be the only recourse available.

6.2 Option 1 Detail

The first finding in the assessment of Option **1** is that the Police Department operations would need to be temporarily relocated during a period of facility modification and expansion. This has been done in other similar projects, and in each case has been contingent upon the municipality having an available structure for short-term use by the Police. "Short-term", depending upon individual project circumstances, could mean two (2) years, plus or minus. In these other examples, an empty school has sometimes been used, or empty portions of other municipally-owned properties. Minor adaptations have been put in place for the general Police occupancies, while prisoner processing and holding have been accomplished through cooperative agreements with adjacent municipalities during the period of temporary occupancy. The use of cooperative agreements has also been relied upon with communications and dispatch, although there are precedents where communications has stayed on-site, using a trailer and hook-up to an existing tower during a renovation/construction period.

In the instance of the existing Northbrook Police Facility, the existing facility problems include dysfunctional locations of its various operational components. These problems are identified and described in detail within the "Identified Problems" section of this report. Their proliferation throughout the building does not allow for them to be remedied while operations are being continued within the facility. Also, the overlapping of contractor activities with seven days-per-week, 24-hour per day police activities would not be feasible.

6.2 Option 1 Detail Cont.

Accordingly, Option **1** seeks to make maximum use of the existing police facility resource while developing an entirely different and more functionally efficient allocation of space use within it. To the extent that all the space needs of the Northbrook Police Department operations do not fit within the existing building, the ability for the existing building to be expanded has been explored.

In this process, Option **1** attains more efficient space use and a reduced percentage of the building area devoted to corridors. Travel distances between functions are reduced and operational benefits attained at the same time. The investment that is represented in the original construction of the Northbrook Police Facility is continued in its service to the Village of Northbrook. The portions of that construction that have outlived their useful service life are replaced with new systems.

In the pages that follow, "blocking plans" are presented which show individual functional components scaled for their space program need, and located in a proposed organization to meet Northbrook Police Department operational needs.

For maximum efficiency, all principal operating components are located at the same level. Support spaces are located in the Basement. Each of these levels are expanded to meet space needs, as shown in the diagrams that follow.

Conventional "Bubble Diagrams", showing desirable functional relationships, are adapted in this report to accomplish the same communication...but in the context of the floor plan diagrams. Accordingly, a series of important topics are addressed in the context of the proposed plan arrangements in the following materials. These topics include:

- Clustering of Daily Operations Components
- Prisoner Holding-Bond-Release Flow
- Immediate Lobby Access Grouping
- Evidence Intake with Bag-Tag-Procesing-Impound Vehicle Access

The related diagrams illustrate how the desirable relationships for these functions are accomplished in the plan concept.

6.2a Option 1 Organizational Concept

ORGANIZATIONAL CONCEPT

Option 1 has been developed to eliminate the documented deficiencies of the existing police facility, by re-purposing and re-using all existing building space, and adding to it to meet the identified space shortages.

The organization of the functional components (Patrol, Investigations, Holding, Administration, etc.) responds to the operational needs expressed by Northbrook Police staff during the interview process and questionnaire responses received from all areas of operations. Instead of the present remote separations of key functions, they are grouped close together to provide short travel distances and the elimination of inappropriate and unsecured movement conflicts. Reference is made to the Component Relationship Diagrams appearing in this report following the floor plan pages.

Functional zoning allows the creation of secure zones within the building to prevent detainee movements through adjacent operational areas or exterior access.

In addition, communications staff responsibilities for periodic detainee checks is assisted by their location immediately adjacent to prisoner Holding, rather than at the opposite end of the building as it is at present.

Administration is located in close proximity to Patrol, Investigations and other offices, eliminating the existing awkward and inefficient movements that are required through the facility throughout the day.

Increased operational efficiency and increased levels of inter-staff communications and service to the public is supported by the configuration that is recommended in the accompanying plans.

It is also a part of the planning concept to incorporate interlocked vestibule doors between the secured detainee zone and the exterior to control movements into and out of the secure zone. Locking devices with controlled access are proposed to prevent unauthorized access into police operational areas.

This page has been removed pursuant to 5 ILCS 140 Sec 7(1)(e) and 7(1)(k).

6.3 Option 1a Detail

This option, which seeks to meet the Police space needs with multi-story construction in the same general area as the existing building, is found to bring the following features:

a. Unlike Option 1, which reuses the existing building structure and building envelope, entirely new construction would be required to achieve a new floor. Existing structure and building framing will not support the loads that come with an additional floor. A new Basement as well as First and Second floors would need to be built.

b. Like Option 1, the Police Department operations would need to housed at another location while the existing site is redeveloped.

c. The required dimensions of a new Firearms Training component with related support will not fit in the basement and will require new ground level construction on the site.

d. Ground level construction of the Firearms Training component will bring the need to address acoustic issues to mitigate a negative impact for the adjacent residential community.

e. The basic operational components of Administration, Patrol, Investigations, Prisoner intake and holding, Evidence, Lockers and Fitness Training will not fit on one floor within the required Option 1A footprint. At a minimum, Administration, Incident, Lockers and Fitness Training would need to be at the Second Floor, bringing increased movements and loss of convenient access for both police personnel and the public.

6.4 Option 2 Detail

Option **2** brings with it the need to identify and acquire a new Police Facility site, if it is not a property already owned by the Village.

As a guide to the needed size, it would need to be at least the size of the present site which has been found capable of accommodating the necessary building square footage and surface parking.

As in the planning concept that is proposed in Option **1** for the existing site, it is recommended that the primary operational components be located at the same level. These components include: Public Entry, Interview, Administration, Patrol, Investigations, Prisoner Sallyport-Holding-Interview, Communications, Records, Counseling, Community Outreach, Evidence Bag-Tag, Evidence Storage, Impound Vehicle, Break Area. The reason for this recommendation lies in the operational efficiency and increased level of inter-staff communications and service to the public that this configuration supports. Experience in the field provides ample evidence that when a police facility site has constricted dimensions that dictate a multi-level police facility design, the result will include reduced levels of communication between units and compromise in operational efficiency.

6.5 Overview of Option Benefits and Challenges

Option **1**:

- Re-uses existing space, reducing the amount of new construction required.
- Requires no property acquisition.
- Maintains existing communications tower services/location.
- Requires temporary relocation of police operations during renovation/construction.
- Requires cooperative agreements to hold prisoners during renovation/construction.
- Achieves optimal functional relationships of operational components at one floor level.
- Achieves weather protected parking for Police fleet vehicles, prolonging service life.

6.5 Overview of Option Benefits and Challenges -Cont.

Option **1a**:

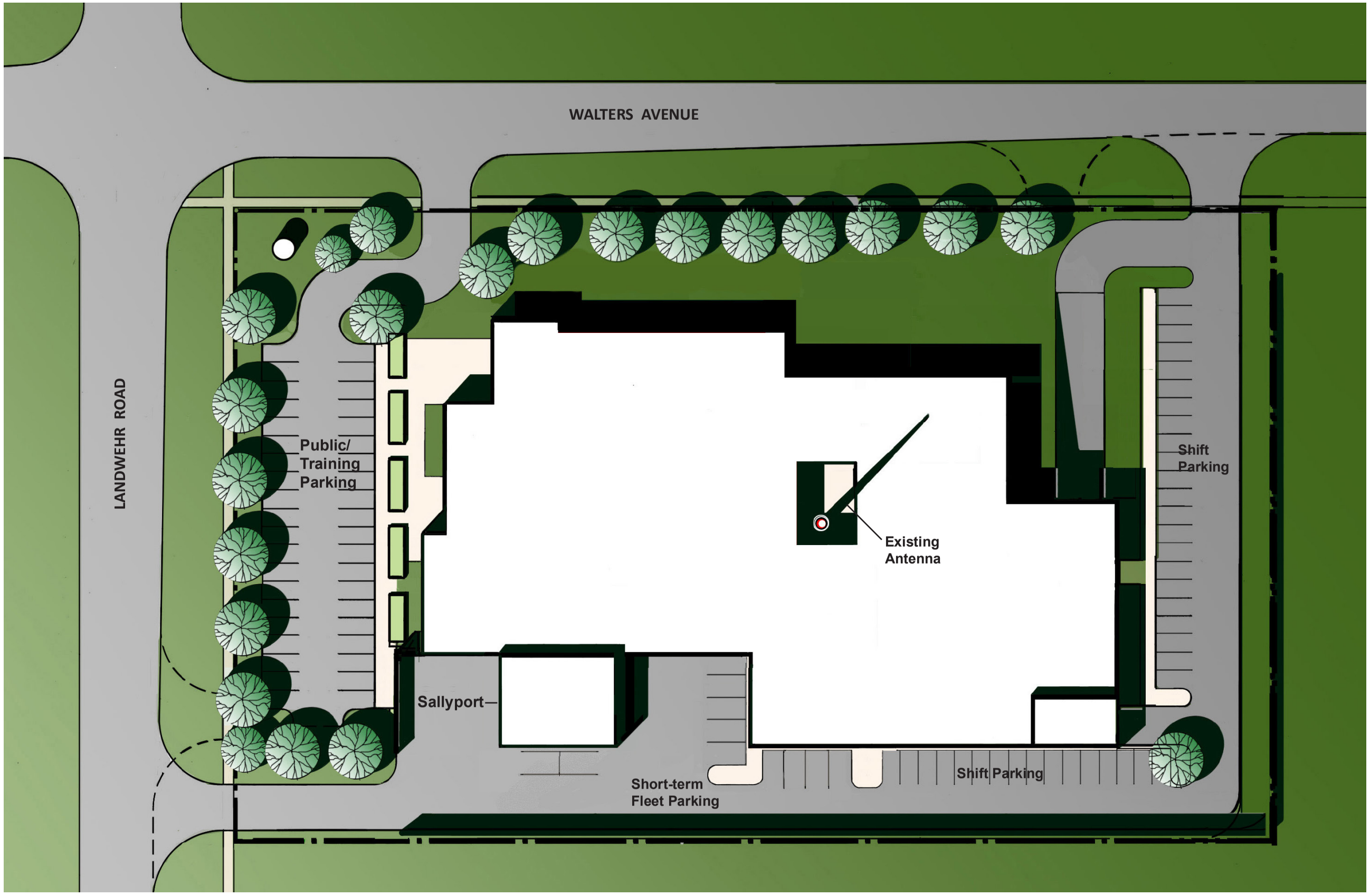
- Does not re-use existing space. Requires demolition of the existing building and construction of a new three level building in the general location of the existing building.
- Requires no property acquisition.
- Maintains existing communications tower services/location.
- Requires temporary relocation of police operations during renovation/construction.
- Requires cooperative agreements to hold prisoners during renovation/construction.
- Requires new grade level construction of a Firearms Training component, with issues of noise abatement.
- Police fleet parking is required to be outside, not weather protected.
- The basic operational components will not fit on one floor within the required Option 1A footprint, bringing increased movements and loss of convenient access for both police personnel and the public.

Option **2**:

- Requires site acquisition (potentially offset by sale of existing site).
- Allows Police to remain operational in the existing building throughout the construction period.
- Avoids the need for a cooperative agreement with another jurisdiction for prisoner processing/holding during the construction period.

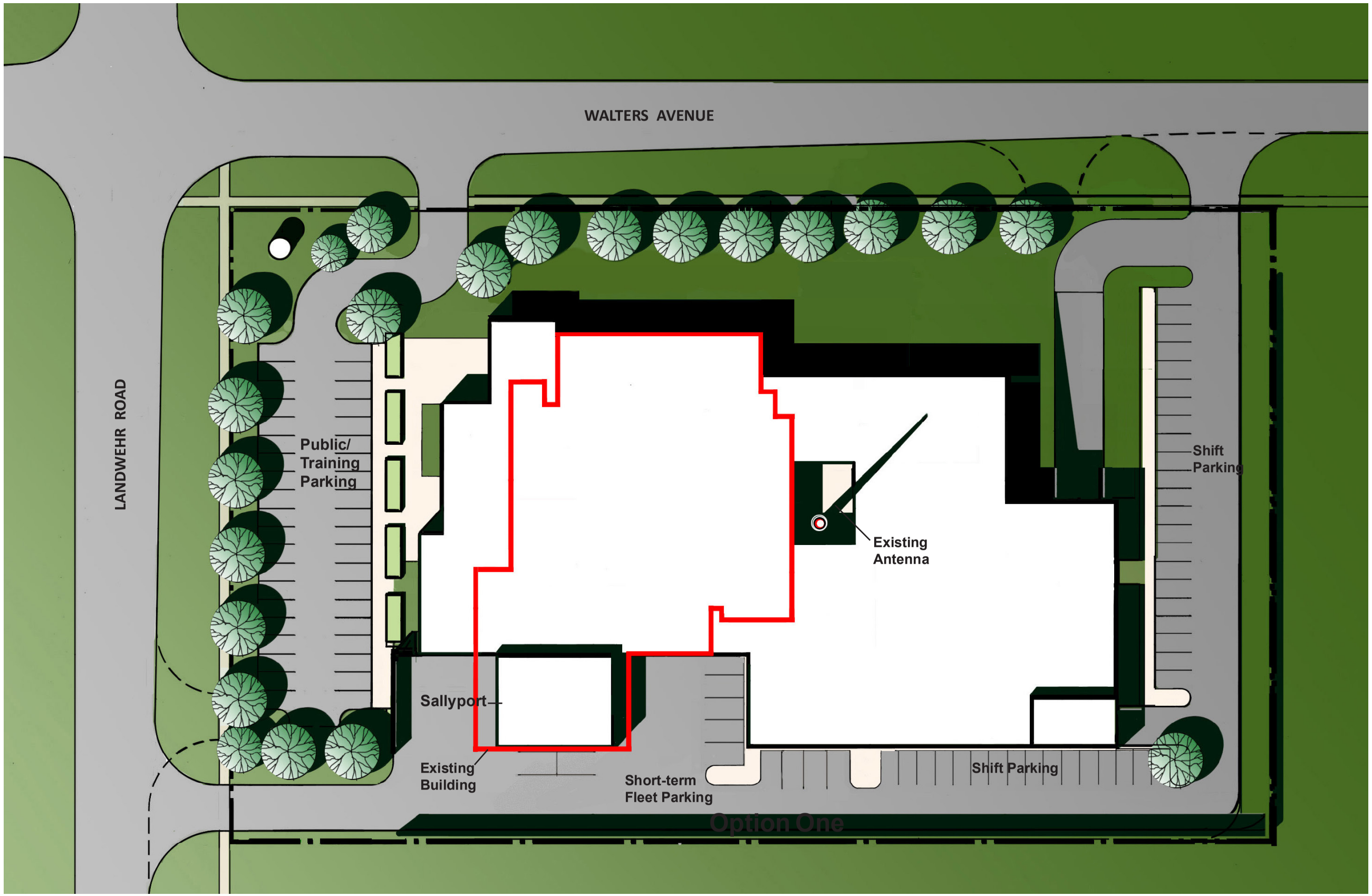
7.0

Options-Diagrams



7.1 Option 1

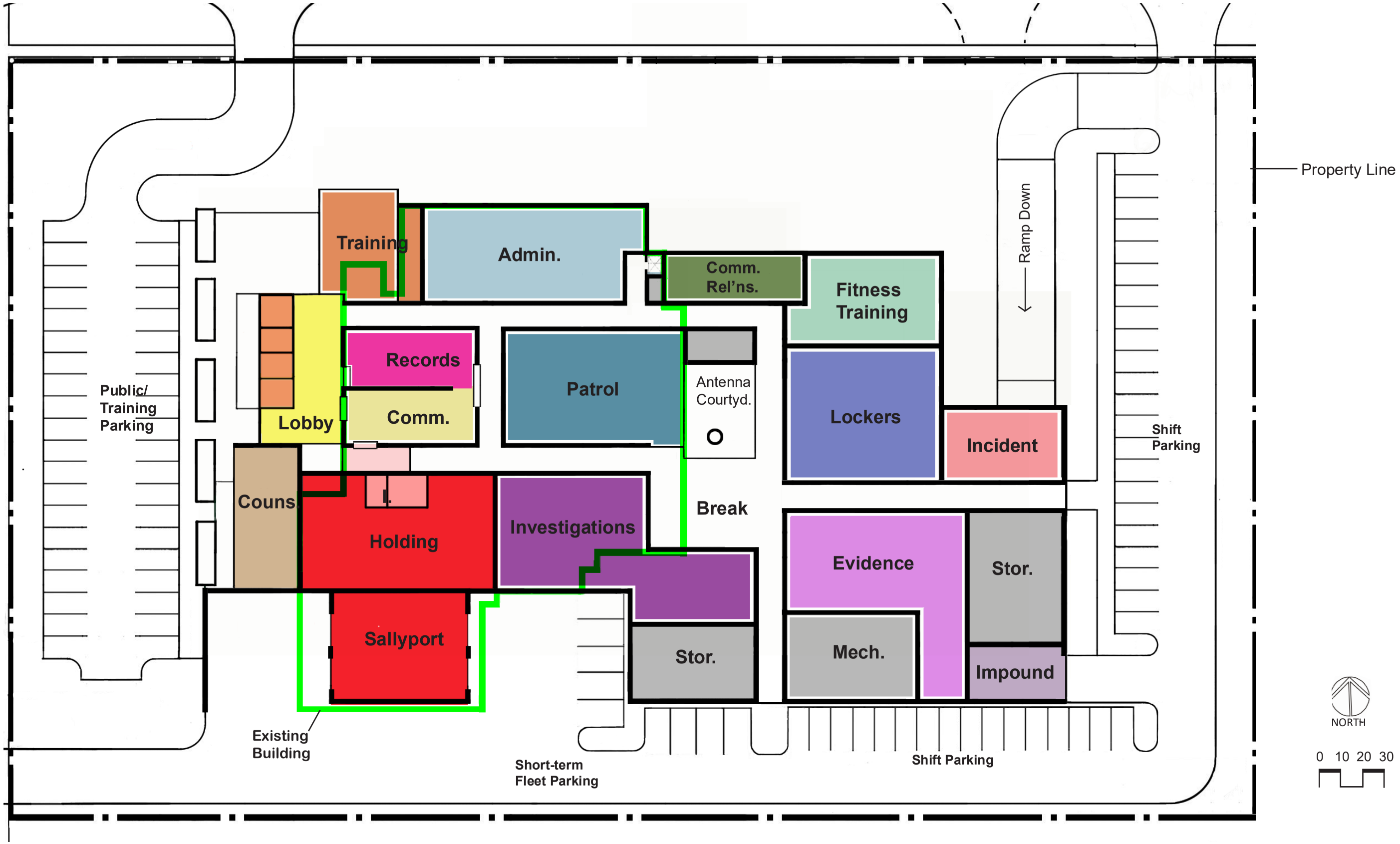
7.1a MASTER PLAN CONCEPT FOR EXISTING SITE RE-USE



7.1 Option 1

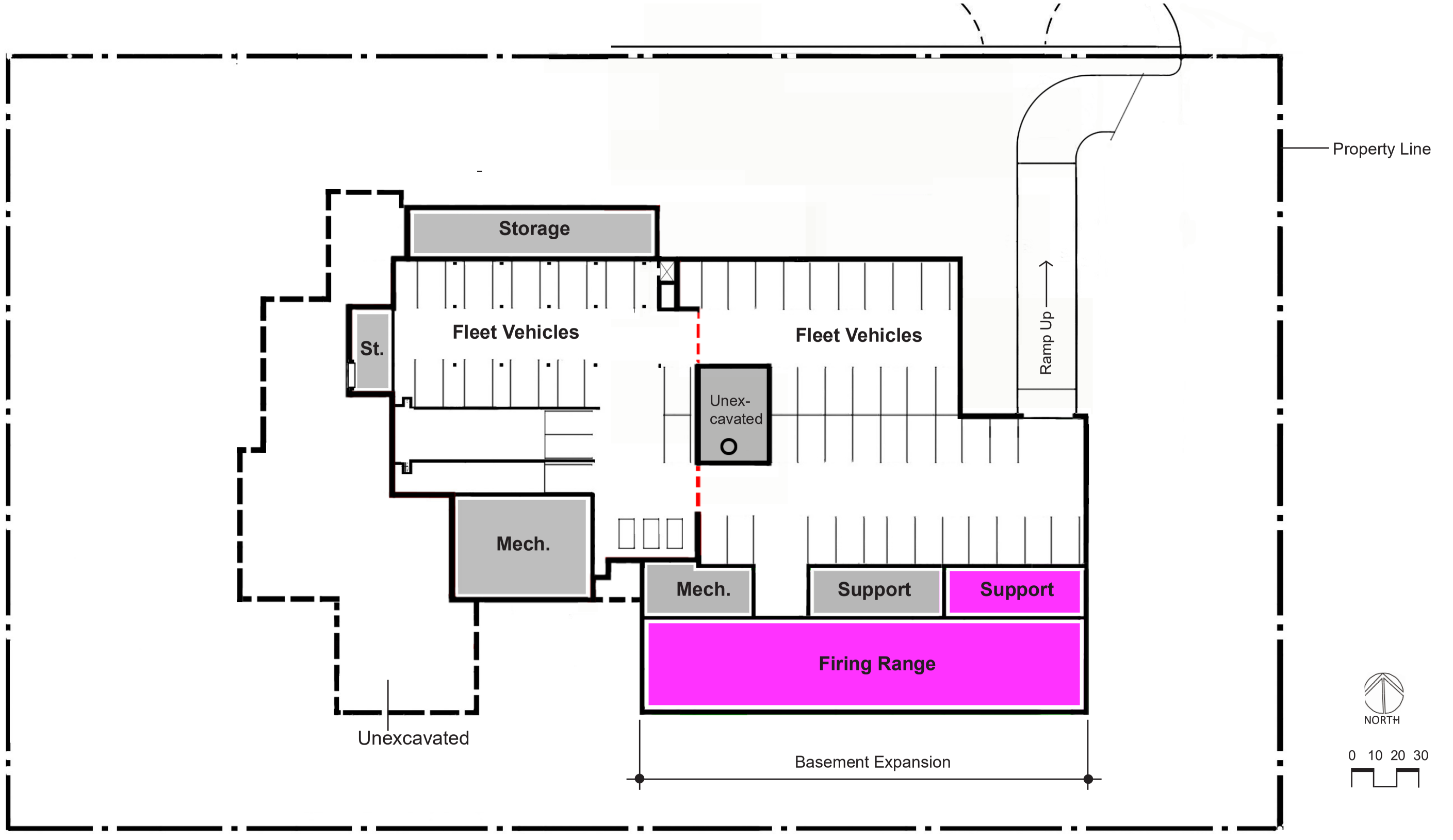
7.1b MASTER PLAN CONCEPT -Showing Existing Building Re-Use Relationship

