FGM ARCHITECTS

ARLINGTON HEIGHTS POLICE DEPARTMENT FEASIBILITY STUDY

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VILLAGE OF ARLINGTON HEIGHTS

FEASIBILITY STUDY

SUBMITTED TO:
Village of Arlington Heights
33 South Arlington Heights Road
Arlington Heights, Illinois 60005-1499

FGM Architects Inc.
1211 West 22nd Street
Oak Brook, Illinois 60523
Phone: 630.574.8300
Fax: 630.574.9292

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Steve Hautzinger, Design Planner

FGM Architects Team

Raymond Lee, Principal-in-Charge, Planner/Programmer
Louise Kowalczyk, Project Designer
Ryan Rathman, Project Manger
Carol Sente, Client Advocate
Consolidated Consulting Engineers, MEP Engineering
McCluskey Engineering, Structural Engineering

TABLE OF CONTENTS

SECTION 1 ..... Executive Summary ..... Page 3

SECTION 2 ..... Project Understanding and Methodology ..... Page 10

SECTION 3 ..... Project Goals and Questions to be Answered ..... Page 13

SECTION 4 ..... Space Needs Analysis ..... Page 17
Parking Analysis ..... Page 23
Temporary Police Facility Needs ..... Page 26
Space Needs Analysis - Attachments ..... Page 27

SECTION 5 ..... Existing Conditions Analysis ..... Page 53
Site Evaluation ..... Page 53
Landscape Evaluation ..... Page 56
Architectural Evaluation ..... Page 57
Structural System Evaluation ..... Page 59
Mechanical System Evaluation ..... Page 65
Plumbing System Evaluation ..... Page 70
Electrical System Evaluation ..... Page 71
Environmental Evaluation ..... Page 85

SECTION 6 ..... Initial Concept Development ..... Page 89
Site Concept Development ..... Page 89
Initial Site and Building Concepts ..... Page 89
Refined Site and Building Concepts ..... Page 99

SECTION 7 ..... Final Conceptual Solutions ..... Page 104
Final Conceptual Solutions - Attachments ..... Page 116

SECTION 8 ..... Project Budgets ..... Page 132
Budget Summary ..... Page 133
Other Costs ..... Page 134
Budget Comparison to Other Police Stations ..... Page 135
Budget Comparison to 2009 Study ..... Page 136
Project Budget Attachments – New Police Station ..... Page 137
Project Budget Attachments – Village Owned Assets ..... Page 146
Project Budget Attachments – Temporary Facility ..... Page 151

SECTION 9 ..... Recommendations ..... Page 153
Recommendation Attachments ..... Page 156

SECTION 10 ..... Appendix ..... Page 171
Geotechnical Investigation

SECTION 1
EXECUTIVE SUMMARY

Introduction

The Village of Arlington Heights commissioned FGM Architects to prepare a feasibility study for a police station. The assessment includes verification of the space needs requirements of the Police Department, review of a previously developed existing building condition report, development of preliminary site and floor plans and project budgets. The study will provide the Village with the information necessary to make an informed decision on how to best address the long term facility needs of the Police Department.

Historical Data

The Arlington Heights Police Department is located at 200 E. Sigwalt Street in Arlington Heights and is part of the Municipal Campus which includes the Village Hall and Fire Station 1. The Existing Building is 37,435 s.f. and was constructed in 1978 for a staff of 92 police employees. Today, the Police Department has 139 employees. The Police Department is out of space and the building no longer meets the needs of the Police Department.

The potential growth of the Department is modest and largely dependent on the growth of the community from re-development and initiation of new police programs. It is anticipated that the Police Department will grow by 11-12 staff members in the future.

Project Goals

The primary goal of the study is to determine whether a new police station, meeting modern day standards, can feasibly be developed upon the existing municipal campus. Other study goals include:

- Ensure duplicity is taken advantage of. Promote the use of shared spaces to the greatest extent possible. Spaces can be shared with the Village Hall if it can be done effectively, i.e. if the building is connected to the Village Hall.
- Develop a solution that is secure. Safety of the officers is paramount; this issue supersedes cost.
- Make sure the police department has a highly functional building where they can do their job efficiently.
- Evaluate the site for maximum benefit and efficiency. The solution should utilize the entire site. No existing site feature is sacred.

Additional information on the project goals is discussed in Section 3.

Overview of the Study Process

This study provides the Village with recommendations on how to solve the facility needs of the Police Department. Some of the issues to be reviewed during the study process include:

- Is the 2010 Space Needs Study completed still valid based on changes in employment and policing methodology?
- What is the best option for providing a police station on the Municipal Campus?

Police Department Task Force
To facilitate the development of this study, the Village established a multi-disciplinary Task Force to monitor progress and provide guidance.

Analysis of Space Needs
FGM's task was to verify if the previously developed space needs analysis from 2010 was still valid. The verification work began with a review of current operations of the Police Station obtained through a series of interviews and discussions with staff and review of information provided by the Police Department.

FGM observed how staff members operate within the existing facility and conducted with an in-depth tour of the station to gain further insight into operational issues and space needs.

All information was gathered and then summarized into a projection of space requirements called Program Statements. The Program Statements, located in Section 4, of this report, are the final product of the space needs verification portion of the study.

While this study was performed in a very collaborative manner with Police Department staff members, FGM consistently reviewed space requests and operating assumptions to ensure that the recommended space size allotments reflect accurate needs rather than wants.

Analysis of Existing Police Station
FGM's team, including structural, mechanical, and electrical engineers, reviewed the 2010 Existing Facility Analysis to understand the existing building and site implications relative to the potential options to be studied. The team conducted field surveys to re-validate the findings of the previous study, verify opportunities and obstacles and fully understand how the Municipal Campus functions.

Space Needs Analysis Summary
In our review of the 2010 Space Needs Analysis, the findings indicate that many of the spaces previously identified are still valid. However there were also a number of updates made due to changes in police methodology, spaces that were extraneous or missing from the program.

The 2010 Space Needs Analysis identified 76,469 s.f. of space required for the Police Department.

The current analysis identifies 72,656 s.f. of space is required which reduces the programmatic needs by over 3,800 s.f. from the previous study. See Section 4 for additional information regarding the space needs requirements.

Existing Condition Analysis Summary

The condition of the existing police station has not changed significantly since the prior study was completed in 2010. Very little work has been performed to the building other than routine maintenance and some cosmetic upgrades. The major building issues still remain and include:

Architectural Issues

- Roof and windows are beyond their useful life
- Facility is not handicap accessible
- Facility is not compliant with current codes
- Building finishes are marginal to deficient
- Range is not up to current standards
- Public vs. private areas are not secured

Structural Issues

- Facility is not an essential structure per code
- Condition of certain floor slabs and foundation walls is marginal
- Facility will not accept vertical expansion

Mechanical Issues

- HVAC systems and controls are beyond their useful life
- HVAC systems have no extra capacity.

Electrical Issues

- Electrical systems are beyond their useful life
- Back-Up emergency power is limited
- Emergency generator is near the end of its useful life

Plumbing & Fire Protection

- Plumbing systems have no extra capacity and lack backflow preventers
- Sprinklers System are at a minimum in the facility

Due to the cost of repairs and upgrades necessary to the existing police station and to maximize the use of the current site, FGM does not recommend remodeling and expanding onto the current facility, but instead recommends a complete replacement. This is consistent with the 2010 study findings. The pros and cons to reuse the existing building were evaluated, with the cons heavily outweighing the pros, leading to this recommendation. See Section 5 for additional information.

Site and Building Concept Summary

In order to answer the question and determine if a new police station meeting modern day standards can feasibly be developed on the existing municipal campus, FGM analyzed the current site and developed potential concepts.

Utilizing information from the Space Needs Analysis, FGM began developing potential site diagrams and program stacking arrangements to show how the space needs of the Police Department can be accommodated on the existing site.

A series of Initial Site and Building Concept diagrams were studied and reviewed with the Committee. The concepts that had the best potential for maximizing use of the site and being the most functional for the police department were identified and a Refined Site and Building Concept was developed.

The Refined Site and Building Concept is a 2-story building with a lower level and a police squad car parking garage to the north. The program elements and all the functional requirements were reviewed with the Police Department in order to develop a floor plan layout with the most efficient first floor footprint. Functions that could potentially be located off-site were also identified. Developing this efficient footprint was critical to accommodating the police facility on the site. The concept also incorporates ideas including efficiently stacked floor plates, shared police vehicular access with the Fire Department and maximizing parking for the entire campus. There was, however, no east-west access across the back of the site.

To develop the final site and building concepts, FGM worked very closely with the Committee to further refine the site layout, and look for efficiencies to save space and reduce the budget.

The site was made more efficient by reconfiguring the Sally Port and Police Garage to gain east/west access. Parking concepts were refined and options studied. Off-site facilities owned by the Village were identified for potential use, including the fourth floor of the Village Hall, the Fire Training Facility, and the Public Works Annex site.

Five final Site and Building Concepts were developed:

Option A
- 70,500 square foot Police Station
- 2-Story + Basement
- 10,360 s.f. Indoor Parking Garage w/ Parking Deck above
- Parking Totals of 465-496
- 4th Floor of Village Hall for Storage
- Fire Academy for Police Storage
- Off-Site Impound Lot

Option B
- 70,500 square foot Police Station
- 2-Story + Basement
- 10,360 s.f. Indoor Parking Garage w/ Future Parking Deck above
- Parking Totals of 437-468
- 4th Floor of Village Hall for Storage
- Fire Academy for Police Storage
- Off-Site Impound Lot

Option C (Preferred Option)
- 70,500 square foot Police Station
- 2-Story + Basement
- 10,360 s.f. Indoor Parking Garage (No Parking Deck above)
- Parking Totals of 437-468
- 4th Floor of Village Hall for Storage
- Fire Academy for Police Storage
- Off-Site Impound Lot

Option D
- 70,500 square foot Police Station w/ 2,240 s.f. Unfinished
- 2-Story + Basement
- 10,360 s.f. Indoor Parking Garage
- Parking Totals of 437-468
- 4th Floor of Village Hall for Storage and Fire Arms Training Simulator (FATS)
- Fire Academy for Police Storage
- Off-Site Impound Lot

Option E
- 68,260 square foot Police Station (second floor is reduced)
- 2-Story + Basement
- 10,360 s.f. Indoor Parking Garage (No Parking Deck above)
- Parking Totals of 437-468
- 4th Floor of Village Hall for Storage and Fire Arms Training Simulator (FATS)
- Fire Academy for Police Storage
- Off-Site Impound Lot

Option C has been identified as the preferred concept because it incorporates all the core needs of the Police Department within the Police Station, keeps all the Training functions together, and meets the parking requirements of the Municipal Campus.

For additional information, see Sections 6 and 7.

Budget Summary

Budgets are provided for the five concepts, Options A-E are described in Section 7. A low-high budget range was provided as no actual design work has been completed. Utilizing the low-high averages for each option, the conceptual construction budgets varied from $26,492,423 to $28,167,366.

Option C is the recommended Option. This concept provides a highly functional facility while taking advantage of utilizing other Village owned assets to reduce the overall construction cost. The low-high average cost for Option C is in the middle of the construction budget cost range for all concepts provided at $27,207,605.

To the construction budgets, other costs need to be incorporated for a projected total project budget. These costs include furniture, fixtures & equipment, moving costs, design fees and contingency funds.

The Village has a goal of ensuring the new Police Station is not "overdone" and that the project costs are reasonable. To verify this, the estimated construction costs were compared to other police stations of similar size. The analysis shows the conceptual construction budget for the proposed Arlington Heights Police Station is very much in line with the cost of other police stations constructed in the area. See Section 8 for additional information.

A project goal established by the Village is the project needs to be less costly than the project identified in 2010. When the 2010 project is compared to the recommended Concept C Budget, we find that there is a significant cost savings. See Section 8 for additional information.

A summation of cost saving measures is provided in Section 8.

Recommendations

Based upon the findings of this study, FGM recommends the Village of Arlington Heights pursue a project consisting of constructing a new police station located on the existing Municipal Center site based on Option C as identified in Section 9.

Concept C meets all of the pertinent goals established by the Village for this project. The project can be developed on the Municipal Campus with few compromises, and takes full advantage of the site and other Village assets, including the 4th floor of the Village Hall, the Fire Academy and the Public Works Annex. By utilizing other Village owned assets, the size of the new police station was reduced. The cost to modify the Village owned assets is lower than the cost of new construction, thereby reducing the project costs. The concept design is highly functional, secure and provides all of the spaces required for modern day policing. Option C has been identified as the preferred concept because it incorporates all the core needs of the Police Department within the Police Station, keeps all the Training functions together, and meets the parking requirements of the Municipal Campus.

Additional information regarding the recommendation is discussed in Section 9.

This study is to be utilized as a starting point and is intended to provide the Village of Arlington Heights with the necessary information to make an informed decision on which direction they should take to address the space needs of the Police Department. It is in no way intended to be a final design or budget for the Arlington Heights Police Station.

SECTION 2
PROJECT UNDERSTANDING AND METHODOLOGY

Overview of Study Process

For over 25 years, FGM Architects has provided consulting and architectural design services to police departments and has worked with over 50 police agencies, often on multiple projects. FGM brings a vast amount of knowledge and understanding to this project through previous experience but understands that each agency has its own unique challenges and goals. Therefore, there is no cookie-cutter project or client and we must work with Police Department staff members to understand the operational issues of the Arlington Heights Police Department.

The purpose of the study is to provide the Village with the information necessary to make an informed decision on how to best address the facility needs of the Police Department. The Village is seeking recommendations and would like answers to the following questions:

1. Is the 2010 Space Needs Study still valid based on changes in employment and policing methodology?
2. What is the best option for providing a police station on the Municipal Campus? There are many options that need to be explored including: renovating and expansion of the existing police station, utilizing portions of the existing Village Hall for police functions, building new, etc.
3. What are the best solutions for providing public, staff and police department parking?
4. Does offsite storage for police vehicles and equipment make sense?
5. What will the various solutions for keeping the police station on the Municipal Campus cost?
6. What will it cost to relocate the Police Department temporarily if the chosen solution keeps the police station on the Municipal Campus?
7. How much will it cost to build a new police station on a new site?
8. If the police station is moved to a new site, how much will it cost to demolish the existing police station and restore the site, or renovate the building for lease to another user?

Police Department Task Force

To facilitate the development of this study, the Village established a Task Force to monitor progress and provide guidance. The Task Force was multi-disciplinary and consisted of Village Trustees, and Village and Police Department Staff.

Space Needs Analysis

FGM task was to verify if the previously developed 2010 Space Needs Analysis was still valid. The verification work began with a review of current operations of the Police Department which was

obtained from information provided and through a series of interviews and discussions with staff. The information provided included:

- Police Department Reports
- Staffing Data
- Staff Organization and Functional Organization Charts
- Fleet Information
- Parking Data
- Aerial Photographs of Potential Village Owned Assets

The interviews consisted of a series of meetings with Police Department and maintenance staff meeting individually or in groups and included the following:

- Command Staff (Police Chief and Captains)
- Captain of Administrative Services Division
- Captain of Patrol Division
- Captain of Criminal Investigations
- Evidence Technicians
- Evidence Property Management
- Facility Maintenance

FGM observed how staff members operate within the existing facility and were provided with an in-depth tour of the station to gain further insight into operational issues and space needs.

All information was gathered and then summarized into a projection of space requirements called Program Statements. The Program Statements were then reviewed with the Police Department and Police Station Task Force and revised as necessary. The Program Statements, located in Section 4 of this report, are the final product of the space needs verification portion of the study.

While this study was performed in a very collaborative manner with staff members, FGM consistently reviewed space requests and operating assumptions to ensure that the recommended space size allotments reflect accurate needs rather than wants.

Analysis of Existing Police Station

FGM's team, including structural, mechanical, and electrical engineers reviewed the 2010 Existing Facility Analysis to understand the existing building and site implications relative to the potential options to be studied. The team conducted field surveys to re-validate the findings of the previous study, verifying opportunities and obstacles and fully understanding how the Municipal Campus functions.

Site and Building Concept Development

In order to answer the question and determine if a new police station meeting modern day standards can feasibly be developed on the existing municipal campus, site concept development began by analyzing the current site.

Utilizing information from the Space Needs Analysis, FGM began developing potential site diagrams and program stacking arrangements to show how the space needs of the Police Department could be accommodated on the existing site.

A series of Initial Site and Building Concept diagrams were studied and reviewed with the Committee. The concepts that had the best potential for maximizing use of the site and being the most functional for the police department were identified and a refined site and building concept was developed.

To develop the final site and building concepts, FGM worked very closely with the Committee to further refine the site layout and look for efficiencies. Parking concepts were refined and options studied. Off-site facilities owned by the Village were identified for potential use, including the fourth floor of the Village Hall, the Fire Training Facility, and the Public Works Annex located at Davis and Gregory Streets.

Budgeting Methodology

When the site and floor plan layouts were completed, budgets were developed for the project. The initial budgets developed provide for a good quality municipal structure subject to 365/24/7 use with an appearance that will be complementary to the other buildings on the Municipal Campus without being "overdone" as identified in the project goals. Budgets for this project are located in Section 8.

FGM has an extensive database of cost information and used cost per square foot estimates as the budgeting methodology for the conceptual budgets. To verify budgets, FGM also consulted with local area builders. Because no actual design work has been performed, a budget range is provided for construction costs as well as a Total Project Budget.

SECTION 3
PROJECT GOALS AND QUESTIONS TO BE ANSWERED

Goals

For every project, it is important to establish clear goals which will be utilized to guide the decisions throughout the project. The following goals were developed with the Police Station Task Force as well as with the Village Board of Trustees.

1. The primary goal of this part of the process is to determine whether a new police station meeting modern day standards can feasibly be developed upon the existing municipal campus.
2. Develop a cost effective solution that maximizes the budget and is not "overdone". The budget should be less than what was proposed in 2010 which is believed to be too high.
3. Understand this is a utilitarian building and is used 24 hours a day, 7 days a week and needs to stand up to the wear and tear necessary for a police station.
4. Ensure duplicity is taken advantage of. Promote the use of shared spaces to the greatest extent possible. Spaces can be shared with the Village Hall if it can be done effectively, i.e. if the building is connected to the Village Hall.
5. Develop a solution that is secure. Safety of the officers is paramount. This issue supersedes cost.
6. Complement the existing campus architecture, remembering that the building is a police station and design a cost effective solution. The building needs to be presentable from all sides and the front needs to be complementary to the exiting Village Hall and Fire Station
7. Make sure the police department has a highly functional building where they can do their job efficiently.
8. Design the police station to be flexible for future changes.
9. Provide adequate workout facilities dedicated to the Police Department.
10. Provide a firing range within the police station that is safe, functional and meets the needs of the department.
11. Evaluate the site for maximum benefit and efficiency. The solution should utilize the entire site. No existing site feature is sacred.
12. Covered parking should be provided for marked patrol vehicles.
13. Maximize the size of the parking garage.

SECTION 3
PROJECT GOALS AND QUESTIONS TO BE ANSWERED

Questions to be Answered

To allow for an informed decision making process, it is important to identify the questions the Village requires answers to as part of this study. The following questions were identified from meetings with the Police Station Task Force and the Village Board of Trustees. A brief answer to each question has been provided in *red italic* type.

1. Is the 2010 Space Needs Study still valid based on changes in employment and policing methodology?

   Many of the spaces previously identified are still valid, however there were a number of updates made due to changes in police methodology, spaces that were extraneous or were missing from the program.

   The 2010 Space Needs Analysis identified 76,469 s.f. of space required for the Police Department

   Our analysis reduced the programmatic needs by over 3,800 s.f. to 72,656 s.f. See Section 4 for additional information.

2. Will the Police Station fit on the Municipal Campus site in an effective and safe manner that will meet the needs of the Police Station, Village Hall, and Fire Station.

   Yes, the police station will fit on the Municipal Campus and will meet the needs of the Village. See Sections 6 and 7 for additional information.

3. What is the best option for providing a police station on the Municipal Campus?

   a. Re-validate previous study conclusion of renovating and adding an addition onto the existing police station

      We concur with the previous study, renovating and adding an addition onto the existing police station is not a good option. See Section 5 for additional information

   b. Review utilizing portions of the existing Village Hall for police functions

      We reviewed the Village Hall for accommodating potential police functions and found we can use it for long term evidence storage, records storage and for the Firearms Training Simulator. We also reviewed utilizing other Village Owned property which can be converted at a low cost

   c. Tear down the existing police station and build new

      We believe this is the best option for this site. See Section 5 for additional information.

   d. Other options as identified during the course of the study

      Other options were not reviewed as it was not necessary.

4. What are the best solutions for providing public, staff and police department parking?

   The existing site and adjacent parking lots are sufficient for the parking required. In our parking analysis, we determined that the Municipal Campus requires a minimum of 410 parking spaces. Without adding onto the existing parking deck, the site can accommodate 430 spaces. See Section 4 for additional information.

5. What can be moved off site to the Public Works Annex? Does offsite storage for police vehicles and equipment make sense?

   We have identified approximately 1,500 s.f. of storage needs that can be located off site which includes Long Term Evidence Storage, Records Storage, Indoor Vehicle, and Equipment Storage which will not significantly affect the efficiency of police operations

   Seized vehicles will also be located off site.

   There is the potential to locate the Firearms Training Simulator to the 4th floor of the Village Hall.

   See Section 7 for additional information.

6. What is the best method for keeping long term evidence?

   We are recommending locating long term evidence storage on the fourth floor of the Village Hall. See Section 7 for additional information.

