
MITCHELL ASSOCIATES ARCHITECTS
• EMERGENCY SERVICES FACILITIES •

Fire Headquarters Location Study
Land/Site and Firematic Parameter Analysis
Borough of South River

May 30, 2012

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The following pages contain the results of the Fire Headquarters Location Study Land/Site and Firematic Parameter Analysis Borough of South River. The study was authorized by resolution of the Mayor and Borough Board on April 23, 2012, as follows:

WHEREAS, Mitchell Associates Architects has been authorized to provide an analysis and comparison of the eight potential sites identified in the Fire House Site Survey and any additional sites shown on the Tax Map of the Borough; and

WHEREAS, the scope of the analysis will include the following:

Group #1 – Physical Parameters

1. Size and Shape
2. Road Frontage and Access
3. Topography Cut/Fill
4. Accessibility
5. Utilities
6. Drainage
7. Detrimental Natural Features
8. Demolition Hazards
9. Underground Waste or Hazardous Materials

Group #2 – Firematic & Political Parameters

1. Traffic Separation (apparatus from others)
2. Parking (Responder & Public)
3. Ease of Apparatus Exiting/Returning
4. Drive-Through Capability
5. Build-ability
6. Land Available Around Building
7. Acquisition Cost
8. Potential Negative Reaction

The results of the study were presented to the Mayor and Board at the public Board meeting on May 29, 2012.

The information is divided up as follows:

1. Definitions of evaluated land and site parameters.
2. Definitions of evaluated firematic parameters
3. Grading matrix of the land and site parameters
4. Grading matrix of the firematic parameters
5. Slides from the PowerPoint presentation from May 29, 2012

The slides of the PowerPoint presentation have been modified from May 29 presentation to eliminate those slides that are redundant of the information in items 1 through 4 above.



Robert Mitchell, AIA

MITCHELL ASSOCIATES ARCHITECTS

Fire Station Site Location Analysis

Land/Site Parameters (Group 1)

Definitions

1. **Size and Shape:** The program addresses apparatus bays, firematic support, training, living quarters, offices, bunking, recreational use, utilities, parking and future growth needs. Mitchell Associates assumes either a one or two-story building will be feasible. The project program indicates the following requirements:

- Approximate Building size –25,000 sq. ft., with a minimum footprint of 12,000 sq ft
- Minimum recommended site size for on-site training, future growth and flexibility – To be determined
- Minimum recommended site for programmed needs – 1+ acres (Rectangular)

A potential site must have a viable shape. A large site may be of such irregular shape that the amount of usable area is greatly reduced. A smaller site with a useful shape in the dimensions that layout well for a particular fire station may be more desirable.

2. **Topography Cut/Fill:** This category assesses the property contours. Not all sites are level or at the same elevation as the road. Property that is significantly lower or higher than the road may create difficulty for ingress and egress, or have visibility constraints. These sites may require earth moving to render them acceptable for construction. Some sites can be adequately graded using the material that exists on the site. Sites that require extensive quantities of earth to be imported or exported, or that have severe grades that would be encountered by the apparatus receive a low score, or may be rejected as unbuildable.
3. **Build-ability:** This category is a subjective evaluation by Mitchell Associates of the potential to build a firematically correct fire station (that meets the program) on the site. In the case of building on an existing site, the ability to maintain operation of the existing facility during construction is considered. We use our knowledge-based construction expertise and experience with over 100 fire station projects to envision how well the site will lend itself to the programmed fire station.
4. **Utilities:** This category looks at the availability of adequate electrical and water service, sanitary sewer, natural gas service, telephone and cable at the site. For this report, the site is not specifically evaluated for the capacity of the utilities at the site. However, it will be downgraded if a particular utility is found to be inadequate. The site may be may upgrade if there are utilities nearby that can be cost effectively extended.
5. **Drainage:** This category evaluates potential problems associated with storm water drainage. This includes topography and runoff, rate of flow, soil permeability (if it can be determined during the period of this evaluation), natural features that may be an impediment to flow and the ability to

remove the water from the site. The existence of storm sewers or surface drainage facilities (ditch, swale, etc.) is reviewed. This category takes into account that the proposed firematic usage may result in large quantities of impermeable surfaces and how this will impact the site's drainage characteristics.

6. **Detrimental Natural Features:** Natural features such as flood plains, wet areas, standing water, streams, brooks, rock or poor soil could create problems in project layout and eventual construction. Any stream or brook would require a setback to protect and preserve the waterway. These observations are made without the benefit of a geotechnical report, and address potential problems in terms of construction cost & scheduling. If a site is large enough to accommodate all the firematic needs and future flexibility with no interference from natural features, it is treated as if the feature does not exist.
7. **Demolition:** This category addresses sites that require demolition of buildings or site improvements. In addition to the cost of demolition and disposal of debris, there may be asbestos abatement or potential hazardous waste remediation related to any building or site improvements to be demolished (no analysis of the existence of asbestos or hazardous materials has been performed as part of this study). Any site requiring demolition receives a reduced score. If we feel that there is a possible need for abatement or remediation, there will be a further reduction. Site demolition may include concrete pads, paving, site drainage structures or similar features. This category does not address clearing and grubbing of the site to prepare for construction, which we consider normal portions of site development.
8. **Underground Waste or Hazardous Materials:** If a site has known underground waste, serious hazardous materials or toxins, it may be stricken from the list of potential sites. This does not include something like an underground tank unless there has been detrimental leakage. We generally will not recommend such a site. These sites will receive a zero rating and automatically be eliminated from consideration. Mitigation such as brown field reclamation, outside funding, EPA help, etc. for a specific site will be reviewed on a case-by-case basis. We will factor in the possibility that a site is large enough to permit all programmed needs and avoid potential hazards on other portions of the site.
9. **Acquisition Cost:** This category reflects the Department's opinion of the probable cost of acquisition for parcels that are not presently owned by the Municipality. The higher the comparative cost of each individual parcel to its counterparts, the lower its relative scores. Such costs are assumed to negatively affect the overall budget.
10. **Potential Negative Reaction:** This category reflects the Municipality's and the Fire Department's opinion of the probable level of objections to be raised by neighbors, advocacy groups or other involved parties. For example, if a site eliminates tax producing property, or properties valued by the community such as a park, this qualifies as potential negative reaction. If the severity of the negative reaction can be accurately gauged to be overwhelming, or unable to overcome the objections, the site may receive a zero rating and therefore be eliminated from consideration.

Fire Station Site Location Analysis

Firematic Parameters (Group 2)

Definitions

- 1. Road Frontage and Shape:** This category evaluates the impact of the available frontage and property shape on the ability of fire apparatus and cars to arrive and leave the site in a safe, efficient manner. This requires adequate road frontage to separate the pathways of the exiting apparatus from the entering or exiting vehicles of both responders and the public. The shape of the site may allow access on more than one road to facilitate egress options. It is essential to have the longest possible line of sight for both the exiting apparatus and the oncoming public. Additionally, people approaching or passing the site should have a clear view of the activities on the site.
- 2. Apparatus Exiting and Returning:** This category evaluates the ability of apparatus to safely and easily maneuver the pathway from apparatus floor to the street. Apparatus needs adequate room to completely exit the bays in a straight line before turning. The pathways on the site need to accommodate the large turning radii of the apparatus. Once at the curb, there should be adequate turning radius to safely exit the site without being in the path of oncoming vehicles. The site should allow returning apparatus entering the bay with minimum blocking of traffic.
- 3. Traffic Control:** This category evaluates the ability to safely limit congestion and accident risk on the street in front of the station at the time that apparatus is exiting and/or entering the site.
- 4. On-Site Circulation:** This category takes into account vehicular movement on the site. Pedestrians, fire apparatus, responder vehicles, and public vehicles should not cross paths more than necessary during an emergency response. The ability to place the facility on the site for maximum safety and minimum response time is a function of the site size and shape, road frontage, traffic and pedestrian movement patterns.
- 5. Parking:** This category evaluates the ability of the site to provide adequate and separate parking for firefighters and public vehicles. Responder parking should be accessible to the apparatus bays or bunker gear lockers. Public parking should be in the vicinity of the public portion of the fire station and facilitate ADA access requirements.
- 6. Drive-Through Capability:** There are two methods for returning fire apparatus to park in the fire station. One method is to back the apparatus into the bays. An alternative method is to have bays with doors on opposite faces of the building permitting the apparatus to drive through the bays in order to park. With drive-through bays, the apparatus will not have to maneuver on frontage roads to position themselves to back in, reducing risk of collision with a passer-by. Drive-through bays require additional land for driveways and aprons. The capacity for a site to accommodate this feature is regarded as an asset only if it is important to the Fire Department. This requirement is weighted based on the department's needs and the project program.