DRAFT



7.1 Option 1

7.1c FIRST FLOOR "BLOCKING" PLAN

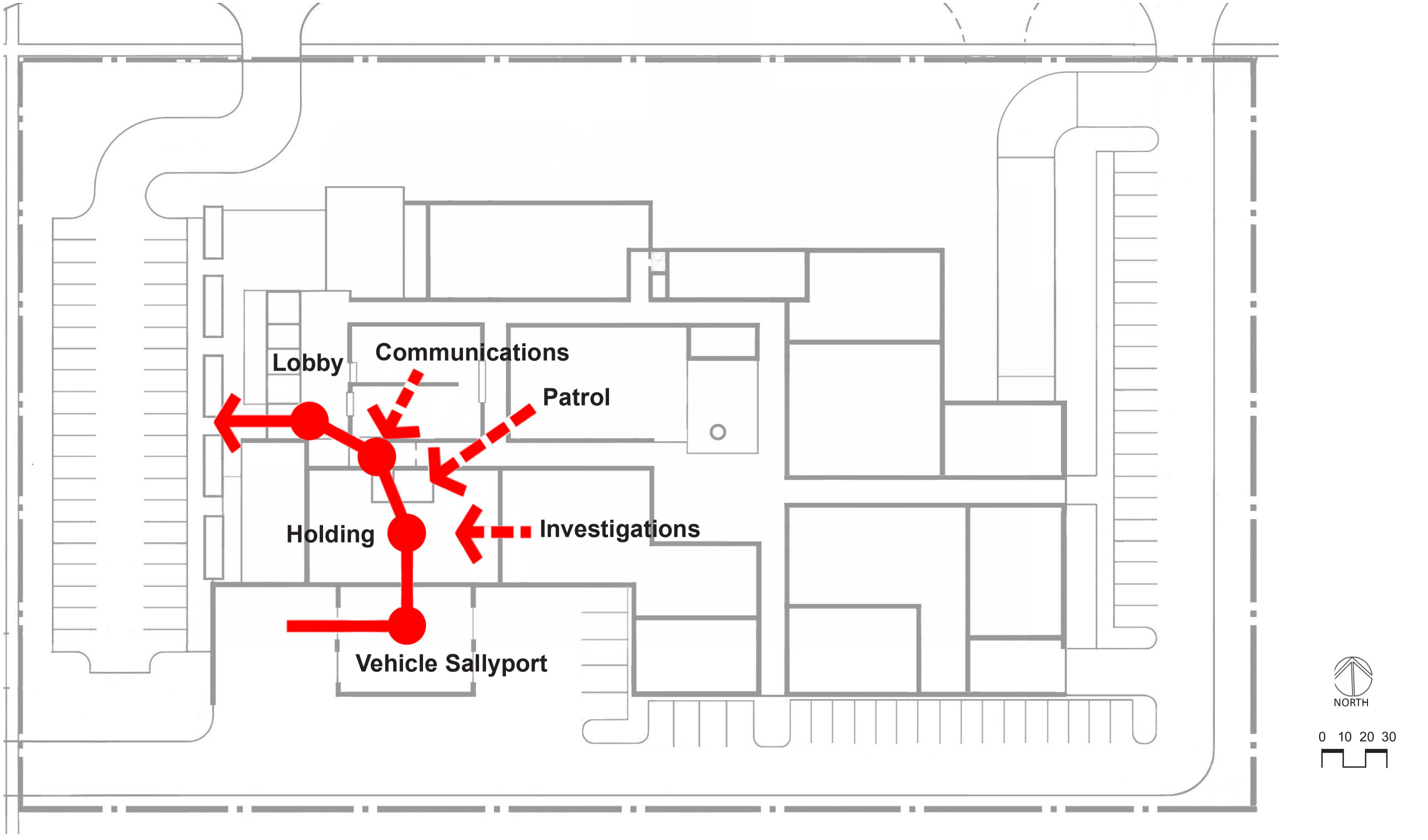


7.1 Option 1

7.1c BASEMENT LEVEL BLOCKING PLAN

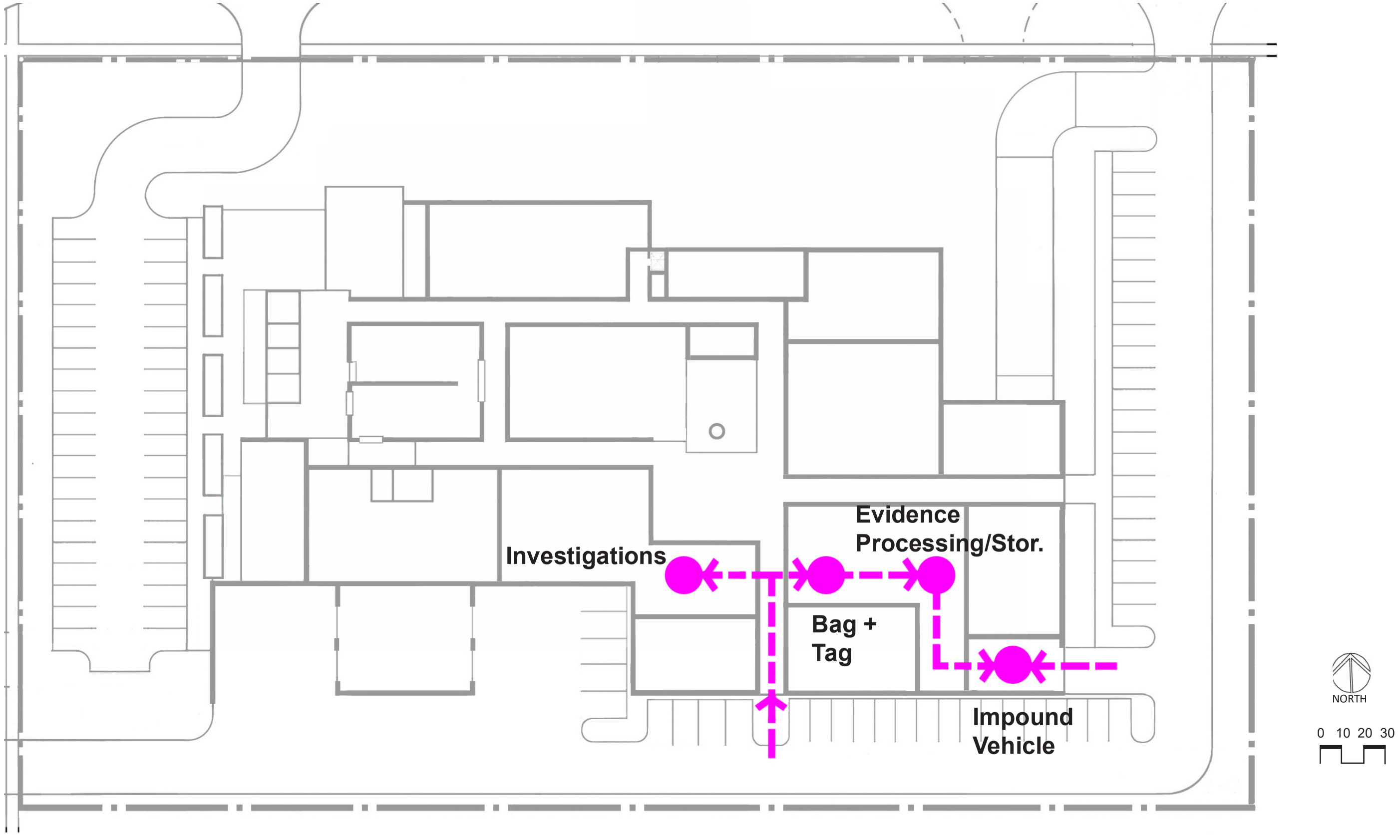
7.1 Option 1

7.1d CLUSTERING OF DAILY OPERATIONS COMPONENTS



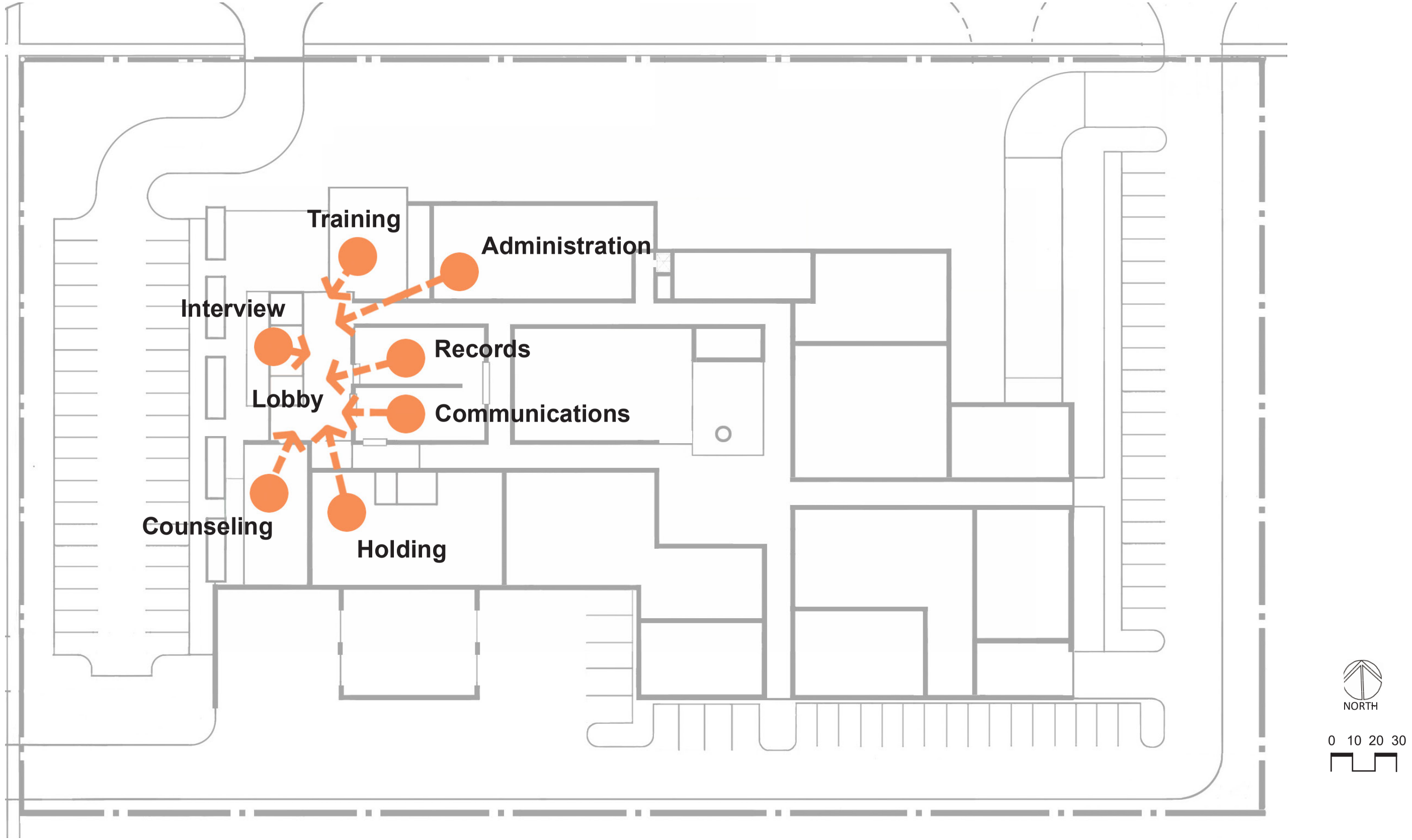
7.1 Option 1

7.1e PRISONER INTAKE-HOLDING-BOND-RELEASE



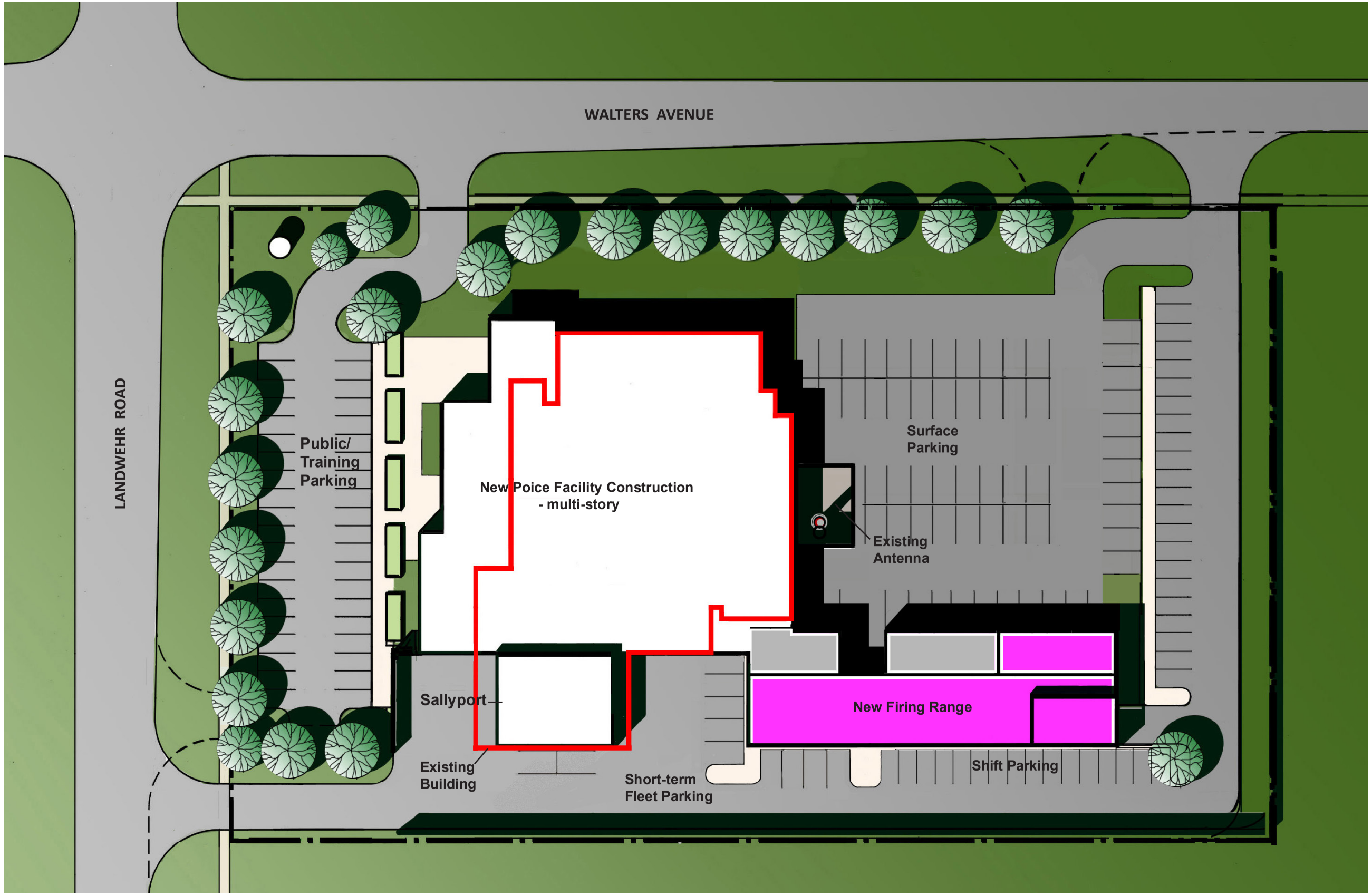
7.1 Option 1

7.1f EVIDENCE INTAKE with BAG+TAG-PROCESSING-IMPOUND VEHICLE ACCESS



7.1 Option 1

7.1g IMMEDIATE LOBBY ACCESS GROUPING



7.2 Option 1a

7.2a MASTER PLAN CONCEPT -Showing Existing Building Re-Use Relationship

DRAFT

8.0

Preliminary Cost Review

8.1 Introduction

At this early stage of project scope definition, detailed cost estimating is not feasible. However, a preliminary analysis can be developed which is based upon the use of cost-per-square foot allowances for the various categories of construction or renovation, and based upon cost experience in other similar projects.

Even under this procedure, no two projects are exactly the same in their complexity or other features. Other project cost experience is also influenced by the market conditions at the time it was bid, the volume of local construction activity affecting contractor interest and other factors.

Accordingly, the cost review for the Option 1 project scope for the Northbrook Police Department facility is very preliminary. It uses cost-per-square-foot allowances for the proposed renovation of existing space at three different levels:

Minor Renovation
Moderate Renovation
Major Renovation

It uses a different "average" cost-per-square-foot allowance for proposed new construction. A contingency allowance is added for project administrative costs, professional fees, FFE (Furniture, Fixtures and Equipment) and site development including landscaping.

The "square footage" calculations are based upon the Police space program presented in this report, combined with preliminary estimates of space needed for circulation (corridors), mechanical and other support space.

All of the above will be impacted by subsequent project development going forward, including decision-making by the Village of Northbrook concerning project features.

8.1 Tabulation

Northbrook Police Department -

Area	Total: SF	Existing Building Total: SF	MINOR RENOVATION SF	MINOR RENOVATION Allowance	MODERATE RENOVATION Existing Building SF	MODERATE RENOVATION Existing Building Allowance	MAJOR RENOVATION Existing Building SF	MAJOR RENOVATION Existing Building Allowance	NEW CONSTRUCTION SF	NEW CONSTRUCTION Allowance	Total: Total: SF	Total: Total: $	NOTES Info Info
Police Department - Option 1				$80		$160		$240		$320			
A1. Administrative	3,347						3,347	$803,280			3,347	$803,280	
A2. Investigations	3,561						2,100	$504,000	1,461	$467,520	3,561	$971,520	
A3. Patrol	3,618						3,618	$868,320			3,618	$868,320	
A4. Communications	1,023						1,023	$245,520			1,023	$245,520	
A5. Records	1,266						1,266	$303,840			1,266	$303,840	
A6. Counseling Services	1,511								1,511	$483,520	1,511	$483,520	
A7. Community Relations	1,077								1,077	$344,640	1,077	$344,640	
B1. Lobby	1,099								1,099	$351,680	1,099	$351,680	
B2.Training Room	1,287						300	$72,000	987	$315,840	1,287	$387,840	
B3. Interview Areas	473								473	$151,360	473	$151,360	
B4. EOC	1,480								1,480	$473,600	1,480	$473,600	
B5. Break Area	1,080						540	$129,600	540	$172,800	1,080	$302,400	
B6. Intake Holding	2,547						2,547	$611,280			2,547	$611,280	
B7. Sallyport	1,987								1,987	$635,840	1,987	$635,840	
B8. Property/Evidence	3,692								3,692	$1,181,440	3,692	$1,181,440	
B9. Impound Bay	743								743	$237,760	743	$237,760	
B10. Locker Room	3,570								3,570	$1,142,400	3,570	$1,142,400	
B11. Fitness Training	1,980								1,980	$633,600	1,980	$633,600	
B15. Antenna area	700						700	$168,000			700	$168,000	
B15. Antenna Sup. & Police Equip.	1,100						1,100	$264,000			1,100	$264,000	
								$3,969,840	20,600		37,141	$10,561,840	
Building Circulation Factor -35%	12,999						5,789		7,210				
Total 1st floor:	**50,140**	**25,120**					**22,330**	**$5,359,284**	**27,810**	**$8,899,200**	**50,140**	**$14,258,484**	
Basement- INCLUDES:										$240			
B12. Fire Arm Training	8,543								8,543	$2,050,320	8,543	$2,050,320	
B13. Storage	2,217								2,217	$532,080	2,217	$532,080	
										$150			
B14. Enclosed Garage	22,315		5,000	$400,000					15,612	$2,341,800	20,612	$2,741,800	
Subtotal:	**33,075**		**5,000**	**$400,000**					**26,372**	**$4,924,350**	**31,372**	**$5,324,200**	
Building Circulation Factor -35%	11,576												
Total basement:	**44,651**	**18,279**	**5,000**	**$400,000**					**26,372**	**$4,924,350**	**31,372**	**$5,324,200**	
Site Reconfiguration													
Parking Lot Reconfiguration									87	$4,000		$348,000	87 stalls
Total : *	**94,792**										**81,512**	**$19,930,684**	

*Temporary re-location costs not included.

*The total garage area in Option 1 includes existing.

does not contribute to parking capacity and would not be constructed in Option 2.

*Option 1 - On-Site and Off-Site grading, utilities, and storm water management costs have not been included in this estimate. Costs for an engineered solution will need to be added.

Security Systems Equipment	$230,000
Project Contingency 15%	$2,989,603
Adm/Fees/Exp. 10%	$1,993,068
FF&E 7%	$1,395,148
Inflation 5.5%	$1,096,188
Total: Preliminary Project Cost Estimate:	**$27,634,691**

Police Department - Option 2

	Total: SF	SF	SF	Allowance	SF	Allowance	SF	Allowance	SF	Allowance	SF	$	
Total : *	**84,337**								**84,337**	**$26,987,840**	**84,337**	**$26,987,840**	
Site Reconfiguration													
Parking Lot Reconfiguration									86	$4,000		$344,000	86 stalls

*Option 2 - Requires acquisition of a site for a new Police Facility. Cost of a new site is not included in this review, nor is any revenue realized from a sale of the existing Police site.

*Option 2 - On-Site and Off-Site grading, utilities, and storm water management costs have not been included in this estimate. Costs for an engineered solution will need to be added.

Security Systems Equipment	$230,000
Project Contingency 15%	$4,048,176
Adm/Fees/Exp. 10%	$2,698,784
FF&E 7%	$1,889,149
Inflation 5.5%	$1,484,331
Total: Preliminary Project Cost Estimate:	**$37,682,280**

Police Department - Option 1a

	Total: SF	Existing Building SF	DEMOLITION SF	DEMOLITION Allowance	SF	Allowance	SF	Allowance	SF	Allowance	Total: SF	Total: $	NOTES Info
		Total:	Existing Building							$320	Total:	Total:	Info
1st Floor-		25,120	25,120	$226,080					38,200	$12,224,000	38,200	$12,450,080	
2nd Floor-									27,137	$8,683,840	27,137	$8,683,840	
										$240			
Basement Floor-		18,279	18,279	$164,511					19,000	$4,560,000	19,000	$4,724,511	
Site Reconfiguration													
Parking Lot Reconfiguration									126	$4,000		$504,000	126 stalls
Total : *	**84,337**	**43,399**	**43,399**	**$390,591**					**84,337**	**$25,468,080**	**84,337**	**$26,362,431**	

*Temporary re-location costs not included.

*Option 1a - On-Site and Off-Site grading, utilities, and storm water management costs have not been included in this estimate. Costs for an engineered solution will need to be added.

Security Systems Equipment	$230,000
Project Contingency 15%	$3,954,365
Adm/Fees/Exp. 10%	$2,636,243
FF&E 7%	$1,845,370
Inflation 5.5%	$1,449,934
Total: Preliminary Project Cost Estimate:	**$36,478,343**

DRAFT

3. Northbrook Fire Department

DRAFT

Fire Department-Station 11 - Executive Summary

The Healy Bender I Moyer team were asked to develop a Facility Needs Report for the Village of Northbrook Fire Department Facility 11. The study result has developed out of a collaborative process between the consultant team and the Village of Northbrook personnel. The Fire Station 11 study process included the documentation of existing Station 11 operational issues and the assessment of facility space deficiencies, followed by the identification of the options that are available to the Village of Northbrook to respond the needs that were identified.

It is the finding of this study, based upon the information obtained through the entire process, that ***the existing facility fails to meet the current space needs and serve operational needs in multiple aspects.*** Among the notable deficiencies are the following:

- Inefficient organization of spaces.
- Inadequate space for all basic functions.
- Absence of dedicated space to support female personnel.
- Dangerous conditions for personnel movements.

The site context for Station 11 includes the connected Administration wing as well as the Maintenance/Storage building. The activities associated with these buildings came under review due to their need for access on the site, their support for Station 11 operations, as well as the interaction of Station 11 personnel with their functions.

In considering the options that could be available to meet Station 11 deficiencies, it was found necessary to include this context. When considering the best possible ways to configure and maximize the use of the Operations wing, it was found that the Administration wing and Warehouse provided both potential limitations and solutions. In order to create workable solutions, the entire site context and building occupancies were included in the assessment of Station 11 solution strategies.

The overall finding of this study, following the documentation of existing Fire Department Station 11 operational issues and the assessment of facility space deficiencies, is that the following options are available to the Village of Northbrook to respond the needs that have been identified:

Option 1:

Construct an addition immediately north of the Apparatus Bays to supplement the Station 11 operations support space, together with the construction of an expansion of the Fire Administration wing that is connected to Station 11 and expansion of the Warehouse to meet Station 11 operational needs with the combined space use opportunities in these expanded components.

- Northward expansion behind the Apparatus Bays and the reallocation of existing space within the station to ***meet space needs and keep main functions at the same floor level.***
- Administration wing is also expanded to the north to bring Fire Prevention to the first floor for ***improved public access and maximize the use of space at the second floor.***
- Existing Warehouse building is expanded to ***meet storage needs*** as well as providing an additional vehicle bay.
- ***Operational efficiency is served, code compliance is delivered and a safer work environment is provided for fire personnel.***

Fire Department-Station 11 - Executive Summary

Option 2:

Identify an alternative site for the construction of a new Station 11, together with the relocation of Fire Administration to either that site or another location.

- Construction of replacement fire facilities at a different site, contingent upon the identification of a suitable alternative location, its feasibility for acquisition as well as the availability of any cost savings that it might bring.

- Option 2 would involve a considerably greater amount of new construction and would ***most likely only be viable if the present site could be sold for a much greater amount of money than a new site would cost.***

The preliminary review of potential construction costs between the Options yields the following:

Option **1**	$7,630,207
Option **2**	$13,516,618

These numbers include building construction/renovation costs only, excluding any site acquisition expenses, sitework (excludng parking), storm drainage features, and temporary relocation costs.

Note: A variation of Option 2 would be the purchase of a current building and potentially renovate that property to serve Northbrook Fire Department needs. It is not possible to compare the operational feasibility or costs under this variation without the identification of the particular property and its analysis.

1.0

Overview of Fire Department - Station 11

1.1 INTRODUCTION

The consultant team, consisting of Moyer Associates Inc. and Healy, Bender and Associates, have applied professionally recognized practices and guidelines for public safety facilities to the specific circumstances of the Northbrook Fire Department Station 11 operations and facility resource. This work has been developed by the Moyer Associates Inc. Consultant team. During the course of its development, a close dialog and participation was maintained between the consultant and Northbrook Fire Department personnel. Frequent visits were made to Station 11 in the verification of conditions in different areas, the updating of original plans and discussion with staff.

The goal of this study is to determine the adequacy of the existing facility to meet current and projected needs, the identification of conditions that have a negative impact upon operations, and the development of solution alternatives that respond to identified shortcomings.

This first section provides an overview of existing facility problems and description of current Northbrook Fire Station 11 space occupancies. The Northbrook Fire Department personnel have been exemplary in their responsiveness to requests for information and in providing data to the study team. The following pages provide an overview of the operational problems that have been identified and the constraints that are presented by the existing building.

1.2
Functions

Northbrook Fire Department Administration

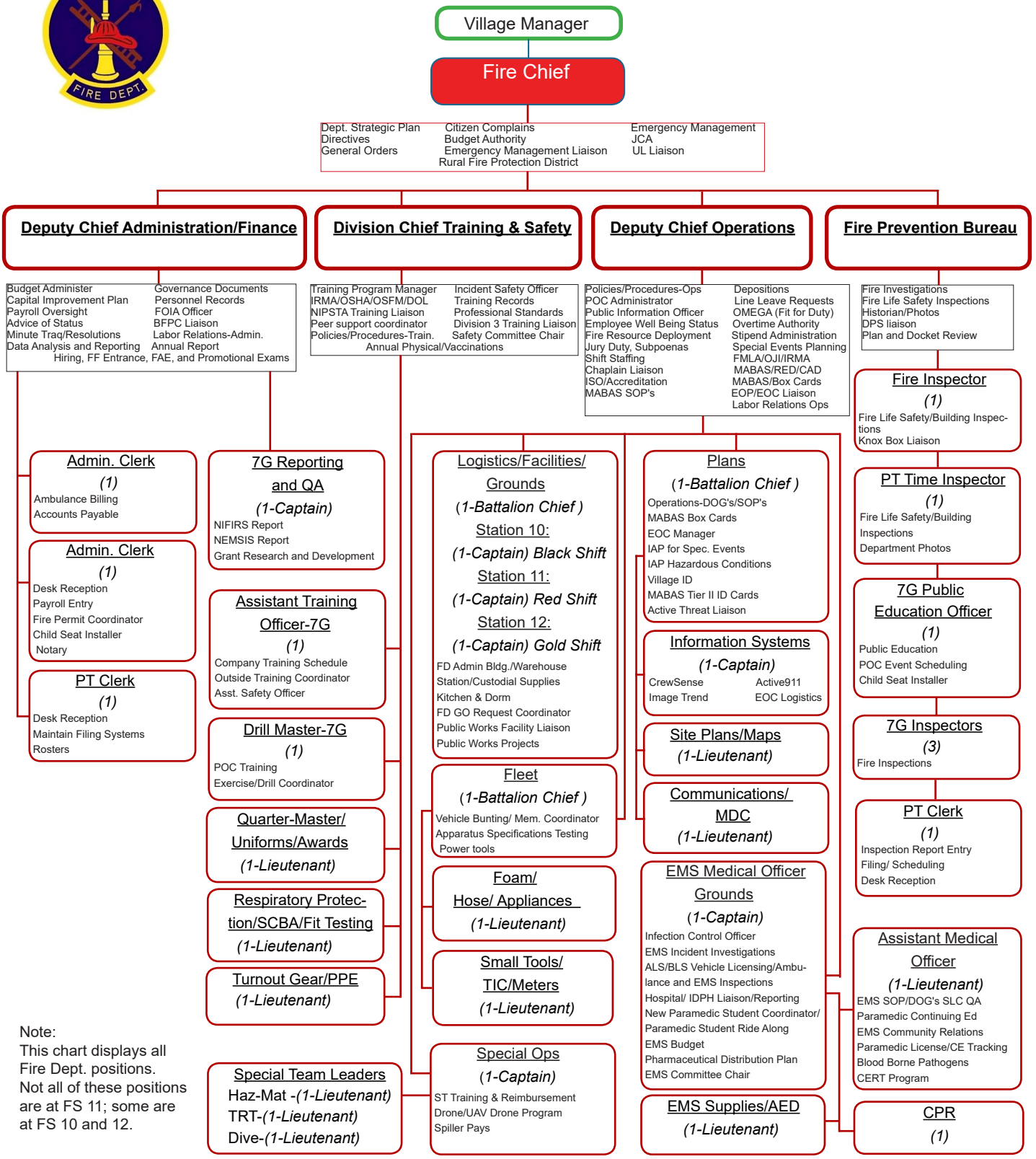
Northbrook Fire Department services delivered from Station 11 and Fire Administration include:

- Fire suppression
- Emergency medical services (advanced life support)
- Fire cause and origin investigation
- Hazardous materials
- Emergency preparedness planning
- Fire prevention inspections/plan review/permits
- Training
- Emergency Operations Center (EOC)

Northbrook Fire Department Station #11

Northbrook Fire Station 11 at 740 Dundee Road was constructed in 1971, with a 1988 addition to add administrative offices.