7. Is a connection to the Fire Department beneficial?

   No physical connection is necessary. We are proposing utilizing the existing drive between the Police and Fire Station which aids operational efficiency for the Police Department

8. What will the various solutions for keeping the police station on the Municipal Campus cost?

   See Section 8 for cost information

9. What will it cost to relocate the Police Department temporarily if the chosen solution keeps the police station on the Municipal Campus?

   We have determined that the Police Department will need approximately 20,000 s.f. to operate temporarily by utilizing neighboring police department facilities for some functions and sacrificing the use of locker rooms during the construction period.

   Therefore, utilizing current market rates, we have included in the conceptual budgets $1.30M - $1.53M for temporary facilities. See Section 8 for additional information

10. How much will it cost to build a new police station on a new site?

    It is not necessary to develop this cost because the Police Station will fit on the Municipal Campus

11. If the police station is moved to a new site, how much will it cost to demolish the existing police station and restore the site, or renovate the building for lease to another user?

    It is not necessary to develop this cost because the Police Station will fit on the Municipal Campus

12. Is the existing site suitable for a new building? There are reports that the soil conditions may be suspect.

    The Village commissioned Soil and Material Consultants (SMC) to provide a soils analysis. In SMC's Report, dated March 13, 2015, their findings indicate the site is suitable for constructing a building utilizing conventional foundation systems. A copy of the report is in the Appendix

SECTION 4
SPACE NEEDS ANALYSIS

Summary of Analysis

FGM's task was to verify if the previously developed 2010 Space Needs Analysis for the Arlington Heights Police Department was still valid.

The 2010 study was performed by a team comprised of FGM Architects and McClaren Wilson & Laurie (MWL). MWL specializes in the planning of Police Stations and is based in Phoenix, Arizona. They led the development of the 2010 Space Needs Analysis. The verification of the 2010 Space Needs Analysis has been performed by FGM's in-house team of police experts

Since the 2010 Study was completed, there have been significant changes to the operations of the Arlington Heights Police Department. The most significant of the changes have involved staffing. Prior to completion of the 2010 Study, the Police Department had 114 sworn police officers and 36 civilian employees for a total staff of 150. Due to the economic recession, which began in 2008, the Police Department had to reduce their staff.

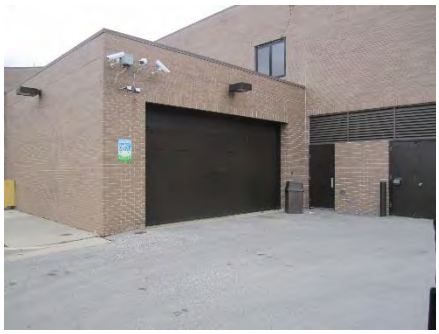
The total staff of the Arlington Heights Police Department currently consists of 109 sworn police officers and 30 civilian employees for a total staff of 139.

The potential growth of the Department is modest and largely dependent on the growth of the community from re-development and initiation of new police programs. Future Re-development of areas and potential operational changes at Arlington Park, which would include off track betting and slot machines will cause an increase in service for the Police Department.

New programs include changes in police operations, such as increased cybercrime programs, evidence processing capabilities, training requirements and social services for victims and crisis counseling. New programs, depending on the type, will potentially require additional training and potentially additional staff. In either case, additional work space will likely be required.

Demographic diversification includes ethnic and age population changes. There is a growing multi-ethnic middle class presence and an increased number of senior living developments in the Village which may affect police service requirements but the magnitude is unknown at this time.

The overall staff growth may include as many as 6 additional sworn police officers and 4-6 civilian employees. The potential growth has been factored into the space needs analysis.
In our review of the 2010 Space Needs Analysis, our findings



Sally Port Exterior

Sally Port Interior

Holding Cells

indicate that many of the spaces previously identified are still valid. However there were a number of updates made due to changes in police methodology, spaces that were extraneous or were missing from the program.

The 2010 Space Needs Analysis identified 76,469 s.f. of space required for the Police Department.

The current analysis reduced the programmatic needs by over 3,800 s.f. to 72,656 s.f.

See the Space Needs Program Comparison spreadsheet attached to this section for detailed information.

Summary of Why More Space is Necessary

Many factors contribute to the need for additional space and the major points are as follows:

- The Village has grown since 1978.
- Many spaces in the police station are inadequate and no longer meet the needs of the Police Department.
- Police operations have changed since the existing building was constructed in 1978 and more space is now required.

The population, employment and traffic within the Village has grown significantly since 1978 which has necessitated growth of the Police Department.

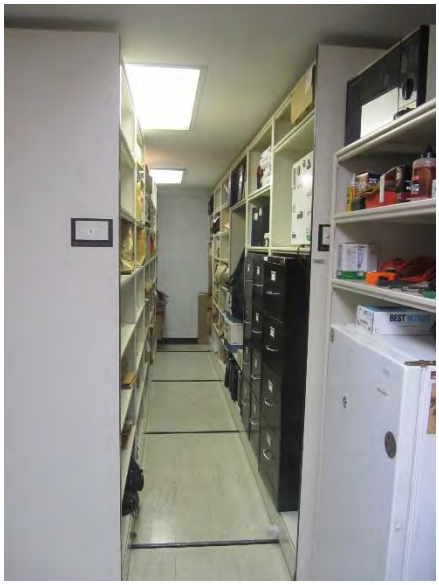
In 1978 the Police had a total staff of 92 police employees. Today, the Police Department has 139 employees and the staff is projected to grow in the future to over 150 employees.

Many of the current spaces in the police station are now inadequate. Changes in policing, including rules, regulations and procedural issues can influence space requirements. Some examples include:

- Sally Port: This is a dedicated secure garage where prisoners are securely brought into the police station. The current sally port is utilized for many different functions, including prisoner transfer, general maintenance and storage of many different items. A sally port is intended to be a dedicated secure space providing a transfer point from a patrol car to a holding area which is safe for both the arresting officer and the arrestee. This is very difficult to achieve when the space is used for other functions.
    - Holding Cells: The Illinois Department of Corrections governs the design of holding cells. The holding cells within the police station are an older design and do not meet the

Patrol Sergeants

Evidence Packaging



Evidence Storage

current requirements. The cells have bars which are not considered to be safe for staff or detainees.

- Workspace Size: There are many examples throughout the building of very small and congested workspaces. A good example of a congested work area is where the Patrol Sergeants are located. This workspace is very small for the number of staff working and for the interactions that need to take place in this area.
- Locker Rooms: Since 1978, many changes have taken place that affect the storage requirements for police officers. Lockers are now used to store a multitude of items, including training manuals, bullet proof vests, specialized protective equipment, weapons, flashlights, radios and uniforms. This has necessitated a need for larger lockers which increases the overall size of locker rooms.

Police Operations have changed significantly since 1978. There have been many operational changes and "best practices" established. These include:

- Evidence Collection and Forensic Services: This work is becoming more sophisticated and the courts are relying more heavily on scientific evidence. In addition to the growth of the unit, there are more tools and tests available today to study evidence which require more space.
- Cybercrime: Computer crime is increasing at an alarming rate. We expect to see further changes related to computer investigations and forensics. While cybercrime investigations is constantly evolving, space needs to be allocated for potential new methodology and equipment.
- Evidence Storage: The regulations for evidence retention has been significantly influenced due to mandated legislative changes. For example, in 2004, the State of Illinois changed the statutes to require any evidence from a murder case to be kept forever. Evidence retention schedules are greatly increasing the need for evidence storage space.
- Training Needs: Current best practices have police officers training more often utilizing many different techniques. A regular routine consisting of a mixture of classroom instruction, simulated scenario based training, defensive tactics and live fire weapons training are considered the best practice for training today.

The current police station occupies approximately 37,435 s.f. The Police Department is also utilizing approximately 3,000 s.f. on the 4th floor of the Village Hall. Comparing the required needs with the current station, a severe shortage of space exists as the space

needs analysis demonstrates that significantly more space is required.

Differences Between Current and 2010 Space Needs Analysis
When reviewing the 2010 Space Needs Analysis, we found the methodology used for determining "net" space is similar. Net spaces are actual spaces identified for specific functions, i.e.: an office or training room.

We differ in how we determine the space necessary for a complete building. To obtain the total area required for a building, area needs to be added to the net area requirements for circulation (corridors and stairs), structure, mechanical, electrical systems and wall space. The 2010 Study utilizes percentage of net area for circulation, structural design factors and restrooms & mechanical systems. Our methodology assigns sizes to as many spaces as possible, such as toilet and mechanical rooms, and then utilizes a percentage of net area only for circulation and wall space. The percentage of net areas utilized were calculated from completed Police Stations. While the methodology difference is subtle it affected the total area requirements.

The following are highlights of some of the differences between the 2010 Analysis and the current validation study.

Patrol Bureau – The Patrol Sergeants office area was originally programmed so each Sergeant had a desk. In the current program each desk is shared by two Sergeants. This reduced the size of the workspace by over 800 square feet.

Evidence Collection – Forensic Services – The Alternative Light Room was eliminated saving 300 square feet. Use of alternative light is often performed in the field and can be performed in any dark room. A dedicated room is not necessary.

Canine – The Sergeants and Officers workstations were removed as they can share workstations with the Patrol Bureau. A dog kennel was also determined not to be required. Almost 400 square feet of program space was removed.

Traffic Bureau – A Traffic Bureau open office work area was added into the program for the Animal Welfare, Parking Enforcement and Traffic Enforcement Officers. This added 480 square feet to the program.

Support Bureau – In general, offices were removed for positions where tasks are performed by other individuals. For example, the Training function is now performed by the Administrative Sergeant, so a separate office is not required. We also removed much of the

file storage from individual offices and placed them into a central file storage room which is more efficient and allows for offices to be smaller. Overall, these changes resulted in a savings of over 600 square feet.

Evidence Property Management – The area for Moveable Worktables was eliminated. We believe this area was inadvertently doubled up with the open floor area. This resulted in a savings of 378 square feet.

Firearms Range Management and Training – For the range, we are including in the program a 30' wide range which will allow for modern day firearms training utilizing props, close quarter and lateral movement exercises. We believe the previous program also showed a 30' wide range, but included a separate area for the bullet trap which is not necessary in modern range trap design. To provide state of the art training, we added in a Firearms Training Simulator room which allows for scenario based training in a virtual setting. In modern police training, it has been recognized that a combination of "live fire" and scenario based training is the most effective methodology for training officers. Overall, we added 628 square feet to the program.

I.D./Lockup – The changes in this area included the addition of a Line Up and Viewing Room which is utilized by Cook County. We also added a Bond-Out Vestibule which allows the release of a detainee in a secure fashion away from the main public entrance. The use of a Bond-Out Vestibule has been very common in the past 10 years. The addition of both areas added 340 square feet to the program.

Records Bureau – The workstations for Light Duty personnel and Volunteers are now included within the Records Clerks Open Office. We have programmed the open office to have eight desks. The work area for Red Light Camera Review has also been removed from the program. The changes resulted in a space reduction of 500 square feet.

Criminal Investigations – The most notable change in this area is combining the Adult Investigators and Juvenile Investigators together into one open office work area. While this saves some space, the major benefit is that it allows for greater exchange of information and a more productive working situation as both units work closely together. Another change made is in the size of the interview rooms. In 2013, the National Institute of Justice (NIJ) released recommendations for interview rooms which also included an increase in size. Overall, the changes in the Investigations office and Interview Rooms added 80 square feet.

Community Services – Many of the work functions have been incorporated from separate spaces into an open office work area with six desks. This resulted in a savings of 370 square feet.

Staff Support Areas – A Multi-Purpose Room/Backup EOC was added that can hold up to 30 persons in a classroom setting. This space will be used for a wide variety of events including Major Case Assistance Team (MCAT) events, Major Case Evidence Technician events, training and potentially during emergencies. This space with the associated support spaces added 1,255 square feet.

Locker/Fitness Areas – The major changes in the locker rooms include combining the Command Staff and General Sworn Locker areas for both males and females which will reduce overall plumbing needs. Instead of four locker areas, we have two. We also adjusted the locker sizes to a larger size designed specifically for Police use. We also added in the building program a Defensive Tactics Training Room which is currently located on the 4th Floor of the Village Hall. Overall, the changes resulted in an addition of approximately 1,400 square feet.

Warm Storage – In this area, Northern Illinois Police Alarm System (NIPAS) storage was eliminated. Staff members assigned to NIPAS are required to have their gear with them as they respond directly to the incident area. They no longer come to the police station, to pick up and change into their gear. This results in a savings of 683 square feet.

Summary

With the updates to the space needs program due to changes in police methodology, the Department's operational changes and removing extraneous space, the programmatic needs were reduced by over 3,800 s.f. to 72,656 s.f.

SECTION 4
ANALYSIS OF SPACE NEEDS - PARKING ANALYSIS

Parking Analysis

As part of the needs analysis, it is necessary to determine the parking requirements for the entire municipal campus, which includes the Village Hall, Police Station and Fire Station. To perform this analysis, we reviewed projected parking requirements for each facility and then compared the requirements to actual parking counts.

Summary of Findings

The total number of existing parking spaces for the Municipal Campus is 441 spaces. This includes Lot O (Arlington Heights Road and Sigwalt Street) and the two lots across the street from the Police and Fire Stations.

Site Plan Showing Municipal Campus Parking

Projected parking needs for the Municipal Campus is as follows:

Police Department	
Department Vehicles	
Department Vehicles	71
Spare Vehicles	10
Total Department Vehicles	81
Staff Parking	
Required Parking Spaces at Peak Demand	110
Take Home Vehicles	(7)
Total Staff Parking Required	103
Public	
Visitors	10
Community and Training Room Parking	30
Total Public Parking Required	40
Total Police Parking Required	**228**
Village Hall	
Department Vehicles	20
Staff Parking	84
Public	
Visitors	20
Board Room	30
Community Room	20
Total Village Hall Parking Required	**174**
Fire Department	
Department Vehicles	-
Staff Parking	9
Public	3
Total Fire Department Parking Required	**2**
TOTAL PARKING REQUIRED	**414**

Actual Parking Usage: The Police Department conducted parking counts between November 14 - 19, 2015 at 9:30 am, 2:30 pm, and 6:00 pm. The parking count data is attached at the end of this section. The following is a summary of some of the study findings:

- Daily fee parking is not fully utilized and at least 29 to 30 spaces were available.
- Maximum peak capacity taking the worst case scenario of different days and hours, would show 317 spaces occupied with 124 spaces (28%) available.
- Employee parking had a peak capacity at 2:30 pm on Wednesday, November 19 with 114 spaces occupied and 7 available. However, at that time 27 spaces were available in the Police lot and 19 spaces available in Lot O on Sigwalt Street.
- Peak occupancy of the Municipal Campus occurred on Wednesday, November 19 at 2:30 pm when 66% of the Municipal Campus parking spaces were occupied, and 149 (34%) available.
- On Wednesday, November 19 during the peak employee parking demand, Lutheran General Hospital held a meeting in the Village Hall Community meeting rooms with 30-35 attendees. The meeting ran from 9:00 am to 4:00 pm and impacted all day parking.
- Visitor parking on levels 2, 3, and Lot O had minimal usage during the day.

It is important to note that the parking counts were conducted over three days and represent a snapshot in time reflecting the occupancy of the garage at that particular time. Other meetings and events at different occasions may have different impact on the available parking.

Recommendation

The 441 parking spaces currently available for the Municipal Campus has served the Village well. From reviewing the projected parking needs and actual data, it suggests that the actual number of parking spaces required can be reduced significantly. This, however, would be contradictory to the Village's goal of maximizing the parking on the site. Therefore through discussions with the Village Task Force, a target for the minimum number of parking spaces is 410, and 430 or more would be preferred.

SECTION 4
ANALYSIS OF SPACE NEEDS - TEMPORARY POLICE FACILITY NEEDS

Space Needs Requirements for Temporary Police Facility

In order to re-build the police station on the Municipal Campus, it will be necessary to temporarily relocate the Police Department for the duration of construction, which may be as long as two years.

As the temporary facility is likely to be leased space, it is advantageous to the Village to only provide the space necessary to provide essential services locally to save money. It is common for Police Departments which are undertaking construction projects to arrange with neighboring Departments the ability to use their facilities when required. This includes utilizing lock-up, interview rooms and other facilities.

FGM worked with the Arlington Heights Police Department to identify the minimum requirements for a temporary police facility. The Department reviewed all aspects of operations and weighed the temporary functional inefficiency versus costs. When the exercise was completed, the space needs requirements for the temporary facility were identified to be 19,685 s.f. with 194 parking spaces. See the Space Needs Program for Temporary Facility spreadsheet attached to this section for detailed information.

SECTION 4
SPACE NEEDS ANALYSIS - ATTACHMENTS

Following this page are the attachments referenced in Section 4.

1. Police Department Space Needs Program Pages 1-12
2. Municipal Campus Parking Survey Page 1
3. Space Needs Program for Temporary Facility Pages 1-12

Village of Arlington Heights
Police Department

FGM ARCHITECTS

Space Needs Program

June 24, 2015
FGM #: 14-1933.01

Room/Area/Space	Sq. Ft.		Notes
	2009 Study	2014	
PUBLIC ENTRY / PUBLIC ACCESS AREAS			
Entry Vestibule	80	80	
Lobby	600	600	Provide seating for (8)
Reception Counter	64	64	
Citizen Report Rooms (3) required	160	320	Provide seating for (4) with counter for fingerprinting
Public Fingerprinting Alcove	25	-	Incorporate into one of the Citizen Report Rooms above
Community Meeting / Training Room	1,440	1,440	Room to seat (50) in classroom format
Credenza Storage Counter	-	100	Long counter storage cabinets to support Community Meeting / Training room
Audio/Visual Equipment	150	25	Closet for Audio/Visual Equipment
Table and Chair Storage	150	200	
Public Toilets	-	470	Men's Toilet: 2 toilets, 2 urinals and 2 lavs. Women's Toilet: 4 Toilets and 2 lavs.
Public Entry / Public Access Areas Sub-Total	**2,669**	**3,299**	
Circulation, Wall, and Mechanical Shaft Space	667	990	
PUBLIC ENTRY / PUBLIC ACCESS AREAS TOTAL	**3,336**	**4,289**	
OPERATIONS SUPPORT - FRONT DESK			
Counter Positions	360	300	Reception positions for (2) and service areas
Camera Monitor Center	140	140	CCTV monitoring area
Printer/Copier	30	-	Located in Counter Positions
Files	36	-	Located in Counter Positions
Operations Support - Front Desk Sub-Total	**566**	**440**	
Circulation, Wall, and Mechanical Shaft Space	142	132	
OPERATIONS SUPPORT - FRONT DESK TOTAL	**708**	**572**	
POLICE ADMINISTRATION			
Chief of Police Office	250	250	Desk, credenza, conference table for (4), bookcases
Closet	-	16	
Administrative Services Captain	225	225	Desk, credenza, conference table for (4), bookcases
Closet	-	16	
Legal Advisor	120	-	Position was eliminated
Flexible Office Space	120	180	(1-2) "L" shaped workstation(s) with guest seating
Chief's Administrative Assistant	120	120	"L" shaped workstation
Administrative Services Administrative Assistant	120	120	"L" shaped workstation
Administrative Waiting	108	100	Guest seating for (4)
Administrative Conference Room	288	420	Conference Seating for (14-16) with credenza
Coffee Area	25	25	
Toilet	64	-	Area allocated for in Staff Support Areas
Secure Files	80	200	Allow for (10) 42" wide lateral files

Village of Arlington Heights
Police Department

FGM ARCHITECTS

Space Needs Program

June 24, 2015
FGM #: 14-1933.01

Room/Area/Space	Sq. Ft.		Notes
	2009 Study	2014	
Administrative Storage Room	56	56	Secure supply storage
Copy/Workroom	30	120	Copier and work area with storage cabinets
Coat Closet	16	16	
Police Administration Sub-Total	**1,622**	**1,864**	
Circulation, Wall, and Mechanical Shaft Space	406	652	
POLICE ADMINISTRATION TOTAL	**2,028**	**2,516**	
PATROL DIVISION			
Patrol Division Captain	225	225	Desk, credenza, conference table for (4), bookcases
Closet		16	
Administrative Assistant	120	120	"L" shaped workstation
Patrol Bureau			
Patrol Commander's Offices (3) required	504	480	(3) offices, each to have "L" shaped workstation, two guest chairs, files, bookshelves
Watch Office			
Patrol Sergeants Workstations	1,440	560	(7) "L" shaped workstations in open office setting
Operations Supervisor	120	120	"L" shaped workstation with (2) guest chairs
Conference/Counseling Room	120	120	For Patrol Sergeant's use
Equipment Issue	150	150	
Support Spaces			
Mud Room	100	100	With area for wet gear
Duty Bag Storage	655	500	Provide(80) two-tier "Z" lockers for duty bags near patrol entry
Report Writing			
Officer Desks	450	450	(6-8) report writing workstations with copier, mail and form storage
Juvenile Lounge	80	100	
Juvenile Toilet	64	80	
Photocopy/FAX/Printer	30	-	In Report Writing above
Squad/Briefing Room	720	850	For (25-30) personnel in flexible format - classroom or conference setting
Field Training Office	120	-	
Park Counselor	80	25	File storage
Patrol Bureau Sub-Total	**4,978**	**3,896**	
Circulation, Wall, and Mechanical Shaft Space	1,245	1,364	
PATROL BUREAU TOTAL	**6,223**	**5,260**	
Evidence Collection - Forensic Services			
Supervisor Office	120	120	"L" shaped workstation with (2) guest chairs
Evidence Technicians/Traffic Crash Investigation Open Office	120	360	(6) desks with conference table
Evidence Vehicle Garage	-	480	16'x30' garage space for large SUV