7. **Accessibility:** Accessibility of the site takes into account the ability of apparatus to leave the site quickly regardless of traffic patterns, congestion, or natural disasters that may close railroad crossings or bridges. For example, a corner site, with the ability to exit onto two different roads may receive a higher score than single access site. A site on a dead end, or vulnerable to becoming isolated due to natural features, railroad tracks at grade or low bridges may receive a low score.
8. **Land Available for Expansion:** This category evaluates whether there is space on the site for potential expansion over the proposed life of the building. This may be a subjective judgment based on assumptions of expected growth and changing demographics of the community, and changes in the service delivery model.
9. **Land Available for Outdoor Activities:** This category evaluates whether there is sufficient space on the site for training, green space, recreation, memorials and public use.
10. **Location Impact on Response Time:** This Category evaluates the impact of the site on response time. It reflects both the time it takes to get from the station to an emergency, and the time it takes for responding volunteers to get to the station. This is a subjective analysis based on information and opinions provided by the Committee and Fire Department. Mitchell Associates, the Department and Committee discuss traffic patterns, the locations of calls and make subjective judgments regarding the convenience and time required to get from the proposed parcels to potential events. This is a subjective analysis and may or may not be the result of in-depth analysis such as response time mapping.



SOUTH RIVER FIRE HEADQUARTERS

**ROBERT MITCHELL
MITCHELL ASSOCIATES ARCHITECTS
PUBLIC SAFETY DESIGN**



PROPER SPACES FOR A FIRE STATION

APPARATUS BAY



RADIO ROOM



RADIO ROOM TO BAY



Architect of Record: Mitchell Ross Associates Architects, P.C.

Mitchell Associates Architects

DECON



LAUNDRY



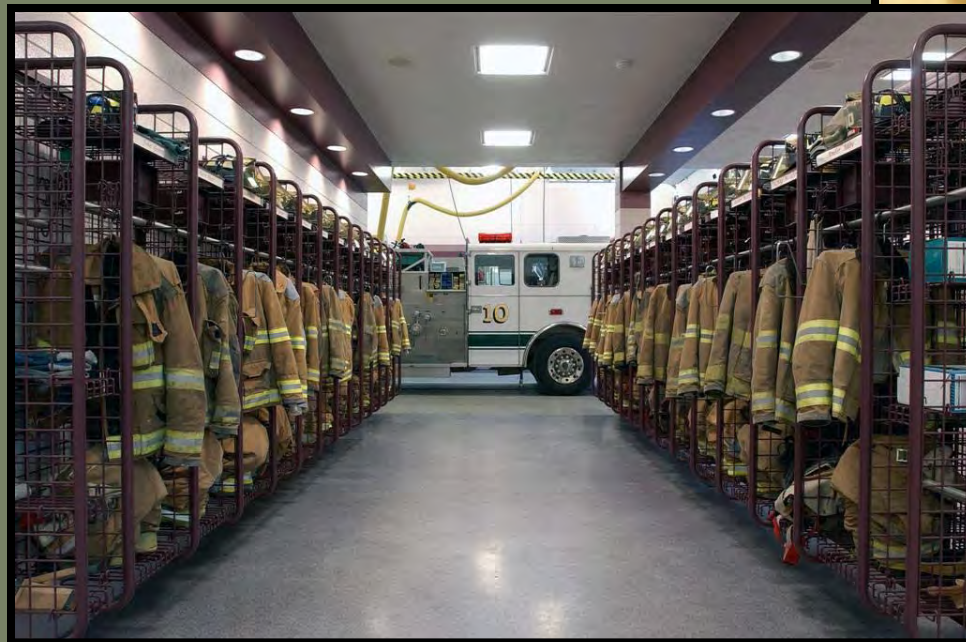
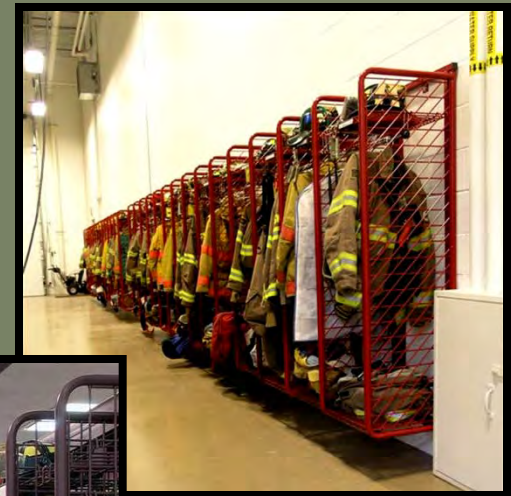
SCBA



MECHANIC



BUNKER GEAR



TRAINING



TRAINING



OFFICES — WORK SPACE



Architect of Record: Mitchell Ross Associates Architects, P.C.

Mitchell Associates Architects

CONFERENCE



MAIL



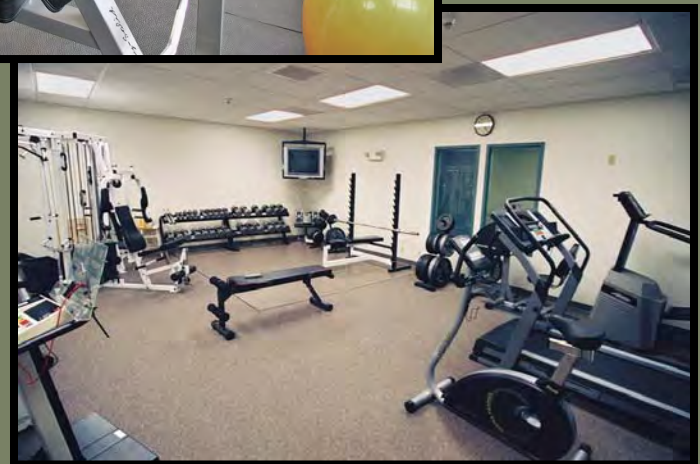
DAY ROOM



BATHS & LOCKERS



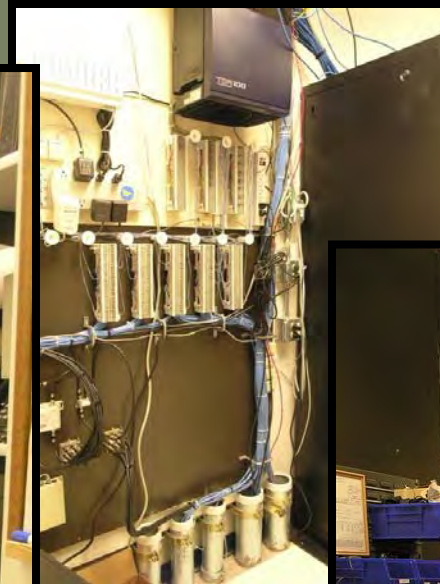
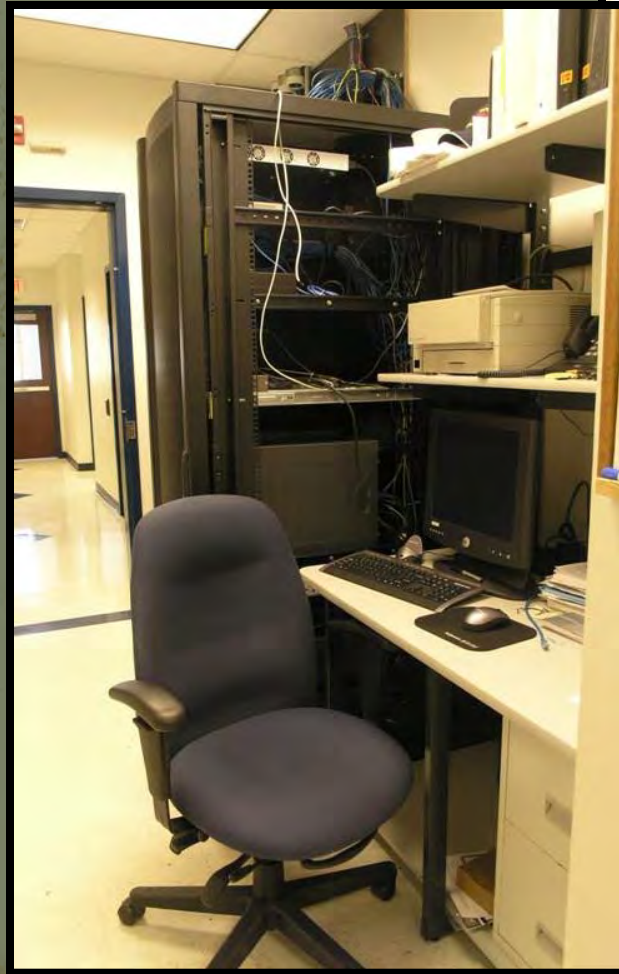
EXERCISE



Architect of Record: Mitchell Ross Associates Architects, P.C.

Mitchell Associates Architects

FILE SERVER/COMM.



REQUIRED BUILDING SIZE

16 Pods x 64 s.f. = 1024 s.f.
 320 s.f.
1344 s.f.

• Closet Areas for the following 800 s.f.

1. Ladies Auxiliary	10' x 10'	100 s.f.
2. Exempts	10' x 10'	100 s.f.
3. Public Education	10' x 10'	100 s.f.
4. Incorporation	10' x 10'	100 s.f.
5. Training / Safety	10' x 10'	100 s.f.
		<u>800 s.f.</u>

• Circulation Square Footage Required for the Administrative Area including:
2230 s.f.

Primary circulation, enclosing walls, interior walls, files, vents, stacks, pipe shafts, vertical ducts and other space consuming items through the floor. This represents 5% of the USEABLE FLOOR SPACE
916 s.f.

24,272 s.f.