1.3 *Fire Department Organizational Chart*



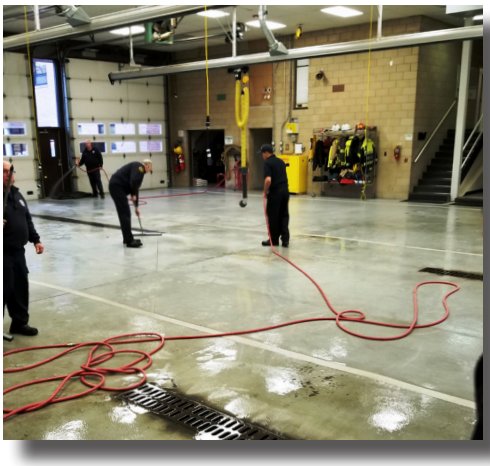
Note:
This chart displays all Fire Dept. positions. Not all of these positions are at FS 11; some are at FS 10 and 12.

DRAFT

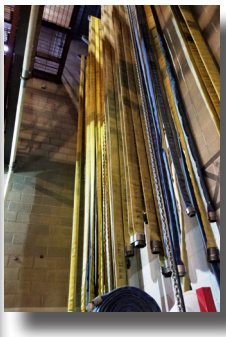
2.0

Review of Existing Facility - Station 11

2.1 *Apparatus Floor Level:* - Current Conditions



Apparatus -Three Bays



Hose Tower

Turn Out Rack

- The assessment of space utilization has included the inspection and evaluation of current occupancy patterns in all areas of the Northbrook Fire Station 11 building.
- The pages that follow in this section illustrate and describe specific operational problems that activities within the Northbrook Fire Department are required to contend with on a daily basis due to current facility conditions.
- In the floor plan located on the left, the areas in "red" are devoted to Northbrook Fire Department Administration. They are ***fully needed for its functions and offer no ability to also take on a role in meeting the space deficiencies of Station 11.***
- The support areas for Station 11, shown in "brown", are ***insufficient in size to meet the functional needs.*** They are also ***dysfunctional in being located at two different levels and at opposite sides*** of the Apparatus Bays.

First Floor Plan

NORTH

Existing Floor Plan Reflecting Current Locations of Functions

Color-Coded for Identification

Legend:

- Administration Building
- Apparatus-Three Bays
- Area Shown Between Upper and Lower Levels Apparatus Support Area.

2.2 *Upper Floor Level:* -Current Operations Support Area Issues

Men's Lockers -see plan below

Bunk Room

Lt. Bunk Room

- The existing facility lacks needed facility support for both male and female personnel. Shower and toilet facilities are lacking and require ***improvised intermittent use by one or the other gender.***
- ***Male lockers are insufficient both in number and size***, as illustrated to the left.
- ***There is no Women's Locker area, with current female staff changing clothes in the Captain's office.***
- Bunk room bedding storage cubicles are also ***insufficient in both size and number with current female staff sleeping in the Captain's office.***
- Existing floor space is too restricted to allow remedy of these conditions.

Upper Level Floor Plan

NORTH

Existing Floor Plan Reflecting Current Locations of Functions

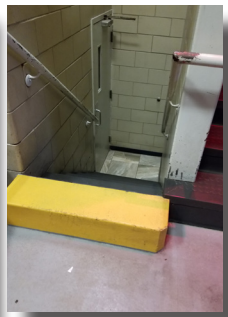
Color-Coded for Identification

Legend:

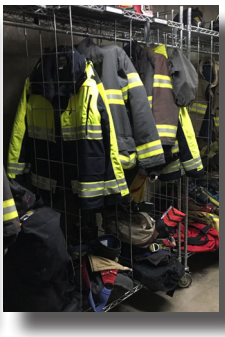
- Administration Building
- Men's Lockers/Toliets
- Battalion Chief Office, Captain, Lt. Offices With Sleeping Areas
- Bunk Area
- Storage

2.3 *Lower Floor Level:* -Current Operations Support Area Issues

Kitchen

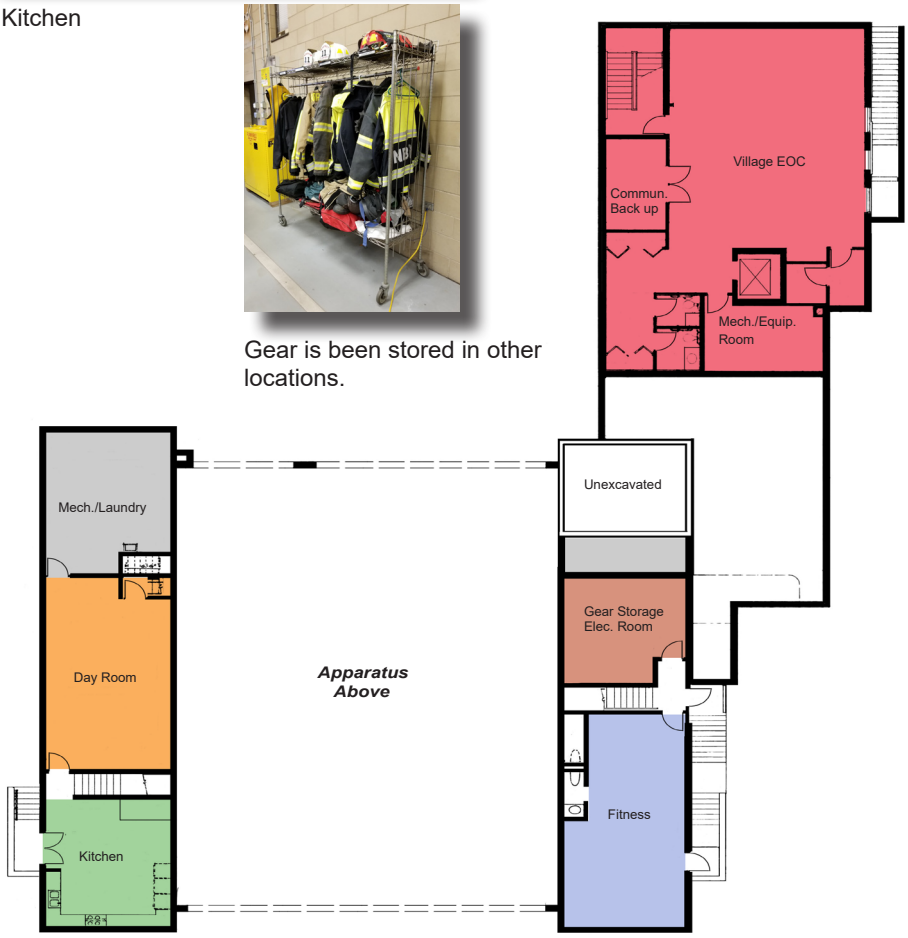


Stair



Gear Storage

Gear is been stored in other locations.



Lower Level Floor Plan

NORTH

Existing Floor Plan Reflecting Current Locations of Functions

Color-Coded for Identification

- In the Lower Level floor plan located on the left below, and as described in the preceding descriptions, ***each area is insufficient in its size to accommodate the needs which are assigned to it.***
- ***None of the paths for access meet contemporary building safety standards and code requirements.***
- The space that is used for gear storage is overcrowded and ***lacking in its ability to meet the needs it is intended to serve.*** Gear storage is also improvised in other locations.
- ***Unsafe and non-code conforming conditions*** are illustrated to the left, including a stair (excessively steep) which has no landing, accompanied by a yellow painted concrete curb which introduces added safety risk itself.
- The lower level located Kitchen ***lacks code-conforming fire exiting with its in-swinging exit door.***

Legend:

- Administration Building
- Kitchen
- Day Room
- Fitness
- Workshop
- Mech./Laundry

DRAFT

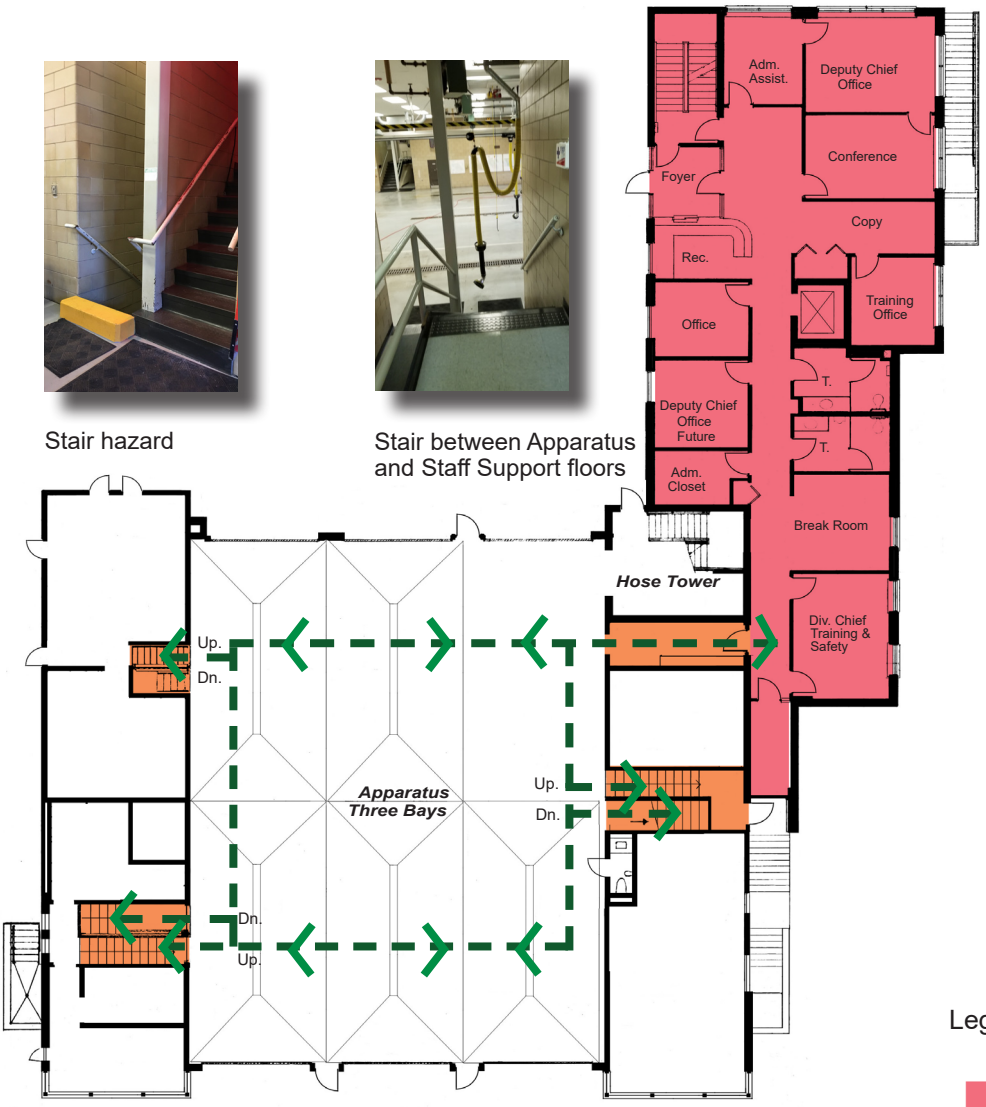
3.0

Identified Problems - Station 11

3.1 **Building Circulation**: Operational Issues

Stair hazard

Stair between Apparatus and Staff Support floors



Stair between Apparatus and Staff Support floors

Stair hazard

First Floor Plan

NORTH

- Areas shown in orange are currently providing connection for staff circulation between support areas.
- The stairs are too narrow for proper movement with equipment and gear. All functions require use of stairs for their access.
- The first picture shows the referenced yellow marked hazard which has been improvised to identify the immediate stair with ***no landing,*** and to keep water in the Apparatus area from flowing to the lower level.
- Additional difficulty is created for firefighters who are quickly responding to a call with the vertical movements that are required. The ***existing building configuration creates these conditions***. Call volume is reported to be approximately 11 times per day, but these movements are made throughout the day in the course of operations as well.

Legend:

- Administration Building
- Stair Connections Between Apparatus Support
- Connections Between Apparatus and Support

DRAFT

3.2 **Support Areas**: Operational Issues

Upper Level Floor Plan

NORTH

Lower Level Floor Plan

NORTH

- Existing support areas for Fire Station 11 currently are inadequate with no means for expansion in the present building configuration.
- The Bunk/Sleeping area is ***congested and is being used for storage of sleeping bags as well, exacerbating the lack of sleeping space.***
- The Men's Locker Room is ***insufficient in size*** and lacking space to accommodate officer uniforms, boots and other needed items. The ***lockers are too small***, forcing staff to improvise with the use of cubby holes above the lockers. The cubby holes are too high and difficult to access.
- Apparatus Support area functions ***lack needed grouping for operational efficiency***. Presently, they are divided by the Apparatus Bays with two small and narrow areas located at each of the two levels. The traffic within Station 11 from one wing's support areas to another wing's areas involves ***constant movement through the Apparatus Bays to these separated locations***.

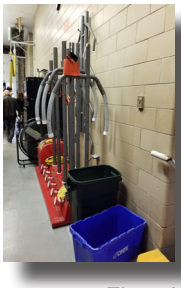
3.3 **Overall**: Operational Issues


Outer Storage


Apparatus Floor Area


Hose Tower

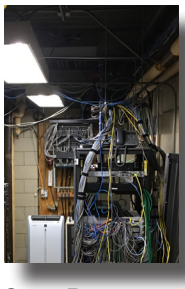

Mech./Laundry


Apparatus Floor Area


Workshop Area/ Hose Tower


Mech./Laundry


Outer Storage


Com. Room


Gear Room

Maximum Intensity of Space Use

- Existing ***support storage areas are extremely over-crowded and are spread throughout*** Fire Station 11.
- Lack of sufficient areas for Storage Support is ***forcing the diversion of some Apparatus equipment, materials and supplies to improvised locations, impairing operational efficiency.***
- The Outer Storage is presently being shared with the Fire Department Administration and is full of storage items and equipment with no space for expansion. Also lacking is code-compliant ingress/egress.

4.0.

Space Program

4.1 Introduction

This section provides tabulation of the functional components and spaces needed for Northbrook Fire Department Station 11. It also includes analysis of space needs for the immediately connected Fire Administration.

The amount of space designated in each component has been developed through the interviewing of operations personnel in every unit, the inspection and evaluation of current deficiencies in all areas, and the application of relevant professional standards for the tasks and functions involved. Program development has incorporated efficiencies through task-specific space planning and space sharing where feasible. Reference is made to the following ***Section 3. Standards*** for this specific information.

In developing this component Space Program, the following process was employed. A web-based survey form prepared specifically for this project elicited information in a variety of areas from each office. The informational areas included such topics as the number of personnel, classification of personnel by task, types of working environments required, equipment and storage needs, hours of operation, amount of public visitor traffic and amount of internal traffic with other units, proximity and adjacency requirements with other functional areas, trends in activities (either increasing or decreasing), potential technology impacts upon operations, and other issues. The information obtained related directly to the amount of space required for the adequate support of personnel and their activities in the respective offices. Space standards were applied as applicable to the functional areas in order to generate square foot requirements. When functional requirements did not correspond to a space standard, industry standards for each functional area were applied using the minimum amount of space necessary to meet each functional requirement.

In addition, each area of the existing Fire Station 11 facility was inspected and current occupancies observed. The degree of overcrowding and extent of space shortage existing was observed in every area. In conjunction with this, personnel were interviewed to provide further understanding of present demands upon the spaces in the various offices and units.

4.2 SF Gap Analysis

On the next page, a Space Adequacy Summary is presented in graphic form.

It summarizes the findings concerning the amount of space that is presently available in each of the functional components in Station 11 and adjoining Administrative wing in relation to the amount of space that is found to be currently needed in each of these components. As such, it presents the extent of current space adequacy in each area and expresses this in terms of a percentage.

Both individual component and overall facility space adequacy is shown.

Two important features need to be brought into the picture when considering this information:

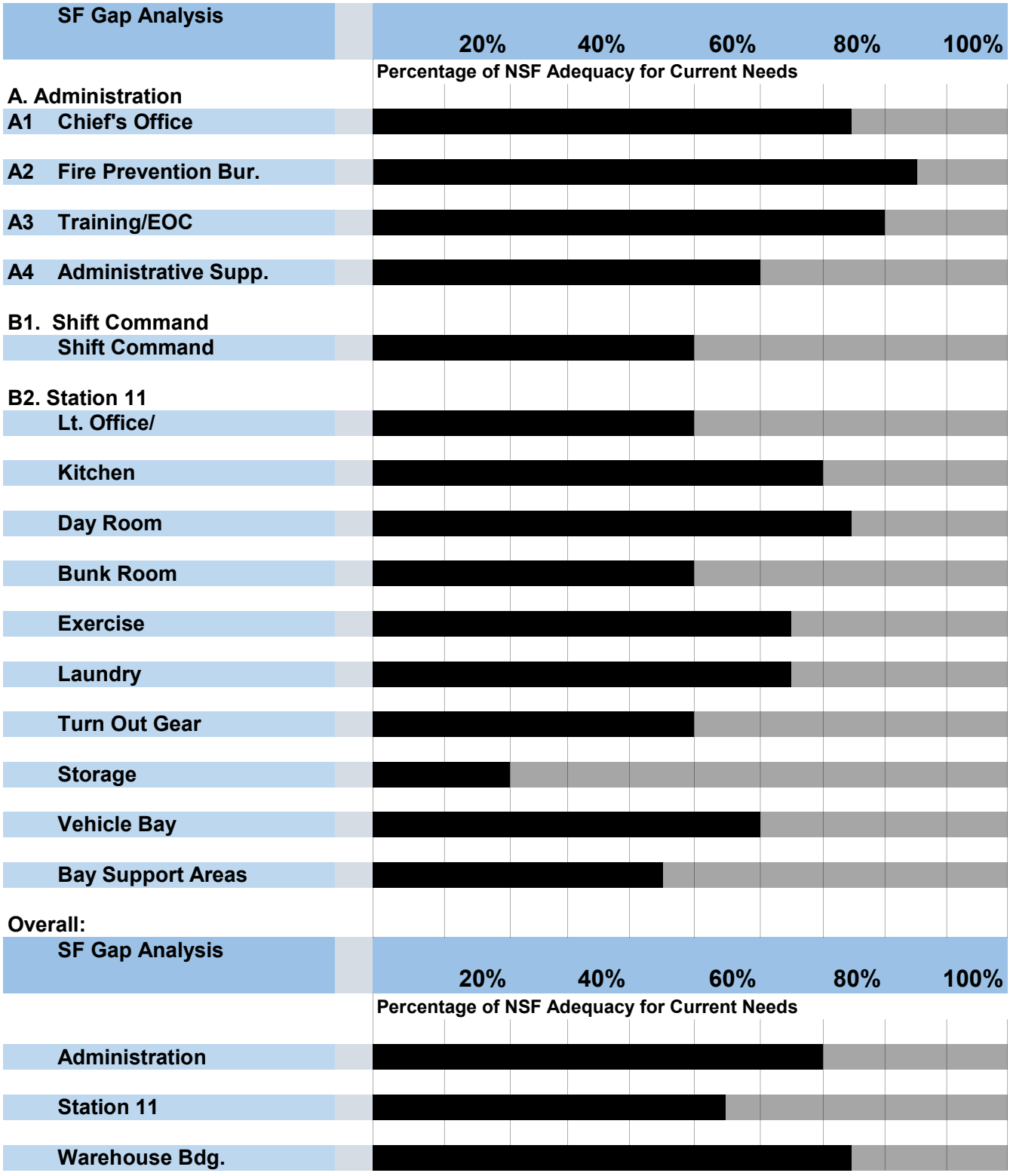
1) The Space Adequacy bar chart is displaying adequacy on a current basis. As noted in Sections 2 and 3, space for many functions currently do not exist and have been accomodated by necessity causing operational and safety hazards. Without the provision of increased amounts of space going forward, the percentage of adequacy will be decreasing with each passing year for areas with anticipated future growth. This growth will compound on and intensify the existing deficiencies and conditions.
2) Space adequacy is only one of the important factors in evaluating the extent to which existing facilities are supporting operational needs. Other factors include the proximity of key components to one another, travel distances required of staff to perform their duties, code compliance, efficient grouping of functions, and convenience for the public in accessing services, among others, all contributing to how well departmental operations are able to function. .

Accordingly, the space evaluation is a very important factor in considering existing facilities adequacy but needs to be supplemented with the consideration of other factors as well. The full range of factors have been included in the development of the recommendations in this report.

Based upon all of the data that has been assembled and evaluated, it is found that the ***current facility does not meet the space needs of the Department or their use.***

SF (square foot) Note:

The referenced area depicted in the following chart cooresponds to NSF (net square feet) which includes usable SF for individual unit requirements plus secondary circulation around it (aisles between workstations).


SF Gap Analysis
20%
40%
60%
80%
100%
Percentage of NSF Adequacy for Current Needs
A. Administration
A1 Chief's Office
A2 Fire Prevention Bur.
A3 Training/EOC
A4 Administrative Supp.
B1. Shift Command
Shift Command
B2. Station 11
Lt. Office/
Kitchen
Day Room
Bunk Room
Exercise
Laundry
Turn Out Gear
Storage
Vehicle Bay
Bay Support Areas
Overall:
SF Gap Analysis
20%
40%
60%
80%
100%
Percentage of NSF Adequacy for Current Needs
Administration
Station 11
Warehouse Bdg.

4.2 Individual Space Tabulation

Space Program Organization

Northbrook Fire Department

A. Administration

- A1 Chief's Office
- A2 Fire Prevention Bureau
- A3 Training/EOC
- A4 Administrative Support

B. Operations

- B1 Shift Command
- B2 Station 11

C. Warehouse Bdg.

(Separate building with storage/garage)

Summary- Building Areas

4.2 Individual Space Tabulation

As introduction to the material that follows in this section, and as a preface to the Space Program for the Northbrook Fire Department -Station 11 which is presented in this section of the report, a description of its formatting and the codes used follows.

EXPLANATORY LEGEND

	STND	NSF	* Exist.	Staff	Unit	Current Need	Staff	Unit	10 Year	Staff	Unit	20 Year
B. Operations												
B2 Station 11												
B2.1 Staff Support Areas												
Lt. Office/Report Writing			**298**	9		**579**	9		**579**	9		**579**
Lt. Office	O-120	120	298	1	1	120	1	1	120	1	1	120
Lt Bunk Area	B-100	100	"		1	100		1	100		1	100

Comp. No.
Consultant Number used for component identification

STND
Space standard identification

Unit Net Square Feet
Usable Square Footage per component unit code

Current Need
Unit/# Number of component units currently needed.

Staff/# Number of staff currently needed.

SF: Total component square footage currently needed.

10 Year Need
Unit/# Number of component units currently needed in 10 years.

Staff/# Number of staff support needed in 10 years.

SF: Total component square footage needed in 10 years.

20 Year Need
Unit/# Number of component units currently needed in 20 years.

Staff/# Number of staff support needed in 20 years.

SF: Total component square footage needed in 20 years.

* Note: " when appearing in the existing column reflects inclusion of existing SF for this item in the overall existing total. (Typ. currently mixed with other functions)

STAFFING PROJECTIONS: Projections for future staff in the twenty year increment came from supervisory staff in each operational area based upon their knowledge of service demand and trends in service delivery. The number of projected future staff is reflected in the tabulation, should the Village choose to approve the additional positions.

