Bellevue Fire Department

FACILITIES MASTER PLAN

City of Bellevue, Washington

MAY 2014

Schreiber Starling & Lane

ARCHITECTS

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TriData Corporation

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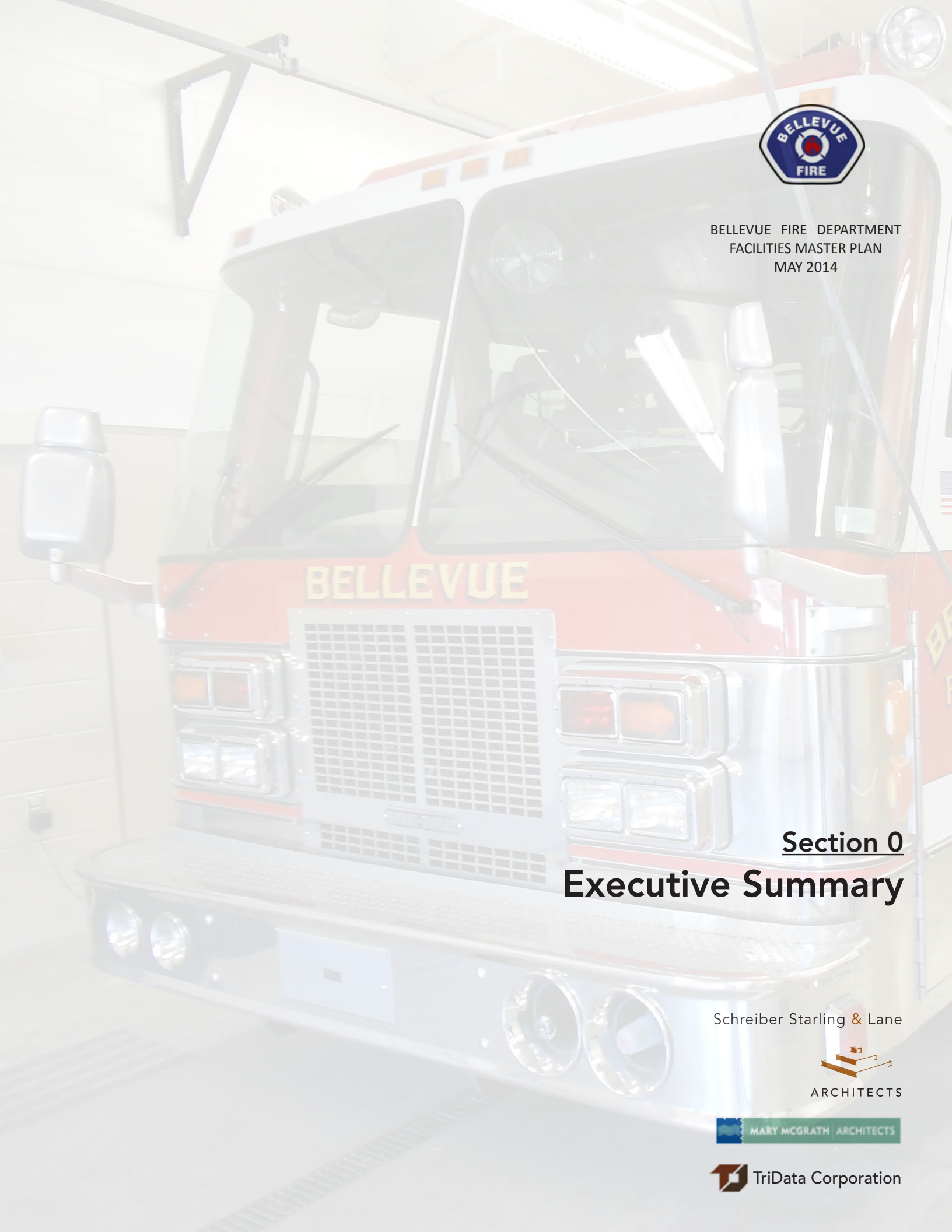


BELLEVUE FIRE DEPARTMENT
FACILITIES MASTER PLAN
MAY 2014

Section 0

Executive Summary

Schreiber Starling & Lane
ARCHITECTS
MARY MCGRATH ARCHITECTS
TriData Corporation

0 - EXECUTIVE SUMMARY

0.1 Purpose, Goals, Objectives

The goal of this study is to ensure that the Bellevue Fire Department has safe, survivable, and appropriate facilities which will enable it to maintain its current capacity for providing excellent fire and emergency medical response to the citizens of Bellevue and its neighboring communities as they grow and change.

The purpose of this study is to provide City of Bellevue policy makers with the Fire Department's long-term vision for their facilities. This planning tool is meant to help prioritize and inform future capital improvement decisions. The fire facilities plan will document a vision for the City of Bellevue Fire Department's current and future facility needs.

The objective of the study is to provide the City of Bellevue with a plan that addresses three separate but concomitant elements which include:

- An evaluation of current station locations in light of current and projected changes in development and population, taking into account projected changes in downtown and the planned redevelopment of the Bel-Red Corridor.
- A facility assessment of all nine fire stations and recommendations for long-range planning for operation, repair, and replacement of evaluated stations.
- An assessment and long-range plan for the Public Safety Training Center (PSTC).

The plan is based on an assessment of response data, current resources and facilities, the department's operational goals/latest fire suppression strategies, code/legal requirements balanced with the City's available resources for funding and schedule impacts.

0.2 Process

Schreiber Starling & Lane Architects, together with Mary McGrath Architects and TriData Corporation, and in coordination with BFD and other city staff, conducted several meetings and site visits to gather data, make physical observations, evaluate existing facilities, and determine current/future fire operation needs and goals.

To determine space standards, comparative analysis was undertaken and facility standards developed based on fire industry standards and similar departments including Seattle, San Jose, CA and Long Beach, CA. Based on this analysis, component diagrams (a layout of each functional space within a fire station) were developed as a tool for confirming that the space standards are supportive of current and future fire operations. Then, using the space standards, building codes, NFPA recommendations, and the latest industry

standards, each existing fire station was evaluated for its ability to meet the established space standard.

The existing facility studies include site/floor plan diagrams. Based on this information, schedule considerations and the assumption of a 50-year performance lifespan for new facilities, renovation and/or replacement alternatives were ranked or prioritized for each reviewed facility.

0.3 Population, Fire Risk, and Demand Analysis

The study team conducted an analysis of the current response patterns of the fire department for use in the development of neighborhood based, optimized response recommendations that respond to current and future development changes within the City.

Population

Between 1960 and 1970, Bellevue experienced a dramatic increase in population, with steady growth since then. The current population is approximately 132,100 and it is projected that by 2030 it will be 156,300. Population density classifies nearly all of Bellevue as "urban" (+2,000 people per square mile) with Downtown and parts of Bel-Red, Crossroads, and Factoria classed as "metropolitan" (+10,000 people per square mile)

Development

Downtown: The downtown has the vast majority of high-rises and high-rise development is continuing at a fast pace. In the next decade, it is expected that the downtown area will have a significant number of additional jobs and residential population.

Bel-Red: This area is one of the high growth and development areas due to rezoning to mixed use and the SoundTransit Link Light Rail coming through this area. It is expected that over the next decade this area will also have a significant number of additional jobs and residential population as envisioned in the Spring Hill Development.

Demand

EMS calls account for about seven out of every ten calls the department responds to and with the projected increase in residential growth area, and the aging of the population.

Less common incident types (fire, haz-mat, etc.) have remained fairly constant over the last ten years and are expected to increase. The vast majority of fire demand is located in the Downtown, as well as the Crossroads and the intersection of NE 8th Street and 140th Avenue NE. There is also a smaller hotspot north of Station 4 in the Factoria area.

Over the past ten years, the total number of incidents has slightly increased by 3% (from 16,213 to 16,624) and the statistical regression projected that the total number of incidents will remain relatively consistent over the coming

years. However, we know that Bellevue is undergoing significant growth and development, which is not taken into account in the regression. For that reason, our judgment is that demand will experience a slight increase going forward, especially in some areas such as the Downtown and Bel-Red areas.

Risk

On average, Bellevue has about 366 fires and zero fire deaths per year. Annual dollar loss is about $3.8 million dollars. Downtown, Bel-Red, Wilburton/NE 8th St., Northeast Bellevue, and Southwest Bellevue had the highest number of fires per square mile from 2010-2012 and are projected to have the highest future fire risk.

0.4 Performance Analysis

The amount of time it takes the initial unit to respond to a call is most critical for EMS calls when minutes can quite literally be life or death. EMS calls account for about seven out of every ten calls that the department responds to and with the projected increase in residential growth and the aging of the population, EMS calls are expected to continue to increase well into and through the next decade.

Response Time

Bellevue has somewhat of a challenging response problem because many of the roads have slow speed limits and the city roads are very disconnected in certain areas, particularly because of Interstate 90 and Interstate 405. Additional impacts are expected from an increase in traffic, with Bellevue growing as a regional job center, and congestion due to large scale construction projects including SoundTransit's Light Rail.

Travel Time: Travel times were 4:47 for EMS incidents and 5:29 for fire and special-operation incidents, which is longer than the NFPA standard of four minutes. It ensures that any facility changes made as a result of this report maintain the current level of response, we have used a five minutes travel time for assessing current and future stations location

Total Response Time: The total response time for EMS incidents was 6:45, which is 45 seconds longer than the NFPA six-minute total response-time objective. Fire and special-operations incidents had an average total response time of 8:01, which is over a minute and a half longer than the 7:20 time objective which includes the current travel time average of 5 minutes.

Areas where high-rise buildings currently exist and which are zoned to permit high-rises (Downtown, Bel-Red, Factoria), require a shorter travel time standard from the station to the base of the high-rise to allow for vertical travel. NFPA typically notes that vertical travel time for EMS (using an elevator) is 4-6 minutes. This can be much longer for fire response if the elevators are not usable and stair access with full gear is necessary. A standard of three minutes

travel to the base of high-rise buildings is recommended by NFPA to allow for the vertical travel time. Due to the vertical travel time, the higher density and higher risk of a high-rise, the study team did not recommend adjusting the travel time standard as was done for non high-rise response. Based on current station locations, not all areas with or planned for high-rise development can be covered within three minutes from the closest stations. This is particularly critical in the Downtown as it has the highest density of high-rise buildings and the highest number of EMS calls.

Workload

Unit workloads have an effect on response time performance because as units become busier, they are unavailable more of the time to respond to the calls where they would be first-due. Workloads for Bellevue vary by call/equipment type and were noted as follows:

- AID UNITS: High workload.
- ENGINES: Low to high, depending on the engine. Engine 6 has a high workload, Engine 8 has a low workload, and the remainder has a moderate workload.
- LADDER TRUCKS: Moderate workload.
- MEDIC UNITS: Moderate workload.

Unit Availability

Using NFPA 1710, the performance objective is a 4-minute travel time; however, as it is not always possible or reasonable to achieve a 4-minute time in all areas of the city, we recommend a more practical standard of under 5-minute travel time. Owing to the combination of response time, workload and location, Stations 1, 3, 6, and 7 meet the recommended standard with Stations 2 and 5 close to falling under the 80-percent threshold, and Stations 4, 8, and 9, which do not meet the threshold.

Station Location

Overall, the current locations of fire stations are good with the current station layout covering the vast majority of the city within the current five minutes travel time with some exceptions. There are areas with high-rise buildings and development potential which cannot meet the reduced goal of three-minute travel time.

Station Overlap

The current station layout provides good overlap in the Downtown area, but little overlap in the Crossroads area, where there are EMS and fire hotspots.

Weight of Response

To be considered effective, the goal is to have an appropriate number of firefighters within ten minutes to fight a structure fire. This is termed "Weight of Response". The NFPA 1710 standard is:

- Low-risk residential areas receive a complement of at least 16 firefighters within ten minutes

- High-rise structures (Downtown) receive a complement of at least 27 firefighters within ten minutes.

  The analysis shows that there are large areas which cannot meet this standard. Some parts of the downtown fail to respond 16 firefighters in 10 minutes and there are large areas of the city that appear to only get 12 or fewer firefighters in 10 minutes. None of the current and projected high-rises areas can meet the standard of 27 firefighters within ten minutes.

Support/Command

The previous 1979 Fire Master Plan employed the operational concept of designating "task force" and "satellite" stations. In executing this plan, it was determined that the task force stations should be placed in the general area of city growth; thus Stations 1 and 3 were developed as task force stations as the primary growth at the time was generally east-west. The current response analysis and population census indicates that the focus of growth has shifted to a more north-south orientation.

- Ladder companies are typically part of the complement responding to fires and other multi-unit emergencies. Per NFPA standard, a ladder should arrive within ten minutes of the initial emergency call. Aerial ladder units are currently assigned to Stations 7 and 3 resulting in a significant coverage gap in the south of the city. Most areas of the city south of Interstate 90 cannot be reached within ten minutes, except for some limited areas in Factoria.
- Battalion Chiefs are also part of the complement responding to fires and other multi-unit emergencies. Bellevue currently has a single Battalion Chief located at Station 1. Per NFPA standard, a Battalion Chief should arrive within eight minutes of the initial emergency call. While Station 1 may provide good proximity to the Downtown it does not provide very good coverage for the rest of Bellevue. Currently the BC is only able to reach the northwest part of Bellevue within the target travel time of eight minutes.

0.5 Operational/Functional Analysis

There have been several major shifts in fire suppression operations over the last 30 years that directly affect the operational functionality of the fire stations and the headquarters facility. These include:

- The size and weight of fire apparatus has increased greatly since the 1960s to accommodate larger pumps, carry larger equipment, additional emission control standards, and more personnel causing the apparatus bays to be undersized.
- The introduction and growth of the Emergency Medical Services response within the fire service requiring specialty apparatus and equipment, decontamination facilities, specialty storage, and additional apparatus bay space.

- The introduction and growth in the number of female firefighters led to the development of gender-neutral facilities.
- The recognition that health and safety risks involved in the fire service can be mitigated through fire station design.
- The steady increase in the number of annual training hours required by each fire fighter for not only suppression but also medical training has led the growth in on-site training facilities to limit the payment of overtime for training.
- The introduction of specialty units/response capabilities including Urban Search and Rescue, etc., increase the need for equipment and apparatus storage.

In short, these shifts in fire operations have created the need to modify older facilities in order to maintain effectiveness and efficiency. Many of the added mission and roles and the increase in the size and quality of equipment and apparatus have also increased the amount of space needed in a typical station.

The key elements that the planning team focused on in analysis of the physical assets of the Bellevue Fire Department are:

- Protect firefighter health/safety
- Assess station ability to maintain operational effectiveness and meet current regulations/best-practices
- Facilitate effective recurrent training in firefighting and EMS skills

Firefighter Health & Safety

Current standards for the design of fire stations, whether for new construction or renovation, require the inclusion of state-of-the-art equipment and systems for adequate air flow, removal and capture of carcinogens and particulates, appropriate location and ventilation of storage rooms for contaminated Personal Protective Equipment (PPE) and other equipment, washer-extractor and gear drying equipment, as well as clear separation of living quarters from the apparatus floor.

The three primary health objectives are to improve the air quality in a station, reduce the incidence of infection from bloodborne pathogens due to the increased focus on EMS, and reduce the incidence of injury on the job through better fitness and training.

The focus of the recommended renovations to address firefighter health and safety include:

- Dedicated bunker gear storage separate from the apparatus bays
- Dedicated medical clean up rooms adjacent to the apparatus bays
- A separation of suppression and EMS operations from the living quarters

- Adequate storage for suppression and EMS equipment separate from the living quarters.
- The development of fitness rooms that are of adequate size to facilitate company workouts as this is also a significant component of unit cohesiveness and has been adopted as an industry best management practice.

Functional Efficiency and Standards Compliance

Other findings related to station efficiency and compliance with standards include:

Sleeping Quarters and Restrooms: Group or non-separate sleeping rooms do not provide adequate privacy or while changing. Accommodating the need for privacy as the gender balance of firefighting changes can become a significant human/employee relations issue. It should be addressed in any station modernization program.

Special Projects Space: The current design at each fire station does not provide a dedicated special projects space. It should be addressed in any station modernization program to assure these important tasks can continue safely and efficiently.

Firefighter Training

The most cost-efficient as well as effective way to conduct individual and small group training is to conduct it while in-service at the station house. Currently most training occurs at the kitchen table or in the living room. The current NFPA standard and best-practices for providing in-service training requires individual computer access and group class areas that cannot typically be accommodated at the kitchen table.

To make the in-service training more efficient and cost-effective, the station office in single company stations should be expanded to allow access to the required training equipment and a dedicated training area should be provided in the larger stations for training classes and individual study.

The existing Bellevue Training Center is comprised of a 6-story training tower, an 8,000 SF training classroom and administrative building, and a Police Shooting Range and K-9 Unit outdoor facility. There is an operational necessity to transition the training operations at this location from an in-service focus to one that can support multiple agencies, recruit academies, and an expanded number and type of specialty drills. Built in 1983, the current facilities are not designed to host recruit academies which will be heavily in demand due to the need to replace a good portion of the department staff over the next 10-20 years. Additionally, the current facilities cannot accommodate the additional

service demands that are a result of the recently-signed ILA for regional training.

The 7-10 acre site needed for a training facility make relocation of this function unfeasible, thus the existing site was evaluated for expansion. The training center grounds lack the area to develop alternative training scenarios/props for specialty drills including trench rescue, collapse structure search and rescue, hazardous material handling and containment, etc.

Supply and Maintenance

The department maintenance and supply administration is at Station 1 while the supplies are stored at Stations 1, 2, and 3 (in the basement). There currently is no location available to house out-of-service apparatus indoors, thus they are located at the training center. This operational model is very unusual for a department of the size and complexity of Bellevue. It is very inefficient and was the result of making do with the space available within existing fire stations.

0.6 Physical Condition Analysis

In 2011 and again in 2013, the Bellevue Facilities Department conducted a thorough assessment of the physical condition of all the current Bellevue Fire Stations. The objective of this survey was to provide an overall comparative assessment of the condition and adequacy of each building by means of visual analysis. After review of the past reports, the study team made an on-site tour of all BFD facilities. The intent of this review process was to become familiar with the construction, configuration, and systems comprising the existing facilities. Validation of actual facility construction in comparison with existing documentation was beyond the scope of this study.

For the purposes of this survey, each station was evaluated on its capability to address program need. Observations were:

Station 1: Feasible and effective to address space and program needs through renovation.

Station 2: Feasible and effective to address space and program needs through renovation and small addition.

Station 3: Feasible and effective to address space and program needs through interior renovation.

Station 4: Site limitations preclude an approach which would address space needs or the desired expansion to support taskforce functions by reconfiguring or expanding at the existing location.

Station 5: Age and un-reinforced masonry construction combined with small site preclude ability to reconfigure or expand at existing location.

Station 6: Site limitations preclude an approach which would address space needs or the desired expansion to support taskforce functions by reconfiguring or expanding at the existing location.

Station 7: Feasible and effective to address space and program needs through renovation and small addition.

Station 8: Feasible and effective to address space and program needs through renovation and small addition.

Station 9: Feasible and effective to address space and program needs through renovation and small addition.

0.7 Recommendations

Options Considered

Status Quo

In this option, the City does not implement a plan to address the facilities location or condition needs of the Bellevue Fire Department.

Pro:

This option has no initial cost.

Con:

This option has the higher maintenance and repair costs.

This option does not mitigate the negative impacts to response time and service expectations due to continued population and development growth in key areas. It will not be possible for the BFD to maintain its current level of response and service given the projected population growth and density change.

Without bringing the existing buildings up to newer, more stringent seismic code for essential facilities, all existing stations will continue to be vulnerable to damage from a seismic event that could compromise their ability to function.

This option does not correct issues of firefighter life/safety, risk management, and cost-efficiency inherent in the existing facilities.

Not providing the needed quantity and variety of training space at the PSTC the BFD cannot accommodate the projected increase in both the frequency and size of new recruit classes.

Not consolidating operational support and special project execution will continue to be inefficient with increasing direct cost for travel and cost of moving special services spaces between stations.

Budget Summary:

$0	Initial Capital
$14.5M	M&R (for 15 years)

Repair/Remodel/Limited Expansion Option

In this option, only one station (#5) is replaced. Other scope is limited to remodel, renovation, and minor expansion of existing stations (as possible given site limitations). Other than Station 5, this option does not include any new or other replacement stations.

Pro:

By not requiring the acquisition of new property or construction of new or replacement stations (other than Station 5), this option has a lower total cost than options that include property acquisition for new and replacement of Stations 4 & 6.

This option will address the physical and operational issues at the stations that is in the worst physical condition. (Station 5)

Con:

This option does not mitigate the negative impacts to response time and service expectations due to continued population and development growth in key areas. It will not be possible for the BFD to maintain its current level of response and service given the projected population growth and density change.

The extent of renovation needed at some stations will require temporary relocation of station operations during construction phase into rented or portable facilities. The cost of temporary facilities provides no long-term benefit to the city.

Not consolidating operational support and special project execution will continue to be inefficient with increasing direct cost for travel and cost of moving special services spaces between stations.

Not providing the needed quantity and variety of training space at the PSTC the BFD cannot accommodate the projected increase in both the frequency and size of new recruit classes.

This option will increase the cost of any subsequent change that requires more or expanded site as the cost of land will increase steadily making later implementation of any expansion proportionally more costly.

Budget Summary:

$48.0M	Initial Capital
$7.1M	M&R (for 15 years)

Replacement/Relocation/Remodel Option:
In this option, response time issues are addressed by the construction of a new station in the CBD and by relocating and expanding Stations 4 and 6 to serve as taskforce stations. Station condition and operational deficiencies are addressed through replacement of Station 5 and select remodel/renovation/expansion of all the remaining stations. It also addresses training needs by expanding the Training Center, constructing a new training building and a central Department Support warehouse.

Pro:

This option ensures that the BFD will be able to maintain its current level of response and service into the future with its projected population growth and density change.

Every area of the city will have a station designed and/or modified to meet essential facilities seismic performance as defined by current code.

The condition of the existing buildings will be addressed to extend their expected service life to 30+ years.

Location of a three-company station in the downtown area will address current response shortfall and will ensure goal achievement as the area develops and grows higher and denser.

Relocation of Battalion taskforces to new Stations 4 and 6 correct deficiencies and aerial and incident command response as well as addressing the shortfall in weight of force response in the Downtown, Bel-Red, and Factoria areas which have the highest level of projected growth/density.

At stations that have remodel capability (site area and configuration) the interior remodel/expansion will be focused on correcting deficiencies in air quality; medical bio-safety health safety, and accommodation of in-station training and fitness.

Wherever possible, providing individual sleeping quarters will be accommodated at existing stations.

Existing vehicle bays will be expanded/remodeled to accommodate larger modern fire apparatus.

The PSTC site will be expanded to accommodate BFD Training and serving as a regional training facility for the East Metro Training Group.

At the expanded PSTC site, a centralized department support facility will be constructed to consolidate supply, operational support, and special project execution. This facility will also be sized to house reserve apparatus.

This option can secure the needed land early in the implementation process when it will likely be least costly.

Con:

This option will be the most costly of all the alternatives explored.

The needed land for new or relocated stations may not be readily available at the costs projected.

Budget Summary:

$129.6M	Initial Capital
$5.8 M	M&R (for 15 years)

Summary of Recommendations

Operations

1. Develop Stations 4 and 6 as new Taskforce Stations and provide the capacity to locate an engine, ladder, and aid unit at each.
2. Plan for additional space to accommodate adding or shifting location of apparatus and/or personnel during the next 6 to 12 years.

Stations

1. Acquire land for new/relocated stations:
   a. Downtown
   b. Clyde Hill
   c. Factoria
   d. Bel-Red
2. Construction of a new Station 10 located in Downtown
3. Replace Station 5 at an expanded site adjacent to its existing location
4. Replace Stations 4 and 6 at new, larger sites to accommodate possible future expansion as north and south Taskforce Stations
5. Remodel and expand Station 1, 2, 3, 7, 8, and 9
6. Recommend further exploration of relocating Station 1 in lieu of remodel (should the cost be relatively equal)

Support

1. Acquire land adjacent to the existing Training Center
2. Construct new Training Center
3. Construct Departmental Support Facility
4. Repair/renovate the Burn Tower

0.8 Implementation

Cost Planning

As the specific designs for the recommended projects have not been completed; it is too premature to develop detailed cost estimates for projects. The study team evaluated each project for cost planning which is different from cost estimating. Cost planning occurs before design begins and relies on historical or standard industry data to predict the project's probable cost. In planning costs for the recommended projects, the team evaluated each proposed improvements/replacement on a cost per square foot basis based on

recent project types to establish anticipated costs for the construction and development of each project.

Land acquisition costs were estimated based on the optimum size established in the space standards and the average cost of land (on a square foot basis) for target location. Please note that these property acquisition numbers are 'place-holders' only, since we do not know the exact parcels that will be selected. We will also carry the various sales of existing property as an un-quantified contingency as it is not certain that the city will dispose of the property.

A program cost factor has been identified which accounts for costs that are not specifically attributed to a specific project. These include non-operational costs incurred in the development, execution, and management of the overall program. Typically these costs include direct management labor, temporary relocations, non-project fees and regulatory compliance, etc. Similar recent multi-year programs have reported program costs in the 4-5% range; thus the study team has recommended that 5% be planned to cover non-project program costs.

All cost planning calculations are based in current dollars. As the plan will be executed over a period of time, the team applied an escalation factor on the elements of the cost based on an assumed construction inflation rate applied to the estimated time from 2014 to the mid-point of planned construction. The assumed escalation rate for construction established by the Washington State Office of Financial Management (3% per year) was used.

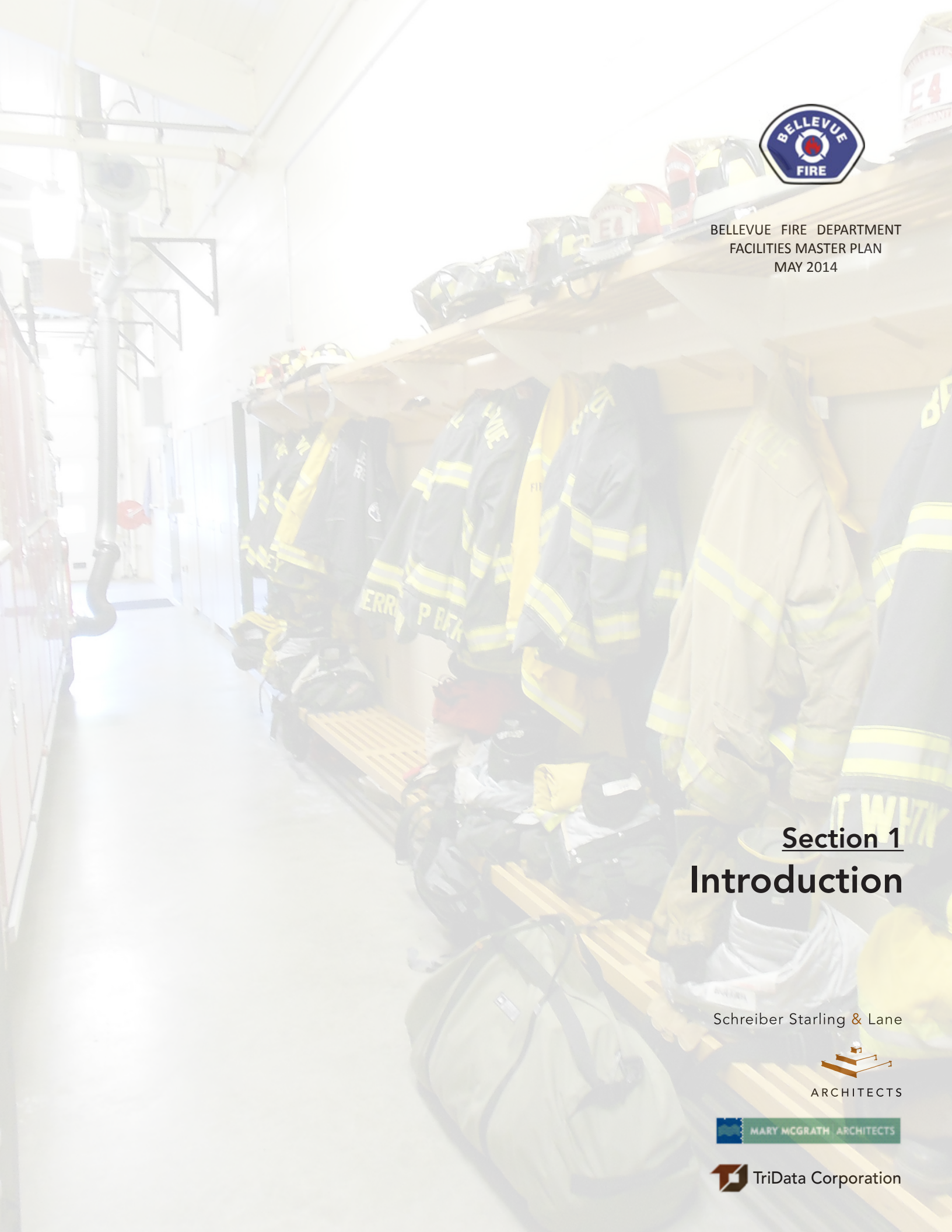
Schedule

The recommended Option has an estimated total program cost of $129,600,000 in 2014 funds which includes $40m in site acquisition costs.

In order to allow sufficient time for developing a funding plan and to equalize annual costs, it is proposed that a multi-year execution plan be implemented. Implementation plans over a 6, 8, and 12 year period were studied to identify the impact of escalation on overall program costs. Total program costs for the three alternative schedules are:

- 6-Year: $139,500,000
- 8-Year: $145,000,000
- 12-Year: $151,800,000

The 6-year option has all land acquisition occurring in the first year of the program to minimize the impact of escalation and inflation on volatile land prices. This was not done on the extended time alternatives to extended period of other/no use on the land assets, however the total cost of the longer period alternatives can be lower by early land purchase.



BELLEVUE FIRE DEPARTMENT
FACILITIES MASTER PLAN
MAY 2014

Section 1
Introduction

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1 - INTRODUCTION

During the development of the 2013-2014 Budget the Fire Department was tasked to identify its strengths and threats. One of the primary threats it identified was the age and suitability of its facilities, given the change in the delivery of fire and EMS services and the growth in the city (especially the increased height and density in Downtown, the Bel-Red Corridor and Factoria).

It prepared information about the age/state of the facilities and noted:

- The Fire Department has nine fire stations and one Public Safety Training Center (PSTC). The stations were acquired through various means. Some of them were taken over as unincorporated areas were annexed into the City; these include Stations 2, 4, 5 and 9. Others were new or replaced Fire Stations, which include Stations 1, 3, 6, 7 and 8.
- The oldest station in service was built in 1965 and the newest in 2002. The average age of BFD facilities is nearing 33 years. Three have been built within the past 40 years and two are less than 30 years old.
- The older stations were not designed to accommodate newer/larger apparatus and cannot easily be remodeled or expanded.
- Although partial seismic improvements have been made to some, the existing stations were not designed for greater earthquake resistance required by current code.
- The mechanical systems in the older stations are past their projected service life and are generating higher costs for utilities, maintenance and repair.
- The last fire facilities Master Plan was developed 35 years ago when the population was less than 74,000. It is currently over 130,000 and is projected to be nearly 160,000 by 2030.

1.1 Study Purpose

After this information was presented to the City Council, The Fire Department was asked by the Council to conduct a long-range facility study with the intent to assess the need for replacement, renovation, relocation or new construction of fire facilities in order to maintain current levels of service while meeting the changing population and demographics of the City.

The purpose of this study is to provide City of Bellevue policy makers with the Fire Department's long-term vision for their facilities. This planning tool is meant to help prioritize and inform future capital improvement decisions. The fire facilities plan will document a vision for the City of Bellevue Fire Department's current and future facility needs.

1.2 Study Goals & Objectives

The goal of this study is to ensure that the Bellevue Fire Department has safe, survivable, and appropriate facilities which will enable it to maintain its current capacity for providing excellent fire and emergency response to the citizens of Bellevue and its contract communities as they grow and change.

The objective of the study is to provide the City of Bellevue with a plan that addresses three separate but concomitant elements which include:

- An evaluation of current station locations in light of current and projected changes in development and population, taking into account projected changes in Downtown and the planned redevelopment of the Bel-Red Corridor.
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The plan is based on an assessment of response data, current resources and facilities, the department's operational goals/latest fire suppression strategies, and code/legal requirements balanced with the City's available resources for funding and schedule impacts.

1.3 Participants

To meet the Council's direction for a long-range facilities study, the Fire Department conducted a RFP and hired Schreiber Starling & Lane Architects in 2013. Schreiber Starling & Lane Architects, located in Seattle, have a practice that focuses solely on the planning and design of public and municipal facilities, including Fire Stations.

Their study team included the expertise of TriData Corporation and Mary McGrath Architects. TriData, headquartered in Washington D.C., is one of the most experienced fire and emergency services planning experts in the nation. Mary McGrath is a nationally respected leader in the planning, design, and assessment of fire facilities.

The following City of Bellevue employees participated in the planning process and provided input and guidance in executing the study:

Fire Long Range Plan Steering Committee

Mike Eisner, Fire Chief, Chair
Mary Kate Berens, Deputy City Attorney
Nora Johnson, Director, Civic Services
Mike Brennan, Director, Development Services
Jan Hawn, Director, Finance Department
Chris Salomone, Director, Planning and Community Development
John Greenwood, Management Fellow, City Manager's Office
Toni Rezab, Assistant Finance Director
Mike Remington, Deputy Chief, Fire Long Range Plan Project Manager
Marina Stefanovic, Project Manager, Civic Services

Working Group

Mike Remington, Deputy Chief, Fire Long Range Plan Project Manager
Mark Risen, Deputy Chief, Commander Bureau of Operations
Marina Stefanovic, Project manager, Civic Services
Frank Pinney, Assistant Director, Civic Services
Bruce Kroon, Battalion Chief, Training
Colleen Laing, Sr. Budget Analyst, Finance
David Baldwin, Sr. Budget Analyst, Finance
Emil King, Strategic Planning Manager, Planning and Community Development
Gwen Rousseau, Associate Planner, Planning and Community Development
Paul Ingram, Comprehensive Planning Manager, PCD
Max Jacobs, Real Property Manager
Heather Lehman NORCOM Public Records
Kieron Gilmore, Business Process Analyst
William Lie, EMS Data Analyst
Babette Bechtold, Senior Administrative Assistant
Stacie Martyn, Fiscal Manager
Jami Carter, Parcel and Address Coordinator, GIS
Ken Carlson, Fire Marshal

Bellevue Fire Department - Planning Workshop Participants

Michael Remington, Deputy Chief, Fire Long Range Plan Project Manager
Mark Risen, Deputy Chief, Commander Bureau of Operations
Bruce Kroon, Battalion Chief, Commander Training Division
Mark Moulton, Battalion Chief, Commander EMS Division
Lou Faehnrich, Battalion Chief, Commander A Platoon
Marty LaFave, Battalion Chief, Commander B Platoon
Steve P. Thomas, Battalion Chief, Commander C Platoon
Bill Larson, Captain, Assistant Training Officer
Wayne Bergeron, Facilities Operation Specialist
Andy Adolfson, Captain, EMS Administrative Officer
Keith Allen, Captain, Station One

Dave Beste, Captain, Station Two
Tony Mastrandrea, Captain, Station Three
Michael Luquette, Captain, Station Five
Rich Christensen, Captain, Haz-Mat Coordinator, Station Six
Vic Bourque, Captain, Station Eight
Tom Fields, Lieutenant, Station Three
Miles Langdahl, Lieutenant, Station Seven
Max Williams, Lieutenant/MSO, Medic One
Derik Pope, Lieutenant/MSO, Medic One
Troy Donlin, Lieutenant, Public Information Officer
Eric Keenan, Lieutenant, Station Six
Brian Gomez, Firefighter, Station One
Josh McCoy, Firefighter, Station Three
Bryon Adams, Firefighter, Station Three
Steve Willis, Firefighter/Engineer, Station Three
Johann Sehmsdorf, Firefighter, Ladder Repair Specialist, Station Three
Jeff Grove, Firefighter, Uniform Coordinator, Fire Station Eight
Mike Williams, Firefighter, Station Supply Coordinator, Station Three
Paul Paylor, Firefighter/Engineer, SCBA Technician, Station Eight
Luke Gilbertson, Firefighter, Station Three
Andy Oltman, Firefighter, Station Three
Alexa Dillhoff, Firefighter, Station Four
Jeff Wright, Firefighter, Station Nine
Art Cole, Firefighter/Paramedic

1.4 Process

In executing the long-range facilities plan, the study team implemented a 5-stage process:

Investigate the existing facilities and operations
The team conducted workshops with BFD operations and staff in conjunction with site visits to each of the BFD facilities to gather data, make physical observations, evaluate existing facilities, and to identify current/future fire operation needs and goals.

Collect and Analyze Response Data
The team collected detailed deployment data, including individual apparatus and overall alarm staffing data from actual emergency response calls to reported (working) structure fires and EMS responses. CAD Data was provided by BFD (from 2006 to avoid potential coding errors in earlier data). This data was analyzed to determine resource deployment capabilities and capacity and identify response deficiencies.

Develop Space/Facility Benchmarks

To identify needed functional area at each station, given the departmental organization and staffing levels, the study team developed a listing of functional areas and space standards based on their previous development of standards for similar departments (Seattle; San Jose and Long Beach, CA). Based on this analysis, component diagrams (a layout of each functional space within a fire station) were developed as a tool for confirming that the space standards are supportive of current and future fire operations. Using the space standards, building codes, NFPA recommendations, and the industry standards, each existing fire station was evaluated for its ability to meet the established space standard.

Generate Recommendations

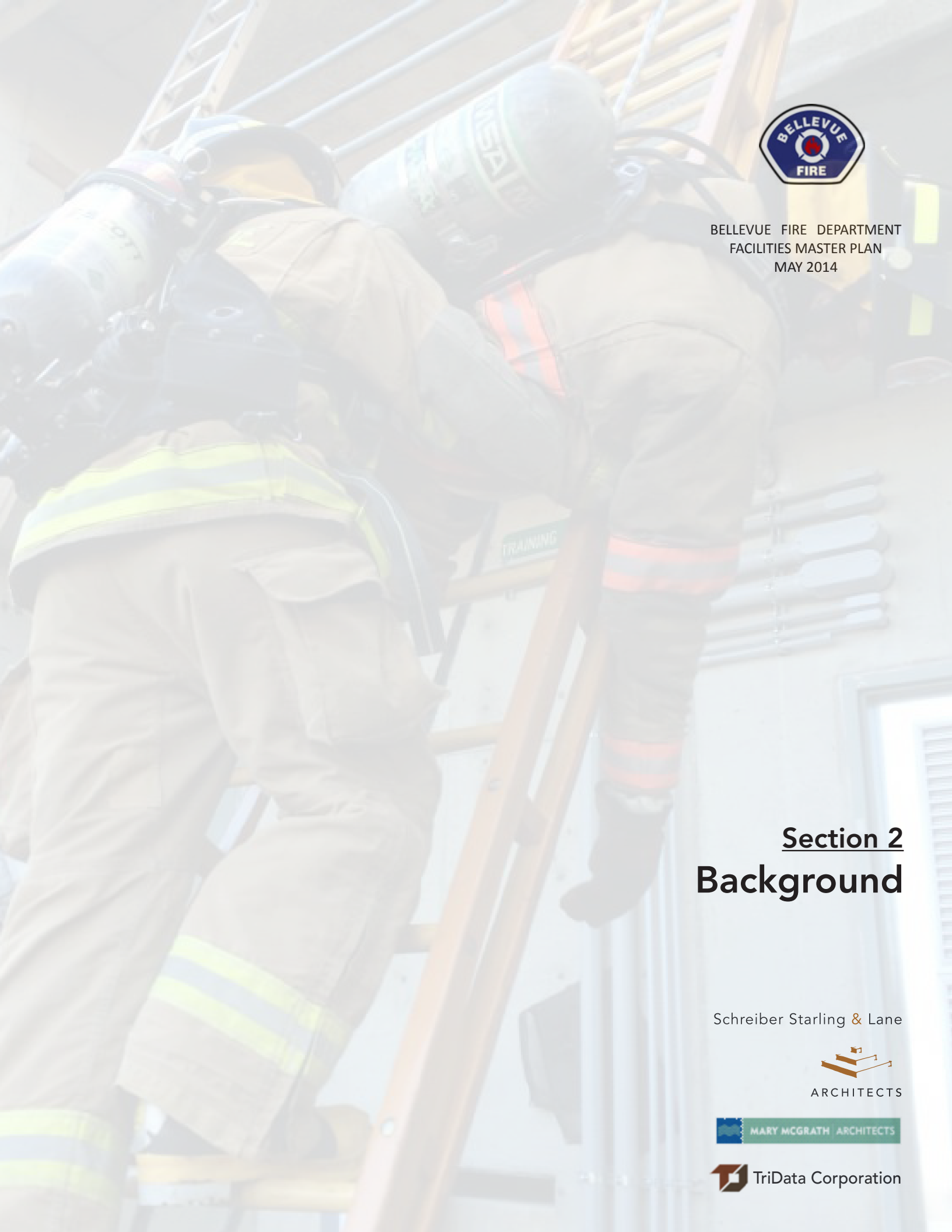
The team explored options to addressing shortfalls and elements that could negatively impact the Department's ability to maintain its current service level in the near and far term.

Indentify Budget and Schedule Needs

Based upon the recommended plan, the team generated estimates of program and construction costs. Estimates of land acquisition costs were generated by the Bellevue Real Property Department.

1.5 Intended Use

It is intended that the recommendations of this plan be incorporated into the City's Comprehensive Plan that is currently being updated. Additionally, this plan will inform decisions about future capital facility needs and will serve as the foundation of future Fire Department Capital Improvement Plan (CIP) budget requests.



BELLEVUE FIRE DEPARTMENT
FACILITIES MASTER PLAN
MAY 2014

Section 2
Background

Schreiber Starling & Lane
ARCHITECTS

MARY MCGRATH | ARCHITECTS

TriData Corporation

2 - BACKGROUND

2.1 Bellevue Fire Department Vision, Mission, Values, Culture

Vision
A protected, prepared, and healthy community.

Mission
Assist the public in the protection of life and property by minimizing the impact of fire, medical emergencies, and potential disasters or uncontrolled events.

Values
The Bellevue Fire Department embraces the City of Bellevue's Core Values and is committed to upholding and embodying them in our polices, culture, and daily actions. The nature of our work brings a particular focus to these Values.

To effectively accomplish the Mission of the Department and to exceed the expectations of the people who depend on our services, the Bellevue Fire Department is committed to provide exceptional public service for all our of customers by:

- Adhering to the highest ethical standards
- Valuing the contributions of citizens, partners, and stakeholders
- Providing equitable, consistent, and responsive service
- Striving to anticipate the needs of our diverse customer base
- Maximizing the utilization of current resources before additional requests

Culture
Bellevue Fire has a culture of continuous improvement that requires a solid foundation and a commitment to innovation, adaptability, and a willingness to embrace appropriate change, with a pledge to:

- Encourage and reward proactive and creative problem solving and planning
- Be empowered to explore new ideas and introduce cutting-edge solutions
- Support taking reasonable risks to find better ways to deliver our services
- Continue our tradition of leadership

2.2 Department Organization and Operations

Bellevue Fire Department (BFD), an all-career department, protects the City of Bellevue within the municipal city limits. A key component to that overall protection is its coverage of a vibrant and growing downtown area characterized by high rises and a large business related presence.

The Bellevue Fire Department is an all hazards agency that provides a full range of Emergency Medical Services (EMS), Urban Search and Rescue (USAR) resources, structural

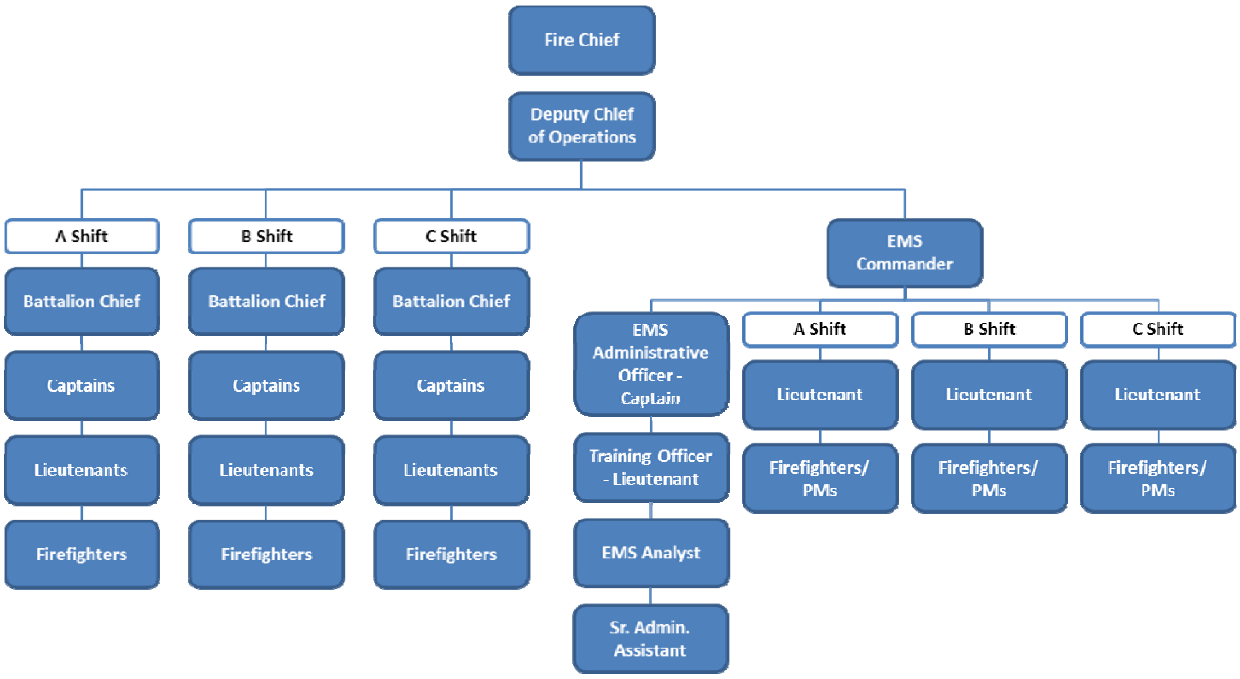
fire protection, wildland fire protection, fire prevention, public education, emergency preparedness planning, a water rescue team and hazardous material (Haz-mat) response. The Bellevue Fire Department provides fire suppression, rescue and emergency medical service to city residents and to the following surrounding communities:

- Beaux Arts
- Clyde Hill
- Hunts Point
- Medina
- Newcastle
- Yarrow Point

BFD also provides advanced life support and transport services for the King County Medic One/Emergency Medical Services (EMS) program. Medic 1 (M-1) runs out of Overlake Hospital and Medic 2 (M-2) runs out of Station 2 at West Lake Hills. Medic 3 (M-3) is housed in North Bend, while Medic 14 (M-14) is in Issaquah.

BFD is organized as a traditional fire department. The organization and rank structure of BFD is similar to that in most other North American cities. BFD is an all-hazards delivery system with resources committed to fire suppression, medical first response including ALS and BLS, hazmat, special operations and technical rescue. BFD also provides fire prevention and public education. BFD also coordinates with other city agencies on emergency management, and its Emergency Preparedness Division "offers training and information to help residents and businesses prepare for fires and regional disasters", no small undertaking in a region susceptible to a multitude of potential natural disasters.

The following is the organizational chart of the Bureau of Operations:



Accreditation

Bellevue Fire has a long tradition of excellence, as evidenced by its performance in preventing, preparing for, and responding to emergencies, its strong public image, as well as its reputation among partners and peers in the region. The Department has passed a rigorous accreditation process by the Center for Public Safety Excellence three times since 1998, making it one of six fire departments in the State of Washington to currently hold this designation.

Assets

The Department provides services to its response areas from nine stations that provide two ladder trucks, eight Type I engines (all are Basic Life Support capable), four Advanced Life Support (ALS) medics/transport units, three aid cars, one heavy rescue vehicle, a Mobile Command Unit, a Mass Casualty Incident Unit, an Air Unit, a Hazardous Response Unit, a water rescue unit and a variety of chief officer and utility vehicles. (Detailed information of the condition of the nine stations is provided in Section 4 and Appendix E). The department also maintains nine reserve apparatus for rotation with in-service vehicles for maintenance and repairs. In the future, the department is planning the acquisition of a Type III engine (brush rig). It will be cross-staffed and located at Station No. 8.

Alarm assignments for a typical call are as follows:

Table 2.1. Current Deployment by Station

1st Alarm All Structures	MVA	2nd Alarm	3rd Alarm	Automatic Alarms
4 Engine Companies 2 Ladder Companies 2 Battalion Chiefs 1 BLS Medic Unit 1 BLS Aid Unit 1 MSO Staffing	1 Engine 1 BLS Aid Unit **Traffic Rescue Adds**: 1 Battalion Chief 1 Medic 1 MSO 2 Ladders	3 Engine Companies 1 Ladder Company 1 Battalion Chief 1 Mobile Air Unit	3 Engine Companies 1 Ladder Company 1 Battalion Chief	**Residential:** 1 Engine and Ladder or 2 Engines **Interior Hallway Apt Bldg.:** 2 Engines, 1 Ladder, 1 BC **High Rise**: 3 Engines 1 Ladder 1 Battalion Chief 1 MSO

Staffing

BFD has 199 FTEs dedicated to fire suppression and EMS. The work schedule is a three platoon system with 24 on/72 off shifts. Minimum daily staffing is 47 personnel per shift. BFD staffs 17 units with 43 personnel which are assigned to specific apparatus and nets an average staffing per unit of 3 personnel per unit. There are also eight firefighter/paramedics assigned to every shift. Some units/stations are also cross-staffed. The single ladder company in the city is staffed with four personnel.

In addressing the daily inventory of emergency events related to its stated mission, BFD brings a full inventory of personnel and equipment to provide fire protection, first responder services, ALS and BLS services and other specialty emergency services for the community. Table 2.2 displays the daily array of personnel and equipment along with their locations and staffing patterns.

Table 1 Current Deployment by Station

Station	Unit Designation	Number of Staffed Personnel Per Unit
Station 1	E1 A1 B1	3 2 2
Station 2	E2 A2 M2 MSO	3 2 2 1
Station 3	LF3 A3 Rescue 3	5 2
Station 4	E4	3
Station 5	E5	3
Station 6	E6 Hazmat 1	3
Station 7	Ladder 1	4
Station 8	E8	3
Station 9	E9	3
Overlake Hospital	M1	2
Total		**43**

Dispatch

The Department is dispatched through NORCOM, Northern East King County Regional Public Safety Communications Agency. This agency provides dispatch services for many public safety organizations in North East Kings County including the Bellevue Police Department. Although the NORCOM facilities are located in Bellevue, the dispatch facility was not a part of this facility analysis as they are a separate agency from the City of Bellevue Fire Department.

Training

The City of Bellevue Fire Department provides hands-on basic drills and classroom training at their training center located at 1838 116th Avenue NE, Bellevue, WA. (Detailed condition analysis of the training facility is provided in Section 4). Annual and quarterly drills include company drills, individual drills, driver/operator and acting D/O training, safety/EMS drills and specialty technical rescue drills; and a variety of classes are held there. These drills and training sessions are conducted in a 5-story training tower and training office/classroom building. The department training offices are located at this facility.

The Training Division is responsible for implementing the mandatory training schedule and for holding new recruit academies which occur annually or as necessary for hiring. The Department is anticipating an increase in both the frequency and size of each recruit class as the retirement rate within the department is expected to greatly increase over the next decade.

Bellevue Fire Department has completed an ILA with the East Metro Training Group (EMTG). The partner agencies include the Redmond, Kirkland, Mercer Island and Northshore Fire Departments. This agreement will greatly expand the training operations at the existing Bellevue location.

Departmental Support

The Fire Department has two staff members who provide maintenance and supply services for the fire stations and apparatus. They purchase and distribute all supplies and are responsible for ensuring the apparatus maintenance is performed on schedule. The actual maintenance work on the fire apparatus is outsourced to the City Fleet Department. Currently the maintenance and supply staff is housed at Fire Station No. 1 and the supplies are located at three stations (Stations 1, 2 and 3) as space permits and at the training center. It was a goal of this facility study to evaluate this function within the department and determine if providing a central location from which the department's maintenance and supply division could operate would increase the efficiency of the department related to this function.

Special Projects

In addition to the daily response, training and housekeeping duties, each fire station in the Bellevue Fire Department is assigned a "special duty" or special project. The duties include ladder repair, small equipment repair, breathing air mask repair and testing, air bottle fill and maintenance; safety gear repair, maintenance and inventory; hazardous response team equipment maintenance and repair; medical supply inventory and stocking, among others. This in-house maintenance approach is frequently found in smaller rural and suburban departments but is unusual in larger urban departments.

Larger urban departments tend to provide a central location and dedicated staffing to complete this work. However, there are staffing and operational efficiencies gained through

the maintenance of these programs at each fire station and it is a goal to continue this operational approach until such time as a central support/warehouse can be built.

2.3 Fire Department Goals

Goals

In the 2012 BFD Strategic Plan, Bellevue Fire established the following goals that affect their current and future facilities:

Keep our Community Safe

The Fire Department's fundamental role is to create a safe environment so the communities it serves – and the individuals, families, and businesses that make up those communities – can thrive. The Department's first focus is to protect life and property, whether from fire, natural or human-caused disasters, or medical emergencies.

Provide Timely, Effective, & Consistent Emergency Responses across the Communities We Serve

When emergencies occur, the Fire Department must respond as quickly and as effectively as possible in all of the communities it serves. Key to the ability to meet standards of timely response is the location of facilities, the distribution of staff and apparatus in locations and the placement and location of staff, and environmental factors such as road design and traffic signal control.

Prepare for Disasters in the Communities We Serve

The Fire Department needs to be sure that the City and the Fire Department are themselves well-prepared, not only with plans in place to ensure the continuity of key decision making and operational capacities, but with facilities that can survive the disaster.

Ensure Our Employees' Safety, Health, Career, & Future

Bellevue Fire Department is committed to develop and maintain facilities that provide a safe and livable work environment for firefighters. It is critical that Bellevue's fire facilities meet minimum Department and industry facility standards.

Additionally, as the department's force continues to age, the stringent physical fitness requirements of our business require us to focus diligently on preventing and recovering from injuries and related time loss.

Invest in our employees and their expertise

The real core of the Department is the men and women who work here, whether in the field or at City Hall.

BFD is motivated by state law, industry requirements, and their own high standards to provide significant training that is specific to the role of each individual staff person. In addition to increasing training focused on core and emerging areas of emphasis, by

approaching our training needs in a regional and collaborative fashion, we can coordinate efforts with neighboring fire departments and other partners and find opportunities to share and reduce costs.

Maintain Appropriate Infrastructure

Bellevue Fire's facilities, apparatus, and equipment are essential to their ability to perform their duties. Without proper, well-functioning equipment, staff cannot perform their jobs at a high level, no matter how well trained they are.

BFD is committed to monitor changes in the community and demand for services to determine future facility needs. Key indicators include:

- Demand for service: location, number, and type of calls for service.
- Performance: response times and other key performance statistics.
- Industry standards.
- Land use policies and projected development.

Prepare for future growth and the upgrade, renovation, and/or replacement of fire stations

BFD was tasked by the Council to conduct a citywide assessment of fire station locations vis-à-vis anticipated growth to determine the need to relocate current stations and/or add additional stations. Achievement of this task/goal is the genesis of this study.

2.4 Fire/EMS Facilities Trends

There have been several major shifts in fire suppression operations over the last 30 years that directly affect the operational functionality of the fire stations and fire training facilities. These include:

- The introduction and growth of the Emergency Medical Services response within the fire service requiring specialty apparatus and equipment, decontamination facilities, specialty storage and additional apparatus bay space. Emergency Medical Services has become a key component within the fire service. As such, it is ever changing and growing to accommodate improvements to systems and operations. A number of outside influences affect the delivery of medical care within the fire service industry including interactions with medical care providers. Mandates from a number of entities have led to changes in the way the fire department cares for patients and protect our employees. Among these:
    - OSHA has enacted regulations that require specialized areas within fire stations to provide for decontamination of equipment and clothing.
    - State and Local EMS regulations that require the use of new equipment and supplies requiring additional storage space, training and costs.
    - Additional requirements for medical education requiring locations for the storage of training equipment, increased training events on varied scales, and increased costs for obtaining and maintaining certifications.

- Increased need for classroom space to facilitate mandated training.
- Increased use of technology in the field requires additional technological changes and enhancements in our infrastructure at the administrative and instructional levels.

- The size and weight of fire apparatus has increased greatly since the 1960s to accommodate larger pumps, carry larger equipment, additional emission control standards, and more personnel causing the apparatus bays to be undersized.

- The introduction and growth in the number of female firefighters led to the development of gender-neutral facilities. For example, restrooms/shower rooms are now unisex and bedrooms include individual lockers as opposed to central locker rooms.

- The recognition that health and safety risks involved in the fire service can be mitigated through fire station design including the following:

  - The addition of tail-pipe exhaust to capture direct diesel exhaust;
  - The understanding that physical fitness is an important factor in the ability of fire fighters to perform their job effectively and safely, leading to the addition of fitness rooms;
  - The concerns regarding air quality leading to the recommendation that turn-out gear be stored in a dedicated room with continuous exhaust systems;
  - And the availability of both gross and medical decontamination stations separated from living spaces.

- The steady increase in the number of annual training hours required by each fire fighter for not only suppression but also medical training has led the growth in on-site training facilities to limit the payment of overtime for training.

- The introduction of specialty units/response capabilities including Urban Search and Rescue, Water Rescue and a Hazardous Material Unit increase the need for equipment, apparatus storage.

2.5 Standards and Best Management Practices

The National Fire Protection Association (NFPA) has established nationally accepted standards for the life-safety performance of buildings, the performance standards for fire service, and the training, operational and physical standards by which the fire services deliver service to their communities. The NFPA standards are adopted after significant input from the public safety community and their primary purpose is to ensure public life-safety and enhance firefighter safety while in the performance of their duties.

Performance Objective

NFPA 1710 is the established national standard for fire/EMS response. It does not actually specify a total response time standards, rather it provides time and reliability standards for each of the time segments that comprise total response time (call-processing, turnout, and travel). In meeting NFPA standard 1710, The Bellevue Fire Department should achieve the following:

- Call-processing time under 60 seconds 90% of the time
- Turnout time under 60 seconds 90% of the time for EMS responses
- Turnout time under 80 seconds 90% of the time for fire responses
- Travel time under four minutes 90% of the time

Urban areas close to several fire stations should have high compliance; however NFPA 1710 acknowledges that it is impractical to apply the same goal times to rural areas.

Initial Response

- By adding up the individual NFPA 1710 time objectives, the total response time should be less than 6:00 minutes for EMA incidents and less than 6:20 minutes for fire and special-operations incidents**.** In dense urban areas with high-rise buildings, the target response time to the base of the structure is reduced to 3 minutes to allow for vertical travel time.

  NFPA 1710 establishes targets for other elements of response. Critical measures include:

Weight of Response:

- Low-risk residential areas receive a complement of at least 16 firefighters within ten minutes
- High-rise structures (downtown) receive a complement of at least 27 firefighters within ten minutes

Ladder Response:

- The complement should arrive within ten minutes of the initial emergency call.

Command Response (Battalion Chief):

- The complement should arrive within eight minutes of the initial emergency call.

A more detailed description of NFPA response standards and other methods of performance analysis are provided in Appendix A.

Fire Fighter Health & Safety

The changes in the fire service identified above in section 2.4 have been recognized and supported by the NFPA resulting in refinements to the NFPA standards to address them. There are several chapters which directly and indirectly guide the design of fire stations.

NFPA 101 Fire and Life Safety is applied to every built structure but there are specific criteria included in NFPA that directly affect the design of fire stations.
A core standard is NFPA 1500 Standard on Fire Department, Occupational Safety and Health Program. This section outlines criteria for fire fighter training, personal protective equipment storage and maintenance; facility design related to work place safety and protection from exhaust emissions; physical performance (health and fitness); infection control and medical supply storage management.

An overview of a portion of the standard directly guiding fire station design includes:

Chapter 5 Training, Education, and Professional Development

5.2.1 All members who engage in structural firefighting shall meet the requirements *of NFPA 1001, Standard for Fire Fighter Professional Qualifications.*

5.2.2 All drivers/operators shall meet the requirements of *NFPA 1002, Standard for Fire Apparatus Driver/Operator Professional Qualifications.*

5.2.4 All fire officers shall meet the requirements of *NFPA 1021, Standard for Fire Officer Professional Qualifications.*

5.2.5 All wildland fire fighters shall meet the requirements of *NFPA 1051, Standard for Wildland Fire Fighter Professional Qualifications.*

These chapters provide the basic training requirements. Special operations such as hazardous materials response teams or special rescue require additional training. In addition, there are many annual training updates required, for advance life support, basic life support and firefighting, to remain certified. The increased training hours required to maintain certification are driving the need and Best Management Practice (BMP) for classroom training facilities within each station to allow effective individual and "in-service" group training to occur on a regular basis.

Chapter 6 Fire Apparatus, Equipment, and Drivers/Operators

"6.1 Fire Department Apparatus.

6.1.1 The fire department shall consider safety and health as primary concerns in the specification, design, construction, acquisition, operation, maintenance, inspection, and repair of all fire department apparatus."

"6.2.7 The fire department shall develop standard operating procedures for safely driving fire apparatus during nonemergency travel and emergency response and shall include specific criteria for vehicle speed, crossing intersections, traversing railroad grade crossings, the use of emergency warning devices, and the backing of fire apparatus."

Back-up accidents are a major hazard in the fire service. There are strict protocols for backing-up a fire engine or truck that requires a firefighter to be positioned at the rear of the apparatus to direct the engineer. Often, the firefighter is required to direct the engineer from the middle of the street with traffic which creates an avoidable safety hazard if planned for properly. The trend in the fire service is to develop fire stations sites so that the apparatus bay can be accessed from the rear and the bays allow a drive-through configuration.

Chapter 7 Protective Clothing and Protective Equipment

"7.1 General.

7.1.1 The fire department shall provide each member with protective clothing and protective equipment that is designed to provide protection from the hazards to which the member is likely to be exposed and is suitable for the tasks that the member is expected to perform.

7.1.3 Structural fire-fighting protective clothing shall be cleaned at least every 6 months as specified in *NFPA 1851, Standard on Selection, Care, and Maintenance of Structural Fire Fighting Protective Ensembles.*

7.1.7.2 Where such cleaning is conducted in fire stations, the fire department shall provide at least one washing machine for this purpose in the designated cleaning area specified in *NFPA 1581, Standard on Fire Department Infection Control Program.*"

"7.4 Protective Clothing for Emergency Medical Operations.

7.4.1 Members who perform emergency medical care or fire protection services are likely to be exposed to blood or other body fluids and shall be provided with emergency medical garments, emergency medical face protection devices, emergency medical examination gloves, emergency medical work gloves, and emergency medical footwear or emergency medical footwear covers that are compliant with *NFPA 1999, Standard on Protective Clothing for Emergency Medical Operations."*

Additional NFPA standards guiding fire operations include *NFPA 1851 – Standard on Selection, Care and Maintenance of Structural Fire Fighting Protective Ensembles.*

In the last 20 years, much has been learned about the effect of diesel emission on human health through soot and contaminated air sources. One key change to fire operations and an adopted BMP has been to move Personnel Protective Equipment (PPE) out of the apparatus bay to a storage area that has a direct exhaust to the building exterior and to no longer allow PPE's to be worn in the living quarters of a fire station.

The Firefighter Cancer Support Network (FCSN) recently released a white paper (Refer to Attachment E) on the causes of cancer within the fire service. It provides a discussion as to why there should be new and different spaces, such as PPE storage and cleaning rooms in modern fire stations.

Chapter 9 Facility Safety

"9.1.2 Facility Safety Fire departments shall provide facilities for disinfecting, cleaning, and storage in accordance with *NFPA 1581, Standard on Fire Department Infection Control Program.*

9.1.6 The fire department shall prevent exposure to fire fighters and contamination of living and sleeping areas…."

9.1.7 Any components of the protective ensemble that are contaminated shall not be allowed in sleeping and living areas."

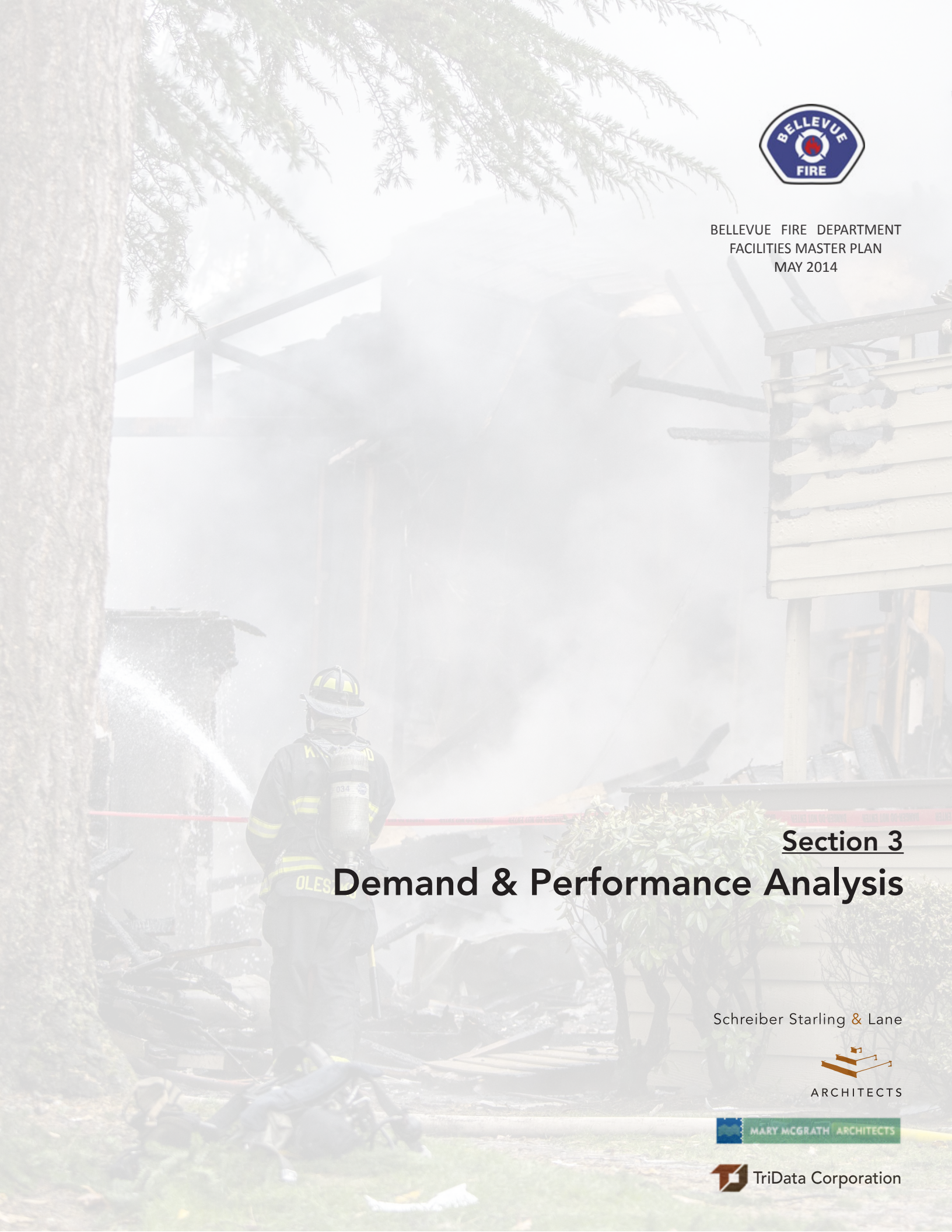
The fire service has evolved its mission from fighting fires to one which also responds primarily to medical related calls for service. The Bellevue Fire Department provides both advanced and basic life support and its firefighters are subject to blood-borne pathogens as a result of providing EMS Services. A modern fire station requires dedicated medical clean-up and storage facilities so that infectious diseases do not contaminate offices and living quarters and so that a tight inventory can be maintained on medical supplies.

Chapter 10 Medical and Physical Requirements

10.3 Health and Fitness.

"10.3.1 The fire department shall establish and provide a health and fitness program that meets the requirements of *NFPA 1583, Standard on Health-Related Fitness Programs for Fire Fighters*, to enable members to develop and maintain a level of fitness that allows them to safely perform their assigned functions."

The fire service had seen the incidents of heart attack and other wellness related diseases increase over the last 20 years and has determined that fitness is an important component of a firefighter's training requirements. As a result, an established BPM for most, if not all, new fire stations are to include a fitness room which allows on-duty personnel to participate in a daily workout. There are many approaches to implementing a wellness plan; from individual workouts as time is available, to an hour-a-day set aside for company workouts. Each requires a different approach to the fitness facility design as was a part of this facility study.



BELLEVUE FIRE DEPARTMENT
FACILITIES MASTER PLAN
MAY 2014

Section 3

Demand & Performance Analysis

Schreiber Starling & Lane
ARCHITECTS

MARY MCGRATH ARCHITECTS

TriData Corporation

3 - DEMAND AND PERFORMANCE ANALYSIS

3.1 General

This chapter reviews factors that can affect demand for fire and EMS emergency services[1] and ultimately performance; specifically addressed are population growth, historical demand for services and fire risk. Where possible, we conducted this analysis at the neighborhood or planning-area level.

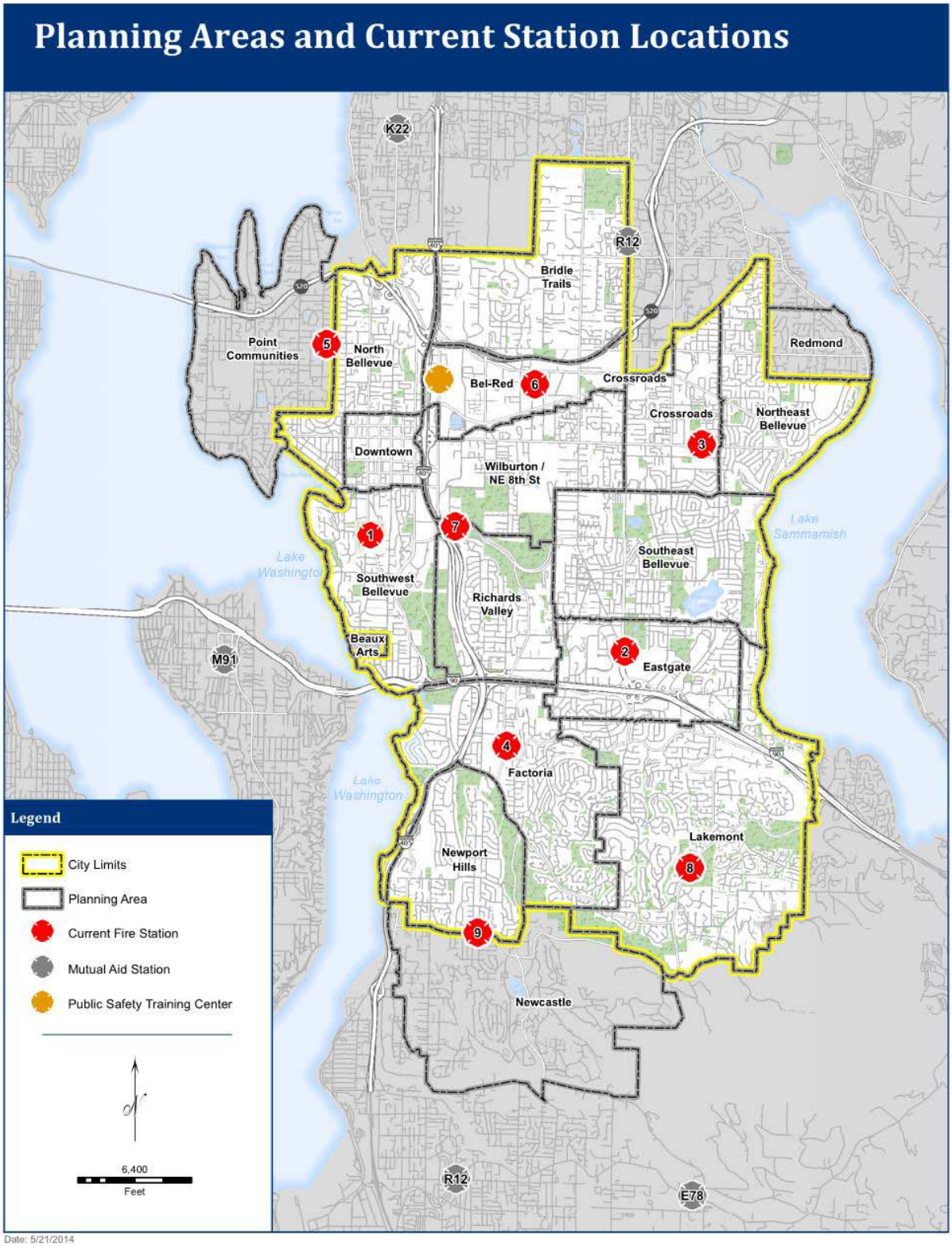
3.2 Planning Areas/Station Locations

Rather than look at the city as a whole, it is considered "best practice" for fire departments to consider risk and demand at a neighborhood or planning-area level because of the variation across them. This report uses the fifteen planning subareas identified by the City of Bellevue Planning and Community Development Department as the basis for analysis. It is important to note that Bellevue has fire service Mutual Aid Agreements (MMA) with the adjacent cities of Renton, Redmond, Kirkland, and Mercer Island. Owing to the complexity of differing data collection, the demand and response impact of adjacent MMA stations was not included in this study.

Subarea boundaries were chosen because subareas are the primary unit by which Bellevue conducts long-range neighborhood planning. Because the Bellevue Fire Department contracts with some neighboring communities for service, we added the following additional areas: the Point Communities, Beaux Arts, and Newcastle. Throughout this report, we refer to the combined planning subareas and additional fire department contract areas as "planning areas" (Figure 3.1).

[1] "Emergency services" throughout the entirety of the document will encompass and refer specifically to fire and EMS emergency service provision.

Figure 3.1 Planning Areas and Current Station Locations



3.2 Aid Unit & Medic Unit Locations

Aid Units and Medic Units serving Bellevue have been located to optimize the following factors:

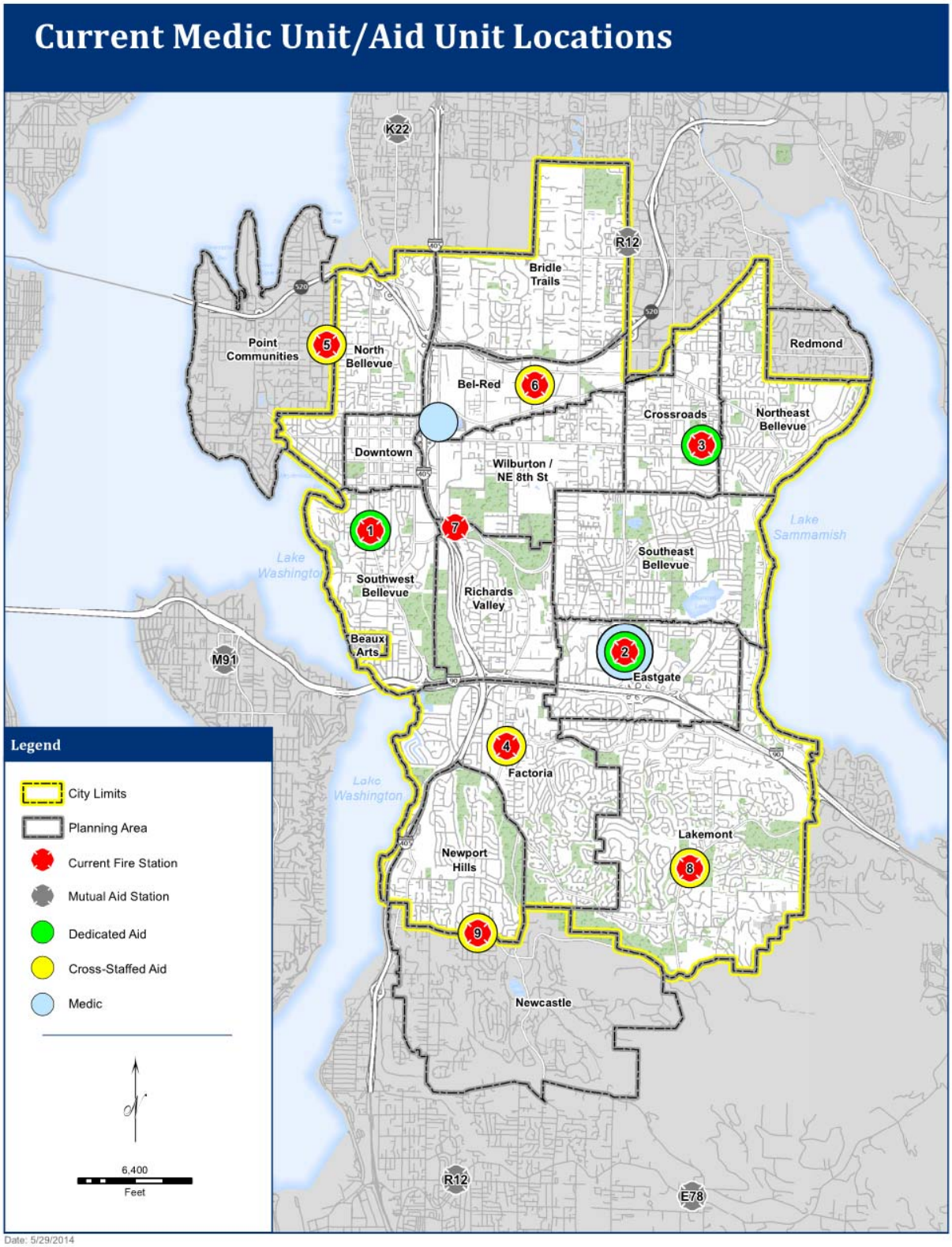
- Close to areas of highest EMS demand
- Situated for good access and coverage throughout the city
- Placed at workload-sensitive fire stations

Figure 3.2 shows the current locations of Medic (ALS) and Aid (BLS) units in Bellevue.

This study did not evaluate the performance or location of two other Medic Units that, while under the operational control of the Bellevue Fire Department, are at locations that are not contiguous to the primary planning areas. These two units are:

- Medic 3 – North Bend Fire Station 87: 112 W. Second St., North Bend
- Medic 14 – Eastside Fire & Rescue Station 73: 1280 NE Park Dr., Issaquah

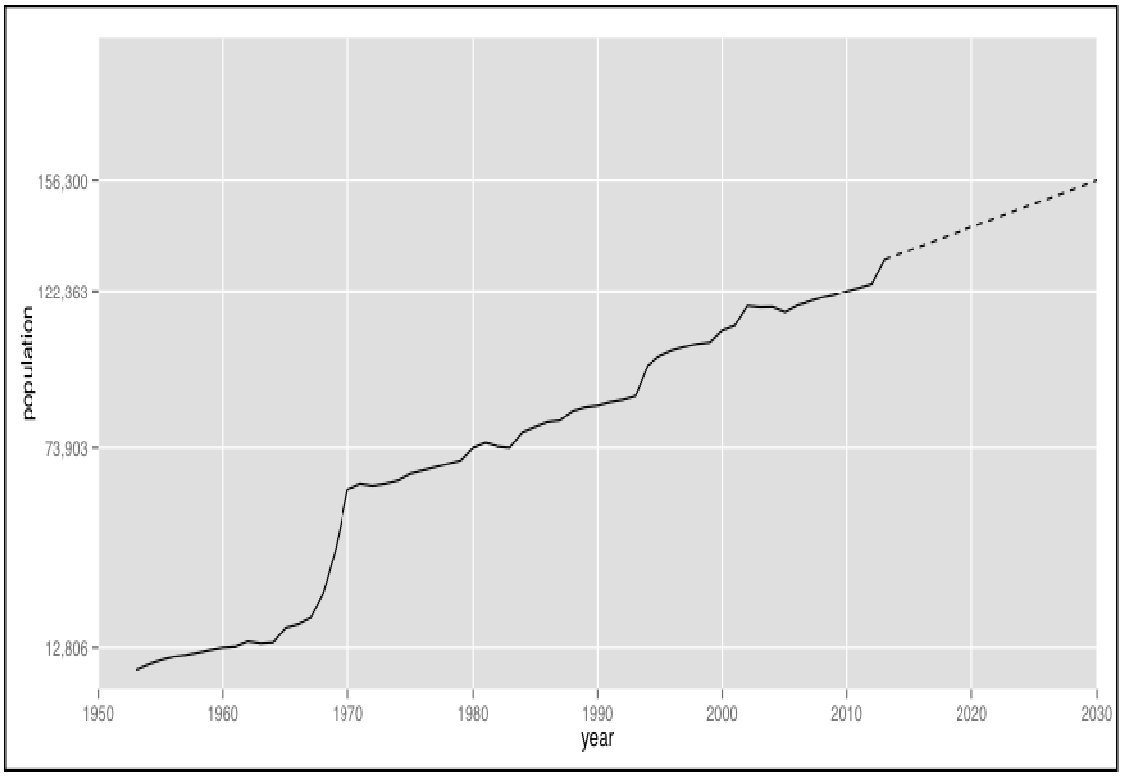
Figure 3.2 Current Aid Unit and Medic Units Locations



3.3 Population Growth

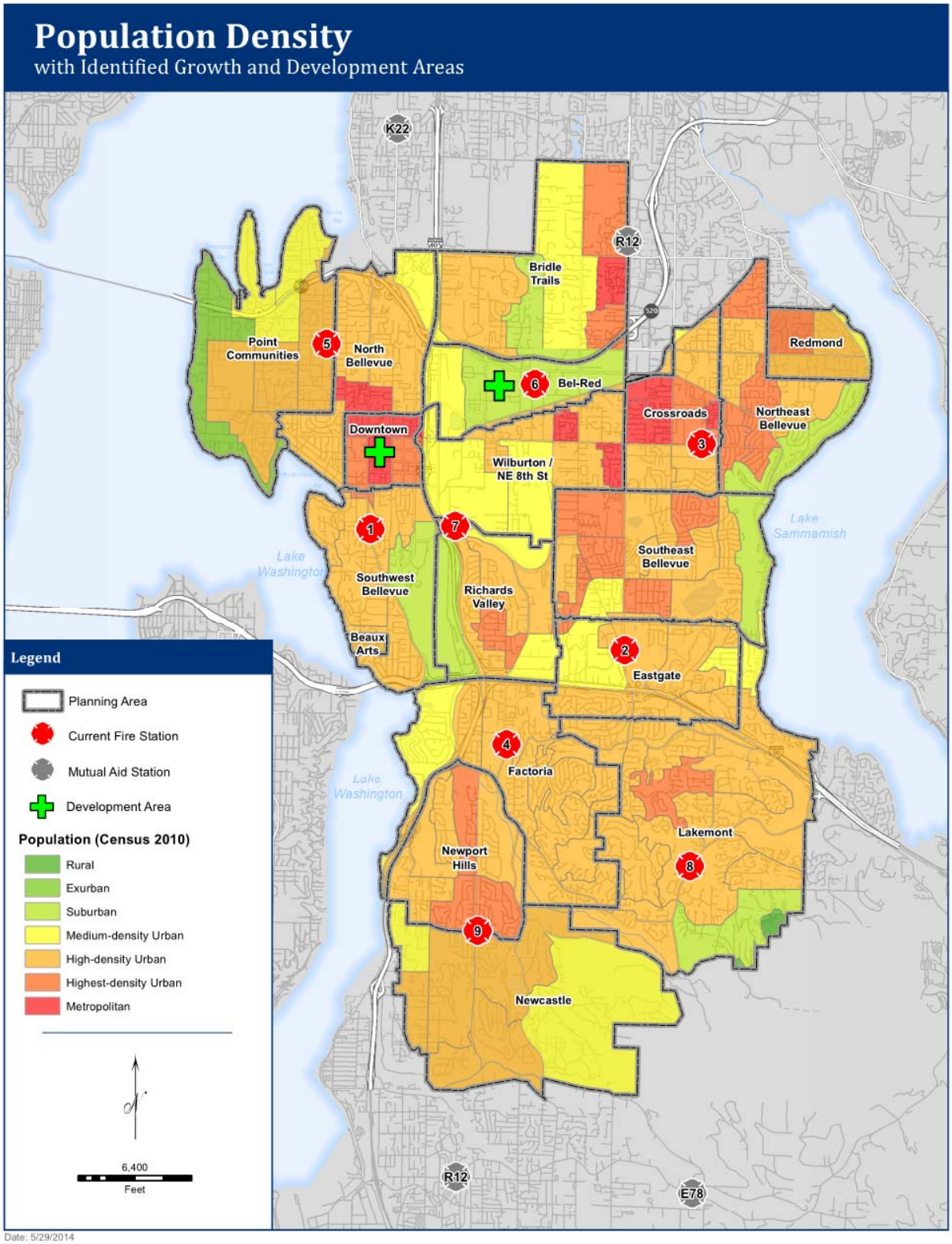
The population of Bellevue has steadily increased since the 1950s, as seen in Figure 3.3. Between 1960 and 1970, there was a dramatic increase in population, with steady growth since then. This steady growth is expected to continue through 2030. The current population is approximately 132,100 and it is projected that by 2030 it will be 156,300.

Figure 3.3 Actual and Projected Population of Bellevue, 1953-2030



As illustrated in Figure 3.4, Bellevue is overwhelmingly an urban area, with a population density of more than 2,000 people per square mile. Additionally, many portions of Bellevue are characterized as metropolitan, meaning they have more than 10,000 people per square mile. This includes the Downtown and some areas around the Crossroads. Demand for emergency services is driven predominantly by population. The areas with the highest population density can expect to have the highest emergency-service demand.

Figure 3.4 Population Density with Identified Growth and Development Areas



3.4 Bellevue Development

Bellevue has some areas of growth and development that have to be considered when planning fire department going forward. Bellevue Planning Department has planning documents and online resources that contain very specific plans; the following are simple overviews of the areas and projects that we believe will have the largest impact on the fire service in years to come.

Downtown

The Downtown has the vast majority of high-rises, and high-rise development is continuing at a fast pace. In the next decade, it is expected that the downtown area will have a significant number of additional jobs and residential population. An additional element leading to downtown development is the plan by Sound Transit for a 19-mile extension of light rail from Downtown Seattle to Bellevue and other cities on the east side of Lake Washington. The East Link line would serve Downtown Bellevue and surrounding neighborhoods as well as the Bel-Red Corridor and on to Redmond.

Bel-Red

The Bel-Red Corridor project is developing a long-term plan for a 900-acre portion of the city that lies directly between Downtown Bellevue and the Microsoft Campus in the City of Redmond. Today, the Corridor is a mix of aging light industrial and general commercial uses. As part of the planning process for this area, the city is assessing the Corridor's role in Bellevue's overall growth management and economic development strategy. The city is also being proactive in determining how light rail should serve the corridor. The preliminary preferred alternative envisions the corridor as a location for a range of businesses as well as many new residents. The market forecast for 2030 includes 4.5 million square feet of commercial space and 5,000 new housing units.

Factoria

While not as dense as the current and planned vertical development downtown, the Factoria area has high-rise development. The City's planning department projects additional growth in this area and as zoning permits higher development, it is anticipated that more high-rises will be constructed in this neighborhood.

3.5 Demand for Fire Department Services

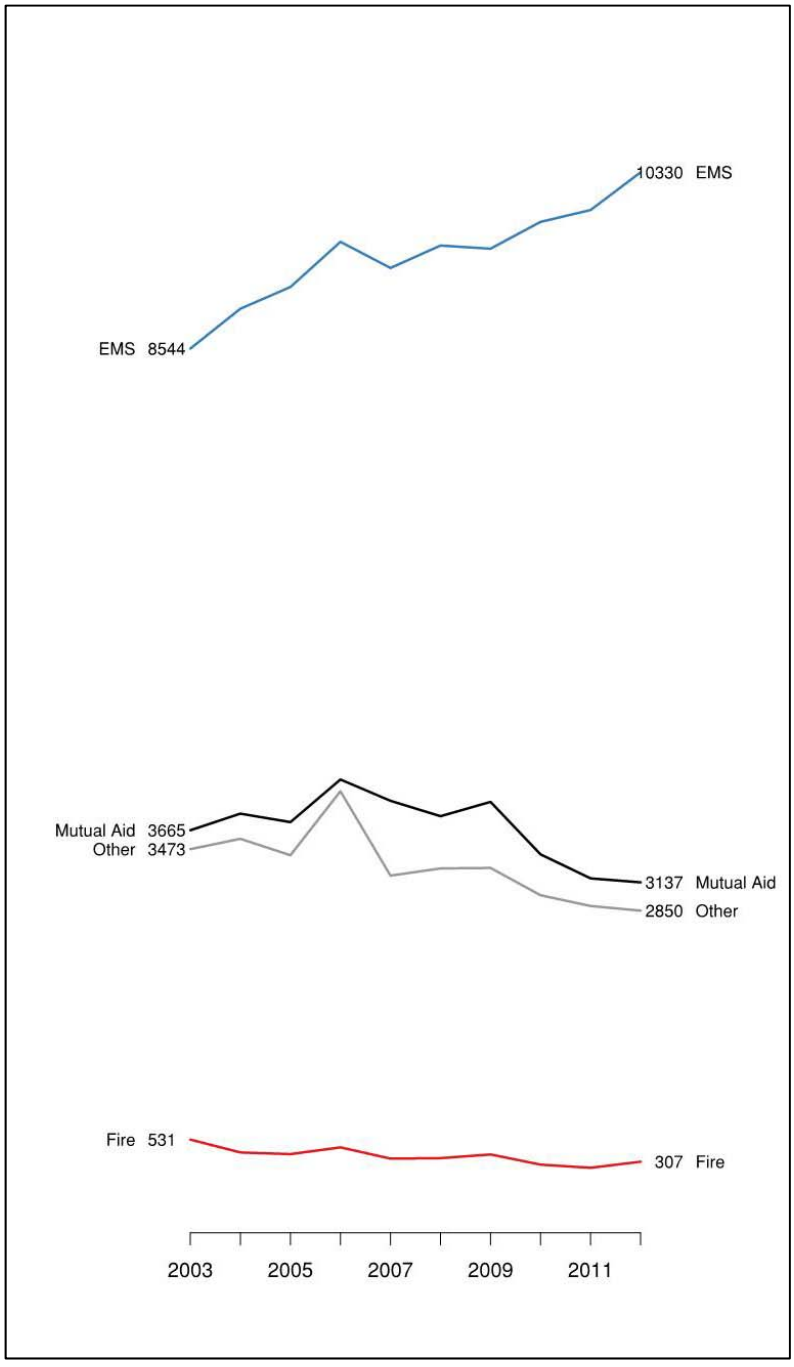
Demand is defined as the number of calls to the fire department for emergency and nonemergency services. In this section, we review trends for the different incident types, compare emergency-service demand by planning area, and map out fire and EMS hotspots. We conclude the section by forecasting the total number of calls (or incidents) through 2020.

Incident-Type Trends

Figure 3.5 shows the incident-type trends from 2003 to 2012 (based on City of Bellevue CAD Data). Although at first glance it may appear that something is wrong with this figure, it actually demonstrates that the Bellevue Fire Department, like most departments around the country, responds to an exceptionally high number of emergency medical service (EMS) calls

compared to other incident types. EMS calls account for about seven out of every ten calls the department responds to. With EMS playing such a dominant role, it is important to consider the trend of EMS calls. In Bellevue, EMS calls have increased over the last ten years. The significantly less common incident types (those bunched at the bottom of the graph) have remained fairly constant over the last ten years, with the exception of fire and alarm calls, which decreased by approximately 38% and 15% respectively over the ten-year period.

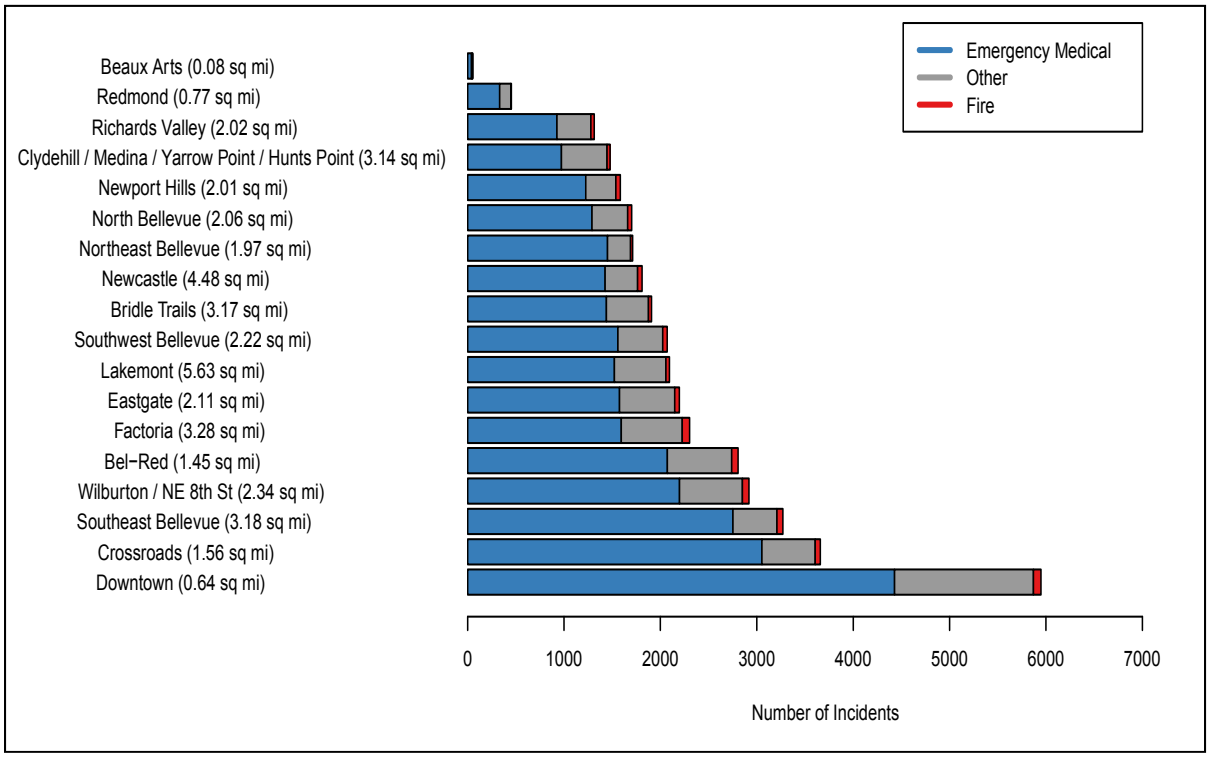
Figure 3.5 Incident-Type Trends, 2003-2012



Demand by Planning Area

Figure 3.6 shows the incident type breakdown by planning area. Within the entire analysis area, EMS incidents are responsible for the majority of emergency-service demand in most of the planning areas. The Downtown, Crossroads, and Southeast Bellevue areas have the highest number of calls. These are also some of the denser areas of Bellevue. Beaux Arts and the area of Redmond covered by BFD had the least number of calls.

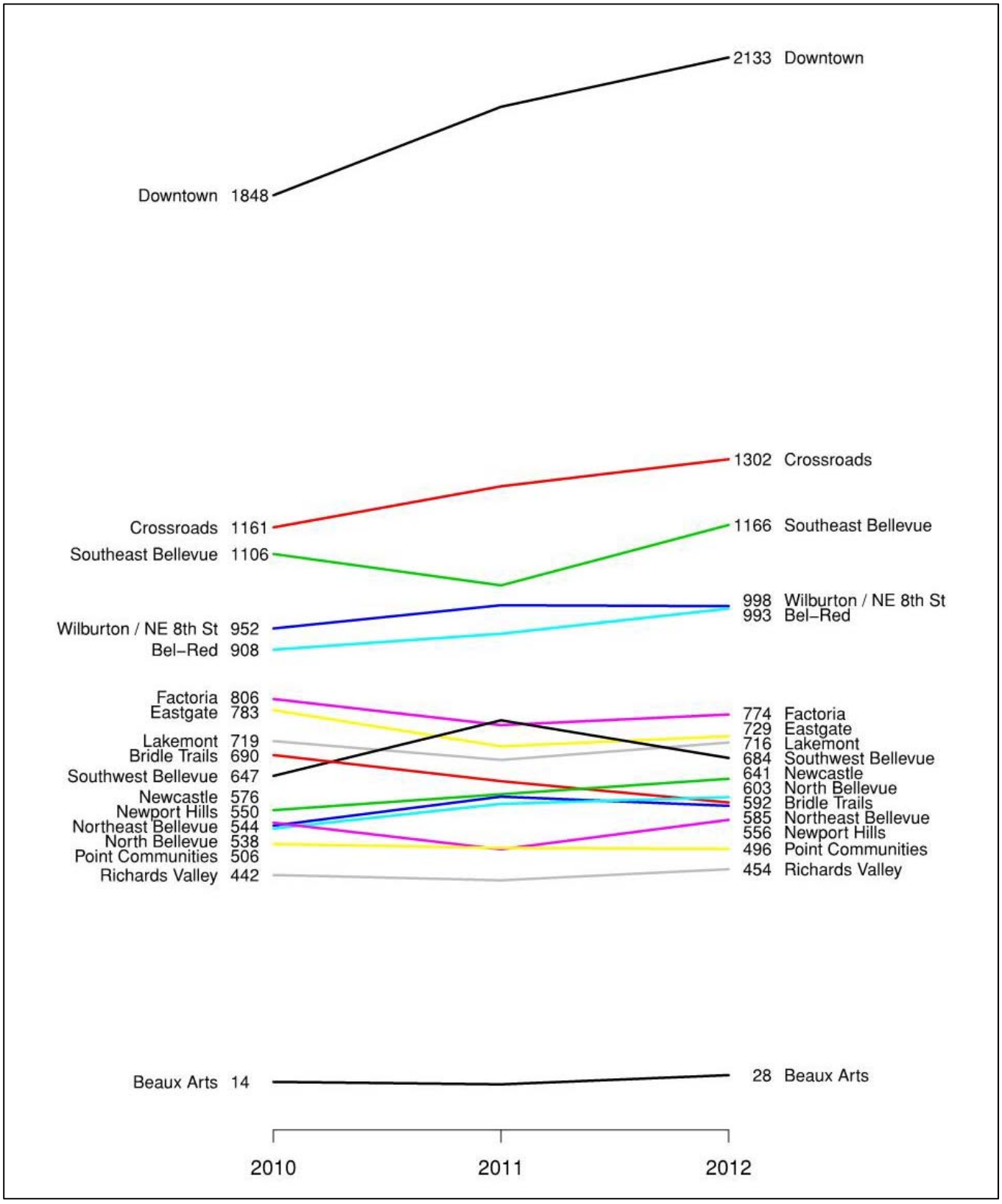
Figure 3.6 Emergency Incidents by Area and Type, 2010-2012



Development & Demand

Bellevue Downtown is a major development area, particularly with high-rise construction. With that increased development comes additional emergency services demand. The following chart (Figure 3.7) shows that out of all the planning areas, the Downtown is seeing the most growth, and this pattern is expected to continue.

Figure 3.7 Emergency Incident Trend by Planning Area, 2010-2012



Geospatial Mapping of Fire and EMS Demand

An efficient way of looking at demand is to map out fire and EMS incident densities using GIS software, which pinpoints high-demand areas ("hotspots"). Figures 3.8 and 3.9 show fire and EMS incident densities, respectively.

The fire incident density map includes all incidents classified as fires in the database of the National Fire Incident Reporting System (NFIRS). This includes structure fires, vehicle fires, and outside fires. This map shows that fire demand generally follows the patterns of population density shown earlier in Figure .3.

The vast majority of fire demand is located in the Downtown, as well as the Crossroads and the intersection of NE 8th Street and 140th Avenue NE. There is also a smaller hotspot north of Station 4 in the Factoria area.

EMS incident density in Figure 3.9 shows a similar hotspot pattern to that of fire density, with the largest concentration of incidents in the Downtown and Crossroads areas. It appears that EMS demand is more concentrated in these two areas than are fire incidents.

Both EMS and fire calls tend to be driven by population. Population density is a good predictor of not only fires, but all emergency incident types–where there are people, there are emergencies. Despite some differences in the pattern of fire and EMS incident density, both generally follow the residential population density shown earlier.

Figure 3.8 Fire Incident Density

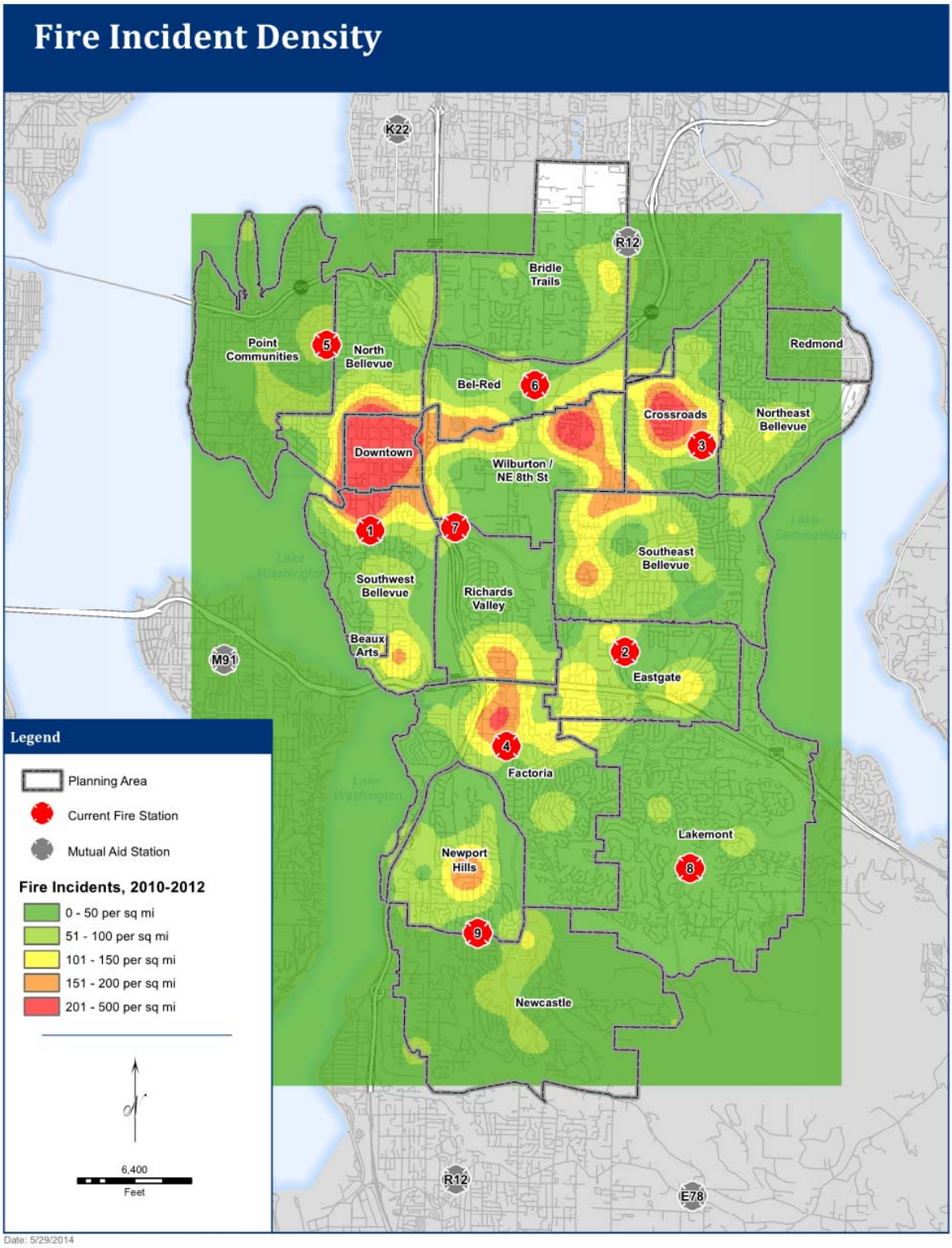
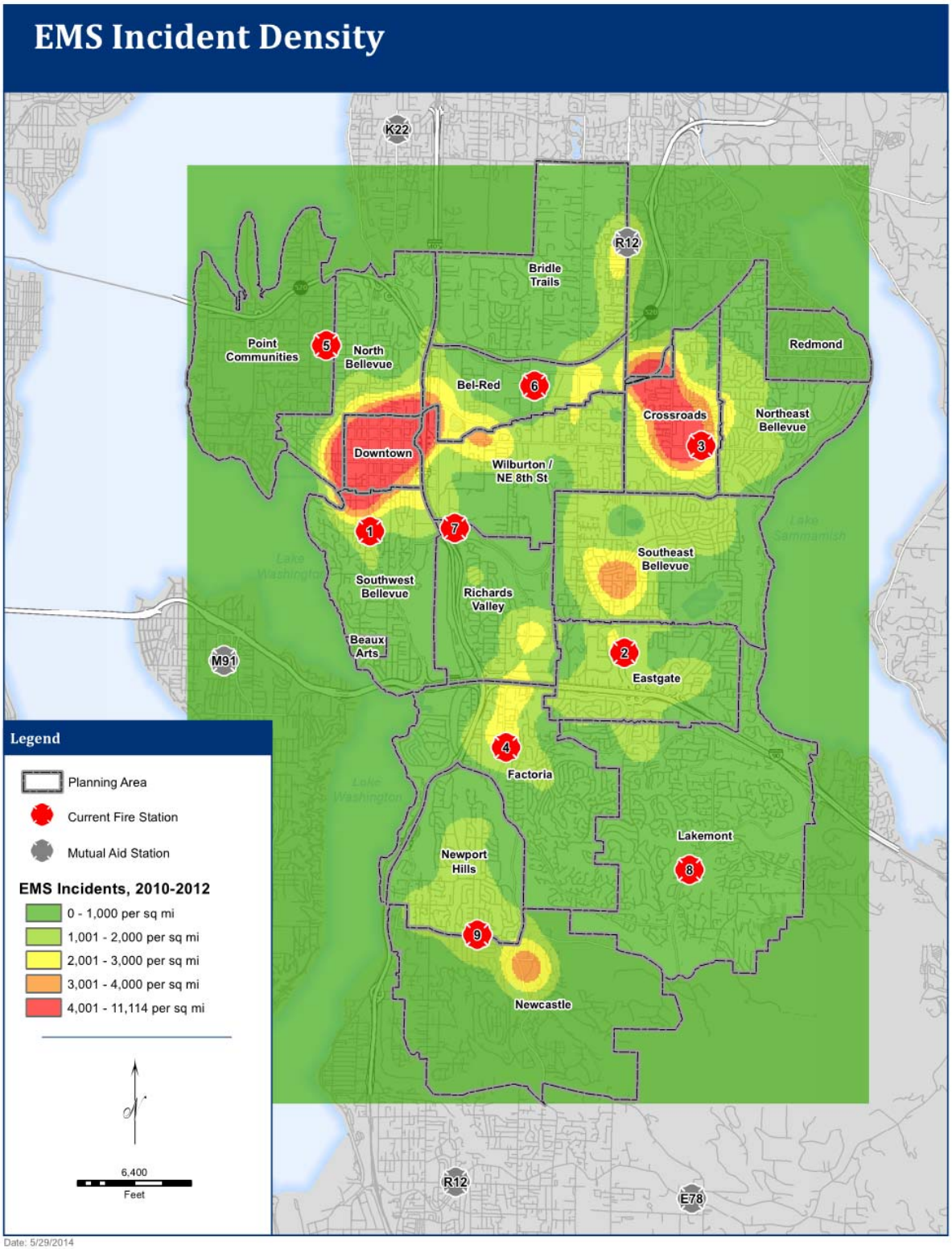


Figure 3.9. EMS Incident Density



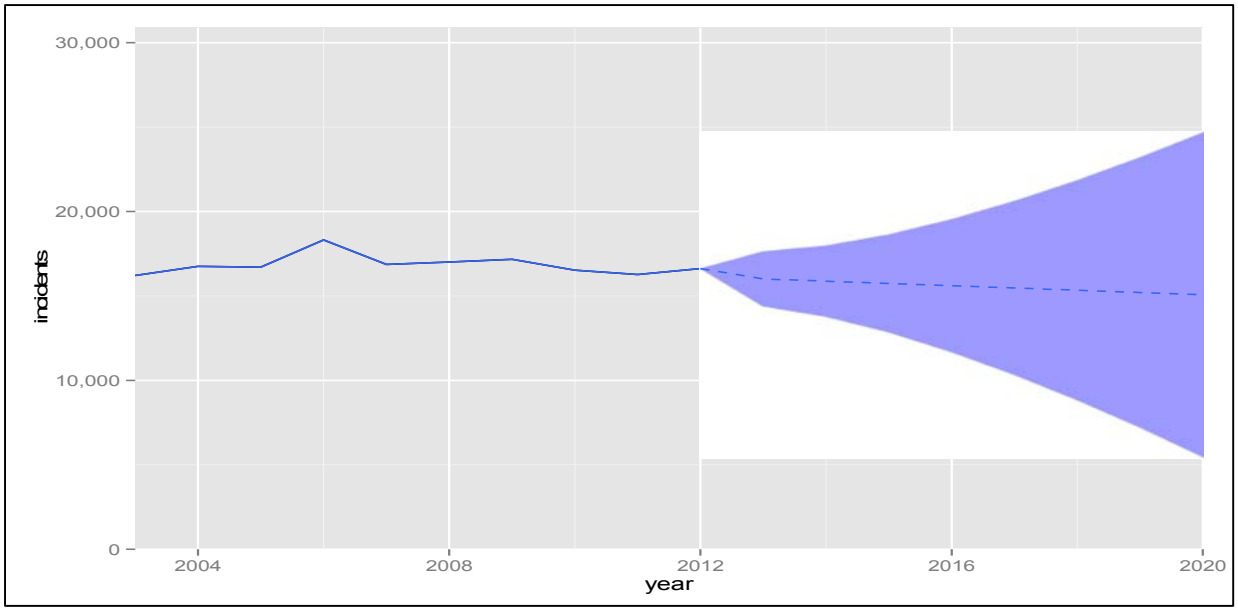
Demand Projections

Using statistical software, a multi-linear regression[2] procedure was used to investigate how both time[3] and population affect the total number of incidents to which the fire department responds. A regression model was used to predict future demand for fire services.

Over the past ten years, the total number of incidents has increased slightly by 3% (from 16,213 to 16,624) and the statistical regression projects that with population and density parameters remaining similar, the total number of incidents will hold steady or slightly decrease over the coming years. However, we know that Bellevue is undergoing significant growth and development, which is not taken into account in the regression. For that reason, it is most likely that demand will actually increase going forward, especially in some areas such as the Downtown and Bel-Red areas.

In Figure 3.10 the solid blue line shows the actual emergency incident totals from 2003 to 2012. The dashed line shows the total emergency-incident projections going forward to 2020. The shaded blue area around our projected incident totals shows what is called the "confidence interval," meaning how certain we can be that the incident total will fall within a specific range. The confidence interval shown is 95%. The blue area is narrower in the near future because we can predict the number of incidents more accurately in the near future. Appendix A.3 provides more information on the projection methodology used for this analysis.

Figure 3.10 Total Emergency-Incident Projections through 2020



[2] Regression analysis is a method of studying the relationships among variables by plotting them on a graph.
[3] Time reflects changes in inclination to use EMS and factors other than population.

3.6 Fire-Risk Analysis

The term "fire risk" refers to two factors: the *probability* that fires will occur and the *consequences* (severity) of fires. Although fires are only a small portion of total emergency-services demand, fire-suppression activities require more personnel than most other emergencies, so it's important to understand risk trends. Future fire risk can be forecast by examining the number and consequences of past fires. The fire-risk assessment in this section evaluates the overall trend in fires in Bellevue, the probability of fires in different planning areas, and the likely severity of fires in those areas. All of these factors are considered for each planning area's overall fire-protection requirements.

Jurisdiction-Wide Fire Losses

One of the best indicators of future fire risk is historical fire-loss data. Table 3.1 shows total fires, dollar loss (defined as both property and contents), and deaths over the last ten years. The data includes structure fires, vehicle fires, and outside fires. On average, Bellevue has about 366 fires and zero fire deaths per year. Annual dollar loss is about $3.8 million dollars.

Table 3.1 Total Fire Losses, 2003–2012

	Total Fires	Dollar Loss	Deaths
2003	531	$3,728,895	0
2004	401	$6,266,838	0
2005	384	$3,391,654	0
2006	452	$3,121,290	2
2007	338	$3,690,905	0
2008	343	$2,694,842	0
2009	380	$5,148,885	2
2010	277	$1,365,134	0
2011	245	$5,549,466	0
2012	307	$3,311,641	0
(average)	366	$3,826,955	0

Table 3.2 compares Bellevue's fire-loss data to regional and national averages from 2003–2012. Bellevue had significantly fewer fires, dollar loss, and civilian deaths than the national and regional averages during this period. These values were also lower when compared to cities having similar populations (100,000-300,000).

Table 3.2 Per Capita Fire Loss and Comparison Statistics, 2003-2012

	Total Fires	Dollar Loss	Civilian Deaths
	(per thousand capita)	(per capita)	(per million capita)
United States	4.4	$40.80	9.8
Region: West	3.1	$30.90	5.7
Population: 100,000 to 249,999	3.3	$33.60	9.2
Bellevue : 2003	4.0	$28.23	0.0
Bellevue : 2004	3.0	$47.44	0.0
Bellevue : 2005	2.9	$25.67	0.0
Bellevue : 2006	3.4	$23.63	15.1
Bellevue : 2007	2.6	$27.94	0.0
Bellevue : 2008	2.6	$20.40	0.0
Bellevue : 2009	2.9	$38.98	15.1
Bellevue : 2010	2.1	$10.33	0.0
Bellevue : 2011	1.9	$42.01	0.0
Bellevue : 2012	2.3	$25.07	0.0
Bellevue : (average)	2.8	$28.97	3.0

Fire Risk by Planning Area

Table 3.3 shows the number and consequences of fires for each planning area for the period 2010 to 2012. The numbers in the tables shown in this section do not exactly match those shown earlier in Table 1 because the tables here only include structure fires, rather than all fires. Structure fires are defined as fires that spread beyond their object of origin (for example, cooking fires that did not extend beyond the pot or stove are excluded from this analysis). The table shows both the total number of fires and the number of fires per square mile. Consequences are compared for each planning area by looking at the dollar value of lost property and contents, civilian deaths, and the number of fires that spread beyond the room of origin (indicating a more serious structure fire).

We normalized[4] the consequence statistics by land area to make them more comparable among planning areas. Finally, the statistics were color coded to visually show high and low values. If the normalized value fell in the lower 25th percentile of incidents or losses, it was coded green. Values in the upper 25th percentile were coded red. The remaining values were left uncolored. Using this technique, it is usually fairly easy to determine which planning areas have higher fire risks (higher probability and/or consequences of fire) and which areas have lower risks.

Overall, the tables show that the Downtown, North Bellevue, Southeast Bellevue, and Wilburton / NE 8th St areas had the highest number of fires per square mile from 2010 to 2012. Beaux Arts and the portion of Redmond covered by the BFD had no fires during this time period. Property and contents losses per square mile were highest in Bel-Red, Northeast Bellevue, Southwest Bellevue, and the Wilburton / NE 8th St areas. There were no fire deaths in any of the planning areas during this period.

[4] In statistics "normalization" refers to adjusting different types of data to a common scale so they can be compared more meaningfully.

Based on the fire-risk figures in this table, we considered the following areas to have the highest fire risk: Downtown, Bel-Red, Wilburton / NE 8th St, Northeast, and Southwest Bellevue.

Table 3.3 Fire Risk, 2010–2012

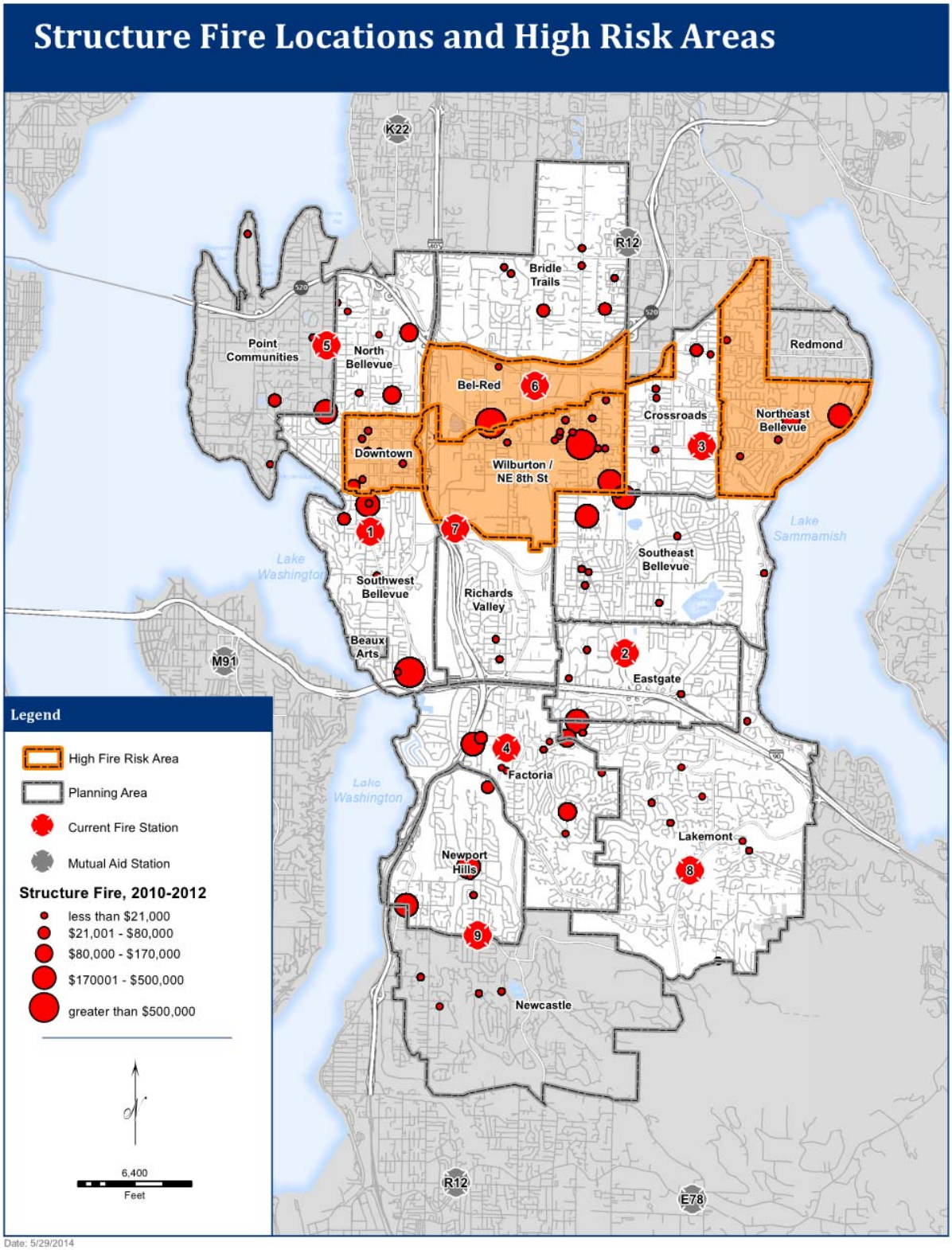
	Fires	(per sq mi)	Beyond Room	(% of fires)	Dollar Loss	(per sq mi)	Deaths	(per sq mi)
Beaux Arts	0	0	0	–	$0	$0	0	0
Bel-Red	4	2.8	1	25	$2,754,550	$1,896,462	0	0
Bridle Trails	7	2.2	1	14	$114,000	$35,916	0	0
Clydehill / Medina / Yarrow Point / Hunts Point	6	1.9	3	50	$315,000	$100,400	0	0
Crossroads	4	2.6	1	25	$29,650	$19,014	0	0
Downtown	9	14	4	44	$84,100	$130,875	0	0
Eastgate	2	0.9	1	50	$15,000	$7,106	0	0
Factoria	8	2.4	3	38	$494,500	$150,593	0	0
Lakemont	11	2	4	36	$411,420	$73,114	0	0
Newcastle	6	1.3	2	33	$515,050	$115,006	0	0
Newport Hills	4	2	2	50	$228,200	$113,677	0	0
North Bellevue	7	3.4	3	43	$254,775	$123,795	0	0
Northeast Bellevue	5	2.5	3	60	$520,600	$263,753	0	0
Redmond	0	0	0	–	$0	$0	0	0
Richards Valley	2	1	1	50	$11,400	$5,641	0	0
Southeast Bellevue	10	3.1	3	30	$470,325	$147,674	0	0
Southwest Bellevue	6	2.7	3	50	$1,031,000	$463,527	0	0
Wilburton / NE 8th St	12	5.1	5	42	$937,600	$401,255	0	0

Note: Green indicates lower and red indicates higher risk than average based on recent fire incidents

Geospatial Location and Severity of Fire Incidents

To evaluate the appropriateness of fire unit locations, it helps to understand where the more serious structure fires are occurring. Figure 3.11 shows the location and severity of Bellevue's structure fires, shown by red circles, in the years 2010 to 2012. The sizes of the circles are scaled to the dollar amount of fire loss. We have also outlined the areas that were considered "high fire risk" in the previous section. Although there does not appear to be any unusual pattern in the location or size of structure fires, we used this map when considering the appropriateness of current fire station locations and any recommended alternatives.

Figure 3.11 Structure Fire Locations and High Risk Areas



3.7 Station Location Analysis

For this part of the study, we reviewed current station and unit performance with respect to the emergency-service needs of Bellevue's various planning areas. To do this, we analyzed response-time performance (both citywide and by planning areas), current unit workloads, and the relationship between unit availability and response-time performance. We also conducted a station coverage and overlap analysis using GIS software.

Response Time

Response time is the most common performance measurement used by the fire service because it is understood by citizens, easy to compute, and useful in the evaluation of end results. Rapid response is also an aspect of service quality that citizens care about. There have been a few attempts to measure the incremental value of a one-minute faster response time for fires and EMS calls, but there is no definitive study of the incremental benefit. Faster is better, but it is unclear how much better in terms of dollars or lives saved. In place of true measures of outcome, response time is often used as a substitute.

In this response-time analysis, we show average times, 80th-percentile times (meaning that a time standard was met 80% of the time), and 90th-percentile times. Although averages are commonly used in other fields to summarize results, average response times are used less frequently by the emergency-service industry because small numbers of very short or long response times and data errors can distort the results. We show the average response times mostly because jurisdictions often want to know what their average times are, but fire departments should never gauge performance strictly on average response times.

The public is interested in how fast a system responds to most calls, which is better reflected in percentile/threshold times (how often the system responds within the established standard) than average times. More and more departments have adopted the 90th percentile for reporting response times, mostly due to use of this measure by the National Fire Protection Association (NFPA). Essentially NFPA Standard 1710 says fire departments should achieve the following:

- Call-processing time under 60 seconds 90% of the time
- Turnout time under 60 seconds 90% of the time for EMS responses
- Turnout time under 80 seconds 90% of the time for fire responses
- Travel time under four minutes 90% of the time

Most fire departments base their response metrics on NFPA 1710, but few are actually meeting the standard, especially with respect to travel time, which is the hardest to improve. Meeting the 90th-percentile goal is not always the most efficient means for delivering emergency services as recognized by the Center for Public Safety Excellence (CPSE). A system designed for 90% compliance allows only 10% of calls to have response times that exceed the target goal time. Although it is certainly possible to design a system with 90% compliance for all areas of a jurisdiction, it is usually not a cost-effective strategy. Urban areas close to several fire stations should have high compliance, but it does not always make sense to dictate such high compliance for more suburban areas. NFPA 1710 acknowledges that it would not make sense to apply the same goal times to rural areas.

Finally, almost no departments actually achieve 90% compliance with NFPA 1710. The CPSE Standards of Cover Manual uses 80th-percentile times as a suggested performance criterion, which we have followed in our analysis. In this report we have referred to this as the Current Response Standard (NFPA 1710 time-segment objective at the 80th percentile level).

Ultimately, the best way of determining appropriate performance-measurement metrics is for city and fire-department officials to set those metrics for each individual planning area based on the demand and risk. To reduce fire loss and improve deployment efficiency, it is best to place resources where they can do the most good, rather than treating every area the same, as traditional fire-deployment practices dictate.

Our analysis of BFD response times included only incidents dispatched as an emergency. As BFD collected more data than the NFPA Standard, we eliminated service calls from the response-time analysis and included only frontline pumping and aerial apparatus for fire incidents and only first-response-capable units for EMS calls. These eliminations were applied to keep the analysis in direct comparison to the NFPA 1710 Standard.

For all time segments, we analyzed one year of data. We eliminated those time segments that were more than three standard deviations from the mean (outliers). Three times the standard deviation was used because if travel times have a normal probability distribution, 99.7% of incidents are expected to fall within three standard deviations of the mean. Anything more than three standard deviations is likely to be an error in the data or a highly unusual situation.

Time Elements

NFPA 1710 analyzes total response time as a combination of four time elements:

- Call Processing Time
- Turn-out Time
- Travel Time
- Initiating Action/Intervention Time

As this is a study dealing primarily with facilities, we will focus on addressing Turn-out and Travel Time, as these factors are most impacted by station configuration/capacity and location. An analysis of all the time sections is provided in Appendix A-5.

Turn-out (or Reaction) Time

NFPA 1710 defines turn-out time as "the time interval that begins when the emergency response facilities (ERFs) and emergency response units (ERUs) notification process begins by either an audible alarm or visual annunciation or both and ends at the beginning point of travel time." The standard specifies an "80 second turnout time for fire and special operations response and a 60 second turnout time for EMS response."

The analysis of Bellevue's turnout times against the Adjusted Standard showed poor turn-out times. For fire and special-operations responses, an average turn-out time of 1:52 was noted,

32 seconds greater than the Adjusted Standard. For EMS responses, the average turnout time is 1:26, 26 seconds greater the Adjusted Standard. (See Appendix A)

Travel Time by Hour of the Day and Incident Type

Travel time is the time interval that begins when a unit is en route to the emergency incident and ends when the unit arrives at the scene. Travel time is a function of geography, road conditions, traffic congestion, and the number and location of fire stations with respect to the location of incidents. NFPA 1710 recommends "240 seconds or less travel time for the arrival of the first arriving engine company at a fire suppression incident" and "240 seconds or less travel time for the arrival of a unit with first responder with automatic external defibrillator (AED) or higher level capability at an emergency medical incident." *(Note, Bellevue Police vehicles carry AED however their response time was not factored into the analysis as they are not primary EMS responders)*

The analysis of Bellevue's travel times against the Adjusted Standard indicates travel times slightly higher than Adjusted Standard. Travel time for all emergency incidents was 4:49, which is slightly longer than the objective of four minutes. Travel times were 4:47 for EMS incidents and 5:29 for fire and special-operation incidents. For purposes of analyzing travel times, 5 minutes will be used as the goal of this plan is to provide a way for BFD to maintain its current level of response as the city changes in the future.

While the overall performance of the BFD is close to the standard, it is more important to look at whether travel times for different areas of the city are sufficient for the planning-area risk levels discussed earlier in order to identify deficiencies that need action. Unlike call-processing time and turnout time, which can be addressed somewhat universally, travel time is better addressed area by area. The next section includes a breakdown of total response times and travel times by planning area.

Total Response Time

Total response or reflex time is the most important time segment because it combines all of the time segments and is one of the measures by which the public evaluates the effectiveness of fire and EMS service. By adding the NFPA segment time standards, we calculate that total response time (call received to first unit on-scene) should be less than 6:00 minutes for EMS incidents and less than 6:20 minutes for fire and special-operations incidents.

The analysis of the BFD's total response times against the Adjusted Standard showed slightly higher total response times for EMS incidents and much higher response times for fire and special operations incidents. The total response time for EMS incidents averaged 6:45 minutes, 45 seconds longer than the Standard. Fire and special-operations incidents had an average response time of 8:01, over one and a half minutes longer than the 6:20 time objective.

Table 3.4 shows the 80th-percentile response times for each planning area. These tables depict fire department response time (FD Reflex) and total response time (Total Reflex).

Total response times for the planning areas range from a low of 6:09 for the downtown and Bel-Red areas to a high of 9:00 for the portions of Redmond served by the BFD. The average time for all planning areas is 6:52, with most planning areas having a total response time in the six- to seven-minute range.

Table 3.4 80th-Percentile Response Time by Planning Area, 2012

	Travel	FD Reflex	Total Response
Beaux Arts	6:15	7:35	8:13
Bel-Red	4:01	5:12	6:09
Bridle Trails	4:46	5:53	6:49
Crossroads	4:23	5:38	6:36
Downtown	4:05	5:15	6:09
Eastgate	4:45	5:52	6:41
Factoria	5:23	6:26	7:21
Lakemont	5:51	6:57	7:52
Newcastle	5:44	6:56	7:36
Newport Hills	5:02	6:08	6:58
North Bellevue	4:47	6:03	6:48
Northeast Bellevue	5:26	6:52	7:28
Point Communities	5:02	6:09	6:51
Redmond	6:26	8:33	9:00
Richards Valley	4:37	5:54	6:45
Southeast Bellevue	5:06	6:18	7:08
Southwest Bellevue	4:12	5:21	6:16
Wilburton / NE 8th St	4:47	6:02	7:00
(all)	4:51	6:01	6:52

Workload Analysis

For this study we analyzed the call types and workload for each BFD unit. Unit workloads have an effect on response-time performance because as units become busier, they are unavailable more of the time to respond to the calls where they would be first-due. Generally, units in high-demand areas with closely spaced stations can get away with higher workloads because other stations can adequately cover their first-due areas. More suburban and rural areas, where fire station coverage areas do not overlap as much, are more susceptible to response-time issues, especially when workloads become heavy during certain portions of the day.

Medics

Analysis shows that in 2012 medic units spent an average of 2.8 unit hours each day responding to 4.4 incidents (10). The average time spent on each medical call was just over half an hour (0.66 hours).

Ladder Trucks

Ladder Trucks averaged 1.3 unit hours responding to 4.1 incidents per day in 2012. Ladder 3 had the most responses (1,513) and Ladder 1 had the fewest (1,473). The average time spent on each call for ladder trucks was about 20 minutes (0.31 hours).

Engines

Engines averaged 1.5 unit hours responding to 3.5 calls each day. Engine 6 had the most responses (2,123) and Engine 8 had the fewest responses (561). With engines spending an average of 1.5 hours on actual calls, they are still available for 22.5 hours of the day.

Aid Cars

Aid Cars averaged 3.9 unit hours responding to 6.5 calls each day. Aid 1 had the most responses (2,542) and Aid 2 had the lowest number of responses (2,194). The average time spent on each call for aid units was about 40 minutes (0.61 hours).

Overall, the workload of BFD units varies from low to high, depending on the unit type. (See Appendix A.2 for a detailed description and reporting of workload levels.) Note that as Bellevue's population increases, demand and workload will also increase.

Unit Availability vs. Performance Analysis

In order to ensure effective emergency coverage, it is necessary to accurately evaluate current performance reliability of fire stations and to predict how performance might change as specific conditions change, such as an increase in calls due to growth and development.

The Center for Public Safety Excellence (CPSE) has devised a method of performance evaluation based on studying the interaction between two factors: *unit availability* (how often the intended closest unit is available to handle calls) and *performance* (how often the travel time is within the desired response time). This method is based on the observation that as the availability of the first-due unit declines (due to system overload) response times increase because other units have to respond from farther away. At some point the response times

fall below an acceptable performance standard. By graphing those two factors we can assess current system performance and monitor it over time, predict the point of unacceptable performance, and evaluate possible changes to avoid overload.

Areas that have fewer units available or are farther from neighboring stations are more impacted than others by an increase in the number of emergency calls. They have greater *workload sensitivity*—as the workload increases their ability to meet the demand decreases. Stations with more units or which are closer to other stations that can render assistance have lower workload sensitivity. Stations with high workload sensitivity are of concern.

Appendix A provides a more detailed explanation of this type of analysis.

Using NFPA 1710, the performance objective would be a 4-minute travel time. As you can see from 3.12a, only one station meets the NFPA Standard adjusted to the 80% percentile. Similar to the CSPE recommended adjustment of response time goal achievement, we use a "maintenance of Current Response" standard with a 5-minute travel time (Figure 3.12 and Table 3.5), recognizing that with the geography and roadway network in Bellevue, it is frequently not possible or reasonable to expect a 4-minute travel time in all areas of the city.

