

PUBLIC SAFETY COMPLEX
ESSEX, MA

ENGINEERING SITING STUDY

March 20, 2017



SITE AERIAL PHOTOGRAPH



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EXISTING SITE CONDITIONS

The intent of this study is to analyze the possibility of utilizing an existing Town-owned and occupied site to construct a new Public Safety facility and includes the Town Hall and Library at 30 Martin Street and the existing Police / Fire Public Safety Building at 24 Martin Street. Martin Street is a State numbered highway (Route 22) under local Town control.

The Town owned parcel also includes a Municipal parking lot, athletic ball fields, tennis courts, a small recreation building and a sewer-lift station. The site is relatively level near Martin Street and around the Town Hall/Library building, and slopes approximately twelve feet in the rear, to a lower elevation that contains the recreational fields. The portion of the site at the Public Safety Complex slopes from the street, southerly to a lower area used for parking and deliveries for abutting commercial facilities and access to an adjacent private residence. A previous Town Parking Study recommended improvements to this public parking area and adjacent tennis courts. The same study noted this existing Municipal parking area was only utilized to approximately 30% of capacity.

The access to this lower area is by way of Shepard Memorial Drive, off of Martin Street. Shepard Memorial Drive contains site utilities including sewer lines that service both the existing Public Safety Complex, the abutting commercial properties and the Post Office. Sewer lines exiting the rear of these buildings are routed to the sewer-lift station, which pumps the sewage up to a Martin Street sewer main. A water line is contained within this drive, which provides water to an existing fire hydrant at the lower site level and the abutting private residence.

The lower level of the site contains several natural resource/ wetland restrictive zones and designated FEMA 50 and 100 year flood zones.

A portion of the site between the Town Hall/Library and Public Safety Complex is known as Memorial Park and contains several memorials, monuments and the recreational fields. The Study Committee has stated that the existing recreational facilities on site must remain intact for Study purposes.

Several options were examined for the siting of a new Public Safety facility, with four options considered the most viable. These siting options are numbered one (1), two (2), three (3) and four (4A) and are described further in this Study and detailed on Conceptual Site Plans included in this Study. Estimates of the Probable Project Costs have also been prepared for each option.

COMMON SITING CONDITIONS

The existing Public Safety Facility appears to be a non-conforming building that encroaches on current Zoning setbacks. In either Site Option 1 or 2 the proposed Public Safety Complex will also encroach on Zoning setback requirements and will require a Variance and Special Permit approval prior to construction. Option 3 and 4A should not require a Zoning setback variance.

Current FEMA Flood Insurance Rate Maps (FIRM) indicate the limits of the 100 and 500 year Flood Zones to be in close proximity to the existing and proposed new Public Safety Building location. Based on current mapping, parking and emergency vehicle circulation areas will be within the 100 and 500 year Flood Zone for Options 1, 2 and 3.

It is not advisable to locate the essential services of a Police or Fire facility within a Flood Zone that would hinder Public Safety operations and functions. Future enacted Codes including the 9th Edition of the Massachusetts Building Code will adopt the International Building Code (IBC) 2015 Edition. The 2015 IBC will reference the American Society of Civil Engineers (ASCE) Standard 24; "Flood Resistant Design and Construction". ASCE 24 states that critical facilities such as Police and Fire facilities must remain operational in emergency conditions. Therefore critical facilities should not be built within a designated flood zone, but if necessary to be built in a flood zone the lowest level of the facility and all critical components and operations of the critical facility must be located 2 feet above the Base Flood Elevation (BFE) for that site.

ASCE 24 governs design and construction within a designated flood zone but does not appear to literally apply to construction outside of a flood zone. In the conceptual site options offered in this Study the proposed new Public Safety Facility is not proposed within a current flood zone but does immediately border a designated flood zone. To confirm the exact flood zone limits and elevations, additional engineering studies will need to be performed. For the purposes of this Study we assume that a critical facility, even if constructed outside of a designated flood zone, should be constructed no less than 2 feet above the adjacent BFE.

The construction of any of these options close to Martin Street, in areas currently developed will minimize the impact on existing critical natural resource areas. The new site development (and surrounding areas) would be required to implement Best Management Practices (BMP's) that are regulated within this area and may include new oil/water/grit separators, underground infiltration structures, impound ponds, overland vegetated swales and/or other elements to protect the adjacent environmentally sensitive areas.

Because storm water collection usually occurs in the lowest areas of the site and at this site there would not appear to be sufficient distance above the existing ground water elevation to construct a storm water detention pond or facility, additional engineering will be necessary to confirm that any new storm water created by the addition of impervious surfaces for this proposed project will dissipate sufficiently as to not cause additional runoff at the borders of this property. Since this is a large property there is some probability that this can occur. Options 3 and 4A may allow for some subsurface storm water storage and infiltration within upper site areas.

In Options 1 and 2, the Police and Fire Department operations and vehicles / apparatus would have to be temporarily moved to another facility to allow construction on the same Public Safety site. Temporary facility options include existing Town or For-Lease and/or temporary facilities such as ready-to-lease office trailers. The Fire Department apparatus is more difficult to relocate due to its larger area (approximately 4,500 SF), multiple overhead doorways and a requirement for heated facilities for its' diesel apparatus and water tanker/pump apparatus. The cost of these temporary facilities would be significant but would not contribute to the permanent Public Safety Facility's construction or value. In Option 4A only the Police Office areas would require temporary relocation and facilities.

The site's limited constructible upland and multiple land uses do not allow for separation of the Public Safety vehicular and large apparatus from public travel ways. It is preferable for the personal safety of the public and emergency personnel that vehicles and apparatus responding to emergencies can exit their Public Safety site without crossing public travel lanes particularly in cornering and maneuvering areas. Options 3 and 4A require the least interaction of public and emergency response vehicles.

The access to the parking areas behind the abutting commercial properties would be disrupted and displaced in Options 1, 2 and 3. A temporary access road for use during construction activity would have to be constructed and maintained and eventually reconstructed to provide access to the Post Office, other commercial or recreational facilities and the private residence.

Reconstruction of existing site utilities would be required including modifications to the existing forced-main sanitary sewer system in Options 1 and 2. Construction costs would have to include temporary utility construction to maintain use by abutting property owners, during the relocation of utilities. Temporary connections to any new temporary facility will need to be provided for the Police or Fire Departments use.