CIRCULATION FACTORS:

DEPARTMENTAL CIRCULATION FACTOR: Consists of space required for circulation within each Department or operational unit. (i.e. aisles between workstation). The total arrived by adding this factor equals NSF (net square feet). This factor varies by nature of size, number and type of space and is documented accordingly within the program. Example below:

Appears at each operational unit:

Subtotal	1,577	2,291	2,411	2,411
Department Circulation Factor- 35%	684	802	844	844
Total Chief's Office:	**2,261**	**3,093**	**3,255**	**3,255**

Note: The circulation factor will vary according to type of space and is reflected as such through out the program. (ex.-Office space with numerous smaller areas requires a higher factor than a larger or more contiguous area such as storage)

BUILDING GROSSING FACTOR: Consists of a 35% allowance made up of the following:

- Building Circulation- 15%
- Building Envelope- 2%
- Building Mechanical/Electrical space- 10%
- Police Operations Support Space- 8%
  (emerg. power, generator, security equipment, communications)

  Total: 35%

The total arrived by adding this factor equals GSF (gross square feet)
Note- This factor is an allowance only. It has proven to be an accurate allowance for planning purposes however the design layout and specific equipment required will dictate the actual percentage. It is a goal in the design process to keep this number as minimal as possible. Example below:

Appears on the summary page:

Subtotal	8,127	14,112	14,314	14,705
Building Grossing Factor- 35%	6,336	4,939	5,010	5,147
Total GSF Oper.:	**13,728**	**19,051**	**19,324**	**19,852**

		STND	NSF	Exist.	Staff	Unit	Current Need	Staff	Unit	10 Year	Staff	Unit	20 Year
A.	**Administration**												
A1.	**Chief's Office**												
A1.1	Individual work areas			**888**	6		**1,235**	7		**1,355**	7		**1,355**
	Chief	0-375	375	250	1	1	375	1	1	375	1	1	375
	Toilet		48	25		1	48		1	48		1	48
	Deputy Chief	0-300	300	221	2	2	600	2	2	600	2	2	600
	Admin. Assistant- Chief	0-120	120	128			0	1	1	120	1	1	120
	Admin. Clerk- Records/Payroll	WS-64	64	120	1	1	64	1	1	64	1	1	64
	Admin. Clerk- EMS/Billing	WS-64	64		1	1	64	1	1	64	1	1	64
	PT Admin Clerk	WS-48	48		1	1	48	1	1	48	1	1	48
	Temporary Work Area	WS-36	36	144		1	36		1	36		1	36
A1.2	Unit support areas			**689**			**1,056**			**1,056**			**1,056**
	Wtg Area		100			1	100		1	100		1	100
	Executive Conference	C-375	375	315		1	375		1	375		1	375
	Medium Conference	C-200	200	204		1	200		1	200		1	200
	Coffee	B-36	36			1	36		1	36		1	36
	Copy	WA-120	120			1	120		1	120		1	120
	File		15	70		5	75		5	75		5	75
	Storage		150	100		1	150		1	150		1	150
	Subtotal			1,577			2,291			2,411			2,411
Department Circulation Factor- 35%				684			802			844			844
Total Administrative:				**2,261**			**3,093**			**3,255**			**3,255**

		STND	NSF	Exist.	Staff	Unit	Current Need	Staff	Unit	10 Year	Staff	Unit	20 Year
A.	**Administration**												
A2.	**Fire Prevention Bur.**												
A2.1	Individual work areas			**1197**	9		**693**	9		**693**	11		**729**
	Director	O-225	225	195	1	1	225	1	1	225	1	1	225
	Fire Inspector	O-120	120	144	2	2	240	2	2	240	2	2	240
	Clerk	WS-48	48	858	1	1	48	1	1	48	1	1	48
	PT Inspector	WS-36	36	"	4	4	144	4	4	144	5	5	180
	PT Pub. Educ. Officer	WS-36	36	"	1	1	36	1	1	36	2	1	36
A2.2	Unit support areas			**350**			**832**			**872**			**912**
	Plan Review/Conf.	C-150	150	122		1	150		1	150		1	150
	File		20	"		14	280		16	320		18	360
	Storage Room		150	128		1	150		1	150		1	150
	Copy/Supplies	WA-120	120	100		1	120		1	120		1	120
	Coffee	B-36	36	0		1	36		1	36		1	36
	Toilets		48	0		2	96		2	96		2	96
	Subtotal			1,547			1,525			1,565			1,641
Department Circulation Factor- 35%				235			534			548			574
Total Fire Prevention:				**1,782**			**2,059**			**2,113**			**2,215**

		STND	NSF	Exist.	Staff	Unit	Current Need	Staff	Unit	10 Year	Staff	Unit	20 Year
A.	**Administration**												
A3.	**Training/EOC**												
A3.1	Individual work areas			**213**	3		**297**	4		**297**	4		**297**
	Safety Division Chief	O-225	225	213	1	1	225	1	1	225	1	1	225
	PT Training Officer	WS-36	36	"	2	2	72	3	2	72	3	2	72
A3.2	Unit support areas			**1221**			**1,530**			**1,530**			**1,530**
	Work/Reference Area		120	132		1	120		1	120		1	120
	Training Room/EOC	C-990	990	891		1	990		1	990		1	990
	Storage		200	162		1	200		1	200		1	200
	AV Storage		60			1	60		1	60		1	60
	Dispatch Station	WS-64	64	36		1	64		1	64		1	64
	Toilets		48			2	96		2	96		2	96
	Subtotal			1,434			1,827			1,827			1,827
Department Circulation Factor- 20%				282			365			365			365
Total Training/EOC:				**1,716**			**2,192**			**2,192**			**2,192**

		STND	NSF	Exist.	Staff	Unit	Current Need	Staff	Unit	10 Year	Staff	Unit	20 Year
A.	**Administration**												
A4.	**Administrative Support**												
A4.1	Lobby			**296**	0		**334**	0		**334**	0		**334**
	Entry Vestibule		80	76		1	80		1	80		1	80
	General Lobby		120	120		1	120		1	120		1	120
	Service Counter		30	30		1	30		1	30		1	30
	Public Seating		12	"		4	48		4	48		4	48
							0			0			0
	Circulation Factor- 20%			70			56			56			56
A4.2	Break Area			**423**			**612**			**612**			**612**
	Break Room	B-270	270	164		1	270		1	270		1	270
	Toilets		120	188		2	240		2	240		2	240
	Circulation Factor-20%			71			102			102			102
A4.3	Storage Area			**263**			**720**			**720**			**720**
	General Storage		200	73		1	200		1	200		1	200
	BuildingStorage		200			1	200		1	200		1	200
	Records Storage		200	120		1	200		1	200		1	200
	Circulation Factor-20%			70			120			120			120
Total Support:				**982**			**1,666**			**1,666**			**1,666**

		STND	NSF	Exist.	Staff	Unit	Current Need	Staff	Unit	10 Year	Staff	Unit	20 Year
B.	**Operations**												
B1	**Shift Command**												
B1.1	Individual work areas			**563**	6		**375**	6		**375**	6		**375**
	Battalion Chief Office	O-225	225	288	3	1	225	3	1	225	3	1	225
	Captain Office	O-150	150	275	3	1	150	3	1	150	3	1	150
B1.2	Unit support areas			**100**			**674**			**674**			**674**
	Battalion Bunk Area	B-100	100			1	100		1	100		1	100
	Battalion Lockers		15			3	45		3	45		3	45
	Battalion Toilet/Shower		72	100		1	72		1	72		1	72
	Captain Bunk Area	B-100	100			1	100		1	100		1	100
	Captain Lockers		15			3	45		3	45		3	45
	Captain Toilet/Shower		72			1	72		1	72		1	72
	Store Room		120			1	120		1	120		1	120
	Uniform Storage		120			1	120		1	120		1	120
	Subtotal			663			1,049			1,049			1,049
Department Circulation Factor- 35%				72			367			367			367
Total Shift Command:				**735**			**1,416**			**1,416**			**1,416**

	STND	NSF	Exist.	Staff	Unit	Current Need	Staff	Unit	10 Year	Staff	Unit	20 Year
B. Operations												
B2 Station 11												
B2.1 Staff Support Areas												
Lt. Office/Report Writing			**298**	9		**579**	9		**579**	9		**579**
Lt. Office	O-120	120	298	1	1	120	1	1	120	1	1	120
Lt Bunk Area	B-100	100	"		1	100		1	100		1	100
Lt Lockers		15	"		3	45		3	45		3	45
Shift Change/Report Writing	WA-180	180	"	8	1	180	8	1	180	8	1	180
Circulation Factor- 30%						134			134			134
Kitchen			**298**	0		**432**	0		**432**	0		**432**
Kitchen/Dining	B-360	360	298		1	360		1	360		1	360
Circulation Factor- 20%						72			72			72
Day Room			**438**	0		**600**	0		**600**	0		**600**
Day Room	B-500	500	438		1	500		1	500		1	500
Circulation Factor- 20%						100			100			100
Bunk Room			**340**	0		**650**	0		**780**	0		**910**
Bunk Room	B-100	100	340		5	500		6	600		7	700
Circulation Factor- 30%						150			180			210
Exercise/Lockers			**1100**	0		**1,674**	0		**1,746**	0		**2,007**
Exercise Room		750	650		1	750		1	750		1	750
Male Bathroom/showers		150	150		1	150		1	150		1	150
Male Lockers		15	300		15	225		18	270		21	315
Female Bathroom/Shower		120	0		1	120		1	120		1	120
Female Lockers		15			2	30		3	45		3	45
Dress Uniform Storage		72			1	72		1	72		1	72
Small Laundry		72			1	72		1	72		1	72
Circulation Factor- 20%						255			267			483
Laundry/EMT storage			**120**	0		**180**	0		**180**	0		**180**
Work/Clean Room		150	120		1	150		1	150		1	150
Circulation Factor- 20%						30			30			30
Turn Out Gear			**289**	0		**576**	0		**576**	0		**576**
Turn out storage		15	289		32	480		32	480		32	480
Circulation Factor- 20%						96			96			96
Storage			**60**			**336**			**336**			**336**
Ambulance Storage		80			1	80		1	80		1	80
Supply Storage		200	60		1	200		1	200		1	200
Circulation Factor- 20%						56			56			56

	STND	NSF	Exist.	Staff	Unit	Current Need	Staff	Unit	10 Year	Staff	Unit	20 Year
B. Operations												
B2 Station 11												
B2.2 Vehicle Support Areas												
Vehicle Bays			**4,160**			**7,026**			**7,026**			**7,026**
Vehicle Bays		5,586	4160		1	5,586		1	5,586		1	5,586
* Additional Bay		1,440			1	1,440		1	1,440		1	1,440
Support Areas			**289**			**643**			**643**			**643**
Work Room		120			1	120		1	120		1	120
Hose Tower		120	289		1	120		1	120		1	120
Fill Station		60			1	60		1	60		1	60
Tool/Maint. Area		50			1	50		1	50		1	50
Road Salt		36			1	36		1	36		1	36
Storage		150			1	150		1	150		1	150
Circulation Factor- 20%						107			107			107
Total Station 11:			**7,392**			**12,696**			**12,898**			**13,289**

Note: The Additional Bay is only required if a new station is constructed. If the current site is used, this space can be accommodated in the onsite Warehouse.

		STND	NSF	Exist.	Staff	Unit	Current Need	Staff	Unit	10 Year	Staff	Unit	20 Year
C	**Warehouse Bdg.**												
C1	**Arch. Stor./Garage**			**2920**			**3,750**			**3,750**			**3,750**
	* Arch. Stor./Garage		3,750		1	1	3,750	1	1	3,750	1	1	3,750

Note: 3,750sf includes additional space for a vehicle bay. If the station leaves the site and acquires a bay, this added area is not required.

Summary		Exist.	Staff	Current Need	Staff	10 Year	Staff	20 Year
A. Administration								
A1	**Chief's Office**	**2,261**	6	**3,093**	7	**3,255**	7	**3,255**
A2	**Fire Prevention Bur.**	**1,782**	9	**2,059**	9	**2,113**	11	**2,215**
A3	**Training/EOC**	**1,716**	3	**2,192**	4	**2,192**	4	**2,192**
A4	**Administrative Supp.**	**982**	0	**1,666**	0	**1,666**	0	**1,666**
	Subtotal	6,741		9,010		9,226		9,328
Building Grossing Factor- 35%		1,250		3,153		3,229		3,265
	Total GSF Admin.:	**7,991**		**12,163**		**12,455**		**12,593**
B. Operations								
B1	**Shift Command**	**735**		**1,416**		**1,416**		**1,416**
B2	**Station 11**	**7,392**		**12,696**		**12,898**		**13,289**
	Subtotal	8,127		14,112		14,314		14,705
Building Grossing Factor- 35%		2,414		4,939		5,010		5,147
	Total GSF Oper.:	**10,541**		**19,051**		**19,324**		**19,852**
C. Warehouse Bdg.								
C1	**Storage/Garage**	**2920**		**3,750**		**3,750**		**3,750**
	Subtotal	2,920		3,750		3,750		3,750
	Total GSF Stor.:	**2,920**		**3,750**		**3,750**		**3,750**

5.0

Space Standards

5.1 Individual Space Tabulation

Table of Contents:

Key:

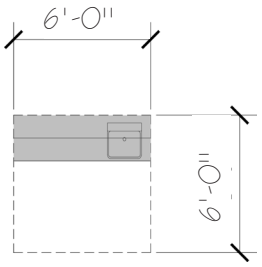

.....Telephone


.....Printer


.....Computer


.....Handicap Circulation Radius

DRAFT

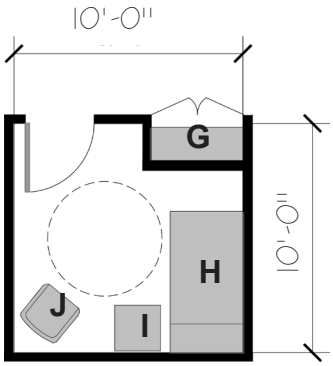


B-36

Designated Area:

Coffee Bar: Admin., Fire Prev. Bur.

Net Square Feet: 36

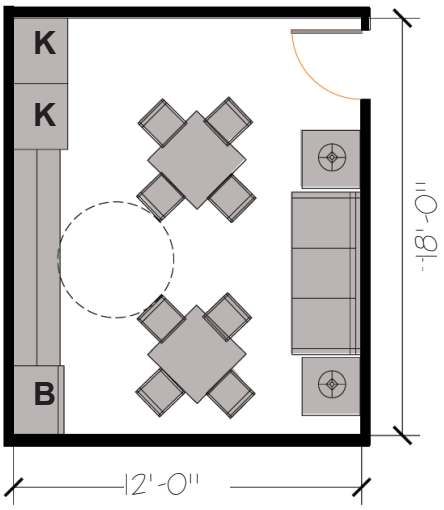


B-100

Designated Area:

Operations- Bunk Room

Net Square Feet: 100



B-270

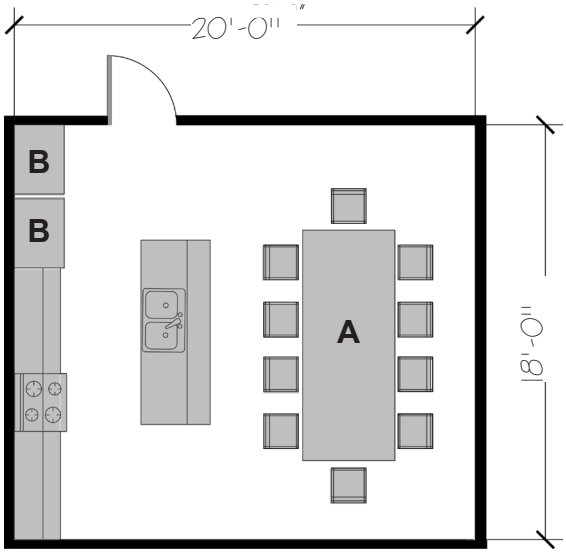
Designated Area:

Admin.- Break Room

Net Square Feet: 270

Legend:

A.....42x120" Table
B.....Refridg./Freezer
C.....Mailboxes
D.....Counter/Printer
E.....Reclining Chair
F.....Television
G.....Bedding Storage
H.....Single Bed
I.....Side Table
J.....Side Chair
K.....Vending Machine

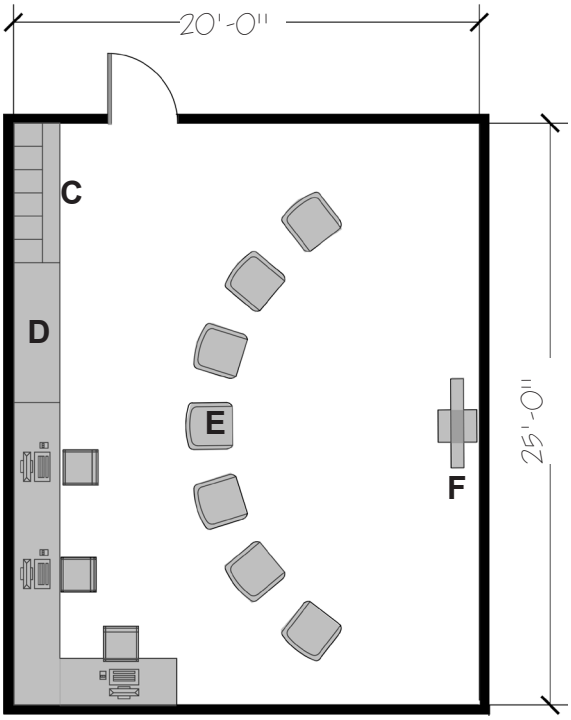


B-360

Designated Area:

Operations- Kitchen

Net Square Feet: 360

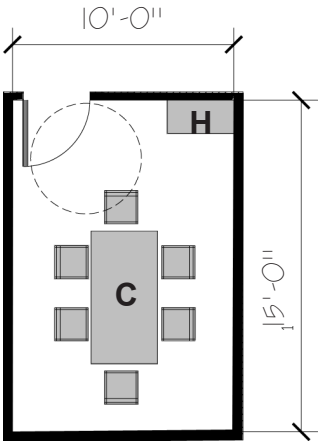


B-500

Designated Area:

Operations- Day Room

Net Square Feet: 500

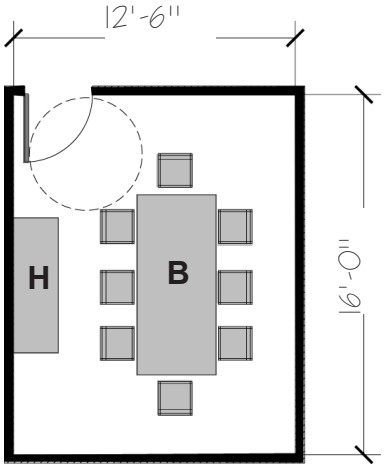


C-150

Designated Area:

Fire Protection Bureau

Net Square Feet: 150



C-200

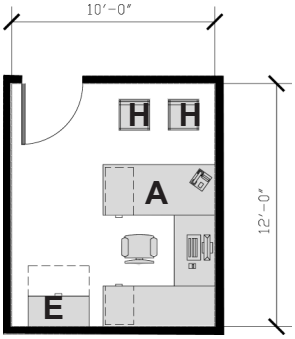
Designated Area:

Administration-Dep. Chief's

Net Square Feet: 200

Legend:

A	36x30" Table
B	36"x96" Table
C	36"x72" Table
D	Modular Training Table
E	White Board/Screen/Tack Bd
F	84"x24" Training Table
G	Counter/Computer Desk
H	Credenza/Side Table
I	Mail Boxes
J	Lounge Seating
K	Lecturn
L	Storage
M	Shelving

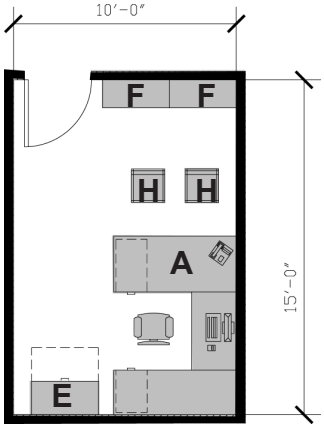


O-120

Designated Area:

Admin. Asst.-Chief
Fire Prev.- Fire Inspector
Operations- Lt.

Net Square Feet: 120

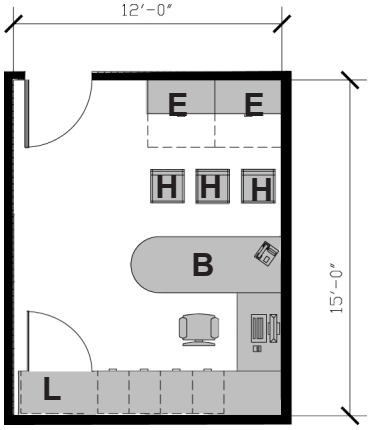


O-150

Designated Area:

Shift Command- Captain

Net Square Feet: 150



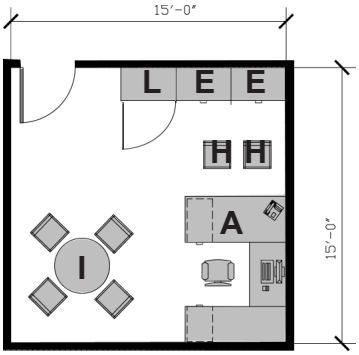
O-180

Designated Area:

Net Square Feet: 180

Legend:

A..... 66"W U-Shaped Work Area w/ Files
B .....U-Shaped Work Area With Conf. Top
C .....72"W Double Pedestal Desk
D .....Credenza Work Area w/ Files
E ..... 36"W Lateral File Cabinet
F .....Book Case
G.....Printer/Tackboard
H.....Guest Chair
I.....36"D Conf. Table/Seating
J.....Lounge Seating
K.....Side Table
L.....Storage Wardrobe/Closet

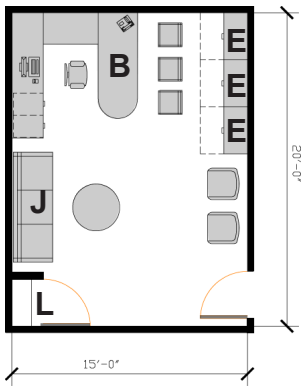


O-225

Designated Area:

Fire Prev.- Director
Training- Safety Div. Chief-
Shift Command- Battalion Chief

Net Square Feet: 225

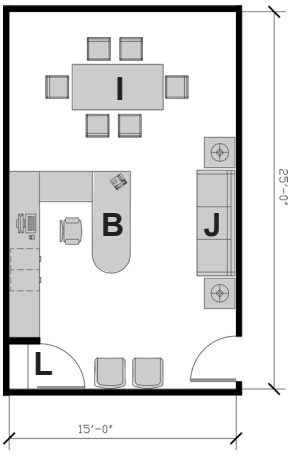


O-300

Designated Area:

Admin.: Deputy Chief

Net Square Feet: 300



O-375

Designated Area:

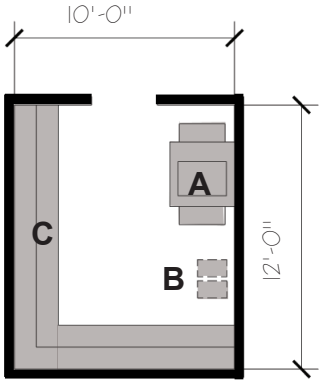
Admin.: Chief

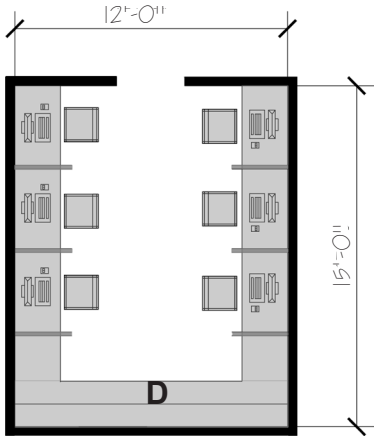
Net Square Feet: 375

Legend:

A..... 66"W U-Shaped Work Area w/ Files
B .....U-Shaped Work Area With Conf. Top
C .....72"W Double Pedestal Desk
D .....Credenza Work Area w/ Files
E ..... 36"W Lateral File Cabinet
F .....Book Case
G.....Printer/Tackboard
H.....Guest Chair
I.....Conf. Table/Seating
J.....Lounge Seating
K.....Side Table
L.....Storage Wardrobe/Closet

Office Work Area **O-2** DRAFT





WA-120

Designated Area:

Copy/ Supply Area:
Administration
Fire Prev. Bur.

Net Square Feet: 120

WA-180

Designated Area:

Report Writing Room

Net Square Feet: 180

Legend:

A..... Copy Machine
B .....Recycling
C .....Counter/Storage
D .....Counter/Printer/Form Storage

6.0

Options

6.1 Introduction of Options

The following presentation of facility options for Fire Station 11 responds to the findings of the Existing Facility Problems analysis within this report, information obtained through fire personnel interviews and the detailed analysis of space needs as presented within this report. The analysis of facility options included the total site context, considering the adjacent conditions and all site occupancies, as described in the following pages.

Two final options are presented for consideration. They are:

Option 1:

Construct an addition immediately north of the Apparatus Bays to supplement the Station 11 operations support space, together with the construction of an expansion of the Fire Administration wing that is connected to Station 11 and expansion of the Warehouse to meet Station 11 operational needs with the combined space use opportunities in these expanded components.

Option 2:

Identify an alternative site for the construction of a new Station 11, together with the relocation of Fire Administration to either that site or another location.

In the course of the analysis of the present Fire Department operations at the 740 Dundee Road location, the following findings are pertinent to Station 11 solution options.

First, the co-located Fire Administration component is important not only in terms of its physical facilities implications but also in terms of the operations interaction with Station 11 that occurs on a daily basis.

Accordingly, early options consideration took into account the total site context in considering options for meeting Station 11 shortcomings. These shortcomings are described in the preceding Section 2. In addition, space programming activities have included Administration space needs, as was the assessment of Existing Conditions. Completing the analysis of the total site occupancies, the existing Warehouse needs have also been included.

This study has found that Fire Station 11, with its physical and operational connection to Administration, has its best opportunity for problems resolution when viewed in a combined analysis of solution options with Administration.

6.2 Option 1 Detail

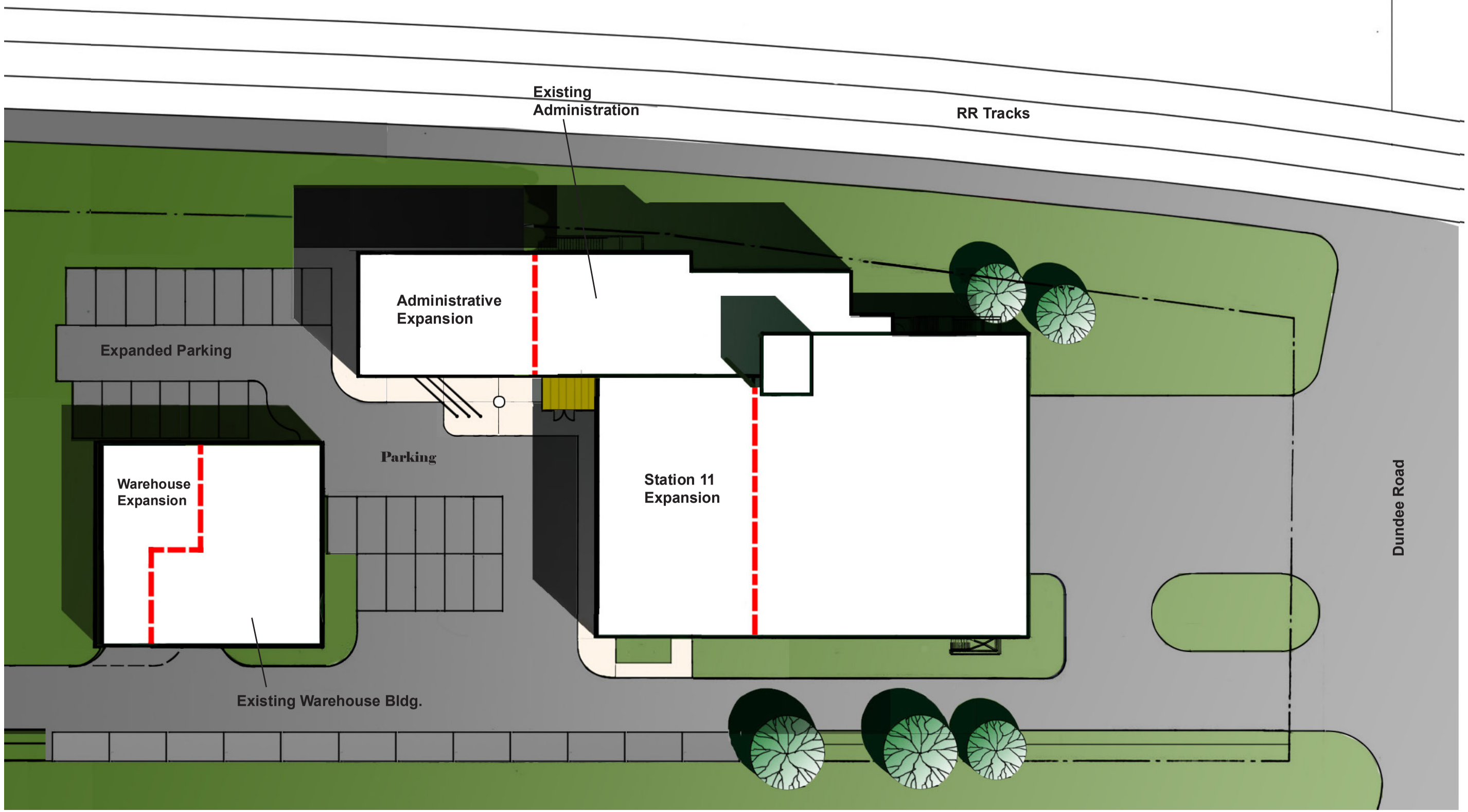
Option 1 represents the results of that study. It features a northward expansion behind the Apparatus Bays and the reallocation of existing space within the station. Administration is also expanded to the north, as is the existing Warehouse building to meet storage needs as well as providing an additional vehicle bay. Not only are space deficiencies in the various components met within this option, but operational efficiency is served, code compliance is delivered and a safer work environment is provided for fire personnel. The pages that follow describe Option One features.