Village of Arlington Heights
Police Department

FGM ARCHITECTS

Space Needs Program

June 24, 2015
FGM #: 14-1933.01

Room/Area/Space	Sq. Ft.		Notes
	2009 Study	2014	
Emergency Eyewash/Shower	30	25	
Vehicle Processing Bay	-	1,296	36'x36' space, with (2) bays, includes lift and tool area
Vehicle Exam/Crime Scene Vehicles	2,000	-	See Vehicle Garage and Vehicle Processing Bay above
Evidence Triage Area	-	300	Sorting area with moveable tables and computer workstations
In-Process Evidence Storage	250	175	Provide 30 ln.ft. of 2'deep shelving and large item floor storage area
Forensic Processing Lab			
Bio-Vestibule	80	-	
Dust/Superglue/Ninhydrin Work Area	250	100	Work areas with dusting chambers, sinks, and storage
Superglue Chamber	11	-	Included above
Dusting Fume Hood	30	30	
Dusting Room	-	100	
Drying Cabinets		150	Provide space for (2) double drying cabinets and 8' layout area
Fume Hood	30	30	
Biological Drying (medium)	180	-	See above for drying cabinets
Biological Drying (large)	120	-	See above for drying cabinets
Refrigerators	15	30	Provide space for (2) refrigerators
Alternative Source		20	Storage area
Microscopy Area		60	
Worktables and Counters		250	
Alternative Light Room	300	-	Light testing can be performed in garage space
Drug Chemistry Lab	-	220	For presumptive drug testing, include work areas for (3) technicians and fume hood
Digital /Photo Lab/Computer	400	210	(2) "L" shaped workstations, printers, and workbenches for (2) technicians
Computer Forensics		170	Provide secure office with workstations for (2) with large work surfaces
Storage		40	For storage of electronics and media within office
Future Lab	400	-	Not required
Clean Storage Equipment Room	500	350	Provide 64 ln.ft. of 2'deep shelving
Dirty Equipment Storage Room		160	Provide 30 ln.ft. of 2'deep shelving and open floor storage area
Forensic Lab Support Spaces			
Biological Decontamination Area	240	-	Not required
Training Room	240	-	Share with Multi-Purpose in Staff Support Area
Break Rooms	48	-	See Staff Support Area Lunchroom
Coffee Area	-	25	
Lockers	180	375	Provide (16) 3'x2' lockers for Technicians and (6) gear lockers for Arson Investigators
Washer/Dryer		100	Washer/dryer for cleaning dirty clothing items (not for pathogens)
Sleep Rooms	-	-	For quiet areas, see First Aid and Library in Staff Areas
Privacy Restroom/Shower	180	200	Provide (2) single user toilet/shower rooms
Evidence Collection Sub-Total	**5,724**	**5,376**	
Circulation, Wall, and Mechanical Shaft Space	1,431	1,613	
EVIDENCE COLLECTION TOTAL	**7,155**	**6,989**	

Village of Arlington Heights
Police Department

FGM ARCHITECTS

Space Needs Program

June 24, 2015
FGM #: 14-1933.01

Room/Area/Space	Sq. Ft.		Notes
	2009 Study	2014	
Canine			
Sergeant	100	-	Not required
Police Officer	45	-	Not required
Canine Support Spaces			
Kennel	144	-	Not required
Grooming	25	25	Wash area
Storage Racks	100	-	Not required
Canine Sub-Total	**414**	**25**	
Circulation, Wall, and Mechanical Shaft Space	104	8	
CANINE TOTAL	**518**	**33**	
Traffic Bureau			
Commander	168	160	
Sergeant	120	130	
Traffic Open Office	-	480	(6) "L" shaped workstations in open office setting
Traffic Storage	-	-	See warm storage
Parking Enforcement Storage	-	-	See warm storage
Storage Room	-	-	See warm storage
Traffic Crash Investigation and Reconstruction		-	See Evidence Collection Open Office
Animal Welfare and Control Storage	150	-	See warm storage
Overweight Truck Enforcement Storage		-	See warm storage
Traffic Bureau Sub-Total	**438**	**770**	
Circulation, Wall, and Mechanical Shaft Space	110	277	
TRAFFIC BUREAU TOTAL	**548**	**1,047**	
ADMINISTRATIVE SERVICES DIVISION			
Administrative Services Captain		-	See Police Administration
Administrative Assistant		-	See Police Administration
Support Bureau			Spaces to be located with Administration
Administrative Sergeant	130	130	
Administrative Analyst	120	120	Future position
Fiscal Clerk	240	120	"L" shaped workstation
Court Liaison	-	-	See Records
Strategic Planning	120	-	
Training	120	-	Incorporated into Administrative Sergeant's work
Labor Negotiations and Grievance Resolution	120	-	

Village of Arlington Heights
Police Department

FGM ARCHITECTS

Space Needs Program

June 24, 2015
FGM #: 14-1933.01

Room/Area/Space	Sq. Ft.		Notes
	2009 Study	2014	
Support Spaces			
Copy/Workroom	30	-	Included in Administration
Secure Files	76	-	Located in Administrative File Room
Coffee Area	25	-	Included in Administration
I.T. Support			
Systems Technician	240	140	Workroom for IT staff
Server Room	300	300	Space for up to (8) server racks, clean agent fire suppression
Storage Area	150	150	For storage of equipment
IDF Closets		100	Allowance for network closets throughout building
Professional Standards & Internal Affairs			
Professional Standards & Internal Affairs Office	168	180	Provide office with (2) "L" Shaped workstations
Interview Room	120	120	Conference Seating for (4)
Files	60	-	Provide (1) 42" lateral file (locate in office)
Support Bureau Sub-Total	**2,019**	**1,360**	
Circulation, Wall, and Mechanical Shaft Space	505	476	
SUPPORT BUREAU TOTAL	**2,524**	**1,836**	
Evidence Property Management			
Evidence Custodian Office		140	"L" shaped workstation with guest seating for (2)
Evidence Packaging			
Worktable and Barcoding	126	200	(4) sets pass-thru lockers, large counter, storage for supplies, sink
Evidence Drop Lockers	160	-	Located in Worktable and Barcoding above
Oversize Lockers	60	60	For large temporary evidence storage
Intake Area/Work Area	240	300	Work Area with sink
Movable Worktables	378	-	Locate in Open Floor Area below
Evidence Area Support Spaces			
General Evidence	1,627	1,125	High Density Storage
Open Floor	868	400	
Money Vault	20	20	
Narcotics Storage	80	-	Located in High Density Storage above
Firearms Storage	-	-	Located in High Density Storage above
Long Term Evidence Storage	-	600	High Density Storage - can be located remotely
Refrigerated Storage	-	40	Allow for (2) refrigeration units
Destruction Holding Area	-	100	Area with shelving
Bike Storage	-	-	See Outdoor Miscellaneous Spaces below
Secure Storage Shed	-	-	See Outdoor Miscellaneous Spaces below. For secure storage of hazardous items
Seized Vehicles/Impound	-	-	See Outdoor Miscellaneous Spaces below

Village of Arlington Heights
Police Department

FGM ARCHITECTS

Space Needs Program

June 24, 2015
FGM #: 14-1933.01

Room/Area/Space	Sq. Ft.		Notes
	2009 Study	2014	
Evidence Property Management Sub-Total	**3,559**	**2,985**	
Circulation, Wall, and Mechanical Shaft Space	712	896	
EVIDENCE PROPERTY MANAGEMENT TOTAL	**4,271**	**3,881**	
Firearms Range Management/Training			
Rangemaster/Armory Office	168	140	
Firing Range			
Range Staging	540	400	Area for preparation outside of range. (4) gun cleaning stations w/ storage cabinets
Range Lanes	2,700	3,150	30' wide firing range, includes trap area
Trap Area	720	-	See above
Target Storage	350	250	Storage for targets, props, etc.
Armory Storage	350	300	Ammunition and Weapons Storage
Weapons Maintenance	200	180	Weapons repair and cleaning room
Range Mechanical	-	400	Range Supply and Exhaust
Restroom	64	-	Located in Staff Support Areas below
Firearms Training Simulator	-	900	Dedicated room for scenario based training
Firearms Range Management Sub-Total	**5,092**	**5,720**	
Circulation, Wall, and Mechanical Shaft Space	764	1,716	
FIREARMS RANGE MANAGEMENT TOTAL	**5,856**	**7,436**	
I.D./Lockup			
Jail Officer	240	-	Office Area located below
Office Area Support Area			
Workstation	120	120	Provide "L" Shaped workstation in secure location with files
Files	28	-	Locate in Records
Sally Port	1,000	1,200	(4) car sally port in drive through configuration
Prisoner Search and Personal Effects Lockers	64	80	Include sorting counters and double tiered lockers
Vestibule Area	80	-	
Processing Area	-		
Uncuffing Area	1,000		
Fingerprint Area	-	80	For ink fingerprinting, with sink and eyewash
Suspect Photography	-	-	Included in Live Scan below
Sobriety Testing	-	80	Allow work area for (2) Breathalyzers
Mass Arrest Cell with Mass Arrest Lobby	-	360	To hold up to (12) detainees, with detention toilet
Interview Room (1) required	-	100	Hard interview room
Booking Station	-	400	Size to allow processing or (2) detainees
Live Scan Area	-	80	Include photo area
Toilet	-	80	Single user detention grade toilet

Village of Arlington Heights
Police Department

FGM ARCHITECTS

Space Needs Program

June 24, 2015
FGM #: 14-1933.01

Room/Area/Space	Sq. Ft.		Notes
	2009 Study	2014	
Janitors Closet	-	40	Secure storage of cleaning supplies
Jail Storage	150	100	
Detention Rooms	840	1,000	(10) Cells total, including (2) Accessible Cells;(6) male, (4) female, (2) showers
Sobering Cell	140	-	
Padded Cell	-	80	Padded call with flushing floor drain
Attorney/Client Room	-	-	Utilize Line Up Room below
Line Up Room	-	200	Line up and viewing area
Bond Out Vestibule	-	140	Bond out vestibule for release of detainees
In-Custody Interview Area	-		
Interview Rooms (2) required	160	-	Located in Processing Area above
Interview Toilet Room	64	-	Located in Processing Area above
I.D. Lockup Sub-Total	**3,886**	4,140	
Circulation, Wall, and Mechanical Shaft Space	1,166	1,449	
I.D. LOCKUP TOTAL	**5,052**	**5,589**	
Records Bureau			
Records Supervisor	120	120	"U" shaped workstation with (2) guest chairs
Records Clerks Open Office	800	640	Open office work area with (8) "L" shaped workstations
Court Liaison	100	80	"L" Shaped workstation within Records Clerks open office
Intern Workstation		-	Included in Records Clerks Open Office
Support Spaces			
Public Counter Positions	64	120	Provide for (2) secure reception positions
Officers Counter	32	32	
Light Duty Desks	300	-	Included in Records Clerks Open Office above
Volunteer Desks	100	-	Included in Records Clerks Open Office above
Red Light Review	100	-	Not planned for
Copy/Workroom	130	150	Area with copier, shredder, work counters, storage
Active File Storage	521	480	Allow for (24) 42" wide lateral files, consider high density filing system
I.D. Lockup Files	-	180	Allow for (9) 42" wide lateral files, currently high density system
Microfiche Reader	45	45	
Long Term Records	76	80	Storage for (30) bankers boxes
Form Storage	-	120	
Safe	20	20	
Coffee Area	25	25	
Storage Room	300	200	Office supply storage
Records Bureau Sub-Total	**2,733**	**2,292**	
Circulation, Wall, and Mechanical Shaft Space	683	802	
RECORDS BUREAU TOTAL	**3,416**	**3,094**	

Village of Arlington Heights
Police Department

FGM ARCHITECTS

Space Needs Program

June 24, 2015
FGM #: 14-1933.01

Room/Area/Space	Sq. Ft.		Notes
	2009 Study	2014	
CRIMINAL INVESTIGATIONS AND COMMUNITY SERVICES DIVISION			
Criminal Investigations and Community Services Captain	180	225	
Closet	-	16	
Criminal Investigations			
Commander Investigations	120	160	
Sergeant's Office (2) required	240	260	
Commander CS	120	-	Not required
Administrative Assistant - Investigations	120	120	
Administrative Assistant - Community Services	120	-	Located in Community Services below
Detective Investigator	720	1,400	(20) "L" shaped workstations
Juvenile Officer	600	-	Located in Detective Investigators above
Gang Investigators (2) required	360	-	Located in Detective Investigators above
School Liaison Officer	480	-	Located in Community Services Open Office
Too Good for Drugs	120	-	Located in Community Services Open Office
Safe Schools (SRO)	120	-	Located in Community Services Open Office
DEA Task Force	120	-	Located in Detective Investigators above
Financial Crimes	240	-	Located in Detective Investigators above
Crime Analyst	-	-	Located in Detective Investigators above
Investigations Support Areas			
Storage/Equipment	150	150	Secure equipment storage
Files	64	64	Allow for (4) 42" wide lateral files
Secure Juvenile Files	80	100	Allow for (6) 42" wide lateral files
Major Case Room	-	-	See Multi-Purpose Room in Staff Support Areas below
Project/Conference Room	240	310	Seating for (10-12) - share with Community Services
Coffee Area	25	25	
Storage/In-Process Evidence	108	108	Lockers for temporary evidence storage
Interview Suite			
Standard Interview Rooms - Juvenile (4) required	340	400	
Standard Interview Rooms - Adult (4) required	340	400	
Toilet Room	128	80	Locate single user toilet room near Juvenile Interview Rooms
A/V Monitor Control Room	108	120	A/V controls with work table
Criminal Investigations Sub-Total	**5,243**	**3,938**	
Circulation, Wall, and Mechanical Shaft Space	1,311	1,181	
CRIMINAL INVESTIGATIONS TOTAL	**6,554**	**5,119**	
Community Services Bureau			
Commander Office		160	Future Office

Village of Arlington Heights
Police Department

FGM ARCHITECTS

Space Needs Program

June 24, 2015
FGM #: 14-1933.01

Room/Area/Space	Sq. Ft.		Notes
	2009 Study	2014	
Sergeant		260	
Administrative Assistant		120	
Community Services Open Office		590	Open office with (6) "L" shaped workstations and conference table
Safe Schools (SRO)		-	Located in Community Services Open Office
Crime Prevention	120	-	Located in Community Services Open Office
Problem Oriented Policing	120	-	Located in Community Services Open Office
Victim Services	168	180	Provide office with (2) "L" Shaped workstations
Counseling Room	120	120	Soft Seating for (3-4)
Kid Room	80	80	
Community Services Support Areas			
Storage	200	400	
Conference Room	240	-	Share with Investigations - see Investigations Support Areas above
Community Services Sub-Total	**1,048**	**1,910**	
Circulation, Wall, and Mechanical Shaft Space	262	573	
COMMUNITY SERVICES TOTAL	**1,310**	**2,483**	
STAFF SUPPORT AREAS			
Multi-Purpose Room / Backup EOC	-	1,000	Flexible space for (30) in classroom/conference setting
A/V Equipment	-	25	Closet for Audio/Visual Equipment
EOC Equipment Storage	-	80	Storage for computers, telephones, radio equipment for EOC
Multi-Purpose Storage	-	150	Table and chair storage
Lunchroom with Kitchenette	400	670	Break area with (4) tables of four
Library	-	120	
First Aid Room	-	120	
Quartermaster Storage	-	150	Uniform and supply storage
Honor Guard Storage	-	150	Uniform and equipment Storage - (15) 15"X24" lockers and (3) 36" storage cabinets
Staff Toilets Allowance	-	1,000	Allowance for toilet rooms throughout the building
Closet Allowance	-	200	Allowance for closets throughout the building
Staff Support Areas Sub-Total	**400**	**3,665**	
Circulation, Wall, and Mechanical Shaft Space	100	1,100	
STAFF SUPPORT AREAS TOTAL	**500**	**4,765**	
LOCKER/FITNESS AREAS			
Male Locker Area	-	2,400	Provide (136) 30" wide lockers
Sworn Lockers	1,335	-	Located in Male Locker Area
Command Lockers	630	-	Located in Male Locker Area
Toilet/Sinks/Shower Areas	540	420	(3) toilets, (3), urinals, (4) lavs, (2) showers
First Aid Room	120	-	Located in Staff Support Areas

Village of Arlington Heights
Police Department

FGM ARCHITECTS

Space Needs Program

June 24, 2015
FGM #: 14-1933.01

Room/Area/Space	Sq. Ft.		Notes
	2009 Study	2014	
Female Locker Area	216	600	Provide (30) 30" wide lockers
Sworn Lockers	267	-	Located in Female Locker Area
Command Lockers	150	-	Located in Female Locker Area
Toilet/Sinks/Shower Areas	270	200	(2) toilets, (2) lavs, (1) shower
First Aid Room	120	-	Located in Staff Support Areas
Defensive Tactics Training Room	-	1,000	Mat Room
Equipment Storage		200	Storage for DT and training equipment
Fitness Area	1,100	1,100	
Locker/Fitness Areas Sub-Total	**4,748**	**5,920**	
Circulation, Wall, and Mechanical Shaft Space	1,187	1,776	
LOCKER/FITNESS AREAS TOTAL	**5,935**	**7,696**	
WARM STORAGE			
Bike Squad	400	250	Storage for (6) bicycles, bike racks, equipment
Storage	216		
Vehicle Garage	800		
Command Vehicle Storage	-	640	16'x40' long storage bay
Traffic and Parking Enforcement Storage	350	200	Signs and equipment
Overweight Traffic Enforcement	80	80	Signs and scales (future)
Motor Cycle Storage		200	Storage for (4) motorcycles and miscellaneous items
Storage Lockers		85	(8) 18"x24" gear storage lockers
Animal Welfare and Control Storage		80	Traps, Drugs, etc.
NIPAS			
Armored Vehicle	-	-	Not required
Storage	350	-	Not required
Armorer Room/Gun Safe	168	-	Not required
Lockers	165	-	Not required
Warm Storage Sub-Total	**2,529**	**1,535**	
Circulation, Wall, and Mechanical Shaft Space	632	461	
WARM STORAGE TOTAL	**3,161**	**1,996**	
LOADING/FACILITY MAINTENANCE			
Facility Maintenance Office	-	100	Small office with desk and phone
Facility Maintenance	108	150	Public Works maintenance work room
Central Custodial Storage Space	150	150	
Janitor's Closet Allowance	-	150	For Janitorial storage throughout building
Loading Dock Area	-	-	Covered Area with dock leveler
Delivery Storage Room	-	150	For temporary holding of deliveries

Village of Arlington Heights
Police Department

FGM ARCHITECTS

Space Needs Program

June 24, 2015
FGM #: 14-1933.01

Room/Area/Space	Sq. Ft.		Notes
	2009 Study	2014	
Community Service Storage	400	-	Located in Community Services
General Building Storage		400	
EMA Storage	200	-	Not required
Loading/Facility Maintenance Sub-Total	**858**	**1,000**	
Circulation, Wall, and Mechanical Shaft Space	172	300	
LOADING FACILITY MAINTENANCE TOTAL	**1,030**	**1,300**	
MECHANICAL AND ELECTRICAL SPACES			
Emergency Generator	-	-	Locate outside
Mechanical Room(s)	-	1,800	HVAC, Plumbing and Fire Protection Equip., prefer boiler room separate from air handlers
Electrical Room	-	800	
Elevator	-	-	In circulation space allowance
Elevator Machine Room	-	80	
Freight Elevator	-	100	
Freight Elevator Machine Room	-	80	
Telephone Service Room	-	30	D-mark room
Mechanical and Electrical Spaces Sub-Total	-	2,890	
Circulation, Wall, and Mechanical Shaft Space		867	
MECHANICAL AND ELECTRICAL SPACES TOTAL	-	**3,757**	
NET BUILDING AREA SUB-TOTAL	**60,125**	**69,656**	
Multi-Floor Factor	3,600	3,000	Assume three floors at 1,000 sq.ft. per floor
Total Net Square Footage	63,725	72,656	
Structural Design Factor	6,372	-	Included in Circulation, Wall and Mechanical Shaft Space allowances
Restroom/Mechanical Factor	6,372	-	Included in Mechanical Electrical Spaces above
TOTAL BUILDING AREA REQUIRED	**76,469**	**72,656**	
OUTDOOR SPACES			
PARKING REQUIREMENTS			
Police			
Department Vehicles			
Department Vehicles		71	Provide covered parking for (50) shift vehicles
Spare Vehicles		10	

Village of Arlington Heights
Police Department

FGM ARCHITECTS

Space Needs Program

June 24, 2015
FGM #: 14-1933.01

Room/Area/Space	Sq. Ft.		Notes
	2009 Study	2014	
Total Department Vehicles		81	
Staff Parking			
Required Parking Spaces at Peak Demand		110	Peak demand is at 3:00 pm shift change
Take Home Vehicles		(7)	Present on Campus at 3:00 pm shift change
Total Staff Parking Required		103	
Seized Vehicles		20	Secure storage for up to (20) seized vehicles - can be remotely located
Trailers		3	(2) larger trailers and (2) speed trailers - can be remotely located
Public			
Visitors		10	
Community and Training Room Parking		30	Parking for Community and Training functions
Total Public Parking Required		40	
Total Police Parking Required		247	
Village Hall			
Department Vehicles		32	
Staff Parking		84	
Public			
Visitors		20	
Board Room		30	
Community Room		20	
Total Village Hall Parking Required		186	
Fire Department			
Department Vehicles		-	
Staff Parking		9	
Public		3	
Total Fire Department Parking Required		12	
MISCELLANEOUS OUTDOOR SPACES			
Plaza Entrance			With seating
Trash Enclosure			Use existing/share with Village Hall and Fire Department
Generator Enclosure		800	Allow area 20'x40'
Transformer Enclosure		300	
Outdoor Staff Area		400	
Storage Building		100	For Public Works maintenance equipment
Secure Evidence Remote Storage		200	For secure storage of hazardous items. Can combine with Storage Building above
Bike Storage		400	Provide covered storage for 200 bikes