Figure 3.12a Unit Availability vs. Performance Analysis, 4-Minute Travel, 2012

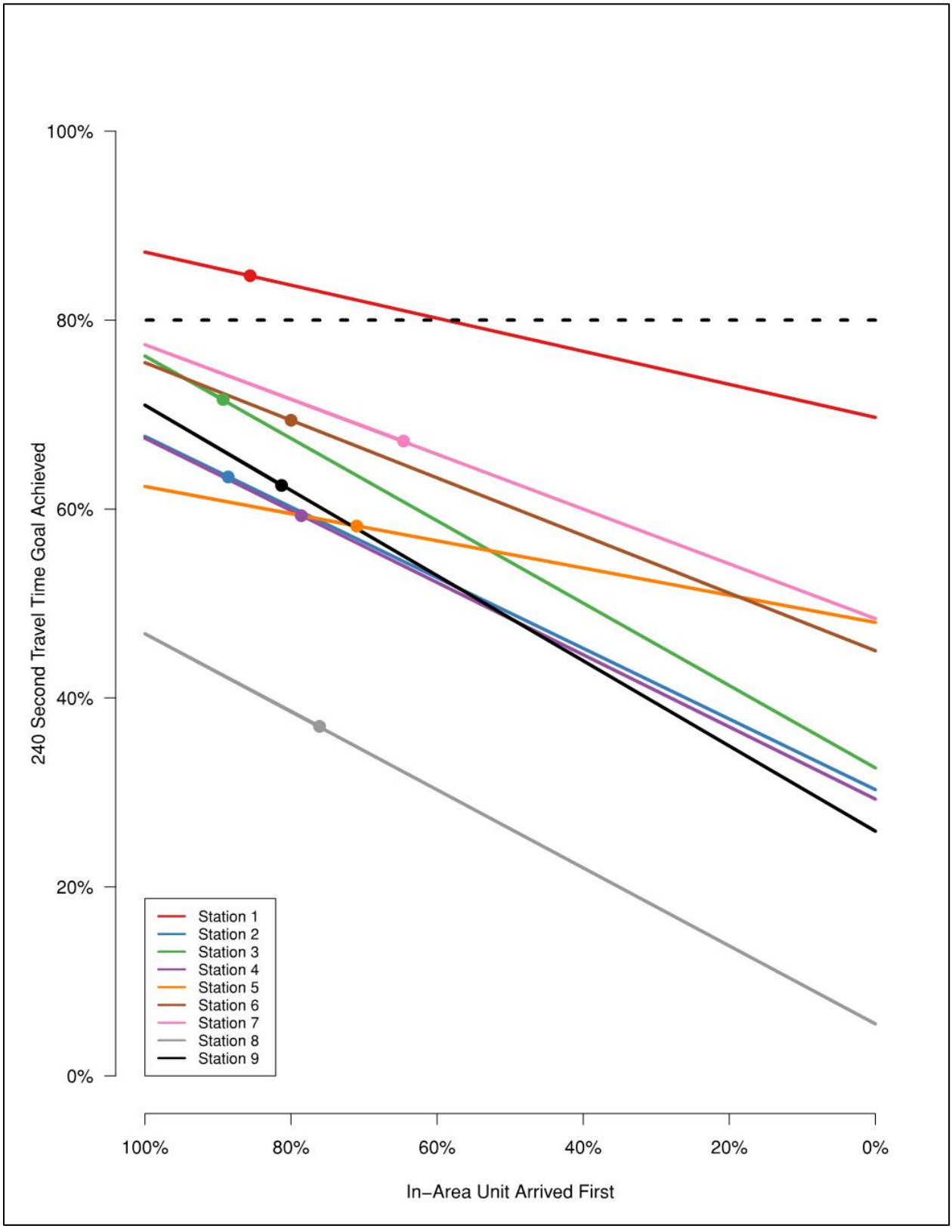


Figure 3.12b Unit Availability vs. Performance Analysis, 5-Minute Travel, 2012

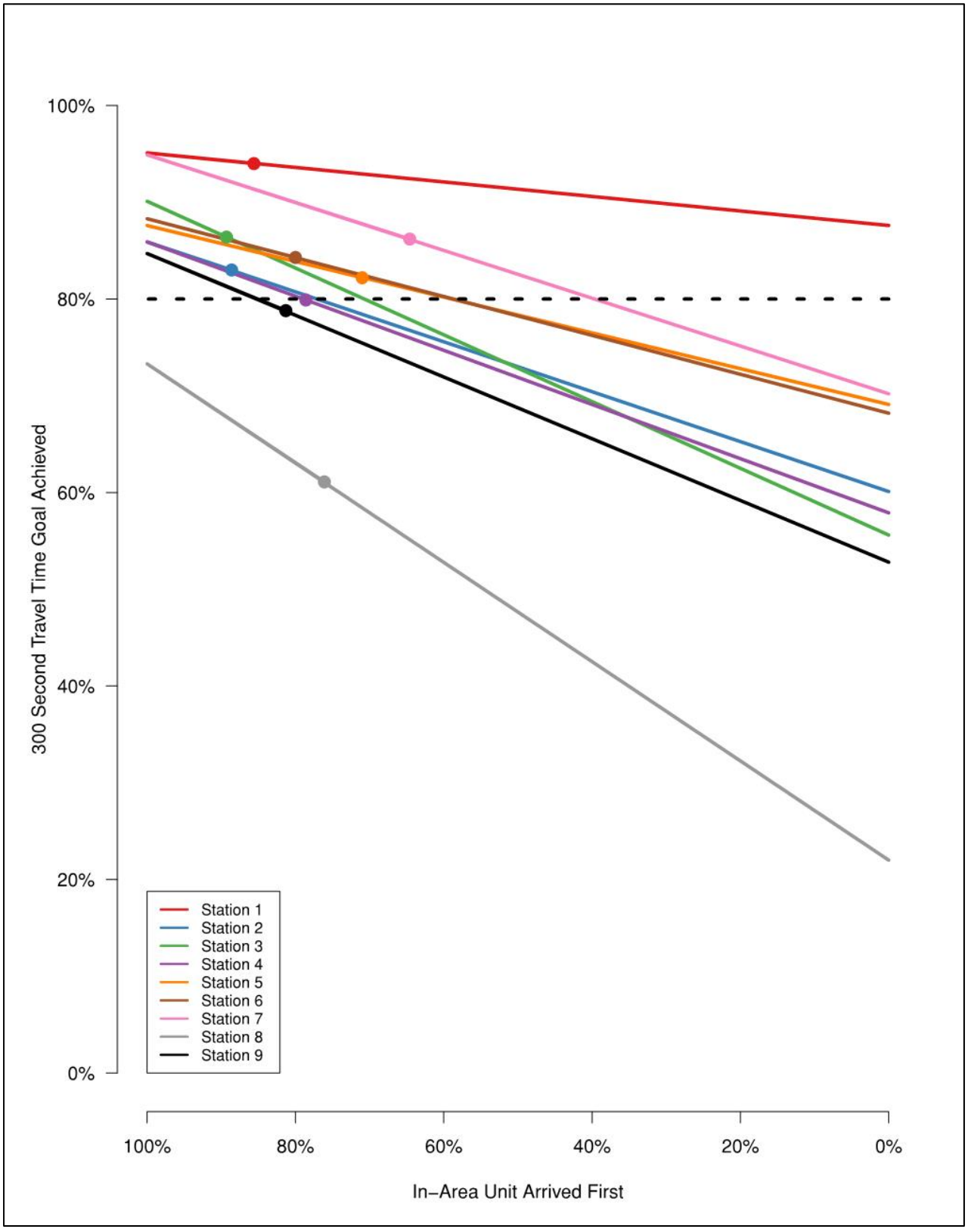


Table 3.5 Unit Availability vs. Performance Analysis, 5-Minute Travel, 2012

	All Units	In-Area Units Only	Out-of-Area Units Only
Station 1 (86% in-area units)	94.0 %	95.1 %	87.6 %
Station 2 (89% in-area units)	83.0 %	85.9 %	60.1 %
Station 3 (89% in-area units)	86.4 %	90.1 %	55.6 %
Station 4 (79% in-area units)	79.9 %	85.9 %	57.9 %
Station 5 (71% in-area units)	82.2 %	87.6 %	69.1 %
Station 6 (80% in-area units)	84.3 %	88.3 %	68.2 %
Station 7 (65% in-area units)	86.2 %	94.9 %	70.2 %
Station 8 (76% in-area units)	61.1 %	73.3 %	22.0 %
Station 9 (81% in-area units)	78.8 %	84.7 %	52.8 %

We can see from the analysis that Stations 8, 9, and 4 do not meet the 5-minute travel time objective at least 80 percent of the time. The analysis generally shows that the current number/location of fire stations in Bellevue should be targeted toward keeping travel times under 5 minutes except in the Downtown which, due to vertical travel times, should have a target travel time of 3 minutes.

Stations in Bellevue are fairly evenly spread out. The layout of fire stations could be described as efficiently spaced to provide good coverage without significant overlap among stations. There is one station with a depressed line level (the bottom line on the graph in Figures 3.12a and 3.12b that may indicate a location issue at Station 8 which is impacted the most by terrain.

Most of the stations have a moderate level of workload sensitivity because travel-time performance drops as unit availability decreases. The two exceptions are Station 1 and Station 8. Station 1 has a low level of workload sensitivity because travel-time performance remains fairly good even when unit availability decreases. Station 8, on the other hand, has a high level of workload sensitivity because performance declines drastically when unit availability decreases. This makes sense because of the geographic layout of stations. The area covered by Station 8 is very difficult for other units to respond to in a short time if Station 8 does not have a unit available.

The stations that are of highest concern are Stations 2 and 5, whose performance is close to falling under the 80-percent threshold, and Stations 4, 8, and 9, whose performance is already under the threshold.

GIS Station Coverage Analysis

This section presents an analysis of the coverage that is provided by the current Bellevue Fire Department station locations. This analysis was put together using Geographic Information System (GIS) software. Figure 3.13 shows the current location of all Bellevue fire stations, as well as the theoretical travel time from each of the stations. Areas in dark green can theoretically be reached in four minutes, and areas in light green can be reached in six minutes. It is important to note that areas with the existence of or potential for concentrations of high-rise buildings need to be reached faster (three minutes) because there is a vertical response time component.

Downtown Response Factors

Geography

There is a unique geographical issue with Bellevue's Downtown area that can impact the effectiveness of response. Although there is somewhat contiguous land around the north, east, and south of the downtown, the area has two stations, 1 and 5 that essentially service their own "peninsula" due to roads, water, and geography. When any station is on call, there is an inherent lower level of service in its area, but this is particularly true at Stations 5 and 1, the primary Downtown responders. When either Station1 or 5 leaves their area to service the Downtown, they are leaving their area with lower response capability than other parts of the city because other stations have to travel a longer distance to cover these areas. Good fire planning tries to make sure that call volume remains relatively low for stations in such areas that cannot be reached quickly, but this cannot be realized at these stations given the increased demand for service in the downtown area.

Vertical Response

It is clear that there is a significant difference in total response time for a patient/fire located in a typical residential single-family home and a patient/fire at the top of a 40-story high-rise. The difference is vertical response time, which can be defined as the time needed to travel from the apparatus to the patient or seat of the fire. It is estimated that vertical response time for high-rise buildings ranges from 4-6 minutes (for EMS using elevators) and much longer for a firefighting team using stairs.

A six-minute total response time (NFPA 1710) is simply not achievable when adding 4-6 minutes of vertical response time. To account for the added time to ascend a high-rise, either by stairs or elevator, BRM for fire planning is to reduce the target travel-time to three-minutes. The addition of new high-rise buildings in Downtown, Bel-Red, and Factoria will certainly create more instances with a need to account for vertical response.

Figure 3.14 shows the three-minute coverage from stations near the Downtown area. These maps help to answer three critical questions:

1. Are most areas of Bellevue reached within four minutes, which equates to a six-minute total response time (assuming two minutes for dispatch and turnout)?
2. Are areas of Bellevue with high-rise buildings reachable within three minutes to allow additional time to reach the upper floors?

3. Are the areas with greater than six-minute travel times limited to those with low risk and low demand?

The current fire station layout covers the vast majority of the city within four minutes' travel time with some small exceptions. There are areas in the Downtown, Bel-Red and Factoria with (or with the possibility of) high-rise buildings that are not covered within three minutes' travel time. The areas that can expect longer response times are generally low-risk and low-demand areas located on the very perimeter of the city limits.

Within Bellevue (Figure 3.13), there are coverage gaps (indicated by blue circles on the maps) in Redmond, eastern portions of Southeast Bellevue and Eastgate, the highlands area (Factoria and Lakemont), and southern Newcastle. Coverage gaps are based upon areas that exceed 6 minutes travel time. None of these areas are particularly high-demand areas.

The Downtown area, with many high-rise buildings, is currently not fully covered within three minutes from the nearest stations. Station 1 provides the best coverage of the Downtown and does provide three-minute coverage to large portions of the Downtown. Station 1 cannot, however, cover the northeast and northwest portions of the Downtown.

Figure 3.13 Current Fire Station Coverage

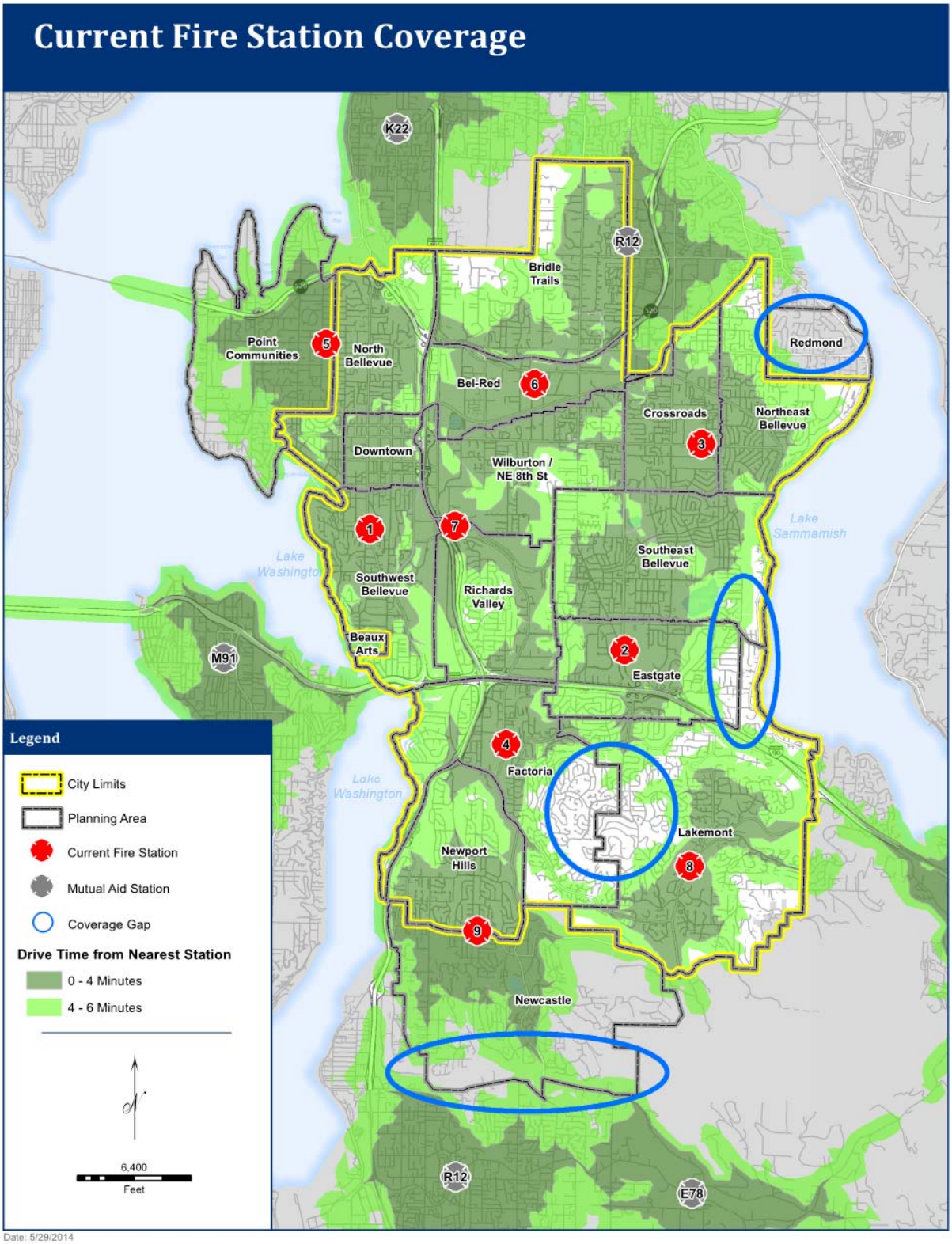
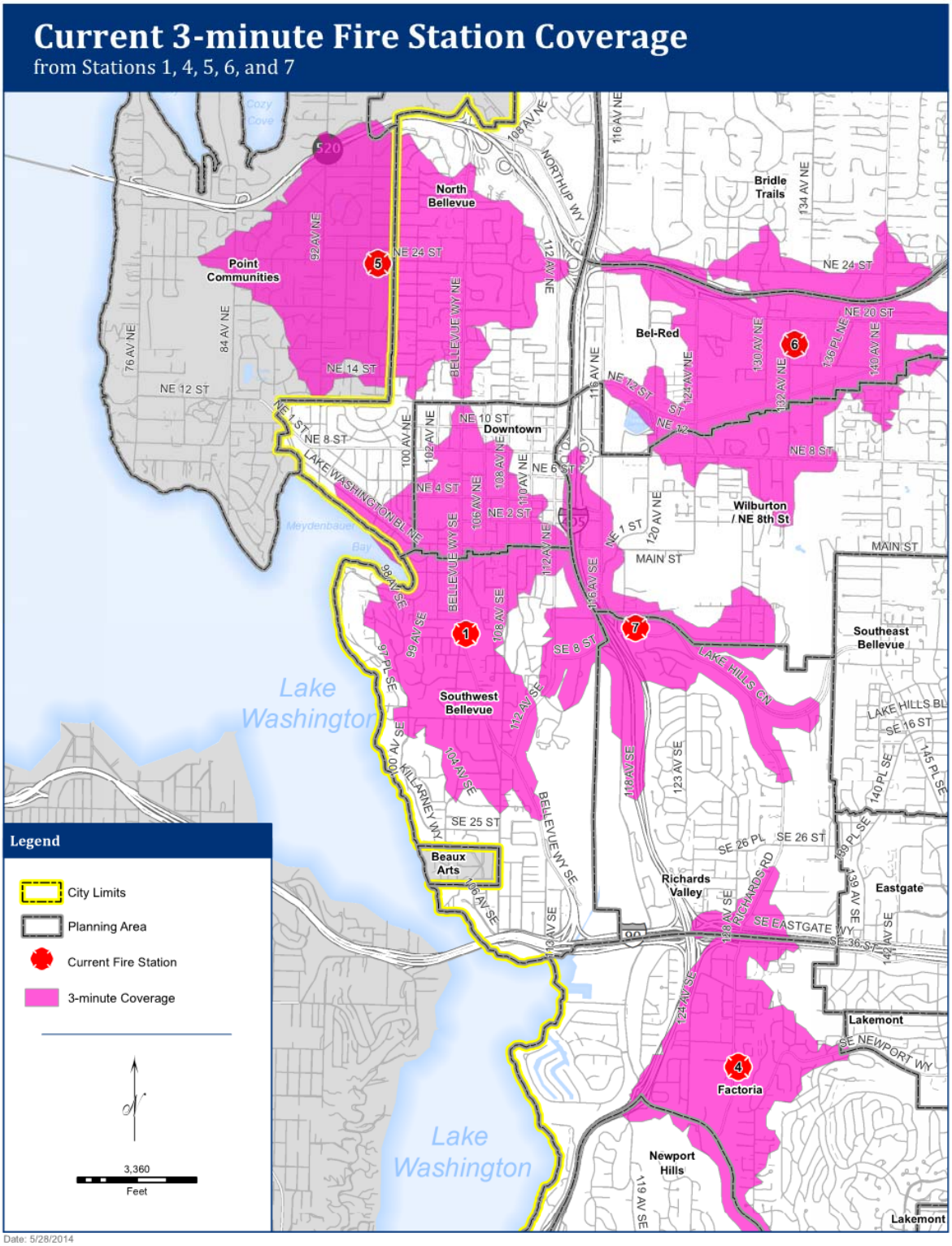


Figure 3.14 Current 3-Minute Downtown Fire Station Coverage



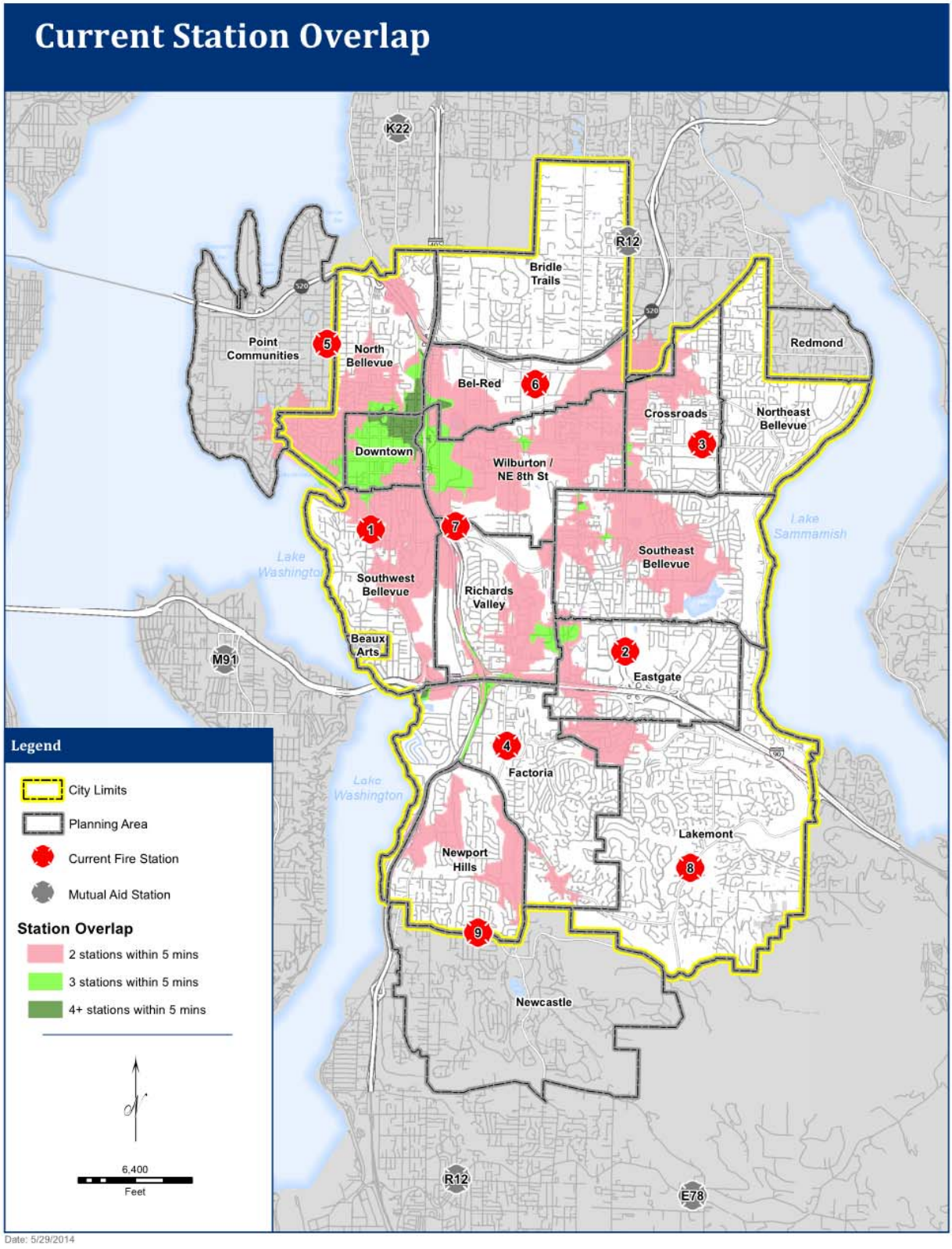
GIS Station-Overlap Analysis

In addition to good travel-time coverage for first-due units, some coverage overlap is required to maintain good response times in areas where the demand is high, like the Downtown area. High-demand areas are more likely to have concurrent emergencies and require the proximity of several units and/or stations. In order to account for this overlap, it is more useful to study station overlap based on the maintenance of the current response of 5-minute travel time.

Figure 3.15 shows how many responders can reach each area of Bellevue within five minutes when units are in station and available. Areas in pink, light green, and dark green can be reached by two, three, and four or more stations, respectively. When looking at these maps it is important to look for gross mismatches between the number of nearby stations and risk/demand levels.

The current station layout provides good overlaps in the Downtown area, but little overlap in the Crossroads area, where there are EMS and fire hotspots.

Figure 3.15 Current Station Overlap



Weight-of-Response Analysis

A necessary component of a deployment analysis is to evaluate whether the system is able to deliver an adequate response of the needed number of apparatus and personnel, often referred to as *weight of response*. NFPA 1710 provides guidelines for weight of response, but professional judgment is also required. This standard is impacted by both station location and staffing levels.

For this evaluation we evaluated whether the BFD can achieve the recommended threshold for the initial first-alarm assignment to arrive at a reported structure fire. Figure 3.16 shows the number of firefighters who can reach different parts of the city, based on the current staffing model of three firefighters per engine, four firefighters on Ladder 1, and five firefighters on Ladder 3.

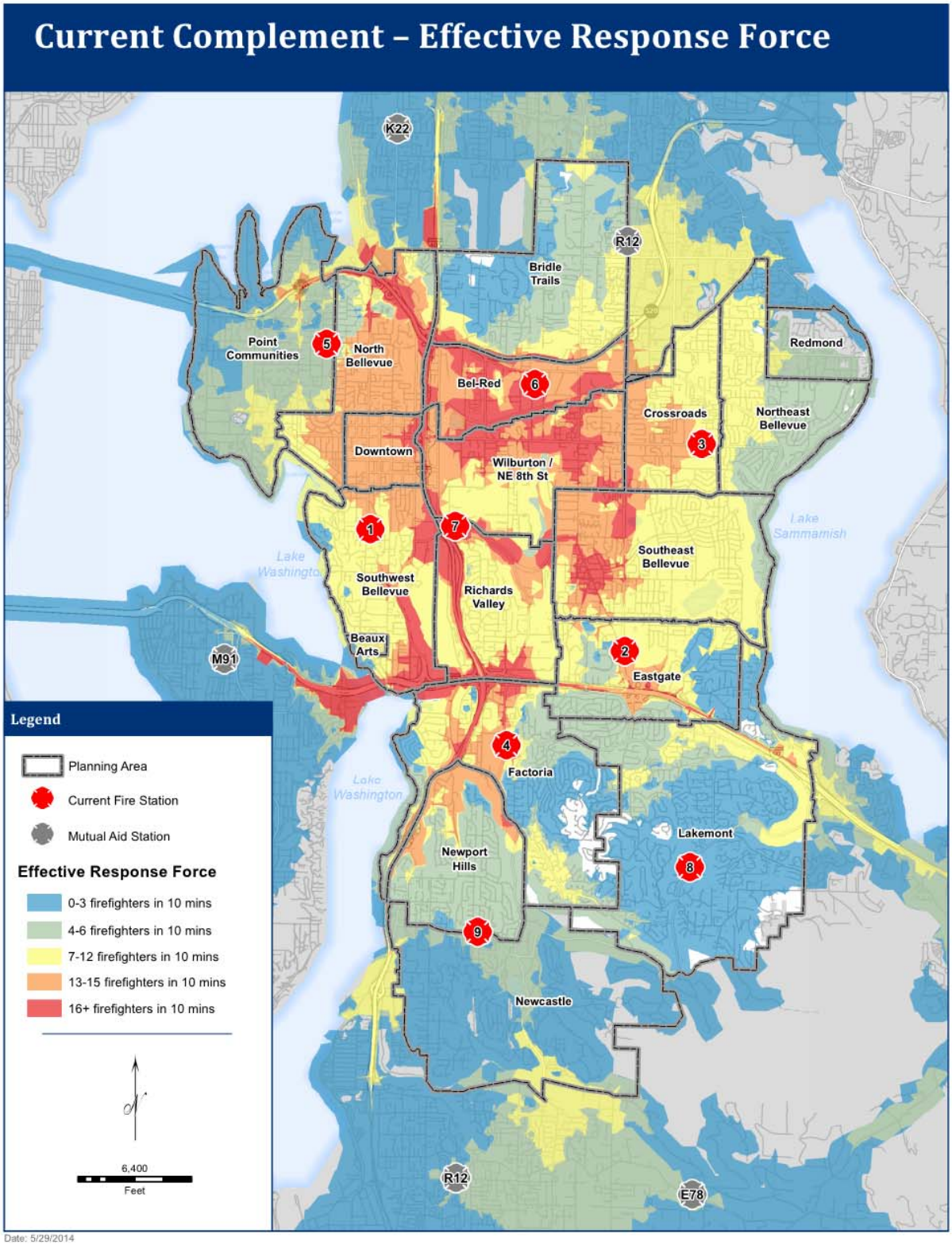
NFPA 1710 provides levels of weight of response standards when evaluating whether an area will receive an appropriate number of firefighters within ten minutes to fight a structure fire:

1. **Residential areas should be able to receive a complement of at least 16 firefighters within ten minutes**
2. **Areas with high-rise structures (downtown) should be able to receive a complement of at least 27 firefighters within ten minutes.**

As illustrated in Figure 3.16, Bellevue does not meet these complement coverage specifications in several high-risk areas. Some parts of the Downtown do not even achieve 16 firefighters and there are large areas of the city that appear to only get 12 or fewer firefighters.

Also it is important to note that none of the areas with existing or potential high-rises meet the standard of 27 firefighters within ten minutes from current station locations.

Figure 3.16. Current Complement - Effective Response Force



Summary of Findings

It will be difficult for Bellevue to maintain the current standard for response time given the projected growth in population, development densities, and shift in growth from a predominately east-west to a north-south direction.

The most frequent and fastest gowning incident type is an EMS call. According the CPRE Standards of Cover, EMS calls typically increase in proportion to population but this does not appear to have been the case for Bellevue over the last decade, where there was a population increase without commensurate increase in EMS calls. For the long term of this study, it is appropriate to assume some increase in EMS calls as the population continues to increase.

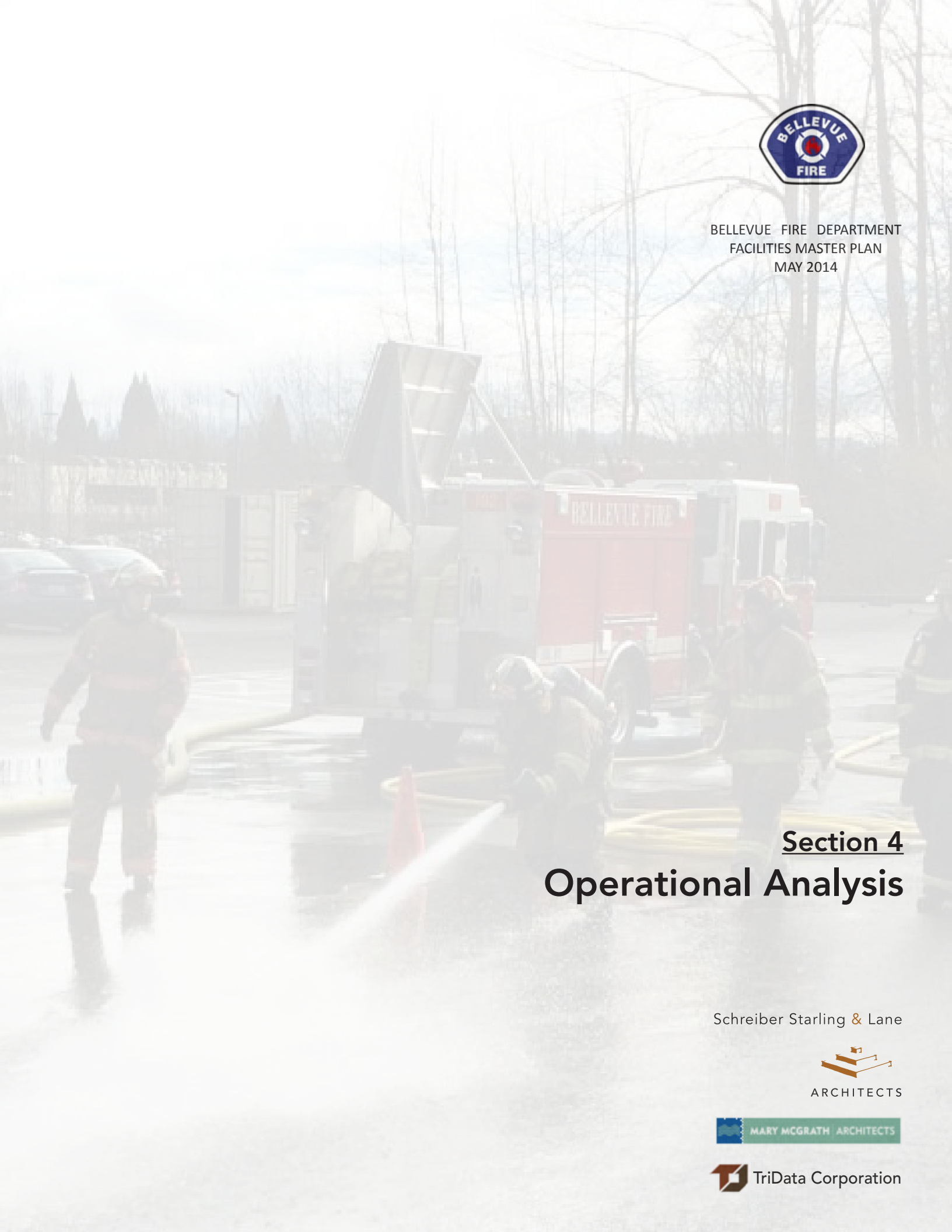
The areas of the city with the highest level of calls and projected call growth are Downtown, Crossroads, and Bel-Red. Using historic fire loss data as the basis for projecting risk, the areas having the most loss are Downtown, Southwest and Northeast Bellevue, Willburton/NE 8th and Bel-Red.

Stations with the highest workload (number of incidents and total unit hours) include Stations 6, 9 and 5.

Bellevue has a challenging fire response problem because many of the roads have slow speed limits and the city roads are very disconnected in certain areas, particularly because of Interstate 90 and Interstate 405. Generally, the existing stations are fairly well-positioned given these challenges.

Although Bellevue appears to have an adequate number of stations and units, the travel time results do not meet the NFPA 1710 goal of four minutes 90% of the time. In order for citywide response times to meet this standard, several more fire stations would likely be required and the cost for such development and staffing increases would greatly exceed the benefit to the city's residents. For this reason use of the current average of five-minute travel time is an appropriate measure given the relatively low fire-risk throughout Bellevue and that the majority of stations meet this standard 80% of the time.

In the areas with or planned for high-rise development a shorter travel time standard is recommended (3-minutes) to account for the time needed for vertical response (generally 4-8 minutes). Portions of the Downtown core do not meet this standard.



BELLEVUE FIRE DEPARTMENT
FACILITIES MASTER PLAN
MAY 2014

Section 4
Operational Analysis

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4 – OPERATIONAL ANALYSIS

4.1 General

This section reviews the current operations at each station and identifies the space needs (both site and building) that are necessary to provide an efficient and safe work environment for both current and future operations. An assessment of the current and future staffing, current and future apparatus types and special operations was completed at each fire station and the training center. From this assessment a prototypical space needs outline was developed for each existing and proposed facility using both NFPA Standards and Fire Facilities Design Best Management Practices (BMPs). This prototypical space needs outline is compared space-to-space with the current facility layouts to develop the station space/facility upgrade or replacement recommendations presented in Section 5.

A prototypical space needs for both the site and fire station was developed for each facility for use in defining potential sites which could be suitable if the existing site was incapable of supporting operational needs.

4.2 Process

The Study Team held numerous workshops with an array of staff members to discuss current suppression, EMS, training and support operations. This process included visits to each of the existing fire stations and training center, and a study of the existing facilities documentation. Refer to Section 2 for a list of the workshop participants.

Basis of Comparison

The space requirements as defined in a Space Needs Outline are informed through the development of "component diagrams". A component diagram is a pictorial summary of all of the specialty equipment, furnishings and circulation space required in any particular space. For instance, a Bunker Gear Storage room is required to provide lockers, bunker gear cleaning equipment and circulation area to access the equipment and lockers. The size of the space depends on the number of people assigned to the station, which defines the number of lockers. Adjacent is a sample diagram for the Bunking Gear Storage. A diagram was prepared for each space within the fire station and the total space needs are a summary of the space identified in the diagram plus factors to address inter-functional circulation within the station.

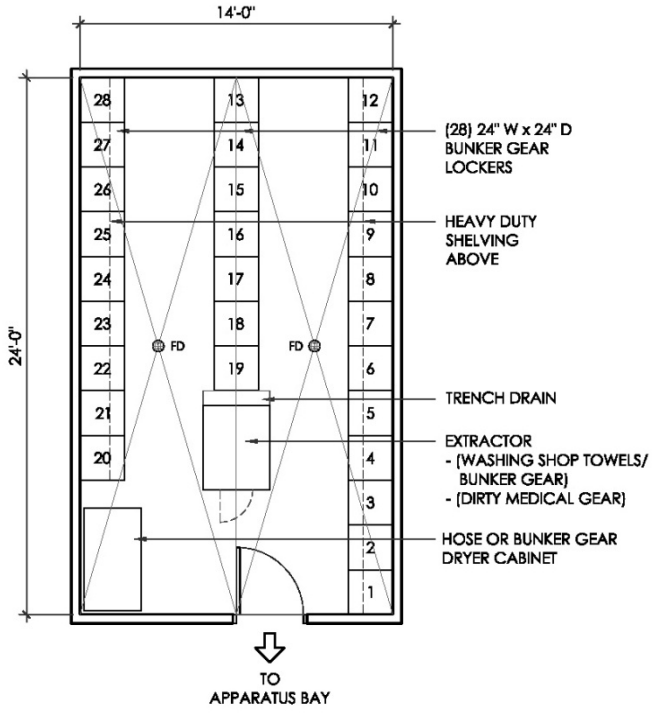

Figure 4.1 Sample Space Component Diagram

The programming team uses the component diagram studies and known Best Management Practices in fire station design for the development of each space. The programming team has completed dozens of fire department master plans for similar cities in the western states. There is tested data confirming the best practice. Similar cities include Seattle, Sacramento, San Jose, and Long Beach, which have implemented similar facility master plans successfully establishing a basis for best practice. The space needs established for this department was prepared using similar BMPs but were developed to support the specific operations of the Bellevue Fire Department.

The intent of this analysis is not to propose a complete upgrade of each facility so that every station is strictly in line with a recommended space standard, as it would be impractical and very difficult to align existing and optimal spaces one-for-one. In many cases there is not adequate space within the station or on the site to reconfigure the station and add or subtract space so that the optimal target is achieved. Rather the intent is to identify a physically practical and cost effective improvement strategy at each station that addresses the primary deficiencies at each station.

In order to develop realistic improvement plans or to identify those with limited capacity for improvement, the team focused on areas within each station that are required to be added or reconfigured to improve the work safety and operational work efficiency of the department. They include:

- Dedicated bunker gear storage room – Currently, PPE equipment is stored in the apparatus bays of all BFD Stations. It is today's BMP to store this gear in a space ventilated to the exterior to eliminate off-gassing of hazardous materials into the station. Continuing to store this gear in the apparatus bays contributes to unhealthy air quality in the station.
- A dedicated medical clean-up and medical supply storage room – It is current BMP to provide a dedicated medical clean-up space adjacent to the apparatus bay which is used solely for medical clean-up to isolate potential bio-hazards from the balance of the station. Currently, there are no dedicated decontamination facilities in any BFD stations and few dedicated storage rooms. In many stations the space that is used for this function is shared with the laundry service that is serving the living quarters.
- Individual sleeping quarters and unisex restroom facilities – With the expanding diversity within the workforce it is a current BMP to provide individual sleeping quarters and restroom facilities. Many of the stations have partially individual sleeping and locker rooms.
- Fitness Room – It is known that being physically fit is an important element contributing to a safe work place in the fire service and it is current BMP to provide a company-sized fitness room at fire stations. The majority of fitness facilities in BFD stations have been developed on a "as can fit" basis. Many of the stations have inadequate fitness areas which are not sized to allow company workouts or to provide the appropriate equipment

and training areas. In some cases, fitness equipment is in the apparatus bays where air quality is an issue.

- In-Service Training – The training requirements, both hands-on and classroom, has increased dramatically in the fire service. In addition, the classroom training has transitioned from using books and study guides to on-line learning. In response to these changes and realizing that the most efficient time for completing this training is while on-duty, it is an established BMP to provide dedicated in-house training space in fire stations. Dedicated training areas have been provided in only two Bellevue Fire Stations.

Basis for Conclusions:

The conclusions and recommendations presented in Section 5 are driven by three factors:

- The existing station configuration and its ability to be efficiently adapted/remodeled to approach conformance with the prototype space requirements.
- The existing physical condition of the station.
- The adjustments to the station locations and staffing compliments driven by the Performance Analysis included in Section 3.0 of this report.

4.3 Current Operational Model

Fire Station Basic Operations
Though this discovery process noted above, the team determined that the following station types exist within the department:

1. Single Company Stations – These stations serve as "neighborhood" stations with a single company responding. They are mostly located in residential neighborhoods. Even with the anticipated growth within the City a few of these stations are in locations that did not show a growth in service and the staffing levels would remain static.

2. Two Company Stations – These stations typically house an engine company and an aid car or medic.

3. Three Company Stations – These stations typically house three units and may include a ladder truck. They also provide specialty services such as ALS support or heavy rescue response. These stations are also known as "Task Force" stations in prior reports.

4. Battalion Station – Fire Station No. 1 is the current Battalion station.

Special Operations
In addition, many stations house a special project or specialty units. The current placement of these supporting operations is determined by response need and in some cases by space availability. One goal of this facility study is to optimize the special project or specialty unit location for both efficiency and the evolving response needs as appropriate.

The following Table 4.1 identifies the current operational model indicating station type, location, responding units (core and specialty), staffing, special projects and other unique staffing:

Table 4.1 Current Operations

Station & Type	Location	Responding Units	Specialty Units Reserve Units	Current On-duty Staffing	Special Projects	Unique Staffing
Station 1 Battalion Station	Southwest Bellevue	Engine 1 Aid 1 B1	A1A - Reserve B2 - Reserve	7 including BC and BC Staff Assistant	Ladder Repair Supply Storage Command Room CPR Equip.	Supply and Maintenance Staff (2 Total)
Station 2 Three Company	Eastgate	Engine 2 Aid 2 Medic 2 MSO 05	MSO 5 M2A - Reserve M1A - Reserve Mass Casualty Incident Unit	8 including MSO	Medical Supply Storage	Medical Services Officer
Station 3 Three Company	Crossroads	Engine 3 Aid 3 Ladder 3	Rescue 3 Water Rescue M3 - Reserve	7	Department wide supply storage High Angle Rescue Equip. (Rope testing)	The rescue and engine are cross staffed
Station 4 Single Company	Factoria	Engine 4	E4A – reserve L1A – Reserve E5A - reserve	3	None	None
Station 5 Single Company	North Bellevue	Engine 5 Aid 5	M14A - Reserve	3	None	The aid unit is cross staffed
Station 6 Single Company	Bel-Red	Engine 6 Aid 6	Haz Mat Unit 1	3	Hazardous Material Unit	Haz-Mat and aid unit are cross staffed
Station 7 Single Company	Richards Valley	Ladder 1	E7A - Reserve	4	Air Fill Station	None
Station 8 Single Company	Lakemont	Engine 8	E8A – Reserve Air Unit Gator w/Trailer	3	Mask Repair Maps Air Fill Uniforms	Air Unit Qualified SCBA Technicians
Station 9 Single Company	Newport Hills Newcastle	Engine 9	Mobile Command Unit	3	Small Equipment Repair	None

The above table establishes the baseline station make-up. Included in the next section (and Appendix B) is a discussion on the prototypical space need outlines and component diagrams which were developed for comparison to the actual spaces within each station.

As a basis for the plan development, the workshop discussion with the fire department focused on staffing and operational criteria related to response protocol and station operations. Topics discussed included:

- Response protocol for leaving and returning to a station;
- Approach to apparatus and apparatus support equipment maintenance and cleaning at the station;
- Reserve apparatus storage;
- Medical clean-up and medical supply storage protocol;
- Safety gear storage and maintenance;
- Responsibilities related to public interaction at the station, incident/medical reporting and classroom training;
- Cooking, dining and housekeeping and storage requirements for station staff personal gear;
- Bathing and sleeping privacy provisions;
- Wellness/Fitness program approach and schedule;
- Shift change requirements including parking availability;
- Improved station security.

It is through this understanding of station operations that the prototype space standards known as "component diagrams" and the Space Needs Outlines for each type of station were developed.

4.4 Prototype Station Space Needs

Fire station space needs outlines and the summary square footage totals are primarily determined by five factors:

1. The number of fire fighters on-duty (seats at the dining table, number of bedrooms, etc.)
2. The number of assigned personnel (total number of bunker gear lockers, personnel lockers, etc.)
3. Type and number of assigned companies
4. Supporting or special operations
5. And, the prototype space square footage developed using the component diagrams

The prototype spaces were designed for each functional area of a fire station and vetted by the design team. The final prototypical spaces include medical clean-up rooms, dedicated bunker gear storage, fitness rooms with equipment layouts, apparatus bay layout indicating reserve equipment, sleeping rooms, training rooms, etc. These diagrams are used as a basis for developing the Prototype Space Needs Outline and the summary square footage total requirements. The prototypical spaces were developed though an understanding of the trends and standards identified in Section 2.

The Space Needs Outlines in Appendix B were developed using the prototypical components. These documents identify the spaces required in a fire station and the size of each space. It is important to note that the study team has not made a determination that staffing levels or types/quantity of apparatus need to change from current levels; rather we have identified the need for the physical facilities to accommodate future staffing/equipment changes.

4.5 Existing Station Comparison

Overview

Section 2 of this report discusses several important health and safety standards that are at the forefront of fire station health and safety design. The three primary health objectives are to improve the air quality in a station, reduce the incidence of infection from bloodborne pathogens due to the increased focus on EMS, and reduce the incidence of injury on the job through better fitness and training.

The functional areas that are evaluated for compliance with these standards include:

- Location of and type of bunker gear storage.
- Dedicated medical clean up rooms adjacent to the apparatus bays.
- A separation of suppression and EMS operations from the living quarters.
- Adequate storage for suppression and EMS equipment separate from the living quarters.
- The development of fitness rooms that are of adequate size for company workouts. Increase training requirements driving the need for training rooms to allow in-service training.
- Individual sleeping quarters and bathrooms to facilitate a changing and more gender diverse work force.

Findings

In general, the existing fire stations had accommodated many of these functional spaces, the newer or newly remodeled stations more than the others. However, the following spaces were consistently missing or inadequate in most or all of the stations:

- Bunker Gear Storage Rooms – Currently each fire station stores its bunker gear in the apparatus bay which is in contradiction to current BMPs. This is the number one health concern due to the diesel contamination and the off gassing of the gear from fire related calls. To improve air quality and limit the fire fighters' exposure to diesel exhaust, storing this gear in a dedicated storage room with continuous exhaust to the building exterior is strongly recommended. It is also Best Practice to relocate all equipment dedicated to the maintenance of this gear, such as an extractor or dryer to this same room.

- Dedicated Medical Clean-up Rooms – Currently many stations use the station's housekeeping laundry rooms for medical clean-up and decontamination. A key safety element in the fire station is the separation of EMS related hazards from the living

quarters and other work areas. It is recommended that to achieve BMP stations include a dedicated medical clean up room with a hands-free hospital type clean-up sink for cleaning medical equipment.

- Fitness Rooms – Most of the stations included a fitness room that is inadequate in size for a functional workout. It is recommended that to achieve BMP, these rooms be expanded to accommodate appropriate equipment, free weights and stretching/warm-up area for a company based workout.

- Training Rooms – Currently most training occurs at the kitchen table or in the day room. Today's training requires individual computer access and group class areas. It is recommended that to achieve BMP, the single company stations the station office be expanded to allow access to the required training equipment and that a dedicated training room be provided in the larger stations for training classes and individual study.

- Individual Sleeping Quarters and Restrooms – Most stations have provided shared sleeping and changing rooms with separate single use restrooms. It is recommended that to achieve BMP, the sleeping rooms be configured for individual occupancy and provided with a door for privacy while changing.

- A unique feature of the Bellevue Fire Department is the number of special projects that are assigned to each station. Special projects include ladder repair, air bottle fill, mask repair and testing, small tool repair, uniform supply and maintenance, etc. It is beneficial to the department operationally and a cost saving feature to encourage this practice to continue. In many stations, there was not a dedicated space for this special project to be completed or it was being done in the apparatus bay or other spaces which were not conditioned or exposed to diesel exhaust. It is recommended to locate a dedicated special projects room within each station so this practice can continue safely and efficiently.

4.6 Existing Stations

Fire and EMS services are delivered by BFD from nine stations with 16 service units. Nine stations are staffed with a department total of 9 fire companies. Current resources include: 8 engines, 2 ladder trucks, 3 aid cars (in addition there are two cross-staffed aid units and two reserve aid units), and 2 medic units. In addition, there are several specialty units.

Following is a summary of findings (See detailed description in Appendix F) on each of the stations supporting BFD and the result of the planning team's scoring of existing conditions:

Station 1 *(39 Years Old)*

Location: 766 Bellevue Way SE, Bellevue 98004
Constructed: 1975
Remodeled/expanded (2,601 added): 1987 with Seismic Improvements in 1996
Building Area: 15,701-sf
Construction Type: Type-V (Non-Rated)
Building Condition Summary:

Structure/Seismic
- No gravity load stress apparent
- 1996 upgrade improved lateral strength of bays but does not comply with current essential facilities standards

Life Safety
- Sprinklers only in high hazard areas
- No seismic/alerting gas shut/off

Assessability
- No internal ADA access

Exterior Envelope
- Water intrusion noted at glazing perimeter
- Deterioration of siding due to age and poor water shedding
- Roofing is serviceable with some areas lacking positive drainage

Interior Finishes
- Wear and damage typical for age/deferred maintenance

Plumbing
- Leaking noted with deteriorated fixtures, poor condition

HVAC
- New HVAC equipment is living areas installed in 2012

Power
- Original to 1987. Meets current demand but no capacity for future

Lighting
- The Older lamps in apparatus bays have been recently upgraded to low-energy use units
- No energy reduction features (occupancy/daylight sensors)

Telecom
- Meets current demand but no capacity for future

Site:

General
- Slope impacts circulation
- Asphalt paving needs maintenance

Hazards
- Back-in to bays
- Retaining walls present potential seismic hazard

Capability to Address Program Need:
It appears feasible and effective to address space and program needs through renovation. As the site has limited flexibility, consideration for relocation should be made if detailed cost benefit analysis indicates that option as the most efficient course.

Station 2 *(12 Years Old)*

Location: 2802 148th Ave SE, Bellevue 98007
Constructed: 1955, Reconstructed 2002 (3,198-sf added)
Building Area: 8,061-sf
Construction Type: Type-V (Non-Rated)
Building Condition:

Structure
- No gravity load stress apparent
- 2002 upgrade improved seismic but not comply with current essential facilities standards
- Current configuration cannot accommodate newer (larger) ladder trucks

Life Safety
- Sprinklers only in high hazard areas

Assessability
- No internal ADA access to second floor

Exterior Envelope
- Roofing is serviceable

Interior Finishes
- Good to fair condition

Plumbing
- Good to fair condition

HVAC
- New HVAC equipment with 2002 reconstruction. In good condition

Power
- Meets current demand with some capacity for future

Lighting
- No energy reduction features (occupancy/daylight sensors)

Telecom
- Meets current demand with capacity for future

Site:

General
- Very limited site area
- Inadequate vehicle circulation

Hazards
- Back-in to bays

Capability to Address Program Need:
It appears feasible and effective to address space and program needs through renovation and small addition. As the site is very limited, consideration for possible acquisition of additional area should be pursued.

Station 3 *(31 Years Old)*

Location: 16100 NE 8th St, Bellevue 98008
Constructed: 1983, Seismic Improvements, 1996, Modification for ladder: 2014
Building Area: 16,463-sf
Construction Type: Type-V (Non-Rated)
Building Condition:

Structure
- No gravity load stress apparent
- 1996 upgrade improved lateral strength of bays but does not comply with current essential facilities standards

Life Safety
- Sprinklers only in high hazard areas

Assessability
- Internal elevator to basement level

Exterior Envelope
- Water intrusion noted at glazing perimeter
- Roofing is serviceable with some areas lacking positive drainage

Interior Finishes
- Wear and damage typical for age/deferred maintenance

Plumbing
- Upgraded with 1996 remodel

HVAC
- New HVAC equipment installed in living areas in 1997. Some upgrade in apparatus bays in 2014

Power
- Meets current demand with capacity

Lighting
- Older lamps in apparatus bays
- No energy reduction features (occupancy/daylight sensors)

Telecom
- Meets current demand

Site:

General
- Inadequate vehicle circulation

Hazards
- Back-in to bays

Capability to Address Program Need:
It appears feasible and effective to address space and program needs through interior renovation.

Station 4 *(49 Years Old)*

Location: 4216 Factoria Blvd SE, Bellevue 98006
Constructed: 1965, Remodeled 1997 (2,093-sf added)
Building Area: 6,751-sf
Construction Type: Type-V (Non-Rated)
Building Condition:

Structure
- No gravity load stress apparent
- 1997 upgrade improved lateral strength of bays but does not comply with current essential facilities standards
- Current configuration cannot accommodate newer (larger) ladder trucks.

Life Safety
- Sprinklers only in high hazard areas

Exterior Envelope
- Water intrusion noted at glazing perimeter
- Deterioration of siding due to age and poor water shedding
- Roofing is serviceable with some areas lacking positive drainage

Interior Finishes
- Wear and damage typical for age/deferred maintenance

Plumbing
- Upgraded in 1997

HVAC
- New HVAC equipment is living areas installed in 1997

Power
- Original to 1965
- Meets current demand but no capacity for future

Lighting
- Older lamps in apparatus bays
- No energy reduction features (occupancy/daylight sensors)
- Poor site lighting

Telecom
- Meets current demand but no capacity for future

Site:

General
- Slope severely limits circulation

Hazards
- Back-in to bays up slope. Also impacts traffic flow on Factoria.
- Retaining walls present potential seismic hazard

Capability to Address Program Need:
Site limitations preclude an approach which would address space needs or the desired expansion to support Taskforce functions by reconfiguring or expanding at the existing location.

Station 5 *(47 Years Old)*

Location: 9615 NE 24th St, Clyde Hill 98004
Constructed: 1967; Remodeled 1988; Seismic Improvements: 1997
Building Area: 5,500-sf
Construction Type: Type-V (Non-Rated)
Building Condition:

Structure
- Some settlement cracking in masonry
- Reinforcing in original masonry walls inadequate for seismic loading. 1997 upgrade improved lateral strength of bays but does not comply with current essential facilities standards

Life Safety
- Sprinklers only in high hazard areas

Exterior Envelope
- Single glazed windows
- Inadequate insulation in single-wythe masonry walls
- Roofing is serviceable with some areas lacking positive drainage

Interior Finishes
- Wear and damage typical for age/deferred maintenance

Plumbing
- Original to 1977
- Deteriorated fixtures, poor condition.

HVAC
- Poor HVAC with equipment at end of expected service life

Power
- Original to 1967
- Meets current demand but no capacity for future

Lighting
- Older lamps in apparatus bays
- No energy reduction features (occupancy/daylight sensors)

Telecom
- Meets current demand but no capacity for future

Site:

General
- Inadequate vehicle circulation

Hazards
- Back-in to bays

Capability to Address Program Need:
Age and un-reinforced masonry construction combined with small site preclude ability to reconfigure or expand at existing location.

Station 6 *(31 Years Old)*

Location: 1850 132nd Ave NE, Bellevue 98005
Constructed: 1983, Seismic Improvements: 1997
Building Area: 5,000-sf
Construction Type: Type-V (Non-Rated)
Building Condition:

Structure
- No gravity load stress apparent
- 1997upgrade improved lateral strength of bays but does not comply with current essential facilities standards
- Current configuration cannot accommodate newer (larger) ladder trucks

Life Safety
- Sprinklers only in high hazard areas

Exterior Envelope
- Water intrusion noted at glazing perimeter
- Deterioration of stucco due to age and poor water shedding
- Roofing is serviceable with some areas lacking positive drainage

Interior Finishes
- Wear and damage typical for age/deferred maintenance

Plumbing
- Original to 1983

HVAC
- New HVAC equipment is living areas installed in 1997

Power
- Original to 1983
- Meets current demand but no capacity for future

Lighting
- Older lamps in apparatus bays
- No energy reduction features (occupancy/daylight sensors)
- Poor site lighting

Telecom
- Meets current demand but no capacity for future

Site:

General
- Site has drainage/wetlands at east
- HazMat Container located in rear of station

Hazards
- Back-in-bays

Capability to Address Program Need:
Site limitations preclude an approach which would address space needs or the desired expansion to support Taskforce functions by reconfiguring or expanding at the existing location.

Station 7 *(29 Years Old)*

Location: 11900 SE 8th St, Bellevue 98005
Constructed: 1985, Seismic Improvements, 1998
Building Area: 5,555-sf
Construction Type: Type-V (Non-Rated)
Building Condition:

Structure
- No gravity load stress apparent
- 1998 upgrade improved lateral strength of bays but does not comply with current essential facilities standards
- Current configuration cannot accommodate newer (larger) ladder trucks.

Life Safety
- Sprinklers only in high hazard areas

Assessability
- No ADA access to upper level

Exterior Envelope
- Water intrusion noted at below-grade walls and glazing perimeter.
- Roofing lacking positive drainage

Interior Finishes
- Wear and damage typical for age/deferred maintenance

Plumbing
- Original to 1985

HVAC
Original to 1985

Power
- Original to 1985
- Meets current demand with limited capacity for future

Lighting
- No energy reduction features (occupancy/daylight sensors)
- Poor site lighting

Telecom
- Meets current demand with limited capacity for future

Site:

General
- Slope impacts circulation
- Subsurface water table
- Inadequate vehicle circulation
- Asphalt paving needs maintenance

Hazards
- Back-in bays
- Retaining walls present potential seismic hazard

Capability to Address Program Need:
It appears feasible and effective to address space and program needs through renovation and small addition.

Station 8 *(19 Years Old)*

Location: 5701 Lakemont Blvd SE, Bellevue 98006
Constructed: 1995
Building Area: 9,128-sf
Construction Type: Type-V (Non-Rated)
Building Condition:

Structure
- No gravity load stress apparent
- 1995 code does not comply with current essential facilities standards

Life Safety
- Sprinklers only in high hazard areas

Assessability
- No ADA access to mezzanine

Exterior Envelope
- Good condition
- Roofing is serviceable

Interior Finishes
- Wear and damage typical for age/deferred maintenance

Plumbing
- Original to 1995 in good to fair condition

HVAC
- HVAC equipment original to 1987. In good condition

Power
- Original to 1987 with capacity for future

Lighting
- No energy reduction features (occupancy/daylight sensors)

Telecom
- Meets current demand with capacity for future

Site:

General
- Slope impacts circulation
- Inadequate vehicle circulation

Hazards
- Back-in bays
- Retaining walls present potential seismic hazard
- Possible slide hazard

Capability to Address Program Need:
It appears feasible and effective to address space and program needs through renovation and small addition.

Station 9 *(39 Years Old)*

Location: 12412 Newcastle Way, Bellevue 98006
Constructed: 1975, Remodel: 1987, Seismic Improvement: 1997
Building Area: 7,838-sf
Construction Type: Type-V (Non-Rated)
Building Condition:

Structure
- No gravity load stress apparent
- 1997 upgrade improved lateral strength of bays but does not comply with current essential facilities standards

Life Safety
- Sprinklers only in high hazard areas

Assessability
- No internal ADA access to upper floor

Exterior Envelope
- Deterioration of siding due to age and poor water shedding
- Roofing is serviceable with some areas lacking positive drainage

Interior Finishes

Plumbing
- Original to 1987 with some upgrades in 1997

HVAC
- New HVAC equipment is living areas installed in 1997

Power
- Original to 1987
- Meets current demand with limited additional capacity

Lighting
- Older lamps in apparatus bays
- No energy reduction features (occupancy/daylight sensors)

Telecom
- Meets current demand with limited additional capacity

Site:

General
- Large relatively flat site.
- May need to relocate underground fuel tanks.

Capability to Address Program Need:
It appears feasible and effective to address space and program needs through renovation and small addition.

4.7 Training Center and Support – Current Model

Training Center

The existing Bellevue Training Center comprises a 5-story training tower, an 8,000 SF training classroom and administrative building and a Police Shooting Range and K-9 Unit outdoor facility. In addition, there are a series of metal storage buildings on the west end of the site used for equipment and apparatus storage. The facility was built in 1983 as an in-service training facility and was to support joint-use training with the police department. The Police Department has since transitioned most of its classroom training to the City Hall but maintains its motors training, shooting range and K-9 unit at this location. Of major concern is that the facility was not designed to host large recruit academies, which will be heavily in demand due to the need to replace a good portion of the department staff over the next 10-20 years.

Through the workshop process, the Fire Department identified the following inadequacies with the current training center. They include:

- The training tower design no longer provides the training scenarios necessary for today's fire service.
- There is inadequate storage area for the apparatus and equipment.
- Recruit academy facilities are non-existent.
- The Training Classroom is limited in size and does not provide for adequate table and chair storage.
- The existing offices function well for the current training department but will not accommodate a multi-department training function.
- The training center is lacking a dedicated apparatus storage area, storage room for bunker gear, an air-fill unit for use in filling air bottles during a recruit academy.
- The training center grounds lack the area to develop alternative training scenarios/props for specialty drills including trench rescue, collapse structure search and rescue, hazardous material handling and containment, etc.
- The access road to the property from the south limits operational and expansion capabilities.
- The training center ground area limits the number of exercises that can be held at one time due to parking constraints and overlap.

There is an operational necessity to transition the training operations at this location from an in-service focus to one that can support multiple agencies, recruit academies and an expanded number and type of specialty drills.

Training Center *(31 Years Old)*

Location: 1838 116th Ave NE, Bellevue 98005
Constructed: 1983
Building Area: 8,986-sf (does not include Burn tower and Garage)
Construction Type: Type-V (Non-Rated)
FCS Score:
Building Condition:

Structure
- No gravity load stress apparent
- 1996 upgrade improved lateral strength of bays but does not comply with current essential facilities standards

Life Safety
- Sprinklers only in high hazard areas
- No seismic/alerting gas shut/off

Assessability
- No internal ADA access

Exterior Envelope
- Water intrusion noted at glazing perimeter
- Deterioration of siding due to age and poor water shedding
- Roofing is serviceable with some areas lacking positive drainage

Interior Finishes
- Wear and damage typical for age/deferred maintenance

Plumbing
- Original to 1987
- Leaking noted with deteriorated fixtures, poor condition

HVAC
- New HVAC equipment is living areas installed in 2012

Power
- Original to 1987
- Meets current demand but no capacity for future

Lighting
- Older lamps in apparatus bays
- No energy reduction features (occupancy/daylight sensors)
- Poor site lighting

Telecom
- Meets current demand but no capacity for future

Site:

General
- Slope impacts circulation
- Inadequate vehicle circulation
- Asphalt paving needs maintenance

Capability to Address Program Need:

The existing site is too small to meet the needs for projected training growth, and it does not appear feasible to address space and program needs through renovation.

4.8 Maintenance/Supply – Current Model

The Bellevue Fire Department has two staff members who supply each fire station with materials and equipment; they report and coordinate building maintenance and repairs with the Civic Services Facility, and schedule and move apparatus for maintenance and repairs. In addition, they transport supplies and equipment between stations for repair and maintenance though the special projects program. Currently the staffing includes a single full-time and a single part-time staff member, and their supply cache is located in three different locations. This is due to space constraints at any single location. The office location for this function is at Station No. 1 and the supplies are stored at Stations 1, 2 and 3 (in the basement). There currently is not a location available to house out of service apparatus indoors. They are located at the training center or parked outside of a Fire Station.

The operational model currently in use is inefficient and was the result of making-do with the space available within existing fire stations. There are operational efficiencies to be gained by creating a central Storage Warehouse which would provide office space, a variety of storage systems and apparatus bay storage.

BELLEVUE FIRE DEPARTMENT
FACILITIES MASTER PLAN
MAY 2014

Section 5

Recommendations & Implementation

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5 - RECOMMENDATIONS AND IMPLEMENTATION

5.1 RECOMMENDIATIONS

The study team used the GIS assessment tool to test possible alternatives to addressing the need for more responsive deployment of equipment/assets, better response from the Department incident command/control, and faster, more effective response in the Downtown core.

Deployment Changes

The study team evaluated the unit types deployed by the city and the changes that could be considered as part of the long-range strategy to improve response and weight of response. At the time of this study 16 units were deployed in the 9 fire stations. Included were 8 engines, 2 ladders, 2 ALS medic units, 3 BLS aid units and 1 Battalion Chief. It is important to note that the study team has not made a determination that staffing levels or deployments changes in the types/quantity of apparatus need to be made from current levels; rather we have identified the need and recommend space modifications to ensure that BFD has the physical facilities to accommodate likely future staffing/equipment changes.

The previous 1979 Fire Master Plan employed the operational concept of designating "task force" and "satellite" stations. In executing this plan, it was determined that the task force stations should be placed in the general area of city growth prevalent at the time. Thus Stations 1 and 3 were developed as "task force stations" as the primary growth at the time was generally east-west. The current response analysis and population census indicates that the focus of growth and annexation has shifted to a north-south orientation and the southern portion of the city is poorly served by ladder trucks and field command support.

Engine Placement

In the near term, we recommend that every station have an engine, which would mean bringing an engine back to Station 7. Once the workload from Station 1 and other surrounding stations (5 and 7) begins falling under their performance levels as a result of the high workload from expanded development downtown, a ninth engine should be placed in service at a new downtown station.

Ladder Placement

Ladder companies are typically part of the complement responding to fires and other multi-unit emergencies. According to NFPA 1710, the complement should arrive within ten minutes of the initial emergency call. Figure 5.1 shows the location and GIS response travel-time analysis for the current location of ladders. This indicates a significant lack of coverage south of Interstate 90. Aerial ladder units are currently assigned to Stations 7 and 3. In this current configuration, there is a significant coverage gap in the south of the city. Most areas of the city south of Interstate 90 cannot be reached within ten minutes, except for some limited areas in Factoria.

Because of the geographic disconnectedness of many Bellevue neighborhoods, appropriate ladder placement is a challenging and important decision. In order to achieve better ladder coverage, we recommend moving the ladder from Station 3 to Station 6, and the ladder from Station 7 to Station 4. Additionally, when a new downtown station is built, capacity for a third ladder should be included. Figure 5.2 shows our proposed ladder locations and coverage. The change of Ladders from 1 & 3 to 6 & 4 significantly increases aerial response to a wider area of the city.

Figure 5.1 Current Ladder Locations and Coverage

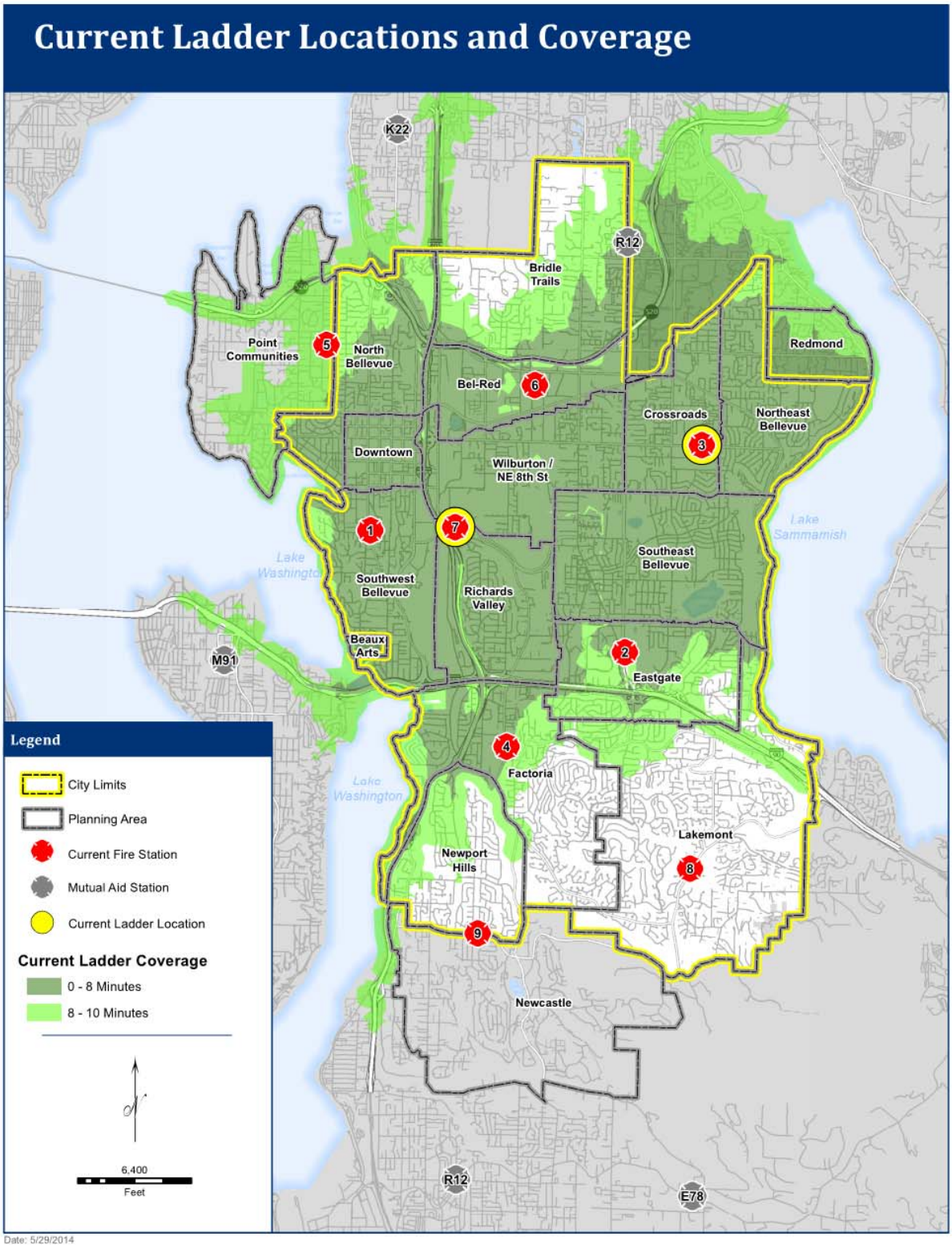
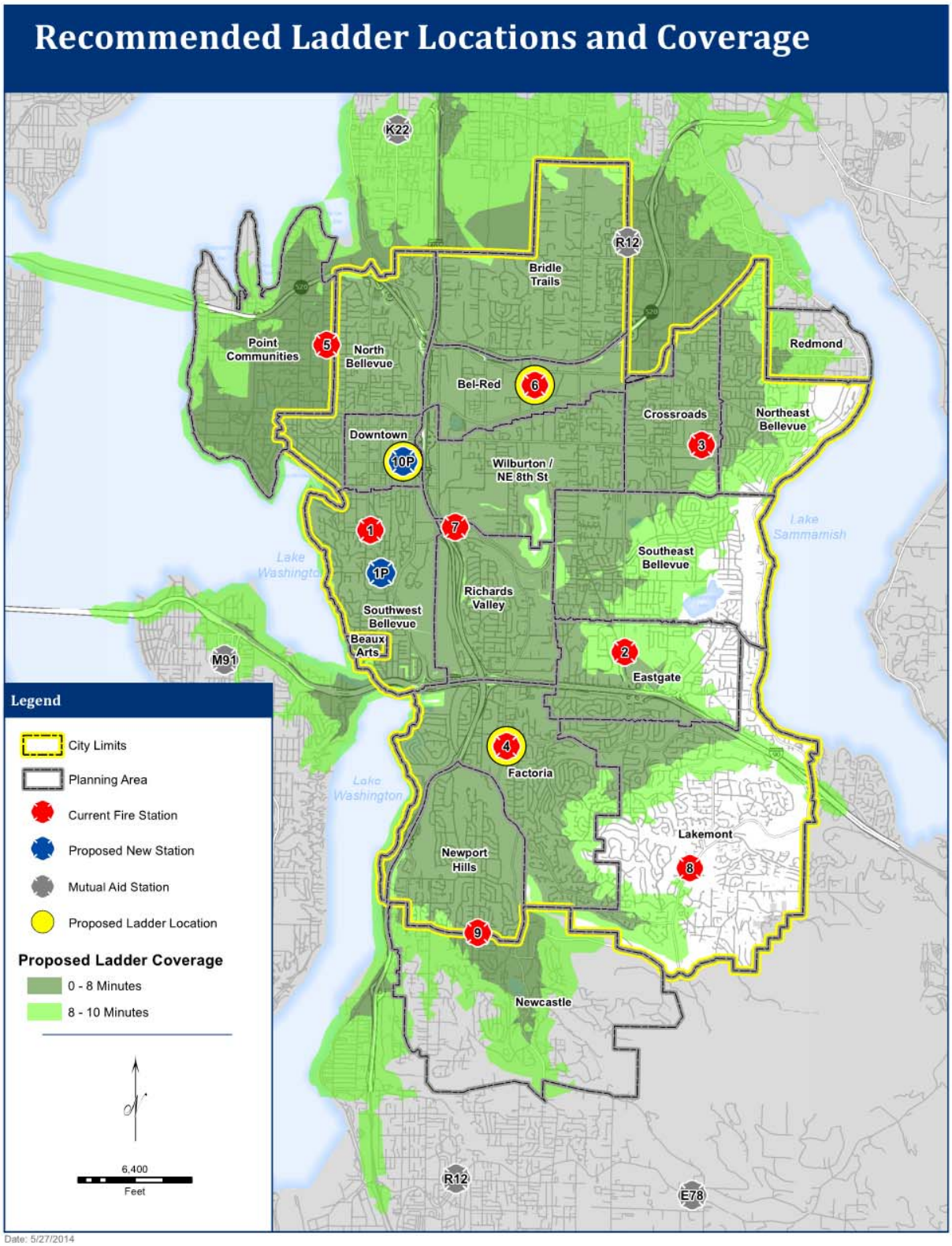


Figure 5.2 Recommended Ladder Locations and Coverage



Battalion Chief Placement

The functions, roles and duties of a Battalion Chief (BC) in BFD operations have remained virtually unchanged over the years since the last operational analysis was issued in 2002. Now, as back then, the BCs are responsible for being the administrative shift commanders and mid-level managers for all nine stations, including responding to most incidents (especially the more serious ones) as the incident commander (IC). As concluded in the 2002 study, having a single BC is outside of the realm of a normal, manageable span of control, and it was recommended then, that an additional BC be added to the organizational structure of the BFD.

Battalion chiefs are also part of the complement responding to fires and other multi-unit emergencies. They provide on-site incident command and control. According to NFPA 1710, the complement should arrive within eight minutes of the initial emergency call. Figure 5.3 shows the location and coverage for the current single battalion chief. While Station 1 may provide good proximity to the Downtown, which is one of the higher emergency-demand parts of the city, it does not provide very good coverage for the rest of Bellevue. Currently the Battalion Chief is only able to reach the northwest part of Bellevue within the NFPA 1710 specified complement travel time of eight minutes.

The inadequate response capability of a single battalion chief responding from Station 1 coupled with the span of control issue reinforces the recommendation made twelve years ago: "This span of control, one Battalion Chief for nine stations, is well above the recommended range of five to six.[1] …This by any standard is a heavy operational and administrative workload, which may be detrimental to the system.

It is a recommendation of the study team that BFD ensure that two Taskforce Stations, one in the north areas and one in the south, have the capacity to house a Battalion Chief. Should BFD choose to add a second Battalion Chief, it would result in reducing the current span of control; ensure that an adequate number of Chief Officers are available in the event of a large or complex incident; and to assist with the administrative workload. In order to address the optimal response time for the BC, it is recommended that this capacity be located at Stations 4 and 6 (Figure 5.4). This location change will create the opportunity for greater efficiency and an effective operational emergency service profile for the City of Bellevue.

[1] National Fire Academy and FEMA Integrated Emergency Management System.

Figure 5.3 Current BC Location and Coverage

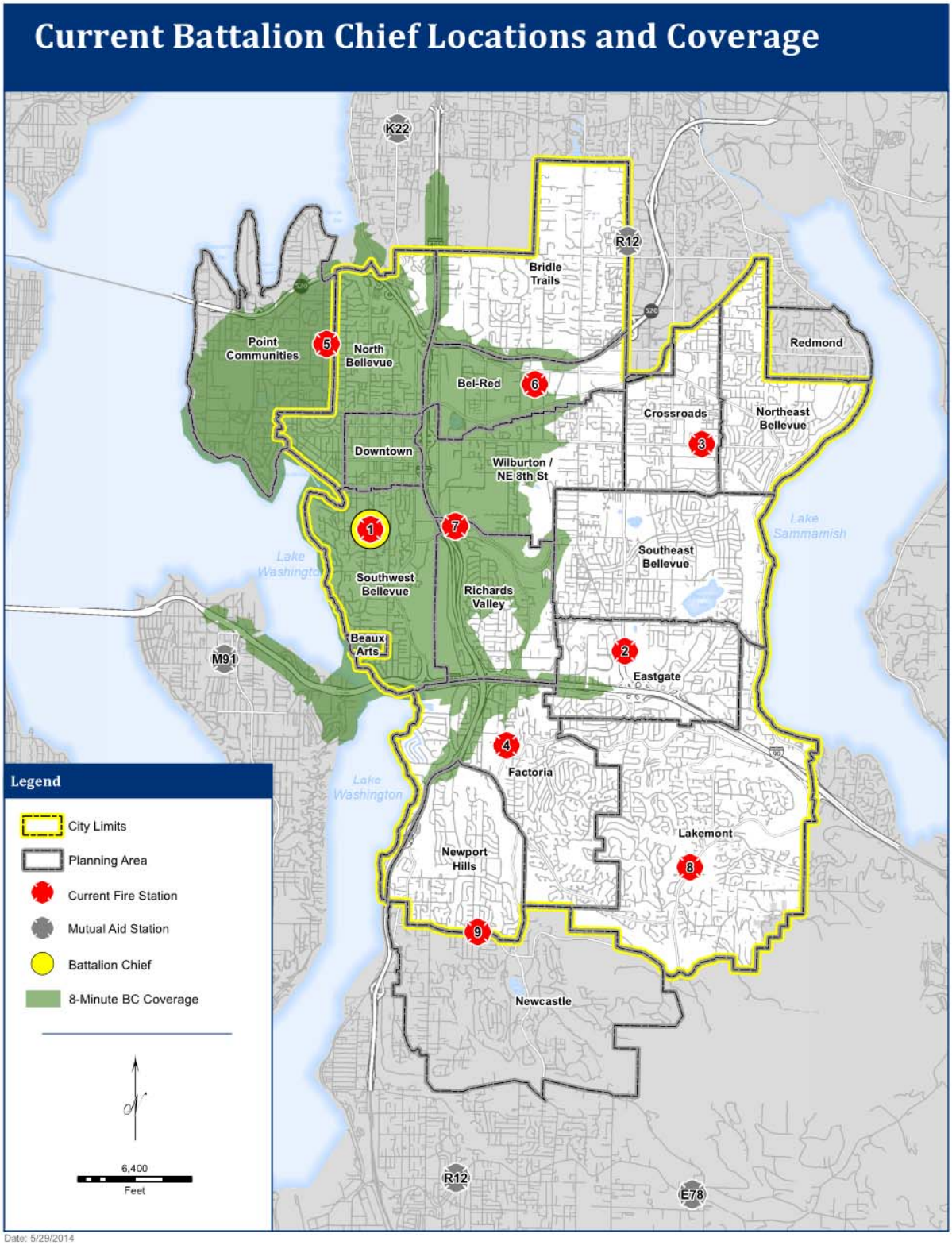
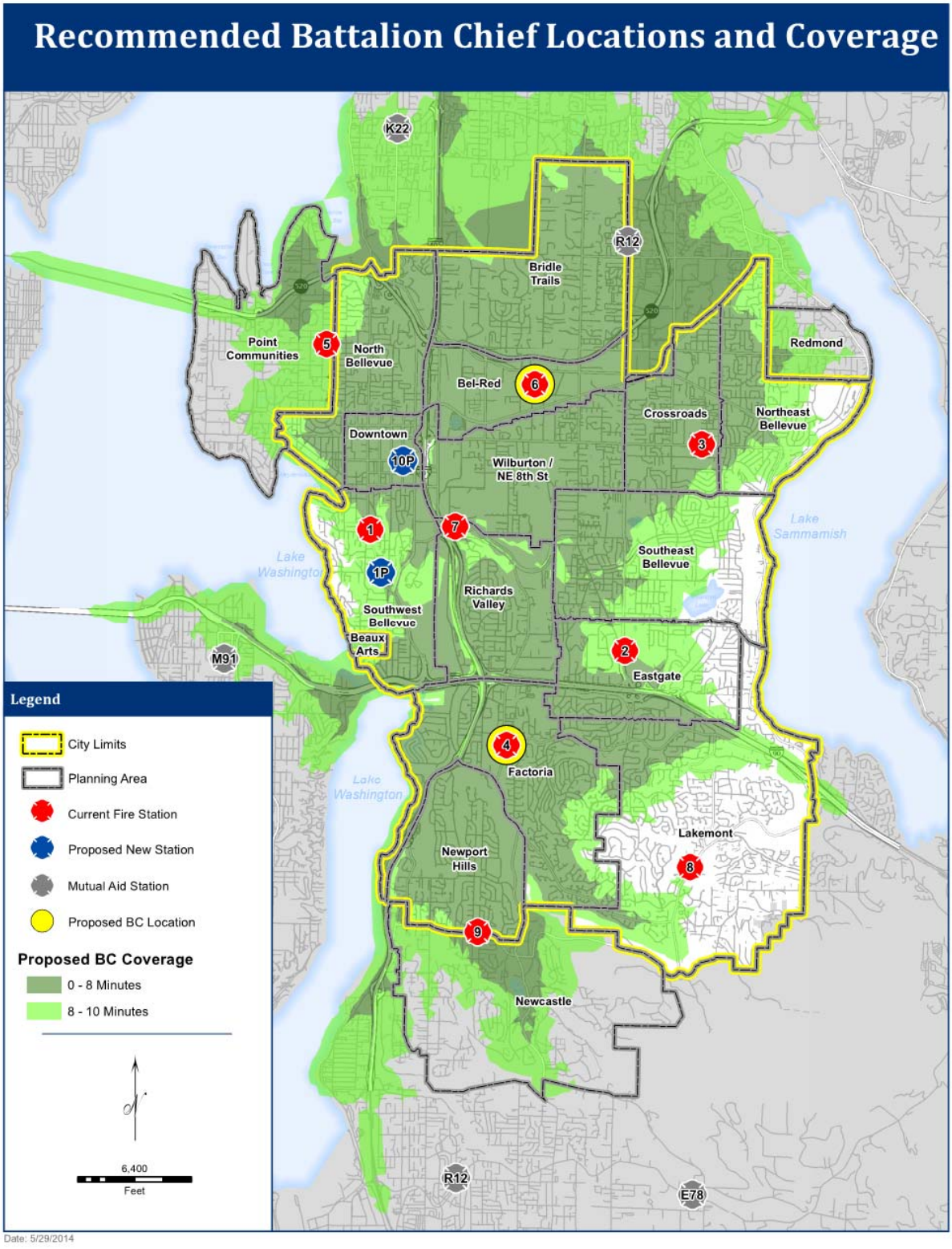


Figure 5.4 Recommended BC Locations and Coverage



Improve Weight of Response

The study team noted that weight of response could be improved by staffing units with 4 instead of 3 firefighters; we do not include this as a recommendation. In evaluating this we note:

- With not all stations currently having an engine, a more effective impact on response would be achieved if extra manpower would first to putting an engine at every station rather than 4FF staffing on an existing unit. This would also improve response availability.

- The current staffing model of 3 firefighters is a perfectly acceptable one which in the case of Bellevue provides an effective firefighting response force that does not compromise protection. Many jurisdictions use this model and BFD has much experience in employing this type of response modality. From a pure fire-fighting perspective, there is no compelling reason to change staffing from 3 to 4, as a three person unit can effectively do the job with the standard first response assignments currently in effect at BFD.

Improve Response to Downtown

As noted in Section 3, the Bellevue Downtown area has the highest current call volumes and is experiencing increased development, particularly in high-rise structures. This growth pressure is projected to increase over time and expand into other high-density areas such as Bel-Red and Factoria.

The study team has determined that the most effective option to assure three-minute travel time, adequate vertical response, and maximum weight of response coverage is to plan for a a new station in the Downtown area.

The BFD is currently achieving approximately five-minute travel times throughout the city. If it were deemed acceptable to move stations so that some areas of the city would lose four-minute travel times, additional Downtown coverage could be achieved through moving a station rather than building an entirely new station. The study team looked at this option and noted the following:

Move Station 1 or Station 7 to the Downtown

The study team looked at the alternative of moving one of the existing adjacent stations closer to the Downtown area to achieve better three-minute coverage. The following maps and analysis consider individually moving Station 1 or Station 7 to the current Bellevue City Hall location. City Hall is in a very central location within the Downtown area and provides an excellent theoretical location from which to analyze the impact of building a Downtown station. Problems exist with both theoretical moves as shown in the following figures.

If Station 1 is moved closer to Downtown, (Figure 5.5) four-minute coverage at and around Southwest Bellevue will be lost and five-minute travel coverage would be reduced. Beaux Arts would not even have a six-minute response time.

Figure 5.5 Explore moving Station 1to improve coverage Downtown

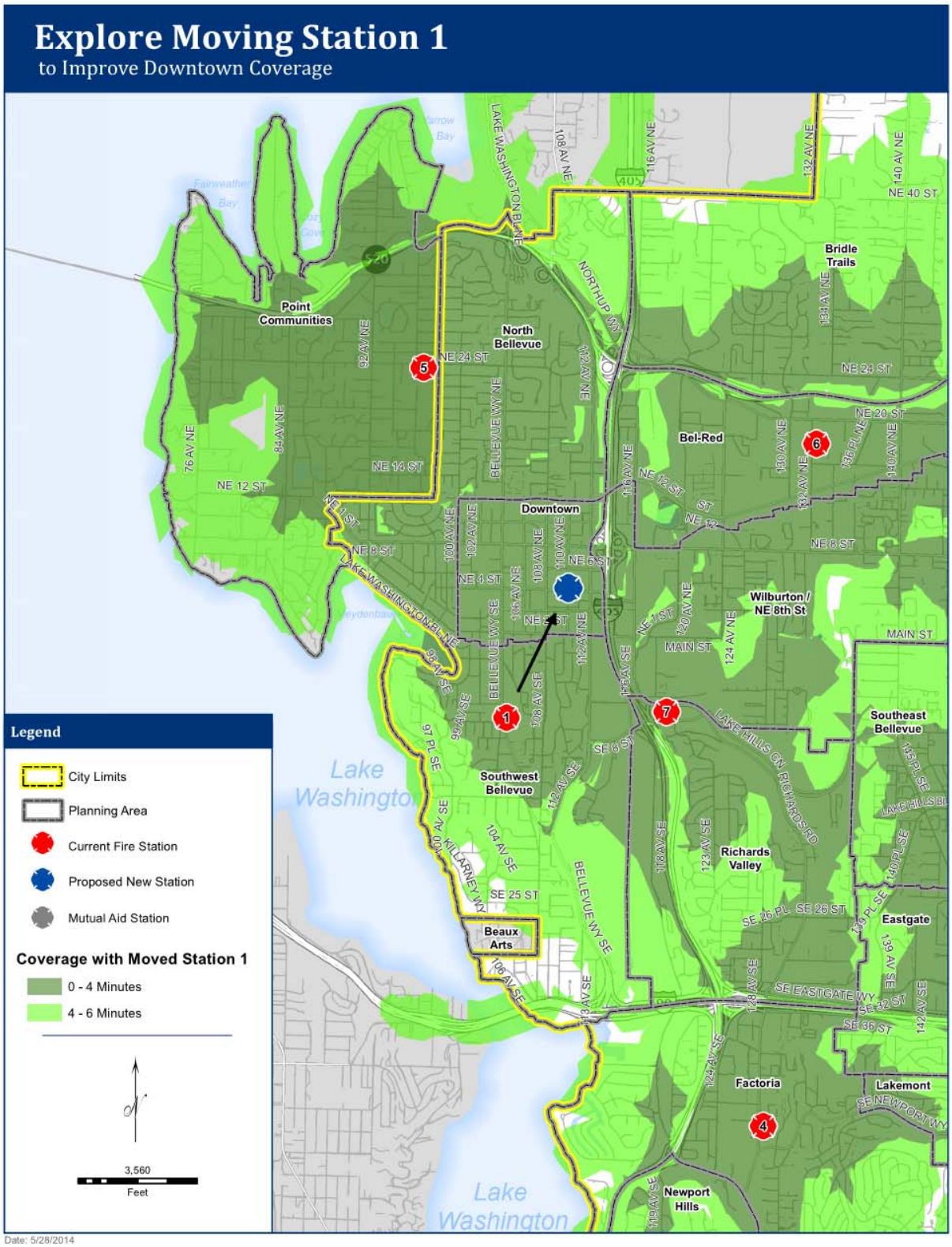
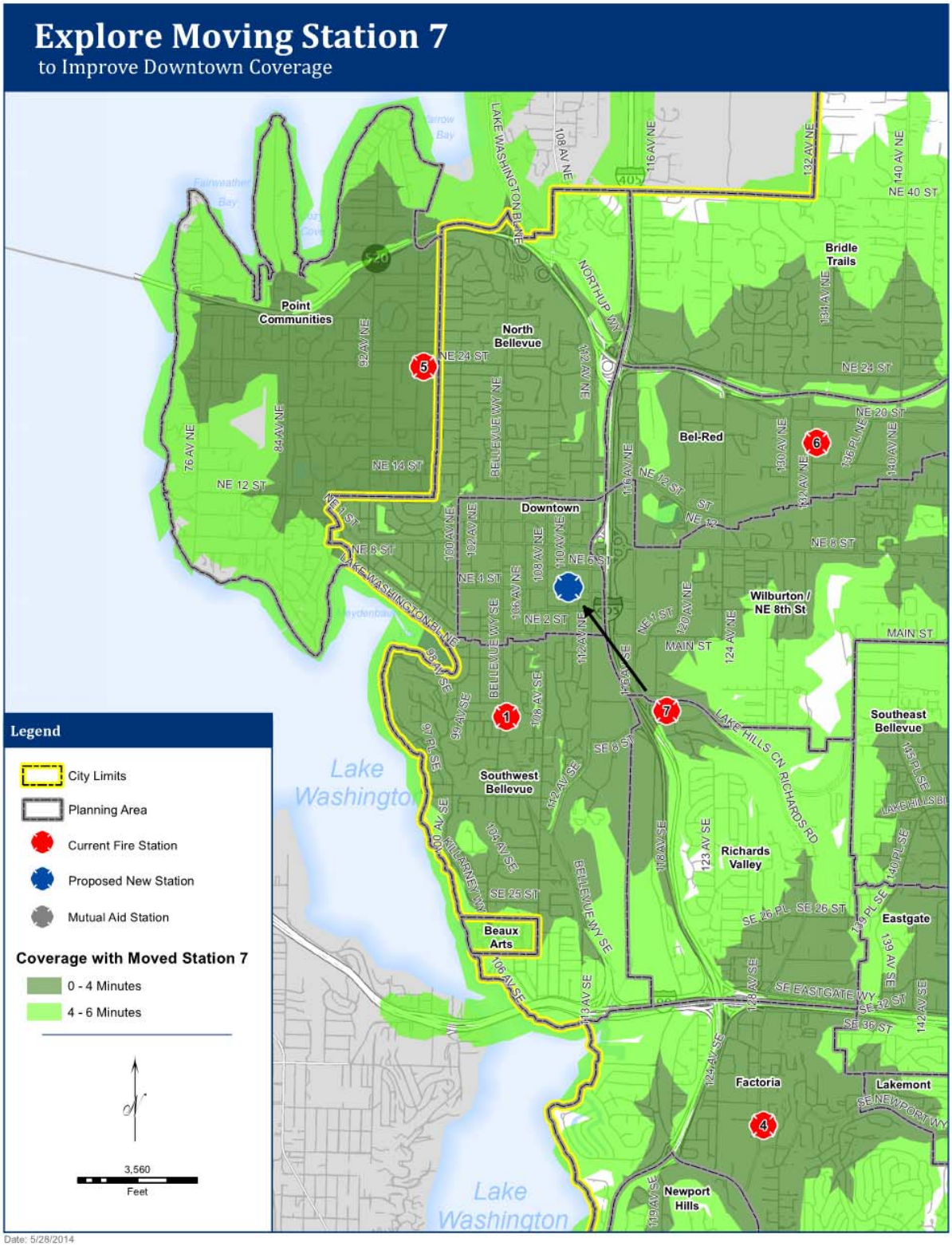


Figure 5.6 Explore moving Station 7 to improve coverage Downtown



If Station 7 is moved closer to Downtown, (Figure 5.6) four-minute travel at and around Wilburton and Richards Valley will be lost and five-minute travel coverage would be reduced.

The study team noted that the other stations near to Downtown (Stations 5 and 6) are well placed in their current positions and provide good coverage to their areas. It was noted that if Station 5 were moved closer to Downtown, there would be a significant coverage gap created to the Point Communities. Similarly, if Station 6 were moved closer to downtown, there would be a significant coverage gap in Bel-Red, Crossroads, and North Bellevue. As the intent of this study is to maintain current coverage standards, these options were not explored further.

The potential issue with moving a station is that while it would mean paying for one less station, it does not necessarily mean fewer apparatus. Of the potential station moves in the Downtown area, moving Station 1 appears to be the most feasible. But if it were deemed that a new downtown station would still provide, for instance, sufficient coverage to Beaux Arts, there is still the issue of workload versus performance. As the Downtown units become busier (which is already happening and is expected to continue with development), they will be less and less available for calls. If a call comes in for Beaux Arts and the Downtown station does not have a unit available, there would be a significantly longer response time from Stations 7, 5, or 4. For that reason a single downtown station that replaces Station 1 would need to maintain a relatively low workload. Moving Station 1 into the Downtown area would probably necessitate two engines— one for the Downtown and one for Southwest Bellevue and Beaux Arts.

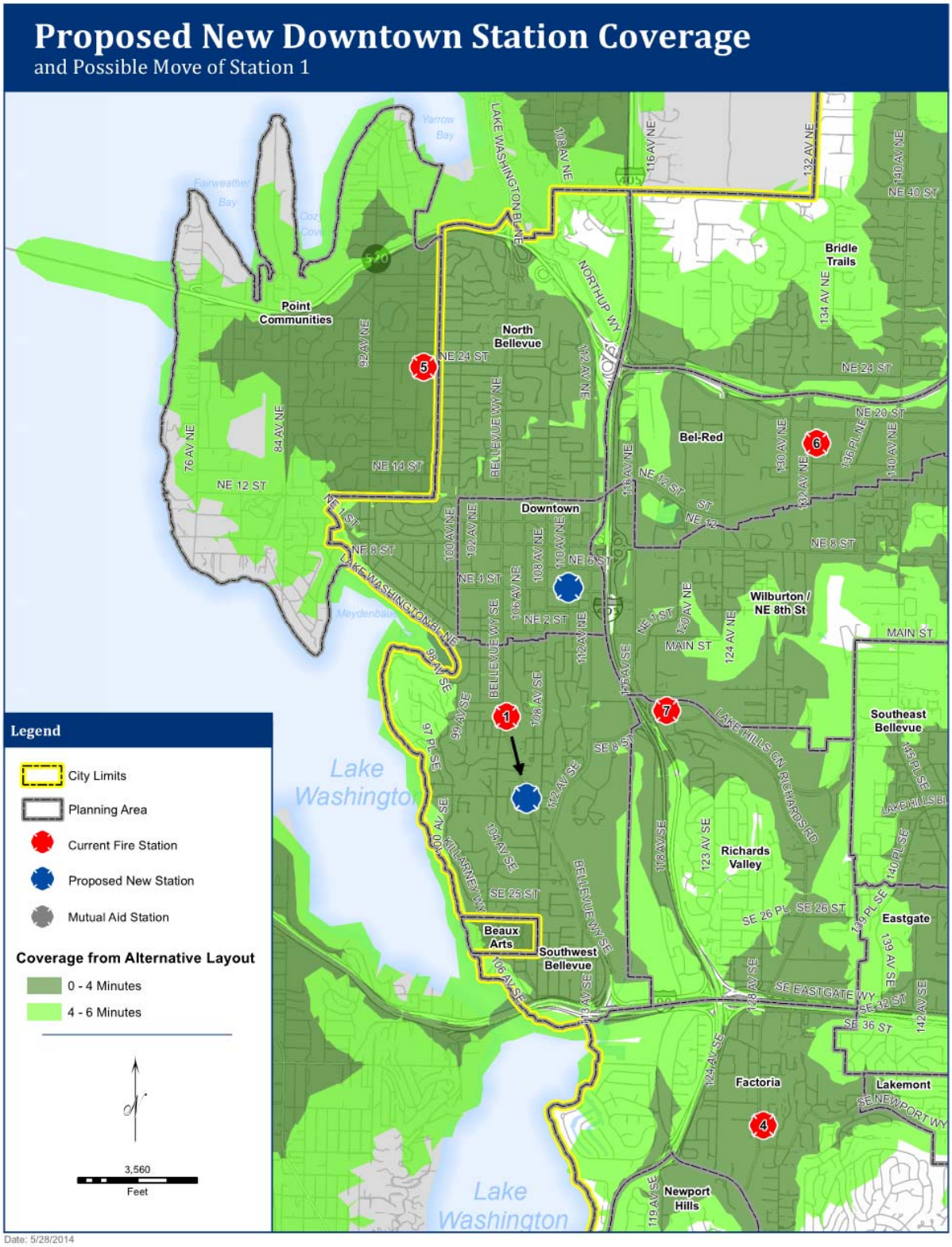
Because there is not really a potential unit savings in moving Station 1 rather than building a new downtown station, the option of building a new downtown station and keeping Station 1 provided the optimum increase in coverage without creating untenable coverage gaps in other areas of the city. Although we use Bellevue City Hall as our theoretical location for a new downtown station, any location in this general vicinity would provide excellent response times throughout the Downtown area.

New Downtown Station and Move Station 1 South

Station 1 is currently located at the intersection of Bellevue Way SE and SE 8th Street, which would be very close to the new downtown station. If a new downtown station were built, it would make sense to move Station 1 just slightly south, to somewhere near the intersection of Bellevue Way SE and 108th Avenue SE. Figure 5.7 shows our proposed station layout and coverage with a new fire station at City Hall and a relocated Station 1.

While moving Station 1 to the southeast would improve coverage in that area, it is not clear if there is adequate benefit for the cost. Our recommendation is to plan for remodel/renovation of Station 1 and to further evaluate the cost/benefit of its possible relocation.

Figure 5.7 Proposed Station Layout with new Downtown Station and relocated Station 1



Meet Training Demand

There is a trend in the fire service to develop joint training operations with adjoining departments as a means to generate efficiencies and expanded skill levels. Bellevue Fire Department has recently entered a joint agency agreement with the East Metro Training Group (EMTG). The partner agencies include the Redmond, Kirkland, Mercer Island and Northshore Fire Departments. This agreement will greatly expand the training operations at the existing Bellevue location. It is important to note that the existing location is both cost-effective and has operational benefits. It is more cost-effective as its central location allows units to train in the city as opposed to traveling to distant sites, saving travel time and costs. Also, in a sufficient large event, the training units can be dispatched from this location thus assuring better response time than a remote training site.

Additionally, there is a desire to share elements of this training facility (confined space operations, first aid, etc) with members of Public Works Department, Puget Sound Energy, school districts and other regional agencies that require the type of hands-on safety training this facility provides.

As was done for the fire station space needs, a similar process was implemented for the Training Center. The Training Center Space Needs Outline in Appendix C includes component designs which depict the rooms included in the space needs. The identified space needs for the Training Center total 14,000-gsf. This space program can support recruit academies that will be held at least annually with a class size between 16 and 20 recruits. In addition, it is anticipated that the East Metro Training Group will use the facility fr joint training sessions of up to 100 attendees. The programmed space can accommodate between 10 and 15 training officers working from this location on a daily basis and a larger number that would be necessary during an Academy session.

Concept diagrams were developed based on the space needs and these demonstrated that it was impractical to remodel the existing building due to its location being too close to the training tower, impeding vehicle access to the tower. To accommodate the needed space, a second floor would be required and the existing structure was determined incapable of supporting the added floor.

The program also identified the need for additional training grounds. Given the critical slopes, wetlands and rail line constraints on three of the four property lines, the only feasible expansion option is to expand to the north. The existing training center site was evaluated for expansion as the feasibility of purchasing a 7-10 acre property in central Bellevue for a new training center seemed cost prohibitive. The adjacent property to the north of the training center includes light industrial warehousing with office above and could be acquired to support the training center expansion. The proposed site layout is included in Appendix C.

It is recommended that additional, adjacent land be acquired to permit expansion of the training center facility and grounds. The size of the expansion should support a co-located Department Support Center as identified in the following section.

The replacement of the training center office and classroom building is a high priority for the BFD driven by the substantial increase in recruit academy training and the joint-training opportunities created the formation of the East Metro Training Group (EMTG). Not only would additional training assets benefit the department through the EMTG organization, there will be an opportunity for cost share in the operations and maintenance of the facility. This is a common practice and one of the basic reasons for creating joint training centers. The details of the cost sharing program would be developed as the project cost factors are further defined and the final organization agreements of the Training Group are complete.

Improve Support Effectiveness and Efficiencies

Warehouse Space Needs and Co-Location

A Space Needs Outline was developed for the warehouse function that identified the different types of equipment and supplies storage and the type of storage space needed for the particular supply. For instance, bunker gear cannot be exposed to natural light therefore that gear is store in a dedicated room. Medical supplies are delivered on pallets and wider aisles for forklift use and heavy-duty shelving was indicated at the area. Hand tools and other similar types of equipment require caged storage areas with light gage shelving. The space needs layout and resulting Prototypical Floor plan resulted in the recommendation to develop a 10,000-sf high-bay warehouse with a recessed loading dock and apparatus bays.

Training Center/Warehouse Co-Location

There are many storage needs for the training academy that can be placed in the warehouse as their storage needs are similar to the equipment and supplies provided to the fire stations. Also, the apparatus stored at the warehouse would be the same used for training exercises so there are many efficiency gains by co-locating the warehouse function with the training center.

Efficiencies include:

- Air fill unit can fill air bottles for the stations and for the academy training functions.
- Recruit bunker gear can be maintained and stored at the warehouse between academies.
- Small tools can be stored at the warehouse and then used for the academy.
- Medical supplies used for training could be stored at the warehouse.
- Apparatus used for the academy would be housed in the warehouse.
- Overflow table, chair and props could be stored in the warehouse.

It is recommended that the warehouse functions be co-located with the expanded training center.

Improve Station Operations and Firefighter Health, Safety, and Welfare

The development of the future operational model combined the recommendations of the response analysis with the review of the existing facility condition and then considered the alignment of the existing fire station space with the prototypical space needs outline and component diagrams. The following Table 5.1 outlines the recommended station upgrades, replacements, relocations and one new station for downtown. It is important to note that this is not a recommendation to change staffing levels or deployment in types/quantity of apparatus; rather it identifies the space modifications to ensure that BFD has the physical facilities to accommodate likely future staffing/equipment changes.

Table 5.1 Recommended Operations Model

Station/Type	Location	Recommended Level of Improvement	Changes in Staffing
Station No. 1 Two Company	Southwest Bellevue	Renovation and Expansion (Possible relocate)	Move BC to Station 6 and relocate the Maintenance and Supply Staff to future Department Support Warehouse
Station No. 2 Four Company	Eastgate	Renovation and Expansion, Purchase Adjacent Property	None
Station No. 3 Three Company	Crossroads	Renovation	None, Relocate Department-Wide supply storage from basement to future Department Support Warehouse
Station No. 4 Future Four Company with BC Ladder Truck, Engine, Aid Car	Factoria	Interim – renovate and limited expansion Long Term - Relocate	Currently None Plan for Future BC, truck company, aid car.
Station No. 5 Single Company	North Bellevue Clyde Hill	Replace on Adjacent Site	Currently None Plan for Future Aid Car
Station No. 6 Future Four Company with BC Ladder Truck, Engine, Medic or Aid Car	Bel-Red	Interim – renovate and limited expansion Long Term - Relocate	Currently None Plan for Future BC and Truck company Relocate Medic From Overlake Hospital in the future if not at future Downtown Station Aid Car Relocate the HazMat Team in the future
Station No. 7 Single Company	Richards Valley	Renovation and Expansion	Relocate HazMat Unit to this station
Station No. 8 Single Company	Lakemont	Renovation and Expansion	None
Station No. 9 Single Company	Newport Hills/Newcastle	Renovation and Expansion	None
Station No. 10 Future Four Company with Engine, Ladder Truck, Medic, and Aid Car	Downtown	New	Aid Car Engine Ladder Truck

Refer to the Space Needs Outline comparison with prototype for each station in Appendix B. Also provided (in Appendix C) are "Test to Fit" diagrams identifying areas recommended for renovation and/ or expansion.

5.2 Options Explored

Status Quo Option

In this option, the City does not implement a plan to address the facilities location or condition needs of the Bellevue Fire Department. No replacement or new stations are developed, no renovation, expansion, or upgrades are made. Only continued maintenance/repair of existing facilities is provided.

It is important to realize that doing nothing is not a "zero cost" option. If this option is pursued:

1. The condition of the existing building will worsen and the operation and maintenance costs of existing stations will continue to increase. With many building systems at the end of their useful service life, their component replacement cost will approach the cost of providing new systems.
2. Without bringing the existing buildings up to newer, more stringent seismic code for essential facilities, the stations will continue to be vulnerable to damage from a seismic event that could compromise their ability to function.
3. Without substantial renovation/remodel or replacement, it will not be possible to address the three primary health issues noted at the existing stations: improve the air quality; minimize exposure to pathogens resulting from increased EMS demand; and reduce work-related injury. Failure to change facilities to mitigate these issues will likely result in higher personnel costs from medical lost-time and personnel replacement/overtime back-filling.
4. Without substantial renovation/remodel or replacement, it will not be possible to address gender separation in sleeping quarters, an issue that has been very costly to ignore in other departments.
5. As newer apparatus are substantially larger than traditional equipment, it will continue to be difficult to accommodate new equipment in existing vehicle bays without expansion or remodel.
6. Not providing the needed quantity and variety of trailing space at the PSTC will not accommodate the projected increase in both the frequency and size of each recruit class as the retirement rate within the department greatly increases over the next decade. Training would have to be distributed to non-city owned facilities at the direct cost of renting space, the additional travel time/cost, potential over-time pay, and the lost opportunity costs of less effective training. This may also impact the effectiveness of the City's recruiting efforts.
7. Continuation of the current models of supply, operational support, and special project execution distributed in 7 different stations will remain inefficient, incurring increasing direct cost for travel and cost of moving special services spaces as the individuals performing the service switch station assignments or retire.
8. As the physical conditions of the stations worsen, the cost of land increases will make later implementation of any expansion proportionally more costly.

Summary of Status Quo Option:

Pro:

This option has no initial cost.

Con:

This option has the higher maintenance and repair costs.

This option does not mitigate the negative impacts to response time and service expectations due to continued population and development growth in key areas. It will not be possible for the BFD to maintain its current level of response and service given the projected population growth and density change.

Without bringing the existing buildings up to newer, more stringent seismic code for essential facilities, all existing stations will continue to be vulnerable to damage from a seismic event that could compromise their ability to function.

This option does not correct issues of firefighter life/safety, risk management, and cost-efficiency inherent in the existing facilities.

Not providing the needed quantity and variety of training space at the PSTC the BFD cannot accommodate the projected increase in both the frequency and size of new recruit classes.

Not consolidating operational support and special project execution will continue to be inefficient with increasing direct cost for travel and cost of moving special services spaces between stations.

This option is not recommended by the team as the need to mitigate negative impacts on response time and service expectations, due to continued population and development growth in key areas, cannot be met with the current stations at their existing locations.

Doing nothing to address operational and condition deficiencies in existing stations will not address the issues of firefighter health and safety, and operational impacts to the Department will be critical and urgent. Lastly, if a do-nothing approach is pursued, the Bellevue Fire Department will quickly lose its ability to maintain operations at its current level of response and services to the detriment of the citizens of Bellevue.

Repair/Remodel/Limited Expansion Option

In this option, the City does not plan for the replacement or relocation of any existing station nor does it plan for the development of any new stations. In this plan, only remodel, renovation, and limited expansion of existing stations (as possible given site limitations) are pursued.

If this option were pursued:

1. The condition of the existing building will improve however it may not be possible in all stations to develop the most efficient and effective renovation plan to meet space and operational needs. Some stations, which due to the small size of their site or limitations based on topography, are impossible to expand where currently located.

2. Without adjusting location of assets closer to the Downtown core, it will not be possible to meet the target adjusted travel response of less than 3 minutes to the areas of most high-rise structures. Achieving target response times in areas of high growth and increased risk will also be impacted.
3. Pursuing this option will limit the ability of the department to relocate and orient the "task-force" stations to the north and south areas. This will leave the existing task force stations in an east-west location, contrary to the new direction of development.
4. The extent of renovation needed at some stations will require temporary relocation of station operations during construction phase into rented or portable facilities. The cost of temporary facilities provides no long-term benefit to the city.
5. While this option will extend the useful life of the stations, it will not address all of the space shortages noted in Section 4. In the case of Station 5, the cost to address condition and configuration issues will be nearly that of new construction without the commensurate extension of the service life of the building.
6. Continuation of the current models of supply, operational support, and special project execution distributed in 7 different stations will remain inefficient, incurring increasing direct cost for travel and cost of moving special services spaces as the individuals performing the service switch station assignments or retire.
7. Not providing the needed quantity and variety of training space at the PSTC will not accommodate the projected increase in both the frequency and size of each recruit class as the retirement rate within the department greatly increases over the next decade. Training would have to be distributed to non-city owned facilities at the direct cost of renting space, the additional travel time/cost, and the lost opportunity costs of less effective training. This may also impact the effectiveness of the City's recruiting efforts.
8. This option will increase the cost of any subsequent change that requires more or expanded site as the cost of land will increase steadily making later implementation of any expansion proportionally more costly

Summary of Repair/Remodel/Limited Expansion Option:

Pro:

By not requiring the acquisition of new property or construction of new or replacement stations (other than Station 5), this option has a lower total cost than options that include property acquisition for new and replacement of Stations 4 & 6.

This option will address the physical and operational issues at the stations that is in the worst physical condition. (Station 5)

Con:

This option does not mitigate the negative impacts to response time and service expectations due to continued population and development growth in key areas. It will not be possible for the BFD to maintain its current level of response and service given the projected population growth and density change.

The extent of renovation needed at some stations will require temporary relocation of station operations during construction phase into rented or portable facilities. The cost of temporary facilities provides no long-term benefit to the city.

Not consolidating operational support and special project execution will continue to be inefficient with increasing direct cost for travel and cost of moving special services spaces between stations.

Not providing the needed quantity and variety of training space at the PSTC the BFD cannot accommodate the projected increase in both the frequency and size of new recruit classes.

This option will increase the cost of any subsequent change that requires more or expanded site as the cost of land will increase steadily making later implementation of any expansion proportionally more costly.

This option is not recommended the as it fails to correct the responsive deficiencies in the areas of high-rise development inherent in the current location. It also removes the flexibility for the plan to adapt to change by eliminating or delaying land acquisition until a later (more costly) market.

Replacement/Relocation/Remodel Option:

In this option, the City focuses development to address projected growth, excessive response time, increased capacity and effectiveness for training and operational command and control through new construction. Station condition and operational deficiencies are addressed through select remodel/renovation/expansion of existing stations except at Station 5 which is most cost-effectively replaced owing to a combination of small site, age, poor condition and inflexible configuration/structure.

1. The condition of the existing buildings will be addressed to extend their expected service life to 30+ years.
2. Location of a three-company station in the Downtown area will address current response shortfall and will ensure goal achievement as the area develops and grows higher and denser.
3. Relocation of Battalion Task Force to new Stations 4 and 6 corrects deficiencies in aerial and incident command response as well as addressing the shortfall in weight of force response in the Downtown, Bel-Red, and Factoria areas which have the highest level of protected growth/density.
4. Every area of the city will have a station designed and or modified to meet essential facilities seismic performance as defined by current code.
5. At stations that have remodel capability (site area and configuration) the interior remodel, expansion will be focused on correcting deficiencies in air quality; medical bio-safety health safety, and accommodation of in-station training and fitness.
6. Wherever possible, providing individual sleeping quarters will be accommodated at existing stations that remain.
7. Existing vehicle bays will be expanded or remodeled to accommodate larger modern fire apparatus.
8. The PSTC site will be expanded to accommodate BFD Training and serving as a regional training facility for the East Metro Training Group.
9. At the expanded PSTC site, a centralized department support facility will be constructed to consolidate supply, operational support, and special project execution. This facility will also be sized to house reserve apparatus.

10. This option can secure the needed land early in the implementation process when it will likely be least costly.

Summary of Replacement/Relocation/Remodel Option:

Pro:

This option ensures that the BFD will be able to maintain its current level of response and service into the future with its projected population growth and density change.

Every area of the city will have a station designed and/or modified to meet essential facilities seismic performance as defined by current code.

The condition of the existing buildings will be addressed to extend their expected service life to 30+ years.

Location of a three-company station in the downtown area will address current response shortfall and will ensure goal achievement as the area develops and grows higher and denser.

Relocation of Battalion taskforces to new Stations 4 and 6 correct deficiencies and aerial and incident command response as well as addressing the shortfall in weight of force response in the Downtown, Bel-Red, and Factoria areas which have the highest level of projected growth/density.

At stations that have remodel capability (site area and configuration) the interior remodel/expansion will be focused on correcting deficiencies in air quality; medical bio-safety health safety, and accommodation of in-station training and fitness.

Wherever possible, providing individual sleeping quarters will be accommodated at existing stations.

Existing vehicle bays will be expanded/remodeled to accommodate larger modern fire apparatus.

The PSTC site will be expanded to accommodate BFD Training and serving as a regional training facility for the East Metro Training Group.

At the expanded PSTC site, a centralized department support facility will be constructed to consolidate supply, operational support, and special project execution. This facility will also be sized to house reserve apparatus.

This option can secure the needed land early in the implementation process when it will likely be least costly.

Con:

This option will be the most costly of all the alternatives explored.

The needed land for new or relocated stations may not be readily available at the costs projected.

This option is the recommendation of the Study Team as it addresses all of the response deficiencies, replaces one of the oldest, most inflexible, worst condition stations along with improving seismic survivability of all stations in all areas. It also provides for critically needed training facilities at the size dictated by the need for greater recruitment and training to replace a largely aging force.

Lastly, with a phased remodel/renovation at all remaining stations, this option will result in operational and life-cycle improvements to those stations that have the capability to adapt to serve the city for many years to come.

5.3 Budget Planning

As the specific design for the recommended projects has not been completed, it is premature to develop detailed cost estimates for projects. The study team evaluated each project for cost planning which is different from cost estimating. Cost planning occurs before design begins and relies on historical or standard industry data to predict the project's probable cost. In planning costs for the recommended projects, the team evaluated each proposed improvements/replacement on a cost per square foot basis based on recent project types to establish anticipated costs for the construction and development of each project. The following descriptions and numbering are for reference only and are not indicative of order or prioritization.

Status Quo Option-1

The option has the advantage that it does not require initial capital outlay. It is important to note however that doing nothing is not a true "zero cost" option. As the buildings age, the (dynamic) costs for operations, maintenance and repair escalate with age. As the information in Appendix E indicates, the current maintenance and repair (M&R)[1] costs for the 90,000-sf of facilities supporting the BFD are estimated to be $740,000 per year or approximately $8.00/sf. By comparison, in new or fully renovated buildings typical M&R costs range from $2-4/sf[2].

Over the next 15-year period, doing nothing is estimated to have a direct cost of $13,400,000 ($145/sf). From current annual cost, in the initial 5-years (2015-2020), the annual M&R costs can be expected to escalate approximately 3% per year. In the next 5 year term, escalation increases to 6% per year and in the last term; it increases to 9% per year. This reflects the continuing aging of the base asset and systems and the higher incidence of replacement vs. repair as systems become impossible to repair due to age or obsolescence.

This option has other costs that are less easy to estimate; loss of opportunity, longer response times; impact on department accreditation, recruiting and retaining firefighters. These costs could greatly exceed the direct hard dollar costs to do nothing.

[1] M&R costs do not include operational costs such as utilities, janitorial, etc.

[2] This is the budget range used by the Washington State Office of Financial Management for budgeting.

Budget Summary:

$0	**Initial Capital**
$14.5M	**M&R (for 15 year)**

Repair/Remodel/Limited Expansion Option-2

In this option, the City does not plan for the replacement or relocation of any existing stations with the exception of Station 5 due to its condition. This option does not include any new or other replacement stations. It does not correct the responsive deficiencies in the areas of high-rise development nor does it accommodate the change of taskforce stations. It is estimated to have a total program cost of $ 47,980,000 in 2014 funds. Refer to the implementation options for escalated totals.

The maintenance and repair M&R costs for the 102,800-gsf of this option is estimated to be $411,000 per year or approximately $4.00/sf. It can be expected to escalate approximately 3% per year over the 15 year period for an approximate total of $7,100,000

Budget Summary:

$48.0M	**Initial Capital**
$7.1M	**M&R (for 15 year)**

Replacement/Relocation/Remodel Option-3

In this option all of the response deficiencies are addressed with a new Downtown station and the three existing stations replaced. It also assures seismic survivability of all stations in all areas. It is estimated to have a total program cost of $ 129,600,000 in 2014 funds. This total includes $40 million in site acquisition costs. Refer to the implementation options for escalated totals. It is the recommendation of the study team to pursue this option.

The maintenance and repair M&R costs for the 168,000,800-gsf of this option is estimated to be $336,000 per year or approximately $2.00/sf. This is lower due to the decrease in average age of the buildings. It can be expected to escalate approximately 3% per year over the 15 year period for an approximate total of $5,800,000

Budget Summary:

$129.6.M	**Initial Capital**
$5.8M	**M&R (for 15 year)**

5.4 Summary of Recommendations

It is recommended that the City develop its long-range fire facilities plan on Option 3 for the reasons stated previously. This option includes:

Operations

1. Establish a performance-based system for future planning
2. Enable Stations 4 and 6 to function as a Taskforce Station with the capability to locate an engine, ladder, and Aid Car at each.
3. Provide the capacity at Stations 4 and 6 to house a Battalion Chief with needed space and vehicle.

Stations

1. Acquire land for new/relocated stations:
   a. Downtown
   b. Clyde Hill
   c. Factoria
   d. Bel-Red
2. Construction of a new Station 10 located in Downtown
3. Replace Station #5 at an expanded site adjacent to its existing location.
4. Replace Stations 4 and 6 at new, sites to enable them to function as a Taskforce Station with the capability to locate an engine, ladder, Aid Car, and Battalion Chief at each.
5. Remodel and expand Station 1, 2, 3, 7, 8, and 9.

Support

1. Acquire land adjacent to the existing Training Center
2. Construct new Training Center
3. Construct Departmental Support Facility
4. Repair/renovate the Burn Tower
5.

This option will also require the city to acquire land for Stations 4, 5, 6, and 10, and for the expansion of the PSTC. Acquisition costs were estimated based on the optimum size established in the space standards and the average cost of land (on a square foot basis) for target location. The costs for developing the site to enable it to support the identified building are also include in this estimate. Please note that these estimates are intended to be 'place-holders' as we do not know the exact parcels that will be selected. We will also carry the various sales of existing property as a not-quantified contingency as it is not certain that the city will dispose of the property.

It is important to note that Sound Transit has included the current PSTC site on a list of possible locations for a light rail maintenance station. Discussion with Sound Transit has indicated that this is a very low probability as it is the least-preferred option on the site candidate list.

Following are the order-of-magnitude land acquisition and development costs that have been incorporated into the estimates:

Property	Land Cost	Site Development	Total
FS-5 (Clyde Hill)	2.0M	0,75M	2.75M
FS-10 (Downtown)	12M	2.25M	14.25M
FS-6 (Bel-Red)	5.5M	1.5M	7M
FS-4 (Factoria)	7M	1.5M	8.5M
PSTC	5.5M	2M	7.5M
TOTAL	**32M**	**8M**	**40M**

Project Costs

Detailed project estimates are included in Appendix E.

Program Costs

A program cost factor has been identified which accounts for costs that not specifically attributed to a specific project. These include non-operational costs incurred in the development, execution, and management of the overall program. Typically these costs include direct management labor, temporary relocations, non-project fees and regulatory compliance, etc. Similar recent multi-year programs have reported program costs in the 4-5% range thus the study team has recommended that 5% be planned to cover non-project program costs.

Escalation

All cost planning calculations are based in current dollars. As the plan will be executed over a period of time, the implementation schedule includes an escalation factor based on an assumed construction inflation rate applied to the estimated time from 2014 to the mid-point of planned construction. The assumed escalation rate for construction established by the Washington State Office of Financial Management (3% per year) was used.

5.5 Implementation Schedule

In order to allow sufficient time for developing a funding plan and to equalize annual costs, it is proposed that a multi-year execution plan be implemented. The attached schedules illustrate the recommended plan implemented over a 6, 8, and 12 year period to illustrate the impact of escalation on overall program costs. Total program costs for the three alternative schedules are:

- 6-Year: $139,500,000
- 8-Year: $145,000,000
- 12-Year: $151,800,000

The 6-year option has all land acquisition occurring in the first year of the program to minimize the impact of escalation and inflation on volatile land prices. This was not done on the extended time alternatives to extended period of outer/no use on the land assets however the total cost of the longer period alternatives can be lower by early land purchase.

Bellevue Fire Department

Facilities Master Plan

6-year Execution Plan (Early Land Acquisition)

Project	Phase	Estimated Cost (2014)	Esclated Cost (+3%/yr)	Year 1 2015	Year 2 2016	Year 3 2017	Year 4 2018	Year 5 2019	Year 6 2020
Station 5	Site Acquisition	$ 2,750	$ 2,830						
	Design	$ 3,540	$ 3,650						
	Construction	$ 5,310	$ 5,630						
Station 10	Site Acquisition	$ 14,250	$ 14,680						
	Design	$ 5,064	$ 5,370						
	Construction	$ 7,596	$ 7,820						
Training Center	Site Acquisition	$ 7,500	$ 7,730						
	Design	$ 3,720	$ 3,940						
	Construction	$ 5,580	$ 6,080						
Station 4	Site Acquisition	$ 8,500	$ 8,750						
	Design	$ 5,840	$ 6,370						
	Construction	$ 8,760	$ 9,810						
Station 6	Site Acquisition	$ 7,000	$ 7,210						
	Design	$ 5,840	$ 6,540						
	Construction	$ 8,760	$ 10,070						
Warehouse/Reserves	Design	$ 2,060	$ 2,370						
	Construction	$ 3,090	$ 3,650						
Station 9	Design	$ 1,140	$ 1,170						
	Construction	$ 1,710	$ 1,810						
Station 3	Design	$ 1,120	$ 1,150						
	Construction	$ 1,680	$ 1,780						
Station 1	Design	$ 1,928	$ 2,040						
	Construction	$ 2,892	$ 3,150						
Station 7	Design	$ 960	$ 1,050						
	Construction	$ 1,440	$ 1,610						
Station 8	Design	$ 640	$ 720						
	Construction	$ 960	$ 1,100						
Station 2	Design	$ 1,520	$ 1,750						
	Construction	$ 2,280	$ 2,690						
Subtotal Project Cost		$ 123,430	$ 132,520	*53,500*	*14,570*	*19,300*	*17,390*	*14,080*	*13,680*
Subtotal Program Cost		$ 6,170	$ 6,630	*2,680*	*730*	*970*	*870*	*700*	*680*
Total Cost		**$ 129,600**	**$ 139,150**	***56,180***	***15,300***	***20,270***	***18,260***	***14,780***	***14,360***

PHASE KEY

- Site Acquisition
- Predesign
- Design
- Construction

Notes:

All costs x 1,000

Escalation calculated at 3%/Year for Washington State OFM capital budget planning instruction

All esclation to mid point of activity

Bellevue Fire Department

Facilities Master Plan

8-year Execution Plan

Project	Phase	Estimated Cost (2014)	Esclated Cost (+3%/yr)	Year 1 **2015**	Year 2 **2016**	Year 3 **2017**	Year 4 **2018**	Year 5 **2019**	Year 6 **2020**	Year 7 **2021**	Year 8 **2022**
Station 5	Site Acquisition	$ 2,750	$ 2,830								
	Design	$ 3,540	$ 3,750								
	Construction	$ 5,310	$ 5,630								
Station 10	Site Acquisition	$ 14,250	$ 14,680								
	Design	$ 5,064	$ 5,370								
	Construction	$ 7,596	$ 8,280								
Training Center	Site Acquisition	$ 7,500	$ 8,180								
	Design	$ 3,720	$ 4,170								
	Construction	$ 5,580	$ 6,140								
Station 4	Site Acquisition	$ 8,500	$ 9,270								
	Design	$ 5,840	$ 6,540								
	Construction	$ 8,760	$ 10,070								
Station 6	Site Acquisition	$ 7,000	$ 8,050								
	Design	$ 5,840	$ 6,890								
	Construction	$ 8,760	$ 10,600								
Warehouse/Reserves	Design	$ 2,060	$ 2,490								
	Construction	$ 3,090	$ 3,830								
Station 9	Design	$ 1,140	$ 1,170								
	Construction	$ 1,710	$ 1,810								
Station 3	Design	$ 1,120	$ 1,190								
	Construction	$ 1,680	$ 3,190								
Station 1	Design	$ 1,928	$ 2,100								
	Construction	$ 2,892	$ 3,240								
Station 7	Design	$ 960	$ 1,070								
	Construction	$ 1,440	$ 1,660								
Station 8	Design	$ 640	$ 740								
	Construction	$ 960	$ 1,130								
Station 2	Design	$ 1,520	$ 1,790								
	Construction	$ 2,280	$ 2,760								
	Subtotal Project Cost	$ 123,430	$ 138,620	*20,560*	*13,060*	*31,780*	*20,140*	*18,560*	*14,840*	*10,550*	*9,130*
	Subtotal Program Cost	$ 6,170	$ 6,930	*1,020*	*650*	*1,590*	*1,010*	*930*	*740*	*530*	*460*
	Total Cost	**$ 129,600**	**$ 145,550**	***21,580***	***13,710***	***33,370***	***21,150***	***19,490***	***15,580***	***11,080***	***9,590***

PHASE KEY

- Site Acquisition
- Predesign
- Design
- Construction

Notes:

All costs x 1,000

Escalation calculated at 3%/Year for Washington State OFM capital budget planning instruction

All esclation to mid point of activity

Bellevue Fire Department

Facilities Master Plan

12-year Execution Plan

Project	Phase	Estimated Cost (2014)	Esclated Cost (+3%/yr)	Year 1 **2015**	Year 2 **2016**	Year 3 **2017**	Year 4 **2018**	Year 5 **2019**	Year 6 **2020**	Year 7 **2021**	Year 8 **2022**	Year 9 **2023**	Year 10 **2024**	Year 11 **2025**	Year 12 **2026**
Station 5	Site Acquisition	$ 2,750	$ 2,830												
	Design	$ 3,540	$ 3,750												
	Construction	$ 5,310	$ 5,790												
Station 10	Site Acquisition	$ 14,250	$ 14,680												
	Design	$ 5,064	$ 5,370												
	Construction	$ 7,596	$ 8,510												
Training Center	Site Acquisition	$ 7,500	$ 8,400												
	Design	$ 3,720	$ 4,280												
	Construction	$ 5,580	$ 6,580												
Station 4	Site Acquisition	$ 8,500	$ 10,030												
	Design	$ 5,840	$ 7,070												
	Construction	$ 8,760	$ 10,860												
Station 6	Site Acquisition	$ 7,000	$ 8,680												
	Design	$ 5,840	$ 7,420												
	Construction	$ 8,760	$ 11,120												
Warehouse/Reserves	Design	$ 2,060	$ 2,740												
	Construction	$ 3,090	$ 4,200												
Station 9	Design	$ 1,140	$ 1,210												
	Construction	$ 1,710	$ 1,860												
Station 3	Design	$ 1,120	$ 1,250												
	Construction	$ 1,680	$ 1,930												
Station 1	Design	$ 1,928	$ 2,280												
	Construction	$ 2,892	$ 3,500												
Station 7	Design	$ 960	$ 1,190												
	Construction	$ 1,440	$ 1,830												
Station 8	Design	$ 640	$ 830												
	Construction	$ 960	$ 1,280												
Station 2	Design	$ 1,520	$ 2,020												
	Construction	$ 2,280	$ 3,100												
	Subtotal Project Cost	$ 123,430	$ 144,590	*2,830*	*19,640*	*13,020*	*13,900*	*10,470*	*15,600*	*13,860*	*15,300*	*14,680*	*6,390*	*11,600*	*7,300*
	Subtotal Program Cost	$ 6,170	$ 7,230	*140*	*980*	*650*	*700*	*520*	*780*	*690*	*770*	*730*	*320*	*580*	*370*
	Total Cost	**$ 129,600**	**$ 151,820**	***2,970***	***20,620***	***13,670***	***14,600***	***10,986***	***16,380***	***14,550***	***16,070***	***15,410***	***6,710***	***12,180***	***7,670***

PHASE KEY

- Site Acquisition
- Predesign
- Design
- Construction

Notes:

All costs x 1,000

Escalation calculated at 3%/Year for Washington State OFM capital budget planning instruction

All esclation to mid point of activity

BELLEVUE FIRE DEPARTMENT
FACILITIES MASTER PLAN
MAY 2014

Appendix A
Performance Analysis Detail

Schreiber Starling & Lane
ARCHITECTS
MARY MCGRATH ARCHITECTS
TriData Corporation

APPENDIX – A

PERFORMANCE ANALYSIS DETAIL

A-1: PERFORMANCE MEASUREMENT

Many fire departments measure their deployment performance based entirely on the NFPA 1710 standard. The problem with using this standard "carte-blanche" is that it assumes all areas need equal fire protection. Even if it were possible to provide truly equal fire protection, the reality is that urban, downtown areas have different fire protection needs than a more rural area. A sparsely populated and sparely structured area of the city, for instance, does not need three ladder trucks within an 8-minute reach; some urban, downtown areas do.

The 1710 standard is oriented towards achieving a 6-minute total response time, a time at which fires are likely to expand rapidly (flashover), and defibrillated cardiac arrest patients have a markedly lower chance of survival. NFPA 1710 does not actually specify a total response time standard. Instead, it provides time and reliability standards for each of the time segments that comprise total response time (call-processing, turnout, and travel). For example, the standard specifies that for fires and special operations incidents, the first-arriving unit will have a travel time (time from the unit leaving the station to arrival at the emergency incident) of four-minutes 90 percent of the time. In this case, 4-minutes is the time standard, and 90 percent is the reliability standard. Although the NFPA 1710 standard is an excellent goal to work towards, few fire departments are able to completely meet the standard.

The standard is based on what is ideal and not necessarily what is realistic. For instance, to achieve a six-minute total response time, the original version of the standard specified a call-processing time of one minute, a turnout time of one minute, and a travel time of four minutes. It was subsequently realized that one-minute was not enough time for firefighters to get to their unit, don full turnout gear and leave the station. As a result, the 2010 version of the NFPA 1710 standard was revised to allow 80 seconds of turnout time for fire and special operations incidents.

Just as the standard itself was revised to reflect reality, it makes sense to consider whether the standard makes sense for all parts of the jurisdiction in its current form. Take for instance a rural, sparsely populated area. It may not be reasonable to expect a 4-minute travel time for 90 percent of incidents. The jurisdiction might consider specifying a 5-minute travel time for 70 percent of incidents to account for the area's rural character.

Appropriate performance levels should be based on the characteristics of individual planning areas. Response time and reliability goals should match a particular area's risk characteristics, not just conform to a one-size-fits-all standard. For this to occur, fire departments might depart from just using NFPA 1710 and ISO standards and instead move toward a data-driven process of analyzing risk and response, in our opinion. The UK after having been a model for standards of cover has completely dropped them nationally, in favor of locally made risk tradeoffs. Heavier investment in prevention might be considered vs. increasing suppression. We should try to develop the data on which to make such judgments.

Assessing Deployment Performance

Deployment decisions concerning fire station and apparatus locations should be an ongoing process based on periodic performance measurement. Because jurisdictional needs do change, the deployment change recommendations made in this study should be considered as a step in a continuing process. Going forward, the fire department needs to be regularly conducting neighborhood-level performance measurement for the process to be effective.

Police departments are decades ahead of most fire departments when it comes to analyzing data to drive operations. Most city and county police departments have several technical crime analysts who specialize in data analysis and mapping. Many fire departments should consider hiring a dedicated data analyst and begin to incorporate performance measurement into a regular (perhaps quarterly) review of deployment. The fire department culture, which is based on meeting standards, should reconsider its emphasis on static deployment (where unit locations and first-due areas rarely change) to one of dynamic deployment based on data-driven performance goals.

An excellent resource on how to measure performance and adapt deployment is the Center for Public Safety Excellence's (CPSE) Developing Standards of Cover Manual. One of the advanced, but effective techniques used by the manual is to measure the trade-off between unit availability (percentage of incidents where the correct (first due) unit handled the call) and response time performance (percentage of incidents below the response time goal).

Generally speaking, as the first-in correct unit for a particular area becomes less available (due to other calls, training, etc.), performance for that area decreases because units from other stations have to travel further to handle the call. How much of an impact reliability has on performance is largely dependent on how far away the nearest fire stations are. This type of analysis can be used to determine if a station needs an additional unit or might benefit from a first-due area adjustment. Fire departments should familiarize themselves with this performance measurement methodology and consider its use to gauge station and unit location performance.

Reporting Deployment Performance

After taking the time to establish deployment goals for each neighborhood or planning district and learning some of the more advanced CPSE analysis methodologies, the last step is to establish regular reporting mechanisms. We recommend that fire departments consider producing the following to types of reports:

Monthly Deployment Performance Report

This report should be distributed department-wide each month. Such a report serves several important functions. First, it provides information and data feedback to those entering incident data; getting a detailed report that shows workload by units and response time performance can provide firefighters the ability to gauge and challenge themselves to better performance (e.g. one engine crew that has had the slowest turnout time in the past few months makes it their goal to be in the top three engine companies for turnout time in the next reporting period). Also, putting out a monthly report provides an excellent error checking mechanism, as firefighters will be the first to notice and announce any problematic performance statistics. Finally, having somebody try and pull together some statistics with Excel for an annual report is asking for problems because you cannot truly be familiar with data only looked at once a year. Putting together monthly reports helps to ensure that the fire department is on top of its data collection and performance measurement.