GROSS SQUARE FOOTAGE, OUT TO OUT OF WALLS

PAGE 4 BOTTOM

4

REQUIRED BUILDING SIZE

South River Fire Station Space/Usage Analysis

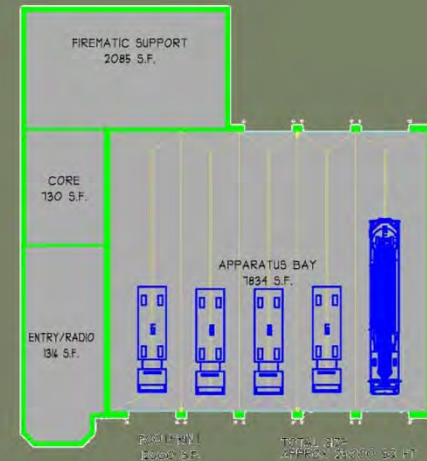
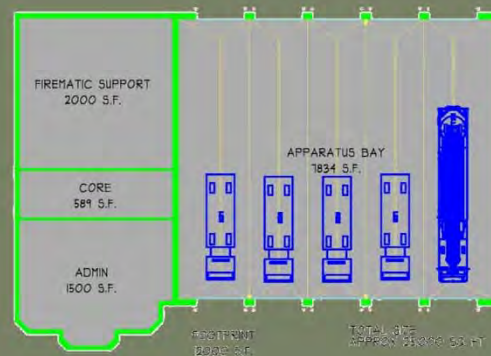
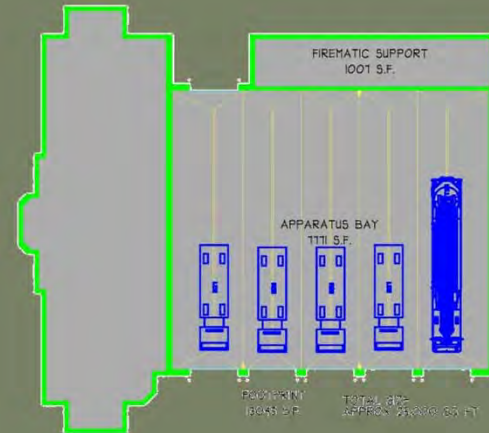
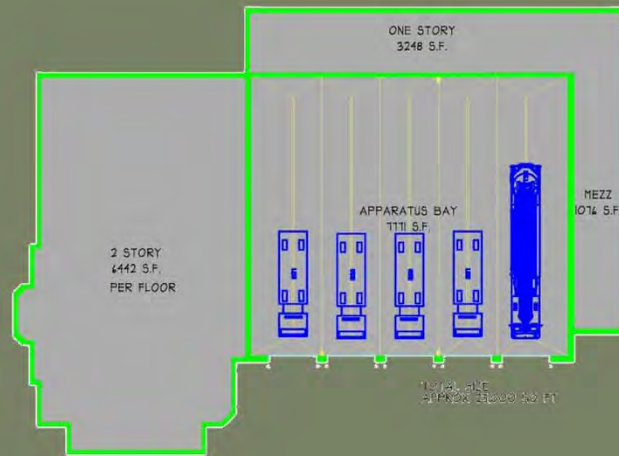
Program Item	Room Name	1st Floor Area	2nd Floor Area	Lower Level	Area All Floors
Apparatus Bay					
1	Apparatus Bay (5 bays - 80' deep)	7,253			7,253
	Subtotal - Apparatus Bay	7,253			7,253
Firematic Support					
1.1	Mezzanine		1,400		1,400
2	Decon	221			221
3	SCBA	110		110	220
4	Equipment Storage	500			500
5	Utility/Gear Washing	200			200
6	Donning & Doffing (60 sets of gear)	NA			0
7	Bathroom	75			75
8	Radio/Day/Night Watch	375			375
	Subtotal - Firematic Support	1,481		110	1,591
Administration					
9	Entry Area w/ Display	300	200	0	500
10	(3) Officers Offices to Seat 3 each	NA	540	0	540
11	(5) Committee Offices to Seat 1, Plus Closet	NA	550	0	550
12	Department Records/IT	200	0	0	200
13	Training Meeting for 70	NA	1,050	0	1,050
14	Fire Prevention to Seat 6	500	0	0	500
15	Conference for 12	360	0	0	360
16	Bathrooms	75	284	264	623
	Subtotal - Administration	1,435	2,624	264	4,323
Firefighters					
17	Ready Room	500	NA	0	500
18	Firematic Locker Room	0	0	500	500
19	Kitchen & Dining	500	NA	0	500
20	Exercise	0	0	800	800
21	Bunk Room for 12	0	0	1,200	1,200
	Subtotal - Firefighters	1,000	0	2,500	3,500
Miscellaneous Space					
22	Entry Vestibules	64	0	0	64
23	Housekeeping Storage	50	50	20	120
24	Janitors Closet	75	50	50	175
25	Generator	0	0	240	240
26	Mechanical/Electrical	0	0	340	340
	Subtotal - Miscellaneous Spaces	189	100	650	939
Vertical Circulation					
27	(2) Stairwells (area per floor)	348	308	154	810
28	Elevator (area per floor)	58	58	58	174
29	Elevator Equipment Room	0	0	82	82
30	Elevator Foyer	80	80	80	240
	Subtotal - Vertical Circulation	486	446	374	1,306
Area Subtotals					
	Bay	7,253	0	0	7,253
	Firematic Support	1,481	0	110	1,591
	Mezzanine		1,400		1,400
	Office & Living	3,110	3,170	3,788	10,068
Walls & Circulation					
	Apparatus Bay Walls @ 10%	725			725
	Firematic Support Walls @ 14%	207	0	0	207
	Firematic Support Circulation @ 12%	178	0	0	178
	Office Area Walls @ 20%	622	634	758	2,014
	Office Area Circulation @ 12%	373	380	455	1,208
	Subtotal - Walls & Circulation	2,106	1,014	1,212	4,332
	Total >>>	13,950	4,184	5,110	24,644
	Total Corridor % >>>	3.9%	9.1%	8.9%	5.6%

REQUIRED BUILDING SIZE

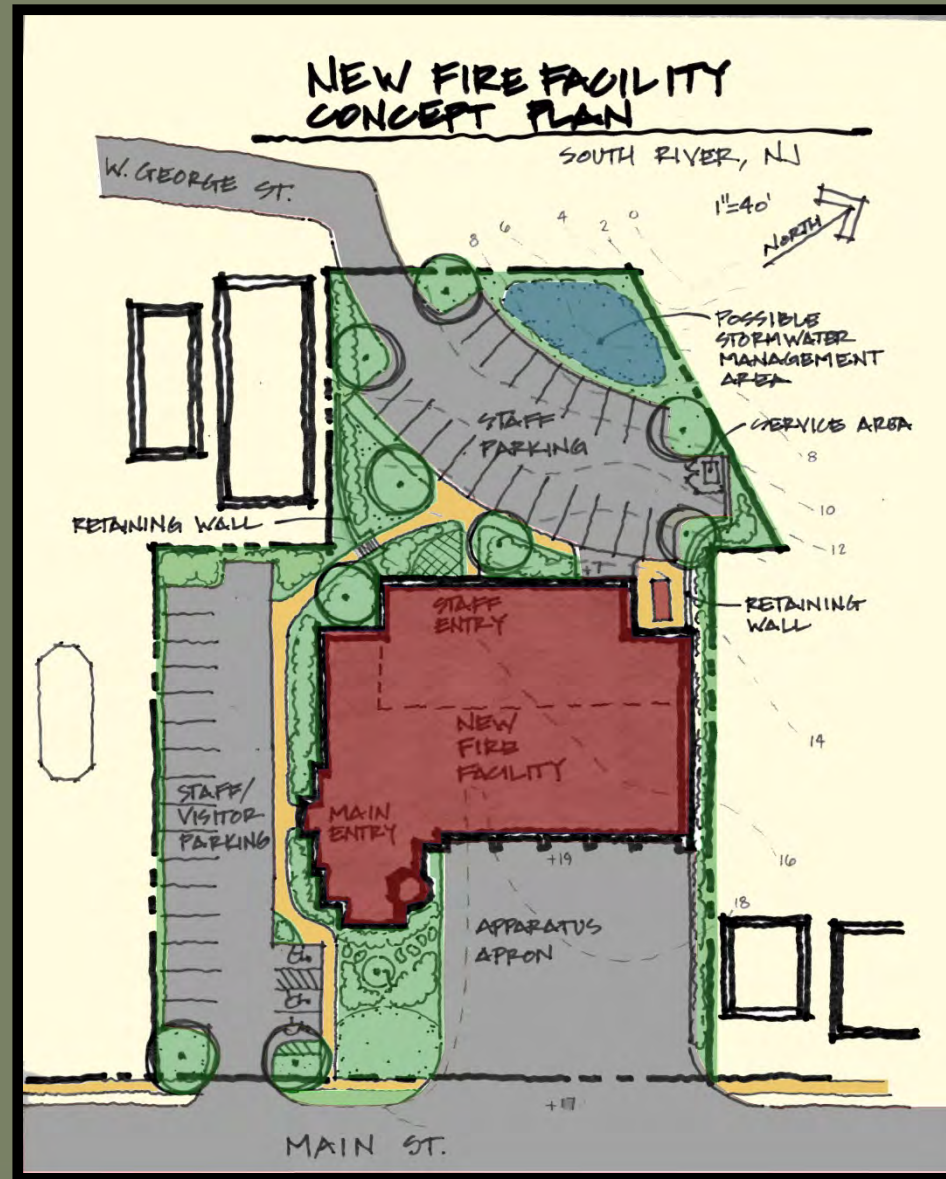
	Area Subtotals				
	Bay	7,253	0	0	7,253
	Firematic Support	1,481	0	110	1,591
	Mezzanine		1,400		1,400
	Office & Living	3,110	3,170	3,788	10,068
	Walls & Circulation				
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	Office Area Circulation @ 12%	373	380	455	1,208
	Subtotal - Walls & Circulation	2,106	1,014	1,212	4,332
	Total >>	13,950	4,184	5,110	24,644