S:\Jobs\2014\14-1933a\ADMIN\1.0 Project Management & Programming\1.3 Building Program

MUNICIPAL CAMPUS PARKING SPACE SURVEY
Available Vacant Parking Spaces

Date	Day of Week	Time	Municipal Garage						Police Lot	Lot 'O' Arl Hts & Sigwalt		Employee Parking Directly Across from PD	Employee Parking Directly Across from FD	Total Vacancies All Lots Combined
			Visitor Ground Level	Visitor Level 2	Visitor Level 3	Village Vehicle Ground Level	Village Vehicle Level 2	Daily Fee Both Ramps	Employee Parking Level 2 & 3	Entire Lot	Daily Fee	Visitor			
TOTAL NUMBER OF SPACES =			**32**	**6**	**6**	**28**	**12**	**66**	**121**	**75**	**32**	**9**	**29**	**25**	
11/14/14	Fri *	9:30 AM	32	4	6	8	4	46	39	28	18	8	10	19	222
		2:30 PM	24	6	6	8	2	39	55	30	10	9	11	12	212
		6:00 PM	29	6	6	8	2	51	109	29	19	7	23	20	309
11/18/14	Tues	9:30 AM	27	6	5	4	4	35	45	30	19	8	8	22	213
		2:30 PM	24	4	6	7	6	29	38	27	9	9	5	22	186
		6:00 PM	7	6	6	9	2	44	90	19	25	6	19	22	255
11/19/14	Weds	9:30 AM	17	4	6	4	3	34	12	33	21	9	8	20	171
		2:30 PM	**14**	**6**	**6**	**2**	**4**	**30**	**7**	**27**	**19**	**6**	**10**	**18**	**149**
		6:00 PM	25	6	6	6	2	46	105	27	24	9	19	22	297

* Friday 11/14/14 = Village Employee Flex Day

11/14 - Cook County Housing - 9am- 17 attendees

11/18 - Fire and Police Academy Commission - 6pm - 6 attendees

11/18 - Citizens Police Academy Graduation -7pm - 30-40 attendees

11/18 - Wingate Condos - 7pm - 20 attendees

11/19 - Lutheran General Hospital - 9am to 4pm - 30-35 attendees

11/19 - Chicago Amputee Group - 7pm - 10 attendees

11/19 - Arlington Cares - 7:30pm - 10 attendees

Arlington Economic Alliance - 7:30 am - meeting cancelled - normally 9 - 12 attendees

Village of Arlington Heights
Police Department

FGM ARCHITECTS

Space Needs Program for Temporary Facility

June 24, 2015
FGM #: 14-1933.01

Room/Area/Space	Temp Sq.Ft.	Notes
PUBLIC ENTRY / PUBLIC ACCESS AREAS		
Entry Vestibule	80	
Lobby	220	Provide guest seating seating for (4)
Reception Counter		
Citizen Report Room	100	Provide seating for (4) with counter for fingerprinting
Public Fingerprinting Alcove	-	Incorporate into one of the Citizen Report Rooms above
Community Meeting / Training Room		Room to seat (50) in classroom format
Credenza Storage Counter		Long counter storage cabinets to support Community Meeting / Training room
Audio/Visual Equipment		Closet for Audio/Visual Equipment
Table and Chair Storage		
Public Toilets	160	Single User M/F Toilet
Public Entry / Public Access Areas Sub-Total	**560**	
Circulation, Wall, and Mechanical Shaft Space	168	
PUBLIC ENTRY / PUBLIC ACCESS AREAS TOTAL	**728**	
OPERATIONS SUPPORT - FRONT DESK		
Counter Positions	180	Reception positions for (2) and service areas
Camera Monitor Center	-	Combine with Counter Positions
Printer/Copier	-	Located in Counter Positions
Files	-	Located in Counter Positions
Operations Support - Front Desk Sub-Total	**180**	
Circulation, Wall, and Mechanical Shaft Space	54	
OPERATIONS SUPPORT - FRONT DESK TOTAL	**234**	
POLICE ADMINISTRATION		
Chief of Police Office	225	Desk, credenza, conference table for (4), bookcases
Closet	-	
Administrative Services Captain	175	Desk, credenza, conference table for (4), bookcases
Closet	-	
Legal Advisor	-	Position was eliminated
Flexible Office Space	-	(1-2) "L" shaped workstation(s) with guest seating
Chief's Administrative Assistant	85	"L" shaped workstation
Administrative Services Administrative Assistant	85	"L" shaped workstation
Administrative Waiting	-	Guest seating for (4)
Administrative Conference Room	420	Conference Seating for (14-16) with credenza
Coffee Area	25	
Toilet	-	Area allocated for in Staff Support Areas

Village of Arlington Heights
Police Department

FGM ARCHITECTS

Space Needs Program for Temporary Facility

June 24, 2015
FGM #: 14-1933.01

Room/Area/Space	Temp Sq.Ft.	Notes
Secure Files	200	Allow for (10) 42" wide lateral files
Administrative Storage Room	20	Secure supply storage
Copy/Workroom	120	Copier and work area with storage cabinets
Coat Closet	-	
Police Administration Sub-Total	**1,355**	
Circulation, Wall, and Mechanical Shaft Space	474	
POLICE ADMINISTRATION TOTAL	**1,829**	
PATROL DIVISION		
Patrol Division Captain	175	Desk, credenza, conference table for (4), bookcases
Closet	-	
Administrative Assistant	85	"L" shaped workstation
Patrol Bureau		
Patrol Commander's Offices (3) required	250	(3) "L" shaped workstations in shared office
Watch Office		
Patrol Sergeants Workstations	560	(7) "L" shaped workstations in open office setting
Operations Supervisor	-	"L" shaped workstation with (2) guest chairs
Conference/Counseling Room	120	For Patrol Use
Equipment Issue	150	
Support Spaces		
Mud Room	-	With area for wet gear
Duty Bag Storage	-	Provide (80) two-tier "Z" lockers for duty bags near patrol entry
Report Writing		
Officer Desks	160	(3) report writing workstations with copier, mail and form storage
Juvenile Lounge	80	
Juvenile Toilet	-	
Photocopy/FAX/Printer	-	In Report Writing above
Squad/Briefing Room	480	For (16) personnel in flexible format - in conference setting
Field Training Office	-	
Park Counselor	25	File storage
Patrol Bureau Sub-Total	**2,085**	
Circulation, Wall, and Mechanical Shaft Space	730	
PATROL BUREAU TOTAL	**2,815**	
Evidence Collection - Forensic Services		
Supervisor Office		Located on 4th Floor of Village Hall

Village of Arlington Heights
Police Department

FGM ARCHITECTS

Space Needs Program for Temporary Facility

June 24, 2015
FGM #: 14-1933.01

Room/Area/Space	Temp Sq.Ft.	Notes
Evidence Technicians/Traffic Crash Investigation Open Office		Located on 4th Floor of Village Hall
Evidence Vehicle Garage		Locate at Fire Academy?
Emergency Eyewash/Shower		Located on 4th Floor of Village Hall
Vehicle Processing Bay		Locate at Fire Academy?
Vehicle Exam/Crime Scene Vehicles	-	
Evidence Triage Area		Located on 4th Floor of Village Hall
In-Process Evidence Storage		Located on 4th Floor of Village Hall
Forensic Processing Lab		Located on 4th Floor of Village Hall
Bio-Vestibule	-	
Dust/Superglue/Ninhydrin Work Area		Located on 4th Floor of Village Hall
Superglue Chamber	-	
Dusting Fume Hood		Located on 4th Floor of Village Hall
Dusting Room		Located on 4th Floor of Village Hall
Drying Cabinets		Located on 4th Floor of Village Hall
Fume Hood		Located on 4th Floor of Village Hall
Biological Drying (medium)	-	
Biological Drying (large)	-	
Refrigerators		Located on 4th Floor of Village Hall
Alternative Source		Located on 4th Floor of Village Hall
Microscopy Area		Located on 4th Floor of Village Hall
Worktables and Counters		Located on 4th Floor of Village Hall
Alternative Light Room	-	
Drug Chemistry Lab		Located on 4th Floor of Village Hall
Digital /Photo Lab/Computer		Located on 4th Floor of Village Hall
Computer Forensics		Located on 4th Floor of Village Hall
Storage		Located on 4th Floor of Village Hall
Future Lab	-	
Clean Storage Equipment Room		Located on 4th Floor of Village Hall
Dirty Equipment Storage Room		Located on 4th Floor of Village Hall
Forensic Lab Support Spaces		Located on 4th Floor of Village Hall
Biological Decontamination Area	-	
Training Room	-	
Break Rooms	-	
Coffee Area		Located on 4th Floor of Village Hall
Lockers		Located on 4th Floor of Village Hall
Washer/Dryer		Located on 4th Floor of Village Hall
Sleep Rooms	-	
Privacy Restroom/Shower		Located on 4th Floor of Village Hall
Evidence Collection Sub-Total	-	

Village of Arlington Heights
Police Department

FGM ARCHITECTS

Space Needs Program for Temporary Facility

June 24, 2015
FGM #: 14-1933.01

Room/Area/Space	Temp Sq.Ft.	Notes
Circulation, Wall, and Mechanical Shaft Space	-	
EVIDENCE COLLECTION TOTAL	-	
Canine		
Sergeant	-	Not required
Police Officer	-	Not required
Canine Support Spaces		
Kennel	-	Not required
Grooming	-	Not Provided
Storage Racks	-	Not required
Canine Sub-Total	-	
Circulation, Wall, and Mechanical Shaft Space	-	
CANINE TOTAL	-	
Traffic Bureau		
Commander	80	"L" shaped workstation
Sergeant	80	"L" shaped workstation
Traffic Open Office	160	(2) "L" shaped workstations in open office setting
Traffic Storage	-	See warm storage
Parking Enforcement Storage	-	See warm storage
Storage Room	-	See warm storage
Traffic Crash Investigation and Reconstruction	-	See Evidence Collection Open Office
Animal Welfare and Control Storage	-	See warm storage
Overweight Truck Enforcement Storage	-	See warm storage
Traffic Bureau Sub-Total	**320**	
Circulation, Wall, and Mechanical Shaft Space	115	
TRAFFIC BUREAU TOTAL	**435**	
ADMINISTRATIVE SERVICES DIVISION		
Administrative Services Captain	-	See Police Administration
Administrative Assistant	-	See Police Administration
Support Bureau		Spaces to be located with Administration
Administrative Sergeant	85	"L" shaped workstation
Administrative Analyst	-	Not Provided
Fiscal Clerk	85	"L" shaped workstation

Village of Arlington Heights Police Department

FGM ARCHITECTS

Space Needs Program for Temporary Facility

June 24, 2015
FGM #: 14-1933.01

Room/Area/Space	Temp Sq.Ft.	Notes
Court Liaison	-	See Records
Strategic Planning	-	
Training	-	Incorporated into Administrative Sergeant's work
Labor Negotiations and Grievance Resolution	-	
Support Spaces		
Copy/Workroom	-	Included in Administration
Secure Files	-	Located in Administrative File Room
Coffee Area	-	Included in Administration
I.T. Support		
Systems Technician	140	Workroom/Storage for IT staff
Server Room	150	Space for up to (4) server racks
Storage Area	-	For storage of equipment
IDF Closets	-	Allowance for network closets throughout building
Professional Standards & Internal Affairs		
Professional Standards & Internal Affairs Office	180	Provide office with (2) "L" Shaped workstations
Interview Room	-	Not Provided
Files	-	Provide (1) 42" lateral file (locate in office)
Support Bureau Sub-Total	**640**	
Circulation, Wall, and Mechanical Shaft Space	224	
SUPPORT BUREAU TOTAL	**864**	
Evidence Property Management		
Evidence Custodian Office	-	Located on 4th Floor of Village Hall
Evidence Packaging		
Worktable and Barcoding	200	(4) sets pass-thru lockers, large counter, storage for supplies, sink
Evidence Drop Lockers	-	Located in Worktable and Barcoding above
Oversize Lockers	-	Located on 4th Floor of Village Hall
Intake Area/Work Area	-	Located on 4th Floor of Village Hall
Movable Worktables	-	Locate in Open Floor Area below
Evidence Area Support Spaces		
General Evidence	-	Located on 4th Floor of Village Hall
Open Floor	-	Located on 4th Floor of Village Hall
Money Vault	-	Located on 4th Floor of Village Hall
Narcotics Storage	-	Located in High Density Storage above
Firearms Storage	-	Located in High Density Storage above
Long Term Evidence Storage	-	Located on 4th Floor of Village Hall or at Fire Academy

Village of Arlington Heights Police Department

FGM ARCHITECTS

Space Needs Program for Temporary Facility

June 24, 2015
FGM #: 14-1933.01

Room/Area/Space	Temp Sq.Ft.	Notes
Refrigerated Storage	-	Located on 4th Floor of Village Hall
Destruction Holding Area	-	Located on 4th Floor of Village Hall
Bike Storage	-	See Outdoor Miscellaneous Spaces below
Secure Storage Shed	-	See Outdoor Miscellaneous Spaces below. For secure storage of hazardous items
Seized Vehicles/Impound	-	See Outdoor Miscellaneous Spaces below
Evidence Property Management Sub-Total	**200**	
Circulation, Wall, and Mechanical Shaft Space	60	
EVIDENCE PROPERTY MANAGEMENT TOTAL	**260**	
Firearms Range Management/Training		
Rangemaster/Armory Office	-	Not Provided
Firing Range		
Range Staging	-	Not Provided
Range Lanes	-	Not Provided
Trap Area	-	Not Provided
Target Storage	-	Not Provided
Armory Storage	300	Ammunition and Weapons Storage
Weapons Maintenance	100	Weapons repair and cleaning room
Range Mechanical	-	Not Provided
Restroom	-	Not Provided
Firearms Training Simulator	-	Not Provided
Firearms Range Management Sub-Total	**400**	
Circulation, Wall, and Mechanical Shaft Space	120	
FIREARMS RANGE MANAGEMENT TOTAL	**520**	
I.D./Lockup		
Jail Officer	-	Not Provided
Office Area Support Area		
Workstation	-	Not Provided
Files	-	Locate in Records
Sally Port	-	Not Provided
Prisoner Search and Personal Effects Lockers	64	Not Provided
Vestibule Area	-	
Processing Area		
Uncuffing Area		
Fingerprint Area	80	For ink fingerprinting, with sink and eyewash
Suspect Photography	-	Included in Live Scan below

Village of Arlington Heights
Police Department

FGM ARCHITECTS

Space Needs Program for Temporary Facility

June 24, 2015
FGM #: 14-1933.01

Room/Area/Space	Temp Sq.Ft.	Notes
Sobriety Testing	80	Allow work area for (2) Breathalyzers
Mass Arrest Cell with Mass Arrest Lobby	-	Not Provided
Interview Room (1) required	100	Hard interview room
Booking Station	400	Size to allow processing or (2) detainees
Live Scan Area	80	Include photo area
Toilet	80	Single user detention grade toilet
Janitors Closet	-	Not Provided
Jail Storage	-	Not Provided
Detention Rooms	-	Not Provided
Sobering Cell	-	Not Provided
Padded Cell	-	Not Provided
Attorney/Client Room	-	Not Provided
Line Up Room	-	Not Provided
Bond Out Vestibule	100	Bond out area for release of detainees
In-Custody Interview Area		
Interview Rooms (2) required	-	Located in Processing Area above
Interview Toilet Room	-	Located in Processing Area above
I.D. Lockup Sub-Total	984	
Circulation, Wall, and Mechanical Shaft Space	344	
I.D. LOCKUP TOTAL	**1,328**	
	-	
Records Bureau		
Records Supervisor	85	"U" shaped workstation with (2) guest chairs
Records Clerks Open Office	400	Open office work area with (5) "L" shaped workstations
Court Liaison	-	Not Provided
Intern Workstation	-	Included in Records Clerks Open Office
Support Spaces		
Public Counter Positions	100	Provide for (2) secure reception positions
Officers Counter	32	
Light Duty Desks	-	Included in Records Clerks Open Office above
Volunteer Desks	-	Included in Records Clerks Open Office above
Red Light Review	-	Not planned for
Copy/Workroom	150	Area with copier, shredder, work counters, storage
Active File Storage	480	Allow for (24) 42" wide lateral files, consider high density filing system
I.D. Lockup Files	180	Allow for (9) 42" wide lateral files, currently high density system
Microfiche Reader	45	
Long Term Records	-	Locate on 4th Floor of Village Hall
Form Storage	64	

Village of Arlington Heights Police Department

FGM ARCHITECTS

Space Needs Program for Temporary Facility

June 24, 2015
FGM #: 14-1933.01

Room/Area/Space	Temp Sq.Ft.	Notes
Safe	20	
Coffee Area	-	Not Provided
Storage Room	100	Office supply storage
Records Bureau Sub-Total	**1,656**	
Circulation, Wall, and Mechanical Shaft Space	580	
RECORDS BUREAU TOTAL	**2,236**	
CRIMINAL INVESTIGATIONS AND COMMUNITY SERVICES DIVISION		
Criminal Investigations and Community Services Captain	175	
Closet	-	
Criminal Investigations		
Commander Investigations Office	150	"U" shaped workstation
Sergeant's Office (2) required	170	"L" Shaped workstation
Commander CS	-	Not required
Administrative Assistant - Investigations	85	
Administrative Assistant - Community Services	-	Located in Community Services below
Detective Investigator	840	(12) "L" shaped workstations
Juvenile Officer	-	Located in Detective Investigators above
Gang Investigators (2) required	-	Located in Detective Investigators above
School Liaison Officer	-	Located in Community Services Open Office
Too Good for Drugs	-	Located in Community Services Open Office
Safe Schools (SRO)	-	Located in Community Services Open Office
DEA Task Force	-	Located in Detective Investigators above
Financial Crimes	-	Located in Detective Investigators above
Crime Analyst	-	Located in Detective Investigators above
Investigations Support Areas		
Storage/Equipment	150	Secure equipment storage
Files	64	Allow for (4) 42" wide lateral files
Secure Juvenile Files	100	Allow for (6) 42" wide lateral files
Major Case Room	-	See Multi-Purpose Room in Staff Support Areas below
Project/Conference Room	310	Seating for (10-12) - share with Community Services
Coffee Area	-	Not Provided
Storage/In-Process Evidence	80	Lockers for temporary evidence storage
Interview Suite		
Standard Interview Rooms - Juvenile (4) required	-	Share with Adult Interview Rooms
Standard Interview Rooms - Adult (3) required	300	
Toilet Room	80	Locate single user toilet room near Juvenile Interview Rooms

Village of Arlington Heights
Police Department

FGM ARCHITECTS

Space Needs Program for Temporary Facility

June 24, 2015
FGM #: 14-1933.01

Room/Area/Space	Temp Sq.Ft.	Notes
A/V Monitor Control Room	80	A/V controls with work table
Criminal Investigations Sub-Total	**2,584**	
Circulation, Wall, and Mechanical Shaft Space	775	
CRIMINAL INVESTIGATIONS TOTAL	**3,359**	
Community Services Bureau		
Commander Office	-	Future Office
Sergeant	85	
Administrative Assistant	85	
Community Services Open Office	320	Open office with (4) "L" shaped workstations
Safe Schools (SRO)	-	Located in Community Services Open Office
Crime Prevention	-	Located in Community Services Open Office
Problem Oriented Policing	-	Located in Community Services Open Office
Victim Services	170	Provide office with (2) "L" Shaped workstations
Counseling Room	-	Not Provided
Kid Room	-	Not Provided
Community Services Support Areas		
Storage	200	
Conference Room	-	Share with Investigations - see Investigations Support Areas above
Community Services Sub-Total	**860**	
Circulation, Wall, and Mechanical Shaft Space	258	
COMMUNITY SERVICES TOTAL	**1,118**	
STAFF SUPPORT AREAS		
Multi-Purpose Room / Backup EOC	-	Utilize Village Hall Spaces
A/V Equipment	-	Not Provided
EOC Equipment Storage	-	Not Provided
Multi-Purpose Storage	-	Not Provided
Lunchroom with Kitchenette	400	Break area
Library	-	Not Provided
First Aid Room	-	Not Provided
Quartermaster Storage	150	Uniform and supply storage
Honor Guard Storage	-	Combine with Quartermaster Storage
Staff Toilets Allowance	500	Allowance for toilet rooms throughout the building
Closet Allowance	200	Allowance for closets throughout the building
Staff Support Areas Sub-Total	**1,250**	
Circulation, Wall, and Mechanical Shaft Space	375	

Village of Arlington Heights Police Department

FGM ARCHITECTS

Space Needs Program for Temporary Facility

June 24, 2015
FGM #: 14-1933.01

Room/Area/Space	Temp Sq.Ft.	Notes
STAFF SUPPORT AREAS TOTAL	**1,625**	
LOCKER/FITNESS AREAS		
Male Locker Area	-	Not Provided
Sworn Lockers	-	Not Provided
Command Lockers	-	Not Provided
Toilet/Sinks/Shower Areas	-	Not Provided
First Aid Room	-	Not Provided
Female Locker Area	-	Not Provided
Sworn Lockers	-	Not Provided
Command Lockers	-	Not Provided
Toilet/Sinks/Shower Areas	-	Not Provided
First Aid Room	-	Located in Staff Support Areas
Defensive Tactics Training Room	-	Locate on 4th Floor of Village Hall
Equipment Storage	-	Locate on 4th Floor of Village Hall
Fitness Area	-	Utilize Village Hall Facility
Locker/Fitness Areas Sub-Total	**-**	
Circulation, Wall, and Mechanical Shaft Space	-	
LOCKER/FITNESS AREAS TOTAL	**-**	
WARM STORAGE		
Bike Squad	250	Locate at Fire Academy?
		?
Vehicle Garage		
Command Vehicle Storage	-	Not Provided
Traffic and Parking Enforcement Storage	200	Locate at Fire Academy?
Overweight Traffic Enforcement	-	Not Provided
Motor Cycle Storage	-	Locate at Fire Academy?
Storage Lockers	85	Locate at Fire Academy?
Animal Welfare and Control Storage	80	Traps, Drugs, etc.
NIPAS		
Armored Vehicle	-	Not required
Storage	-	Not required
Armorer Room/Gun Safe	-	Not required
Lockers	-	Not required
Warm Storage Sub-Total	**615**	
Circulation, Wall, and Mechanical Shaft Space	185	