Handicap accessibility is achievable by constructing new handicap accessible parking spaces along Martin Street and providing reasonable on-grade access to the public function areas of the Public Safety Complex. Handicap accessibility would not be reasonable from the lower public parking areas to the Martin Street public entrances due to the inherent 10 to 12 foot change in grade.

Areas for required public safety uses (emergency exterior equipment, employee parking, storm water retention) are limited. Creative design for their incorporation would have to be employed. Consideration should also be provided for protection of persons and vehicles where adjacent or near current ball field and foul ball territory.

Existing oil-contaminated soils are reportedly within the proposed construction zone. A Licensed Site Professional will need to consult on the handling and possible disposal of any found contaminated materials. It would be the intent of a future project to leave contaminated materials safely on site.

Several or all of the existing memorial monuments would have to be relocated to a newly created Park area on-site. Intent would be for the new Park area to be accessible from Martin Street and may incorporate land near the existing Town Hall and Library.

There is limited area for construction-related site needs including contractor storage, lay-down space, equipment storage, parking, etc., creating a restricted construction site that would increase construction costs.

The unique construction and project costs associated with these Siting Options including temporary relocation of the Police and/or Fire Departments, demolition or renovation of the existing Public Safety Facility, relocation of Shepard Memorial Drive and existing utility infrastructure for Options #1 and #2, or the overall greater site development costs of Option #3, contribute to a higher total project cost. Conceptual Project Budget Costs for these Siting Options are approximately \$10.5M - \$11.7M. For comparison the estimated project cost of the previous proposed John Wise Avenue Public Safety project escalated to the same timeline as the current estimates would be approximately \$10M.

SITING OPTION #1

Siting Option #1 proposes a new two-story structure, occupying approximately 11,330 square feet of ground area. Taking full advantage of the sloping nature of the site, the structure would front on Martin Street, and have at-grade access in the front and rear. The front, Martin Street façade of the building would accommodate public access to the building, while the rear, lower portion would house the vehicle and apparatus areas. The proposed new structure would be located in the area of the existing Public Safety Complex.

This option would require the temporary relocation of the Police and Fire department functions during building demolition and construction. Shepard Memorial Drive would be relocated to the east side of the building, and would include additional spaces for employee parking. Remaining employee parking would continue to utilize the existing lower parking areas. Total net parking on site would decrease by one (1) space in this Option. In addition, many of the existing monuments near Town Hall would need to be relocated. Site utilities, to include the gravity and pressurized sewer lines, and the water line, located under Shepard Memorial Drive would also be relocated.

Regulatory requirements for compensatory storage of any additional storm water generation would have to be accommodated though due to the suspected shallow depth to ground water, existing clay-type soils, storm water generated may have to be dispersed onto adjoining land areas.

This Option requires public safety vehicles to share drive lanes with the public's vehicles creating possible safety conflicts in emergency response conditions, particularly with large fire apparatus equipment. An option is shown for an alternative public access driveway that will lessen the area of shared travel but not reduce it entirely.

The Budget Estimate of Probable Project Costs for Option # 1 is: \$11,438,405.

SITING OPTION #2

Siting Option #2 utilizes a similar building confirmation as Option #1 that mirrors the floor plan to reverse the east-west layout. This orientation also takes advantage of the sloping site to provide on-grade access at both front and rear levels. The building location would shift toward the Town Hall and Shepard Memorial Drive is relocated to where the present Public Safety Complex is located.

This Option places the new facility closer to Town Hall, which creates an opportunity to provide expanded, shared parking for both facilities. This new parking area provides a net increase of five (5) total parking spaces and requires the construction of a retaining wall, which will protect the existing recreation field and provide screening for the necessary outdoor utility equipment associated with an emergency use facility.

Similar to Siting Option #1, public safety vehicles will share drive lanes with the public and the existing underground utilities under Shepard Memorial Drive would be relocated.

The Budget Estimate of Probable Project Costs for Option # 2 is: \$11,701,060.

SITING OPTION #3

Siting Option #3 proposes the construction of approximately 11,760 SF first floor area on-grade structure, accessible to Martin Street, and a lower level of approximately 5,640 SF on-grade and accessible from the rear site area. There would also be a second floor of approximately 5,640 SF. Generally the lower and second floors would not be within the footprint of the Fire Apparatus Bays, which would be slab-on-grade construction and approximately 1.5 story height.

It is obviously preferable not to have occupied space and functions below an elevated Apparatus Bay floor as any concrete floor structure will have cracks and any water from the apparatus or other sources will be able to pass through a crack to the occupied space below. This is a common condition inherent with elevated apparatus floors and should be avoided if possible. Additionally any space below an apparatus floor would have little opportunity for nature light or natural ventilation.

This proposed Facility can be sited in the space between Shepard Memorial Drive and the existing Town Hall / Library. Although this is a restricted site it appears feasible to construct the new Public Safety Facility with minimum disturbance of Shepard Memorial Drive and its' underlying municipal utilities, and therefore allowing the existing Public Safety and utilities to remain operational during construction. This would reduce or eliminate temporary facility expenses necessary in Options #1, #2 and #4A. As with all Options, all or portions of the existing Memorial Park would have to be relocated. In this Option a new Memorial Park can be constructed in available sloping land between the new Public Safety Complex and a relocated Shepard Memorial Drive.

This Option would provide for direct access of fire apparatus to Martin Street but with a narrow apron for outdoor apparatus maintenance and training. Total on-site parking would be increased by approximately eight (8) total spaces with parking available on either side of the Public Safety and also adjacent to the existing Town Hall and Library. These parking areas would require extensive fill and retaining wall to be brought to the elevation of Martin Street. This area of fill will provide the opportunity to install storm water infiltration structures under the parking area, improving the storm water management options.

A utility area is also provided adjacent to the Public Safety Complex for generators and fuel supply. An exterior display space is available in front of this utility space to help shield this area from Martin Street. This display for the Antique Fire Pumper can be a separate structure or part of the main Public Safety structure.

Similar to other Options any vehicular access to the lower level would cross the 500 year flood zone limit and possibly the 100 year flood zone limit line. This would present a hazard to Police vehicles attempting to access lower level garage or sallyport spaces. Newer Code requirements (IBC 2015 and ASCE 24) may also require the lower level of this critical facility to be a minimum of 2 ft. above the Base Flood Elevation at 10 ft (North American Vertical Datum 1988). This elevation is very roughly approximated to be 88.5 ft. on the Conceptual Site Plans. Therefore the approximate minimum lower floor elevation would be 90.5 ft. This elevation is about 2 ft. above the existing rear perimeter grade. To provide on-grade access to the lower level will be difficult as the necessary slope to add 2 ft. of additional fill at the rear of the building will cause filling within the 500 and 100 year flood zone creating a compensatory storage requirement elsewhere on site.