WITHIN 1.5% OF MASSAGNA NUMBER

REQUIRED BUILDING SIZE



SITE PLAN FEATURES





INITIAL CANDIDATE SITES

1. CURRENT HEADQUARTERS
2. ELKS CLUB
3. LINCOLN SCHOOL
4. WHITEHEAD VACANT LOT
5. SEVEN ACRE PARK
6. FITZPATRICK PARK
7. LITTLE LEAGUE FIELD
8. COAT FACTORY
9. KNIGHTS OF COLUMBUS





ADDITIONAL CANDIDATE SITES



1. PACERS FIELD/VARGA PARK
2. WILLIAMS & NORTH END DR.
3. WITTYS
4. PORTUGUESE CLUB
5. SILK MILL ON HERMAN STREET
6. ECKO BUILDING ON WATER ST.
7. OBERT
8. YESHIVA
9. MAIN ST. WEST OF THOMAS
10. JACKSON BETW. GORDON &
RADCLIFF



ADDITIONAL CANDIDATE SITES

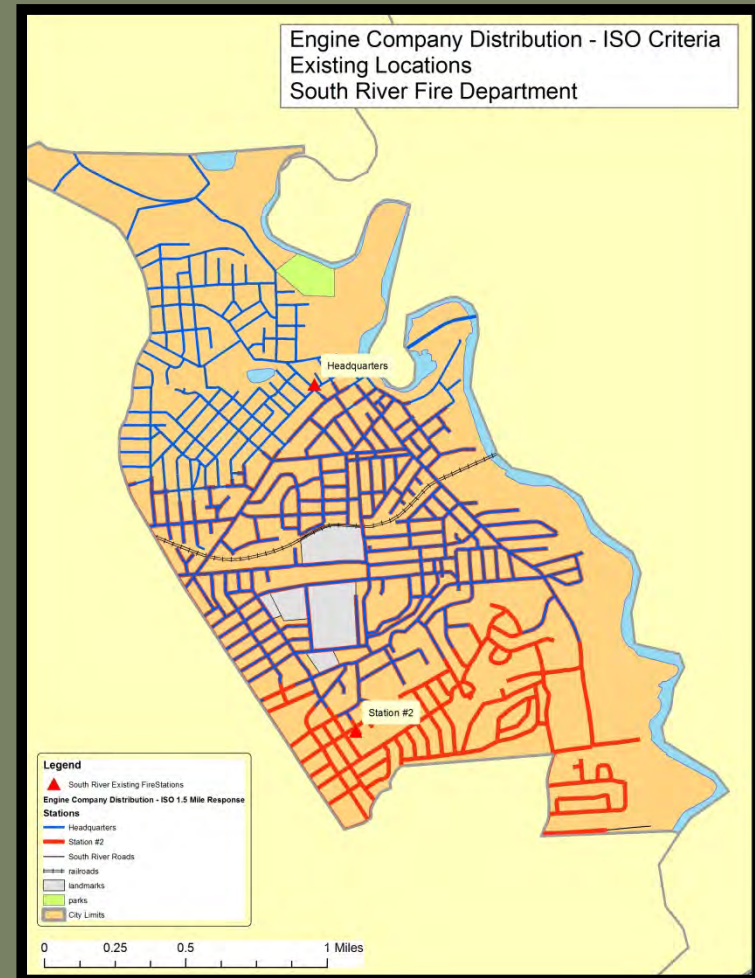


FLOOD PLAIN MAP



1 - CURRENT HEADQUARTERS

- GOOD LOCATION FOR SERVICE COVERAGE



1 - CURRENT HEADQUARTERS

- SITE SIZE



1 - CURRENT HEADQUARTERS

- GOOD ENOUGH?



1 - CURRENT HEADQUARTERS

- GOOD ENOUGH?



1 - CURRENT HEADQUARTERS

- GOOD ENOUGH?



LET'S COMPARE



ENGINE IS 23 FT LONG
LADDER TRUCK IS 48 FT LONG



1 - CURRENT HEADQUARTERS

- GOOD ENOUGH?



1 - CURRENT HEADQUARTERS

- GOOD ENOUGH?



1 - CURRENT HEADQUARTERS

- GOOD ENOUGH?



1 - CURRENT HEADQUARTERS

- GOOD ENOUGH?



1 - CURRENT HEADQUARTERS

- GOOD ENOUGH?



1 - CURRENT HEADQUARTERS

- GOOD ENOUGH?



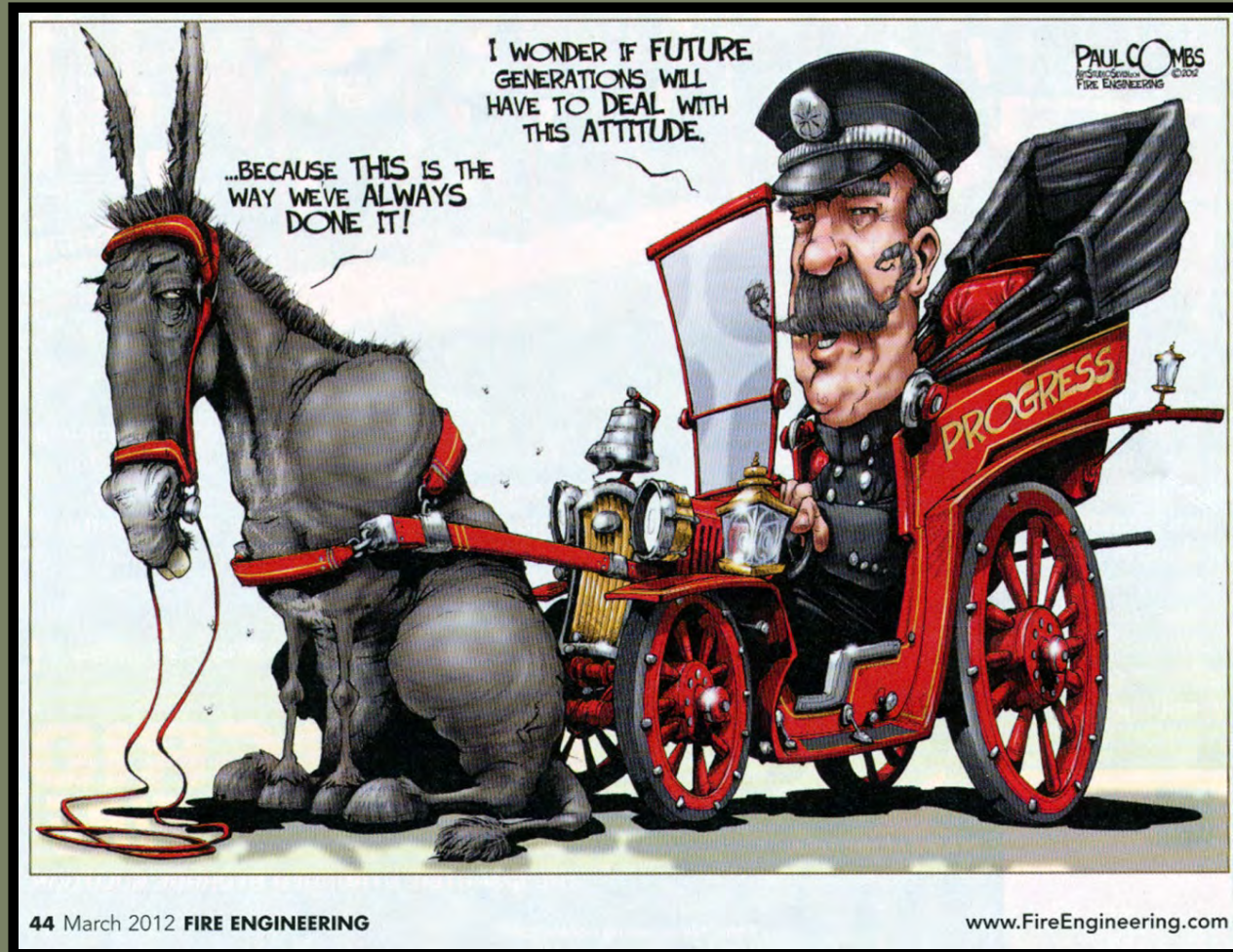
1 - CURRENT HEADQUARTERS

- GOOD ENOUGH?