6.3 Option 2 Detail

Option 2 is the construction of replacement fire facilities at a different site. The implementation of Option 2 is contingent upon the identification of a suitable alternative location, its feasibility for acquisition as well as the availability of any cost savings that it might bring. Since Option 1 makes full use of all existing space, Option 2 would involve a considerably greater amount of new construction and would most likely only be viable if the present site could be sold for a much greater amount of money than a new site would cost.

7.0

Options-Diagrams



7.1 Option 1

7.1a SITE PLAN

NORTH 0 10 20 30

DRAFT

RR Tracks

Administrative Expansion

Fire Prevention Support

Training-Staff

Admin. Support

Expanded Parking

Serv. Ctr

Adm.

Hose Tower

Mech

Turn-out Gear Rm.

Lobby

Public Entrance

Day Room

Kitchen

Laund./ Extract

Exist. Apparatus

Work/ Tool Rm.

EMS Equip.

Bunk Room

Wom. Lkrs.

Male Lockers

Station 11 Expansion

Dundee Road

Warehouse Expansion
with additional Storage and Emergency Vehicle Bay

Existing Warehouse Bldg.

Expanded Parking

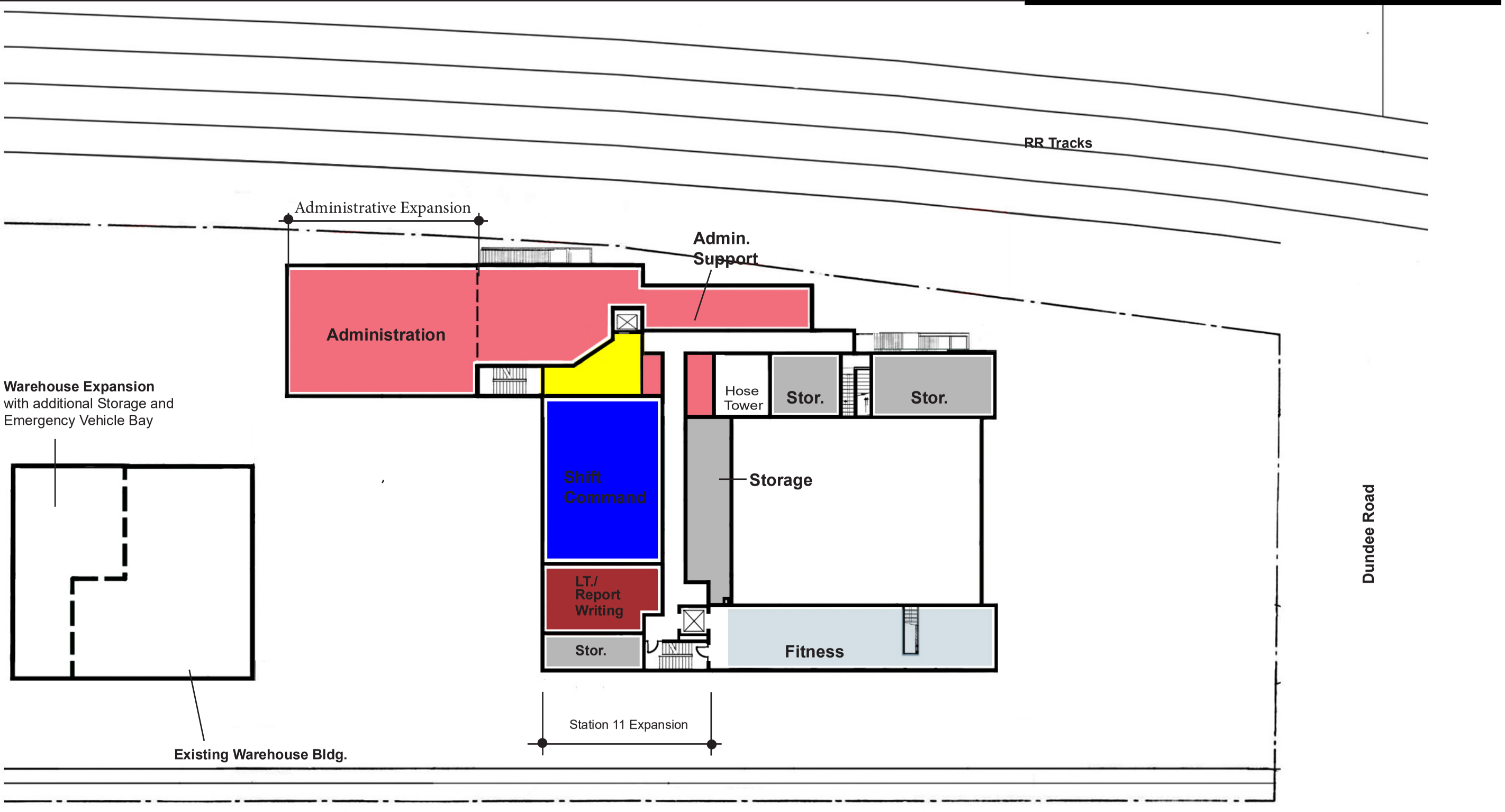
NORTH

0 10 20 30

7.1 Option 1

7.1b FIRST FLOOR BLOCKING PLAN

DRAFT



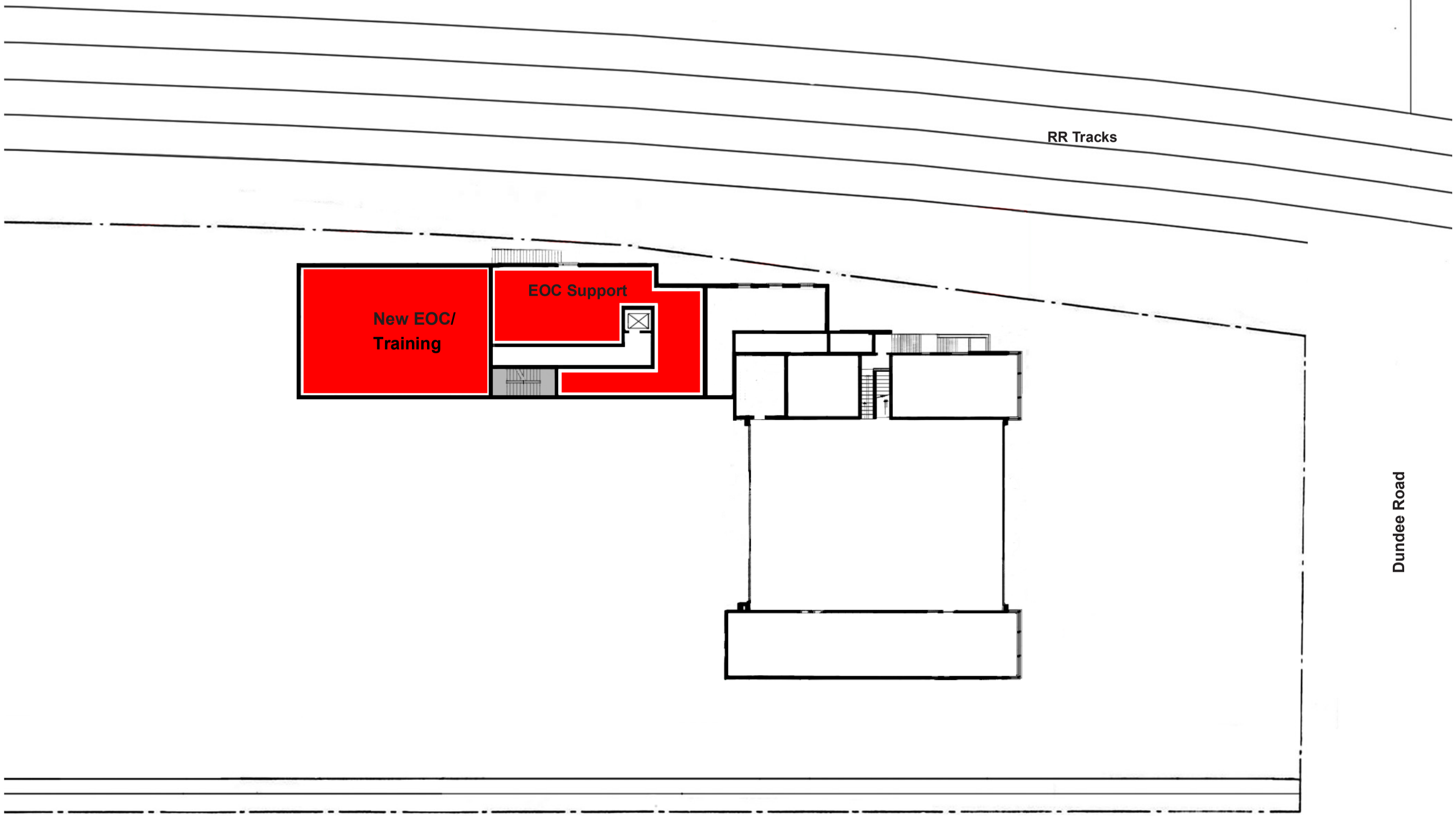
7.1 Option 1

7.1b SECOND FLOOR BLOCKING PLAN

NORTH

0 10 20 30

DRAFT

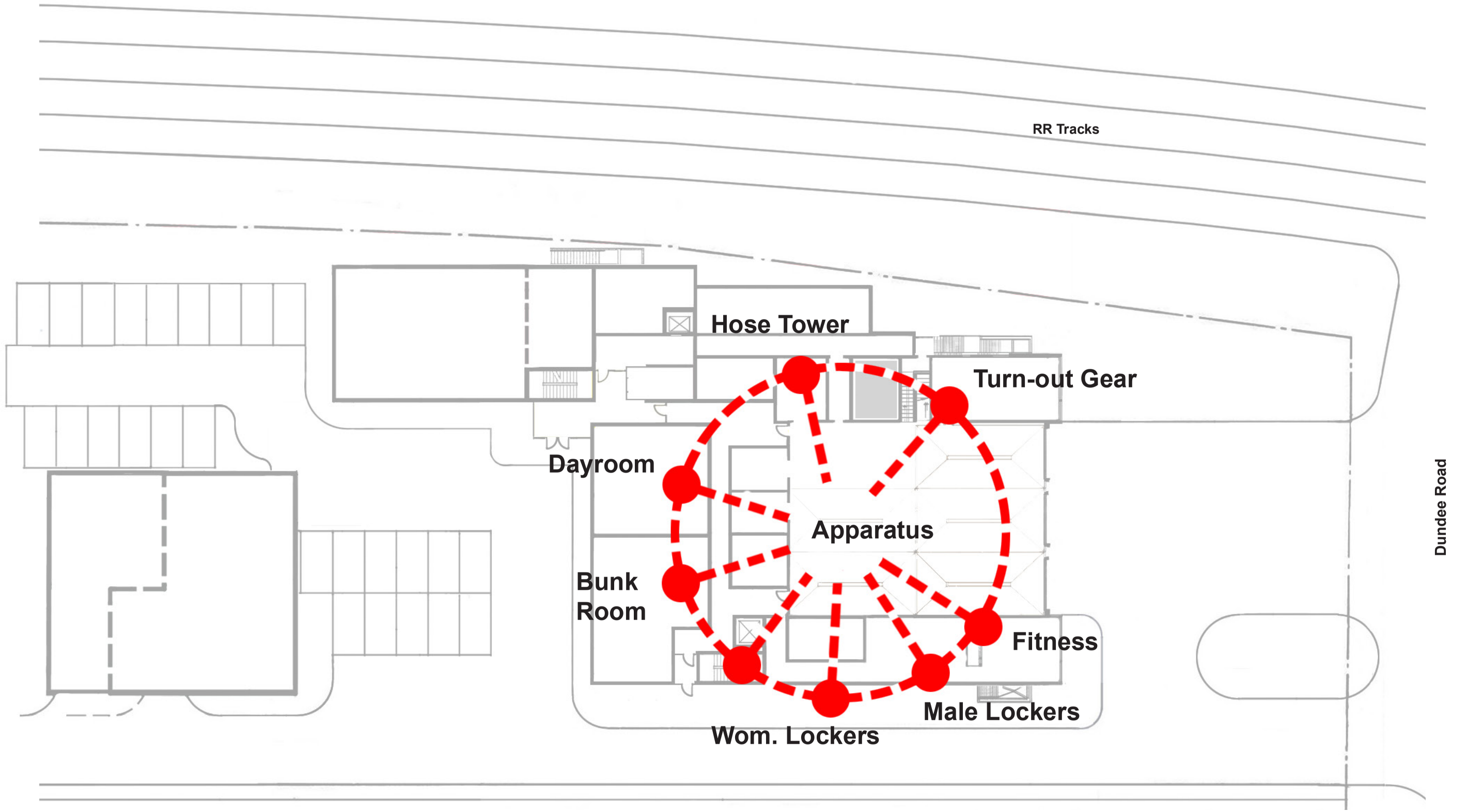


7.1 Option 1

7.1b BASEMENT BLOCKING PLAN -**EOC Option Alternate**

NORTH 0 10 20 30

DRAFT



7.1 Option 1

7.1C KEY COMPONENT RELATIONSHIPS

NORTH 0 10 20 30

8.0

Preliminary Cost Review

8.1 Introduction

At this early stage of project scope definition, detailed cost estimating is not feasible. However, a preliminary analysis can be developed which is based upon the use of cost-per-square foot allowances for the various categories of construction or renovation, and based upon cost experience in other similar projects.

Even under this procedure, no two projects are exactly the same in their complexity or other features. Other project cost experience is also influenced by the market conditions at the time it was bid, the volume of local construction activity affecting contractor interest and other factors.

Accordingly, the cost review for the Option 1 project scope for the Northbrook Fire Department facility is very preliminary. It uses cost-per-square-foot allowances for the proposed renovation of existing space at three different levels:

Minor Renovation
Moderate Renovation
Major Renovation

It uses a different "average" cost-per-square-foot allowance for proposed new construction. A contingency allowance is added for project administrative costs, professional fees, FFE (Furniture, Fixtures and Equipment) and site development including landscaping.

The "square footage" calculations are based upon the Police space program presented in this report, combined with preliminary estimates of space needed for circulation (corridors), mechanical and other support space.

All of the above will be impacted by subsequent project development going forward, including decision-making by the Village of Northbrook concerning project features.

8.1 Tabulation

Area	MINOR RENOVATION A. ADMINISTRATION BLDG SF	MINOR RENOVATION A. ADMINISTRATION BLDG Allowance	MINOR RENOVATION Fire Station 11 B. OPERATIONS SF	MINOR RENOVATION Fire Station 11 B. OPERATIONS Allowance	MODERATE RENOVATION SF	MODERATE RENOVATION Allowance	MODERATE RENOVATION Fire Station 11 B. OPERATIONS SF	MODERATE RENOVATION Fire Station 11 B. OPERATIONS Allowance	MAJOR RENOVATION A. ADMINISTRATION BLDG SF	MAJOR RENOVATION A. ADMINISTRATION BLDG Allowance	MAJOR RENOVATION Fire Station 11 B. OPERATIONS SF	MAJOR RENOVATION Fire Station 11 B. OPERATIONS Allowance	NEW CONSTRUCTION A. ADMINISTRATION BLDG SF	NEW CONSTRUCTION A. ADMINISTRATION BLDG Allowance	NEW CONSTRUCTION Fire Station 11 B. OPERATIONS SF	NEW CONSTRUCTION Fire Station 11 B. OPERATIONS Allowance	Total: Total: SF	Total: Total: $	NOTES Info Info
Fire Department - Option 1		$60		$80		$120		$155		$180		$235		$240		$310			
1st Floor-includes:																			
A2. Fire Prevention Bureau													2,215	$531,600			2,215	$531,600	
A4.1 Lobby									184	$33,120			150	$36,000			334	$69,120	
A4.2 Break Area					612	$73,440											612	$73,440	
A4.3 Storage Area					720	$86,400											720	$86,400	
A3.1 Training Staff					297	$35,640											297	$35,640	
B2.1 Bunk room															910	$282,100	910	$282,100	
B2.1 Kitchen/Day Room															1,032	$319,920	1,032	$319,920	
B2.1 Laundry/EMT Storage															531	$164,610	531	$164,610	
2nd Floor-includes:																			
A1. Adm. Chief's Office					983	$117,960							2,072	$497,280			3,055	$615,240	
B1. Shift Commander/Storage															1,416	$438,960	1,416	$438,960	
B2.1 Lt./Report Writing															579	$179,490	579	$179,490	
Basement-includes:																			
A3.2 Training/ EOC/Storage													1,434	$344,160			1,434	$344,160	
Exist. Ops. Support-includes:																			
Lower Level-includes:																			
Turn out Gear/Storage			624	$49,920													624	$49,920	
Lockers							1,107	$171,585									1,107	$171,585	
Upper Level-includes:																			
Fitness							900	$139,500									900	$139,500	
Subtotal:			**624**		**2,612**		**2,007**		**184**				**5,871**		**4,468**		**15,766**	**$3,501,685**	
Building Circulation Factor -35%																	5,518	$1,710,611	
Site Reconfiguration:																			
Parking Lot Reconfiguration															38	$4,000		$152,000	38 stalls
Total:																	**21,284**	**$5,364,296**	

Option 1 - On-Site and Off-Site grading, utilities, and storm water management costs have not been included in this estimate. Costs for an engineered solution will need to be added.

Security System Equipment	$80,000
Project Contingency 15%	$804,644
Adm/Fees/Exp. 10%	$536,430
FF&E 7%	$375,501
Inflation 5.5%	$295,036
Total:	**$7,455,907**

	Exist.GSF																		
C. Archive Storage/Garage	**2,920**															$210	**830**	**$174,300**	
Total:																			

Total: Preliminary Project Cost Estimate: 22,114 $7,630,207

Fire Department - Option 2																			
A. Administration																$240	12,593	$3,022,320	
B. Operations																$310	19,852	$6,154,120	
C. Archive Storage/Garage																$210	2,310	$485,100	
Total:																	**34,755**	**$9,661,540**	
Site:																			
Parking Lot															38	$4,000		$152,000	38 stalls
Total:																		**$9,813,540**	

Note: Option 2 - Requires acquisition of a site for a new Fire Facility. Cost of a new site is not included in this review, nor is any revenue realized from a sale of the existing Fire site.

Option 2 - On-Site and Off-Site grading, utilities, and storm water management costs have not been included in this estimate. Costs for an engineered solution will need to be added.

Security System Equipment	$80,000
Project Contingency 15%	$1,449,231
Adm/Fees/Exp. 10%	$966,154
FF&E 7%	$676,308
Inflation 5.5%	$531,385
Total: Preliminary Project Cost Estimate:	**$13,516,618**

DRAFT

4. Northbrook Fleet Maintenance Garage

DRAFT

Fleet Maintenance Garage – Executive Summary

The Healy Bender | Moyer team were asked to develop a Facility Needs Report for the Village of Northbrook Fleet Maintenance Garage. The following Study is the result of a collaborative process between the consultant team and the Village of Northbrook personnel.

Based upon the information obtained throughout the entire process **the existing facility doesn't meet the current space needs required to allow the FMG to function properly and is deficient in multiple aspects.** Some of the notable deficiencies are as follows:

- Deficient toilet room and locker room facilities
- Deficient maintenance (service) bay area.
- Inefficient organization of spaces.
- Insufficient ceiling heights for safe indoor maintenance.

In order to remedy the deficiencies, several options were explored, and the following option was prepared which offers alternative strategies for meeting the defined needs within the context of the existing facility.

Option 1 reorganizes the existing facility and develops an addition to provide an over height service bay to maintain the Villages larger vehicles in the building. This option addresses the immediate needs and meets the program but falls short in providing over height ceilings for all the service bays. This restricts the flexibility of the facility. Some of the notable benefits and challenges are as follows:

- Re-uses existing space, reducing the amount of new construction required.
- Requires no property acquisition.
- Requires shuffling of maintenance areas during construction.
- Achieves enhanced functional relationships of operational components.
- Achieves secured vehicle storage.

- Achieves dedicated areas for parts storage and shop spaces in centralized locations.
- Achieves additional services bays
- Achieves one service bay with higher ceiling heights to maintain larger vehicles inside the facility.
- Achieves the addition of adequate toilet and locker room facilities.

Option 2 is to find a new location and build a new facility. This option allows the ability to develop a very efficient floor plan that meets your exact requirements without the restrictions of fitting within an existing envelope. Some of the notable benefits and challenges are as follows:

- Requires site acquisition (potentially offset by sale of existing site).
- Allows Fleet Maintenance Garage to remain operational in the existing building throughout the construction period.
- Allow for optimal space planning and open concept

The preliminary review of potential construction costs between the Options yields the following:

Option 1	$4,497,816
Option 2	$6,182,473

Note: A variation of Option 2 would be the purchase of a current building and potentially renovate the property to serve Northbrook Fleet Maintenance Garage needs. It is not possible to compare the operational feasibility or costs under this variation without the identification of the particular property and its analysis.

1.0

Overview of Fleet Maintenance Garage

1.1 Study Scope & Function

The product of the Northbrook Fleet Maintenance Garage (FMG) Facility Needs Assessment Study is the result of a collaborative process between the consultant team and Village of Northbrook personnel.

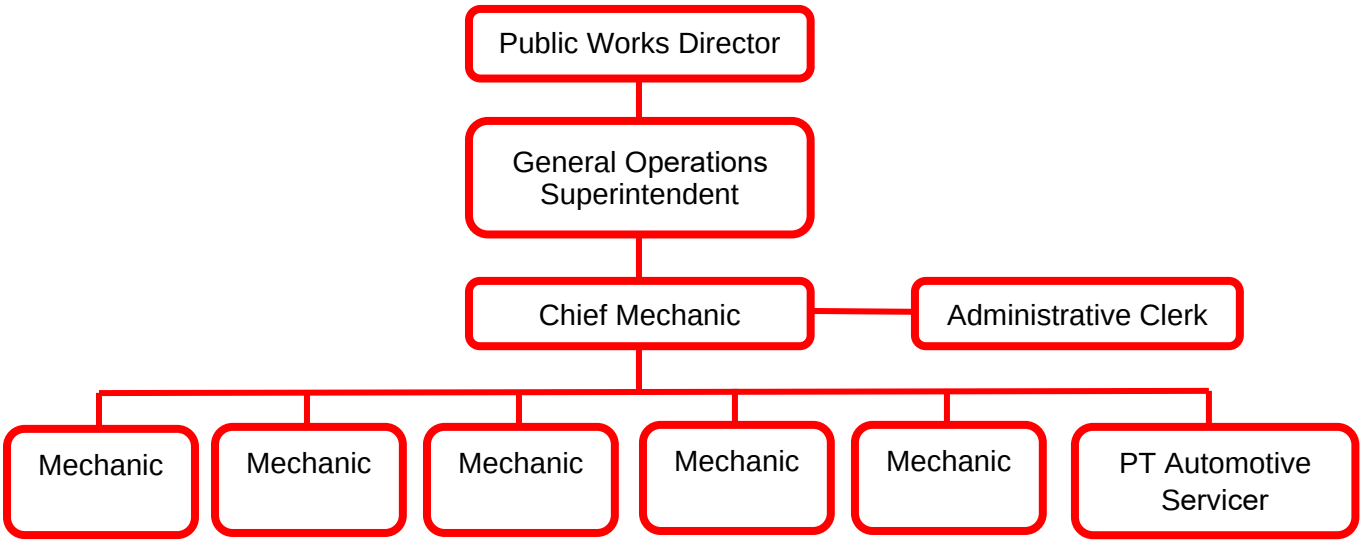
The consultant team consisting of Moyer Associates Inc., and Healy, Bender and Associates, have developed standards specifically for the Northbrook Fleet Maintenance garage operations. As a part of the Consultant study work scope, the assessment and evaluation of the existing Northbrook FMG facility is an essential part. During its development, a close dialog and participation has been maintained between the consultant team and Northbrook FMG staff, with work progress coordinated through the administrative staff of the Northbrook FMG and the Village of Northbrook.

The goal of this study is to determine the adequacy of the existing facility to meet current and projected needs, together with the development of solution alternatives that could be considered to respond to identified shortcomings.

Consulting activities have included the administration of a survey questionnaire followed up by interviews with the Northbrook FMG staff and supervisors. The process has involved inspection of the existing Northbrook FMG building and the observation of activity in the facility. The evaluation included the extent the existing spaces support these activities or, instead, have characteristics that impair the effective performances of the functions that are housed.

The first section provides an overview of existing operational/functional challenges and a description of current Northbrook FMG space occupancies. The Northbrook FMG personnel have been exemplary in their responsiveness to requests for information and in providing data to the study team. The following pages provide an overview of the operational problems that have been identified and the constraints that are presented by the existing building.

1.2 Organizational Chart



The Village's FMG operations staff is comprised of one (1) chief mechanical/FMG supervisor, five (5) mechanics, one (1) part-time mechanic, and one (1) administrative clerk. This facility is a full-service maintenance shop servicing, maintaining and retrofitting over 145 Village vehicles plus an extensive inventory of smaller equipment.

1.3 Current Maintenance Responsibilities

Police
(36) Cars & sport utility vehicles (8'x17')
(2) Motorcycles
(1) Four wheel (ATV) with trailer
(2) Speed monitor trailers (6'x10')

Fire
(6) Pumper/rescue squad fire engines ('9x36')
(2) Aerial fire engines (100' tower and a 105' ladder) (20'x52')
(6) Ambulances (medium duty International/Freightliner Chassis) (9'x24')
(9) Cars & sport utility vehicles (8'x17')
(1) Aerial light tower trailer (6'x10')
(1) Rescue boat & trailer (8'x15')

Public Works & Village Hall
(16) Single axle dump trucks (9'x27')
(1) Tandem axle dump truck (10'x33')
(3) Front-end wheel loaders (10'x28')
(1) Tandem axle sewer rodding/ vacuum truck
(1) Single axle sewer flusher truck
(2) Backhoes (10'x28')
(2) Skidsteers with trailers (9'x24')
(2) Single axle aerial trucks (9'x27')
(2) Sweepers
(2) Step vans (9'x24')
(2) Asphalt rollers with trailers
(1) Mini excavator with trailer (9'x24')
(50) Cars and pick-ups (9'x25')
(2) Landscape equipment trailers (10'x28')

Examples of work performed at the FMG include: part fabrications, exhaust systems, transmissions, tire repairs, oil changes, tune-ups, brake systems, power steering systems, electrical and mechanical repairs, complete engine repairs, and 'change-outs' (retrofitting/outfitting new vehicles for Village use).