Due to the proximity of the proposed new parking to the existing ball field (approximately 60 ft. from base line), it may be appropriate to consider installing a taller 40 ft. to 50 ft. foul ball net to protect vehicles from foul ball damage.

To further examine this Option it would be appropriate to consider an approximate 11 ft. to 12 ft. floor to floor height from the lower level to the Main / Martin Street floor elevation. Therefore an approximate main floor elevation above the lower level would be approximately 102 ft. elevation. The apparatus floor elevation would be based on a small upward slope from the average Martin Street elevation at the apparatus driveway / curb cut. This existing street / curb elevation is approximately 98.5 ft. Assuming a maximum of 1 ft. slope from street over the 40 ft. apron would fix the apparatus floor elevation at approximately 99.5 ft. or approximate 1.5 ft. below the main (non-apparatus) floor level. This would create a small difficulty in accessibility between the two levels.

The Budget Estimate of Probable Project Costs for Option # 3 is: \$11,347,920.

SITING OPTION #4A

Siting Option # 4A is similar to Option #3 as far as the new constructed building's general location but maintains the existing Public Safety Building for Police use and constructs a smaller Fire Headquarters structure. The intent of this Option is to reduce cost by renovating the existing Public Safety Building and to minimize the footprint of the new Fire Facility to maintain the greatest amount of open space between the new Fire Facility and the existing Town Hall which was a concern of some residents.

The features of this Option are similar to Option #3 with a slab-on-grade Fire Facility with approximately 9,800 s.f. first floor of Fire Apparatus, Apparatus Support Spaces, Public Entrance and some Office Space. A second floor of approximately 6,000 s.f. would consist of the bulk of the Office and Fire Personnel Support Spaces. There is an Option to provide a lower level basement space below the first floor office area for non-essential Storage since it would be proximate to the 100 year flood zone. To maintain a flush first floor above the basement would have a lower +/- 8 ft. structural floor height.

This Option would allow most of Shepard Drive and its underground utilities to remain and provide less obtrusive parking between the Fire Facility and Town Hall without significant infill of the sloping lawn near the Baseball Field. There would be a net increase of 23 parking spaces with this option.

Unique to this Option would be the salvaging, repair and renovation of the existing Public Safety Building for a Police Headquarters. The existing facility is approximately 7,880 s.f. in a split-level design originally constructed in 1950 with a later rear addition in 1972.

General repairs and envelope improvements would consist of roof replacement, exterior window and door replacement, masonry and brick repairs. Code improvements would consist of handicap accessibility improvements including a new 3-stop hydraulic elevator, doorway and hardware improvements, construction of accessible restrooms and other equivalent facilities, structural improvements for improved seismic / lateral resistance and a new automatic fire suppression / sprinkler system.

General renovations would consist of selective demolition and construction to support new Police program space. It should be noted that the existing building area is less than the previous Police program area of 10,350 s.f and planned program areas must be reduced. Other general renovations would include furring and insulating the exterior, uninsulated masonry walls for improved energy conservation and new and improved mechanical heating and air conditioning systems, plumbing and electrical system improvements and upgrades.

An initial code review of the 8th Edition MA Building Code references the International Existing Building Code for renovations to existing buildings. Based on a very minimum level of renovations and renovated areas it may be possible to stay within a Level 2 Compliance Method (less than 50% renovated areas) but it would be challenging. It is more likely that more than 50% of the building should be renovated implementing the Level 3 Compliance Criteria. The general differences between Level 2 and Level 3 Compliance Methods do not appear to be too significant based upon no change in building occupancy or classification and no significant changes to the existing structural systems.

The Budget Estimate of Probable Project Costs for Option # 4A is: \$10,592,200.



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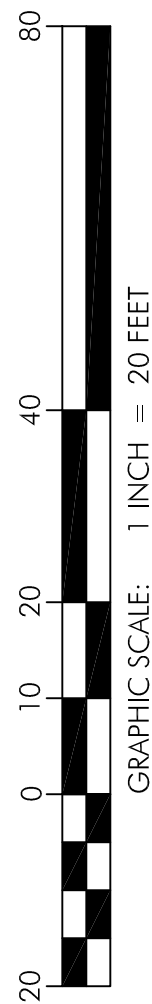
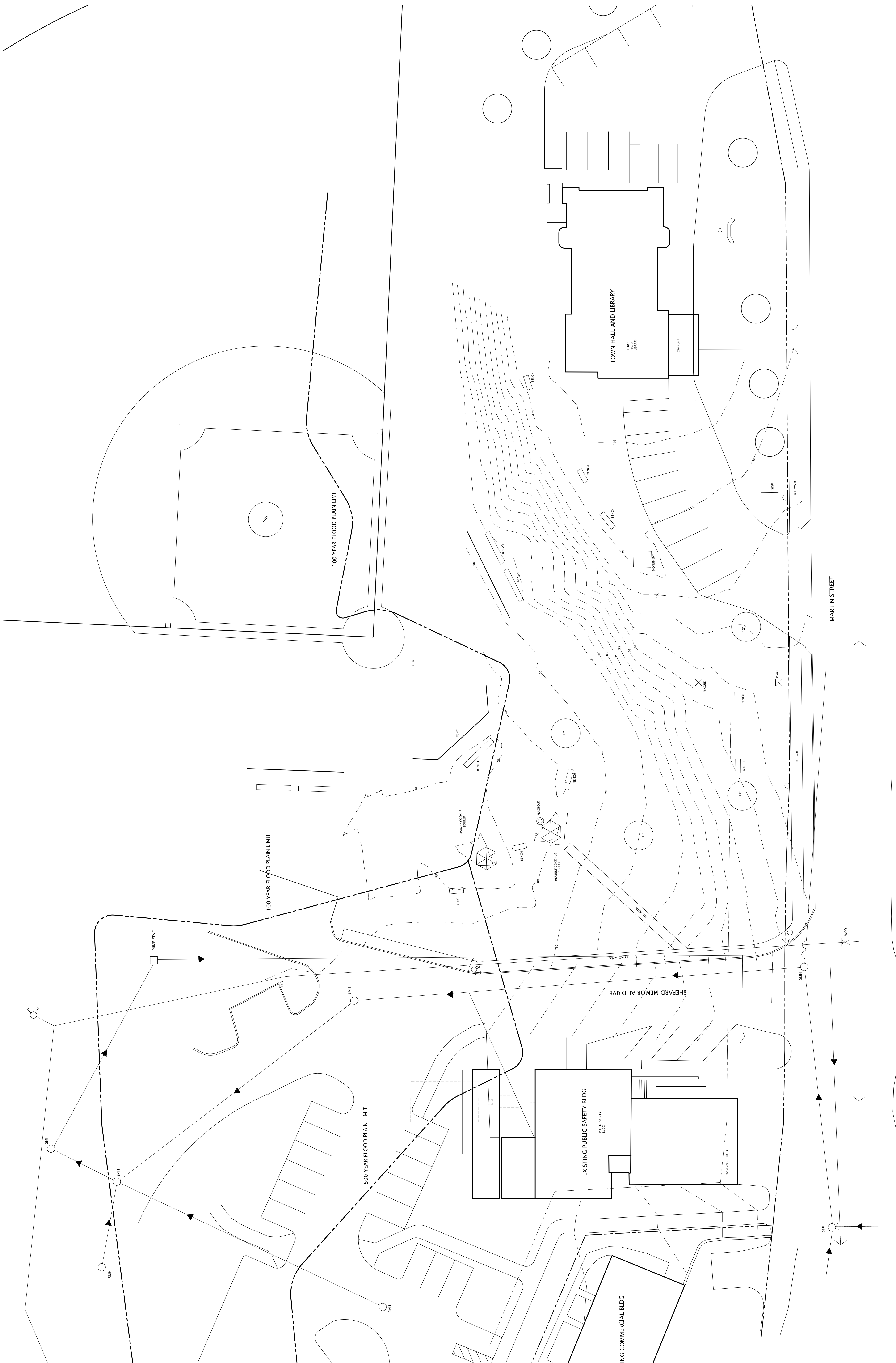
**PUBLIC SAFETY
ENGINEERING
SITING
STUDY**