1 - CURRENT HEADQUARTERS

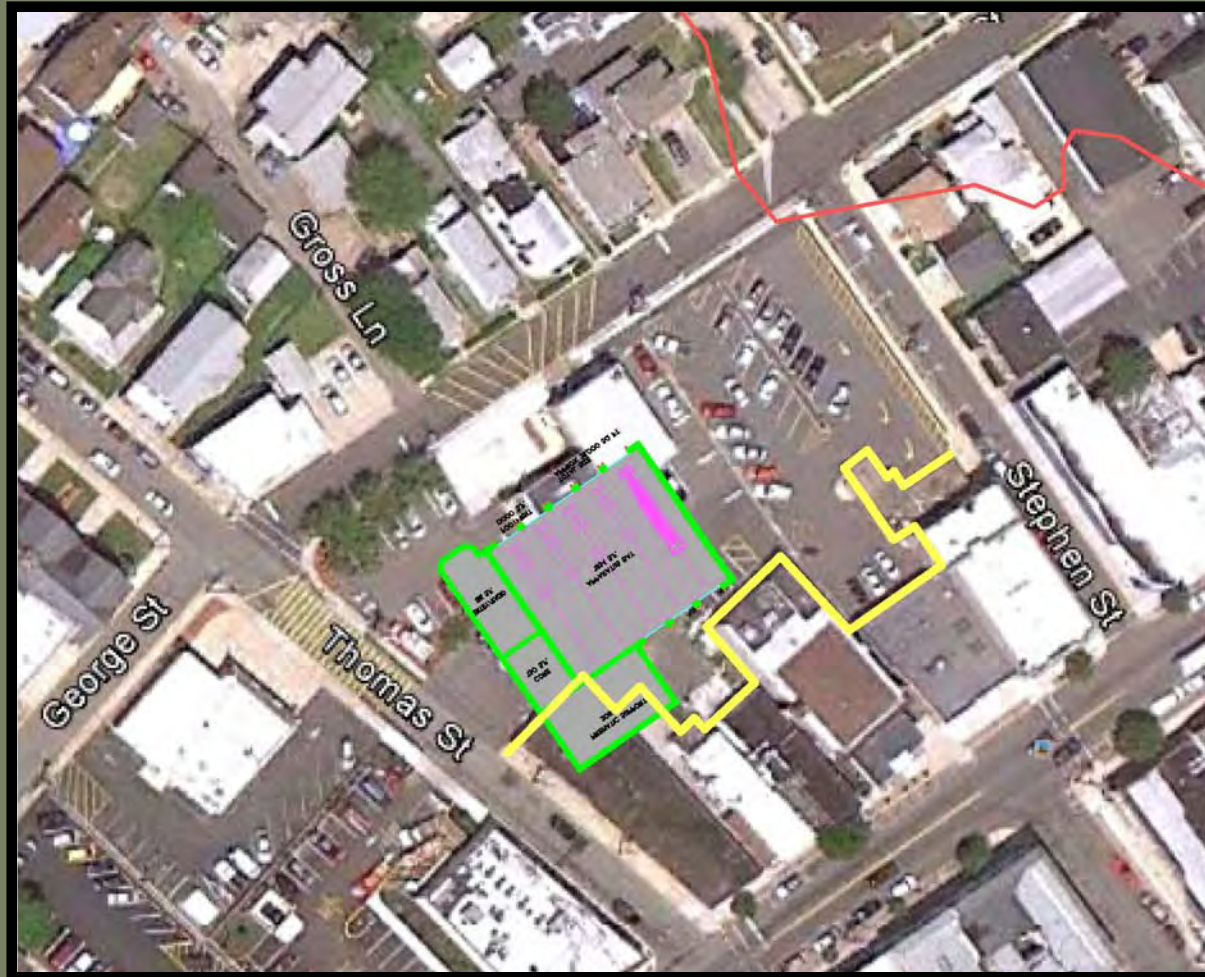
- GOOD ENOUGH?





