

**BII BUETOW 2 ARCHITECTS, INC.**

*LAKE JOHANNA  
FIRE DEPARTMENT*

*Serving the Communities of  
Arden Hills, North Oaks and Shoreview*



**Long Range Planning Study  
Fire Station 4- Victoria**

*2018*

*B2A # 1830*

# **BII BUETOW 2 ARCHITECTS, INC.**

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## **Preamble**

### **Lake Johanna Fire Department**

The Fire Department has served the Cities of Arden Hills, North Oaks and Shoreview since 1943. The department serves approximately 42,000 residents and responded to about 3,600 calls for service in 2018. The department operates 3 fire stations and responds to calls for fires, Motor Vehicle Accidents with injuries, EMS, Water and Ice Rescue, Hazardous Materials and Confined Space calls. The Insurance Services Office (ISO) which evaluates and rates fire protection services has rated Arden Hills, North Oaks and Shoreview a Public Protection Class 3. The Department provides service with 4 Engines, 2 Ladder trucks, 1 Tanker, 2 Rescue trucks, 3 Brush trucks, 2 Boats and 4 Chief's Vehicles.

## **Introduction**

The objective of the Study was to determine the long term facility needs of Fire Station 4-Victoria. This was done in the context of the existing service model of 3 Fire Stations continuing to provide service for Arden Hills, North Oaks and Shoreview.

### *Process*

The Study started with a general discussion of all aspects of Station 4 with Lake Johanna Fire Department Staff. Meetings on space program needs, schedule and cost were held. A walk through of all 3 Fire Stations was performed.

A list of potential sites was prepared and they were viewed.

## **Executive Summary**

The Study determined that a new Fire Station should be built on a new site to meet the needs of "the next 50 years".

The size of the site should be at least 3 acres to accommodate a Fire Station of 28,000 SF. The Station would include 6 drive through bays and living/sleeping quarters for 7 firefighters. The new Fire Station would then because of size and equipment contained would transition to become the new Headquarters Station. The new HQ Station would include much needed training functions.

The new training room could also be designed as a "hardened" EOC (Emergency Operations Center) that would serve all 3 Cities.

The former HQ Station 3 would then be able to cost effectively add sleeping rooms for the future.

The total project Hard Cost (bid) and Soft Cost (everything else) would be \$7.7 M+/-.

This *does not* include the land cost. The Study includes some potential sites to consider.

The project would take a minimum of 4 years from start to occupancy for use by the firefighters.

# NEED

## Department Overview

The current facilities consist of the following three Stations:

### Station 3 – Headquarters

Northern most location on 1.8 acre site with expansion being difficult.

Built in 1986 and remodeled in 2005.

No sleeping rooms at this location.

### Station 4 – Victoria

Southern location on less than a 1 acre site with no expansion possible.

Built in 1988 and remodeled in 2005 and 2013. 4 sleeping rooms were added in the last remodel.

### Station 2 – Hodgson Road

Eastern location on less than a 1 acre site with no expansion space.

Built in 1988 and remodeled in 2013.

Offices were remodeled into 4 sleeping rooms.

### Station 4 Deficiencies

The Station is typical of the era it was designed in. It was not planned for full time staff and sleeping. Trucks were smaller and there was less emphasis on training, health/wellness and reporting. Expansion is not possible anymore as the entire site has been utilized.

The garage space has no support spaces and no additional space for apparatus and storage. There is no separation between apparatus bays and living spaces. All staff support areas are minimal as they are too small including the bathrooms. A decontamination space does not exist. There are no training spaces. Parking is lacking and cannot be expanded. No staging area for trailers or equipment as they would be in the circulation path. Access has become more difficult with the increased traffic loads on the intersection. There is tight space for required trash, recycling and no outdoor space for firefighters. The adjacent railroad is noisy and the trains stop traffic which is a public safety concern during a call.

### Lake Johanna Fire Department Service

Looking to the future the Department is going to maintain the service model it currently has in place. Three stations- north, east and south to provide coverage and support to each other and adjacent communities.

The Study of Station 4 is in the context of all three Stations needs. Stations 3 and 2 will also need updating in the future. Station 3 will require sleeping rooms and this could be accomplished by transitioning the Headquarters administrative offices to a new facility. This cost effective plan would eliminate eroding already valuable space from other functions at Station 3. The “center of gravity” of the Fire Department will shift with the future anticipated growth including the Rice Creek Commons area. Relocating the leadership team to a “new core facility” would enable the communication that is so important in a Department. Station 2 could also gain space by moving some of its equipment to a new facility. It has an opportunity to access a land locked parcel behind it to the east. However, building a free standing building would be possibly functionally awkward and unnecessary when a new facility is built in the south.

***Future 50 Years- Arden Hills, North Oaks, Shoreview***

The three Cities are evolving and changing with growth in different ways. Arden Hills with the Rice Creek Commons development. Shoreview and North Oaks filling out with commercial and high density multi-story residential housing projects. The old transit routes being upgraded and bolstered and new ones added along with the continued presence of the railway. The operation of LJFD must be viewed in this new context in order to be the best delivery of services for the next 50 years.

***Lake Johanna Fire Department Future 50 Years***

In order to remain an effective Department the following characteristics need to be maintained, nourished and enhanced:

- 1- Provide effective presence and station locations to insure coverage area.
- 2- Provide appropriate apparatus bay and associated support spaces.
- 3- Provide training support for Firefighters.
- 4- Provide sleeping quarters conducive to demanding work.
- 5- Continue a good relationship between Administration and Firefighters that includes access/communication and proximity to each other.
- 6- Maintain the ability to attract quality qualified candidates to be firefighters by an inviting Station environment.

***Lake Johanna Fire Department Needs for The Future***

The following pages illustrate the shortcomings of certain aspects of the current facilities. They do not diminish the good service being provided by the Department. They show specific areas that need to be improved upon in a new facility.

The modern Fire Station is comprised of a number of program elements that form the facility:

- Apparatus Bays/Support
- Living Quarters/Support
- Administration/Offices
- Training/Fitness
- Circulation and Infrastructure

The needs for these areas follow.

## Apparatus Bays/ Support

The ladder truck is desired to be kept at the “south” Station and an access into the building that would make this possible.



Turn-out gear locker area that is accessible upon entering the Station.



Space for boats now crammed into circulation space. This one is at Station 2.



## Apparatus Bays/Support

Also bay space for future equipment such as mini-pumper, ATV, trench rescue trailer and other trailers. Below is a trailer at Station 4 that is parked in the drive aisle at the back of the bays making access difficult.



The Chiefs vehicles are currently parked outside on the aprons and garage space needs to be provided inside for 4-5 vehicles. This weather issue affects all public safety vehicles.

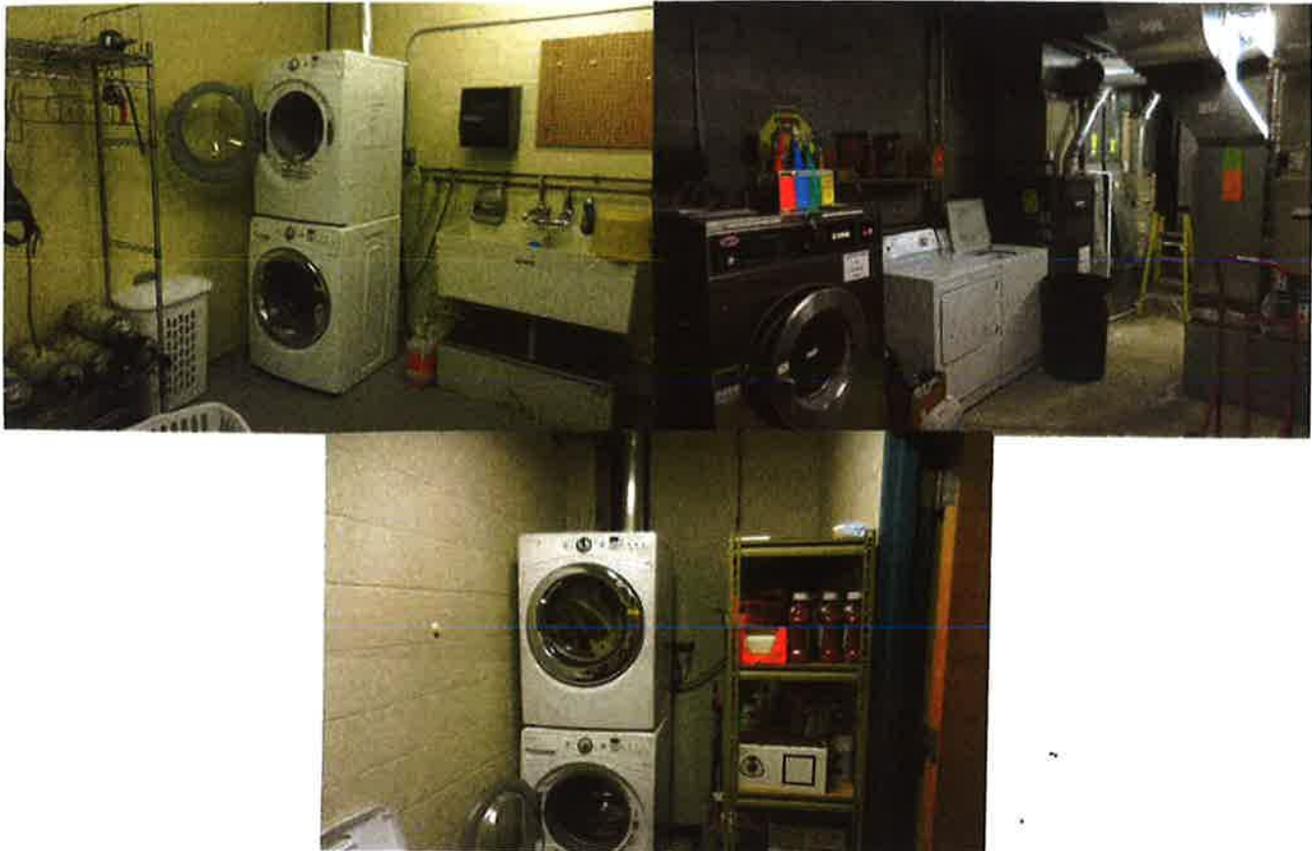


A watch/communication office that has enough space, good sightlines and physical proximity to the apparatus bays.



## Apparatus Bays/Support

There needs to be a separate “gear laundry” and “residential laundry” spaces built. The below laundry areas at the Stations have been installed and modified over time. They are in spaces that are a primary other use such as a mechanical room. The laundry space, location and function is below current standards.



A vehicle maintenance room does not exist at Station 4. A closet was created in the last remodeling on the north wall as a solution to get by for storage. The firefighters creatively utilize every square foot as you can see by locating the tool cart up against a partial wall between bays.



## Apparatus Bays/ Support

Station 4 lacks basic general storage. Every corner is utilized.



An existing hose tower is many times utilized for training. At Station 4 it also is used as staging for items that are being used since storage is at a premium.



## Apparatus Bays/ Support

SCBA and Firefighting Equipment/Supplies are usually sharing space with other building functions such as electrical, storage, etc. They need their own designated space.

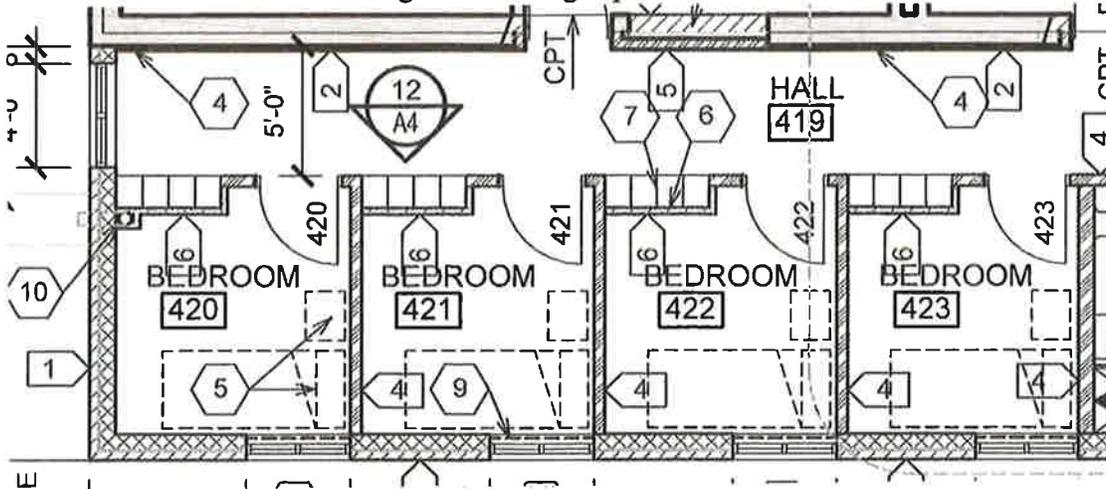


Janitor rooms were not priorities when the Stations were originally built. The storage of cleaning equipment and supplies has been over the years creatively incorporated into other existing station areas.



# Living Quarters/ Support

Station 4 has a total of 4 small sleeping rooms and cannot be further expanded. The rooms are the bare minimum and additional spaces will be required for the future. They are not adjacent the typical dayroom and kitchen/dining rooms. There is no linen closet and adjacent laundry room. Bathrooms are a bare minimum and there is no general storage space.



Usually firefighters and staff have a locker room. Station 4 has small lockers and they have been installed where they will fit over time.



The Station 4 site has no outdoor space for staff and firefighters. A picnic table is placed on the rock mulch adjacent mechanical equipment since there is no other area to accommodate it.



## Administration/ Offices

A new south facility would most likely become the hub in responses for the Department. This would give an opportunity to correct some existing floor plan items at Station 3 if the Headquarters moved to the new station. The proximity of the leadership team with firefighters would also be good. Moving the Headquarters from Station 3 would allow future needed sleeping spaces in the former offices. Also, the administration could benefit with a new layout. As an example, the Fire Marshal's office is at the far end of the building from everyone else at Station 3.



## Training/ Fitness

One of the major trends in Fire Station design is training opportunities at the Station. You save cost by staying on site to train and be available for a call. Station 4 was never built to accommodate training. Space needs to be provided for wet and dry hose exercises, smoke and ventilation scenarios, rappelling inside and out, basket training, confined spaces, ladder and other props.

Wellness and fitness are also a priority for Fire Departments today. Station 4 added equipment to a multi-purpose space to have something. There is not enough room, ceiling height, correct type of flooring and proper ventilation.



## Circulation and Infrastructure

A new Station must have good access and a visible front door. A site that is large enough to accommodate future expansion.

The building should have a dedicated IT room and not be co-located with any other items such as water heaters. Likewise, the mechanical spaces should be dedicated and not include ice makers for example which due to space crunch had nowhere else to go.



The trash and recycling area should be located in a way as not to be in a traffic area.



## Comparable Fire Departments by Population

The following 8 Minnesota Cities are similar to Lake Johanna Fire Department with respect to residents served. All 8 Cities have new and/or updated facilities. It indicates that Lake Johanna Fire Department (41,000 residents) needs to prioritize facility improvements in its overall service mission to residents.

<b>St. Louis Park</b>	<b>49,000</b>	<b>2 New Stations, large</b>
<b>Moorhead</b>	<b>43,000</b>	<b>3 Buildings</b>
<b>Anoka/Champlin</b>	<b>42,000</b>	<b>2 Recent Stations</b>
<b>Mankato</b>	<b>42,000</b>	<b>3 Stations, new 6 bay</b>
<b>Shakopee</b>	<b>41,000</b>	<b>2 Stations, large</b>
<b>Maplewood</b>	<b>41,000</b>	<b>3 Stations plus training center</b>
<b>Cottage Grove</b>	<b>37,000</b>	<b>New large Station</b>
<b>Inver Grove Heights</b>	<b>36,000</b>	<b>New large Station</b>



# NEED

Apparatus Bays- 6 Bays Minimum



Living Quarters-  
7 Sleeping Rooms



New Headquarters Administration/Offices

Training/ Fitness-Wellness Spaces  
including a “hardened EOC”



Firefighter Exterior Space



# DIRECTION

## Lake Johanna Fire Department

The following new facility description is the outcome of the Study and meetings held with the Fire Chief and his staff. The Station 4 Building Space Program is included along with the existing site plan and floor plan as a comparison.