Village of Arlington Heights
Police Department

FGM ARCHITECTS

Space Needs Program for Temporary Facility

June 24, 2015
FGM #: 14-1933.01

Room/Area/Space	Temp Sq.Ft.	Notes
WARM STORAGE TOTAL	**800**	
LOADING/FACILITY MAINTENANCE		
Facility Maintenance Office	-	Not Provided
Facility Maintenance	-	Not Provided
Central Custodial Storage Space	150	
Janitor's Closet Allowance	-	Include above
Loading Dock Area	-	Not Provided
Delivery Storage Room	-	Not Provided
Community Service Storage	-	
General Building Storage	400	
EMA Storage	-	Not required
Loading/Facility Maintenance Sub-Total	**550**	
Circulation, Wall, and Mechanical Shaft Space	165	
LOADING FACILITY MAINTENANCE TOTAL	**715**	
MECHANICAL AND ELECTRICAL SPACES		
Emergency Generator	-	Locate outside
Mechanical Room(s)	400	Space Allowance
Electrical Room	200	Space Allowance
Elevator	-	In circulation space allowance
Elevator Machine Room	-	
Freight Elevator	-	
Freight Elevator Machine Room	-	
Telephone Service Room	30	D-mark room
Mechanical and Electrical Spaces Sub-Total	630	
Circulation, Wall, and Mechanical Shaft Space	189	
MECHANICAL AND ELECTRICAL SPACES TOTAL	**819**	
NET BUILDING AREA SUB-TOTAL	**19,685**	
Multi-Floor Factor	-	Not Applicable
Total Net Square Footage	19,685	
Structural Design Factor	-	Included in Circulation, Wall and Mechanical Shaft Space allowances
Restroom/Mechanical Factor	-	Included in Mechanical Electrical Spaces above

Village of Arlington Heights
Police Department

FGM ARCHITECTS

Space Needs Program for Temporary Facility

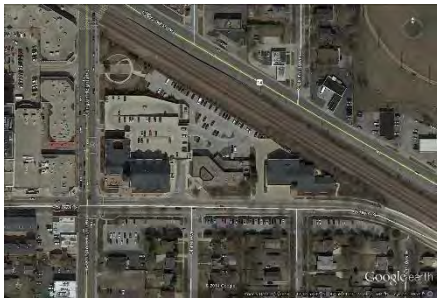
June 24, 2015
FGM #: 14-1933.01

Room/Area/Space	Temp Sq.Ft.	Notes
TOTAL BUILDING AREA REQUIRED	**19,685**	
OUTDOOR SPACES		
PARKING REQUIREMENTS		
Police		
Department Vehicles		
Department Vehicles	71	Provide covered parking for (50) shift vehicles
Spare Vehicles	10	
Total Department Vehicles	**81**	
Staff Parking		
Required Parking Spaces at Peak Demand	110	Peak demand is at 3:00 pm shift change
Take Home Vehicles	(7)	Present on Campus at 3:00 pm shift change
Total Staff Parking Required	**103**	
Seized Vehicles	-	Secure storage for up to (20) seized vehicles - can be remotely located
Trailers	-	(2) larger trailers and (2) speed trailers - can be remotely located
Public		
Visitors	10	
Community and Training Room Parking	-	Parking for Community and Training functions
Total Public Parking Required	**10**	
Total Police Parking Required	**194**	
MISCELLANEOUS OUTDOOR SPACES		
Plaza Entrance		With seating
Trash Enclosure		Use existing/share with Village Hall and Fire Department
Generator Enclosure	-	Allow area 20'x40'
Transformer Enclosure	-	
Outdoor Staff Area	-	
Storage Building	-	
Secure Evidence Remote Storage	-	For secure storage of hazardous items. Can combine with Storage Building above
Bike Storage	400	Provide covered storage for 200 bikes
S:\jobs\2014\14-1933a\ADMIN\1.0 Project Management & Programming\1.3 Building Program		

SECTION 5
EXISTING CONDITIONS ANALYSIS

Existing Conditions Analysis Approach

As part of our Scope of Work, FGM Architects' has reviewed the existing facility study completed in 2010 by the team of FGM & MWL. Since the completion of the original study, the Police Station has not undergone any major additions, renovations, or maintenance projects, leaving a majority of the original observations and concerns still valid. Based on the recent walk through of the Police Station, additional commentary to the original analysis text has been furnished in ***bold italics***, providing updated information on the conditions.



Existing Site Evaluation

The Police Station is located on Sigwalt Street between the new Village Hall and Fire Station. The rear property line is bordered by the Chicago and Northwestern Train tracks. The surface parking lot and parking structure are shared between the Village Hall, Police, and Fire Station.

Grading

The grade slopes away from the building on all sides and is sufficient to drain water away from the building. The grades on the east side of the building are steep and supported by a unit block retaining wall.

Utilities

There are private storm sewers on the east, west, and south sides of the building.

Downspouts are collected underground and drain into the private, on-site storm sewer system. There is one storm sewer outfall from the building that is located on the west side of the building. It drains into the private, on-site storm sewer system. The storm sewer system combines with the Village Hall sewer system and discharges into the 72" relief sewer on Sigwalt Street.

There is no detention provided for the entire Municipal Campus.

There are two sanitary sewer outfalls from the building, one on the west side and one on the south side of the building. These lines combine with the sanitary sewer from the Village Hall and discharge to the combined sewer on Sigwalt Street.

The water service is on the south side of the building and connects to the main on Sigwalt Street. There is a fire hydrant in front of the Village Hall and one in front of the Fire Station. These hydrants provide sufficient fire protection coverage for the Police Station building.

Gas, telephone, cable, and electric services, along with the associated transformers and meters, are located on the east side of the building.

Since the time of the original study in 2010, the site utilities have remained unchanged and no issues have been reported with their current configuration or operation.

Future Improvements
If an addition was placed on the north side of the existing building and access is needed on the north and east sides of the addition, a change in finished floor elevation would need to be incorporated into the design as there is a 1.6' grade difference between the existing finished floor elevation and the north parking lot elevation.

Storm and sanitary outfalls for a new addition could discharge out the east side of the building into the private services used for the Fire Station building. Water service could be routed into the new addition from the existing internal service lines. The utility outfalls were previously designed as part of an alternate bid during the Village Hall project, however the alternate was not accepted and the outfalls were not built.

If the existing building was removed and a new one constructed, it is likely that at least 20' of pavement would need to be removed in the northern parking lot to transition grades. It is likely that there would still be a grade difference between the Police building and the eastern Fire Station drive. The location of the new storm and sanitary sewer outfalls could discharge on the east, west or south side of the building. The water service location should remain on the south side of the building.

Due to the cost of repairs and upgrades necessary to the existing police station and to maximize the use of the current site, FGM does not recommend remodeling and expanding of the current facility, but instead recommends a complete replacement. The pros and cons to reuse the existing building were evaluated, with the cons heavily outweighing the pros, leading to this recommendation. ***The pros and cons established for remodeling and expanding the current facility are as follows:***

Pros

1. ***Remain on existing campus***
2. ***Reuses existing building***
3. ***Improved functionality***
4. ***No land acquisition is required***
5. ***Use of existing parking***

Cons

1. ***Low floor to floor heights will make it difficult for installation of new mechanical systems and lower ceilings heights***
2. ***Addition will require higher floor to floor heights due to Sally Port – the uneven floors will make the expansion less functional***
3. ***Inflexibility of construction type does not allow easy reconfiguration, functional compromises, and comprised adjacencies***
4. ***Cost prohibitive to upgrade the structure to "essential" as required by the building code***
5. ***Holding area does not meet current IDOC standards***
6. ***Substandard evidence facilities***
7. ***Low life cycle remaining on existing facility***
8. ***Major building systems are beyond their useful life***
9. ***Condition of the range***
10. ***Roof and windows are beyond their useful life***
11. ***Building is not handicap accessible***
12. ***Life safety and general code violations***
13. ***The effective age of the building is 93 years***
14. ***Architectural massing of addition/remodel***
15. ***Cost approaches cost to build a new station***
16. ***Cost of moving twice***

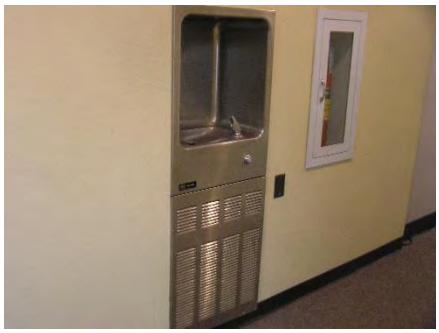
Existing Landscape Evaluation

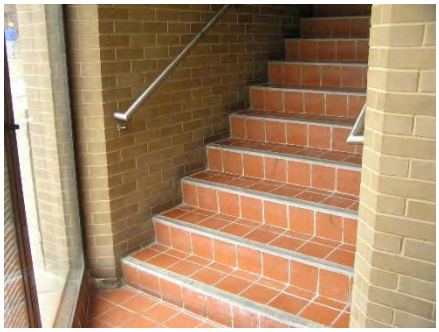
Design Perspectives, Inc. conducted an assessment of the existing landscape of the current Arlington Heights Police Station at the request of FGM Architects, Inc. The goal of our investigation is to provide an overview of the current landscape treatment of the site.

The overall landscape as reviewed was appropriate for the existing police station. It could be defined as a municipal friendly design, heavily relying on a staple shrub mixture that draws attention or visual excitement. It does contain a mixture of shade trees such as maples and honey locusts. There are a number of crabapple ornamental trees, mixture of evergreen and deciduous shrubs and a small enclave of perennials and annuals in select beds. However, there are enhancements that should be made to the existing landscape such as increased plant diversity and expanding the number of plants found in the existing planting beds.

The landscaping surrounding the existing station has remained unchanged since the time of the initial study in anticipation of an addition or new facility.

Any future building improvement, expansion or even the possibility of building a new facility on the current site will need to re-assess the current landscape if substantial time has lapsed. There will be a need to develop a reasonable planting design approach to the project direction in whatever form that addresses what should be saved and what needs to be removed. There are no specimen deciduous shade trees found on-site. From our perspective, a realistic direction would be taking measures to save and/or transplant the existing shade trees where possible. To many municipalities, existing trees are becoming a valuable site amenity and are being heavily protected. After that, the remaining landscape will need to be discussed with the design team as well as the Owner as to the merits of being saved or removed to make way for a more visually appealing landscape treatment.





Existing Architectural Evaluation

The existing Village of Arlington Heights Police Station located at 33 S. Arlington Heights Road in Arlington Heights, IL is a masonry and steel structure constructed in 1978. The team of FGM/MWL was retained in the fall of 2007 to perform an Existing Facility Study and Space Needs Analysis for the Village of Arlington Heights Police Department.

A thorough evaluation of the existing building was performed utilizing specialty consultants. The valuation includes, but is not limited to: design of the building function and workflow, physical building condition, civil, landscape, structural, mechanical, electrical, plumbing, security, IT/communications/technology and environmental.

Our observations about its condition are as follows:

- The roof is original and is beyond its useful life. The replacement budgeted for FY 07 was deferred.
- The roof has been a deferred maintenance item. Spot repairs have been made as needed.
- Many of the windows are original and have insulated glass seal failure, broken cranks and leak.
- Toilet rooms throughout the building are not handicap accessible.
- Drinking fountains throughout the building are not handicap accessible.
- Doors and hardware throughout are not handicap accessible.
- Public Service counter is not handicap accessible.
- Stairs lack the required handrail extension at the top, landing and bottom.
- Guardrails and handrails do not comply with the required 4" maximum spacing.
- Some workstations are not handicap accessible.
- Corridor exit width is reduced by storage in the corridor in many cases.
- The three story atrium space is not protected with a smoke evacuation system or with sprinklers.

- The storage area presents a fire hazard.
- The janitor's sink is adjacent to the electrical panels which is in violation of the code.
- Ceiling tiles are buckling and damaged.
- Condensation on the pipes appears to be the cause for the damaged ceiling tiles.
- Pipes passing through the walls are not fire safed.
- Range walls are not grouted solid.
- The Sally Port lacks a gas curb.
- There is a general lack of security and a lack of public/private separation.
- Division adjacencies are problematic with a single division location on several different floors of the building.
- Suspect and officer safety is at risk due to all of the storage in the Sally Port.
- The Sally Port is not a desirable environment for vehicle examination.
- Overcrowding exists in all of the workspaces.
- The roll call room is at maximum capacity.
- The parking lot is at capacity at shift change.
- Storage in the building is at maximum capacity.
- Metal roof and clerestory paint is peeling and faded.
- Paint is flaking off the garage door.
- Efflorescence is present on the masonry and vertical cracking is present.
- Brick joints are in need of tuck-pointing.
- A makeshift enclosure at the rear of the building requires maintenance. It was constructed to prevent car exhaust from entering the building through a fresh air intake louver and should remain intact.

Since the original study, many of the items and areas of concern identified in the study have not been addressed. These items include, but are not limited to the following:

- ***The roof is in need of replacement and has had several spot repairs since the time of the original study.***
- ***With the exception of two remodeled toilets for staff use, accessibility issues identified throughout the facility remain.***
- ***Overcrowding in both workspaces and storage remains an issue.***
- ***The metal roof and clerestory continue to deteriorate, in many places rusting beyond the point of being able to be refurbished.***
- ***The condition of the efflorescence on the brick and cracking of the masonry mortar continue to worsen.***

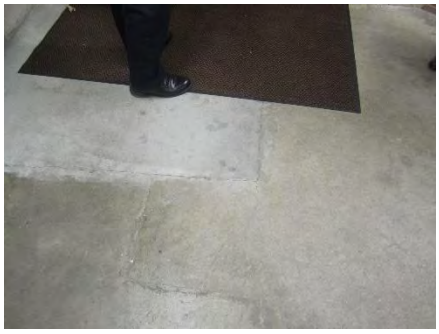
In 2011-2012, FGM was hired to complete construction documents for renovation work for the exterior masonry and roof at the Police Station. After receiving bids for the project, the Village elected to defer the work until a determination was made on what would be done with the Police Station moving forward.

Existing Structural Systems Evaluation

The structure is a steel frame with composite slabs on metal deck, constructed in 1978. The exterior walls consist of CMU with brick veneer. The building plan is approximately 176 feet long by 114 feet wide. It is two stories with a flat roof except for a back portion that is one story. There is a basement under the full footprint of the building. A portion of the high roof is raised for a skylight. Existing structural drawings of the building are available.

The building's columns are 8" wide flange steel sections. The bay spacing is between 18 and 25 feet. The foundation consists of spread footings on soil designed for a bearing value of 4000 psf. The floor framing is comprised of lightweight concrete slabs on 2", 20 gage composite metal deck. The slabs are connected to steel wide flange beams with ¾" diameter by 3 ½" long headed shear studs. The slab thickness on the first floor is 7 ¼" and on the second floor it is 5 ¼". The roof framing consists of steel wide flange girders supporting type-H bar joists supporting 7/8" 26 gage metal deck.

No specific lateral system is detailed on the existing structural drawings. The building is most likely being laterally supported by the combination of interior CMU partitions and the partial rigidity of the beam to column shear connections. See Figure 1.



Structural Observations - Exterior
The exterior brick walls have numerous cracks, in particular at the building's corners and at parapet locations.

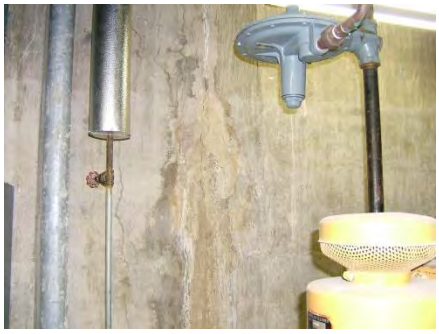
Structural Observations - Interior
A crack in the floor slab was observed at the east entrance. This is at the joint between the composite slab and foundation wall. The exterior sidewalk outside the door had heaved up, which drains water towards the door.

The metal deck below this crack has been corroded due to water infiltration. This area was inspected by a structural engineer in March of 2005.

While not an immediate concern, it was recommended for repair as soon as practical. This item remains a deferred maintenance item.

Various other cracks in the foundation walls have been patched in the past.

There is a reasonable chance that the Village of Arlington Heights will be changing their building code in the near future to the International Building Code. The current code, BOCA 1996, dictates that Seismic Performance Category A is used. Buildings assigned to Category A are not required to be analyzed for seismic forces. However, if the building code is changed to IBC 2003, the Seismic Design section of this code dictates that this building is to be designed as an essential facility. The Seismic Design Category for IBC 2003 is C, based on a steel moment frame with site class C. This would require special detailing for the lateral system as well as connections for architectural items. A retrofit of existing connections will be required. This involves reinforcing connections and the members themselves.



One option is to bring the structure up to compliance and add reinforced masonry shear walls at various spots in the building. The minimum amount of shear walls required to bring the police station up to code for 2003 IBC is 128 linear feet of 12" CMU. Obviously, this would replace the walls that are currently in those locations, so extensive demolition would be required to replace the masonry and connect it to the steel structure and foundation properly.

Highlighted areas illustrate locations where 12" CMU shear walls would need to be added to comply with 2003 IBC. See Figure 2.

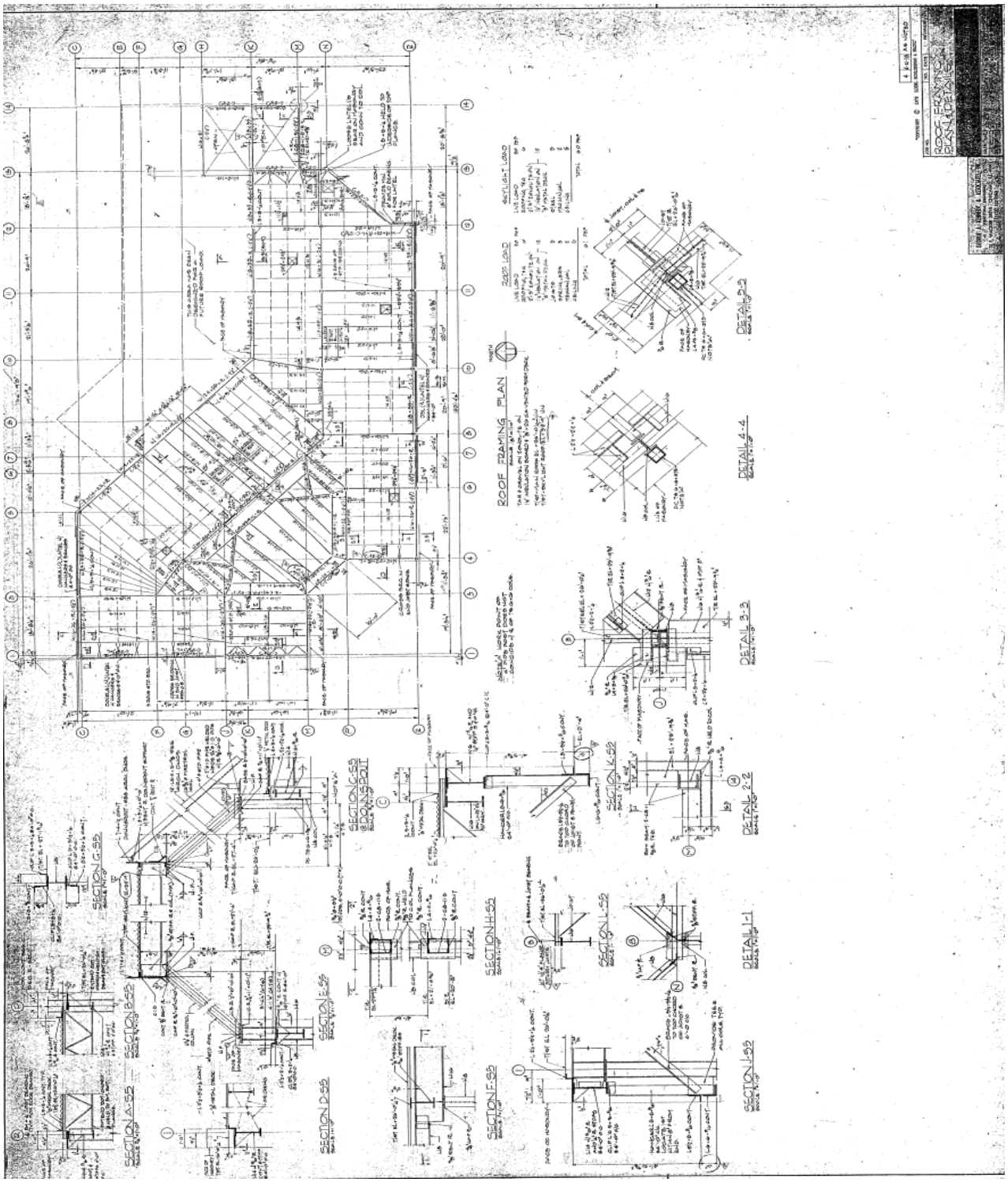

ROOF FRAMING PLAN
DETAIL 1-1
DETAIL 2-2
DETAIL 3-3
DETAIL 4-4
DETAIL 5-5
SECTION A-A
SECTION B-B
SECTION C-C
SECTION D-D
SECTION E-E
SECTION F-F
SECTION G-G
SECTION H-H
SECTION J-J
SECTION K-K
SECTION L-L
SECTION M-M
SECTION N-N
SECTION P-P
SECTION Q-Q
SECTION R-R
SECTION S-S
SECTION T-T
SECTION U-U
SECTION V-V
SECTION W-W
SECTION X-X
SECTION Y-Y
SECTION Z-Z
SECTION @ DOWNSPOUT
ROOF FRAMING PLAN & DETAILS