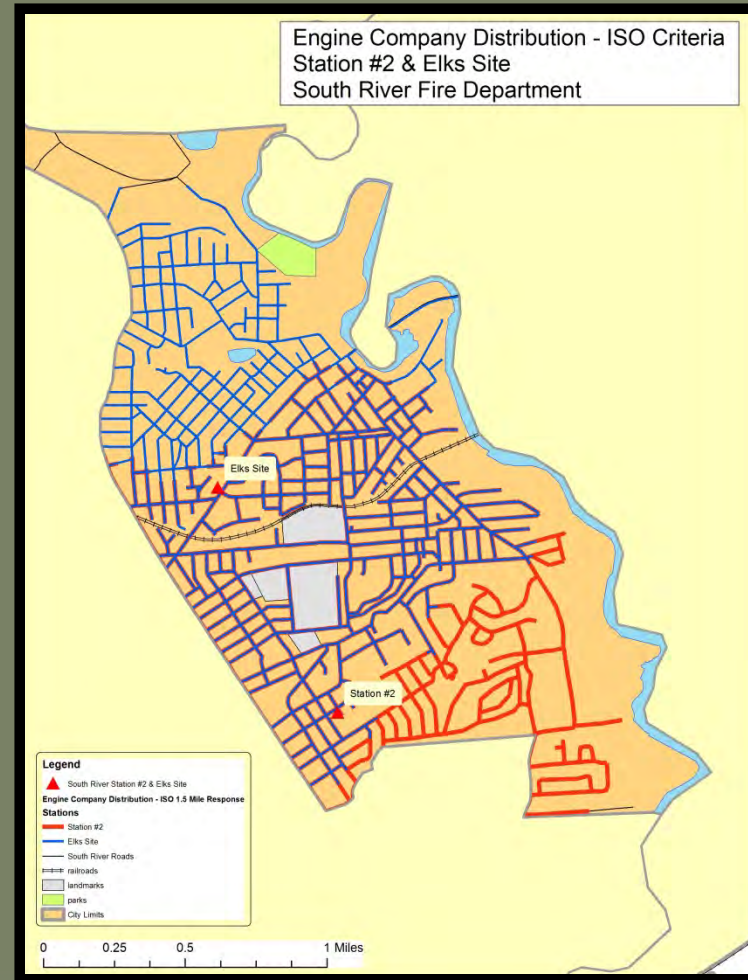
1 - CURRENT HEADQUARTERS

- SITE SIZE



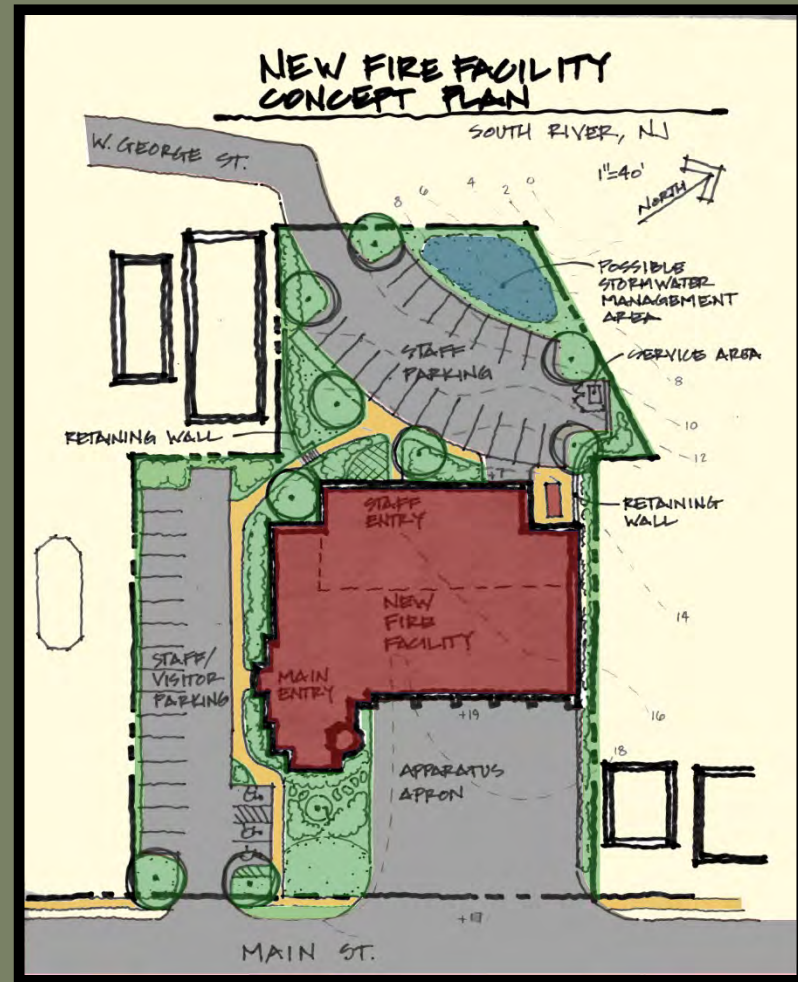
2 - ELKS CLUB

- GOOD LOCATION FOR SERVICE COVERAGE



2 - ELKS CLUB

- GOOD PARCEL FOR BUILDING & SITE PLAN



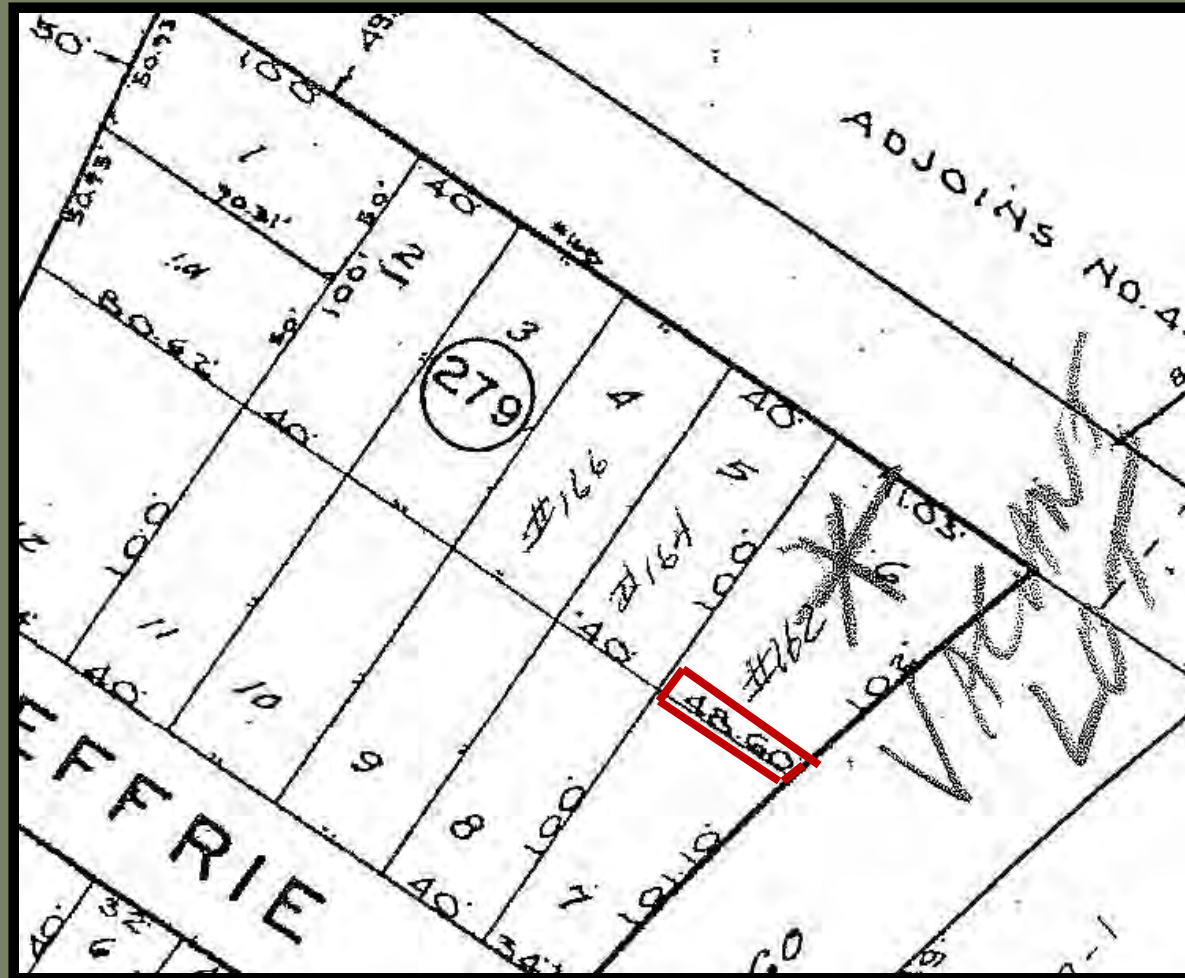
3 - LINCOLN SCHOOL

- LOCATED IN FLOOD PLAIN

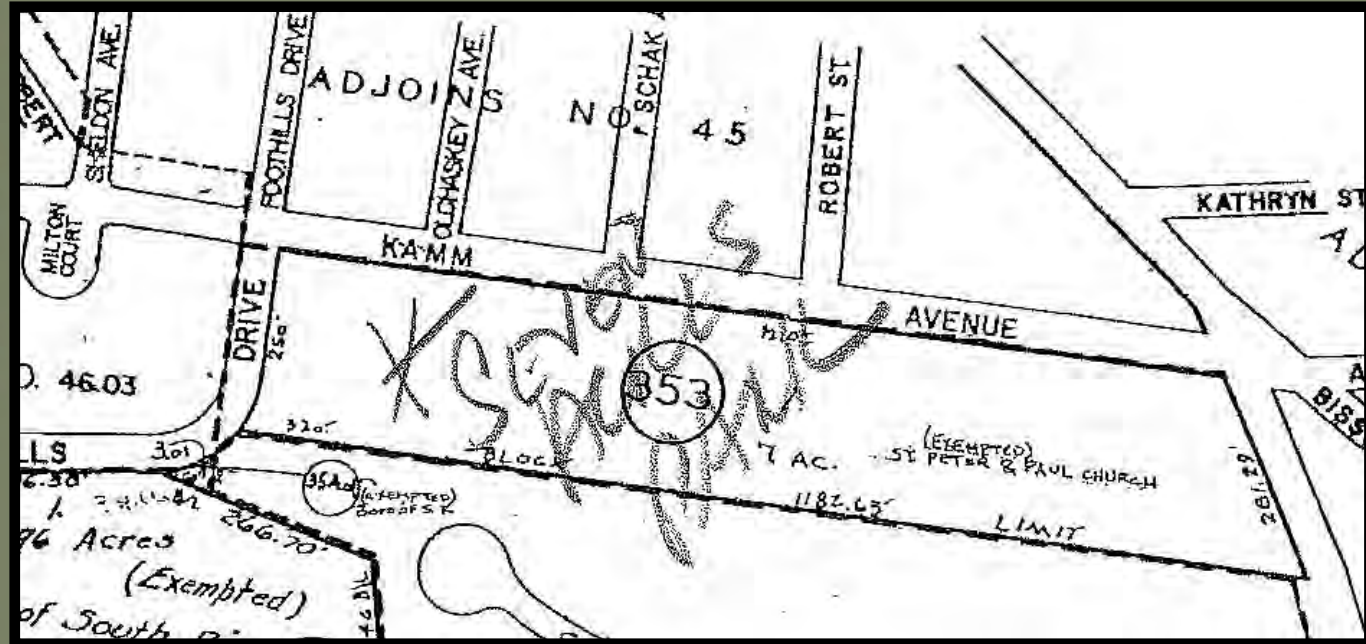


4 - WHITEHEAD VACANT LOT

- TOO SMALL



5 - SEVEN ACRE PARK

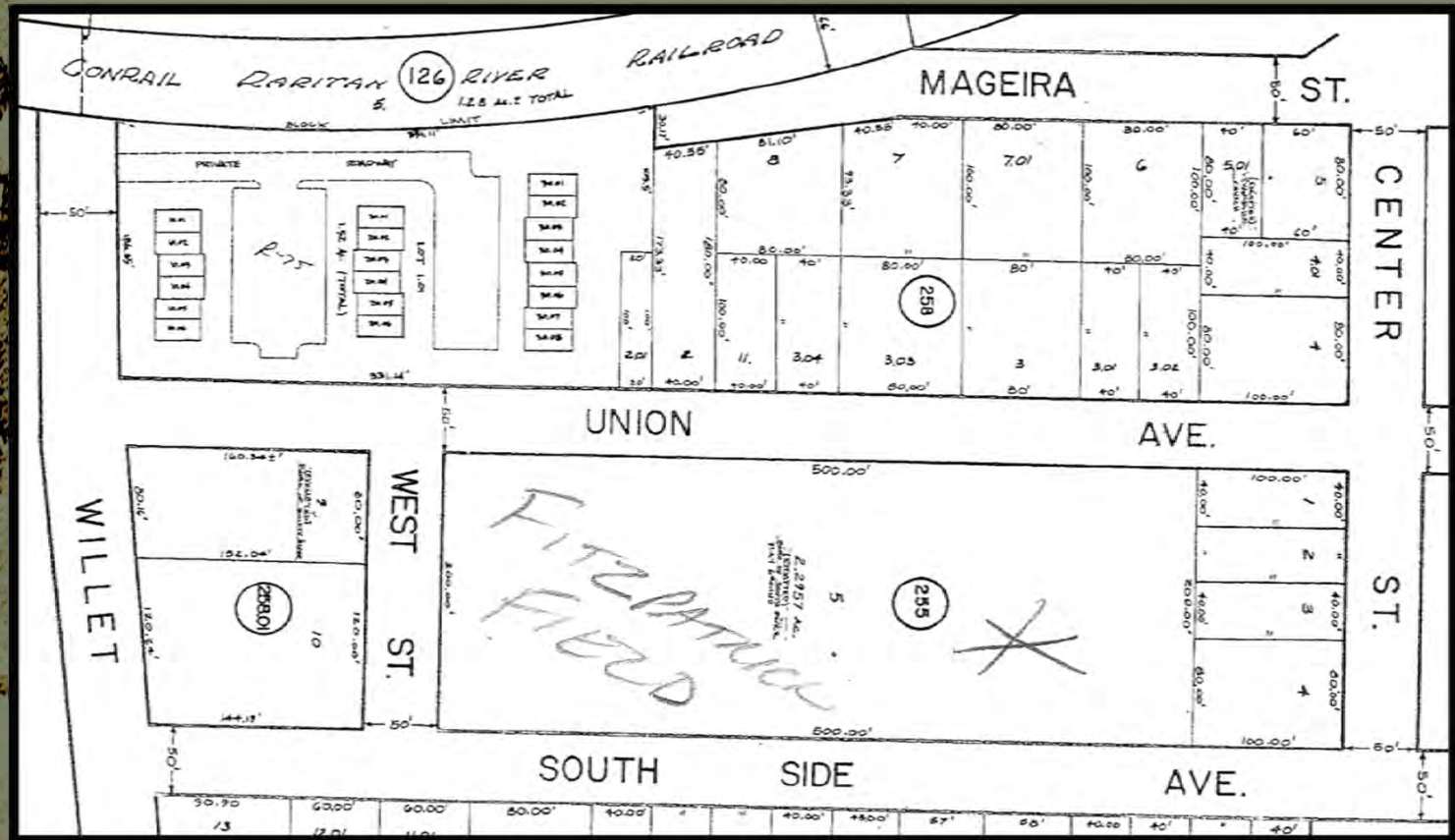


5 - SEVEN ACRE PARK

- NICE PIECE OF LAND
- ON WRONG SIDE OF TRACKS
- TOO FAR SOUTH FOR BALANCED COVERAGE