# Building Space Program (Existing Station 4-Victoria)

Most Fire Departments share the following major groups that make up their space needs at a Station:

## APPARATUS BAYS/SUPPORT

3 drive through bays	3,752 SF
Watch/Command	110 SF
Hose Tower	100 SF
SCBA	77 SF
Laundry	77 SF

## LIVING QUARTERS/SUPPORT

Sleeping rooms (4 total)	324 SF
Restrooms/shower (2 total)	150 SF
Lockers (16 total)	20 SF
Dayroom	756 SF
Kitchen	110 SF
Storage	88 SF

## ADMINISTRATION/OFFICES

Office	132 SF
Work Room	260 SF
Closet	15 SF
Women's Restroom	113 SF
Men's Restroom	128 SF
Public toilet (single occupancy)	63 SF

## TRAINING/FITNESS

Multi-Purpose room	224 SF
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## MECH/ELEC/JANITOR

Mech/Elec	224 SF
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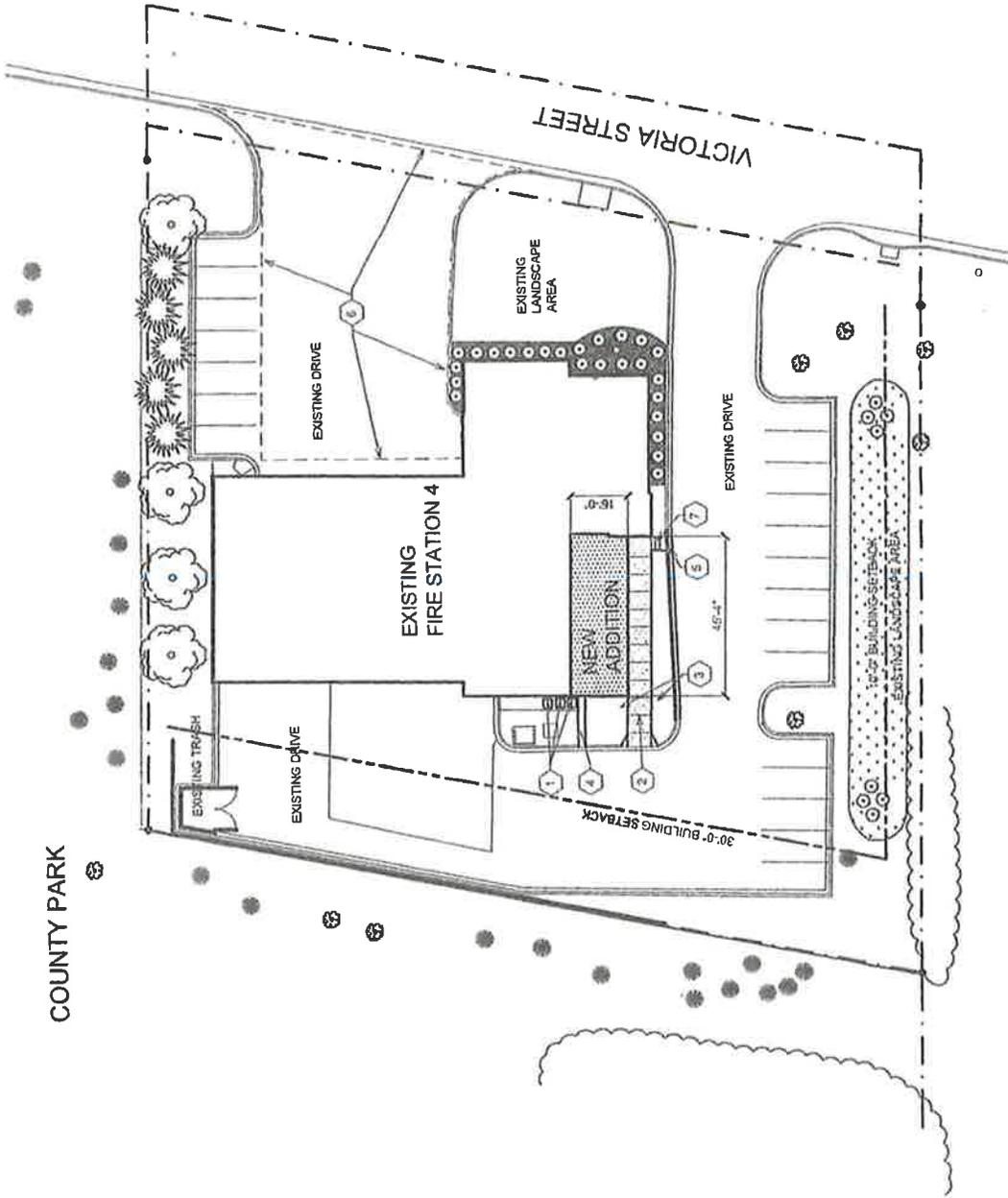
## CIRCULATION

Vestibule	72 SF
Circulation, structure	1,893 SF

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<b>Total</b>	<b>8,688</b>	<b>Gross SF</b>
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COUNTY PARK

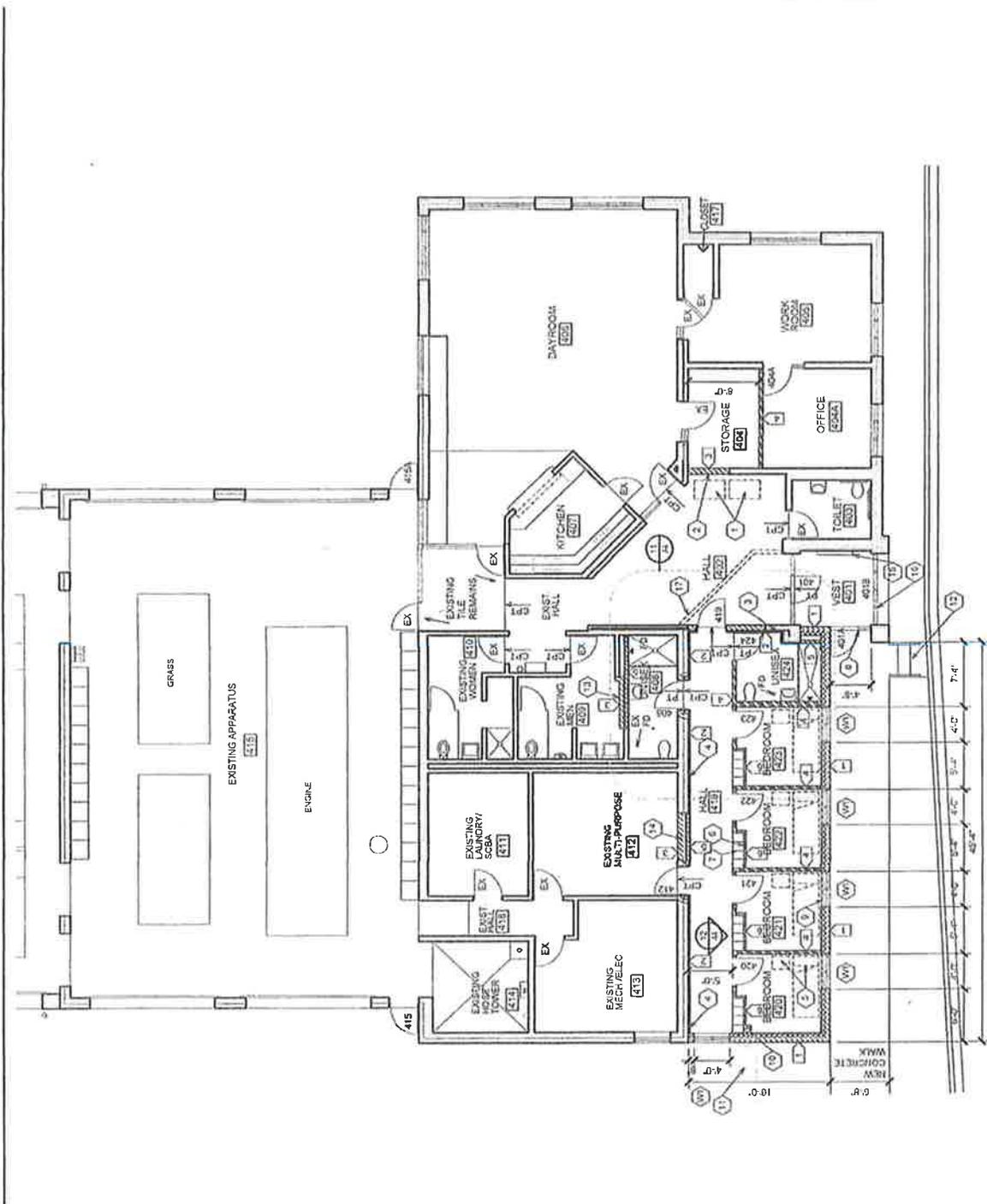


NOTE: THE FIRE STATION WILL REMAIN OPERATIONAL 24 HOURS A DAY, 7 DAYS A WEEK DURING THE ENTIRE CONSTRUCTION PROCESS OF THE NEW ADDITION AND REMODELING.

RAILROAD

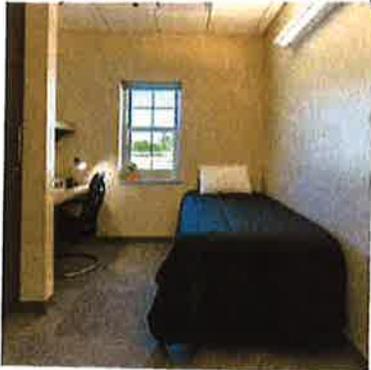
# SITE PLAN

2  
A1 1"=30'-0"



2 FLOOR PLAN  
 A2 1/8" = 1'-0"

# DIRECTION



# Building Space Program (50 Year Need)

New Fire Station spaces that are required in the context of 3 Stations that make up the Department.

## APPARATUS BAYS/SUPPORT

6 drive through bays 90' deep bays	9,720 SF
1 future alternate bay*	1,620 SF
Watch/Communication Office	200 SF
Turn-out Gear Lockers	530 SF
Gear Laundry/Janitor	225 SF
Decontamination RR/shower	180 SF
SCBA	160 SF
Vehicle maintenance room	120 SF
Mass casualty supplies	200 SF
Hose training tower (other training also)	600 SF
General storage	200 SF

---

13,755 SF

\*Reserve equipment storage,  
equipment flex space across all stations

## LIVING QUARTERS/SUPPORT\*\*

Sleeping rooms ( 7 total)	910 SF
Linen closet	60 SF
Residential laundry/Janitor	160 SF
Restrooms/shower ( 3 total)	420 SF
Lockers ( 24 total)	120 SF
Dayroom	500 SF
Kitchen/ Dining	500 SF
Outdoor space	300 SF
Storage	150 SF

---

3,120 SF

\*\* Second level spaces

## ADMINISTRATION/OFFICES

Conference Room	350 SF
Shared Open Office	240 SF
Offices ( 4 total)	800 SF
Work Room	200 SF
Storage	150 SF

---

1,740 SF

**TRAINING/FITNESS**

<b>Training room (EOC) Emergency Operations Center</b>	<b>1200 SF</b>
<b>Kitchenette</b>	<b>200 SF</b>
<b>Training Storage</b>	<b>150 SF</b>
<b>Table and Chair storage</b>	<b>150 SF</b>
<b>General Storage</b>	<b>150 SF</b>
<b>Exercise room</b>	<b>700 SF</b>
<b>Restrooms/Showers</b>	<b>640 SF</b>
	<hr/>
	<b>3,190 SF</b>

**MECH/ELEC/JANITOR**

<b>Mechanical/Electrical**</b>	<b>900 SF</b>
<b>Building maintenance Equipment</b>	<b>120 SF</b>
<b>Janitor's closet</b>	<b>80 SF</b>
<b>IT room**</b>	<b>150 SF</b>
	<hr/>
	<b>1,250 SF</b>

**CIRCULATION**

<b>Vestibule</b>	<b>150 SF</b>
<b>Station entry</b>	<b>170 SF</b>
<b>Stairs</b>	<b>480 SF</b>
<b>Elevator</b>	<b>120 SF</b>
<b>Elevator equipment room</b>	<b>120 SF</b>
<b>Circulation, structure</b>	<b>2,500 SF +/-</b>
	<hr/>
	<b>3,540 SF +/-</b>

<b>First Floor</b>	<b>22,425 SF</b>
<b>Second Floor**</b>	<b>4,170 SF</b>

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<b>Total</b>	<b>26,595 SF</b>
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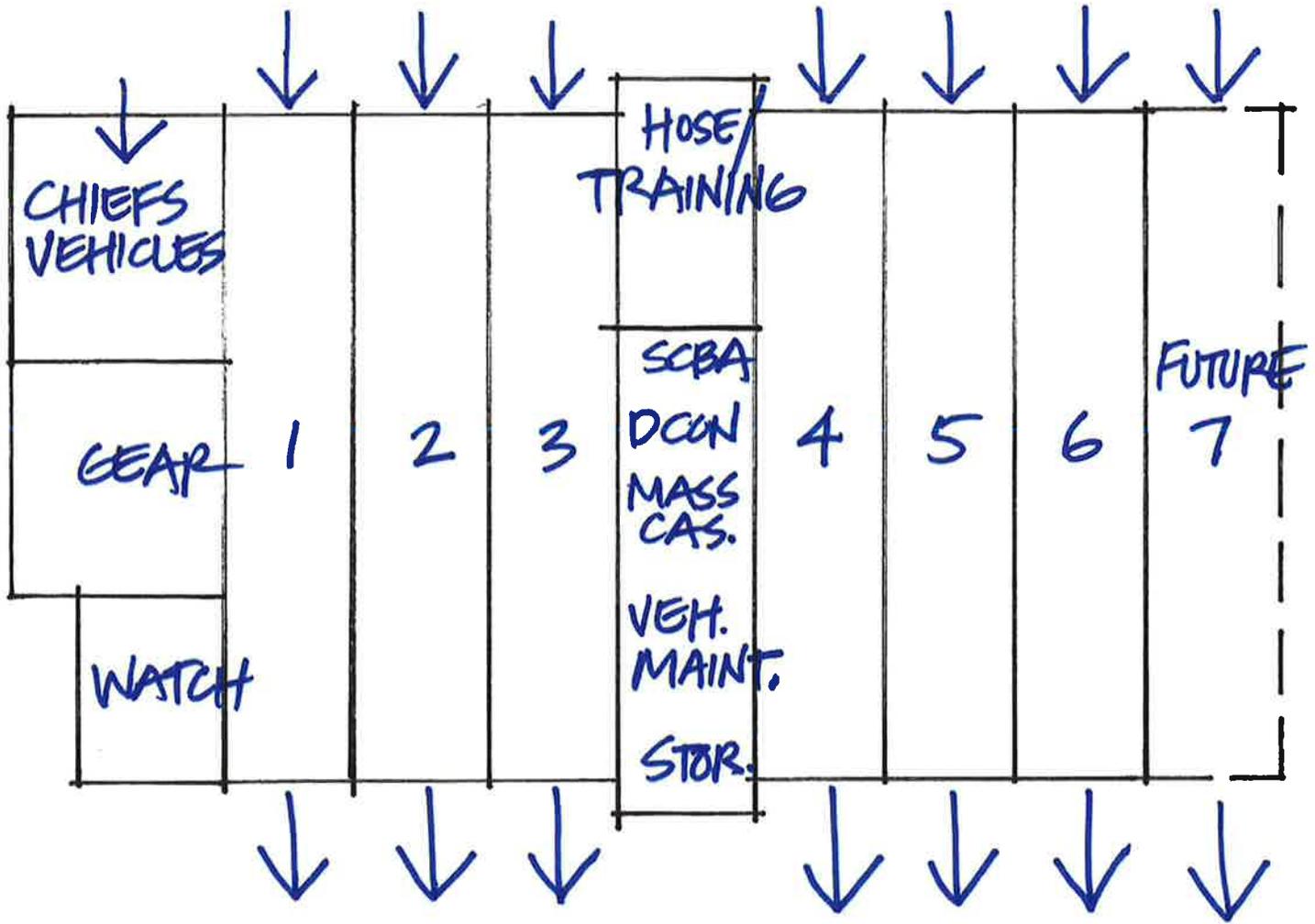
<b>Optional Bay</b>	<b>1,620 SF</b>
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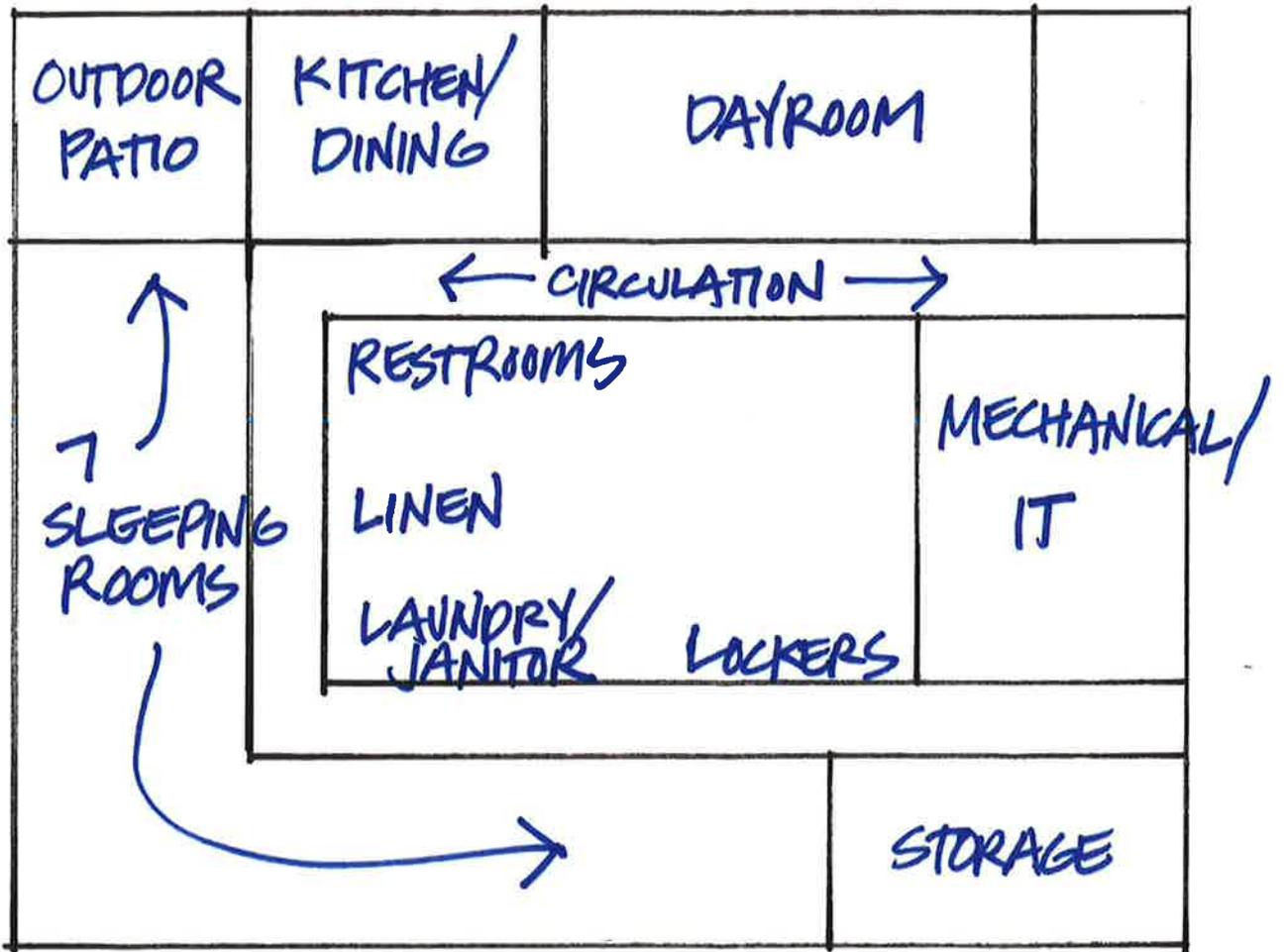
<b>Total Area</b>	<b>28,215 SF</b>
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# Apparatus Bays/ Support