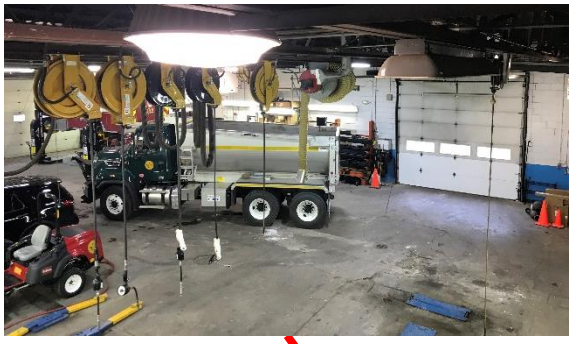
2.0

Identified Problems

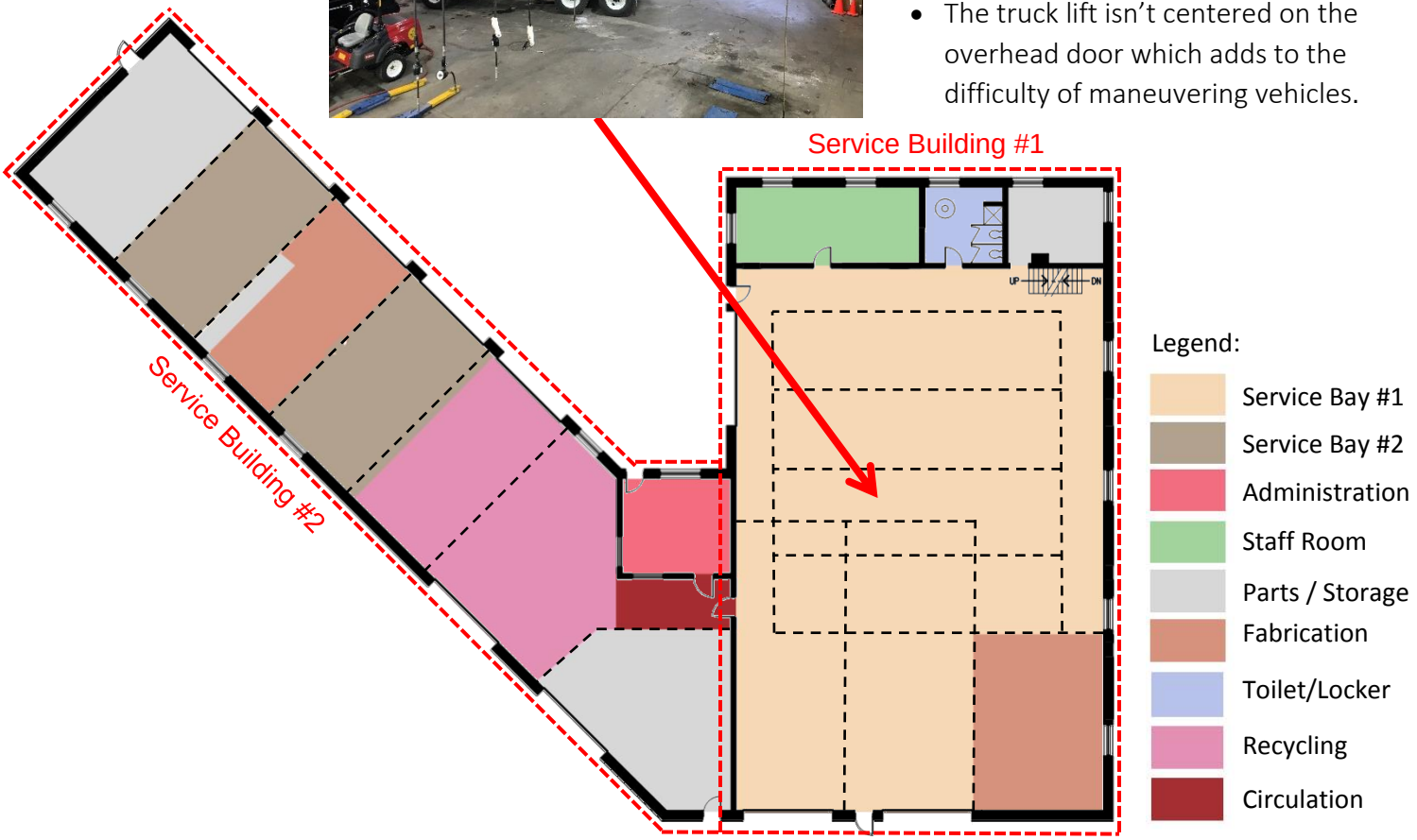
2.1 Inefficient use of maintenance bays

The Northbrook Fleet Maintenance Garage located at 1227 Cedar Lane, Northbrook Illinois was initially constructed in 1956 (Service Building #1) and contains 7,000 square feet on the ground floor, 720 square feet on the storage mezzanine level, and 720 square feet in the basement. In 1966, a 4,850 square foot addition was built (Service Building #2) to expand the number of maintenance bays.

Service Building #1 has six different vehicle maintenance bays totaling approximately 4,100 square feet of dedicated vehicle maintenance space with one (1) heavy duty truck hoist, three (3) car/truck lifts, and six (6) rotary mobile column lifts.



- Staff is forced to shuffle vehicles to utilize the lifts in the space. This results in inefficient time utilization.
- The truck lift isn't centered on the overhead door which adds to the difficulty of maneuvering vehicles.

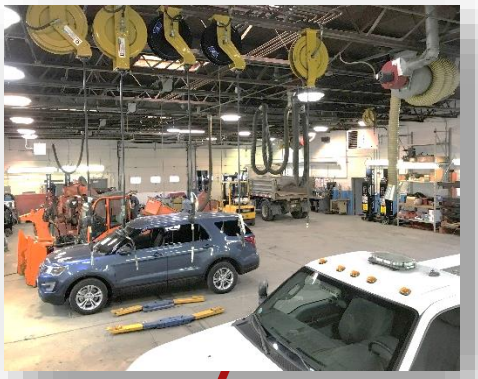


2.2 Insufficient maintenance bay ceiling heights

The original 1956 building (Service building #1) has steel roof joists with approximately 18’ clear height from the bottom of the structure to the finished concrete floor. Additionally, there are various pieces of mechanical and electrical equipment suspended below the joists allowing approximately 16’-6” to 17’-0” of clear space to service Village equipment.

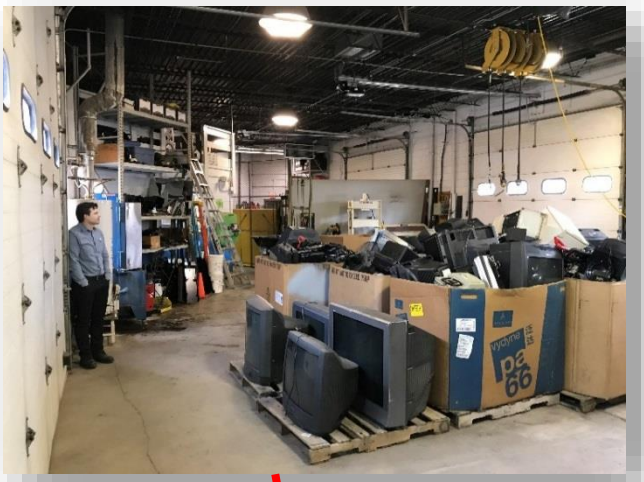
The 1966 building addition (Service Building #2) has steel roof joists with approximately 14’-0” clear space from the bottom of the structure to the finished concrete floor. Additionally, there are various pieces of mechanical and electrical equipment suspended below the joists allowing approximately 12’-6” to 13’-0” of clear space to service Village equipment.

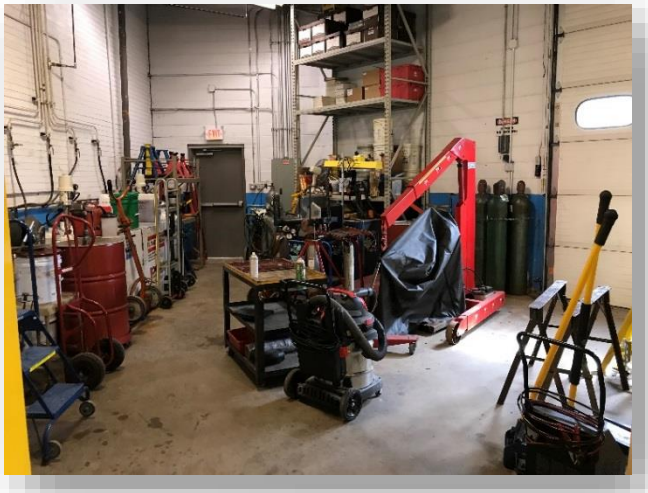
- There is Insufficient clear space in either Service Building #1 or #2 to maintain the Villages larger vehicles – especially the fire department aerial tower and ladder engines, or vacuum trucks.
- Larger vehicles must be serviced outside in all weather conditions.

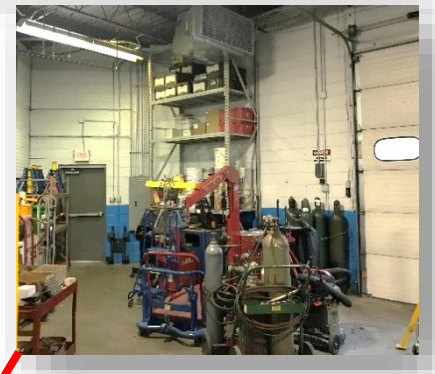


DRAFT

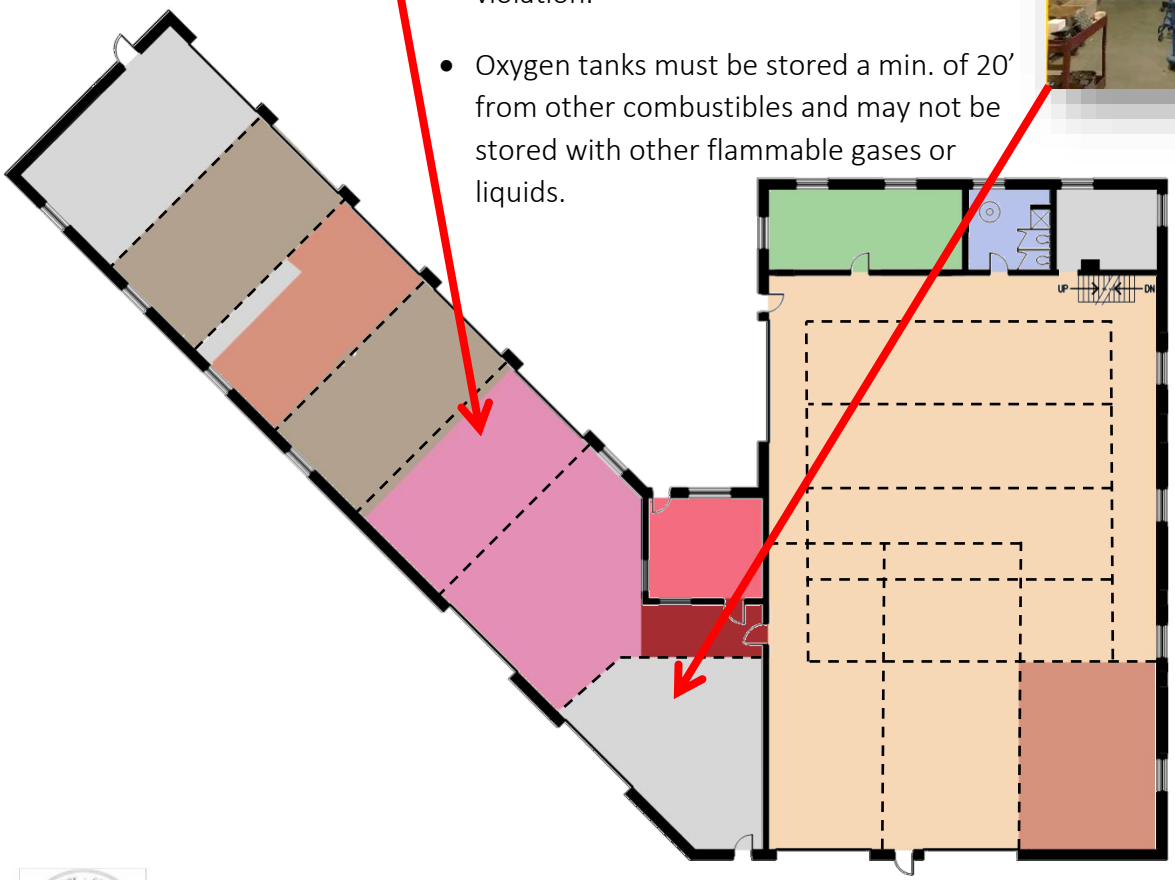
2.3 Storage Materials in Maintenance Bays







- Valuable vehicle maintenance space is being utilized to store recycling materials.
- Egress doors are within the caged parts storage area and don't have proper clearances or access resulting in a code violation.
- Oxygen tanks must be stored a min. of 20' from other combustibles and may not be stored with other flammable gases or liquids.

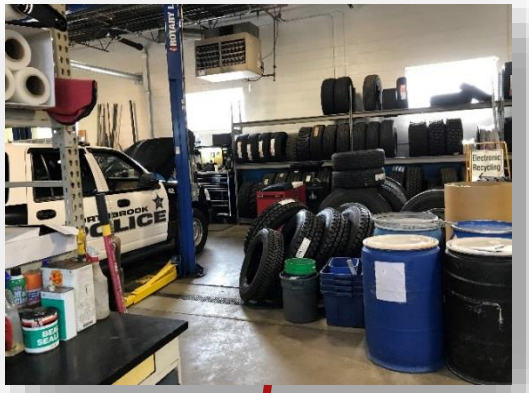


Legend:

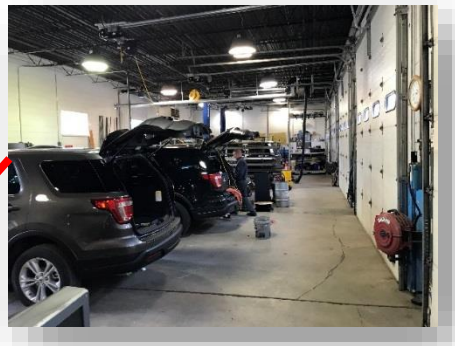
- Service Bay #1
- Service Bay #2
- Administration
- Staff Room
- Parts / Storage
- Fabrication
- Toilet/Locker
- Recycling
- Circulation

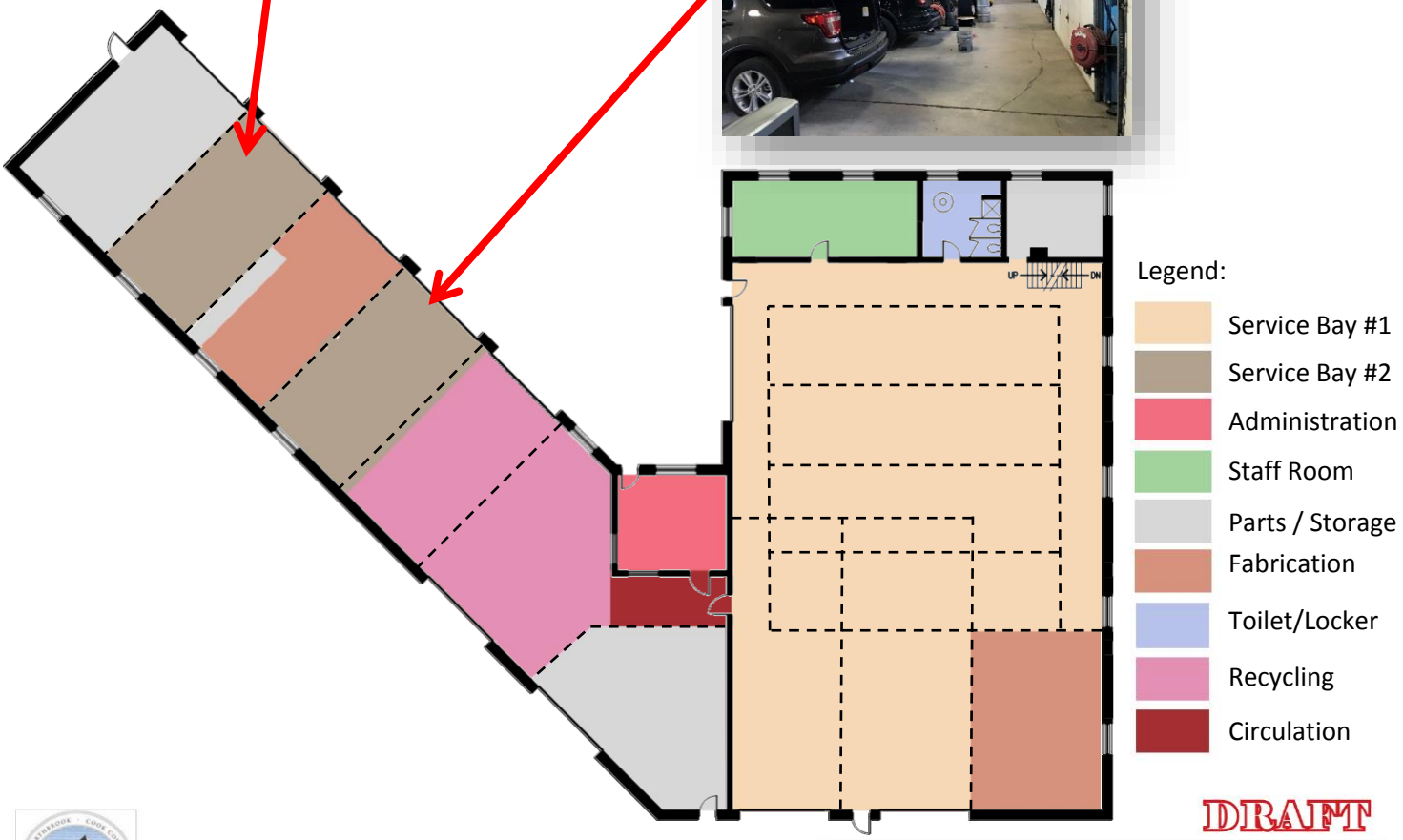
DRAFT

2.4 Inadequate work clearances



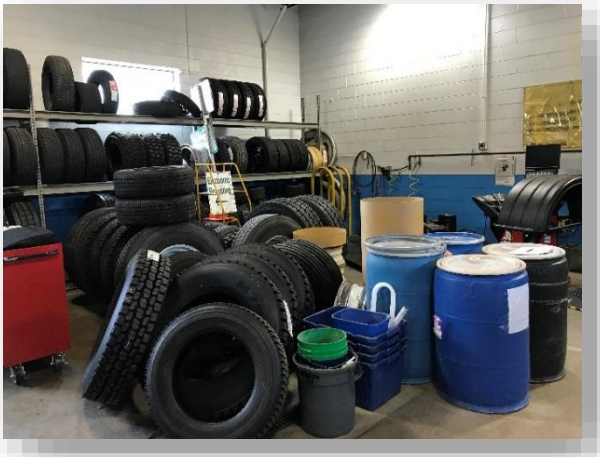
- Only two vehicle maintenance areas out of five potential spaces are being utilized in Service Building #2 for maintenance/change out purposes. This causes the overflow work to be shuffled over to Service Building #1 which adds to the inefficient use of space and poor time utilization.
- Work space around the vehicles in the maintenance areas is cramped and could use an additional three feet clearance around the vehicles for efficient space utilization.
- Only one vehicle maintenance area is utilized for change - overs and the space is tight and cramped. There is a need for two service areas and vehicles are often squeezed into one vehicle maintenance area.



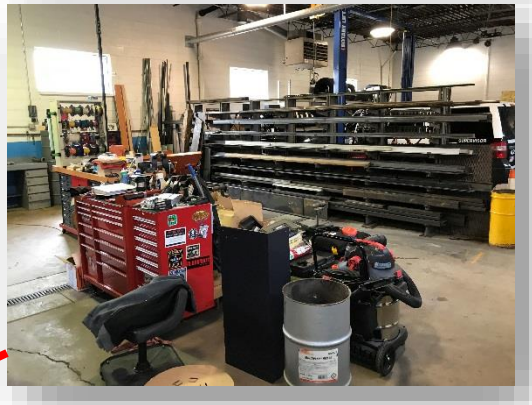


DRAFT

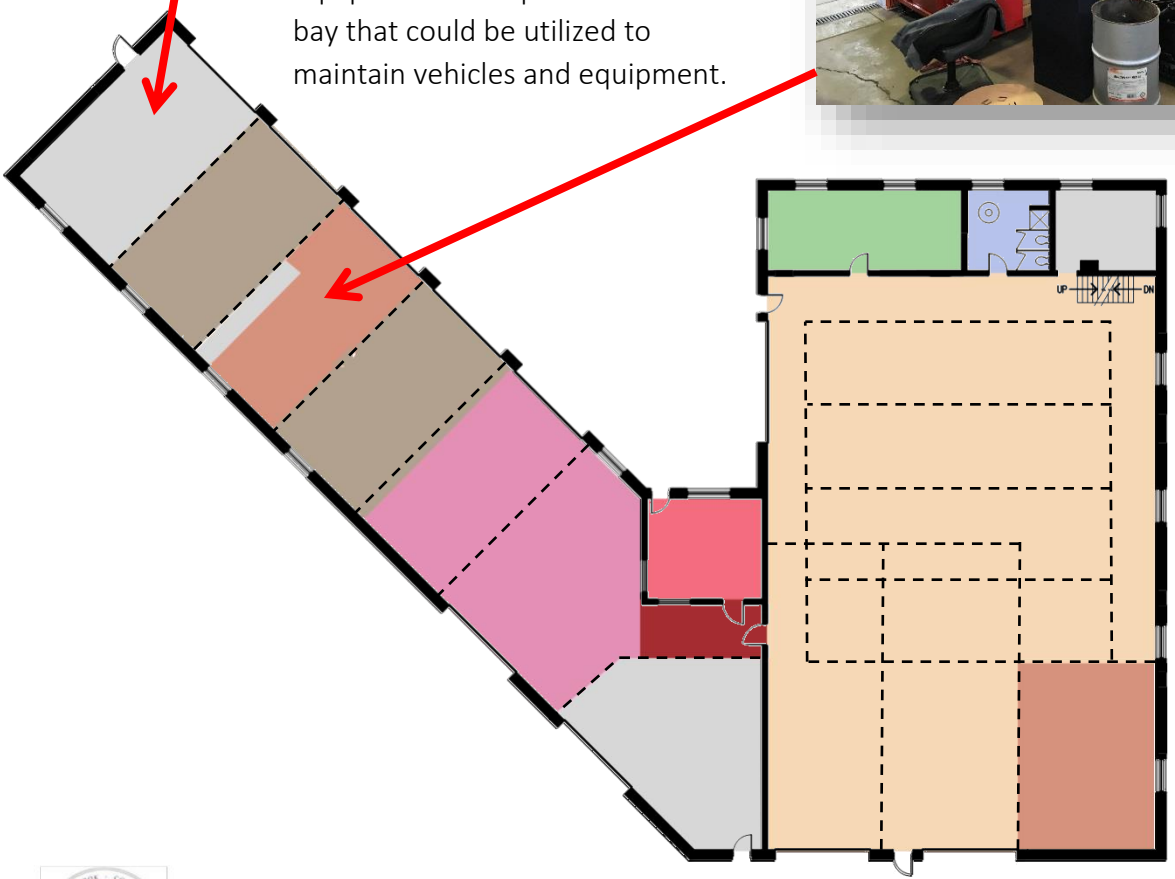
2.5 Shop spaces in maintenance bays



- Tire storage and associated equipment take up an entire service bay that could be utilized to maintain vehicles and equipment.



- Metal storage, shop tools, and equipment take up an entire service bay that could be utilized to maintain vehicles and equipment.



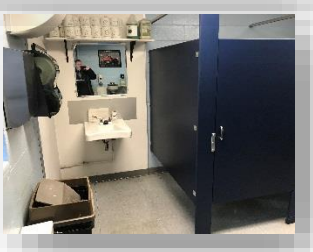
Legend:

- Service Bay #1
- Service Bay #2
- Administration
- Staff Room
- Parts / Storage
- Fabrication
- Toilet/Locker
- Recycling
- Circulation

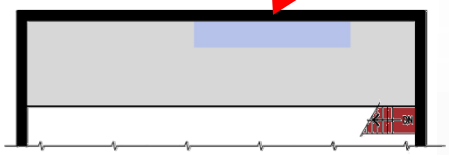
DRAFT

2.6 Insufficient toilet rooms and support spaces

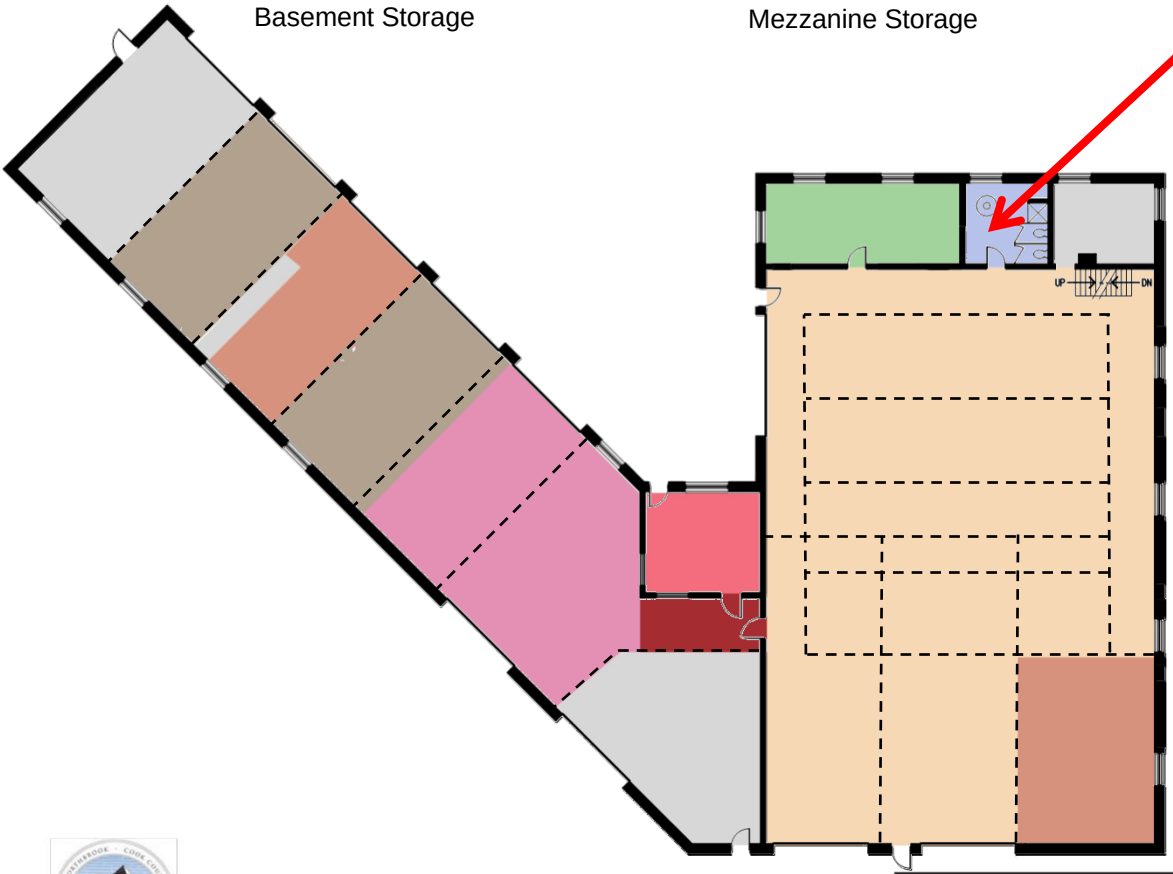
- Heavy parts and equipment are kept in the basement which are difficult to move.
- Men's locker area is located within a storage mezzanine. It is insufficient in size, lacking privacy, inaccessible, and not code compliant.
- Women's locker rooms and toilet facilities are absent in the current facility. Under this condition, women must use a unisex toilet facility originally designed as a men's toilet room.