Figure 1

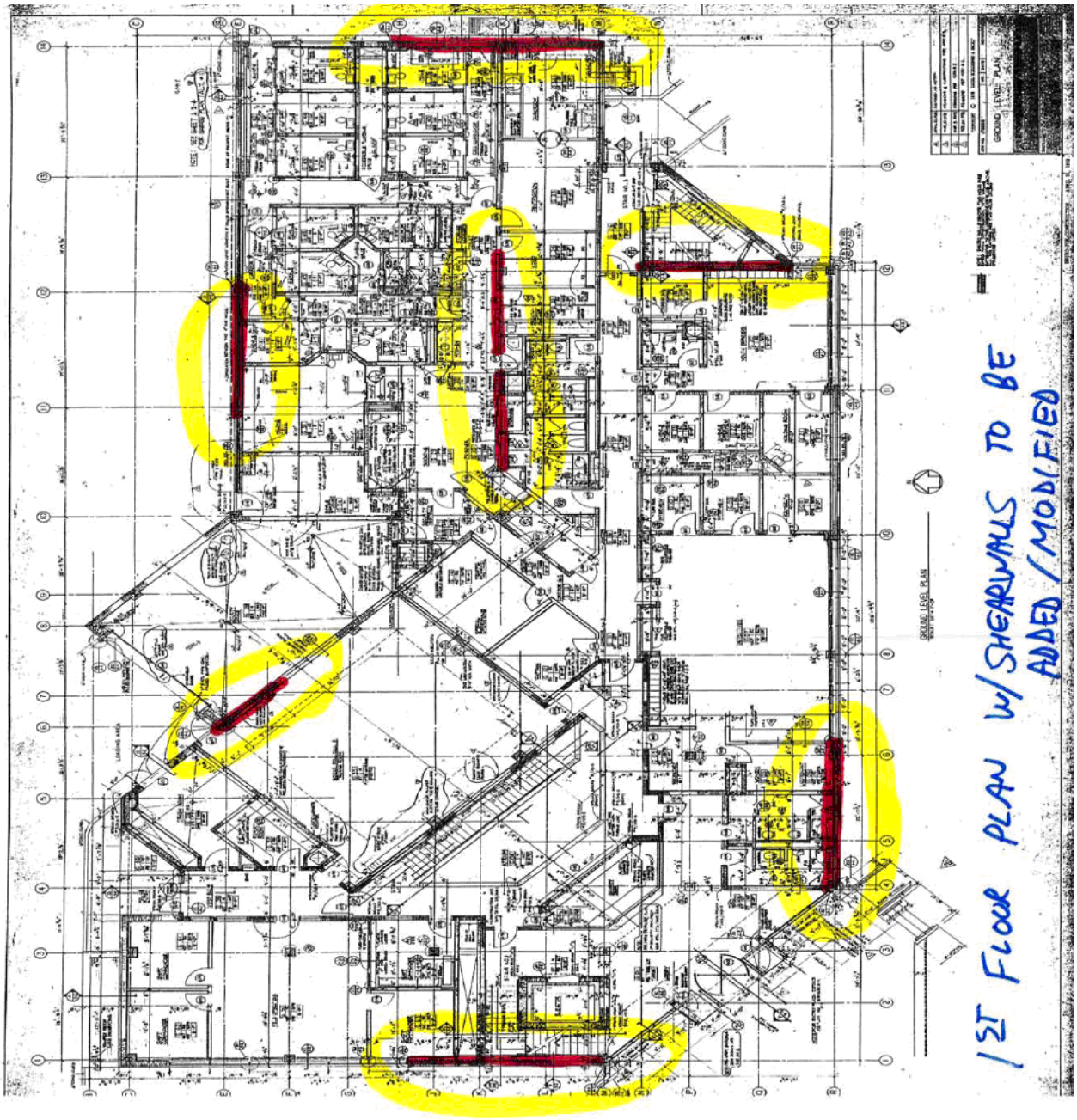


Figure 2

Another option for reinforcing the structure is to create steel braced frames. These could be located in the highlighted areas in lieu of the shear walls. The columns that are part of the brace frame would have to be reinforced with cover plates, and the foundation and column base connections would also most likely need to be reinforced. A third option for reinforcing the structure is to make the steel frame into a moment frame. This would require field welding plates and angles to almost every beam-column connection in the building, in addition to welding cover plates to much of the columns to increase their size. This is probably not an economical option.

One of the options for expansion of the police station is to add another story on top of the existing roof. The existing low roof consists of a concrete slab on composite beams, which makes it ideal for adding floor loads. However, some of the beams under this new floor will not support the increased live load, and will need to be reinforced with cover plates field welded onto the beams. Likewise, not all of the columns in this area will support the increased loads from the floor live load and the new roof structure above. The column at lines H and 12 was checked in the calculations and was found to be inadequate to support additional load. This column will need to be reinforced with cover plates. The column footing at this location also is not adequate for increased loads, and thus will need to be supplemented with micro piles or some kind of other foundation reinforcement.

The feasibility of adding one story on top of the high roof was also considered. The existing roof joists are not designed for floor loads, so the most efficient option is to add a new layer of steel beams immediately above the roof structure to support the new floor slab. The columns at lines G,8 and N,11 were checked in the calculations for the additional loads due to the addition of a new floor and roof structure. The column at G,8 was loaded right up to capacity, and the column at N,11 is not able to support the additional load and will need to be reinforced. The footing designs were also either close to capacity or slightly over capacity, which would require minor foundation reinforcing.

The vertical expansion of the existing building will also greatly affect the lateral force resisting system of the building. The additional story will add 50% more base shear to the structure, and will very likely overload the insubstantial existing lateral system. This is especially the case if the required Building Code is upgraded to 2003 International Building Code.

Since the original facility analysis of the Police Station, the Village of Arlington Heights has adopted the 2009 International Building Code which classifies the Police Station as an essential facility.

With this change in classification, improvements to the building's lateral system would be required to bring the facility up to current code as noted in the 2010 version of the study.

Structural Observations – Parking Garage
We also explored the option of upgrading the existing parking garage so it can meet the requirements of IBC 2003 as an essential facility. The garage construction consists of two levels of post-tensioned beams at approximately 19 feet on center with a one-way post-tensioned slab spanning between the beams. The garage is basically an open frame with some ornamental facades at key points.

In order to upgrade the garage to be an essential facility, new CMU or reinforced concrete shear walls will need to be added. If 12" CMU is used, approximately 520 feet of shear wall length will need to be constructed throughout the building. This would involve closing off much of the exterior with solid masonry walls. The quantity of new shear walls will be less if solid reinforced concrete walls are used, which would give more flexibility from an architectural standpoint.

In addition to shear walls being added, many of the existing connections will need to be reinforced to meet the more stringent seismic requirements.

Existing Mechanical Systems Evaluation

Mechanical Systems - Heating

The heating system consists of two boilers and four separate piping systems. The existing boilers are 2,000 MBH boilers each that produce heating water utilized for four independent purposes throughout the building. One piping system is used in conjunction with the domestic hot water heat exchanger to produce domestic hot water for the Police Station. A second piping system is routed throughout the facility and serves duct mounted reheat coils. The third system is utilized for finned tube radiation located around the perimeter of the building. Finally, the fourth system is a combined heating/chilled water system routed to the air handling units heating and chilled water coils. The heating/chilled water piping system is a combined piping system, yet the air handling unit coils are separate.

The heating water system serving the domestic hot water heater is pumped by a single, 60 gallons per minute (gpm) inline pump. The water temperature supplied to the domestic hot water heat exchanger is constant, however the volume is varied by a three-way control valve operating based on the water heater's aquastat.

Producing domestic hot water utilizing main hot water heating boilers of the type installed is very inefficient, and would not be used, nor allowed, in a contemporary design.

The duct mounted reheat coil hydronic piping system is pumped by a single, 120 gpm inline pump and operates initially at 180°F supply water temperature and 160°F return water temperature. This pump is a constant volume pump and the system incorporates three-way control valves at each reheat coil. The reheat coil control valve is operated based on room thermostat settings. The reheat piping loop temperature is reset by a three-way control valve and based on the outside air temperature. The original design documents indicate approximately 25% future capacity to accommodate a second floor expansion.

Re-heat based systems are inefficient, are not allowed to be used in modern system designs, and prohibited by current energy codes and standards.

Finned tube radiation along the perimeter of the building is also served by a single inline pump. This piping system operates at a constant volume (110 gpm), but like the reheat piping loop varies temperature based on a reset schedule. The initial loop temperature is 200°F supply water temperature and 180°F return water temperature. The original design documents included a

garage (never built) on the north side of the Police Station and accommodations for a future second floor expansion (never built); therefore, the finned tube radiation piping was installed with approximately 50% excess capacity compared to the original systems and design.

The heating/chilled water loop is pumped by two (one is redundant) base mounted pumps each with a capacity of 372 gpm. Excess capacity is not designed into the heating/chilled water system. In order for the system to operate in either heating or chilled water mode, there is a system changeover valve located in the boiler room. In addition, there are coil changeover valves located at each air handler. In both heating and chilled water modes, the system is constant volume with three-way valves at each coil to control air temperatures through the coil. In heating mode, the piping system incorporates a three-way valve that resets the loop temperature based on the outside air temperature.

Dual temperature piping systems are seldom used and less desirable then 4-pipe systems. The issues with dual temperature systems are the times of the year when frequent change-over between heating and cooling are desirable but not accomplishable due to system limitations.

The boilers combine for a total heat output of 4,000 MBH. The four piping systems combine for a connected load of 3,930 MBH. In other words, there is only 70 MBH excess connected capacity built into the size of the boilers. However, this does include the previously mentioned excess capacity designed into the reheat and finned tube piping loops for the garage and second floor expansion. For a building of this size, approximately 45,000 square feet, the estimated heating required would be 2,200 MBH. Therefore in order to provide redundancy, if a boiler were to require maintenance, the boiler sizes are appropriate, however do not allow for much building expansion while maintaining redundancy. In addition, with the exception of the heating/chilled water loop, none of the piping systems incorporate pump redundancy.

According to the American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE) HVAC Applications Handbook, the average life expectancy for a flexible water tube boiler is approximately 25 years. Average life expectancy is the median amount of time for units that have been replaced. Others view this as the age at which maintaining the unit is cost prohibitive compared to replacing it. The average life expectancy for base mounted pumps is 20 years and inline (pipe mounted) pumps are 10 years. The Police Station was built in 1978;

therefore, the heating system equipment is almost 30 years old which is past the average service life according to research done by ASHRAE.

The combined heating/cooling water pipe loop reduces the Owner's ability to provide consistent comfort for the building's occupants over the entire year. The heating/cooling water system can only provide heating or cooling, not both. Once the maintenance staff has changed over the system (from heating to cooling in the spring and cooling to heating in the fall) the system will not be changed back until the next season. Therefore, if there are unseasonable days, the system does not have the ability to properly condition the building and the occupants will be uncomfortable. Significant piping and system modifications would be required to fix this shortcoming. The propping open of doors and windows is a "weak link" and poses a security risk.

Mechanical Systems - Cooling

The cooling system consists of one chiller located in the lower level mechanical room, one cooling tower located on the roof, two heating/cooling water pumps, and one condenser water pump. The existing chiller is 155 tons and provides chilled water for the three air handling units and a couple of fan coil units.

The chilled water piping system is a combined heating/cooling water piping system. Refer to Heating System information presented earlier for a description of the distribution system. The chilled water supply is distributed at 45°F and is returned to the chiller at 53°F. The condenser water system is pumped by a single, base mounted 600 gpm pump. The condenser water system operates at 85°F condenser water supply to the chiller and 95° condenser water return to the cooling tower.

According to the American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE) HVAC Applications Handbook, the average life expectancy for a packaged chiller is approximately 20 years and for a steel cooling tower is 20 years. The average life expectancy for base mounted pumps is 20 years. The Police Station was built in 1978; therefore, the chilled water equipment is almost 30 years old; past the average service life according to research done by ASHRAE.

The chiller, cooling tower, and piping system was not sized with any excess capacity. The only redundancy in the system is found in the heating/chilled water pumps. For a new building this size (approximately 45,000 square feet) under today's ventilation codes, it would be estimated that a chilled water system would need to be approximately 200 tons. The installed system at 155 tons does not offer any capacity for expansion.

The exact amount of refrigerant within the mechanical room is not known, however typically a chiller located indoors exceeds the limits of refrigerant allowed inside by today's International Codes. If the limits are exceeded, a normal exhaust and emergency exhaust system are required; neither is provided in this room. If a major renovation project was completed at the Police Station, it is likely that exhaust systems will be required in the mechanical space.

Mechanical Systems - Ventilation

The building is being served by three air handling units. Each air handling unit incorporates a supply fan, heating coil, cooling coil, filters, and dampers. The air handling units are constant volume with duct mounted reheat coils. The lower and ground floors are served by one air handling system. A second air handling system supplies the air to the second floor. The third air handling unit is a 100% outside air unit and serves just the firing range and adjacent spaces. In addition to the air handling unit, the air systems serving spaces, except the firing range, utilize an inline return/exhaust fan that is used to return the air from the space the system serves and either send it back to the air handling unit or exhaust it to the outdoors. The firing range utilizes an exhaust fan located on the roof with an integral high efficiency particulate air (HEPA) filter.

The first air handling unit serving the lower and ground floors also serves the holding cell area. Since the holding cell area is fully exhausted, this air handling unit provides sufficient outside air volumes for proper ventilation to meet today's codes. The upper floor air handling unit, according to the volumes noted on the original design documents, has an outside air rate that would just meet today's codes, depending on the exact occupancy of the upper floor.

According to the American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE) HVAC Applications Handbook, the average life expectancy for a centrifugal fan (similar to the air handler fans) is approximately 25 years. The average life expectancy for diffusers and grilles is 27, while the life expectancy for ductwork systems is 30 years. The Police Station was built in 1978, therefore the air handling equipment and distribution system is almost 30 years old; past or right at the end of the average service life according to research done by ASHRAE.

The existing air handling units conserve energy by operating in an economizer cycle. In other words, if the outside air conditions are adequate to condition the space, the air handling unit will bring in additional outside air rather than using chiller or boiler energy to condition the air supply. On the other hand, the air distribution

system is a constant volume reheat system, which except under very limited conditions, is not permitted by today's energy codes and industry standards.

Mechanical Systems - Controls
The Police Station utilizes a Barber-Coleman pneumatic control system, which is original to the building. It is utilized to control heating water system reset temperatures, space temperatures, air handling unit temperatures, and control valve actuation. Located at the Security desk is an air handling unit failure alarm panel, which is still operational.

According to the American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE) HVAC Applications Handbook, the average life expectancy for a pneumatic control system is 20 years. The average life expectancy for pneumatic valve and damper actuators is also 20 years. The Police Station was built in 1978 and therefore the control system is almost 30 years old; past the average service life according to research done by ASHRAE.

Existing Plumbing Systems Evaluation

The main water service enters the building in the lower level mechanical room and serves the domestic water, heating and chilled water make-up, and limited area sprinkler systems. The water main enters the building at 8", but is immediately reduced to 6" through the water meter. The water piping splits after the water meter and is routed at 3" through a water softener and 4" to the limited area sprinkler system.

The water softener is sized for approximately 115 gpm and serves both the domestic cold and domestic hot water systems. The domestic hot water is produced by a water-to-water heat exchanger connected to the boiler piping system and a storage tank. The recovery rate on the heat exchanger is designed for 250 gallons per hour (gph) and the storage tank capacity is 335 gallons. Therefore, that gives a single hour capacity of 585 gallons with a second hour capacity of 250 gallons. The hot water system incorporates a circulation system to keep hot water near the branch connections. The water softener and hot water heater were not designed with excess capacity to support building expansion.

The Police Station has an underslab drain tile system that is routed to and ejected by a duplex sump pump. In addition, the lower level sanitary is piped to a duplex sewage ejector and pumped out of the building. Sanitary waste from the security garage is routed through an oil separator and then to the sewage ejector.

In addition to not having extra capacity, the plumbing system does not utilize backflow preventers on the incoming water service. The protection of the Municipal water supply with a backflow preventer is standard practice in most locations and is a Village requirement for new buildings.

Existing Fire Protection Systems Evaluation

The fire protection system is a limited area sprinkler system served off the domestic water main. Only storage rooms within the Police Station are served with sprinklers. Each room has a flow switch wired to the fire alarm system to indicate water flow within the room. A major remodel will likely require that the building be fully protected with a sprinkler system.

Existing Electrical Systems Evaluation

The Village of Arlington Heights Police Station is served from a ComEd transformer located outside and feeds a 2,000 amp 208/120V, 3-phase, 4-wire General Electric switchboard. The switchboard is located in the main electrical room on the lower level, which is fed through six (6) 3-1/2" conduits to the top of the switchboard. The switchboard consists of fused switches, which serve most branch panels, pumps, and the emergency generator transfer switch. The chiller is also fed via an 800 amp circuit breaker off the main switchboard.

Currently, there is only one available space for expansion on the switchboard. There also exists one 200 amp spare fused switch. Today, the nominal watts per square foot for an electrical system in a police facility leads us to conclude that a 2,000 amp service will not be sufficient in supporting a 45,000 square-foot building and the service would need to be replaced in the event of a renovation. Electrical power demand has increased substantially in this type of facility over the last 15-20 years. It is anticipated that a 2,500 amp main service would be the minimum size required for building or renovating a facility of this size.

Assuming the construction of a new Police Station on the current site is the desired direction of the Village, a 2,500 amp main service is not anticipated to be sufficient for the new facility.

The electrical equipment was installed in 1978. A typical life expectancy for a service of this size is roughly 30-35 years. Thus, the equipment is nearing the end of its life expectancy and it would be difficult to keep this switchboard serviceable in the upcoming years, due to the lack of spare parts. Due to its age, it should be noted that this switchboard is not up to current industry safety codes due to its age. We recommend the equipment be replaced within the next five years and thorough maintenance be performed in the meantime.

Approaching 40 years of age, the existing electrical service gear is now beyond its useful service life. In the event of a remodeling, addition, or other electrical alterations, complete replacement of the service gear should be considered.

The existing incoming electrical utility location and protections in conjunction with the proximity to the back-up generator power connections and service rooms is far from ideal. A single incident at the utility transformer which is adjacent the portable generator connection box (which is currently accessible to anyone) could render the entire facility without normal and/or back-up power.

The current installation of the equipment has several code violations and safety issues. National Electric Code requires a minimum of 36" working clearance in front of all electrical equipment. Currently, there is an obstruction in the required working space surrounding the switchboard. Not all switches are properly identified which is also a code violation. The electrical room housing the switchboard is small with a single exit. Current code requirements for this size of equipment requires two exits from the electrical room. In the event that two exits do not exist, code requires significantly greater working clearance in front of all equipment. In addition, the emergency power distribution panel fed by the generator is located in the same room as the normal power service. A failure in either panel could affect the other panel. It is advisable that these panels are located in separate rooms. Replacement of the switchboard and electrical equipment would require a new, properly sized electrical space.

In addition to the code requirements noted in the 2010 study, the two required exits in the electrical room are required to be outward swinging doors that include panic hardware and provide a direct path of egress. Additionally, the noted required clearances for the equipment cannot be achieved with space allotted in the current floor plan.

The projected future size of the police program of 72,656 s.f. negates the applicability of 208V utility service for most centralized equipment that would be utilized in a facility of this size. The existing service, beyond the facts of it being undersized, antiquated and unsafe, would be of little use in a facility any larger than the existing building. A 480V service would be the logical choice for a larger, more modern, electronically laden police facility.

Electrical Systems – Branch Distribution
The main switchboard feeds several 208/120V branch panels located throughout the facility. General Electric Panels LPG-1, LPL-1, LPG-2, LPL-2, and LPU-2 all serve a combination of lighting and power for their respective areas.

It can be observed that most of the branch panels have little to no spare capacity. Panels LPL-2 and LPU-2 have no spare circuit breakers or spaces for additional circuit breakers and the remaining panels each have less than 20% of spare circuit breakers. A 100 amp, 42 circuit panel was added in 2001 to serve the Police Records space as part of a renovation project.

Though most of the lights and devices seem to be in good working condition, the panels serving these loads should be noted. While a properly maintained panel can last many years, some of the

panels in the facility do not appear as if they are routinely maintained or inspected. Most of the panels are loaded near their full capacity and are missing identification and/or circuit schedules. These factors, in addition to the physical appearance of these panels, suggest that a replacement would be strongly advised in the event of a renovation.

The majority of the existing panel boards and distribution boards within the facility are beyond their manufacturer recommended service life and in some instances do not appear to be in very good condition. All such panel boards and distribution boards should be replaced and rewired in their entirety in conjunction with any facility renovation or expansion.