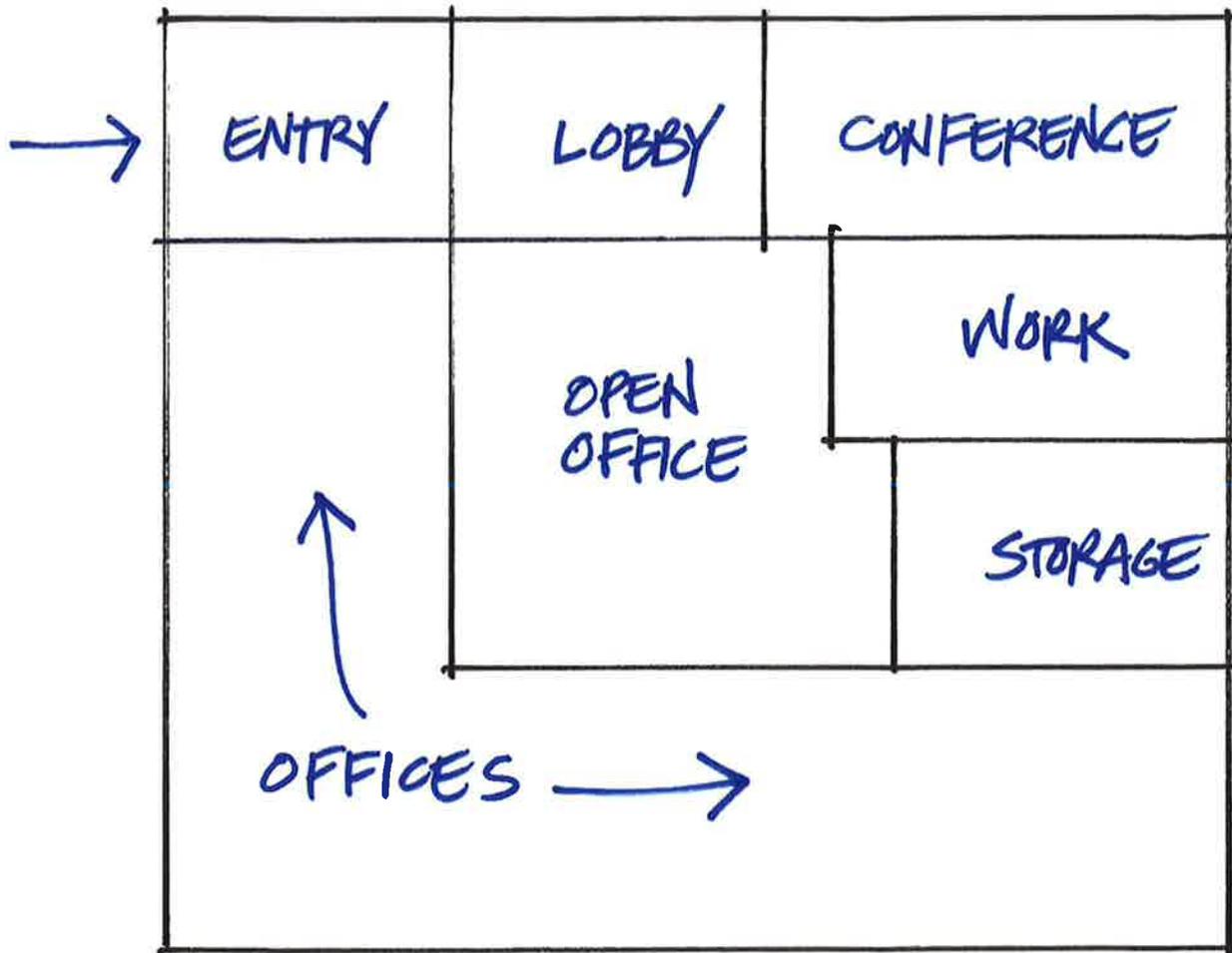
6 DRIVE THRU BAYS



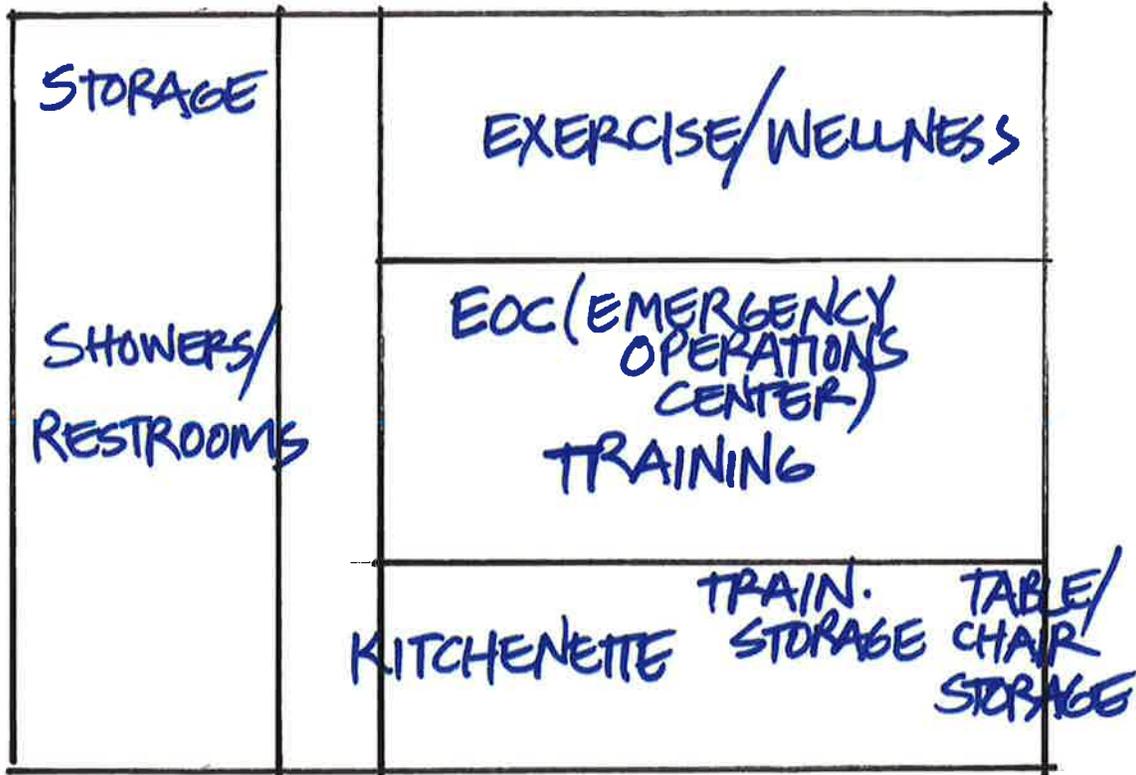
Living Quarters/ Support  
2ND LEVEL



# Administration/Offices



# Training/Fitness



# Site Planning (50 Year Need)

New Fire Station features in the context of 3 Stations that make up the Department.

## SITE SIZE

3+/- Acres would be ideal to allow for future expansion.

## DRIVE THROUGH

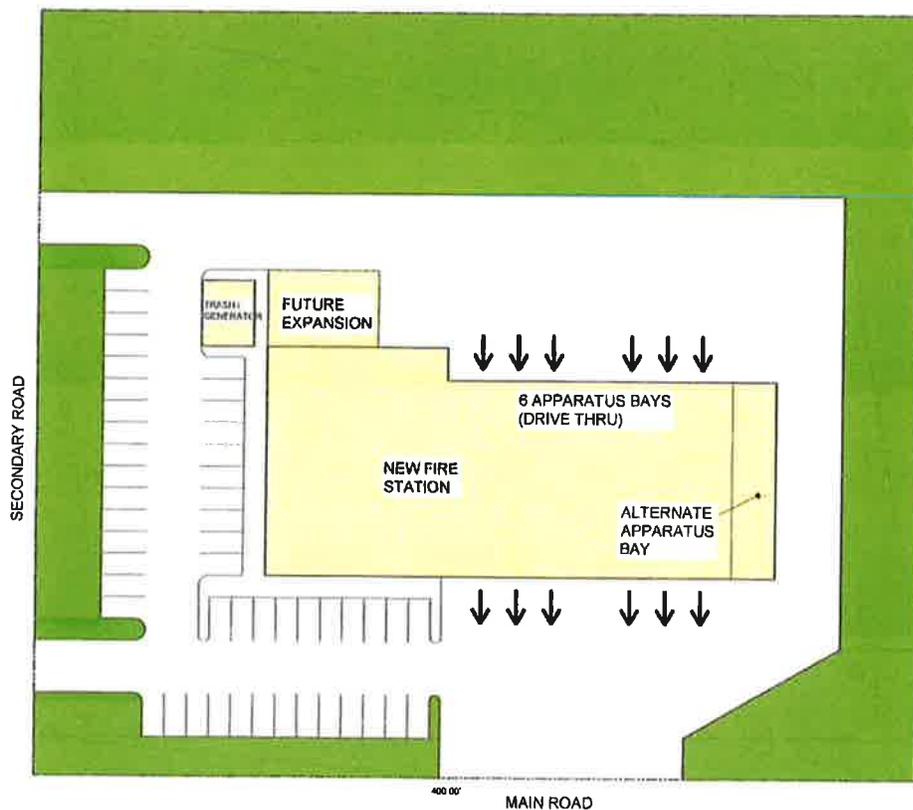
Site must accommodate apparatus drive through.

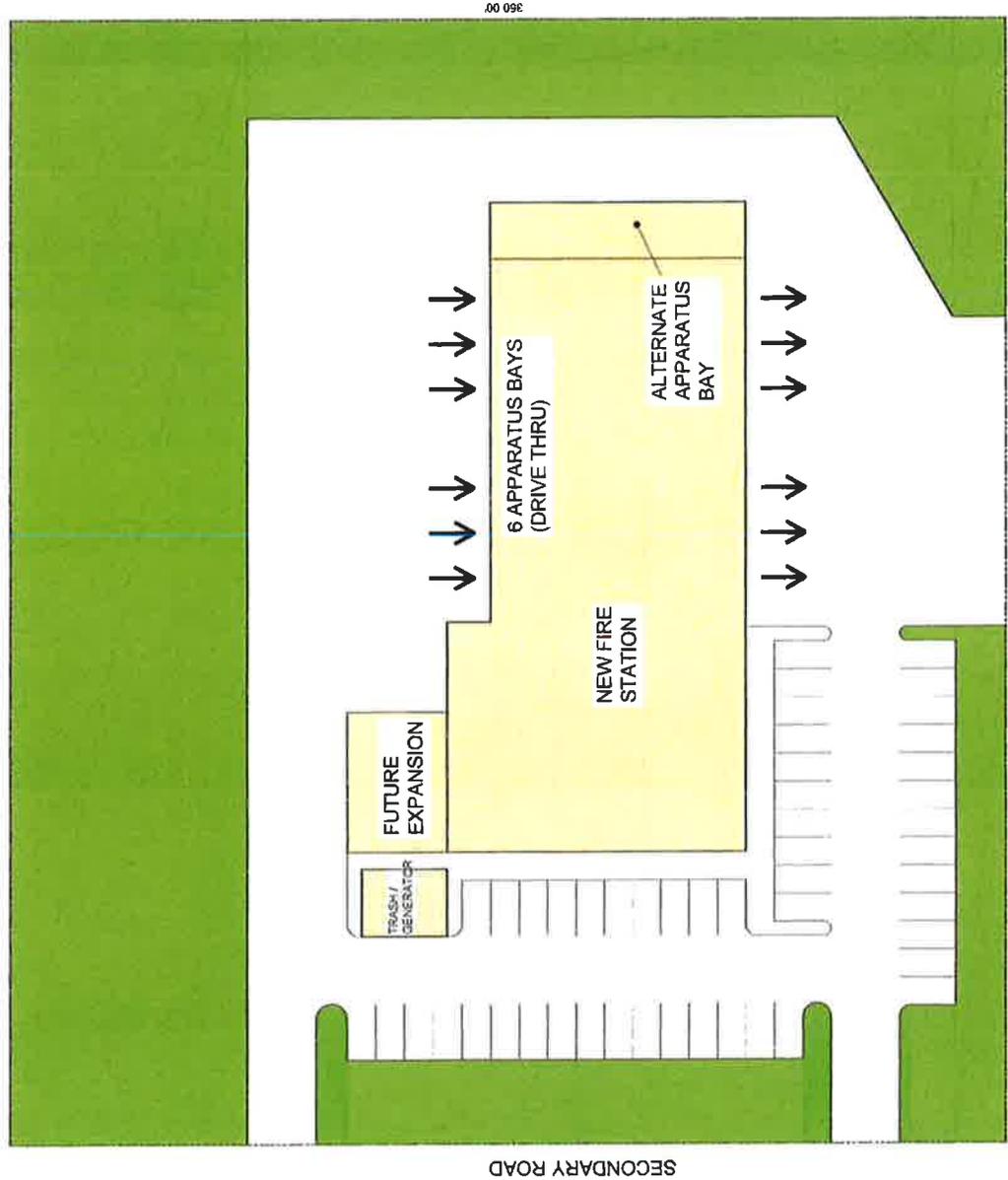
## PARKING

Separation of public and staff parking, 50+/- spaces.

## EMERGENCY GENERATOR/DUMPSTER

Site should have adequate space for the generator and trash/recycling.