Quarterly Report

While the monthly report can be fairly short and limited to some simple workload and response time results, we recommend a more in-depth quarterly report. The report should be set up so that department leaders can review deployment performance for the entire system and each individual planning district. The report should be set up to note performance changes/trends in specific planning areas so that fire department officials are in a good position to recommend near- and long-term deployment modifications. We strongly recommend that this annual performance measurement report reflect most of the analysis types found in the CPSE Standards of Cover Manual.

A-2: RESPONSE TIME ANALYSIS

For this part of the study, we reviewed current station and unit performance with respect to the emergency-service needs of Bellevue's various planning areas. To do this, we analyzed response-time performance (both citywide and by planning areas), current unit workloads, and the relationship between unit availability and response-time performance. We also conducted a station coverage and overlap analysis using GIS software. Using these inputs and data as a baseline we are then able to make informed conclusions and recommendations on potential station locations.

Response-Time Analysis

Response time is the most common performance measurement used by the fire service because it is understood by citizens, easy to compute, and useful in the evaluation of end results. Rapid response is also an aspect of service quality that citizens care about. There have been a few attempts to measure the incremental value of a one-minute faster response time for fires and EMS calls, but there is no definitive study of the incremental benefit. Faster is better, but it is unclear how much better in terms of dollars or lives saved. In place of true measures of outcome, response time is often used as a substitute.

How Response Time Is Analyzed

In this response-time analysis, we show average times, 80th-percentile times (meaning that a time standard was met 80% of the time), and 90th-percentile times. Although averages are commonly used in other fields to summarize results, average response times are used less frequently by the emergency-service industry because small numbers of very short or long response times and data errors can distort the results. We show the average response times mostly because jurisdictions often want to know what their average times are, but fire departments should never gauge performance strictly on average response times.

The public is interested in how fast a system responds to most calls, which is better reflected in percentile/threshold times (how often the system responds within the established standard) than average times. More and more departments are adopting the 90th percentile for reporting response times, mostly due to use of this measure by the National Fire Protection Association. Essentially NFPA standard 1710 says fire departments should achieve the following:

- Call-processing time under 60 seconds 90% of the time
- Turnout time under 60 seconds 90% of the time for EMS responses
- Turnout time under 80 seconds 90% of the time for fire responses
- Travel time under four minutes 90% of the time

Most fire departments aspire to use NFPA 1710, but few are actually meeting the standard, especially with respect to travel time, which is the hardest to improve.

Meeting the 90th-percentile goal is not always the most efficient means for delivering emergency services. A system designed for 90% compliance allows only 10% of calls to have response times that exceed the target goal time. Although it is certainly possible to design a system with 90% compliance for all areas of a jurisdiction, it is usually not a cost-effective strategy. Urban areas close to several fire stations should have high compliance, but it does not always make sense to dictate such high compliance for more suburban areas. NFPA 1710 acknowledges that it would not make sense to apply the same goal times to rural areas.

A better approach, we believe, is to use 80% compliance as the response-time standard. There are several reasons for this. First, we subdivide our analysis into incident types and geographic areas (which most departments do not do). Having 90th-percentile compliance in each of these subdivided areas would result in higher than 90% compliance citywide. Second, departments that do not have rigorous data-quality controls will typically have more calls with incorrectly long response times than incorrectly short response times, making it difficult to achieve 90% compliance. An 80% compliance standard leaves room for some erroneous data. Finally, almost no departments actually achieve 90% compliance with NFPA 1710. The Center for Public Safety Excellence (CPSE) Standards of Cover Manual uses 80th-percentile times as a suggested performance criterion. In our response-time analysis, we used an Adjusted Standard that uses the NFPA 1710 time objectives, but measures response times at the 80th rather than the 90th percentile for the above reasons.

Ultimately, the best way of determining appropriate performance-measurement metrics is for city and fire-department officials to set those metrics for each individual planning area based on the demand and risk. To reduce fire loss and improve deployment efficiency, it is best to place resources where they can do the most good, rather than treating every area the same, as traditional fire-deployment practices dictate.

Our analysis of BFD response times included only incidents dispatched as an emergency. We eliminated service calls from the response-time analysis. We included only frontline pumping and aerial apparatus for fire incidents and only first-response-capable units for EMS calls. These criteria were applied to keep the analysis in line with the 1710 standard.

For all time segments, we analyzed one year of data. We eliminated those time segments that were more than three standard deviations from the mean (outliers). Three times the standard deviation was used because if travel times have a normal probability distribution, 99.7% of incidents are expected to fall within three standard deviations of the mean. Anything more than three standard deviations is likely to be an error in the data or a highly unusual situation.

Call-Processing or Alarm-Handling Time

According to NFPA 1710, alarm-handling time is "the time interval from the receipt of the alarm at the primary public safety answering point (PSAP) until the beginning of the transmittal of the response information via voice or electronic means to emergency response facilities (ERFs) or the emergency response units (ERUs) in the field."

NFPA 1710 (4.1.2.3.3) specifies that "the fire department shall establish a performance objective of having an alarm processing time of not more than 60 seconds for at least 90 percent of the alarms and not more than 90 seconds for at least 99 percent of the alarms, as specified by NFPA 1221."

Figure 10 and Table 1 show the 2012 call-processing times for the BFD by time of day and incident type. The 90th-percentile call-processing time for fire and special operations incidents was 1:22 (one minute, 22 seconds). This time is about 20 seconds longer than the standard. EMS incidents had a 90th-percentile call-processing time of 1:05, which is just slightly longer than the standard. While some improvement is possible, the times are in line with or better than the performance of most other dispatches. The red line in **Error! Reference source not found.** shows that even when there are peaks in the number of incidents (meaning the dispatch center is taking more 911 calls), there appears to be only a very slight delay in call-processing time.

Figure 10. Call-Processing Time by Hour of the Day, 2012

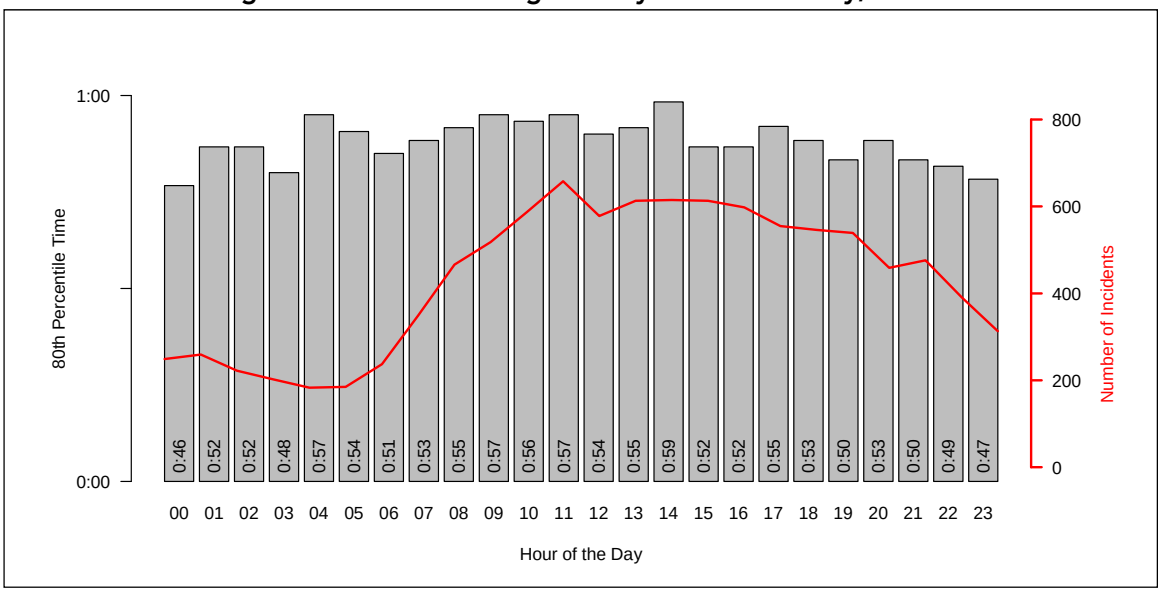


Table 1. Call-Processing Time by Incident Type, 2012

	Average	80th Percentile	90th Percentile
Emergency Medical Service	0:40	0:52	1:05
Fire & Special Operations	0:53	1:11	1:22
(all)	0:41	0:53	1:06

Turnout (or Reaction) Time

NFPA 1710 defines turnout time as "the time interval that begins when the emergency response facilities (ERFs) and emergency response units (ERUs) notification process begins by either an audible alarm or visual annunciation or both and ends at the beginning point of travel time." The standard specifies an "80 second turnout time for fire and special operations response and [a] 60 second turnout time for EMS response."

The analysis of Bellevue's turnout times against the Adjusted Standard (NFPA 1710 time-segment objective at the 80th percentile level) showed poor turnout times. For fire and special-operation responses, a turnout time of 1:52 is 32 seconds above the Adjusted Standard. For EMS responses, a turnout time of 1:26 is 26 seconds over the Adjusted Standard. Figure 1 and Table 2 show the turnout times by time of day and incident type. Because EMS turnouts do not require the donning of turnout gear, they should be faster than fire turnouts, and this is reflected in the data.

Figure 1 shows that turnout times are 30 to 60 seconds faster between 7:00 AM and 10:00 PM than during the overnight hours. Improving overnight turnout times would help bring down overall turnout times.

Figure 1. Turnout Time by Hour of the Day, 2012

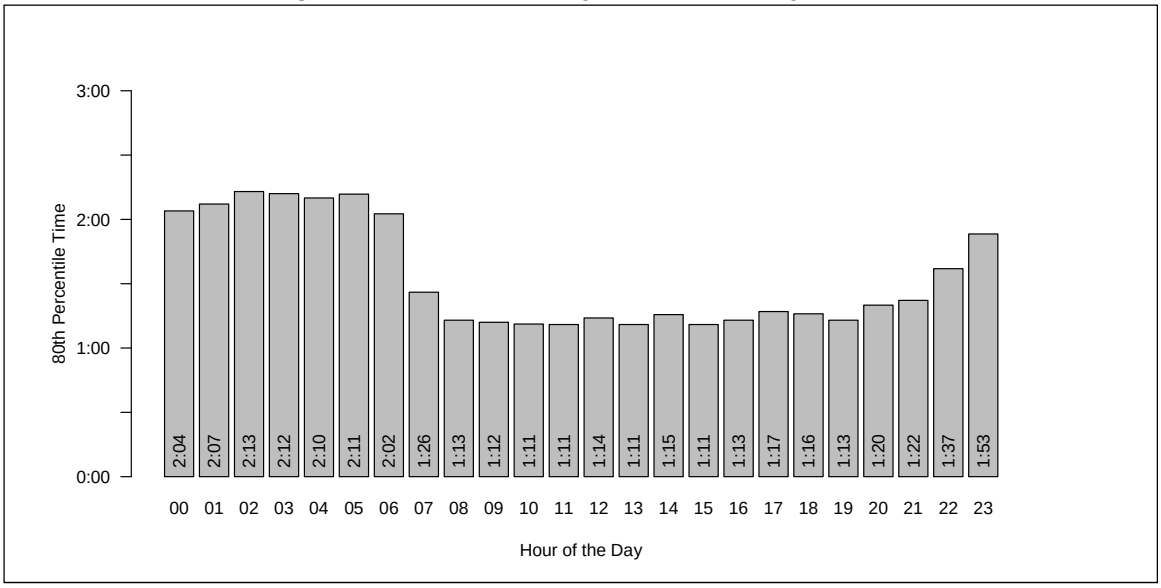


Table 2. Turnout Time by Incident Type, 2012

	Average	80th Percentile	90th Percentile
Emergency Medical Service	1:03	1:26	1:46
Fire & Special Operations	1:27	1:52	2:11
(all)	1:05	1:30	1:50

Travel Time by Hour of the Day and Incident Type

Travel time is the time interval that begins when a unit is en route to the emergency incident and ends when the unit arrives at the scene. Travel time is a function of geography, road conditions, traffic congestion, and the number and location of fire stations with respect to the location of incidents, and its relationship to all of those factors. NFPA 1710 recommends "240 seconds or less travel time for the arrival of the first arriving engine company at a fire suppression incident" and "240 seconds or less travel time for the arrival of a unit with first responder with automatic external defibrillator (AED) or higher level capability at an emergency medical incident."

The analysis of Bellevue's travel times against the Adjusted Standard (NFPA 1710 time objective at the 80th percentile) showed adequate travel times. Travel time for all emergency incidents was 4:49, which is longer than the objective of four minutes. Travel times were 4:47 for EMS incidents and 5:29 for fire and special-operation incidents. Figure 2 shows travel time for the first-arriving unit by hour of the day and Table 3 shows the travel time by incident type. Travel time for the first-arriving unit is fairly consistent throughout the day—it does not appear that traffic has much of an effect on travel times, which is surprising considering the heavy rush-hour traffic Bellevue experiences.

While the overall performance of the BFD is adequate, it is more important to look at whether travel times for different areas of the city are sufficient for the planning-area risk levels discussed earlier in order to identify deficiencies that need action. Unlike call-processing time and turnout time, which can be addressed somewhat universally, travel time is better addressed area by area. The next section includes a breakdown of total response times and travel times by planning area.

Figure 2. Travel Time (First-Arriving Unit) by Hour of the Day, 2012

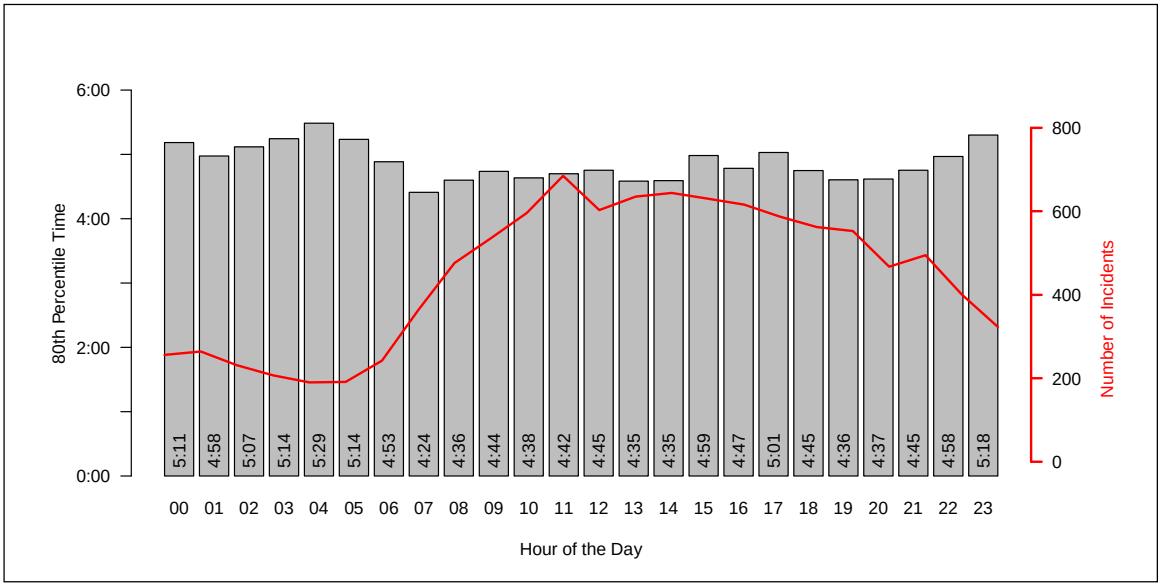


Table 3. Travel Time (First-Arriving Unit) by Incident Type, 2012

	Average	80th Percentile	90th Percentile
Emergency Medical Service	3:35	4:47	5:45
Fire & Special Operations	4:02	5:29	6:33
(all)	3:36	4:49	5:48

Total Response Time

Total response or reflex time is the most important time segment because it combines all of the previously analyzed time segments and is one of the measures by which the public evaluates the effectiveness of fire and EMS service. The NFPA defines total response time to include three phases: "(1) Phase One—Alarm Handling Time, (2) Phase Two—Turnout Time and Travel Time, and (3) Phase Three—Initiating Action/Intervention Time." Although NFPA 1710 does not explicitly provide a time objective for total response time, we added together the call-processing time objective (1:00 for all call types), the turnout time objective (1:00 for EMS incidents and 1:20 for fire and special-operations incidents), and the first-arriving-unit travel-time objective (4:00 for all call types). By adding up the individual NFPA 1710 time objectives, we can conclude that the total response time should be less than 6:00 for EMS incidents and less than 6:20 for fire and special-operations incidents.

The analysis of the BFD's total response times against the Adjusted Standard (sum of NFPA 1710 time objectives at the 80th percentile) showed adequate total response times for EMS incidents and slow total response times for fire and special operation incidents. Figure 3 shows the total response time for the first-arriving unit by hour of the day, and

Table 4 shows the total response time for the first-arriving unit by incident type. The total response time for EMS incidents was 6:45, which is 45 seconds longer than the six-minute total response-time objective. Fire and special-operations incidents had a response time of 8:01, which is over a minute and a half longer than the 6:20 time objective. Although Bellevue's EMS response times are adequate, there is significant room for improvement in fire and special-operations responses.

Figure 3. Total Response Time (First-Arriving Unit) by Hour of the Day, 2012

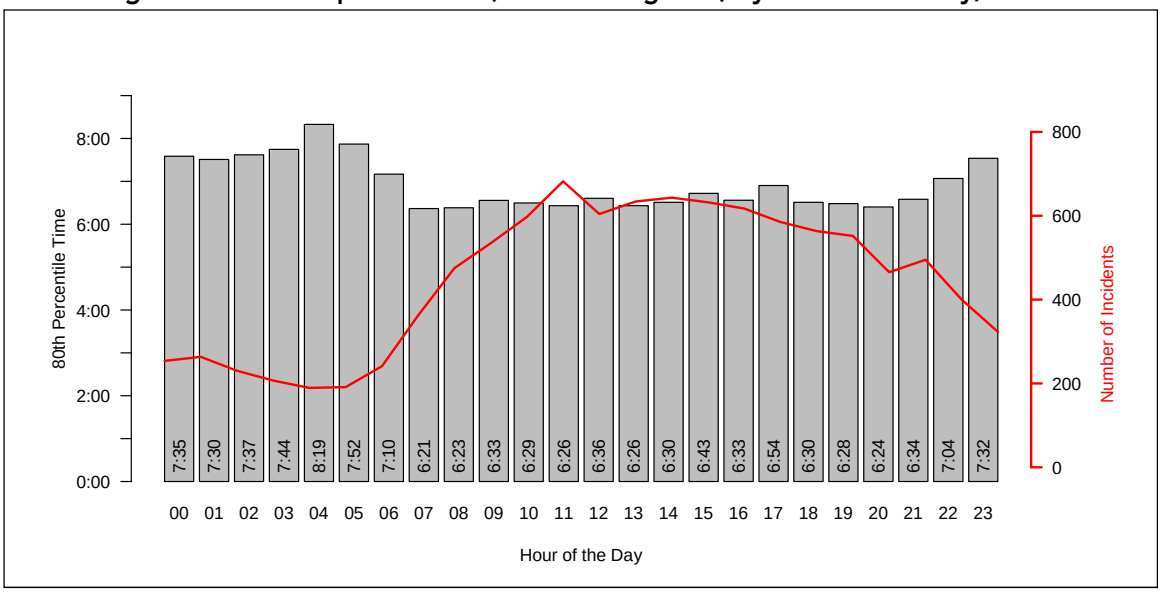


Table 4. Total Response Time (First-Arriving Unit) by Incident Type, 2012

	Average	80th Percentile	90th Percentile
Emergency Medical Service	5:24	6:45	7:47
Fire & Special Operations	6:21	8:01	9:05
(all)	5:26	6:49	7:53

Table 5 shows the 80th-percentile response times for each planning area. These tables depict fire department response time (FD Reflex) and total response time (Total Reflex).

Total response times for the planning areas range from a low of 6:09 for the downtown and Bel-Red areas to a high of 9:00 for the portions of Redmond served by the BFD. The average time for all planning areas is 6:52, with most planning areas having a total response time in the six- to seven-minute range.

Table 5. 80th-Percentile Response Time by Planning Area, 2012

	Travel	FD Reflex	Total Response
Beaux Arts	6:15	7:35	8:13
Bel-Red	4:01	5:12	6:09
Bridle Trails	4:46	5:53	6:49
Crossroads	4:23	5:38	6:36
Downtown	4:05	5:15	6:09
Eastgate	4:45	5:52	6:41
Factoria	5:23	6:26	7:21
Lakemont	5:51	6:57	7:52
Newcastle	5:44	6:56	7:36
Newport Hills	5:02	6:08	6:58
North Bellevue	4:47	6:03	6:48
Northeast Bellevue	5:26	6:52	7:28
Point Communities	5:02	6:09	6:51
Redmond	6:26	8:33	9:00
Richards Valley	4:37	5:54	6:45
Southeast Bellevue	5:06	6:18	7:08
Southwest Bellevue	4:12	5:21	6:16
Wilburton / NE 8th St	4:47	6:02	7:00
(all)	4:51	6:01	6:52

A-3: EVALUATING UNIT WORKLOADS

The location of fire stations is only one factor in determining whether response-time goals will be achieved. The 'busyness' factor or workload is also important since units that are extremely busy may not be available for the next call, thus necessitating the response from a station further away. EMS workload is typically described as Unit Hour Utilization (UHU), which is discussed later in this section.

Through CAD systems, fire departments are able to keep detailed records about service times; these data are useful in determining the availability of a specific unit or station. Again, the concept of workload is not merely a count of how many calls to which a unit was dispatched. One unit can have fewer responses than another but remains on the scene longer on average (e.g. more working incidents, or a more distant hospital for EMS patients), and so has a greater workload. Evaluating workload is important when looking at the overlaps in coverage to an area that may be required to achieve the response time goals adopted by the county/department and is part of the CFAI self-assessment process. An analysis of workload also can indicate whether a new station should be built or new apparatus purchased—or if current stations should be closed or units moved.

A fire/EMS system must incorporate the necessary redundancies based on whether adjacent stations or units are likely to be available for emergency response. Below are general guidelines developed by TriData to show the level of redundancy (overlap) necessary to achieve response-time goals. These were developed based on many fire department studies we have undertaken.

1. **Very Low Workload (<500 responses/yr.)** – Simultaneous calls are infrequent and unit availability usually is assured. Stations/units can be spaced at the maximum distance possible to achieve stated travel time objectives established by the community.
2. **Low Workload (500–999 responses/yr.)** – Few calls will overlap and unit availability usually is assured. Stations/units can be spaced at the maximum distance possible to achieve stated travel time objectives established by the community.
3. **Moderate Workload (1,000–1,999 responses/yr.)** – Some overlap of calls will occur, usually at peak demand periods; however, stations/units are usually available. Stations/units must be located with marginal overlap to achieve stated travel time objectives established by the community.
4. **High Workload (2,000–2,999 responses/yr.)** – Additional overlap of calls will likely occur; however, stations/units will probably be available for emergency response. Stations/units must be located with significant overlap to achieve stated travel time objectives established by the community. This footprint usually achieves the best results in terms of cost efficiency and effectiveness of service delivery. (Overlap can be achieved with additional stations or additional units in existing stations.)
5. **Very High Workload (3,000–3,999 responses/yr.)** – Overlapping calls occur daily, usually during peak demand periods, and working incidents are frequent. The closest station/unit may not be available, thus requiring the response of adjacent stations/units. Stations/units must be located with the significant overlap to achieve stated travel time objectives established by the community. (Overlap can be achieved with additional stations or additional units in existing stations.)
6. **Extremely High Workload (>4,000 responses/yr.)** – Overlapping calls may occur hourly, regardless of the time of day. The closest station/unit is likely to be unavailable thus requiring the response of adjacent stations/units. Frequent transfers or move-ups are required for the delivery system to meet demand. Stations/units must be located with redundancy (back-up units) to achieve stated travel

time objectives established by the community. This footprint is usually found in very densely populated urban areas and is especially evident in EMS services located in urban areas with very high demand. (Overlap can be achieved with additional stations or additional units in existing stations.)

The 3,000–3,900 response level (*very high workload)* is the point at which units are often considered "busy" and their availability should be evaluated. This is a rough rule of thumb, not a fixed standard. At this point, response times often begin getting longer because of simultaneous call occurring in the same area.[1] As units become busier, the chances for overlap or simultaneous alarms increase, and second-due units begin to answer more calls. This causes a domino effect where unit B is dispatched to a call in unit A's area because unit A is already engaged, causing unit B to be unavailable for the next call in its own area. Unit C must then respond to unit B or unit A's area, and so forth.

Again, the 3,000-response threshold is just a rule of thumb. How much time a unit is unavailable due to being involved with another incident is better assessment of the impact of workloads on availability and response times. This is the second factor in workload, known as unit hour utilization (UHU).

Unit Hour Utilization

UHU is a calculation that estimates the amount of time a unit is occupied on emergency calls as a percentage of the total amount of hours a unit is staffed and available for response (a unit staffed full-time is available 8,760 hours per year). In other words, UHU measures the percentage of on-duty time consumed by emergency service field activities. A high UHU means lower availability for calls. Poor availability negatively impacts response times.

The specific formula used to calculate the UHU for each unit is:

$$\text{UHU} = \frac{\text{(number of calls) } x \text{ (average call duration in hours)}}{\text{8,760 (total hours in a year)}}$$

UHU measures the percent of a unit's time in service that is spent running calls. However, there is other productive time s *not* accounted for, such as for training, maintenance public education, and other preparedness-related functions. When units are not engaged in emergency response, it does not mean they are not working.

UHU is used more in relation to EMS units than fire suppression units; although, evaluation of UHUs is useful to different extents for both functions.

While there is consensus within the industry on the importance of utilization rates and how to measure them, the interpretation of how indicative utilization rates are of overall system efficiency is debatable. Most believe that a UHU between 35 and 45 percent for EMS is good for economic efficiency. (This is more common with private ambulance providers.) If a UHU is greater than 45 percent, units often are not available and response times suffer. If a UHU is below 35 percent, units may not be well utilized, but response times may be high too often. Many communities choose to aim for a UHU in the 15 to 25 percent range to balance productivity of a unit with good response times. If a unit has a UHU of 40 percent, it will not be available for the next call 40 percent of the time. This is, of course, an average over the course of the day.

[1] A "first-due" 'area is a certain geographic area of the overall fire department response jurisdiction assigned to a particular fire station.

In order to develop an effective resource deployment plan, units must be available to respond to incidents most of the time. No amount of resource placement planning will improve system-wide response times if the responding units are not available.

Workload Analysis

For this study we analyzed the call types and workload for each BFD unit. Unit workloads have an effect on response-time performance because as units become busier, they are unavailable more of the time to respond to the calls where they would be first-due.

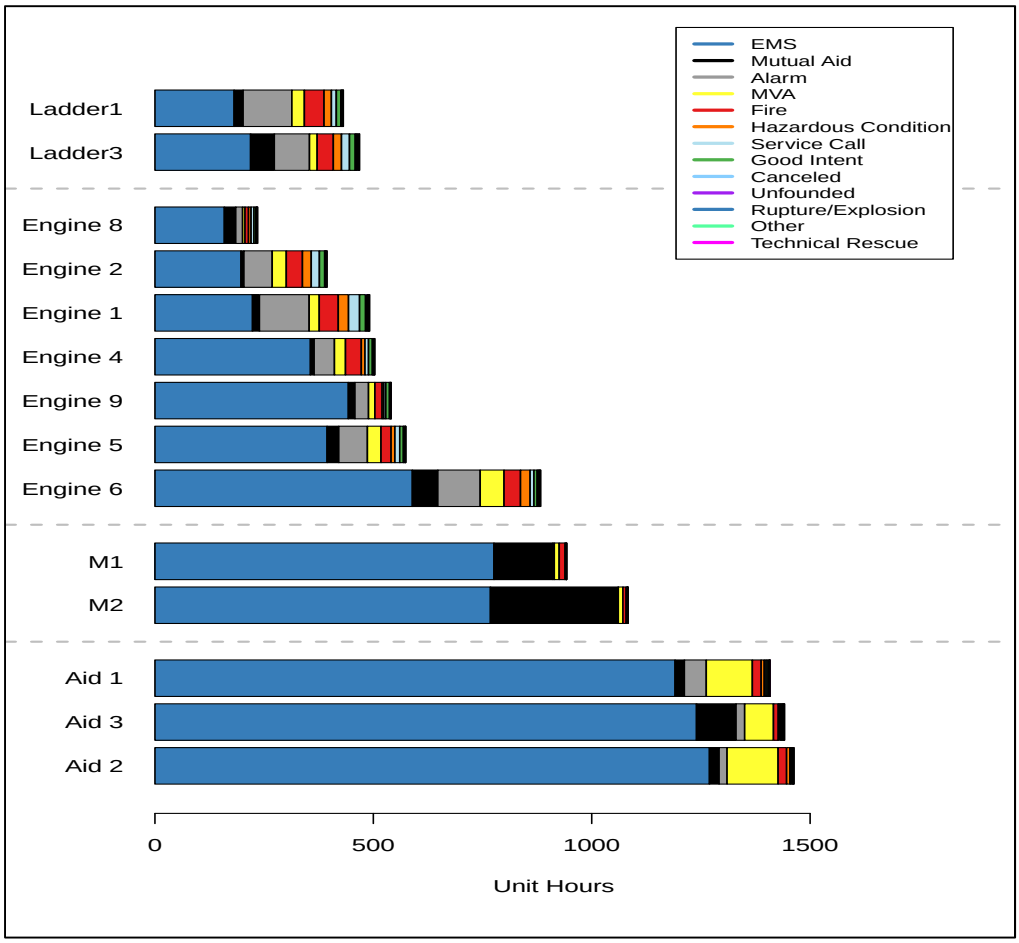
Generally, units in high-demand areas with closely spaced stations can get away with higher workloads because other stations can adequately cover their first-due areas. More suburban and rural areas, where fire station coverage areas do not overlap as much, are more susceptible to response-time issues, especially when workloads become heavy during certain portions of the day.

Table 6 shows the number of calls (responses) for BFD units in CY2012. Unit types (aid, medic, ladder, engine) are grouped for the sake of comparison. Figure 4 shows the actual time (unit hours) spent on calls in the same one-year period. This is a more precise way of measuring workload than number of calls. Table 7 through Table 10 break the analysis down for each unit type.

Table 6. Responses by Station and Unit, 2012

	Ambulance	Medic	Pumper	Truck	(all)
OHMC	–	1534	–	–	1534
Station 1	2543	–	1383	–	3926
Station 2	2196	1709	1042	–	4947
Station 3	2363	–	–	1513	3876
Station 4	–	–	1339	–	1339
Station 5	663	–	594	–	1257
Station 6	1104	–	1019	–	2123
Station 7	–	–	–	1473	1473
Station 8	–	–	561	–	561
Station 9	48	–	1122	–	1170

Figure 4. Workload by Unit and Incident Type, 2012



Our analysis shows that in CY2012 medic units spent an average of 2.8 unit hours each day responding to 4.4 incidents (Table 7). The average time spent on each medical call was just over half an hour (0.66 hours).

Table 7. Medic Workloads by Unit, 2012

	Total Runs	Runs per Day	Total Unit Hours	Unit Hours per Day	Unit Hours per Run
M1	1534	4.2	950	2.6	0.62
M2	1709	4.7	1086	3.0	0.64
(average)	1622	4.4	1018	2.8	0.63

LADDER TRUCKS (Table 8) averaged 1.3 unit hours responding to 4.1 incidents per day in CY2012. Ladder 3 had the most responses (1,513) and Ladder 1 had the fewest (1,473). The average time spent on each call for ladder trucks was about 20 minutes (0.31 hours).

Table 8. Ladder Workloads by Unit, 2012

	Total Runs	Runs per Day	Total Unit Hours	Unit Hours per Day	Unit Hours per Run
Ladder1	1473	4.0	435	1.2	0.30
Ladder3	1513	4.1	484	1.3	0.32
(average)	1493	4.1	460	1.3	0.31

ENGINES (Table 9) averaged 1.5 unit hours responding to 3.5 calls each day. Engine 6 had the most responses (2,123) and Engine 8 had the fewest responses (561). With engines spending an average of 1.5 hours on actual calls, they are still available for 22.5 hours of the day.

Table 9. Engine Workloads by Unit, 2012

	Total Runs	Runs per Day	Total Unit Hours	Unit Hours per Day	Unit Hours per Run
Engine 1	1383	3.8	499	1.4	0.36
Engine 2	1042	2.8	404	1.1	0.39
Engine 4	1339	3.7	534	1.5	0.40
Engine 5	1257	3.4	584	1.6	0.46
Engine 6	2123	5.8	894	2.4	0.42
Engine 8	561	1.5	256	0.7	0.46
Engine 9	1170	3.2	585	1.6	0.50
(average)	1268	3.5	536	1.5	0.42

AID UNITS (Table 10) averaged 3.9 unit hours responding to 6.5 calls each day. Aid 1 had the most responses (2,542) and Aid 2 had the lowest number of responses (2,194). The average time spent on each call for aid units was about 40 minutes (0.61 hours).

Table 10. Aid Workloads by Unit, 2012

	Total Runs	Runs per Day	Total Unit Hours	Unit Hours per Day	Unit Hours per Run
Aid 1	2542	6.9	1408	3.8	0.55
Aid 2	2194	6.0	1462	4.0	0.67
Aid 3	2362	6.5	1445	3.9	0.61
(average)	2366	6.5	1438	3.9	0.61

Overall, the workload of BFD units varies from low to high, depending on the unit type. (See Appendix B for a description of workload levels.) Note that as Bellevue's population increases, demand will also increase.

Unit workloads, CY2012

- AID UNITS: high workload.
- ENGINES: low to high, depending on the engine. Engines 6 has a high workload, Engine 8 has a low workload, and the rest of the engines have a moderate workload.
- LADDER TRUCKS: moderate workload.
- MEDIC UNITS: moderate workload.

Unit Availability vs. Performance Analysis

In order to ensure effective emergency coverage, it is necessary to accurately evaluate current performance reliability of fire stations and to predict how performance might change as specific conditions change, such as an increase in calls due to growth and development.

The Center for Public Safety Excellence (CPSE) has devised a method of performance evaluation based on studying the interaction between two factors: *unit availability* (how often the intended closest unit is available to handle calls) and *performance* (how often the travel time is within the desired response time). This method is based on the observation that as the availability of the first-due unit declines (due to system overload), response times decline because other units have to respond from farther away. At some point the response times fall below an acceptable performance standard. By graphing those two factors we can assess current system performance and monitor it over time, predict the point of unacceptable performance, and evaluate possible changes to avoid overload.

Areas that have fewer units available or are farther from neighboring stations are more impacted than others by an increase in emergency calls. They have greater *workload sensitivity*—as the workload increases their ability to meet the demand decreases. Stations with more units or that are closer to other stations that can render assistance have lower workload sensitivity.

Stations with high workload sensitivity are of concern. Using NFPA 1710 as a reference guide, the performance objective would be a 4-minute travel time (240 seconds) which is shown in Figure 15 and Table 11. Because it is not always possible or reasonable to achieve a 4-minute travel time in all areas of the city, we also conducted the analysis with a 5-minute travel time which is shown in Figure 16 and Table 12. Using NFPA 1710, the performance objective would be a 4-minute travel time (240 seconds), which is shown in Figure 15 and table 11. Because it is not always possible or reasonable to achieve a 4-minute travel time in all areas of the city, we also conducted the analysis with a 5-minute travel time, which is shown in Figure 16 and Table 12.

Figure Figure 15 gives an idea of the comparative workload sensitivity of units in each region of Bellevue. A line that slants steeply down toward the right indicates high workload sensitivity: when unit availability declines, performance declines.

Appendix D provides a more detailed explanation of this type of analysis that will help to understand the graphs below. Keep in mind that we have established a performance standard of 80%, meaning that units should travel to calls within the specified performance objective 80% of the time.

Using NFPA 1710, the performance objective would be a 4-minute travel time (240 seconds), which is shown in Figure 15 and table 11. Because it is not always possible or reasonable to achieve a 4-minute travel time in all areas of the city, we also conducted the analysis with a 5-minute travel time, which is shown in Figure 16 and Table 12.

Figure 15. Unit Availability vs. Performance Analysis, 4-Minute Travel, CY2012

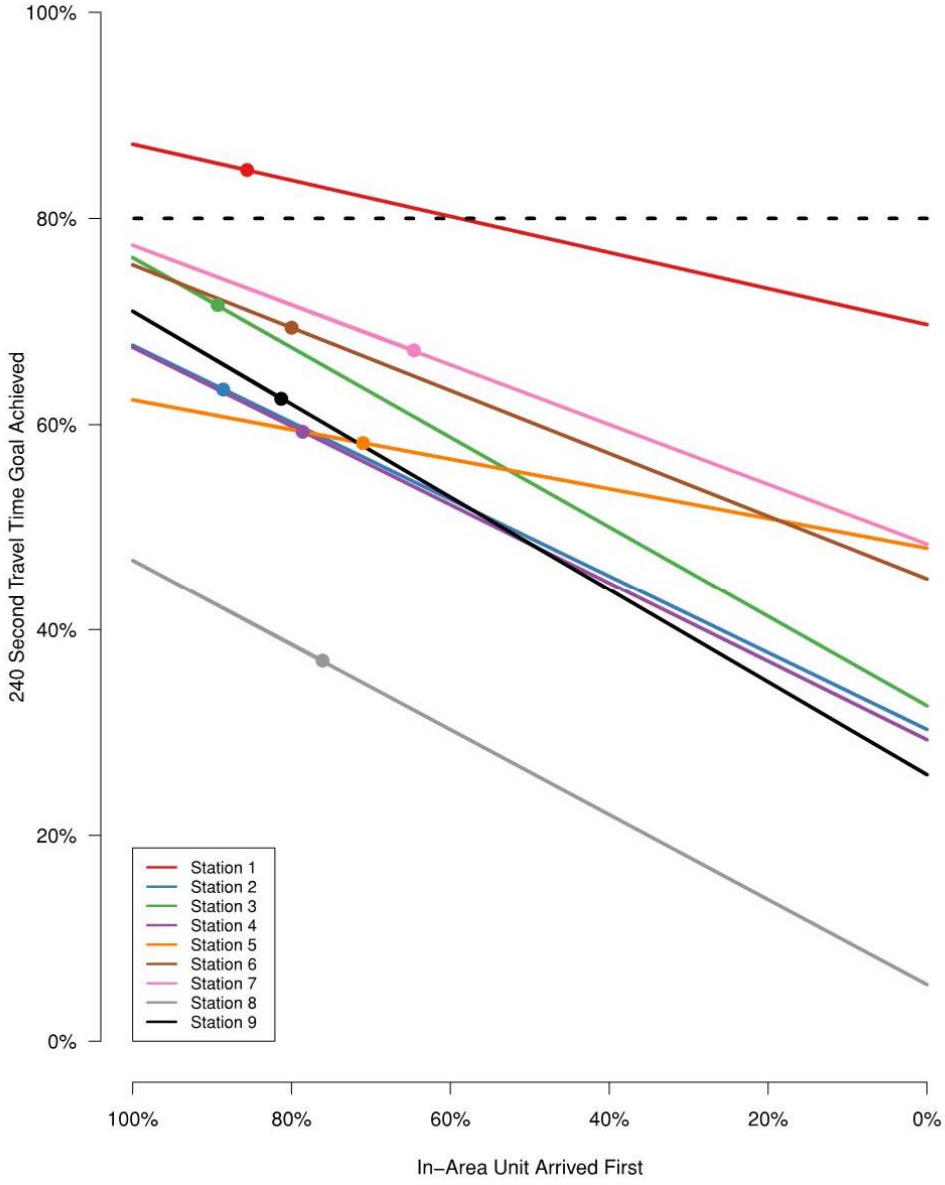


Table 11. Unit Availability vs. Performance Analysis, 4-Minute Travel, 2012

	All Units	In-Area Units Only	Out-of-Area Units Only
Station 1 (86% in-area units)	84.7 %	87.2 %	69.7 %
Station 2 (89% in-area units)	63.4 %	67.7 %	30.3 %
Station 3 (89% in-area units)	71.6 %	76.2 %	32.6 %
Station 4 (79% in-area units)	59.3 %	67.5 %	29.3 %
Station 5 (71% in-area units)	58.2 %	62.4 %	48.0 %
Station 6 (80% in-area units)	69.4 %	75.5 %	45.0 %
Station 7 (65% in-area units)	67.2 %	77.4 %	48.4 %
Station 8 (76% in-area units)	37.0 %	46.8 %	5.5 %
Station 9 (81% in-area units)	62.5 %	71.0 %	25.9 %

Figure 16. Unit Availability vs. Performance Analysis, 5-Minute Travel, CY2012

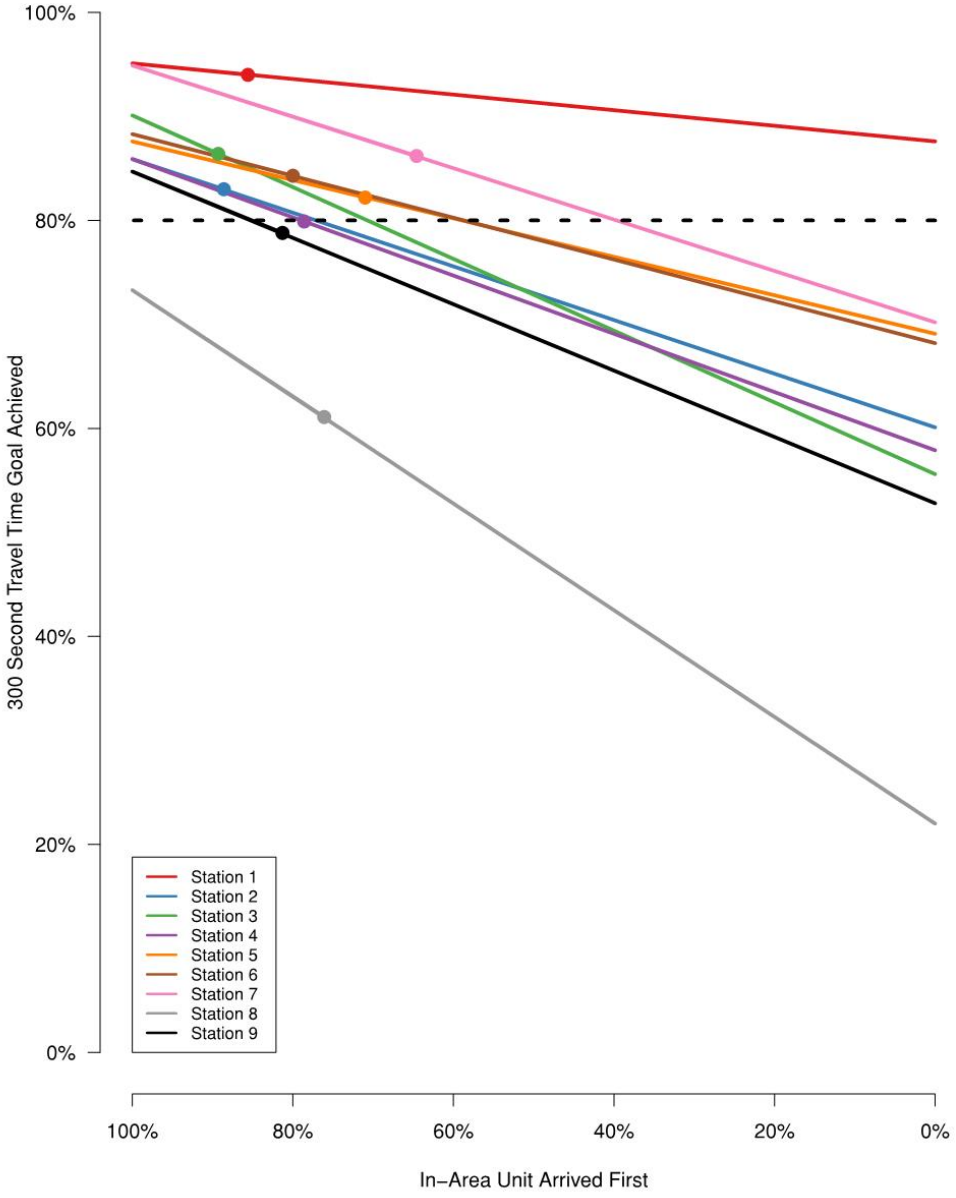


Table 12. Unit Availability vs. Performance Analysis, 5-Minute Travel, 2012

	All Units	In-Area Units Only	Out-of-Area Units Only
Station 1 (86% in-area units)	94.0 %	95.1 %	87.6 %
Station 2 (89% in-area units)	83.0 %	85.9 %	60.1 %
Station 3 (89% in-area units)	86.4 %	90.1 %	55.6 %
Station 4 (79% in-area units)	79.9 %	85.9 %	57.9 %
Station 5 (71% in-area units)	82.2 %	87.6 %	69.1 %
Station 6 (80% in-area units)	84.3 %	88.3 %	68.2 %
Station 7 (65% in-area units)	86.2 %	94.9 %	70.2 %
Station 8 (76% in-area units)	61.1 %	73.3 %	22.0 %
Station 9 (81% in-area units)	78.8 %	84.7 %	52.8 %

We can see from the 4-minute analysis that even if a correct unit were always theoretically available for all emergencies, only the Station 1 first-due area would meet the 4-minute time objective at least 80 percent of the time. While this area does require the fastest response times because of additional vertical response time (for reaching upper levels of high-rise buildings), the analysis generally shows that the current number of fire stations in Bellevue should be targeted more toward keeping travel times under 5 minutes rather than 4 minutes.

Stations in Bellevue are fairly evenly spread out. The layout of fire stations could be described as efficiently spaced to provide good coverage without significant overlap among stations. There is one station with a depressed line level (the bottom line on the graph in Figure 7) that may indicate a slight station location issue: Station 8. Most of the stations have a moderate level of workload sensitivity because travel-time performance drops as unit availability decreases. The two exceptions are Station 1 and Station 8. Station 1 has a low level of workload sensitivity because travel-time performance remains fairly good even when unit availability decreases. Station 8, on the other hand, has a high level of workload sensitivity because performance declines drastically when unit availability decreases. This makes sense because of the geographic layout of stations. The area covered by Station 8 is very difficult for other units to respond to in a short time if Station 8 does not have a unit available.

The stations that are of highest concern are Stations 2 and 5, whose performance is close to falling under the 80-percent threshold, and Stations 4, 8, and 9, whose performance is already under the threshold.

A-4: TOTAL INCIDENT FORECASTING METHOD

In statistics, linear regression is an approach to modeling the relationship between a dependent variable *y* and one or more independent variables denoted x_i. For our incident type trending, we are using year (x_1) and population (x_2) to predict incident type totals (y). We realize that time and population are not the only factors determining emergency services demand, so the model is not perfect for predicting the number of incidents. Linear regression is useful in that it shows trends, and trends are valuable for planning purposes.

For any model, it is necessary to say how statistically accurate it is, or what the confidence is in the estimates. For example, if we predict that there will be 1,000 emergency incidents ten years from now, we also have to state the confidence limits of that prediction. The confidence interval is a statistical plus/minus calculation. To continue with our example, we might say there will be 1,000 emergency incidents, plus or minus 100, with 95 percent likelihood it will be in that range. . This gives the reader both a prediction and a range within which we are fairly certain (95 percent certain) that the eventual number of incidents will fall.

The confidence intervals are the result of a statistical calculation that analyzes how accurately our prediction model represents the actual data. A good model will have a small plus-minus confidence interval. This often happens when the historical trend stays fairly steady from year to year; as a result, a multi-linear regression is able to make fairly accurate predictions for total incidents for at least several years into the future. The further into the future, the wider the confidence limits become.

Large confidence intervals occur when there are large incidence fluctuations from year to year that are inconsistent and cannot be accurately modeled with any of the independent variables (time and population). For instance, if the annual number of incidents fluctuates up 30 percent one year and down 30 percent the next, and then up 40 percent and down 5, the model cannot accurately predict the exact number of incidents for a given year. In that case, there would be a large confidence interval that essentially says we predict *y*, but the number could be much higher or much lower.

A-5: UNIT AVAILABILITY VS. RESPONSE TIME

Municipalities need to know whether their emergency-response system is meeting their current needs, and whether the system will continue to meet needs in the future. As urban areas experience growth and development, emergency calls increase and there is a gradual decrease in the ability of fire stations to provide a high level of emergency response. If no corrective action is taken, at some point response times will fall below acceptable standards. For the purpose of planning it is important to be able to predict the point at which this will occur—the point at which the number of calls will exceed a station's capacity—and to take corrective action ahead of time. The starting point of this assessment is to have a clear picture of an area's current performance.

The Center for Public Safety Excellence (CPSE) has devised a means of measuring a fire department's current performance and predicting a drop in the department's ability to respond to calls—in other words, to measure and predict the capacity of stations and areas. This method compares two factors:

1. Unit availability: How often the closest station (the intended closest unit) is available to handle a call

2. Performance: How often the travel time is within the desired response time

By comparing those two factors we can see what happens to response time when the intended closest unit is not available to respond to a call: other units have to respond from farther away, response time increases, and at some point it falls below the established performance standard. For the example below we will use a standard of arriving within four minutes 80% of the time.

Figure 5 shows how unit availability and response time can be plotted graphically to study their relationship. The horizontal **Unit Availability axis** shows how often the intended closest unit was available for service out of a period of 24 hours. If a station is available for 18 hours out of 24, it would have an availability of 75%. Various factors reduce any unit's availability: workload, inspections, training, maintaining equipment, and so on. Those factors reduce a station's performance.

The vertical **Performance Reliability axis** shows how often the unit arrives within the established time goal. The dotted line across the middle of the graph represents a performance standard of 80%, meaning in our example that a unit arrives within four minutes 80% of the time.

The graph below describes the performance of Station 8, the first-due station in the area.

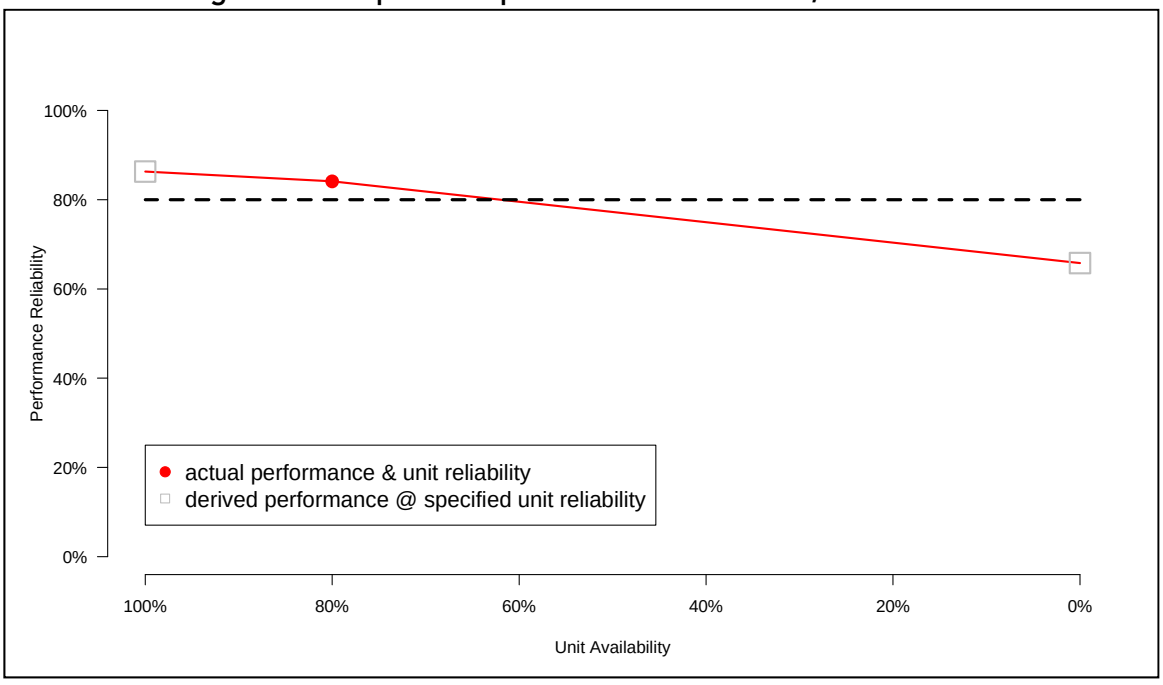
The square on the left side of the graph represents a theoretical condition of 100% availability for Station 8. It shows that if Station 8 were available 100% of the time, 24 hours a day, and able to respond to every call, it would achieve a compliance level of about 85%, meaning it would arrive within four minutes about 85% of the time. This is above (better than) the area's targeted performance standard.

But in fact Station 8 is only available about 80% of the time. The red dot represents the station's actual performance, which is a bit lower than it would be if it were available 100% of the time, but still above the performance standard. If the red dot were below the dotted line that would indicate that station was not currently meeting the performance standard.

What would happen if Station 8 were never available, meaning always busy with other calls and unable to respond to a new call? In that case other units from outside the area would need to respond to calls, and the result would be lower performance (increased response time). The square on the right side of the graph shows a theoretical zero availability for Station 8 and a performance of only about 67% for units outside the area that take up the slack. Units are arriving within four minutes only 67% of the time, which is below the performance goal of 80% because the emergency-response system is now stretched beyond its capacity.

The red line connecting these three data points shows how performance changes as unit availability declines. We can see that when the unit availability declines to 60%, the performance standard is barely met. Below 60% availability, the standard is no longer being met. Corrective action needs to be taken *before* the 60% availability level is reached, so it's important to know when this is going to occur.

Figure 5. Example of Response Time Performance, Station 8



The slope of the line reflects *workload sensitivity*, or how an area is impacted by an increase or decrease in calls. Areas that have multiple units available or several nearby fire stations that can cover calls are less impacted by an increase and calls. They have a low workload sensitivity. This would be shown on the graph by a nearly horizontal line—as availability declines, response time remains about the same.

In an area that has fewer units available and other stations are located farther away, an increase in calls will exceed the area's capacity to respond and response times by units outside the area will be excessive. This area is workload sensitive—heavily dependent on unit availability. This would appear on the graph as a line that slopes strongly downward.

If the square on the left side of the graph—representing 100% availability—falls below the 80% performance goal, this indicates a problem with fire station location. The station is not meeting its time-response goal even though it is always available, because it is too far away from calls. The unit is arriving late 20% of the time or more, indicating that it is not well located to reach all parts of its first-due area. This problem can be corrected by relocating the current station, building a new station, or—perhaps the best solution—reevaluating first-due boundaries to make sure that the most appropriate station is responding.

This system of graphing can be used to plan for future station locations by monitoring response trends over time and noting when response time, due to declining unit availability, is heading toward a point when action must be taken to avoid falling below the performance goal. If a station's current capacity is known, the graph can be used to calculate remaining capacity that is available while continuing to meet the performance goal.

BELLEVUE FIRE DEPARTMENT
FACILITIES MASTER PLAN
MAY 2014

Appendix B
Space Needs Summary & Standards

Schreiber Starling & Lane
ARCHITECTS
MARY MCGRATH ARCHITECTS
TriData Corporation

FIRE FACILITIES LONG RANGE
MASTER PLAN
MAY 2014

Appendix B-1
Prototype One Company Station

Schreiber Starling & Lane
ARCHITECTS
MARY MCGRATH | ARCHITECTS
TriData Corporation

Bellevue Prototype Single Company Station

12 Assigned Personnel - SPACE NEEDS SUMMARY

Station Company Summary

Fire Engine - Current Staffing 3, Future Staffing 3
Reserve Storage in second bay
Three Platoon System

Planning for On-duty Staffing - 3

SITE OPERATIONS			Square Footage		
No.	**Type of Space**	**Space Attributes**	**Area**	**Size**	
S1	**Fire Department Parking**	10 Firefighter/staff parking spaces; separate from visitor parking	2,160	10'x18' ea.	
S2	**Visitor Parking**	2 public parking spaces; including one van-accessible space with 8' side aisle	486	9.5'x18' ea.	
S3	**Trash Enclosure**	Space for dumpster and recycling bins	100	10'x10'	
S4	**Vehicle Wash Down Area**	Front or Rear apron, sand/oil clarifier, goes to sewer through switch, away from main apparatus response path	360	12' x 30'	
S5	**Flagpole**	Flagpole area with lighting	16	4' x 4'	
S6	**Outdoor Patio**	Private outdoor BBQ area for 4-6, natural gas for BBQ	120	10' x 12'	
S7	**Front Apron**	Concrete paving in front of each bay.	1,200	30' x 20' ea.	
S8	**Under-ground Fueling with dispenser.**	Fueling system adjacent to generator, use by all City vehicles, dispenses Diesel and Un-leaded. Near front apron of area with easy access that does not block fire response.	100	10' x 10' above ground	
S9	**Fire Hydrant**	Locate on rear yard if drive through, front yard if back-in, near training area	120	10'x20'	
S10	**In-service Training**	Area for hose lays and ladder training, near hydrant and drying tower	600	20' x 30'	
		Site Operations Subtotal	**5,262**		

SPACE NEEDS SUMMARY					
No.	**Type of Space**	**Space Attributes**	**Square Footage**		**Finish**
	APPARATUS BAY/APPARATUS BAY SUPPORT		**Area**	**Size**	
FS1	**Apparatus Bay (2 drive-through bays)**	Truck/Engine Co., Reserve apparatus, diesel exhaust system, power cord drops to each vehicle, radiant heating system; night lighting; auto-close doors and trench drains. Audio system with acoustical clarity, water resistant wall finishes. Door Controls with timers. Wall Map near living quarters with direct lighting. Hand washing sink on the path to the kitchen. Hose bib for apparatus washing in bay.	2,800	40' x 70'	A
FS2	**Medical Clean-up**	Hands free service sink with regular and spray hose faucet, emergency eye wash, floor drain, backboard wash-down, locate adjacent to medical storage closet. Washer Dryer and built in storage with folding counter. Room off the apparatus bay near the engine bay.	100	10' x 10'	C
FS3	**Medical Storage**	Supply Storage closet with full height shelving. Door opening to the Apparatus Bay.	42	3.5' x 12'	B
FS4	**Bunker Gear Room**	24 open metal storage lockers for bunker gear; continuous exhaust fan, floor drain, extractor and bunker gear dryer, heavy duty shelving.	308	14' x 22'	A
FS5	**Apparatus Janitor Room**	Mop sink with mop rack, shelving for apparatus cleaning supplies, hooks for chamois and squeegee storage.	36	6' x 6'	C
FS6	**Workshop Alcove**	Work shop with shop vac and tool chest storage areas. Heavy duty work bench top with upper and lower storage cabinets and utility sink.	80	5' x 16'	C
FS7	**Hose Storage/Chain Storage**	Storage for hose in mobile racks. Wall hanging space for tire chains	120	10' x 12'	A
FS8	**Yard Storage**	Storage for yard maintenance tools	36	6' x 6'	B
FS9	**Special Projects**	Varies per Station	240	12' x 20'	B
FS10	**Charging Alcove**	Printer, map charging banks	24	3' x 8'	B
FS11	**Vending/Ice Alcove**	Storage space for ice and vending machines	30	3' x 10'	B
		Apparatus Bay/Apparatus Bay Support Subtotal	**3,816**		

SPACE NEEDS SUMMARY - Continued					
No.	Type of Space	Space Attributes	Square Footage		Finish
	PUBLIC AREA/OFFICE		Area	Size	
FS12	Public Entry Lobby	Interior space for visitor seating; reception counter, covered entry, door bell, chairs for visitors, public information display. Adjacent to station office, direct access to unisex public restroom. Storage closet for blood pressure check equipment. Privacy screen for blood pressure checks.	120	10' x 12'	B
FS13	Accessible Public Restroom	Accessible restroom adjacent to Lobby	64	8' x 8'	C
FS14	Station Office	Shared office space with 4 work stations, counter service to Lobby, counter for combined fax printer, copier; file storage; AV for training.	192	12' x 16'	B
FS15	Officers Office	Private office with meeting space over desk for three, file storage for three. Single work station.	120	10' x 12'	B
		Public Area/Office Subtotal	496		

	LIVING QUARTERS		Area	Size	Finish
FS16	Kitchen	4-refrigerators, 1-dishwasher, (2) 4-burner gas ranges/ with hood, large microwave, 12" deep- double bowl sink with disposal and tall faucet with hand held sprayer. Island in kitchen for two ranges. Open to Dining area; adjacent to patio.	208	13' x 16'	C
FS17	Pantry Storage	4 - 30" wide full height pantries; 24-18' x 18' storage cabinets for personal items.	54	5' x 8' 1.5' x 9'	B
FS18	Dining Room	Seating for 6-persons; open to Kitchen and Day Room.	120	10' x 12'	B
FS19	Day Room	Seating for 4 with recliner chairs and entertainment center. Open to Kitchen, Dining.	160	10' x 16'	B
FS20	Fitness Room	Space for 3 -cardio pieces, squat rack, pull up rig, benches, free weights, dual cross cable machine, and 2 plate racks. Adequate light and ventilation; durable floors and walls; acoustic separation; mirrors, drinking fountain; Roll-up door to the building exterior	528	22' x 24'	B
FS21	Supply Storage/Janitor Room	High end residential washer and dryer, folding counter with storage, shelving for Janitorial/housekeeping supplies, mop sink/rack. Adjacent to Kitchen.	80	8' x 10'	C
FS22	Firefighter's Bedroom with Lockers (Three total rooms, One of the three rooms is provided for a trainee or future need.)	Single Occupancy bedroom; each one bed, study desk and chair, four 30" wide lockers, One 12" wide locker. Egress window is required.	429	11' x 13' (3)	B
FS23	Unisex Restrooms (One total Standard Size)	Toilet, Shower and sink	56	7' x 8'	C
FS24	Unisex Restrooms (One total Accessible)	Toilet, Shower and sink - Accessible	81	9' x 9'	C
FS25	Officers Bedroom	Single Occupancy bedroom; each one bed, study desk and chair, four 30" wide lockers and one 12" locker. Egress window is required.	143	11' x 13'	B
FS26	Officers Restroom (Accessible)	Toilet, Shower and sink - Accessible	81	9' x 9'	C
		Living Quarters Area Subtotal	1,940		

SPACE NEEDS SUMMARY - Continued					
No.	**Type of Space**	**Space Attributes**	**Square Footage**		**Finish**
	UTILITY SUPPORT SPACE		**Area**	**Size**	**Finish**
FS27	**Mechanical Room**	Mechanical equipment, water heater; fire sprinkler riser	80	8' x 10'	D
FS28	**Electrical Room**	Fire alarm panel, sub panels, main service	80	8' x 10'	D
FS29	**Communications Room**	Telephone service racks, computer data network, all electronics room; Air conditioned; radio equipment, alert response system hub, data server hub; Uninterrupted power system	80	8' x 10'	D
FS30	**Generator Room**	Dedicate space for Generator	140	10' x 14'	D
		Utility Support Subtotal	**380**		

SPACE NEEDS SUMMARY	**SF**	
Apparatus Bay/Apparatus Bay Support Subtotal	3,816	
Public Area/Office Subtotal	496	
Living Quarters Subtotal	1,940	
Utility Support Space Subtotal	380	
BUILDING SUBTOTAL (SF)	**6,632**	
Circulation at 25%	1,658	
PROTOTYPE SINGLE COMPANY STATION TOTAL (SF)	**8,289**	

TWO STORY - VERTICAL CIRCULATION			**Square Footage**		**Finish**
No.	**Type of Space**	**Space Attributes**	**Area**	**Size**	
FS28	**Elevator and Machine Room**	Elevator access to upper levels; security keyed for visitors; machine room	174	(2) 9'x12'	A
SF29	**Stairway**	(x2) for each level and (x2) for egress	640	20'x8' (2)	B
		Two Story - Vertical Circulation SUBTOTAL (SF)	**814**		
		Circulation/Structure at 30%	244		
		Two Story - Vertical Circulation:	1,058		
		PROTOTYPE SINGLE COMPANY STATION TOTAL - Two Stories(SF)	**9,348**		

Finish Legend:

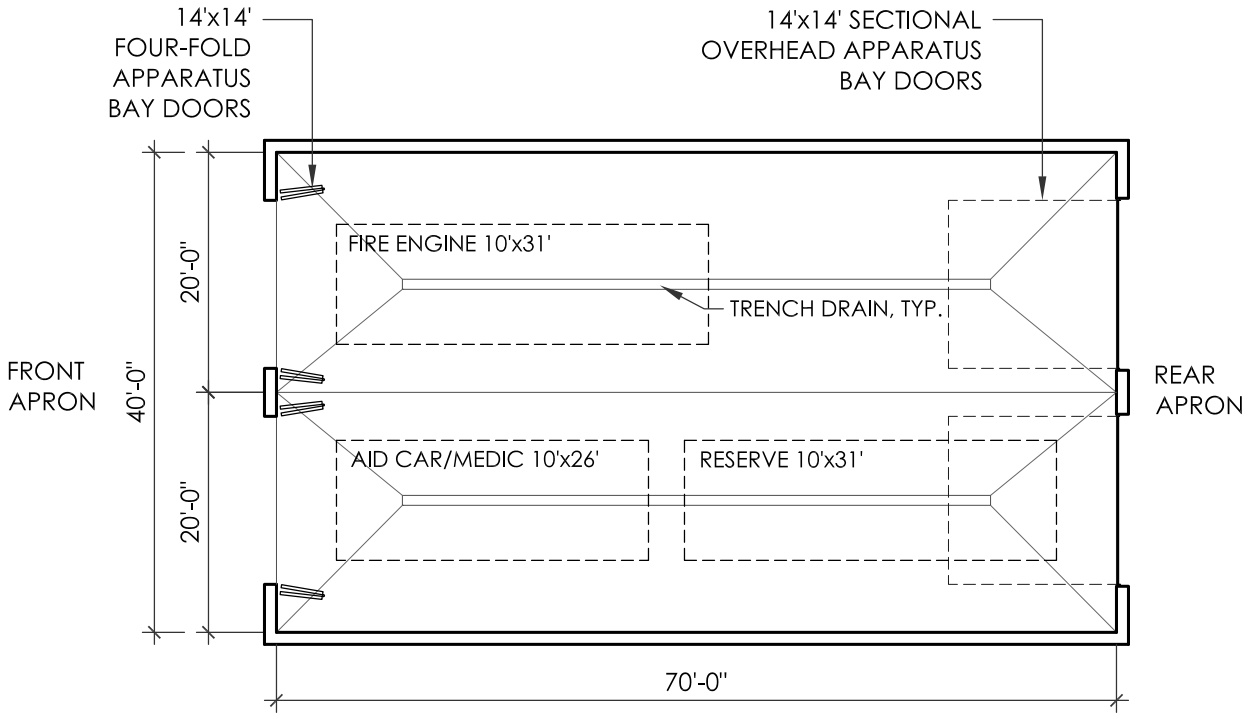
A - Simple Finishes
B - Standard Office Finishes
C - Intense Finishes
D - Service Room Finishes

- BELLEVUE PROTOTYPE SINGLE COMPANY STATION

APPARATUS BAY / APPARATUS BAY SUPPORT

FS1 APPARATUS BAY - 2 DRIVE THROUGH BAYS (2,800 SQ.FT.)

SCALE: 1/16"=1'-0"



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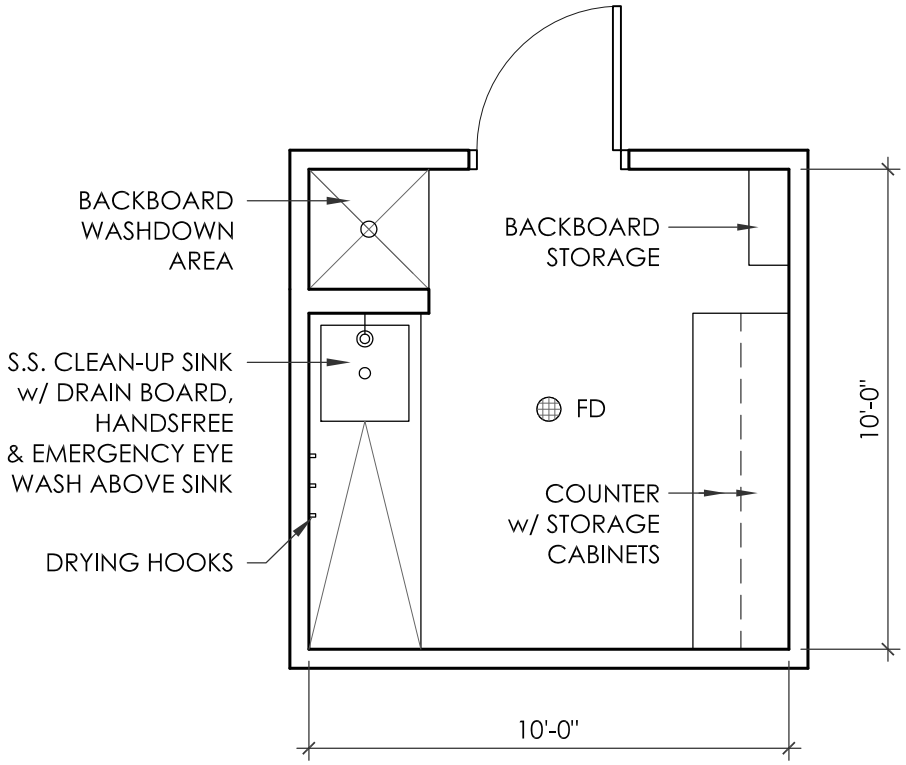
APPARATUS BAY / APPARATUS BAY SUPPORT

FS2 MEDICAL CLEAN-UP (100 SQ.FT.)

SCALE: 1/4"=1'-0"



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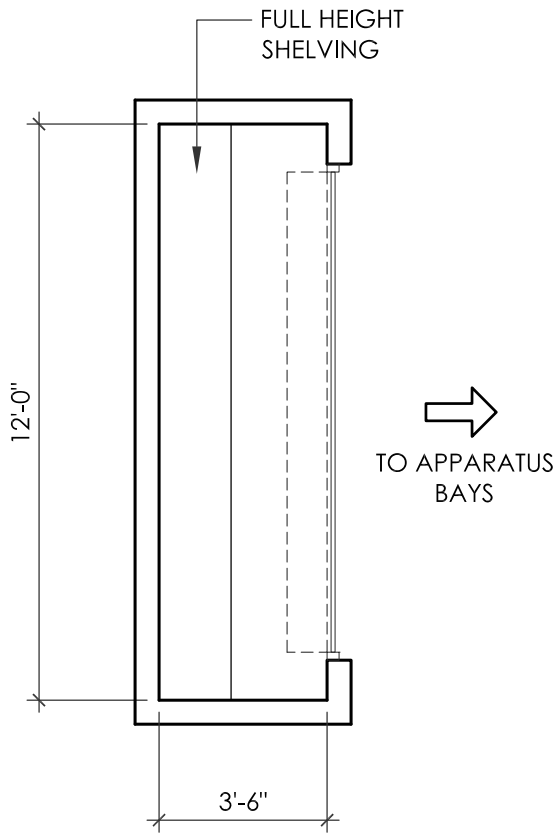
APPARATUS BAY / APPARATUS BAY SUPPORT

FS3 MEDICAL STORAGE (42 SQ.FT.)

SCALE: 1/4"=1'-0"



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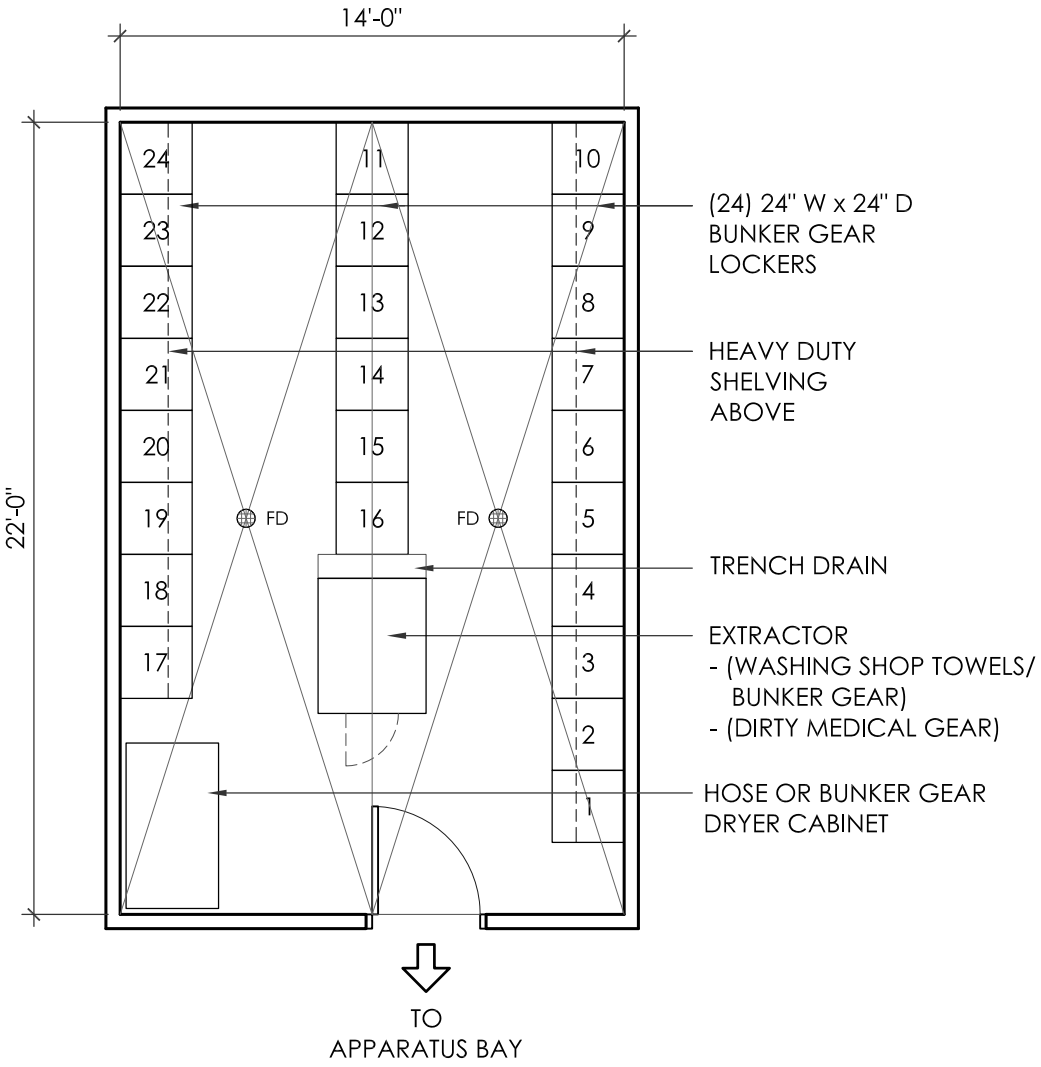
APPARATUS BAY / APPARATUS BAY SUPPORT

FS4 BUNKER GEAR ROOM (308 SQ.FT.)

SCALE: 3/16"=1'-0"



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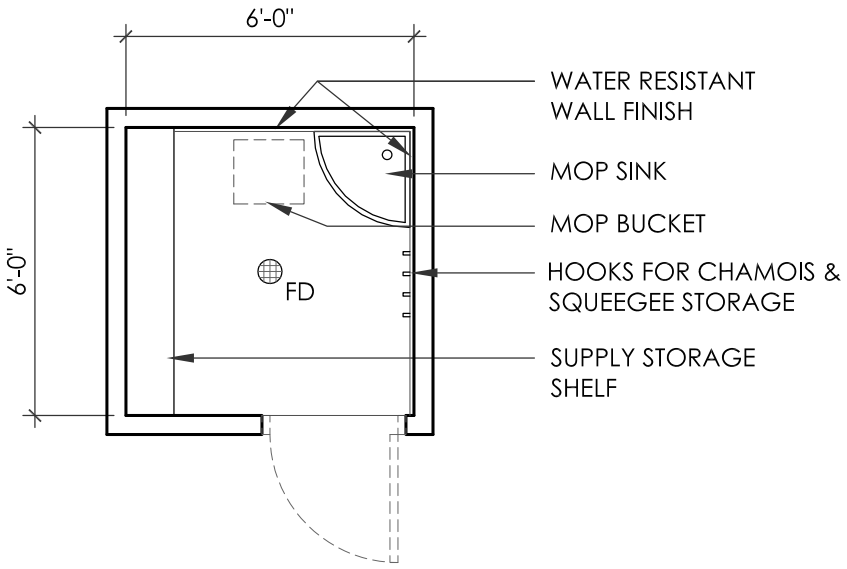
APPARATUS BAY / APPARATUS BAY SUPPORT

FS5 APPARATUS JANITOR ROOM (36 SQ.FT.)

SCALE: 1/4"=1'-0"



NOTES:

- FOR CLEANING BAY & VEHICLES ONLY
- DOOR IS OPTIONAL
- 9' MIN. CEILING HEIGHT

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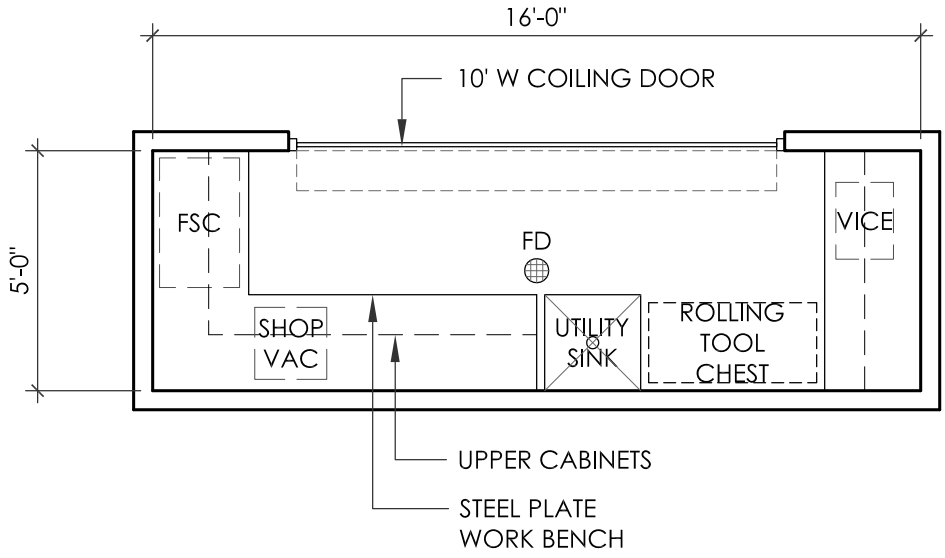
- BELLEVUE PROTOTYPE SINGLE COMPANY STATION

APPARATUS BAY / APPARATUS BAY SUPPORT

FS6 WORKSHOP ALCOVE (80 SQ.FT.)

SCALE: 1/4"=1'-0"



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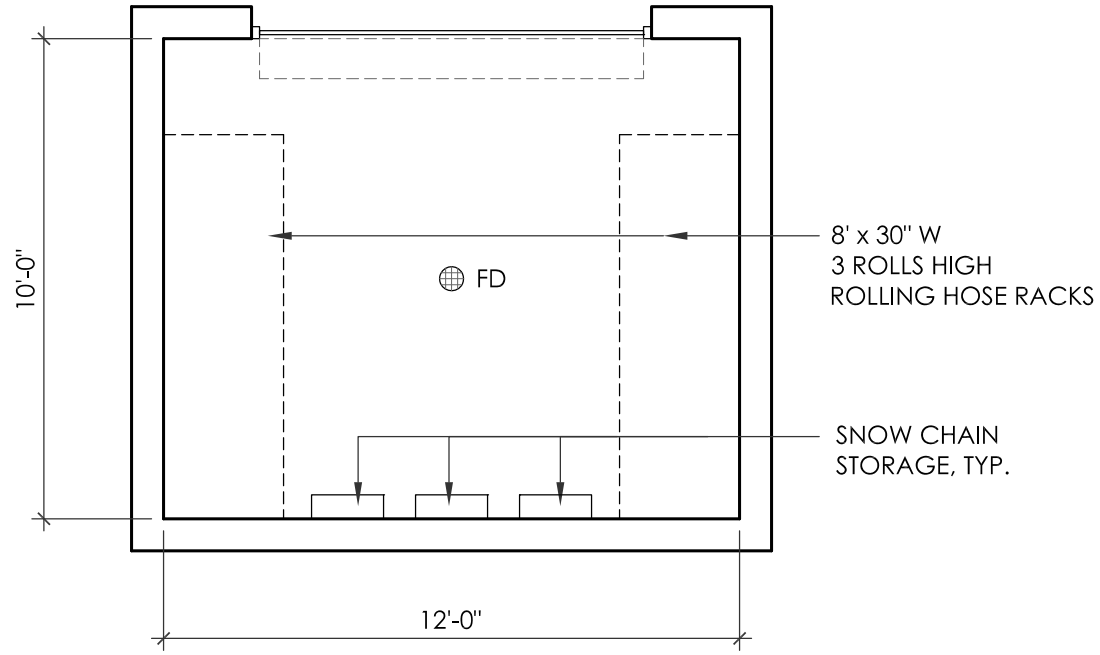
APPARATUS BAY / APPARATUS BAY SUPPORT

FS7 HOSE / SNOW CHAIN STORAGE (120 SQ.FT.)

SCALE: 1/4"=1'-0"



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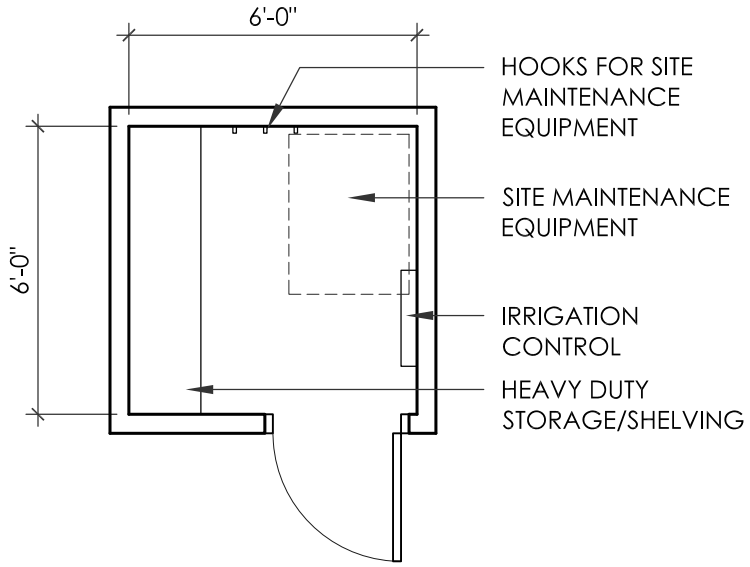
APPARATUS BAY / APPARATUS BAY SUPPORT

FS8 YARD STORAGE (36 SQ.FT.)

SCALE: 1/4"=1'-0"



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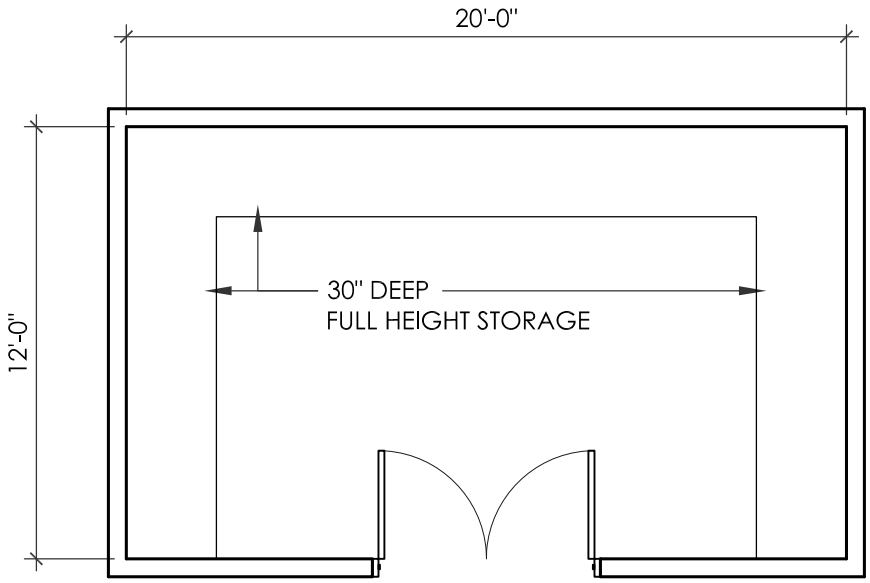
- BELLEVUE PROTOTYPE SINGLE COMPANY STATION

APPARATUS BAY / APPARATUS BAY SUPPORT

FS9.1 SPECIAL PROJECTS - RESCUE STORAGE (240 SQ.FT.)

SCALE: 3/16"=1'-0"



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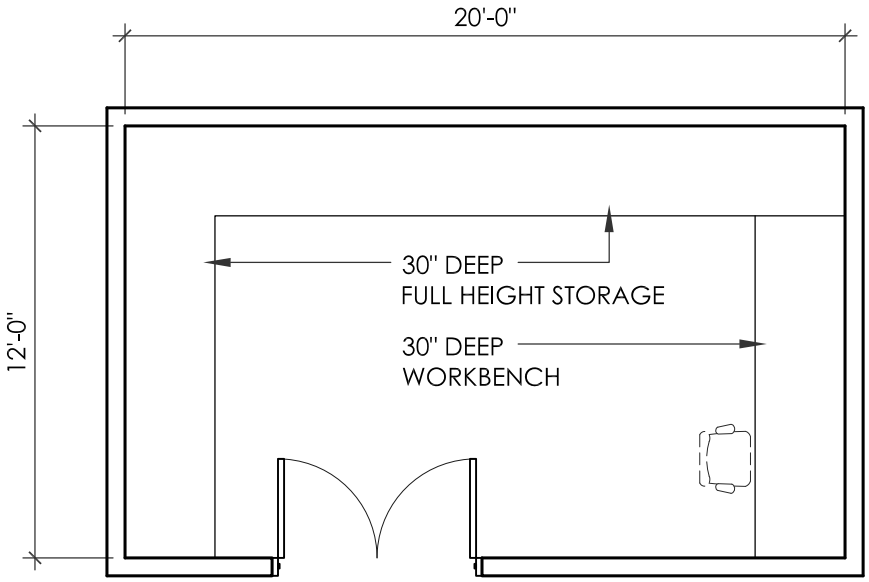
APPARATUS BAY / APPARATUS BAY SUPPORT

FS9.2 SPECIAL PROJECTS - SMALL TOOL REPAIR ROOM (240 SQ.FT.)

SCALE: 3/16"=1'-0"



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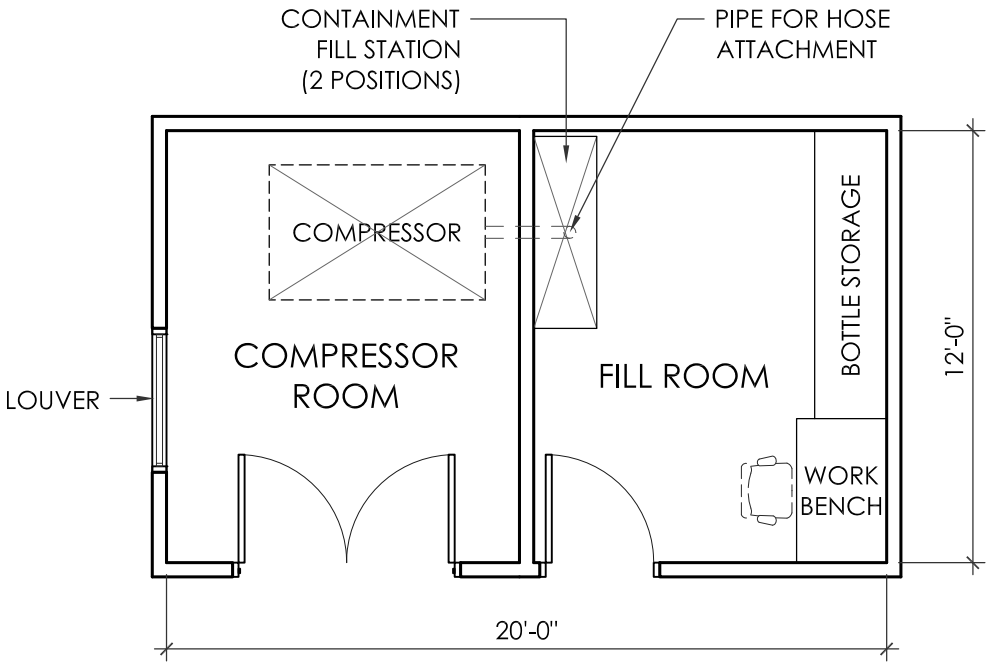
FS9.3 SPECIAL PROJECTS - SCBA AIRFILL (240 SQ.FT.)

SCALE: 3/16"=1'-0"



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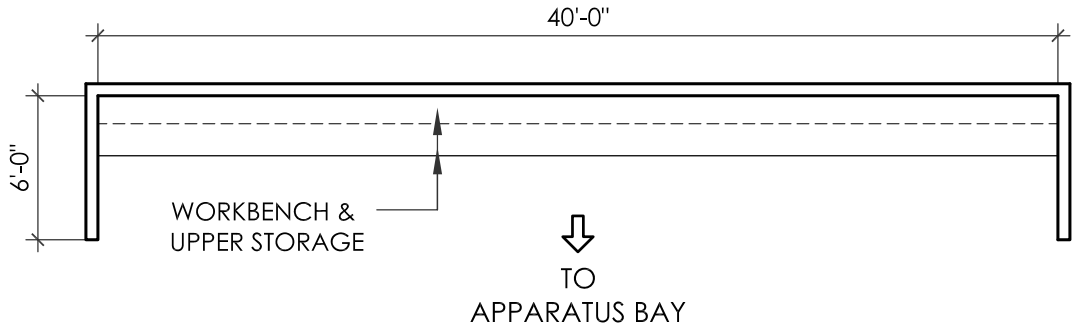
FS9.4 SPECIAL PROJECTS - LADDER / HOSE REPAIR AREA (240 SQ.FT.)

SCALE: 1/8"=1'-0"



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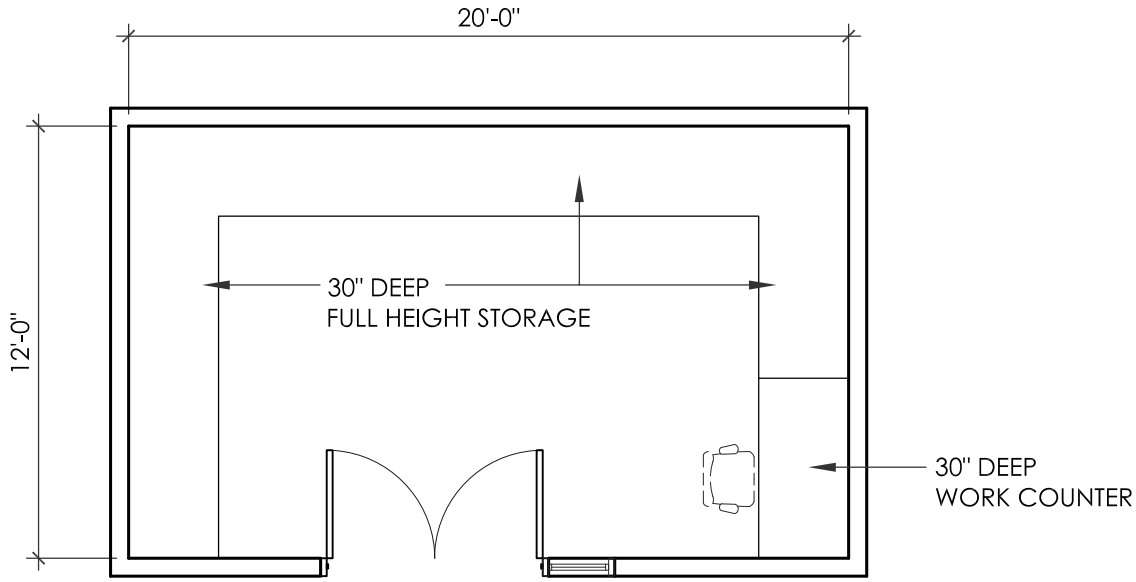
FS9.5 SPECIAL PROJECTS - HAZ MAT (240 SQ.FT.)

SCALE: 3/16"=1'-0"



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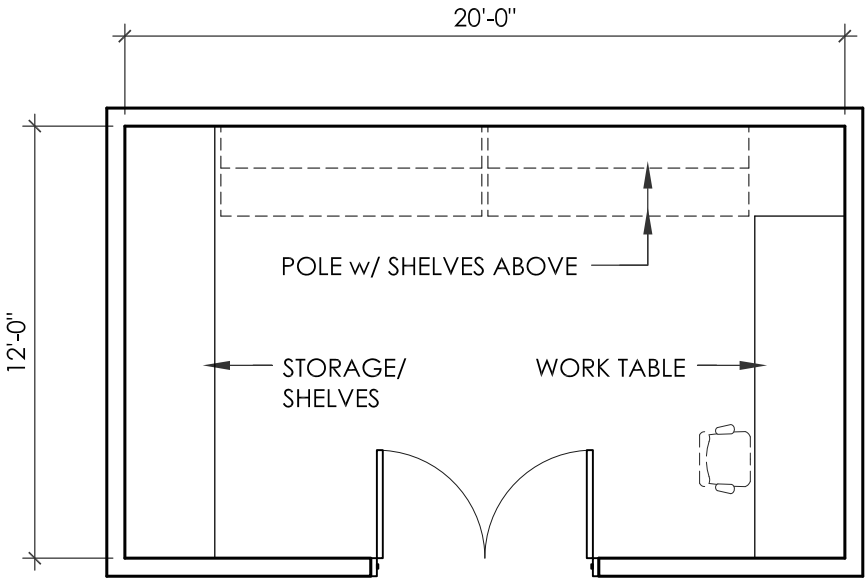
FS9.6 SPECIAL PROJECTS - BUNKER GEAR / UNIFORM STORAGE (240 SQ.FT.)

SCALE: 3/16"=1'-0"



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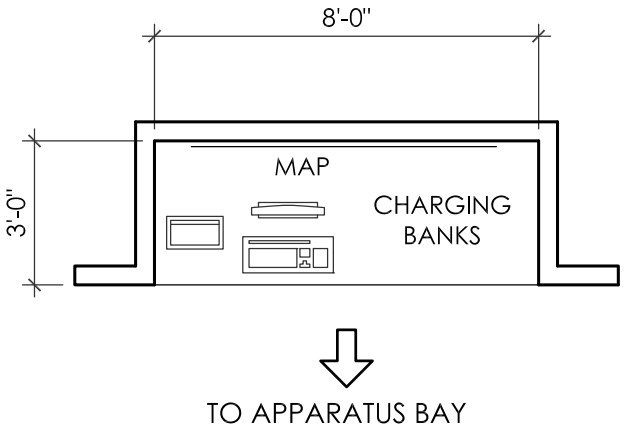
APPARATUS BAY / APPARATUS BAY SUPPORT

FS10 CHARGING ALCOVE (24 SQ.FT.)

SCALE: 1/4"=1'-0"



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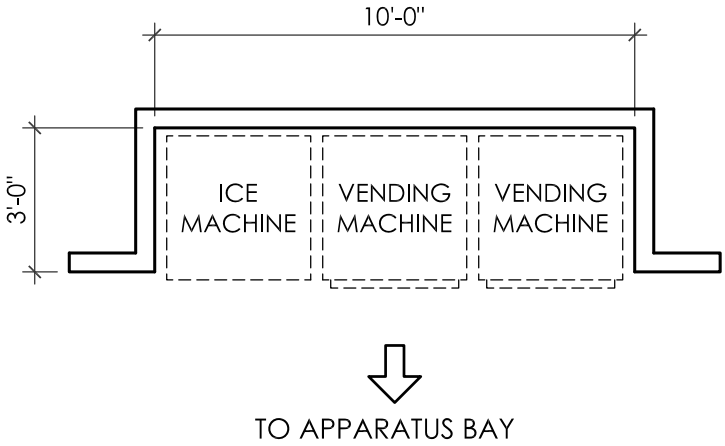
APPARATUS BAY / APPARATUS BAY SUPPORT

FS11 VENDING / ICE MACHINE ALCOVE (30 SQ.FT.)

SCALE: 1/4"=1'-0"



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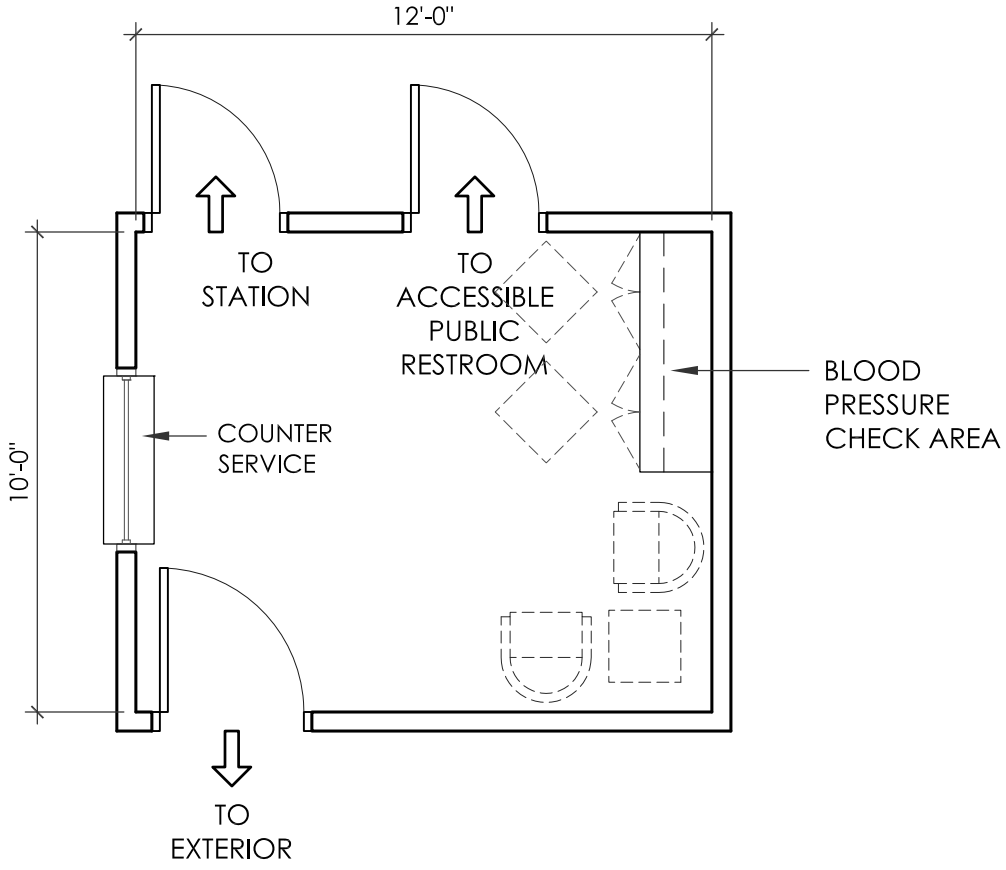
PUBLIC AREA / OFFICE

FS12 PUBLIC ENTRY LOBBY (120 SQ.FT.)

SCALE: 1/4"=1'-0"



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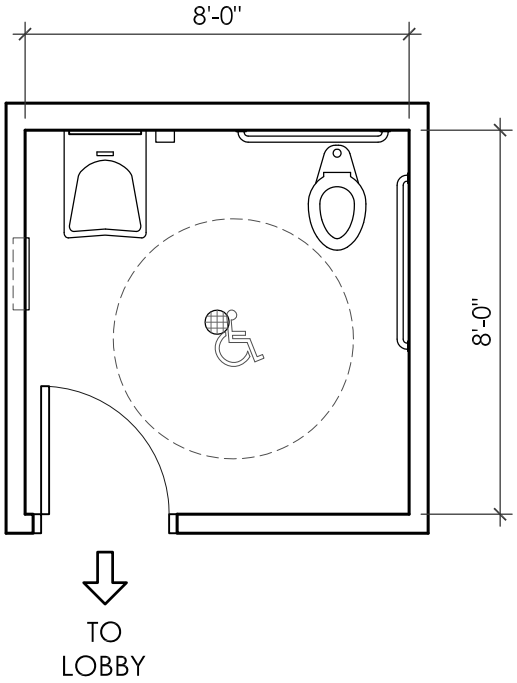
PUBLIC AREA / OFFICE

FS13 ACCESSIBLE PUBLIC RESTROOM (64 SQ.FT.)

SCALE: 1/4"=1'-0"



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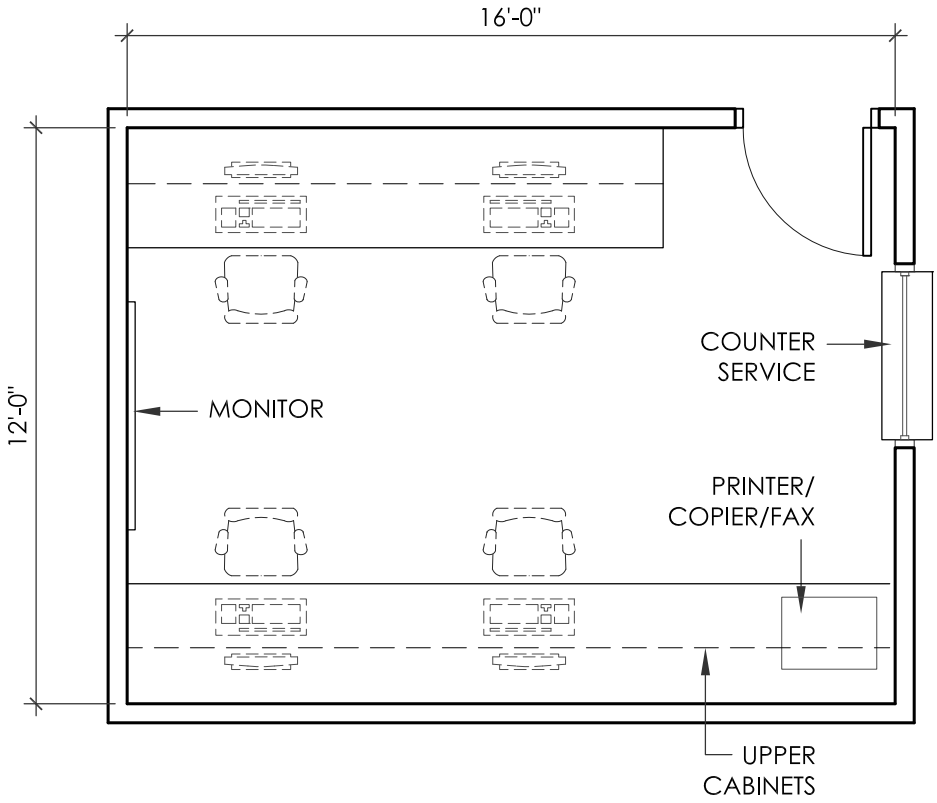
PUBLIC AREA / OFFICE

FS14 STATION OFFICE (192 SQ.FT.)

SCALE: 1/4"=1'-0"



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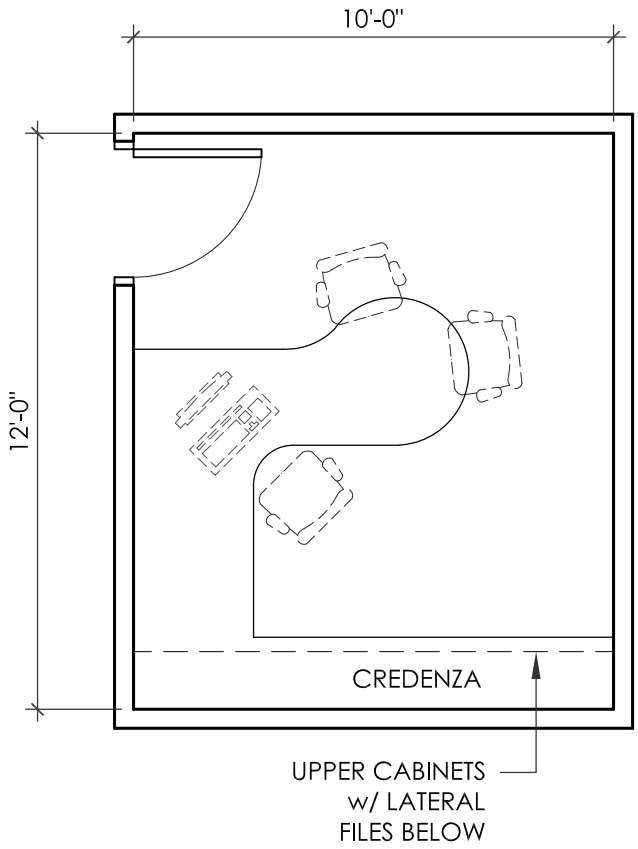
PUBLIC AREA / OFFICE

FS15 OFFICERS OFFICE (120 SQ.FT.)

SCALE: 1/4"=1'-0"



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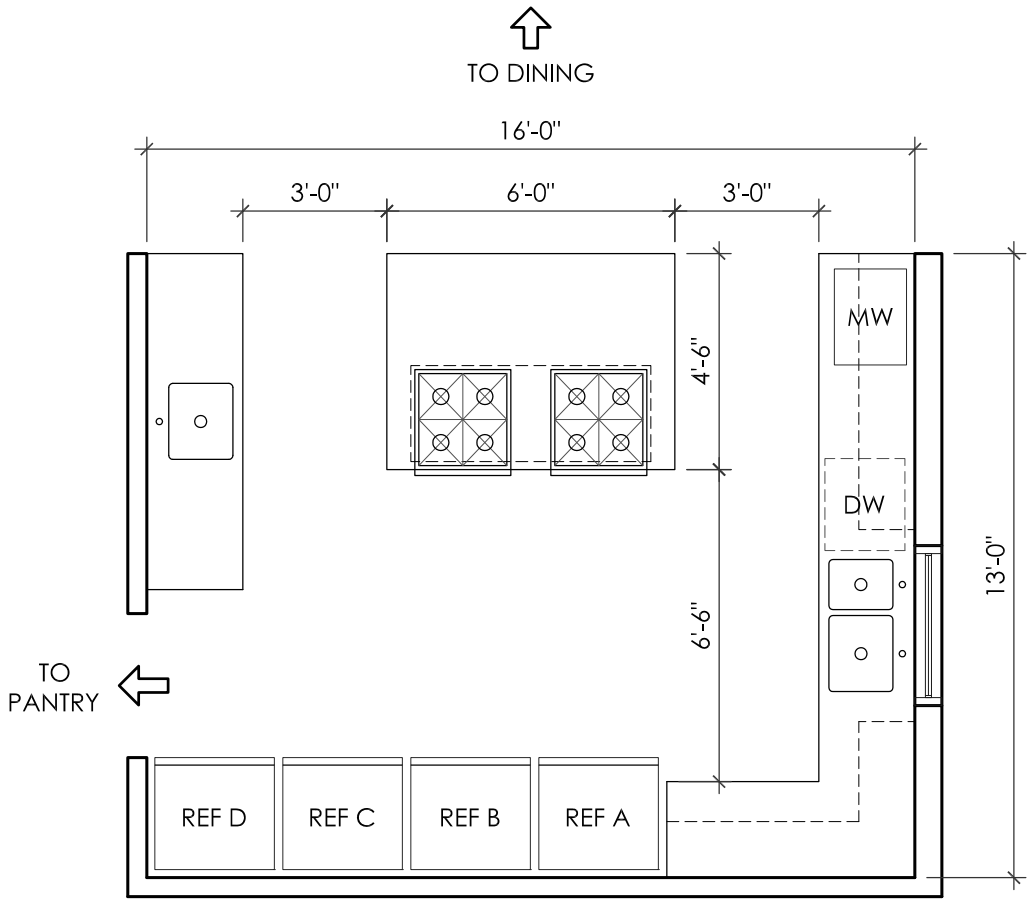
LIVING QUARTERS

FS16 KITCHEN (208 SQ.FT.)

SCALE: 1/4"=1'-0"



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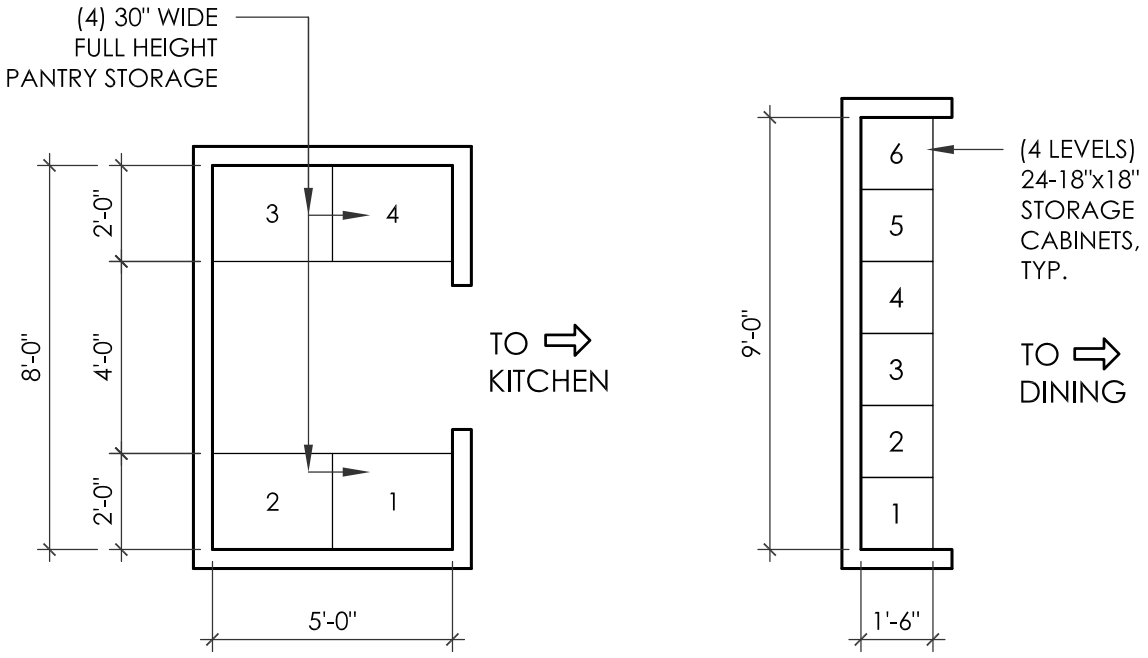
LIVING QUARTERS

FS17 PANTRY STORAGE (54 SQ.FT.)

SCALE: 1/4"=1'-0"



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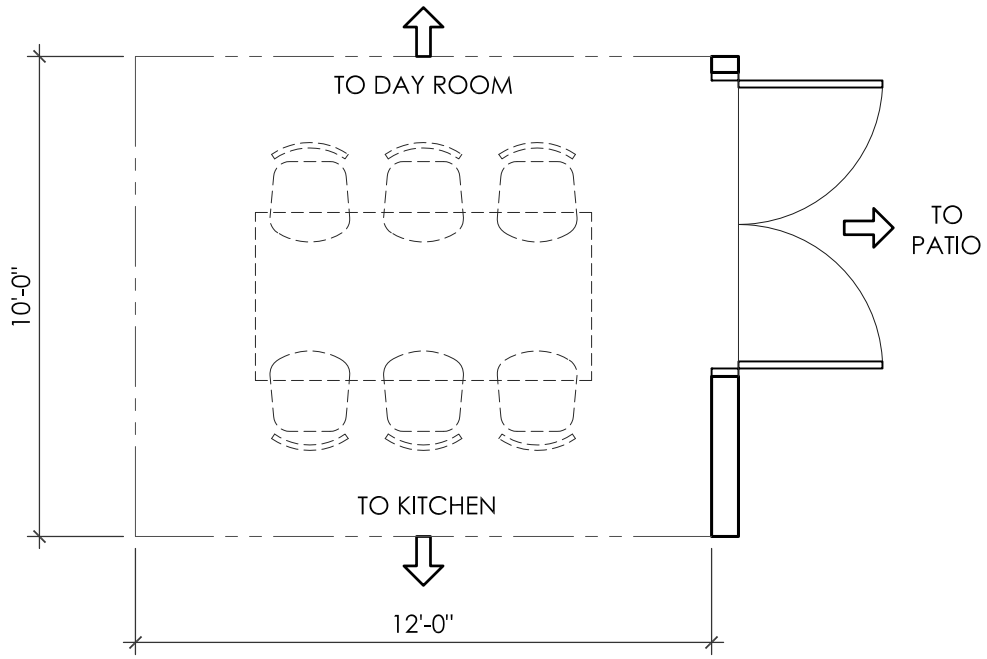
LIVING QUARTERS

FS18 DINING (120 SQ.FT.)

SCALE: 1/4"=1'-0"



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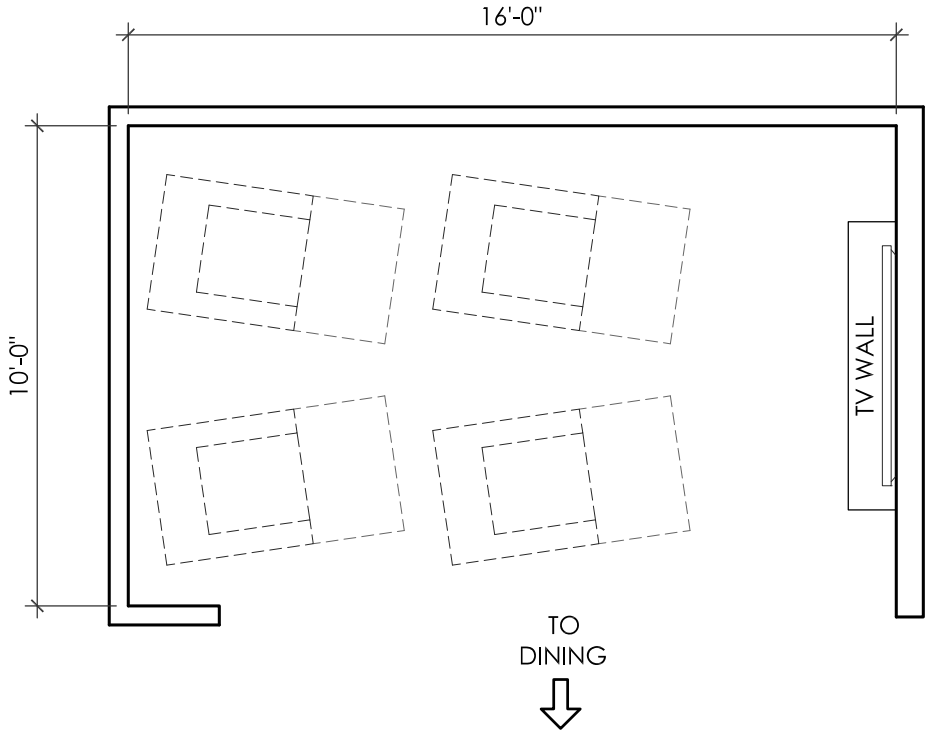
LIVING QUARTERS

FS19 DAYROOM (160SQ.FT.)

SCALE: 1/4"=1'-0"



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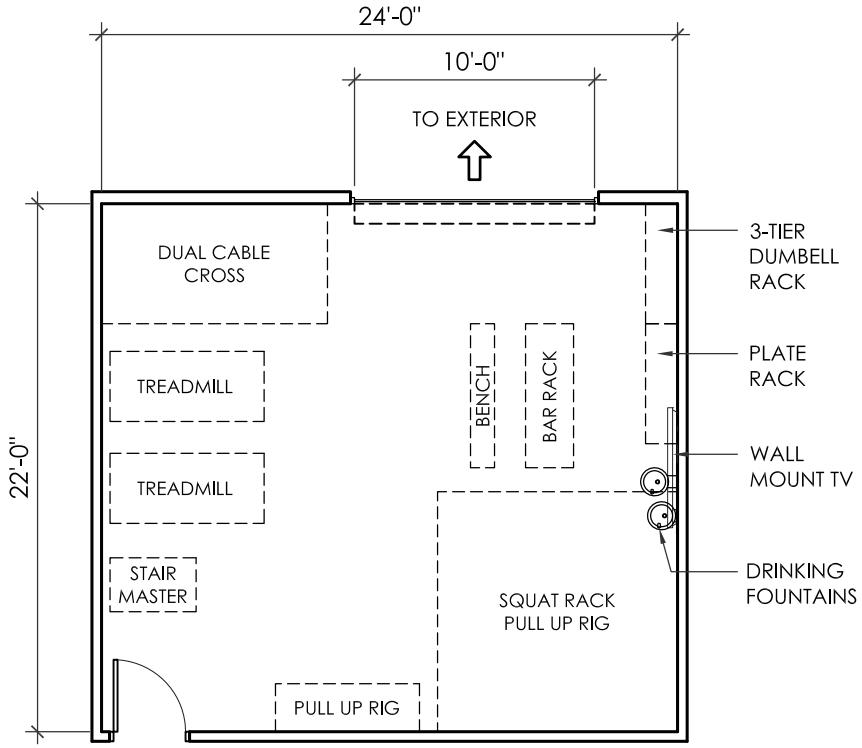
LIVING QUARTERS

FS20 FITNESS ROOM (528 SQ.FT.)

SCALE: 1/8"=1'-0"



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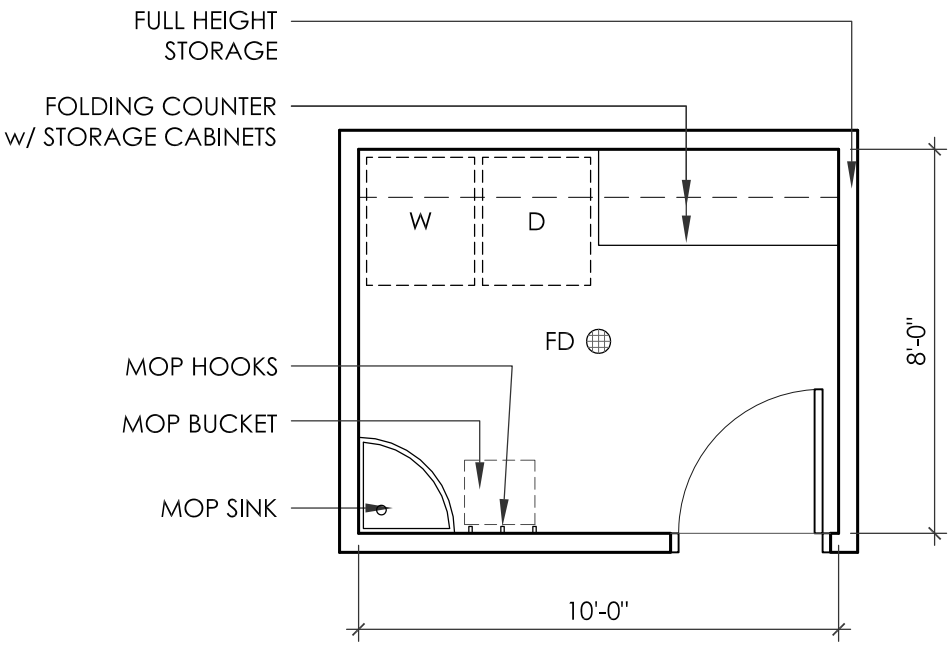
LIVING QUARTERS

FS21 SUPPLY STORAGE / JANITOR ROOM (80 SQ.FT.)

SCALE: 1/4"=1'-0"



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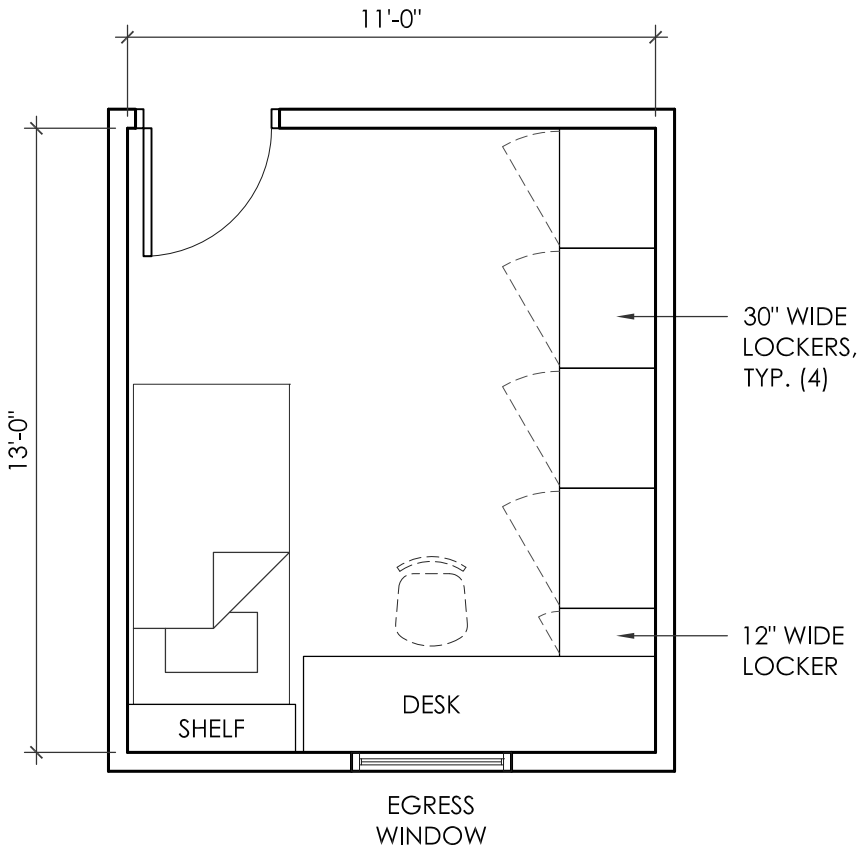
LIVING QUARTERS

FS22 FIREFIGHTER'S BEDROOM w/ LOCKERS - 3 TOTAL (429 SQ.FT.)

SCALE: 1/4"=1'-0"



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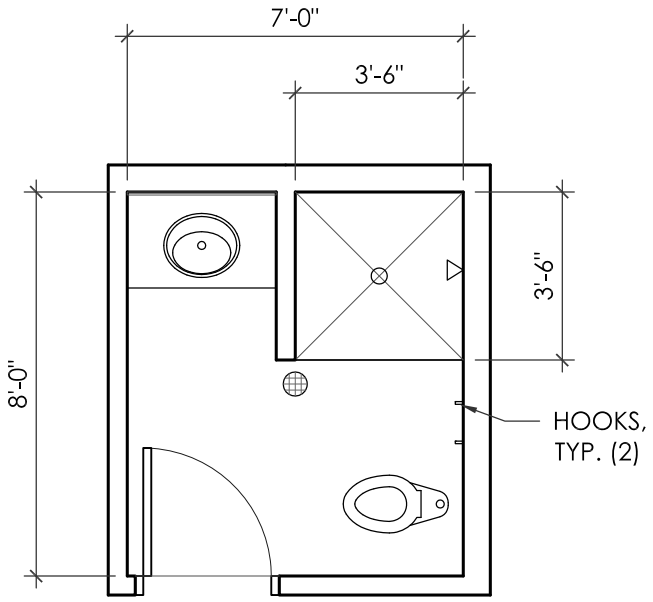
LIVING QUARTERS

FS23 UNISEX RESTROOM (56 SQ.FT.)

SCALE: 1/4"=1'-0"



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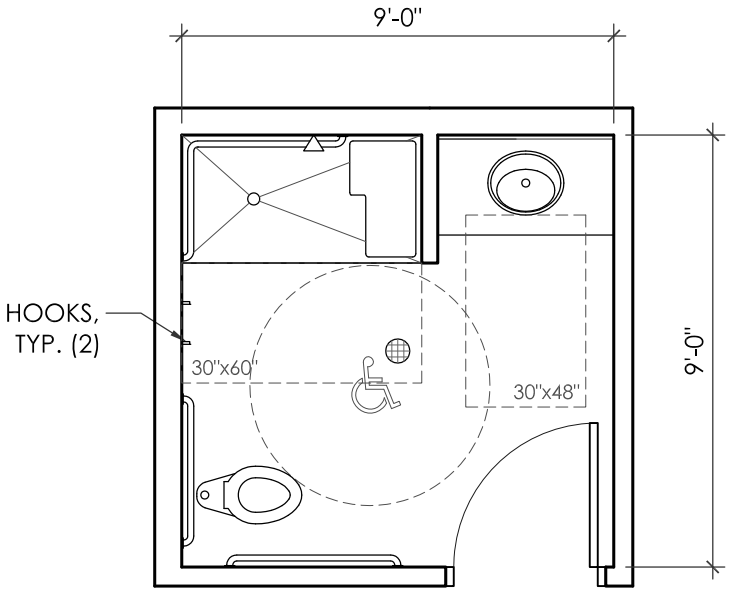
LIVING QUARTERS

FS24 UNISEX RESTROOM (ACCESSIBLE) - (81 SQ.FT.)

SCALE: 1/4"=1'-0"



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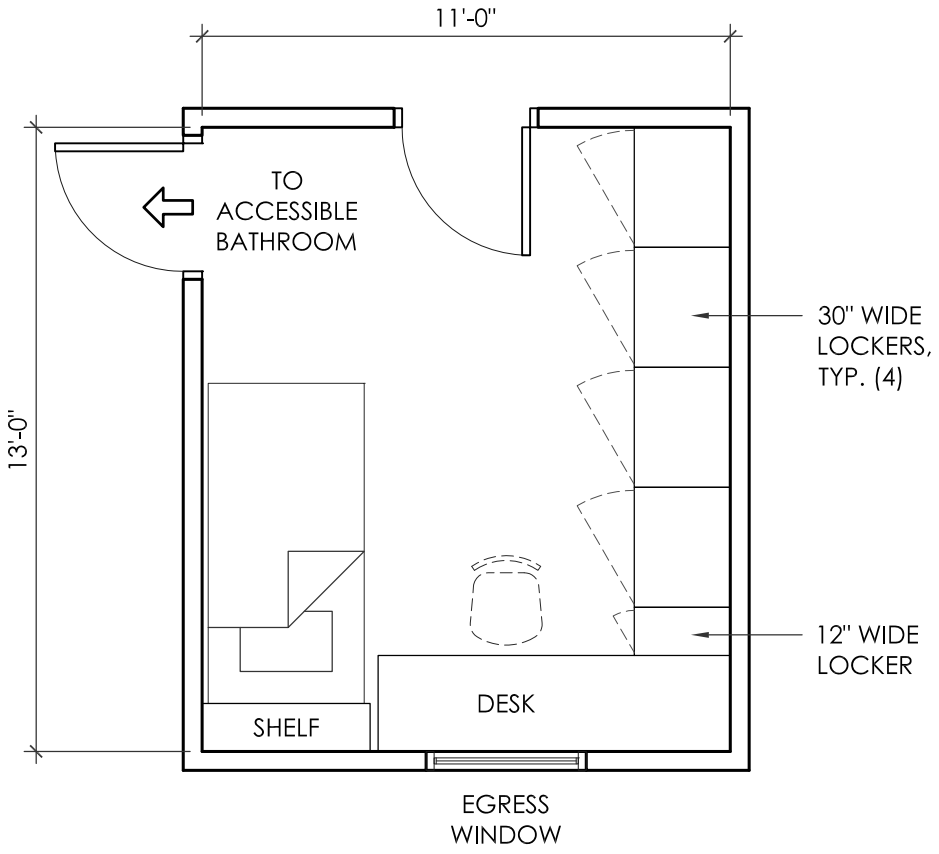
LIVING QUARTERS

FS25 OFFICER'S BEDROOM (143 SQ.FT.)

SCALE: 1/4"=1'-0"



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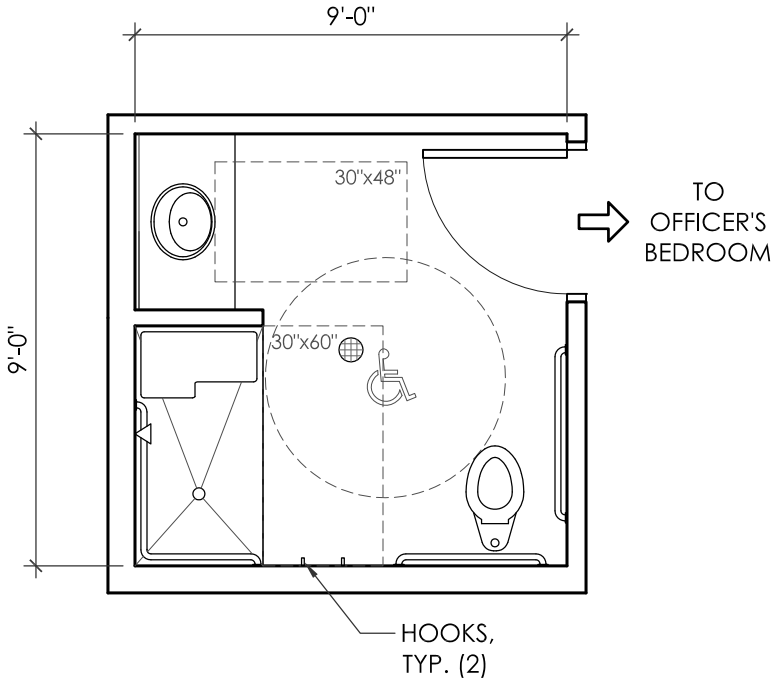
LIVING QUARTERS

FS26 OFFICER'S RESTROOM (ACCESSIBLE) (81 SQ.FT.)

SCALE: 1/4"=1'-0"



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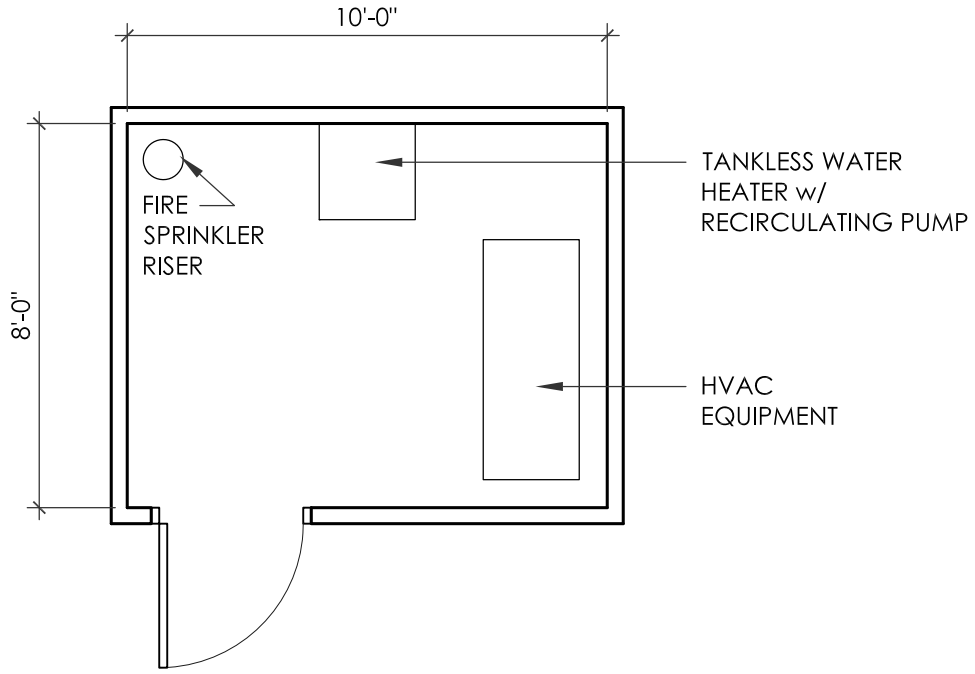
UTILITY SUPPORT SPACE

FS27 MECHANICAL ROOM (80 SQ.FT.)

SCALE: 1/4"=1'-0"



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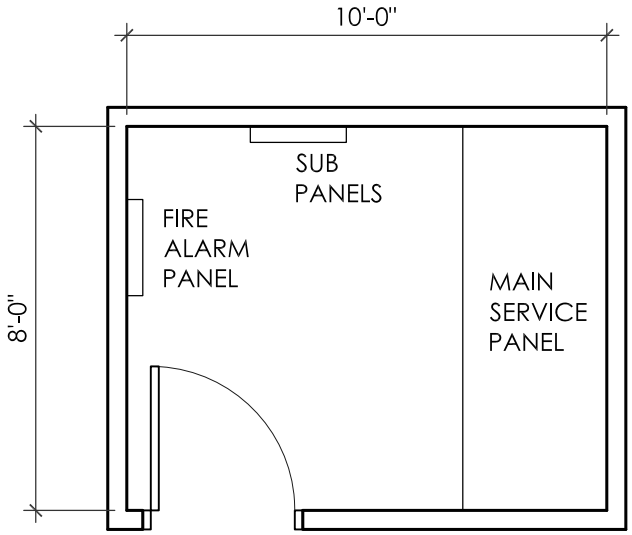
UTILITY SUPPORT SPACE

FS28 ELECTRICAL ROOM (80 SQ.FT.)

SCALE: 1/4"=1'-0"



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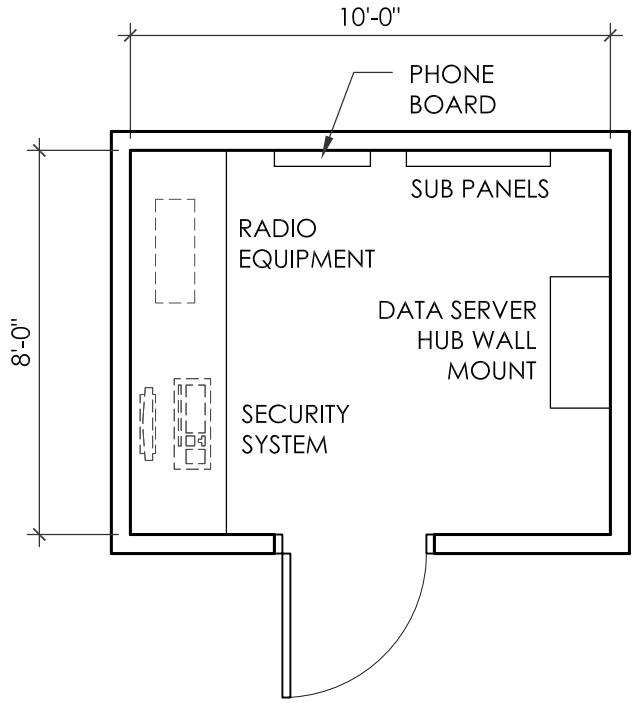
UTILITY SUPPORT SPACE

FS29 COMMUNICATIONS ROOM (80 SQ.FT.)