- PROBABLE NEIGHBOR OBJECTION



6 - FITZPATRICK PARK

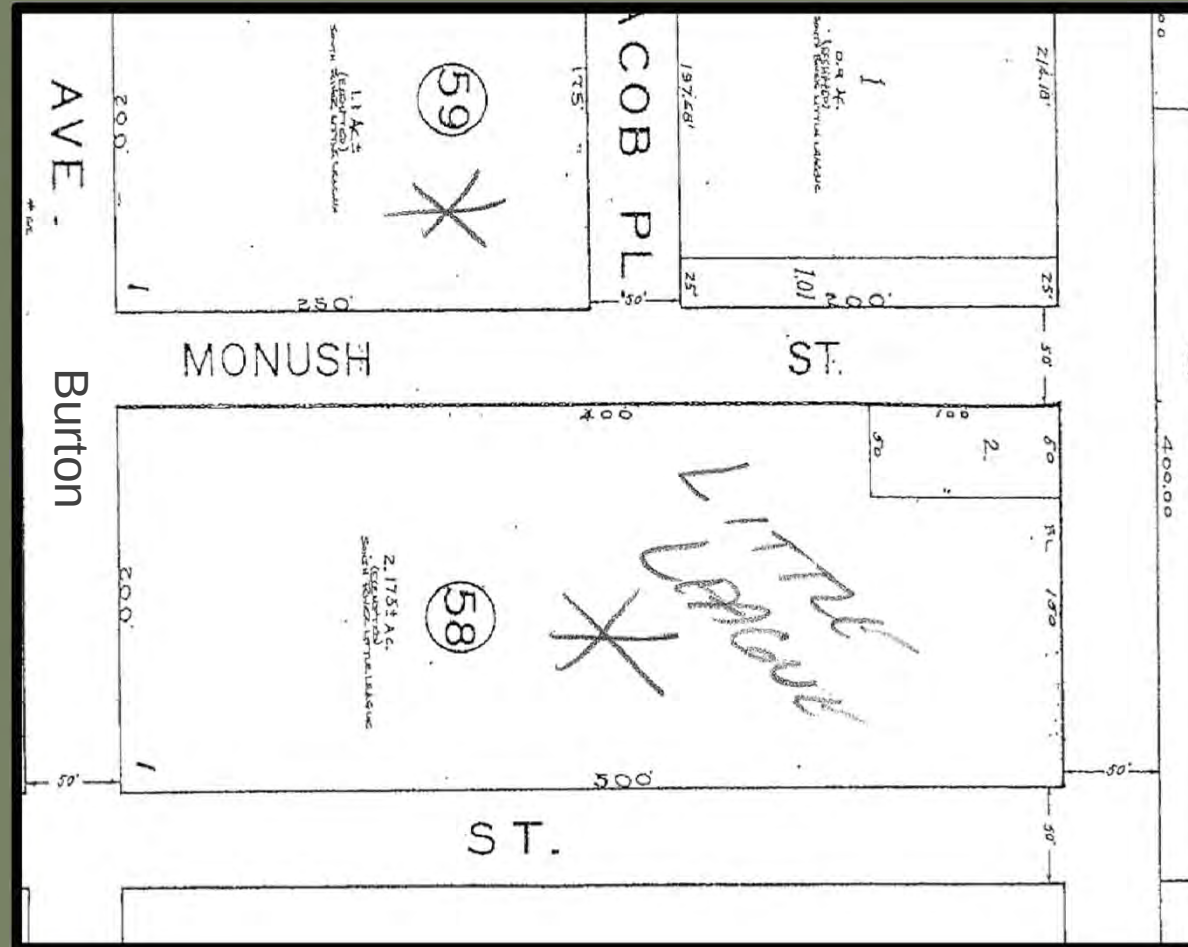


6 - FITZPATRICK PARK

- NICE PIECE OF LAND
- WRONG SIDE OF TRACKS
- TOO FAR SOUTH FOR BALANCED COVERAGE
- CONCERN OF INJURY TO CHILDREN
- PROBABLE NEIGHBOR OBJECTION



7 - LITTLE LEAGUE FIELD



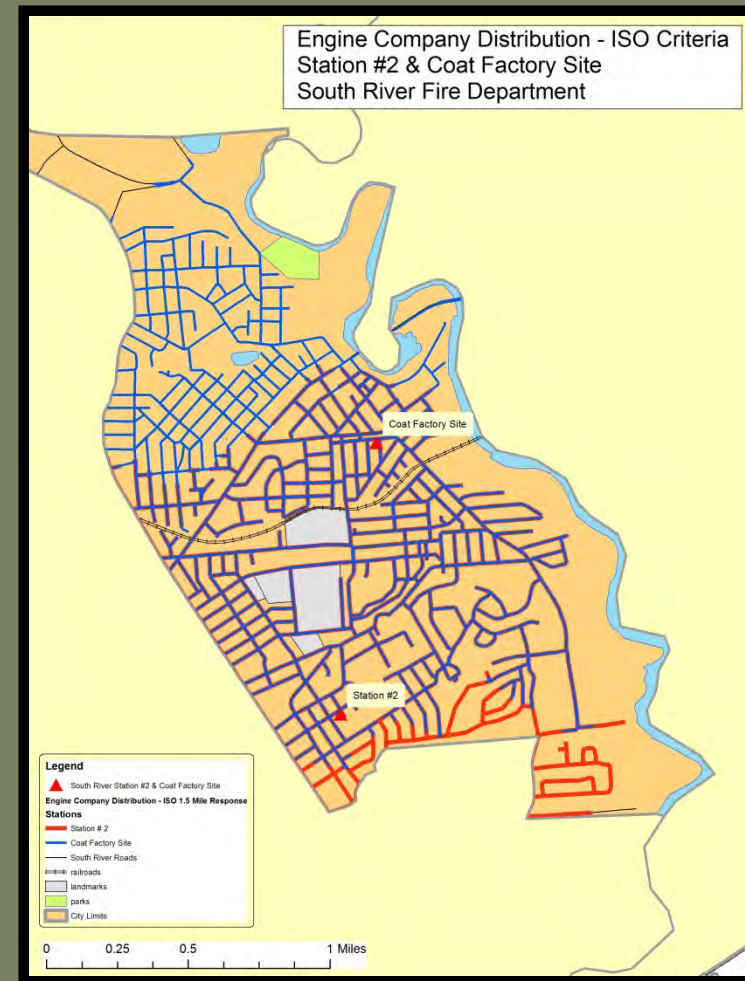
7 - LITTLE LEAGUE FIELD

- NICE PIECE OF LAND
- PERHAPS \$150,000 GRADING
- CONCERN WITH SLOPE OF BURTON
- TOO FAR NORTH
- NON-BALANCED COVERAGE
- DISTANCE TO CALLS ON WHITEHEAD
- POSSIBLE POLITICAL BLOWBACK