ESSEX, MA

DRAWING :

EXISTING CONDITIONS PLAN

SHEET :

1. **Ex**

REINHART
ASSOCIATES

ARCHITECTS

ENGINEERS

PLANNERS

PROJECT MANAGEMENT

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ESSEX, MA

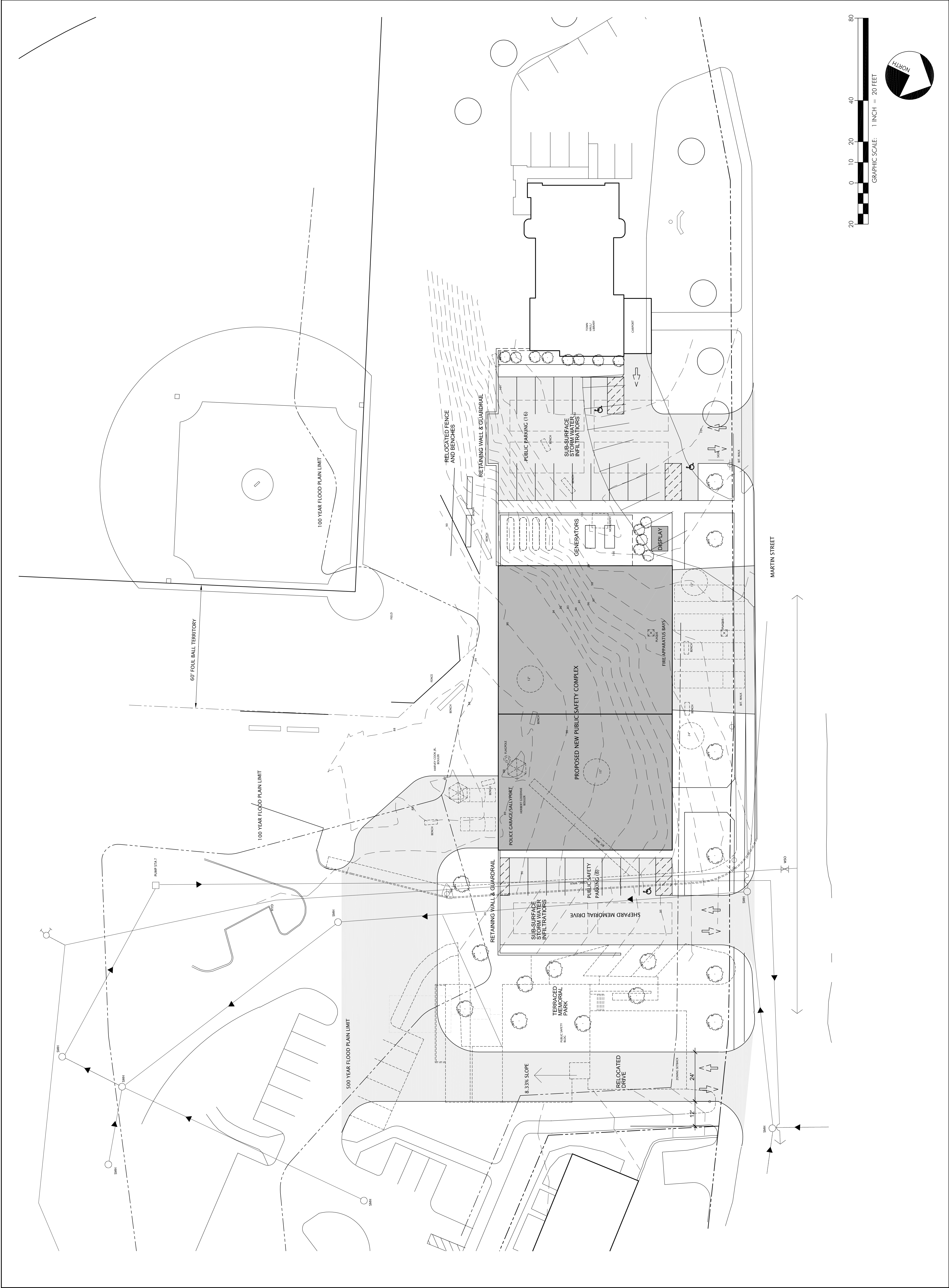
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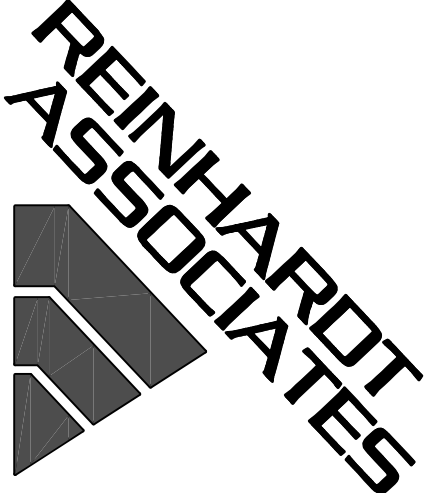
CONCEPTUAL
SITE
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OPTION #3