360.00

SECONDARY ROAD

MAIN ROAD

400.00'

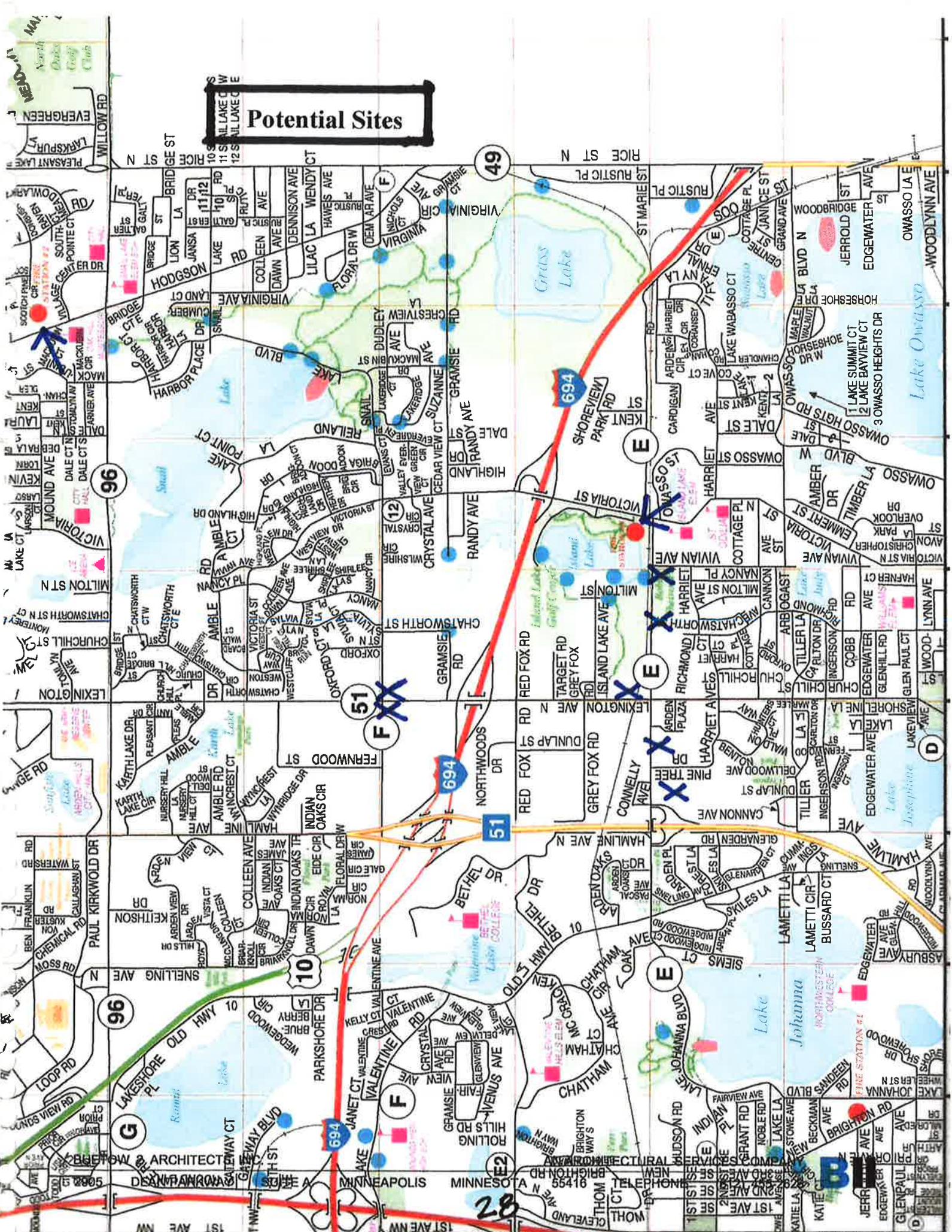
1 SITE PLAN  
 A0 1" = 20'

## Site Selection Criteria

There are a number of factors that are important in selecting an appropriate site for the new Station. The following is a list that should be reviewed prior to making a selection:

1. **Proximity** to the other 2 Stations. The new Station wants to be no further north than County Road F and no further east as the current location. This will insure a good response time and make sense with the other locations geographically.
2. **Main road** access. The Station wants to be located on or close to Lexington Ave. which is a main north-south arterial.
3. **Adequate site size**. A site area of 3 acres is desired or larger. The existing Stations are on small 1 acre parcels and this has impacted them over time in adapting to their individual needs.
4. Station has good **visibility to communities**. The Lake Johanna Fire Department needs to continue to be "front and center" as it is a Public Safety Service and needs to also promote to obtain future firefighters.
5. Main **utilities are available**. Water, sewer, gas, electric, telephone need to be attainable for the Station as these can be costly installations if they are not nearby.
6. Station location is **compatible with adjacent property** use. The Station must be able to fit into the neighborhood. Likewise, the adjacent environment must not interfere with the Station operation such as noise from trains at all hours.
7. The **property must be environmentally sound** and not have any soil issues or past contamination. Soil correction and decontamination mitigation of a site is very expensive.
8. The **drainage and topography** of the property must be conducive to the operation of the Station.
9. The **shape of the site** must be able to be accommodate the building and desired parking.
10. The **cost** of the parcel should be in balance with the overall budget. The land cost cannot be so expensive that it would deter enough funds for the building and site work.

# Potential Sites



## Potential Sites

Many sites were looked at and the following are sites that the site selection criteria was applied.

Site Address: **County Rd E (Part of Theisen Park)**  
 Site Size: **5+ Ac**

	5	4	3	2	1
<b>Site Selection Criteria</b>					
1. Proximity		✓			
2. Main Road	✓				
3. Adequate Size Site	✓				
4. Visibility	✓				
5. Utilities		✓			
6. Compatible		✓			
7. Clean Environment		✓			
8. Drainage and Topography		✓			
9. Shape of Site		✓			
10. Cost		✓			
	<b>Estimated Market Value</b>			<b>City Owns Property</b>	

Ranking- 5 represents the best with 1 being the least desirable.

### Additional observations and comments:

- Cost - least costly site as this could be done internally. Site swap of Fire Station to be used as a Park Building.
- Existing parking lot could be used for the new Fire Station.

Search...

Layers

Filter Layers...

Filter

Streets

FEMA

Background Layers

2015 Aerial

2011 Aerial

2009 Aerial

2008 Aerial

2006 Aerial

2003 Aerial

1991 Aerial

1985 Aerial

1974 Aerial

Home Layers

Parcel ID: 353023210063

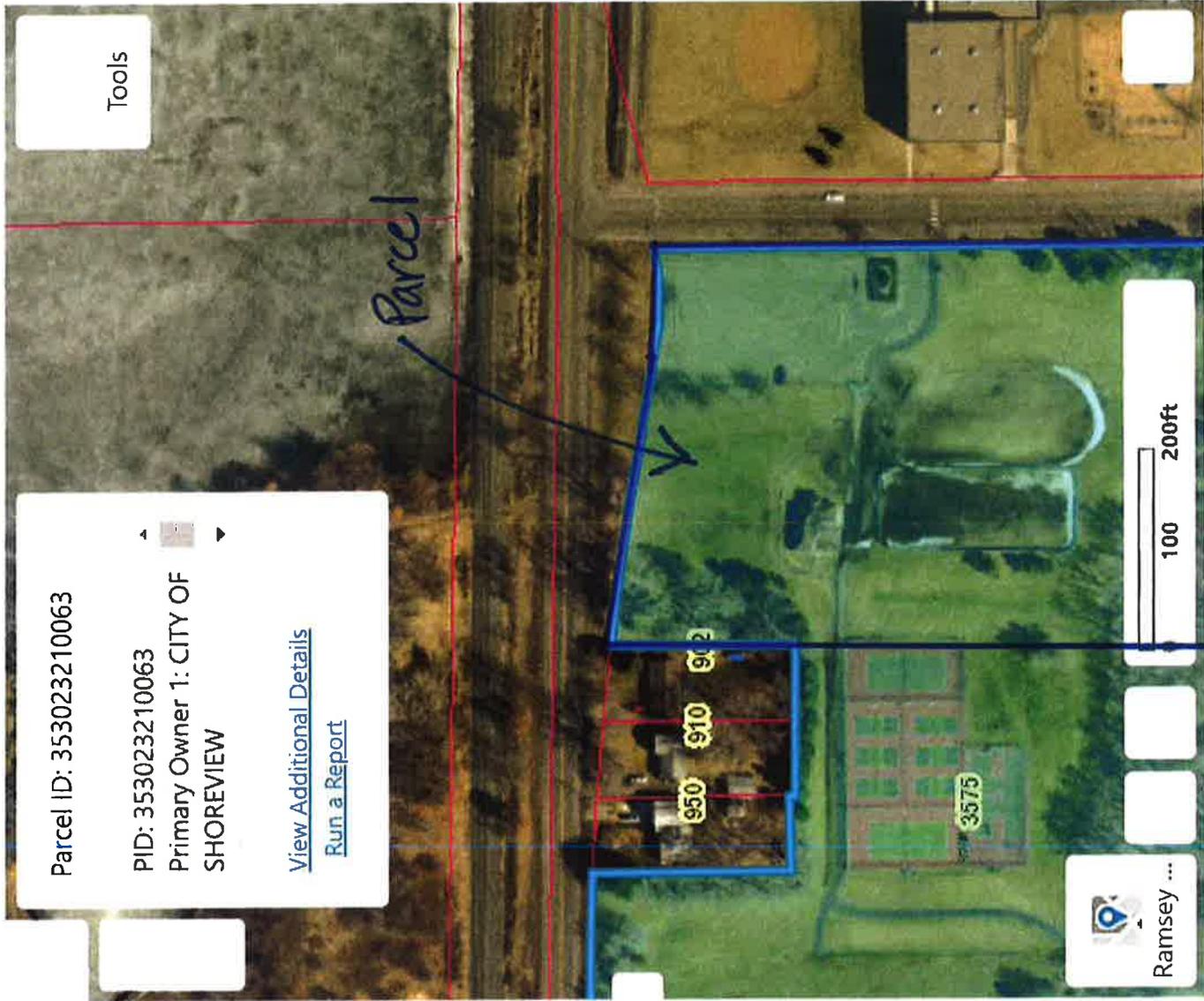
PID: 353023210063

Primary Owner 1: CITY OF SHOREVIEW

[View Additional Details](#)

[Run a Report](#)

Tools



## Potential Sites

Many sites were looked at and the following are sites that the site selection criteria was applied.

Site Address:

County Rd F & Lexington (2 parcels)  
Former Bremer Bank & adjacent site

Site Size:

5 Ac +/-

Site Selection Criteria	5	4	3	2	1
1. Proximity	✓				
2. Main Road	✓				
3. Adequate Size Site		✓			
4. Visibility	✓				
5. Utilities		✓			
6. Compatible	✓				
7. Clean Environment		✓			
8. Drainage and Topography		✓			
9. Shape of Site		✓			
10. Cost				✓	
Estimated Market Value				\$2.5M	

Ranking- 5 represents the best with 1 being the least desirable.

Additional observations and comments:

- Acquisition will have to deal with 2 owners.
- Demolition of former Bank.
- Sites have curb cuts on 2 main roads.

Home Initial View Previous Extent Bookmarks Pan Layer List Point Find by Address Find by Parcel Find by Project Find by Parcel

Tools

Unlink Maps Link Maps

Query

Both Parcels



Layers

Filter

Water, Text

- Parcel Annotations
- Parcel Points
- Parcel Boundaries
- Subdivisions
- Common Interest Communities
- Survey Lots
- Exemption Dead Annotations
- Easement
- Land Ties
- Primary Owner
- ROW Annotations
- Addressing
- Land Survey
- Streets
- FEMA
- Background Layers
- 2015 Aerial
- 2011 Aerial
- 2009 Aerial
- 2008 Aerial
- 2006 Aerial
- 2005 Aerial
- 1991 Aerial
- 1985 Aerial
- 1974 Aerial
- 1953 Aerial
- 1940 Aerial
- Aerial BaseMap (2017)
- Ramsey Base Map

County Rd F 1/2 Lexington  
2.98 AC  
260' + 230' on Lexington

## Potential Sites

Many sites were looked at and the following are sites that the site selection criteria was applied.

Site Address: **Lexington Ave. - Ambassador Baptist Church**  
 Site Size: **230' x 500' +/- 2.6 Ac +/-**

Site Selection Criteria	5	4	3	2	1
1. Proximity	✓				
2. Main Road	✓				
3. Adequate Size Site				✓	
4. Visibility	✓				
5. Utilities			✓		
6. Compatible		✓			
7. Clean Environment		✓			
8. Drainage and Topography			✓		
9. Shape of Site				✓	
10. Cost			✓		
Estimated Market Value			\$1.65M		

Ranking- 5 represents the best with 1 being the least desirable.

### Additional observations and comments:

- Acquisition will be with church and one homeowner.
- Demolition of multiple structures, earthwork will be required.
- Another curb will be required on Lexington Ave.



## Potential Sites

Many sites were looked at and the following are sites that the site selection criteria was applied.

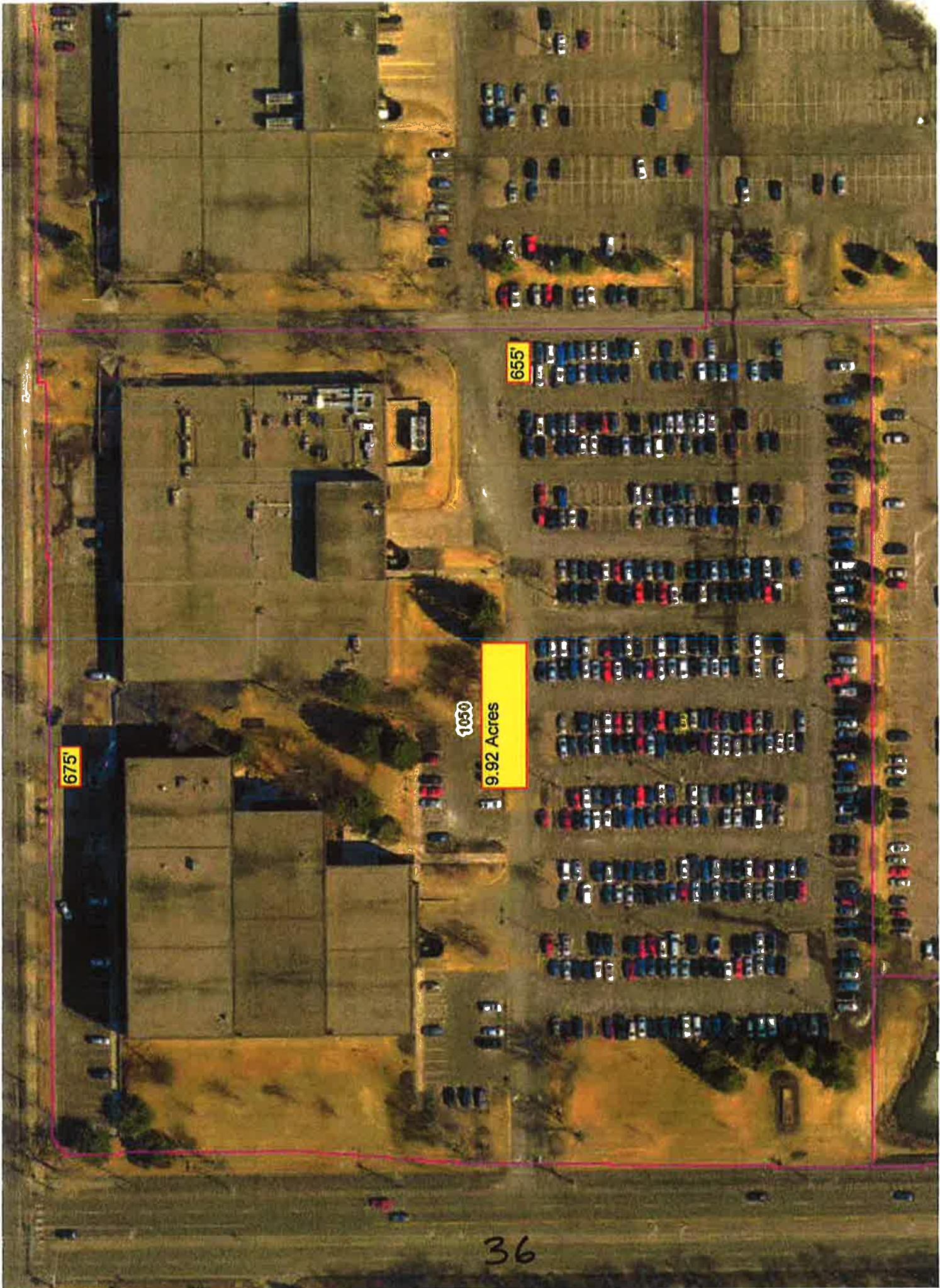
Site Address: 1050 County Rd F  
 Site Size: 9.92 Ac

Site Selection Criteria	5	4	3	2	1
1. Proximity		✓			
2. Main Road	✓				
3. Adequate Size Site	✓				
4. Visibility	✓				
5. Utilities		✓			
6. Compatible		✓			
7. Clean Environment			✓		
8. Drainage and Topography			✓		
9. Shape of Site		✓			
10. Cost					✓
Estimated Market Value				\$7M	

Ranking- 5 represents the best with 1 being the least desirable.

### Additional observations and comments:

- Potential site split into 2 parcels.
- Currently under utilized. Required parking for existing buildings would need revision by City if they remain.
- Demo cost substantial for removing a structure.
- Some parking lot could be reused with restoration.



675'

1050

9.92 Acres

655'

36

## Potential Sites

Many sites were looked at and the following are sites that the site selection criteria was applied.

Site Address: County Rd E (Adjacent Theisen Park)  
 Site Size: 440' x 310' ± 3.13 Ac ±

Site Selection Criteria	5	4	3	2	1
1. Proximity		✓			
2. Main Road		✓			
3. Adequate Size Site			✓		
4. Visibility		✓			
5. Utilities			✓	✓	
6. Compatible			✓		
7. Clean Environment		✓			
8. Drainage and Topography				✓	
9. Shape of Site			✓		
10. Cost			✓		
Estimated Market Value			\$600,000 ±		

Ranking- 5 represents the best with 1 being the least desirable.

### Additional observations and comments:

- Acquisition will need to deal with multiple owners including the City for the Park edge on the east side.
- Demolition is minimal.
- Earthwork will be required on this site.

Layers

Filter Layers...