8 – COAT FACTORY

- GOOD LOCATION FOR SERVICE COVERAGE



8 – COAT FACTORY

- GOOD PARCEL FOR BUILDING & SITE PLAN



8 – COAT FACTORY

- GOOD PARCEL FOR BUILDING & SITE PLAN



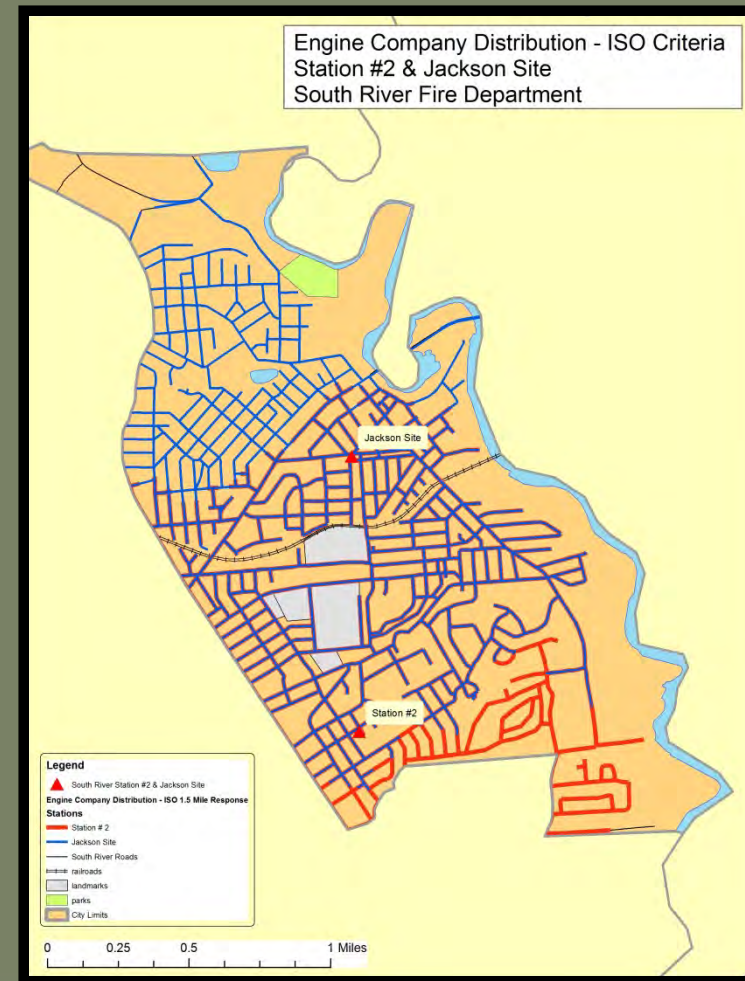
8 – COAT FACTORY

- GOOD PARCEL FOR BUILDING & SITE PLAN
- REQUIRES ACQUISITION OF PORTION OF PARKING LOT ACROSS STREET
- WHITEHEAD IS A SECONDARY STREET
- INFERIOR LOCATION FOR RESPONDERS



9 – KNIGHTS OF COLUMBUS

- BEST LOCATION FOR SERVICE COVERAGE



9 – KNIGHTS OF COLUMBUS

- GOOD PARCEL FOR BUILDING & SITE PLAN



9 – KNIGHTS OF COLUMBUS

- GOOD PARCEL FOR BUILDING & SITE PLAN



9 – KNIGHTS OF COLUMBUS

- BEST LOCATION FOR SERVICE COVERAGE
- GOOD PARCEL FOR BUILDING & SITE PLAN
- REQUIRES ACQUISITION OF KOC & AUTO REPAIR SHOP
- MAY BE COST COMPARABLE TO ELKS



ADDITIONAL CANDIDATE SITES

- 
1. PACERS FIELD/VARGA PARK
 2. WILLIAMS & NORTH END DR.
 3. WITTYS
 4. PORTUGUESE CLUB
 5. SILK MILL ON HERMAN STREET
 6. ECKO BUILDING ON WATER ST.
 7. OBERT
 8. YESHIVA
 9. MAIN ST. WEST OF THOMAS
 10. JACKSON BETW. GORDON &
RADCLIFF



ADDITIONAL CANDIDATE SITES

PACERS FIELD/VARGA PARK

- LOCATED IN FLOOD PLAIN
- REJECTED



ADDITIONAL CANDIDATE SITES

WILLIAMS & NORTH END DRIVE

- TOO FAR FROM CALLS ON WHITEHEAD SOUTH OF RAILROAD LINE
- 2.4 MILES TO BISSETTS RECREATIONAL AREA
- REJECTED



ADDITIONAL CANDIDATE SITES

WITTYS

- EXTREME SLOPES
- REJECTED



ADDITIONAL CANDIDATE SITES

PORTUGUESE CLUB

- EXTREME SLOPES
- REJECTED



ADDITIONAL CANDIDATE SITES

SILK MILL ON HERMAN STREET

- LOCATED IN FLOOD PLAIN
- REJECTED



ADDITIONAL CANDIDATE SITES

ECKO BUILDING ON WATER STREET

- POTENTIAL ENVIRONMENTAL ISSUES
- LOCATED IN FLOOD PLAIN
- REJECTED



ADDITIONAL CANDIDATE SITES

OBERT

- TOO SMALL TO ALLOW A STATION
- REJECTED



ADDITIONAL CANDIDATE SITES

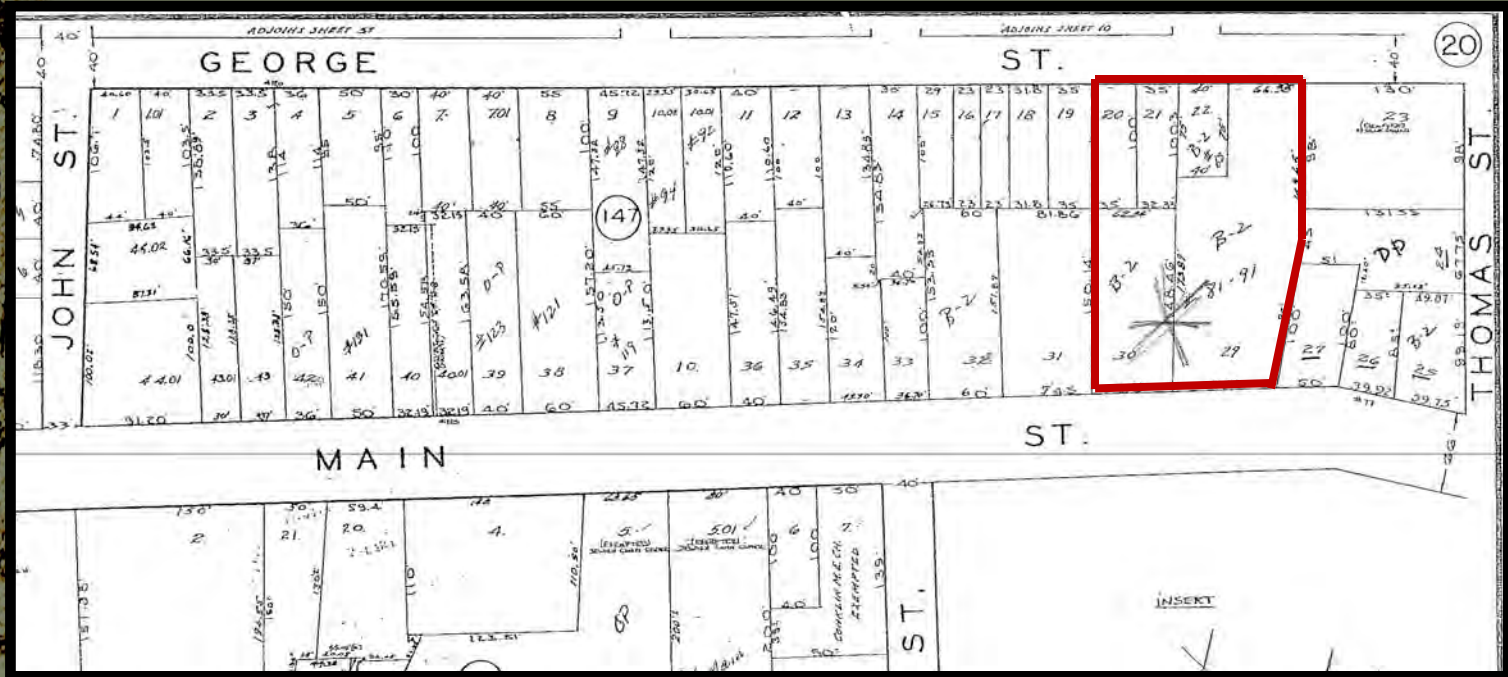
YESHIVA

- EGRESS VIA OBERT IS UNACCEPTABLE
- VALUED AT APPROX. \$5 MILLION
- REJECTED



ADDITIONAL CANDIDATE SITES

MAIN STREET WEST OF THOMAS



ADDITIONAL CANDIDATE SITES

MAIN STREET WEST OF THOMAS



ADDITIONAL CANDIDATE SITES

MAIN STREET WEST OF THOMAS



MAIN STREET WEST OF THOMAS



ADDITIONAL CANDIDATE SITES

MAIN STREET WEST OF THOMAS

- REQUIRES ACQUISITION OF THE FOLLOWING PARCELS
 - KRAUSERS
 - SPORTS BAR
 - CLOCK STORE
 - NUTRI SYSTEMS
 - CASTILLOS
 - CHURCH
 - 2 RESIDENCES ON GEORGE ST
- MAIN STREET CONGESTION



ADDITIONAL CANDIDATE SITES

JACKSON BETW. GORDON & RADCLIFF



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JACKSON BETW. GORDON & RADCLIFFE



REQUIRES
ACQUISITION
OF THE
FOLLOWING
PARCELS

ADDITIONAL CANDIDATE SITES

JACKSON BETW. GORDON & RADCLIFF

- REQUIRES ACQUISITION OF THE FOLLOWING PARCELS
 - VACANT AUTO SHOP
 - 6 HOUSES
 - MACHINE SHOP
- NEED TO RESOLVE SEWER/STORM EASEMENT



SITE RANKING

**PLEASE REFER TO THE WORD &
EXCEL DOCUMENTS AT THE START OF
THIS REPORT.**





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