The branch distribution downstream of the lighting panels in the facility appears to have several code violations and safety hazards. The use of power strips is common in several areas to serve multiple loads from a single source. Some circuits serve multiple loads such as groups of computers, copy machines, and fax machines, which should be stripped into multiple circuits or individually dedicated.

Another code violation occurs in the small storage room along Corridor L13, where the panel board does not have the 36" required working space for maintenance.

Due to the age of the electrical infrastructure within the facility an in depth electrical maintenance should be performed to enhance safety. Thorough electrical maintenance for every electrically connected panel, circuit, device, and piece of equipment within the entire facility should be performed on a regular basis to enhance safety. Professional reports should be generated with detailed inspection points listed including visual inspection, infrared scanning, digital photography and corrective recommendations for all deficiencies found.

Electrical Systems – Lighting and Misc. Power

The fluorescent lights throughout much of the building are fitted with T12 lamps. Conference rooms and high ceilings are equipped with incandescent downlights, several of which are retrofitted with compact fluorescent lamps. General on/off wall switches control the lights throughout the facility. Power poles supply adequate power and data in the Officers, Detectives, and Library Centers. However, general convenience receptacles throughout the building are scarce.

For lighting, the T12 lamps are no longer available and should be replaced with luminaires that are more energy efficient. Automatic or multi-level switching controls required by the International

Energy Conservation Code are absent. For power, National Electric Code requires any receptacles within 6' of a water source to be protected by ground fault circuit interrupts (GFCI). It was found that these devices are absent in the janitors closets.

Due to energy inefficiency, production of T12 ballasts is to cease per federal mandate. All normal lighting is now required per IECC to be automatically controlled via occupancy and/or time of day and daylighting controls, with the exception of emergency lights and necessary security fixtures. The average lighting energy consumption of facilities fitted with modern lighting fixtures and controls has been shown to be less than 50% of that of older non-compliant facilities.

Electrical Systems – Emergency Power Distribution
The Police Station is served by a 115 KW 208/120V natural gas emergency generator located in the basement in a separate room adjacent to the main electrical room. A single ASCO 400 amp 208/120V transfer switch is connected to the generator and the main switchboard which serves the emergency distribution panel.

An additional manual transfer switch is present as well. This switch allows for the facility to use a portable generator to power the emergency distribution panel in case the emergency generator and the automatic transfer switch fail. The emergency distribution panel currently serves the boilers, air handling units, temperature controls, reheat pump, and three branch panels. The branch panels serve miscellaneous power and lighting loads throughout the building.

The General Electric 400 amp emergency distribution panel itself has no usable space for expansion. The branch panels fed from the distribution panel also have little to no spares or spaces for potential expansion. Currently, the generator serves miscellaneous loads throughout the facility. However, a typical police station design calls for the facility to be fully operational in the event of a power failure. Though the generator is in reasonable condition, the generator and distribution system do not appear to be capable of handling additional loads. We recommend that if the facility is renovated or expanded, a new generator and distribution be installed that can power additional loads. We would also recommend the installation of two transfer switches in accordance with the current code requirements rather than just one as in the current system. Having two transfer switches allows for life safety distribution to be separate from all other systems as required. Additionally, the space that houses the emergency generator and transfer switch is not large enough to house a larger replacement generator. The replacement generator would be

capable of handling the loads that would be desired to make the Police Facility fully operational in the event of a normal power failure, therefore another larger space would be required.

The existing generator, though properly maintained, is beyond the unit's recommended useful service life and consideration should be given to a complete overhaul/rebuilding and upgrading and/or replacement. In the event a modern full building back-up generator system is installed, separate transfer switches would not be necessary as separate circuitry and conduit runs would not be necessary. Enhanced remote generator system monitoring and control would be advised to allow personnel remote from the unit to verify the unit is ready and functioning properly during both stand-by and emergency use times.

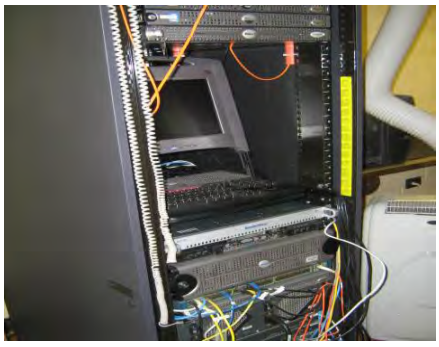
Modern police facilities benefit from the application of central uninterruptable power supply for computer systems, communication systems, and security systems equipment back-up and protection. This power back-up and protection system helps to ensure that equipment is not damaged during power outages and power surges and to provide for seamless communications during all phases of power loss and restoration. The existing facility does not possess this type of back-up system.

Existing Fire Alarm Systems Evaluation:
The existing fire alarm system is manufactured by Edwards. The system consists of a Custom 6500 analog fire alarm control panel located in the main electrical room. The control panel currently serves 18 zones throughout the Police Facility. Pull stations are present by exits, as required, and audio horns appear to be placed arbitrarily in certain corridors, conference rooms, or office spaces. However, no visual notification devices exist anywhere in the building. The Police Records area, which was the basis of the 2001 remodeling, consists of smoke detection and audio devices. Smoke and heat detectors are also present in storage spaces and janitors closets.

Though it does appear to have some additional capacity, the system is obsolete and no longer supported by the manufacturer. In the event of a renovation, the fire alarm system would need to be replaced to accommodate current NFPA and Life Safety Codes. Also, the 2007 UL standards have been adopted which the existing system cannot meet. Thus, expansion can no longer be considered an option. It is recommended that an addressable fire alarm system be installed to serve a facility of this type.

The existing Conventional Zoned Edwards fire alarm system does not poses the ability to intelligently synchronize visual notification strobes throughout the facility which is required by all current NFPA, ADA, and Life Safety Codes. The inability of the existing system to synchronize visual notification appliances means that the risk of persons within the building having an epileptic seizure is increased during a fire alarm scenario if the required visual notification devices are installed on the existing system. Expansion of the existing system would not be recommended, replacement of the existing system in its entirety would be recommended in conjunction with any renovation.

The fire alarm system in general is inadequate throughout the building in that there are no visual notification devices and minimal audio devices. Smoke detection is also missing in many areas. For buildings that are non-sprinklered, code requires all occupancy, common, and office spaces to be equipped with smoke detectors. In addition, ADA requires visual notification devices to be located in all spaces that are not specifically reserved for the use of a specific person.



Existing Technology Systems Evaluation
It appears the intent of the original installation was to provide a 10/100 MB solution. The cabling infrastructure consists of Category 5 copper station cable and fiber optic backbone cable. All cable throughout the facility is installed open and improperly supported or secured in many areas.

Because the building does not have formal telecom rooms, the cable distribution architecture does not meet industry standards. In addition, there is no vertical pathway to implement a proper system. Many termination points and equipment racks share space with storage rooms and janitor closets. An equipment rack on the third floor serves as the Main Cross Connect; however, there is inadequate cooling. This lack of cooling will dramatically affect the life expectancy of the active components in this rack and in the various other freestanding racks located in the facility.

Fiber optic distribution on the lower level is directly below a coolant line in the electrical room. An incoming service room is adjacent and contains a large wall field. Space for expansion is limited.

Expansion of the network cabling system would be prohibitive as there are no formal telecommunication rooms. As a result, basic standards for a universal cabling system such as grounding and cable management are non-existent. In addition, the bandwidth capacity of the existing infrastructure will not be able to support additional systems or services.

The current practice of "convergence" where the traditional telecommunications infrastructure will support more than traditional voice and data systems provides flexibility and future proofing. Modern telecommunications infrastructure are recognized as being "technology utilities" in that they provide support, in some way, for nearly all low voltage systems.

The recommendation would be to implement a universal cabling system consisting of Category 6 cable terminated on modular patch panels supporting network speeds up to one Gigabit. The universal cabling concept allows staff the flexibility to assign any service to any cable as needed simply by installing a patch cord in the telecommunication room. This also minimizes the amount of cables needed at each individual workstation.

Telecommunication rooms should follow industry standard guidelines. Rooms should be sized at a minimum of 120 square feet for every 30,000 square feet of area served. When possible, rooms should be vertically stacked in areas that include multiple floors. Standards limit horizontal cable runs from telecommunication

rooms to 90 meters. Access should be made available from major corridors; rooms should not be "tucked" away behind offices, conference rooms, etc. The location of rooms will need to be coordinated with other trades and services to minimize conflicts with above ceiling systems and cable pathways. Rooms should be equipped with dedicated cooling and ventilation to help extend the life of electronic systems installed within the room and to accommodate growing heat loads in modern systems. All rooms should be connected to a dedicated telecommunications grounding and bonding system. All rooms should be equipped with adequate lighting and secured from unauthorized access.

Network cable should be installed in a star (point-to-point) configuration from each telecommunication room. Trends within the industry indicate that the copper backbone system will serve as more of a backup/ancillary system than a primary transport system for voice services. Voice over IP (VoIP) services will be supported by network devices utilizing a fiber optic backbone system rather than a continuous copper link from the phone system to the workstation.

The recommendation for the fiber backbone is to install both a multi-mode and a single-mode fiber optic infrastructure capable of supporting, at a minimum, 10 Gigabit network speeds. The fiber backbone system is the primary transport system of the data network. Bandwidth will serve as the primary factor in performance of the data network as new applications and technology are added or existing systems are migrated to the data platform. In order to support this network speed, we recommend all telecommunication rooms be connected in a hierarchical star configuration. This would minimize cable distances and provide a single point-to-point connection between each telecommunication room. A network of tie cables should be installed between strategically identified telecommunication rooms in order to provide redundancy.

Wireless functionality is recommended to be provided as part of any technology upgrade. An application independent broadband wireless utility is recommended. This would provide multiple wireless antennas deployed in specific areas based on need and connected to the horizontal Category 6 cable to the network. Wireless coverage could not be verified.

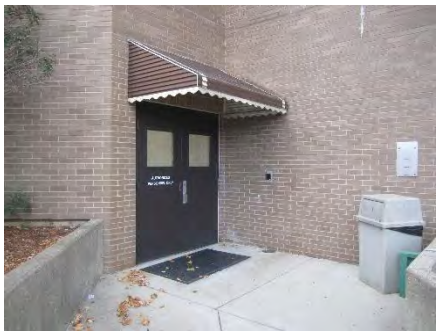
Current system design standards would include the use of Cat6A cabling and matching patch panels and components to facilitate a complete end-to-end 10 Gigabit solution with lifetime manufacturer warranty for any renovated or newly constructed facility. Updated high-speed Fiber backbone bundles run within plenum rated armored cable would be recommend for

interconnections between all IDF and MDF Equipment Rooms. The existing cable routing and support throughout is typical of a facility that was not designed with modern infrastructure in mind. A complete system of proper cable management including rack management, cable trays, and rated cable pathways is recommended to properly support and protect all communications infrastructure per current NEC and EIA/TIA standards.

Paging

A paging system does exist, however, there are areas that do not appear to have speakers. A 70V Overhead Paging System with each floor configured as a single paging zone should be installed. Speakers should be multi-tap dual cone equipped with integrated or wall mounted volume controls. The system should be interfaced with the phone system.

Further breakdown of paging zones into specific departments and functions is recommended to better target the exact audience. Such zoning might include area breakouts such as administration, investigations, patrol, garages, all call, etc.



Existing Audio Visual Systems Evaluation
The building has coax Cable TV service, but it is improperly distributed and does not enter the building through the formal service entrance room. The coax should follow a similar architecture as the network cable system.

The facility has a conference room on the upper level that has an A/V cart with a projector. It is commonplace to have an integrated audiovisual system. Such systems installed in other Village buildings are optional.

Existing Security Systems Evaluation
The facility does not use an automated Visitor Management program. Guests must produce a valid photo ID to the Police Officer at the front desk, but the ID is not recorded.

Security Systems – Access Control
Control of access to restricted areas of the building is accomplished through the use of a Keyscan Access Control System. The system is in working order and serviced by a local security company. This system consists of Keyscan proprietary control panels and software. Authorized users can access the software database over the Village's local area network (LAN) for administration, reports, card additions, and deletions. Peripheral devices are connected to control points through dedicated copper cable. Card readers throughout the facility are off the shelf HID proximity multiclass format readers. Cardholders gain access through access-controlled portals when they present a valid card and the electric locking hardware releases. Many of the card readers are not mounted in compliance with ADA.

The existing system has the ability to be expanded; however, the feature set of the proprietary software is limited compared to integrated Security Management Systems (SMS) used in similar facilities.

The proximity card reader format being used is state of the art and therefore readers and associated cable could be reused if a more sophisticated system of control panels and software was instituted.

Due to the elevated risk associated with this type of facility, dual authentication card readers should be used for certain areas. The recommendation of a new SMS will allow for various types of access solutions for high security applications. Because the SMS will allow for integrated support of biometric and smart card technology, an enhanced level of authentication from finger print, hand geometry or other biometric readers can be added to any portal. By using smart cards, in addition to facilitating the second level of verification, the Using Agency will be prepared for

compliance with the emerging Information Processing Standards. Various regulatory bodies such as the Federal Government already require digital credentials to meet data encoding standards detailed in HSPD 12, such as FIPS 201.

Currently, there are no formal telecommunication rooms for control panels and lock power supplies. The access control hardware of a new system could follow a system architecture that would leverage the local area network for communication between devices at access points and the SMS server. As a result, there are duplicate cable infrastructures.

The SMS could be configured to obtain database records from other systems. The most common use of this integration is with Human Resource (HR) systems. As employee information is changed in the HR system, the SMS can be updated either real time or at scheduled times. This allows security card records to be added or deleted automatically. Benefits include instant revocation of security credentials from terminated employees. In addition to the reduction in SMS administration time, information about a security cardholder does not have to be entered multiple times.

The SMS would allow for an automated Visitors Management System. Currently, visitors sign in manually and their identity capture is not performed. It is recommended that an integrated Visitor Management Module be implemented. The SMS would allow for employees, who are expecting guests, to pre-register them with the SMS. When the guest arrives, they are prompted for an ID and once their information is captured through a scanner they are automatically issued a temporary Facility ID badge. The guest's ID information and a record of their visit are stored in the SMS.

It is recommended that badges or credentials for non-uniform employees also be part of the SMS. Cards that are issued for access control would double as their photo ID badge. Through monitoring CCTV cameras at access points, staff would be able to cross-reference the ID being used with the image of the person using it.

This recommendation will provide an overall security benefit by facilitating certain policies. The Village should insist everyone within a secure area is required to carry a photo ID badge. Different badge types could be issued to visitors, contractors and various departments that would allow staff to more easily identify someone who was not permitted in a particular area.

Surveillance (CCTV) Systems

Images of the existing building and parking lots are provided by an analog CCTV System. Images from these cameras are displayed on LCD monitors at the front desk and recorded on an IVACS digital video recorder (DVR). Images from the DVR are accessible over the LAN. All ports on the existing DVR are in use. The CCTV system has been expanded over time and various models of cameras are in use.

The system is in working order and serviced by a local security company. Camera signals are transmitted over a copper coax cable home run to the DVR.

The CCTV System is not integrated into any other system; therefore, users have to research data from two separate systems to provide both access control alarm data and surveillance images for the same event. Image quality of the cameras was difficult to assess, as the current monitors were small and provide moderate resolution. Bandwidth limitation does not allow for quality resolution of camera images over the LAN. The images of the perimeter of the facility including parking lots, fence lines, and general grounds are poor.

New DVRs by a different manufacture are being installed as part of the Village Hall project and may have spare ports that could be used for expansion.

The existing DVR is only supported by one local integrator and is not supported by other security equipment manufacturers for integration.

The existing CCTV system should be upgraded to ensure the images from the key locations are integrated into the SMS. The SMS will allow for managing of cameras and camera images from the same graphic interface and workstations as the access control devices.

Because the SMS is software based, access to camera images and alarm information could be provided at any workstation within the facility that resides on the network. The SMS will manage alarm events and recorded video from a common database. This will allow the facility to realize a true event-driven system where actionable security is enabled by linking real, live security-related events. Cameras should be integrated, through the SMS, with access control. Therefore video motion features and automatic call up of specific cameras in the event of an alarm will be possible.

The SMS platform is capable of supporting both a system of digital

video recorders and/or an IP based camera system with a single centralized storage system. The system should be capable of recording any video feed at a rate of up to 30 frames per second (fps) utilizing 4CIF resolution. Storage for video recording should be provided for an average recording rate of 15fps at 2CIF resolution for a minimum of 30 days. The system should be capable of adjusting individual recording rates and resolution for each camera.

The monitoring area should include a 42" high resolution, flat panel display capable of displaying multiple camera views at one time. Two (2) separate 19" high-resolution monitors should be provided to allow staff the ability to call up individual cameras as needed; as well as, monitoring access control events.

Cameras should be Power over Ethernet (POE) network, IP based, and utilize Category 6 cables and the facilities' telecommunications infrastructure. This will reduce proprietary cable systems and allow for seamless integration into a SMS. In addition, the scalability of network based video solutions and the elimination of the need for dedicated physical inputs helps future proof the CCTV system.

Cameras should be located at all entrances and at strategic locations internally in the building that provide a video record of activity and staff movement. The location of cameras should be such that access to any particular wing or department will require a person to pass a camera that captures their identity.

Cameras on the perimeter of the buildings should be located to capture all activity in the parking area, including entrances. In addition, separate cameras should be positioned to monitor the common areas and grounds.

Network video cameras include intelligence in the camera itself. Advanced network cameras can have built-in motion detection and alarm management so the camera decides when to send video, at what frame rate and resolution. With integration into a SMS, more intelligent algorithms, number plate recognition, object left behind, and face recognition are possible. Data is obtained in more manageable forms and with higher levels of accuracy.

The recommended network video products run on Ethernet cable, which is an open standard that has particular performance requirements. The Village can use standard PC server hardware for video recording and storage rather than proprietary equipment such as DVRs and reduce management and equipment costs. They can furnish such PC hardware themselves through their most cost effective channels. In addition, many

network video products also support a number of advanced technologies such as Power over Ethernet, which provides power to the network camera using the same cable as the one used for network connection. This eliminates the need for separate CCTV power supplies.

Existing Environmental Evaluation

Asbestos Recommendations

ATC Associates provided a limited environmental assessment of the existing police station. ATC recommends the following:

The known and suspect asbestos containing building materials (ACBMs) should be maintained under a written Asbestos Operations and Maintenance (O&M) plan by appropriately trained personnel.

Contractors and employees working in this building should be made aware of the locations of the known ACBMs and of the possibility that concealed ACBMs may be found during maintenance, renovation and demolition. They should be advised not to disturb known or suspect ACBMs without owner approval.

Additional suspect asbestos containing materials may be present on site in inaccessible or concealed spaces (such as pipe chases, spaces between wall/ceiling/floor/door cavities, interior of mechanical components such as interior ducts, beneath foundation pads, behind mirrors, etc.). If future maintenance/renovation/demolition activities are being considered which make these areas or equipment accessible, ATC recommends that a thorough assessment of these spaces be conducted at that time by an IDPH licensed inspector to identify and confirm the presence or absence of additional ACBMs by bulk sampling and laboratory analysis. Until then, all such unidentified materials should be treated as Presumed ACM (PACM) in accordance with 29 CFR 1926.1101 and 1910.1001.

The manufacture and import of miscellaneous ACBMs, such as vinyl floorings, mastics, drywall and roofing materials that may contain asbestos have not been prohibited by the EPA. As a result, any future replacement materials should be checked for the presence of asbestos prior to installation. Replacement materials may be checked for the presence of asbestos by referring to product labels, Material Safety Data Sheets (MSDS) or by bulk sampling and analysis. Maintain such records diligently to prevent such materials from being categorized as suspect ACBMs in the future.

Local regulations pertaining to asbestos abatement in Arlington Heights, Illinois include the Cook County Department of Environmental Control (CCDEC) regulations, Illinois Environmental Protection Agency (IEPA) NESHAP, and the IDPH Subpart D – *General Abatement Requirements for Commercial and Public Buildings* guidelines. An IDPH-licensed asbestos inspector is required to perform the inspection to verify materials affected by

the renovation or demolition. Affected materials must be abated prior to the initiation of renovation/demolition activities by an IDPH-licensed abatement contractor utilizing the proper engineering controls. Notification to the CCDEC and IEPA is required prior to demolition for all projects (even when no asbestos is present) and prior to renovation when friable ACBMs and Category I and Category II non-friable ACBMs (are removed in friable state) in excess of 160 square feet or 260 linear feet are to be abated. The CCDEC and IEPA must be notified at least ten working days in advance of performing asbestos abatement. The IEPA charges a $150 notification fee for initial notifications. The CCDEC and IDPH must be notified at least two working days in advance of performing asbestos abatement when friable and non-friable ACBMs in excess of three square feet or three linear feet and up to 160 square feet or 260 linear feet. The CCDEC charges a $200 filing fee plus a fee per square foot or linear foot up to a maximum of $1,200.00 on all projects regardless of quantity of ACM removed.

Lead Paint Recommendations

The known and suspect lead based paint (LBP) components should be maintained under a written Lead Paint and Dust Management Plan by appropriately trained personnel. Contractors and employees working in this building should be made aware of the location of any lead bearing surfaces (and lead dust in the rifle range area and exhaust systems) that may be encountered during maintenance, renovation, and demolition activities. They should be advised not to disturb LBP components without owner approval.

Prior to any renovation or demolition activities, all contractors should be notified regarding the presence of painted components under the guidelines of the OSHA Lead in Construction standard 29 CFR 1926.62. Care should be exercised in acknowledging that the OSHA 29 CFR 1926.62 has no LBP threshold definition (as do HUD and IDPH) and is concerned with exposures generated by LBP disturbances, which may include materials containing less than 1.0 mg/cm^2.