SCALE: 1/4"=1'-0"



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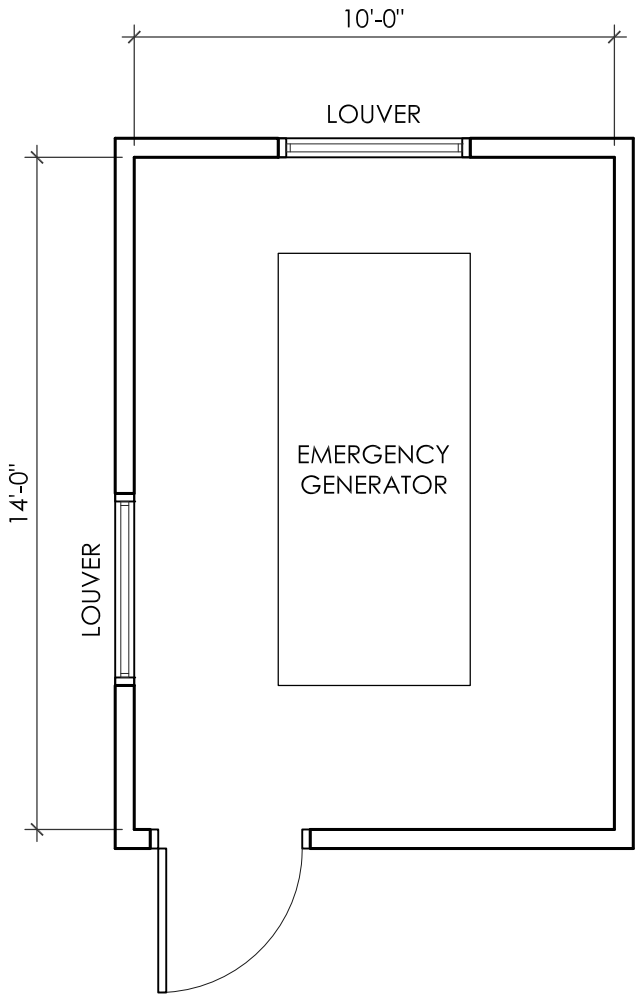
UTILITY SUPPORT SPACE

FS30 GENERATOR ROOM (140 SQ.FT.)

SCALE: 1/4"=1'-0"



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FIRE FACILITIES LONG RANGE
MASTER PLAN
MAY 2014

Appendix B-2
Prototype Two Company Station

Schreiber Starling & Lane
ARCHITECTS
MARY MCGRATH ARCHITECTS
TriData Corporation

Bellevue Prototype Two Company Station

20 Assigned Personnel - SPACE NEEDS SUMMARY

Station Company Summary

Fire Engine - Current Staffing 3, Future Staffing 3
Aid Car - Current Staffing 2, Future Staffing 2
Three Platoon System

Planning for On-duty Staffing - 5

SITE OPERATIONS			Square Footage		
No.	**Type of Space**	**Space Attributes**	**Area**	**Size**	
S1	**Fire Department Parking**	14 Firefighter/staff parking spaces; separate from visitor parking	2,160	10'x18' ea.	
S2	**Visitor Parking**	4 public parking spaces; including one van-accessible space with 8' side aisle	486	9.5'x18' ea.	
S3	**Trash Enclosure**	Space for dumpster and recycling bins	100	10'x10'	
S4	**Vehicle Wash Down Area**	Front or Rear apron, sand/oil clarifier, goes to sewer through switch, away from main apparatus response path	360	12' x 30'	
S5	**Flagpole**	Flagpole area with lighting	16	4' x 4'	
S6	**Outdoor Patio**	Private outdoor BBQ area for 6-8, natural gas for BBQ	120	10' x 12'	
S7	**Front Apron**	Concrete paving in front of each bay.	1,800	30' x 20' ea.	
S8	**Under-ground Fueling with dispenser.**	Fueling system adjacent to generator, use by all City vehicles, dispenses Diesel and Un-leaded. Near front apron of area with easy access that does not block fire response.	100	10' x 10' above ground	
S9	**Fire Hydrant**	Locate on rear yard if drive through, front yard if back-in, near training area	120	10'x20'	
S10	**In-service Training**	Area for hose lays and ladder training, near hydrant and drying tower	600	20' x 30'	
		Site Operations Subtotal	**5,862**		

SPACE NEEDS SUMMARY					
No.	**Type of Space**	**Space Attributes**	**Square Footage**		**Finish**
	APPARATUS BAY/APPARATUS BAY SUPPORT		**Area**	**Size**	
FS1	**Apparatus Bay (3 drive-through bays)**	Engine Co., Aid Car, Reserve apparatus, diesel exhaust system, power cord drops to each vehicle, radiant heating system; night lighting; auto-close doors and trench drains. Audio system with acoustical clarity, water resistant wall finishes. Door Controls with timers. Wall Map near living quarters with direct lighting. Hand washing sink on the path to the kitchen. Hose bib for apparatus washing in bay.	4,640	58' x 80'	A
FS2	**Medical Clean-up**	Hands free service sink with regular and spray hose faucet, emergency eye wash, floor drain, backboard wash-down, locate adjacent to medical storage closet. Washer Dryer and built in storage with folding counter. Room off the apparatus bay near the engine bay.	100	10' x 10'	C
FS3	**Medical Storage**	Supply Storage closet with full height shelving. Door opening to the Apparatus Bay.	42	3.5" x 12'	B
FS4	**Bunker Gear Room**	28 open metal storage lockers for bunker gear; continuous exhaust fan, floor drain, extractor and bunker gear dryer, heavy duty shelving.	336	14' x 24'	A
FS5	**Apparatus Janitor Room**	Mop sink with mop rack, shelving for apparatus cleaning supplies, hooks for chamois and squeegee storage.	36	6' x 6'	C
FS6	**Workshop Alcove**	Work shop with air compressor (in separate closet), shop vac, and tool chest storage areas. Heavy duty work bench top with upper and lower storage cabinets and utility sink.	80	5' x 16'	C
FS7	**Hose Storage/Hose Tower**	Storage for hose in mobile racks. Wall storage for tire chains	120	10' x 12'	A
FS8	**Yard Storage**	Storage for yard maintenance tools	36	6' x 6'	B
FS9	**Special Projects**	Varies per Station	240	12' x 20'	B
FS10	**Charging Alcove**	Printer, map charging banks	24	3' x 8'	B
FS11	**Vending/Ice Alcove**	Storage space for ice and vending machines	30	3' x 10'	B
		Apparatus Bay/Apparatus Bay Support Subtotal	**5,684**		

SPACE NEEDS SUMMARY - Continued					
No.	**Type of Space**	**Space Attributes**	**Square Footage**		**Finish**
	PUBLIC AREA/OFFICE		**Area**	**Size**	
FS12	**Public Entry Lobby**	Interior space for visitor seating; reception counter, covered entry, door bell, chairs for visitors, public information display. Adjacent to station office, direct access to unisex public restroom. Storage closet for blood pressure check equipment. Privacy screen for blood pressure checks.	168	12' x 14'	B
FS13	**Accessible Public Restroom**	Accessible restroom adjacent to Lobby	64	8' x 8'	C
FS14	**Station Office**	Shared office space with 6 work stations, counter service to Lobby, counter for combined fax printer, copier; file storage. AV for training.	240	12' x 20'	B
FS15	**Officers Office**	Private office with one work station and file storage. Meeting space over desk for three.	120	10' x 12'	B
		Public Area/Office Subtotal	**592**		

	LIVING QUARTERS		**Area**	**Size**	**Finish**
FS16	**Kitchen**	4-refrigerators, 1-dishwasher, (2) 4-burner gas ranges/ with hood, large microwave, 12" deep- double bowl sink with disposal and tall faucet with hand held sprayer. Island in kitchen for two ranges. Open to Dining area; adjacent to patio.	208	13' x 16'	C
FS17	**Pantry Storage**	4 - 30" wide full height pantries; 28-18' x 18' storage cabinets for personal items.	56	5' x 8' 1.5' x 10.5'	B
FS18	**Dining Room**	Seating for 8-persons; open to Kitchen and Day Room.	180	12' x 15'	B
FS19	**Day Room**	Seating for 6 with recliner chairs, entertainment center and book shelving. Open to Kitchen, Dining.	238	14' x 17'	B
FS20	**Fitness Room**	Space for 3 -cardio pieces, squat rack, pull up rig, benches, free weights, dual cross cable machine, and 2 plate racks. Adequate light and ventilation; durable floors and walls; acoustic separation; mirrors, drinking fountain; Roll-up door to the building exterior	528	22' x 24'	B
FS21	**Supply Storage/Janitor Room**	High end residential washer and dryer, folding counter with storage, full-height storage shelving for Janitorial/housekeeping supplies, mop sink/rack. Adjacent to Kitchen.	96	8' x 12'	C
FS22	**Firefighter's Bedroom with Lockers (One of the five rooms is provided for a trainee or future need.)**	Single Occupancy bedroom; each one bed, study desk and chair, four 30" wide lockers and one 12' wide locker. Egress window is required.	715	11' x 13' (5)	B
FS23	**Unisex Restrooms (Two total Standard Size)**	Toilet, Shower and sink	112	7' x 8' (2)	C
FS24	**Unisex Restrooms (One total Accessible)**	Toilet, Shower and sink - Accessible	81	9' x 9'	C
FS25	**Officers Bedroom**	Single Occupancy bedroom; each one bed, study desk and chair, four 30" wide lockers and one 12' wide locker. Egress window is required.	143	11' x 13'	B
FS26	**Officers Restroom (Accessible)**	Toilet, Shower and sink - Accessible	81	9' x 9'	C
		Living Quarters Area Subtotal	**2,438**		

SPACE NEEDS SUMMARY - Continued					
No.	**Type of Space**	**Space Attributes**	**Square Footage**		**Finish**
	UTILITY SUPPORT SPACE		**Area**	**Size**	**Finish**
FS27	**Mechanical Room**	Mechanical equipment, water heater; fire sprinkler riser	80	8' x 10'	D
FS28	**Electrical Room**	Fire alarm panel, sub panels, main service	80	8' x 10'	D
FS29	**Communications Room**	Telephone service racks, computer data network, all electronics room; Air conditioned; radio equipment, alert response system hub, data server hub; Uninterrupted power system	80	8' x 10'	D
FS30	**Generator Room**	Indoor mechanical space for station generator	140	10' x 14'	D
		Utility Support Subtotal	**380**		

SPACE NEEDS SUMMARY	**SF**	
Apparatus Bay/Apparatus Bay Support Subtotal	5,684	
Public Area/Office Subtotal	592	
Living Quarters Subtotal	2,438	
Utility Support Space Subtotal	380	
BUILDING SUBTOTAL (SF)	**9,094**	
Circulation at 25%	2,274	
PROTOTYPE TWO COMPANY STATION TOTAL (SF)	**11,368**	

TWO STORY - VERTICAL CIRCULATION			**Square Footage**		**Finish**
No.	**Type of Space**	**Space Attributes**	**Area**	**Size**	
FS28	**Elevator and Machine Room**	Elevator access to upper levels; security keyed for visitors; machine room	174	(2) 9'x12'	A
SF29	**Stairway**	(x2) for each level and (x2) for egress	640	20'x8' (2)	B
		Two Story - Vertical Circulation SUBTOTAL (SF)	**814**		
		Circulation/Structure at 30%	244		
		Two Story - Vertical Circulation:	1,058		
		PROTOTYPE TWO COMPANY STATION TOTAL - Two Stories(SF)	**12,426**		

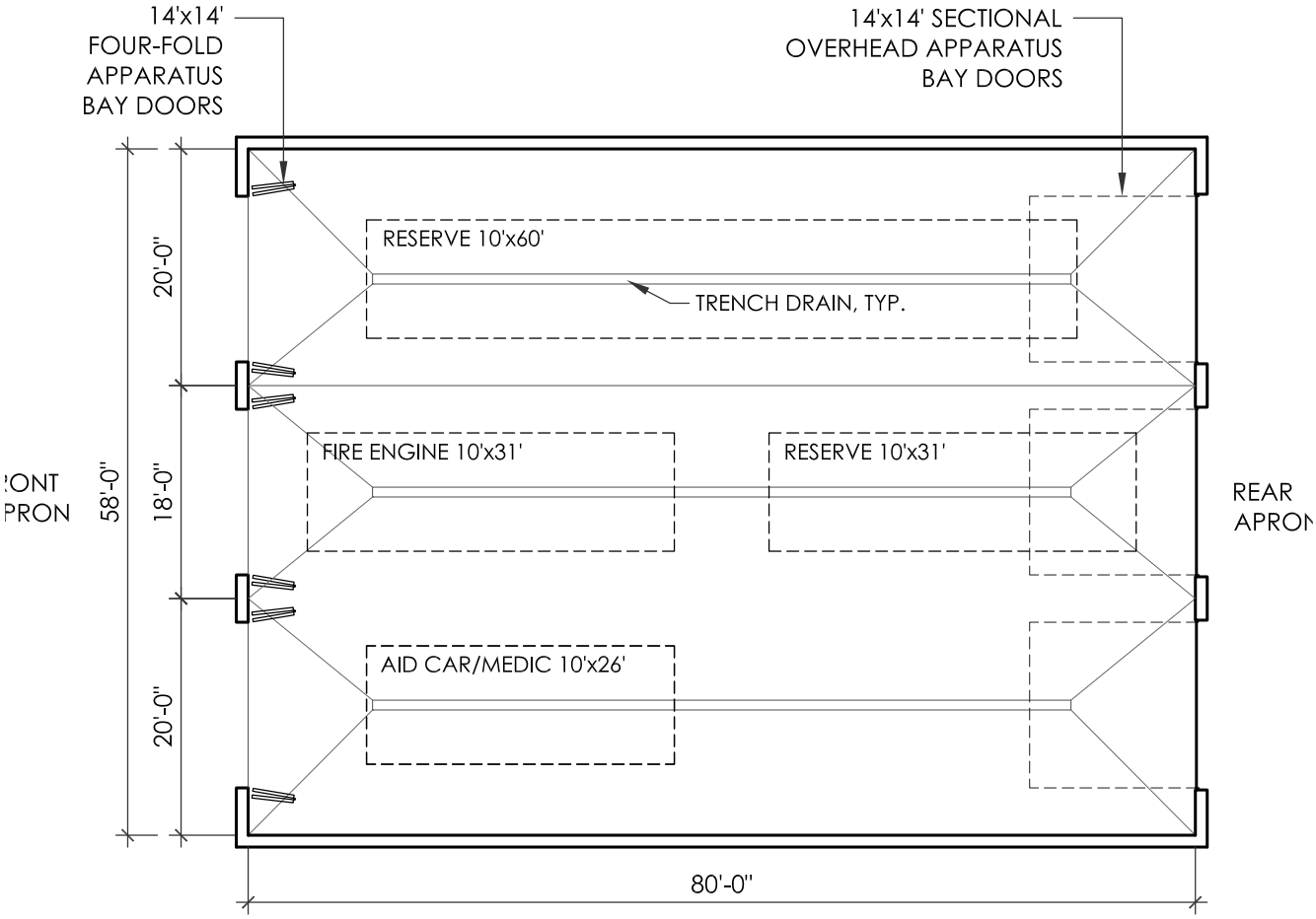
Finish Legend:
A - Simple Finishes
B - Standard Office Finishes
C - Intense Finishes
D - Service Room Finishes

- BELLEVUE PROTOTYPE TWO COMPANY STATION

APPARATUS BAY / APPARATUS BAY SUPPORT

FS1 APPARATUS BAY - 3 DRIVE THROUGH BAYS (4,640 SQ.FT.)

SCALE: 1/16"=1'-0"



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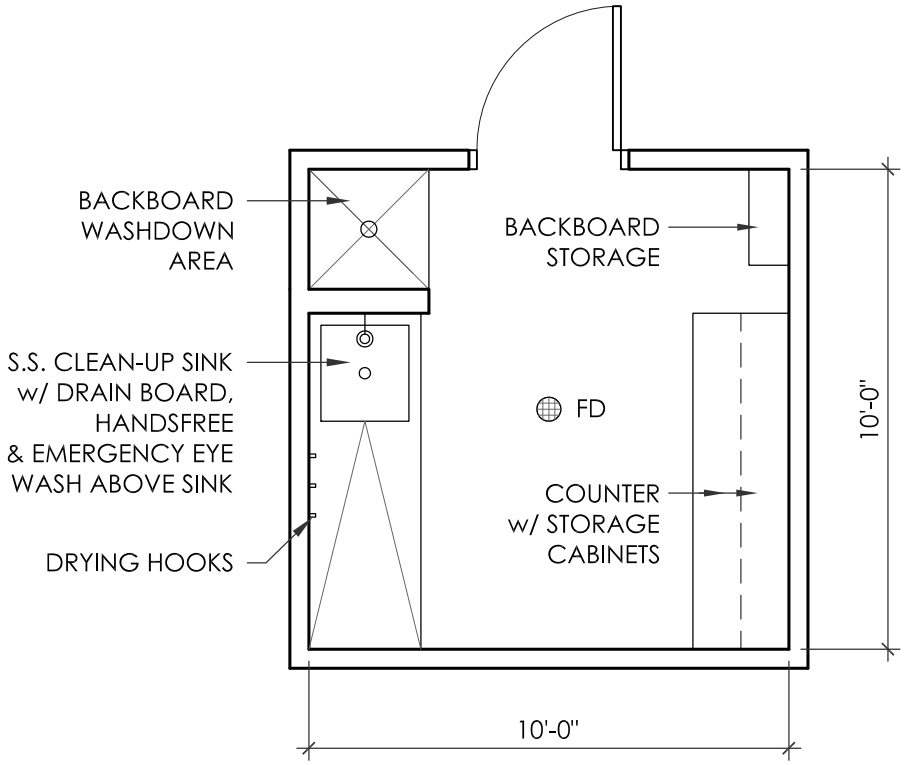
APPARATUS BAY / APPARATUS BAY SUPPORT

FS2 MEDICAL CLEAN-UP (100 SQ.FT.)

SCALE: 1/4"=1'-0"



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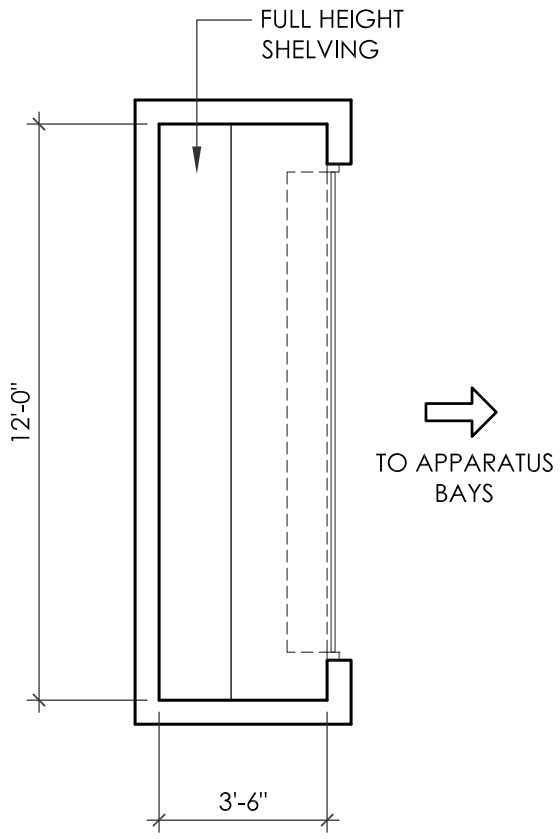
APPARATUS BAY / APPARATUS BAY SUPPORT

FS3 MEDICAL STORAGE (42 SQ.FT.)

SCALE: 1/4"=1'-0"



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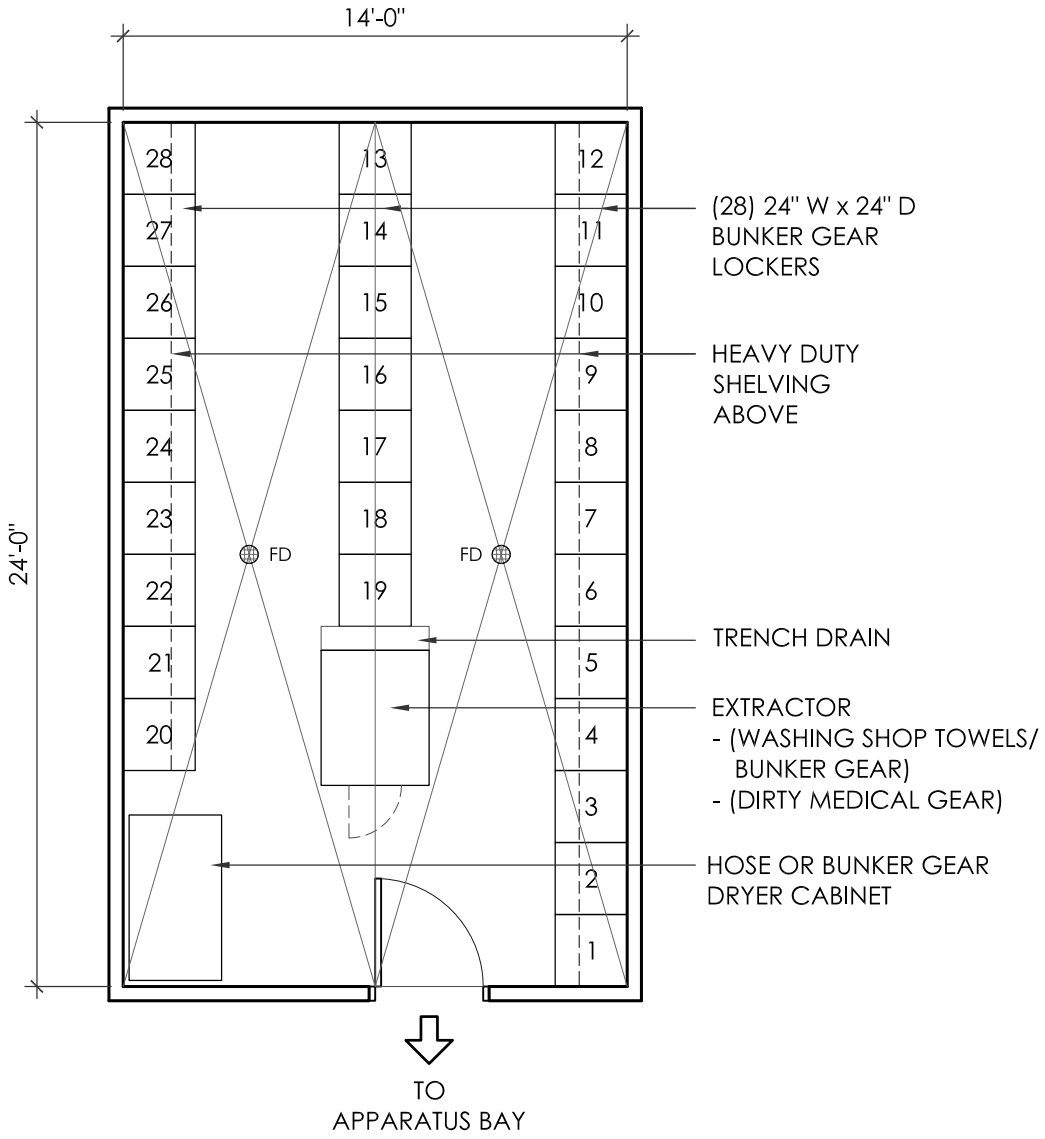
APPARATUS BAY / APPARATUS BAY SUPPORT

FS4 BUNKER GEAR ROOM (336 SQ.FT.)

SCALE: 3/16"=1'-0"



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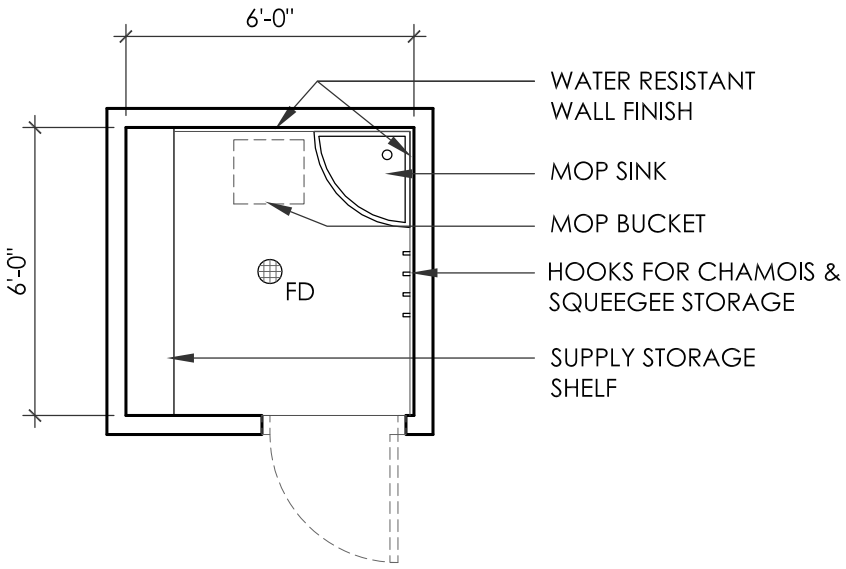
APPARATUS BAY / APPARATUS BAY SUPPORT

FS5 APPARATUS JANITOR ROOM (36 SQ.FT.)

SCALE: 1/4"=1'-0"



NOTES:
- FOR CLEANING BAY & VEHICLES ONLY
- DOOR IS OPTIONAL
- 9' MIN. CEILING HEIGHT

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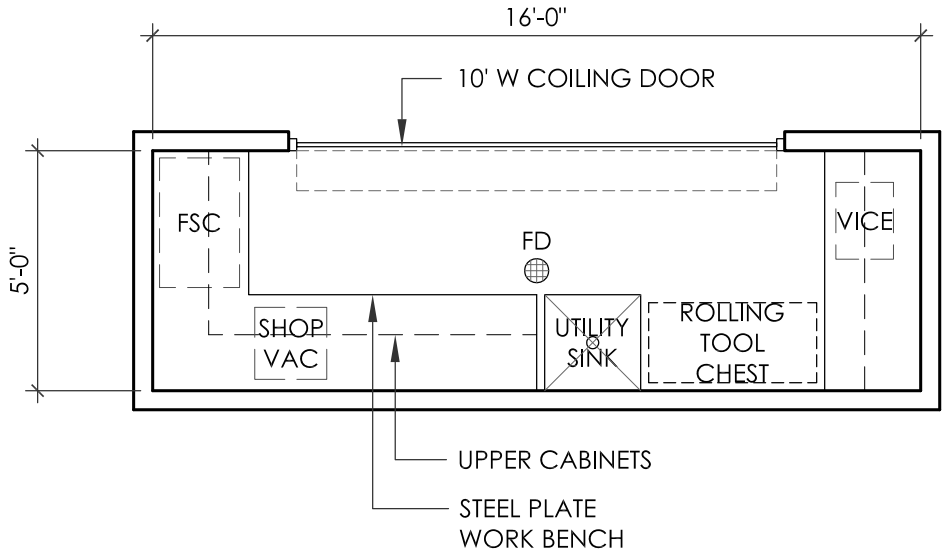
APPARATUS BAY / APPARATUS BAY SUPPORT

FS6 WORKSHOP ALCOVE (80 SQ.FT.)

SCALE: 1/4"=1'-0"



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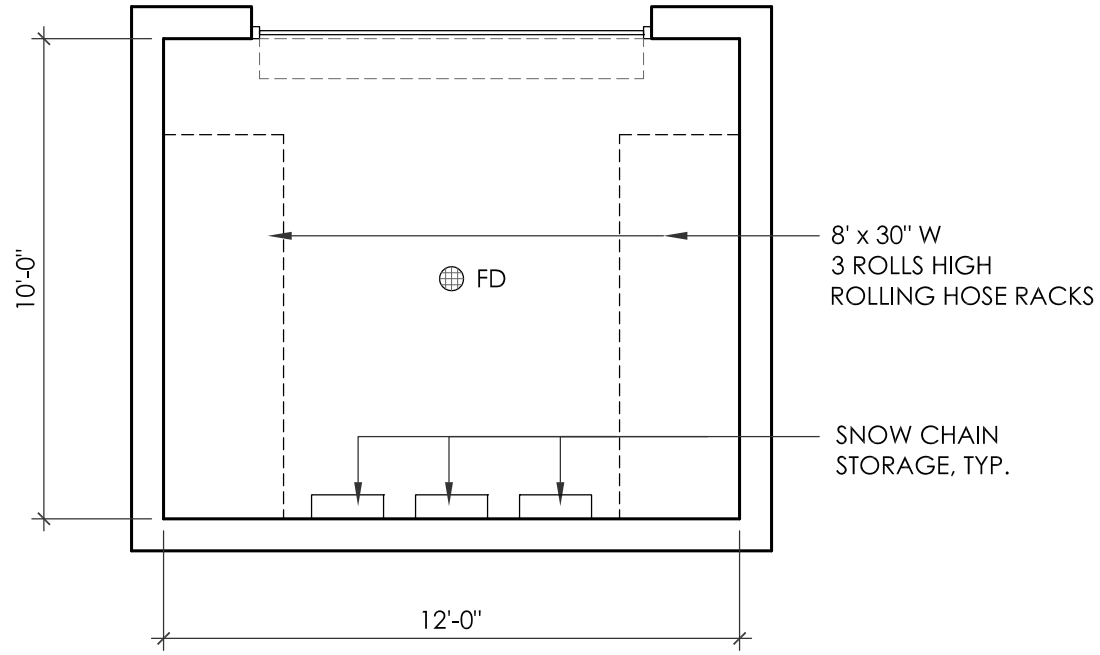
APPARATUS BAY / APPARATUS BAY SUPPORT

FS7 HOSE / SNOW CHAIN STORAGE (120 SQ.FT.)

SCALE: 1/4"=1'-0"



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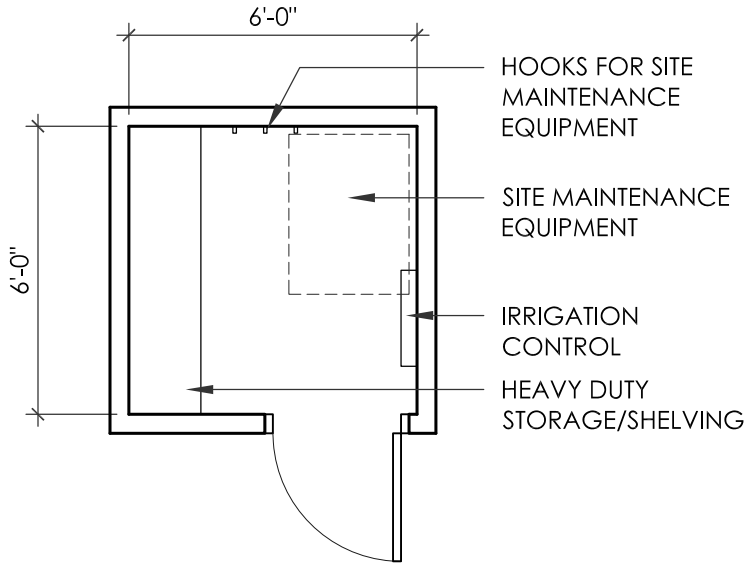
APPARATUS BAY / APPARATUS BAY SUPPORT

FS8 YARD STORAGE (36 SQ.FT.)

SCALE: 1/4"=1'-0"



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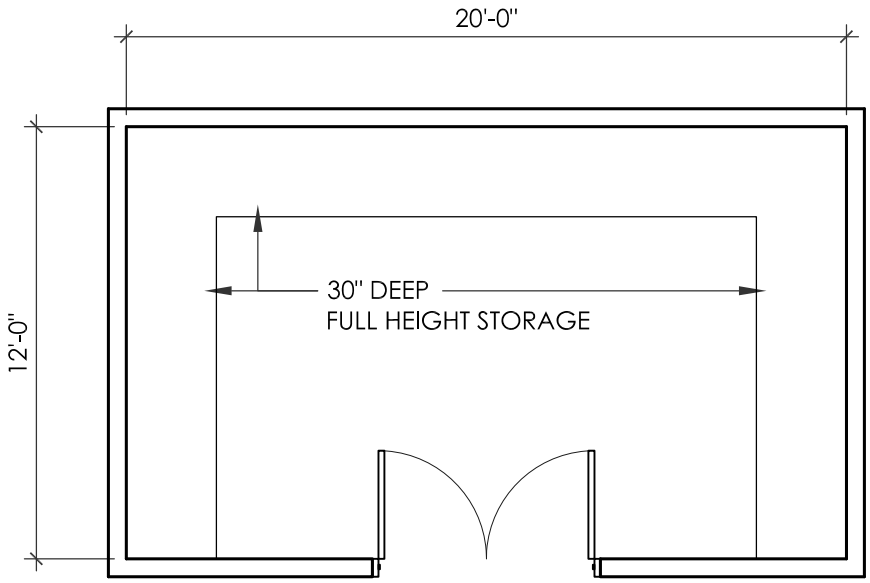
APPARATUS BAY / APPARATUS BAY SUPPORT

FS9.1 SPECIAL PROJECTS - RESCUE STORAGE (240 SQ.FT.)

SCALE: 3/16"=1'-0"



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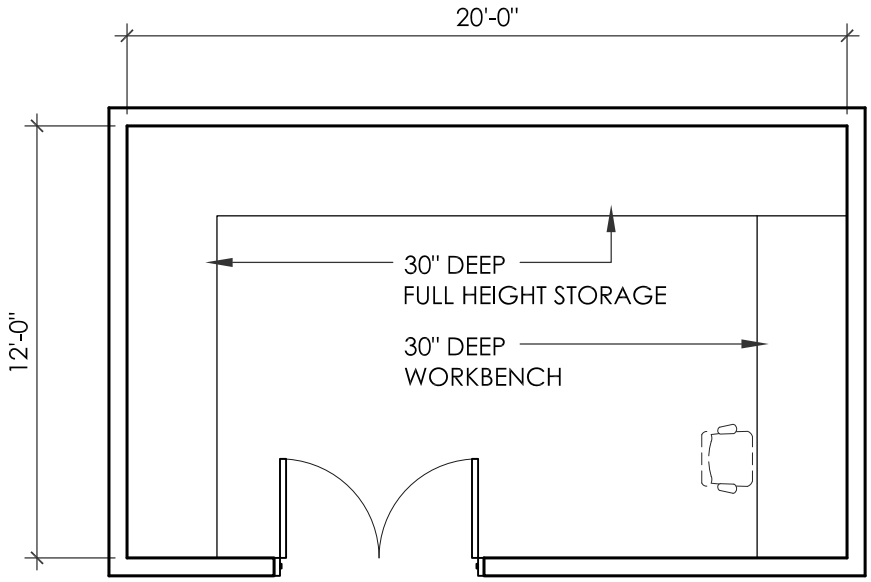
APPARATUS BAY / APPARATUS BAY SUPPORT

FS9.2 SPECIAL PROJECTS - SMALL TOOL REPAIR ROOM (240 SQ.FT.)

SCALE: 3/16"=1'-0"



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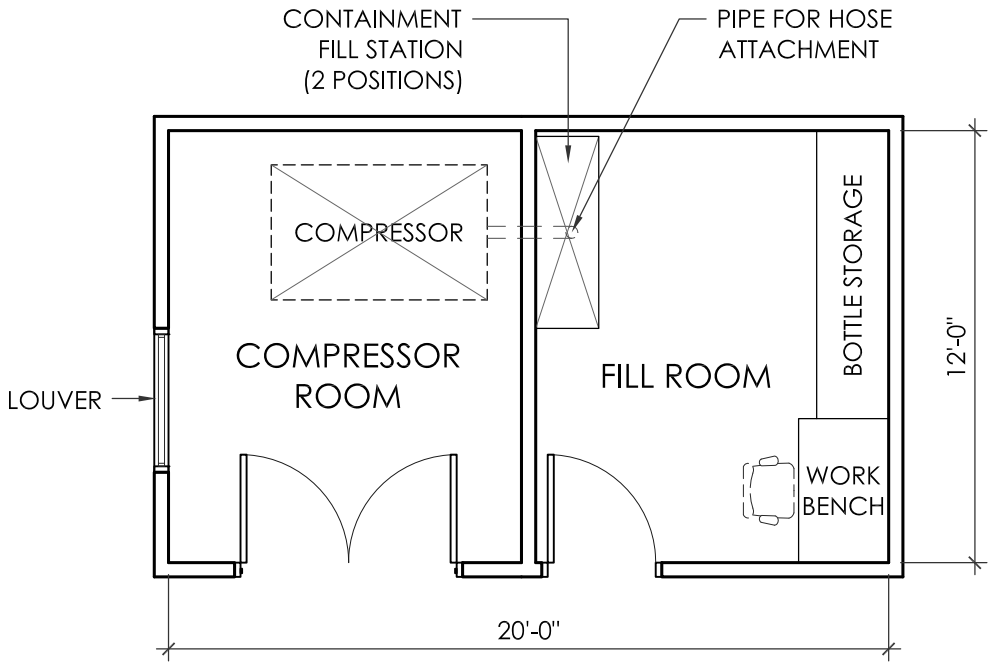
APPARATUS BAY / APPARATUS BAY SUPPORT

FS9.3 SPECIAL PROJECTS - SCBA AIRFILL (240 SQ.FT.)

SCALE: 3/16"=1'-0"



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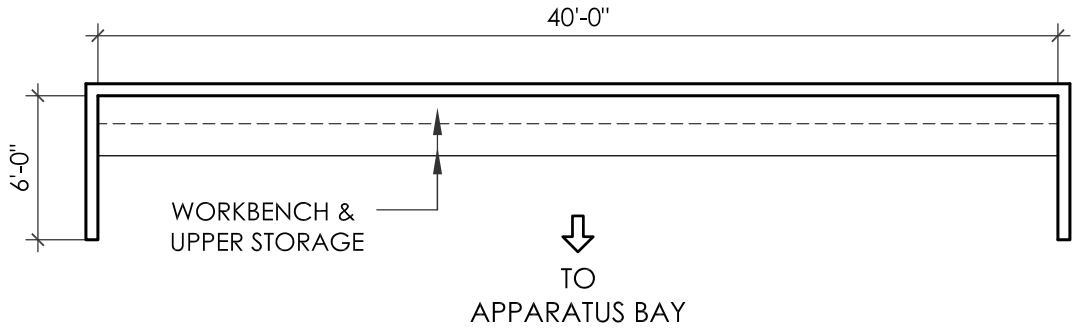
APPARATUS BAY / APPARATUS BAY SUPPORT

FS9.4 SPECIAL PROJECTS - LADDER / HOSE REPAIR AREA (240 SQ.FT.)

SCALE: 1/8"=1'-0"



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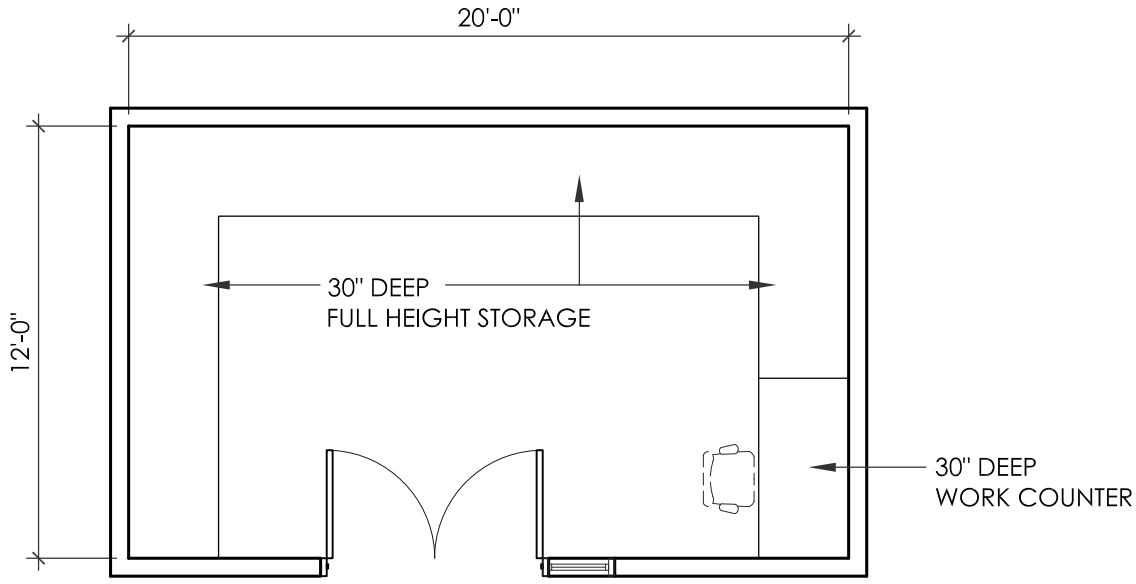
APPARATUS BAY / APPARATUS BAY SUPPORT

FS9.5 SPECIAL PROJECTS - HAZ MAT (240 SQ.FT.)

SCALE: 3/16"=1'-0"



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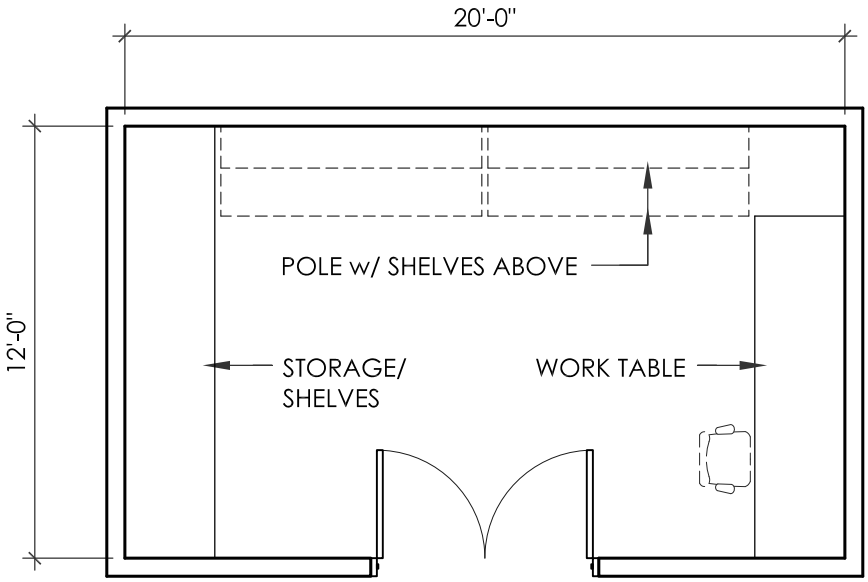
APPARATUS BAY / APPARATUS BAY SUPPORT

FS9.6 SPECIAL PROJECTS - BUNKER GEAR / UNIFORM STORAGE (240 SQ.FT.)

SCALE: 3/16"=1'-0"



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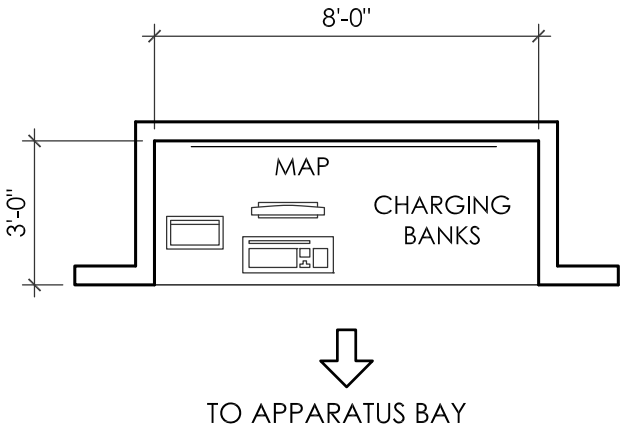
APPARATUS BAY / APPARATUS BAY SUPPORT

FS10 CHARGING ALCOVE (24 SQ.FT.)

SCALE: 1/4"=1'-0"



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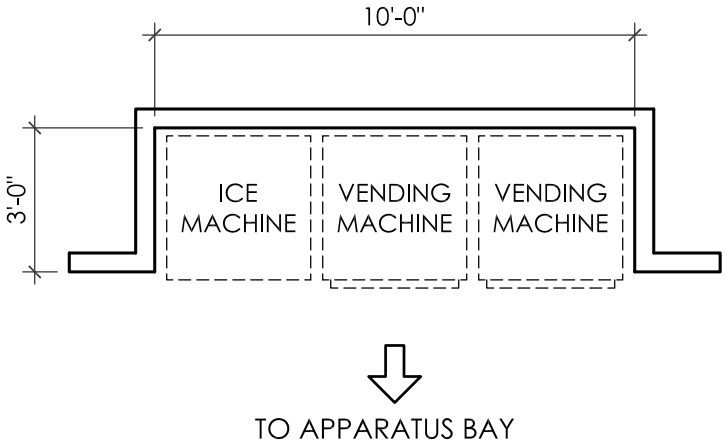
APPARATUS BAY / APPARATUS BAY SUPPORT

FS11 VENDING / ICE MACHINE ALCOVE (30 SQ.FT.)

SCALE: 1/4"=1'-0"



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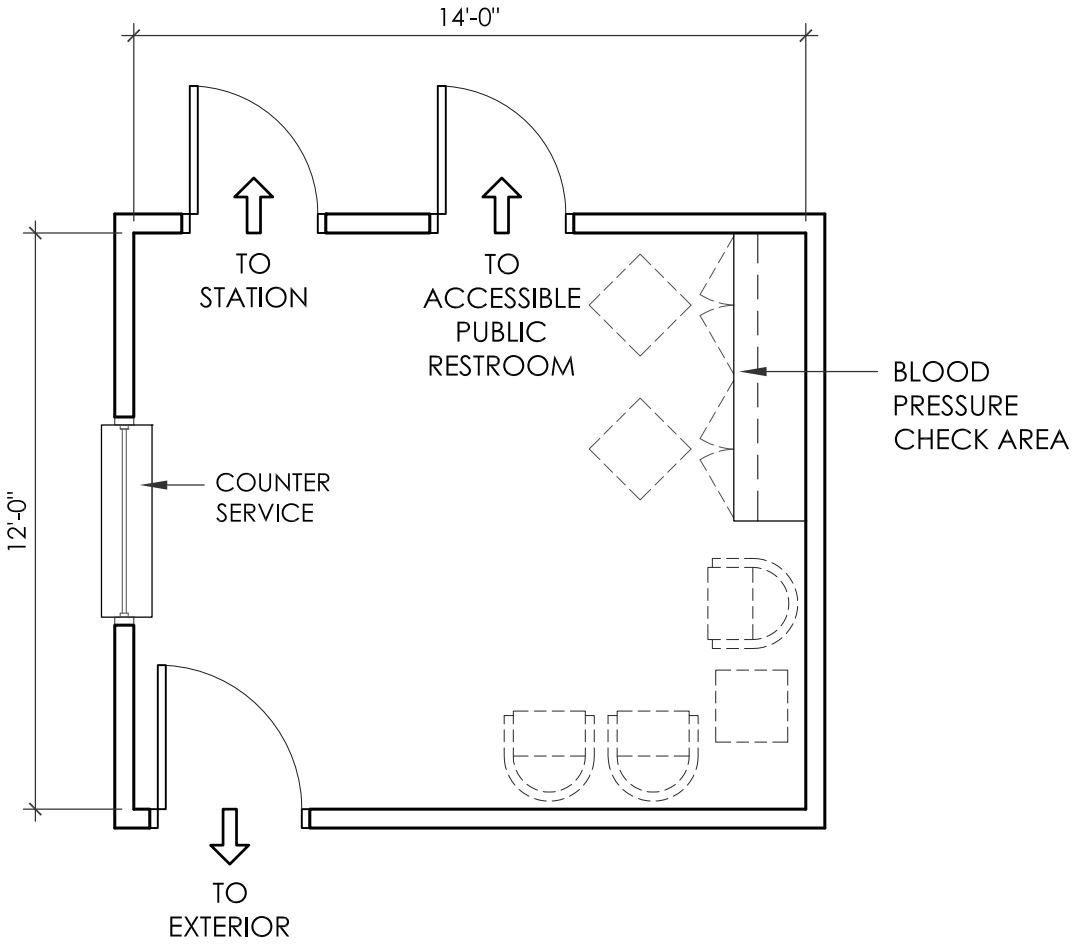
PUBLIC AREA / OFFICE

FS12 PUBLIC ENTRY LOBBY (168 SQ.FT.)

SCALE: 1/4"=1'-0"



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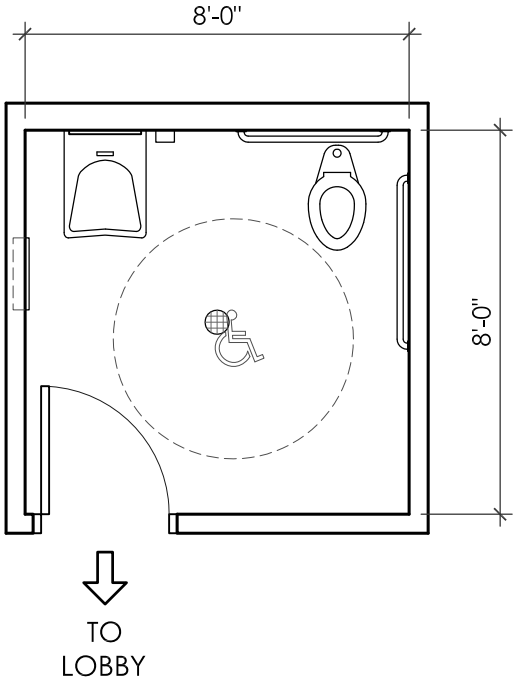
- BELLEVUE PROTOTYPE TWO COMPANY STATION

PUBLIC AREA / OFFICE

FS13 ACCESSIBLE PUBLIC RESTROOM (64 SQ.FT.)

SCALE: 1/4"=1'-0"



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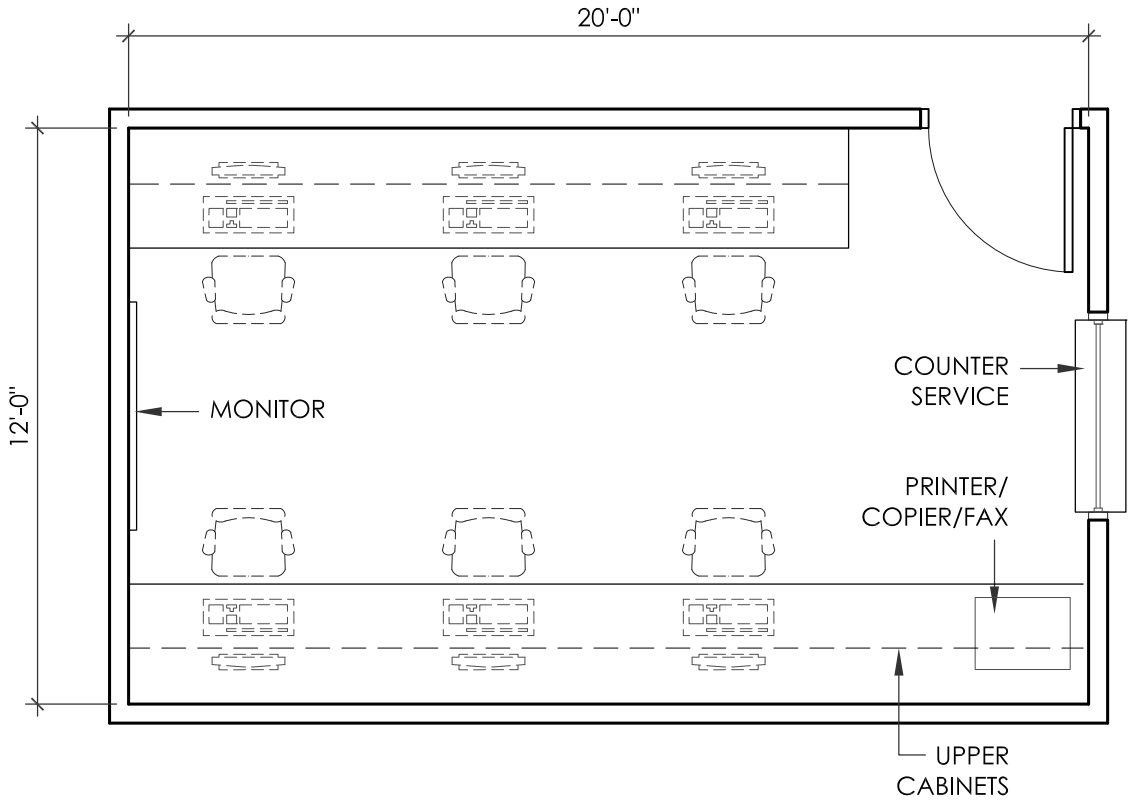
PUBLIC AREA / OFFICE

FS14 STATION OFFICE (240 SQ.FT.)

SCALE: 1/4"=1'-0"



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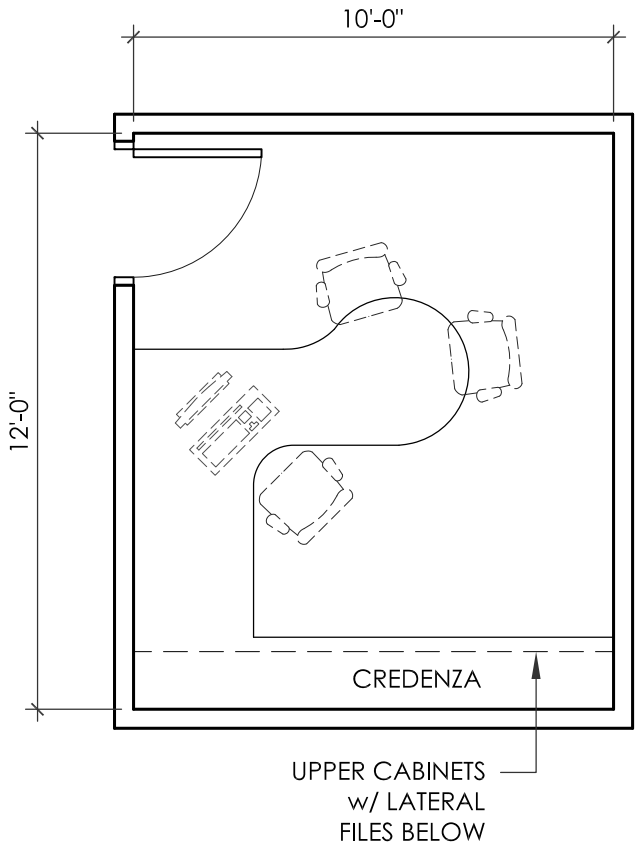
PUBLIC AREA / OFFICE

FS15 OFFICERS OFFICE (120 SQ.FT.)

SCALE: 1/4"=1'-0"



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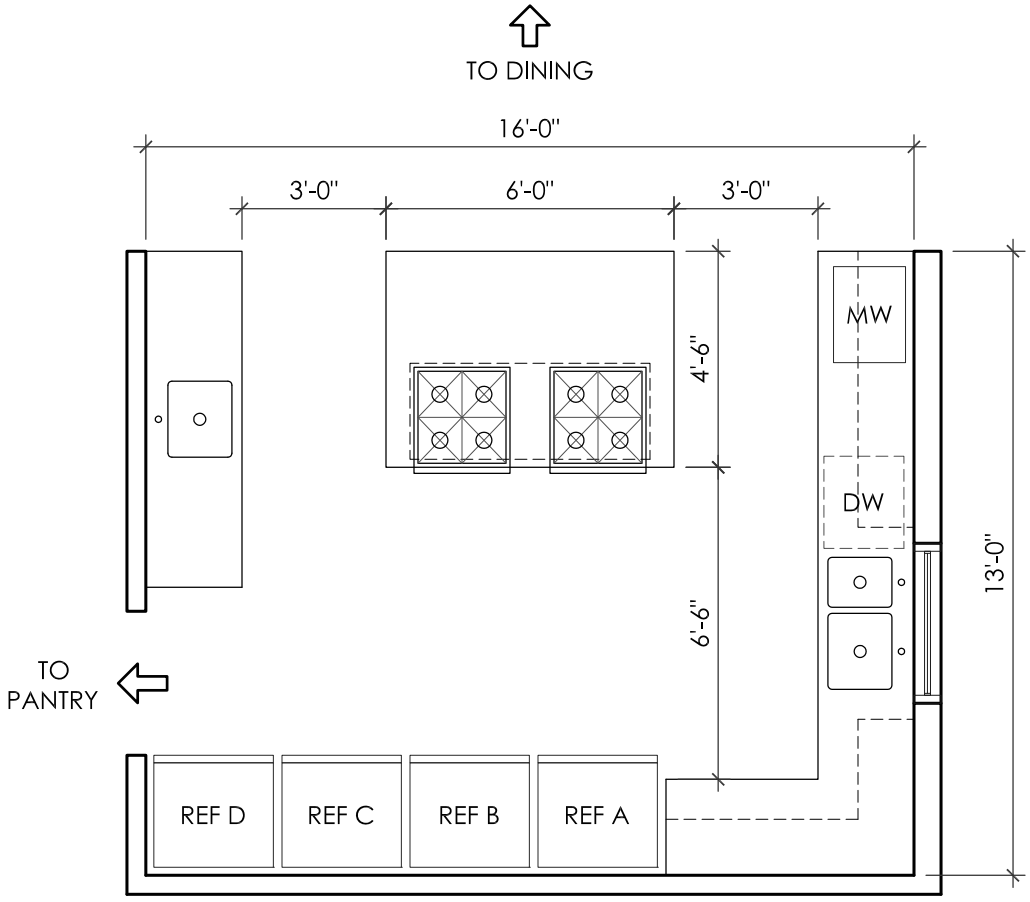
- BELLEVUE PROTOTYPE TWO COMPANY STATION

LIVING QUARTERS

FS16 KITCHEN (208 SQ.FT.)

SCALE: 1/4"=1'-0"



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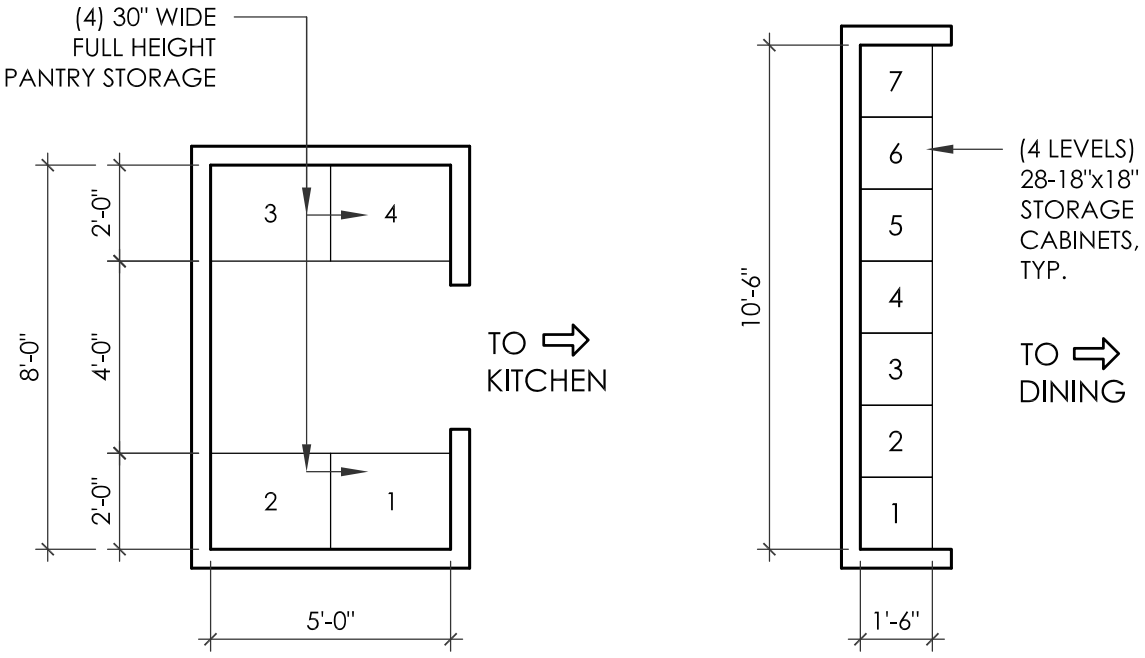
LIVING QUARTERS

FS17 PANTRY STORAGE (56 SQ.FT.)

SCALE: 1/4"=1'-0"



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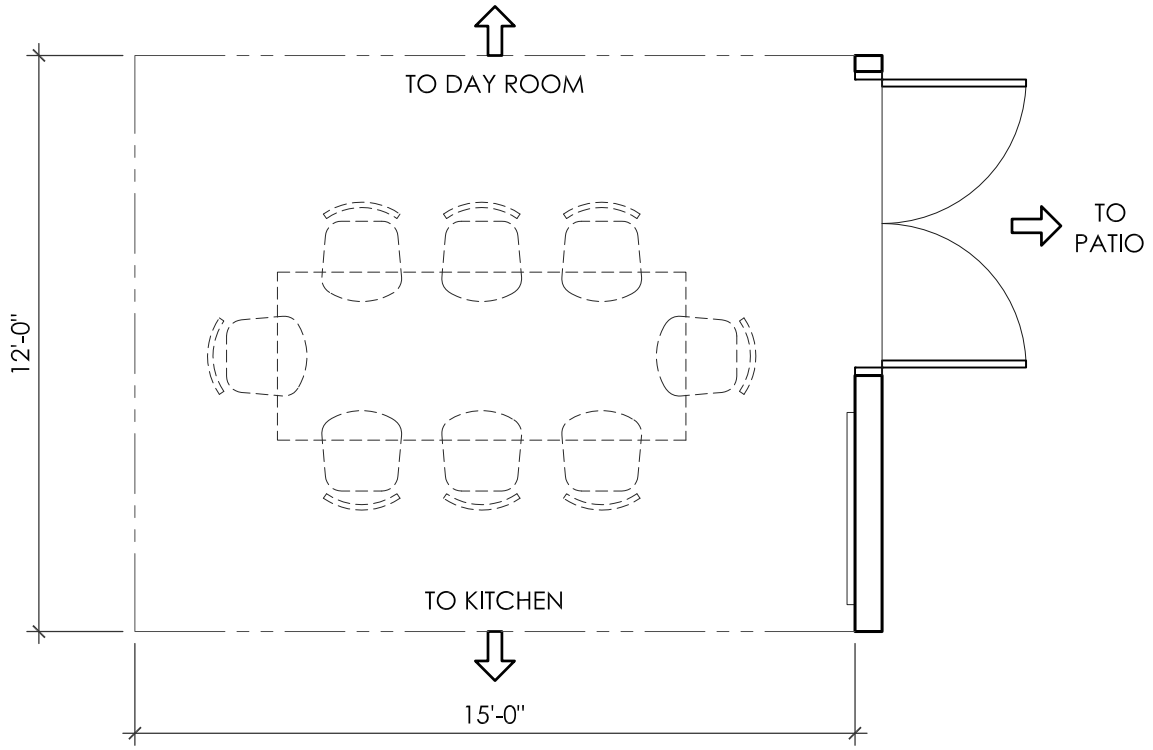
- BELLEVUE PROTOTYPE TWO COMPANY STATION

LIVING QUARTERS

FS18 DINING (180 SQ.FT.)

SCALE: 1/4"=1'-0"



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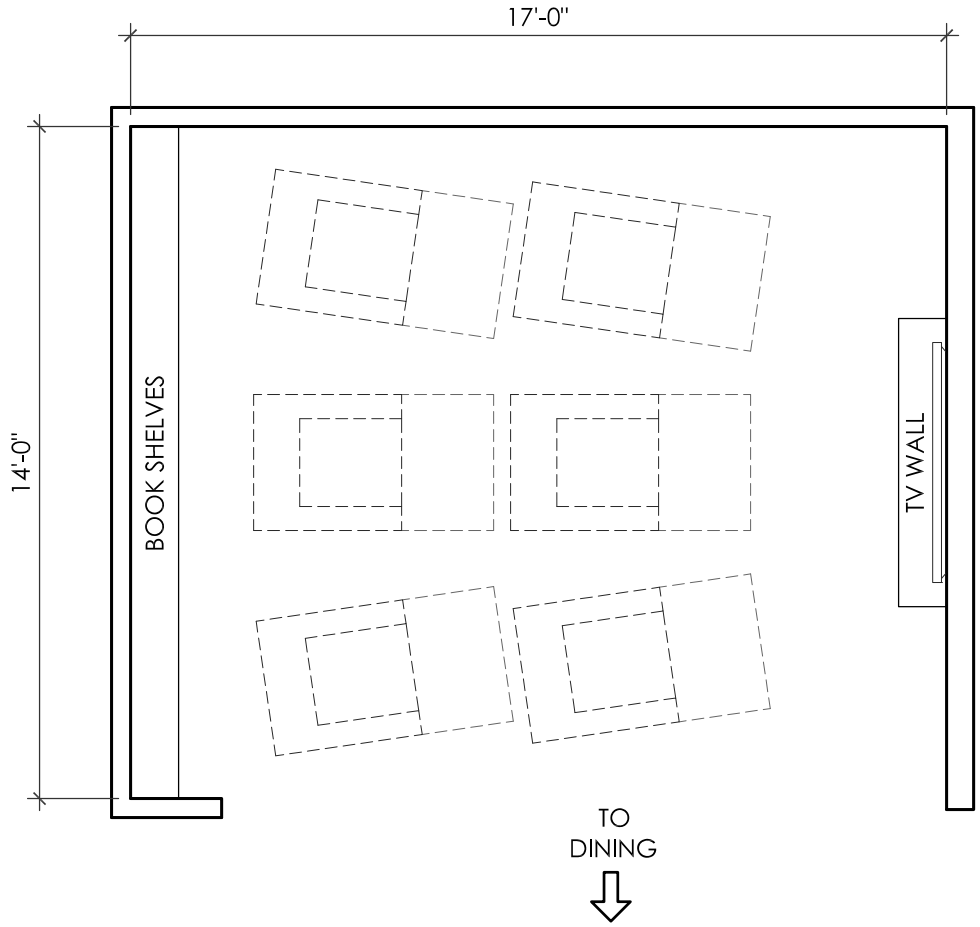
- BELLEVUE PROTOTYPE TWO COMPANY STATION

LIVING QUARTERS

FS19 DAYROOM (238 SQ.FT.)

SCALE: 1/4"=1'-0"



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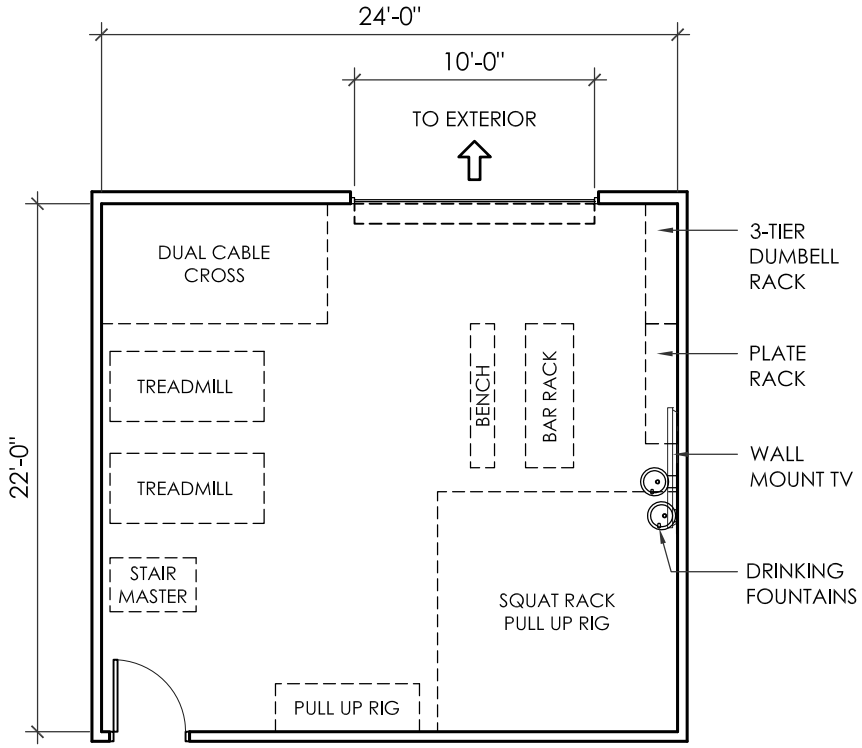
LIVING QUARTERS

FS20 FITNESS ROOM (528 SQ.FT.)

SCALE: 1/8"=1'-0"



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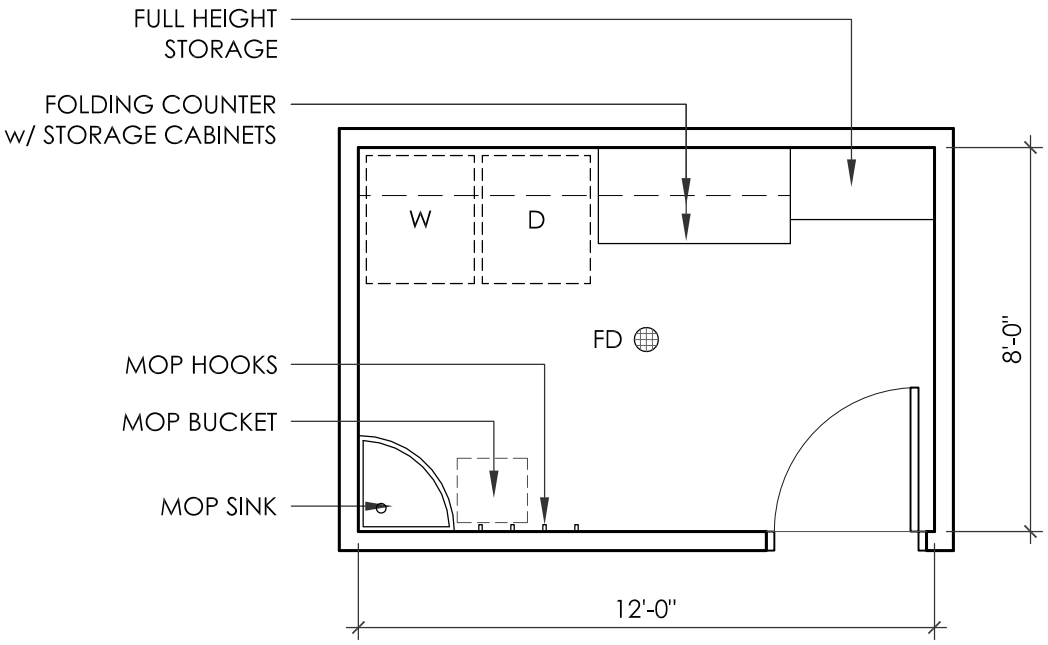
LIVING QUARTERS

FS21 SUPPLY STORAGE / JANITOR ROOM (96 SQ.FT.)

SCALE: 1/4"=1'-0"



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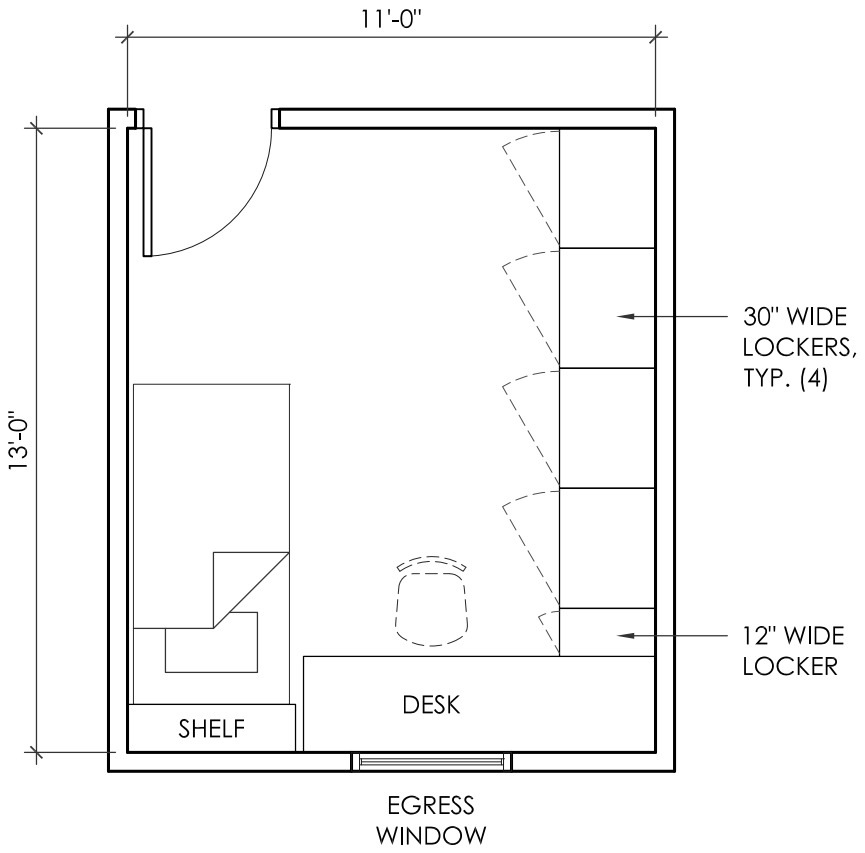
LIVING QUARTERS

FS22 FIREFIGHTER'S BEDROOM w/ LOCKERS - 5 TOTAL (715 SQ.FT.)

SCALE: 1/4"=1'-0"



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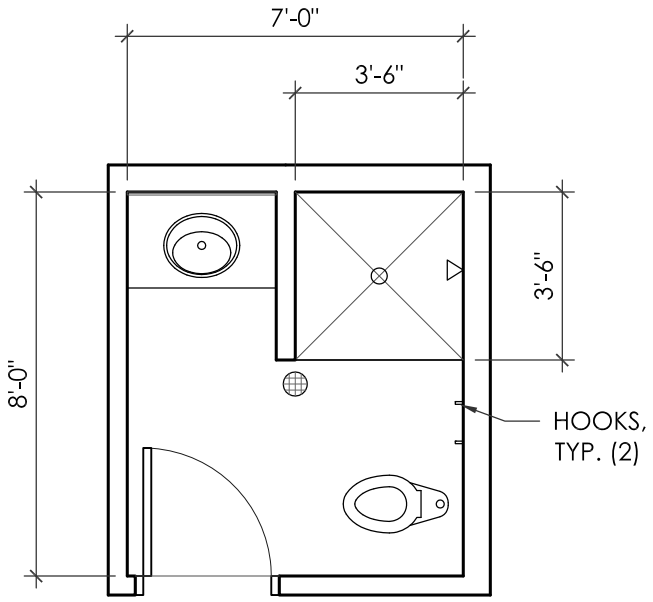
- BELLEVUE PROTOTYPE SINGLE COMPANY STATION

LIVING QUARTERS

FS23 UNISEX RESTROOM - 2 TOTAL (112 SQ.FT.)

SCALE: 1/4"=1'-0"



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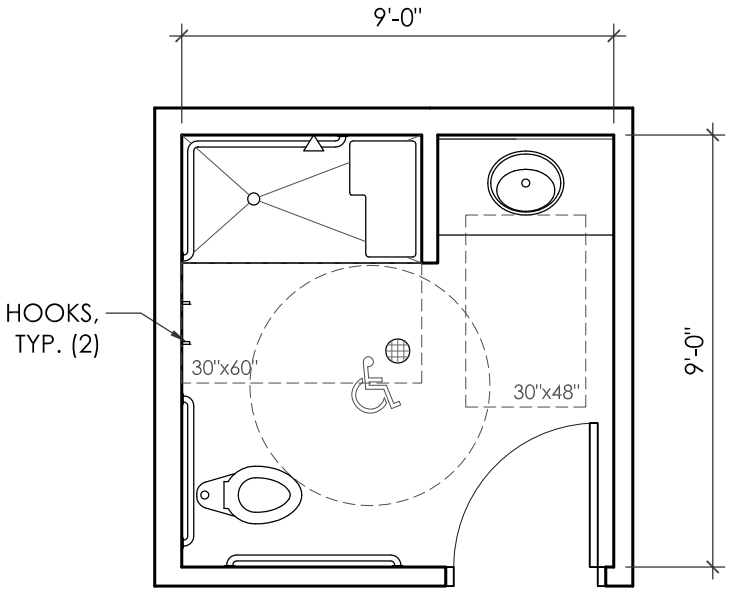
LIVING QUARTERS

FS24 UNISEX RESTROOM (ACCESSIBLE) - (81 SQ.FT.)

SCALE: 1/4"=1'-0"



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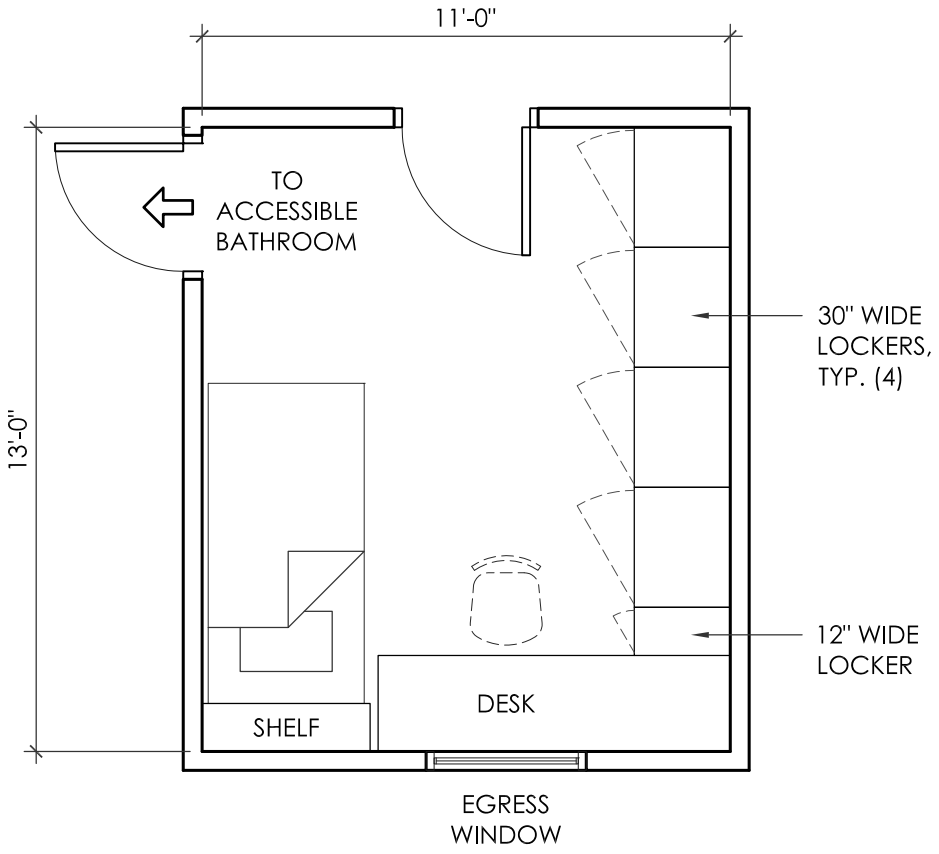
LIVING QUARTERS

FS25 OFFICER'S BEDROOM (143 SQ.FT.)

SCALE: 1/4"=1'-0"



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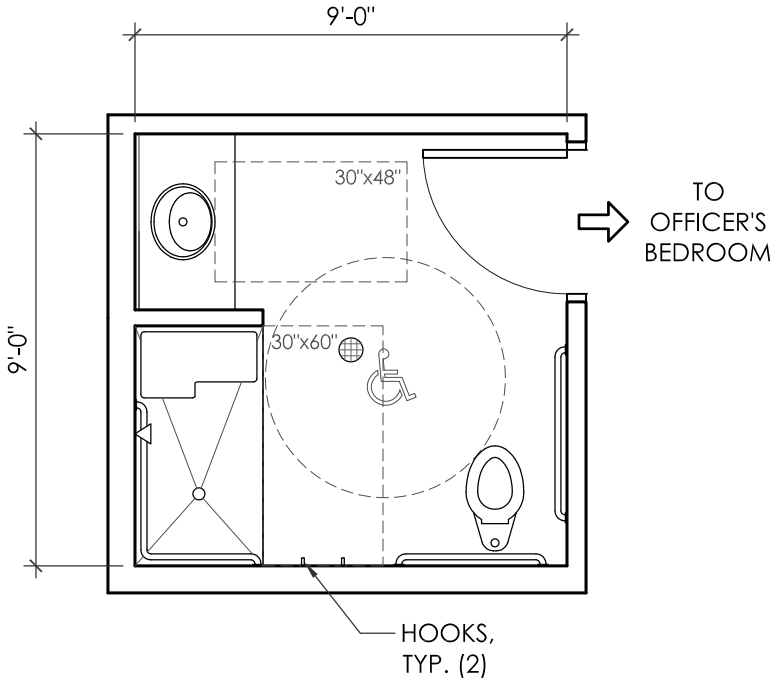
LIVING QUARTERS

FS26 OFFICER'S RESTROOM (ACCESSIBLE) (81 SQ.FT.)

SCALE: 1/4"=1'-0"



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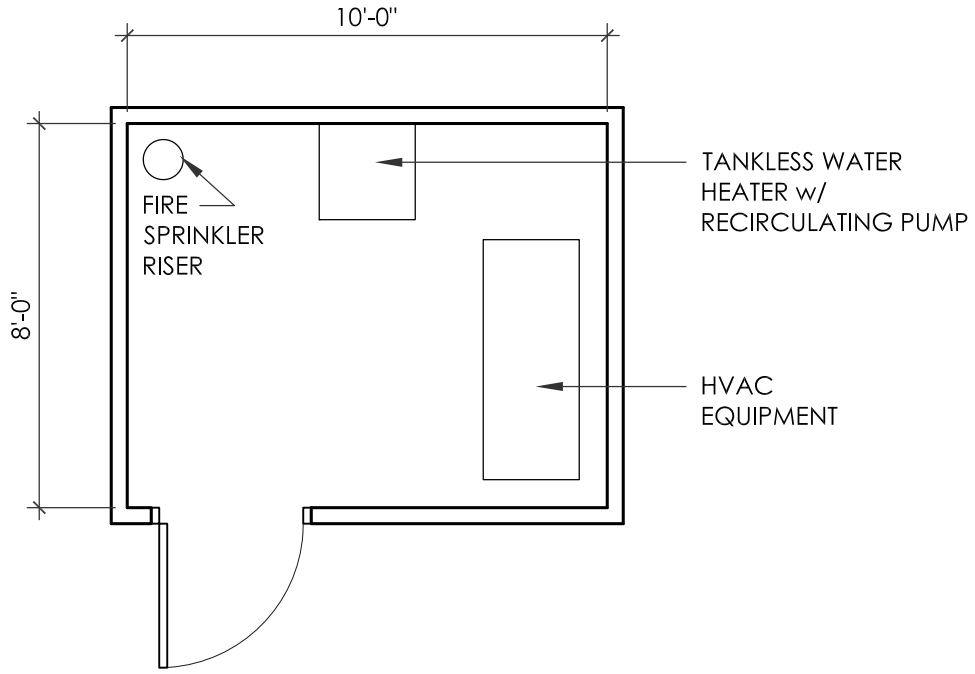
- BELLEVUE PROTOTYPE TWO COMPANY STATION

UTILITY SUPPORT SPACE

FS27 MECHANICAL ROOM (80 SQ.FT.)

SCALE: 1/4"=1'-0"



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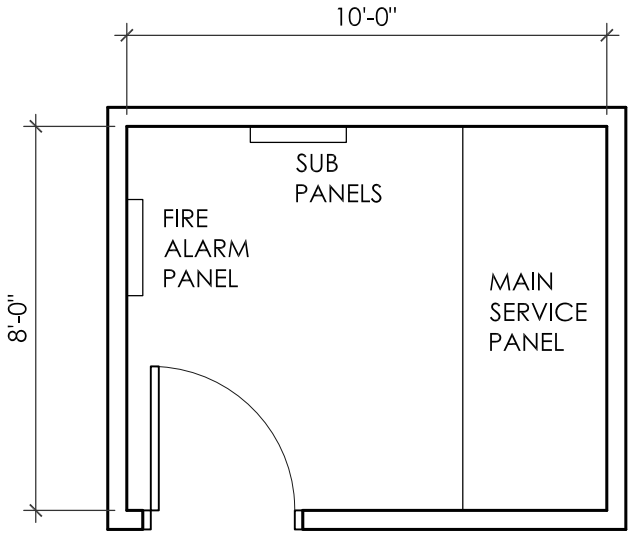
UTILITY SUPPORT SPACE

FS28 ELECTRICAL ROOM (80 SQ.FT.)

SCALE: 1/4"=1'-0"



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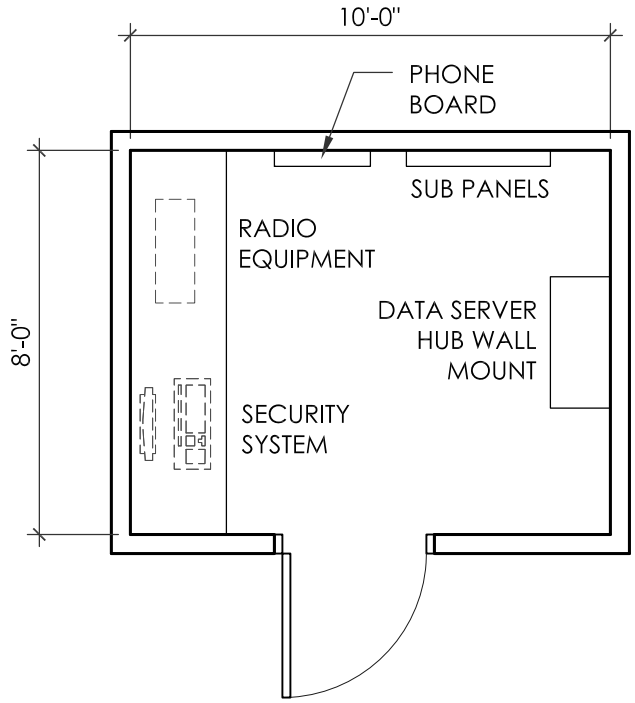
UTILITY SUPPORT SPACE

FS29 COMMUNICATIONS ROOM (80 SQ.FT.)

SCALE: 1/4"=1'-0"



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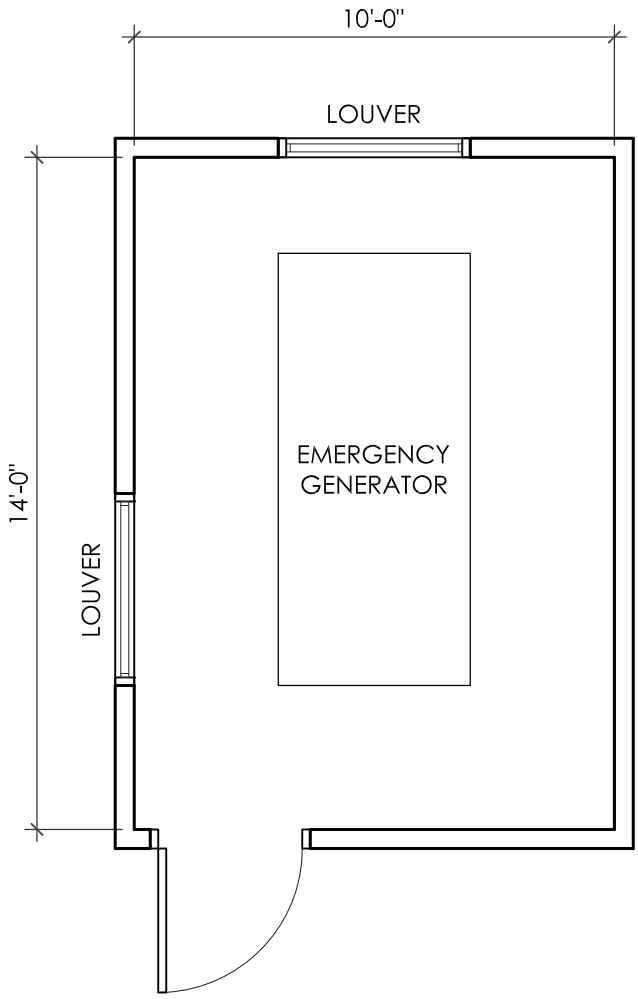
UTILITY SUPPORT SPACE

FS30 GENERATOR ROOM (140 SQ.FT.)

SCALE: 1/4"=1'-0"



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FIRE FACILITIES LONG RANGE
MASTER PLAN
MAY 2014

Appendix B-3
Prototype Three Company Station

Schreiber Starling & Lane
ARCHITECTS
MARY MCGRATH ARCHITECTS
TriData Corporation

Bellevue Prototype Three Company Station

36 Assigned Personnel - SPACE NEEDS SUMMARY

Station Company Summary

Truck Company - Current Staffing 4, Future Staffing 4
Fire Engine - Current Staffing 3, Future Staffing 3
Medic/Aid Car - Current Staffing 2, Future Staffing 2
Three Platoon System

Planning for On-duty Staffing - 9

SITE OPERATIONS			Square Footage		
No.	**Type of Space**	**Space Attributes**	**Area**	**Size**	
S1	**Fire Department Parking**	26 Firefighter/staff parking spaces; separate from visitor parking	3,960	10'x18' ea.	
S2	**Visitor Parking (Size depends of Community Room)**	12 public parking spaces; including one van-accessible space with 8' side aisle	2,340	9.5'x18' ea.	
S3	**Trash Enclosure**	Space for dumpster and recycling bins	100	10'x10'	
S4	**Vehicle Wash Down Area**	Front or Rear apron, sand/oil clarifier, goes to sewer through switch, away from main apparatus response path	360	12' x 30'	
S5	**Flagpole**	Flagpole area with lighting	16	4' x 4'	
S6	**Outdoor Patio**	Private outdoor BBQ area for 11-14, natural gas for BBQ	168	12' x 14'	
S7	**Front Apron**	Concrete paving in front of each bay.	2,400	30' x 20' ea.	
S9	**Under-ground Fueling with dispenser.**	Fueling system adjacent to generator, use by all City vehicles, dispenses Diesel and Un-leaded. Near front apron of area with easy access that does not block fire response.	100	10' x 10' above ground	
S10	**Fire Hydrant**	Locate on rear yard if drive through, front yard if back-in, near training area	120	10'x20'	
S11	**In-service Training**	Area for hose lays and ladder training, near hydrant, two company training	1,200	40' x 80'	
		Site Operations Subtotal	**10,764**		

SPACE NEEDS SUMMARY					
No.	**Type of Space**	**Space Attributes**	**Square Footage**		**Finish**
	APPARATUS BAY/APPARATUS BAY SUPPORT		**Area**	**Size**	
FS1	**Apparatus Bay (4 drive-through bays)**	Ladder Company, Engine Co., Aid Car, Reserve apparatus, diesel exhaust system, power cord drops to each vehicle, radiant heating system; night lighting; auto-close doors and trench drains. Audio system with acoustical clarity, water resistant wall finishes. Door Controls with timers. Wall Map near living quarters with direct lighting. Hand washing sink on the path to the kitchen. Hose bib for apparatus washing in bay.	6,080	80' x 76'	A
FS2	**Medical Clean-up/Laundry**	Hands free service sink with regular and spray hose faucet, emergency eye wash, floor drain, backboard wash-down, locate adjacent to medical storage closet. Washer Dryer and built in storage with folding counter. Room off the apparatus bay near the engine bay.	120	10' x 12'	C
FS3	**Medical Storage**	Supply Storage closet with full height shelving. Door opening to the Apparatus Bay.	63	3.5' x 18'	B
FS4	**Bunker Gear Room**	52 open metal storage lockers for bunker gear; continuous exhaust fan, floor drain, extractor and bunker gear dryer, heavy duty shelving.	528	16' x 33'	A
FS5	**Apparatus Janitor Room**	Mop sink with mop rack, shelving for apparatus cleaning supplies, hooks for chamois and squeegee storage.	36	6' x 6'	C
FS6	**Workshop**	Work shop with air compressor (in separate closet), shop vac, and tool chest storage areas. Heavy duty work bench top with upper and lower storage cabinets and utility sink.	90	5' x 18'	C
FS7	**Hose Storage/Hose Drying**	Storage for hose in mobile racks. Snow Chain storage	160	10' x 16'	A
FS8	**Yard Storage**	Storage for yard maintenance tools	36	6' x 6'	B
FS9	**Special Projects**	Varies per Station	240	12' x 20'	B
FS10	**Charging Alcove**	Printer, map charging banks	36	3' x 12'	B
FS11	**Ice/Vending Alcove**	Ice and Vending Machings	30	3' x 10'	B
		Apparatus Bay/Apparatus Bay Support Subtotal	**7,419**		

SPACE NEEDS SUMMARY - Continued					
No.	**Type of Space**	**Space Attributes**	**Square Footage**		**Finish**
	PUBLIC AREA/OFFICE		**Area**	**Size**	
FS12	**Public Entry Lobby**	Interior space for visitor seating; reception counter, covered entry, door bell, chairs for visitors, public information display. Adjacent to station office, direct access to unisex public restroom. Storage closet for blood pressure check equipment. Privacy screen for blood pressure checks.	168	12' x 14'	B
FS13	**Accessible Public Restrooms**	Accessible restroom adjacent to meeting room. Mens and womens	400	10' x 20' (2)	C
FS14	**Station Office**	Shared office space with 6 work stations, counter service to Lobby, counter for combined fax printer, copier; file storage.	240	12' x 20'	B
FS15	**Officers Office (Two total)**	Private office with one work station and file storage. Meeting space over small table for three.	240	10' x 12' (2)	B
FS16	**Training/Community Room**	Meeting Room for training and community Meetings. Seating for 24 at tables. Work Station and hospitality in room.	630	21' x 30'	B
FS17	**Table and Chair Storage**	Training Classroom for on-duty training. Seating for 12 at tables.	120	10' x 12'	B
		Public Area/Office Subtotal	**1,798**		

	LIVING QUARTERS		**Area**	**Size**	**Finish**
FS18	**Kitchen**	4-refrigerators, 1-dishwasher, (2) 4-burner gas ranges/ with hood, large microwave, 12" deep- double bowl sink with disposal and tall faucet with hand held sprayer. Island in kitchen for two ranges. Open to Dining area; adjacent to patio.	208	13' x 16'	C
FS19	**Pantry Storage**	4 - 30" wide full height pantries; 52-18' x 18' storage cabinets for personal items.	69	5' x 8', 1.5' x 19.5'	B
FS20	**Dining Room**	Seating for 14-persons; open to Kitchen and Day Room.	300	15' x 20'	B
FS21	**Day Room**	Seating for 12 with recliner chairs, entertainment center and book shelving. Open to Kitchen, Dining.	414	18' x 23'	B
FS22	**Fitness Room**	Space for 4 -cardio pieces, squat rack, pull up rig, benches, free weights, dual cross cable machine, and 2 plate racks. Adequate light and ventilation; durable floors and walls; acoustic separation; mirrors, drinking fountain; Roll-up door to the building exterior	672	24' x 28'	B
FS23	**Supply Storage/Janitor Room**	High end residential washer and dryer, folding counter with storage, full-height storage shelving for Janitorial/housekeeping supplies, mop sink/rack. Adjacent to Kitchen.	120	8' x 15'	C
FS24	**Firefighter's Bedroom with Lockers (Nine total rooms, two of the nine rooms are provided for a trainee or future need.)**	Single Occupancy bedroom; each one bed, study desk and chair, four 30" wide lockers. Egress window is required.	1,287	11' x 13' (9)	B
FS25	**Unisex Restrooms Five total Standard Size)**	Toilet, Shower and sink	280	7' x 8' (5)	C
FS26	**Unisex Restrooms (One Accessible)**	Toilet, Shower and sink - Accessible	81	9' x 9' (1)	C
FS27	**Officers Bedroom (Two total)**	Single Occupancy bedroom; each one bed, study desk and chair, four 30" wide lockers. Egress window is required.	286	11' x 13' (2)	B
FS28	**Officers Restroom (Accessible)**	Toilet, Shower and sink - Accessible	162	9' x 9' (2)	C
		Living Quarters Area Subtotal	**3,879**		

SPACE NEEDS SUMMARY - Continued					
No.	**Type of Space**	**Space Attributes**	**Square Footage**		**Finish**
	UTILITY SUPPORT SPACE		**Area**	**Size**	**Finish**
FS29	**Mechanical Room**	Mechanical equipment, water heater; fire sprinkler riser	100	10' x 10'	D
FS30	**Electrical Room**	Fire alarm panel, sub panels, main service	120	10' x 12'	D
FS31	**Communications Room**	Telephone service racks, computer data network, all electronics room; Air conditioned; radio equipment, alert response system hub, data server hub; Uninterrupted power system	80	8' x 10'	D
FS32	**Generator Room**	Telephone service racks, computer data network, all electronics room; Air conditioned; radio equipment, alert response system hub, data server hub; Uninterrupted power system	140	10' x 14'	D
		Utility Support Subtotal	**440**		

SPACE NEEDS SUMMARY	**SF**
Apparatus Bay/Apparatus Bay Support Subtotal	7,419
Public Area/Office Subtotal	1,798
Living Quarters Subtotal	3,879
Utility Support Space Subtotal	440
BUILDING SUBTOTAL (SF)	**13,536**
Circulation at 25%	3,384
PROTOTYPE THREE COMPANY STATION TOTAL (SF)	**16,920**

TWO STORY - VERTICAL CIRCULATION			**Square Footage**		**Finish**
No.	**Type of Space**	**Space Attributes**	**Area**	**Size**	
FS28	**Elevator and Machine Room**	Elevator access to upper levels; security keyed for visitors; machine room	174	(2) 9'x12'	A
SF29	**Stairway**	(x2) for each level and (x2) for egress	640	20'x8' (2)	B
		Two Story - Vertical Circulation SUBTOTAL (SF)	**814**		
		Circulation/Structure at 30%	244		
		Two Story - Vertical Circulation:	1,058		
		PROTOTYPE THREE COMPANY STATION TOTAL - Two Stories(SF)	**17,979**		

Finish Legend:

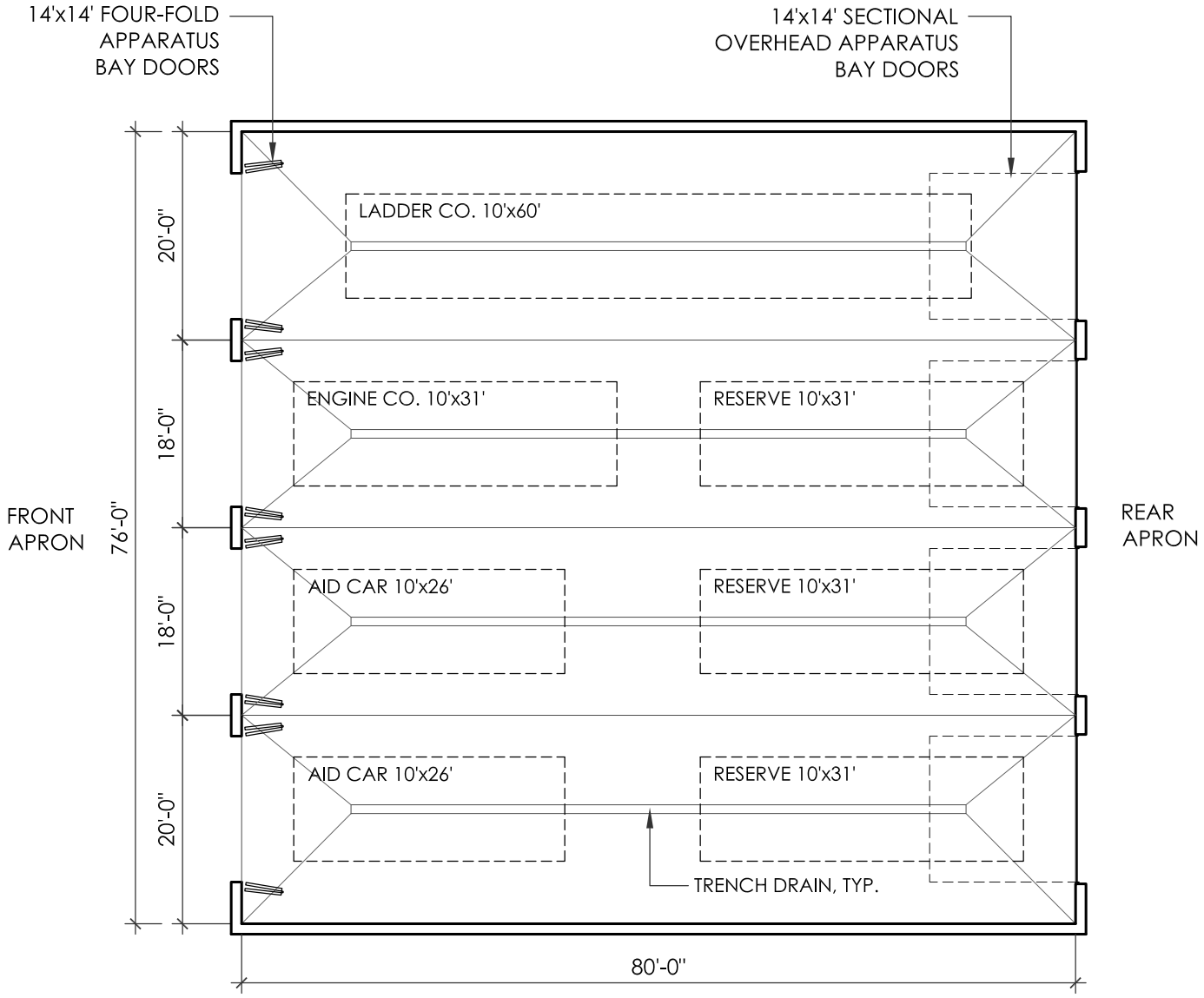
A - Simple Finishes
B - Standard Office Finishes
C - Intense Finishes
D - Service Room Finishes

- BELLEVUE PROTOTYPE THREE COMPANY STATION

APPARATUS BAY / APPARATUS BAY SUPPORT

FS1 APPARATUS BAY - 4 DRIVE THROUGH BAYS (6,080 SQ.FT.)

SCALE: 1/16"=1'-0"



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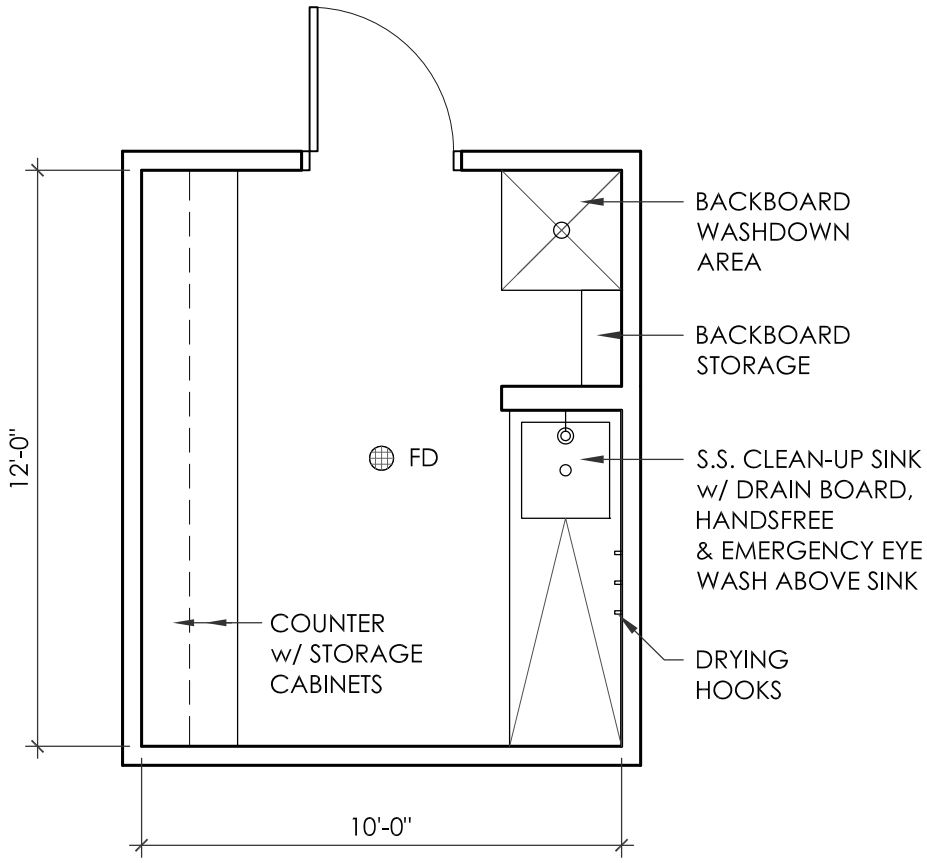
APPARATUS BAY / APPARATUS BAY SUPPORT

FS2 MEDICAL CLEAN-UP (120 SQ.FT.)

SCALE: 1/4"=1'-0"



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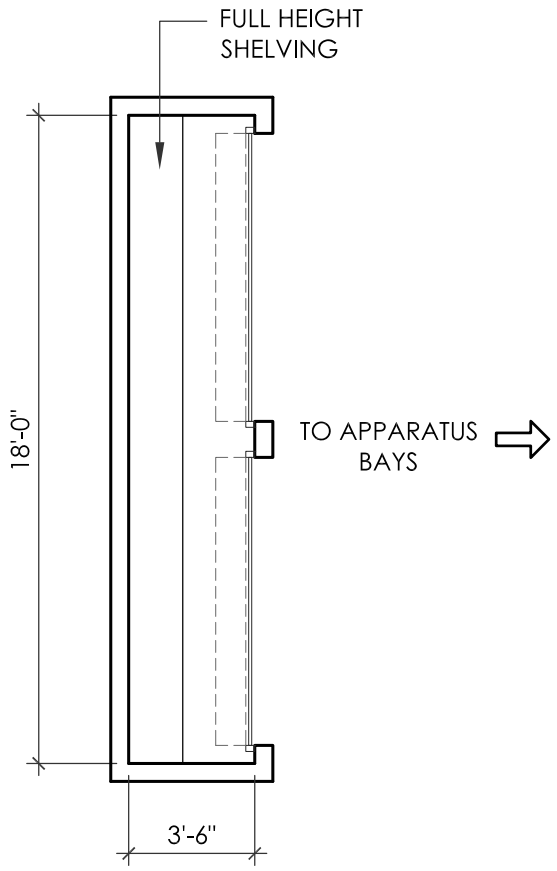
APPARATUS BAY / APPARATUS BAY SUPPORT

FS3 MEDICAL STORAGE (63 SQ.FT.)

SCALE: 3/16"=1'-0"



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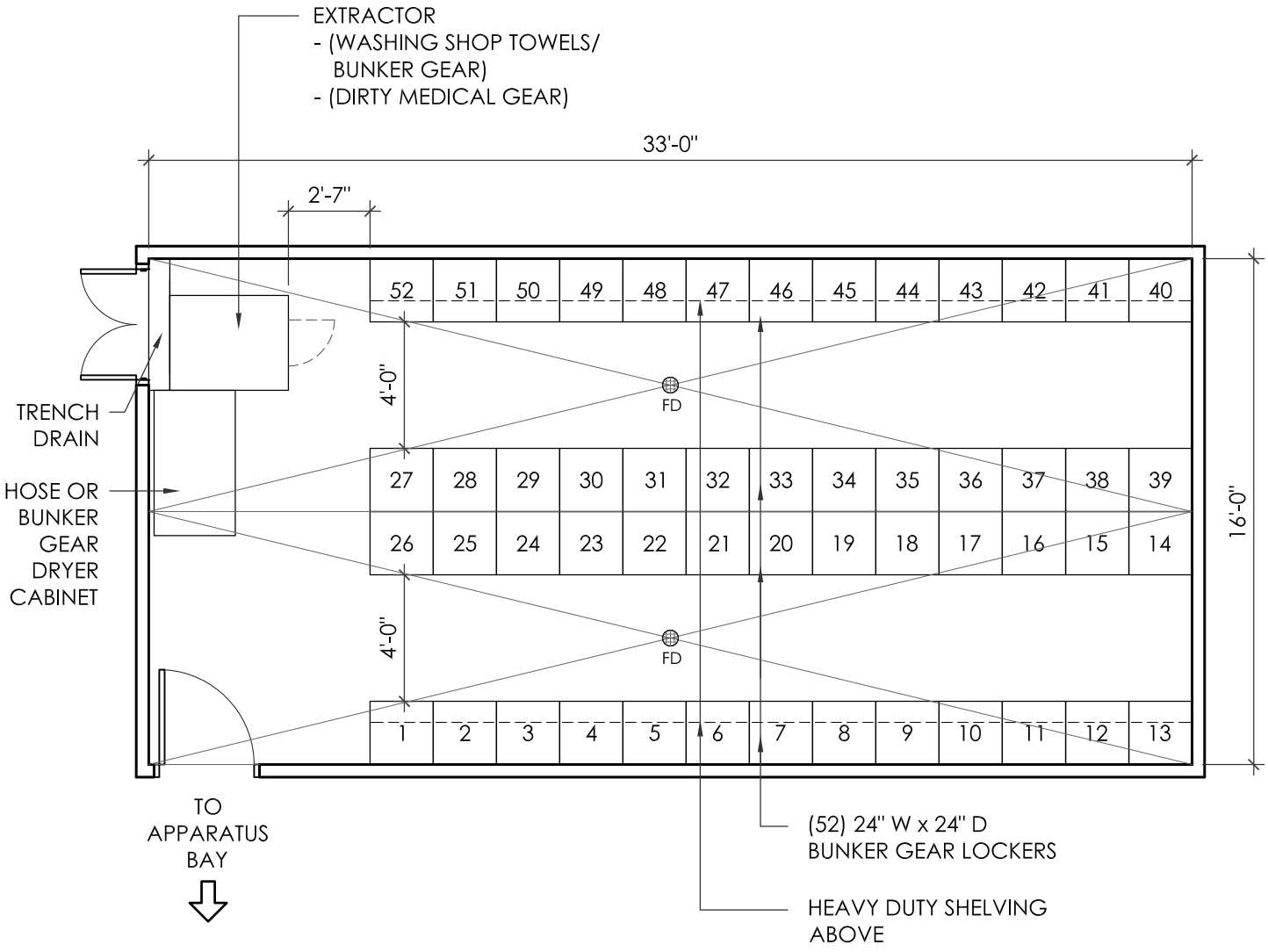
APPARATUS BAY / APPARATUS BAY SUPPORT

FS4 BUNKER GEAR ROOM (528 SQ.FT.)

SCALE: 3/16"=1'-0"



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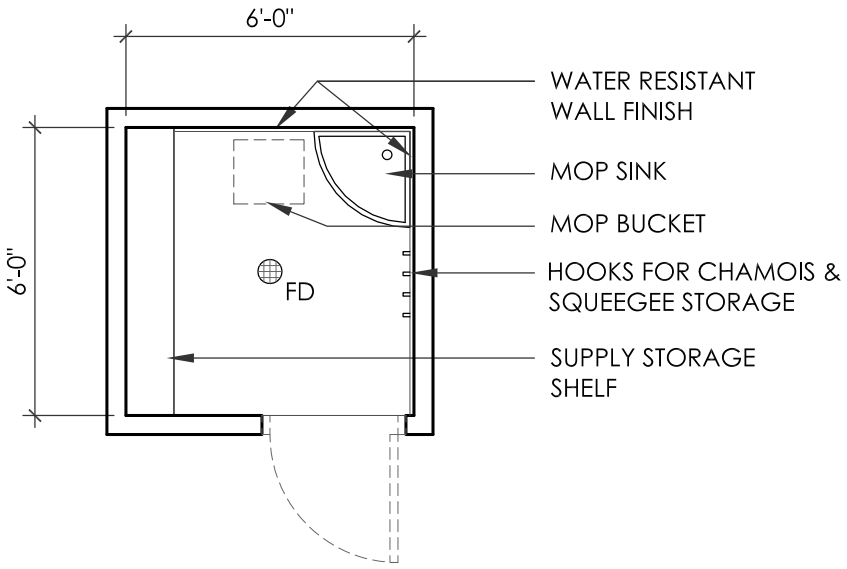
APPARATUS BAY / APPARATUS BAY SUPPORT

FS5 APPARATUS JANITOR ROOM (36 SQ.FT.)

SCALE: 1/4"=1'-0"



NOTES:

- FOR CLEANING BAY & VEHICLES ONLY
- DOOR IS OPTIONAL
- 9' MIN. CEILING HEIGHT

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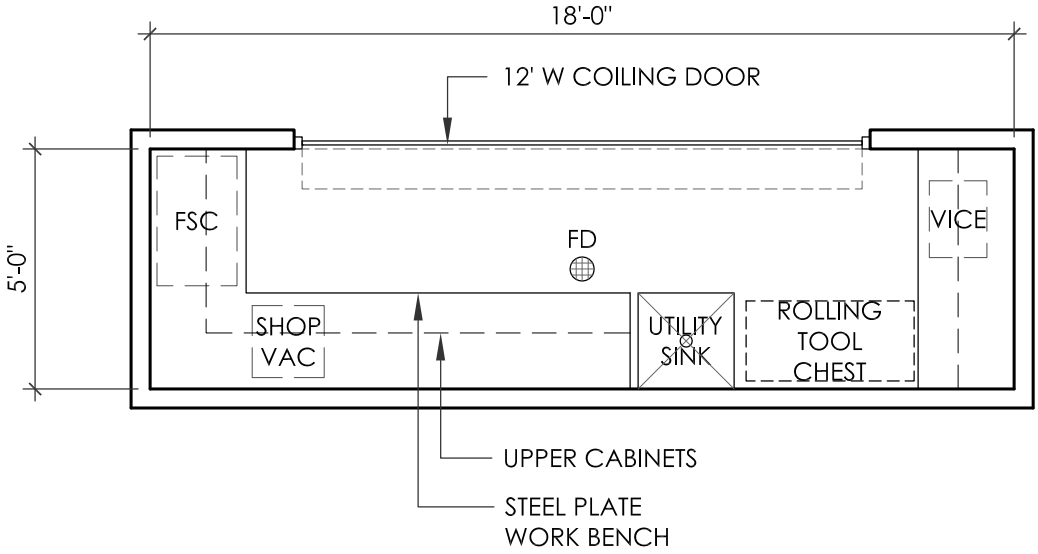
APPARATUS BAY / APPARATUS BAY SUPPORT

FS6 WORKSHOP ALCOVE (90 SQ.FT.)

SCALE: 1/4"=1'-0"



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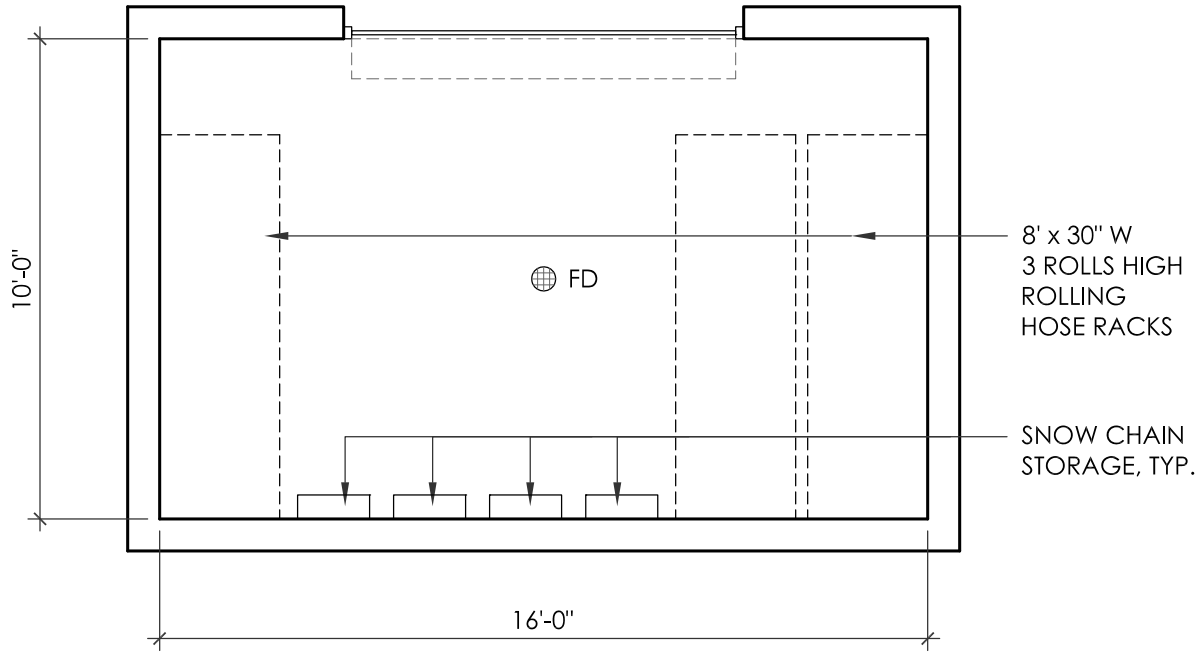
APPARATUS BAY / APPARATUS BAY SUPPORT

FS7 HOSE STORAGE / HOSE DRYING (160 SQ.FT.)

SCALE: 1/4"=1'-0"



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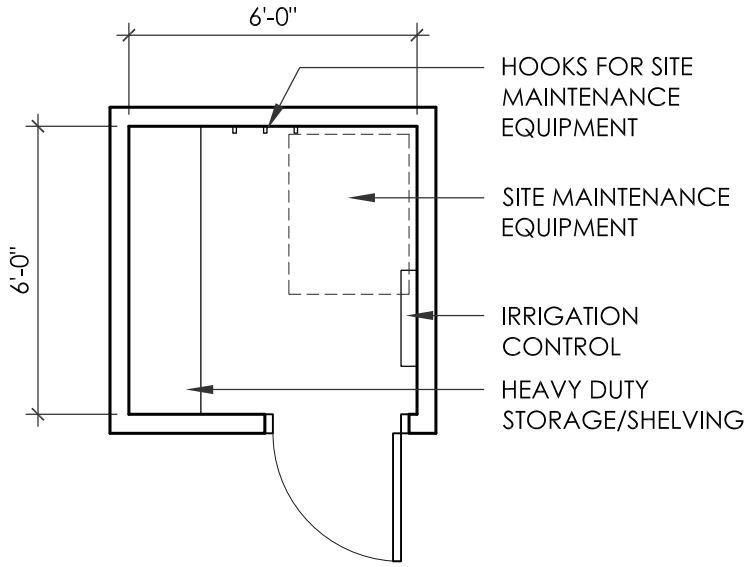
APPARATUS BAY / APPARATUS BAY SUPPORT

FS8 YARD STORAGE (36 SQ.FT.)

SCALE: 1/4"=1'-0"



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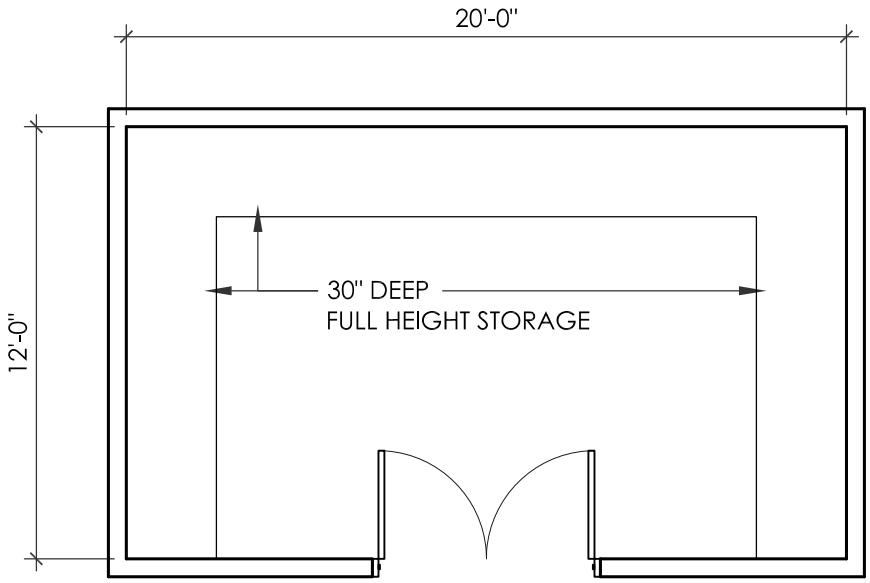
APPARATUS BAY / APPARATUS BAY SUPPORT

FS9.1 SPECIAL PROJECTS - RESCUE STORAGE (240 SQ.FT.)

SCALE: 3/16"=1'-0"



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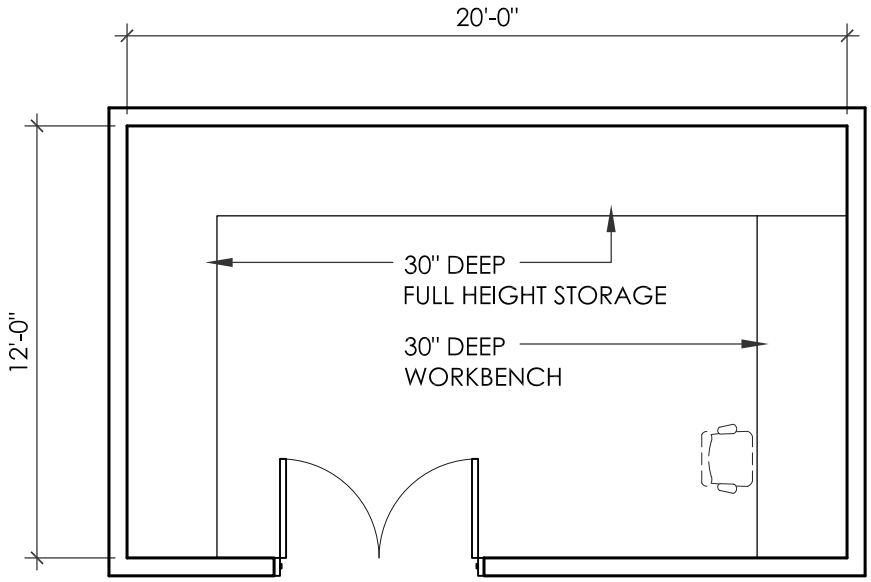
APPARATUS BAY / APPARATUS BAY SUPPORT

FS9.2 SPECIAL PROJECTS - SMALL TOOL REPAIR ROOM (240 SQ.FT.)

SCALE: 3/16"=1'-0"



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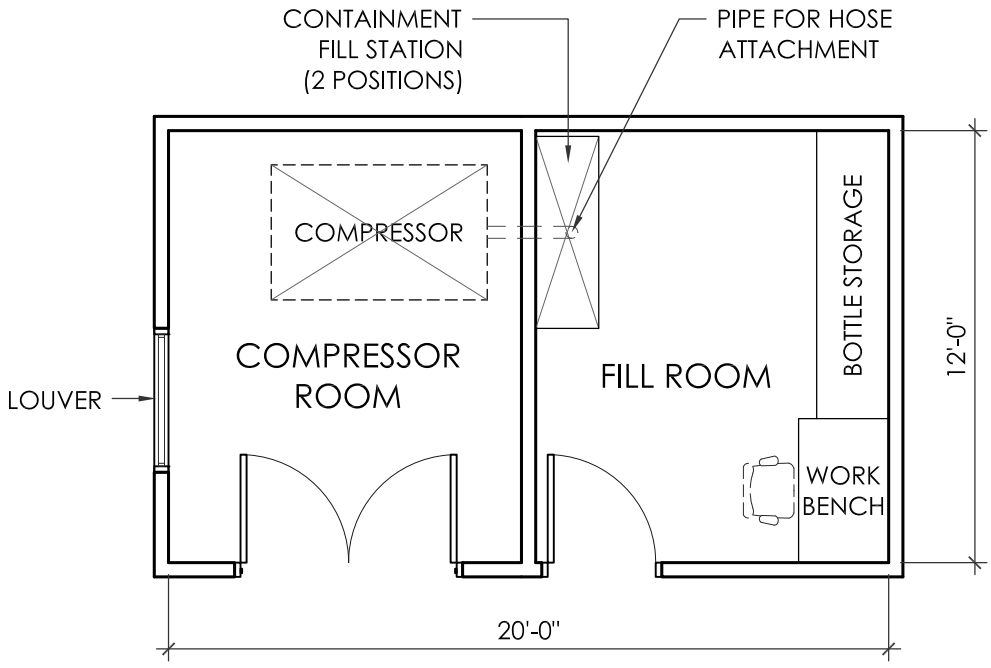
APPARATUS BAY / APPARATUS BAY SUPPORT

FS9.3 SPECIAL PROJECTS - SCBA AIRFILL (240 SQ.FT.)

SCALE: 3/16"=1'-0"



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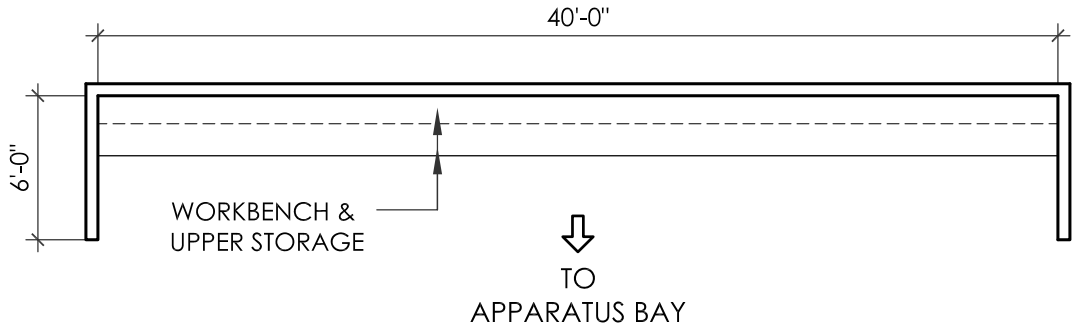
APPARATUS BAY / APPARATUS BAY SUPPORT

FS9.4 SPECIAL PROJECTS - LADDER / HOSE REPAIR AREA (240 SQ.FT.)

SCALE: 1/8"=1'-0"



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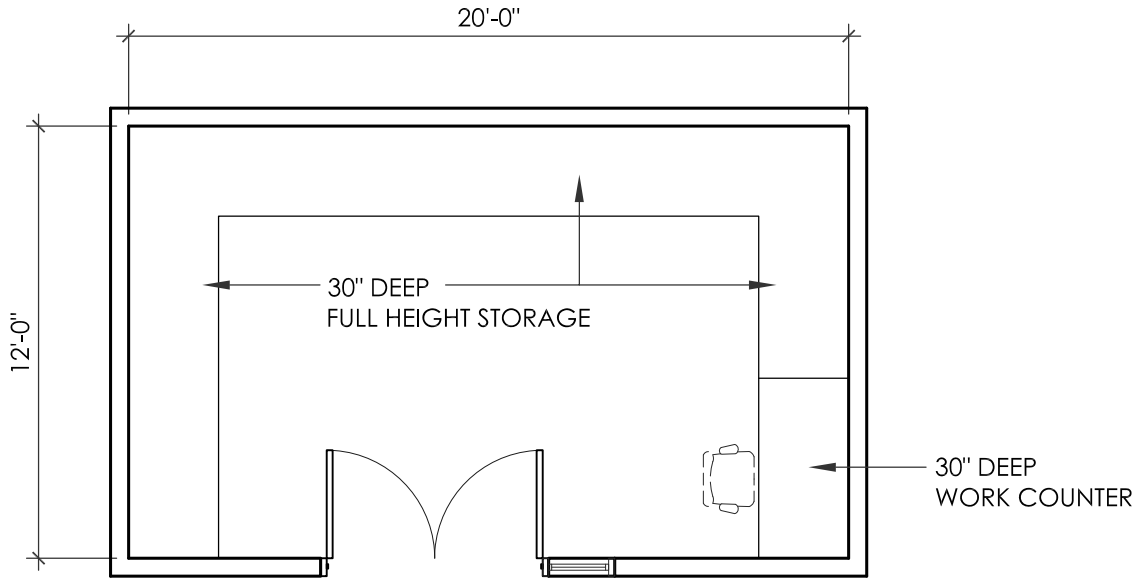
APPARATUS BAY / APPARATUS BAY SUPPORT

FS9.5 SPECIAL PROJECTS - HAZ MAT (240 SQ.FT.)

SCALE: 3/16"=1'-0"



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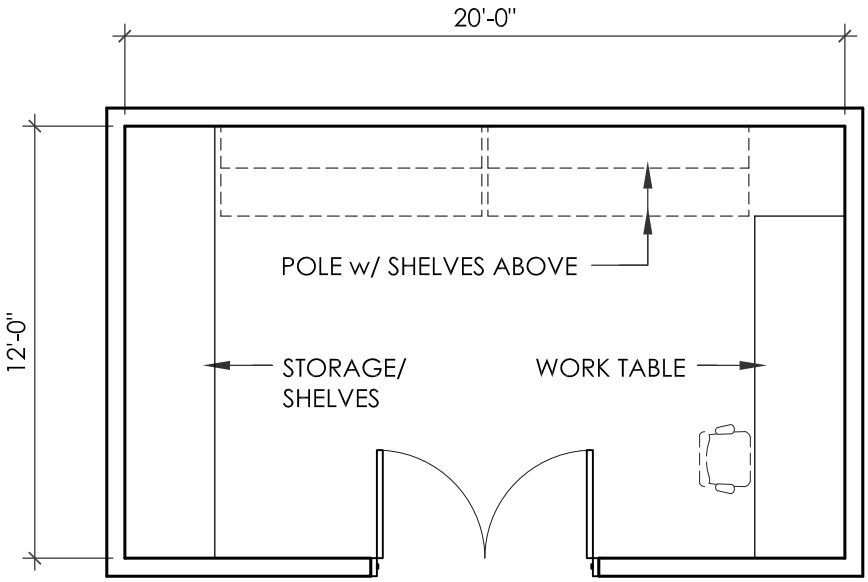
APPARATUS BAY / APPARATUS BAY SUPPORT

FS9.6 SPECIAL PROJECTS - BUNKER GEAR / UNIFORM STORAGE (240 SQ.FT.)

SCALE: 3/16"=1'-0"



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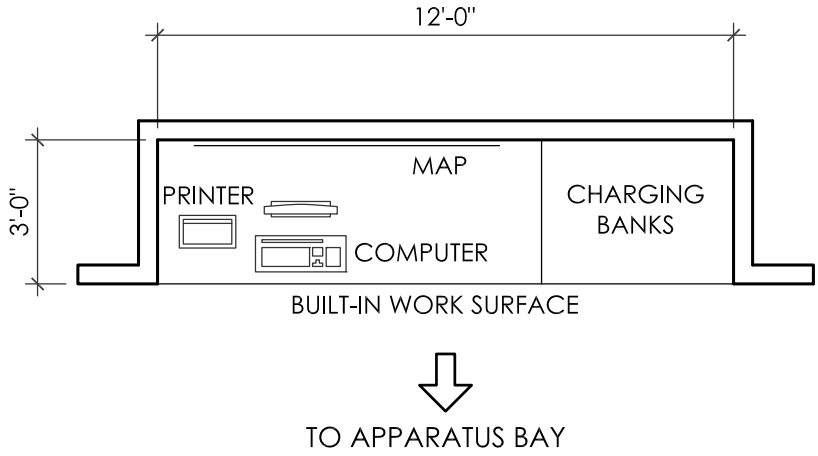
APPARATUS BAY / APPARATUS BAY SUPPORT

FS10 CHARGING ALCOVE (36 SQ.FT.)

SCALE: 1/4"=1'-0"



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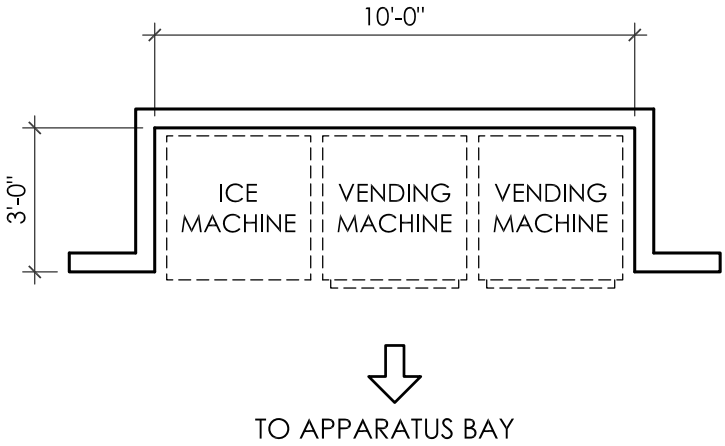
APPARATUS BAY / APPARATUS BAY SUPPORT

FS11 VENDING / ICE MACHINE ALCOVE (30 SQ.FT.)

SCALE: 1/4"=1'-0"



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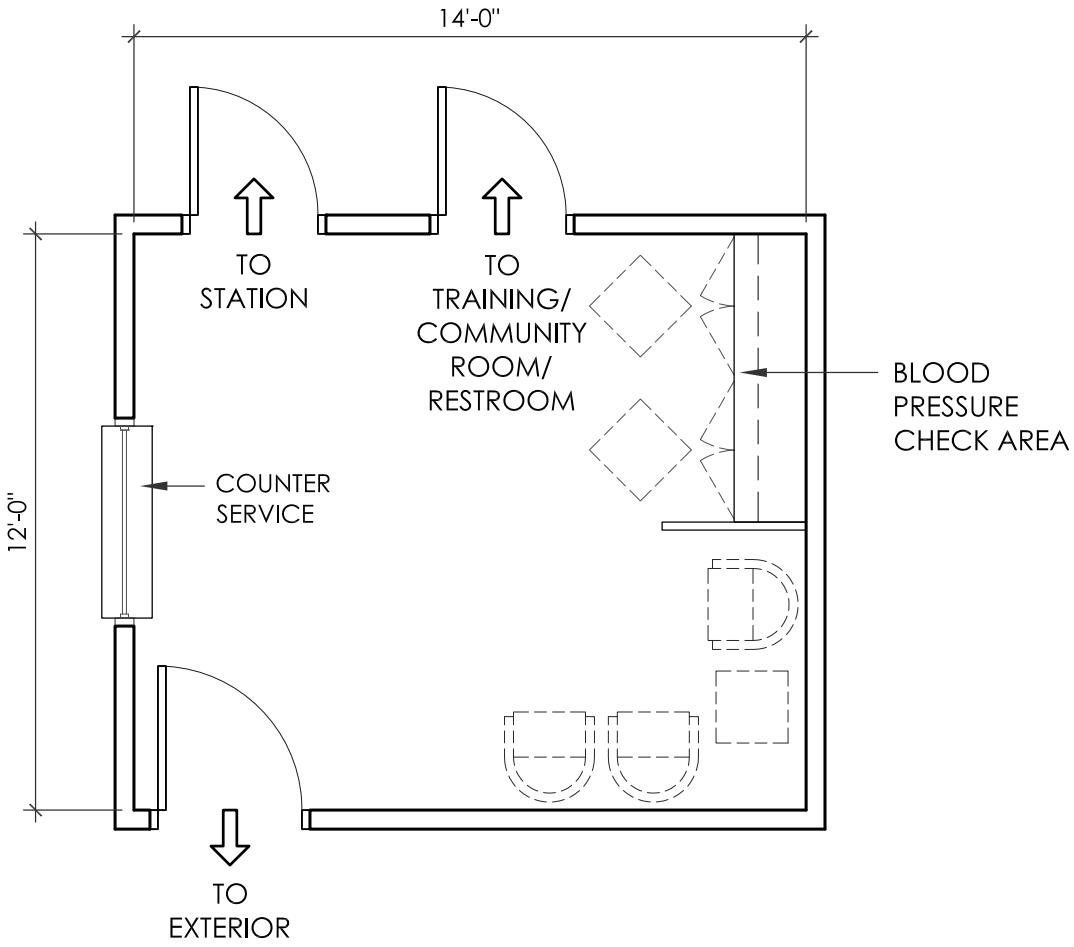
- BELLEVUE PROTOTYPE THREE COMPANY STATION

PUBLIC AREA / OFFICE

FS12 PUBLIC ENTRY LOBBY (168 SQ.FT.)