SHEET :

OPT .3





- ARCHITECTS
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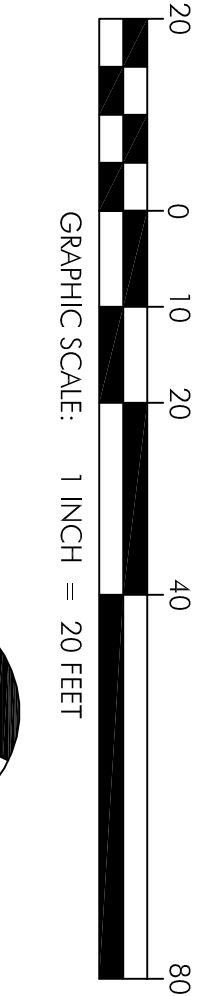
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PROJECT TITLE :
PUBLIC SAFETY
ENGINEERING
SITING
STUDY

ESSEX, MA

DRAWING :
MAIN STREET
SITE
STUDY

OPTION #4A



OPT .4A

BUDGET ESTIMATE OF PROBABLE PROJECT COSTS

March 20, 2017

Basis of Design: Conceptual Public Safety Site Plan, Option No. 1 dated: 1/9/2017
Relocation of Fire and Police Dept. to Temporary Facilities
Abatement and Demolition of Public Safety Facility
Construction of new 23,440 SF Public Safety Complex

1. TEMPORARY RELOCATION OF POLICE / FIRE DEPARTMENTS.

a.	Site Work Preparation	\$ 15,000.
b.	Temporary Utility Connections / Disconnections	40,000.
c.	Modular Office Delivery / Install	75,000.
d.	Modular Office +/- 3,000 SF) Lease @ 16 Mo.	44,800.
e.	Modular Office Disassembly / Return	30,000.
f.	Modular Office Performance Bond	5,000.
g.	Temporary Fire Apparatus Storage Possible Lease (TBD) (7 Bays @ 45000 SF (16 Mo.)	100,000.
h.	Miscellaneous Temporary Measures / Allowance	40,000.

Sub Total Temporary Facilities & Measures: \$ 349,800.

2. DEMOLITION

a.	Abate Public Safety Building (Allowance)	\$ 24,000.
b.	Demolish Public Safety Building	72,000.

3. NEW CONSTRUCTION

a.	Construct new Public Safety Building 23,440 SF @ \$260/SF (Avg.)	\$ 6,094,400.
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4. SITE WORK

a.	Site Work (See attached Estimate)	\$ 610,140.
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Sub Total: \$ 7,150,340.

5. CONSTRUCTION FACTORS

c.	Design/Study Contingency @ 15%	\$ 1,072,550.
d.	Restricted Site / Phased Operation @ 5%	411,145.
e.	Escalation to Mid-Pt of Construction (9/18) @ 9%	777,100.
f.	Construction Contingency @ 5%	470,560.

Sub-Total: \$ 9,881,695.

6. PROJECT DEVELOPMENT EXPENSES

a.	Architectural / Engineering Fee @ 7.85% (DCAMM Sched.)	\$ 775,710.
b.	Site/ Property Survey	8,000.
c.	environmental / Wetlands consultant	4,000.
d.	Pre-Demo Hazmat Survey, Abatement Spec / Monitoring	12,000.
e.	Licensed Site Professional / Testing (Allowance)	25,000.
f.	Geotechnical Engineer / Borings	10,000.
g.	Construction Materials Testing	30,000.
h.	Commissioning	40,000.
i.	Legal / Bonding Counsel	By Town
j.	Printing / Reproduction	10,000.
k.	Legal Advertising / Bidding	1,000.
l.	Owner's Project Manager (OPM)	250,000.
m.	Clerk of the Works	By OPM
n.	Moving / Relocation Expenses (Twice)	32,000.
o.	Furnishing / Equipment (Allowance)	125,000.
p.	Telephone / data Systems (est.)	100,000.
q.	Radio / Antenna systems (est.)	55,000.
r.	Project Development Contingency @ 5%	79,000.

Sub Total: **\$ 1,556,710.**

7. TOTAL PRELIMINARY PROJECT BUDGET SUMMARY: **\$ 11,438,405.**

8. ALTERNATE BID COSTS

a.	Antique Fire Pump Display Facility at 280 SF @ \$275/SF	\$ 77,000.
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9. QUALIFICATIONS

- a. This Summary of Probable Project Cost is based on a previous Public Safety Space Needs Assessment (2012) and Conceptual Site Engineering Drawings dated December 28, 2016, and the following assumptions:
1. Normal Construction schedule has been used to prepare this Estimate.
 2. Premium time costs are not included. Costs are based on forty-hour workweek, Mon. thru Fri.
 3. This Summary is based on prevailing wage rates.
 4. No costs are included for disposal or remedial work for underground fuel tanks.
 6. Items that could impact this Summary are:
 - a. Unforeseen subsurface conditions
 - b. Restrictive technical specification
 - c. Non-competitive bid conditions (less than five qualified bids)
 - d. Sole source specification of materials or products
 - e. Delays beyond the project schedule or **January 2018 bid date**
 - f. Accelerated completion
 - g. Unforeseen permitting conditions
 - h. USGBC / LEED Rating and Certification
- b. This opinion of Probable Budget Estimate of Project Cost is made on the basis of the experience, qualifications and best judgment of CBA's Professional Staff. This Estimate is for **budgeting purposes** only; actual construction value is determined after the completion of the Construction Documents and the Bid Award process. Variance of +/- 5% of the Estimate is probable.