Basement Storage



Mezzanine Storage

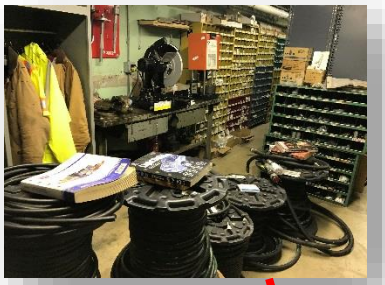


Legend:

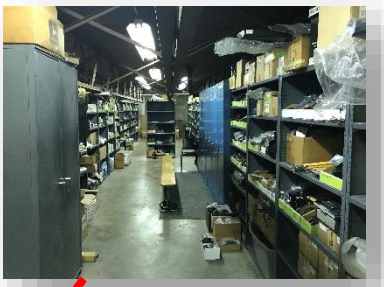
- Service Bay #1
- Service Bay #2
- Administration
- Staff Room
- Parts / Storage
- Fabrication
- Toilet/Locker
- Recycling
- Circulation

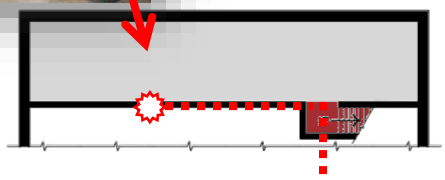
DRAFT

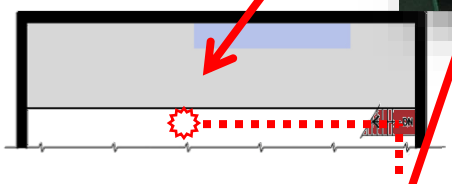
2.7 Poor proximity to support spaces

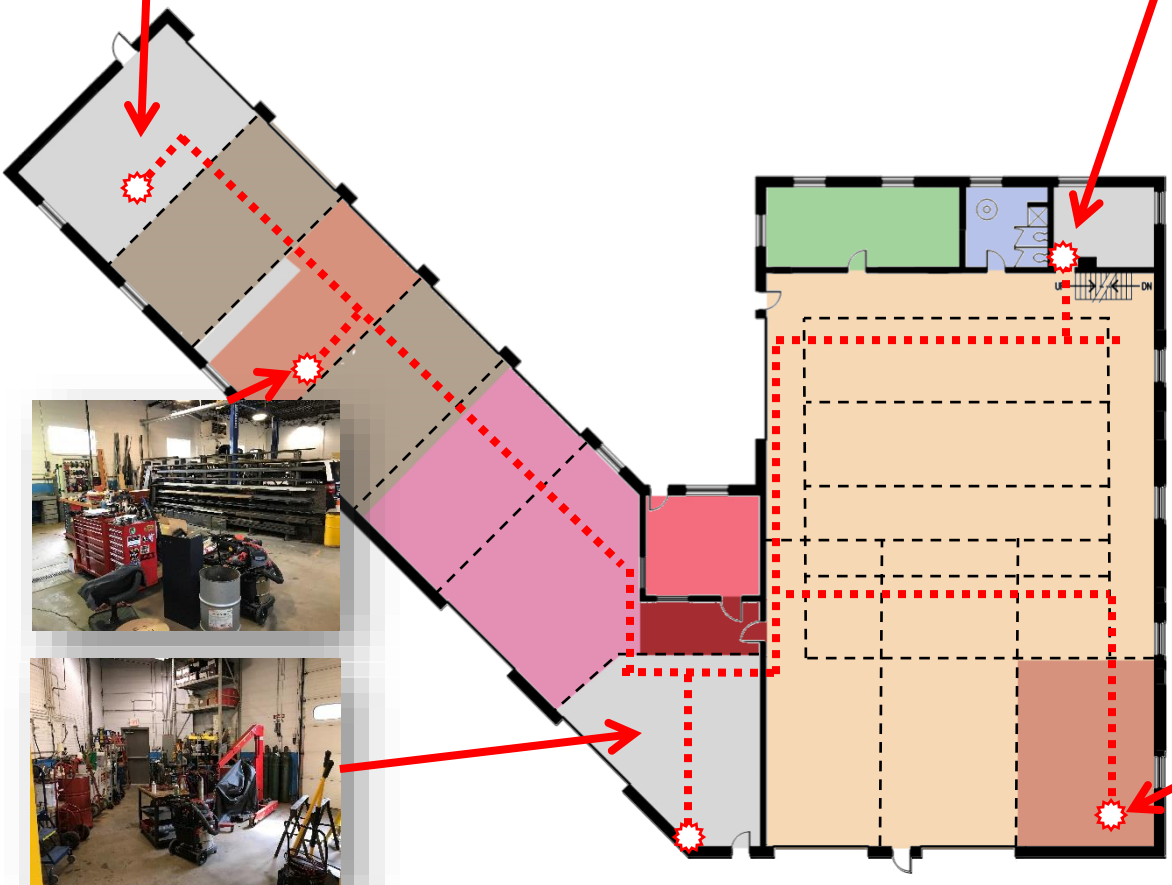


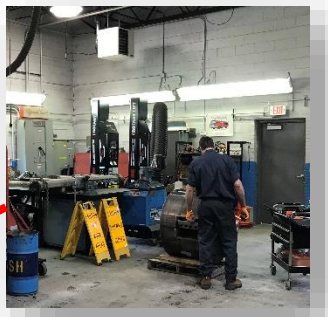
As the Fleet Maintenance Garage has evolved over the years, every corner of the facility has been utilized to meet their growing needs for storage and shop space. The circulation within the facility has become very inefficient. Parts and materials are stored in every remote location rather than in one central location with easy access. This forces the staff to spend time running for parts that should be located closer to their work spaces. Some of the most centrally located spaces inside the building are being utilized for recycling storage. These conditions have collectively made the facility very inefficient.











DRAFT

3.0

Space Program

3.1 Introduction

This section provides a tabulation of the functional components and spaces needed for the Northbrook Fleet Maintenance Garage.

The amount of space designated in each component has been developed through the interviewing of operations personnel, the evaluation of current deficiencies, and the application of relevant professional standards for the tasks and functions involved. Program development has incorporated efficiencies through task-specific space planning and space sharing where feasible. Reference is made to the following Section 4. Standards for this specific information.

In developing this component Space Program, the process has involved a survey form prepared specifically for this project. It has elicited information in a variety of areas from the FMG personnel. The information areas included have concerned such topics as the number of staff, types of working environments required, equipment and storage needs, amount of internal traffic, proximity and adjacency requirements with other functional areas.

3.2 SF Gap Analysis

On the next page, a Space Adequacy Summary is presented in graphic form.

It summarizes the findings concerning the amount of space that is presently available in each of the functional components in the Northbrook Fleet Maintenance Garage facility in relation to the amount of space that is found to be currently needed in each of these components. As such, it presents the extent of current space adequacy in each area and expresses this in terms of a percentage.

Both individual component and overall facility space adequacy is shown.

Two key features need to be brought into the picture when considering this information:

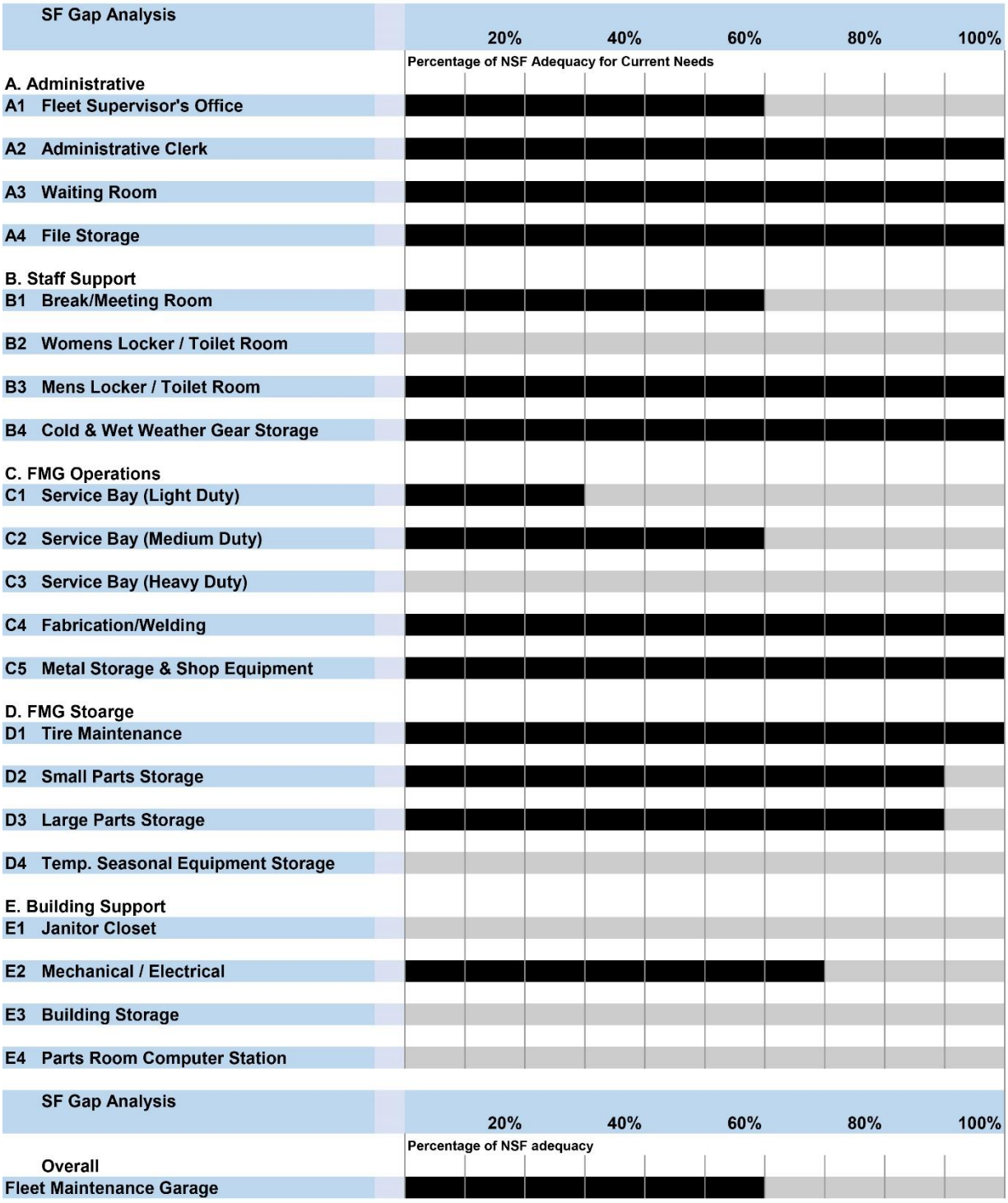
1. The Space Adequacy bar chart is displaying adequacy on a current basis. Without the provision of increased amounts of space going forward.
2. Space adequacy is only one of the key factors in evaluating the extent to which existing facilities are supporting operational needs. Other factors include the proximity of key components to one another, travel distances required of staff to perform their duties, code compliance, efficient grouping of functions, and convenience for the public in accessing services, among others.

Accordingly, the space evaluation is a very important factor in considering existing facilities adequacy but needs to be supplemented with the consideration of other factors mentioned above, as well. The full range of factors have been included in the development of the recommendations in this report.

Based upon all the data that has been assembled and evaluated, it is found that the current facility does not meet the space needs of the Department or their use.

SF (Square foot) Note:

The referenced area depicted in the following chart corresponds to NSF (net square feet) which includes usable SF for individual unit requirements plus secondary circulation around it (aisles between workstations). The black bar shown reflects the percentage of net square feet (NSF) currently occupied vs. that which is currently required for each listed unit.


SF Gap Analysis
20%
40%
60%
80%
100%
Percentage of NSF Adequacy for Current Needs
A. Administrative
A1 Fleet Supervisor's Office
A2 Administrative Clerk
A3 Waiting Room
A4 File Storage
B. Staff Support
B1 Break/Meeting Room
B2 Womens Locker / Toilet Room
B3 Mens Locker / Toilet Room
B4 Cold & Wet Weather Gear Storage
C. FMG Operations
C1 Service Bay (Light Duty)
C2 Service Bay (Medium Duty)
C3 Service Bay (Heavy Duty)
C4 Fabrication/Welding
C5 Metal Storage & Shop Equipment
D. FMG Stoarge
D1 Tire Maintenance
D2 Small Parts Storage
D3 Large Parts Storage
D4 Temp. Seasonal Equipment Storage
E. Building Support
E1 Janitor Closet
E2 Mechanical / Electrical
E3 Building Storage
E4 Parts Room Computer Station
SF Gap Analysis
20%
40%
60%
80%
100%
Percentage of NSF adequacy
Overall
Fleet Maintenance Garage

3.3
Individual Space Tabulation

Northbrook Fleet Maintenance Garage

A. Administrative
- A1 Fleet Supervisor's Office
- A2 Administrative Clerk
- A3 Waiting Room
- A4 File Storage

B Staff Support
- B1 Break/Meeting Room
- B2 Womens Locker Room
- B3 Mens Locker Room
- B4 Cold & Wet Weather Gear Storage

C FMG Operations
- C1 Service Bay (Light Duty)
- C2 Service Bay (Medium Duty)
- C3 Service Bay (Heavy Duty)
- C4 Fabrication/Welding
- C5 Metal Storage & Shop Equipment

D FMG Stoarge
- D1 Tire Maintenance
- D2 Small Parts Storage
- D3 Large Parts Storage
- D4 Temporary Seasonal Equipment Storage
- D5 Electronics Recycling

E Building Support
- E1 Janitor Closet
- E2 Mechanical / Electrical
- E3 Building Storage

F Exterior Support

F1 Parking
- - Staff Parking
- -Visitor Parking
- -Additional Required Parking
- -Secured Fleet Storage
- -Exterior Tire Storage

F2 Support
- -Trash / Recycling
- -Loading Dock
- -Generator
- -Ground Mounted Utility Equipment

Summary- Building Areas

As an introduction to the material that follows in this section, and as a preface to the Space Program for the Northbrook Fleet Maintenance Garage which is presented in this section of the report, a description of its formatting and the codes used follows.

EXPLANATORY LEGEND

Comp. No.	Space Name/ Designation	STND	Staff #	Unit/ NSF	Exist. SF	Staff #	Unit #	Current Need SF	Staff #	Unit #	10 Year SF	Staff #	Unit #	20 Year SF
C	**FMG Operations**													
C1	Service Bay (Light Duty)	SB-680		680	2,296	5	10	6,800	5	10	6,800	5	10	6,800
C2	Service Bay (Medium Duty)	SB-1182		1182	1,516		2	2,364		2	2,364		2	2,364
C3	Service Bay (Heavy Duty - large scale)	SB-1419		1419	0		1	1,419		1	1,419		1	1,419
C4	Fabrication / Welding	S-540		540	583		1	540		1	540		1	540
C5	Metal Storage & Shop Equipment			450	464		1	450		1	450		1	450

Comp. No.
Consultant Number used for component identification

STND
Space standard identification

Unit Net Square Feet
Usable Square Footage per component unit code

Current Need
Unit/# Number of component units currently needed.

Staff/# Number of staff currently needed.

SF: Total component square footage currently needed.

10 Year Need
Unit/# Number of component units currently needed in 10 years.

Staff/# Number of staff support needed in 10 years.

SF: Total component square footage needed in 10 years.

20 Year Need
Unit/# Number of component units currently needed in 20 years.

Staff/# Number of staff support needed in 20 years.

SF: Total component square footage needed in 20 years.

CIRCULATION FACTORS:

DEPARTMENTAL CIRCULATION FACTOR: Consists of space required for circulation within each Department or operational unit. (i.e. aisles between workstations). The total arrived by adding this factor equals NSF (net square feet). This factor varies by nature of size, number and type of space and is documented accordingly within the program. Example below:

Appears at each operational unit:

C4	Fabrication / Welding	S-540	540	583	1	540	1	540	1	540
C5	Metal Storage & Shop Equipment		450	464	1	450	1	450	1	450
	Circulation Factor- 30%			1892		3,472		3,472		3,472
Total FMG Operations Areas:				**6,751**		**15,045**		**15,045**		**15,045**

Note: The circulation factor will vary according to type of space and is reflected as such through out the program. (ex. – Office space with numerous smaller areas requires a higher factor than a larger or more contiguous area such as storage)

BUILDING GROSSING FACTOR: Consists of a 30% allowance made up of the following:

- Building Circulation – 15%
- Building Envelope (walls) – 3%
- Building Mechanical/Electrical space – 10%
- Interior Construction – 2%
  (wall thicknesses, mech/electrical chase, structure)

The total arrived by adding this factor equals GSF (gross square feet)

Note – This factor is an allowance only. It has proven to be an accurate allowance for planning purposes however the design layout and specific equipment required will dictate the actual percentage. It is a goal in the design process to keep this number as minimal as possible. Example below:

Appears on the summary page:

FMG Operations	**6,751**	**5**	**15,045**	**5**	**15,045**	**5**	**15,045**

Comp. No.	Space Name/ Designation	STND	Staff #	Unit/ NSF	Exist. SF	Staff #	Unit #	Current Need SF	Staff #	Unit #	10 Year SF	Staff #	Unit #	20 Year SF
A.	**Administration**													
A1	Fleet Supervisor's Office	O-120		120	67	1	1	120	1	1	120	1	1	120
A2	Administrative Clerk	O-64		64	64	1	1	64	1	1	64	1	1	64
A3	Waiting Room	O-40		20	42		1	20		1	20		1	20
A4	File Storage			20	20		1	20		1	20		1	20
	Circulation Factor- 30%				100			67			67			67
Total Administration Areas:					**293**			**291**			**291**			**291**
B	**Staff Support**													
B1	Break/Meeting Rm	B-527		527	344		1	527		1	527		1	527
B2	Womens Locker / Toilet Rm	L-265		265	0		1	265		1	265		1	265
B4	Mens Locker / Toilet Rm	L-265		265	235		1	265		1	265		1	265
B6	Cold & Wet Weather Gear Storage			50	50		1	50		1	50		1	50
	Circulation Factor- 30%				300			332			332			332
Total Staff Support Areas:					**929**			**1,439**			**1,439**			**1,439**
C	**FMG Operations**													
C1	Service Bay (Light Duty)	SB-680		680	2,296	5	10	6,800	5	10	6,800	5	10	6,800
C2	Service Bay (Medium Duty)	SB-1182		1182	1,516		2	2,364		2	2,364		2	2,364
C3	Service Bay (Heavy Duty - large scale)	SB-1419		1419	0		1	1,419		1	1,419		1	1,419
C4	Fabrication / Welding	S-540		540	583		1	540		1	540		1	540
C5	Metal Storage & Shop Equipment			450	464		1	450		1	450		1	450
	Circulation Factor- 30%				1892			3,472			3,472			3,472
Total FMG Operations Areas:					**6,751**			**15,045**			**15,045**			**15,045**
D	**FMG Stoarge**													
D1	Tire Maintenance	S-384		383	533		1	383		1	383		1	383
D3	Small Parts Storage			200	176		1	200		1	200		1	200
D4	Large Parts Storage			2000	1,773		1	2,000		1	2,000		1	2,000
D5	Temporary Seasonal Equipment Storage			500	0		1	500		1	500		1	500
D8	Electronics Recycling			0	985		0	0		0	0		0	0
	Circulation Factor- 30%				1650			925			925			925
Total FMG Storage Areas:					**5,117**			**4,008**			**4,008**			**4,008**
E	**Building Support**													
E1	Janitor Closet			50	0		1	50		1	50		1	50
E2	Mechanical / Electrical			200	140		1	200		1	200		1	200
E3	Building Storage			100	0		1	100		1	100		1	100
E4	Building Storage			100	0		1	100		1	100		1	100
E5	Parts Room Computer Station			50	0		1	50		1	50		1	50
	Circulation Factor- 30%				60			150			150			150
Total Building Support Areas:					**200**			**650**			**650**			**650**

Comp. No.	Space Name/ Designation	STND	Staff #	Unit/ NSF	Exist. SF	Staff #	Unit #	Current Need SF	Staff #	Unit #	10 Year SF	Staff #	Unit #	20 Year SF
	SUMMARY													
A	**Administration**				**293**	**2**		**291**	**2**		**291**	**2**		**291**
B	**Staff Support**				**929**			**1,439**			**1,439**			**1,439**
C	**FMG Operations**				**6,751**	**5**		**15,045**	**5**		**15,045**	**5**		**15,045**
D	**FMG Storage**				**5,117**			**4,008**			**4,008**			**4,008**
E	**Building Support**				**200**			**650**			**650**			**650**
	Total GSF:				**13,290**			**21,433**			**21,433**			**21,433**
	Staff:					**7**			**7**			**7**		
F.	**Exterior Support**													
F1	**Parking**													
	Staff Parking			200			7	1,400		7	1,400		7	1,400
	Visitor Parking			200			2	400		2	400		2	400
	Additional Required Parking			200			11	2,200		11	2,200		11	2,200
	Secured Fleet Storage			200			5	1,000		5	1,000		5	1,000
	Exterior Tire Storage							500			500			500
	Circulation Factor- 50%							2,750			2,750			2,750
Total Administration Areas:								**8,250**			**8,250**			**8,250**
F2	**Support**													
	Trash / Recycling			120			1	120		1	120		1	120
	Loading Dock			265			1	265		1	265		1	265
	Generator			200			1	200		1	200		1	200
	Ground Mounted Utility Equipment			300			1	300		1	300		1	300
	Circulation Factor- 10%							310			310			310
Total Staff Support Areas:								**1,195**			**1,195**			**1,195**

4.0

Space Standards

4.1 Introduction

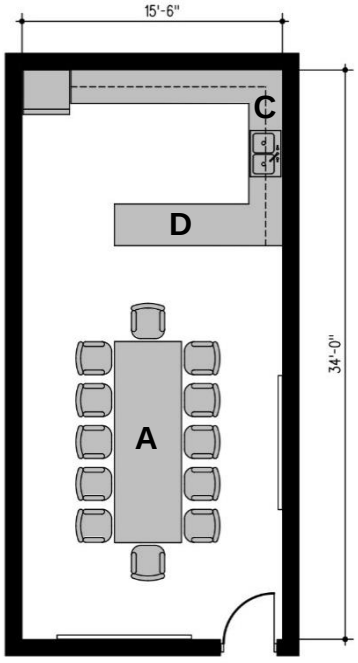
In this section, Individual Space Standards are illustrated which describe assignable areas together with their furnishings and equipment capabilities.

In the development of the Northbrook Fleet Maintenance Garage Program, it was determined that similar work area requirements are needed for certain functions on a recurring basis throughout the different operation areas. Accordingly, a series of space standards are presented in this section which are utilized in the Space Tabulations section for similar staff work assignments throughout the FMG.

The Space standards which follow in this section have been prepared to accommodate Federal ADA (American With Disabilities Act) requirements and recognized professional requirements. Accordingly, they represent mandated minimums in certain of their dimensional tolerances.

Finally, the standards which follow present the more repeated types of spaces and do not attempt to depict every space that is described in the program. Various specialized space standards, however, are depicted.