- Foreground Layers
- Points of Interest
- Public Bike and Pedestrian Facilities
- 2012 Contours
- Land Records
- LotAnnotations
- Lot Annotations
- Plot Annotations
- Block\_Text

- BoundaryID
- C/C\_Text
- Gov\_Text
- Lot\_Text
- MUCID
- MUID
- Plat\_Name
- StelID
- Water\_Text

- Parcel Annotations
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- Communities
- Survey Lots
- Easement Dead Annotations
- Easement
- Land Ties
- Primary Owner
- ROW Annotations
- Addressing
- Land Survey
- Streets
- FEMA



County Rd E - Adjacent Theisen Park  
 440' x 310' or 3.13 AC

①

## Potential Sites

Many sites were looked at and the following are sites that the site selection criteria was applied.

Site Address: 1200 & 1210 County Rd E.  
 Site Size: 4.52 Ac

Site Selection Criteria	5	4	3	2	1
1. Proximity		✓			
2. Main Road		✓			
3. Adequate Size Site		✓			
4. Visibility		✓			
5. Utilities		✓			
6. Compatible			✓		
7. Clean Environment			✓		
8. Drainage and Topography			✓		
9. Shape of Site		✓			
10. Cost			✓		
Estimated Market Value			\$3M		

Ranking- 5 represents the best with 1 being the least desirable.

### Additional observations and comments:

- Circulation to the buildings behind the site would need to be resolved.
- There would be a significant demolition cost for the structures.
- Some of the existing parking lot could be reused with work to restore paving.



Both parcels

Parcel ID: 343023110078  
 PID: 343023110018  
 Primary Owner 1: LSREE4 BISON LLC  
 Primary Owner 2: CO HUDSON AMERICAS LLC  
 Site Address: T210 COUNTY ROAD E W  
 ARDEN HILLS MN 55112-3739  
 Area: 2.37 Acres Use: Commercial  
[View Additional Details](#) [Run a Report](#)

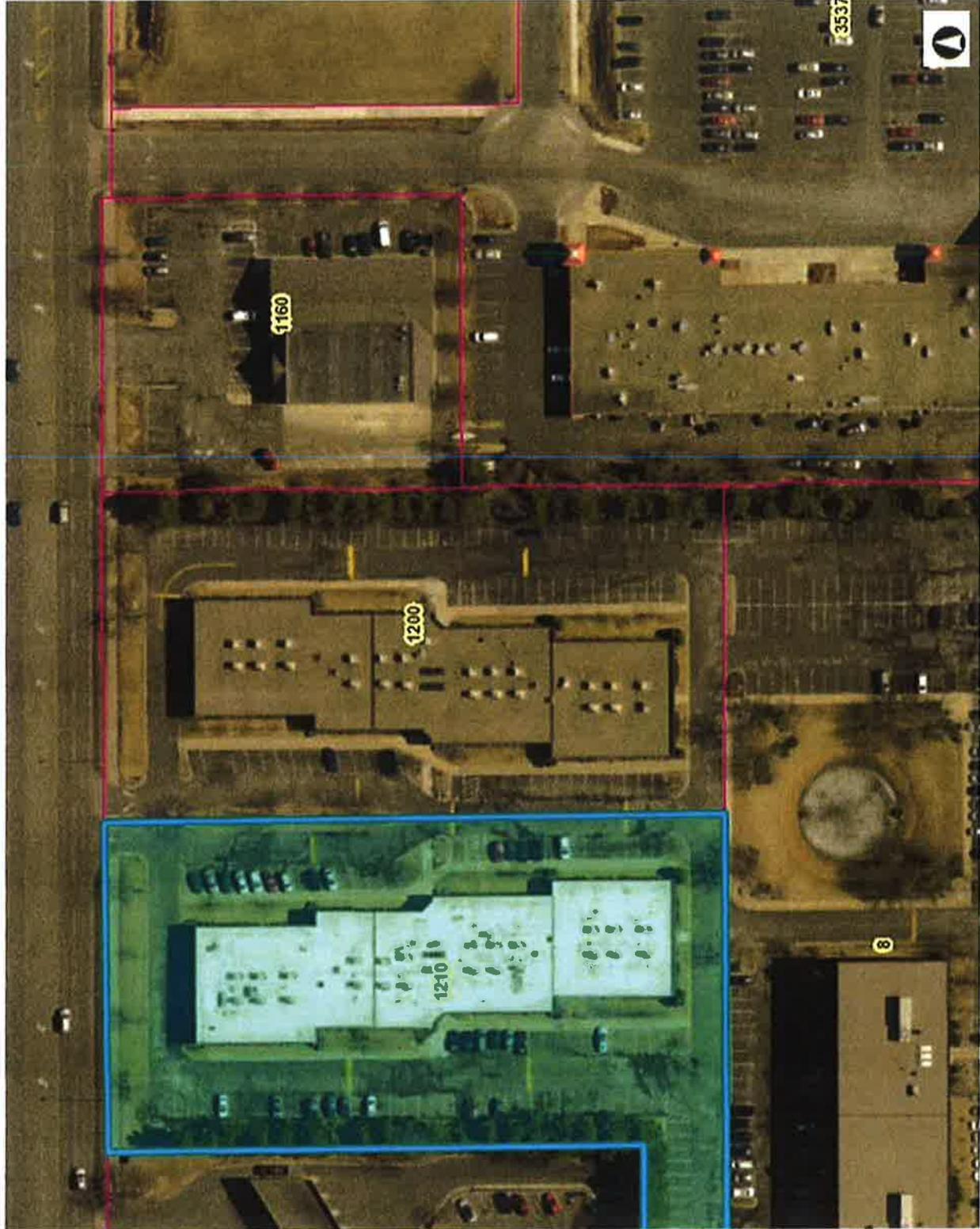
Layers

Filter Layers...

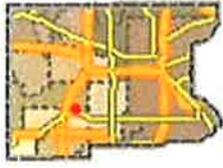
- Water\_Text
- Parcel Annotations
- Parcel Points
- Parcel Boundaries
- Subdivisions
- Common Interest Communities
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- Easement Deed Annotations
- Easement
- Land Ties
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- 2003 Aerial
- 1991 Aerial
- 1985 Aerial
- 1974 Aerial
- 1953 Aerial
- 1940 Aerial
- Aerial Basemap (2017)
- Ramsey Base Map



40



**Legend**



- City Halls
- Schools
- Hospitals
- Fire Stations
- Police Stations
- Recreational Centers
- Parcel Points
- Parcel Boundaries

**Notes**

Enter Map Description

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 THIS MAP IS NOT TO BE USED FOR NAVIGATION



## Potential Sites

Many sites were looked at and the following are sites that the site selection criteria was applied.

Site Address: **Bethel College (old Insurance Co.)**  
 Site Size: **21.34 Ac ±**

Site Selection Criteria	5	4	3	2	1
1. Proximity			✓		
2. Main Road			✓		
3. Adequate Size Site	✓				
4. Visibility					✓
5. Utilities				✓	
6. Compatible			✓		
7. Clean Environment			✓		
8. Drainage and Topography			✓		
9. Shape of Site			✓		
10. Cost			✓		
Estimated Market Value			\$3.5M		

Ranking- 5 represents the best with 1 being the least desirable.

**Additional observations and comments:**

- size of property to be negotiated.
- this site includes a large parking lot for the adjacent school building.
- Without some frontage on Co. Rd. E the new station would not have the visibility it should.

Parcel ID: 343023120007

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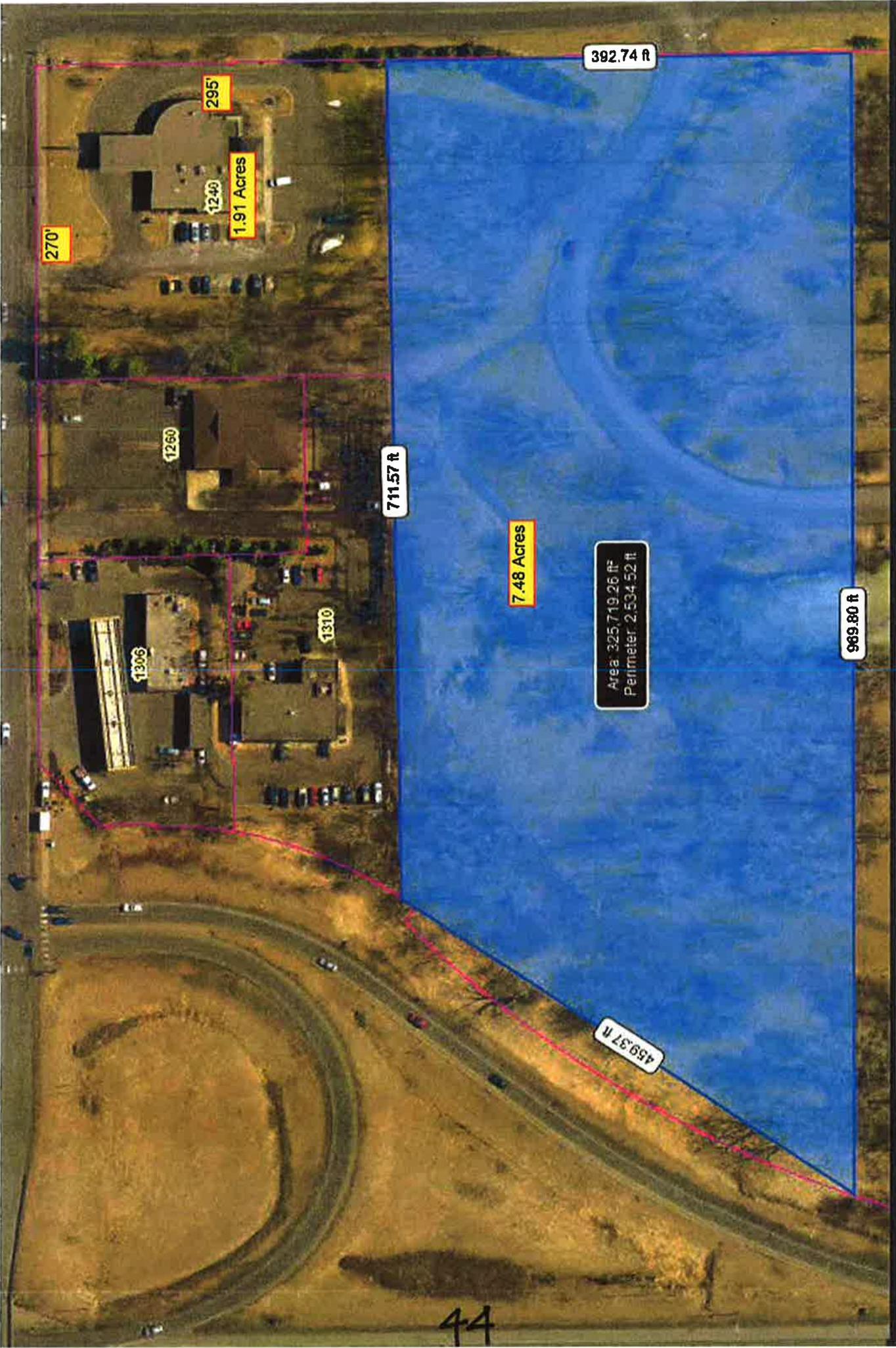
PID: 343023120007  
Primary Owner: 1: BETHEL UNIVERSITY  
Site Address: 12 PINE TREE DR  
ARDEN HILLS MN 55112  
Area: 21.34 Acres Use: Colleges-Pkole

[View Additional Details](#) [Print a Report](#)



Tools

Search



392.74 ft

295'

1.91 Acres

1240

270'

711.57 ft

7.48 Acres

Area: 325,719.26 ft<sup>2</sup>  
Perimeter: 2,534.52 ft

969.80 ft

1260

1306

1310

459.37 ft

44

# Implementation

## Project Schedule/ Time Frame

The following is an outline of tasks and action items that need to be implemented to accomplish building a new Fire Station. It is a general outline of what it could take to get a building project completed. It could take from over 4 years on to be able to occupy a new Station:

### Task 1 (1-6 months)

1. LJFD presents/discusses the *Study* with the *Board of Directors*.

### Task 2 (3-6 months)

2. LJFD presents/discusses the *Study* with the *City Councils*.

### Task 3 (3 months)

3. The Cities have an existing agreement in place which acts as a *Joint Powers Agreement* for the Lake Johanna Fire Department. Other agreements of this type have defined the term length, membership and standing orders that can be given. The *Board of Directors* would give the Fire Chief the authority to head the project and order work to be done. He and his staff which would include an *Owner's Representative* would report back to the Board of Directors.

### Task 4 (1-2 months)

4. The Cities and Lake Johanna Fire Department Board of Directors *finalize and pass resolutions* moving the project forward. An Owner's Representative is brought on board to assist the Fire Chief in the day to day tasks of the project.

### Task 5 (3 months)

5. The Project Team reviews options for financing of site purchase and other incidentals. Most likely the project will be bonded but there are numerous line item costs as you go. A *Municipal Advisor* would be brought on board to advise on the best course to take and provide a cash flow projection.

### Task 6 (4 months)

6. Project Team searches for and retains a *Property Agent* to assist with purchase of property for the new Fire Station. The search begins and options are reviewed prior to making an offer.

### Task 7 (2 months)

7. *Purchase Agreement* is signed contingent on review by the Cities. An architectural firm is hired to only verify that the selected site meets the Study criteria.

### Task 8 (1-2 months)

8. *Property is closed on* and property survey, soil borings are prepared.

### Task 9 (1-2 months)

9. *Architectural Firm* is hired. Demolition and/or site preparation bid package is put together.

**Task 10 (8 months)**

10. *Design work* starts. Approvals, schematic design, design development and construction documents.

**Task 11 (1 month)**

11. Project goes out to *Bid*.

**Task 12 (1 month)**

12. *Bids are received*.

**Task 13 (1 month)**

13. General Contractor is *Awarded the project*.

**Task 14 (12 months)**

14. Construction *work starts* which is a one year+/- time frame.

**Task 15 (1 month)**

15. Construction *work is complete* including punch list and commissioning.

**Task 16 (1 month)**

16. Fire Department *Occupancy and Dedication* including moving.

# Project Probable Cost Budget

## Soft Costs

- |   |           |                   |
|---|-----------|-------------------|
| 1. Soil borings, surveys  | \$10,000  |                   |
| 2. Printing of bidding documents  | \$2,500   |                   |
| 3. Legal, financing, reimbursables, miscellaneous   | \$160,000 |                   |
| 4. Owner's Rep, Municipal Advisor, Property Agent   |           | (not included)*** |
| 5. Furniture, Fixtures and Equipment  | \$225,000 |                   |
| 6. Telecommunications, Technology, Audio-Visual   | \$130,000 |                   |
| 7. Special Inspections testing  | \$20,000  |                   |
| 8. Consultant Fees (civil engineering*, architectural, structural, mechanical and electrical) | \$410,800 |                   |

---

\$958,300

## Hard Costs

- |   |             |
|---|-------------|
| 1. Site preparation- demolition as required, soil correction, utilities, stormwater management,** site improvements | \$500,000   |
| 2. Building Construction<br>28,215 SF X \$208/SF  | \$5,868,700 |
| 3. Contingency  | \$300,000   |

---

\$6,668,700

---

**Total (2018 dollars)** **\$7,627,000 +/- plus Site Acquisition cost**

\*This cost may increase due to watershed district requests.

\*\* This cost does not include improvements for stormwater management as they are not known at this time as a site has not been selected.

\*\*\* This cost will be determined by the scope requested of the Owner's Rep, financing vehicle of the project and site selected.

## **Sustainable Design Strategies**

The new Lake Johanna Fire Station could narrow its scope to concentrate on doing a few areas well that would have long term impact. The below are a few areas to start with as there are cost implications:

### ***Existing Station 4 Reuse***

There is no better sustainable design than reusing an existing structure. Station 4 is a viable building that could be repurposed with the adjacent Park as a Community Center for the City and surrounding area.

### ***New Site Selection***

In searching for an appropriate site, a good choice would be to find property that is under utilized. A site that would require less demolition and preparation such as earthwork would also be a sustainable choice.

### ***New Building and Site***

The following items should be a priority in a new Fire Station:

1. **Indoor environment quality-** ample daylighting and natural ventilation. This includes IAQ (Indoor Air Quality).
2. **Energy efficiency-** including efficient use of shading.
3. **Materials-** the selection of permanent materials requiring less maintenance.
4. **Water usage-** introducing an irrigation free landscape and the reuse of "greywater".
5. **Stormwater quality-** management of stormwater on site.
6. **Refuse-** collection of waste /recyclables system.

# Appendix

The following is supplemental information gathered during the Study.



## Other sites viewed for future Fire Station

1. Rice Creek Commons, Arden Hills- new development
2. Bingo Hall adjacent Flaherty's Bowl- less than 3 acre site
3. Lexington and Co. Rd E- Ramsey County property
4. County Road F- "towers property", less than 3 acres and hazardous due to cables
5. Lexington and Victoria St. North- CSM Building
6. Lexington near Co. Rd F
7. Lexington Ave. N- City of Shoreview 16.2 acres
8. Hwy 96- City of Arden Hills property
9. 5919 Rice Creek Pkwy, Shoreview, 18.56 acres
10. 1240 Co RD E- only 1.91 acres
11. 3499 Lexington Ave- Catholic Aid, topography and cost
12. 3530 Lexington Ave- narrow
13. 3570 Lexington Ave- only 2.1 acres
14. 3382 Lexington Ave N- Presbyterian Church
15. 4700 Lexington Ave N
16. 1235 Red Fox Rd
17. 4130 Lexington Ave N
18. 1000 Co Rd E W

Navigation

- Home
- Initial View
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- Layer List
- Pan
- Point
- Find by PID
- Find by District
- Find by Landmark
- Query
- Linked Maps

Find Data

Graphics that contain geometry exceeding 5000 vertices will not be highlighted. [Click to Display Again](#)



Lexington & Co. Rd E  
4.53 AC

3

Filter Layers...