SCALE: 1/4"=1'-0"



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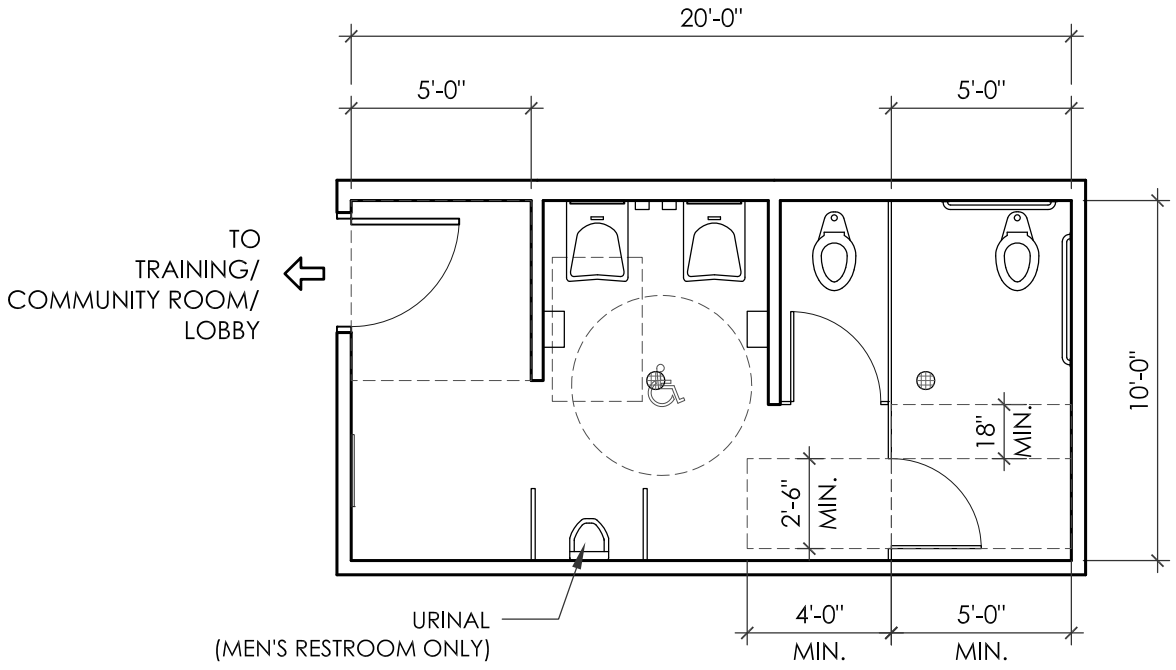
PUBLIC AREA / OFFICE

FS13 ACCESSIBLE PUBLIC RESTROOM (M & W) - 2 TOTAL (400 SQ.FT.)

SCALE: 3/16"=1'-0"



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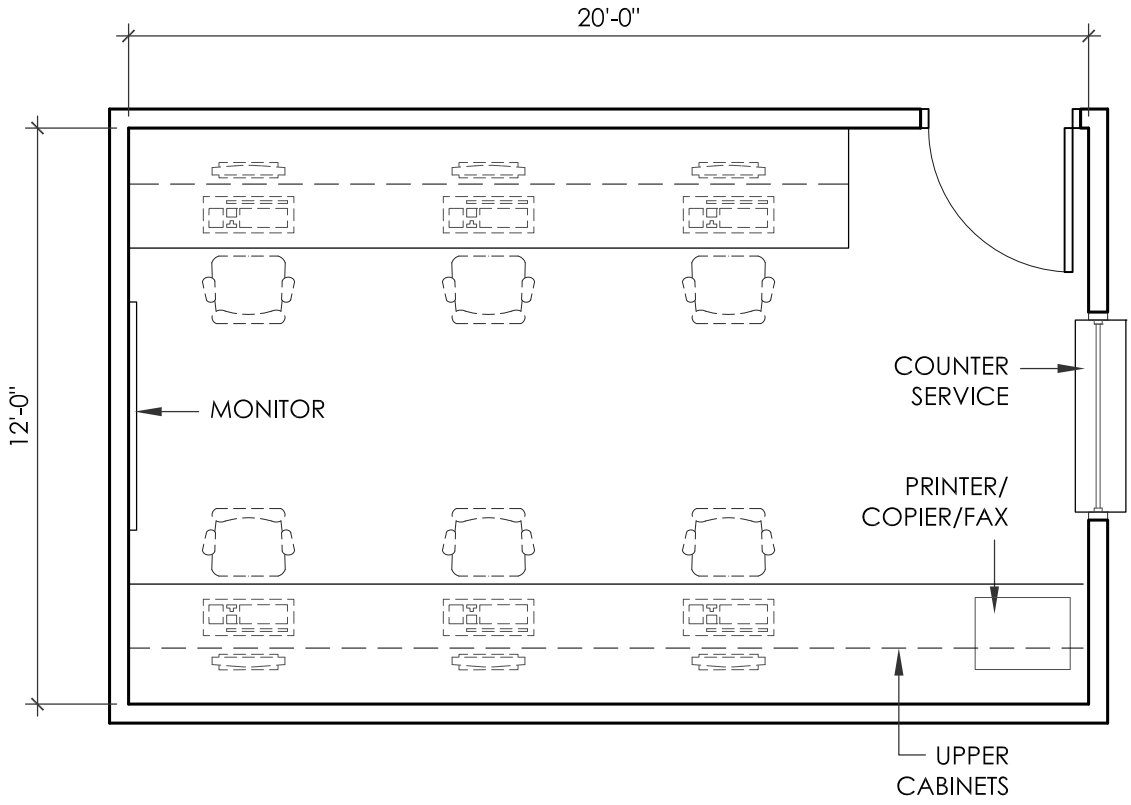
PUBLIC AREA / OFFICE

FS14 STATION OFFICE (240 SQ.FT.)

SCALE: 1/4"=1'-0"



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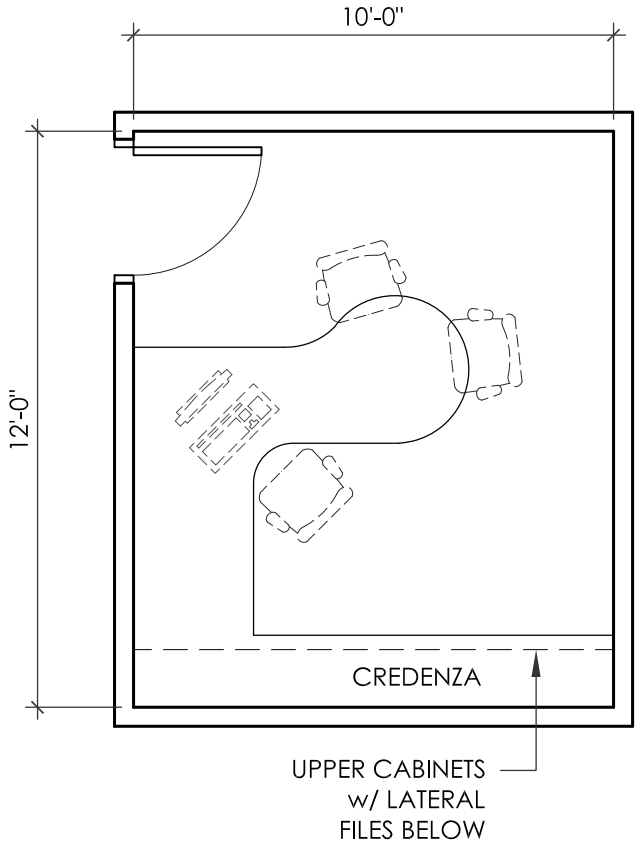
PUBLIC AREA / OFFICE

FS15 OFFICERS OFFICE - 2 TOTAL (240 SQ.FT.)

SCALE: 1/4"=1'-0"



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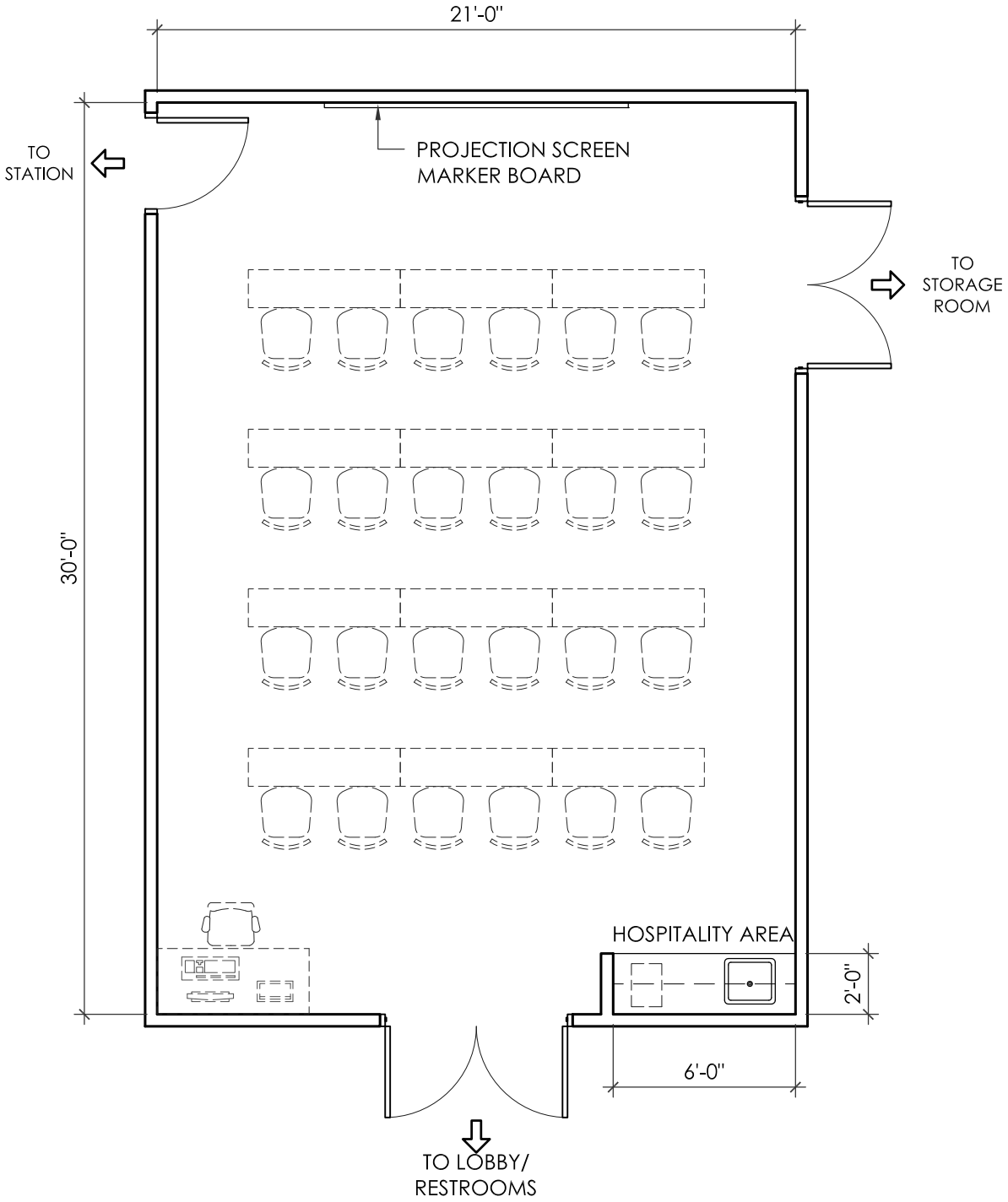
PUBLIC AREA / OFFICE

FS16 TRAINING/COMMUNITY ROOM (630 SQ.FT.)

SCALE: 3/16"=1'-0"



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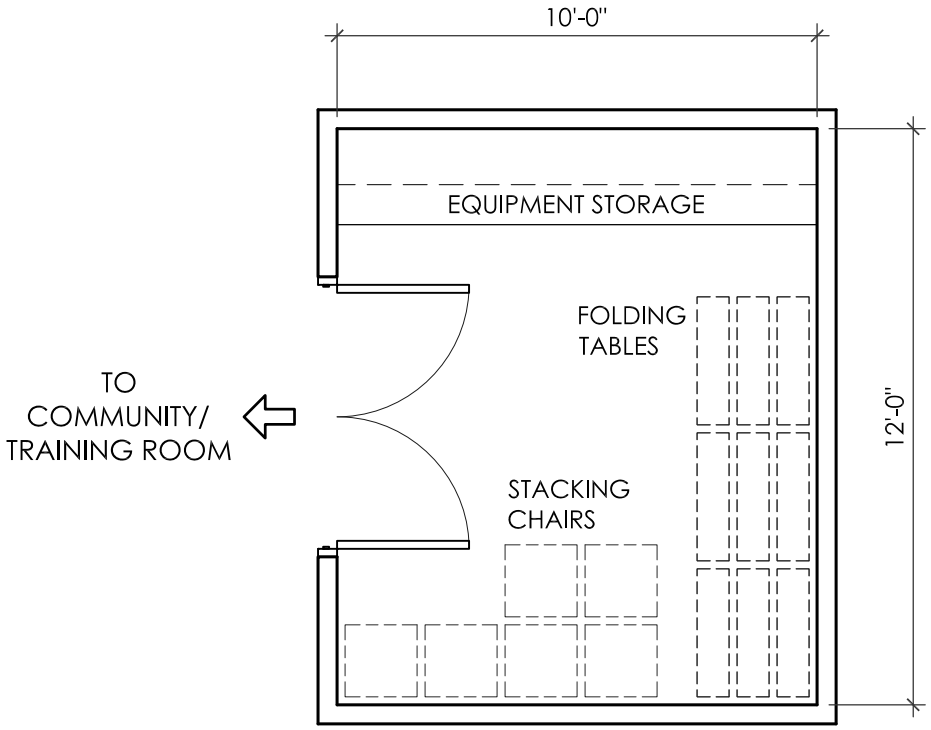
- BELLEVUE PROTOTYPE THREE COMPANY STATION

PUBLIC AREA / OFFICE

FS17 TABLE AND CHAIR STORAGE (120 SQ.FT.)

SCALE: 1/4"=1'-0"



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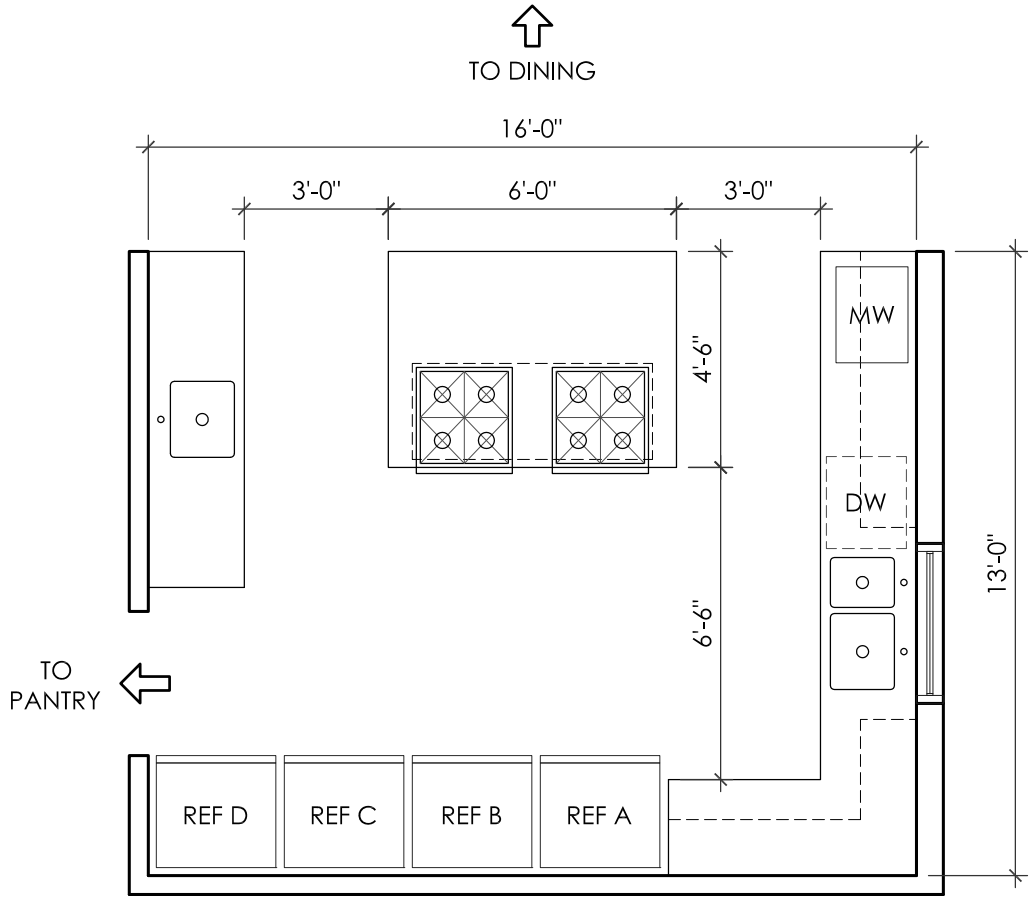
- BELLEVUE PROTOTYPE THREE COMPANY STATION

LIVING QUARTERS

FS18 KITCHEN (208 SQ.FT.)

SCALE: 1/4"=1'-0"



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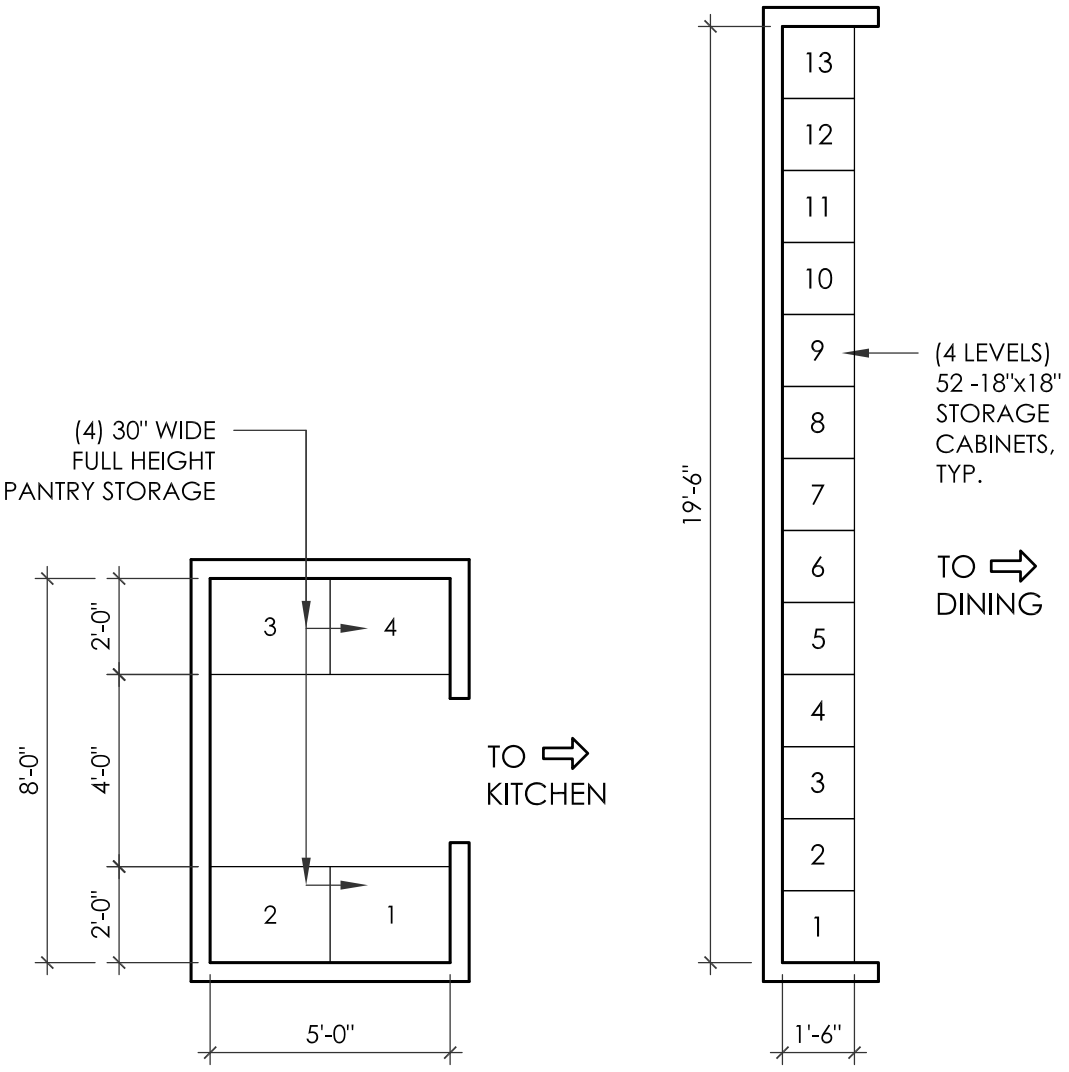
- BELLEVUE PROTOTYPE THREE COMPANY STATION

LIVING QUARTERS

FS19 PANTRY STORAGE (69 SQ.FT.)

SCALE: 1/4"=1'-0"



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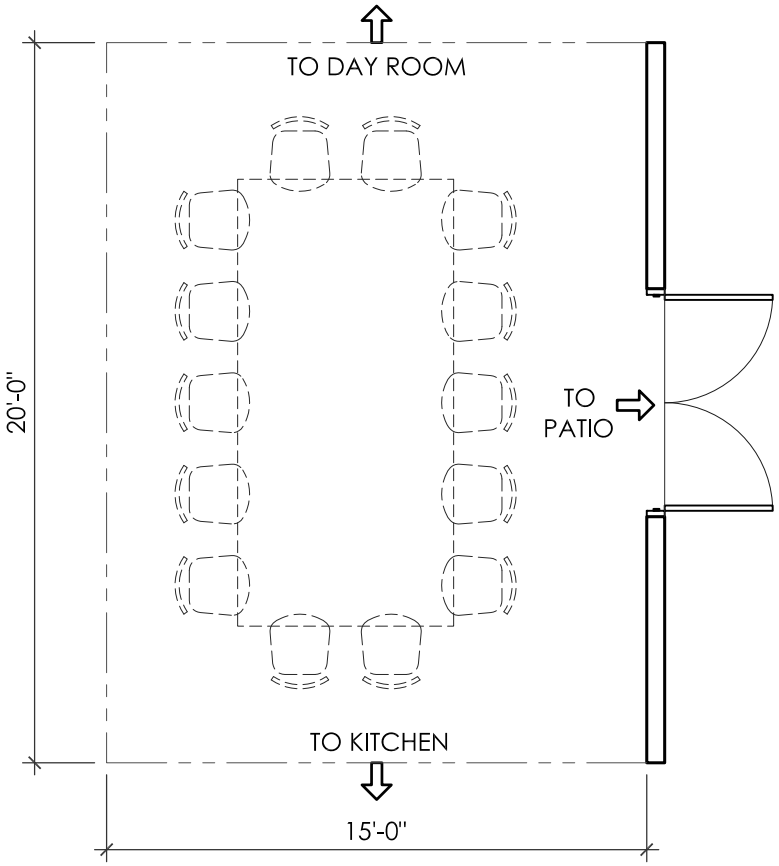
- BELLEVUE PROTOTYPE THREE COMPANY STATION

LIVING QUARTERS

FS20 DINING (300 SQ.FT.)

SCALE: 3/16"=1'-0"



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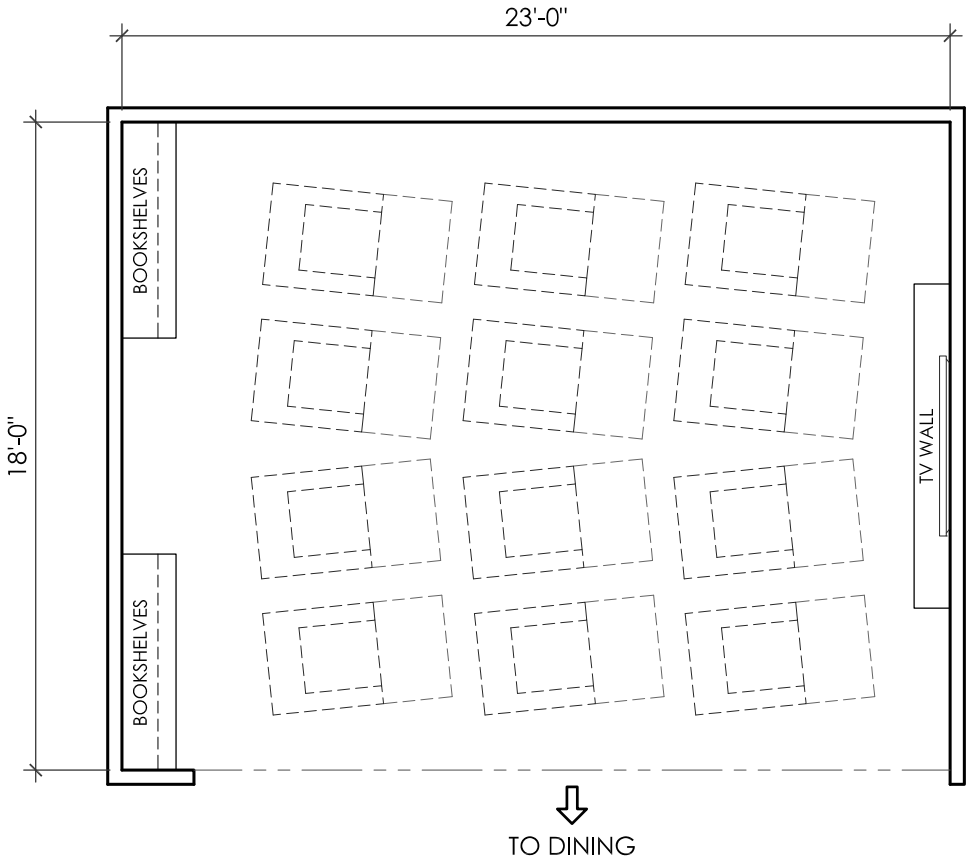
- BELLEVUE PROTOTYPE THREE COMPANY STATION

LIVING QUARTERS

FS21 DAYROOM (414 SQ.FT.)

SCALE: 3/16"=1'-0"



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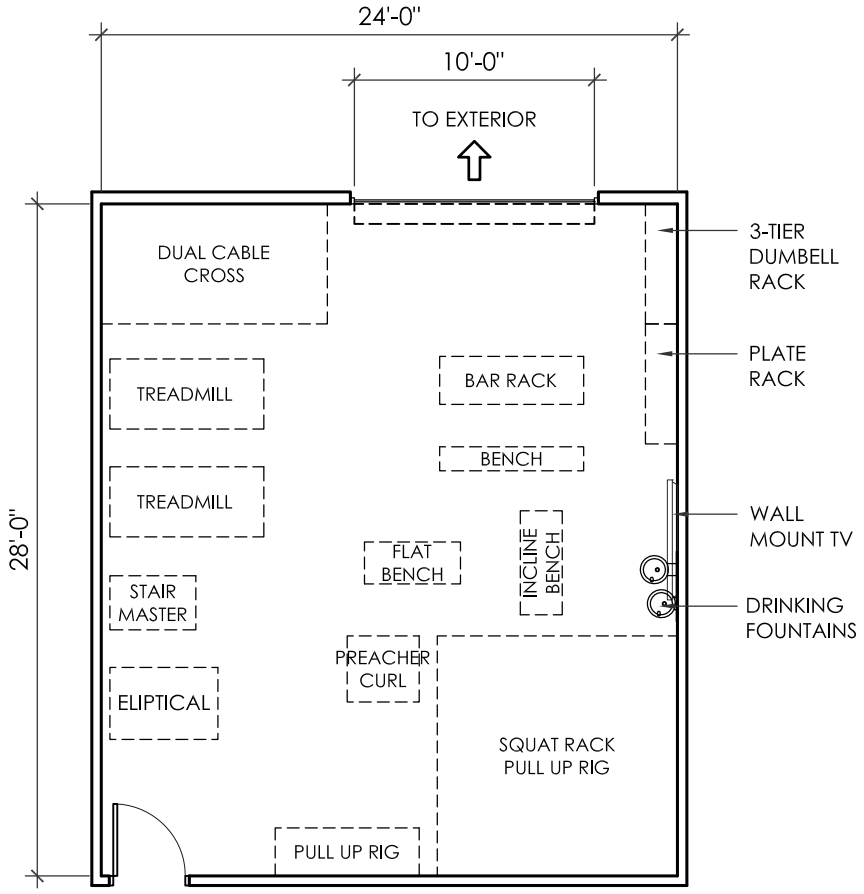
- BELLEVUE PROTOTYPE THREE COMPANY STATION

LIVING QUARTERS

FS22 FITNESS ROOM (672 SQ.FT.)

SCALE: 1/8"=1'-0"



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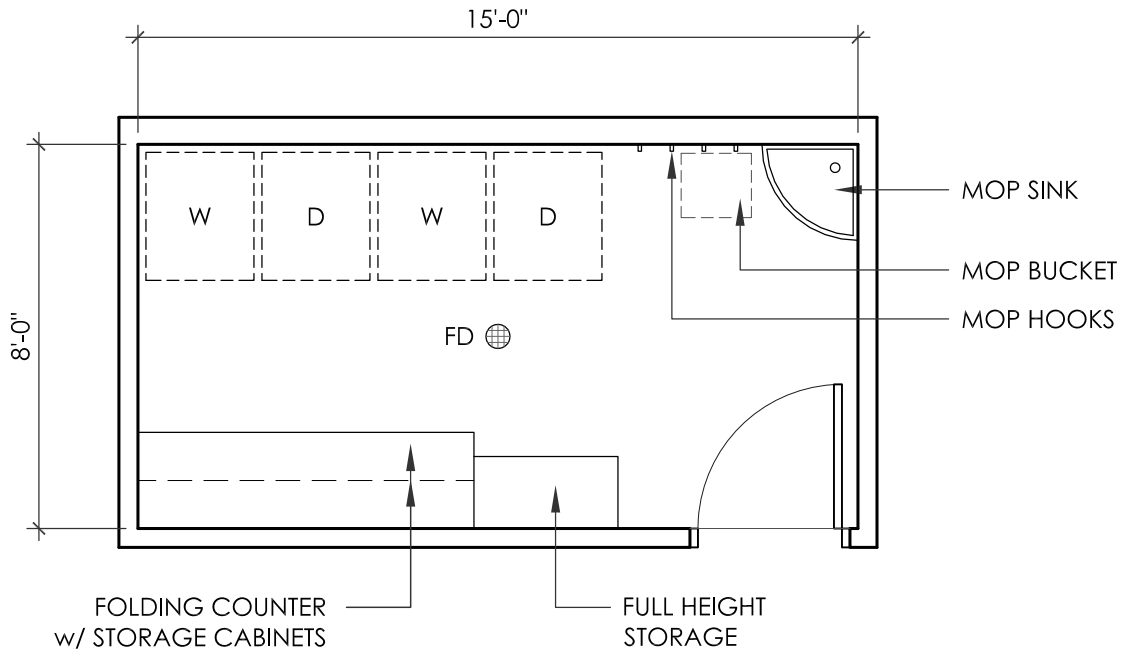
- BELLEVUE PROTOTYPE THREE COMPANY STATION

LIVING QUARTERS

FS23 SUPPLY STORAGE / JANITOR ROOM (120 SQ.FT.)

SCALE: 1/4"=1'-0"



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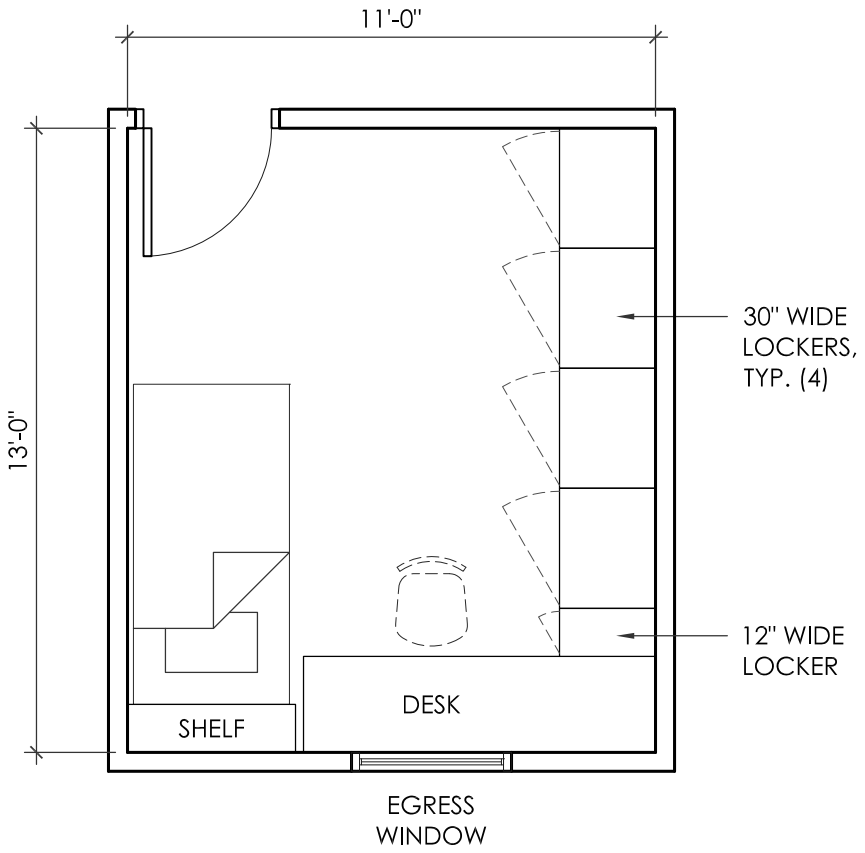
- BELLEVUE PROTOTYPE THREE COMPANY STATION

LIVING QUARTERS

FS24 FIREFIGHTER'S BEDROOM w/ LOCKERS - 9 TOTAL (1,287 SQ.FT.)

SCALE: 1/4"=1'-0"



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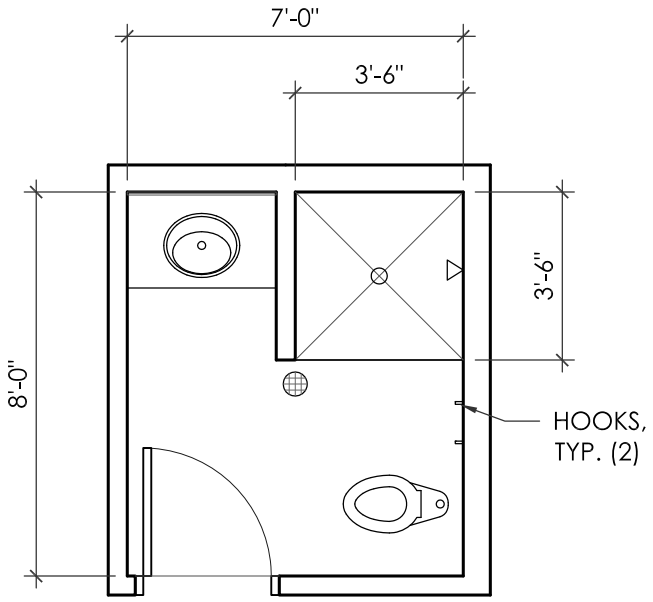
- BELLEVUE PROTOTYPE THREE COMPANY STATION

LIVING QUARTERS

FS25 UNISEX RESTROOM - 5 TOTAL (280 SQ.FT.)

SCALE: 1/4"=1'-0"



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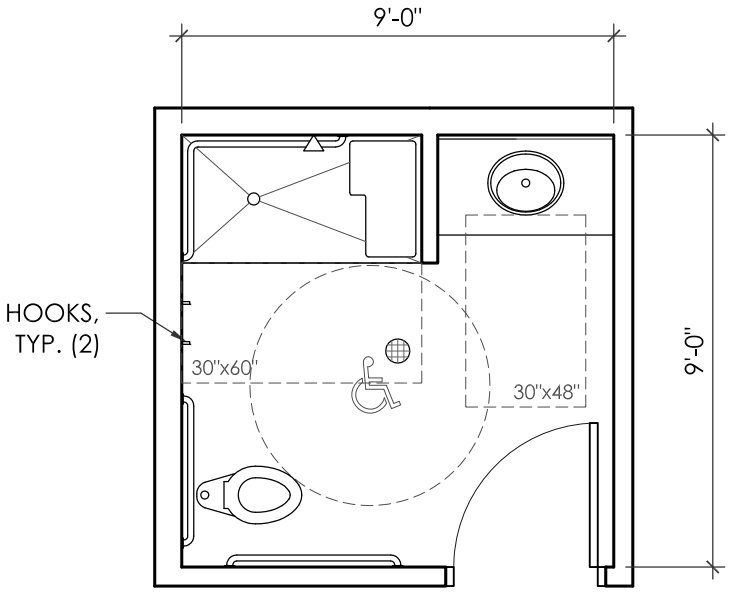
- BELLEVUE PROTOTYPE THREE COMPANY STATION

LIVING QUARTERS

FS26 UNISEX RESTROOM (ACCESSIBLE) - (81 SQ.FT.)

SCALE: 1/4"=1'-0"



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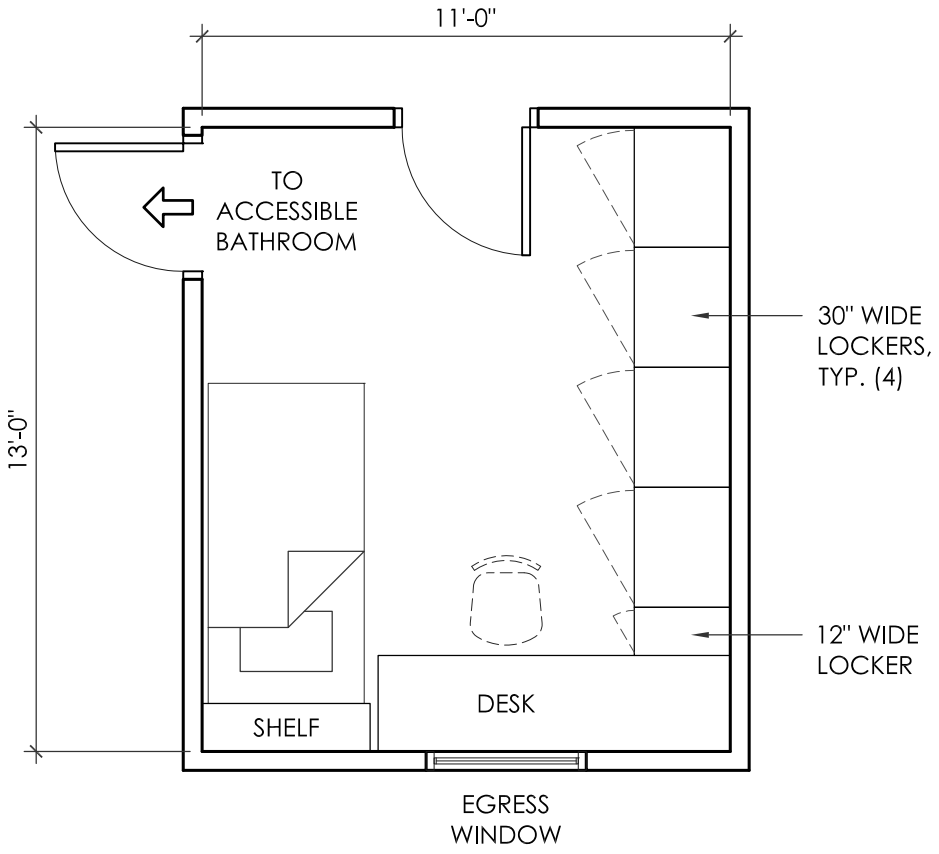
- BELLEVUE PROTOTYPE THREE COMPANY STATION

LIVING QUARTERS

FS27 OFFICER'S BEDROOM - 2 TOTAL (286 SQ.FT.)

SCALE: 1/4"=1'-0"



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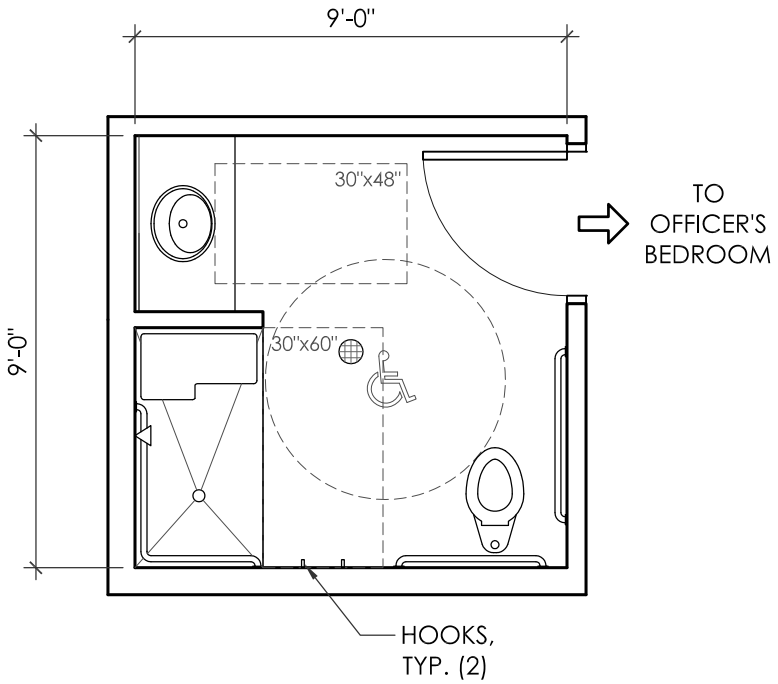
- BELLEVUE PROTOTYPE THREE COMPANY STATION

LIVING QUARTERS

FS28 OFFICER'S RESTROOM (ACCESSIBLE) - 2 TOTAL (162 SQ.FT.)

SCALE: 1/4"=1'-0"



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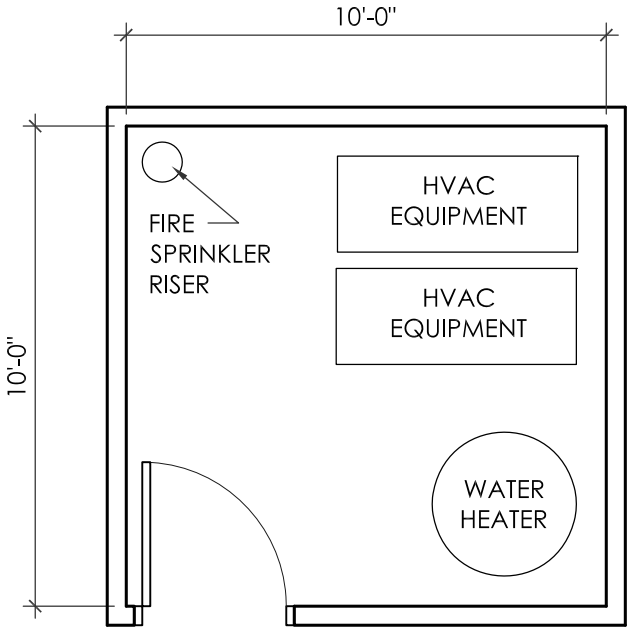
- BELLEVUE PROTOTYPE THREE COMPANY STATION

UTILITY SUPPORT SPACE

FS29 MECHANICAL ROOM (100 SQ.FT.)

SCALE: 1/4"=1'-0"



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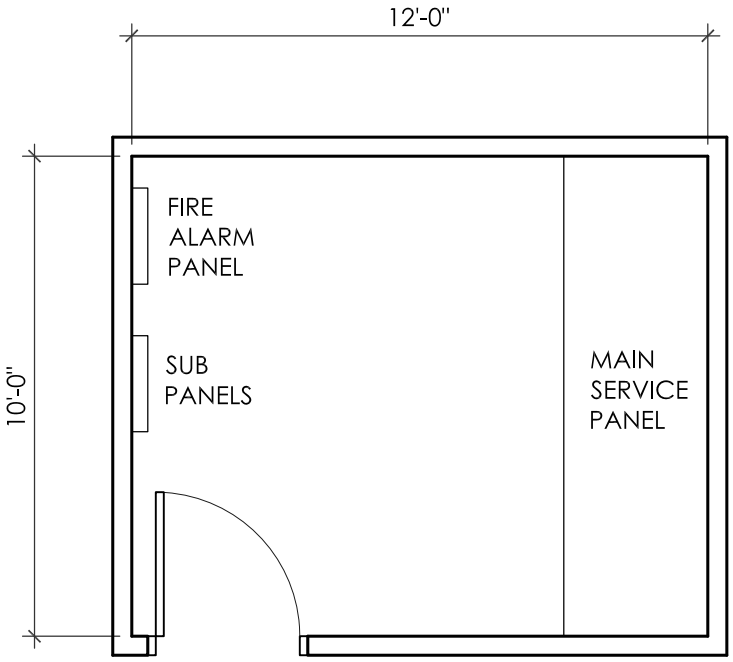
- BELLEVUE PROTOTYPE THREE COMPANY STATION

UTILITY SUPPORT SPACE

FS30 ELECTRICAL ROOM (120 SQ.FT.)

SCALE: 1/4"=1'-0"



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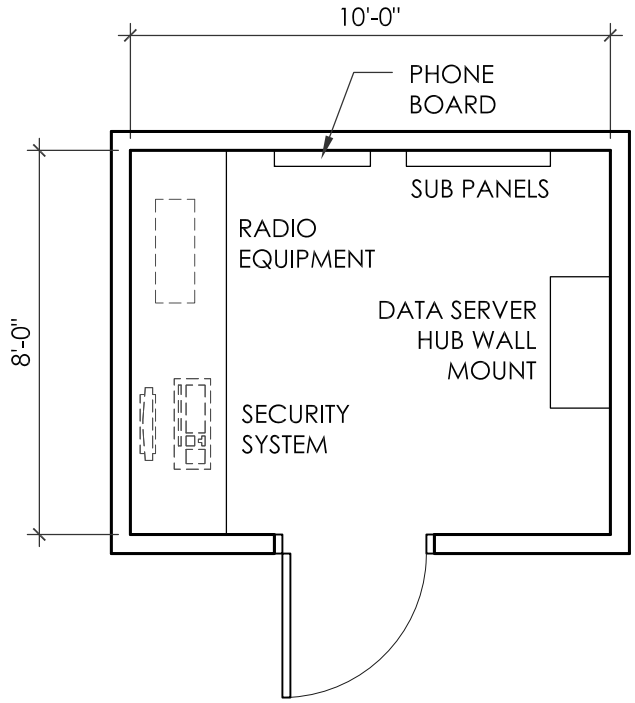
- BELLEVUE PROTOTYPE THREE COMPANY STATION

UTILITY SUPPORT SPACE

FS31 COMMUNICATIONS ROOM (80 SQ.FT.)

SCALE: 1/4"=1'-0"



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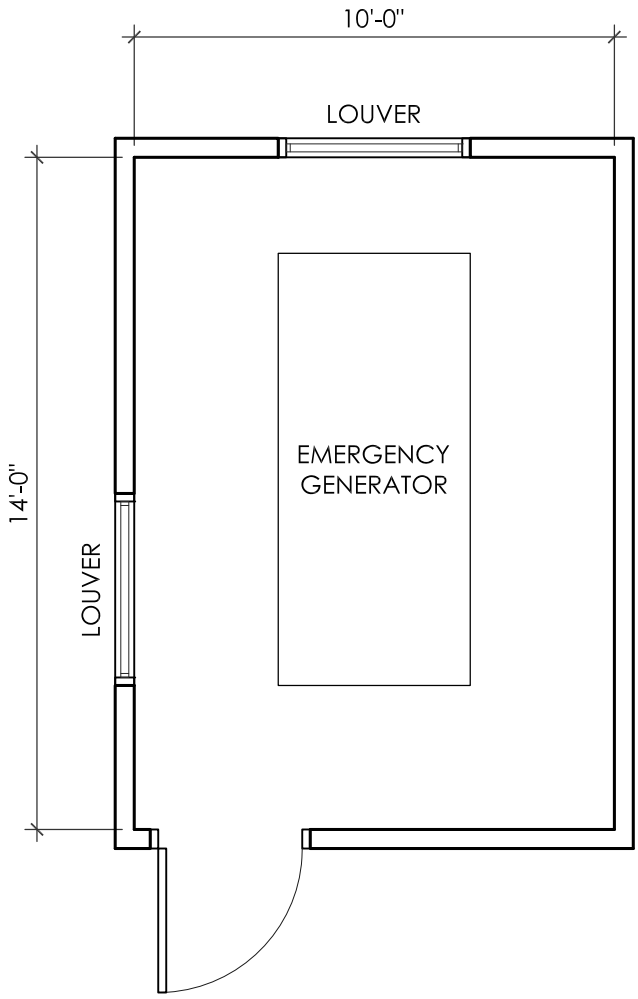
- BELLEVUE PROTOTYPE THREE COMPANY STATION

UTILITY SUPPORT SPACE

FS32 GENERATOR ROOM (140 SQ.FT.)

SCALE: 1/4"=1'-0"



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FIRE FACILITIES LONG RANGE
MASTER PLAN
MAY 2014

Appendix B-4

Prototype Battalion Chief Medical Service Officer

Schreiber Starling & Lane
ARCHITECTS
MARY MCGRATH | ARCHITECTS
TriData Corporation

City of Bellevue - Fire Facilities Master Plan
Battalion Chief Space Requirements

CONCEPTUAL SPACE NEEDS OUTLINE

May 16, 2014

Battalion Chief - B-1	**2 TOTAL PERSONNEL**
Battalion Chief Assistant	

No.	Type of Space	Space Attributes	Square Footage		
BC OFFICE AND QUARTERS			**Program**	**Size**	**Finish**
BC1	**Apparatus Bay** BC Vehicle and BC Assistant	Double deep Apparatus bay, cars park tandem. B-1 front line, B-2 Reserve	1,600	20' x 80'	A
BC2	**Private Entry Lobby**	Small lobby at entrance to Battalion Quarters/Office Space	64	8' x 8'	B
BC3	**ADA Restroom**	ADA Accessible restroom adjacent to Private Lobby and BC Meeting Room	64	8' x 8'	C
BC4	**Battalion Chief Office**	Lateral file cabinets for three occupants, side table for 4, shelving	192	12' x 16'	B
BC5	**Battalion Chief Assistant Office**	Lateral file cabinets for three occupants, meeting space over desk, shelving	168	12' x 14'	B
BC6	**BC Quarters/ Bathroom (Accessible)**	Bedroom, 4-30" wide lockers; bathroom and shower	224	11' x 13, 9' x 9'	B, C
BC7	**BC Assistant Quarters/ Bathroom**	Bedroom, 4-30" wide lockers; bathroom and shower	199	11' x 13, 7' x 8'	B, C
		BC OFFICE AND QUARTERS	**2,511**		

	SPACE NEEDS SUMMARY		Program		
		BC OFFICE/QUARTERS	2,511		
		Circulation at 25%	635		B
		BC OFFICE AND QUARTERS GRAND TOTAL (SF)	**3,146**		

Finish Legend:

A - Simple Finishes

B - Standard Office Finishes

C - Intense Finishes

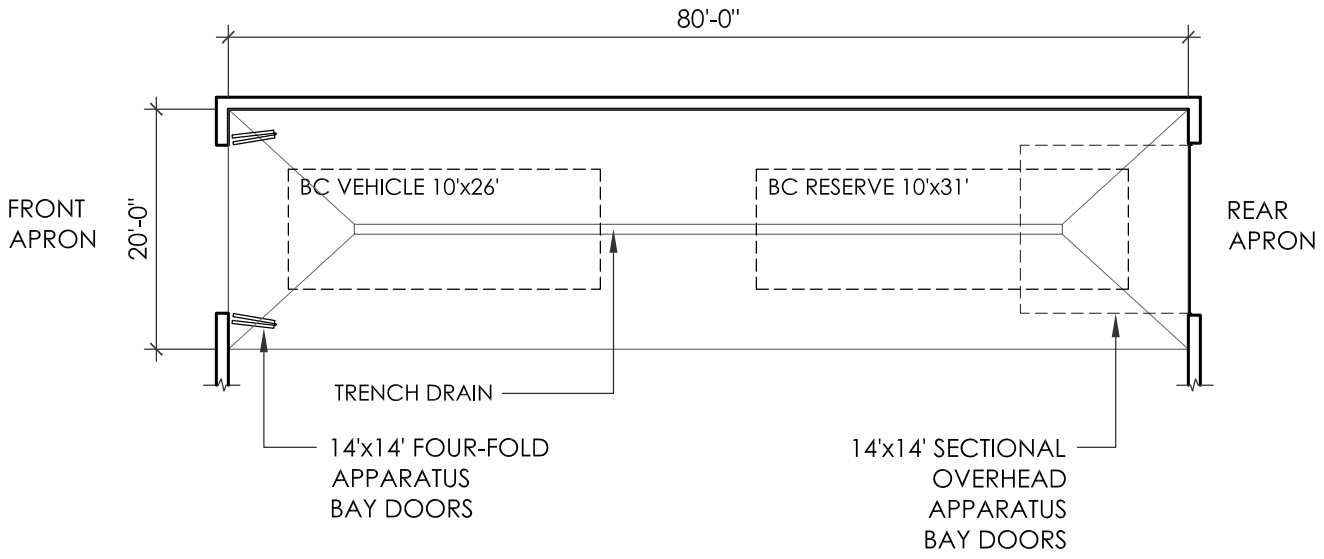
D - Service Room Finishes

- BELLEVUE BATTALION CHIEF

BATTALION CHIEF OFFICE & QUARTERS

BC1 APPARATUS BAY (1,600 SQ.FT.)

SCALE: 1/16"=1'-0"



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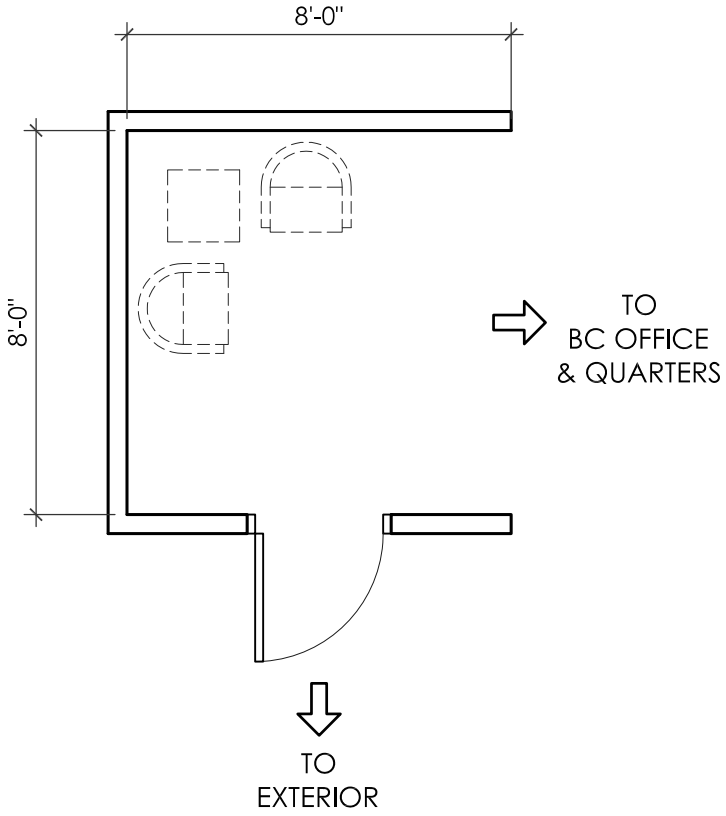
- BELLEVUE BATTALION CHIEF

BATTALION CHIEF OFFICE & QUARTERS

BC2 PRIVATE ENTRY LOBBY (64 SQ.FT.)

SCALE: 1/4"=1'-0"



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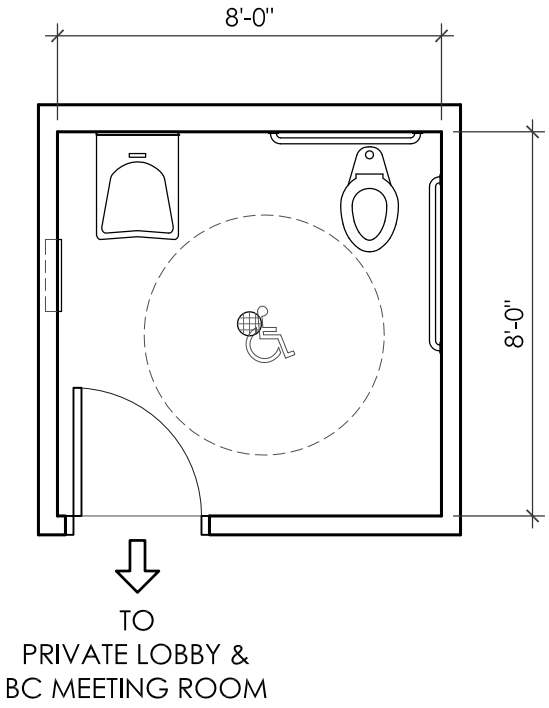
- BELLEVUE BATTALION CHIEF

BATTALION CHIEF OFFICE & QUARTERS

BC3 ADA RESTROOM (64 SQ.FT.)

SCALE: 1/4"=1'-0"



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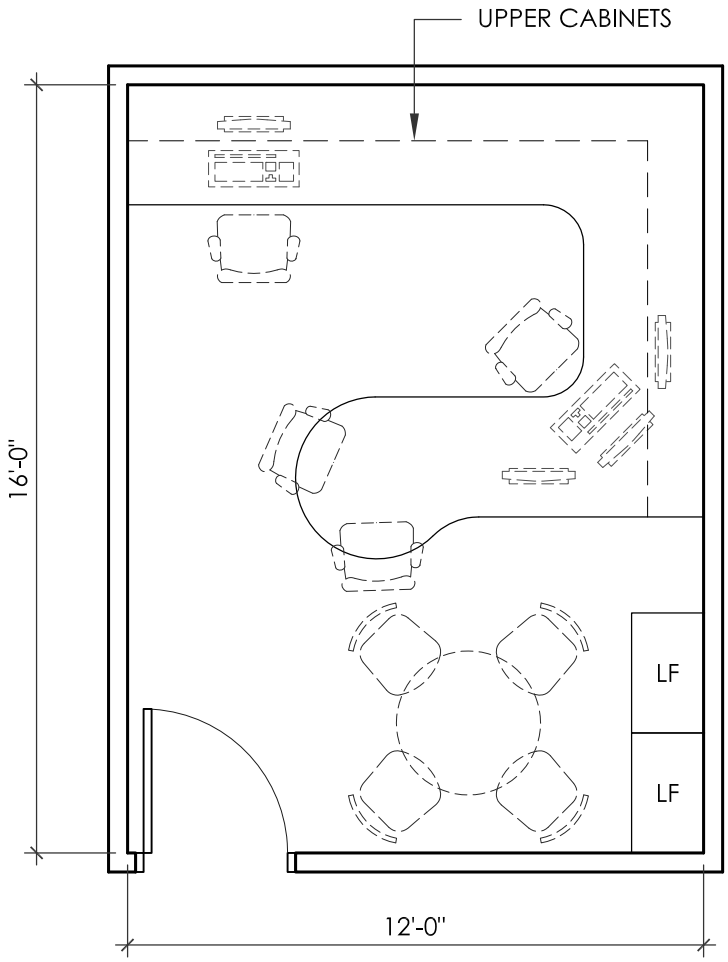
- BELLEVUE BATTALION CHIEF

BATTALION CHIEF OFFICE & QUARTERS

BC4 BATTALION CHIEF OFFICE (192 SQ.FT.)

SCALE: 1/4"=1'-0"



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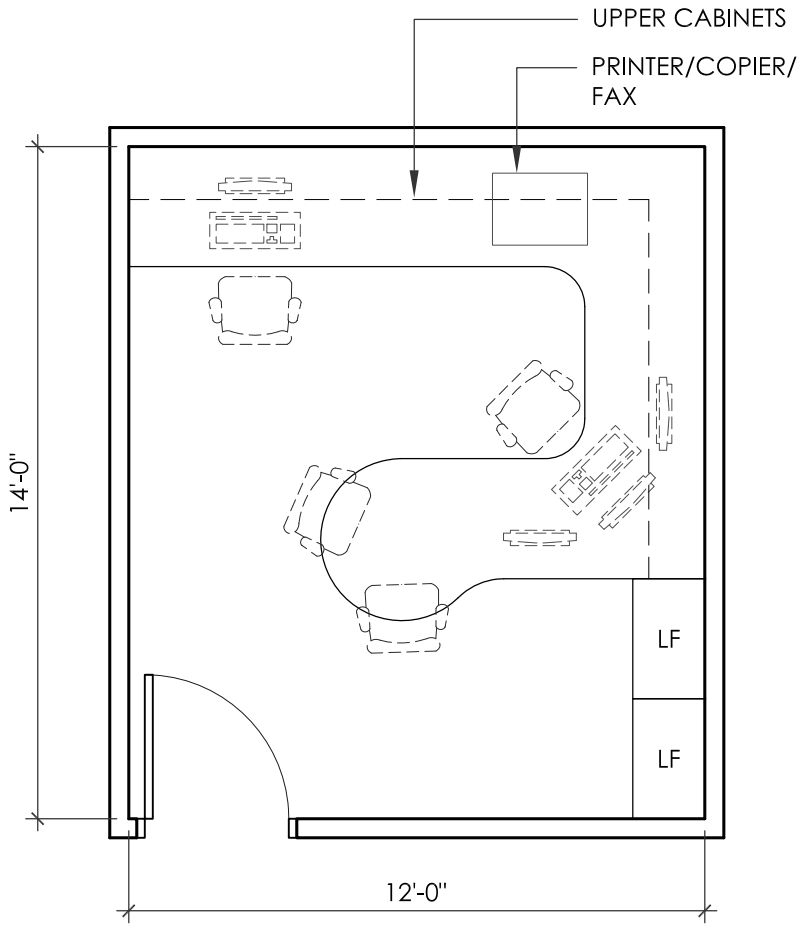
- BELLEVUE BATTALION CHIEF

BATTALION CHIEF OFFICE & QUARTERS

BC5 BATTALION CHIEF ASSISTANT OFFICE (168 SQ.FT.)

SCALE: 1/4"=1'-0"



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- BELLEVUE BATTALION CHIEF

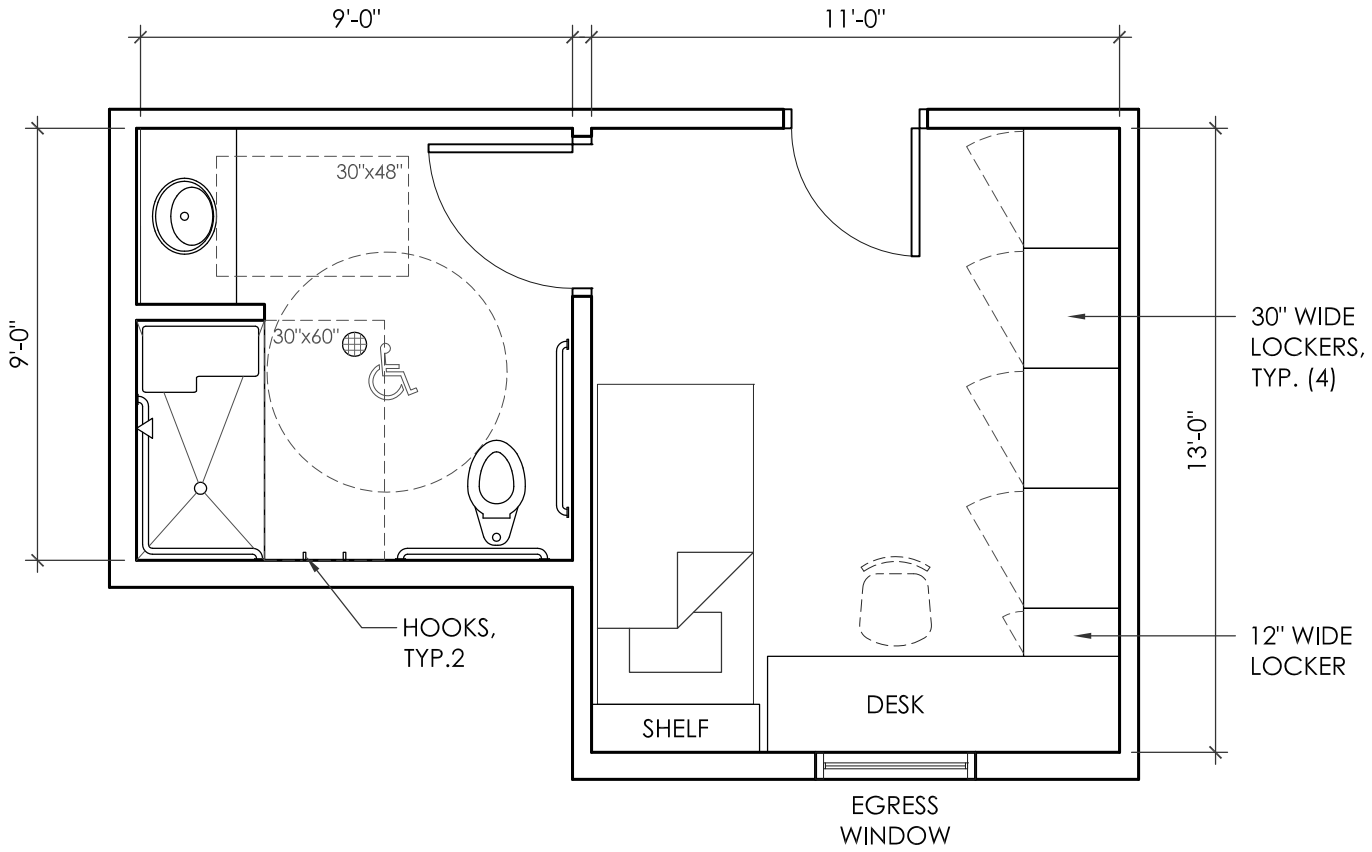
BATTALION CHIEF OFFICE & QUARTERS

BC6 BATTALION CHIEF QUARTERS / BATHROOM (ACCESSIBLE) (224 SQ.FT.)

SCALE: 1/4"=1'-0"

NOTE:

CLOSE PROXIMITY TO OFFICE AND DOOR TO BUNK GEAR ROOM.



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- BELLEVUE BATTALION CHIEF

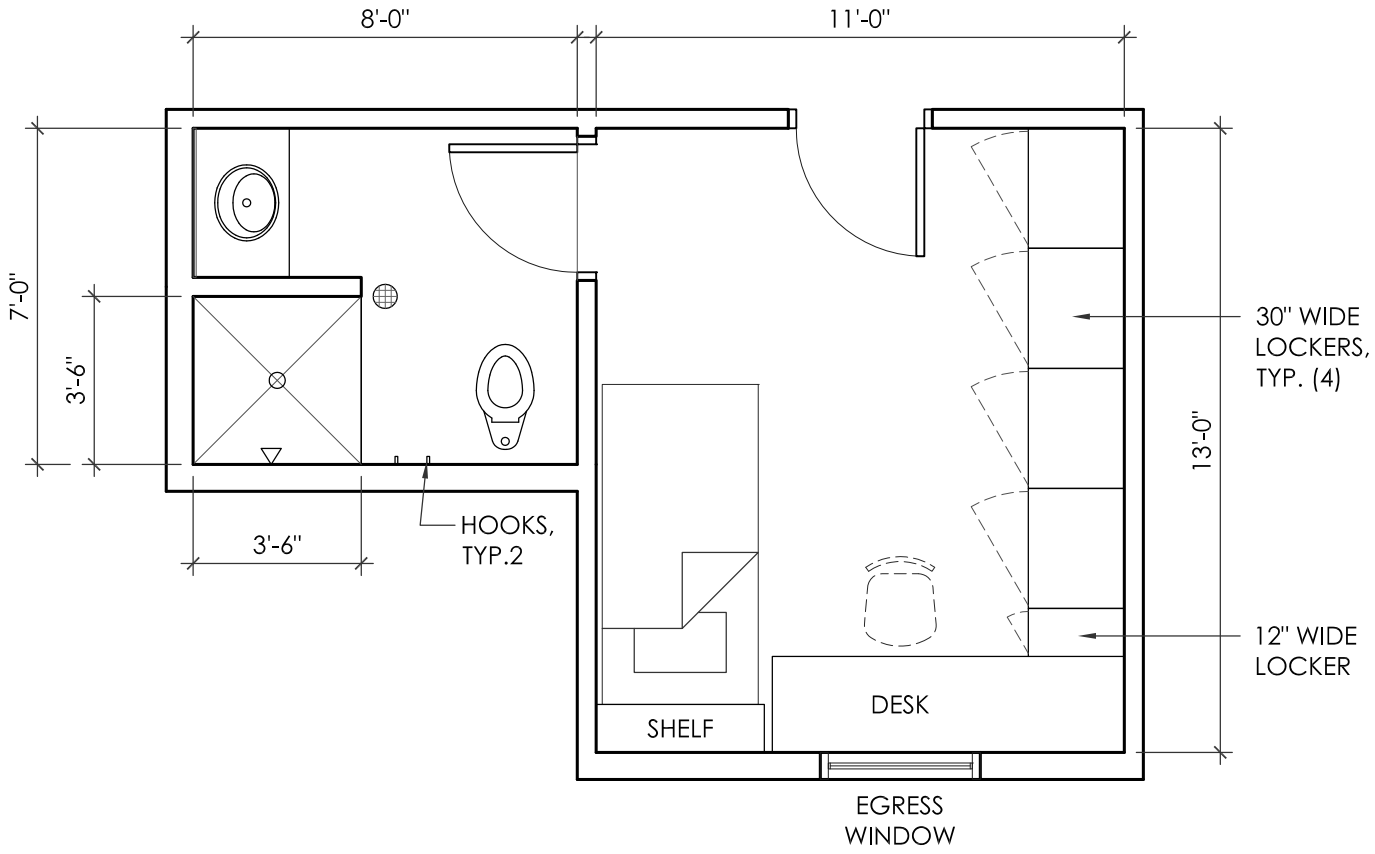
BATTALION CHIEF OFFICE & QUARTERS

BC7 BATTALION CHIEF ASSISTANT QUARTERS / BATHROOM (199 SQ.FT.)

SCALE: 1/4"=1'-0"

NOTE:

CLOSE PROXIMITY TO OFFICE AND DOOR TO BUNK GEAR ROOM.



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City of Bellevue - Fire Facilities Master Plan
Medic One - MSO 5

CONCEPTUAL SPACE NEEDS OUTLINE

May 16, 2014

Medical Officer 24 hour staffing	1 TOTAL PERSONNEL per shift

No.	Type of Space	Space Attributes	Square Footage		
Medic One			**Program**	**Size**	**Finish**
M1	**Apparatus Bay** Medical office and MCI Unit	Single apparatus bay for Medic One vehicle and MCI Unit.	1,600	20' x 80'	A
M2	**MSO OFFICE**	Single work stations, lateral file cabinets , side table for 4, shelving. Secure storage for regulated narcotics. Adjacent to the bedroom.	168	12'x 14'	B
M3	**MSO Bedroom**	Bedroom, 4-30" wide lockers	143	11' x 13"	B
M4	**MSO Restroom**	Accessible restrom. Directly adjacvent to the bedroom	81	9' x 9'	B
M5	**Medical Supply Storage**	Storage Shelving for unpacked medical supplies. Three rows of shelving.	480	12' x 40'	B
M6	**Receiving Area/Loading**	Area for receiving staging and loading/unloading.	216	12'x 18'	B
		Medic One Sub total:	**2,688**		

	SPACE NEEDS SUMMARY		Program		
		Medic One	2,688		
		Circulation at 25%	672		B
		MEDIC ONE GRAND TOTAL (SF)	**3,360**		

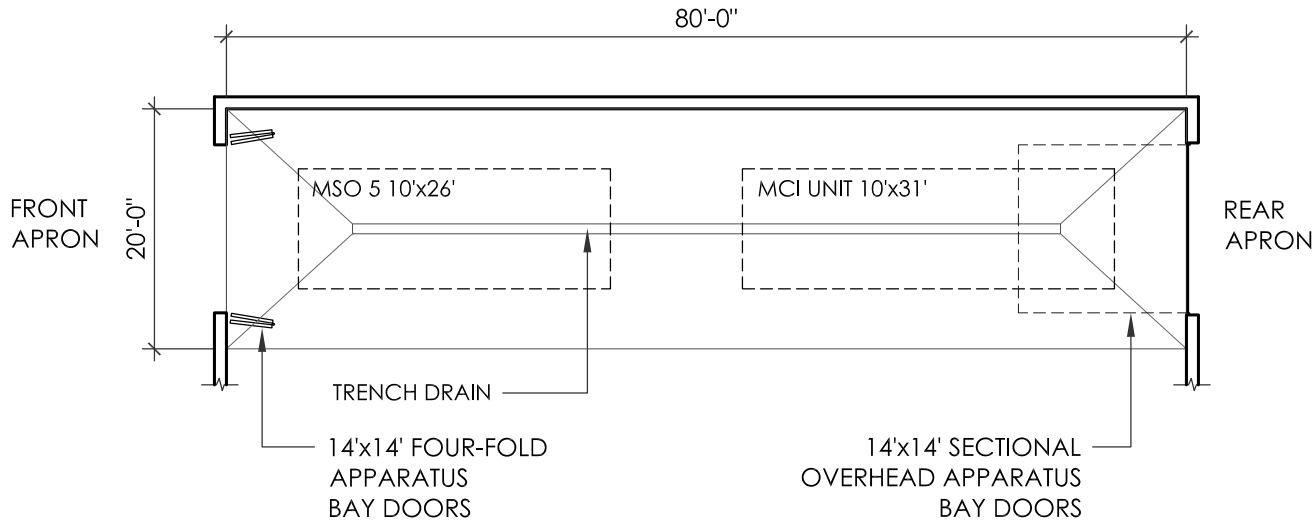
Finish Legend:
A - Simple Finishes
B - Standard Office Finishes
C - Intense Finishes
D - Service Room Finishes

- BELLEVUE MEDIC ONE - MSO 5

MEDIC ONE

M1 APPARATUS BAY (1,600 SQ.FT.)

SCALE: 1/16"=1'-0"



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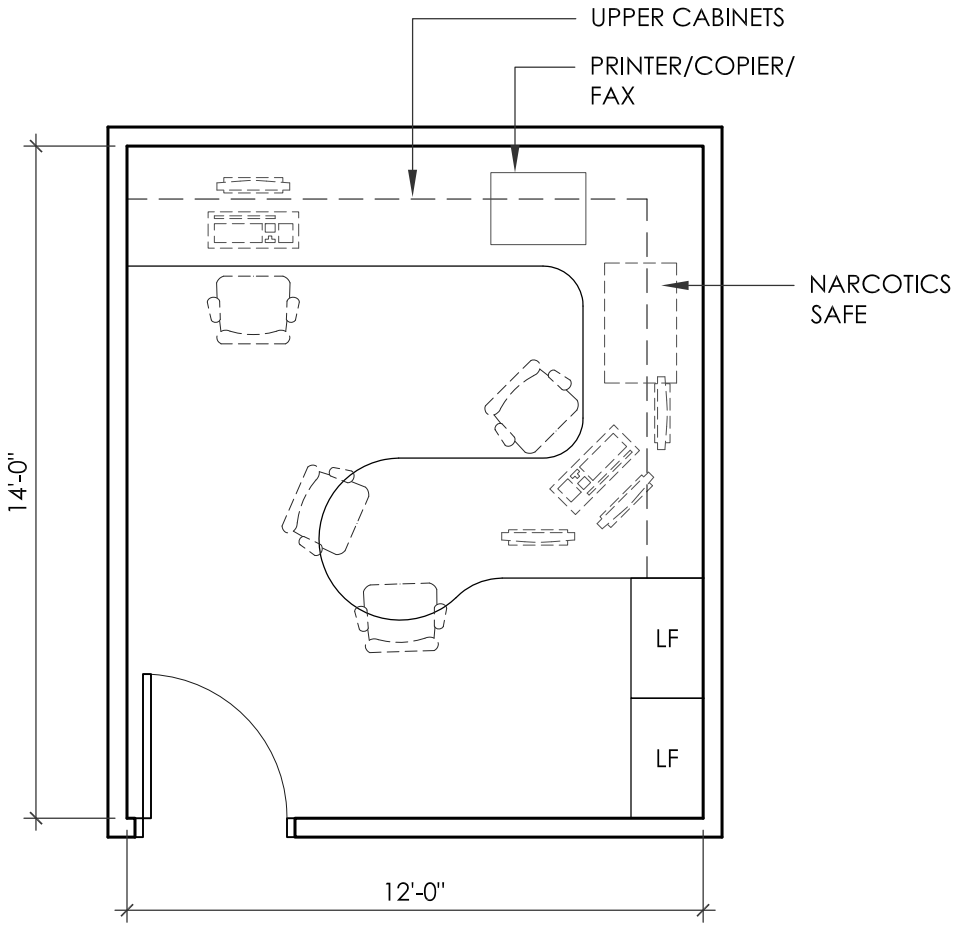
- BELLEVUE MEDIC ONE - MSO 5

MEDIC ONE

M2 MSO OFFICE (168 SQ.FT.)

SCALE: 1/4"=1'-0"



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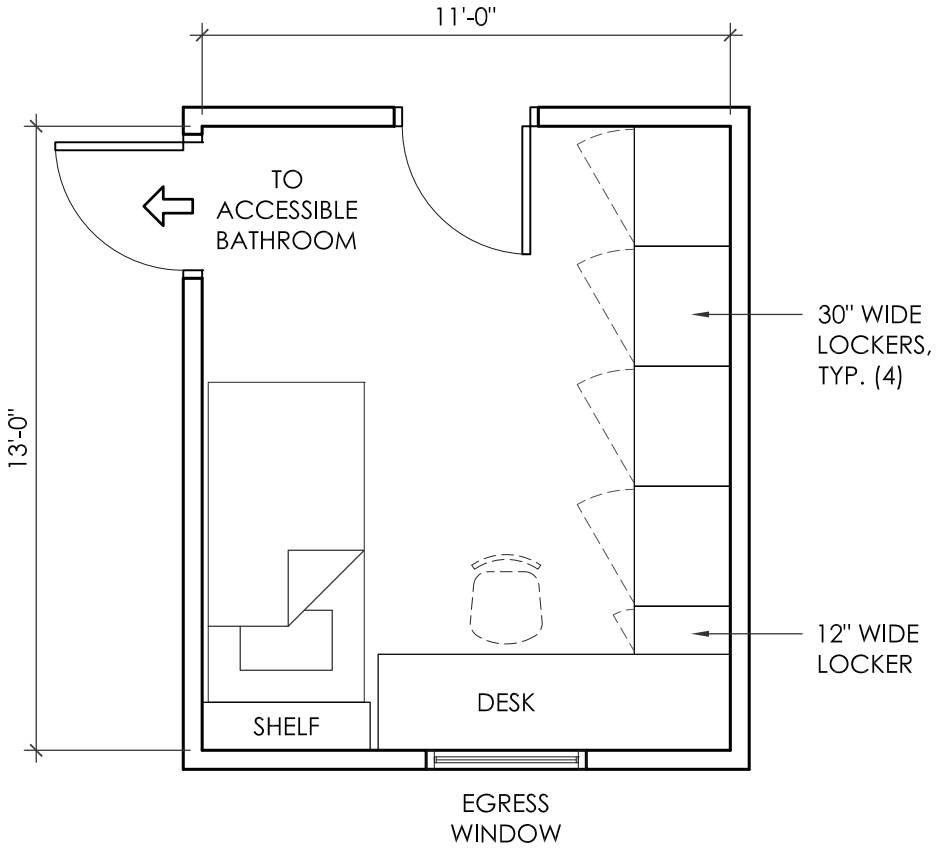
- BELLEVUE MEDIC ONE - MSO 5

MEDIC ONE

M3 MSO BEDROOM (143 SQ.FT.)

SCALE: 1/4"=1'-0"



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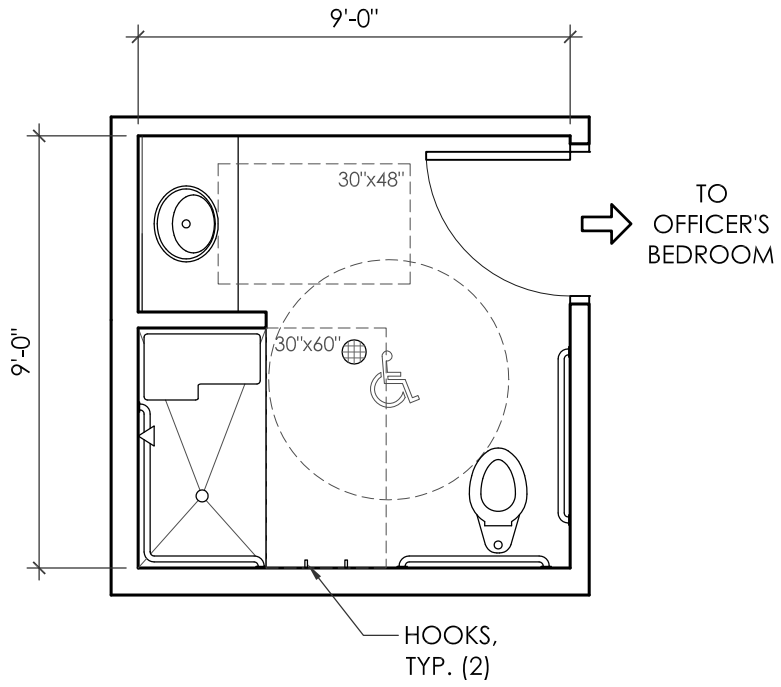
- BELLEVUE MEDIC ONE - MSO 5

MEDIC ONE

M4 MSO RESTROOM (81 SQ.FT.)

SCALE: 1/4"=1'-0"



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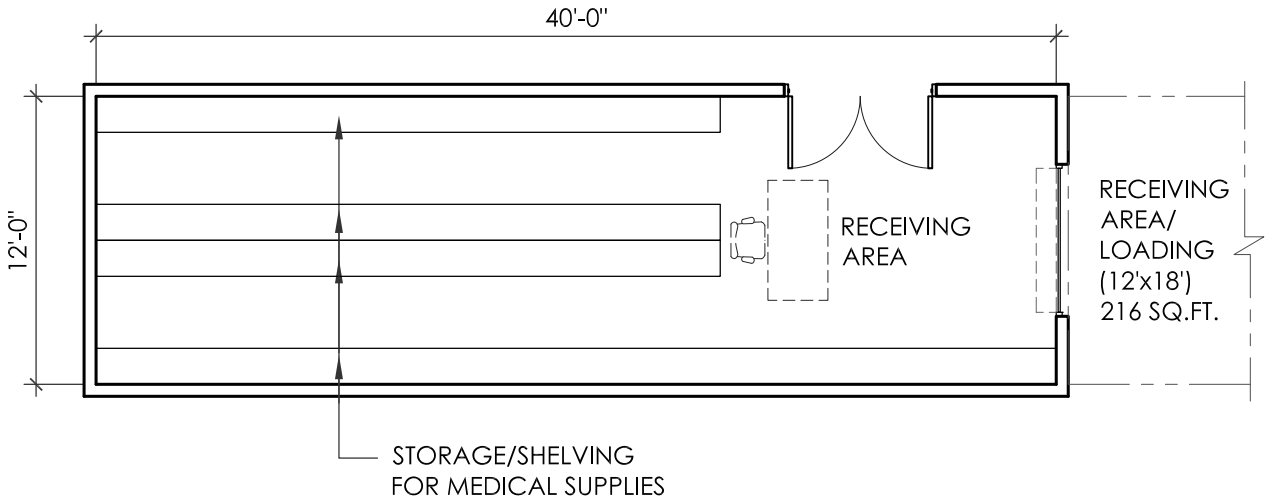
- BELLEVUE MEDIC ONE - MSO 5

MEDIC ONE

M5 MEDICAL SUPPLY STORAGE (480 SQ.FT.)

SCALE: 1/8"=1'-0"



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FIRE FACILITIES LONG RANGE
MASTER PLAN
MAY 2014

Appendix B-5
Prototype Training Center

Schreiber Starling & Lane
ARCHITECTS
MARY MCGRATH ARCHITECTS
TriData Corporation

EMTG Regional Training Center
City of Bellevue - Fire Facilities Master Plan

CONCEPTUAL SPACE NEEDS OUTLINE

May 16, 2014

Administration/Training Officers = 15 total personnel	TBD
Academy	Class size: 12-16 members
Police Department= 2 total personnel	K-9 Unit, and shooting range, motors training

No.	Type of Space	Space Attributes	Square Footage		
EMTG TRAINING/ADMINISTRATION			**Program**	**Size**	**Finish**
T1	**Public Entry Lobby**	Interior space for visitor seating; Reception counter adjacent to public restrooms, access to main training classroom, accommodate 10-15 people at one time.	300	15' x 20'	B
T2	**Public Restroom**	ADA Accessible restroom adjacent to Lobby and training classroom (number of fixtures TBD).	500	10' x 25' (2)	C
T3	**Training Center Manager**	Lateral file cabinets, side table for 4, shelving	216	12' x 18'	B
T4	**Assistant Training Manager/Finance**	Lateral file cabinets, shelving	120	10' x 12'	B
T5	**Admin. Assistant**	Semi private office	120	10' x 12'	B
T6	**Bellevue Training Commander**	Lateral file cabinets, shelving	120	10' x 12'	B
T7	**Training Chief Open Work Station**	Open Work Area; 10 open work stations near workroom	640	8' x 8' (10)	B
T8	**Training Record Storage**	Lateral file cabinets (locking), visually connected to manager office.	80	8' x 10'	B
T9	**Copy/Print/Office Supply room**	Counter for report preparation, supply storage cabinets, copy machine	120	10' x 12'	B
T10	**Training Library/Study room**	Secure and unsecure training materials, study tables	195	13' x 15'	B
T11	**Training Classroom**	Seating for 100; storage areas; counters; serves as multi-agency training classroom and meeting room. Divide into 3 smaller classrooms	3,300	44' x 75'	B
T12	**Training Equipment Storage**	Table and Chair storage, training prop storage	256	8' x 16' (2)	B
T13	**Large Conference Room**	Seating for 20; storage cabinets, counter space, white board	660	22' x 30'	B
T14	**Small Conference/Interview Room**	Seating for 6-8; white board	195	13' x 15'	B
T15	**Hospitality Area**	Near conference rooms, sink, plumbed coffee maker and counter space	320	10' x 32'	C
T16	**Training Staff Break Room**	Seating for 10; kitchenette, vending	240	12' x 20'	B
T17	**Staff Restroom/locker Room**	ADA Accessible restroom adjacent to break room. 12" x 36" lockers, One restroom/locker room each for men and women.	772	12' x 23' 10'-6" x 15' 13'-6" x 25'	C
T18	**Staff Bunker Gear Storage Room**	Storage for Staff bunker gear and other training props for 15 staff members	107	8' x 13'-4	B
	EMTG Training Offices/Administration Subtotal		**8,261**		

No.	Type of Space	Space Attributes			
EMTG CADET/TRAINING FACILITIES			**Program**	**Size**	**Finish**
C1	**Men's locker Room**	12" wide metal lockers for 24 with benches and dressing area. Six showers, Five lavatories, three urinals and three toilets.	644	23' x 28'	C
C2	**Women's locker Room**	12" wide metal lockers for 8 with benches and dressing area. Two showers, three lavatories and three toilets.	338	13.5' x 25'	C
C3	**Fitness Room**	Fitness room for 16 persons to work out at one time. 8 pieces of cardio equipment, fee weights. Adjacent to Exam Room.	864	24' x 36'	B
C4	**Examination Room**	Adjacent to Fitness Room	120	10' x 12'	B
C5	**Cadet Safety Gear Storage**	Bunker gear storage of academy cadets for use during the academy. Storage for 24 sets of bunker gear in lockers; floor drain, extractor, gear dryer and heavy duty shelving.	308	14' x 22'	B
C6	**SCBA Air fill Station/Bottle Storage**	Airfill Station and bottle fill, storage.	240	12' x 20'	B
	EMTG CADET/TRAINING FACILITIES Subtotal		**2,514**		

No.	Type of Space	Space Attributes			
	UTILITY SUPPORT SPACE		**Program**	**Size**	**Finish**
U1	**General Building Storage**	Storage for building supplies such as light bulbs, extra paint (flammable locker), ceiling tiles, etc.)	100	10'x10'	D
U2	**Mechanical Room**	HVAC equipment; hot water heater; fire sprinkler riser	100	10'x10'	D
U3	**Electrical Room**	Main service panel, fire alarm panel; sub panels	50	5' x 10'	D
U4	**Communications Room**	Telephone service racks, alert response system hub, data server hub, radio equipment; includes dispatch equipment	120	10'X12'	D
		Utility Support Subtotal	**370**		

	SPACE NEEDS SUMMARY		**Program**		
		EMTG TRAINING/ADMINISTRATION Subtotal	8,261		
		EMTG CADET/TRAINING FACILITIES Subtotal	2,514		
		Utility Support Space Subtotal	370		
		BUILDING SUBTOTAL (SF)	**11,145**		
		Circulation at 25%	2,786		B
	EMTG CADET/TRAINING FACILITIES GRAND TOTAL (SF)		**13,931**		

Finish Legend:
A - Simple Finishes
B - Standard Office Finishes
C - Intense Finishes
D - Service Room Finishes

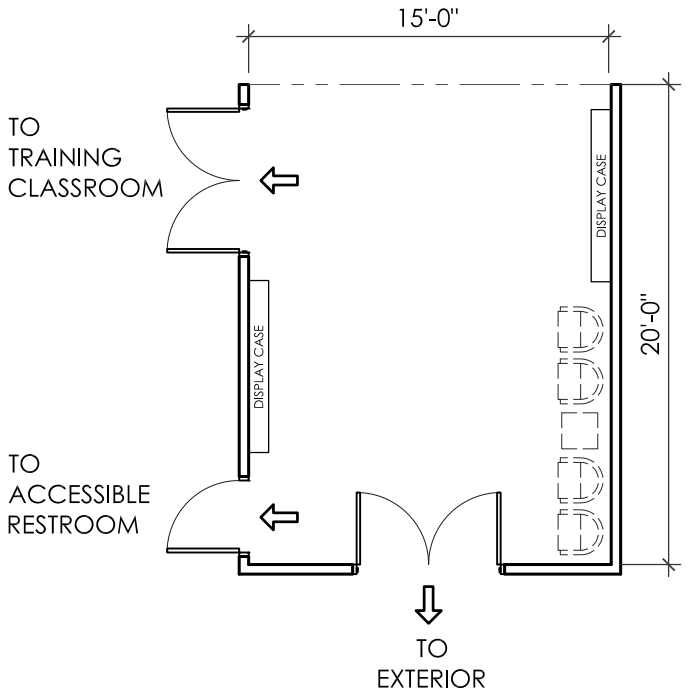
The K-9 Unit and Shooting Range space requirements still need to be added to this overall program if the Training Center remains at its current location.

- EMTG REGIONAL TRAINING CENTER

EMTG TRAINING / ADMINISTRATION

T1 PUBLIC ENTRY LOBBY (300 SQ.FT.)

SCALE: 1/8"=1'-0"



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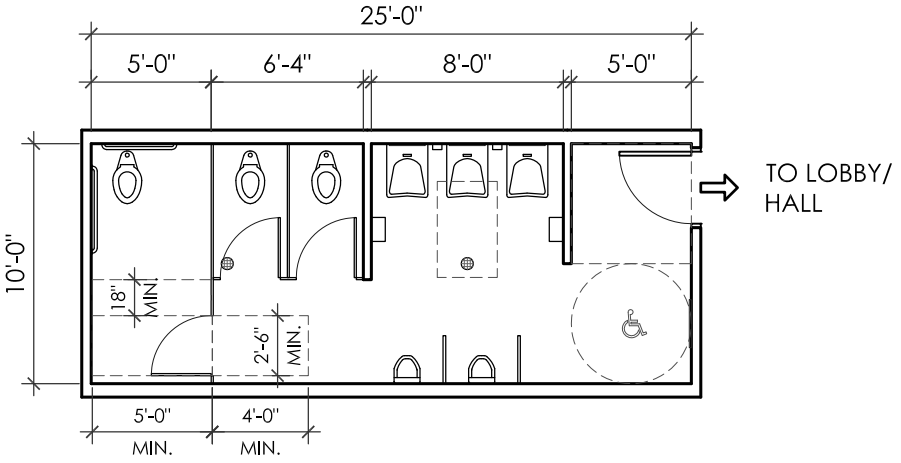
- EMTG REGIONAL TRAINING CENTER

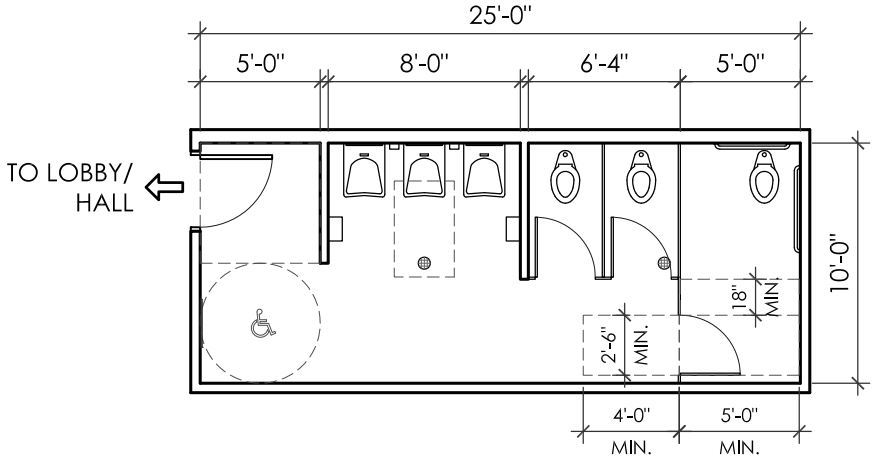
EMTG TRAINING / ADMINISTRATION

T2 ACCESSIBLE PUBLIC RESTROOM - 2 TOTAL (500 SQ.FT.)

SCALE: 1/8"=1'-0"



MEN'S RESTROOM



WOMEN'S RESTROOM

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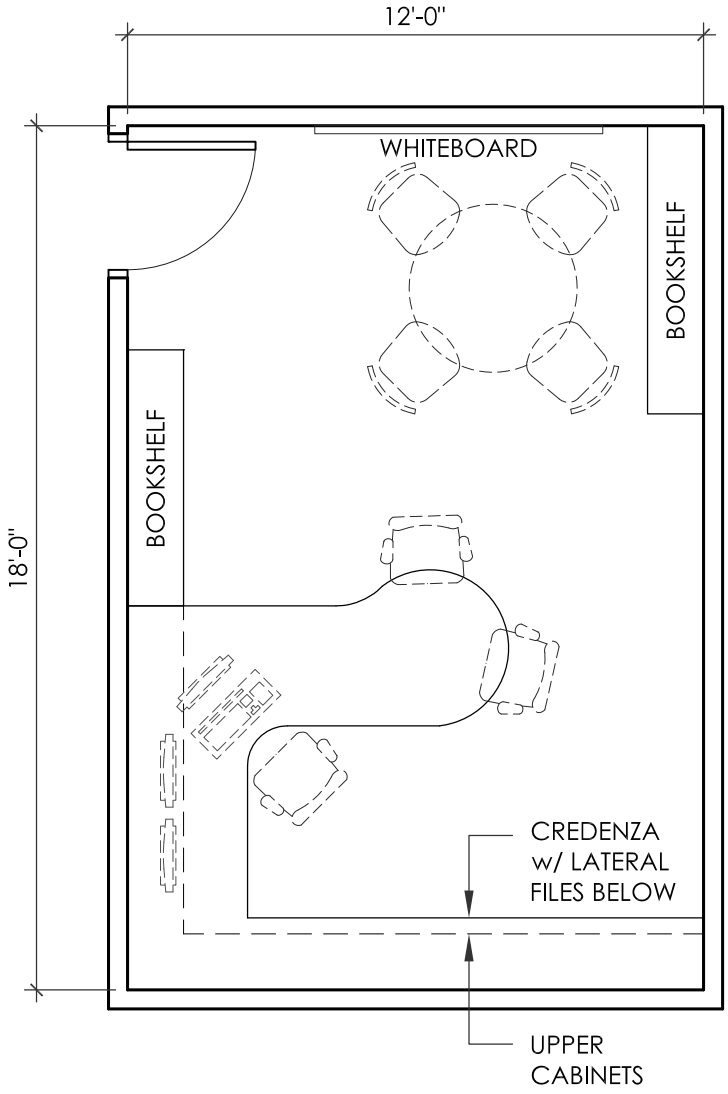
- EMTG REGIONAL TRAINING CENTER

EMTG TRAINING / ADMINISTRATION

T3 TRAINING CENTER MANAGER (216 SQ.FT.)

SCALE: 1/4"=1'-0"



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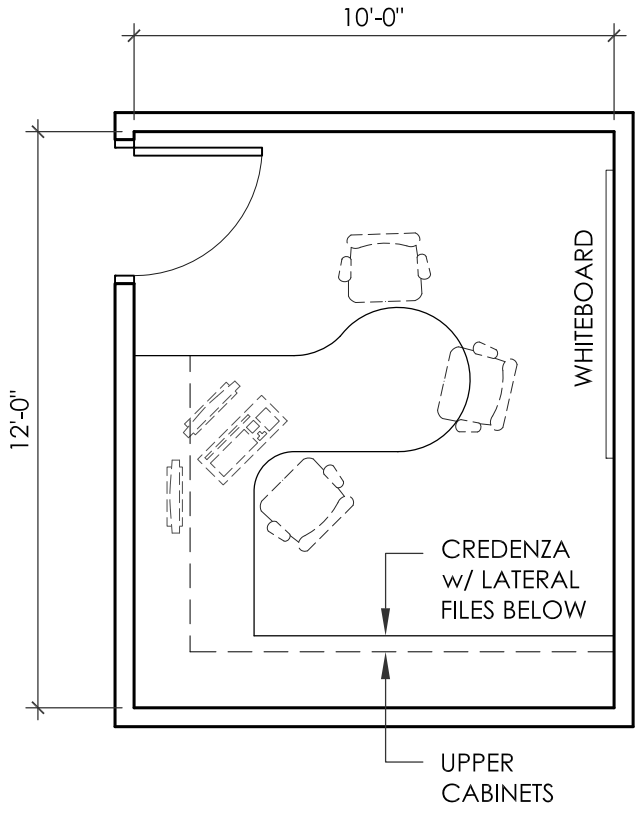
- EMTG REGIONAL TRAINING CENTER

EMTG TRAINING / ADMINISTRATION

T4 ASSISTANT TRAINING MANAGER / FINANCE (120 SQ.FT.)

SCALE: 1/4"=1'-0"



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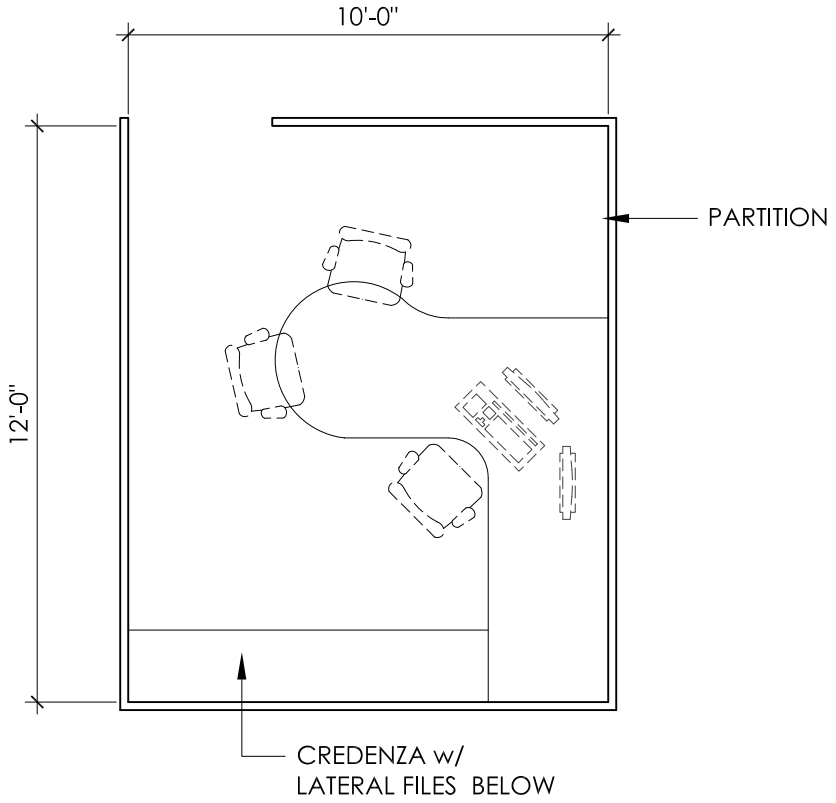
- EMTG REGIONAL TRAINING CENTER

EMTG TRAINING / ADMINISTRATION

T5 ADMINISTRATION ASSISTANT - SEMI-PRIVATE OFFICE (120 SQ.FT.)

SCALE: 1/4"=1'-0"



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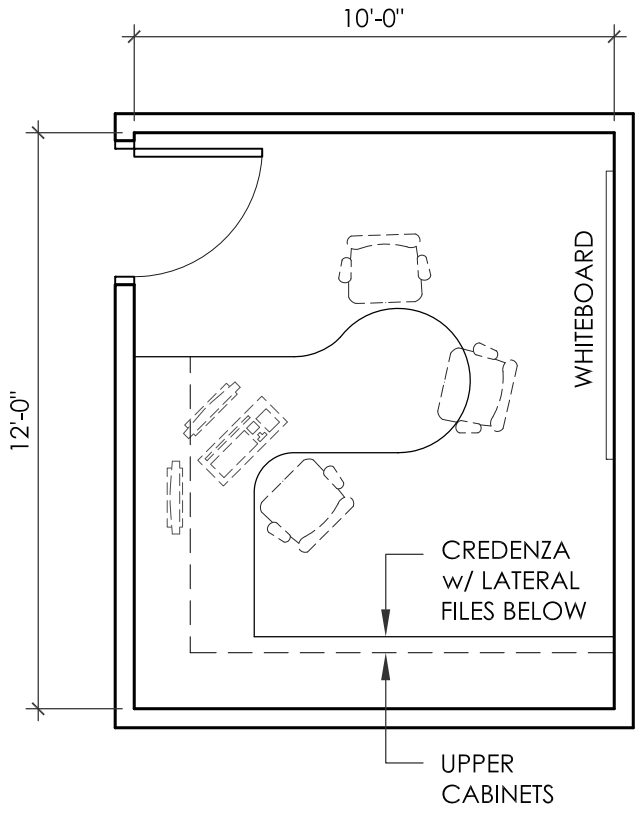
- EMTG REGIONAL TRAINING CENTER

EMTG TRAINING / ADMINISTRATION

T6 BELLEVUE TRAINING OFFICER (120 SQ.FT.)

SCALE: 1/4"=1'-0"



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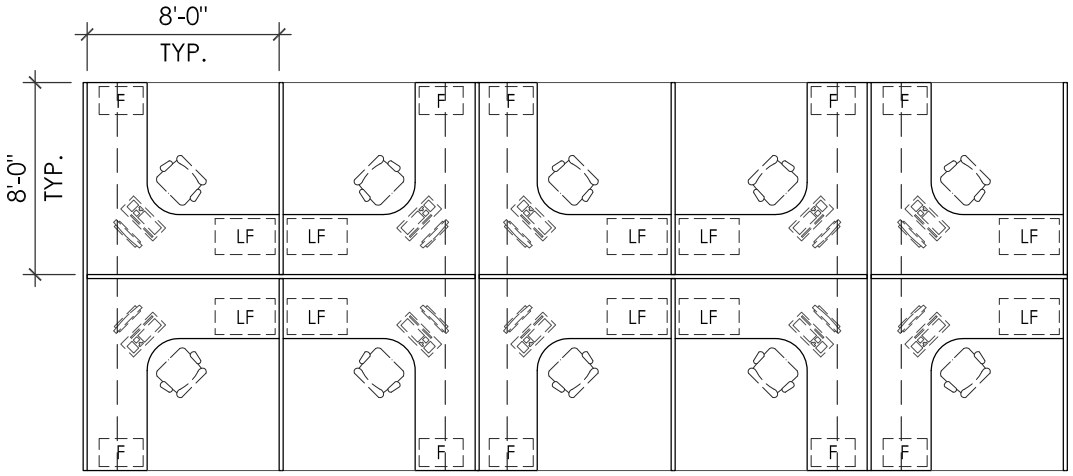
EMTG TRAINING / ADMINISTRATION

T7 TRAINING OFFICER OPEN WORK STATIONS - 10 TOTAL (640 SQ.FT.)

SCALE: 1/8"=1'-0"



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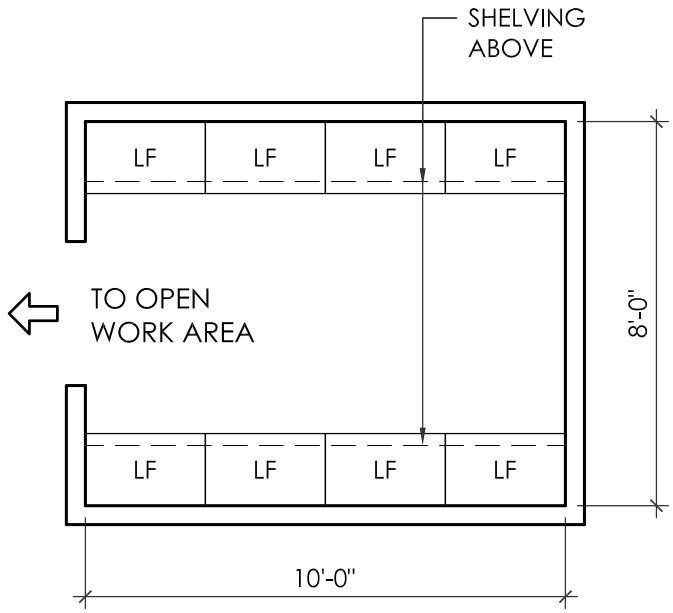
- EMTG REGIONAL TRAINING CENTER

EMTG TRAINING / ADMINISTRATION

T8 TRAINING RECORD STORAGE (80 SQ.FT.)

SCALE: 1/4"=1'-0"



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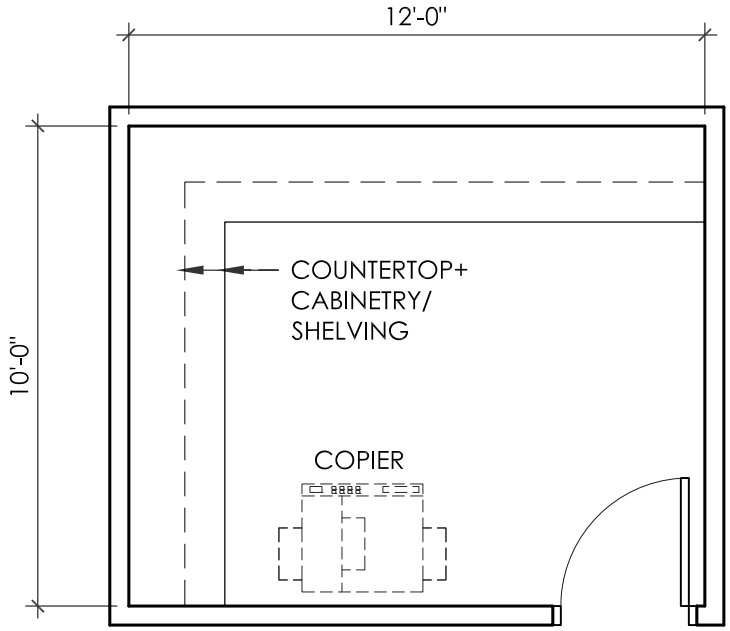
- EMTG REGIONAL TRAINING CENTER

BATTALION CHIEF OFFICE & QUARTERS

T9 COPY/PRINT/OFFICE SUPPLY ROOM (120 SQ.FT.)

SCALE: 1/4"=1'-0"



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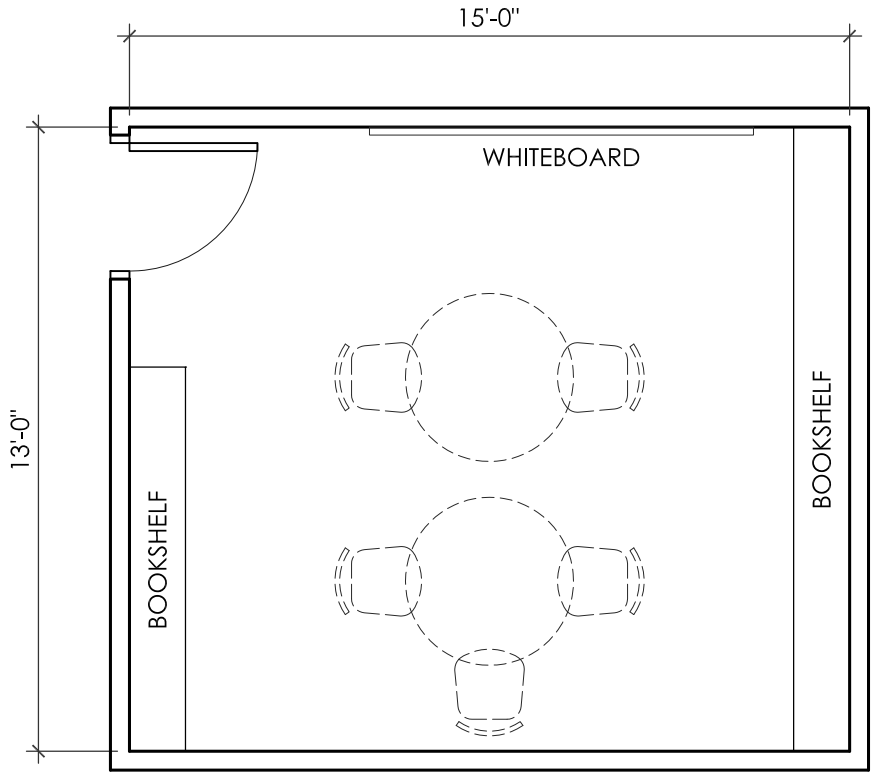
EMTG TRAINING / ADMINISTRATION

T10 TRAINING LIBRARY / STUDY ROOM (195 SQ.FT.)

SCALE: 1/4"=1'-0"



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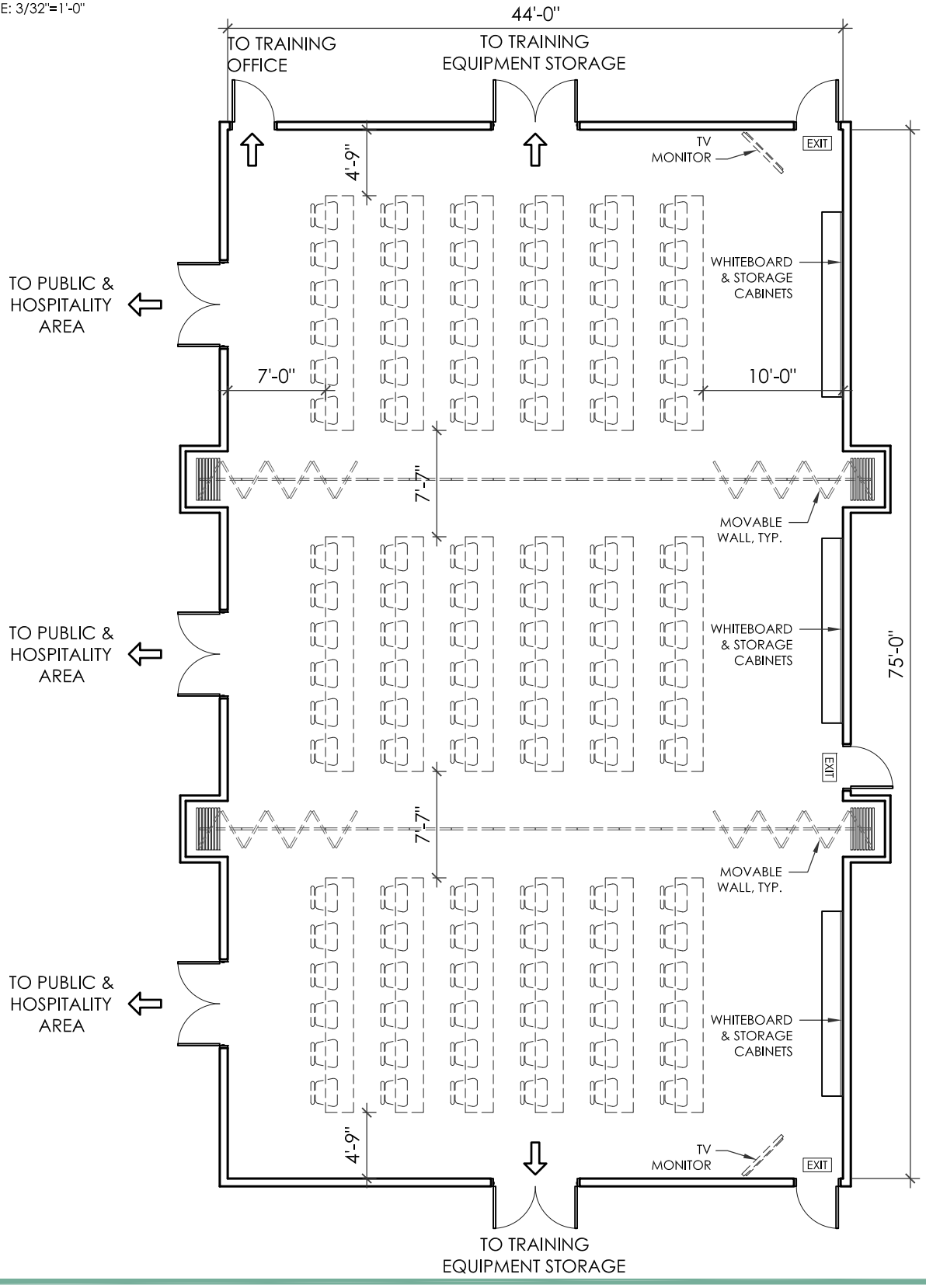
EMTG TRAINING / ADMINISTRATION

T11 TRAINING CLASSROOM (3,300 SQ.FT.)

SCALE: 3/32"=1'-0"



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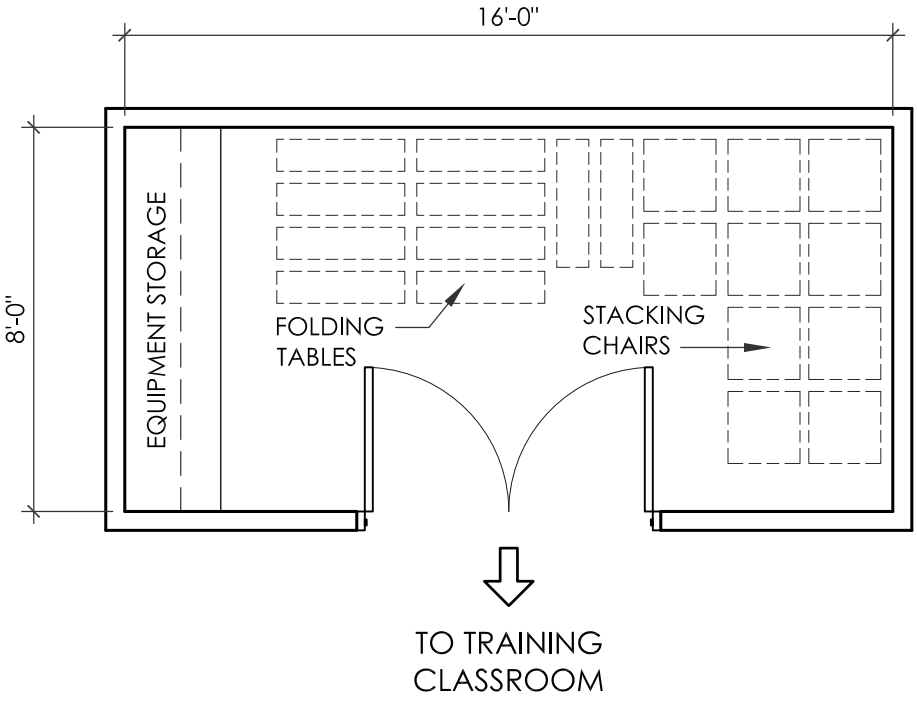
EMTG TRAINING / ADMINISTRATION

T12 TRAINING EQUIPMENT STORAGE - 2 TOTAL (256 SQ.FT.)

SCALE: 1/4"=1'-0"



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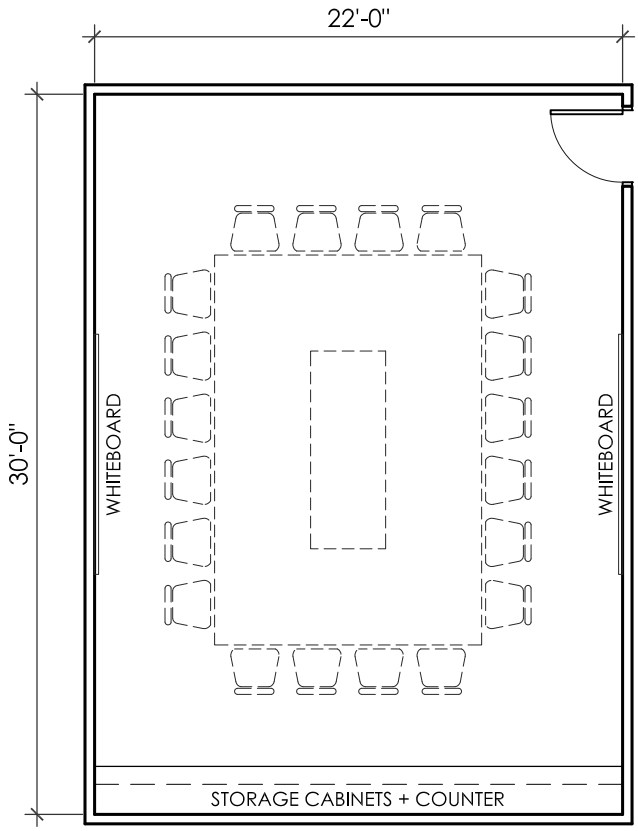
EMTG TRAINING / ADMINISTRATION

T13 LARGE CONFERENCE ROOM (660 SQ.FT.)

SCALE: 1/8"=1'-0"



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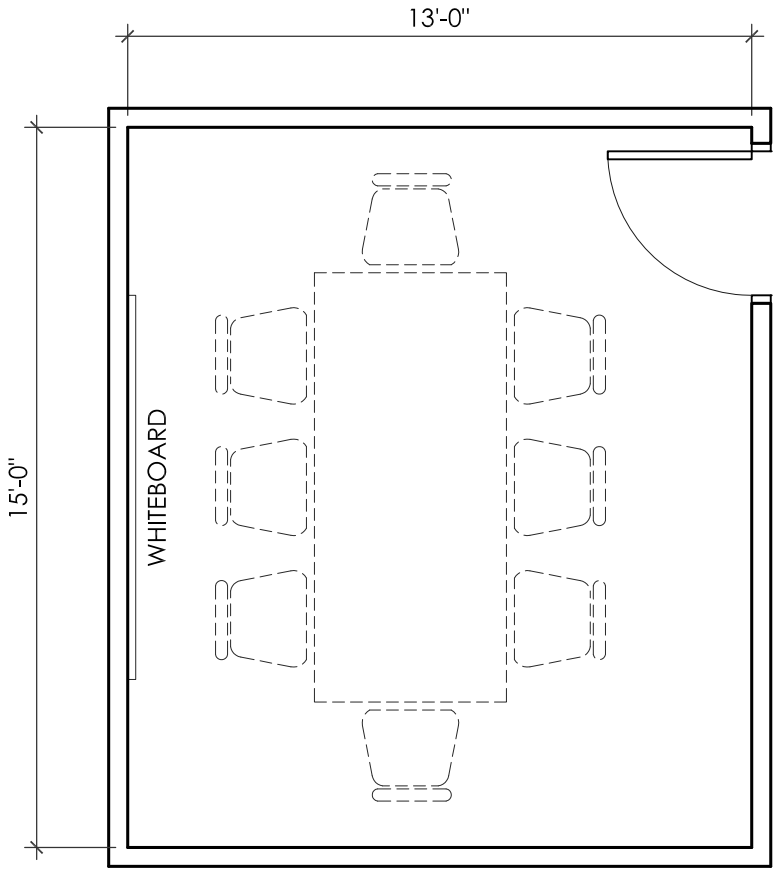
EMTG TRAINING / ADMINISTRATION

T14 SMALL CONFERENCE / INTERVIEW ROOM (195 SQ.FT.)

SCALE: 1/4"=1'-0"



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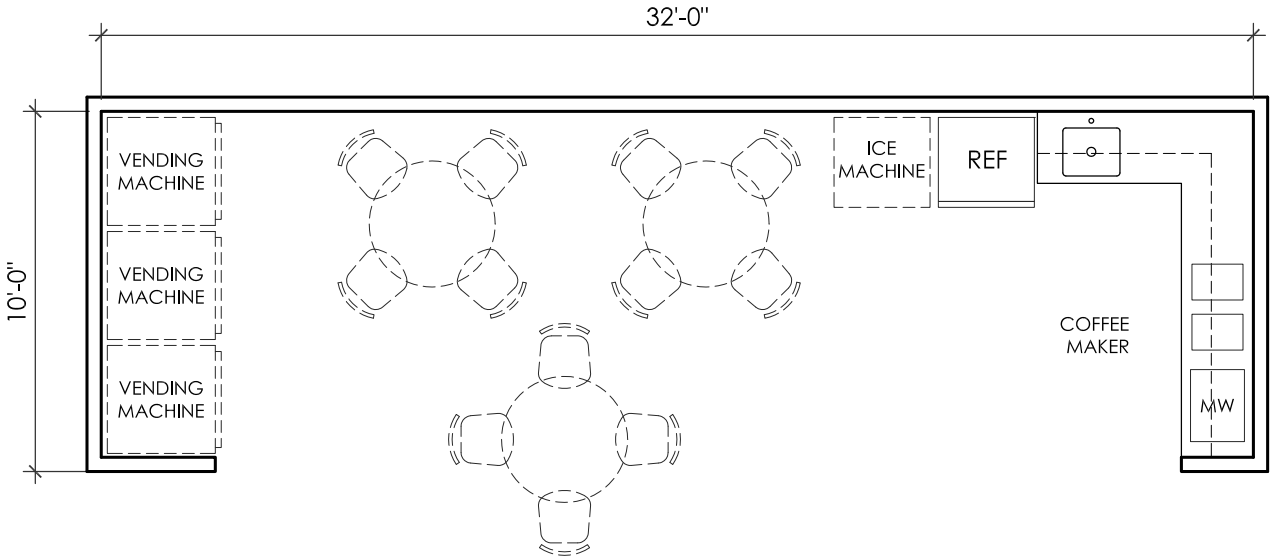
EMTG TRAINING / ADMINISTRATION

T15 HOSPITALITY AREA (320 SQ.FT.)

SCALE: 3/16"=1'-0"



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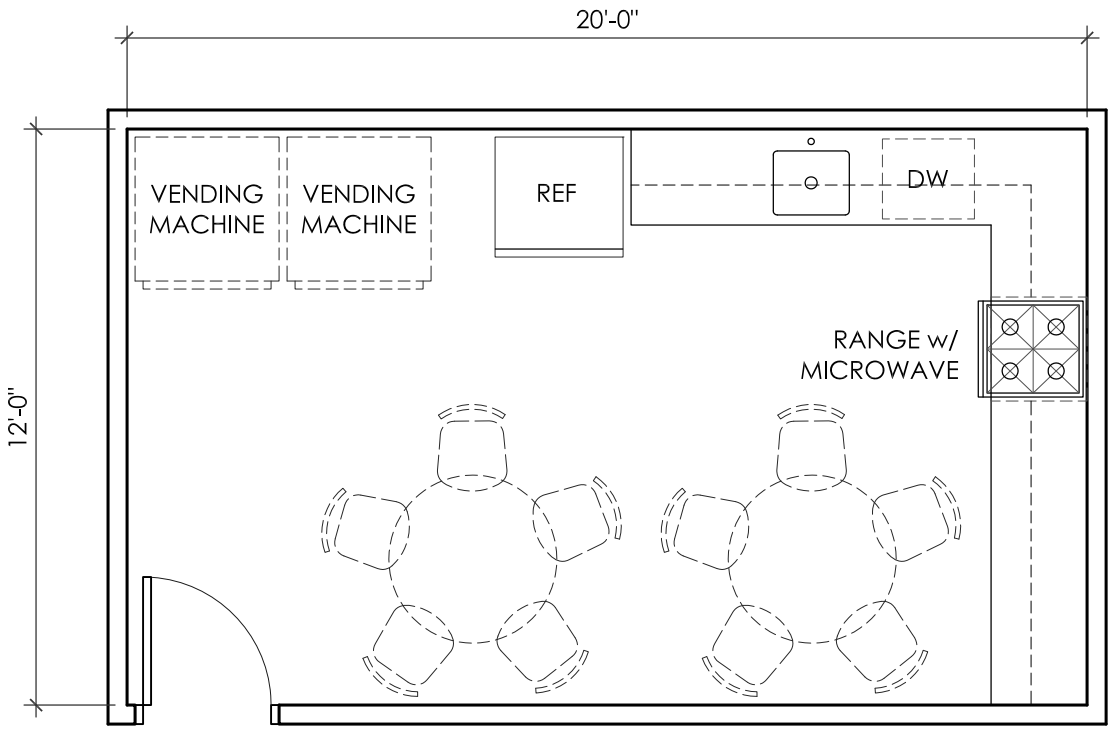
EMTG TRAINING / ADMINISTRATION

T16 TRAINING STAFF BREAKROOM (240 SQ.FT.)

SCALE: 1/4"=1'-0"



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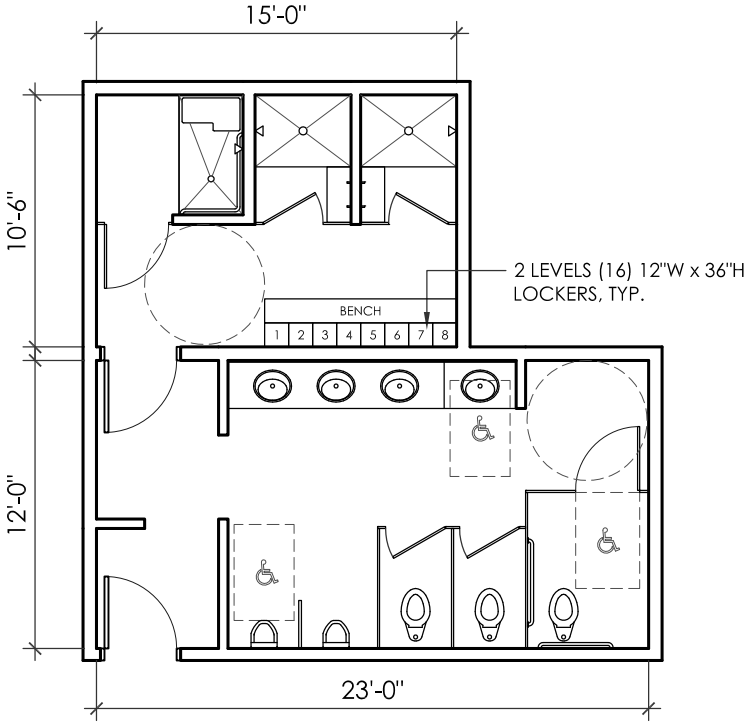
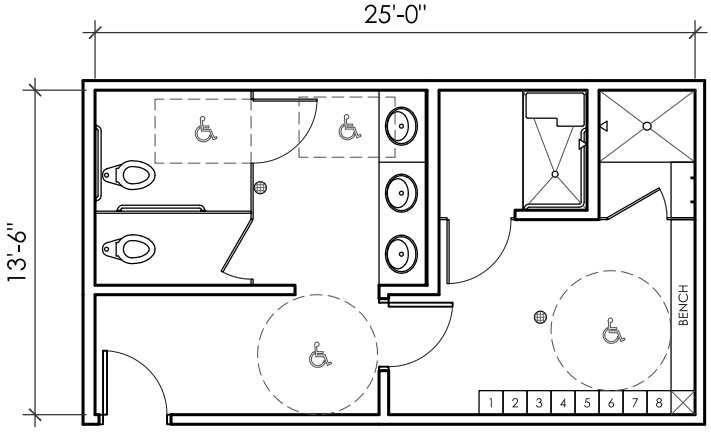
EMTG TRAINING / ADMINISTRATION

T17 STAFF RESTROOM/LOCKER ROOM (ACCESSIBLE) 2 TOTAL (772 SQ.FT.)

SCALE: 1/4"=1'-0"



MEN (434 SQ.FT.)



WOMEN (338 SQ.FT.)

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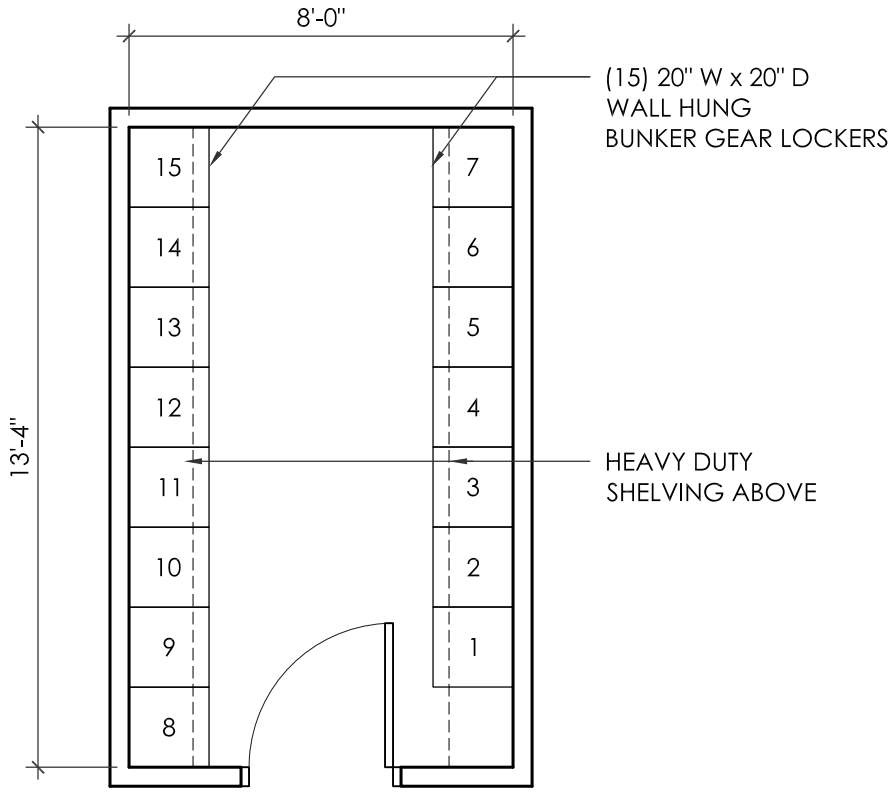
EMTG TRAINING / ADMINISTRATION

T18 STAFF BUNKER GEAR STORAGE ROOM (107 SQ.FT.)

SCALE: 1/4"=1'-0"



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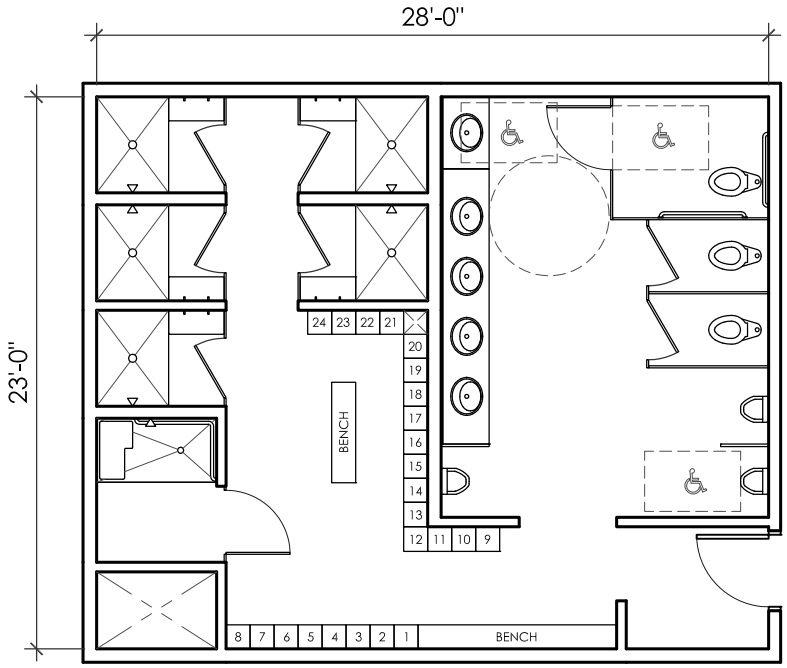
EMTG CADET / TRAINING FACILITIES

C1 MEN'S RECRUIT LOCKER ROOM (644 SQ.FT.)