OPINION OF PROBABLE CONSTRUCTION COSTS

Combined Site Work

ITEM DESCRIPTION	QTY	MATERIAL COSTS		LABOR COSTS		ESTIMATE	TOTAL
		UNIT	INDEX	UNIT	INDEX	UNIT	
Mobilize/Demobilize	1	LS	0.00		5,000.00	1.00	5,000.00
Environmental Protection	1	LS	0.00		0.00	1.00	7,500.00
Demo Bit Conc Curb	680	LF	0.75		0.00	1.75	1,190.00
Demo Bit. Conc. Road Pavement	1,550	SY	1.00		7.00	1.00	10,850.00
Demo 8" Road Base	350	CY	1.25		3.75	1.00	1,312.50
Demo & Salv Misc Site Items	1	LS	0.00		0.00	1.00	2,500.00
Demo Reinf. Conc. Walks	255	SY	5.30		1,351.50	7.95	2,027.25
Demo Ex. Trees	2	EA	500.00		1,000.00	1.00	1,500.00
Strip & stockpile topsoil	355	CY	24.00		8,520.00	36.00	12,780.00
Gen'l Earth Excavation	3,240	CY	7.20		23,328.00	10.80	34,992.00
Gen'l Trench Excavaton	335	CY	12.00		4,020.00	18.00	6,030.00
Foundation Trench Excavation	260	CY	12.00		3,120.00	18.00	4,680.00
Temp. Shoring & Remove	1,300	SF	12.00		15,600.00	18.00	23,400.00
New Road Base Material (12")	765	CY	24.00		0.00	33.00	25,245.00
Grade & Compact Sub-base	2,300	S.Y.	0.25		0.00	3.25	7,475.00
New Bit. Conc. Road Binder (2")	2,300	SY	4.55		10,465.00	6.80	15,640.00
New Bit. Conc. Road Top (1.5")	2,300	SY	3.75		8,625.00	5.65	12,995.00
New Bit. Conc. Curb	560	LF	1.50	1.00	840.00	2.50	1,400.00
New Reinf. Conc. Slab (6")	7,080	SF	5.60		39,648.00	8.40	59,472.00
New Asphalt Walks	200	SY	4.50		900.00	6.00	1,200.00
Trench/Backfill/Bedding (3' Depth)	250	LF	3.50		875.00	7.40	1,850.00
Trench/Backfill/Bedding (5-6' Depth)	350	LF	6.10		2,135.00	11.50	4,025.00
Sanitary Sewer Line (Gravity)	72	LF	4.80		345.60	7.20	518.40
Sanitary Sewer Line (Pressure)	350	LF	7.20		2,520.00	10.80	3,780.00
Sewer Manhole (Pressurized)	1	EA	2,200.00		2,200.00	3,300.00	3,300.00
Water Line CI (6")	300	LF	26.00		7,800.00	39.00	11,700.00
Tapping Service Tee	2	EA	118.00		236.00	177.00	354.00
Gate Valve & Box	2	EA	496.00		992.00	744.00	1,488.00

Item Description	Unit	Quantity	Unit Price	Material Cost	Labor Cost	Overhead & Profit	Total Cost	Estimated Value
Foundation Drains (4")	500 LF	6.00	3,000.00		9.00	1.00	4,500.00	15.00
Storm Drain (12")	465 LF	10.00	4,650.00		6.65	1.00	3,092.25	16.65
Drain Structures (CB's & Manholes)	5 EA	1,400.00	7,000.00		2,100.00	1.00	10,500.00	3,500.00
Oil/Water Separator	1 EA	12,600.00	12,600.00		5,400.00	1.00	5,400.00	18,000.00
Concrete Light Pole Bases	5 EA	260.00	1,300.00		390.00	1.00	1,950.00	650.00
Misc. Conc. Pads (Reint.)	1 LS							6,000.00
Site Rough Grading	4,750 SY	0.25	1,187.50		0.75	1.00	3,562.50	1.00
Spread Topsoil	350 CY	1.00	350.00		4.00	1.00	1,400.00	5.00
Topsoil, Fine Grade	400 SY	1.00	400.00		4.50	1.00	1,800.00	5.50
Lawn, Seed, Fert., Lime, Maint.	400 SY	1.50	600.00		5.00	1.00	2,000.00	6.50
Landscape Plantings	1 LS							10,000.00
Protective Bollards	4 EA	350.00	1,400.00		150.00	1.00	600.00	500.00
Signs & Posts	6 EA	210.00	1,260.00		140.00	1.00	840.00	350.00
Traffic Lane Delineators	42 EA	25.00	1,050.00		25.00	1.00	1,050.00	50.00
Traffic / Parking Pavement Markings	1 LS	0.00	0.00		25.00	1.00	25.00	1,500.00
Relocate Memorial Artifacts	1 LS	0.00	0.00			1.00	0.00	9,000.00
Relocate Exist. Utilities	1 LS	0.00	0.00		50,000.00	1.00	50,000.00	50,000.00
Temporary Access Road	1 LS	0.00	0.00		8,000.00	1.00	8,000.00	8,000.00
Disposal of Contaminated Soil (est.)	100 CY	0.00	0.00		100.00	1.00	10,000.00	100.00
Storm Water Measures	1 LS	0.00	0.00		25,000.00	1.00	25,000.00	25,000.00

\$610,137.50

BUDGET ESTIMATE OF PROBABLE PROJECT COSTS

March 20, 2017

Basis of Design: Conceptual Public Safety Site Plan, Option No. 2 dated: 1/9/2017
Relocation of Fire and Police Dept. to Temporary Facilities
Abatement and Demolition of Public Safety Facility
Construction of new 23,440 SF Public Safety Complex

1. TEMPORARY RELOCATION OF POLICE / FIRE DEPARTMENTS.

a.	Site Work Preparation	\$ 15,000.
b.	Temporary Utility Connections / Disconnections	40,000.
c.	Modular Office Delivery / Install	75,000.
d.	Modular Office +/- 3,000 SF) Lease @ 16 Mo.	44,800.
e.	Modular Office Disassembly / Return	30,000.
f.	Modular Office Performance Bond	5,000.
g.	Temporary Fire Apparatus Storage Possible Lease (TBD) (7 Bays @ 45000 SF (16 Mo.)	100,000.
h.	Miscellaneous Temporary Measures / Allowance	40,000.

Sub Total Temporary Facilities & Measures: \$ 349,800.

2. DEMOLITION

a.	Abate Public Safety Building (Allowance)	\$ 24,000.
b.	Demolish Public Safety Building	72,000.