Table of Contents:

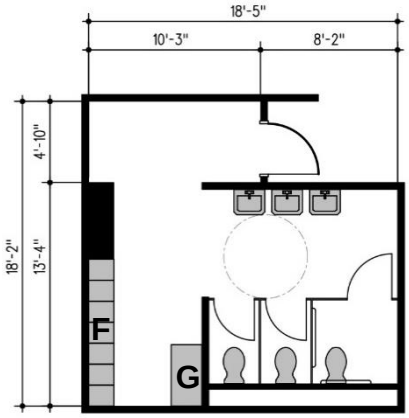


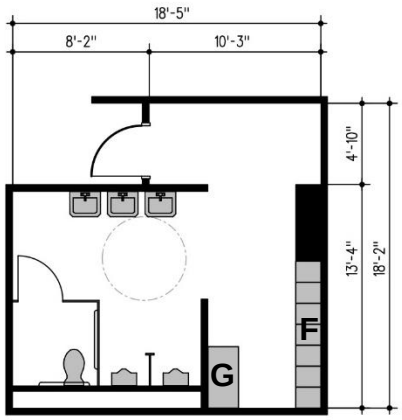
B-527

Designated Area:

Break Room

Net Square Feet: 527





L-265

Designated Area:

Womens & Mens Locker / Toilet Rooms

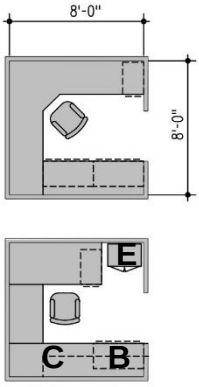
Net Square Feet: 265

Legend:

A……..…….……42x120 Table and Chairs
B…….…… …. …. Refrigerator./Freezer
C……..……Upper Storage Cabinets
D……..……Base Cabinets
E……..……White Board/Screen/Tack Bd.
F……..……..……..12x72 Metal Lockers
G……..……..……..ADA Bench

Break Room & Toilet / Locker Room B/L-1

DRAFT

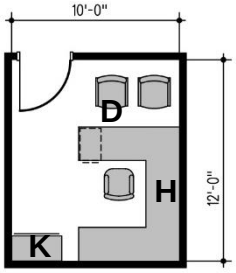


O-64

Designated Area:

Admin - Clerk

Net Square Feet: 64

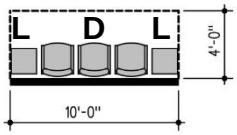


O-120

Designated Area:

Admin - Fleet Supervisor

Net Square Feet: 120



O-40

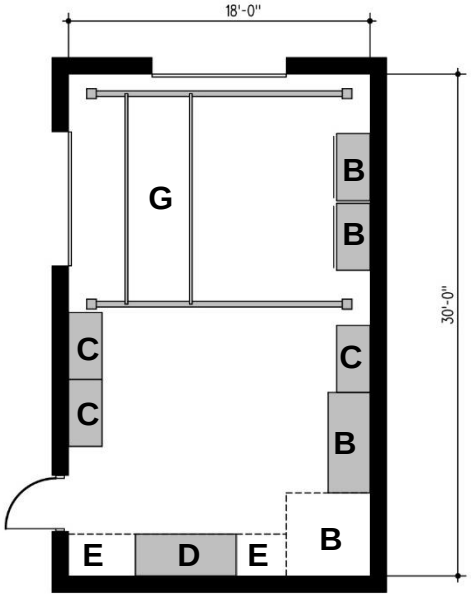
Designated Area:

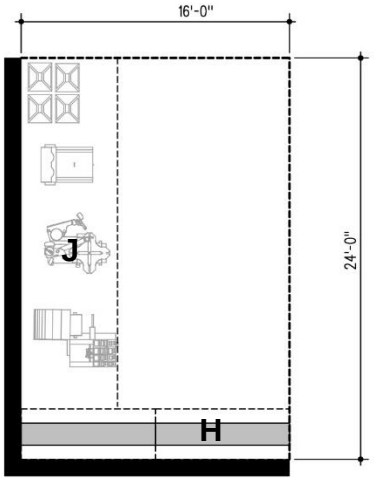
Admin - Waiting Area

Net Square Feet: 40

Legend:

A……Undercounter Pedestal/File
B……Under Counter Lateral File
C……Overhead Shelving
D……Guest Seating
E……Wardrobe Closet.
F……Task Lighting
G……White Board/Screen/Tack Board
H……66”W U-Shaped Work Area w/ Files
J……Book Case
K……36”W. Lateral File Cabinet
L……Side Table





S-540

Designated Area:

Fabrication Shop

Net Square Feet: 540

S-384

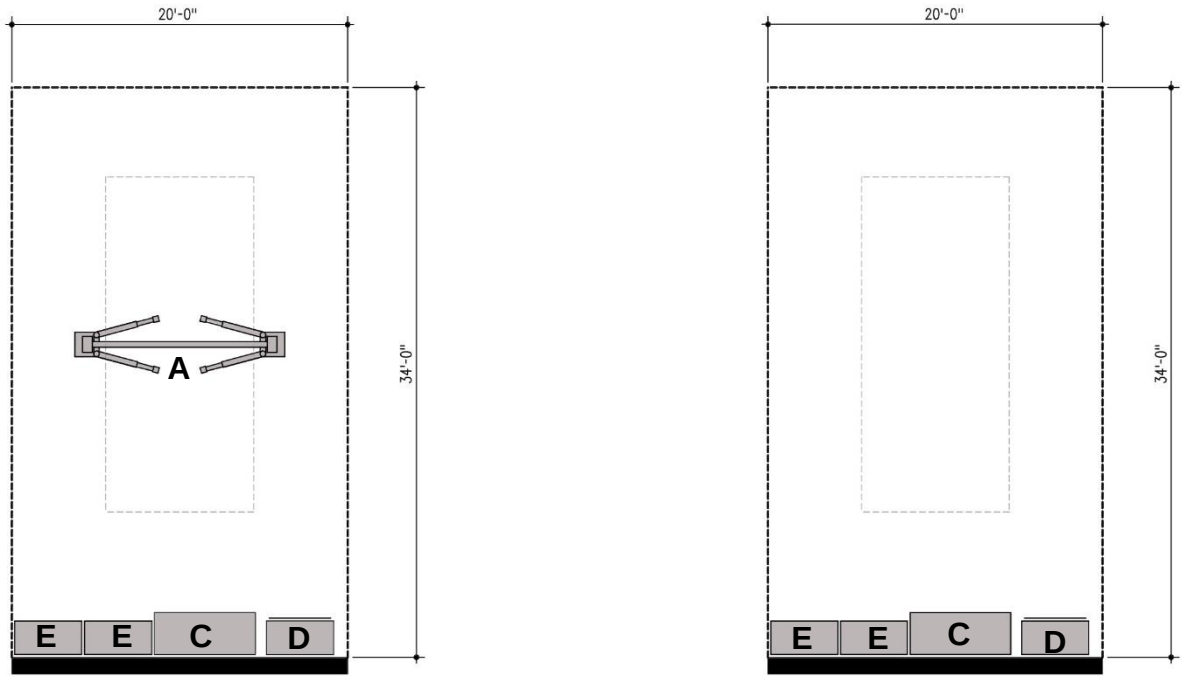
Designated Area:

Tire Shop

Net Square Feet: 384

Legend:

A……..……..……30x72 Workbench
B……..……24x48 Mobile Tool Storage
C……..……24x48 Heavy Duty Storage Shelving
D……..……30x72 Welding Bench
E……..…Welding Equipment
F……..……Grinding
G…… Overhead Shop Crane (1/2 ton)
H……16x92 (3) Tier Tire Shelving
J……Tire Equipment



SB-680

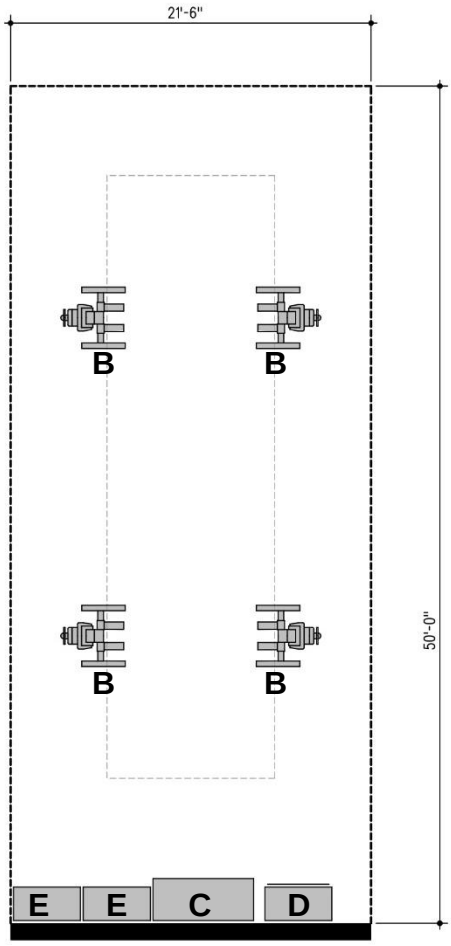
Designated Area:

Service Bay (Light Duty - Lift)
Service Bay (Light Duty - No Lift)
Change-Over Bay (Light Duty - No Lift)

Net Square Feet: 680

Legend:

A……(2) Two Post Overhead Lift (12,000 lbs)
B……..Portable Column Lift (18,000 lbs)
C……30x72 Workbench
D……24x48 Mobile Tool Storage
E……24x48 Heavy Duty Storage Shelving

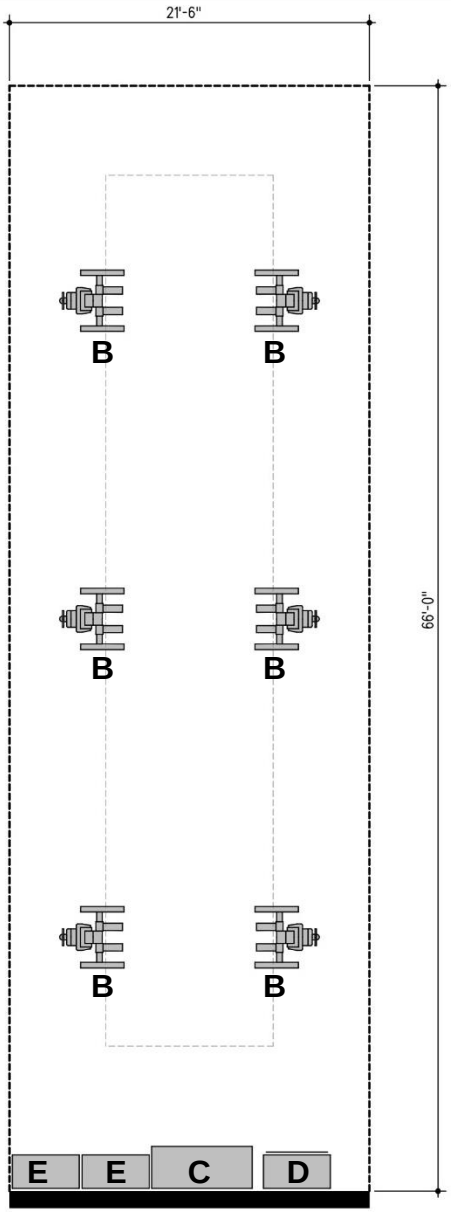


SB-1182

Designated Area:

Service Bay (Medium Duty - Lift)

Net Square Feet: 1,182



SB-1419

Designated Area:

Service Bay (Heavy Duty - Lift)

Net Square Feet: 1,419

Legend:
A……..(2) Two Post Overhead Lift (12,000 lbs)
B……..Portable Column Lift (18,000 lbs)
C……30x72 Workbench
D……..24x48 Mobile Tool Storage
E……..24x48 Heavy Duty Storage Shelving

5.0

Options

5.1 Introduction of Options

Following the development of the Space Needs Program for the Northbrook Fleet Maintenance Garage, together with completion of the Existing Facility Problems analysis, attention was turned to the options that could be considered to meet these needs.

Three final options are presented for consideration. They are:

Option No. 1:

Construct an addition immediately north of the existing FMG - Service Building #2 to supplement the existing operations and reorganize the existing facility to remedy the identified deficiencies.

Option No. 2:

Construct a new Northbrook Fleet Maintenance Garage at another location and demolish the existing facility and redevelop the land for additional Northbrook parking for the downtown business corridor.

5.2 Option 1 Detail

During the analysis of the present Fleet Maintenance Garage operations at the 1227 Cedar Lane location, the following findings are pertinent to the facilities.

To maintain the Villages fleet in an organized and efficient manner, additional service bays would need to be added. The program identifies the need for three different service bays:

- Heavy Duty – which would accommodate the largest Village vehicles such as the fire department tower and ladder trucks with a head height of 24' min. floor to underside of structure. This maintenance bay would utilize heavy duty (18,000 lbs.) individual mobile column lifts to service the vehicles. This allows for flexibility of the maintenance bay.
- Medium Duty – which would accommodate the large equipment that can be serviced with a head height of 20' or lower. This maintenance bay would also utilize heavy duty (18,000 lbs.) individual mobile column lifts to service the vehicles. This allows for flexibility of the maintenance bay.
- Light Duty – which would accommodate the cars, trucks, and small equipment. This maintenance bay would utilize smaller two post overhead lifts (12,000 lbs.) to service the vehicles.

The existing Northbrook Fleet Maintenance Garage doesn't have enough light duty service bays to allow the staff to efficiently maintain the fleet. Additionally, there are several maintenance bays that are being utilized for recycled materials and tire storage that could otherwise be used for vehicle maintenance which is the primary function of the facility. There isn't a heavy-duty service bay in the existing facility.

The first finding in the assessment of Option One was that there would need to be a substantial addition to address the need for higher floor to structure clear heights for the Villages largest vehicles. The existing facility doesn't have the minimum clearances to maintain these vehicles inside of the facility as detailed in the "Identified Problems" section of this report.

In addition, the existing FMG facility includes dysfunctional locations of various operational components. These problems are identified and described in the "Existing Facility Problems" section of the report. The overlapping operational areas, inefficient circulation patterns and remote parts storage have all contributed to the current inefficiencies. Beyond the work space day to day movement patterns there is a lack of sufficient service/maintenance space as described in the "Space Needs" sectional of this report.

Option 1 features a northward expansion behind the existing service building #2 and the reallocation of the existing space within the facility. The addition would be built with a 24'-0" minimum clear head height from the floor to the bottom of structure and will house a new heavy-duty service bay that the existing facility is lacking. Support, Parts, and storage spaces are relocated in this option to be more centrally located which will help with the operational efficiency. Existing space within the facility will be reorganized to provide code compliant toilet and locker room facilities for both men and women. This option is not without its challenges however, because there will need to be a reconfiguration of the parking lot to the west of the existing facility which will result in a loss of Village parking spaces.

5.3 Option 2 Detail

Option 2 is the construction of a replacement fleet maintenance garage located at a different site. This option is contingent upon the identification of a suitable alternative location and its feasibility for acquisition. The replacement facility may utilize an open site or take advantage of existing shell warehouse space. It is likely that that a new location will involve a greater amount of new construction to accommodate operational and organizational efficiencies.

5.5 Overview of Option Benefits and Challenges

Option 1:

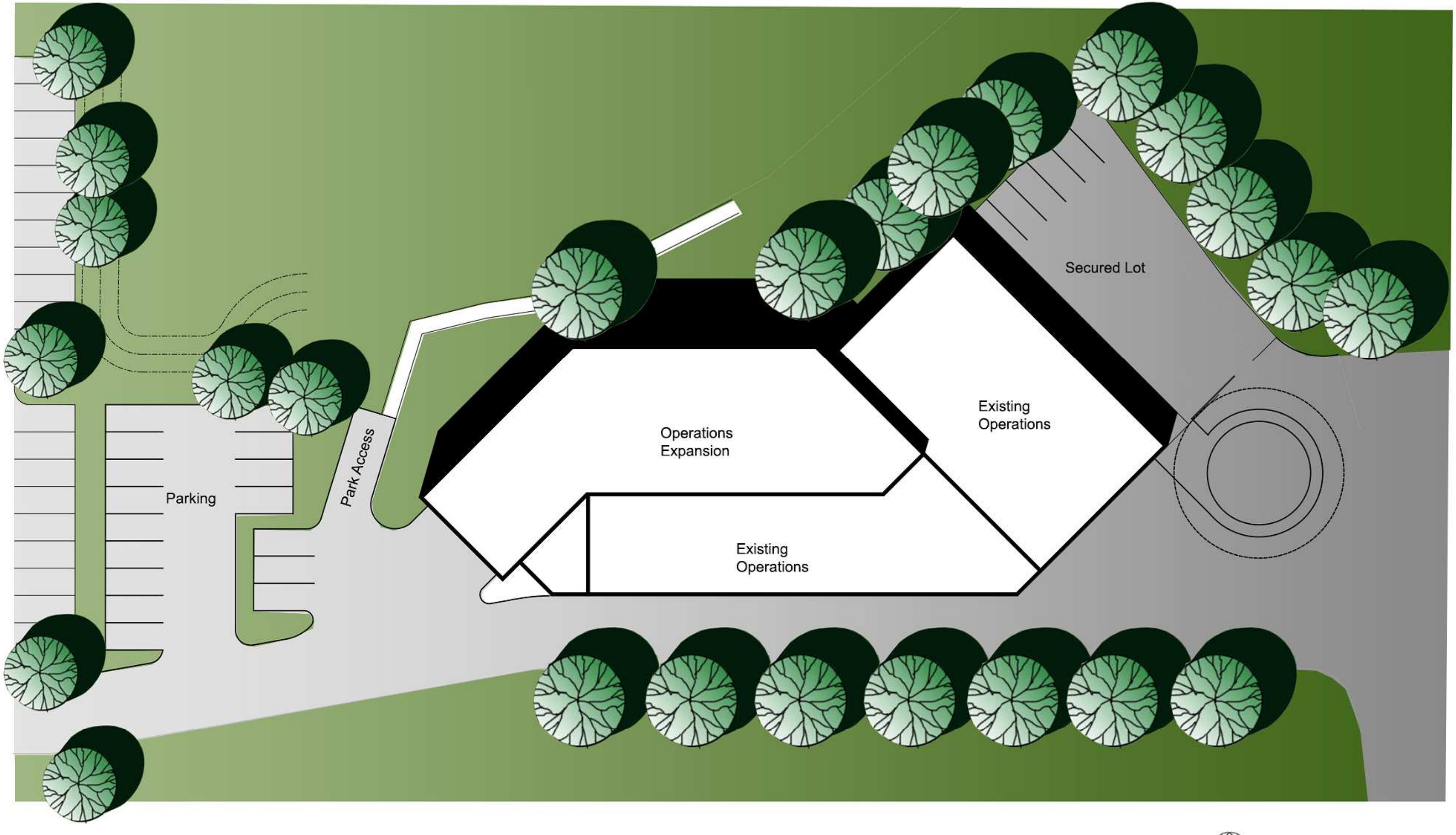
- Re-uses existing space, reducing the amount of new construction required.
- Requires no property acquisition.
- Requires shuffling of maintenance areas during construction.
- Achieves enhanced functional relationships of operational components.
- Achieves secured vehicle storage.
- Achieves dedicated areas for parts storage and shop spaces in centralized locations.
- Achieves additional services bays
- Achieves one service bay with higher ceiling heights to maintain larger vehicles inside the facility.
- Achieves the addition of adequate toilet and locker room facilities.

Option 2:

- Requires site acquisition (potentially offset by sale of existing site).
- Allows Fleet Maintenance Garage to remain operational in the existing building throughout the construction period.
- Allow for optimal space planning and open concept

6.0

Option - Diagram

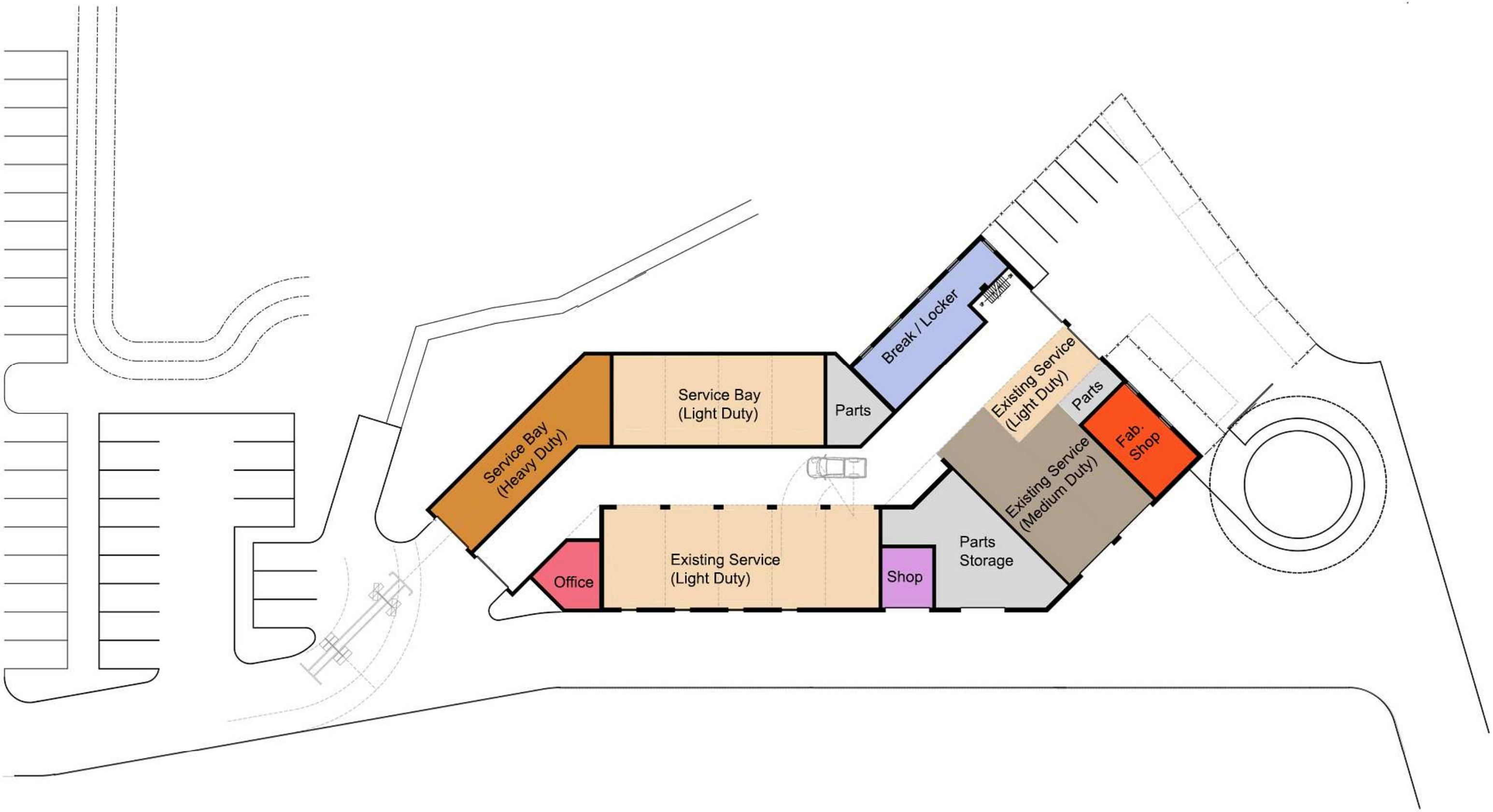


Option **1** SITE PLAN

NORTH 0 10 20 30

DRAFT

Healy, Bender & Associates, Inc. | Moyer Associates Inc..



Option **1** BLOCKING PLAN

NORTH 0 10 20 30

DRAFT

7.0

Preliminary Cost Review

8.1 Introduction

At this early stage of project scope definition, detailed cost estimating is not feasible. However, a preliminary analysis can be developed which is based upon the use of cost-per-square foot allowances for the various categories of construction or renovation, and based upon cost experience in other similar projects.

Even under this procedure, no two projects are exactly the same in their complexity or other features. Other project cost experience is also influenced by the market conditions at the time it was bid, the volume of local construction activity affecting contractor interest and other factors.

Accordingly, the cost review for the Option 1 project scope for the Northbrook Fire Department facility is very preliminary. It uses cost-per-square-foot allowances for the proposed renovation of existing space at three different levels:

Minor Renovation
Moderate Renovation
Major Renovation

It uses a different "average" cost-per-square-foot allowance for proposed new construction. A contingency allowance is added for project administrative costs, professional fees, FFE (Furniture, Fixtures and Equipment) and site development including landscaping.

The "square footage" calculations are based upon the Police space program presented in this report, combined with preliminary estimates of space needed for circulation (corridors), mechanical and other support space.

All of the above will be impacted by subsequent project development going forward, including decision-making by the Village of Northbrook concerning project features.

7.1 Preliminary Cost Review

CALCULATION OF NEW & RENOVATED SPACES (SF) & COST SUMMARY

Area		MINOR RENOVATION		MODERATE RENOVATION		MAJOR RENOVATION		NEW CONSTRUCTION		SUBTOTALS	
		SF	Allowance	SF	Allowance	SF	Allowance	SF	Allowance	SF	Allowance
			52.5		105		157.5		210		
FLEET MAINTENANCE GARAGE - OPTION 1											
ADMINISTRATION											
A1	Fleet Supervisor's Office			67	$7,035			120	$25,200	187	$32,235
A2	Administrative Clerk			64	$6,720			64	$13,440	128	$20,160
A3	Waiting Room			42	$4,410			20	$4,200	62	$8,610
A4	File Storage			20	$2,100			20	$4,200	40	$6,300
A5	Circulation			100	$10,500			100	$21,000	200	$31,500
STAFF SUPPORT											$0
B1	Break/Meeting Rm					344	$54,180			344	$54,180
B2	Women's Locker / Toilet Rm										$0
B4	Men's Locker / Toilet Rm					235	$37,013			235	$37,013
B6	Cold & Wet Weather Gear Storage			50	$5,250					50	$5,250
B7	Circulation			300	$31,500					300	$31,500
FMG OPERATIONS											$0
C1	Service Bay (Light Duty)			2296	$241,080			1928	$404,880	4224	$645,960
C2	Service Bay (Medium Duty)			1516	$159,180					1516	$159,180
C3	Service Bay (Heavy Duty)							1350	$283,500	1350	$283,500
C4	Fabrication/Welding					583	$91,823			583	$91,823
C5	Metal Storage & Shop Equipment			464	$48,720					464	$48,720
C6	Circulation			1892	$198,660			3970	$833,700	5862	$1,032,360
FMG STORAGE											$0
D1	Tire Maintenance			533	$55,965					533	$55,965
D3	Small Parts Storage					176	$27,720			176	$27,720
D4	Large Parts Storage			1773	$186,165			376	$78,960	2149	$265,125
D5	Temporary Seasonal Equipment Storage										$0
D8	Electronics Recycling			985	$103,425					985	$103,425
D9	Circulation			1650	$173,250					1650	$173,250
BUILDING SUPPORT											$0
E1	Janitor Closet										$0
E2	Mechanical / Electrical			140	$14,700					140	$14,700
E3	Building Storage										$0
E4	Circulation			60	$6,300					60	$6,300
SITE RECONFIGURATION											$0
	Parking Lot Reconfiguration										$100,000
SUBTOTAL:				11952	$1,254,960	1338	$210,735	7948	$1,669,080		
TOTAL:										21238	$3,234,775

Note: Option 1 - Includes the re-use of existing FMG building including both Service Building #1 and Service Building #2.

Option 1 - On-Site and Off-Site grading, utilities, and storm water management costs have not been included in this estimate. Costs for an engineered solution will need to be added.

Security System Equipment	$50,000
Project Contingency 15%	$485,216
Adm/Fees/Exp 10%	$323,478
FF&E 7%	$226,434
Inflation 5.5%	$177,913
Total Preliminary Project Cost:	**$4,497,816**

FLEET MAINTENANCE GARAGE - OPTION 2											
TOTAL"									$210	21238	$4,459,980

Note: Option 2 - Requires acquisition of a site for a new Fleet Maintenance Garage. For the purposes of this review it was assumed that the new facility would be entirely new construction. The cost of a new site is not included in this review, nor is the redevelopment of the existing site to create additional Village parking or any revenue realized from a potential sale of the existing FMG property.

Option 2 - On-Site and Off-Site grading, utilities, and storm water management costs for the new site have not been included in this estimate. Costs for an engineered solution will need to be added.

Parking Lot	$100,000
Security System Equipment	$50,000
Project Contingency 15%	$668,997
Adm/Fees/Exp 10%	$445,998
FF&E 7%	$312,199
Inflation 5.5%	$245,299
Total Preliminary Project Cost:	**$6,182,473**

DRAFT