Conduct any planned renovation activities, which may disturb any lead-bearing components including lead component mitigation (stabilization of painted surfaces) and/or complete lead abatement (complete stripping/removal of paint) in accordance with IDPH's Lead Abatement Act and Lead Poisoning Prevention Act and OSHA 29 CFR 1926.62 requirements. The IDPH has notification requirements prior to the start of lead mitigation/abatement projects. They also require using licensed lead abatement contractors for such work.

The results of the lead wipe testing showed elevated lead dust levels on floor surfaces approximately 20 feet away from the shooting range. Therefore the shooting range and surrounding areas should be cleaned by an IDPH licensed Lead Abatement Contractor. ATC recommends that a periodic cleaning schedule be implemented for the firing range in order to minimize lead dust from migrating into other areas of the building. The exhaust system associated with the firing range is presumed to be lead contaminated and should also be considered for periodic cleaning by an IDPH licensed Lead Abatement Contractor.

The firing range exhaust system should be evaluated by a mechanical engineer to determine its effectiveness in exhausting lead particles.

Mold and Moisture Control Recommendations
Proactively monitor the building for incidents of water-infiltration and water-damage to building materials. Mold growth has been known to occur in organic building materials if drying/remediation activities are not initiated within 24-48 hours of water damage.

ATC recommends the development and implementation of a Mold and Moisture Operations and Maintenance (O&M) Program to ensure that any future occurrences of water damage or mold growth are properly addressed.

Indoor Air Quality (IAQ) Recommendations
Low relative humidity readings were recorded on the day of the IAQ screening. Low relative humidity can result in eye irritation and complaints of nose and throat discomfort. Maintain temperature and relative humidity conditions in the facility in accordance with ASHRAE requirements. Maintain the ongoing HVAC system in the facility in accordance with the manufacturer's specifications.

A mechanical engineer should evaluate the building's HVAC system to determine an adequate fresh air supply to occupants and appropriate exhaust and return air flows.

The fresh air intake location should be rerouted away from the parking area or alternately the practice of running vehicle engines should be prohibited within 50 feet of the fresh air intake.

Chemicals should not be stored in the fan room.

The Police Station has not undergone any major environmental remediation since the time of the original study. For any repairs, renovations, or maintenance occurring in the facility, the Village should continue to follow the recommendations above for handling asbestos containing building materials (ACBM) and lead

based paint (LBP). At the time of a major remodel or demolition of the facility, all environmentally hazardous materials will be required to be addressed prior to the occurrence of the rest of the work.

SECTION 6
INITIAL CONCEPT DEVELOPMENT

Site Concept Development

Site concept development consisted of analyzing the current Police Department site on the municipal campus, located between the Village Hall and Fire Station on Sigwalt Street to determine if this site can effectively accommodate a new police station, or if another site must be acquired by the Village.

Utilizing information from the Space Needs Analysis, FGM began developing potential site diagrams and program stacking arrangements depicting how the space needs of the Police Department could be accommodated on the existing site. These diagrams take into account the size of the facility, the parking requirements, and the traffic flow through the site.

The goal of all the design concepts is that the new police facility would maintain the street scape between the existing Village Hall and the Fire Station. The facade of the new building would be compatible with the existing adjacent structures, but not compete with them.

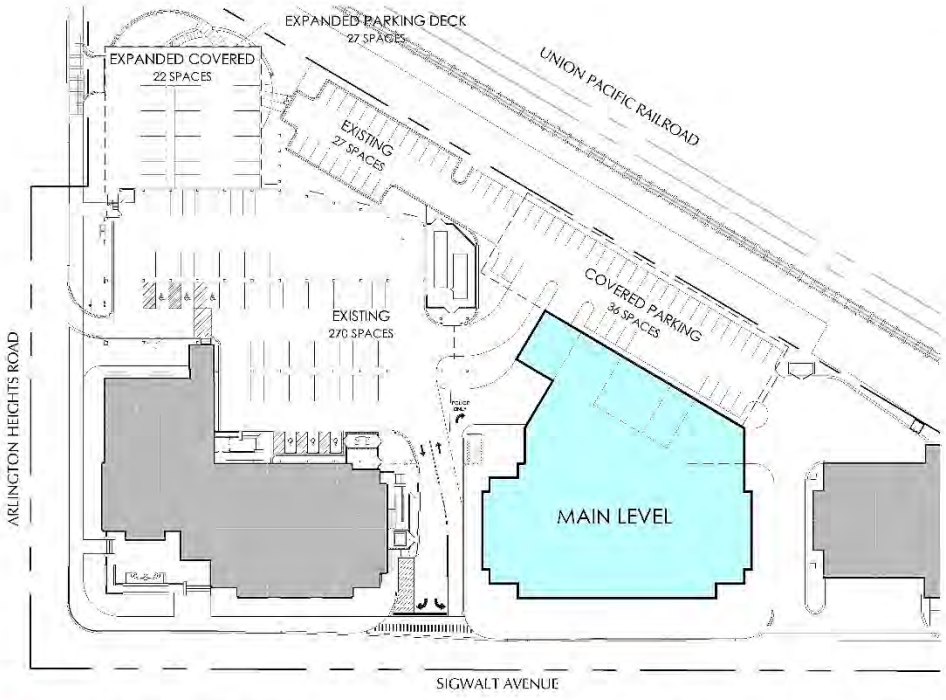
Initial Site and Building Concepts ("Test Fits")

Several Initial Site Concepts were developed incorporating a range of ideas, such as underground parking, 2 stories + basement, 3 stories + basement, east/west orientation, north/south orientation, bridging across the garage access drive, and connecting to the existing Village Hall.

Based on the initial concepts, it appeared that fitting the Police Station on the Municipal Campus could work effectively.

Along with the Committee, FGM identified which of these initial concepts had the best potential for developing a new Police Station on the site.

On the following pages are our initial concept diagrams, Concept 1 through Concept 9.



PROS:

- FUNCTIONS ARE ACCOMMODATED
- FUNCTIONS REQUIRING PUBLIC ACCESS ARE ON MAIN LEVEL

CONS:

- NOT ENOUGH COVERED POLICE PARKING
- ACCESS TO EVIDENCE GARAGES DISRUPTS PARKING
- SALLYPORT/LOCKUP AT WEST/ BOND OUT CLOSE TO PARKING GARAGE
- EVIDENCE SPLIT BETWEEN FLOORS
- FUNCTIONS ON 4 LEVELS

PARKING BREAKDOWN

COVERED POLICE:	36
ON GRADE: 28 EXIST. + 22 EXPANDED:	50
EXISTING PARKING GARAGE:	270
EXPAND GARAGE TO NORTH:	27
ACROSS SIGWALT ST.:	54+
TOTAL PARKING:	**404**

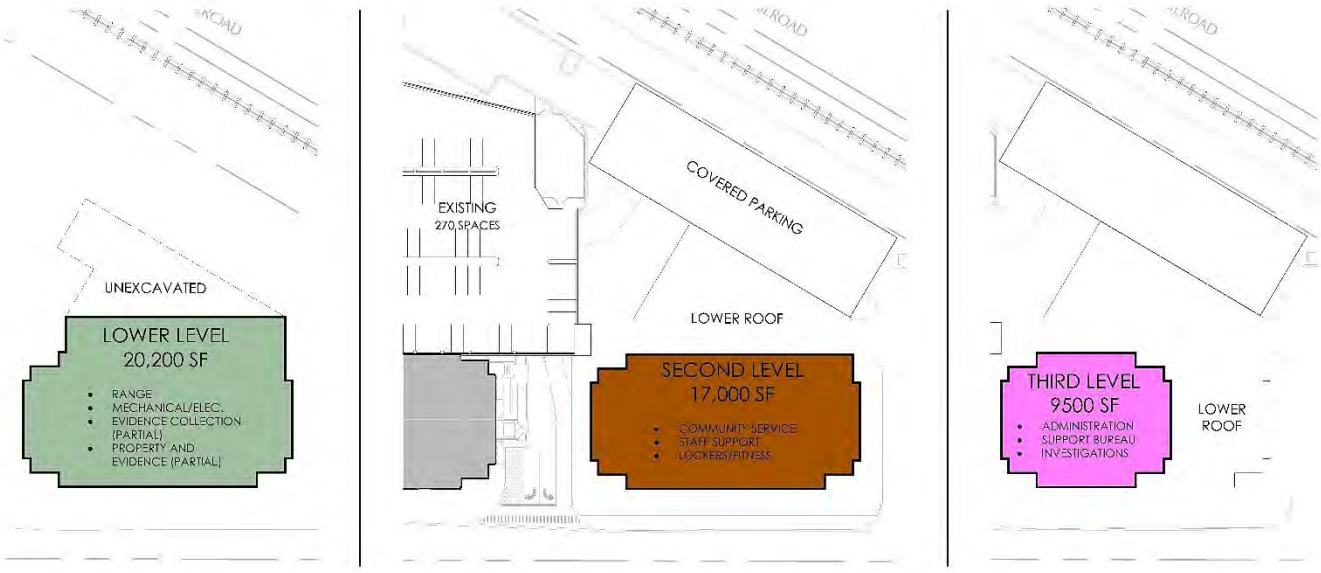
MAIN LEVEL - 26,900 SF

- LOCK UP
- WARM STORAGE
- PUBLIC
- PATROL
- TRAFFIC
- FRONT DESK
- EVIDENCE COLLECTION (PARTIAL)
- PROPERTY AND EVIDENCE (PARTIAL)
- RECORDS

N

SCALE : 1" =60'-0"

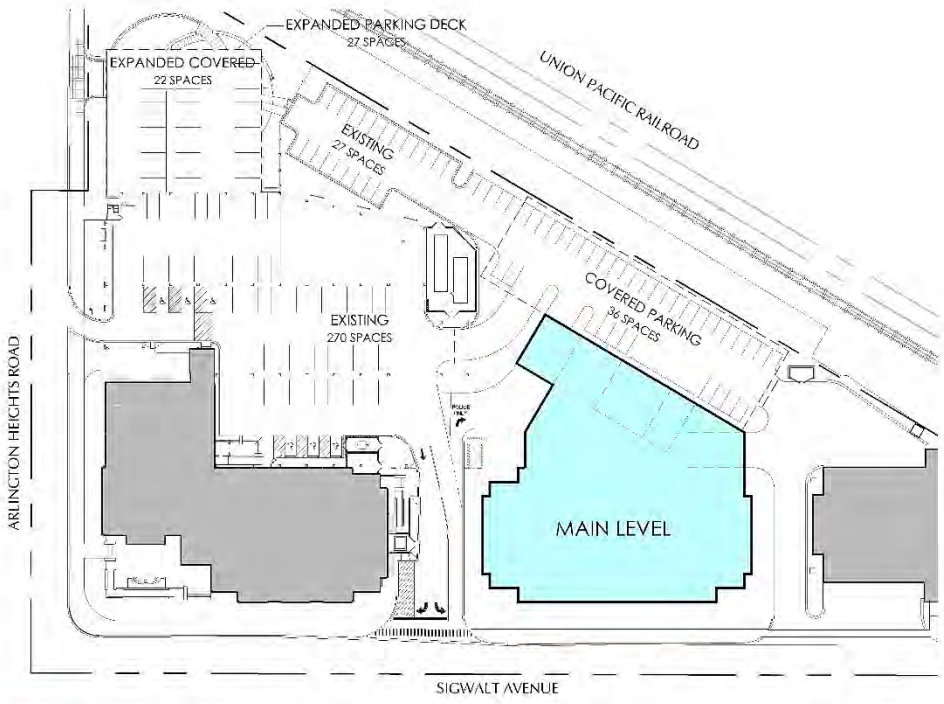
FGM ARCHITECTS CONCEPT 1 - THREE STORY + LOWER LEVEL



N

SCALE : 1" =60'-0"

FGM ARCHITECTS CONCEPT 1 - THREE STORY + LOWER LEVEL



PROS:

- FUNCTIONS ARE ACCOMMODATED ON 3 LEVELS
- FUNCTIONS REQUIRING PUBLIC ACCESS ARE ON MAIN LEVEL

CONS:

- NOT ENOUGH COVERED POLICE PARKING
- ACCESS TO EVIDENCE GARAGES DISRUPTS PARKING
- SALLYPORT/LOCKUP AT WEST/ BOND OUT CLOSE TO PARKING GARAGE
- EVIDENCE SPLIT BETWEEN FLOORS

PARKING BREAKDOWN

COVERED POLICE:	36
ON GRADE: 28 EXIST. + 22 EXPANDED:	50
EXISTING PARKING GARAGE:	270
EXPAND GARAGE TO NORTH:	27
ACROSS SIGWALT ST.:	54+
TOTAL PARKING:	**404**

MAIN LEVEL - 26,900 SF

- LOCK UP
- WARM STORAGE
- PUBLIC
- PATROL
- TRAFFIC
- FRONT DESK
- EVIDENCE COLLECTION (PARTIAL)
- PROPERTY AND EVIDENCE (PARTIAL)
- RECORDS

N

SCALE : 1" =60'-0"

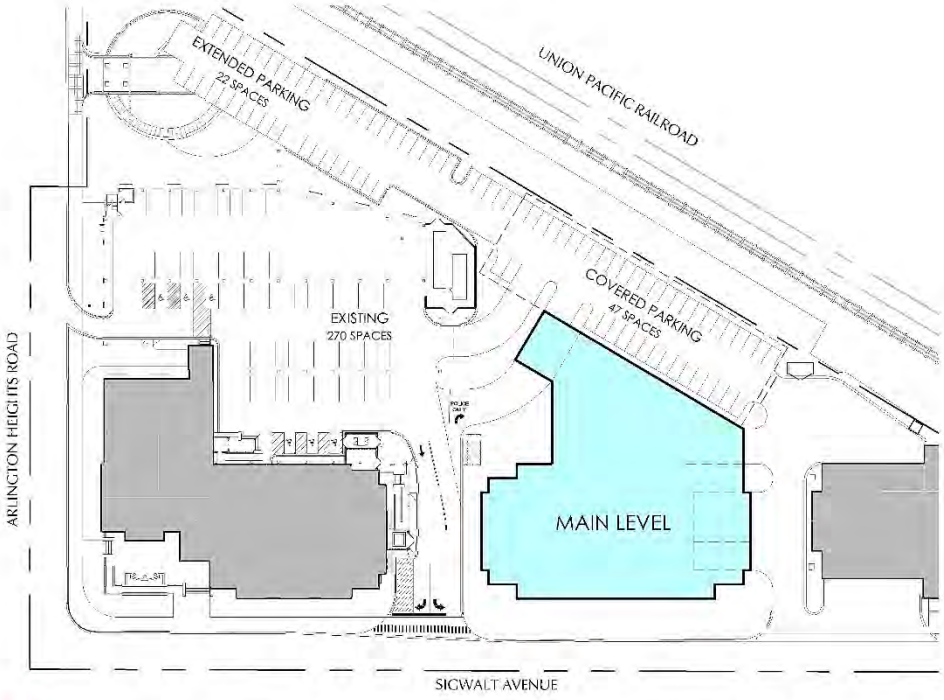
FGM ARCHITECTS CONCEPT 2 - TWO STORY + LOWER LEVEL

N

SCALE : 1" =60'-0"

FGM ARCHITECTS CONCEPT 2 - TWO STORY + LOWER LEVEL

FINAL DRAFT COPY



PROS:

- FUNCTIONS ARE ACCOMMODATED
- COVERED PARKING IS ADEQUATE
- EVIDENCE FUNCTIONS ARE ON MAIN LEVEL

CONS:

- SALLYPORT ACCESS THROUGH GARAGES ONLY
- FUNCTIONS REQUIRING PUBLIC ACCESS ARE ON SECOND LEVEL
- FUNCTIONS ARE ON 4 LEVELS
- PARKING DECK CAN BE EXTENDED TO EAST

PARKING BREAKDOWN

COVERED POLICE:	43
ON GRADE: 28 EXIST. + 22 EXPANDED:	50
EXISTING PARKING GARAGE:	270
EXPAND DECK OVER COVERED:	47
ACROSS SIGWALT ST.:	54+
TOTAL PARKING:	**464**

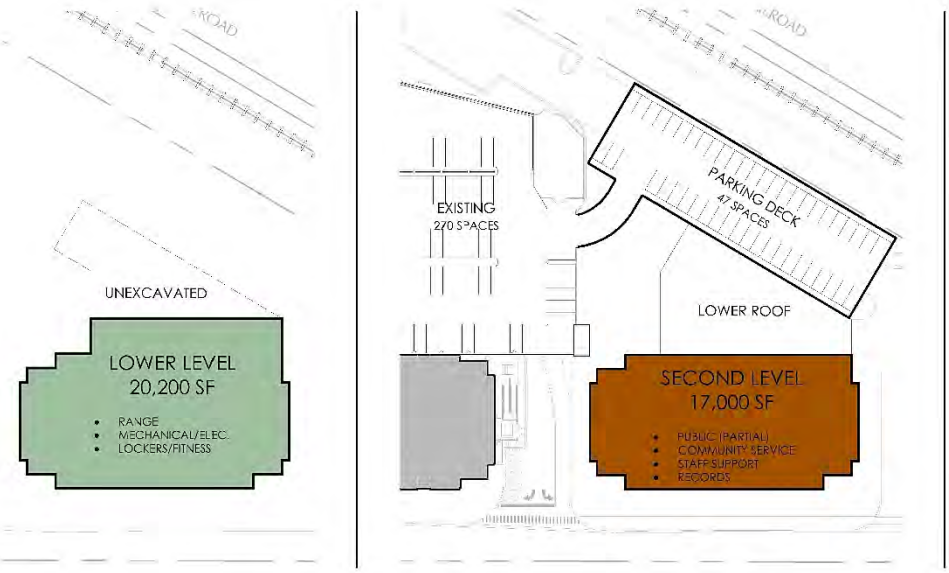
MAIN LEVEL - 26,900 SF

- LOCK UP
- WARM STORAGE
- PUBLIC (PARTIAL)
- PATROL
- TRAFFIC
- FRONT DESK
- EVIDENCE COLLECTION
- PROPERTY AND EVIDENCE

N

SCALE : 1" =60'-0"

FGM ARCHITECTS CONCEPT 3 - THREE STORY + LOWER LEVEL

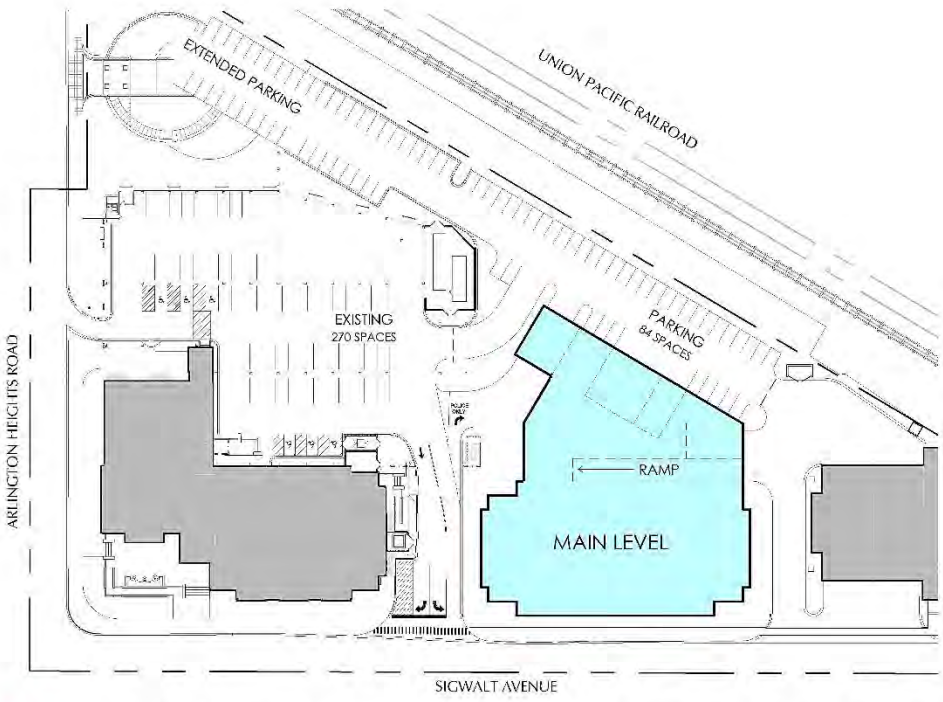


N

SCALE : 1" =60'-0"

FGM ARCHITECTS CONCEPT 3 - THREE STORY + LOWER LEVEL

FINAL DRAFT COPY



PROS:

- UNDERGROUND PARKING FREES UP SITE - NO DECK EXTENSION REQUIRED
- EVIDENCE FUNCTIONS ARE ON MAIN LEVEL

CONS:

- UNDERGROUND PARKING IS COSTLY
- FUNCTIONS ARE ON 4 LEVELS
- FUNCTIONS REQUIRING PUBLIC ACCESS ARE ON SECOND LEVEL

PARKING BREAKDOWN

UNDERGROUND POLICE:	52
ON GRADE:	84
EXISTING PARKING GARAGE:	270
ACROSS SIGWALT ST.:	54+
TOTAL PARKING:	**460**

MAIN LEVEL - 26,900 SF

- LOCK UP
- WARM STORAGE
- PUBLIC (PARTIAL)
- PATROL
- TRAFFIC
- FRONT DESK
- EVIDENCE COLLECTION
- PROPERTY AND EVIDENCE

N

SCALE : 1" =60'-0"

FGM ARCHITECTS CONCEPT 4 - THREE STORY + LOWER LEVEL + UP

N

SCALE : 1" =60'-0"

FGM ARCHITECTS CONCEPT 4 - THREE STORY + LOWER LEVEL + UP