3. NEW CONSTRUCTION

a.	Construct new Public Safety Building 23,440 SF @ \$260/SF (Avg.)	\$ 6,094,400.
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4. SITE WORK

a.	Site Work (See attached Estimate)	\$ 786,360.
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Sub Total: \$ 7,326,560.

5. CONSTRUCTION FACTORS

c.	Design/Study Contingency @ 15%	\$ 1,099,000.
d.	Restricted Site / Phased Operation @ 5%	421,300.
e.	Escalation to Mid-Pt of Construction (9/18) @ 9%	796,215.
f.	Construction Contingency @ 5%	482,155.

Sub-Total: \$ 10,125,230.

6. PROJECT DEVELOPMENT EXPENSES

a.	Architectural / Engineering Fee @ 7.85% (DCAMM Sched.)	\$ 794,830.
b.	Site/ Property Survey	8,000.
c.	environmental / Wetlands consultant	4,000.
d.	Pre-Demo Hazmat Survey, Abatement Spec / Monitoring	12,000.
e.	Licensed Site Professional / Testing (Allowance)	25,000.
f.	Geotechnical Engineer / Borings	10,000.
g.	Construction Materials Testing	30,000.
h.	Commissioning	40,000.
i.	Legal / Bonding Counsel	By Town
j.	Printing / Reproduction	10,000.
k.	Legal Advertising / Bidding	1,000.
l.	Owner's Project Manager (OPM)	250,000.
m.	Clerk of the Works	By OPM
n.	Moving / Relocation Expenses (Twice)	32,000.
o.	Furnishing / Equipment (Allowance)	125,000.
p.	Telephone / data Systems (est.)	100,000.
q.	Radio / Antenna systems (est.)	55,000.
r.	Project Development Contingency @ 5%	79,000.
Sub Total:		\$ 1,575,830.

7. TOTAL PRELIMINARY PROJECT BUDGET SUMMARY: \$ 11,701,060.

8. ALTERNATE BID COSTS

a.	Antique Fire Pump Display Facility at 280 SF @ \$275/SF	\$ 77,000.
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9. QUALIFICATIONS

- a. This Summary of Probable Project Cost is based on a previous Public Safety Space Needs Assessment (2012) and Conceptual Site Engineering Drawings dated December 28, 2016, and the following assumptions:
1. Normal Construction schedule has been used to prepare this Estimate.
 2. Premium time costs are not included. Costs are based on forty-hour workweek, Mon. thru Fri.
 3. This Summary is based on prevailing wage rates.
 4. No costs are included for disposal or remedial work for underground fuel tanks.
 6. Items that could impact this Summary are:
 - a. Unforeseen subsurface conditions
 - b. Restrictive technical specification
 - c. Non-competitive bid conditions (less than five qualified bids)
 - d. Sole source specification of materials or products
 - e. Delays beyond the project schedule or **January 2018 bid date**
 - f. Accelerated completion
 - g. Unforeseen permitting conditions
 - h. USGBC / LEED Rating and Certification
- b. This opinion of Probable Budget Estimate of Project Cost is made on the basis of the experience, qualifications and best judgment of CBA's Professional Staff. This Estimate is for budgeting purposes only; actual construction value is determined after the completion of the Construction Documents and the Bid Award process. Variance of +/- 5% of the Estimate is probable.



OPINION OF PROBABLE CONSTRUCTION COSTS

Combined Site Work

ITEM DESCRIPTION	QTY	MATERIAL COSTS		LABOR COSTS		ESTIMATE UNIT	TOTAL
		UNIT	INDEX	UNIT	INDEX		
Mobilize/Demobilize	1 LS	0.00		5,000.00	1.00	5,000.00	5,000.00
Environmental Protection	1 LS	0.00		0.00	1.00	7,500.00	7,500.00
Demo Bit Conc Curb	680 LF	0.75		0.00	1.75	1,190.00	1,700.00
Demo Bit. Conc. Road Pavement	2,000 SY	1.00		0.00	7.00	14,000.00	8.00
Demo 8" Road Base	470 CY	1.25		0.00	3.75	1,762.50	1,762.50
Demo & Salv Misc Site Items	1 LS	0.00		0.00	1.00	2,500.00	2,500.00
Demo Reinf. Conc. Walks	255 SY	5.30		1,351.50	7.95	2,027.25	13.25
Demo Ex. Trees	4 EA	500.00		2,000.00	750.00	3,000.00	1,250.00
Strip & Stockpile Topsoil	500 CY	24.00		12,000.00	36.00	18,000.00	60.00
Gen'l Earth Excavation	3,800 CY	7.20		27,360.00	10.80	41,040.00	18.00
Gen'l Trench Excavation	335 CY	12.00		4,020.00	18.00	6,030.00	30.00
Foundation Trench Excavation	260 CY	12.00		3,120.00	18.00	4,680.00	30.00
Temp. Shoring & Remove	2,000 SF	12.00		24,000.00	18.00	36,000.00	30.00
New Road Base Material (12")	850 CY	24.00		0.00	33.00	28,050.00	57.00
Grade & Compact Sub-base	2,750 S.Y.	0.25		0.00	3.25	8,937.50	3.25
New Bit. Conc. Road Binder (2")	2,750 SY	4.55		12,512.50	6.80	18,700.00	11.35
New Bit. Conc. Road Top (1.5")	2,750 SY	3.75		10,312.50	5.65	15,537.50	9.40
New Bit. Conc. Curb	560 LF	1.50		840.00	2.50	1,400.00	4.00
New Reinf. Conc. Slab (6")	7 080 SF	5.60		39,648.00	8.40	59,472.00	14.00
New Asphalt Walks	400 SY	4.50		1,800.00	6.00	2,400.00	10.50
New Conc. Walks	2,600 SF	4.80		12,480.00	7.20	18,720.00	12.00
Trench/Backfill/Bedding (3' Depth)	250 LF	3.50		875.00	7.40	1,850.00	10.90
Trench/Backfill/Bedding (5-6' Depth)	350 LF	6.10		2,135.00	11.50	4,025.00	17.60
Sanitary Sewer Line (Gravity)	72 LF	4.80		345.60	7.20	518.40	12.00
Sanitary Sewer Line (Pressure)	350 LF	7.20		2,520.00	10.80	3,780.00	18.00
Sewer Manhole (Pressurized)	1 EA	2,200.00		2,200.00	3,300.00	5,500.00	5,500.00
Water Line CI (6")	300 LF	26.00		7,800.00	39.00	11,700.00	65.00
Tapping Service Tee	2 EA	118.00		236.00	177.00	354.00	295.00
Gate Valve & Box	2 EA	496.00		992.00	744.00	1,488.00	1,240.00

[illegible]

\$786,360.25

BUDGET ESTIMATE OF PROBABLE PROJECT COSTS

March 20, 2017

Basis of Design: Conceptual Public Safety Site Plan, Option No. 3 dated: 1/9/2017
Retention of Public Safety Building during Construction of Fire and Police Dept.
Construction of new 23,440 SF Public Safety Complex
Abatement and Demolition of Public Safety Facility

1. TEMPORARY RELOCATION OF POLICE / FIRE DEPARTMENTS.

a.	Site Work Preparation	\$	15,000.
b.	Temporary Utility Connections / Disconnections		10,000.
c.	Construct/Maintain Temporary Road / Drive		25,000.
d.	Miscellaneous Temporary Measures / Allowance		40,000.