- Lot\_Text
- MUCID
- MUID
- Plat\_Name
- SiteID
- Water\_Text
- Parcel Annotations
- Parcel Points
- Parcel Boundaries
- Subdivisions
- Common Interest Communities
- Survey Lots
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- Easement
- Land Ties
- Primary Owner
- ROW Annotations
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- Land Survey
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- 2009 Aerial
- 2008 Aerial
- 2006 Aerial
- 2003 Aerial
- 1991 Aerial
- 1985 Aerial



- Home
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- Point
- Find by PID
- Find by District
- Find by Landmark
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- Linked Maps
- Linked Maps

Graphics that contain geometry exceeding 5000 vertices will not be highlighted. Don't Display Again



Layers

Filter Layers...

- Lot, Text
- MUCID
- MUID
- PlatName
- SiteID
- Water\_Text
- Parcel Annotations
- Parcel Points
- Parcel Boundaries
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- 2015 Aerial
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- 2009 Aerial
- 2006 Aerial
- 2005 Aerial
- 2003 Aerial
- 1991 Aerial
- 1985 Aerial
- Home
- Layers

Lexington & Co. Rd E  
37.72 AC.

3



Ramsey



Filter Layers...

Water, Text

- Parcel Annotations
- Parcel Points
- Parcel Boundaries
- Subdivisions
- Common Interest Communities
- Survey Lots
- Easement Dead Annotations
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53

- Addressing
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- 2003 Aerial
- 1991 Aerial
- 1985 Aerial
- 1974 Aerial
- 1953 Aerial
- 1940 Aerial
- Aerial Basemap (2017)
- Ramsey Base Map

Adjacent 'towers'

County Road F  
2.711 AC  
320' x 400'

4





Victoria & Victoria St. North  
3+ AC

5

Filter Layers...

Water\_Text

- Parcel Annotations
- Parcel Points
- Parcel Boundaries
- Subdivisions
- Common Interest Communities
- Survey Lots
- Easement Dead Annotations
- Easement
- Land Ties
- Primary Owner
- ROW Annotations

Addressing

- Land Survey
- Streets

FEMA

Background Layers

- 2015 Aerial
- 2011 Aerial
- 2009 Aerial
- 2008 Aerial
- 2006 Aerial
- 2003 Aerial
- 1991 Aerial
- 1985 Aerial
- 1974 Aerial
- 1953 Aerial
- 1940 Aerial
- Aerial Basemap (2017)

Ramsey Base Map

Victoria St. North



Filter Layers...

- Water\_Text
- Parcel Annotations
- Parcel Points
- Parcel Boundaries
- Subdivisions
- Common Interest Communities
- Survey Lots
- Easement Deed Annotations
- Easement
- Land Ties
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- 2008 Aerial
- 2006 Aerial
- 2003 Aerial
- 1991 Aerial
- 1985 Aerial
- 1974 Aerial
- 1953 Aerial
- 1940 Aerial
- Aerial Basemap (2017)
- Ramsey Base Map

55

Lexington near Co. Rd F  
330' wide x 800' deep  
6+ AC

6

Graphics that contain geometry exceeding 5000 vertices will not be highlighted. Don't Display Again



Tools

Search

56

Lexington Ave N  
 16.2 AC  
 City of Shoreview

7

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Parcel ID: 143023320110

PID: 143023320110  
 Primary Owner 1: CITY OF SHOREVIEW  
 Primary Owner 2:  
 Site Address: 0 LEXINGTON AVE N  
 SHOREVIEW MN 55126  
 Area: 16.2 Acres Use: Muni Svc Other

[View Address Data](#)
[View Address](#)



7

57

- Parcel Annotations
- Parcel Points
- Parcel Boundaries
- Subdivisions
- Common Interest Communities
- Survey Lots
- Easement Dead Annotations
- Easement
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- ROW Annotations

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- 2015 Aerial
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- 2009 Aerial
- 2008 Aerial
- 2006 Aerial
- 2003 Aerial
- 1991 Aerial
- 1985 Aerial
- 1974 Aerial
- 1953 Aerial
- 1940 Aerial
- Aerial Basemap (2017)
- Ramsey Base Map



*Hwy 96  
6.82 AC 300' deep  
City of Arden Hills*

*8*

58

Home

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Parcel ID: 223023210141

PID: 223023210141  
 Primary Owner 1: CITY OF ARDEN HILLS  
 Primary Owner 2:  
 Site Address: 1450 HIGHWAY 96 W  
 ARDEN HILLS MN 55112-5740  
 Area: 6.82 Acres Use: Muni Svc Other

[View Additional Details](#)
[Print a Report](#)



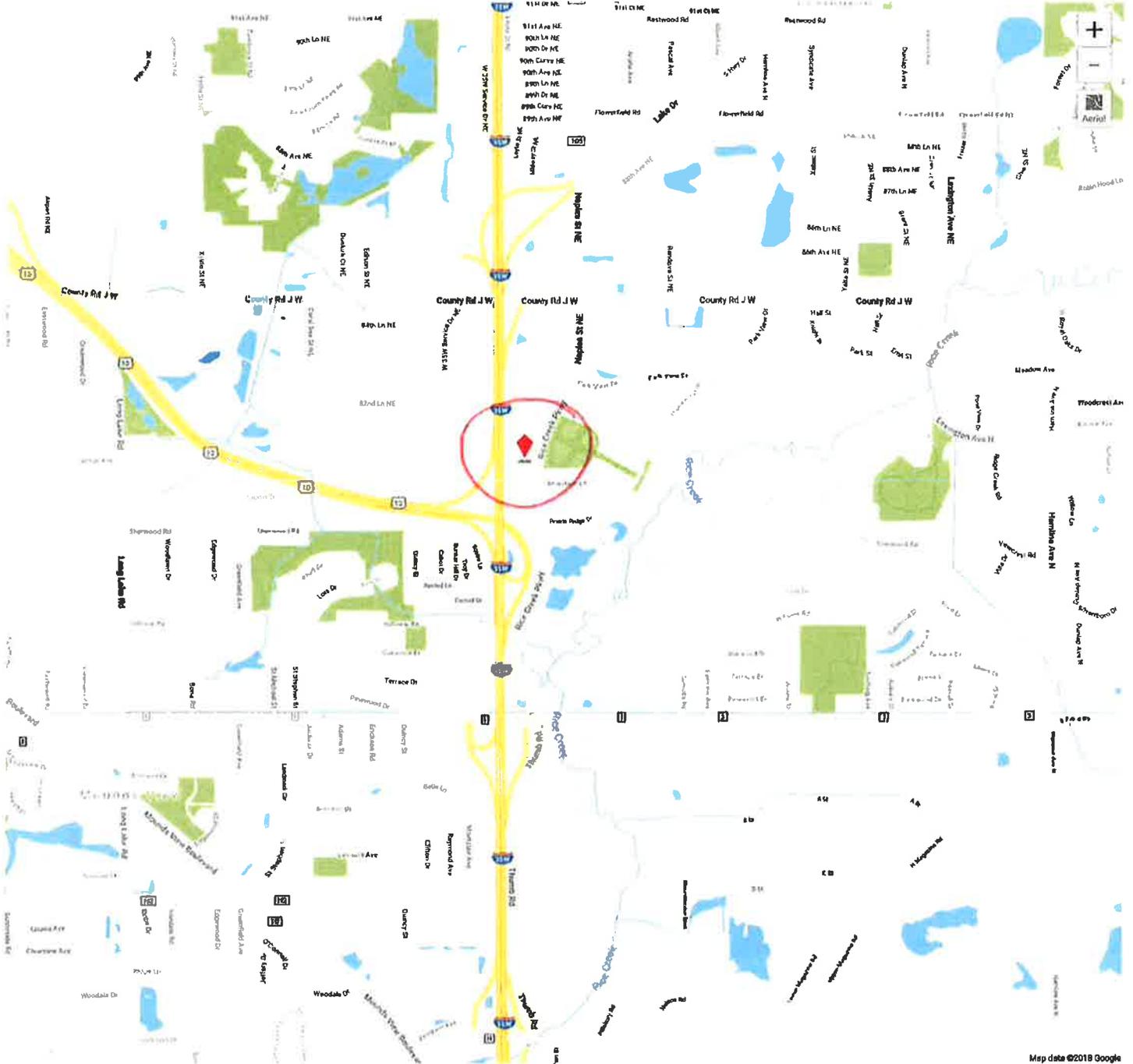
8

59



Map View

5919 Rice Creek Pky,  
Shoreview, MN.  
18.56 AC



Map data ©2018 Google

[Back to Listing](#) [Directions](#) [Street View](#)

9

60



Layers

Filter Layers...

- Water\_Text
- Parcel Annotations
- Parcel Points
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- Easement Deed Annotations
- Easement
- Land Ties
- Primary Owner
- ROW Annotations

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- 1985 Aerial
- 1974 Aerial
- 1953 Aerial
- 1940 Aerial
- Aerial BaseMap (2017)
- Ramsey Base Map

10

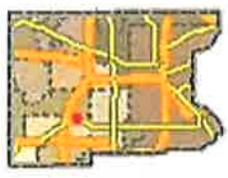
61



NAD\_1983\_HARN\_Adj\_MN\_Ramsey\_Feet  
 © Ramsey County Enterprise GIS Division

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**Legend**



- City Halls
- Schools
- Hospitals
- Fire Stations
- Police Stations
- Recreational Centers
- Parcel Points
- Parcel Boundaries

10

**Notes**

Enter Map Description

3499 Lexington Ave  
5.66 AC



**Legend**



- City Halls
- Schools
- Hospitals
- Fire Stations
- Police Stations
- Recreational Centers
- Parcel Points
- Parcel Boundaries

\$2,892,700  
MKT Value

11

**Notes**

Enter Map Description

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200.0 0 100.00 200.0 Feet



Loading... X

11

NIMS BEACH Academy

64



13

12



Home Tools

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Parcel ID: 353025230069

PID: 353025230069  
 Primary Owner 1: PRESBYTERIAN CHURCH OF THE WAY  
 Primary Owner 2:  
 Site Address: 3382 LEXINGTON AVE N  
 SHOREVIEW MN 55126-8108  
 Area: Acres Use: Res 1 unit

[View Additional Details](#) [Run A Report](#)



14

67

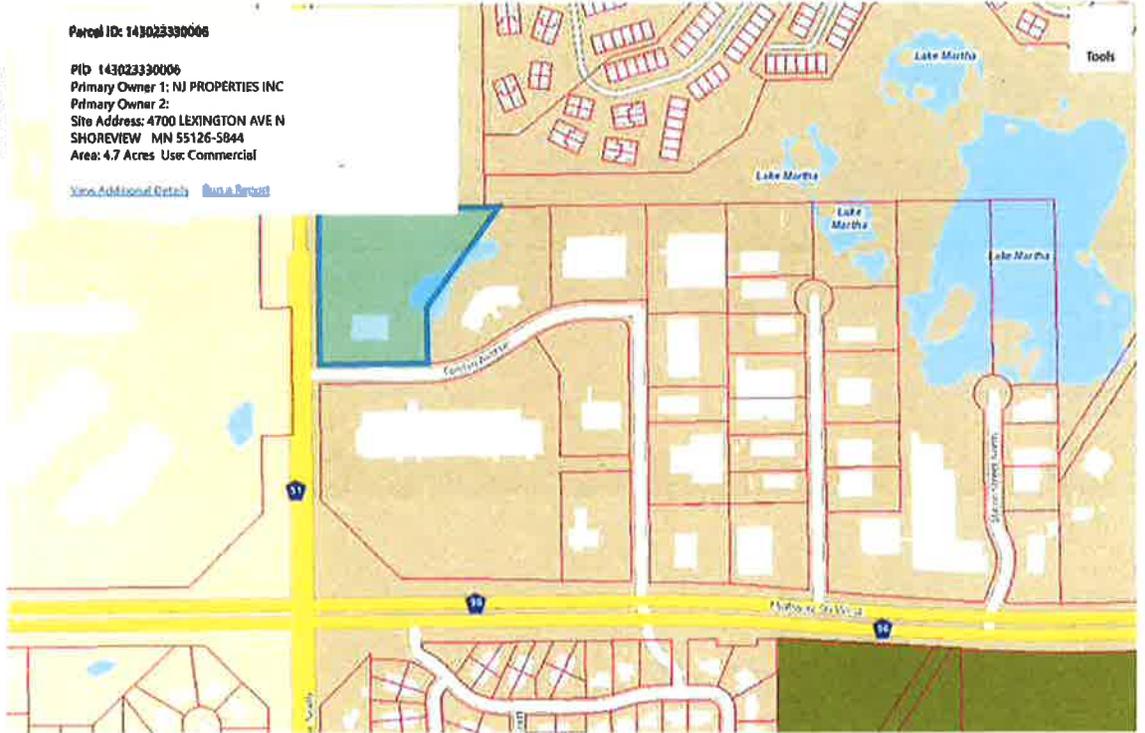
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Parcel ID: 143023330006

PID 143023330006  
 Primary Owner 1: NJ PROPERTIES INC  
 Primary Owner 2:  
 Site Address: 4700 LEXINGTON AVE N  
 SHOREVIEW MN 55126-5844  
 Area: 4.7 Acres Use: Commercial

[View Additional Details](#)
[Map & Report](#)

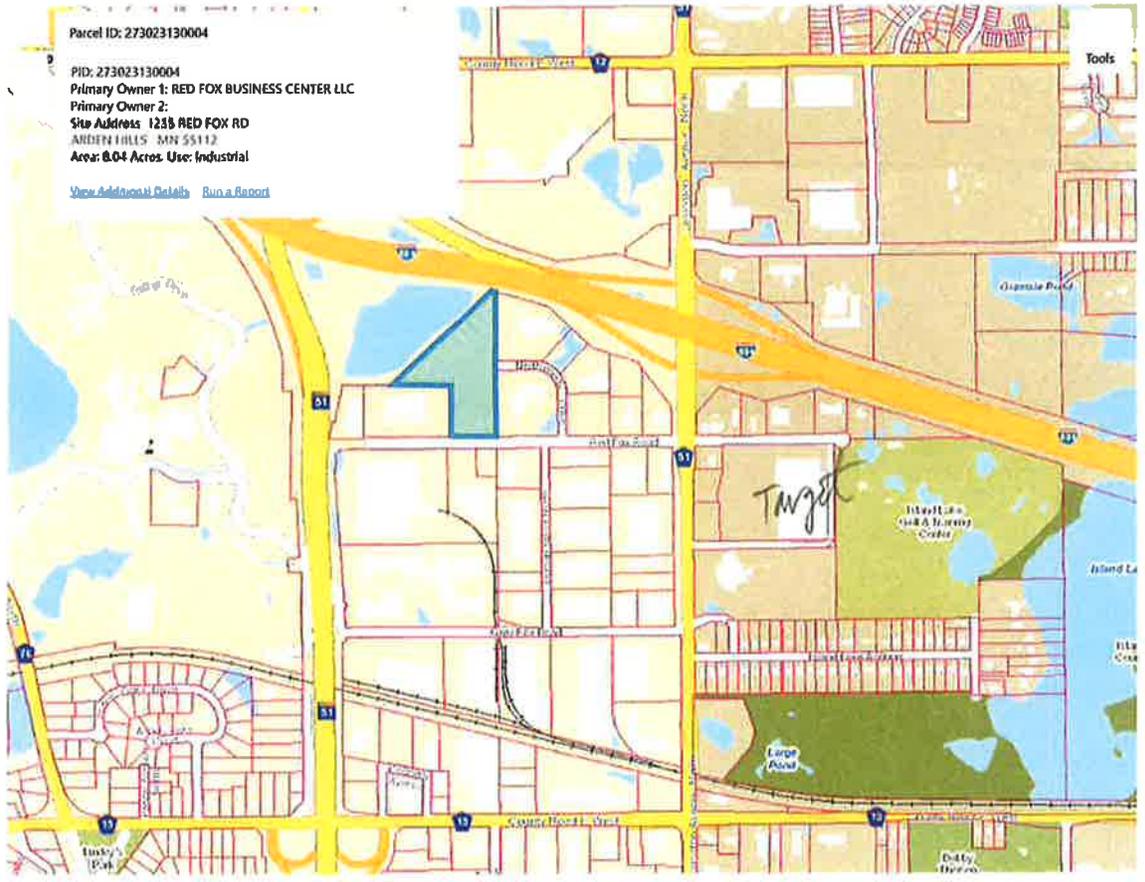


15

68

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Parcel ID: 273023130004  
PID: 273023130004  
Primary Owner 1: RED FOX BUSINESS CENTER LLC  
Primary Owner 2:  
Site Address: 1238 RED FOX RD  
ARDEN HILLS MN 55112  
Area: 8.04 Acres Use: Industrial  
[View Address H Details](#) [Run a Report](#)