SCALE: 1/8"=1'-0"



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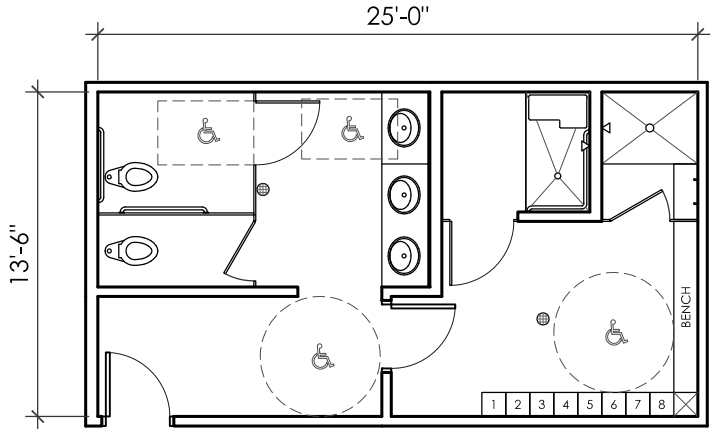
EMTG CADET / TRAINING FACILITIES

C2 WOMEN'S RECRUIT LOCKER ROOM (338 SQ.FT.)

SCALE: 1/8"=1'-0"



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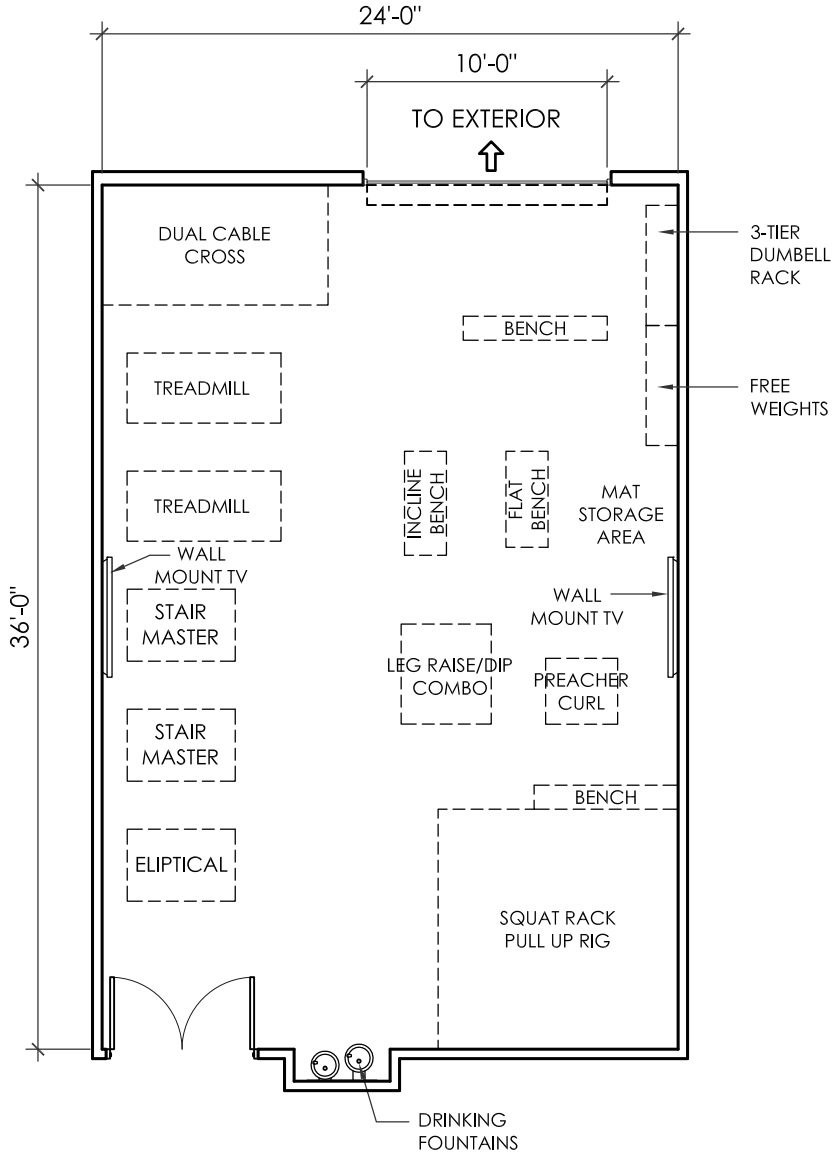
EMTG CADET / TRAINING FACILITIES

C3 FITNESS ROOM (864 SQ.FT.)

SCALE: 1/8"=1'-0"



NOTE: ADJACENT TO EXAM ROOM

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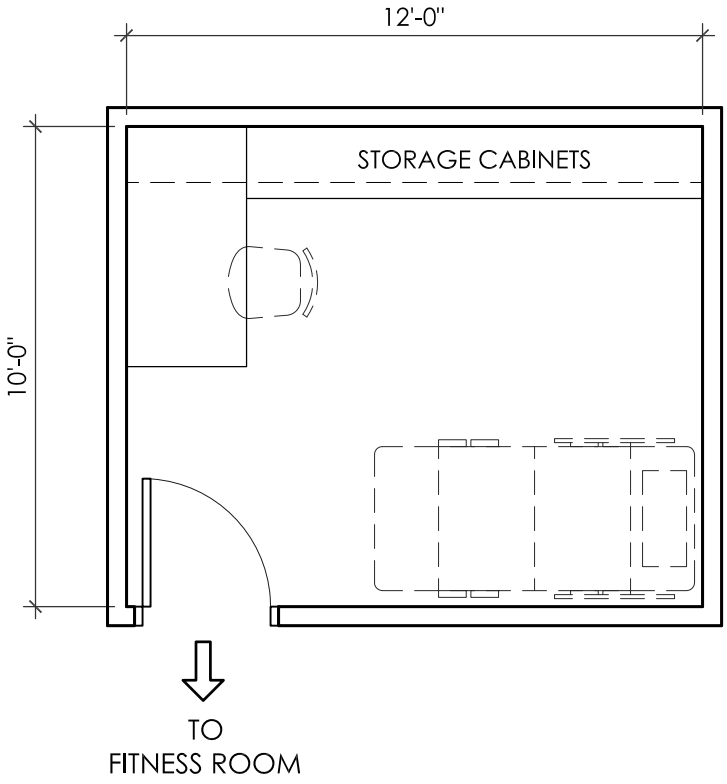
EMTG CADET / TRAINING FACILITIES

C4 EXAMINATION ROOM (120 SQ.FT.)

SCALE: 1/4"=1'-0"



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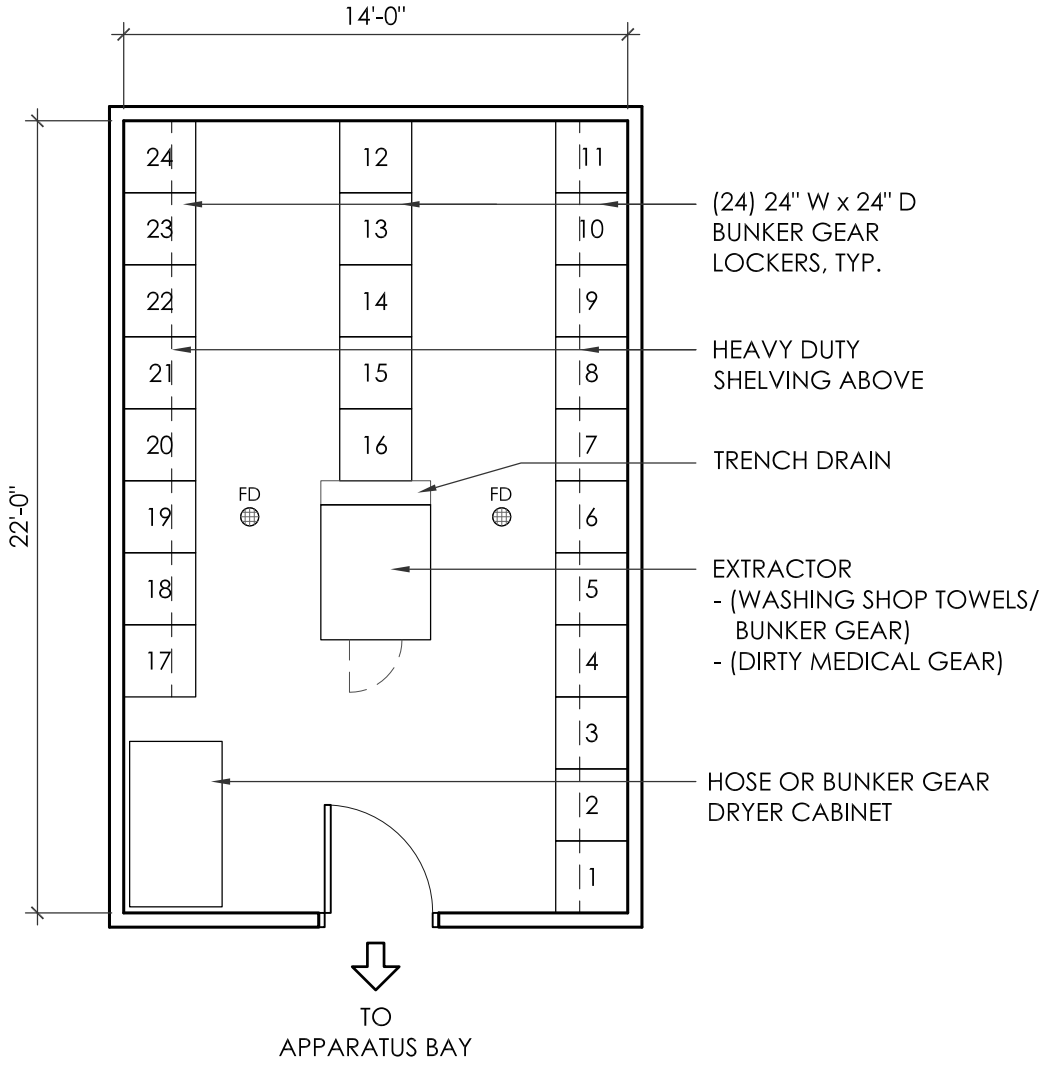
EMTG CADET / TRAINING FACILITIES

C5 CADET SAFETY GEAR STORAGE (308 SQ.FT.)

SCALE: 3/16"=1'-0"



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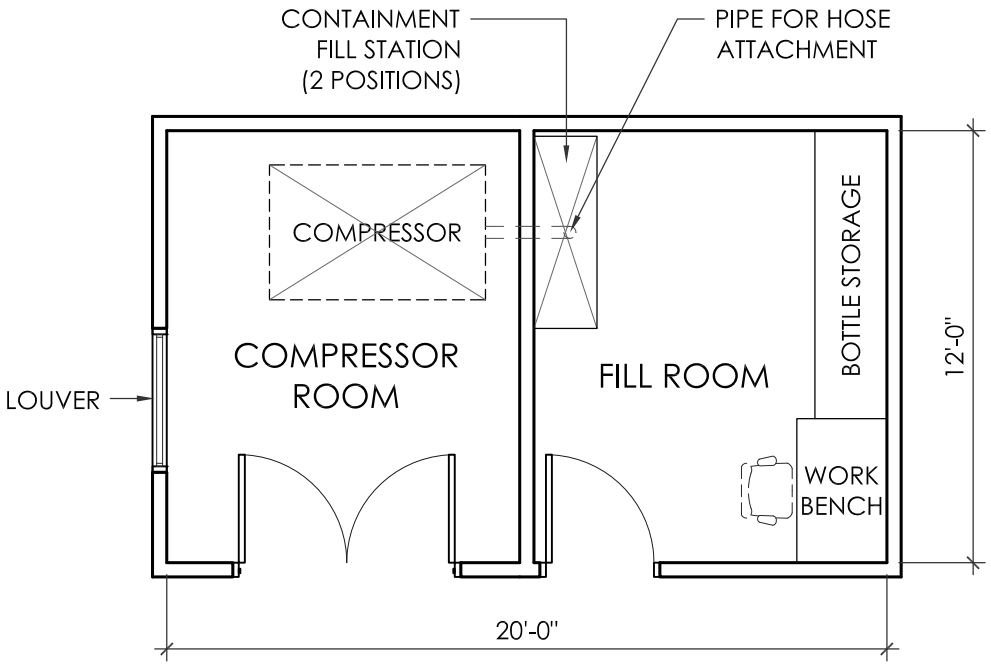
EMTG CADET / TRAINING FACILITIES

C6 SCBA AIRFILL (240 SQ.FT.)

SCALE: 3/16"=1'-0"



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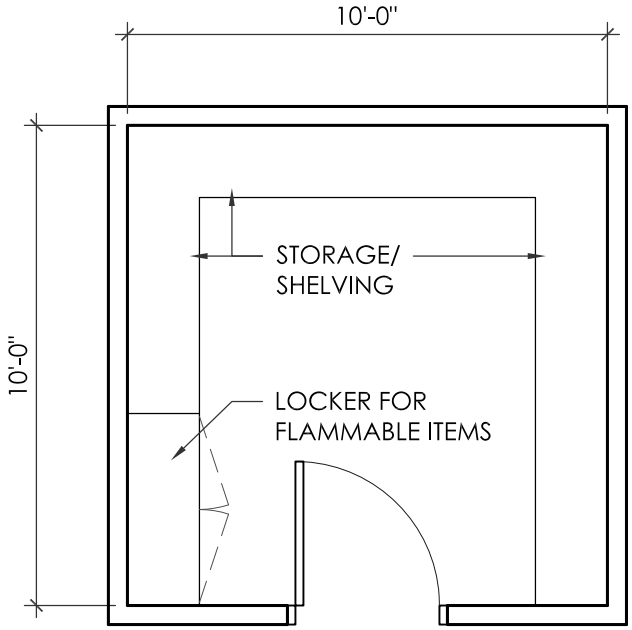
UTILITY SUPPORT SPACE

U1 GENERAL BUILDING STORAGE (100 SQ.FT.)

SCALE: 1/4"=1'-0"



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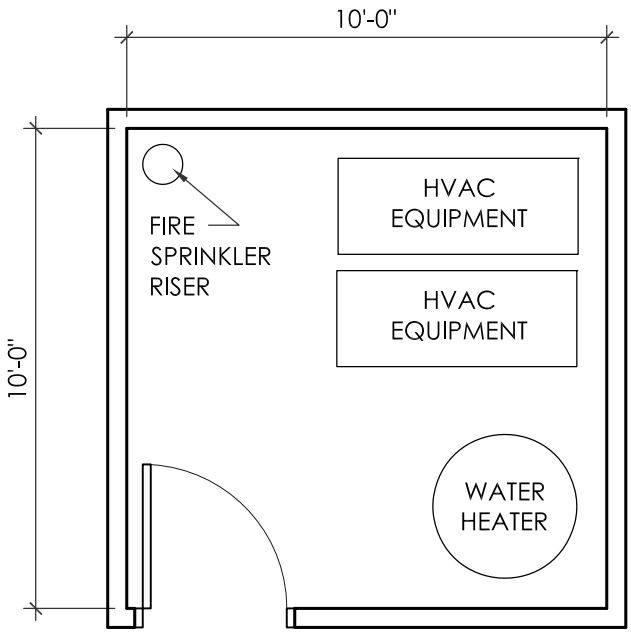
UTILITY SUPPORT SPACE

U2 MECHANICAL ROOM (100 SQ.FT.)

SCALE: 1/4"=1'-0"



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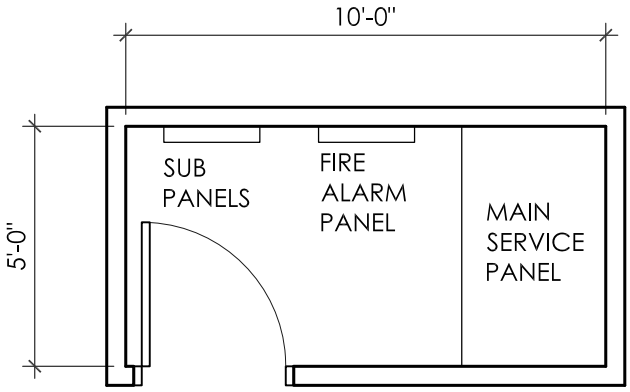
UTILITY SUPPORT SPACE

U3 ELECTRICAL ROOM (50 SQ.FT.)

SCALE: 1/4"=1'-0"



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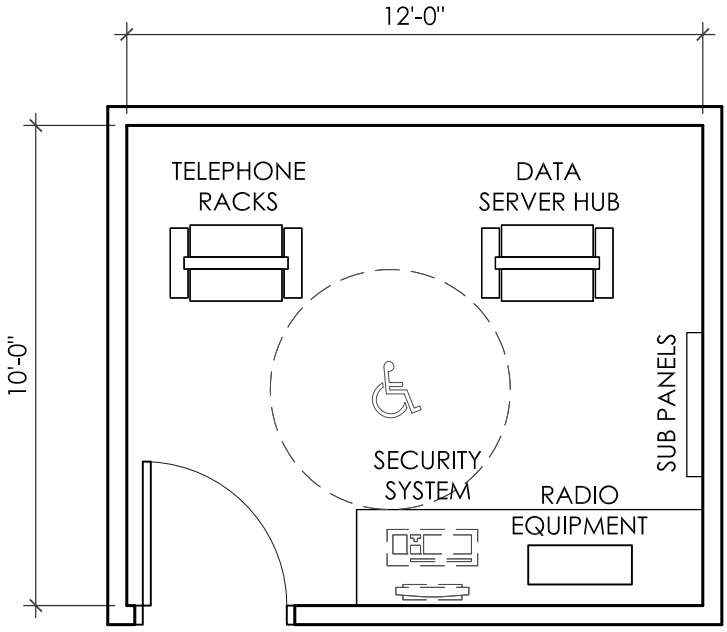
UTILITY SUPPORT SPACE

U4 COMMUNICATION ROOM (120 SQ.FT.)

SCALE: 1/4"=1'-0"



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FIRE FACILITIES LONG RANGE
MASTER PLAN
MAY 2014

Appendix B-6
Prototype Department Service Center

Schreiber Starling & Lane
ARCHITECTS
MARY MCGRATH | ARCHITECTS
TriData Corporation

City of Bellevue - Fire Facilities Master Plan
Warehouse

CONCEPTUAL SPACE NEEDS OUTLINE

May 16, 2014

Warehouse Staffing: 2 total

One full-time warehouse manager and one part time runner.
Additional staff may be necessary if special projects are included in the future.

No.	Type of Space	Space Attributes	Square Footage		
	PUBLIC/OFFICE AREA		**Program**	**Size**	**Finish**
WH1	**Entrance Lobby**	Visitor entrance and seating	105	7' x 15'	B
WH2	**Staff Restroom**	Unisex ADA compliant single person restroom.	64	8' x 8'	C
WH3	**Office**	Work station behind reception counter with area for forms, fax/copy/printer and office supplies for warehouse function.	180	12' x 15'	B
WH4	**Staff Break Room**	Kitchenette with seating for 4	200	10' x 20'	B
		PUBLIC/OFFICE AREA Subtotal	**549**		

No.	Type of Space	Space Attributes	Square Footage		
	WAREHOUSE		**Program**	**Size**	**Finish**
WH4	**Reserve Apparatus**	Two double deep bays for reserve apparatus storage	3,200	20' x 80' (2)	A
WH5	**Receiving / Distribution Truck Bay (outside but partially covered)**	Loading dock with truck bed level loading platform. Secure location for pallet deliver storage prior to inventory.	1,400	20' x 70'	A
WH6	**Will Call / Drop Off**	Adjacent to Receiving/Distribution Truck Bay, near Lobby. Secure location to store small truck deliveries before inventory.	1,320	40' x 33'	A
WH7	**Pallet Storage**	Adjacent to receiving and distribution, storage systems for receivables on pallets.	900	30' x 30'	A
WH8	**Department Records**	Heavy duty shelving for records storage, secure	350	10' x 35'	A
WH9	**PPE (Safety) Gear Storage/Uniform Storage**	Secure locker, shelving, hanging system for safety gear, no natural light.	475	19' x 25'	B
WH10	**Firefighting Equipment Storage**	Secure locker, shelving, hanging system for gear.	350	10' x 35'	A
WH11	**Medical supply Storage**	Secured space for medical supply goods, shelving system for small goods, table for picking and sorting, air conditioned.	700	20' x 35'	B

No.	Type of Space	Space Attributes	Square Footage		
	WAREHOUSE - Continued		**Program**	**Size**	**Finish**
WH12	**Rescue Storage**	Secure locker, shelving, hanging system for gear.	350	10' x 35'	A
WH13	**Station Supplies & Public Ed. Storage**	Shelving	350	10' x 35'	A
WH14	**SCBA Air fill Station/bottle Storage**	Airfill Station and bottle fill, storage	240	12' x 20'	A
WH15	**Forklift Storage/Charging**	Area for forklift storage with battery charging, storage for hand jack (Palette Jack).	350	10' x 35'	C
WH16	**Warehouse Janitor Closet**	Mops sink, mop rack, service sink; janitorial supplies, hose bib, floor drain	45	5' x 9'	C
		WAREHOUSE Subtotal	**10,030**		

	UTILITY SUPPORT SPACE		**Program**	**Size**	**Finish**
WH17	**Mechanical Room**	HWH, Sprinkler riser	80	8' x 10'	D
WH18	**Electrical Room**	Main Panel	50	5' x 10'	D
WH19	**Communications Room**	Server, radio	50	5' x 10'	D
		Utility Support Subtotal	**180**		

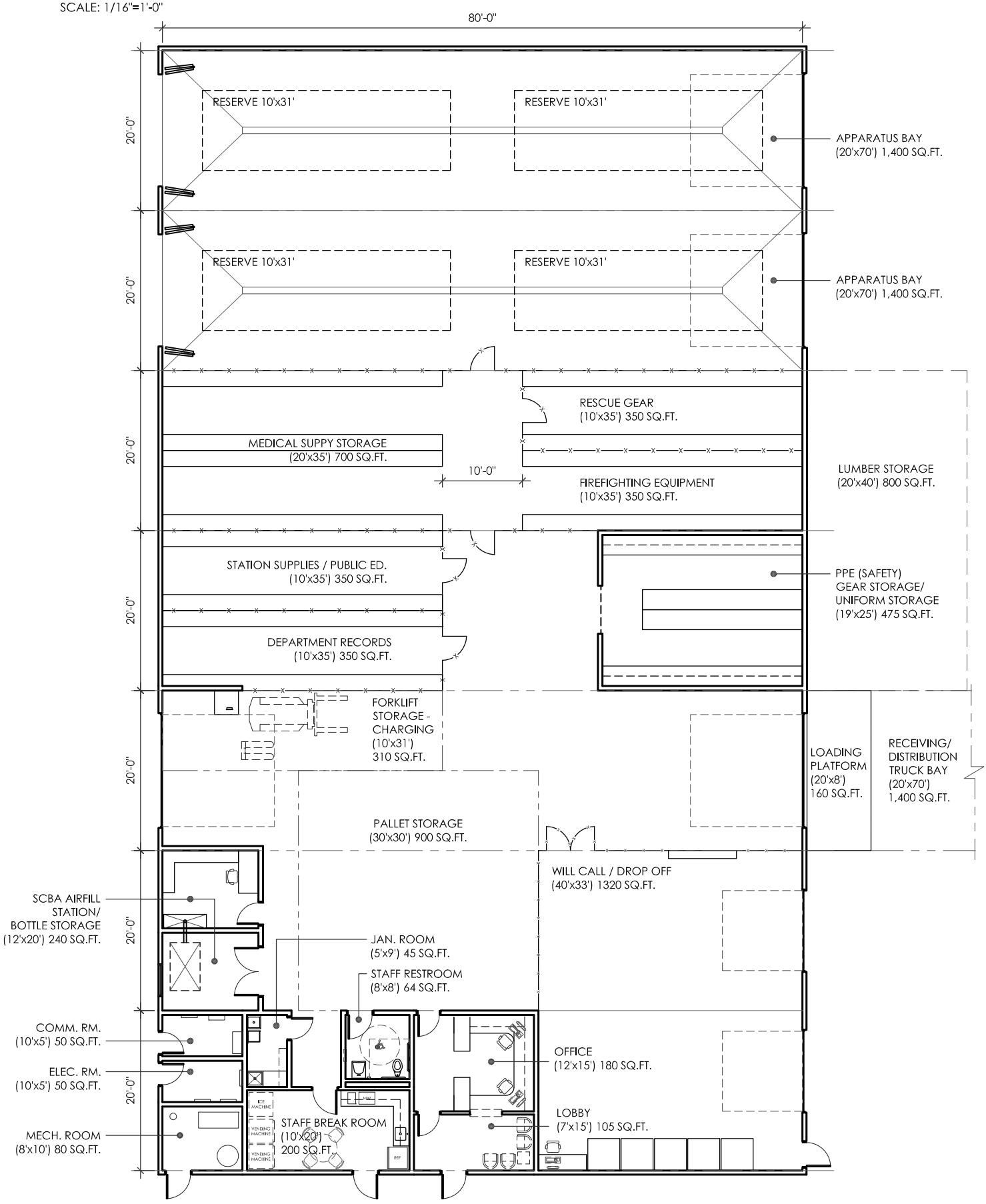
	SPACE NEEDS SUMMARY		**Program**		
		Public/Office Area Subtotal	549		
		Warehouse Subtotal	10,030		
		Utility Subtotal	180		
		BUILDING SUBTOTAL (SF)	**10,759**		
		Circulation/Structure	441		B
		WAREHOUSE GRAND TOTAL (SF)	**11,200**		

Finish Legend

A - Simple Finishes
B - Standard Office Finishes
C - Intense Finishes
D - Service Room Finishes

WAREHOUSE BUILDING (11,200 S.F.)

SCALE: 1/16"=1'-0"



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FIRE FACILITIES LONG RANGE
MASTER PLAN
MAY 2014

Appendix B-7
Space Comparisons to Prototype

Schreiber Starling & Lane
ARCHITECTS
MARY MCGRATH | ARCHITECTS
TriData Corporation

Bellevue Prototype Two Company Station with BC

Fire Station No. 1 Comparison

32 Assigned Personnel - SPACE NEEDS SUMMARY

1/27/2014

Station Company Summary

Fire Engine - Current Staffing 3, Future Staffing 4
Aid Car - Current Staffing 2, Future Staffing 2
Battalion Chief - Current Staffing 2
Three Platoon System

Planning for On-duty Staffing - 8

SITE OPERATIONS			Program Square Footage		Existing Square Footage	Notes/ Recommendations
No.	**Type of Space**	**Space Attributes**	**Area**	**Size**	**Area**	
S1	**Fire Department Parking**	18 Firefighter/staff parking spaces; separate from visitor parking	3,240	10'x18' ea.	3780	
S2	**Visitor Parking**	4 public parking spaces; including one van-accessible space with 8' side aisle	486	9.5'x18' ea.	2736	Accessible parking with accessible route requires upgrading
S3	**Trash Enclosure**	Space for dumpster and recycling bins	100	10'x10'		
S4	**Vehicle Wash Down Area**	Front or Rear apron, sand/oil clarifier, goes to sewer through switch, away from main apparatus response path	360	12' x 30'		
S5	**Flagpole**	Flagpole area with lighting	16	4' x 4'	10	
S6	**Outdoor Patio**	Private outdoor BBQ area for 6-8, natural gas for BBQ	120	10' x 12'	480	
S7	**Front Apron**	Concrete paving in front of each bay.	1,800	30' x 20' ea.	4127	
S8	**Under-ground Fueling with dispenser.**	Fueling system adjacent to generator, use by all City vehicles, dispenses Diesel and Un-leaded. Near front apron of area with easy access that does not block fire response.	100	10' x 10' above ground	25	
S9	**Fire Hydrant**	Locate on rear yard if drive through, front yard if back-in, near training area	120	10'x20'	0	
S10	**In-service Training**	Area for hose lays and ladder training, near hydrant and drying tower	600	20' x 30'	0	
		Site Operations Subtotal	**6,942**			

Fire Station No. 1 Comparison						
APPARATUS BAY/APPARATUS BAY SUPPORT			Program Square Footage		Existing Square Footage	Notes/ Recommendations
No.	Type of Space	Space Attributes	Area	Size	Area	
FS1	**Apparatus Bay (3 drive-through bays)**	Engine Co., Aid Car, Reserve apparatus, diesel exhaust system, power cord drops to each vehicle, radiant heating system; night lighting; auto-close doors and trench drains. Audio system with acoustical clarity, water resistant wall finishes. Door Controls with timers. Wall Map near living quarters with direct lighting. Hand washing sink on the path to the kitchen. Hose bib for apparatus washing in bay.	4640	58' x 80'	4855	Four back-in bays are provided.
BC1	**Apparatus Bay** BC Vehicle and BC Assistant	Double deep Apparatus bay, cars park tandem. B-1 front line, B-2 Reserve	1,600	20' x 80'		One back in bay is provided
FS2	**Medical Clean-up**	Hands free service sink with regular and spray hose faucet, emergency eye wash, floor drain, backboard wash-down, locate adjacent to medical storage closet. Washer Dryer and built in storage with folding counter. Room off the apparatus bay near the engine bay.	100	10' x 10'	0	
FS3	**Medical Storage**	Supply Storage closet with full height shelving. Door opening to the Apparatus Bay.	42	3.5" x 12'	168	Recommended to convert a portion of the apparatus bay to dedicated storage.
FS4	**Bunker Gear Room**	32 open metal storage lockers for bunker gear; continuous exhaust fan, floor drain, extractor and bunker gear dryer, heavy duty shelving.	336	14' x 24'	0	Recommended to convert a portion of the apparatus bay to dedicated storage.
FS5	**Apparatus Janitor Room**	Mop sink with mop rack, shelving for apparatus cleaning supplies, hooks for chamois and squeegee storage.	36	6' x 6'	0	
FS6	**Workshop Alcove**	Work shop with air compressor (in separate closet), shop vac, and tool chest storage areas. Heavy duty work bench top with upper and lower storage cabinets and utility sink.	80	5' x 16'	91	
FS7	**Hose Storage/Hose Tower**	Storage for hose in mobile racks. Wall storage for tire chains.	120	10' x 12'	0	Converted to storage
FS8	**Yard Storage**	Storage for yard maintenance tools	36	6' x 6'	0	

Fire Station No. 1 Comparison						
APPARATUS BAY/APPARATUS BAY SUPPORT			Program Square Footage		Existing Square Footage	Notes/ Recommendations
No.	Type of Space	Space Attributes	Area	Size	Area	
FS9	Special Projects	Stores Manager/Storage, Ladder Repair	240	12' x 20'	0	Included in apparatus bay. Space is adequate for ladder repair project.
FS10	Charging Alcove	Printer, map charging banks	24	3' x 8'	0	
FS11	Vending/Ice Alcove	Storage space for ice and vending machines	30	3' x 10'	0	
		Apparatus Bay/Apparatus Bay Support Subtotal	7,284			

PUBLIC AREA/OFFICE			Program Square Footage		Existing Square Footage	Notes/ Recommendations
			Area	Size	Area	
FS12	Public Entry Lobby	Interior space for visitor seating; reception counter, covered entry, door bell, chairs for visitors, public information display. Adjacent to station office, direct access to unisex public restroom. Storage closet for blood pressure check equipment. Privacy screen for blood pressure checks.	168	12' x 14'	205	Renovate area for ADA access
FS13	Accessible Public Restroom	Accessible restroom adjacent to Lobby	64	8' x 8'	132	On second floor
FS14	Station Office	Shared office space with 6 work stations, counter service to Lobby, counter for combined fax printer, copier; file storage. AV for training.	240	12' x 20'	0	Reconfigure existing spaces to provide station office on first floor. This station includes a training room and offices for the Warehouse and Supply Staff on the second floor.
FS15	Officers Office	Private office with one work station and file storage. Meeting space over desk for three.	120	10' x 12'	269	Reconfigure existing spaces to provide station office on first floor.
BC2	Private Entry Lobby	Small lobby at entrance to Battalion Quarters/Office Space	64	8' x 8'	305	On second floor
BC3	ADA Restroom	ADA Accessible restroom adjacent to Private Lobby	64	8' x 8'	96	On second floor
BC4	Battalion Chief Office	Lateral file cabinets for three occupants, meeting table for 4, shelving.	192	12' x 16'	138	On second floor, space is adequate.
BC5	Battalion Chief Assistant Office	Lateral file cabinets for three occupants, meeting space over desk, shelving	168	12' x 14'	136	On second floor, space is adequate.
		Public Area/Office Subtotal	1,080		1281	

Fire Station No. 1 Comparison						
			Program Square Footage		Existing Square Footage	Notes/ Recommendations
	LIVING QUARTERS		Area	Size	Area	
FS16	Kitchen	4-refrigerators, 1-dishwasher, (2) 4-burner gas ranges/ with hood, large microwave, 12" deep- double bowl sink with disposal and tall faucet with hand held sprayer. Island in kitchen for two ranges. Open to Dining area; adjacent to patio.	208	13' x 16'	312	Existing is appropriate
FS17	Pantry Storage	4 - 30" wide full height pantries; 32-18' x 18' storage cabinets for personal items.	56	5' x 8' 1.5' x 10.5'	48	Existing is appropriate
FS18	Dining Room	Seating for 10-persons; open to Kitchen and Day Room.	180	12' x 15'	551	Existing is appropriate
FS19	Day Room	Seating for 8 with recliner chairs, entertainment center and book shelving. Open to Kitchen, Dining.	280	14' x 20'	433	Existing is appropriate
FS20	Fitness Room	Space for 3 -cardio pieces, squat rack, pull up rig, benches, free weights, dual cross cable machine, and 2 plate racks. Adequate light and ventilation; durable floors and walls; acoustic separation; mirrors, drinking fountain; Roll-up door to the building exterior	528	22' x 24'	366	Small for the required program. Expand to existing Study Room.
FS21	Supply Storage/Janitor Room	High end residential washer and dryer, folding counter with storage, full-height storage shelving for Janitorial/housekeeping supplies, mop sink/rack. Adjacent to Kitchen.	96	8' x 12'	60	Existing is acceptable.
FS22	Firefighter's Bedroom with Lockers (five total rooms)	Single Occupancy bedroom; each one bed, study desk and chair, four 30" wide lockers and one 12' wide locker. Egress window is required.	715	11' x 13' (5)	963	Privacy upgrade
FS23	Unisex Restrooms (Two)	Toilet, Shower and sink	112	7' x 8' (2)	318	Not accessible
FS24	Unisex Restrooms (Accessible)	Toilet, Shower and sink - Accessible	81	9' x 9'	0	Add space in renovation.
FS25	Officers Bedroom	Single Occupancy bedroom; each one bed, study desk and chair, four 30" wide lockers and one 12' wide locker. Egress window is required.	143	11' x 13'	336	Space is larger than program. Reduce in renovation.
FS26	Officers Restroom (Accessible)	Toilet, Shower and sink - Accessible	81	9' x 9'	0	None provided private restroom, existing shared restroom only
BC7	BC Assistant Quarters/ Bathroom	Bedroom, 4-30" wide lockers; bathroom and shower	199	11' x 13, 7' x 8'	167	None provided private restroom, existing shared restroom only
		Living Quarters Area Subtotal	**2,679**		**3554**	

Fire Station No. 1 Comparison						
UTILITY SUPPORT SPACE			Program Square Footage		Existing Square Footage	Notes/ Recommendations
No.	Type of Space	Space Attributes	Area	Size	Area	
FS27	Mechanical Room	Mechanical equipment, water heater; fire sprinkler riser	80	8' x 10'	198	
FS28	Electrical Room	Fire alarm panel, sub panels, main service	80	8' x 10'		
FS29	Communications Room	Telephone service racks, computer data network, all electronics room; Air conditioned; radio equipment, alert response system hub, data server hub; Uninterrupted power system	80	8' x 10'		
FS30	Generator Room	Indoor mechanical space for station generator	140	10' x 14'		
		Utility Support Subtotal	**380**		**198**	

SPACE NEEDS SUMMARY	SF		Existing Square Footage	Notes/ Recommendations
Apparatus Bay/Apparatus Bay Support Subtotal	7,284		0	
Public Area/Office Subtotal	1,080		1281	
Living Quarters Subtotal	2,679		3554	
Utility Support Space Subtotal	380		198	
BUILDING SUBTOTAL (SF)	**11,423**		**5033**	
Circulation at 25%	2,856		1258.25	
PROTOTYPE TWO COMPANY STATION with BC - Fire Station No. 1 TOTAL (SF)	**14,279**		**6291.25**	

TWO STORY - VERTICAL CIRCULATION			Program Square Footage		Existing Square Footage	Notes/ Recommendations
No.	Type of Space	Space Attributes	Area	Size	Area	
FS31	Elevator and Machine Room	Elevator access to upper levels; security keyed for visitors; machine room	174	(2) 9'x12'	54	
FS32	Stairway	(x2) for each level and (x2) for egress	640	20'x8' (2)	239	
		Two Story - Vertical Circulation SUBTOTAL (SF)	**814**		**293**	
		Circulation/Structure at 30%	244		87.9	
		Two Story - Vertical Circulation:	1,058		380.9	
		PROTOTYPE TWO COMPANY STATION TOTAL with BC - Fire Station No. 1 TOTAL - Two Stories(SF)	**15,337**		**6672.15**	

Bellevue Prototype Three Company Station with MSO-5

Fire Station No. 2 Comparison

36 Assigned Personnel - SPACE NEEDS SUMMARY

1/27/2014

Station Company Summary

Fire Engine (E2) - Current Staffing 3, Future Staffing 4
Aid Car (A2) - Current Staffing 2, Future Staffing 2
Medic (M2) - Current Staffing 2, Future Staffing 2
Medical Services Officer (MCO-5) - Current Staffing 1
Three Platoon System

Planning for On-duty Staffing - 9

SITE OPERATIONS			Program Square Footage		Existing Square Footage	Notes/ Recommendations
No.	**Type of Space**	**Space Attributes**	**Area**	**Size**	**Area**	
S1	**Fire Department Parking**	20 Firefighter/staff parking spaces; separate from visitor parking	3,600	10'x18' ea.	2,340	
S2	**Visitor Parking**	4 public parking spaces; including one van-accessible space with 8' side aisle	657	9.5'x18' ea.	486	Only 2 existing with 1 accessible
S3	**Trash Enclosure**	Space for dumpster and recycling bins	100	10'x10'	0	
S4	**Vehicle Wash Down Area**	Front or Rear apron, sand/oil clarifier, goes to sewer through switch, away from main apparatus response path	360	12' x 30'		
S5	**Flagpole**	Flagpole area with lighting	16	4' x 4'		Yes
S6	**Outdoor Patio**	Private outdoor BBQ area for 6-8, natural gas for BBQ	120	10' x 12'	384	Yes
S7	**Front Apron**	Concrete paving in front of each bay.	1,800	30' x 20' ea.	2360	Yes
S8	**Under-ground Fueling with dispenser.**	Fueling system adjacent to generator, use by all City vehicles, dispenses Diesel and Un-leaded. Near front apron of area with easy access that does not block fire response.	100	10' x 10' above ground	748	Yes
S9	**Fire Hydrant**	Locate on rear yard if drive through, front yard if back-in, near training area	120	10'x20'		
S10	**In-service Training**	Area for hose lays and ladder training, near hydrant and drying tower	600	20' x 30'	0	
		Site Operations Subtotal	**7,473**		**6,318**	

Fire Station No. 2 Comparison						
No.	Type of Space	Space Attributes	Program Square Footage		Existing Square Footage	Notes/ Recommendations
	APPARATUS BAY/APPARATUS BAY SUPPORT		Area	Size	Area	
FS1	**Apparatus Bay (3 drive-through bays)**	Engine Co., Aid Car, Mass Casualty Unit, diesel exhaust system, power cord drops to each vehicle, radiant heating system; night lighting; auto-close doors and trench drains. Audio system with acoustical clarity, water resistant wall finishes. Door Controls with timers. Wall Map near living quarters with direct lighting. Hand washing sink on the path to the kitchen. Hose bib for apparatus washing in bay.	4,640	58' x 80'	2190	Reserves M2A and M1A located at this station.
FS1.1	**Apparatus Bay Medic 2 and MSO-5**	Double deep apparatus bay, cars park tandem. M2 front line, MSO tandem	1,600	20' x 80'	2024	
FS2	**Medical Clean-up**	Hands free service sink with regular and spray hose faucet, emergency eye wash, floor drain, backboard wash-down, locate adjacent to medical storage closet. Washer Dryer and built in storage with folding counter. Room off the apparatus bay near the engine bay.	100	10' x 10'	170	Reconfigure to relocate housekeeping supplies and washer dryer to dedicate room.
FS3	**Medical Storage**	Supply Storage closet with full height shelving. Door opening to the Apparatus Bay.	42	3.5" x 12'	0	Create dedicated storage closet
FS4	**Bunker Gear Room**	36 open metal storage lockers for bunker gear; continuous exhaust fan, floor drain, extractor and bunker gear dryer, heavy duty shelving.	336	14' x 24'	110	Located along apparatus bay; inside locker room & office. Create new dedicated storage with extractor.
FS5	**Apparatus Janitor Room**	Mop sink with mop rack, shelving for apparatus cleaning supplies, hooks for chamois and squeegee storage.	36	6' x 6'		Floor sink inside decontamination room
FS6	**Workshop Alcove**	Work shop with air compressor (in separate closet), shop vac, and tool chest storage areas. Heavy duty work bench top with upper and lower storage cabinets and utility sink.	80	5' x 16'	123	Reconfigure to allow dedicated storage areas.
FS7	**Hose Storage/Hose Tower**	Storage for hose in mobile racks. Wall storage for tire chains.	120	10' x 12'	60	Convert to use hose racks to provide snow chain storage.
FS8	**Yard Storage**	Storage for yard maintenance tools	36	6' x 6'	0	
FS9	**Special Projects**	Wildland Cache, Medical Supply Cache	240	12' x 20'	318	Reconfigure storage for other uses.
FS10	**Charging Alcove**	Printer, map charging banks	24	3' x 8'	0	In Office

Fire Station No. 2 Comparison						
No.	Type of Space	Space Attributes	Program Square Footage		Existing Square Footage	Notes/ Recommendations
	APPARATUS BAY/APPARATUS BAY SUPPORT		Area	Size	Area	
FS11	Vending/Ice Alcove	Storage space for ice and vending machines	30	3' x 10'	0	
M5	Medical Supply Storage	Storage Shelving for unpacked medical supplies. Three rows of shelving.	480	12' x 40'	0	Included in Special Project SF
M6	Receiving Area/Loading	Area for receiving staging and loading/unloading.	216	12'x 18'	0	Part of recommended addition.
	Apparatus Bay/Apparatus Bay Support Subtotal		7,980		4,995	

No.	Type of Space	Space Attributes	Program Square Footage		Existing Square Footage	Notes/ Recommendations
	PUBLIC AREA/OFFICE		Area	Size	Area	
FS12	Public Entry Lobby	Interior space for visitor seating; reception counter, covered entry, door bell, chairs for visitors, public information display. Adjacent to station office, direct access to unisex public restroom. Storage closet for blood pressure check equipment. Privacy screen for blood pressure checks.	168	12' x 14'	144	Area provided is adequate.
FS13	Accessible Public Restroom	Accessible restroom adjacent to Lobby	64	8' x 8'	47	Restroom is accessible.
FS14	Station Office	Shared office space with 6 work stations, counter service to Lobby, counter for combined fax printer, copier; file storage. AV for training.	240	12' x 20'	229	Add space for group training
FS15.0	Officers Office	Private office with one work station and file storage. Meeting space over desk for three.	120	10' x 12'	223	Use excess space for group training
FS15.1	Medic 1 Office	lateral file cabinets for three occupants, meeting space over desk, shelving	168	12' x 14'	240	Reconfigure to allow dedicated storage.
M2	MSO OFFICE	Single work stations, lateral file cabinets , side table for 4, shelving. Secure storage for regulated narcotics. Adjacent to the bedroom.	168	12'x 14'	240	Use excess space for group training
	Public Area/Office Subtotal		928		1,123	

Fire Station No. 2 Comparison						
No.	Type of Space	Space Attributes	Program Square Footage		Existing Square Footage	Notes/ Recommendations
	LIVING QUARTERS		Area	Size	Area	
FS16	Kitchen	4-refrigerators, 1-dishwasher, (2) 4-burner gas ranges/ with hood, large microwave, 12" deep- double bowl sink with disposal and tall faucet with hand held sprayer. Island in kitchen for two ranges. Open to Dining area; adjacent to patio.	208	13' x 16'	322	Newly remodeled. Works well.
FS17	Pantry Storage	4 - 30" wide full height pantries; 36-18' x 18' storage cabinets for personal items.	56	5' x 8' 1.5' x 10.5'	33	Newly remodeled. Works well.
FS18	Dining Room	Seating for 9-persons; open to Kitchen and Day Room.	240	12' x 20'	428	Newly remodeled. Works well.
FS19	Day Room	Seating for 9 with recliner chairs, entertainment center and book shelving. Open to Kitchen, Dining.	320	16' x 20'		Newly remodeled. Works well.
FS20	Fitness Room	Space for 3 -cardio pieces, squat rack, pull up rig, benches, free weights, dual cross cable machine, and 2 plate racks. Adequate light and ventilation; durable floors and walls; acoustic separation; mirrors, drinking fountain; Roll-up door to the building exterior	528	22' x 24'	394	Area too small. Enlarge current location.
FS21	Supply Storage/Janitor Room	High end residential washer and dryer, folding counter with storage, full-height storage shelving for Janitorial/housekeeping supplies, mop sink/rack. Adjacent to Kitchen.	96	8' x 12'	0	Add adjacent to Kitchen
FS22	Firefighter's Bedroom with Lockers (6 total rooms)	Single Occupancy bedroom; each one bed, study desk and chair, four 30" wide lockers and one 12' wide locker. Egress window is required.	858	11' x 13' (6)	732	Add privacy upgrades
FS23	Unisex Restrooms (Two)	Toilet, Shower and sink	112	7' x 8' (2)	140	Adequate
FS24	Unisex Restrooms (Accessible)	Toilet, Shower and sink - Accessible	81	9' x 9'	72	Not accessible
FS25	Officers Bedroom	Single Occupancy bedroom; each one bed, study desk and chair, four 30" wide lockers and one 12' wide locker. Egress window is required.	143	11' x 13'	129	Adequate
FS26	Officers Restroom (Accessible)	Toilet, Shower and sink - Accessible	81	9' x 9'	67	Adequate
BC6	MSO-5 Bedroom/ Bathroom (Accessible)	Bedroom, 4-30" wide lockers; bathroom and shower	224	11' x 13, 9' x 9'	134	Adequate
BC7	Medic 2 Quarters/ Bathroom	Bedroom, 4-30" wide lockers; bathroom and shower	199	11' x 13, 7' x 8'	67	Adequate
		Living Quarters Area Subtotal	**3,146**		**2,518**	

Fire Station No. 2 Comparison						
No.	Type of Space	Space Attributes	Program Square Footage		Existing Square Footage	Notes/ Recommendations
	UTILITY SUPPORT SPACE		Area	Size	Area	
FS27	Mechanical Room	Mechanical equipment, water heater; fire sprinkler riser	80	8' x 10'	195	
FS28	Electrical Room	Fire alarm panel, sub panels, main service	80	8' x 10'	29	Closet only
FS29	Communications Room	Telephone service racks, computer data network, all electronics room; Air conditioned; radio equipment, alert response system hub, data server hub; Uninterrupted power system	80	8' x 10'	29	Closet only
FS30	Generator Room	Indoor mechanical space for station generator	140	10' x 14'		Currently outdoors.
		Utility Support Subtotal	**380**		**253**	

SPACE NEEDS SUMMARY	SF		Existing Square Footage	Notes/ Recommendations
Apparatus Bay/Apparatus Bay Support Subtotal	7,980		4,995	
Public Area/Office Subtotal	928		1,123	
Living Quarters Subtotal	3,146		2,518	
Utility Support Space Subtotal	380		253	
BUILDING SUBTOTAL (SF)	**12,434**		**8,889**	
Circulation at 25%	3,109		2,222	
PROTOTYPE THREE COMPANY STATION with MSO-5 - Fire Station No. 2 TOTAL (SF)	**15,543**		**11,111**	

TWO STORY - VERTICAL CIRCULATION			Program Square Footage		Existing Square Footage	Notes/ Recommendations
No.	Type of Space	Space Attributes	Area	Size	Area	
FS31	Elevator and Machine Room	Elevator access to upper levels; security keyed for visitors; machine room	174	(2) 9'x12'	0	Add/Upgrade Elevator
SF32	Stairway	(x2) for each level and (x2) for egress	640	20'x8' (2)	225	
		Two Story - Vertical Circulation SUBTOTAL (SF)	**814**		**225**	
		Circulation/Structure at 30%	244		68	
		Two Story - Vertical Circulation:	1,058		293	
		PROTOTYPE THREE COMPANY STATION TOTAL with MSO-5 - Fire Station No. 2 TOTAL - Two Stories(SF)	**16,601**		**11,404**	

Bellevue Prototype Two Company Station

Fire Station No. 3 Comparison

28 Assigned Personnel - SPACE NEEDS SUMMARY

1/27/2014

Station Company Summary

Truck - Current Staffing 4, Future Staffing 5
Aid Car - Current Staffing 2, Future Staffing 2
Rescue - Cross staffed with Truck
Fire Engine - Tandem with Ladder, cross staffed
Three Platoon System

Planning for On-duty Staffing - 7

SITE OPERATIONS			Program Square Footage		Existing Square Footage	Notes/
No.	Type of Space	Space Attributes	Area	Size	Area	Recommendations
S1	**Fire Department Parking**	16 Firefighter/staff parking spaces; separate from visitor parking	2,880	10'x18' ea.	4120	(25) existing parking slots
S2	**Visitor Parking**	4 public parking spaces; including one van-accessible space with 8' side aisle	486	9.5'x18' ea.	1,213	(7) existing with 1 ADA
S3	**Trash Enclosure**	Space for dumpster and recycling bins	100	10'x10'	0	
S4	**Vehicle Wash Down Area**	Front or Rear apron, sand/oil clarifier, goes to sewer through switch, away from main apparatus response path	360	12' x 30'	0	
S5	**Flagpole**	Flagpole area with lighting	16	4' x 4'		Ok
S6	**Outdoor Patio**	Private outdoor BBQ area for 6-8, natural gas for BBQ	120	10' x 12'	982	
S7	**Front Apron**	Concrete paving in front of each bay.	1,800	30' x 20' ea.	2,209	
S8	**Under-ground Fueling with dispenser.**	Fueling system adjacent to generator, use by all City vehicles, dispenses Diesel and Un-leaded. Near front apron of area with easy access that does not block fire response.	100	10' x 10' above ground	339	
S9	**Fire Hydrant**	Locate on rear yard if drive through, front yard if back-in, near training area	120	10'x20'		
S10	**In-service Training**	Area for hose lays and ladder training, near hydrant and drying tower	600	20' x 30'	0	
		Site Operations Subtotal	**6,582**		**8,863**	

Fire Station No. 3 Comparison						
No.	Type of Space	Space Attributes	Program Square Footage		Existing Square Footage	Notes/ Recommendations
	APPARATUS BAY/APPARATUS BAY SUPPORT		Area	Size	Area	
FS1	**Apparatus Bay (3 drive-through bays)**	Ladder, Engine, Aid Car, Rescue, diesel exhaust system, power cord drops to each vehicle, radiant heating system; night lighting; auto-close doors and trench drains. Audio system with acoustical clarity, water resistant wall finishes. Door Controls with timers. Wall Map near living quarters with direct lighting. Hand washing sink on the path to the kitchen. Hose bib for apparatus washing in bay.	4,640	58' x 80'	4,321	Engine and rescue run in tandem with Ladder Truck, Reserves include M3A, M1A and L1. 3 Back-in bays double; 1 single deep bay.
FS2	**Medical Clean-up**	Hands free service sink with regular and spray hose faucet, emergency eye wash, floor drain, backboard wash-down, locate adjacent to medical storage closet. Washer Dryer and built in storage with folding counter. Room off the apparatus bay near the engine bay.	100	10' x 10'	0	No dedicated Medical Clean-up
FS3	**Medical Storage**	Supply Storage closet with full height shelving. Door opening to the Apparatus Bay.	42	3.5" x 12'	25	
FS4	**Bunker Gear Room**	28 open metal storage lockers for bunker gear; continuous exhaust fan, floor drain, extractor and bunker gear dryer, heavy duty shelving.	336	14' x 24'	0	Renovate interior space to add bunker gear storage rooms
FS5	**Apparatus Janitor Room**	Mop sink with mop rack, shelving for apparatus cleaning supplies, hooks for chamois and squeegee storage.	36	6' x 6'		Inside workroom
FS6	**Workshop Alcove**	Work shop with air compressor (in separate closet), shop vac, and tool chest storage areas. Heavy duty work bench top with upper and lower storage cabinets and utility sink.	80	5' x 16'	221	Workroom
FS7	**Hose Storage/Hose Tower**	Storage for hose in mobile racks. Wall storage for tire chains	120	10' x 12'	134	Renovate to provided dedicated storage.
FS8	**Yard Storage**	Storage for yard maintenance tools	36	6' x 6'	0	Non apparent
FS9	**Special Projects**	Central Stores, Boat and Trailer	240	12' x 20'	974	Existing central storage in Basement.
FS10	**Charging Alcove**	Printer, map charging banks	24	3' x 8'	0	
FS11	**Vending/Ice Alcove**	Storage space for ice and vending machines	30	3' x 10'	0	
		Apparatus Bay/Apparatus Bay Support Subtotal	**5,684**		**5,675**	

Fire Station No. 3 Comparison						
No.	Type of Space	Space Attributes	Program Square Footage		Existing Square Footage	Notes/ Recommendations
	PUBLIC AREA/OFFICE		Area	Size	Area	
FS12	Public Entry Lobby	Interior space for visitor seating; reception counter, covered entry, door bell, chairs for visitors, public information display. Adjacent to station office, direct access to unisex public restroom. Storage closet for blood pressure check equipment. Privacy screen for blood pressure checks.	168	12' x 14'	418	Lobby and Reception.
FS13	Accessible Public Restroom	Accessible restroom adjacent to Lobby	64	8' x 8'	184	Use excess area to create station captain quarters
FS14	Station Office	Shared office space with 6 work stations, counter service to Lobby, counter for combined fax printer, copier; file storage. AV for training.	240	12' x 20'	191	Update for group training.
FS15	Officers Office	Private office with one work station and file storage. Meeting space over desk for three.	120	10' x 12'	325	3 total
		Public Area/Office Subtotal	592		1,118	

No.	Type of Space	Space Attributes	Program Square Footage		Existing Square Footage	Notes/ Recommendations
	LIVING QUARTERS		Area	Size	Area	
FS16	Kitchen	4-refrigerators, 1-dishwasher, (2) 4-burner gas ranges/ with hood, large microwave, 12" deep- double bowl sink with disposal and tall faucet with hand held sprayer. Island in kitchen for two ranges. Open to Dining area; adjacent to patio.	208	13' x 16'	291	Recently renovated
FS17	Pantry Storage	4 - 30" wide full height pantries; 28-18' x 18' storage cabinets for personal items.	56	5' x 8' 1.5' x 10.5'	9	Recently renovated
FS18	Dining Room	Seating for 8-persons; open to Kitchen and Day Room.	180	12' x 15'	377	Recently renovated
FS19	Day Room	Seating for 6 with recliner chairs, entertainment center and book shelving. Open to Kitchen, Dining.	238	14' x 17'	522	Recently renovated

Fire Station No. 3 Comparison						
No.	Type of Space	Space Attributes	Program Square Footage		Existing Square Footage	Notes/ Recommendations
	LIVING QUARTERS - Continued		Area	Size	Area	
FS20	Fitness Room	Space for 3 -cardio pieces, squat rack, pull up rig, benches, free weights, dual cross cable machine, and 2 plate racks. Adequate light and ventilation; durable floors and walls; acoustic separation; mirrors, drinking fountain; Roll-up door to the building exterior	528	22' x 24'	278	Too small. Relocate to Basement.
FS21	Supply Storage/Janitor Room	High end residential washer and dryer, folding counter with storage, full-height storage shelving for Janitorial/housekeeping supplies, mop sink/rack. Adjacent to Kitchen.	96	8' x 12'	34	
FS22	Firefighter's Bedroom with Lockers (6 total rooms)	Single Occupancy bedroom; each one bed, study desk and chair, four 30" wide lockers and one 12' wide locker. Egress window is required.	858	11' x 13' (6)	865	Renovate for 6 Private FF bedrooms.
FS23	Unisex Restrooms (Two total)	Toilet, Shower and sink	112	7' x 8' (2)	307	Men (1) & Women (1)
FS24	Unisex Restrooms (One total Accessible)	Toilet, Shower and sink - Accessible	81	9' x 9'		One (1) Unisex
FS25	Officer Bedroom	Single Occupancy bedroom; each one bed, study desk and chair, four 30" wide lockers and one 12' wide locker. Egress window is required.	143	11' x 13'	215	2 existing, modify for added restrooms, offices
FS26	Officers Restroom (Accessible)	Toilet, Shower and sink - Accessible	81	9' x 9'	0	
		Living Quarters Area Subtotal	2,581		2,898	

No.	Type of Space	Space Attributes	Program Square Footage		Existing Square Footage	Notes/ Recommendations
	UTILITY SUPPORT SPACE		**Area**	**Size**	**Area**	
FS27	**Mechanical Room**	Mechanical equipment, water heater; fire sprinkler riser	80	8' x 10'	557	
FS28	**Electrical Room**	Fire alarm panel, sub panels, main service	80	8' x 10'	228	
FS29	**Communications Room**	Telephone service racks, computer data network, all electronics room; Air conditioned; radio equipment, alert response system hub, data server hub; Uninterrupted power system	80	8' x 10'	831	
FS30	**Generator Room**	Indoor mechanical space for station generator	140	10' x 14'	177	
		Utility Support Subtotal	**380**		**1,793**	

SPACE NEEDS SUMMARY	**SF**		**Existing Square Footage**	**Notes/ Recommendations**
Apparatus Bay/Apparatus Bay Support Subtotal	5,684		5,675	
Public Area/Office Subtotal	592		1,118	
Living Quarters Subtotal	2,581		2,898	
Utility Support Space Subtotal	380		1,793	
BUILDING SUBTOTAL (SF)	**9,237**		**11,484**	
Circulation at 25%	2,309		2,871	
PROTOTYPE TWO COMPANY STATION TOTAL -	**11,546**		**14,355**	

TWO STORY - VERTICAL CIRCULATION			**Program Square Footage**		**Existing Square Footage**	**Notes/ Recommendations**
No.	**Type of Space**	**Space Attributes**	**Area**	**Size**	**Area**	
FS31	**Elevator and Machine Room**	Elevator access to upper levels; security keyed for visitors; machine room	174	(2) 9'x12'	137	Upgrade existing elevator to meet current access codes.
SF32	**Stairway**	(x2) for each level and (x2) for egress	640	20'x8' (2)	494	
		Two Story - Vertical Circulation SUBTOTAL (SF)	**814**		**631**	
		Circulation/Structure at 30%	244		189	
		Two Story - Vertical Circulation:	1,058		820	
		PROTOTYPE TWO COMPANY STATION TOTAL -	**12,604**		**15,175**	

Bellevue Prototype Single Company Station

Fire Station No. 4 Comparison

16 Assigned Personnel - SPACE NEEDS SUMMARY

1/27/2014

Station Company Summary

Fire Engine - Current Staffing 3, Future Staffing 4
Reserve Storage in second bay
Three Platoon System

Planning for On-duty Staffing - 4

SITE OPERATIONS			Program Square Footage		Existing Square Footage	Notes/ Recommendations
No.	**Type of Space**	**Space Attributes**	**Area**	**Size**	**Area**	
S1	**Fire Department Parking**	10 Firefighter/staff parking spaces; separate from visitor parking	2,160	10'x18' ea.	1,710	
S2	**Visitor Parking**	2 public parking spaces; including one van-accessible space with 8' side aisle	486	9.5'x18' ea.	437	
S3	**Trash Enclosure**	Space for dumpster and recycling bins	100	10'x10'	0	
S4	**Vehicle Wash Down Area**	Front or Rear apron, sand/oil clarifier, goes to sewer through switch, away from main apparatus response path	360	12' x 30'	0	
S5	**Flagpole**	Flagpole area with lighting	16	4' x 4'		
S6	**Outdoor Patio**	Private outdoor BBQ area for 4-6, natural gas for BBQ	120	10' x 12'	244	
S7	**Front Apron**	Concrete paving in front of each bay.	1,200	30' x 20' ea.	2,246	Ok between parking
S8	**Under-ground Fueling with dispenser.**	Fueling system adjacent to generator, use by all City vehicles, dispenses Diesel and Un-leaded. Near front apron of area with easy access that does not block fire response.	100	10' x 10' above ground	316	
S9	**Fire Hydrant**	Locate on rear yard if drive through, front yard if back-in, near training area	120	10'x20'	0	
S10	**In-service Training**	Area for hose lays and ladder training, near hydrant and drying tower	600	20' x 30'	0	
		Site Operations Subtotal	**5,262**		**4,953**	

Fire Station No. 4 Comparison						
No.	Type of Space	Space Attributes	Program Square Footage		Existing Square Footage	Notes/ Recommendations
	APPARATUS BAY/APPARATUS BAY SUPPORT		Area	Size	Area	
FS1	**Apparatus Bay (2 drive-through bays)**	Truck/Engine Co., Reserve apparatus, diesel exhaust system, power cord drops to each vehicle, radiant heating system; night lighting; auto-close doors and trench drains. Audio system with acoustical clarity, water resistant wall finishes. Door Controls with timers. Wall Map near living quarters with direct lighting. Hand washing sink on the path to the kitchen. Hose bib for apparatus washing in bay.	2,800	40' x 70'	2,619	Reserve E4A stored at this station. L1A was located at this station and is being moved to Station No.3. Adequate space for Front line & Reserve.
FS2	**Medical Clean-up**	Hands free service sink with regular and spray hose faucet, emergency eye wash, floor drain, backboard wash-down, locate adjacent to medical storage closet. Washer Dryer and built in storage with folding counter. Room off the apparatus bay near the engine bay.	100	10' x 10'	71	
FS3	**Medical Storage**	Supply Storage closet with full height shelving. Door opening to the Apparatus Bay.	42	3.5' x 12'	0	Add medical storage room near app bay
FS4	**Bunker Gear Room**	16 open metal storage lockers for bunker gear; continuous exhaust fan, floor drain, extractor and bunker gear dryer, heavy duty shelving.	308	14' x 22'	0	Add space adjacent to apparatus bay
FS5	**Apparatus Janitor Room**	Mop sink with mop rack, shelving for apparatus cleaning supplies, hooks for chamois and squeegee storage.	36	6' x 6'	0	Included in existing laundry room
FS6	**Workshop Alcove**	Work shop with shop vac and tool chest storage areas. Heavy duty work bench top with upper and lower storage cabinets and utility sink.	80	5' x 16'	238	Larger than the program, convert existing to bunker gear room and storage room
FS7	**Hose Storage/Chain Storage**	Storage for hose in mobile racks. Wall hanging space for tire chains	120	10' x 12'	73	Use space to convert to Special Projects
FS8	**Yard Storage**	Storage for yard maintenance tools	36	6' x 6'	0	
FS9	**Special Projects**	No Assigned Special Project	240	12' x 20'	0	
FS10	**Charging Alcove**	Printer, map charging banks	24	3' x 8'	12	
FS11	**Vending/Ice Alcove**	Storage space for ice and vending machines	30	3' x 10'	0	
		Apparatus Bay/Apparatus Bay Support Subtotal	**3,816**		**3,013**	

Fire Station No. 4 Comparison						
No.	Type of Space	Space Attributes	Program Square Footage		Existing Square Footage	Notes/ Recommendations
	PUBLIC AREA/OFFICE		Area	Size	Area	
FS12	Public Entry Lobby	Interior space for visitor seating; reception counter, covered entry, door bell, chairs for visitors, public information display. Adjacent to station office, direct access to unisex public restroom. Storage closet for blood pressure check equipment. Privacy screen for blood pressure checks.	120	10' x 12'	61	Requires ADA upgrade.
FS13	Accessible Public Restroom	Accessible restroom adjacent to Lobby	64	8' x 8'	54	
FS14	Station Office	Shared office space with 4 work stations, counter service to Lobby, counter for combined fax printer, copier; file storage; AV for training.	192	12' x 16'	0	None. Except for existing comm. office/conference room
FS15	Officers Office	Private office with meeting space over desk for three, file storage for three. Single work station.	120	10' x 12'	112	Existing adequate.
		Public Area/Office Subtotal	496		227	

No.	Type of Space	Space Attributes	Program Square Footage		Existing Square Footage	Notes/ Recommendations
	LIVING QUARTERS		Area	Size	Area	
FS16	Kitchen	4-refrigerators, 1-dishwasher, (2) 4-burner gas ranges/ with hood, large microwave, 12" deep- double bowl sink with disposal and tall faucet with hand held sprayer. Island in kitchen for two ranges. Open to Dining area; adjacent to patio.	208	13' x 16'	190	Existing adequate.
FS17	Pantry Storage	4 - 30" wide full height pantries; 16-18' x 18' storage cabinets for personal items.	54	5' x 8' 1.5' x 9'	0	Included in existing kitchen
FS18	Dining Room	Seating for 6-persons; open to Kitchen and Day Room.	120	10' x 12'	132	Existing adequate.
FS19	Day Room	Seating for 4 with recliner chairs and entertainment center. Open to Kitchen, Dining.	160	10' x 16'	326	Larger than the program, can be smaller area for 4 recliner chairs.

Fire Station No. 4 Comparison						
No.	Type of Space	Space Attributes	Program Square Footage		Existing Square Footage	Notes/ Recommendations
	LIVING QUARTERS - Continued		Area	Size	Area	
FS20	Fitness Room	Space for 3 -cardio pieces, squat rack, pull up rig, benches, free weights, dual cross cable machine, and 2 plate racks. Adequate light and ventilation; durable floors and walls; acoustic separation; mirrors, drinking fountain; Roll-up door to the building exterior	528	22' x 24'	273	Too small, no space for future expansion.
FS21	Supply Storage/Janitor Room	High end residential washer and dryer, folding counter with storage, shelving for Janitorial/housekeeping supplies, mop sink/rack. Adjacent to Kitchen.	80	8' x 10'	122	Existing adequate.
FS22	Firefighter's Bedroom with Lockers (3 total rooms)	Single Occupancy bedroom; each one bed, study desk and chair, four 30" wide lockers, One 12" wide locker. Egress window is required.	429	11' x 13' (3)	511	Convert 4 existing bedrooms make them private.
FS23	Unisex Restrooms (1 standard)	Toilet, Shower and sink	56	7' x 8'	146	
FS24	Unisex Restrooms (1 Accessible)	Toilet, Shower and sink - Accessible	81	9' x 9'	0	Provide at least 1 accessible restroom.
FS25	Officers Bedroom	Single Occupancy bedroom; each one bed, study desk and chair, four 30" wide lockers and one 12" locker. Egress window is required.	143	11' x 13'	164	Acceptable
FS26	Officers Restroom (Accessible)	Toilet, Shower and sink - Accessible	81	9' x 9'	63	Make accessible restroom
		Living Quarters Area Subtotal	**1,940**		**1,927**	

FIRE STATION SPACE NEEDS SUMMARY - Continued						
No.	Type of Space	Space Attributes	Program Square Footage		Existing Square Footage	Notes/ Recommendations
	UTILITY SUPPORT SPACE		Area	Size	Area	
FS27	Mechanical Room	Mechanical equipment, water heater; fire sprinkler riser	80	8' x 10'	121	
FS28	Electrical Room	Fire alarm panel, sub panels, main service	80	8' x 10'	96	
FS29	Communications Room	Telephone service racks, computer data network, all electronics room; Air conditioned; radio equipment, alert response system hub, data server hub; Uninterrupted power system	80	8' x 10'	0	
FS30	Generator Room	Dedicate space for Generator	140	10' x 14'	0	
		Utility Support Subtotal	**380**		**217**	

SPACE NEEDS SUMMARY	SF		Existing Square Footage	Notes/ Recommendations
Apparatus Bay/Apparatus Bay Support Subtotal	3,816		3,013	
Public Area/Office Subtotal	496		227	
Living Quarters Subtotal	1,940		1,927	
Utility Support Space Subtotal	380		217	
BUILDING SUBTOTAL (SF)	**6,632**		**5,384**	
Circulation at 25%	1,658		1,346	
PROTOTYPE SINGLE COMPANY STATION - Fire Station No. 4 TOTAL (SF)	**8,289**		**6,730**	

Bellevue Prototype Three Company Station with BC

FUTURE FIRE STATION NO. 4

48 Assigned Personnel - SPACE NEEDS SUMMARY

1/27/2014

Station Company Summary

Truck Company (L4) - Current Staffing 4, Future Staffing 5 — L3 will be relocated to No. 4
Fire Engine (E4) - Current Staffing 3, Future Staffing 3
Medic/Aid Car (A4) - Future Staffing 2
Battalion Chief and Assistant (BC2 Future staffing - 2)
Three Platoon System

Planning for On-duty Staffing - 12

SITE OPERATIONS			Square Footage		
No.	**Type of Space**	**Space Attributes**	**Area**	**Size**	
S1	**Fire Department Parking**	28 Firefighter/staff parking spaces; separate from visitor parking	5,040	10'x18' ea.	
S2	**Visitor Parking**	3 public parking spaces; including one van-accessible space with 8' side aisle	540	9.5'x18' ea.	
S3	**Trash Enclosure**	Space for dumpster and recycling bins	100	10'x10'	
S4	**Vehicle Wash Down Area**	Front or Rear apron, sand/oil clarifier, goes to sewer through switch, away from main apparatus response path	360	12' x 30'	
S5	**Flagpole**	Flagpole area with lighting	16	4' x 4'	
S6	**Outdoor Patio**	Private outdoor BBQ area for 11-14, natural gas for BBQ	168	12' x 14'	
S7	**Front Apron**	Concrete paving in front of each bay.	2,400	30' x 20' ea.	
S9	**Under-ground Fueling with dispenser.**	Fueling system adjacent to generator, use by all City vehicles, dispenses Diesel and Un-leaded. Near front apron of area with easy access that does not block fire response.	100	10' x 10' above ground	
S10	**Fire Hydrant**	Locate on rear yard if drive through, front yard if back-in, near training area	120	10'x20'	
S11	**In-service Training**	Area for hose lays and ladder training, near hydrant, two company training	1,200	40' x 80'	
		Site Operations Subtotal	**10,044**		

FUTURE FIRE STATION NO. 4					
No.	**Type of Space**	**Space Attributes**	**Square Footage**		**Finish**
	APPARATUS BAY/APPARATUS BAY SUPPORT		**Area**	**Size**	
FS1	**Apparatus Bay (4 drive-through bays)**	Ladder Company, Engine Co., Aid Car, Reserve apparatus, diesel exhaust system, power cord drops to each vehicle, radiant heating system; night lighting; auto-close doors and trench drains. Audio system with acoustical clarity, water resistant wall finishes. Door Controls with timers. Wall Map near living quarters with direct lighting. Hand washing sink on the path to the kitchen. Hose bib for apparatus washing in bay.	6,080	80' x 76'	A
BC1	**Apparatus Bay** BC Vehicle and BC Assistant	Double deep Apparatus bay, cars park tandem. B-1 front line, B-2 Reserve	1,520	20' x 76'	A

FUTURE FIRE STATION NO. 4					
No.	Type of Space	Space Attributes	Square Footage		Finish
	APPARATUS BAY/APPARATUS BAY SUPPORT - Continued		Area	Size	
FS2	Medical Clean-up/Laundry	Hands free service sink with regular and spray hose faucet, emergency eye wash, floor drain, backboard wash-down, locate adjacent to medical storage closet. Washer Dryer and built in storage with folding counter. Room off the apparatus bay near the engine bay.	120	10' x 12'	C
FS3	Medical Storage	Supply Storage closet with full height shelving. Door opening to the Apparatus Bay.	63	3.5' x 18'	B
FS4	Bunker Gear Room	48 open metal storage lockers for bunker gear; continuous exhaust fan, floor drain, extractor and bunker gear dryer, heavy duty shelving.	528	16' x 33'	A
FS5	Apparatus Janitor Room	Mop sink with mop rack, shelving for apparatus cleaning supplies, hooks for chamois and squeegee storage.	36	6' x 6'	C
FS6	Workshop	Work shop with air compressor (in separate closet), shop vac, and tool chest storage areas. Heavy duty work bench top with upper and lower storage cabinets and utility sink.	90	5' x 18'	C
FS7	Hose Storage/Hose Drying	Storage for hose in mobile racks. Snow Chain storage	160	10' x 16'	A
FS8	Yard Storage	Storage for yard maintenance tools	36	6' x 6'	B
FS9	Special Projects	Varies per Station	240	12' x 20'	B
FS10	Charging Alcove	Printer, map charging banks	36	3' x 12'	B
FS11	Ice/Vending Alcove	Ice and Vending Machines	30	3' x 10'	B
		Apparatus Bay/Apparatus Bay Support Subtotal	8,939		

No.	Type of Space	Space Attributes	Square Footage		Finish
	PUBLIC AREA/OFFICE		Area	Size	
FS12	Public Entry Lobby	Interior space for visitor seating; reception counter, covered entry, door bell, chairs for visitors, public information display. Adjacent to station office, direct access to unisex public restroom. Storage closet for blood pressure check equipment. Privacy screen for blood pressure checks.	168	12' x 14'	B
FS13	Accessible Public Restrooms	Accessible restroom adjacent to meeting room. Unisex.	64	8' x 8'	C
FS14	Station Office	Shared office space with 6 work stations, counter service to Lobby, counter for combined fax printer, copier; file storage.	240	12' x 20'	B
FS15	Officers Office (Two total)	Private office with one work station and file storage. Meeting space over small table for three.	240	10' x 12' (2)	B
BC2	Private Entry Lobby	Small lobby at entrance to Battalion Quarters/Office Space	64	8' x 8'	B
BC3	ADA Restroom	ADA Accessible restroom adjacent to Private Lobby and BC Meeting Room	64	8' x 8'	C
BC4	Battalion Chief Office	lateral file cabinets for three occupants, side table for 4, shelving	192	12' x 16'	B
BC5	Battalion Chief Assistant Office	lateral file cabinets for three occupants, meeting space over desk, shelving	168	12' x 14'	B
FS16	Training Room	Training Classroom for on-duty training. Seating for 12 at tables.	396	18' x 22'	B
		Public Area/Office Subtotal	1,596		

FUTURE FIRE STATION NO. 4					
No.	**Type of Space**	**Space Attributes**	**Square Footage**		**Finish**
	LIVING QUARTERS		**Area**	**Size**	
FS17	**Kitchen**	4-refrigerators, 1-dishwasher, (2) 4-burner gas ranges/ with hood, large microwave, 12" deep- double bowl sink with disposal and tall faucet with hand held sprayer. Island in kitchen for two ranges. Open to Dining area; adjacent to patio.	208	13' x 16'	C
FS18	**Pantry Storage**	4 - 30" wide full height pantries; 48-18' x 18' storage cabinets for personal items.	69	5' x 8', 1.5' x 19.5'	B
FS19	**Dining Room**	Seating for 14-persons; open to Kitchen and Day Room.	300	15' x 20'	B
FS20	**Day Room**	Seating for 12 with recliner chairs, entertainment center and book shelving. Open to Kitchen, Dining.	506	22' x 23'	B
FS21	**Fitness Room**	Space for 4 -cardio pieces, squat rack, pull up rig, benches, free weights, dual cross cable machine, and 2 plate racks. Adequate light and ventilation; durable floors and walls; acoustic separation; mirrors, drinking fountain; Roll-up door to the building exterior	672	24' x 28'	B
FS22	**Supply Storage/ Janitor Room**	High end residential washer and dryer, folding counter with storage, full-height storage shelving for Janitorial/housekeeping supplies, mop sink/rack. Adjacent to Kitchen.	120	8' x 15'	C
FS23	**Firefighter's Bedroom with Lockers (eight total rooms)**	Single Occupancy bedroom; each one bed, study desk and chair, four 30" wide lockers. Egress window is required.	1,144	11' x 13' (8)	B
FS24	**Unisex Restrooms Five total**	Toilet, Shower and sink	280	7' x 8' (5)	C
FS25	**Unisex Restrooms (Accessible)**	Toilet, Shower and sink - Accessible	81	9' x 9' (1)	C
FS26	**Officers Bedroom (Two total)**	Single Occupancy bedroom; each one bed, study desk and chair, four 30" wide lockers. Egress window is required.	286	11' x 13' (2)	B
FS27	**Officers Restroom (Accessible)**	Toilet, Shower and sink - Accessible	162	9' x 9' (2)	C
BC6	**BC Quarters/ Bathroom (Accessible)**	Bedroom, 4-30" wide lockers; bathroom and shower	224	11' x 13, 9' x 9'	B, C
BC7	**BC Assistant Quarters/ Bathroom**	Bedroom, 4-30" wide lockers; bathroom and shower	199	11' x 13, 7' x 8'	B, C
		Living Quarters Area Subtotal	**4,251**		

FUTURE FIRE STATION NO. 4					
No.	**Type of Space**	**Space Attributes**	**Square Footage**		**Finish**
	UTILITY SUPPORT SPACE		**Area**	**Size**	
FS28	**Mechanical Room**	Mechanical equipment, water heater; fire sprinkler riser	100	10' x 10'	D
FS29	**Electrical Room**	Fire alarm panel, sub panels, main service	120	10' x 12'	D
FS30	**Communications Room**	Telephone service racks, computer data network, all electronics room; Air conditioned; radio equipment, alert response system hub, data server hub; Uninterrupted power system	80	8' x 10'	D
FS31	**Generator Room**	Telephone service racks, computer data network, all electronics room; Air conditioned; radio equipment, alert response system hub, data server hub; Uninterrupted power system	160	10' x 16'	D
		Utility Support Subtotal	**460**		

SPACE NEEDS SUMMARY	**SF**
Apparatus Bay/Apparatus Bay Support Subtotal	8,939
Public Area/Office Subtotal	1,596
Living Quarters Subtotal	4,251
Utility Support Space Subtotal	460
BUILDING SUBTOTAL (SF)	**15,246**
Circulation at 30%	4,574
PROTOTYPE THREE COMPANY STATION TOTAL with BC - Future Fire Station No. 4 (SF)	**19,820**

TWO STORY - VERTICAL CIRCULATION			Square Footage		Finish
No.	**Type of Space**	**Space Attributes**	**Area**	**Size**	
FS32	**Elevator and Machine Room**	Elevator access to upper levels; security keyed for visitors; machine room	174	(2) 9'x12'	A
SF33	**Stairway**	(x2) for each level and (x2) for egress	640	20'x8' (2)	B
		Two Story - Vertical Circulation SUBTOTAL (SF)	**814**		
		Circulation/Structure at 30%	244		
		Two Story - Vertical Circulation:	1,058		
		PROTOTYPE THREE COMPANY STATION with BC TOTAL - Two Stories - Future Fire Station No. 4 (SF)	**20,878**		

Finish Legend:

A - Simple Finishes

B - Standard Office Finishes

C - Intense Finishes

D - Service Room Finishes

Bellevue Prototype Two Company Station

Replacement Fire Station No. 5

20 Assigned Personnel - SPACE NEEDS SUMMARY

1/27/2014

Station Company Summary

Fire Engine (E5) - Current Staffing 3, Future Staffing 3
Aid Car (A5) - Future Staffing 2
Relocate Mobile Command Unit from Station 9
Three Platoon System

Planning for On-duty Staffing - 5

SITE OPERATIONS			Square Footage		
No.	**Type of Space**	**Space Attributes**	**Area**	**Size**	
S1	**Fire Department Parking**	14 Firefighter/staff parking spaces; separate from visitor parking	2,160	10'x18' ea.	
S2	**Visitor Parking**	4 public parking spaces; including one van-accessible space with 8' side aisle	486	9.5'x18' ea.	
S3	**Trash Enclosure**	Space for dumpster and recycling bins	100	10'x10'	
S4	**Vehicle Wash Down Area**	Front or Rear apron, sand/oil clarifier, goes to sewer through switch, away from main apparatus response path	360	12' x 30'	
S5	**Flagpole**	Flagpole area with lighting	16	4' x 4'	
S6	**Outdoor Patio**	Private outdoor BBQ area for 6-8, natural gas for BBQ	120	10' x 12'	
S7	**Front Apron**	Concrete paving in front of each bay.	1,800	30' x 20' ea.	
S8	**Under-ground Fueling with dispenser.**	Fueling system adjacent to generator, use by all City vehicles, dispenses Diesel and Un-leaded. Near front apron of area with easy access that does not block fire response.	100	10' x 10' above ground	
S9	**Fire Hydrant**	Locate on rear yard if drive through, front yard if back-in, near training area	120	10'x20'	
S10	**In-service Training**	Area for hose lays and ladder training, near hydrant and drying tower	600	20' x 30'	
		Site Operations Subtotal	**5,862**		

Replacement Fire Station No. 5					
No.	**Type of Space**	**Space Attributes**	**Square Footage**		**Finish**
	APPARATUS BAY/APPARATUS BAY SUPPORT		**Area**	**Size**	
FS1	**Apparatus Bay (3 drive-through bays)**	Engine Co., Aid Car, MOBILE COMMAND UNIT, diesel exhaust system, power cord drops to each vehicle, radiant heating system; night lighting; auto-close doors and trench drains. Audio system with acoustical clarity, water resistant wall finishes. Door Controls with timers. Wall Map near living quarters with direct lighting. Hand washing sink on the path to the kitchen. Hose bib for apparatus washing in bay.	4640	58' x 80'	A

Replacement Fire Station No. 5					
No.	**Type of Space**	**Space Attributes**	**Square Footage**		**Finish**
	APPARATUS BAY/APPARATUS BAY SUPPORT - Continued		**Area**	**Size**	
FS2	**Medical Clean-up**	Hands free service sink with regular and spray hose faucet, emergency eye wash, floor drain, backboard wash-down, locate adjacent to medical storage closet. Washer Dryer and built in storage with folding counter. Room off the apparatus bay near the engine bay.	100	10' x 10'	C
FS3	**Medical Storage**	Supply Storage closet with full height shelving. Door opening to the Apparatus Bay.	42	3.5" x 12'	B
FS4	**Bunker Gear Room**	20 open metal storage lockers for bunker gear; continuous exhaust fan, floor drain, extractor and bunker gear dryer, heavy duty shelving.	336	14' x 24'	A
FS5	**Apparatus Janitor Room**	Mop sink with mop rack, shelving for apparatus cleaning supplies, hooks for chamois and squeegee storage.	36	6' x 6'	C
FS6	**Workshop Alcove**	Work shop with air compressor (in separate closet), shop vac, and tool chest storage areas. Heavy duty work bench top with upper and lower storage cabinets and utility sink.	80	5' x 16'	C
FS7	**Hose Storage/Hose Tower**	Storage for hose in mobile racks. Wall storage for tire chains	120	10' x 12'	A
FS8	**Yard Storage**	Storage for yard maintenance tools	36	6' x 6'	B
FS9	**Special Projects**	Varies per Station	240	12' x 20'	B
FS10	**Charging Alcove**	Printer, map charging banks	24	3' x 8'	B
FS11	**Vending/Ice Alcove**	Storage space for ice and vending machines	30	3' x 10'	B
		Apparatus Bay/Apparatus Bay Support Subtotal	**5,684**		

No.	**Type of Space**	**Space Attributes**	**Square Footage**		**Finish**
	PUBLIC AREA/OFFICE		**Area**	**Size**	
FS12	**Public Entry Lobby**	Interior space for visitor seating; reception counter, covered entry, door bell, chairs for visitors, public information display. Adjacent to station office, direct access to unisex public restroom. Storage closet for blood pressure check equipment. Privacy screen for blood pressure checks.	168	12' x 14'	B
FS13	**Accessible Public Restroom**	Accessible restroom adjacent to Lobby	64	8' x 8'	C
FS14	**Station Office**	Shared office space with 5 work stations, counter service to Lobby, counter for combined fax printer, copier; file storage. AV for training.	240	12' x 20'	B
FS15	**Officers Office**	Private office with one work station and file storage. Meeting space over desk for three.	120	10' x 12'	B
		Public Area/Office Subtotal	**592**		

Replacement Fire Station No. 5					
No.	**Type of Space**	**Space Attributes**	**Square Footage**		**Finish**
	LIVING QUARTERS		**Area**	**Size**	
FS16	**Kitchen**	4-refrigerators, 1-dishwasher, (2) 4-burner gas ranges/ with hood, large microwave, 12" deep- double bowl sink with disposal and tall faucet with hand held sprayer. Island in kitchen for two ranges. Open to Dining area; adjacent to patio.	208	13' x 16'	C
FS17	**Pantry Storage**	4 - 30" wide full height pantries; 20-18' x 18' storage cabinets for personal items.	56	5' x 8' 1.5' x 10.5'	B
FS18	**Dining Room**	Seating for 8-persons; open to Kitchen and Day Room.	180	12' x 15'	B
FS19	**Day Room**	Seating for 6 with recliner chairs, entertainment center and book shelving. Open to Kitchen, Dining.	238	14' x 17'	B
FS20	**Fitness Room**	Space for 3 -cardio pieces, squat rack, pull up rig, benches, free weights, dual cross cable machine, and 2 plate racks. Adequate light and ventilation; durable floors and walls; acoustic separation; mirrors, drinking fountain; Roll-up door to the building exterior	528	22' x 24'	B
FS21	**Supply Storage/Janitor Room**	High end residential washer and dryer, folding counter with storage, full-height storage shelving for Janitorial/housekeeping supplies, mop sink/rack. Adjacent to Kitchen.	96	8' x 12'	C
FS22	**Firefighter's Bedroom with Lockers (four total rooms)**	Single Occupancy bedroom; each one bed, study desk and chair, four 30" wide lockers and one 12' wide locker. Egress window is required.	572	11' x 13' (4)	B
FS23	**Unisex Restrooms (Two total)**	Toilet, Shower and sink	112	7' x 8' (2)	C
FS24	**Unisex Restrooms (Accessible)**	Toilet, Shower and sink - Accessible	81	9' x 9'	C
FS25	**Officers Bedroom**	Single Occupancy bedroom; each one bed, study desk and chair, four 30" wide lockers and one 12' wide locker. Egress window is required.	143	11' x 13'	B
FS26	**Officers Restroom (Accessible)**	Toilet, Shower and sink - Accessible	81	9' x 9'	C
		Living Quarters Area Subtotal	**2,295**		

Replacement Fire Station No. 5					
No.	**Type of Space**	**Space Attributes**	**Square Footage**		**Finish**
	UTILITY SUPPORT SPACE		**Area**	**Size**	
FS27	**Mechanical Room**	Mechanical equipment, water heater; fire sprinkler riser	80	8' x 10'	D
FS28	**Electrical Room**	Fire alarm panel, sub panels, main service	80	8' x 10'	D
FS29	**Communications Room**	Telephone service racks, computer data network, all electronics room; Air conditioned; radio equipment, alert response system hub, data server hub; Uninterrupted power system	80	8' x 10'	D
FS30	**Generator Room**	Indoor mechanical space for station generator	140	10' x 14'	D
		Utility Support Subtotal	**380**		

SPACE NEEDS SUMMARY	**SF**		
Apparatus Bay/Apparatus Bay Support Subtotal	5,684		
Public Area/Office Subtotal	592		
Living Quarters Subtotal	2,295		
Utility Support Space Subtotal	380		
BUILDING SUBTOTAL (SF)	**8,951**		
Circulation at 25%	2,238		
PROTOTYPE TWO COMPANY STATION TOTAL - Replacement Fire Station No. 5 (SF)	**11,189**		

TWO STORY - VERTICAL CIRCULATION			**Square Footage**		**Finish**
No.	**Type of Space**	**Space Attributes**	**Area**	**Size**	
FS31	**Elevator and Machine Room**	Elevator access to upper levels; security keyed for visitors; machine room	174	(2) 9'x12'	A
SF32	**Stairway**	(x2) for each level and (x2) for egress	640	20'x8' (2)	B
		Two Story - Vertical Circulation SUBTOTAL (SF)	**814**		
		Circulation/Structure at 30%	244		
		Two Story - Vertical Circulation:	1,058		
		PROTOTYPE TWO COMPANY STATION TOTAL - Two Stories - Replacement Fire Station No. 5(SF)	**12,247**		

Finish Legend:

A - Simple Finishes

B - Standard Office Finishes

C - Intense Finishes

D - Service Room Finishes

Bellevue Prototype Single Company Station

Fire Station No. 6 Comparison

16 Assigned Personnel - SPACE NEEDS SUMMARY

1/27/2014

Station Company Summary

Fire Engine - Current Staffing 3, Future Staffing 4
Aid Car - Cross staffed with Engine staff
Hazardous Material Unit in Reserve Bay
Three Platoon System

Planning for On-duty Staffing - 4

SITE OPERATIONS			Program Square Footage		Existing Square Footage	Notes/ Recommendations
No.	**Type of Space**	**Space Attributes**	**Area**	**Size**	**Area**	
S1	**Fire Department Parking**	10 Firefighter/staff parking spaces; separate from visitor parking	1,800	10'x18' ea.	1,152	8
S2	**Visitor Parking**	2 public parking spaces; including one van-accessible space with 8' side aisle	486	9.5'x18' ea.	366	2 with 1 ADA
S3	**Trash Enclosure**	Space for dumpster and recycling bins	100	10'x10'	0	
S4	**Vehicle Wash Down Area**	Front or Rear apron, sand/oil clarifier, goes to sewer through switch, away from main apparatus response path	360	12' x 30'	0	
S5	**Flagpole**	Flagpole area with lighting	16	4' x 4'		Ok
S6	**Outdoor Patio**	Private outdoor BBQ area for 4-6, natural gas for BBQ	120	10' x 12'	726	
S7	**Front Apron**	Concrete paving in front of each bay.	1,200	30' x 20' ea.	2,069	Ok
S8	**Under-ground Fueling with dispenser.**	Fueling system adjacent to generator, use by all City vehicles, dispenses Diesel and Un-leaded. Near front apron of area with easy access that does not block fire response.	100	10' x 10' above ground	48	Ok
S9	**Fire Hydrant**	Locate on rear yard if drive through, front yard if back-in, near training area	120	10'x20'		
S10	**In-service Training**	Area for hose lays and ladder training, near hydrant and drying tower	600	20' x 30'	0	Ok front apron or side yard
		Site Operations Subtotal	**4,902**		**4,361**	

Fire Station No. 6 Comparison						
No.	Type of Space	Space Attributes	Program Square Footage		Existing Square Footage	Notes/ Recommendations
	APPARATUS BAY/APPARATUS BAY SUPPORT		Area	Size	Area	
FS1	**Apparatus Bay (2 drive-through bays)**	Engine Co., Aid Car, Haz. Mat Van, diesel exhaust system, power cord drops to each vehicle, radiant heating system; night lighting; auto-close doors and trench drains. Audio system with acoustical clarity, water resistant wall finishes. Door Controls with timers. Wall Map near living quarters with direct lighting. Hand washing sink on the path to the kitchen. Hose bib for apparatus washing in bay.	2800	40' x 70'	2,564	A single company station would only require two bays. This station has three bays which accommodates the Haz Mat Unit.
FS2	**Medical Clean-up**	Hands free service sink with regular and spray hose faucet, emergency eye wash, floor drain, backboard wash-down, locate adjacent to medical storage closet. Washer Dryer and built in storage with folding counter. Room off the apparatus bay near the engine bay.	100	10' x 10'	0	Small sink inside Laundry. Renovate workshop to create Medical Clean-up Room.
FS3	**Medical Storage**	Supply Storage closet with full height shelving. Door opening to the Apparatus Bay.	42	3.5' x 12'	0	Build in App Bay
FS4	**Bunker Gear Room**	16 open metal storage lockers for bunker gear; continuous exhaust fan, floor drain, extractor and bunker gear dryer, heavy duty shelving.	308	14' x 22'	99	Ok
FS5	**Apparatus Janitor Room**	Mop sink with mop rack, shelving for apparatus cleaning supplies, hooks for chamois and squeegee storage.	36	6' x 6'	0	Ok
FS6	**Workshop Alcove**	Work shop with shop vac and tool chest storage areas. Heavy duty work bench top with upper and lower storage cabinets and utility sink.	80	5' x 16'	228	Existing Workshop & Storage
FS7	**Hose Storage/Chain Storage**	Storage for hose in mobile racks. Wall hanging space for tire chains	120	10' x 12'	83	
FS8	**Yard Storage**	Storage for yard maintenance tools	36	6' x 6'	35	

Fire Station No. 6 Comparison						
No.	Type of Space	Space Attributes	Program Square Footage		Existing Square Footage	Notes/ Recommendations
	APPARATUS BAY/APPARATUS BAY SUPPORT - Continued		Area	Size	Area	
FS9	Special Projects	Haz Mat Cache	240	12' x 20'	0	Now in Storage Container at rear of site.
FS10	Charging Alcove	Printer, map charging banks	24	3' x 8'	0	
FS11	Vending/Ice Alcove	Storage space for ice and vending machines	30	3' x 10'	0	
		Apparatus Bay/Apparatus Bay Support Subtotal	3,816		3,009	

No.	Type of Space	Space Attributes	Program Square Footage		Existing Square Footage	Notes/ Recommendations
	PUBLIC AREA/OFFICE		Area	Size	Area	
FS12	Public Entry Lobby	Interior space for visitor seating; reception counter, covered entry, door bell, chairs for visitors, public information display. Adjacent to station office, direct access to unisex public restroom. Storage closet for blood pressure check equipment. Privacy screen for blood pressure checks.	120	10' x 12'	267	Included in the lobby
FS13	Accessible Public Restroom	Accessible restroom adjacent to Lobby	64	8' x 8'	46	not accessible
FS14	Station Office	Shared office space with 4 work stations, counter service to Lobby, counter for combined fax printer, copier; file storage; AV for training.	192	12' x 16'	0	Create station office to provide training room.
FS15	Officers Office	Private office with meeting space over desk for three, file storage for three. Single work station.	120	10' x 12'	120	Ok
		Public Area/Office Subtotal	496		433	

Fire Station No. 6 Comparison						
No.	Type of Space	Space Attributes	Program Square Footage		Existing Square Footage	Notes/ Recommendations
	LIVING QUARTERS		Area	Size	Area	
FS16	Kitchen	4-Refrigerators, 1-diswasher, (2) 4-burner gas ranges/ with hood, large microwave, 12" deep-double bowl sink with disposal & tall faucet with handheld sprayer. Island in kitchen for tow ranges. Open to Dining area; adjacent to Patio.	208	13' x 16'	227	Recently renovated
FS17	Pantry Storage	4 - 30" wide full height pantries; 24-18' x 18' storage cabinets for personal items.	54	5' x 8' 1.5' x 9'	9	Recently renovated
FS18	Dining Room	Seating for 6-persons; open to Kitchen and Day Room.	120	10' x 12'	379	Recently renovated
FS19	Day Room	Seating for 4 with recliner chairs and entertainment center. Open to Kitchen, Dining.	160	10' x 16'	379	Recently renovated
FS20	Fitness Room	Space for 3 -cardio pieces, squat rack, pull up rig, benches, free weights, dual cross cable machine, and 2 plate racks. Adequate light and ventilation; durable floors and walls; acoustic separation; mirrors, drinking fountain; Roll-up door to the building exterior	528	22' x 24'	264	Add @ Rear of building
FS21	Supply Storage/Janitor Room	High end residential washer and dryer, folding counter with storage, shelving for Janitorial/housekeeping supplies, mop sink/rack. Adjacent to Kitchen.	80	8' x 10'	102	Existing Jan. Rm. Ok
FS22	Firefighter's Bedroom with Lockers (Three total rooms)	Single Occupancy bedroom; each one bed, study desk and chair, four 30" wide lockers, One 12" wide locker. Egress window is required.	429	11' x 13' (3)	508	(4) total existing, upgrade for privacy
FS23	Unisex Restrooms (One total Standard Size)	Toilet, Shower and sink	56	7' x 8'	270	(1) Men & (1) Women's Restroom; not accessible
FS24	Unisex Restrooms (One total Accessible)	Toilet, Shower and sink - Accessible	81	9' x 9'	0	
FS25	Officers Bedroom	Single Occupancy bedroom; each one bed, study desk and chair, four 30" wide lockers and one 12" locker. Egress window is required.	143	11' x 13'	125	Ok
FS26	Officers Restroom (Accessible)	Toilet, Shower and sink - Accessible	81	9' x 9'	69	
		Living Quarters Area Subtotal	1,940		2,332	

Fire Station No. 6 Comparison						
No.	Type of Space	Space Attributes	Program Square Footage		Existing Square Footage	Notes/ Recommendations
	UTILITY SUPPORT SPACE		Area	Size	Area	
FS27	Mechanical Room	Mechanical equipment, water heater; fire sprinkler riser	80	8' x 10'	143	
FS28	Electrical Room	Fire alarm panel, sub panels, main service	80	8' x 10'	0	
FS29	Communications Room	Telephone service racks, computer data network, all electronics room; Air conditioned; radio equipment, alert response system hub, data server hub; Uninterrupted power system	80	8' x 10'	0	
FS30	Generator Room	Dedicate space for Generator	140	10' x 14'	0	
		Utility Support Subtotal	**380**		**143**	

SPACE NEEDS SUMMARY	SF		Existing Square Footage	Notes/ Recommendations
Apparatus Bay/Apparatus Bay Support Subtotal	3,816		3,009	
Public Area/Office Subtotal	496		433	
Living Quarters Subtotal	1,940		2,332	
Utility Support Space Subtotal	380		143	
BUILDING SUBTOTAL (SF)	**6,632**		**5,917**	
Circulation at 25%	1,658		1,479	
PROTOTYPE SINGLE COMPANY STATION - Fire Station No. 6 TOTAL (SF)	**8,289**		**7,396**	

Bellevue Prototype Three Company Station with BC
FUTURE FIRE STATION NO. 6
48 Assigned Personnel - SPACE NEEDS SUMMARY

Station Company Summary

Truck Company (L6, Formally L1) - Current Staffing 4, Future Staffing 5	Haz Mat relocated to
Fire Engine (E6) - Current Staffing 3, Future Staffing 3	Station No. 7
Medic/Aid Car (A6) - Future Staffing 2	Relocate Ladder from Sta. 1 or 10
Battalion Chief (BS 1 Relocated from Station 1) - Current Staffing 2	
Three Platoon System	

Planning for On-duty Staffing - 12

SITE OPERATIONS			Square Footage		
No.	**Type of Space**	**Space Attributes**	**Area**	**Size**	
S1	**Fire Department Parking**	28 Firefighter/staff parking spaces; separate from visitor parking	5,040	10'x18' ea.	
S2	**Visitor Parking**	2 public parking spaces; including one van-accessible space with 8' side aisle	540	9.5'x18' ea.	
S3	**Trash Enclosure**	Space for dumpster and recycling bins	100	10'x10'	
S4	**Vehicle Wash Down Area**	Front or Rear apron, sand/oil clarifier, goes to sewer through switch, away from main apparatus response path	360	12' x 30'	
S5	**Flagpole**	Flagpole area with lighting	16	4' x 4'	
S6	**Outdoor Patio**	Private outdoor BBQ area for 11-14, natural gas for BBQ	168	12' x 14'	
S7	**Front Apron**	Concrete paving in front of each bay.	2,400	30' x 20' ea.	
S9	**Under-ground Fueling with dispenser.**	Fueling system adjacent to generator, use by all City vehicles, dispenses Diesel and Un-leaded. Near front apron of area with easy access that does not block fire response.	100	10' x 10' above ground	
S10	**Fire Hydrant**	Locate on rear yard if drive through, front yard if back-in, near training area	120	10'x20'	
S11	**In-service Training**	Area for hose lays and ladder training, near hydrant, two company training	1,200	40' x 80'	
		Site Operations Subtotal	**10,044**		

FUTURE FIRE STATION NO. 6					
No.	**Type of Space**	**Space Attributes**	**Square Footage**		**Finish**
	APPARATUS BAY/APPARATUS BAY SUPPORT		**Area**	**Size**	
FS1	**Apparatus Bay (4 drive-through bays)**	Ladder Company, Engine Co., Aid Car, Reserve apparatus, diesel exhaust system, power cord drops to each vehicle, radiant heating system; night lighting; auto-close doors and trench drains. Audio system with acoustical clarity, water resistant wall finishes. Door Controls with timers. Wall Map near living quarters with direct lighting. Hand washing sink on the path to the kitchen. Hose bib for apparatus washing in bay.	6,080	80' x 76'	A
BC1	**Apparatus Bay** BC Vehicle and BC Assistant	Double deep Apparatus bay, cars park tandem. B-1 front line, B-2 Reserve	1,520	20' x 76'	A
FS2	**Medical Clean-up/Laundry**	Hands free service sink with regular and spray hose faucet, emergency eye wash, floor drain, backboard wash-down, locate adjacent to medical storage closet. Washer Dryer and built in storage with folding counter. Room off the apparatus bay near the engine bay.	120	10' x 12'	C

FUTURE FIRE STATION NO. 6					
No.	Type of Space	Space Attributes	Square Footage		Finish
	APPARATUS BAY/APPARATUS BAY SUPPORT - Continued		Area	Size	
FS3	Medical Storage	Supply Storage closet with full height shelving. Door opening to the Apparatus Bay.	63	3.5' x 18'	B
FS4	Bunker Gear Room	48 open metal storage lockers for bunker gear; continuous exhaust fan, floor drain, extractor and bunker gear dryer, heavy duty shelving.	528	16' x 33'	A
FS5	Apparatus Janitor Room	Mop sink with mop rack, shelving for apparatus cleaning supplies, hooks for chamois and squeegee storage.	36	6' x 6'	C
FS6	Workshop	Work shop with air compressor (in separate closet), shop vac, and tool chest storage areas. Heavy duty work bench top with upper and lower storage cabinets and utility sink.	90	5' x 18'	C
FS7	Hose Storage/Hose Drying	Storage for hose in mobile racks. Snow Chain storage	160	10' x 16'	A
FS8	Yard Storage	Storage for yard maintenance tools	36	6' x 6'	B
FS9	Special Projects	Varies per Station	240	12' x 20'	B
FS10	Charging Alcove	Printer, map charging banks	36	3' x 12'	B
FS11	Ice/Vending Alcove	Ice and Vending machines	30	3' x 10'	B
		Apparatus Bay/Apparatus Bay Support Subtotal	8,939		

No.	Type of Space	Space Attributes	Square Footage		Finish
	PUBLIC AREA/OFFICE		Area	Size	
FS12	Public Entry Lobby	Interior space for visitor seating; reception counter, covered entry, door bell, chairs for visitors, public information display. Adjacent to station office, direct access to unisex public restroom. Storage closet for blood pressure check equipment. Privacy screen for blood pressure checks.	168	12' x 14'	B
FS13	Accessible Public Restrooms	Unisex accessible restroom	64	8' x 8'	C
FS14	Station Office	Shared office space with 6 work stations, counter service to Lobby, counter for combined fax printer, copier; file storage.	240	12' x 20'	B
FS15	Officers Office (Two total)	Private office with one work station and file storage. Meeting space over small table for three.	240	10' x 12' (2)	B
BC2	Private Entry Lobby	Small lobby at entrance to Battalion Quarters/Office Space	64	8' x 8'	B
BC3	ADA Restroom	ADA Accessible restroom adjacent to Private Lobby and BC Meeting Room	64	8' x 8'	C
BC4	Battalion Chief Office	lateral file cabinets for three occupants, side table for 4, shelving	192	12' x 16'	B
BC5	Battalion Chief Assistant Office	lateral file cabinets for three occupants, meeting space over desk, shelving	168	12' x 14'	B
FS16	Training Room	Training Classroom for on-duty training. Seating for 12 at tables.	396	18' x 22'	B
		Public Area/Office Subtotal	1,596		

FUTURE FIRE STATION NO. 6					
No.	**Type of Space**	**Space Attributes**	**Square Footage**		**Finish**
	LIVING QUARTERS		**Area**	**Size**	
FS17	**Kitchen**	4-refrigerators, 1-dishwasher, (2) 4-burner gas ranges/ with hood, large microwave, 12" deep- double bowl sink with disposal and tall faucet with hand held sprayer. Island in kitchen for two ranges. Open to Dining area; adjacent to patio.	208	13' x 16'	C
FS18	**Pantry Storage**	4 - 30" wide full height pantries; 48-18' x 18' storage cabinets for personal items.	69	5' x 8', 1.5' x 19.5'	B
FS19	**Dining Room**	Seating for 14-persons; open to Kitchen and Day Room.	300	15' x 20'	B
FS20	**Day Room**	Seating for 14 with recliner chairs, entertainment center and book shelving. Open to Kitchen, Dining.	506	22' x 23'	B
FS21	**Fitness Room**	Space for 4 -cardio pieces, squat rack, pull up rig, benches, free weights, dual cross cable machine, and 2 plate racks. Adequate light and ventilation; durable floors and walls; acoustic separation; mirrors, drinking fountain; Roll-up door to the building exterior	672	24' x 28'	B
FS22	**Supply Storage/Janitor Room**	High end residential washer and dryer, folding counter with storage, full-height storage shelving for Janitorial/housekeeping supplies, mop sink/rack. Adjacent to Kitchen.	120	8' x 15'	C
FS23	**Firefighter's Bedroom with Lockers (Eight total rooms)**	Single Occupancy bedroom; each one bed, study desk and chair, four 30" wide lockers. Egress window is required.	1,144	11' x 13' (8)	B
FS24	**Unisex Restrooms Five total**	Toilet, Shower and sink	280	7' x 8' (5)	C
FS25	**Unisex Restrooms (Accessible)**	Toilet, Shower and sink - Accessible	81	9' x 9' (1)	C
FS26	**Officers Bedroom (Two total)**	Single Occupancy bedroom; each one bed, study desk and chair, four 30" wide lockers. Egress window is required.	286	11' x 13' (2)	B
FS27	**Officers Restroom (Accessible)**	Toilet, Shower and sink - Accessible	162	9' x 9' (2)	C
BC6	**BC Quarters/ Bathroom (Accessible)**	Bedroom, 4-30" wide lockers; bathroom and shower	224	11' x 13, 9' x 9'	B, C
BC7	**BC Assistant Quarters/ Bathroom**	Bedroom, 4-30" wide lockers; bathroom and shower	199	11' x 13, 7' x 8'	B, C
		Living Quarters Area Subtotal	**4,251**		

FUTURE FIRE STATION NO. 6					
No.	**Type of Space**	**Space Attributes**	**Square Footage**		
	UTILITY SUPPORT SPACE		**Area**	**Size**	**Finish**
FS28	**Mechanical Room**	Mechanical equipment, water heater; fire sprinkler riser	100	10' x 10'	D
FS29	**Electrical Room**	Fire alarm panel, sub panels, main service	120	10' x 12'	D
FS30	**Communications Room**	Telephone service racks, computer data network, all electronics room; Air conditioned; radio equipment, alert response system hub, data server hub; Uninterrupted power system	80	8' x 10'	D
FS31	**Generator Room**	Telephone service racks, computer data network, all electronics room; Air conditioned; radio equipment, alert response system hub, data server hub; Uninterrupted power system	160	10' x 16'	D
		Utility Support Subtotal	**460**		

SPACE NEEDS SUMMARY	**SF**
Apparatus Bay/Apparatus Bay Support Subtotal	8,939
Public Area/Office Subtotal	1,596
Living Quarters Subtotal	4,251
Utility Support Space Subtotal	460
BUILDING SUBTOTAL (SF)	**15,246**
Circulation at 30%	4,574
PROTOTYPE THREE COMPANY STATION TOTAL with BC - Future Fire Station No. 6 (SF)	**19,820**

TWO STORY - VERTICAL CIRCULATION			Square Footage		Finish
No.	**Type of Space**	**Space Attributes**	**Area**	**Size**	
FS32	**Elevator and Machine Room**	Elevator access to upper levels; security keyed for visitors; machine room	174	(2) 9'x12'	A
SF33	**Stairway**	(x2) for each level and (x2) for egress	640	20'x8' (2)	B
		Two Story - Vertical Circulation SUBTOTAL (SF)	**814**		
		Circulation/Structure at 30%	244		
		Two Story - Vertical Circulation:	1,058		
		PROTOTYPE THREE COMPANY STATION with BC TOTAL - Two Stories - Future Fire Station No. 6 (SF)	**20,878**		

Finish Legend:
A - Simple Finishes
B - Standard Office Finishes
C - Intense Finishes
D - Service Room Finishes

Bellevue Prototype Single Company Station

Fire Station No. 7 Comparison

20 Assigned Personnel

1/27/2014

Station Company Summary

Fire Engine - Current Staffing 4, Future Staffing 4
Light Force Staffing - Future 1
Reserve Storage in second bay for future Haz Mat unit location
Three Platoon System

Planning for On-duty Staffing - 5

SITE OPERATIONS			Program Square Footage		Existing Square Footage	Notes/
No.	Type of Space	Space Attributes	Area	Size	Area	Recommendations
S1	**Fire Department Parking**	12 Firefighter/staff parking spaces; separate from visitor parking	2,160	10'x18' ea.	1,024	8 existing parking spaces
S2	**Visitor Parking**	2 public parking spaces; including one van-accessible space with 8' side aisle	486	9.5'x18' ea.	632	4 existing spaces with 1 accessible with loading area
S3	**Trash Enclosure**	Space for dumpster and recycling bins	100	10'x10'		
S4	**Vehicle Wash Down Area**	Front or Rear apron, sand/oil clarifier, goes to sewer through switch, away from main apparatus response path	360	12' x 30'		
S5	**Flagpole**	Flagpole area with lighting	16	4' x 4'		
S6	**Outdoor Patio**	Private outdoor BBQ area for 4-6, natural gas for BBQ	120	10' x 12'		
S7	**Front Apron**	Concrete paving in front of each bay.	1,200	30' x 20' ea.		
S8	**Under-ground Fueling with dispenser.**	Fueling system adjacent to generator, use by all City vehicles, dispenses Diesel and Un-leaded. Near front apron of area with easy access that does not block fire response.	100	10' x 10' above ground	88	
S9	**Fire Hydrant**	Locate on rear yard if drive through, front yard if back-in, near training area	120	10'x20'		
S10	**In-service Training**	Area for hose lays and ladder training, near hydrant and drying tower	600	20' x 30'		
		Site Operations Subtotal	**5,262**		**1,744**	

Fire Station No. 7 Comparison						
No.	Type of Space	Space Attributes	Program Square Footage		Existing Square Footage	Notes/ Recommendations
	APPARATUS BAY/APPARATUS BAY SUPPORT		Area	Size	Area	
FS1	**Apparatus Bay (2 drive-through bays)**	Truck/Engine Co., Reserve apparatus, diesel exhaust system, power cord drops to each vehicle, radiant heating system; night lighting; auto-close doors and trench drains. Audio system with acoustical clarity, water resistant wall finishes. Door Controls with timers. Wall Map near living quarters with direct lighting. Hand washing sink on the path to the kitchen. Hose bib for apparatus washing in bay.	2800	40' x 70'	2,219	Future location for Haz Mat Unit. Reserve E7A stored at this location.
FS2	**Medical Clean-up**	Hands free service sink with regular and spray hose faucet, emergency eye wash, floor drain, backboard wash-down, locate adjacent to medical storage closet. Washer Dryer and built in storage with folding counter. Room off the apparatus bay near the engine bay.	100	10' x 10'		Small sink along hallway & laundry
FS3	**Medical Storage**	Supply Storage closet with full height shelving. Door opening to the Apparatus Bay.	42	3.5' x 12'	84	
FS4	**Bunker Gear Room**	20 open metal storage lockers for bunker gear; continuous exhaust fan, floor drain, extractor and bunker gear dryer, heavy duty shelving.	308	14' x 22'	80	
FS5	**Apparatus Janitor Room**	Mop sink with mop rack, shelving for apparatus cleaning supplies, hooks for chamois and squeegee storage.	36	6' x 6'		
FS6	**Workshop Alcove**	Work shop with shop vac and tool chest storage areas. Heavy duty work bench top with upper and lower storage cabinets and utility sink.	80	5' x 16'	68	
FS7	**Hose Storage/Chain Storage**	Storage for hose in mobile racks. Wall hanging space for tire chains	120	10' x 12'	100	
FS8	**Yard Storage**	Storage for yard maintenance tools	36	6' x 6'	0	
FS9	**Special Projects**	Central Air Fill	240	12' x 20'	0	
FS10	**Charging Alcove**	Printer, map charging banks	24	3' x 8'	26	
FS11	**Vending/Ice Alcove**	Storage space for ice and vending machines	30	3' x 10'	0	
		Apparatus Bay/Apparatus Bay Support Subtotal	**3,816**		**2,577**	

Fire Station No. 7 Comparison						
No.	Type of Space	Space Attributes	Program Square Footage		Existing Square Footage	Notes/ Recommendations
	PUBLIC AREA/OFFICE		Area	Size	Area	
FS12	Public Entry Lobby	Interior space for visitor seating; reception counter, covered entry, door bell, chairs for visitors, public information display. Adjacent to station office, direct access to unisex public restroom. Storage closet for blood pressure check equipment. Privacy screen for blood pressure checks.	120	10' x 12'	68	
FS13	Accessible Public Restroom	Accessible restroom adjacent to Lobby	64	8' x 8'	0	
FS14	Station Office	Shared office space with 4 work stations, counter service to Lobby, counter for combined fax printer, copier; file storage; AV for training.	192	12' x 16'	64	
FS15	Officers Office	Private office with meeting space over desk for three, file storage for three. Single work station.	120	10' x 12'	124	
		Public Area/Office Subtotal	496		256	

No.	Type of Space	Space Attributes	Program Square Footage		Existing Square Footage	Notes/ Recommendations
	LIVING QUARTERS		Area	Size	Area	
FS16	Kitchen	4-refrigerators, 1-dishwasher, (2) 4-burner gas ranges/ with hood, large microwave, 12" deep- double bowl sink with disposal and tall faucet with hand held sprayer. Island in kitchen for two ranges. Open to Dining area; adjacent to patio.	208	13' x 16'	165	
FS17	Pantry Storage	4 - 30" wide full height pantries; 20-18' x 18' storage cabinets for personal items.	54	5' x 8' 1.5' x 9'	0	
FS18	Dining Room	Seating for 6-persons; open to Kitchen and Day Room.	120	10' x 12'	255	
FS19	Day Room	Seating for 5 with recliner chairs and entertainment center. Open to Kitchen, Dining.	224	14' x 16'	187	

Fire Station No. 7 Comparison						
No.	Type of Space	Space Attributes	Program Square Footage		Existing Square Footage	Notes/ Recommendations
	LIVING QUARTERS - Continued		Area	Size	Area	
FS20	Fitness Room	Space for 3 -cardio pieces, squat rack, pull up rig, benches, free weights, dual cross cable machine, and 2 plate racks. Adequate light and ventilation; durable floors and walls; acoustic separation; mirrors, drinking fountain; Roll-up door to the building exterior	528	22' x 24'	219	
FS21	Supply Storage/Janitor Room	High end residential washer and dryer, folding counter with storage, shelving for Janitorial/housekeeping supplies, mop sink/rack. Adjacent to Kitchen.	80	8' x 10'	89	
FS22	Firefighter's Bedroom with Lockers (4 total rooms)	Single Occupancy bedroom; each one bed, study desk and chair, four 30" wide lockers, One 12" wide locker. Egress window is required.	572	11' x 13' (4)	344	
FS23	Unisex Restrooms (1 standard)	Toilet, Shower and sink	56	7' x 8'	0	
FS24	Unisex Restrooms (1 Accessible)	Toilet, Shower and sink - Accessible	81	9' x 9'	259	
FS25	Officers Bedroom	Single Occupancy bedroom; each one bed, study desk and chair, four 30" wide lockers and one 12" locker. Egress window is required.	143	11' x 13'	0	
FS26	Officers Restroom (Accessible)	Toilet, Shower and sink - Accessible	81	9' x 9'	0	
		Living Quarters Area Subtotal	**2,147**		**1,518**	

No.	Type of Space	Space Attributes	Square Footage		Existing Square Footage	Notes/ Recommendations
	UTILITY SUPPORT SPACE		Area	Size		
FS27	Mechanical Room	Mechanical equipment, water heater; fire sprinkler riser	80	8' x 10'	47	
FS28	Electrical Room	Fire alarm panel, sub panels, main service	80	8' x 10'	0	
FS29	Communications Room	Telephone service racks, computer data network, all electronics room; Air conditioned; radio equipment, alert response system hub, data server hub; Uninterrupted power system	80	8' x 10'	0	
FS30	Generator Room	Dedicate space for Generator	140	10' x 14'	0	
		Utility Support Subtotal	**380**		**47**	

SPACE NEEDS SUMMARY	SF		Existing Square Footage	Notes/ Recommendations
Apparatus Bay/Apparatus Bay Support Subtotal	3,816		2,577	
Public Area/Office Subtotal	496		256	
Living Quarters Subtotal	2,147		1,518	
Utility Support Space Subtotal	380		47	
BUILDING SUBTOTAL (SF)	**6,839**		**4,398**	
Circulation at 25%	1,710		1,100	
PROTOTYPE SINGLE COMPANY STATION - Fire Station No. 7 TOTAL (SF)	**8,548**		**5,498**	

TWO STORY - VERTICAL CIRCULATION			Program Square Footage		Existing Square Footage	Notes/ Recommendations
No.	**Type of Space**	**Space Attributes**	**Area**	**Size**	**Area**	
FS31	**Elevator and Machine Room**	Elevator access to upper levels; security keyed for visitors; machine room	174	(2) 9'x12'		
32	**Stairway**	(x2) for each level and (x2) for egress	640	20'x8' (2)		
Two Story - Vertical Circulation SUBTOTAL (SF)			**814**			
Circulation/Structure at 30%			244			
Two Story - Vertical Circulation:			1,058			
PROTOTYPE SINGLE COMPANY STATION - Fire Station No. 7 TOTAL - Two Stories(SF)			**9,606**			

Bellevue Prototype Single Company Station

Fire Station No. 8 Comparison

16 Assigned Personnel - SPACE NEEDS SUMMARY

1/27/2014

Station Company Summary

Fire Engine (E8) - Current Staffing 3, Future Staffing 4
Air Unit (AU1) - Cross staffed with Engine staff
Future Brush Rig - Cross Staffed with Engine
Three Platoon System

Planning for On-duty Staffing - 4

SITE OPERATIONS			Program Square Footage		Existing Square Footage	Notes/ Recommendations
No.	**Type of Space**	**Space Attributes**	**Area**	**Size**	**Area**	
S1	**Fire Department Parking**	10 Firefighter/staff parking spaces; separate from visitor parking	1,800	10'x18' ea.	900	5 parking spaces provided
S2	**Visitor Parking**	2 public parking spaces; including one van-accessible space with 8' side aisle	486	9.5'x18' ea.	1980	6 parking spaces provided included Accessible space with loading zone.
S3	**Trash Enclosure**	Space for dumpster and recycling bins	100	10'x10'	0	Current Plan missing
S4	**Vehicle Wash Down Area**	Front or Rear apron, sand/oil clarifier, goes to sewer through switch, away from main apparatus response path	360	12' x 30'		Current Plan missing
S5	**Flagpole**	Flagpole area with lighting	16	4' x 4'		Current Plan missing
S6	**Outdoor Patio**	Private outdoor BBQ area for 4-6, natural gas for BBQ	120	10' x 12'		Current Plan missing
S7	**Front Apron**	Concrete paving in front of each bay.	1,200	30' x 20' ea.		Current Plan missing
S8	**Under-ground Fueling with dispenser.**	Fueling system adjacent to generator, use by all City vehicles, dispenses Diesel and Un-leaded. Near front apron of area with easy access that does not block fire response.	100	10' x 10' above ground		Current Plan missing
S9	**Fire Hydrant**	Locate on rear yard if drive through, front yard if back-in, near training area	120	10'x20'		Current Plan missing
S10	**In-service Training**	Area for hose lays and ladder training, near hydrant and drying tower	600	20' x 30'		Current Plan missing
		Site Operations Subtotal	**4,902**		**2,880**	

Fire Station No. 8 Comparison						
No.	Type of Space	Space Attributes	Program Square Footage		Existing Square Footage	Notes/ Recommendations
	APPARATUS BAY/APPARATUS BAY SUPPORT		Area	Size	Area	
FS1	**Apparatus Bay (2 drive-through bays)**	Engine Co., Air Unit, Future Brush Rig, Reserve Aid Car and Gator, diesel exhaust system, power cord drops to each vehicle, radiant heating system; night lighting; auto-close doors and trench drains. Audio system with acoustical clarity, water resistant wall finishes. Door Controls with timers. Wall Map near living quarters with direct lighting. Hand washing sink on the path to the kitchen. Hose bib for apparatus washing in bay.	2800	40' x 70'	2,954	Reserve E8A stored at this location. 2 bays single and one deep works well.
FS2	**Medical Clean-up**	Hands free service sink with regular and spray hose faucet, emergency eye wash, floor drain, backboard wash-down, locate adjacent to medical storage closet. Washer Dryer and built in storage with folding counter. Room off the apparatus bay near the engine bay.	100	10' x 10'	0	Recommend adding dedicated clean up room
FS3	**Medical Storage**	Supply Storage closet with full height shelving. Door opening to the Apparatus Bay.	42	3.5' x 12'	0	Add dedicated storage
FS4	**Bunker Gear Room**	16 open metal storage lockers for bunker gear; continuous exhaust fan, floor drain, extractor and bunker gear dryer, heavy duty shelving.	308	14' x 22'	0	Inside App Bay, create bunker gear storage room
FS5	**Apparatus Janitor Room**	Mop sink with mop rack, shelving for apparatus cleaning supplies, hooks for chamois and squeegee storage.	36	6' x 6'	47	
FS6	**Workshop Alcove**	Work shop with shop vac. and tool chest storage areas. Heavy duty work bench top with upper and lower storage cabinets and utility sink.	80	5' x 16'	365	
FS7	**Hose Storage/Chain Storage**	Storage for hose in mobile racks. Wall hanging space for tire chains	120	10' x 12'	114	
FS8	**Yard Storage**	Storage for yard maintenance tools	36	6' x 6'	0	
FS9	**Special Projects**	SCBA Repair and Uniform Storage, Repair	240	12' x 20'	353	SCBA/Mask Repair and Testing
FS10	**Charging Alcove**	Printer, map charging banks	24	3' x 8'	0	

Fire Station No. 8 Comparison						
No.	Type of Space	Space Attributes	Program Square Footage		Existing Square Footage	Notes/ Recommendations
	APPARATUS BAY/APPARATUS BAY SUPPORT - Continued		Area	Size	Area	
FS11	Vending/Ice Alcove	Storage space for ice and vending machines	30	3' x 10'	0	
FS12	Mezzanine				450	Recommend no work in this area.
	Apparatus Bay/Apparatus Bay Support Subtotal		3,816		4,283	

No.	Type of Space	Space Attributes	Program Square Footage		Existing Square Footage	Notes/ Recommendations
	PUBLIC AREA/OFFICE		Area	Size	Area	
FS12	Public Entry Lobby	Interior space for visitor seating; reception counter, covered entry, door bell, chairs for visitors, public information display. Adjacent to station office, direct access to unisex public restroom. Storage closet for blood pressure check equipment. Privacy screen for blood pressure checks.	120	10' x 12'	162	
FS13	Accessible Public Restroom	Accessible restroom adjacent to Lobby	64	8' x 8'	55	
FS14	Station Office	Shared office space with 4 work stations, counter service to Lobby, counter for combined fax printer, copier; file storage; AV for training.	192	12' x 16'	268	
FS15	Officers Office	Private office with meeting space over desk for three, file storage for three. Single work station.	120	10' x 12'	200	
	Public Area/Office Subtotal		496		685	

No.	Type of Space	Space Attributes	Program Square Footage		Existing Square Footage	Notes/ Recommendations
	LIVING QUARTERS		**Area**	**Size**	**Area**	
FS17	**Pantry Storage**	4 - 30" wide full height pantries; 16-18' x 18' storage cabinets for personal items.	54	5' x 8' 1.5' x 9'	0	Cabinets in Kitchen
FS18	**Dining Room**	Seating for 6-persons; open to Kitchen and Day Room.	120	10' x 12'	0	
FS19	**Day Room**	Seating for 4 with recliner chairs and entertainment center. Open to Kitchen, Dining.	160	10' x 16'	586	Includes Dining.
FS20	**Fitness Room**	Space for 3 -cardio pieces, squat rack, pull up rig, benches, free weights, dual cross cable machine, and 2 plate racks. Adequate light and ventilation; durable floors and walls; acoustic separation; mirrors, drinking fountain; Roll-up door to the building exterior	528	22' x 24'	449	
FS21	**Supply Storage/Janitor Room**	High end residential washer and dryer, folding counter with storage, shelving for Janitorial/housekeeping supplies, mop sink/rack. Adjacent to Kitchen.	80	8' x 10'	125	Near App Bay used for Medical Clean-up.
FS22	**Firefighter's Bedroom with Lockers (Three total rooms)**	Single Occupancy bedroom; each one bed, study desk and chair, four 30" wide lockers, One 12" wide locker. Egress window is required.	429	11' x 13' (3)	605	Add doors to existing rooms
FS23	**Unisex Restrooms (One total Standard Size)**	Toilet, Shower and sink	56	7' x 8'	293	93 sf - Women; 200 sf - Men
FS24	**Unisex Restrooms (One total Accessible)**	Toilet, Shower and sink - Accessible	81	9' x 9'		
FS25	**Officers Bedroom**	Single Occupancy bedroom; each one bed, study desk and chair, four 30" wide lockers and one 12" locker. Egress window is required.	143	11' x 13'	170	
FS26	**Officers Restroom (Accessible)**	Toilet, Shower and sink - Accessible	81	9' x 9'	79	
		Living Quarters Area Subtotal	**1,732**		**2,307**	

Fire Station No. 8 Comparison						
No.	Type of Space	Space Attributes	Program Square Footage		Existing Square Footage	Notes/ Recommendations
	UTILITY SUPPORT SPACE		Area	Size	Area	
FS27	Mechanical Room	Mechanical equipment, water heater; fire sprinkler riser	80	8' x 10'		
FS28	Electrical Room	Fire alarm panel, sub panels, main service	80	8' x 10'	26	
FS29	Communications Room	Telephone service racks, computer data network, all electronics room; Air conditioned; radio equipment, alert response system hub, data server hub; Uninterrupted power system	80	8' x 10'		
FS30	Generator Room	Dedicate space for Generator	140	10' x 14'	190	
		Utility Support Subtotal	**380**		**216**	

SPACE NEEDS SUMMARY	SF		Existing Square Footage	Notes/ Recommendations
Apparatus Bay/Apparatus Bay Support Subtotal	3,816		4,283	
Public Area/Office Subtotal	496		685	
Living Quarters Subtotal	1,732		2,307	
Utility Support Space Subtotal	380		216	
BUILDING SUBTOTAL (SF)	**6,424**		**7,491**	
Circulation at 25%	1,606		1,873	
PROTOTYPE SINGLE COMPANY STATION - Fire Station No. 8 TOTAL (SF)	**8,029**		**9,364**	

Bellevue Prototype Single Company Station
Fire Station No. 9 Comparison
16 Assigned Personnel - SPACE NEEDS SUMMARY

1/27/2014

Station Company Summary

Fire Engine - Current Staffing 3, Future Staffing 4
Mass Casualty Unit in Storage - Cross Staffed
Three Platoon System

Planning for On-duty Staffing - 4

SITE OPERATIONS			Square Footage		Existing Square Footage	Notes/ Recommendations
No.	**Type of Space**	**Space Attributes**	**Area**	**Size**	**Area**	
S1	**Fire Department Parking**	10 Firefighter/staff parking spaces; separate from visitor parking	2,160	10'x18' ea.	2,375	16 total
S2	**Visitor Parking**	2 public parking spaces; including one van-accessible space with 8' side aisle	486	9.5'x18' ea.	505	3 total
S3	**Trash Enclosure**	Space for dumpster and recycling bins	100	10'x10'	0	
S4	**Vehicle Wash Down Area**	Front or Rear apron, sand/oil clarifier, goes to sewer through switch, away from main apparatus response path	360	12' x 30'	0	
S5	**Flagpole**	Flagpole area with lighting	16	4' x 4'		
S6	**Outdoor Patio**	Private outdoor BBQ area for 4-6, natural gas for BBQ	120	10' x 12'		ok
S7	**Front Apron**	Concrete paving in front of each bay.	1,200	30' x 20' ea.		ok
S8	**Under-ground Fueling with dispenser.**	Fueling system adjacent to generator, use by all City vehicles, dispenses Diesel and Un-leaded. Near front apron of area with easy access that does not block fire response.	100	10' x 10' above ground		ok
S9	**Fire Hydrant**	Locate on rear yard if drive through, front yard if back-in, near training area	120	10'x20'		ok
S10	**In-service Training**	Area for hose lays and ladder training, near hydrant and drying tower	600	20' x 30'		ok
		Site Operations Subtotal	**5,262**		**2,880**	

Fire Station No. 9 Comparison						
No.	Type of Space	Space Attributes	Square Footage		Existing Square Footage	Notes/ Recommendations
	APPARATUS BAY/APPARATUS BAY SUPPORT		Area	Size	Area	
FS1	**Apparatus Bay (2 drive-through bays)**	Engine Co., Mass Casualty Unit, Reserve apparatus, diesel exhaust system, power cord drops to each vehicle, radiant heating system; night lighting; auto-close doors and trench drains. Audio system with acoustical clarity, water resistant wall finishes. Door Controls with timers. Wall Map near living quarters with direct lighting. Hand washing sink on the path to the kitchen. Hose bib for apparatus washing in bay.	2800	40' x 70'	2,561	Reserves E9A and A9A stored at this location.
FS2	**Medical Clean-up**	Hands free service sink with regular and spray hose faucet, emergency eye wash, floor drain, backboard wash-down, locate adjacent to medical storage closet. Washer Dryer and built in storage with folding counter. Room off the apparatus bay near the engine bay.	100	10' x 10'		Small sink in App Bay. Create Medical Clean-Up space.
FS3	**Medical Storage**	Supply Storage closet with full height shelving. Door opening to the Apparatus Bay.	42	3.5' x 12'	0	Add Storage
FS4	**Bunker Gear Room**	16 open metal storage lockers for bunker gear; continuous exhaust fan, floor drain, extractor and bunker gear dryer, heavy duty shelving.	308	14' x 22'	0	Existing racks inside App Bay. Provide a new Bunker Gear Room
FS5	**Apparatus Janitor Room**	Mop sink with mop rack, shelving for apparatus cleaning supplies, hooks for chamois and squeegee storage.	36	6' x 6'	0	Small floor sink in App Bay.
FS6	**Workshop Alcove**	Work shop with shop vac and tool chest storage areas. Heavy duty work bench top with upper and lower storage cabinets and utility sink.	80	5' x 16'	0	Add Workbench in App bay.
FS7	**Hose Storage/Chain Storage**	Storage for hose in mobile racks. Wall hanging space for tire chains	120	10' x 12'	0	Ok outside
FS8	**Yard Storage**	Storage for yard maintenance tools	36	6' x 6'	0	
FS9	**Special Projects**	Small Equipment Repair	240	12' x 20'	0	Add space
FS10	**Charging Alcove**	Printer, map charging banks	24	3' x 8'	17	Add space
FS11	**Vending/Ice Alcove**	Storage space for ice and vending machines	30	3' x 10'	0	Add space
	Apparatus Bay/Apparatus Bay Support Subtotal		**3,816**		**2,578**	

Fire Station No. 9 Comparison						
No.	Type of Space	Space Attributes	Square Footage		Existing Square Footage	Notes/ Recommendations
	PUBLIC AREA/OFFICE		Area	Size	Area	
FS12	Public Entry Lobby	Interior space for visitor seating; reception counter, covered entry, door bell, chairs for visitors, public information display. Adjacent to station office, direct access to unisex public restroom. Storage closet for blood pressure check equipment. Privacy screen for blood pressure checks.	120	10' x 12'	118	Ok
FS13	Accessible Public Restroom	Accessible restroom adjacent to Lobby	64	8' x 8'	106	2 total existing (M & W) accessible
FS14	Station Office	Shared office space with 3 work stations, counter service to Lobby, counter for combined fax printer, copier; file storage; AV for training.	192	12' x 16'	0	Remodel existing Night Reception.
FS15	Officers Office	Private office with meeting space over desk for three, file storage for three. Single work station.	120	10' x 12'	0	Convert Fitness to Officer Office
		Public Area/Office Subtotal	496		224	

Fire Station No. 9 Comparison						
No.	Type of Space	Space Attributes	Square Footage		Existing Square Footage	Notes/ Recommendations
	LIVING QUARTERS		Area	Size	Area	
FS16	Kitchen	4-refrigerators, 1-dishwasher, (2) 4-burner gas ranges/ with hood, large microwave, 12" deep- double bowl sink with disposal and tall faucet with hand held sprayer. Island in kitchen for two ranges. Open to Dining area; adjacent to patio.	208	13' x 16'	191	Ok
FS17	Pantry Storage	4 - 30" wide full height pantries; 16-18' x 18' storage cabinets for personal items.	54	5' x 8' 1.5' x 9'	0	Existing cabinets in kitchen
FS18	Dining Room	Seating for 6-persons; open to Kitchen and Day Room.	120	10' x 12'	130	Ok
FS19	Day Room	Seating for 4 with recliner chairs and entertainment center. Open to Kitchen, Dining.	160	10' x 16'	152	Ok
FS20	Fitness Room	Space for 3 -cardio pieces, squat rack, pull up rig, benches, free weights, dual cross cable machine, and 2 plate racks. Adequate light and ventilation; durable floors and walls; acoustic separation; mirrors, drinking fountain; Roll-up door to the building exterior	528	22' x 24'	269	Ok
FS21	Supply Storage/Janitor Room	High end residential washer and dryer, folding counter with storage, shelving for Janitorial/housekeeping supplies, mop sink/rack. Adjacent to Kitchen.	80	8' x 10'	71	Ok
FS22	Firefighter's Bedroom with Lockers (3 total rooms)	Single Occupancy bedroom; each one bed, study desk and chair, four 30" wide lockers, One 12" wide locker. Egress window is required.	429	11' x 13' (3)	614	Ok. 92 s.f. ea. (4); 82 s.f. ea. (3)
FS23	Unisex Restrooms (1 standard)	Toilet, Shower and sink	56	7' x 8'	319	Men (1), W (1) both not accessible
FS24	Unisex Restrooms (1 Accessible)	Toilet, Shower and sink - Accessible	81	9' x 9'	0	
FS25	Officers Bedroom	Single Occupancy bedroom; each one bed, study desk and chair, four 30" wide lockers and one 12" locker. Egress window is required.	143	11' x 13'	147	Ok
FS26	Officers Restroom (Accessible)	Toilet, Shower and sink - Accessible	81	9' x 9'	0	Add Restroom to 1st flr.
		Living Quarters Area Subtotal	1,940		1,893	

FIRE STATION SPACE NEEDS SUMMARY - Continued						
No.	Type of Space	Space Attributes	Square Footage		Existing Square Footage	Notes/ Recommendations
	UTILITY SUPPORT SPACE		Area	Size	Area	
FS27	Mechanical Room	Mechanical equipment, water heater; fire sprinkler riser	80	8' x 10'	139	
FS28	Electrical Room	Fire alarm panel, sub panels, main service	80	8' x 10'	0	
FS29	Communications Room	Telephone service racks, computer data network, all electronics room; Air conditioned; radio equipment, alert response system hub, data server hub; Uninterrupted power system	80	8' x 10'	0	
FS30	Generator Room	Dedicate space for Generator	140	10' x 14'	75	Existing Generator pad
		Utility Support Subtotal	**380**		**214**	

SPACE NEEDS SUMMARY	SF		Existing Square Footage	
Apparatus Bay/Apparatus Bay Support Subtotal	3,816		2,578	
Public Area/Office Subtotal	496		224	
Living Quarters Subtotal	1,940		1,893	
Utility Support Space Subtotal	380		214	
BUILDING SUBTOTAL (SF)	**6,632**		**4,909**	
Circulation at 25%	1,658		1,227	
PROTOTYPE SINGLE COMPANY STATION - Fire Station No. 9 TOTAL (SF)	**8,289**		**6,136**	

Bellevue Prototype Three Company Station

New Fire Station No. 10

44 Assigned Personnel - SPACE NEEDS SUMMARY

1/27/2014

Station Company Summary

Truck Company (L1 - Currently at Station 7) - Current Staffing 4, Future Staffing 5 (Will be replaced with Medic when Station 6 is opened.)
Fire Engine (E10) - Future Staffing 4
Aid Car (A10) - Current Staffing (2) will relocate from Station 1 (A1)
Three Platoon System

Planning for On-duty Staffing - 11

SITE OPERATIONS			Square Footage		
No.	**Type of Space**	**Space Attributes**	**Area**	**Size**	
S1	**Fire Department Parking**	24 Firefighter/staff parking spaces; separate from visitor parking	4,320	10'x18' ea.	
S2	**Visitor Parking**	2 public parking spaces; including one van-accessible space with 8' side aisle	540	9.5'x18' ea.	
S3	**Trash Enclosure**	Space for dumpster and recycling bins	100	10'x10'	
S4	**Vehicle Wash Down Area**	Front or Rear apron, sand/oil clarifier, goes to sewer through switch, away from main apparatus response path	360	12' x 30'	
S5	**Flagpole**	Flagpole area with lighting	16	4' x 4'	
S6	**Outdoor Patio**	Private outdoor BBQ area for 11-14, natural gas for BBQ	168	12' x 14'	
S7	**Front Apron**	Concrete paving in front of each bay.	2,400	30' x 20' ea.	
S9	**Under-ground Fueling with dispenser.**	Fueling system adjacent to generator, use by all City vehicles, dispenses Diesel and Un-leaded. Near front apron of area with easy access that does not block fire response.	100	10' x 10' above ground	
S10	**Fire Hydrant**	Locate on rear yard if drive through, front yard if back-in, near training area	120	10'x20'	
S11	**In-service Training**	Area for hose lays and ladder training, near hydrant, two company training	1,200	40' x 80'	
		Site Operations Subtotal	**9,324**		

New Fire Station No. 10					
No.	**Type of Space**	**Space Attributes**	**Square Footage**		**Finish**
	APPARATUS BAY/APPARATUS BAY SUPPORT		**Area**	**Size**	
FS1	**Apparatus Bay (4 drive-through bays)**	Ladder Company, Engine Co., Aid Car, Reserve apparatus, diesel exhaust system, power cord drops to each vehicle, radiant heating system; night lighting; auto-close doors and trench drains. Audio system with acoustical clarity, water resistant wall finishes. Door Controls with timers. Wall Map near living quarters with direct lighting. Hand washing sink on the path to the kitchen. Hose bib for apparatus washing in bay.	6,080	80' x 76'	A
FS2	**Medical Clean-up/Laundry**	Hands free service sink with regular and spray hose faucet, emergency eye wash, floor drain, backboard wash-down, locate adjacent to medical storage closet. Washer Dryer and built in storage with folding counter. Room off the apparatus bay near the engine bay.	120	10' x 12'	C
FS3	**Medical Storage**	Supply Storage closet with full height shelving. Door opening to the Apparatus Bay.	63	3.5' x 18'	B

New Fire Station No. 10					
No.	Type of Space	Space Attributes	Square Footage		Finish
	APPARATUS BAY/APPARATUS BAY SUPPORT - Continued		Area	Size	
FS4	Bunker Gear Room	44 open metal storage lockers for bunker gear; continuous exhaust fan, floor drain, extractor and bunker gear dryer, heavy duty shelving.	528	16' x 33'	A
FS5	Apparatus Janitor Room	Mop sink with mop rack, shelving for apparatus cleaning supplies, hooks for chamois and squeegee storage.	36	6' x 6'	C
FS6	Workshop	Work shop with air compressor (in separate closet), shop vac, and tool chest storage areas. Heavy duty work bench top with upper and lower storage cabinets and utility sink.	90	5' x 18'	C
FS7	Hose Storage/Hose Drying	Storage for hose in mobile racks. Snow Chain storage	160	10' x 16'	A
FS8	Yard Storage	Storage for yard maintenance tools	36	6' x 6'	B
FS9	Special Projects	Varies per Station	240	12' x 20'	B
FS10	Charging Alcove	Printer, map charging banks	36	3' x 12'	B
FS11	Ice/Vending Alcove	Ice and Vending Machines	30	3' x 10'	B
		Apparatus Bay/Apparatus Bay Support Subtotal	7,419		

No.	Type of Space	Space Attributes	Square Footage		Finish
	PUBLIC AREA/OFFICE		Area	Size	
FS12	Public Entry Lobby	Interior space for visitor seating; reception counter, covered entry, door bell, chairs for visitors, public information display. Adjacent to station office, direct access to unisex public restroom. Storage closet for blood pressure check equipment. Privacy screen for blood pressure checks.	168	12' x 14'	B
FS13	Accessible Public Restrooms	Unisex accessible restroom	64	8' x 8'	C
FS14	Station Office	Shared office space with 6 work stations, counter service to Lobby, counter for combined fax printer, copier; file storage.	240	12' x 20'	B
FS15	Officers Office (Two total)	Private office with one work station and file storage. Meeting space over small table for three.	240	10' x 12' (2)	B
FS16	Training Room	Training Classroom for on-duty training. Seating for 12 at tables.	396	18' x 22'	B
		Public Area/Office Subtotal	1,108		

New Fire Station No. 10					
No.	**Type of Space**	**Space Attributes**	**Square Footage**		**Finish**
	LIVING QUARTERS		**Area**	**Size**	
FS17	**Kitchen**	4-refrigerators, 1-dishwasher, (2) 4-burner gas ranges/ with hood, large microwave, 12" deep- double bowl sink with disposal and tall faucet with hand held sprayer. Island in kitchen for two ranges. Open to Dining area; adjacent to patio.	208	13' x 16'	C
FS18	**Pantry Storage**	4 - 30" wide full height pantries; 44-18' x 18' storage cabinets for personal items.	69	5' x 8', 1.5' x 19.5'	B
FS19	**Dining Room**	Seating for 14-persons; open to Kitchen and Day Room.	300	15' x 20'	B
FS20	**Day Room**	Seating for 12 with recliner chairs, entertainment center and book shelving. Open to Kitchen, Dining.	414	18' x 23'	B
FS21	**Fitness Room**	Space for 4 -cardio pieces, squat rack, pull up rig, benches, free weights, dual cross cable machine, and 2 plate racks. Adequate light and ventilation; durable floors and walls; acoustic separation; mirrors, drinking fountain; Roll-up door to the building exterior	672	24' x 28'	B
FS22	**Supply Storage/Janitor Room**	High end residential washer and dryer, folding counter with storage, full-height storage shelving for Janitorial/housekeeping supplies, mop sink/rack. Adjacent to Kitchen.	120	8' x 15'	C
FS23	**Firefighter's Bedroom with Lockers (nine total rooms)**	Single Occupancy bedroom; each one bed, study desk and chair, four 30" wide lockers. Egress window is required.	1,287	11' x 13' (9)	B
FS24	**Unisex Restrooms Five total Standard Size)**	Toilet, Shower and sink	280	7' x 8' (5)	C
FS25	**Unisex Restrooms (One Accessible)**	Toilet, Shower and sink - Accessible	81	9' x 9' (1)	C
FS26	**Officers Bedroom (Two total)**	Single Occupancy bedroom; each one bed, study desk and chair, four 30" wide lockers. Egress window is required.	286	11' x 13' (2)	B
FS27	**Officers Restroom (Accessible)**	Toilet, Shower and sink - Accessible	162	9' x 9' (2)	C
		Living Quarters Area Subtotal	**3,879**		

New Fire Station No. 10					
No.	**Type of Space**	**Space Attributes**	**Square Footage**		**Finish**
	UTILITY SUPPORT SPACE		**Area**	**Size**	**Finish**
FS28	**Mechanical Room**	Mechanical equipment, water heater; fire sprinkler riser	100	10' x 10'	D
FS29	**Electrical Room**	Fire alarm panel, sub panels, main service	120	10' x 12'	D
FS30	**Communications Room**	Telephone service racks, computer data network, all electronics room; Air conditioned; radio equipment, alert response system hub, data server hub; Uninterrupted power system	80	8' x 10'	D
FS31	**Generator Room**	Telephone service racks, computer data network, all electronics room; Air conditioned; radio equipment, alert response system hub, data server hub; Uninterrupted power system	140	10' x 14'	D
		Utility Support Subtotal	**440**		

SPACE NEEDS SUMMARY	**SF**		
Apparatus Bay/Apparatus Bay Support Subtotal	7,419		
Public Area/Office Subtotal	1,108		
Living Quarters Subtotal	3,879		
Utility Support Space Subtotal	440		
BUILDING SUBTOTAL (SF)	**12,846**		
Circulation at 25%	3,212		
PROTOTYPE THREE COMPANY STATION TOTAL - Fire Station No. 10 (SF)	**16,058**		

TWO STORY - VERTICAL CIRCULATION			**Square Footage**		**Finish**
No.	**Type of Space**	**Space Attributes**	**Area**	**Size**	
FS32	**Elevator and Machine Room**	Elevator access to upper levels; security keyed for visitors; machine room	174	(2) 9'x12'	A
FS33	**Stairway**	(x2) for each level and (x2) for egress	640	20'x8' (2)	B
		Two Story - Vertical Circulation SUBTOTAL (SF)	**814**		
		Circulation/Structure at 30%	244		
		Two Story - Vertical Circulation:	1,058		
		PROTOTYPE THREE COMPANY STATION TOTAL - Fire Station 10 - Two Stories(SF)	**17,116**		

Finish Legend:

A - Simple Finishes

B - Standard Office Finishes

C - Intense Finishes

D - Service Room Finishes

EMTG Regional Training Center
City of Bellevue - Fire Facilities Master Plan

CONCEPTUAL SPACE NEEDS OUTLINE
1/27/2014

Administration/Training Officers = 15 total personnel	TBD
Academy	Class size: 12-16 members
Police Department= 2 total	K-9 Unit, and shooting range, motors training

No.	Type of Space	Space Attributes	Square Footage		Finish
EMTG TRAINING/ADMINISTRATION			**Program**	**Size**	
T1	**Public Entry Lobby**	Interior space for visitor seating; Reception counter adjacent to public restrooms, access to main training classroom, accommodate 10-15 people at one time.	300	15' x 20'	B
T2	**Public Restroom**	ADA Accessible restroom adjacent to Lobby and training classroom (number of fixtures TBD).	500	10' x 25' (2)	C
T3	**Training Center Manager**	Lateral file cabinets, side table for 4, shelving	216	12' x 18'	B
T4	**Assistant Training Manager/Finance**	Lateral file cabinets, shelving	120	10' x 12'	B
T5	**Admin. Assistant**	Semi private office	120	10' x 12'	B
T6	**Bellevue Training Commander**	Lateral file cabinets, shelving	120	10' x 12'	B
T7	**Training Chief Open Work Station**	Open Work Area; 10 open work stations near workroom	640	8' x 8' (10)	B
T8	**Training Record Storage**	Lateral file cabinets (locking), visually connected to manager office.	80	8' x 10'	B
T9	**Copy/Print/Office Supply room**	Counter for report preparation, supply storage cabinets, copy machine	120	10' x 12'	B
T10	**Training Library/Study room**	Secure and unsecure training materials, study tables	195	13' x 15'	B
T11	**Training Classroom**	Seating for 100; storage areas; counters; serves as meeting room and classroom. Divide into 3 smaller classrooms	3,300	44' x 75'	B
T12	**Training Equipment Storage**	Table and Chair storage, training prop storage	256	8' x 16' (2)	B
T13	**Large Conference Room**	Seating for 20; storage cabinets, counter space, white board	660	22' x 30'	B
T14	**Small Conference/Interview Room**	Seating for 6-8; white board	195	13' x 15'	B
T15	**Hospitality Area**	Near conference rooms, sink, plumbed coffee maker and counter space	320	10' x 32'	C
T16	**Training Staff Break Room**	Seating for 10; kitchenette, vending	240	12' x 20'	B
T17	**Staff Restroom/locker Room**	ADA Accessible restroom adjacent to break room. 12" x 36" lockers, One restroom/locker room each for men and women.	772	12' x 23' 10'-6" x 15' 13'-6" x 25'	C
T18	**Staff Bunker Gear Storage Room**	Storage for Staff bunker gear and other training props for 15 staff members	107	8' x 13'-4	B
		EMTG Training Offices/Administration Subtotal	**8,261**		

No.	Type of Space	Space Attributes			
EMTG CADET/TRAINING FACILITIES			**Program**	**Size**	**Finish**
C1	**Men's locker Room**	12" wide metal lockers for 24 with benches and dressing area. Six showers, Five lavatories, three urinals and three toilets.	644	23' x 28'	C
C2	**Women's locker Room**	12" wide metal lockers for 8 with benches and dressing area. Two showers, three lavatories and three toilets.	338	13.5' x 25'	C
C3	**Fitness Room**	Fitness room for 16 persons to work out at one time. 8 pieces of cardio equipment, fee weights. Adjacent to Exam Room.	864	24' x 36'	B
C4	**Examination Room**	Adjacent to Fitness Room	120	10' x 12'	B
C5	**Cadet Safety Gear Storage**	Bunker gear storage of academy cadets for use during the academy. Storage for 24 sets of bunker gear in lockers; floor drain, extractor, gear dryer and heavy duty shelving.	308	14' x 22'	B
C6	**SCBA Air fill Station/Bottle Storage**	Airfill Station and bottle fill, storage.	240	12' x 20'	B
		EMTG CADET/TRAINING FACILITIES Subtotal	**2,514**		

No.	Type of Space	Space Attributes			
	UTILITY SUPPORT SPACE		**Program**	**Size**	**Finish**
U1	**General Building Storage**	Storage for building supplies such as light bulbs, extra paint (flammable locker), ceiling tiles, etc.)	100	10'x10'	D
U2	**Mechanical Room**	HVAC equipment; hot water heater; fire sprinkler riser	100	10'x10'	D
U3	**Electrical Room**	Main service panel, fire alarm panel; sub panels	50	5' x 10'	D
U4	**Communications Room**	Telephone service racks, alert response system hub, data server hub, radio equipment; includes dispatch equipment	120	10'X12'	D
		Utility Support Subtotal	**370**		

	SPACE NEEDS SUMMARY		**Program**		
		EMTG TRAINING/ADMINISTRATION Subtotal	8,261		
		EMTG CADET/TRAINING FACILITIES Subtotal	2,514		
		Utility Support Space Subtotal	370		
		BUILDING SUBTOTAL (SF)	**11,145**		
		Circulation at 25%	2,786		B
		EMTG CADET/TRAINING FACILITIES GRAND TOTAL (SF)	**13,931**		

Finish Legend:
A - Simple Finishes

B - Standard Office Finishes
C - Intense Finishes

D - Service Room Finishes

The K-9 Unit and Shooting Range space requirements still need to be added to this overall program if the Training Center remains at its current location.