16

69

- Home
- Initial View
- Previous Extent
- Navigation
- Bookmarks
- Find by PID
- Find by District
- Find by Landmark
- Query
- Linked Maps



Parcel ID: 233023390064  
 PID: 233023390064  
 Primary Owner 1: CARROLL VENTURES COMPANY  
 Primary Owner 2:  
 Site Address: 4130 LEXINGTON AVENUE  
 SHOREVIEW, MN 55126-6172  
 Area: 17.86 Acres. Use: Apt. 4+ units  
[View Additional Details](#) [Book a Report](#)

- Filter Layers
- Water, Text
  - Parcel Annotations
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  - Common Interest Communities
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  - FEMA
  - Background Layers
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  - 2006 Aerial
  - 2003 Aerial
  - 1991 Aerial
  - 1985 Aerial
  - 1974 Aerial
  - 1953 Aerial
  - 1940 Aerial
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Lexington & Co. Rd. F  
 200' x 400' or 1.8 AC

17

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Parcel ID: 23302330064

PEID: 23302330064  
Primary Owner 1: CARROLL VENTURES COMPANY  
Primary Owner 2:  
Site Address: 4130 LEWINGTON AVE N  
SHOREVIEW, MN 55126-6172  
Area: 17.86 Acres. Use: Apt 4+ units

[View Additional Details](#) [View Report](#)



Too small

71

17

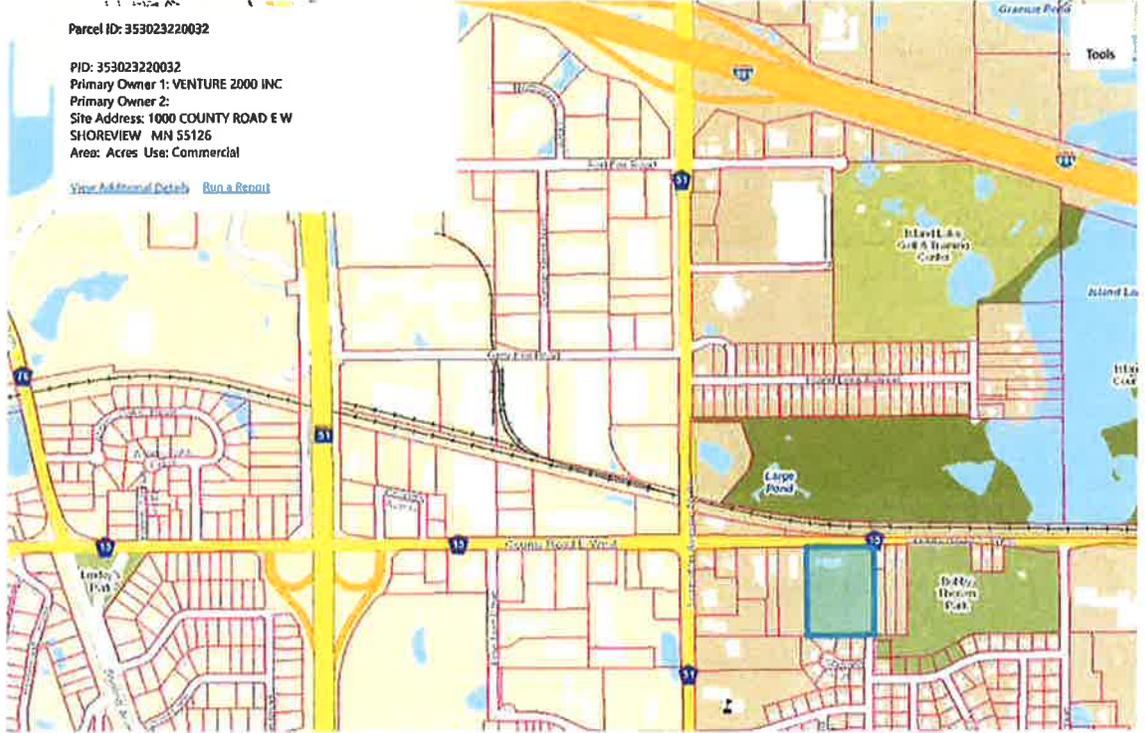
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Parcel ID: 353023220032

PID: 353023220032  
 Primary Owner 1: VENTURE 2000 INC  
 Primary Owner 2:  
 Site Address: 1000 COUNTY ROAD E W  
 SHOREVIEW MN 55126  
 Area: Acres Use: Commercial

[View Additional Details](#)
[Run a Report](#)



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## Potential Sites

Many sites were looked at and the following are sites that the site selection criteria was applied.

**Site Address:**

**Site Size:**

	5	4	3	2	1
<b>Site Selection Criteria</b>					
1. Proximity					
2. Main Road					
3. Adequate Size Site					
4. Visibility					
5. Utilities					
6. Compatible					
7. Clean Environment					
8. Drainage and Topography					
9. Shape of Site					
10. Cost					

**Ranking- 5 represents the best with 1 being the least desirable.**

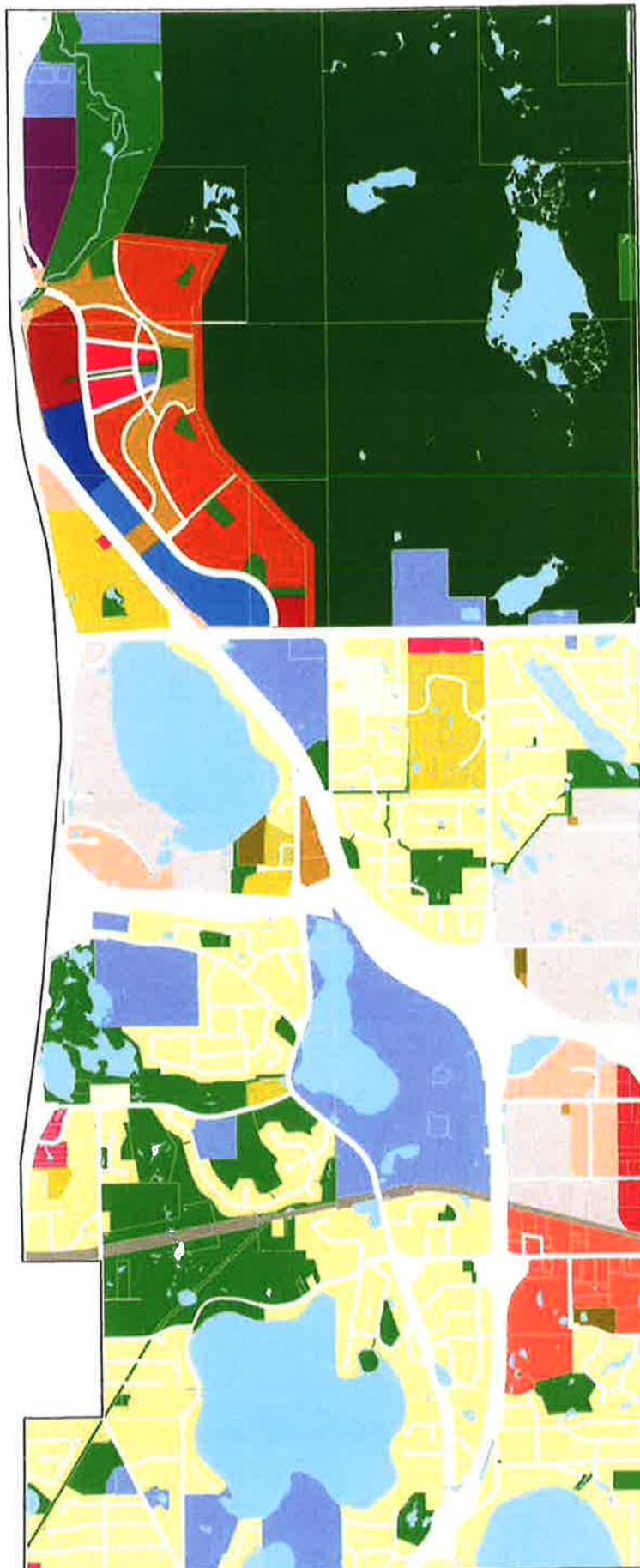
**Additional observations and comments:**



# 2030 Future Land Use

- VLDR - Very Low Density Residential
- LDR - Low Density Residential
- MDR - Medium Density Residential
- HDR - High Density Residential
- NR - Neighborhood Residential
- TC - Town Center
- NB - Neighborhood Business
- MB - Mixed Business
- COM - Commercial
- CMU - Community Mixed Use
- CC - Campus Commercial
- RMU - Retail Mixed Use
- OMU - Office Mixed Use
- FO - Flex Office
- I/O - Light Industrial and Office
- P/I - Public & Institutional
- UTL - Utility
- P/OS - Park and Open Space
- PP - Park Preserve
- WAT - Water
- RR - Railroad right-of-way
- ROW - Right-of-Way

Updated: December 12, 2018  
 Source: City of Arden Hills  
 2030 Comprehensive Plan



0 1,750 3,500 Feet

74



**Legend**

**Residential**

- Single Family Detached
- Single Family Attached
- Manufactured Housing Park
- Multi-family Residential
- Mixed Use Residential/Commercial

**Commercial/Industrial**

- Commercial
- Office
- Industrial
- Utility
- Railway

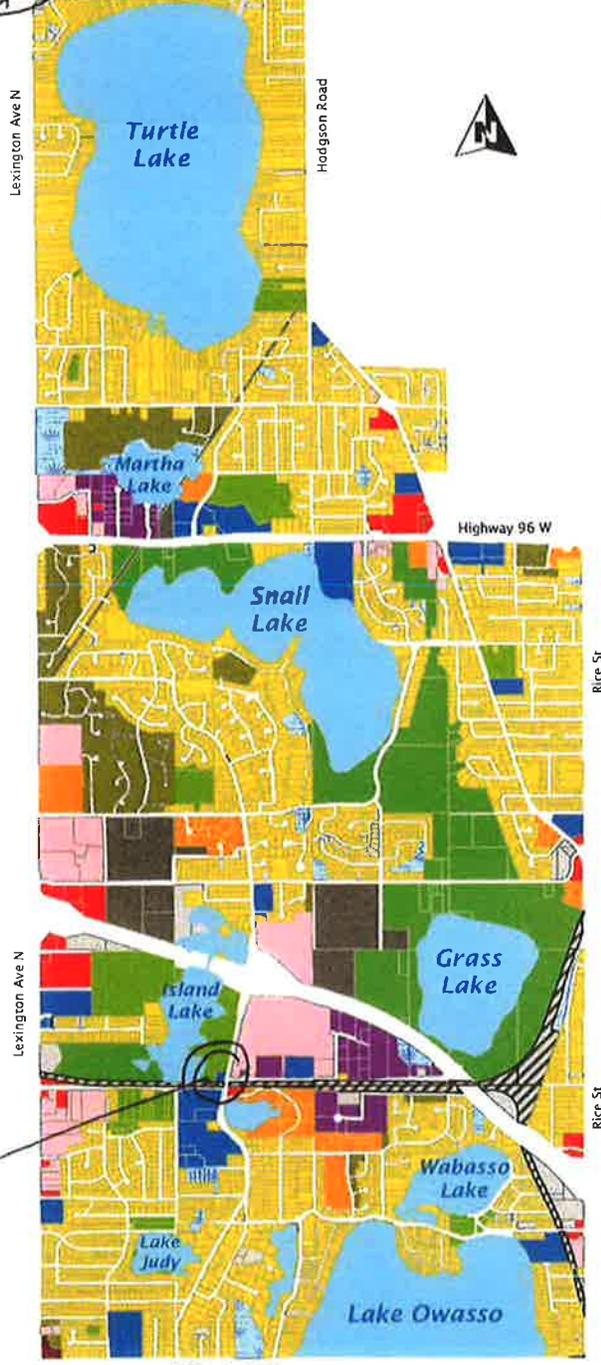
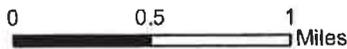
**Public/Quasi-Public**

- Institutional
- Parks/Recreational
- Open Space
- Right of Way

**Undeveloped**

- Vacant
- Wetlands
- Open Water

Disclaimer: Every effort has been made to ensure the completeness and accuracy of this map. However, the data used to create this map was compiled from a number of sources and may contain errors. This map should be used for reference only. Data should be verified independently if used for any other purpose. This document is not a legally recorded map or survey and should not be used as such.



**4.2 Existing Land Use**

# Sustainable Design

## GSA's 2016 Guiding Principles Checklist for New Construction and Major Modernization Projects

GPC #	Criterion Name	2016 GPC Language
<b>I. INTEGRATED DESIGN</b>		
1	<b>Integrated Design</b>	<p>Use a multidisciplinary integrated project team to establish energy, water, sustainable landscape design, and other environmental performance goals during design.</p> <p>Consider design choices that improve performance, support occupants' health and wellness, and consider climate risks including wildfire. Integrated design should consider all stages of the building's life cycle, including deconstruction.</p> <p><b>References:</b></p> <ul style="list-style-type: none"> <li>- Integrated Design Process: <a href="http://www.wbdg.org/design/engage_process.php">http://www.wbdg.org/design/engage_process.php</a></li> <li>- LEED "Integrative Process" (NC) (CS) (CI) credit</li> </ul>
2	<b>Commissioning</b>	<p>A. Hire a qualified commissioning agent independent of the design and construction or operations team, at the beginning of design. Commissioning should optimize building performance and be tailored to the project's size and complexity. The commissioning agent should work for GSA, or, at minimum, a Construction Manager as Agent (CMA) firm hired by GSA. Please explain.</p> <p>B. Upload into ePM a Commissioning Plan that meets or exceeds LEED's "Fundamental Commissioning and Verification" prerequisite. State which systems' installation and performance was commissioned. AND,</p> <p>C. Provide a Commissioning Report that confirms whether identified issues were appropriately addressed.</p> <p><b>References:</b></p> <ul style="list-style-type: none"> <li>- GSA Building Commissioning Guide: <a href="https://www.gsa.gov/graphics/pbs/BCG_3_30_Final_R2-x221_0Z5RDZ-i34K-pR.pdf">https://www.gsa.gov/graphics/pbs/BCG_3_30_Final_R2-x221_0Z5RDZ-i34K-pR.pdf</a></li> <li>- PBS P100 Facilities Standards ("P100") § 1.10.2.6 "Total Building Commissioning"</li> <li>- GSA Schedule 871: <a href="https://www.gsa.gov/portal/content/245467">https://www.gsa.gov/portal/content/245467</a></li> <li>- LEED "Fundamental Commissioning and Verification" (NC) (CS) (CI) (EB) and "Enhanced Commissioning" (NC) (CS) (CI) (EB) credits</li> </ul>
3	<b>Site Selection</b>	<p>Potential sites are evaluated by the PBS Portfolio office, before a project receives its Congressional appropriation. If possible, upload the project's Site Selection Report and NEPA analysis into ePM, and describe the file's location in this GPC's comment.</p> <p>Insert a brief comment about this the site's environmental impact, and whether floodplains and wetlands were avoided.</p> <p><b>References:</b></p> <ul style="list-style-type: none"> <li>- P100 § 2.2.1 "Sustainable Locations": avoid the adverse impacts associated with development on sensitive sites such as floodplains, wetlands, greenfields, farmland, and habitat for pollinators or threatened/ endangered species.</li> <li>- GSA order ADM 1097.1, "Incorporating Principles of Sustainability, Economic Development and Efficiency Into GSA Business Practices and Location Decision-making": <a href="http://www.gsa.gov/portal/directive/d0/content/697578">http://www.gsa.gov/portal/directive/d0/content/697578</a></li> <li>- PBS Floodplains Management Desk Guide: <a href="http://www.gsa.gov/portal/content/100860">http://www.gsa.gov/portal/content/100860</a></li> <li>- CEQ's "Sustainable Locations for Federal Facilities" implementing Instructions: <a href="https://www.whitehouse.gov/sites/default/files/microsites/ceq/implementing_instructions_-_sustainable_locations_for_federal_facilities_9152011.pdf">https://www.whitehouse.gov/sites/default/files/microsites/ceq/implementing_instructions_-_sustainable_locations_for_federal_facilities_9152011.pdf</a></li> <li>- LEED "Site Assessment" (NC), "Site Development - Protect or Restore Habitat" (NC) (CS), "Sensitive Land Protection" (NC), "High Priority Site" (NC), and "Surrounding Density and Diverse Uses" (NC) (CS) (CI) credits</li> </ul>
4	<b>Transportation</b>	<p>A. Evaluate electric vehicle charging needs, including fleet charging infrastructure, and include to the extent feasible. Minimize onsite automobile parking where transit alternatives are readily available.</p> <p>B. Provide secure, dedicated onsite bicycle parking facilities with direct, safe pedestrian access from the main entrances of the building for at least five percent of building users. Design onsite pedestrian and bike paths to provide safe, clear connections directly to adjacent neighborhood streets, transit, pedestrian routes, bike paths, and local amenities. AND,</p> <p>C. Address whether building location is within 1/4 mile walk distance of fixed route, high-frequency bus service or 1/2 mile walk distance of bus rapid transit stops, commuter rail, light rail, or subway stations.</p> <p><b>References:</b></p> <ul style="list-style-type: none"> <li>- P100 § 2.2.1.3 "Site Supports Neighborhood Connectivity, Walkability, and Bikeability"</li> <li>- GSA Order on "Providing Electric Vehicle Supply Equipment Infrastructure"</li> <li>- LEED "Reduced Parking Footprint" (NC) (CS), "Bicycle Facilities" (NC) (CI), and "Access to Quality Transit" (NC) (CS) (ID+C) credits</li> </ul>

5	<b>Safeguarding Assets</b>	<p>Paste in narrative explaining how climate-related and extreme weather risks are being managed, per P100 § 1.10.3, or paste in narrative from relevant A/E SOW deliverables. Otherwise, answers questions A through C:</p> <p>A. Address risks from observed and expected changes in climate, per the risk management elements of GSA's Regional Office/ Central Office (RO/CO) project review; the Capital Investment and Leasing Program's (CILP) section on "Enhancing Resilience And Reducing Vulnerability To Observed And Expected Changes In Climate"; and P100 § 1.10.3 "Resilience: Management of Climate-Related and Extreme Weather Risks".</p> <p>B. Assess the observed and expected impacts for the Intended service life of the asset's building enclosure and site development (i.e. drainage, access/egress). Does this investment support core mission-related functions that are affected by impacts from the observed and expected changes in climate (i.e. energy/water surety requirements)? Is this a culturally or historically significant asset? AND,</p> <p>C. Balance design options against budget, mission, and security. Address the risk exposure to the observed and expected changes in climate: Can the building adapt now and in the future? Identify outcome-focused, performance-based thresholds to monitor and manage the asset as conditions change to mitigate risks to mission while providing acceptable performance for the asset's service life.</p>
<b>II. Optimize ENERGY Performance</b>		
6	<b>Energy Star</b>	<p>Use Energy Star or FEMP-designated energy efficient products, e.g. appliances. (Per EISA 2007 §§ 323 &amp; 525)</p> <p>References:  - Energy Star Certified Products: <a href="https://www.energystar.gov/products">https://www.energystar.gov/products</a>  - LEED "Purchasing - Ongoing" (EB) credit</p>
7	<b>Energy Efficiency</b>	<p>For new construction: ensure that energy efficiency target is at least 30% better than the current ASHRAE 90.1 standard. (Per EPCA 2005 § 109)</p> <p>For new construction OR modernizations: set an energy goal that achieves a fossil-fuel reduction of at least 65%, compared to a CBECS 2003 baseline. (Per EISA 2007 § 433)</p> <p>For modernizations, ALSO ensure one of the following:  1) Energy use target is at least 20% below the fiscal year (FY) 2015 energy use baseline;  2) Energy use target is at least 30% below the FY 2003 energy use baseline;  3) The building has an ENERGY STAR® rating of 75 or higher; OR  4) If the building type is not in ENERGY STAR Portfolio Manager, the building is in the top quartile of energy performance for its building type, compared to adequate benchmarking data.</p> <p>References:  - Optimizing Energy Use: <a href="http://www.wbdg.org/design/minimize_consumption.php">http://www.wbdg.org/design/minimize_consumption.php</a>  - Fossil fuel reduction target guidance: <a href="http://architecture2030.org/2030_challenges/2030-challenge/">http://architecture2030.org/2030_challenges/2030-challenge/</a>  - P100 § 5.4 "Whole Building Energy Performance Requirements"  - LEED "Minimum Energy Performance" (NC) (CS) (CI) (EB) and "Optimize Energy Performance" (NC) (CS) (CI) (EB) credits</p>
8	<b>Renewable and Clean Energy</b>	<p>Evaluate and implement, where appropriate and life cycle cost-effective, renewable energy projects on-site, including solar thermal to meet 30% of building's anticipated hot water demand. (Per EISA 2007 § 523.) Document evaluation of onsite renewable energy sources (e.g. photovoltaic, geothermal, or wind energy), and upload into ePM. Evaluation tools include PV Watts and Solar Prospector.</p> <p>References:  - Solar Hot Water Cost and Efficiency Estimation Guide: <a href="http://energy.gov/energysaver/estimating-cost-and-energy-efficiency-solar-water-heater">http://energy.gov/energysaver/estimating-cost-and-energy-efficiency-solar-water-heater</a>  - Integrating Renewable Energy in Federal Construction: <a href="http://www.wbdg.org/ffc/doe/criteria/guide-integrating-renewable-energy-federal-construction">http://www.wbdg.org/ffc/doe/criteria/guide-integrating-renewable-energy-federal-construction</a>  - Renewable Energy Projects and Resources: <a href="http://energy.gov/eere/femp/federal-renewable-energy-projects-and-technologies">http://energy.gov/eere/femp/federal-renewable-energy-projects-and-technologies</a>  - LEED "Renewable Energy Production" (NC) (CS) (CI) (EB) and "Green Power and Carbon Offsets" (NC) (CS) (CI) (EB) credits</p>
9	<b>Metering - Energy and Water</b>	<p>A. Install building-level meters for electricity, natural gas, steam, and water. AND,</p> <p>B. Install advanced meters for electricity, as required by EPCA 2005 § 103 and P100 § 6.5.3.4. Install advanced meters for natural gas and steam to the maximum extent practicable, per EISA 2007 § 434.</p> <p>Reference: LEED "Advanced energy metering" (NC) (CS) (CI) (EB), "Building-level energy metering" (NC) (CS) (CI) (EB), and "Water Metering" (NC) (CS) (CI) (EB) credits</p>

10	<b>Benchmarking</b>	<p>If necessary due to substantial energy performance energy usage intensity variance from design target, and requested by GSA, A/E team representative(s) shall participate in a brief, cooperative central office-led discussion with O&amp;M and/or commissioning staff, to better-understand design assumptions, operating conditions, and potential causes.</p> <p>GSA's regional energy coordinators regularly monitor building energy performance against historic performance data and peer buildings. GSA's Light-Touch Measurement &amp; Verification process also provides quarterly transparency into actual energy usage.</p>
<b>III. Protect and Conserve WATER</b>		
11	<b>Indoor Water Use/ Cooling Towers</b>	<p>A. Build to ASHRAE standard 189.1-2014 sections 6.3.2, 6.4.2, and 6.4.3.</p> <p>B. Use water-efficient (e.g. EPA WaterSense) products. Specify which ePM-stored documentation shows that WaterSense products were specified. AND</p> <p>C. Do not use single-pass cooling with potable water. Optimize cooling tower operations -- e.g. by using condensate recovery, limiting discharge water, and/or using efficient drift eliminators.</p> <p>References:  - Water Conservation: <a href="http://www.wbdg.org/resources/water_conservation.php?r=fhpsb_new">http://www.wbdg.org/resources/water_conservation.php?r=fhpsb_new</a>  - WaterSense Products: <a href="https://www3.epa.gov/watersense/products/">https://www3.epa.gov/watersense/products/</a>  - LEED "Building-Level Water Metering" (NC) (CS) (EB), "Cooling Tower Water Use" (NC) (CS) (EB), and "Indoor Water Use Reduction" (CI) (EB) credits</p>
12	<b>Outdoor Water Use</b>	<p>A. Separately meter water for irrigation systems greater than 25,000 square feet;</p> <p>B. For irrigation systems, implement smart controllers that use evapotranspiration and weather data;</p> <p>C. Use water efficient landscapes, pursuant to GSA's mandatory SITES certification policy (P100 § 2.5.6); AND</p> <p>D. Limit potable water use for irrigating vegetated areas of the site to 50% below conventional practices' water demand, or less. Determine conventional practices' water demand using actual methods and standards from the SITES standard.</p> <p>References:  - SITES Rating System: <a href="http://www.sustainablesites.org/certification">http://www.sustainablesites.org/certification</a>  - Protect and Conserve Water: <a href="http://www.wbdg.org/design/conserve_water.php">http://www.wbdg.org/design/conserve_water.php</a>  - LEED "Outdoor Water Use Reduction" (NC) (CS) (CI) (EB) credit</p>
13	<b>Alternative Water</b>	<p>Consider alternative sources of water (such as capturing rainwater, graywater, and/or condensation from cooling coils) where cost-effective and permitted by local laws and regulations. Where feasible, design outdoor water features to avoid usage of make-up water from potable sources.</p>
14	<b>Outdoor Water - Manage Rain</b>	<p>Projects that disturb at least 5,000 SF of site surface area shall manage the 95th percentile rain event onsite through infiltration, reuse, and/or evapotranspiration, per EISA 2007 § 438 stormwater requirements. Strategies include permeable paving, vegetated roofs, rain gardens, or other low-impact development techniques. See also Climate Change and Outdoor Water Use GPCs.</p> <p>References:  - Stormwater Runoff Mitigation: <a href="http://www.wbdg.org/references/mou_sw.php">http://www.wbdg.org/references/mou_sw.php</a>  - EPA Technical Guidance: <a href="https://www.epa.gov/sites/production/files/2015-09/documents/elsa-438.pdf">https://www.epa.gov/sites/production/files/2015-09/documents/elsa-438.pdf</a>  - LEED "Rainwater Management" (NC) (CS) (CI) (EB) credit</p>
<b>IV. Enhance INDOOR ENVIRONMENTAL QUALITY</b>		
15	<b>Ventilation and Thermal Comfort</b>	<p>Meet current ASHRAE standards: 55 for thermal comfort, and either 62.1 or 62.2 for ventilation. Upload ASHRAE 62.1 Calculator or other supporting documentation into ePM.</p> <p>Consider efficiency strategies including natural ventilation, thermal recovery systems, separate HVAC systems for 24/7 spaces, and radiant space conditioning (e.g. chilled beams and/or radiant floors.)</p> <p>References:  - High-Performance HVAC: <a href="http://www.wbdg.org/resources/high-performance-hvac?r=retro_sustperf">http://www.wbdg.org/resources/high-performance-hvac?r=retro_sustperf</a>  - LEED "Thermal Comfort" (NC) (CS) (CI) (EB) credit</p>
16	<b>Daylighting and Lighting Controls</b>	<p>Maximize opportunities for daylighting in regularly occupied space, e.g. by considering building orientation and glazing options. Where feasible, incorporate automatic dimming daylight sensors, occupancy sensors, manual controls, task lighting, and/or shade/glare control. Consider the effects of solar heat gain.</p> <p>Provide occupant lighting controls in accordance with GSA P100 Lighting standards, e.g. § 6.2.1, "Lighting Quality".</p> <p>References:  - Daylighting: <a href="http://www.wbdg.org/references/mou_daylight.php">http://www.wbdg.org/references/mou_daylight.php</a>  - Lighting Controls: <a href="http://www.wbdg.org/resources/electrictlighting.php?r=retro_sustperf">http://www.wbdg.org/resources/electrictlighting.php?r=retro_sustperf</a>  - LEED "Interior Lighting" (NC) (CS) (CI) and "Daylight" (NC) (CS) (CI) credits</p>

17	<b>Indoor Air Quality</b>	<p>A. Develop and implement an Indoor Air Quality Plan. The IAQ Plan should address moisture control, use of low-emitting materials and products with low pollutant emissions, protocols to protect Indoor air quality during and after construction, and use of integrated pest management techniques. Describe where IAQ plan is saved in ePM.</p> <p>B. Ensure the design includes signage/ notifications to prohibit smoking within the building and within 25 feet of all building entrances, operable windows, and building ventilation intakes. Consider designating outdoor smoking areas that meet these criteria, and limiting smoking to only these designated areas.</p> <p><b>References:</b></p> <ul style="list-style-type: none"> <li>- GSA Smoking Policy (5800.1C ADM): <a href="http://www.gsa.gov/portal/directive/d0/content/520618">http://www.gsa.gov/portal/directive/d0/content/520618</a></li> <li>- Indoor Environmental Quality: <a href="http://www.wbdg.org/design-objectives/sustainable/enhance-indoor-environmental-quality">http://www.wbdg.org/design-objectives/sustainable/enhance-indoor-environmental-quality</a></li> <li>- Mold and Moisture: <a href="http://www.wbdg.org/resources/mold-and-moisture-dynamics?r=fhpsb_existin">http://www.wbdg.org/resources/mold-and-moisture-dynamics?r=fhpsb_existin</a></li> <li>- LEED "Low-Emitting Materials" (NC) (CS) (CI) (EB), "Construction Indoor Air Quality Management Plan" (NC) (CS) (CI), "Indoor Air Quality Assessment" (NC) (CS) (CI), and "Environmental Tobacco Smoke Control" (NC) (CS) (CI) (EB) credits</li> </ul>
18	<b>Occupant Health and Wellness</b>	<p>Promote opportunities for voluntary increased physical movement of building occupants such as making stairwells an option for circulation, active workstations, fitness centers, and bicycle commuter facilities. Support convenient access to potable water, daylight, plants, and exterior views. Ensure building design provides access to, or space for, healthy dining options.</p> <p><b>References:</b></p> <ul style="list-style-type: none"> <li>- FITWEL certification program identifies best practices; FITWEL certification can demonstrate compliance: <a href="http://www.gsa.gov/portal/content/118614">http://www.gsa.gov/portal/content/118614</a></li> <li>- LEED "Quality Views" credit (NC) (CI)</li> </ul>
<b>V. Reduce the Environmental Impact of MATERIALS</b>		
19	<b>Material Content and Performance</b>	<p>Specify products that meet GSA's Key Sustainable Product (KSP) requirements in these categories: nylon carpet, interior latex paint, gypsum board, acoustical ceiling tiles, and concrete, per P100 § 1.7.1. Specify which documentation in ePM shows compliance.</p> <p><b>References:</b></p> <ul style="list-style-type: none"> <li>- Key Sustainable Product list: <a href="https://sftool.gov/greenprocurement/green-products/1037/key-sustainable-products/9">https://sftool.gov/greenprocurement/green-products/1037/key-sustainable-products/9</a></li> <li>- Green Procurement Compilation (lists all Federal green purchasing requirements, including ones beyond this GPC's KSP requirement): <a href="https://sftool.gov/greenprocurement">https://sftool.gov/greenprocurement</a></li> <li>- LEED credits for "Building Life-Cycle Impact Reduction" (NC) (CS) (CI) (EB), "Building Product Disclosure and Optimization - Environmental Product Declarations" (NC) (CS) (CI) (EB), "Building Product Disclosure and Optimization - Sourcing of Raw Materials" (NC) (CS) (CI) (EB), "Building Product Disclosure and Optimization - Material Ingredients" (NC) (CS) (CI) (EB), "Fundamental Refrigerant Management" (NC) (CS) (CI) (EB), and "Enhanced Refrigerant Management" (NC) (CS) (CI) (EB)</li> </ul>
20	<b>Waste Diversion (MSW)</b>	<p>Ensure building design provides space appropriate for collection and storage of municipal solid waste materials for recycling -- and, where practical, composting. Consider odor and pest management aspects of satellite accumulation areas such as loading docks.</p> <p><b>References:</b></p> <ul style="list-style-type: none"> <li>- Recycling space locations: <a href="https://sftool.gov/explore/green-building/section/57/solid-waste/system-overview#break-pantry/waste-bins">https://sftool.gov/explore/green-building/section/57/solid-waste/system-overview#break-pantry/waste-bins</a></li> <li>- LEED "Storage and Collection of Recyclables" (NC) (CS) (CI) (ID+C) credit</li> </ul>
21	<b>Materials Management (C&amp;D)</b>	<p>Establish a construction &amp; demolition waste diversion goal. Seek to maximize materials salvaged, recycled, reused, or donated.</p> <p>Divert at least 50% of non-hazardous construction and demolition materials from landfills, where markets exist, and report total diverted/landfilled tonnage figures at substantial completion, via gBUILD's KPM&gt; Waste Management subtab. Upload waste and recycling manifests or reports into ePM.</p> <p><b>References:</b></p> <ul style="list-style-type: none"> <li>- EPA Volume-to-Weight Conversion Factors: <a href="https://www.epa.gov/smm/volume-weight-conversion-factors-solid-waste">https://www.epa.gov/smm/volume-weight-conversion-factors-solid-waste</a></li> <li>- Construction Waste: <a href="http://www.wbdg.org/references/mou_cw.php">http://www.wbdg.org/references/mou_cw.php</a></li> <li>- LEED "Construction and Demolition Waste Management Planning" (NC) (CS) (EB) and "Construction and Demolition Waste Management" (NC) (CS) (CI) (EB) credits</li> </ul>

GSA's new construction and major modernization projects shall follow this checklist to the maximum feasible extent during project design and construction, per GSA's P100 Facilities Standards for the Public Buildings Service § 1.7.3. Executive Order 13834 § 2(e) requires new construction and major renovations to conform with "sustainable design principles" such as the Council on Environmental Quality's Guiding Principles for Sustainable Federal Buildings. GSA's gBUILD system enables project delivery teams to report how these Criteria are being implemented. Reference: [U.S. Department of Energy's Guiding Principles website](#)

Station 3  
Plan