City of Bellevue - Fire Facilities Master Plan
Warehouse Space Needs Outline

CONCEPTUAL SPACE NEEDS OUTLINE
1/27/2014

Warehouse Staffing: 2 total

One full-time warehouse manager and one part time runner.
Additional staff may be necessary if special projects are included in the future.

No.	Type of Space	Space Attributes	Square Footage		
	PUBLIC/OFFICE AREA		**Program**	**Size**	**Finish**
WH1	**Entrance Lobby**	Visitor entrance and seating	105	7' x 15'	B
WH2	**Staff Restroom**	Unisex ADA compliant single person restroom.	64	8' x 8'	C
WH3	**Office**	Work station behind reception counter with area for forms, fax/copy/printer and office supplies for warehouse function.	180	12' x 15'	B
WH4	**Staff Break Room**	Kitchenette with seating for 4	200	10' x 20'	B
		PUBLIC/OFFICE AREA Subtotal	**549**		

No.	Type of Space	Space Attributes	Square Footage		
	WAREHOUSE		**Program**	**Size**	**Finish**
WH4	**Reserve Apparatus**	Two double deep bays for reserve apparatus storage	3,200	20' x 80' (2)	A
WH5	**Receiving / Distribution Truck Bay (outside but partially covered)**	Loading dock with truck bed level loading platform. Secure location for pallet deliver storage prior to inventory.	1,400	20' x 70'	A
WH6	**Will Call / Drop Off**	Adjacent to Receiving/Distribution Truck Bay, near Lobby. Secure location to store small truck deliveries before inventory.	1,320	40' x 33'	A
WH7	**Pallet Storage**	Adjacent to receiving and distribution, storage systems for receivables on pallets.	900	30' x 30'	A
WH8	**Department Records**	Heavy duty shelving for records storage, secure	350	10' x 35'	A
WH9	**PPE (Safety) Gear Storage/Uniform Storage**	Secure locker, shelving, hanging system for safety gear, no natural light.	475	19' x 25'	B
WH10	**Firefighting Equipment Storage**	Secure locker, shelving, hanging system for gear.	350	10' x 35'	A
WH11	**Medical supply Storage**	Secured space for medical supply goods, shelving system for small goods, table for picking and sorting, air conditioned.	700	20' x 35'	B

No.	Type of Space	Space Attributes	Square Footage		
	Warehouse Space Needs Outline		**Program**	**Size**	**Finish**
WH12	**Rescue Storage**	Secure locker, shelving, hanging system for gear.	350	10' x 35'	A
WH13	**Station Supplies & Public Ed. Storage**	Shelving	350	10' x 35'	A
WH14	**SCBA Air fill Station/bottle Storage**	Airfill Station and bottle fill, storage	240	12' x 20'	A
WH15	**Forklift Storage/Charging**	Area for forklift storage with battery charging, storage for hand jack (Palette Jack).	350	10' x 35'	C
WH16	**Warehouse Janitor Closet**	Mops sink, mop rack, service sink; janitorial supplies, hose bib, floor drain	45	5' x 9'	C
		WAREHOUSE Subtotal	**10,030**		
	UTILITY SUPPORT SPACE		**Program**	**Size**	**Finish**
WH17	**Mechanical Room**	HWH, Sprinkler riser	80	8' x 10'	D
WH18	**Electrical Room**	Main Panel	50	5' x 10'	D
WH19	**Communications Room**	Server, radio	50	5' x 10'	D
		Utility Support Subtotal	**180**		

	SPACE NEEDS SUMMARY		Program		
		Public/Office Area Subtotal	549		
		Warehouse Subtotal	10,030		
		Utility Subtotal	180		
		BUILDING SUBTOTAL (SF)	**10,759**		
		Circulation/Structure	441		B
		WAREHOUSE GRAND TOTAL (SF)	**11,200**		

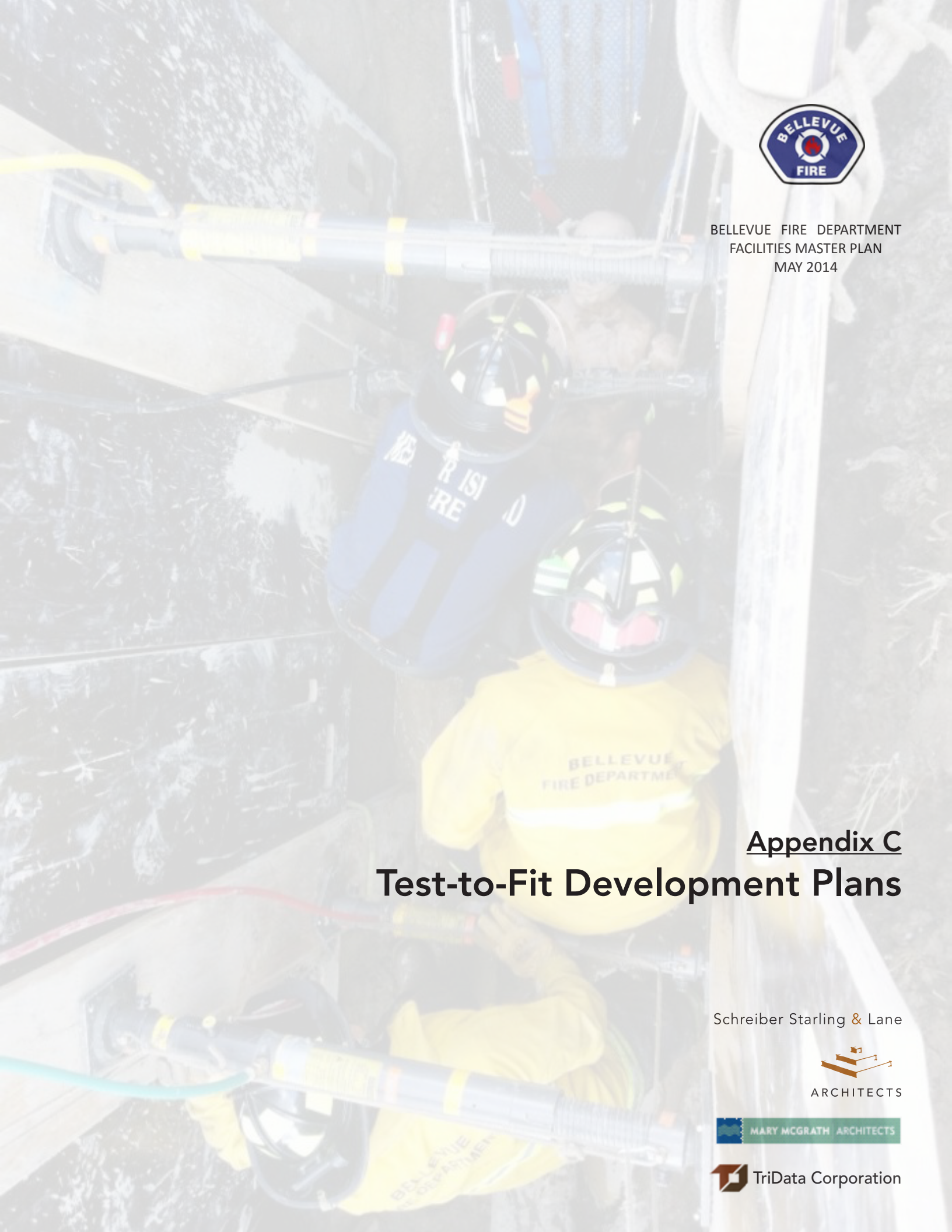
Finish Legend

A - Simple Finishes

B - Standard Office Finishes

C - Intense Finishes

D - Service Room Finishes

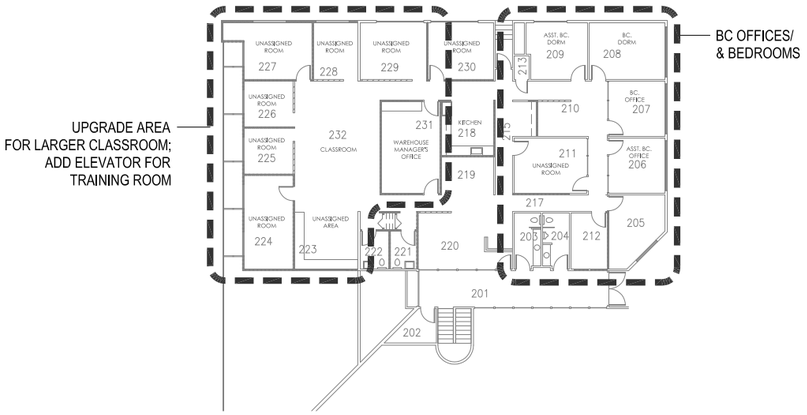


BELLEVUE FIRE DEPARTMENT
FACILITIES MASTER PLAN
MAY 2014

Appendix C
Test-to-Fit Development Plans

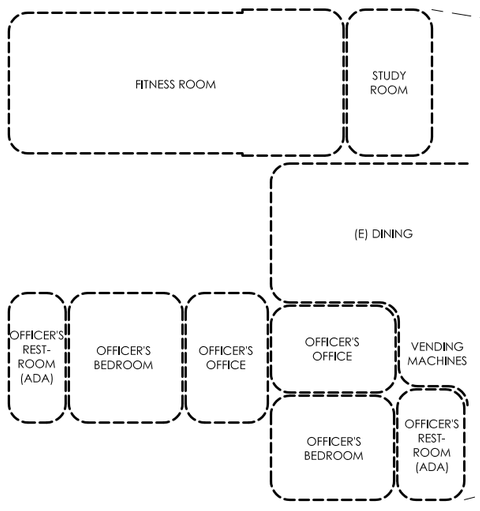
Schreiber Starling & Lane
ARCHITECTS
MARY MCGRATH ARCHITECTS
TriData Corporation

Bellevue Prototype Two Company Station with BC
Fire Station No. 1 Comparison
32 Assigned Personnel - SPACE NEEDS SUMMARY
1/27/2014
Station Company Summary
Fire Engine - Current Staffing 3, Future Staffing 4
Aid Car - Current Staffing 2, Future Staffing 2
Battalion Chief - Current Staffing 2
Three Platoon System
Planning for On-duty Staffing - 8



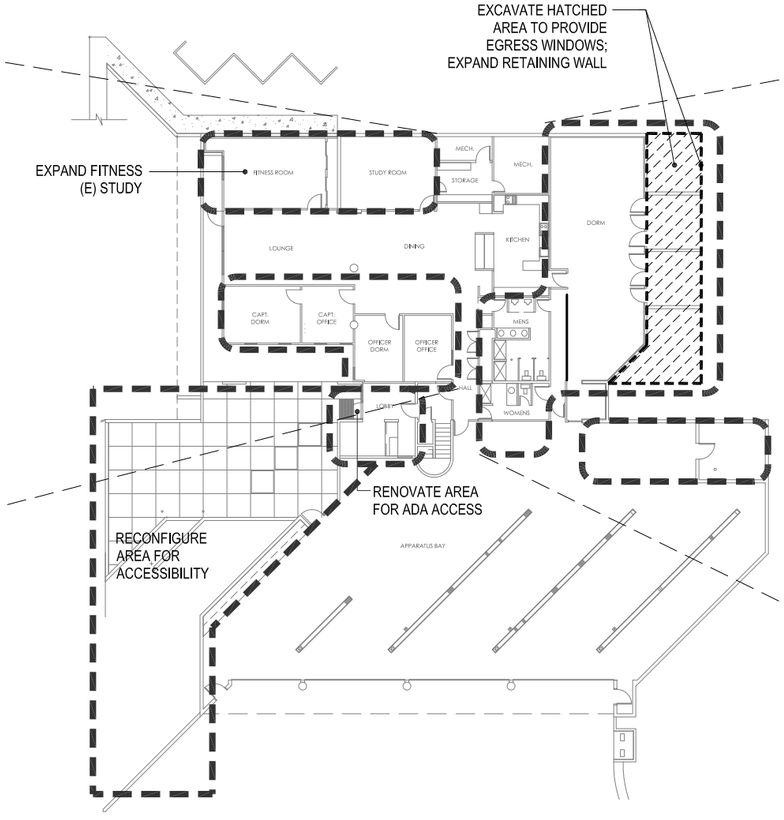
EXISTING SECOND FLOOR PLAN

SCALE: 1/32: 1'-0"



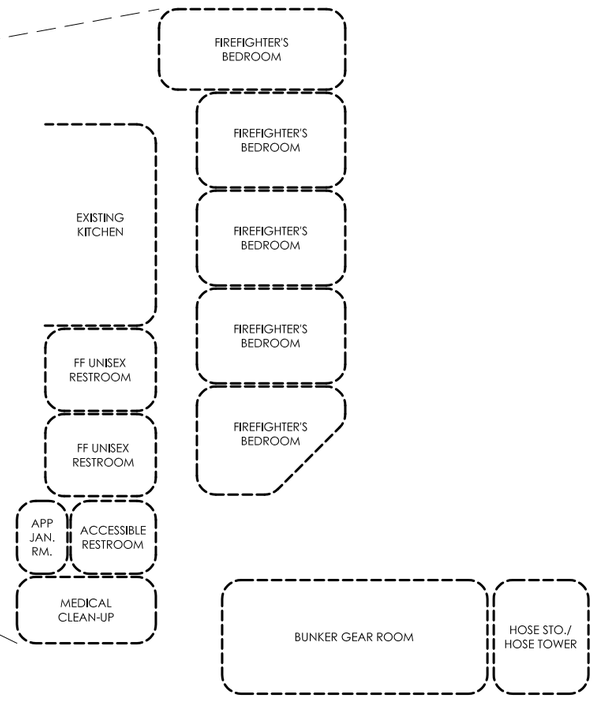
RE-CONFIGURED LAYOUT

SCALE: 1/16: 1'-0"



EXISTING GROUND FLOOR PLAN

SCALE: 1/32: 1'-0"



RE-CONFIGURED LAYOUT

SCALE: 1/16: 1'-0"

Schreiber Starling & Lane

ARCHITECTS

185 University St.
Seattle, WA 98101

Fire Facilities Planner

MARY MCGRATH | ARCHITECTS

CITY OF BELLEVUE WASHINGTON

Bellevue Fire Facilities

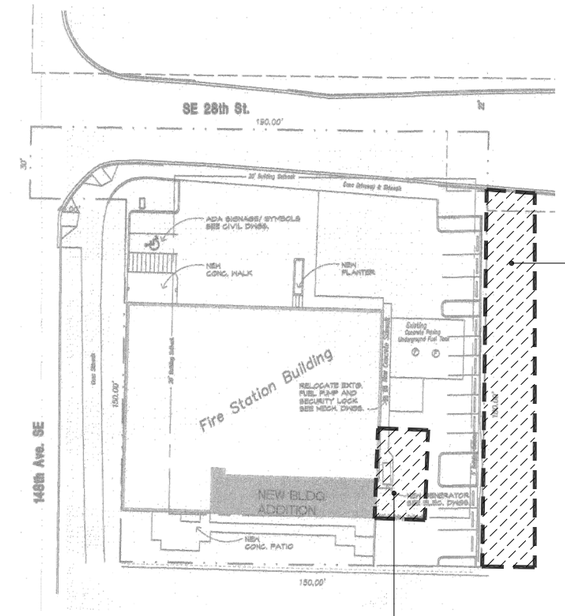
Safety Operational Improvements

FIRE STATION 1

PROJECT NO: 2208.01

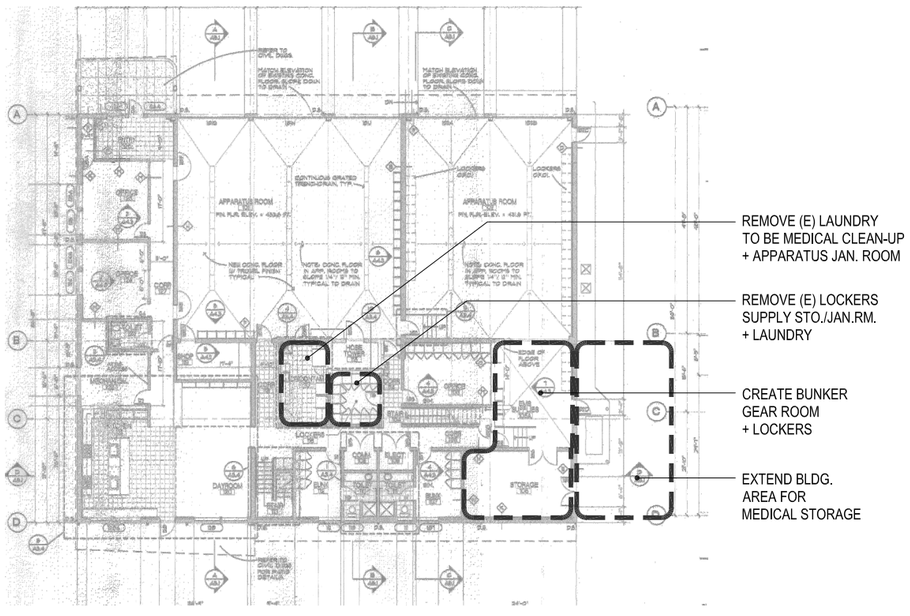
DATE: 01/27/2014

Bellevue Prototype Three Company Station with MSO-5
Fire Station No. 2 Comparison
36 Assigned Personnel - SPACE NEEDS SUMMARY
1/27/2014
Station Company Summary
Fire Engine (E2) - Current Staffing 3, Future Staffing 4
Aid Car (A2) - Current Staffing 2, Future Staffing 2
Medic (M2) - Current Staffing 2, Future Staffing 2
Medical Services Officer (MCO-5) - Current Staffing 1
Three Platoon System
Planning for On-duty Staffing - 9



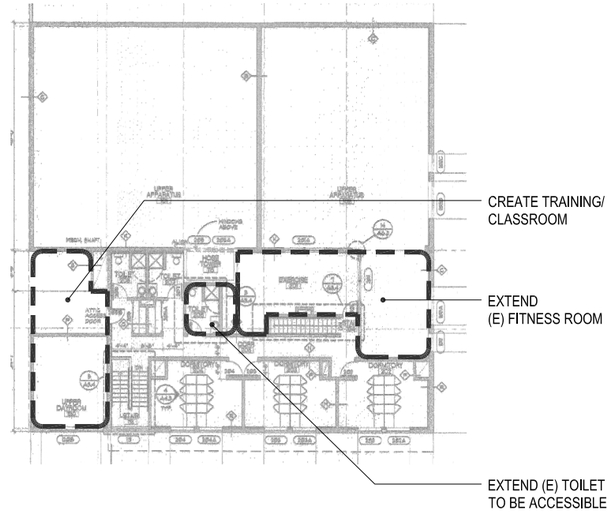
EXISTING SITE PLAN

SCALE: 1/64: 1'-0"



EXISTING FLOOR PLAN

SCALE: 1/32: 1'-0"



EXISTING UPPER FLOOR PLAN

SCALE: 1/32: 1'-0"

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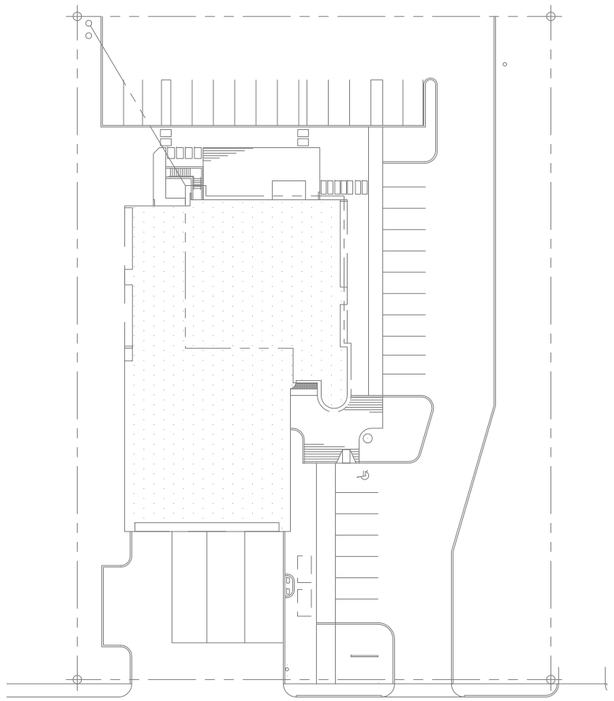
Safety Operational Improvements

FIRE STATION 2

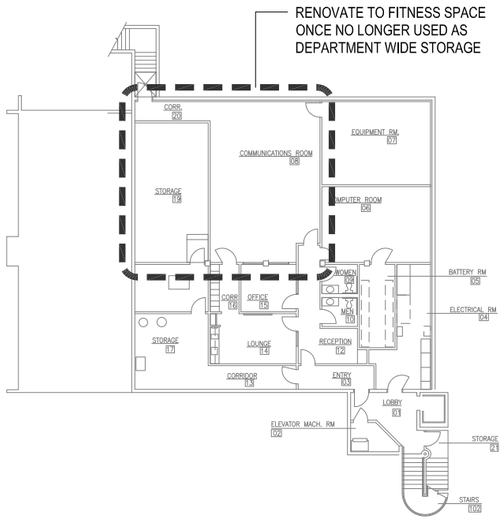
PROJECT NO: 2208.01

DATE: 01/27/2014



SITE PLAN

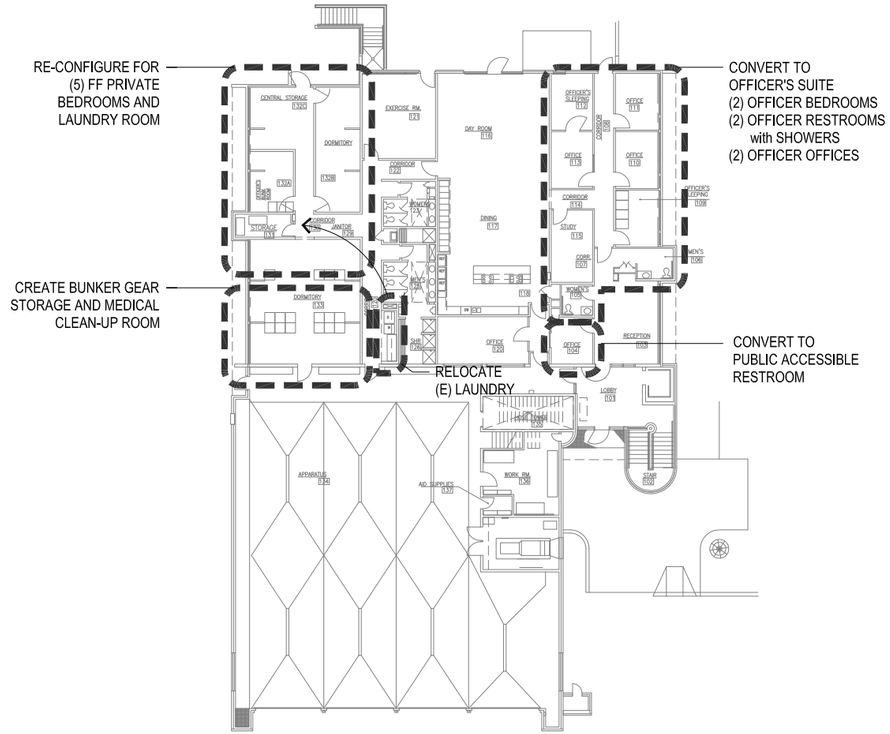
SCALE: 1/64: 1'-0"



BASEMENT FLOOR PLAN

SCALE: 1/32: 1'-0"

Bellevue Prototype Two Company Station
Fire Station No. 3 Comparison
28 Assigned Personnel - SPACE NEEDS SUMMARY
1/27/2014
Station Company Summary
Truck - Current Staffing 4, Future Staffing 5
Aid Car - Current Staffing 2, Future Staffing 2
Rescue - Cross staffed with Truck
Fire Engine - Tandem with Ladder, cross staffed
Three Platoon System
Planning for On-duty Staffing - 7



GROUND FLOOR PLAN

SCALE: 1/32: 1'-0"

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Bellevue Fire Facilities

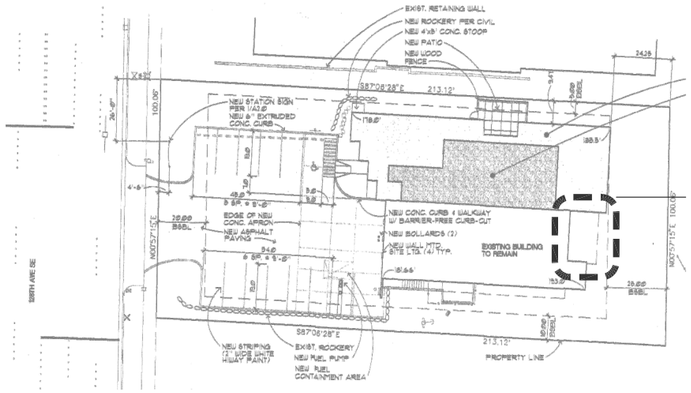
Safety Operational Improvements

FIRE STATION 3

PROJECT NO: 2208.01

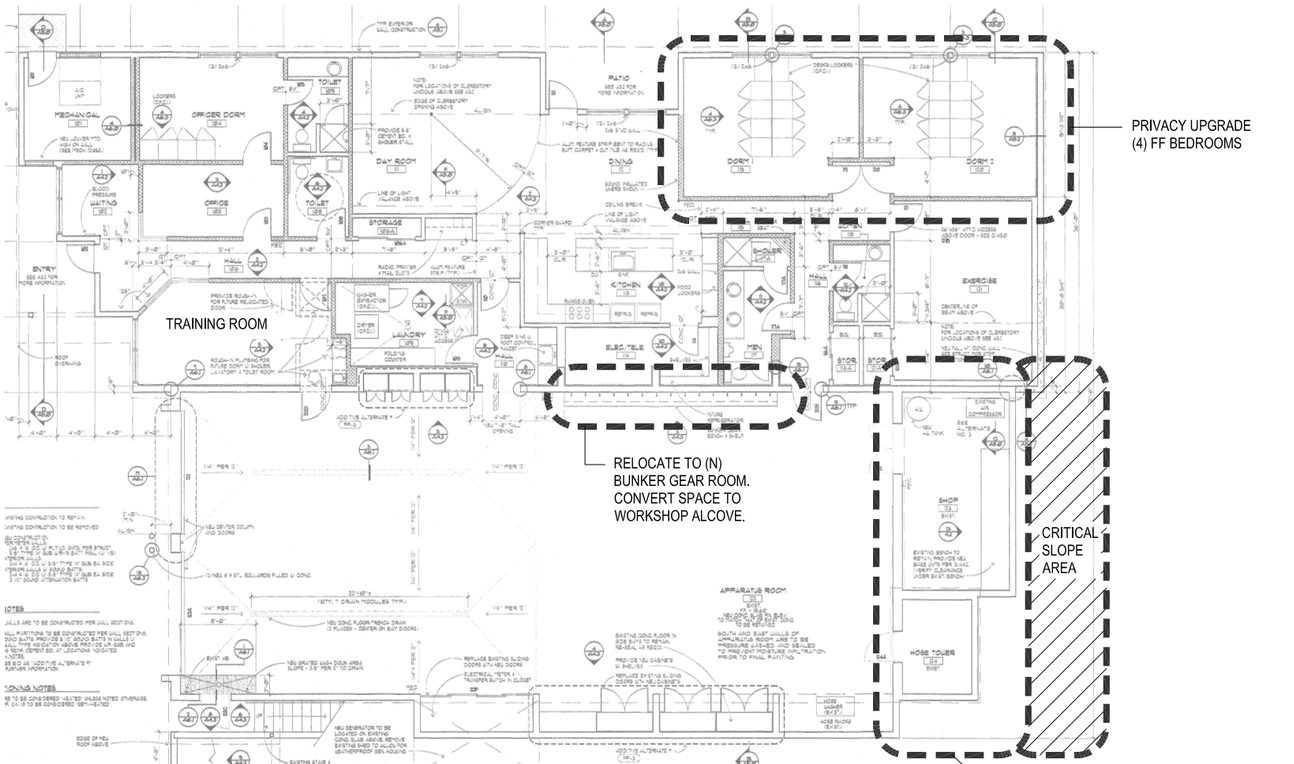
DATE: 01/27/2014

Bellevue Prototype Single Company Station
Fire Station No. 4 Comparison
16 Assigned Personnel - SPACE NEEDS SUMMARY
1/27/2014
Station Company Summary
Fire Engine - Current Staffing 3, Future Staffing 4
Reserve Storage in second bay
Three Platoon System
Planning for On-duty Staffing - 4



SITE PLAN

SCALE: 1/64: 1'-0"



FLOOR PLAN

SCALE: 1/16: 1'-0"

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Bellevue Fire Facilities

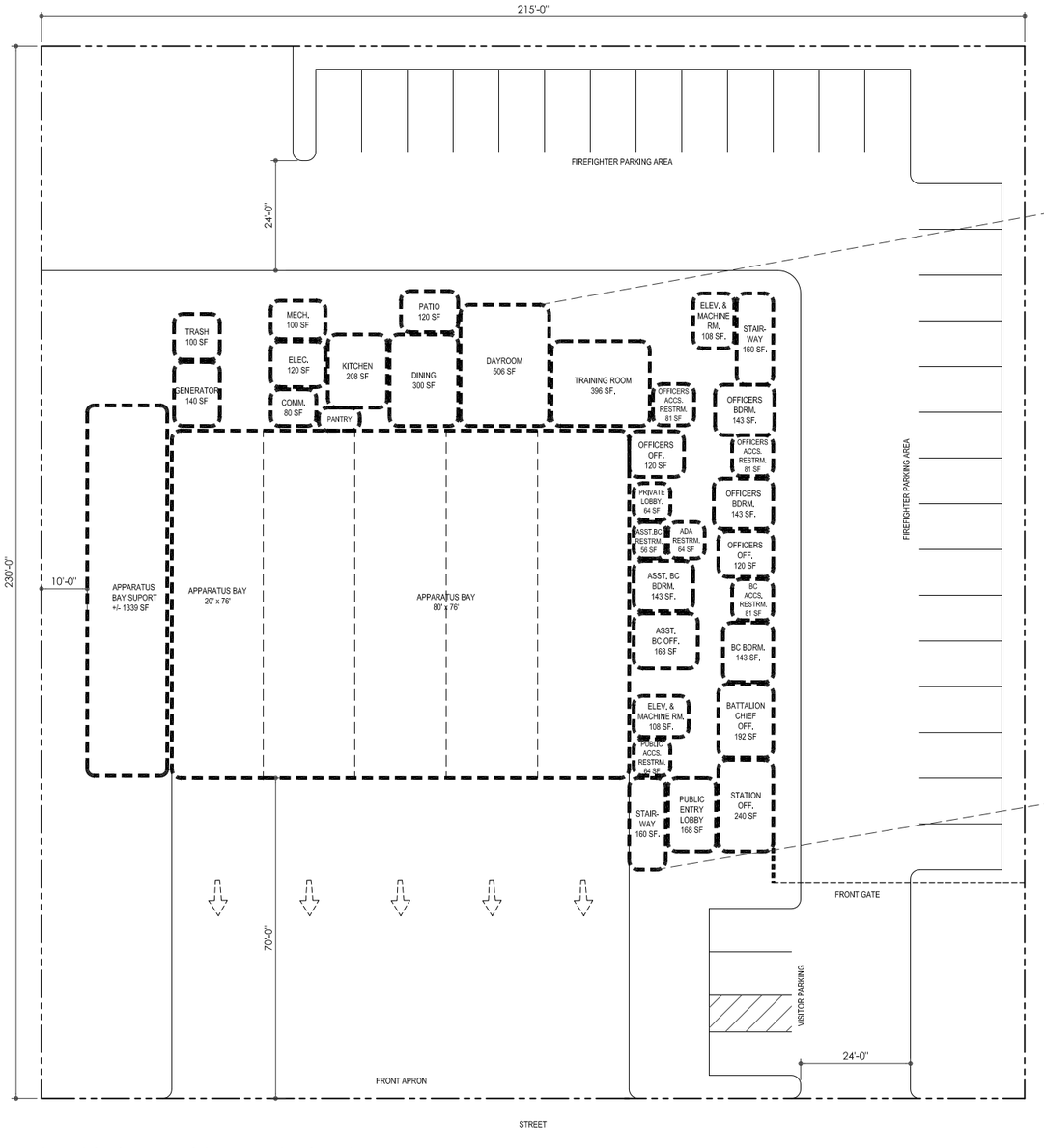
Safety Operational Improvements

FIRE STATION 4

PROJECT NO: 2208.01

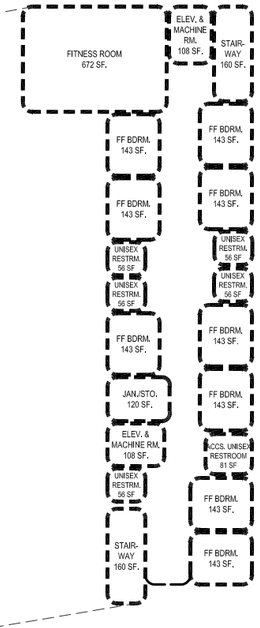
DATE: 01/27/2014

Bellevue Prototype Three Company Station with BC	
FUTURE FIRE STATION NO. 4	
48 Assigned Personnel - SPACE NEEDS SUMMARY	
1/27/2014	
Station Company Summary	
Truck Company (L4) - Current Staffing 4, Future Staffing 5	L3 will be relocated to No. 4
Fire Engine (E4) - Current Staffing 3, Future Staffing 3	
Medic/Aid Car (A4) - Future Staffing 2	
Battalion Chief and Assistant (BC2 Future staffing - 2)	
Three Platoon System	
Planning for On-duty Staffing - 12	



SITE / GROUND FLOOR PLAN (BACK-IN)

SCALE: 1/32: 1'-0"



SECOND FLOOR PLAN

SCALE: 1/32: 1'-0"

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Bellevue Fire Facilities

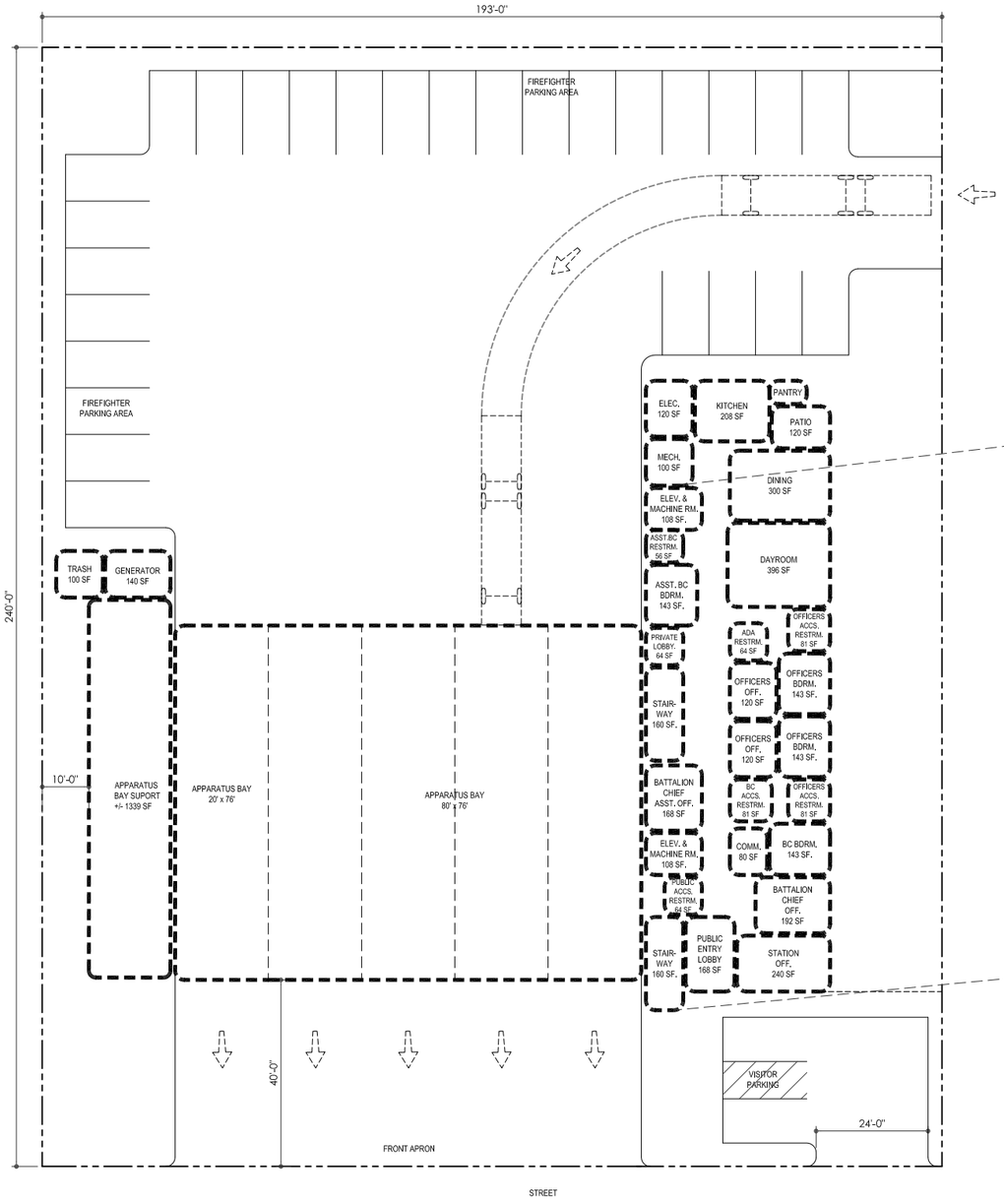
Safety Operational Improvements

FUTURE
FIRE STATION 4

PROJECT NO: 2208.01

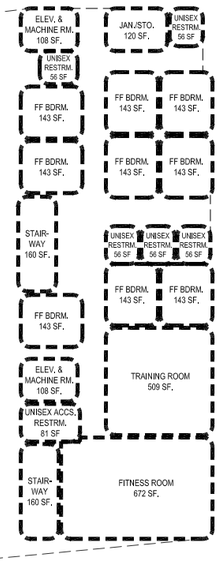
DATE: 01/27/2014

Bellevue Prototype Three Company Station with BC	
FUTURE FIRE STATION NO. 4	
48 Assigned Personnel - SPACE NEEDS SUMMARY	
1/27/2014	
Station Company Summary	
Truck Company (L4) - Current Staffing 4, Future Staffing 5	L3 will be relocated to No. 4
Fire Engine (E4) - Current Staffing 3, Future Staffing 3	
Medic/Aid Car (A4) - Future Staffing 2	
Battalion Chief and Assistant (BC2 Future staffing - 2)	
Three Platoon System	
Planning for On-duty Staffing - 12	



SITE / GROUND FLOOR PLAN (CORNER LOT)

SCALE: 1/32: 1'-0"



SECOND FLOOR PLAN

SCALE: 1/32: 1'-0"

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CITY OF BELLEVUE WASHINGTON

Bellevue Fire Facilities

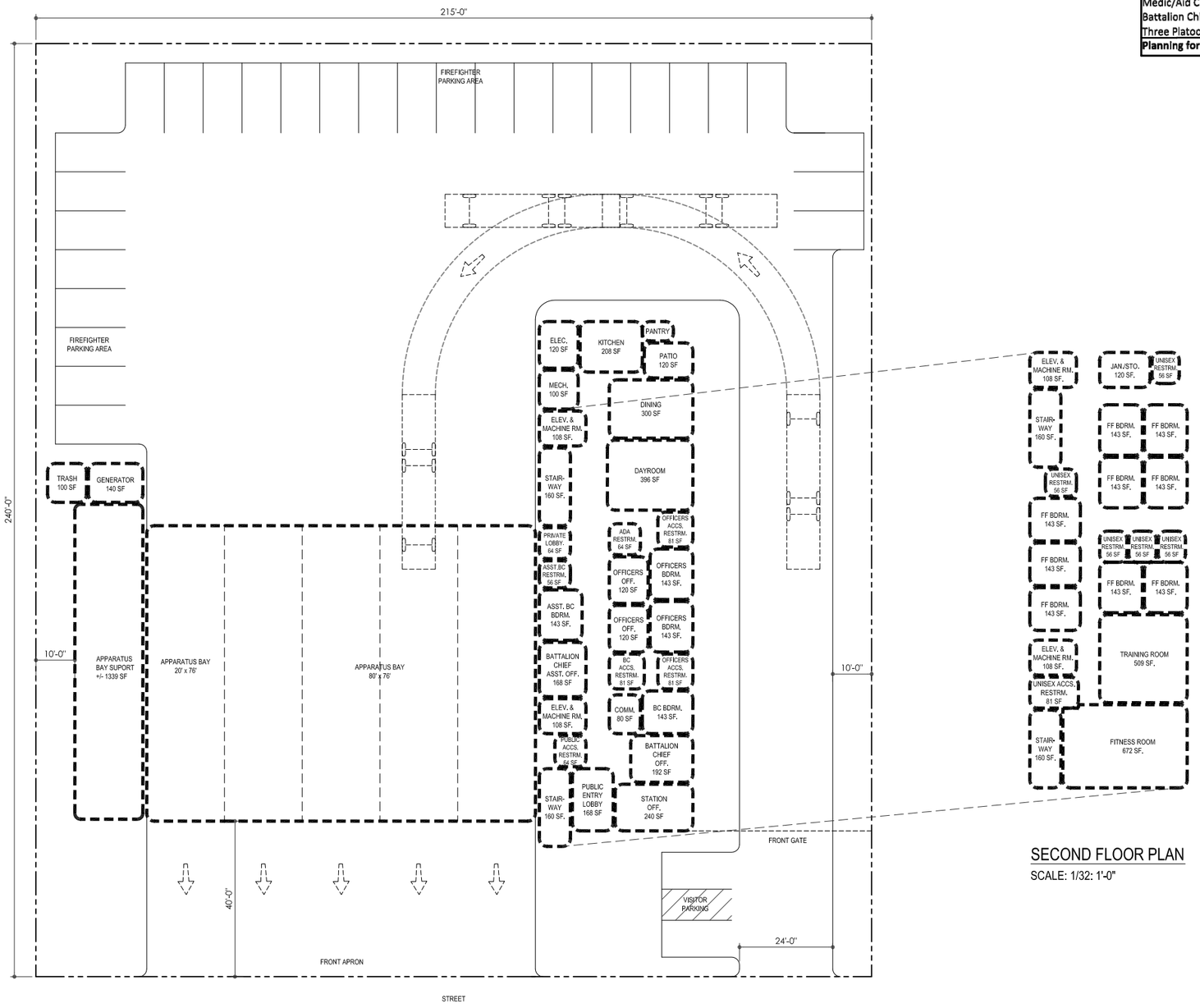
Safety Operational Improvements

FUTURE
FIRE STATION 4

PROJECT NO: 2208.01

DATE: 01/27/2014

Bellevue Prototype Three Company Station with BC	
FUTURE FIRE STATION NO. 4	
48 Assigned Personnel - SPACE NEEDS SUMMARY	
1/27/2014	
Station Company Summary	
Truck Company (L4) - Current Staffing 4, Future Staffing 5	L3 will be relocated to No. 4
Fire Engine (E4) - Current Staffing 3, Future Staffing 3	
Medic/Aid Car (A4) - Future Staffing 2	
Battalion Chief and Assistant (BC2 Future staffing - 2)	
Three Platoon System	
Planning for On-duty Staffing - 12	



SITE / GROUND FLOOR PLAN (INSIDE LOT)

SCALE: 1/32: 1'-0"

SECOND FLOOR PLAN

SCALE: 1/32: 1'-0"

Schreiber Starling & Lane

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CITY OF BELLEVUE WASHINGTON

Bellevue Fire Facilities

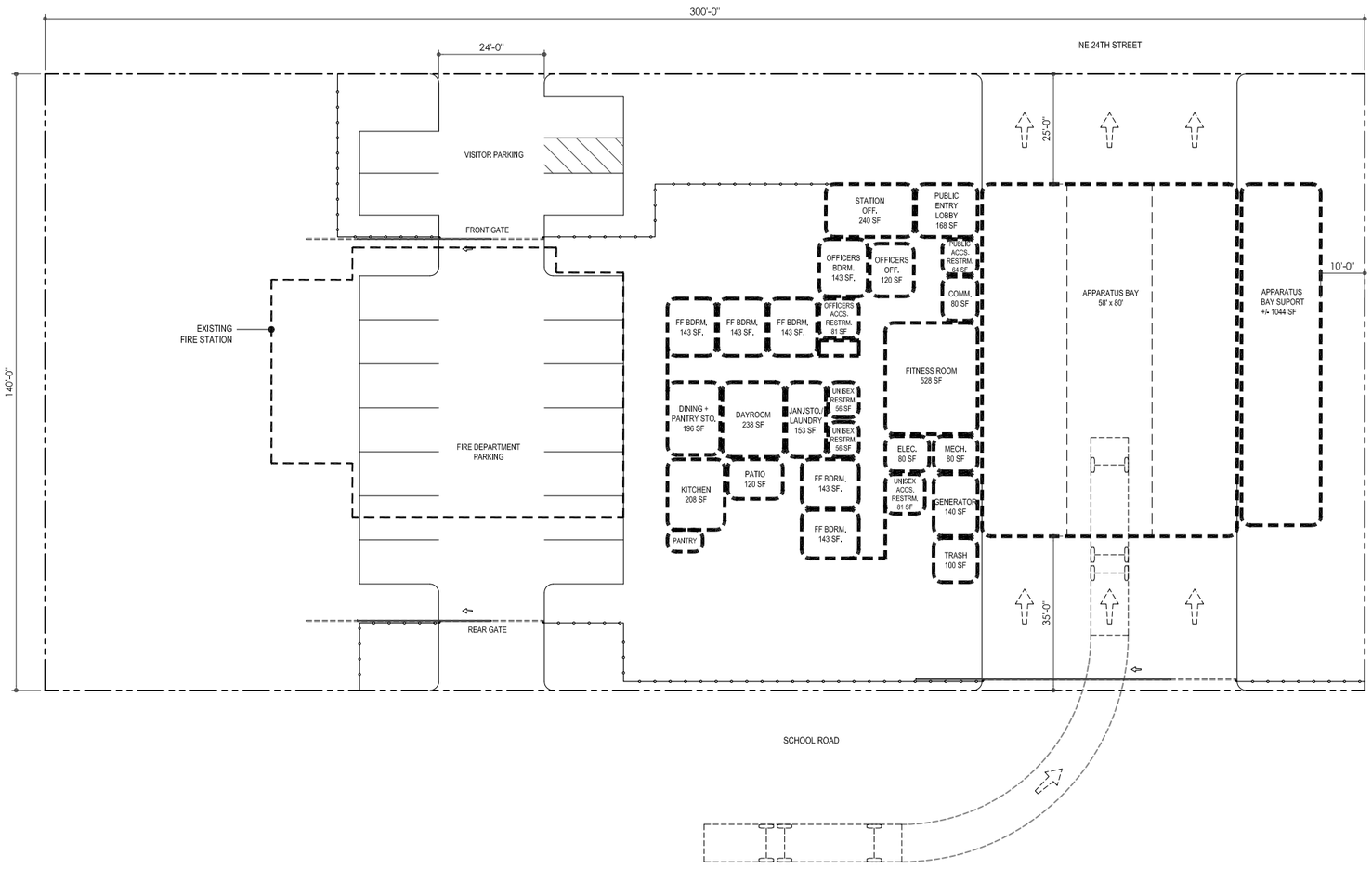
Safety Operational Improvements

FUTURE
FIRE STATION 4

PROJECT NO: 2208.01

DATE: 01/27/2014

Bellevue Prototype Two Company Station
Replacement Fire Station No. 5
20 Assigned Personnel - SPACE NEEDS SUMMARY
1/27/2014
Station Company Summary
Fire Engine (E5) - Current Staffing 3, Future Staffing 3 Aid Car (A5) - Future Staffing 2 Relocate Mobile Command Unit from Station 9 Three Platoon System
Planning for On-duty Staffing - 5



SITE / GROUND FLOOR PLAN

SCALE: 1/32: 1'-0"

Schreiber Starling & Lane

ARCHITECTS

185 University St.
Seattle, WA 98101

Fire Facilities Planner

MARY MCGRATH | ARCHITECTS

CITY OF BELLEVUE WASHINGTON

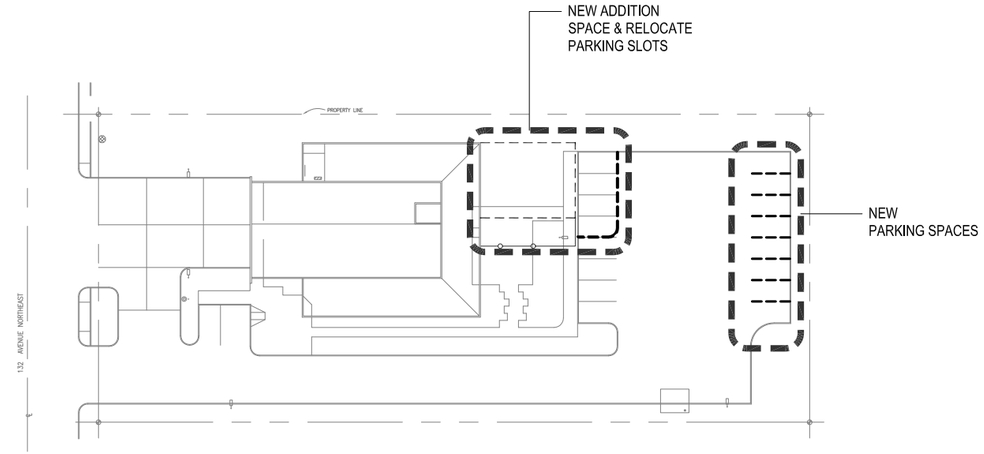
Bellevue Fire Facilities

Safety Operational Improvements

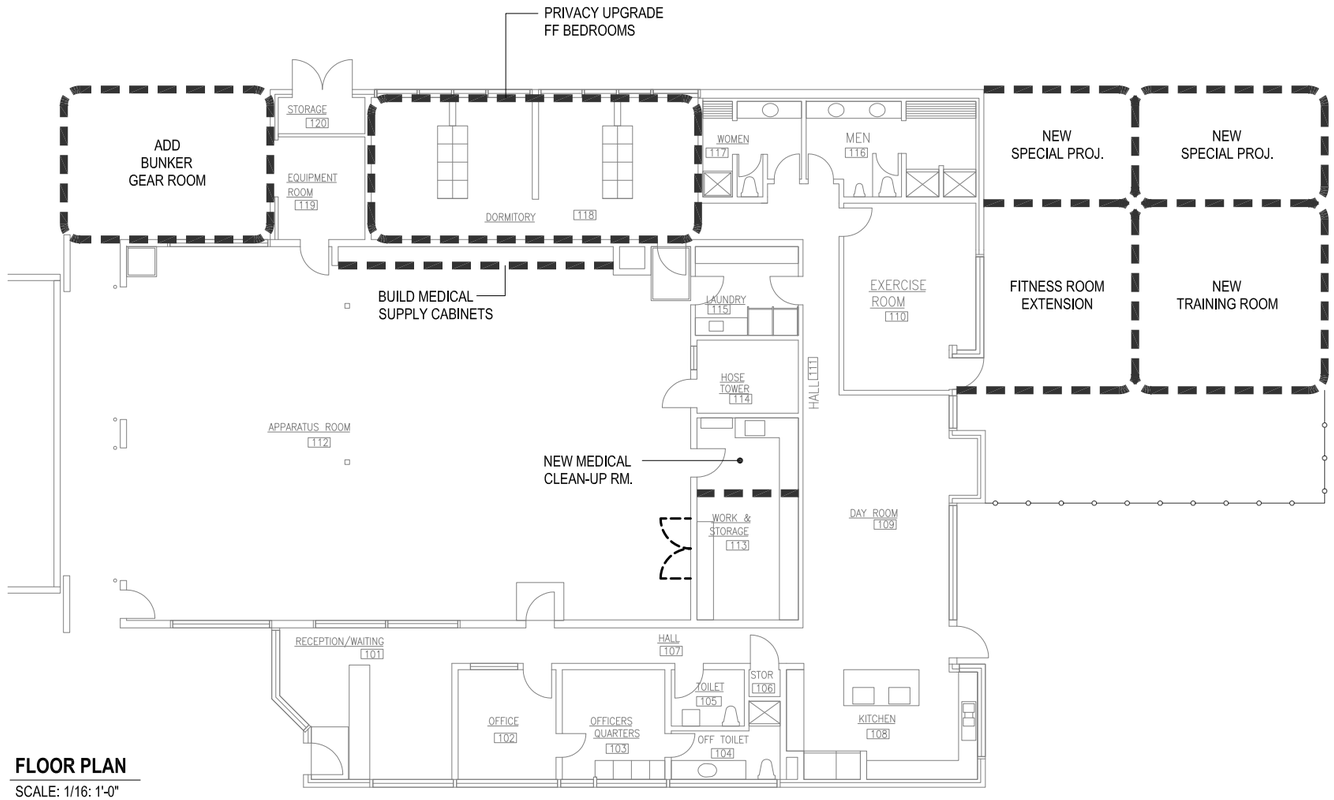
FIRE STATION 5 REPLACEMENT

PROJECT NO: 2208.01

DATE: 01/27/2014



SITE PLAN
SCALE: 1/64: 1'-0"



FLOOR PLAN
SCALE: 1/16: 1'-0"

Bellevue Prototype Single Company Station
Fire Station No. 6 Comparison
16 Assigned Personnel - SPACE NEEDS SUMMARY
1/27/2014
Station Company Summary
Fire Engine - Current Staffing 3, Future Staffing 4 Aid Car - Cross staffed with Engine staff Hazardous Material Unit in Reserve Bay Three Platoon System
Planning for On-duty Staffing - 4

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Seattle, WA 98101

Fire Facilities Planner

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CITY OF BELLEVUE WASHINGTON

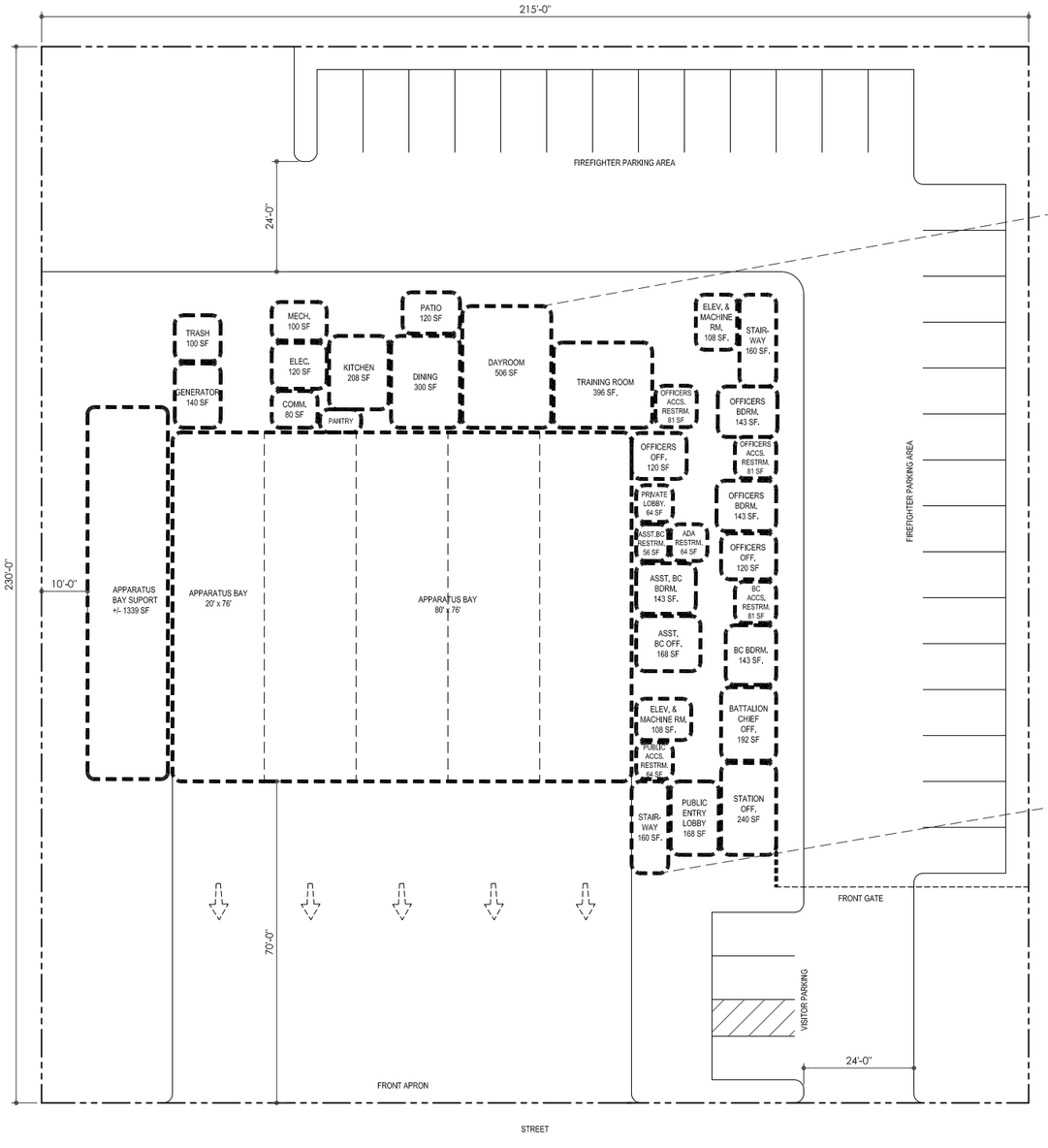
Bellevue Fire Facilities

Safety Operational Improvements

FIRE STATION 6

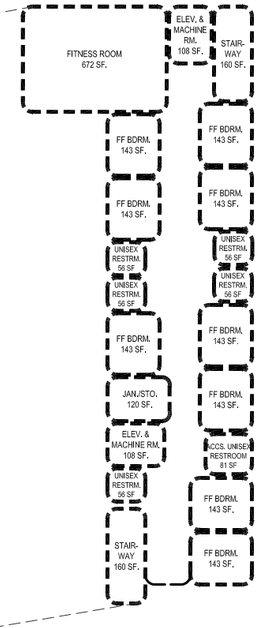
PROJECT NO: 2208.01
DATE: 01/27/2014

Bellevue Prototype Three Company Station with BC	
FUTURE FIRE STATION NO. 6	
48 Assigned Personnel - SPACE NEEDS SUMMARY	
Station Company Summary	
Truck Company (L6, Formally L1) - Current Staffing 4, Future Staffing 5	Haz Mat relocated to
Fire Engine (E6) - Current Staffing 3, Future Staffing 3	Station No. 7
Medic/Aid Car (A6) - Future Staffing 2	Relocate Ladder from Sta. 1 or 10
Battalion Chief (BS 1 Relocated from Station 1) - Current Staffing 2	
Three Platoon System	
Planning for On-duty Staffing - 12	



SITE / GROUND FLOOR PLAN (BACK-IN)

SCALE: 1/32: 1'-0"



SECOND FLOOR PLAN

SCALE: 1/32: 1'-0"

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Bellevue Fire Facilities

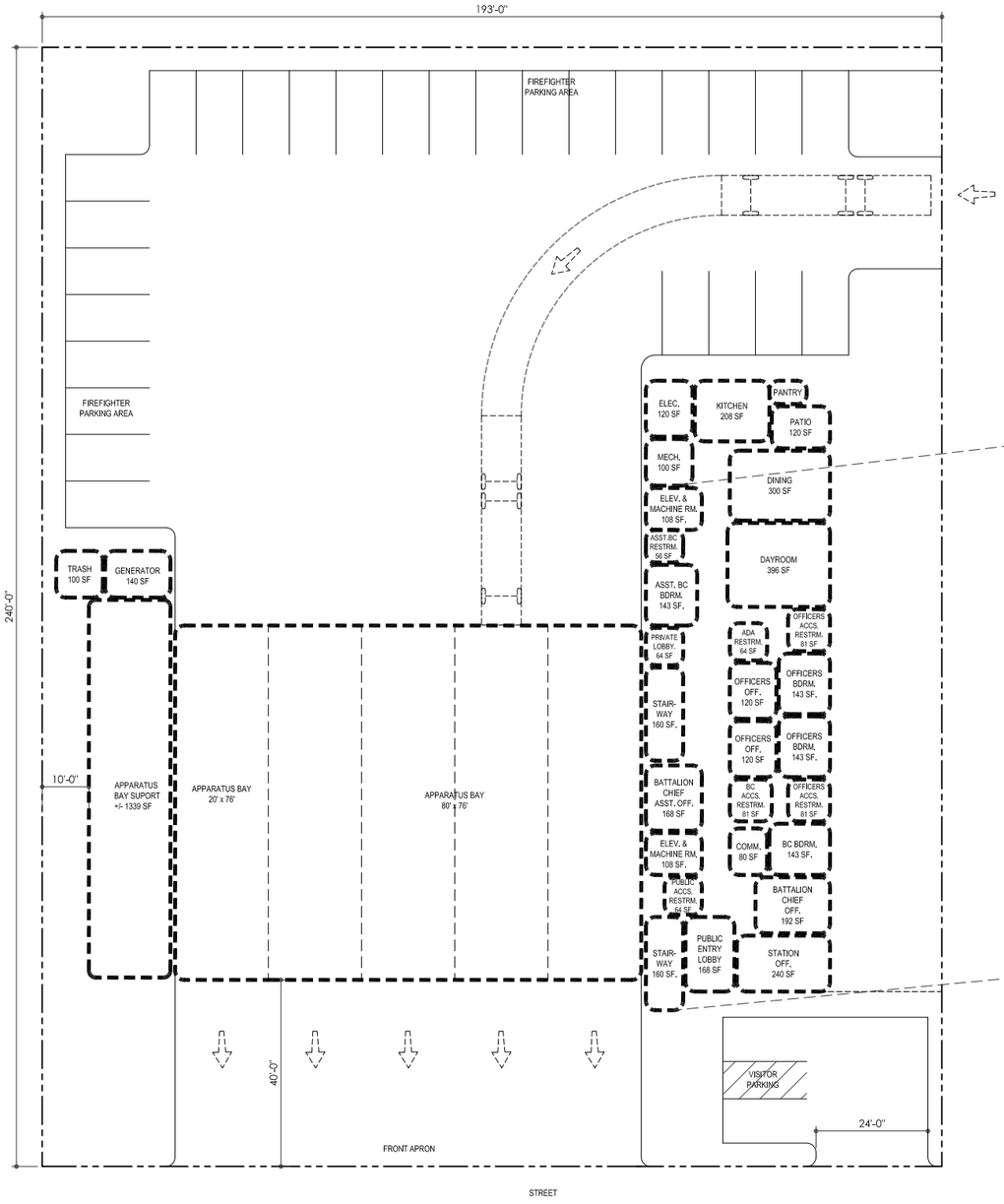
Safety Operational Improvements

FUTURE
FIRE STATION 6

PROJECT NO: 2208.01

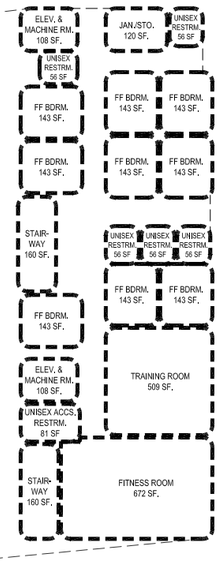
DATE: 01/27/2014

Bellevue Prototype Three Company Station with BC	
FUTURE FIRE STATION NO. 6	
48 Assigned Personnel - SPACE NEEDS SUMMARY	
Station Company Summary	
Truck Company (L6, Formally L1) - Current Staffing 4, Future Staffing 5	Haz Mat relocated to
Fire Engine (E6) - Current Staffing 3, Future Staffing 3	Station No. 7
Medic/Aid Car (A6) - Future Staffing 2	Relocate Ladder from Sta. 1 or 10
Battalion Chief (BS 1 Relocated from Station 1) - Current Staffing 2	
Three Platoon System	
Planning for On-duty Staffing - 12	



SITE / GROUND FLOOR PLAN (CORNER LOT)

SCALE: 1/32: 1'-0"



SECOND FLOOR PLAN

SCALE: 1/32: 1'-0"

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CITY OF BELLEVUE WASHINGTON

Bellevue Fire Facilities

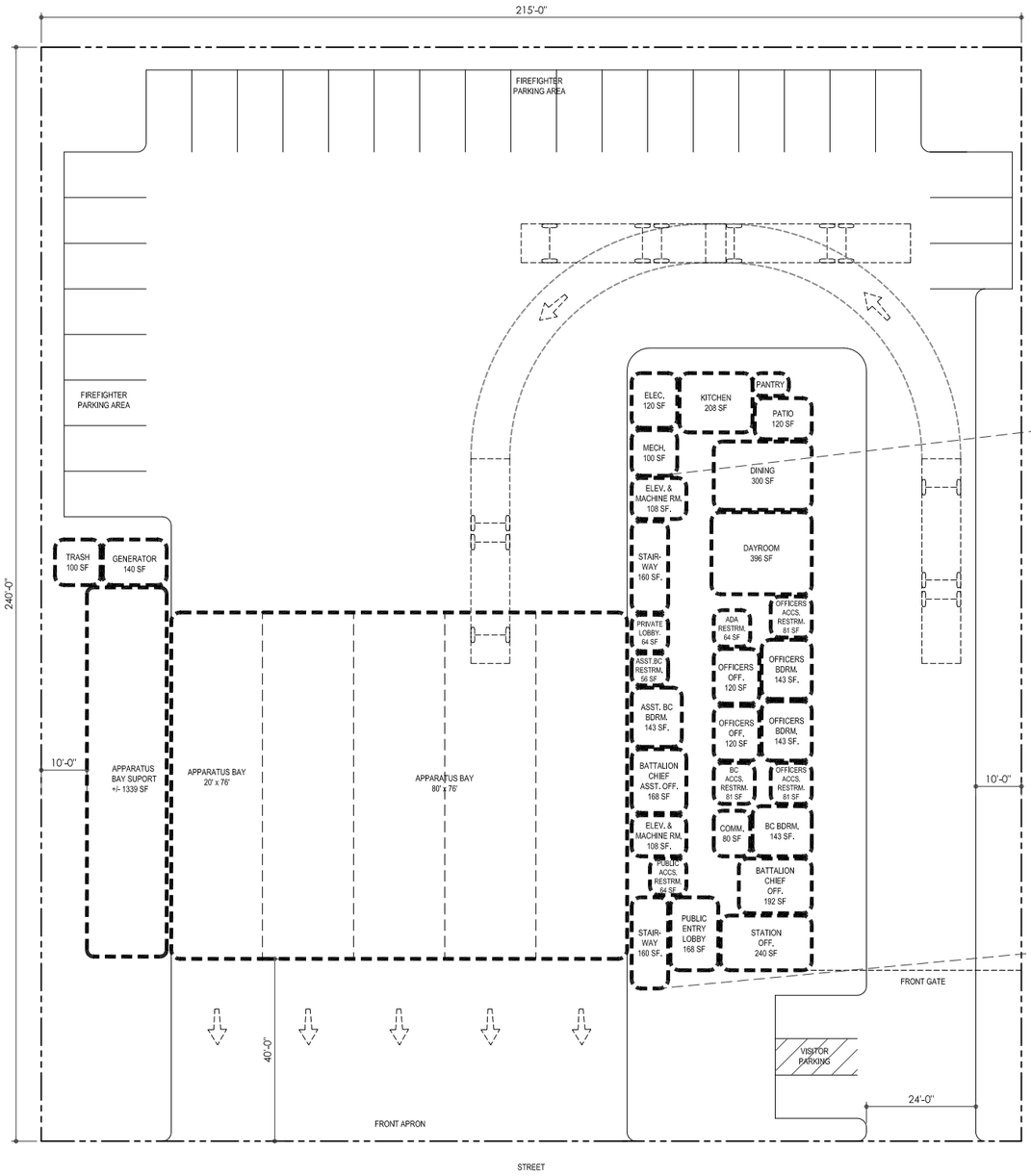
Safety Operational Improvements

FUTURE
FIRE STATION 6

PROJECT NO: 2208.01

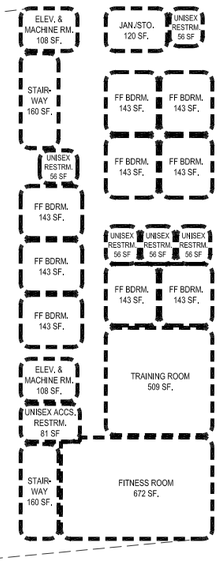
DATE: 01/27/2014

Bellevue Prototype Three Company Station with BC	
FUTURE FIRE STATION NO. 6	
48 Assigned Personnel - SPACE NEEDS SUMMARY	
Station Company Summary	
Truck Company (L6, Formally L1) - Current Staffing 4, Future Staffing 5	Haz Mat relocated to
Fire Engine (E6) - Current Staffing 3, Future Staffing 3	Station No. 7
Medic/Aid Car (A6) - Future Staffing 2	Relocate Ladder from Sta. 1 or 10
Battalion Chief (BS 1 Relocated from Station 1) - Current Staffing 2	
Three Platoon System	
Planning for On-duty Staffing - 12	



SITE / GROUND FLOOR PLAN (INSIDE LOT)

SCALE: 1/32: 1'-0"



SECOND FLOOR PLAN

SCALE: 1/32: 1'-0"

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CITY OF BELLEVUE WASHINGTON

Bellevue Fire Facilities

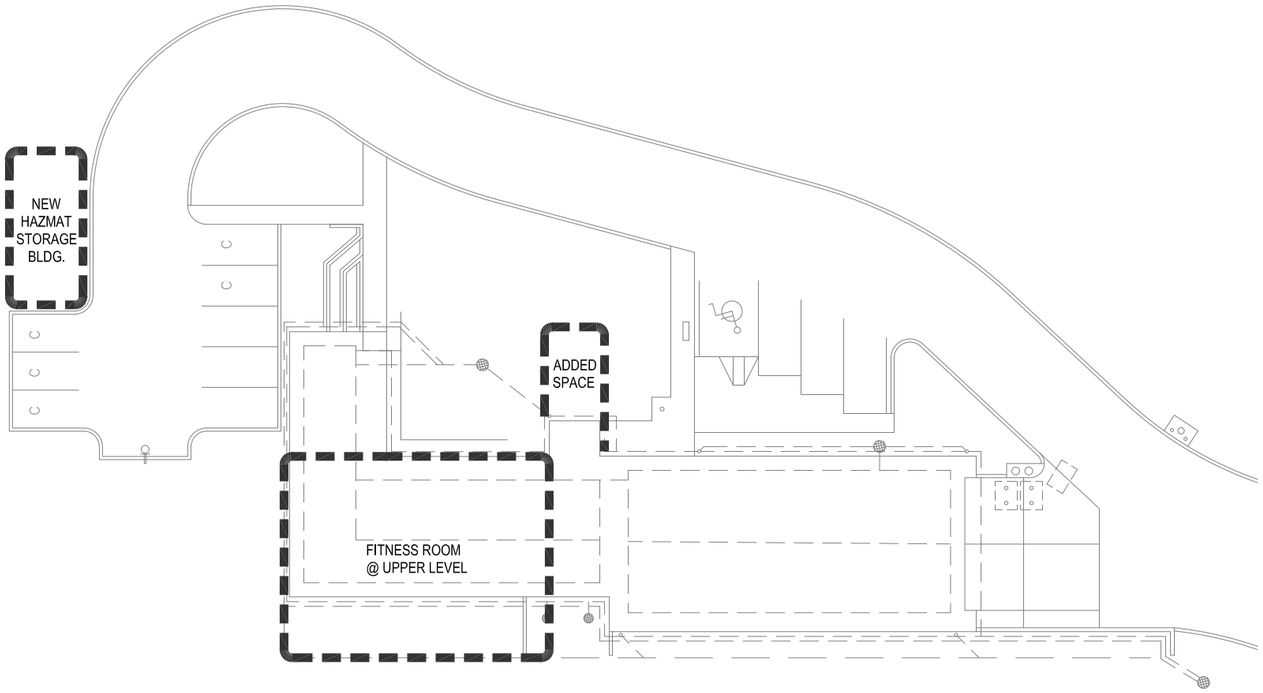
Safety Operational Improvements

FUTURE
FIRE STATION 6

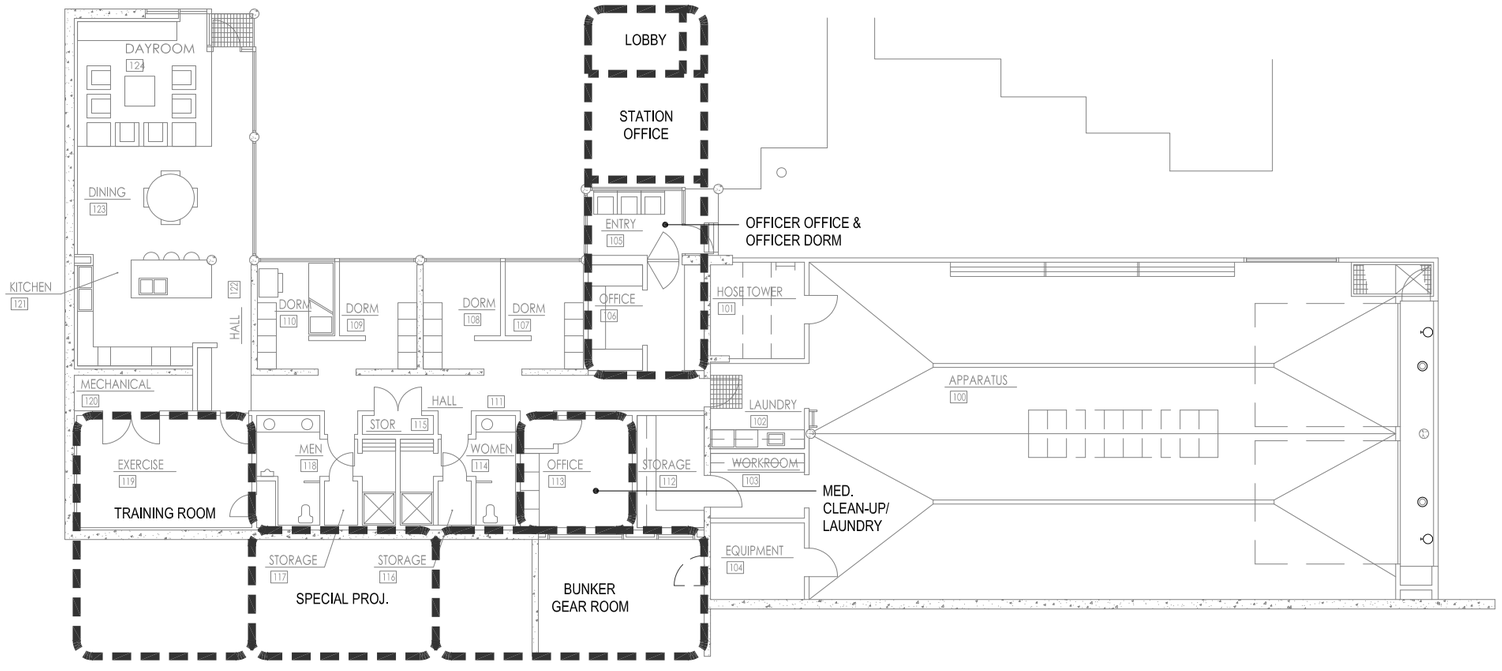
PROJECT NO: 2208.01

DATE: 01/27/2014

Bellevue Prototype Single Company Station
Fire Station No. 7 Comparison
20 Assigned Personnel
1/27/2014
Station Company Summary
Fire Engine - Current Staffing 4, Future Staffing 4
Light Force Staffing - Future 1
Reserve Storage in second bay for future Haz Mat unit location
Three Platoon System
Planning for On-duty Staffing - 5



SITE PLAN
SCALE: 1/32: 1'-0"



FLOOR PLAN
SCALE: 1/16: 1'-0"

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Bellevue Fire Facilities

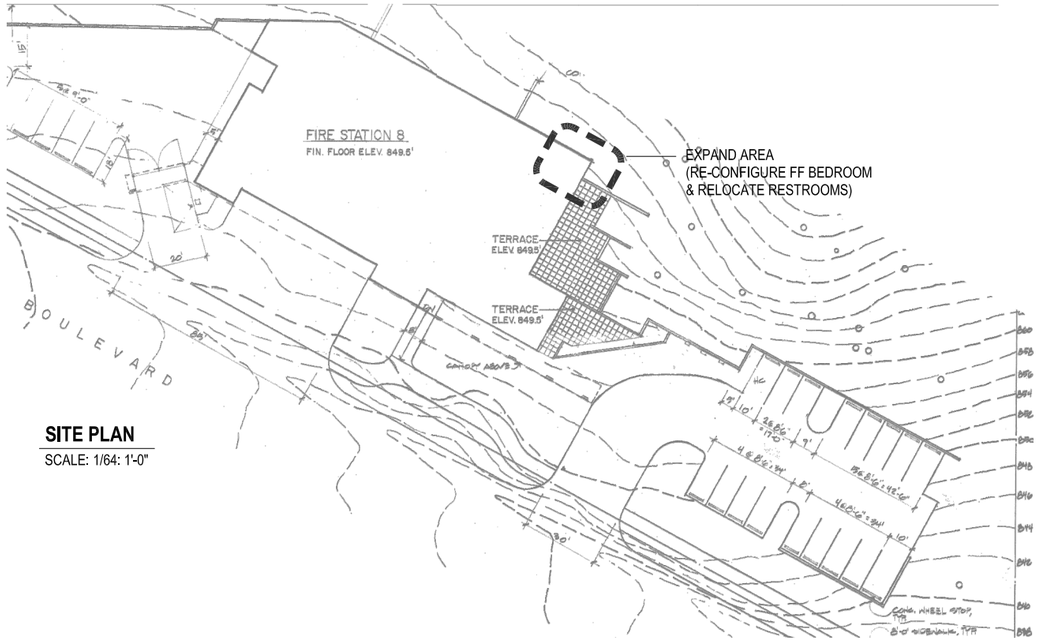
Safety Operational Improvements

FIRE STATION 7

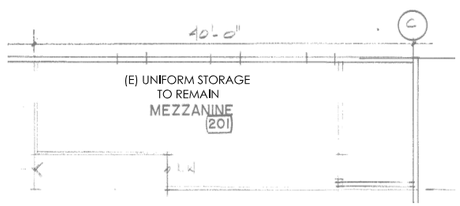
PROJECT NO: 2208.01

DATE: 01/27/2014

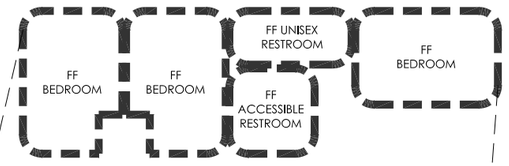
Bellevue Prototype Single Company Station
Fire Station No. 8 Comparison
16 Assigned Personnel - SPACE NEEDS SUMMARY
1/27/2014
Station Company Summary
Fire Engine (E8) - Current Staffing 3, Future Staffing 4 Air Unit (AU1) - Cross staffed with Engine staff Future Brush Rig - Cross Staffed with Engine Three Platoon System
Planning for On-duty Staffing - 4



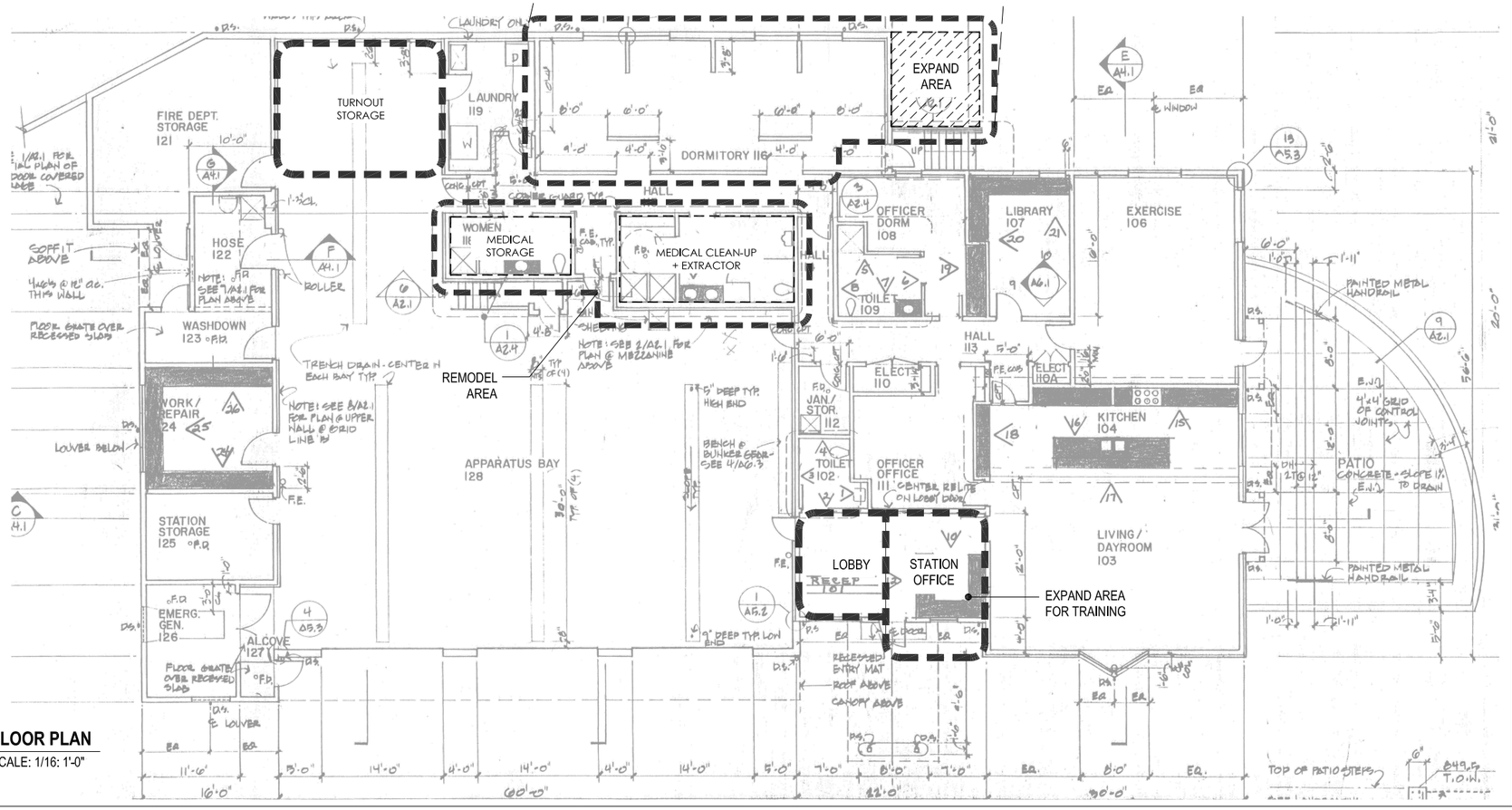
SITE PLAN
SCALE: 1/64: 1'-0"



MEZZANINE PARTIAL PLAN
SCALE: 1/16: 1'-0"



PRIVACY UPGRADE (3) FF BEDROOMS;
RELOCATE RESTROOM & CREATE 1
ACCESSIBLE RESTROOM



FLOOR PLAN
SCALE: 1/16: 1'-0"

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CITY OF BELLEVUE WASHINGTON

Bellevue Fire Facilities

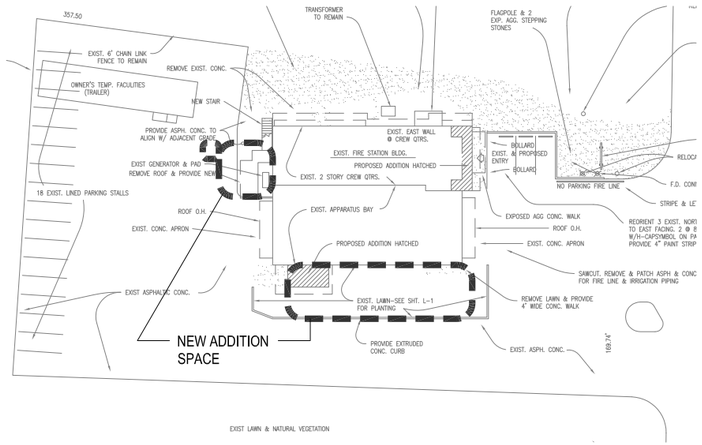
Safety Operational Improvements

FIRE STATION 8

PROJECT NO: 2208.01

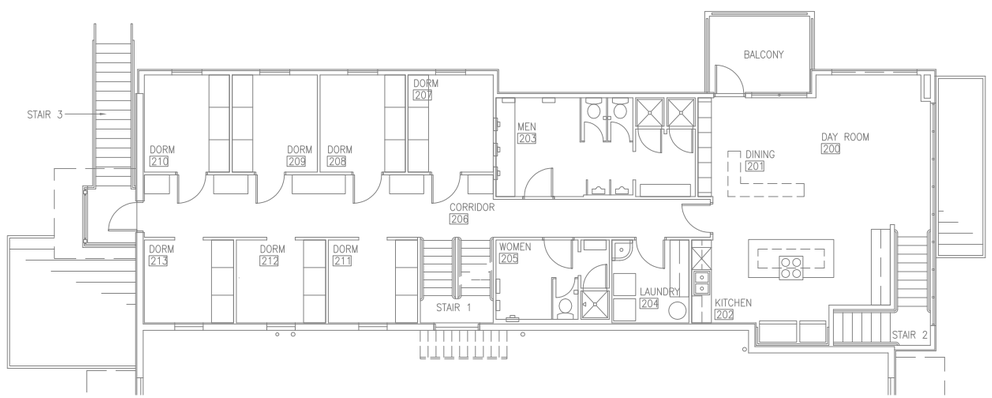
DATE: 01/27/2014

Bellevue Prototype Single Company Station
Fire Station No. 9 Comparison
16 Assigned Personnel - SPACE NEEDS SUMMARY
1/27/2014
Station Company Summary
Fire Engine - Current Staffing 3, Future Staffing 4
Mass Casualty Unit in Storage - Cross Staffed
Three Platoon System
Planning for On-duty Staffing - 4



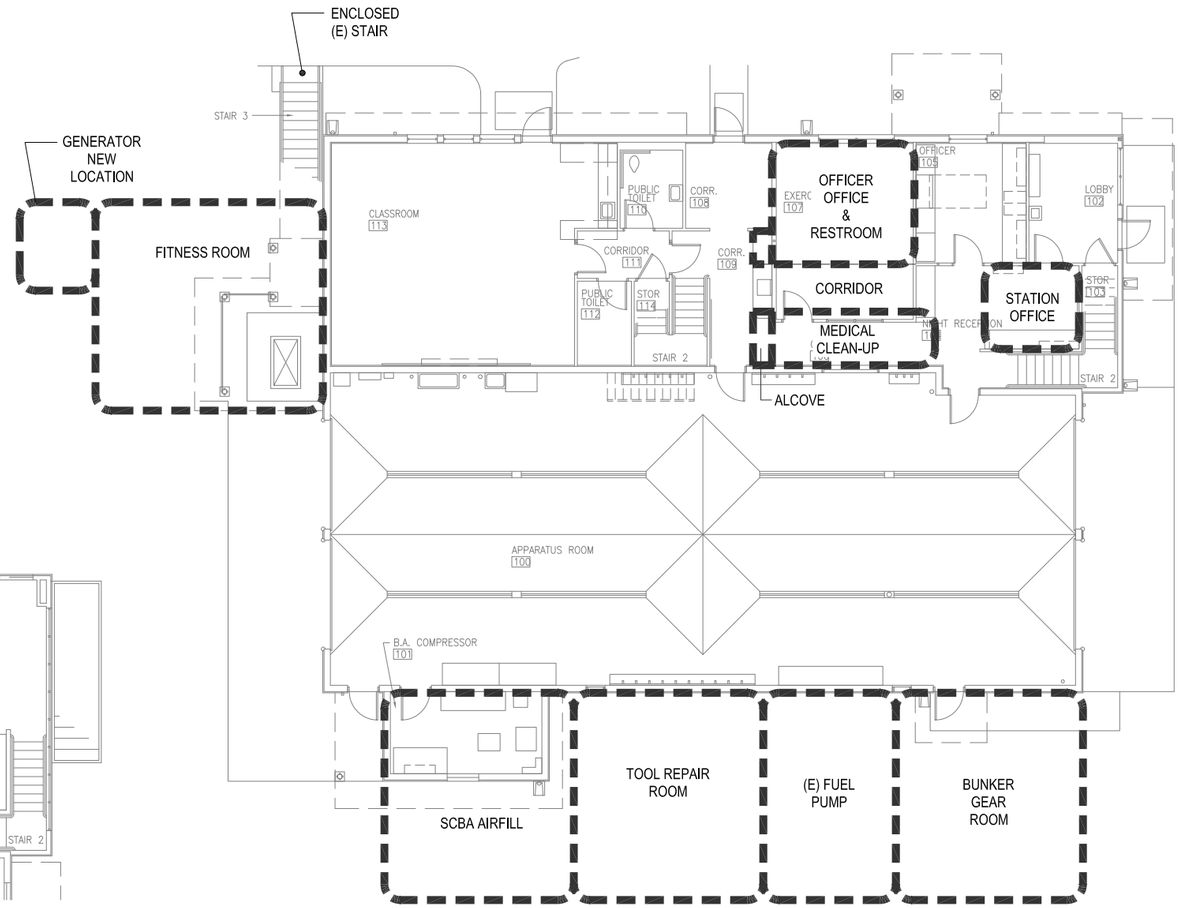
SITE PLAN

SCALE: 1/64: 1'-0"



SECOND FLOOR PLAN

SCALE: 1/16: 1'-0"



GROUND FLOOR PLAN

SCALE: 1/16: 1'-0"

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CITY OF BELLEVUE WASHINGTON

Bellevue Fire Facilities

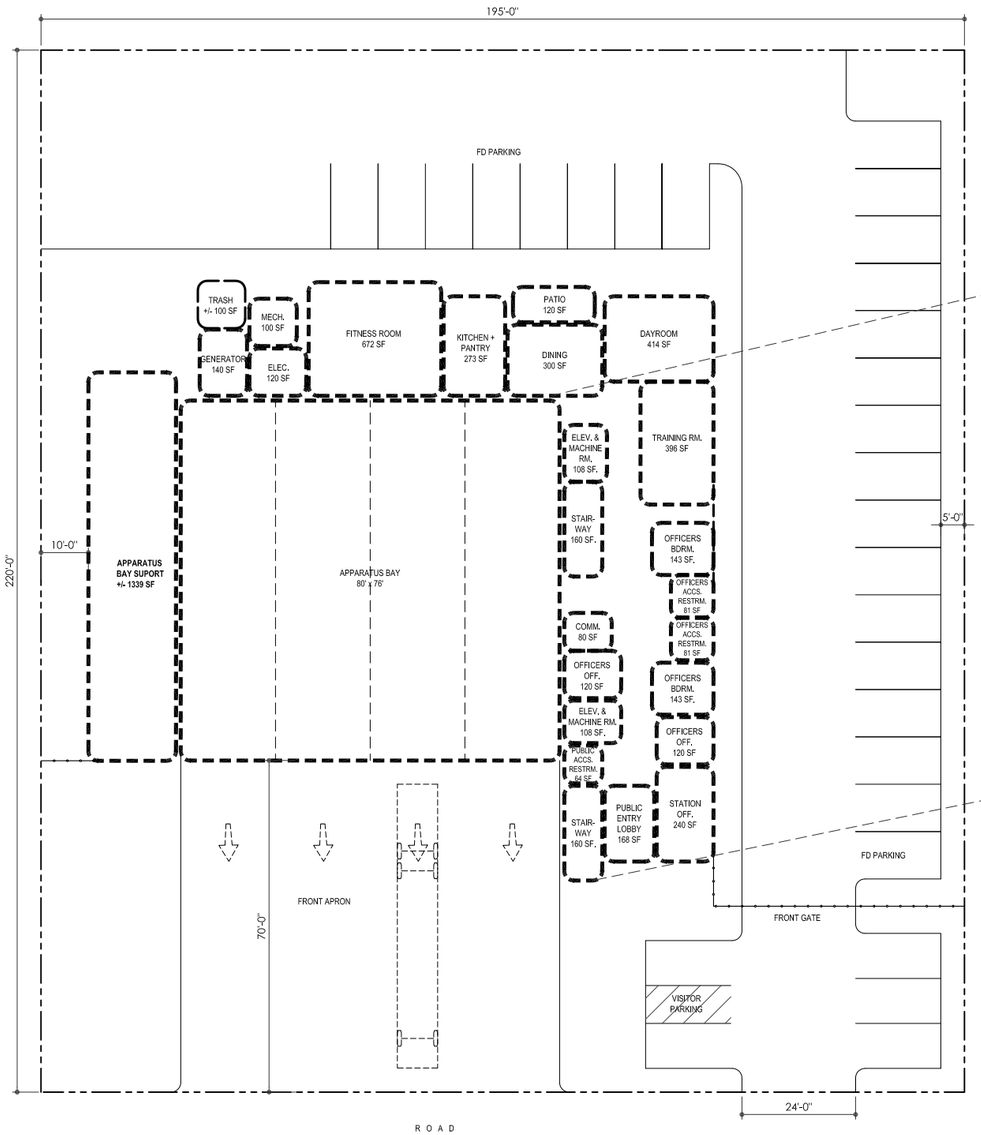
Safety Operational Improvements

FIRE STATION 9

PROJECT NO: 2208.01

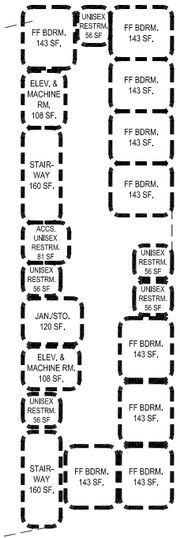
DATE: 01/27/2014

Bellevue Prototype Three Company Station
New Fire Station No. 10
44 Assigned Personnel - SPACE NEEDS SUMMARY
1/27/2014
Station Company Summary
Truck Company (L1 - Currently at Station 7) - Current Staffing 4, Future Staffing 5 (Will be replaced with Medic when Station 6 is opened.)
Fire Engine (E10) - Future Staffing 4
Aid Car (A10) - Current Staffing (2) will relocate from Station 1 (A1)
Three Platoon System
Planning for On-duty Staffing - 11



SITE / GROUND FLOOR PLAN (BACK-IN)

SCALE: 1/32: 1'-0"



SECOND FLOOR PLAN

SCALE: 1/32: 1'-0"

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CITY OF BELLEVUE WASHINGTON

Bellevue Fire Facilities

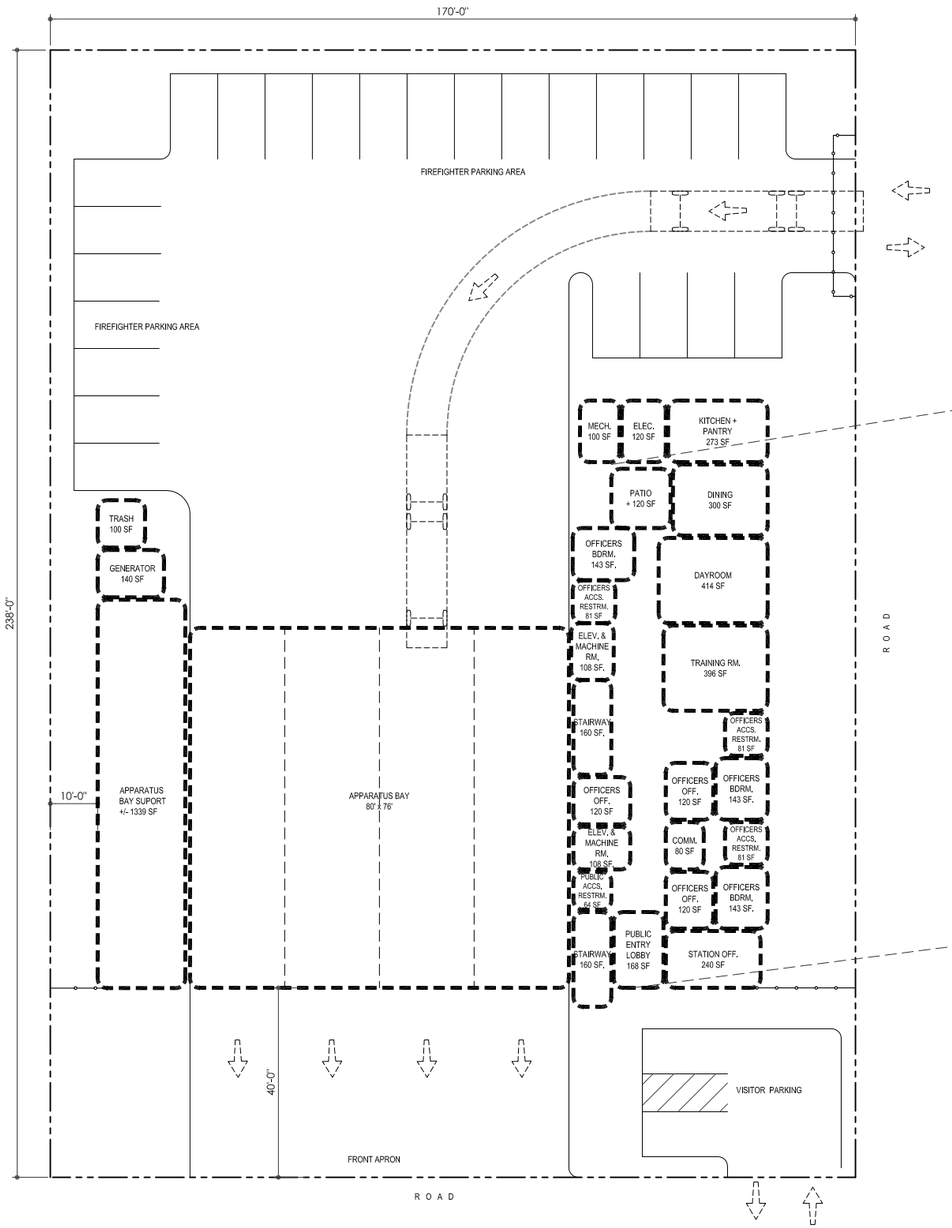
Safety Operational Improvements

FIRE STATION 10

PROJECT NO: 2208.01

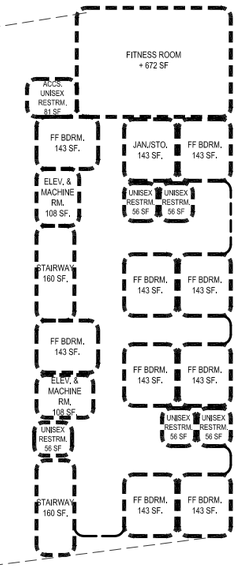
DATE: 01/27/2014

Bellevue Prototype Three Company Station
New Fire Station No. 10
44 Assigned Personnel - SPACE NEEDS SUMMARY
1/27/2014
Station Company Summary
Truck Company (L1 - Currently at Station 7) - Current Staffing 4, Future Staffing 5 (Will be replaced with Medic when Station 6 is opened.)
Fire Engine (E10) - Future Staffing 4
Aid Car (A10) - Current Staffing (2) will relocate from Station 1 (A1)
Three Platoon System
Planning for On-duty Staffing - 11



SITE / GROUND FLOOR PLAN (CORNER LOT)

SCALE: 1/32: 1'-0"



SECOND FLOOR PLAN

SCALE: 1/32: 1'-0"

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CITY OF BELLEVUE WASHINGTON

Bellevue Fire Facilities

Safety Operational Improvements

FIRE STATION 10

PROJECT NO: 2208.01

DATE: 01/27/2014

VICINITY MAP
N.T.S.

EMTG Regional Training Center
City of Bellevue - Fire Facilities Master Plan

CONCEPTUAL SPACE NEEDS OUTLINE
1/27/2014

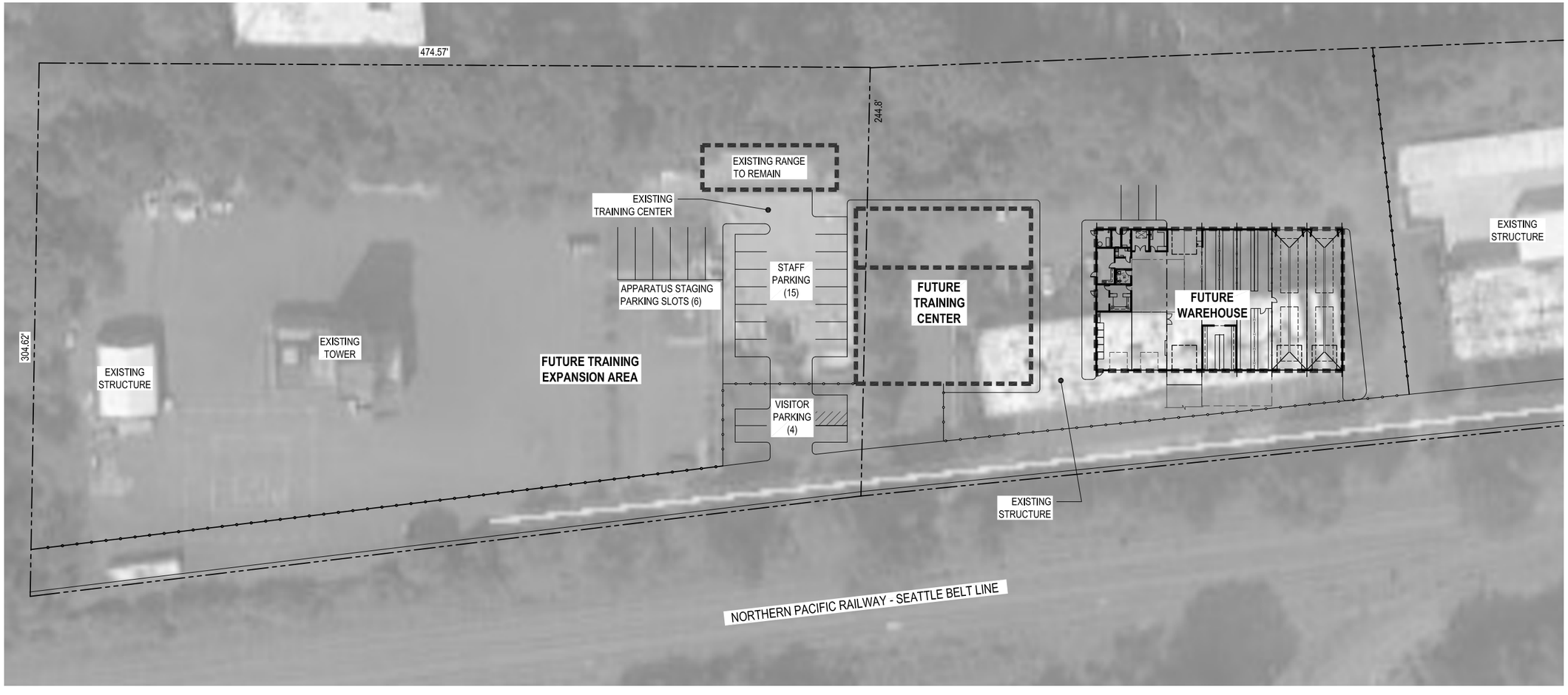
Administration/Training Officers = 15 total personnel	TBD
Academy	Class size: 12-16 members
Police Department= 2 total	K-9 Unit, and shooting range, motors training

Warehouse Space Needs Outline

CONCEPTUAL SPACE NEEDS OUTLINE
1/27/2014

Warehouse Staffing: 2 total

One full-time warehouse manager and one part time runner.
Additional staff may be necessary if special projects are included in the future.



SITE PLAN
SCALE: 1/64: 1'-0"

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CITY OF BELLEVUE WASHINGTON

Bellevue Fire Facilities

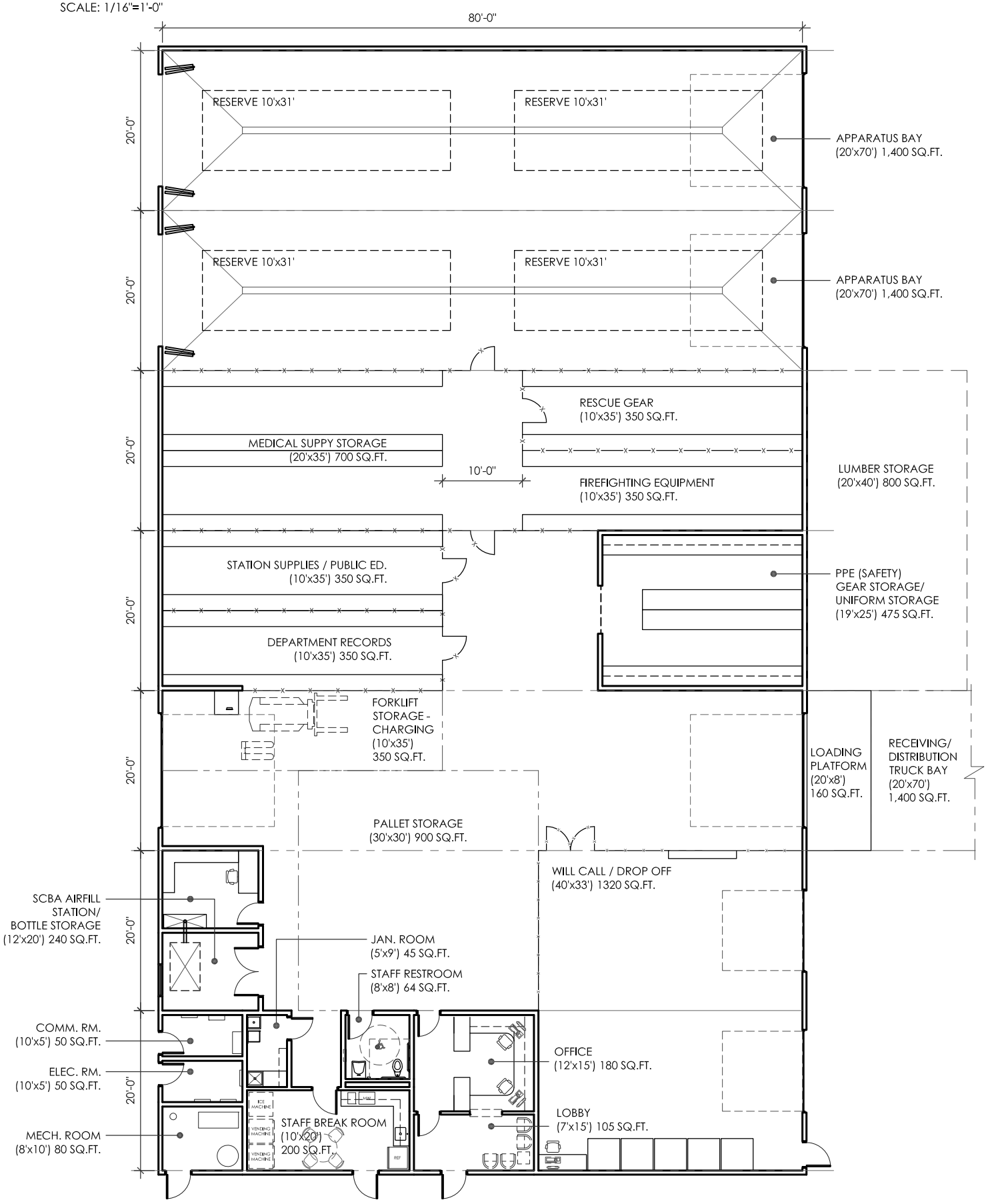
Safety Operational Improvements

FIRE TRAINING CENTER

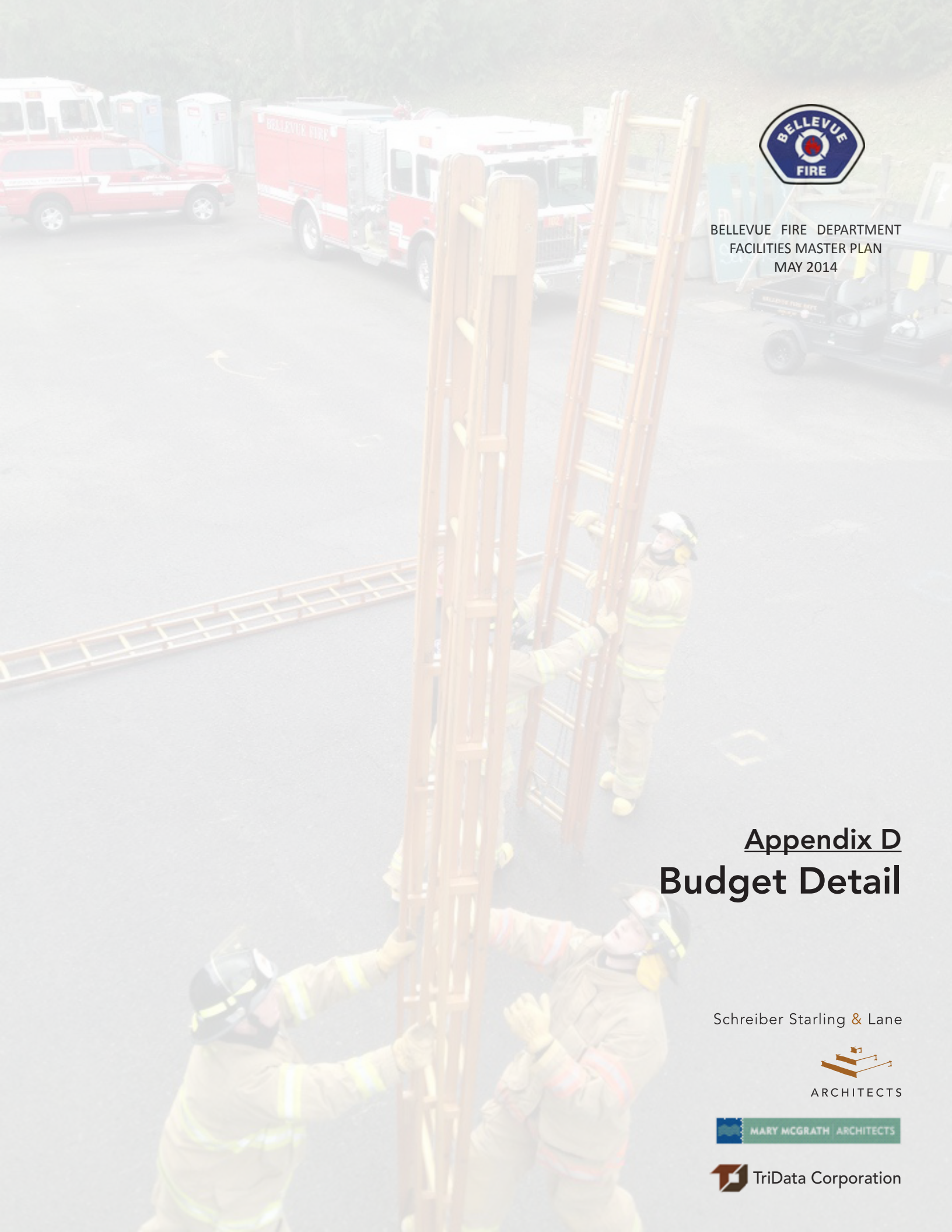
PROJECT NO: 2208.01
DATE: 01/27/2014

WAREHOUSE BUILDING (11,200 S.F.)

SCALE: 1/16"=1'-0"



© Mary McGrath Architects



BELLEVUE FIRE DEPARTMENT
FACILITIES MASTER PLAN
MAY 2014

Appendix D
Budget Detail

Schreiber Starling & Lane
ARCHITECTS
MARY MCGRATH ARCHITECTS
TriData Corporation

City of Bellevue Fire Department

Schreiber Starling & Lane

ARCHITECTS

LONG-RANGE FACILITIES MASTER PLAN

STATUS QUO ESTIMATE SUMMARY

Mainteance and Repair Only

		2015	*2015-2020*	*2015-2020*	*2020-2025*
Station 1					
	Subtotal	**$ 142,000**	$ 816,500	$ 837,800	$ 1,029,500
Station 2					
	Subtotal	**$ 50,000**	$ 287,500	$ 295,000	$ 362,500
Station 3					
	Subtotal	**$ 142,000**	$ 816,500	$ 837,800	$ 1,029,500
Station 4					
	Subtotal	**$ 72,000**	$ 414,000	$ 424,800	$ 522,000
Station 5					
	Subtotal	**$ 70,000**	$ 402,500	$ 413,000	$ 507,500
Station 6					
	Subtotal	**$ 76,000**	$ 437,000	$ 448,400	$ 551,000
Station 7					
	Subtotal	**$ 25,000**	$ 143,750	$ 147,500	$ 181,250
Station 8					
	Subtotal	**$ 43,000**	$ 247,250	$ 253,700	$ 311,750
Station 9					
	Subtotal	**$ 63,000**	$ 362,250	$ 371,700	$ 456,750
Training Center					
	Subtotal	**$ 83,000**	$ 477,250	$ 489,700	$ 601,750
	TOTAL	**$ 766,000**	**$ 4,404,500**	**$ 4,519,400**	**$ 5,553,500**
		2015	2015-2020	2015-2020	2020-2025

TOTAL OPTION -1 $ 14,477,400

City of Bellevue Fire Department

STATION #1 (39 Years Old)

STATUS QUO BUDGET ESTIMATE

Schreiber Starling & Lane

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Scope		
Site Area (SF)	61,860	
Gross Building Area (GSF)	15,701	
Services		7,851
A/E Design Services	7,851	
Site Work		15,465
Site maintenance and repair	15,465	
Direct Maintenance & Repair		94,206
Interior Maintenance & Repair	23,552	
Exterior Envelope Repair	31,402	
HVAC Equipment Component Replacement	39,253	
Fixtures, Furnishings, & Equipment		7,851
Equipment/general furnishings repair/replacement	7,851	
City Project Management		15,701
	15,701	
	141,073	
ANNUAL M&R COST	**Current (2014)**	**$ 142,000**

City of Bellevue Fire Department

STATION #2 (12 Years Old)

PROJECT BUDGET ESTIMATE

Schreiber Starling & Lane

ARCHITECTS

Scope		
Site Area (SF)	28,197	
Gross Existing Building Area (GSF)	11,259	
Predesign and Services		5,630
A/E Design Services	5,630	
Site Work		4,230
Site maintenance and repair	4,230	
Direct Maintenance & Repair		30,962
Interior Maintenance & Repair	2,815	
Exterior Envelope Repair	16,889	
HVAC Equipment Component Replacement	11,259	
Fixtures, Furnishings, & Equipment		2,815
Equipment/general furnishings repair/replacement	2,815	
City Project Management		5,630
	5,630	
	49,266	
ANNUAL M&R COST	**Current (2014)**	**$ 50,000**

City of Bellevue Fire Department

STATION #3 (31 Years Old)

PROJECT BUDGET ESTIMATE

Schreiber Starling & Lane

ARCHITECTS

Scope		
Scope		
Site Area (SF)	40,000	
Gross Building Area (GSF)	16,463	
Services		8,232
A/E Design Services	8,232	
Site Work		10,000
Site maintenance and repair	10,000	
Direct Maintenance & Repair		98,778
Interior Maintenance & Repair	24,695	
Exterior Envelope Repair	32,926	
HVAC Equipment Component Replacement	41,158	
Fixtures, Furnishings, & Equipment		8,232
Equipment/general furnishings repair/replacement	8,232	
City Project Management		16,463
	16,463	
	141,704	
ANNUAL M&R COST	**Current (2014)**	**$ 142,000**

City of Bellevue Fire Department

STATION #4 (49 Years Old)

PROJECT BUDGET ESTIMATE

Schreiber Starling & Lane

ARCHITECTS

Scope		
Scope		
Site Area (SF)	21,300	
Gross Building Area (GSF)	6,730	
Services		3,365
A/E Design Services	3,365	
Site Work		5,325
Site maintenance and repair	5,325	
Direct Maintenance & Repair		53,840
Interior Maintenance & Repair	13,460	
Exterior Envelope Repair	20,190	
HVAC Equipment Component Replacement	20,190	
Fixtures, Furnishings, & Equipment		3,365
Equipment/general furnishings repair/replacement	3,365	
City Project Management		6,730
	6,730	
	72,625	
ANNUAL M&R COST	**Current (2014)**	**$ 72,000**

City of Bellevue Fire Department

STATION #5 (47 Years Old)

PROJECT BUDGET ESTIMATE

Schreiber Starling & Lane Schreib

ARCHITECTS

Scope		
Scope		
Site Area (SF)	22,400	
Gross Building Area (GSF)	4,760	
Services		4,760
A/E Design Services	4,760	
Site Work		11,200
Site maintenance and repair	11,200	
Direct Maintenance & Repair		45,220
Interior Maintenance & Repair	9,520	
Exterior Envelope Repair	19,040	
HVAC Equipment Component Replacement	16,660	
Fixtures, Furnishings, & Equipment		4,760
Equipment/general furnishings repair/replacement	4,760	
City Project Management		4,760
	4,760	
	70,700	
ANNUAL M&R COST	**Current (2014)**	**$ 70,000**

City of Bellevue Fire Department

STATION #6 (31 Years Old)

PROJECT BUDGET ESTIMATE

Schreiber Starling & Lane

ARCHITECTS

Scope		
Scope		
Site Area (SF)	37,120	
Gross Building Area (GSF)	7,396	
Services		3,698
A/E Design Services	3,698	
Site Work		9,280
Site maintenance and repair	9,280	
Direct Maintenance & Repair		51,772
Interior Maintenance & Repair	14,792	
Exterior Envelope Repair	14,792	
HVAC Equipment Component Replacement	22,188	
Fixtures, Furnishings, & Equipment		3,698
Equipment/general furnishings repair/replacement	3,698	
City Project Management		7,396
	7,396	
	75,844	
ANNUAL M&R COST	**Current (2014)**	**$ 76,000**

City of Bellevue Fire Department

STATION #7 (29 Years Old)

PROJECT BUDGET ESTIMATE

Schreiber Starling & Lane ›

ARCHITECTS ›

Scope		
Scope		
Site Area (SF)	20,000	
Gross Building Area (GSF)	5,498	
Predesign and Services		2,749
A/E Design Services	2,749	
Site Work		3,000
Site maintenance and repair	3,000	
Direct Maintenance & Repair		15,120
Interior Maintenance & Repair	1,375	
Exterior Envelope Repair	8,247	
HVAC Equipment Component Replacement	5,498	
Fixtures, Furnishings, & Equipment		1,375
Equipment/general furnishings repair/replacement	1,375	
City Project Management		2,749
	2,749	
	24,992	
ANNUAL M&R COST	**Current (2014)**	**$ 25,000**

City of Bellevue Fire Department

STATION #8 (19 Years Old)

PROJECT BUDGET ESTIMATE

Schreiber Starling & Lane ARCHITECTS

Scope		
Scope		
Site Area (SF)	33,000	
Gross Building Area (GSF)	9,364	
Predesign and Services		4,682
A/E Design Services	4,682	
Site Work		4,950
Site maintenance and repair	4,950	
Direct Maintenance & Repair		25,751
Interior Maintenance & Repair	2,341	
Exterior Envelope Repair	14,046	
HVAC Equipment Component Replacement	9,364	
Fixtures, Furnishings, & Equipment		2,341
Equipment/general furnishings repair/replacement	2,341	
City Project Management		4,682
	4,682	
	42,406	
ANNUAL M&R COST	**Current (2014)**	**$ 43,000**

City of Bellevue Fire Department

STATION #9 (39 Years Old)

PROJECT BUDGET ESTIMATE

Schreiber Starling & Lane ›

ARCHITECTS ›

Scope		
Scope		
Site Area (SF)	28,800	
Gross Building Area (GSF)	6,136	
Services		3,068
A/E Design Services	3,068	
Site Work		7,200
Site maintenance and repair	7,200	
Direct Maintenance & Repair		42,952
Interior Maintenance & Repair	12,272	
Exterior Envelope Repair	12,272	
HVAC Equipment Component Replacement	18,408	
Fixtures, Furnishings, & Equipment		3,068
Equipment/general furnishings repair/replacement	3,068	
City Project Management		6,136
	6,136	
	62,424	
ANNUAL M&R COST	**Current (2014)**	**$ 63,000**

City of Bellevue Fire Department

Training Center (31 Years Old)

PROJECT BUDGET ESTIMATE

Schreiber Starling & Lane ARCHITECTS

Scope		
Scope		
Site Area (SF)	77,000	
Gross Building Area (GSF)	6,400	
Services		3,200
A/E Design Services	3,200	
Site Work		19,250
Site maintenance and repair	19,250	
Direct Maintenance & Repair		51,200
Interior Maintenance & Repair	12,800	
Exterior Envelope Repair	19,200	
HVAC Equipment Component Replacement	19,200	
Fixtures, Furnishings, & Equipment		3,200
Equipment/general furnishings repair/replacement	3,200	
City Project Management		6,400
	6,400	
	83,250	
ANNUAL M&R COST	**Current (2014)**	**$ 83,000**

Schreiber Starling & Lane

ARCHITECTS

City of Bellevue Fire Department

LONG-RANGE FACILITIES MASTER PLAN

OPTION - 2

REMODEL/LIMITED EXPANSION OPTION - ESTIMATE SUMMARY

Note: All figures in 2014 dollars

Station 1	*Renovation/Remodel*	
Construction Cost	*$*	*2,800,000*
Development Cost	*$*	*2,020,000*
Project Total	**$**	**4,820,000**

Station 2	*Expansion/Renovation/Remodel*	
Construction Cost	*$*	*2,320,000*
Development Cost	*$*	*1,510,000*
Project Total	**$**	**3,830,000**

Station 3	*Renovation/Remodel*	
Construction Cost	*$*	*1,550,000*
Development Cost	*$*	*1,250,000*
Project Total	**$**	**2,800,000**

Station 4	*Expansion/Renovation/Remodel*	
Construction Cost	*$*	*1,100,000*
Development Cost	*$*	*1,600,000*
Project Total	**$**	**2,700,000**

Station 5		*Replacement*
quisition & Development	*$*	*2,838,000*
Construction Cost	*$*	*4,900,000*
Development Cost	*$*	*6,700,000*
Project Total	**$**	**11,600,000**

Station 6	*Expansion/Renovation/Remodel*	
Construction Cost	*$*	*2,100,000*
Development Cost	*$*	*2,200,000*
Project Total	**$**	**4,300,000**

Station 7	*Expansion/Renovation/Remodel*	
Construction Cost	*$*	*1,500,000*
Development Cost	*$*	*900,000*
Project Total	**$**	**2,400,000**

Station 8	*Expansion/Renovation/Remodel*	
Construction Cost	*$*	*900,000*
Development Cost	*$*	*700,000*
Project Total	**$**	**1,600,000**

Station 9	*Expansion/Renovation/Remodel*	
Construction Cost	*$*	*1,800,000*
Development Cost	*$*	*1,050,000*
Project Total	**$**	**2,850,000**

Training Center	*Expansion/Renovation/Remodel*	
Construction Cost	*$*	*5,500,000*
Development Cost	*$*	*3,300,000*
Project Total	**$**	**8,800,000**

SUBTOTAL OPTION-2	**$**	**45,700,000**
PROGRAM COSTS	**$**	**2,280,000**
OPTION-2	**$**	**47,980,000**

City of Bellevue Fire Department

STATION #1 - REMODEL

PROJECT BUDGET ESTIMATE

Schreiber Starling & Lane

ARCHITECTS

Scope		
Gross Building Area (GSF)	15,700	
Remodel Building Area (GSF)	4,200	
Renovation/Repair Building Area (GSF)	11,500	
Taxes and Contingencies		
Contingency Rate	8.00%	
Management Reserve Rate	5.00%	
Sales Tax Rate	9.50%	
Predesign		56,000
Land Acquisition	-	
SEPA/Environmental Analysis	-	
Predesign Study	-	
Detailed Bldg Investigations	40,000	
Geotechnical Investigation	-	
Site Survey	-	
Haz Mat Abatement Consultant	16,000	
Basic Services Prior To Bid		390,651
A/E Basic Design Services	222,592	
Civil Design (Above Basic Services)	25,000	
Landscape Design	15,000	
Acoustic Design	8,000	
Cost & Scheduling Independent	16,000	
Life Cycle Cost Analysis	-	
Voice/Data/Technology Consultant	12,000	
Alerting Consultant	12,000	
Commissioning (Design Portion)	-	
Interior Design (FF&E)	15,000	
Value Engineering Study	15,000	
LEED Design, Reporting	-	
Design Services Contingency Prior To Bid	34,059	
Reimbursable Including Reprographics prior to bid	16,000	
Other Services For Bid and Construction Administration		185,161
Bid/Construction/Closeout	82,328	
Materials Testing	16,000	
Commissioning and Training	30,000	
Construction LEED Reporting and Monitoring	-	
Additional CA Representation beyond Basic Services	40,000	
Design Services Contingency for Bid and Construction Administration	16,833	

Site Work		354,200
Site maintenance	125,000	
ADA improvements at site	150,000	
General Conditions	41,250	
General Contractor OH&P	37,950	
Facility Construction		2,394,134
Interior Remodel Moderate, non-structural: Select Demolition, construxction of new interior partitions, new finishes, new HVAC systems	672,000	
Interior Renovation: Select removal of finishes, installation of new finishes, minor systems improvements	690,000	
Exterior Envelope Repair/Upgrade (Per condition survey)	376,800	
Security Improvements	120,000	
General Conditions	278,820	
General Contractor OH&P	256,514	
Construction Contingencies & Sales Tax		652,317
Management Reserve	137,417	
Allowance for Change Orders	219,867	
Construction Sales Tax	295,034	
Fixtures, Furnishings, & Equipment		281,196
Equipment	84,000	
Furnishings	92,400	
Alerting Systems	30,000	
Telecom/Data Cabling/Equipment	50,400	
FFE Sales Tax	24,396	
Art Set-Aside	137,417	137,417
Other Costs (start of construction)		252,000
Temporary Facilities/Relocation (8 months @ 24,000/Month)	192,000	
Hazardous Material Remediation/Removal	-	
Permit Fee & Plan Check	60,000	
LEED Registration/Certification	-	
City Project Management		94,200
	94,200	

TOTAL PROJECT COST	**Current (2014)**	**$ 4,820,000**
Direct Construction Costs (MACC)	$ 2,800,000	
Area MACC Cost	$ 178	
Area Total Project Cost	$ 307	

City of Bellevue Fire Department

Schreiber Starling & Lane

ARCHITECTS

STATION #2 - REMODEL & EXPANSION

PROJECT BUDGET ESTIMATE

Scope		
Gross Existing Building Area (GSF)	11,300	
Gross Building Expansion Area (GSF)	1,200	
Remodel Building Area (GSF)	3,000	
Renovation/Repair Building Area (GSF)	8,300	
Taxes and Contingencies		
Contingency Rate	8.00%	
Management Reserve Rate	5.00%	
Sales Tax Rate	9.50%	
Predesign		-
Land Acquisition	-	
SEPA/Environmental Analysis	-	
Predesign Study	-	
Detailed Bldg Investigations	-	
Geotechnical Investigation	-	
Site Survey	-	
Haz Mat Abatement Consultant	-	
Basic Services Prior To Bid		348,676
A/E Basic Design Services	184,433	
Civil Design (Above Basic Services)	25,000	
Landscape Design	15,000	
Acoustic Design	8,000	
Cost & Scheduling Independent	16,000	
Life Cycle Cost Analysis	-	
Voice/Data/Technology Consultant	12,000	
Alerting Consultant	12,000	
Commissioning (Design Portion)	-	
Interior Design (FF&E)	15,000	
Value Engineering Study	15,000	
LEED Design, Reporting	-	
Design Services Contingency Prior To Bid	30,243	
Reimbursable Including Reprographics prior to bid	16,000	
Other Services For Bid and Construction Administration		169,636
Bid/Construction/Closeout	68,215	
Materials Testing	16,000	
Commissioning and Training	30,000	
Construction LEED Reporting and Monitoring	-	
Additional CA Representation beyond Basic Services	40,000	
Design Services Contingency for Bid and Construction Administration	15,421	

Site Work		248,800
Site Preparation, Improvements, Utilities	120,000	
Relocate fueling	100,000	
General Conditions	15,000	
General Contractor OH&P	13,800	
Facility Construction		2,070,774
Single-floor, essential facility of min 50-year service life. Exterior of masonry veneer on permanent fire-resistant construction.	336,000	
Interior Remodel Moderate, non-structural: Select Demolition, construction of new interior partitions, new finishes, new HVAC systems	720,000	
Interior Renovation: Select removal of finishes, installation of new finishes, minor systems improvements	207,500	
Exterior Envelope Repair/Upgrade (Per condition survey)	271,200	
Security Improvements	120,000	
General Conditions	230,205	
General Contractor OH&P	185,869	
Construction Contingencies & Sales Tax		550,551
Management Reserve	115,979	
Allowance for Change Orders	185,566	
Construction Sales Tax	249,006	
Fixtures, Furnishings, & Equipment		229,950
Equipment	60,000	
Furnishings	84,000	
Alerting Systems	30,000	
Telecom/Data Cabling/Equipment	36,000	
FFE Sales Tax	19,950	
Art Set-Aside	115,979	115,979
Other Costs (start of construction)		24,000
Temporary Facilities/Relocation	-	
Hazardous Material Remediation/Removal	-	
Permit Fee & Plan Check	24,000	
LEED Registration/Certification	-	
City Project Management		75,000
	75,000	

TOTAL PROJECT COST	**Current (2014)**	**$**	**3,830,000**
Direct Construction Costs (MACC)	$	2,320,000	
Area MACC Cost	$	205	
Area Total Project Cost	$	339	

City of Bellevue Fire Department

STATION #3 - REMODEL

PROJECT BUDGET ESTIMATE

Schreiber Starling & Lane

ARCHITECTS

Scope		
Gross Building Area (GSF)	16,500	
Remodel Building Area (GSF)	3,500	
Renovation/Repair Building Area (GSF)	1,000	
Maintenance and Repair (GSF)	12,000	
Taxes and Contingencies		
Contingency Rate	8.00%	
Management Reserve Rate	5.00%	
Sales Tax Rate	9.50%	
Predesign		-
Land Acquisition	-	
SEPA/Environmental Analysis	-	
Predesign Study	-	
Detailed Bldg Investigations	-	
Geotechnical Investigation	-	
Site Survey	-	
Haz Mat Abatement Consultant	-	
Basic Services Prior To Bid		198,542
A/E Basic Design Services	123,220	
Civil Design (Above Basic Services)	-	
Landscape Design	-	
Acoustic Design	-	
Cost & Scheduling Independent	12,000	
Life Cycle Cost Analysis	-	
Voice/Data/Technology Consultant	8,000	
Alerting Consultant	8,000	
Commissioning (Design Portion)	-	
Interior Design (FF&E)	12,000	
Value Engineering Study	10,000	
LEED Design, Reporting	-	
Design Services Contingency Prior To Bid	17,322	
Reimbursable Including Reprographics prior to bid	8,000	
Other Services For Bid and Construction Administration		122,732
Bid/Construction/Closeout	45,575	
Materials Testing	16,000	
Commissioning and Training	30,000	
Construction LEED Reporting and Monitoring	-	
Additional CA Representation beyond Basic Services	20,000	
Design Services Contingency for Bid and Construction Administration	11,157	

Site Work		-
Site maintenance	-	
General Conditions	-	
General Contractor OH&P	-	
Facility Construction		1,540,560
Interior Remodel Moderate, non-structural: Select Demolition, construxction of new interior partitions, new finishes, new HVAC systems	560,000	
Interior Renovation: Select removal of finishes, installation of new finishes, minor systems improvements	25,000	
Interior Maintenance & Repair	99,000	
Exterior Envelope Repair/Upgrade (Per condition survey)	165,000	
System Repair/Upgrade (Per condition survey)	360,000	
General Conditions	166,500	
General Contractor OH&P	165,060	
Construction Contingencies & Sales Tax		365,652
Management Reserve	77,028	
Allowance for Change Orders	123,245	
Construction Sales Tax	165,379	
Fixtures, Furnishings, & Equipment		203,396
Equipment	56,000	
Furnishings	77,000	
Alerting Systems	24,750	
Telecom/Data Cabling/Equipment	28,000	
FFE Sales Tax	17,646	
Art Set-Aside	77,028	77,028
Other Costs (start of construction)		168,000
Temporary Facilities/Relocation (6 Mo. @ 24,000/month)	144,000	
Hazardous Material Remediation/Removal	-	
Permit Fee & Plan Check	24,000	
LEED Registration/Certification	-	
City Project Management		120,000
	120,000	

TOTAL PROJECT COST	**Current (2014)**	**$ 2,800,000**
Direct Construction Costs (MACC)	$ 1,550,000	
Area MACC Cost	$ 94	
Area Total Project Cost	$ 170	

City of Bellevue Fire Department

Schreiber Starling & Lane

ARCHITECTS

STATION #4 - REMODEL & EXPANSION

PROJECT BUDGET ESTIMATE

Scope		
Gross Building Area (GSF)	6,730	
Building Expansion Area (GSF)	300	
Remodel Building Area (GSF)	1,280	
Renovation/Repair Building Area (GSF)	5,450	
Taxes and Contingencies		
Contingency Rate	5.00%	
Management Reserve Rate	5.00%	
Sales Tax Rate	9.50%	
Predesign		144,000
Land Acquisition	-	
SEPA/Environmental Analysis	15,000	
Predesign Study (Test-to-Fit)	65,000	
Detailed Bldg Investigations	-	
Geotechnical Investigation	24,000	
Site Survey	24,000	
Haz Mat Abatement Consultant	16,000	
Basic Services Prior To Bid		517,090
A/E Basic Design Services	81,264	
Civil Design (Above Basic Services)	65,000	
Landscape Design	40,000	
Acoustic Design	16,000	
Cost & Scheduling Independent	28,000	
Life Cycle Cost Analysis	32,000	
Voice/Data/Technology Consultant	25,000	
Alerting Consultant	16,000	
Commissioning (Design Portion)	20,000	
Interior Design (FF&E)	35,000	
Value Engineering Study	30,000	
LEED Design, Reporting	60,000	
Design Services Contingency Prior To Bid	44,826	
Reimbursable Including Reprographics prior to bid	24,000	
Other Services For Bid and Construction Administration		297,062
Bid/Construction/Closeout	30,056	
Materials Testing	70,000	
Commissioning and Training	85,000	
Construction LEED Reporting and Monitoring	25,000	
Additional CA Representation beyond Basic Services	60,000	
Design Services Contingency for Bid and Construction Administration	27,006	

Site Work		317,500
Site Preparation, Improvements, and Utilities (includes demo)	250,000	
General Conditions	37,500	
General Contractor OH&P	30,000	
Facility Construction		710,770
Single-floor, essential facility of min 50-year service life. Exterior of masonry veneer on permanent fire-resistant construction.	84,000	
Interior Remodel Moderate, non-structural: Select Demolition, construction of new interior partitions, new finishes, new HVAC systems	240	
Interior Renovation: Select removal of finishes, installation of new finishes, minor systems improvements	327,000	
Exterior Envelope Repair/Upgrade (Per condition survey)	140,600	
General Conditions	82,776	
General Contractor OH&P	76,154	
Construction Contingencies & Sales Tax		210,281
Management Reserve	51,413	
Allowance for Change Orders	51,413	
Construction Sales Tax	107,454	
Fixtures, Furnishings, & Equipment		179,186
Equipment	80,760	
Furnishings	7,500	
Alerting Systems	35,000	
Telecom/Data Cabling/Equipment	40,380	
FFE Sales Tax	15,546	
Art Set-Aside	51,413	51,413
Other Costs (start of construction)		240,000
Temporary Facilities/Relocation (8 months @ 24,000)	192,000	
Hazardous Material Remediation/Removal	-	
Permit Fee & Plan Check	40,000	
LEED Registration/Certification	8,000	
City Project Management		40,380
	40,380	

TOTAL PROJECT COST	**Current (2014)**	**$ 2,700,000**
Direct Construction Costs (MACC)	$ 1,100,000	
Area MACC Cost	$ 163	
Area Total Project Cost	$ 401	

City of Bellevue Fire Department

STATION #5 - REPLACEMENT

PROJECT BUDGET ESTIMATE

Schreiber Starling & Lane

ARCHITECTS

Scope		
Site Area (SF)	42,000	
Gross Building Area (GSF)	11,368	
Taxes and Contingencies		
Contingency Rate	5.00%	
Management Reserve Rate	5.00%	
Sales Tax Rate	9.50%	
Predesign		2,838,000
Land Acquisition and Site Development	2,750,000	
SEPA/Environmental Analysis	24,000	
Predesign Study	-	
Detailed Bldg Investigations	-	
Geotechnical Investigation	24,000	
Site Survey	24,000	
Haz Mat Abatement Consultant	16,000	
Basic Services Prior To Bid		825,892
A/E Basic Design Services	361,992	
Civil Design (Above Basic Services)	65,000	
Landscape Design	40,000	
Acoustic Design	16,000	
Cost & Scheduling Independent	28,000	
Life Cycle Cost Analysis	32,000	
Voice/Data/Technology Consultant	25,000	
Alerting Consultant	16,000	
Commissioning (Design Portion)	20,000	
Interior Design (FF&E)	35,000	
Value Engineering Study	30,000	
LEED Design, Reporting	60,000	
Design Services Contingency Prior To Bid	72,899	
Reimbursable Including Reprographics prior to bid	24,000	
Other Services For Bid and Construction Administration		411,276
Bid/Construction/Closeout	133,888	
Materials Testing	70,000	
Commissioning and Training	85,000	
Construction LEED Reporting and Monitoring	25,000	
Additional CA Representation beyond Basic Services	60,000	
Design Services Contingency for Bid and Construction Administration	37,389	

Site Work		853,440
Site Preparation, Improvements, and Utilities (includes demo)	672,000	
General Conditions	100,800	
General Contractor OH&P	80,640	
Facility Construction		4,042,461
Single-floor, essential facility of min 50-year service life. Exterior of masonry veneer on permanent fire-resistant construction.	3,183,040	
General Conditions	477,456	
General Contractor OH&P	381,965	
Construction Contingencies & Sales Tax		1,001,212
Management Reserve	244,795	
Allowance for Change Orders	244,795	
Construction Sales Tax	511,622	
Fixtures, Furnishings, & Equipment		949,505
Equipment	227,360	
Furnishings	397,880	
Alerting Systems	60,000	
Telecom/Data Cabling/Equipment	181,888	
FFE Sales Tax	82,377	
Art Set-Aside	244,795	244,795
Other Costs (start of construction)		248,000
Temporary Facilities/Relocation		
Hazardous Material Remediation/Removal	-	
Permit Fee & Plan Check	240,000	
LEED Registration/Certification	8,000	
City Project Management		160,000
	160,000	

TOTAL PROJECT COST	**Current (2014)**	**$ 11,600,000**

Direct Construction Costs (MACC)	$	4,900,000
Area MACC Cost	$	431
Area Total Project Cost (including land acquisition)	$	1,020

City of Bellevue Fire Department

Schreiber Starling & Lane

ARCHITECTS

STATION #6 - REMODEL & EXPANSION

PROJECT BUDGET ESTIMATE

Scope		
Gross Building Area (GSF)	7,350	
Building Expansion Area (GSF)	1,400	
Remodel Building Area (GSF)	600	
Renovation/Repair Building Area (GSF)	6,750	
Taxes and Contingencies		
Contingency Rate	5.00%	
Management Reserve Rate	5.00%	
Sales Tax Rate	9.50%	
Predesign		63,000
Land Acquisition	-	
SEPA/Environmental Analysis	15,000	
Predesign Study (Test-to-Fit)	-	
Detailed Bldg Investigations	16,000	
Geotechnical Investigation	-	
Site Survey	16,000	
Haz Mat Abatement Consultant	16,000	
Basic Services Prior To Bid		535,654
A/E Basic Design Services	155,140	
Civil Design (Above Basic Services)	32,000	
Landscape Design	24,000	
Acoustic Design	8,000	
Cost & Scheduling Independent	28,000	
Life Cycle Cost Analysis	32,000	
Voice/Data/Technology Consultant	25,000	
Alerting Consultant	16,000	
Commissioning (Design Portion)	20,000	
Interior Design (FF&E)	35,000	
Value Engineering Study	30,000	
LEED Design, Reporting	60,000	
Design Services Contingency Prior To Bid	46,514	
Reimbursable Including Reprographics prior to bid	24,000	
Other Services For Bid and Construction Administration		299,618
Bid/Construction/Closeout	57,380	
Materials Testing	70,000	
Commissioning and Training	60,000	
Construction LEED Reporting and Monitoring	25,000	
Additional CA Representation beyond Basic Services	60,000	
Design Services Contingency for Bid and Construction Administration	27,238	

Site Work		635,000
Site Preparation, Improvements, and Utilities (includes demo)	500,000	
General Conditions	75,000	
General Contractor OH&P	60,000	
Facility Construction		1,437,408
Single-floor, essential facility of min 50-year service life. Exterior of masonry veneer on permanent fire-resistant construction.	392,000	
Interior Remodel Moderate, non-structural: Select Demolition, construction of new interior partitions, new finishes, new HVAC systems	144,000	
Interior Renovation: Select removal of finishes, installation of new finishes, minor systems improvements	405,000	
Exterior Envelope Repair/Upgrade (Per condition survey)	175,000	
General Conditions	167,400	
General Contractor OH&P	154,008	
Construction Contingencies & Sales Tax		423,807
Management Reserve	103,620	
Allowance for Change Orders	103,620	
Construction Sales Tax	216,567	
Fixtures, Furnishings, & Equipment		468,113
Equipment	88,200	
Furnishings	161,700	
Alerting Systems	60,000	
Telecom/Data Cabling/Equipment	117,600	
FFE Sales Tax	40,613	
Art Set-Aside	103,620	103,620
Other Costs (start of construction)		240,000
Temporary Facilities/Relocation (8 months @ 24,000)	192,000	
Hazardous Material Remediation/Removal	-	
Permit Fee & Plan Check	40,000	
LEED Registration/Certification	8,000	
City Project Management		52,500
	52,500	

TOTAL PROJECT COST	**Current (2014)**	**$ 4,300,000**
Direct Construction Costs (MACC)	$ 2,100,000	
Area MACC Cost	$ 286	
Area Total Project Cost	$ 585	

City of Bellevue Fire Department

STATION #7 - REMODEL & EXPANSION

PROJECT BUDGET ESTIMATE

Schreiber Starling & Lane

ARCHITECTS

Scope		
Gross Existing Building Area (GSF)	5,500	
Gross Building Expansion Area (GSF)	1,600	
Remodel Building Area (GSF)	600	
Renovation/Repair Building Area (GSF)	3,300	
Taxes and Contingencies		
Contingency Rate	8.00%	
Management Reserve Rate	5.00%	
Sales Tax Rate	9.50%	
Predesign		-
Land Acquisition	-	
SEPA/Environmental Analysis	-	
Predesign Study	-	
Detailed Bldg Investigations	-	
Geotechnical Investigation	-	
Site Survey	-	
Haz Mat Abatement Consultant	-	
Basic Services Prior To Bid		267,947
A/E Basic Design Services	133,043	
Civil Design (Above Basic Services)	18,000	
Landscape Design	8,000	
Acoustic Design	-	
Cost & Scheduling Independent	16,000	
Life Cycle Cost Analysis	-	
Voice/Data/Technology Consultant	12,000	
Alerting Consultant	12,000	
Commissioning (Design Portion)	-	
Interior Design (FF&E)	15,000	
Value Engineering Study	15,000	
LEED Design, Reporting	-	
Design Services Contingency Prior To Bid	22,904	
Reimbursable Including Reprographics prior to bid	16,000	
Other Services For Bid and Construction Administration		148,728
Bid/Construction/Closeout	49,208	
Materials Testing	16,000	
Commissioning and Training	30,000	
Construction LEED Reporting and Monitoring	-	
Additional CA Representation beyond Basic Services	40,000	
Design Services Contingency for Bid and Construction Administration	13,521	

Site Work		386,400
Site improvement and grading for addition	300,000	
General Conditions	45,000	
General Contractor OH&P	41,400	
Facility Construction		1,078,196
Single-floor, essential facility of min 50-year service life. Exterior of masonry veneer on permanent fire-resistant construction.	448,000	
Interior Remodel Moderate, non-structural: Select Demolition, construxction of new interior partitions, new finishes, new HVAC systems	144,000	
Interior Renovation: Select removal of finishes, installation of new finishes, minor systems improvements	82,500	
Security Improvement	100,000	
Exterior Envelope Repair/Upgrade (Per condition survey)	120,000	
General Conditions	116,175	
General Contractor OH&P	67,521	
Construction Contingencies & Sales Tax		347,622
Management Reserve	73,230	
Allowance for Change Orders	117,168	
Construction Sales Tax	157,224	
Fixtures, Furnishings, & Equipment		64,167
Equipment	12,000	
Furnishings	21,000	
Alerting Systems	16,000	
Telecom/Data Cabling/Equipment	9,600	
FFE Sales Tax	5,567	
Art Set-Aside	73,230	73,230
Other Costs (start of construction)		32,000
Temporary Facilities/Relocation	-	
Hazardous Material Remediation/Removal	-	
Permit Fee & Plan Check	32,000	
LEED Registration/Certification	-	
City Project Management		42,600
	42,600	

TOTAL PROJECT COST	**Current (2014)**	**$ 2,400,000**
Direct Construction Costs (MACC)	$ 1,500,000	
Area MACC Cost	$ 273	
Area Total Project Cost	$ 436	

City of Bellevue Fire Department

STATION #8 - REMODEL & EXPANSION

PROJECT BUDGET ESTIMATE

Schreiber Starling & Lane

ARCHITECTS

Scope		
Gross Existing Building Area (GSF)	9,128	
Gross Building Expansion Area (GSF)	200	
Remodel Building Area (GSF)	1,000	
Renovation/Repair Building Area (GSF)	8,128	
Taxes and Contingencies		
Contingency Rate	8.00%	
Management Reserve Rate	5.00%	
Sales Tax Rate	9.50%	
Predesign		-
Land Acquisition	-	
SEPA/Environmental Analysis	-	
Predesign Study	-	
Detailed Bldg Investigations	-	
Geotechnical Investigation	-	
Site Survey	-	
Haz Mat Abatement Consultant	-	
Basic Services Prior To Bid		223,708
A/E Basic Design Services	79,826	
Civil Design (Above Basic Services)	16,000	
Landscape Design	15,000	
Acoustic Design	8,000	
Cost & Scheduling Independent	16,000	
Life Cycle Cost Analysis	-	
Voice/Data/Technology Consultant	12,000	
Alerting Consultant	12,000	
Commissioning (Design Portion)	-	
Interior Design (FF&E)	15,000	
Value Engineering Study	15,000	
LEED Design, Reporting	-	
Design Services Contingency Prior To Bid	18,883	
Reimbursable Including Reprographics prior to bid	16,000	
Other Services For Bid and Construction Administration		69,877
Bid/Construction/Closeout	29,525	
Materials Testing	16,000	
Commissioning and Training	-	
Construction LEED Reporting and Monitoring	-	
Additional CA Representation beyond Basic Services	18,000	
Design Services Contingency for Bid and Construction Administration	6,352	

Site Work		154,560
Site improvement and grading for addition	120,000	
General Conditions	18,000	
General Contractor OH&P	16,560	
Facility Construction		737,025
Single-floor, essential facility of min 50-year service life. Exterior of masonry veneer on permanent fire-resistant construction.	56,000	
Interior Remodel Moderate, non-structural: Select Demolition, construxction of new interior partitions, new finishes, new HVAC systems	240,000	
Interior Renovation: Select removal of finishes, installation of new finishes, minor systems improvements	203,200	
Exterior Envelope Repair/Upgrade (Per condition survey)	73,024	
General Conditions	85,834	
General Contractor OH&P	78,967	
Construction Contingencies & Sales Tax		211,618
Management Reserve	44,579	
Allowance for Change Orders	71,327	
Construction Sales Tax	95,712	
Fixtures, Furnishings, & Equipment		95,265
Equipment	20,000	
Furnishings	35,000	
Alerting Systems	16,000	
Telecom/Data Cabling/Equipment	16,000	
FFE Sales Tax	8,265	
Art Set-Aside	44,579	44,579
Other Costs (start of construction)		16,000
Temporary Facilities/Relocation	-	
Hazardous Material Remediation/Removal	-	
Permit Fee & Plan Check	16,000	
LEED Registration/Certification	-	
City Project Management		55,968
	55,968	

TOTAL PROJECT COST	**Current (2014)**	**$ 1,600,000**
Direct Construction Costs (MACC)	$ 900,000	
Area MACC Cost	$ 99	
Area Total Project Cost	$ 175	

City of Bellevue Fire Department

STATION #9 - REMODEL & EXPANSION

PROJECT BUDGET ESTIMATE

Schreiber Starling & Lane

ARCHITECTS

Scope		
Gross Existing Building Area (GSF)	6,136	
Gross Building Expansion Area (GSF)	2,000	
Remodel Building Area (GSF)	800	
Renovation/Repair Building Area (GSF)	5,336	
Taxes and Contingencies		
Contingency Rate	8.00%	
Management Reserve Rate	5.00%	
Sales Tax Rate	9.50%	
Predesign		-
Land Acquisition	-	
SEPA/Environmental Analysis	-	
Predesign Study	-	
Detailed Bldg Investigations	-	
Geotechnical Investigation	-	
Site Survey	-	
Haz Mat Abatement Consultant	-	
Basic Services Prior To Bid		311,516
A/E Basic Design Services	159,651	
Civil Design (Above Basic Services)	16,000	
Landscape Design	15,000	
Acoustic Design	8,000	
Cost & Scheduling Independent	16,000	
Life Cycle Cost Analysis	-	
Voice/Data/Technology Consultant	12,000	
Alerting Consultant	12,000	
Commissioning (Design Portion)	-	
Interior Design (FF&E)	15,000	
Value Engineering Study	15,000	
LEED Design, Reporting	-	
Design Services Contingency Prior To Bid	26,865	
Reimbursable Including Reprographics prior to bid	16,000	
Other Services For Bid and Construction Administration		102,354
Bid/Construction/Closeout	59,049	
Materials Testing	16,000	
Commissioning and Training	-	
Construction LEED Reporting and Monitoring	-	
Additional CA Representation beyond Basic Services	18,000	
Design Services Contingency for Bid and Construction Administration	9,305	

Site Work		489,440
Site improvement and grading for addition	380,000	
General Conditions	57,000	
General Contractor OH&P	52,440	
Facility Construction		1,295,983
Single-floor, essential facility of min 50-year service life. Exterior of masonry veneer on permanent fire-resistant construction.	700,000	
Interior Remodel Moderate, non-structural: Select Demolition, construxction of new interior partitions, new finishes, new HVAC systems	176,000	
Interior Renovation: Select removal of finishes, installation of new finishes, minor systems improvements	106,720	
Exterior Envelope Repair/Upgrade (Per condition survey)	180,000	
General Conditions	69,408	
General Contractor OH&P	63,855	
Construction Contingencies & Sales Tax		423,770
Management Reserve	89,271	
Allowance for Change Orders	142,834	
Construction Sales Tax	191,665	
Fixtures, Furnishings, & Equipment		70,956
Equipment	16,000	
Furnishings	28,000	
Alerting Systems	16,000	
Telecom/Data Cabling/Equipment	4,800	
FFE Sales Tax	6,156	
Art Set-Aside	89,271	89,271
Other Costs (start of construction)		16,000
Temporary Facilities/Relocation	-	
Hazardous Material Remediation/Removal	-	
Permit Fee & Plan Check	16,000	
LEED Registration/Certification	-	
City Project Management		48,816
	48,816	

TOTAL PROJECT COST	**Current (2014)**	**$ 2,850,000**
Direct Construction Costs (MACC)	$ 1,800,000	
Area MACC Cost	$ 293	
Area Total Project Cost	$ 464	

City of Bellevue Fire Department

TRAINING CENTER REMODEL & EXPANSION

PROJECT BUDGET ESTIMATE

Schreiber Starling & Lane

ARCHITECTS

Scope		
Gross Existing Building Area (GSF)	6,400	
Gross Building Expansion Area (GSF)	7,600	
Remodel Building Area (GSF)	3,200	
Renovation/Repair Building Area (GSF)	3,200	
Taxes and Contingencies		
Contingency Rate	8.00%	
Management Reserve Rate	5.00%	
Sales Tax Rate	9.50%	
Predesign		-
Land Acquisition	-	
SEPA/Environmental Analysis	-	
Predesign Study	-	
Detailed Bldg Investigations	-	
Geotechnical Investigation	-	
Site Survey	-	
Haz Mat Abatement Consultant	-	
Basic Services Prior To Bid		626,757
A/E Basic Design Services	437,234	
Civil Design (Above Basic Services)	25,000	
Landscape Design	15,000	
Acoustic Design	8,000	
Cost & Scheduling Independent	16,000	
Life Cycle Cost Analysis	-	
Voice/Data/Technology Consultant	12,000	
Alerting Consultant	12,000	
Commissioning (Design Portion)	-	
Interior Design (FF&E)	15,000	
Value Engineering Study	15,000	
LEED Design, Reporting	-	
Design Services Contingency Prior To Bid	55,523	
Reimbursable Including Reprographics prior to bid	16,000	
Other Services For Bid and Construction Administration		272,488
Bid/Construction/Closeout	161,717	
Materials Testing	16,000	
Commissioning and Training	30,000	
Construction LEED Reporting and Monitoring	-	
Additional CA Representation beyond Basic Services	40,000	
Design Services Contingency for Bid and Construction Administration	24,772	

Site Work		644,000
Site Development	500,000	
General Conditions	75,000	
General Contractor OH&P	69,000	
Facility Construction		4,814,544
Single-floor, essential facility of min 50-year service life. Exterior of masonry veneer on permanent fire-resistant construction.	2,128,000	
Interior Remodel Moderate, non-structural: Select Demolition, construxction of new interior partitions, new finishes, new HVAC systems	768,000	
Interior Renovation: Select removal of finishes, installation of new finishes, minor systems improvements	192,000	
Repairs and Improvements at Burn Tower	400,000	
Repairs and Improvements at Support building	250,000	
General Conditions	560,700	
General Contractor OH&P	515,844	
Construction Contingencies & Sales Tax		1,295,585
Management Reserve	272,927	
Allowance for Change Orders	436,684	
Construction Sales Tax	585,975	
Fixtures, Furnishings, & Equipment		461,652
Equipment	57,600	
Furnishings	280,000	
Telecom/Data Cabling/Equipment	84,000	
FFE Sales Tax	40,052	
Art Set-Aside	272,927	272,927
Other Costs (start of construction)		252,000
Temporary Facilities/Relocation (8 Months @ 24,000)	192,000	
Hazardous Material Remediation/Removal	-	
Permit Fee & Plan Check	60,000	
LEED Registration/Certification	-	
City Project Management		84,000
	84,000	

TOTAL PROJECT COST	**Current (2014)**	**$ 8,800,000**
Direct Construction Costs (MACC)	$ 5,500,000	
Area MACC Cost	$ 393	
Area Total Project Cost	$ 629	

City of Bellevue Fire Department

Schreiber Starling & Lane

ARCHITECTS

LONG-RANGE FACILITIES MASTER PLAN
OPTION 3

REMODEL/EXPANSION/REPLACEMENT/NEW - ESTIMATE SUMMARY

Note: All figures in 2014 dollars

Station 1	*Renovation/Remodel*	
Construction Cost	*$*	*2,800,000*
Development Cost	*$*	*2,020,000*
Project Total	**$**	**4,820,000**

Station 2	*Expansion/Renovation/Remodel*	
Construction Cost	*$*	*2,320,000*
Development Cost	*$*	*1,480,000*
Project Total	**$**	**3,800,000**

Station 3	*Renovation/Remodel*	
Construction Cost	*$*	*1,550,000*
Development Cost	*$*	*1,250,000*
Project Total	**$**	**2,800,000**

Station 4	*New/Replacement*	
Site Acquisition	*$*	*8,500,000*
Construction Cost	*$*	*8,860,000*
Development Cost	*$*	*5,740,000*
Project Total	**$**	**23,100,000**

Station 5	*New/Replacement*	
Site Acquisition	*$*	*2,750,000*
Construction Cost	*$*	*4,900,000*
Development Cost	*$*	*3,950,000*
Project Total	**$**	**11,600,000**

Station 6	*New/Replacement*	
Site Acquisition	*$*	*7,000,000*
Construction Cost	*$*	*8,860,000*
Development Cost	*$*	*5,740,000*
Project Total	**$**	**21,600,000**

Station 7	*Expansion/Renovation/Remodel*	
Construction Cost	*$*	*1,500,000*
Development Cost	*$*	*900,000*
Project Total	**$**	**2,400,000**

Station 8	*Expansion/Renovation/Remodel*	
Construction Cost	*$*	*900,000*
Development Cost	*$*	*700,000*
Project Total	**$**	**1,600,000**

Station 9	*Expansion/Renovation/Remodel*	
Construction Cost	*$*	*1,800,000*
Development Cost	*$*	*1,050,000*
Project Total	**$**	**2,850,000**

Station 10		*New*
Site Acquisition	$	14,250,000
Construction Cost	*$*	*7,700,000*
Development Cost	*$*	*4,960,000*
Project Total	**$**	**26,910,000**

Warehouse/Reserves		*New*
Site Acquisition		Incl. w/ Training Center
Construction Cost	*$*	*3,280,000*
Development Cost	*$*	*1,870,000*
Project Total	**$**	**5,150,000**

Training Center	*Expansion/Renovation/Remodel*	
Site Acquisition	*$*	*7,500,000*
Construction Cost	*$*	*6,015,000*
Development Cost	*$*	*3,285,000*
Project Total	**$**	**16,800,000**

SUBTOTAL OPTION 3	**$**	**123,430,000**
PROGRAM COSTS		**$6,170,000**
TOTAL OPTION 3	**$**	**129,600,000**

City of Bellevue Fire Department

STATION #1 - REMODEL

PROJECT BUDGET ESTIMATE

Schreiber Starling & Lane

ARCHITECTS

Scope		
Gross Building Area (GSF)	15,700	
Remodel Building Area (GSF)	4,200	
Renovation/Repair Building Area (GSF)	11,500	
Taxes and Contingencies		
Contingency Rate	8.00%	
Management Reserve Rate	5.00%	
Sales Tax Rate	9.50%	
Predesign		56,000
Land Acquisition	-	
SEPA/Environmental Analysis	-	
Predesign Study	-	
Detailed Bldg Investigations	40,000	
Geotechnical Investigation	-	
Site Survey	-	
Haz Mat Abatement Consultant	16,000	
Basic Services Prior To Bid		390,651
A/E Basic Design Services	222,592	
Civil Design (Above Basic Services)	25,000	
Landscape Design	15,000	
Acoustic Design	8,000	
Cost & Scheduling Independent	16,000	
Life Cycle Cost Analysis	-	
Voice/Data/Technology Consultant	12,000	
Alerting Consultant	12,000	
Commissioning (Design Portion)	-	
Interior Design (FF&E)	15,000	
Value Engineering Study	15,000	
LEED Design, Reporting	-	
Design Services Contingency Prior To Bid	34,059	
Reimbursable Including Reprographics prior to bid	16,000	
Other Services For Bid and Construction Administration		185,161
Bid/Construction/Closeout	82,328	
Materials Testing	16,000	
Commissioning and Training	30,000	
Construction LEED Reporting and Monitoring	-	
Additional CA Representation beyond Basic Services	40,000	
Design Services Contingency for Bid and Construction Administration	16,833	

Site Work		354,200
Site maintenance	125,000	
ADA improvements at site	150,000	
General Conditions	41,250	
General Contractor OH&P	37,950	
Facility Construction		2,394,134
Interior Remodel Moderate, non-structural: Select Demolition, construxction of new interior partitions, new finishes, new HVAC systems	672,000	
Interior Renovation: Select removal of finishes, installation of new finishes, minor systems improvements	690,000	
Exterior Envelope Repair/Upgrade (Per condition survey)	376,800	
Security Improvements	120,000	
General Conditions	278,820	
General Contractor OH&P	256,514	
Construction Contingencies & Sales Tax		652,317
Management Reserve	137,417	
Allowance for Change Orders	219,867	
Construction Sales Tax	295,034	
Fixtures, Furnishings, & Equipment		281,196
Equipment	84,000	
Furnishings	92,400	
Alerting Systems	30,000	
Telecom/Data Cabling/Equipment	50,400	
FFE Sales Tax	24,396	
Art Set-Aside	137,417	137,417
Other Costs (start of construction)		252,000
Temporary Facilities/Relocation (8 months @ 24,000/Month)	192,000	
Hazardous Material Remediation/Removal	-	
Permit Fee & Plan Check	60,000	
LEED Registration/Certification	-	
City Project Management		94,200
	94,200	

TOTAL PROJECT COST	**Current (2014)**	**$**	**4,820,000**
Direct Construction Costs (MACC)	$	2,800,000	
Area MACC Cost	$	178	
Area Total Project Cost	$	307	

City of Bellevue Fire Department

Schreiber Starling & Lane

ARCHITECTS

STATION #2 - REMODEL & EXPANSION

PROJECT BUDGET ESTIMATE

Scope		
Gross Existing Building Area (GSF)	11,300	
Gross Building Expansion Area (GSF)	1,200	
Remodel Building Area (GSF)	3,000	
Renovation/Repair Building Area (GSF)	8,300	
Taxes and Contingencies		
Contingency Rate	8.00%	
Management Reserve Rate	5.00%	
Sales Tax Rate	9.50%	
Predesign		-
Land Acquisition	-	
SEPA/Environmental Analysis	-	
Predesign Study	-	
Detailed Bldg Investigations	-	
Geotechnical Investigation	-	
Site Survey	-	
Haz Mat Abatement Consultant	-	
Basic Services Prior To Bid		348,676
A/E Basic Design Services	184,433	
Civil Design (Above Basic Services)	25,000	
Landscape Design	15,000	
Acoustic Design	8,000	
Cost & Scheduling Independent	16,000	
Life Cycle Cost Analysis	-	
Voice/Data/Technology Consultant	12,000	
Alerting Consultant	12,000	
Commissioning (Design Portion)	-	
Interior Design (FF&E)	15,000	
Value Engineering Study	15,000	
LEED Design, Reporting	-	
Design Services Contingency Prior To Bid	30,243	
Reimbursable Including Reprographics prior to bid	16,000	
Other Services For Bid and Construction Administration		169,636
Bid/Construction/Closeout	68,215	
Materials Testing	16,000	
Commissioning and Training	30,000	
Construction LEED Reporting and Monitoring	-	
Additional CA Representation beyond Basic Services	40,000	
Design Services Contingency for Bid and Construction Administration	15,421	

Site Work		248,800
Site Preparation, Improvements, Utilities	120,000	
Relocate fueling	100,000	
General Conditions	15,000	
General Contractor OH&P	13,800	
Facility Construction		2,070,774
Single-floor, essential facility of min 50-year service life. Exterior of masonry veneer on permanent fire-resistant construction.	336,000	
Interior Remodel Moderate, non-structural: Select Demolition, construction of new interior partitions, new finishes, new HVAC systems	720,000	
Interior Renovation: Select removal of finishes, installation of new finishes, minor systems improvements	207,500	
Exterior Envelope Repair/Upgrade (Per condition survey)	271,200	
Security Improvements	120,000	
General Conditions	230,205	
General Contractor OH&P	185,869	
Construction Contingencies & Sales Tax		550,551
Management Reserve	115,979	
Allowance for Change Orders	185,566	
Construction Sales Tax	249,006	
Fixtures, Furnishings, & Equipment		229,950
Equipment	60,000	
Furnishings	84,000	
Alerting Systems	30,000	
Telecom/Data Cabling/Equipment	36,000	
FFE Sales Tax	19,950	
Art Set-Aside	115,979	115,979
Other Costs (start of construction)		24,000
Temporary Facilities/Relocation	-	
Hazardous Material Remediation/Removal	-	
Permit Fee & Plan Check	24,000	
LEED Registration/Certification	-	
City Project Management		75,000
	75,000	

TOTAL PROJECT COST	**Current (2014)**	**$ 3,800,000**
Direct Construction Costs (MACC)	$ 2,320,000	
Area MACC Cost	$ 205	
Area Total Project Cost	$ 336	

City of Bellevue Fire Department

STATION #3 - REMODEL

PROJECT BUDGET ESTIMATE

Schreiber Starling & Lane

ARCHITECTS

Scope		
Gross Building Area (GSF)	16,500	
Remodel Building Area (GSF)	3,500	
Renovation/Repair Building Area (GSF)	1,000	
Maintenance and Repair (GSF)	12,000	
Taxes and Contingencies		
Contingency Rate	8.00%	
Management Reserve Rate	5.00%	
Sales Tax Rate	9.50%	
Predesign		-
Land Acquisition	-	
SEPA/Environmental Analysis	-	
Predesign Study	-	
Detailed Bldg Investigations	-	
Geotechnical Investigation	-	
Site Survey	-	
Haz Mat Abatement Consultant	-	
Basic Services Prior To Bid		198,542
A/E Basic Design Services	123,220	
Civil Design (Above Basic Services)	-	
Landscape Design	-	
Acoustic Design	-	
Cost & Scheduling Independent	12,000	
Life Cycle Cost Analysis	-	
Voice/Data/Technology Consultant	8,000	
Alerting Consultant	8,000	
Commissioning (Design Portion)	-	
Interior Design (FF&E)	12,000	
Value Engineering Study	10,000	
LEED Design, Reporting	-	
Design Services Contingency Prior To Bid	17,322	
Reimbursable Including Reprographics prior to bid	8,000	
Other Services For Bid and Construction Administration		122,732
Bid/Construction/Closeout	45,575	
Materials Testing	16,000	
Commissioning and Training	30,000	
Construction LEED Reporting and Monitoring	-	
Additional CA Representation beyond Basic Services	20,000	
Design Services Contingency for Bid and Construction Administration	11,157	

Site Work		-
Site maintenance	-	
General Conditions	-	
General Contractor OH&P	-	
Facility Construction		1,540,560
Interior Remodel Moderate, non-structural: Select Demolition, construxction of new interior partitions, new finishes, new HVAC systems	560,000	
Interior Renovation: Select removal of finishes, installation of new finishes, minor systems improvements	25,000	
Interior Maintenance & Repair	99,000	
Exterior Envelope Repair/Upgrade (Per condition survey)	165,000	
System Repair/Upgrade (Per condition survey)	360,000	
General Conditions	166,500	
General Contractor OH&P	165,060	
Construction Contingencies & Sales Tax		365,652
Management Reserve	77,028	
Allowance for Change Orders	123,245	
Construction Sales Tax	165,379	
Fixtures, Furnishings, & Equipment		203,396
Equipment	56,000	
Furnishings	77,000	
Alerting Systems	24,750	
Telecom/Data Cabling/Equipment	28,000	
FFE Sales Tax	17,646	
Art Set-Aside	77,028	77,028
Other Costs (start of construction)		168,000
Temporary Facilities/Relocation (6 Mo. @ 24,000/month)	144,000	
Hazardous Material Remediation/Removal	-	
Permit Fee & Plan Check	24,000	
LEED Registration/Certification	-	
City Project Management		120,000
	120,000	

TOTAL PROJECT COST	**Current (2014)**	**$**	**2,800,000**
Direct Construction Costs (MACC)	$	1,550,000	
Area MACC Cost	$	94	

City of Bellevue Fire Department

STATION #4 (REPLACEMENT)

PROJECT BUDGET ESTIMATE

Schreiber Starling & Lane

ARCHITECTS

Scope		
Site Area (SF)	51,600	
Gross Building Area (GSF)	21,960	
Taxes and Contingencies		
Contingency Rate	6.00%	
Management Reserve Rate	6.00%	
Sales Tax Rate	9.50%	
Predesign		8,644,000
Land Acquisition	8,500,000	
SEPA/Environmental Analysis	15,000	
Predesign Study (Test-to-Fit)	65,000	
Detailed Bldg Investigations	-	
Geotechnical Investigation	24,000	
Site Survey	24,000	
Haz Mat Abatement Consultant	16,000	
Basic Services Prior To Bid		1,147,695
A/E Basic Design Services	654,541	
Civil Design (Above Basic Services)	65,000	
Landscape Design	40,000	
Acoustic Design	16,000	
Cost & Scheduling Independent	28,000	
Life Cycle Cost Analysis	32,000	
Voice/Data/Technology Consultant	25,000	
Alerting Consultant	16,000	
Commissioning (Design Portion)	20,000	
Interior Design (FF&E)	35,000	
Value Engineering Study	30,000	
LEED Design, Reporting	60,000	
Design Services Contingency Prior To Bid	102,154	
Reimbursable Including Reprographics prior to bid	24,000	
Other Services For Bid and Construction Administration		530,300
Bid/Construction/Closeout	242,091	
Materials Testing	70,000	
Commissioning and Training	85,000	
Construction LEED Reporting and Monitoring	25,000	
Additional CA Representation beyond Basic Services	60,000	
Design Services Contingency for Bid and Construction Administration	48,209	

Site Work		1,048,512
Site Preparation, Improvements, and Utilities (includes demo)	825,600	
General Conditions	123,840	
General Contractor OH&P	99,072	
Facility Construction		7,808,976
Multi-floor-floor, essential facility of min 50-year service life. Exterior of masonry veneer on permanent fire-resistant construction.	6,148,800	
General Conditions	922,320	
General Contractor OH&P	737,856	
Construction Contingencies & Sales Tax		2,005,335
Management Reserve	531,449	
Allowance for Change Orders	531,449	
Construction Sales Tax	942,437	
Fixtures, Furnishings, & Equipment		1,292,056
Equipment	439,200	
Furnishings	549,000	
Alerting Systems	60,000	
Telecom/Data Cabling/Equipment	131,760	
FFE Sales Tax	112,096	
Art Set-Aside	442,874	442,874
Other Costs (start of construction)		48,000
Temporary Facilities/Relocation	-	
Hazardous Material Remediation/Removal	-	
Permit Fee & Plan Check	40,000	
LEED Registration/Certification	8,000	
City Project Management		131,760
	131,760	

TOTAL PROJECT COST	**Current (2014)**	**$ 23,100,000**

MACC	$	8,860,000
Area Cost	$	403
Total Project	$	1,052

City of Bellevue Fire Department

STATION #5 - REPLACEMENT

PROJECT BUDGET ESTIMATE

Schreiber Starling & Lane

ARCHITECTS

Scope		
Site Area (SF)	42,000	
Gross Building Area (GSF)	11,368	
Taxes and Contingencies		
Contingency Rate	5.00%	
Management Reserve Rate	5.00%	
Sales Tax Rate	9.50%	
Predesign		2,838,000
Land Acquisition and Site Development	2,750,000	
SEPA/Environmental Analysis	24,000	
Predesign Study	-	
Detailed Bldg Investigations	-	
Geotechnical Investigation	24,000	
Site Survey	24,000	
Haz Mat Abatement Consultant	16,000	
Basic Services Prior To Bid		825,892
A/E Basic Design Services	361,992	
Civil Design (Above Basic Services)	65,000	
Landscape Design	40,000	
Acoustic Design	16,000	
Cost & Scheduling Independent	28,000	
Life Cycle Cost Analysis	32,000	
Voice/Data/Technology Consultant	25,000	
Alerting Consultant	16,000	
Commissioning (Design Portion)	20,000	
Interior Design (FF&E)	35,000	
Value Engineering Study	30,000	
LEED Design, Reporting	60,000	
Design Services Contingency Prior To Bid	72,899	
Reimbursable Including Reprographics prior to bid	24,000	
Other Services For Bid and Construction Administration		411,276
Bid/Construction/Closeout	133,888	
Materials Testing	70,000	
Commissioning and Training	85,000	
Construction LEED Reporting and Monitoring	25,000	
Additional CA Representation beyond Basic Services	60,000	
Design Services Contingency for Bid and Construction Administration	37,389	

Site Work		853,440
Site Preparation, Improvements, and Utilities (includes demo)	672,000	
General Conditions	100,800	
General Contractor OH&P	80,640	
Facility Construction		4,042,461
Single-floor, essential facility of min 50-year service life. Exterior of masonry veneer on permanent fire-resistant construction.	3,183,040	
General Conditions	477,456	
General Contractor OH&P	381,965	
Construction Contingencies & Sales Tax		1,001,212
Management Reserve	244,795	
Allowance for Change Orders	244,795	
Construction Sales Tax	511,622	
Fixtures, Furnishings, & Equipment		949,505
Equipment	227,360	
Furnishings	397,880	
Alerting Systems	60,000	
Telecom/Data Cabling/Equipment	181,888	
FFE Sales Tax	82,377	
Art Set-Aside	244,795	244,795
Other Costs (start of construction)		248,000
Temporary Facilities/Relocation		
Hazardous Material Remediation/Removal	-	
Permit Fee & Plan Check	240,000	
LEED Registration/Certification	8,000	
City Project Management		160,000
	160,000	

TOTAL PROJECT COST	**Current (2014)**	**$ 11,600,000**

Direct Construction Costs (MACC)	$	4,900,000
Area MACC Cost	$	431
Area Total Project Cost (including land acquisition)	$	1,020

City of Bellevue Fire Department

STATION #6 (REPLACEMENT)

PROJECT BUDGET ESTIMATE

Schreiber Starling & Lane

ARCHITECTS

Scope		
Site Area (SF)	51,600	
Gross Building Area (GSF)	21,960	
Taxes and Contingencies		
Contingency Rate	6.00%	
Management Reserve Rate	6.00%	
Sales Tax Rate	9.50%	
Predesign		7,144,000
Land Acquisition	7,000,000	
SEPA/Environmental Analysis	15,000	
Predesign Study (Test-to-Fit)	65,000	
Detailed Bldg Investigations	-	
Geotechnical Investigation	24,000	
Site Survey	24,000	
Haz Mat Abatement Consultant	16,000	
Basic Services Prior To Bid		1,147,695
A/E Basic Design Services	654,541	
Civil Design (Above Basic Services)	65,000	
Landscape Design	40,000	
Acoustic Design	16,000	
Cost & Scheduling Independent	28,000	
Life Cycle Cost Analysis	32,000	
Voice/Data/Technology Consultant	25,000	
Alerting Consultant	16,000	
Commissioning (Design Portion)	20,000	
Interior Design (FF&E)	35,000	
Value Engineering Study	30,000	
LEED Design, Reporting	60,000	
Design Services Contingency Prior To Bid	102,154	
Reimbursable Including Reprographics prior to bid	24,000	
Other Services For Bid and Construction Administration		530,300
Bid/Construction/Closeout	242,091	
Materials Testing	70,000	
Commissioning and Training	85,000	
Construction LEED Reporting and Monitoring	25,000	
Additional CA Representation beyond Basic Services	60,000	
Design Services Contingency for Bid and Construction Administration	48,209	

Site Work		1,048,512
Site Preparation, Improvements, and Utilities (includes demo)	825,600	
General Conditions	123,840	
General Contractor OH&P	99,072	
Facility Construction		7,808,976
Multi-floor-floor, essential facility of min 50-year service life. Exterior of masonry veneer on permanent fire-resistant construction.	6,148,800	
General Conditions	922,320	
General Contractor OH&P	737,856	
Construction Contingencies & Sales Tax		2,005,335
Management Reserve	531,449	
Allowance for Change Orders	531,449	
Construction Sales Tax	942,437	
Fixtures, Furnishings, & Equipment		1,292,056
Equipment	439,200	
Furnishings	549,000	
Alerting Systems	60,000	
Telecom/Data Cabling/Equipment	131,760	
FFE Sales Tax	112,096	
Art Set-Aside	442,874	442,874
Other Costs (start of construction)		48,000
Temporary Facilities/Relocation	-	
Hazardous Material Remediation/Removal	-	
Permit Fee & Plan Check	40,000	
LEED Registration/Certification	8,000	
City Project Management		131,760
	131,760	

TOTAL PROJECT COST	**Current (2014)**	**$ 21,600,000**

Direct Construction Costs (MACC)	$	8,860,000
Area MACC Cost	$	403
Area Total Project Cost (including land acquisition)	$	984

City of Bellevue Fire Department

STATION #7 - REMODEL & EXPANSION

PROJECT BUDGET ESTIMATE

Schreiber Starling & Lane

ARCHITECTS

Scope		
Gross Existing Building Area (GSF)	5,500	
Gross Building Expansion Area (GSF)	1,600	
Remodel Building Area (GSF)	600	
Renovation/Repair Building Area (GSF)	3,300	
Taxes and Contingencies		
Contingency Rate	8.00%	
Management Reserve Rate	5.00%	
Sales Tax Rate	9.50%	
Predesign		-
Land Acquisition	-	
SEPA/Environmental Analysis	-	
Predesign Study	-	
Detailed Bldg Investigations	-	
Geotechnical Investigation	-	
Site Survey	-	
Haz Mat Abatement Consultant	-	
Basic Services Prior To Bid		267,947
A/E Basic Design Services	133,043	
Civil Design (Above Basic Services)	18,000	
Landscape Design	8,000	
Acoustic Design	-	
Cost & Scheduling Independent	16,000	
Life Cycle Cost Analysis	-	
Voice/Data/Technology Consultant	12,000	
Alerting Consultant	12,000	
Commissioning (Design Portion)	-	
Interior Design (FF&E)	15,000	
Value Engineering Study	15,000	
LEED Design, Reporting	-	
Design Services Contingency Prior To Bid	22,904	
Reimbursable Including Reprographics prior to bid	16,000	
Other Services For Bid and Construction Administration		148,728
Bid/Construction/Closeout	49,208	
Materials Testing	16,000	
Commissioning and Training	30,000	
Construction LEED Reporting and Monitoring	-	
Additional CA Representation beyond Basic Services	40,000	
Design Services Contingency for Bid and Construction Administration	13,521	

Site Work		386,400
Site improvement and grading for addition	300,000	
General Conditions	45,000	
General Contractor OH&P	41,400	
Facility Construction		1,078,196
Single-floor, essential facility of min 50-year service life. Exterior of masonry veneer on permanent fire-resistant construction.	448,000	
Interior Remodel Moderate, non-structural: Select Demolition, construxction of new interior partitions, new finishes, new HVAC systems	144,000	
Interior Renovation: Select removal of finishes, installation of new finishes, minor systems improvements	82,500	
Security Improvement	100,000	
Exterior Envelope Repair/Upgrade (Per condition survey)	120,000	
General Conditions	116,175	
General Contractor OH&P	67,521	
Construction Contingencies & Sales Tax		347,622
Management Reserve	73,230	
Allowance for Change Orders	117,168	
Construction Sales Tax	157,224	
Fixtures, Furnishings, & Equipment		64,167
Equipment	12,000	
Furnishings	21,000	
Alerting Systems	16,000	
Telecom/Data Cabling/Equipment	9,600	
FFE Sales Tax	5,567	
Art Set-Aside	73,230	73,230
Other Costs (start of construction)		32,000
Temporary Facilities/Relocation	-	
Hazardous Material Remediation/Removal	-	
Permit Fee & Plan Check	32,000	
LEED Registration/Certification	-	
City Project Management		42,600
	42,600	

TOTAL PROJECT COST	**Current (2014)**	**$ 2,400,000**
Direct Construction Costs (MACC)	$ 1,500,000	
Area MACC Cost	$ 273	
Area Total Project Cost	$ 436	

City of Bellevue Fire Department

STATION #8 - REMODEL & EXPANSION

PROJECT BUDGET ESTIMATE

Schreiber Starling & Lane

ARCHITECTS

Scope		
Gross Existing Building Area (GSF)	9,128	
Gross Building Expansion Area (GSF)	200	
Remodel Building Area (GSF)	1,000	
Renovation/Repair Building Area (GSF)	8,128	
Taxes and Contingencies		
Contingency Rate	8.00%	
Management Reserve Rate	5.00%	
Sales Tax Rate	9.50%	
Predesign		-
Land Acquisition	-	
SEPA/Environmental Analysis	-	
Predesign Study	-	
Detailed Bldg Investigations	-	
Geotechnical Investigation	-	
Site Survey	-	
Haz Mat Abatement Consultant	-	
Basic Services Prior To Bid		223,708
A/E Basic Design Services	79,826	
Civil Design (Above Basic Services)	16,000	
Landscape Design	15,000	
Acoustic Design	8,000	
Cost & Scheduling Independent	16,000	
Life Cycle Cost Analysis	-	
Voice/Data/Technology Consultant	12,000	
Alerting Consultant	12,000	
Commissioning (Design Portion)	-	
Interior Design (FF&E)	15,000	
Value Engineering Study	15,000	
LEED Design, Reporting	-	
Design Services Contingency Prior To Bid	18,883	
Reimbursable Including Reprographics prior to bid	16,000	
Other Services For Bid and Construction Administration		69,877
Bid/Construction/Closeout	29,525	
Materials Testing	16,000	
Commissioning and Training	-	
Construction LEED Reporting and Monitoring	-	
Additional CA Representation beyond Basic Services	18,000	
Design Services Contingency for Bid and Construction Administration	6,352	

Site Work		154,560
Site improvement and grading for addition	120,000	
General Conditions	18,000	
General Contractor OH&P	16,560	
Facility Construction		737,025
Single-floor, essential facility of min 50-year service life. Exterior of masonry veneer on permanent fire-resistant construction.	56,000	
Interior Remodel Moderate, non-structural: Select Demolition, construxction of new interior partitions, new finishes, new HVAC systems	240,000	
Interior Renovation: Select removal of finishes, installation of new finishes, minor systems improvements	203,200	
Exterior Envelope Repair/Upgrade (Per condition survey)	73,024	
General Conditions	85,834	
General Contractor OH&P	78,967	
Construction Contingencies & Sales Tax		211,618
Management Reserve	44,579	
Allowance for Change Orders	71,327	
Construction Sales Tax	95,712	
Fixtures, Furnishings, & Equipment		95,265
Equipment	20,000	
Furnishings	35,000	
Alerting Systems	16,000	
Telecom/Data Cabling/Equipment	16,000	
FFE Sales Tax	8,265	
Art Set-Aside	44,579	44,579
Other Costs (start of construction)		16,000
Temporary Facilities/Relocation	-	
Hazardous Material Remediation/Removal	-	
Permit Fee & Plan Check	16,000	
LEED Registration/Certification	-	
City Project Management		55,968
	55,968	

TOTAL PROJECT COST	**Current (2014)**	**$ 1,600,000**
Direct Construction Costs (MACC)	$ 900,000	
Area MACC Cost	$ 99	
Area Total Project Cost	$ 175	

City of Bellevue Fire Department

STATION #9 - REMODEL & EXPANSION

PROJECT BUDGET ESTIMATE

Schreiber Starling & Lane

ARCHITECTS

Scope		
Gross Existing Building Area (GSF)	6,136	
Gross Building Expansion Area (GSF)	2,000	
Remodel Building Area (GSF)	800	
Renovation/Repair Building Area (GSF)	5,336	
Taxes and Contingencies		
Contingency Rate	8.00%	
Management Reserve Rate	5.00%	
Sales Tax Rate	9.50%	
Predesign		-
Land Acquisition	-	
SEPA/Environmental Analysis	-	
Predesign Study	-	
Detailed Bldg Investigations	-	
Geotechnical Investigation	-	
Site Survey	-	
Haz Mat Abatement Consultant	-	
Basic Services Prior To Bid		311,516
A/E Basic Design Services	159,651	
Civil Design (Above Basic Services)	16,000	
Landscape Design	15,000	
Acoustic Design	8,000	
Cost & Scheduling Independent	16,000	
Life Cycle Cost Analysis	-	
Voice/Data/Technology Consultant	12,000	
Alerting Consultant	12,000	
Commissioning (Design Portion)	-	
Interior Design (FF&E)	15,000	
Value Engineering Study	15,000	
LEED Design, Reporting	-	
Design Services Contingency Prior To Bid	26,865	
Reimbursable Including Reprographics prior to bid	16,000	
Other Services For Bid and Construction Administration		102,354
Bid/Construction/Closeout	59,049	
Materials Testing	16,000	
Commissioning and Training	-	
Construction LEED Reporting and Monitoring	-	
Additional CA Representation beyond Basic Services	18,000	
Design Services Contingency for Bid and Construction Administration	9,305	

Site Work		489,440
Site improvement and grading for addition	380,000	
General Conditions	57,000	
General Contractor OH&P	52,440	
Facility Construction		1,295,983
Single-floor, essential facility of min 50-year service life. Exterior of masonry veneer on permanent fire-resistant construction.	700,000	
Interior Remodel Moderate, non-structural: Select Demolition, construxction of new interior partitions, new finishes, new HVAC systems	176,000	
Interior Renovation: Select removal of finishes, installation of new finishes, minor systems improvements	106,720	
Exterior Envelope Repair/Upgrade (Per condition survey)	180,000	
General Conditions	69,408	
General Contractor OH&P	63,855	
Construction Contingencies & Sales Tax		423,770
Management Reserve	89,271	
Allowance for Change Orders	142,834	
Construction Sales Tax	191,665	
Fixtures, Furnishings, & Equipment		70,956
Equipment	16,000	
Furnishings	28,000	
Alerting Systems	16,000	
Telecom/Data Cabling/Equipment	4,800	
FFE Sales Tax	6,156	
Art Set-Aside	89,271	89,271
Other Costs (start of construction)		16,000
Temporary Facilities/Relocation	-	
Hazardous Material Remediation/Removal	-	
Permit Fee & Plan Check	16,000	
LEED Registration/Certification	-	
City Project Management		48,816
	48,816	

TOTAL PROJECT COST	**Current (2014)**	**$ 2,850,000**
Direct Construction Costs (MACC)	$ 1,800,000	
Area MACC Cost	$ 293	
Area Total Project Cost	$ 464	

City of Bellevue Fire Department

STATION #10 (NEW)

PROJECT BUDGET ESTIMATE

Schreiber Starling & Lane

ARCHITECTS

Scope		
Site Area (SF)	36,100	
Gross Building Area (GSF)	17,987	
Taxes and Contingencies		
Contingency Rate	6.00%	
Management Reserve Rate	6.00%	
Sales Tax Rate	9.50%	
Predesign		14,403,000
Land Acquisition	14,250,000	
SEPA/Environmental Analysis	24,000	
Predesign Study (Test-to-Fit)	65,000	
Detailed Bldg Investigations	-	
Geotechnical Investigation	24,000	
Site Survey	24,000	
Haz Mat Abatement Consultant	16,000	
Basic Services Prior To Bid		1,021,530
A/E Basic Design Services	568,845	
Civil Design (Above Basic Services)	65,000	
Landscape Design	25,000	
Acoustic Design	8,000	
Cost & Scheduling Independent	24,000	
Life Cycle Cost Analysis	30,000	
Voice/Data/Technology Consultant	25,000	
Alerting Consultant	16,000	
Commissioning (Design Portion)	20,000	
Interior Design (FF&E)	35,000	
Value Engineering Study	30,000	
LEED Design, Reporting	60,000	
Design Services Contingency Prior To Bid	90,685	
Reimbursable Including Reprographics prior to bid	24,000	
Other Services For Bid and Construction Administration		473,434
Bid/Construction/Closeout	210,395	
Materials Testing	50,000	
Commissioning and Training	85,000	
Construction LEED Reporting and Monitoring	25,000	
Additional CA Representation beyond Basic Services	60,000	
Design Services Contingency for Bid and Construction Administration	43,039	

Site Work		1,300,328
Site Preparation, Improvements, and Utilities (includes demo)	866,400	
Signalization	200,000	
General Conditions	129,960	
General Contractor OH&P	103,968	
Facility Construction		6,396,177
Multi-floor-floor, essential facility of min 50-year service life. Exterior of masonry veneer on permanent fire-resistant construction.	5,036,360	
General Conditions	755,454	
General Contractor OH&P	604,363	
Construction Contingencies & Sales Tax		1,742,489
Management Reserve	461,790	
Allowance for Change Orders	461,790	
Construction Sales Tax	818,908	
Fixtures, Furnishings, & Equipment		1,030,792
Equipment	323,766	
Furnishings	449,675	
Alerting Systems	60,000	
Telecom/Data Cabling/Equipment	107,922	
FFE Sales Tax	89,429	
Art Set-Aside	384,825	384,825
Other Costs (start of construction)		48,000
Temporary Facilities/Relocation	-	
Hazardous Material Remediation/Removal	-	
Permit Fee & Plan Check	40,000	
LEED Registration/Certification	8,000	
City Project Management		107,922
	107,922	

TOTAL PROJECT COST	**Current (2014)**	**$ 26,910,000**

Direct Construction Costs (MACC)	$	7,700,000
Area MACC Cost	$	428
Area Total Project Cost (including land acquisition)	$	1,496

City of Bellevue Fire Department

DEPARTMENT WAREHOUSE (NEW)

PROJECT BUDGET ESTIMATE

Schreiber Starling & Lane

ARCHITECTS

Scope		
Site Area (SF)		
Gross Building Area (GSF)	11,200	
Taxes and Contingencies		
Contingency Rate	5.00%	
Management Reserve Rate	5.00%	
Sales Tax Rate	9.50%	
Predesign		81,000
Land Acquisition (included with Training Center)	-	
SEPA/Environmental Analysis	15,000	
Predesign Study (Test-to-Fit)	30,000	
Detailed Bldg Investigations	-	
Geotechnical Investigation	16,000	
Site Survey	20,000	
Haz Mat Abatement Consultant	-	
Basic Services Prior To Bid		478,745
A/E Basic Design Services	242,313	
Civil Design (Above Basic Services)	45,000	
Landscape Design	24,000	
Acoustic Design	-	
Cost & Scheduling Independent	16,000	
Life Cycle Cost Analysis	-	
Voice/Data/Technology Consultant	18,000	
Alerting Consultant	-	
Commissioning (Design Portion)	16,000	
Interior Design (FF&E)	8,000	
Value Engineering Study	15,000	
LEED Design, Reporting	40,000	
Design Services Contingency Prior To Bid	42,431	
Reimbursable Including Reprographics prior to bid	12,000	
Other Services For Bid and Construction Administration		269,085
Bid/Construction/Closeout	89,623	
Materials Testing	50,000	
Commissioning and Training	50,000	
Construction LEED Reporting and Monitoring	25,000	
Additional CA Representation beyond Basic Services	30,000	
Design Services Contingency for Bid and Construction Administration	24,462	

Site Work		711,200
Site Preparation, Improvements, and Utilities (includes demo)	560,000	
General Conditions	84,000	
General Contractor OH&P	67,200	
Facility Construction		2,560,320
Single-floor industrial (pre-Engineered) facility of min 30-year service life. (Bays are essential facility)	2,016,000	
General Conditions	302,400	
General Contractor OH&P	241,920	
Construction Contingencies & Sales Tax		669,026
Management Reserve	163,576	
Allowance for Change Orders	163,576	
Construction Sales Tax	341,874	
Fixtures, Furnishings, & Equipment		306,600
Equipment	168,000	
Furnishings	89,600	
Alerting Systems	-	
Telecom/Data Cabling/Equipment	22,400	
FFE Sales Tax	26,600	
Art Set-Aside	-	-
Other Costs (start of construction)		32,000
Temporary Facilities/Relocation	-	
Hazardous Material Remediation/Removal	-	
Permit Fee & Plan Check	24,000	
LEED Registration/Certification	8,000	
City Project Management		67,200
	67,200	

TOTAL PROJECT COST	**Current (2014)**	**$ 5,150,000**
Direct Construction Costs (MACC)	$ 3,280,000	
Area MACC Cost	$ 293	
Area Total Project Cost (including land acquisition)	$ 460	

City of Bellevue Fire Department

TRAINING CENTER (REPLACEMENT)

PROJECT BUDGET ESTIMATE

Schreiber Starling & Lane

ARCHITECTS

Scope		
Site Area (SF)		
Gross Existing Building Area (GSF)	14,000	
Taxes and Contingencies		
Contingency Rate	8.00%	
Management Reserve Rate	5.00%	
Sales Tax Rate	9.50%	
Predesign		7,500,000
Land Acquisition and Site Development	7,500,000	
SEPA/Environmental Analysis	-	
Predesign Study	-	
Detailed Bldg Investigations	-	
Geotechnical Investigation	-	
Site Survey	-	
Haz Mat Abatement Consultant	-	
Basic Services Prior To Bid		671,792
A/E Basic Design Services	478,174	
Civil Design (Above Basic Services)	25,000	
Landscape Design	15,000	
Acoustic Design	8,000	
Cost & Scheduling Independent	16,000	
Life Cycle Cost Analysis	-	
Voice/Data/Technology Consultant	12,000	
Alerting Consultant	12,000	
Commissioning (Design Portion)	-	
Interior Design (FF&E)	15,000	
Value Engineering Study	15,000	
LEED Design, Reporting	-	
Design Services Contingency Prior To Bid	59,617	
Reimbursable Including Reprographics prior to bid	16,000	
Other Services For Bid and Construction Administration		289,145
Bid/Construction/Closeout	176,859	
Materials Testing	16,000	
Commissioning and Training	30,000	
Construction LEED Reporting and Monitoring	-	
Additional CA Representation beyond Basic Services	40,000	
Design Services Contingency for Bid and Construction Administration	26,286	

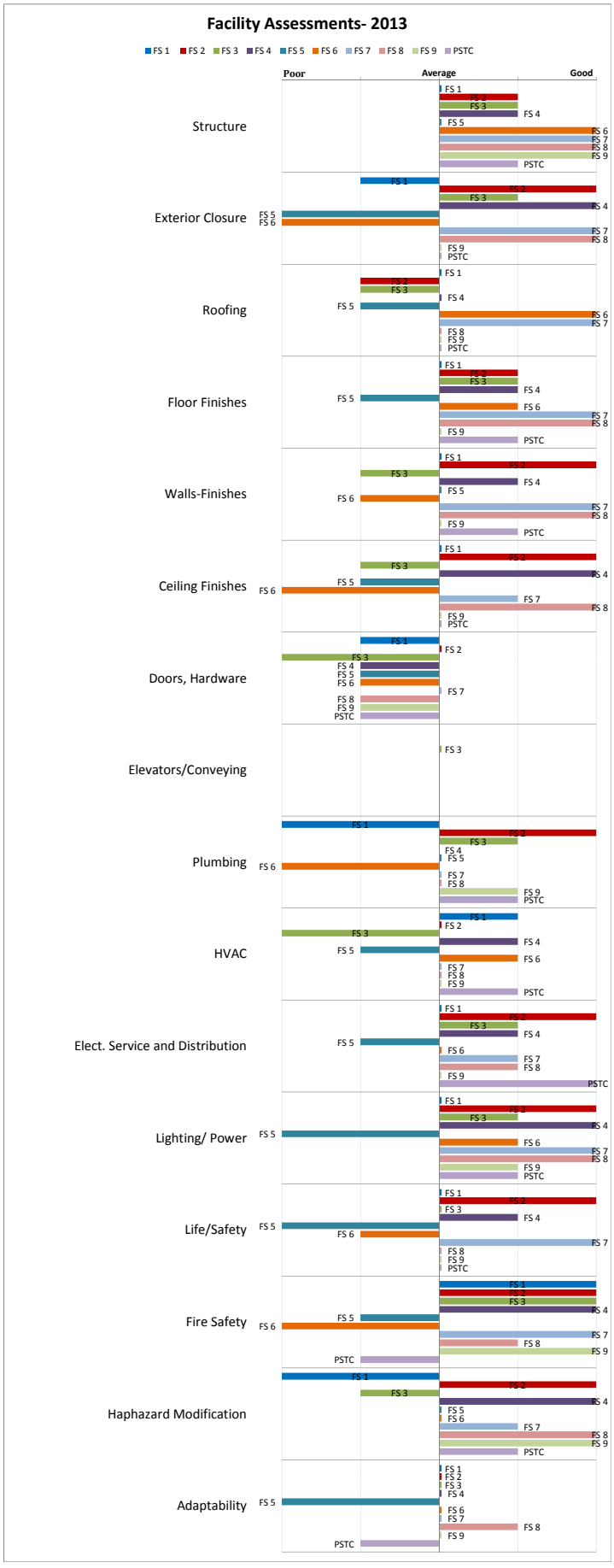
Site Work		128,800
Relocate fueling	100,000	
General Conditions	15,000	
General Contractor OH&P	13,800	
Facility Construction		5,886,160
Single-floor, essential facility of min 50-year service life. Exterior of masonry veneer on permanent fire-resistant construction.	3,920,000	
Repairs and Improvements at Burn Tower	400,000	
Exterior Envelope and upgrades at Range to remain	250,000	
General Conditions	685,500	
General Contractor OH&P	630,660	
Construction Contingencies & Sales Tax		1,427,651
Management Reserve	300,748	
Allowance for Change Orders	481,197	
Construction Sales Tax	645,706	
Fixtures, Furnishings, & Equipment		827,820
Equipment	280,000	
Furnishings	308,000	
Alerting Systems	-	
Telecom/Data Cabling/Equipment	168,000	
FFE Sales Tax	71,820	
Art Set-Aside	300,748	300,748
Other Costs (start of construction)		60,000
Temporary Facilities/Relocation	-	
Hazardous Material Remediation/Removal	-	
Permit Fee & Plan Check	60,000	
LEED Registration/Certification	-	
City Project Management		168,000
	168,000	

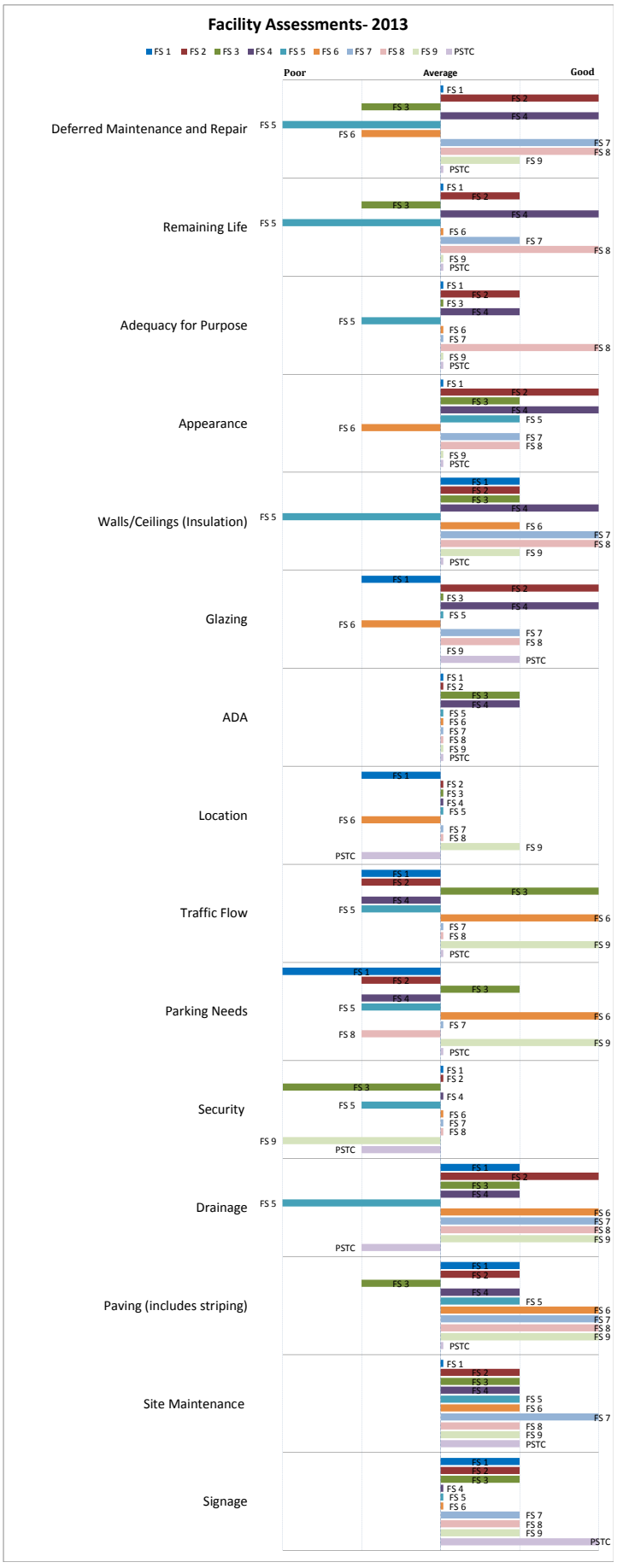
TOTAL PROJECT COST	**Current (2014)**	**$ 16,800,000**
Direct Construction Costs (MACC)	$ 6,015,000	
Area MACC Cost	$ 430	
Area Total Project Cost (including land acquisition)	$ 1,200	

BELLEVUE FIRE DEPARTMENT
FACILITIES MASTER PLAN
MAY 2014

Appendix E
Existing Facilties Condition Report

Schreiber Starling & Lane
ARCHITECTS
MARY MCGRATH ARCHITECTS
TriData Corporation

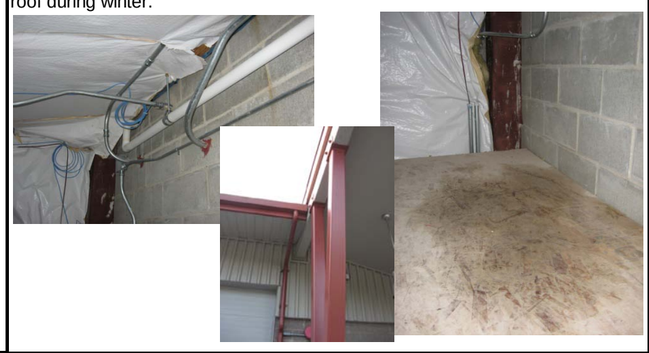
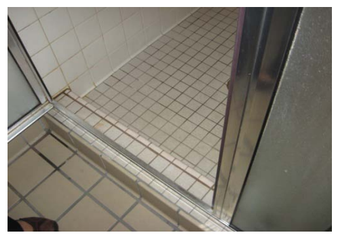

Facility Assessments- 2013
FS 1
FS 2
FS 3
FS 4
FS 5
FS 6
FS 7
FS 8
FS 9
PSTC
Poor
Average
Good
Structure
Exterior Closure
Roofing
Floor Finishes
Walls-Finishes
Ceiling Finishes
Doors, Hardware
Elevators/Conveying
Plumbing
HVAC
Elect. Service and Distribution
Lighting/ Power
Life/Safety
Fire Safety
Haphazard Modification
Adaptability

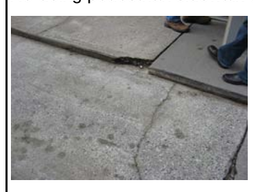

Facility Assessments- 2013
FS 1
FS 2
FS 3
FS 4
FS 5
FS 6
FS 7
FS 8
FS 9
PSTC
Poor
Average
Good
Deferred Maintenance and Repair
Remaining Life
Adequacy for Purpose
Appearance
Walls/Ceilings (Insulation)
Glazing
ADA
Location
Traffic Flow
Parking Needs
Security
Drainage
Paving (includes striping)
Site Maintenance
Signage

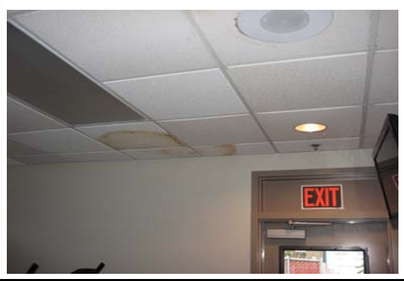
Fire Station 1	Score	Score '13	Description of score '11	Comments
Structure	0	0	Some cracking evident but does not affect structural integrity. Visible defects apparent but are non-structural	
Exterior Closure	-1.5	-1.5	Deterioration evident	Failed seals on aluminum windows. Skylights were repaired in 2011. Entry needs backer rod on side wall. Rotting siding because of dirt and landscaping at base. 
Roofing	0	0	Normal wear and tear	Need to determine age of roof. Flashing was re-done recently. Some ponding but minimal.
Floor Finishes	0	0	Some wear and minor imperfections are evident	Different heights of carpet. Some cracking of concrete slab in bay. Vinyl in top floor kitchen peeling
Walls-Finishes	-1.5	0	Needs painting	
Ceiling Finishes	0	0	Some wear and tear and minor deterioration	Storage area has some water damage.
Doors, Hardware	-1.5	-1.5	deteriorating and outdated	
Elevators/Conveying	N/A			
Plumbing/water heater	-3	-3	Extensive pipe leaks; deteriorated fixtures; inadequate fixtures	New water heater. Leaks in showers were temporarily fixed in 2011. Grout cracking and resealed.
HVAC (includes exhaust fans)	-3	1.5	Equipment beyond useful life; no ventilation in hazardous areas; No A/C in office areas; inadequate capacity, zoning and distribution	No ventilation in painting area. 
Elect. Service and Distribution	0	0	Service capacity meets current needs but inadequate for future	

Lighting/ Power	0	0	Adequate work area illumination; adequate outlets for current use	t-12 lamps in shop still. Ballasts failing in 2nd floor entry. Outside lighting lenses need to be replaced. 
Life/Safety: Seismic structural and un-structural, Emergency generators	0	0	Generally Meets codes for vintage of construction	No seismic shut-off for gas. Check whether 1999 permit included seismic retrofits. Assumption is yes
Fire Safety	1.5	1.5	Locally monitored detection; alarm preset; sprinklers in high hazard areas	Fire panel batteries need to be serviced. Hose attached to fire pump system is unusual. 
Haphazard Modification	-3	-3	Modifications not well thought out or constructed; inadequate HVAC and electrical service provided	
Adaptability	0	0	Interior space can be modified; but only at great expense. Expensive to expand building	Bunk room is especially cramped.
Deferred Maintenance and Repair	-1.5	0	General deterioration evident; impact is moderate	
Remaining Life (rated against useful life of building	0	0	Major systems deteriorating but maintained; life expectancy is 5-15 years	Built in 1974, remodeled in 1999.
Adequacy for Purpose	-1.5	0	Amenities are barely adequate	
Appearance	0	0	Functional and well-maintained spaces but not very attractive	
Walls/Ceilings	-1.5	1.5	Deterioration of insulation, air gaps between joints and doors.	
Glazing	-1.5	-1.5	Double glazing with aluminum/metal window frames, but leaking and seals failing.	

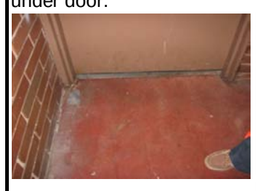
ADA	Partially Compliant (check which ones)		□ parking/ van □ ramp □ landing □ slope □ doors	Accessibility is only for the second floor meeting space. Need to know whether they still have CPR classes upstairs. Parking not adequate for first floor lobby and route of travel.
Location	-1.5	-1.5	Lack of future expansion capability. Threatened by incompatible adjacent development	
Traffic Flow	-3	-1.5	Traffic flow is inefficient and unsafe	As of February. Currently (Sept 2011) a -1.5.
Parking Needs	-3	-3	Circulation is dangerous. No expansion potential for parking	
Security (Includes lock systems for doors)	0	0	Site lighting is adequate; site has emergency phones	Emergency phone present. General building security lacking.
Drainage	1.5	1.5	Doesn't meet NPDES requirements, but Positive slope away from buildings; roof drainage to underground system; surface drainage to catch basins or swales	
Paving (includes striping)	-1.5	1.5	Paving is cracking. Pedestrian walkways provide for adequate circulation between buildings; only partial paved parking	Inadequate in Feb 2011. Broken curb by sign. Gravel lot for upper parking: paving triggers storm water permitting. 
Site Maintenance (Includes landscape structural elements and irrigation systems.)	-1.5	0	Does not appear well maintained.	Retaining wall is failing in parking area and blocks fall on cars or get run over and vehicles (larger rigs) go around corner. Need to trim vegetation. 
Signage (includes evac maps)	1.5	1.5	Building name identified; parking and disabled signage exists; exits properly marked	Evac maps not present.

Fire Station 2	Score	Score '13	Description of score '11	Comments	Comments 2013
Structure	1.5	1.5	Visible defects apparent but are non-structural	Crack by door. 	just a joint
Exterior Closure	3	3	Weatherproof, tight, well-maintained exterior walls, doors, windows/finishes	CMU block in good condition. Window in entry door is after-market.	
Roofing	-1.5	0	Some deterioration is evident in membrane and flashings; maintenance is needed	Leak at beam where the roof line transitions. Is wet to the touch. Ice slides off roof during winter. 	Roof leak seems to be dry at this time. Keep an eye on it.
Floor Finishes	0	1.5	Some wear and minor imperfections are evident		New carpet!
Walls-Finishes	3	3	Maintainable surfaces in good condition		
Ceiling Finishes	3	3	Maintainable surfaces in good condition; good alignment and appearance		
Doors, Hardware	0	0	Dated		Apparatus bay door needs new remote.
Elevators/Conveying				N/A	
Plumbing/water heater	3	3	Fixtures and piping appear to be in good condition; no evidence of leaks	Drains in bay drying out. Seals on showers failing. 	Seals on showers failing, needs resealing. 
HVAC (includes exhaust fans)	0	0	System generally adequate; office areas have A/C; hazardous areas are ventilated	Some zoning issues. Controller is not intuitive for FS captain and officers, very little control. Return fan belt broken (as of Feb 2011, it was running), uncovered. 	
Elect. Service and Distribution	3	3	Adequate service and distribution capacity for current/future needs		
Lighting/ Power	1.5	3	Efficient lighting with good work area illumination; needs control	Bunk lights sparking Feb 2011. Lighting project Sept 2011.	Bunk lights no longer sparking,
Life/Safety Seismic structural and un-structural Emergency generators	3	3	Appears to meet current codes	Seismic valve present.	
Fire Safety	1.5	1.5	Monitored only at the panel, phone line not connected. Sprinklers.		
Haphazard Modification	3	3	Modifications appear to be in compliance with codes and sound construction practices; HVAC/electrical services properly provided		
Adaptability	0	0	Interior space can be modified; but only at great expense. Expensive to expand building		

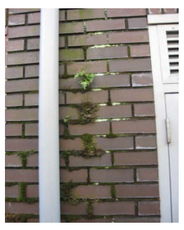
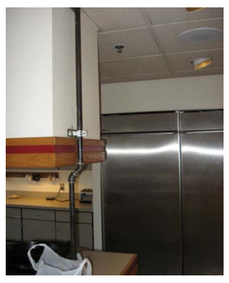
Deferred Maintenance and Repair	1.5	3	Facility appears well maintained: some minor issues		
Remaining Life Rate according to useful life of building.	1.5	1.5	Major systems deteriorating but well maintained; life expectancy is 15 years		
Adequacy for Purpose	1.5	1.5	Spaces have satisfactory amenities for current & future use		
Appearance	3	3	Well constructed, well maintained building and interior spaces; generally attractive, light and cheery		Cubicle wall finishes are torn and worn.
Walls/Ceilings	0	1.5	Insulation present, door sweeps and caulk present.		
Glazing	3	3	Double glazing with window frames that minimize conductivity		
ADA	Partially Compliant (check which ones)		□ parking/ van □ slope	Stall needs striping. 	Stall restriped in 2012 
Location	0	0	Site is reasonably sized for foreseeable future		
Traffic Flow	-1.5	-1.5	Traffic flow has some inefficiencies		
Parking Needs	-1.5	-1.5	Circulation is inefficient. No expansion potential for parking	Full lot, also with garbage dumpsters and people use for a turn around.	
Security Include lock systems for doors.	0	0	Site lighting is adequate; site has emergency phones		
Drainage	3	3	Positive slope away from buildings; roof drainage to underground system; surface drainage to catch basins or swales		
Paving includes striping	3	1.5	Pedestrian walkways provided for circulation between buildings; paved parking areas	Gas pump on pedestrian sidewalk.	Re-doing pedestrian sidewalk to building. 
Site Maintenance Includes landscape structural elements and irrigation systems.	1.5	1.5	Landscaping is satisfactory. Needs pruning.		
Signage Evac maps	1.5	1.5	Building numbers/names identified; exits properly marked		

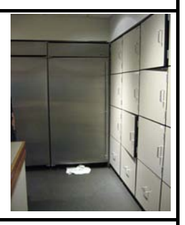
Fire Station 3	Score	Score '13	Description of score '11	Comments	Comments 2013
Structure	1.5	1.5	Visible defects apparent but are non-structural	Flooding in basement due to plumbing problem.	
Exterior Closure	1.5	1.5	Could use pressure washing.	Brick façade 	Brick cleaned up. Planter could be removed. 
Roofing	-1.5	-1.5	Some deterioration is evident in membrane and flashings; maintenance is needed	Some leaking. Repairs evident. Needs cleaning. Needs safety hatch	haven't seen any new leaks since last inspection
Floor Finishes	0	1.5	Some wear and minor imperfections are evident	Schuler strip needed in dayroom/ dining and throughout facility. 	New carpet, tile with kitchen remodel.
Walls-Finishes	-1.5	3	Aging surfaces but sound; painting required.	$5,000 budgeted for painting interior walls.	Done
Ceiling Finishes	-1.5	-1.5	Deteriorated, some stains	Brittle ceiling tiles	New leak? 
Doors, Hardware	-3	-3	Inoperable; non-secure	Some of the worst locks so far. Day room entrance frequently left unlocked.	
Elevators/Conveying	0	0	Elevators provided	T-12 lamps in elevator.	lighting upgraded
Plumbing/water heater	-3	1.5	Extensive pipe leaks; deteriorated fixtures; inadequate fixtures	Leaking shower fixture handles in Feb 2011. Hot water tank leaking. Both repaired after that date.	low water pressure, sinks need to be upgraded. 
HVAC (includes exhaust fans)	-3	-3	Equipment beyond useful life; no ventilation in hazardous areas; No A/C in office areas; inadequate capacity, zoning and distribution	Hard to control. Frequent maintenance calls.	
Elect. Service and Distribution	1.5	1.5	Adequate distribution capacity for current/future needs. Electrical panels are aging.		
Lighting/ Power	-1.5	1.5	Outdated and inefficient.		Interior lighting upgraded. Exterior lighting inefficient. Conduit crushed from building to pole lights in front of building.
Life/Safety Seismic structural and un-structural Emergency generators	0	0	Generally Meets codes for vintage of construction	Station built in 1983. Seismic done in 1996.	
Fire Safety	3	3	Locally monitored detection; alarm preset; sprinklers in high hazard areas	Basement-- removed halon system. Not monitored. Upstairs locally monitored. Batteries from 2008.	
Haphazard Modification	-3	-1.5	Modifications not well thought out or constructed; inadequate HVAC and electrical service provided		

Adaptability	0	0	Interior space can be modified; but only at great expense. Expensive to expand building		Getting new fire trucks and apparatus bay is too short, mezzanine needs to be removed. 
Deferred Maintenance and Repair	-3	-1.5	Lack of adequate maintenance is evident; impact is severe	Mechanical equipment, primarily.	
Remaining Life	-1.5	-1.5	Major systems deteriorating but maintained; life expectancy is 5 years	Needs major remodel.	
Adequacy for Purpose	0	0	Amenities are adequate but could use upgrading		
Appearance	0	1.5	Functional and well-maintained spaces but not very attractive	Dayroom dark	
Walls/Ceilings	-1.5	1.5	Deterioration of insulation, air gaps between joints and doors.		air gaps done 2012
Glazing	0	0	Double glazing with aluminum/metal window frames	Glazing in 2009.	
ADA	Partially Compliant (check which ones)		□ *parking/ van* □ ramp □ landing □ slope □ doors	Need to check on the number of spots necessary. ADA restroom likely not compliant.	
Location	0	0	Site is reasonably sized for foreseeable future		
Traffic Flow	3	3	Traffic flow poses no apparent safety hazards and is efficient		
Parking Needs	1.5	1.5	Parking and circulation are efficient and adequate.		
Security Include lock systems for doors.	-3	-3	Site lighting is inadequate; no security booths/ guards/ system and emergency phones	Site lighting poor, failed.	to be repaired?
Drainage	1.5	1.5	Standing water at buildings or between buildings drains adequately.	Storm and oil water separator pumped, there were no comments.	
Paving includes striping	-1.5	-1.5	Striping and seal coat needed. Sidewalks could use repair, broken.	Apparatus bay exterior concrete is broken. 	sidewalks have been repaired
Site Maintenance	1.5	1.5	Landscaping is adequate but needs cleaning of hard surfaces.		
Signage Evac maps	1.5	1.5	Building numbers/names identified; exits properly marked		

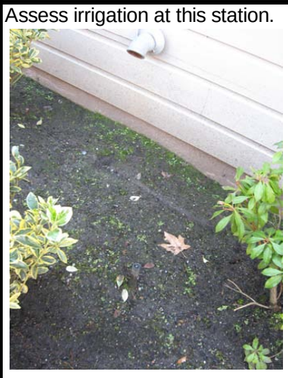
Fire Station 5	Score	Score '13	Description of score '11	Comments	Comments 2013
Structure	0	0	Some cracking evident but does not affect structural integrity. Visible defects apparent but are non-structural		
Exterior Closure	-3	-3	Significant deterioration, leaking and air infiltration apparent	Hose tower has significant air gaps in plywood window and under door.  	Skylights leak debris when roof is being cleaned. Cleaned and sealed the brick façade as part of painting.
Roofing	-3	-1.5	Leaking and deterioration is to the point where new roof is required		Roof inspection performed and there is a list of minor repairs to be made.
Floor Finishes	-1.5	-1.5	Beginning deterioration	Peeling vinyl in some areas of the station 	Kitchen floor needs professional cleaning. Clean carpets. New carpeting/ flooring on westside bathroom and utility sink area.
Walls-Finishes	0	0	Aging surfaces but sound; some maintenance required		
Ceiling Finishes	-1.5	-1.5	Deteriorated, some stains	Some water damage in back storage area. Black ceiling in apparatus bay makes even more dim. 	Paint app bay ceiling white
Doors, Hardware	-1.5	-1.5	Deteriorating and outdated		Bay door opener upgrade needs to be considered.
Elevators/Conveying	N/a				
Plumbing/water heater	0	0	Fixtures are functional but dated;	Needs backflow preventer on utility sink. Showers very small on crew side. 	Toilet not secured to the floor in FF restroom. Replace stripping around shower doors.
HVAC (includes exhaust fans)	-1.5	-1.5	Deterioration; needs balancing;	Duct tape on dryer ventilation deteriorating. Distribution in building through the floor. Very hard to maintain/ adapt. Residentially-sized hood for stove. 	Bathroom fan switch wearing out. Heater needed in FF restroom.
Elect. Service and Distribution	-1.5	-1.5	Bizarre wiring and outdated		
Lighting/ Power	-3	-3	Unsafe levels of illumination; inadequate outlets		Kim replaced lamps and ballasts in bay area. Capt. Still desires replacement lighting needed for east side of building and apparatus bay. Light over sink in FF restroom inadequate. Hallways to bay need upgrading.
Life/Safety Seismic structural and un-structural	-3	-3	Does not meet minimum health/safety requirements	No seismic on gas. Seismic is non-existant throughout building.	

Emergency generators					
Fire Safety	-1.5	-1.5	No fire panel/sprinklers	No fire panel. No sprinklers	Need new smoke/CO detectors throughout station per code
Haphazard Modification	0	0	Some modifications lack code compliance;		
Adaptability	-3	-3	Technically very difficult to modify space or expand building. Cost is prohibitive	Fitness room in apparatus bay.	
Deferred Maintenance and Repair	-3	-3	Lack of adequate maintenance is evident; impact is severe		
Remaining Life	-3	-3	Major systems no longer cost effective to repair; life expectancy <5 years		
Adequacy for Purpose	-1.5	-1.5	Amenities are barely adequate		Need dispatch speaker in bathroom. Need better public info display area. Need somewhere to hang citizen's coats. New blinds. Telephone stand or wall mount needed for dayroom telephone. New gas BBQ. Towel racks. New TV and stand.
Appearance	0	1.5	Functional and well-maintained spaces but not very attractive		Painted exterior.
Walls/Ceilings	-3	-3	No insulation	Brick is not insulated.	
Glazing	0	0	Double glazing with aluminum/metal window frames		Patio door single-paned and not tempered glass -- leaks cold air.
ADA	Partially Compliant		□ parking/ van □ ramp □ landing □ slope	Front public restroom has an 18" door.	
Location	0	0	Site is reasonably sized for foreseeable future		
Traffic Flow	-1.5	-1.5	Traffic flow has some inefficiencies		
Parking Needs	-1.5	-1.5	Circulation is inefficient. No expansion potential for parking		
Security	-1.5	-1.5	Site lighting is barely adequate; no security booths/ guards/ system		
Drainage	-3	-3	Extensive pooling of water adjacent to buildings; poor slope and drainage	Downspouts need to be directed into ground or sloped away from building. 	
Paving	1.5	1.5	Pedestrian walkways provide for adequate circulation between buildings; paved parking.	Back lot is worse than front but not terrible. ADA stall could use new striping.	Removed buckling westside walkway and replaced with pavers.
Site Maintenance	1.5	1.5	Landscaping is adequate	Ivy.	
Signage	0	0	Signage is minimal, except for emergency exit identification		

Fire Station 6	Score	Score '13	Description of score '11	Comments	Comments 2013
Structure	3	3	No signs of settlement or cracking, no abrupt vertical changes. Columns, bearing walls and roof structure appear sound/free of defects	Some settling of patio. 	
Exterior Closure	-3	-3	Significant deterioration, leaking and air infiltration apparent	Grout between brick is growing moss, ferns and seeping. Water running down wall near awning.   	Same comments as 2011-- flashing from roof to brick is likely the source of leaks. 
Roofing	3	3	New roof, well-constructed, <5 years old	New roof 7.2.2010. Firestone ASTMD TPO 6878 PVC Membrane. Needs some cleaning. Very slick surface.	
Floor Finishes	1.5	1.5	Some wear		
Walls-Finishes	-1.5	-1.5	Surfaces are uneven and in poor shape/ dirty	Exposed dry wall tape.	
Ceiling Finishes	-3	-3	Stained or sagging; inappropriate for occupancy	Very stained and dirty ceiling tiles. Bunk room has hole in one of the tiles.  	Same comments as 2011.
Doors, Hardware	-1.5	-1.5	deteriorating and outdated		
Elevators/Conveying	N/A				
Plumbing/water heater	-3	-3	Extensive pipe leaks; deteriorated fixtures; inadequate fixtures	Electric water heater for small officer's restroom inaccessible for maintenance, need to move refrigerator. Shower inserts, cheap plumbing fixtures. Stained sinks. 	Same comments as 2011.
HVAC (includes exhaust fans)	0	1.5	System generally adequate; office areas have A/C; hazardous areas are ventilated	Air handling in bay in through underfloor drains. Humidity problems causing some rusting of distribution vents, lots of particles in system in general. Rest of station mostly decent. Some insulation on outside DX cooling deteriorating.  	As of March 2013, new radiant heater in appartus bay. Need new cap on exhaust pipe from one of the furnaces.
Elect. Service and Distribution	0	0	Service capacity meets current needs but inadequate for future		
Lighting/ Power	-1.5	1.5	Inefficient lighting	As of February 2011, it was mostly incandescent and T-12 lighting.	Flickering on dayroom LED dimmer switch
Life/Safety Seismic structural and un-structural Emergency generators	-1.5	-1.5	Non structural seismic not done	No gas shut-off for gas. Light fixtures are not seismically braced. Seismic renovations in 1997.	-1.5
Fire Safety	-3	-3	Violations exist	Gas pipe next to stove top is a code violation and could be quite dangerous. Fire panel calls out, last serviced 7.1.11 	
Haphazard	0	0	Some modifications lack code compliance;		

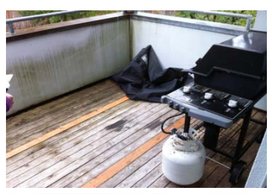
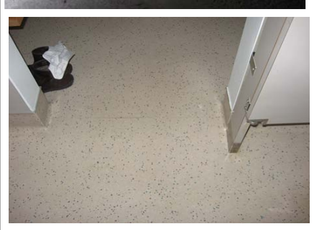
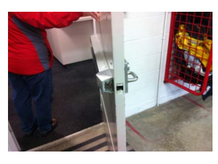
Modification					
Adaptability	0	0	Interior space can be modified; but only at great expense. Expensive to expand building		
Deferred Maintenance and Repair	-1.5	-1.5	General deterioration evident; impact is moderate		
Remaining Life	0	0	Major systems deteriorating but maintained; life expectancy is 5-15 years		
Adequacy for Purpose	0	0	Amenities are adequate but could use upgrading		Refrigerator still leaking. 
Appearance	-1.5	-1.5	Functional spaces but not very attractive		Kitchen especially dirty
Walls/Ceilings	0	1.5	Insulation present, door sweeps and caulk present.		air gap sealing done 2012
Glazing	0	-1.5	Double glazing with aluminum/metal window frames		Window sills collecting moisture 
ADA	Partially Compliant (check which ones)		□ ramp □ landing		
Location	-1.5	-1.5	Lack of future expansion capability. Threatened by incompatible adjacent development	Station threatened by Bel-Red Corridor expansion.	
Traffic Flow	3	3	Traffic flow poses no apparent safety hazards and is efficient		
Parking Needs	3	3	Parking and circulation are efficient and adequate for future expansion		
Security	0	0	Site lighting is adequate; site has emergency phones		
Drainage	3	3	Positive slope away from buildings; roof drainage to underground system; surface drainage to catch basins or swales	Not sure what sand bags are about. 	
Paving	3	3	Pedestrian walkways provided for circulation between buildings; paved parking areas	Some cracking of concrete.  	
Site Maintenance	3	1.5	Site is landscaped, well-constructed, and appears well maintained		Landscaping needs mulch, bare roots
Signage	1.5	0	Building name identified; parking and disabled signage exists; exits properly marked	Has Fire evac maps (just paper).	missing front road sign

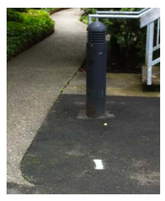
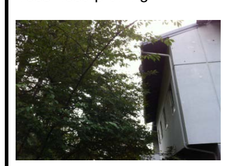
Fire Station 7	Score	Score '13	Description of score '11	Comments	Comments 2013
Structure	3	3	No signs of settlement or cracking, no abrupt vertical changes. Columns, bearing walls and roof structure appear sound/free of defects		
Exterior Closure	3	3	Weatherproof, tight, well-maintained exterior walls, doors		
Roofing	1.5	3	Flashing and penetrations appear sound and membrane appears watertight; drainage is positive and there are overflow scuppers	Known leaks in venting system for kitchen. Ice and snow slides off roof-- took out gas meter in the past. Leaks have been caulked but still have a problem.	No ongoing leaks known. Ice breaker installed. 
Floor Finishes	3	3	Nice appearance, smooth transitions, level subfloors, not cracks/separating		
Walls-Finishes	3	3	Maintainable surfaces in good condition		
Ceiling Finishes	3	1.5	Maintainable surfaces in good condition; good alignment and appearance		Tiles in hallway need replacement.
Doors, Hardware	-3	0	Inoperable; non-secure	Back door lock not working.	Fixed.
Elevators/Conveying	N/A				
Plumbing/water heater	0	0	Fixtures are functional but dated;	Cyclone water heater fairly new. Need some caulk in sinks, grout in showers, and toilets have a hard time flushing (3.5 gpm) 	all countertops need to be replaced including kitchen
HVAC (includes exhaust fans)	0	0	Needs balancing;	Zoning problems.	
Elect. Service and Distribution	1.5	1.5	Adequate service and distribution capacity for current needs and probably future		
Lighting/ Power	-3	3	Unsafe levels of illumination; inadequate outlets	Old T-12 and incandescent lighting throughout. Bollards not working. Lighting project in Oct 2011.	Lighting upgraded, and lighting fire call system working propertly now.
Life/Safety Seismic structural and un-structural Emergency generators	1.5	3	Appears to meet current codes, but unsure what seismic retrofit covered	Seismic done in 1998. Gas has seismic shut-off.	New fuel tank installed. 
Fire Safety	3	3	Locally monitored detection; alarm preset; sprinklers in high hazard areas	Batteries new in 2009. Monitored panel.	
Haphazard Modification	1.5	1.5	Modifications appear to be mostly in compliance with codes and sound construction practices; HVAC electrical services properly provided		
Adaptability	0	0	Interior space can be modified; but only at great expense. Expensive to expand building		
Deferred Maintenance and	1.5	3	Facility only has a few issues that need maintenance	Maintenance needed on bathroom exhaust and t-stats.	new t-stat, but needs programming? Occupied and unoccupied same temp.

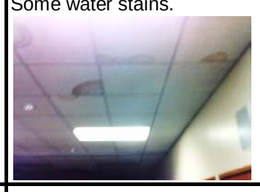
Repair					
Remaining Life	1.5	1.5	Major systems relatively new or well maintained; life expectancy >10 years	1985 construction.	
Adequacy for Purpose	1.5	0	Spaces have good amenities for current use	Weightroom doesn't have adequate ventilation.	Not sized for new ladder truck
Appearance	1.5	1.5	Well constructed building and interior spaces; generally attractive, light and cheery	Cute.	
Walls/Ceilings	-1.5	3	Deterioration of insulation, air gaps between joints and doors.	Air gaps between windows and concrete pillars in dayroom.	Air gaps addressed in 2012
Glazing	1.5	1.5	Windows in good shape but seals have some deterioration	Glazing new in 1985	
ADA	Partially Compliant		□ ramp □ landing □ doors	Parking/van not accessible. Slope may not meet current requirements.	
Location	0	0	Site is reasonably sized for foreseeable future		
Traffic Flow	0	0	Adequate for current use		
Parking Needs	0	0	Parking is adequate for present needs; circulation is adequate	Walkways need pressure washing.	
Security	0	0	Site lighting is adequate; site has emergency phones		
Drainage	3	3	Positive slope away from buildings; roof drainage to underground system; surface drainage to catch basins or swales		Assess irrigation at this station. 
Paving	3	3	Pedestrian walkways provided for circulation between buildings; paved parking areas		
Site Maintenance	3	3	Site is landscaped, well-constructed, and appears well maintained		
Signage	1.5	1.5	Building names identified; parking and disabled signage exists; exits properly marked	Good sign on the appartus bay.	

Fire Station 8	Score	Score '13	Description of score '11	Comments	
Structure	3	3	No signs of settlement or cracking, no abrupt vertical changes. Columns, bearing walls and roof structure appear sound/free of defects	1995 construction	
Exterior Closure	3	3	Weatherproof, tight, well-maintained exterior walls, doors, windows/finishes		
Roofing	0	0	Normal wear and tear	Ponding, ice slides off roof, plugged drains, paint over vents. Need railing on roof.    	Ice breaks installed. May ned fall protection installed? 
Floor Finishes	3	3	Nice appearance, smooth transitions, level subfloors, not cracks/separating		
Walls-Finishes	3	3	Maintainable surfaces in good condition		
Ceiling Finishes	3	3	Maintainable surfaces in good condition; good alignment and appearance	Very nice	
Doors, Hardware	-1.5	-1.5	deteriorating and outdated	Patio door is frequently left unlocked.	
Elevators/Conveying	N/A				
Plumbing/water heater	1.5	0	Fixtures are functional	Mens urinal frequently plugs up. Need grout.	Water pressure in hoses are not sufficient. Pressure adjustment needed, valve blew up and was replaced.
HVAC (includes exhaust fans)	0	0	Needs balancing	Operating less efficiently this year. Bad ventilation in bay, Zoning issues.	Same comments as 2011.
Elect. Service and Distribution	1.5	1.5	Service capacity meets current needs; some panels have inadequate capacity for future		
Lighting/ Power	3	3	Efficient lighting with good work area illumination;	Lighting reset not operable at this station.	Officer's quarters light sensors needs replacement.
Life/Safety	0	0	Generally Meets codes for vintage of construction	No seismic shut-off.	
Fire Safety	1.5	1.5	Locally monitored detection; alarm preset; sprinklers in high hazard areas	Air hose fitting on outside barbeque. 	
Haphazard Modification	3	3	Modifications appear to be in compliance with codes and sound construction practices; HVAC/electrical services properly provided		
Adaptability	1.5	1.5	Interior space can be modified. Expensive to expand building		
Deferred Maintenance and Repair	3	3	Facility appears well maintained		
Remaining Life	3	3	Major systems relatively new or well maintained; life expectancy >15 years		

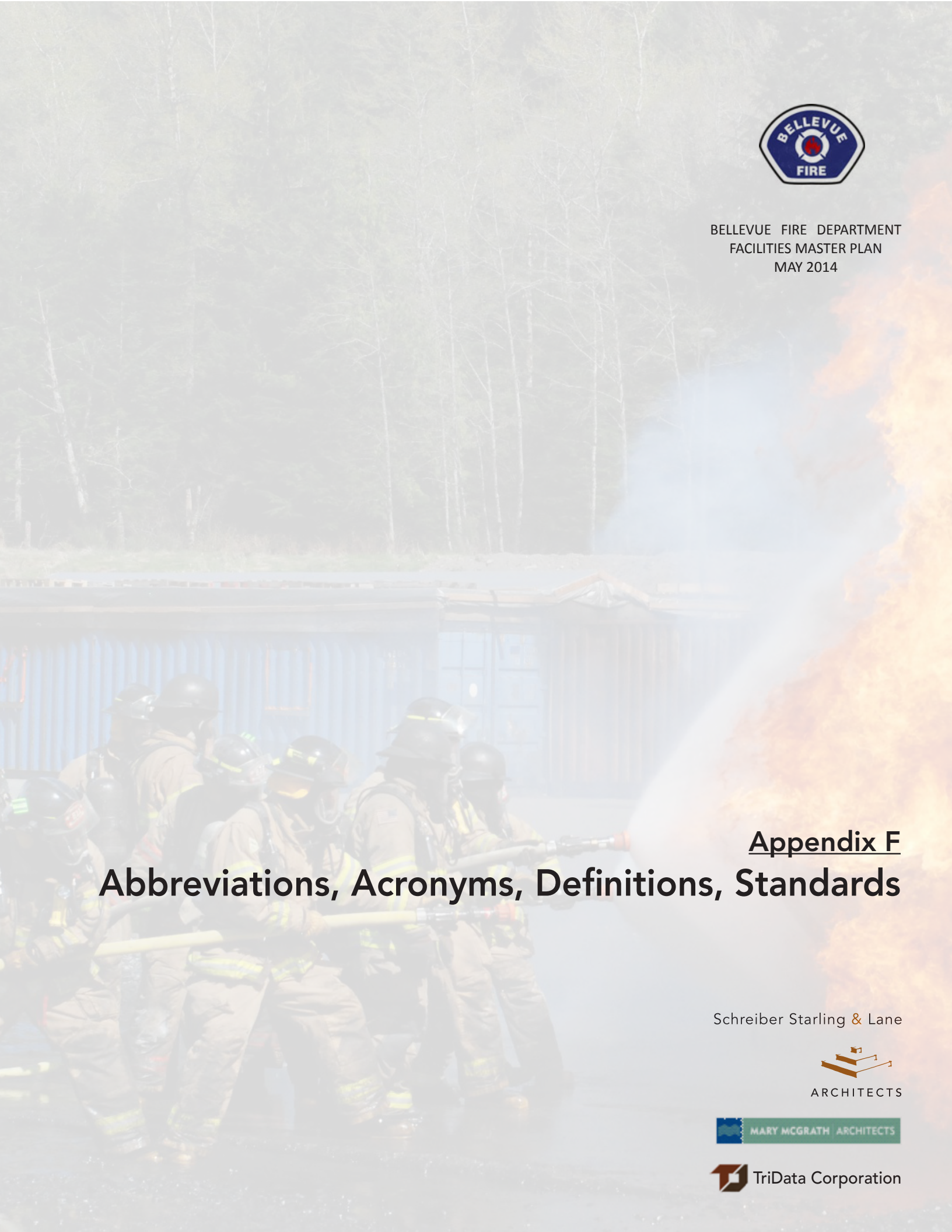
Adequacy for Purpose	3	3	Spaces have good amenities for current & future use		
Appearance	1.5	1.5	Well constructed building; generally attractive, light and cheery		Needs new chairs.
Walls/Ceilings	1.5	3	Insulation is up to 1994 standards	Air gaps in patio door.	Air gaps addressed in 2012
Glazing	1.5	1.5	Double glazing with aluminum/metal window frames in good shape		leaking seals around windows in bay
ADA	Partially Compliant (check which ones)	same	□ ramp □ landing □ doors		
Location	0	0	Site is reasonably sized for foreseeable future		
Traffic Flow	0	0	Adequate for current use		
Parking Needs	-1.5	-1.5	Circulation is inefficient. No expansion potential for parking		
Security	0	0	Site lighting is adequate; site has emergency phones		
Drainage	3	3	Positive slope away from buildings; roof drainage to underground system; surface drainage to catch basins or swales		
Paving includes striping	3	3	Pedestrian walkways provided for circulation between buildings; paved parking areas		
Site Maintenance Includes landscape structural elements and irrigation systems.	1.5		Site is landscaped, and appears well maintained		
Signage Evac maps	1.5	1.5	Building names identified; parking and disabled signage exists; exits properly marked		

Fire Station 9	Score	Score '13	Description of score '11	Comments	Comments 2013
Structure	3	3	No signs of settlement or cracking, no abrupt vertical changes. Columns, bearing walls and roof structure appear sound/free of defects	Constructed in 1995.	
Exterior Closure	-3	0	Significant deterioration, leaking and air infiltration apparent	Birds (woodpeckers) like making holes in exterior closure. Some deterioration of stucco-like exterior due to weather and poor finishing.  	holes have been repaired, birds no longer bothering it. Tree been trimmed.
Roofing	0	0	Normal wear and tear	Ponding beneath walkway membranes. Metal roof needs pressure-washing. May need railing around certain areas? PVC roof. 	Roof membrane in pretty good shape, still ponding under walkways.
Floor Finishes	1.5	0	Some minor imperfections are evident (bathrooms)	Restroom vinyl is starting to lift at seams. Outside decking needs weather coating. Appartus bay cracking.  	Men's restroom shower vinyl needs replacement. App bay pavement cracking under door and causing air leaks. Upstairs deck is in good condition but needs to be  
Walls-Finishes	0	0	Aging surfaces but sound; some maintenance required	Needs to be re-painted.	Upstairs hall still needs to be re-painted
Ceiling Finishes	0	0	Some wear and tear and minor deterioration	Leak along north wall in bunk room (stains evident) 	Stain in hall between restrooms 
Doors, Hardware	-1.5	-1.5	deteriorating and outdated		Apparatus bay doors are very slow and often do not close when truck leaves.
Elevators/Conveying	N/A				
Plumbing/water heater	1.5	1.5	Fixtures are in good condition but some are dated;	Rebuildable showers. Good toilets.	New urinals
HVAC (includes exhaust fans)	0	0	System generally adequate; office areas have A/C; hazardous areas are ventilated	Accessiblity is good but older Carrier units. Some rags stuck in diffuser, overventilation? 	Same comments as 2011. 
Elect. Service and Distribution	0	0	Service capacity meets current needs but inadequate for future	Some space on the panels. Uncertain about exhaust on generator-- does it need to extend above second roof line?	Same comments as 2011.
Lighting/ Power	-1.5	1.5	Marginal work area illumination; adequate outlets for current use	As of February 2011, inefficient T-12s and magnetic ballasted cans (with bad light). No lighting time-out.	Interior lighting updated! Outlets in conference room not attached well. 
Life/Safety	0	0	Generally Meets codes for vintage of construction	No seismic shut-off	Same comments as 2011.
Fire Safety	3	3	Locally monitored detection; alarm preset; sprinklers in high hazard areas	2008 batteries. Some storage issues in electrical closet.	Same comments as 2011.

Haphazard Modification	3	3	Modifications appear to be in compliance with codes and sound construction practices; HVAC/electrical services properly provided		
Adaptability	0	0	Interior space can be modified; but only at great expense. Expensive to expand building	Storage space very limited.	Same comments as 2011.
Deferred Maintenance and Repair	1.5	3	A bit of maintenance is required; impact is minor to moderate	Truck exhaust needs to be repaired. 	Truck exhaust has been repaired.
Remaining Life	0	0	Major systems deteriorating but maintained; life expectancy is 5-15 years	Exterior closure and HVAC will not last.	Same comments as 2011.
Adequacy for Purpose	0	0	Amenities are adequate but could use upgrading		
Appearance	0	0	Functional and well-maintained spaces but not very attractive	Exterior and kitchen not attractive.	Kitchen cabinets falling apart. 
Walls/Ceilings	-1.5	1.5	Deterioration of insulation, air gaps between joints and doors.		Air gaps sealed 2012
Glazing	0	0	Double glazing with aluminum/metal window frames	1992	
ADA	Partially Compliant (check which ones)	same	□ ramp □ landing	Van spot not there but there is room to expand. Lobby okay, restroom okay. Walkway slope may be too much. No ADA stall behind Fire Station.	Same comments as 2011.
Location	1.5	1.5	Site is satisfactory for future growth		
Traffic Flow	3	3	Traffic flow poses no apparent safety hazards and is efficient		
Parking Needs	3	3	Parking and circulation are efficient and adequate for future expansion		
Security	-3	-3	Site lighting is inadequate; no security booths/ guards/ system and emergency phones	Not sufficient light in back parking lot. Bollards need maintenance. 	Same comments as 2011.
Drainage	3	3	Positive slope away from buildings; roof drainage to underground system; surface drainage to catch basins or swales		
Paving	3	3	Pedestrian walkways provided for circulation between buildings; paved parking areas		Moss growing on asphalt in back parking lot. 
Site Maintenance	0	1.5	Landscaping is adequate but maintenance needs improvement	Trees need pruning 	Trees need to be continually maintained
Signage	1.5	1.5	Building names identified; parking and disabled signage exists; exits properly marked	No signage in back.	

PSTC	Score	Score '13	Description of score '11	Comments	Comments 2013
Structure	0	1.5	Some cracking evident but does not affect structural integrity. Visible defects apparent but are non-structural	Beam has dry rot and needs replacement (as of Feb 2011).	Beam fixed
Exterior Closure	-1.5	0	Deterioration evident	Window in kitchen leaking (repaired summer 2011). Drivet is buckling, moss on exterior back wall. 	Window fixed. Drivet still buckling. 
Roofing	-1.5	0	Some deterioration is evident in membrane and flashings; maintenance is needed	Needs major cleaning, ponding, bad moss on roof. Built-up asphalt looks okay.  	Needs usual maintenance, but has been cleaned.
Floor Finishes	1.5	1.5	Fairly good appearance, smooth transistions, level subfloors, not cracks/ separating		Carpet cleaning in conf. room needed.
Walls-Finishes	1.5	1.5	Maintainable surfaces in fair condition		
Ceiling Finishes	-1.5	0	Some water stains	Some water stains. 	tiles replaced-- leak may be ongoing, not from roof but maybe condensate line???
Doors, Hardware	-1.5	-1.5	deteriorating and outdated		
Elevators/Conveying	N/A				
Plumbing/water heater	-1.5	1.5	Some leaks; maintenance required	Water heater oversized (as of Feb. 2011). Tile good in showers. 3.5 gpm toilets. 	New water heater. need to 45 degree the copper pipe.  
HVAC (includes exhaust fans)	0	1.5	System generally adequate; office areas have A/C; hazardous areas are ventilated	Roof top units pretty new. Building needs commissioning. Supply and return for gun range inadequate.	Gun range fixed 
Elect. Service and Distribution	0	3	Service capacity meets current needs but inadequate for future	No space on electrical panel (as of Feb 2011). Storage and water heater in electrical room.	Panel updated
Lighting/ Power	0	1.5	Adequate work area illumination; adequate outlets for current use	Some lighting needs upgrading.	Fix sensor in Capt. Kroon's office (remove wall switch, add ceiling sensor)
Life/Safety	0	0	Generally Meets codes for vintage of construction	No natural gas at building.	
Fire Safety	-1.5	-1.5	No alarm/sprinklers	No sprinklers, strobes, or monitoring.	
Haphazard Modification	1.5	1.5	Only a few modifications lack code compliance;	Tower and shooting range are haphazard.	
Adaptability	-1.5	-1.5	Current cannot be modified for proposed purpose. Expensive to expand building		

Deferred Maintenance and Repair	0	0	Routine maintenance is required; deferred maintenance is evident; impact is minor to moderate		
Remaining Life	0	0	Major systems deteriorating but maintained; life expectancy is 5-15 years		
Adequacy for Purpose	-3	0	Amenities are inadequate for use		shooting range now operational. Need new burn props. 
Appearance	0	0	Functional and well-maintained spaces but not very attractive	Blistering paint on Drivet, some moss and staining on exterior.	Same, possibly worse.
Walls/Ceilings	0	0	Insulation present, door sweeps and caulk present.		
Glazing	1.5	1.5	Double glazing with windo frames that minimize conductivity, except for a few locations.	September 2007. Kitchen has large curved acrylic window as of February 2011.	
ADA	Partially		□ landing □ doors		
Location	-1.5	-1.5	Lack of future expansion capability. Threatened by incompatible adjacent development		
Traffic Flow	0	0	Adequate for current use		
Parking Needs	0	0	Parking is adequate for present needs; circulation is adequate		
Security	-1.5	-1.5	Site lighting is inadequate; no security booths/ guards/ system and emergency phones	Gate is manually operated.	
Drainage	-1.5	-1.5	Pooling of water adjacent to buildings; poor slope and drainage	Water rolls off hillside and ices up sidewalk next to building. All drains in retaining wall appear to be clogged. Downspout disconnected. 	Parks is working on drainage and mulching. Dog kennel project drainage needs to be completed.  
Paving	-1.5	0	Paving is deteriorating and buckling. Needs striping.	Tree roots buckling pavement. Needs striping.	tree root issue fixed
Site Maintenance	0	1.5	Landscaping is adequate but maintenance needs improvement	Trees need trimming especially in the back and around the roof line.	Soils mulched (done as of March 2013)
Signage	3	3	Building numbers/names identified; parking and disabled signage exists; rooms are numbered; exits properly marked		



BELLEVUE FIRE DEPARTMENT
FACILITIES MASTER PLAN
MAY 2014

Appendix F
Abbreviations, Acronyms, Definitions, Standards

Schreiber Starling & Lane
ARCHITECTS
MARY MCGRATH | ARCHITECTS
TriData Corporation

APPENDIX – F

ABBREVIATIONS/ACRONYMS/DEFINITIONS/STANDARDS

AGENCIES

BFD	Bellevue Fire Department
COB	City of Bellevue
CPSE	Center for Public Excellence Center for Public Safety Excellence: provides a host of programs including accreditation for fire and emergency service agencies and professional designations for fire and emergency service officers
NFPA	National Fire Protection Agency: a trade association that creates, develops, and maintains standards and codes for usage and adoption by local governments including standards for procedures and equipment utilized by firefighters while engaging in firefighting, hazardous material (hazmat) response, and rescue response.
IBC	International Building Code: a model building code developed by the International Code Council (ICC). It has been adopted throughout most of the United States including the City of Bellevue.
NORCOM	North East King County Regional Public Safety Communications Agency: provides emergency communications and dispatch services to the City of Bellevue
EMTG	East Metro Training Group: cooperative training provider for the Bellevue Kirkland Northshore Mercer Island and Redmond Fire Departments. EMTG coordinates and delivers various classes including Live Fire, Technical Rescue, and HAZMAT
OSHA	Occupational Health and Safety Administration: set standards and regulations for firefighter health and safety including environmental conditions and training including specific regulations pertaining to decontamination of equipment and clothing
CFAI	Commission on Fire Accreditation International
FCSN	Firefighter Cancer Support Network
NIST	National Institute of Standards and Technology

ABBREVIATIONS/ACRONYMS:

ADA	American's with Disabilities Act
ALS	Advanced Life Support
BC	Battalion Chief
BLS	Basic Life Support
CAD	Computer Assisted Dispatch / Computer Assisted Data
CBD	Central Business District (Downtown)
CY	Calendar Year
EMS	Emergency Medical Services
ERF	Effective Response Force
FS	Fire Station
FTE	Full-Time Equivalent
GIS	Geographic Information System
GSF	Gross Square Foot
HVAC	Heating, Ventilation, and Air Conditioning Systems
IC	Incident Commander
PPE	Personal Protective Equipment
PSTC	Public Safety Training Center
MSO	Medical Service Officer
NFIRS	National Fire Incident Report System
SCBA	Self-Contained Breathing Apparatus
SF	Square Feet
USAR	Urban Search and Rescue

DEFINITIONS:

Advanced Life Support

A set of life-saving protocols, skills, and equipment that extend Basic Life Support to further support the circulation and provide an open airway and adequate ventilation (breathing).

Basic Life Support

The level of medical care which is used for victims of life-threatening illnesses or injuries until they can be given full medical care at a hospital.

Bunker Gear

Firefighter's outer protective clothing and equipment. Also referred to as Personal Protective Equipment "PPE" or "turnout gear"

Effective Response Force

The minimum number of firefighters and equipment that must reach a specific emergency incident location within a maximum prescribed travel time. This is further defined by NFPA 1710 for low-risk residential areas as a complement of at least 16 firefighters within ten minutes and for areas with high-rise structures as a complement of at least 27 firefighters within ten minutes.

High-Rise

A high-rise building is defined in Chapter 2 of the IBC as a *"building with an occupied floor located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access."*

REFERENCED STANDARDS

OSHA CRF Title 29 Sections 1901-1910; *Firefighting Health, Safety, and Operations. Specific sections related to the study include:*

USC 654(a)(1): OSHA General Duty Clause

29 CFR 1910.156: Fire Brigades

29 CFR 1910.132-.140: Personal Protective and Respiratory Equipment

29 CFR 1910.1030: Occupational Exposure to Blood borne Pathogen

29 CFR 1910.120: Hazardous Materials Operations

WAC 296-505 Washington Administrative Code: *Safety Standards for Firefighters (Incorporates OSHA 29.1901-1910)*

NFPA 1001 *Standard for Fire Fighter Professional Qualifications*

NFPA 1002 *Standard for Fire Apparatus Driver/Operator Professional Qualifications*

NFPA 1021 *Standard for Fire Officer Professional Qualifications*

NFPA 1051 *Standard for Wildland Fire Fighter Professional Qualifications*

NFPA 1500 *Standard on Fire Department, Occupational Safety and Health Program*

NFPA 1581 *Standard on Fire Department Infection Control Program*

NFPA 1583 *Standard on Health-Related Fitness Programs for Fire Fighters*

NFPA 1710 *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Career Fire Departments*

Response Time Standards:

Initial Response: Fire suppression resources must be deployed to provide for the arrival of an engine company within a 240-second travel time to 90 percent of the incidents (5.2.4.1.1).

Full Complement Response: Capability to deploy an initial full alarm assignment within a 480-second travel time to 90 percent of the incidents (5.1.4.2.1).

Ladder Response: The complement should arrive within ten minutes of the initial emergency call.

Command Response (Battalion Chief): The complement should arrive within eight minutes of the initial emergency call.

Weight of Response: Low-risk residential areas receive a complement of at least 16 firefighters within ten minutes. High-rise structures receive a complement of at least 27 firefighters within ten minutes.

NFPA 1851 *Standard on Selection, Care and Maintenance of Structural Fire Fighting Protective Ensembles*

NFPA 1999 *Standard on Protective Clothing for Emergency Medical Operations*

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