Sub Total Temporary Facilities & Measures: **\$ 90,000.**

2. DEMOLITION

a.	Abate Public Safety Building (Allowance)	\$	24,000.
b.	Demolish Public Safety Building		72,000.

3. NEW CONSTRUCTION

a.	Construct new Public Safety Building 23,440 SF @ \$260/SF (Avg.)	\$	6,094,400.
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4. SITE WORK

a.	Site Work (See attached Estimate)	\$	809,257.
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Sub Total: **\$ 7,089,660.**

5. CONSTRUCTION FACTORS

c.	Design/Study Contingency @ 15%	\$	1,063,450.
d.	Restricted Site / Phased Operation @ 5%		407,655.
e.	Escalation to Mid-Pt of Construction (9/18) @ 9%		770,470.
f.	Construction Contingency @ 5%		466,560.

Sub-Total: **\$ 9,797,795.**

6. PROJECT DEVELOPMENT EXPENSES

a.	Architectural / Engineering Fee @ 7.85% (DCAMM Sched.)	\$ 769,125.
b.	Site/ Property Survey	8,000.
c.	environmental / Wetlands consultant	4,000.
d.	Pre-Demo Hazmat Survey, Abatement Spec / Monitoring	12,000.
e.	Licensed Site Professional / Testing (Allowance)	25,000.
f.	Geotechnical Engineer / Borings	10,000.
g.	Construction Materials Testing	30,000.
h.	Commissioning	40,000.
i.	Legal / Bonding Counsel	By Town
j.	Printing / Reproduction	10,000.
k.	Legal Advertising / Bidding	1,000.
l.	Owner's Project Manager (OPM)	250,000.
m.	Clerk of the Works	By OPM
n.	Moving / Relocation Expenses (Twice)	32,000.
o.	Furnishing / Equipment (Allowance)	125,000.
p.	Telephone / data Systems (est.)	100,000.
q.	Radio / Antenna systems (est.)	55,000.
r.	Project Development Contingency @ 5%	79,000.
Sub Total:		\$ 1,550,125.

7. TOTAL PRELIMINARY PROJECT BUDGET SUMMARY: \$ 11,347,920.

8. ALTERNATE BID COSTS

a.	Antique Fire Pump Display Facility at 280 SF @ \$275/SF	\$ 77,000.
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9. QUALIFICATIONS

- a. This Summary of Probable Project Cost is based on a previous Public Safety Space Needs Assessment (2012) and Conceptual Site Engineering Drawings dated December 28, 2016, and the following assumptions:
1. Normal Construction schedule has been used to prepare this Estimate.
 2. Premium time costs are not included. Costs are based on forty-hour workweek, Mon. thru Fri.
 3. This Summary is based on prevailing wage rates.
 4. No costs are included for disposal or remedial work for underground fuel tanks.
 6. Items that could impact this Summary are:
 - a. Unforeseen subsurface conditions
 - b. Restrictive technical specification
 - c. Non-competitive bid conditions (less than five qualified bids)
 - d. Sole source specification of materials or products
 - e. Delays beyond the project schedule or **January 2018 bid date**
 - f. Accelerated completion
 - g. Unforeseen permitting conditions
 - h. USGBC / LEED Rating and Certification
- b. This opinion of Probable Budget Estimate of Project Cost is made on the basis of the experience, qualifications and best judgment of CBA's Professional Staff. This Estimate is for budgeting purposes only; actual construction value is determined after the completion of the Construction Documents and the Bid Award process. Variance of +/- 5% of the Estimate is probable.



OPINION OF PROBABLE CONSTRUCTION COSTS

Combined Site Work

ITEM DESCRIPTION	QTY	MATERIAL COSTS		LABOR COSTS		ESTIMATE	TOTAL
		UNIT	INDEX	UNIT	INDEX		
Mobilize/Demobilize	1	LS	0.00	5,000.00	1.00	5,000.00	5,000.00
Environmental Protection	1	LS	0.00	0.00	1.00	7,500.00	7,500.00
Demo Bit Conc Curb	680	LF	0.75	0.00	1.75	1,190.00	1,700.00
Demo Bit. Conc. Road Pavement	2,500	SY	1.00	0.00	7.00	17,500.00	20,000.00
Demo 8" Road Base	585	CY	1.25	0.00	3.75	2,193.75	2,193.75
Demo & Salv Misc Site Items	1	LS	0.00	0.00	0.00	2,500.00	2,500.00
Demo Reinf. Conc. Walks	255	SY	5.30	1,351.50	7.95	2,027.25	3,378.75
Demo Ex. Trees	4	EA	500.00	2,000.00	750.00	3,000.00	5,000.00
Strip & Stockpile Topsoil	500	CY	24.00	12,000.00	36.00	18,000.00	30,000.00
Gen'l Earth Excavation	4,000	CY	7.20	28,800.00	10.80	43,200.00	72,000.00
Gen'l Trench Excavation	150	CY	12.00	1,800.00	18.00	2,700.00	4,500.00
Foundation Trench Excavation	280	CY	12.00	3,360.00	18.00	5,040.00	8,400.00
Temp. Shoring & Remove	2,000	SF	12.00	24,000.00	18.00	36,000.00	60,000.00
New Road Base Material (12")	1040	CY	24.00	0.00	33.00	34,320.00	59,280.00
Grade & Compact Sub-base	3,120	S.Y.	0.25	0.00	3.25	10,140.00	10,140.00
New Bit. Conc. Road Binder (2")	3,120	SY	4.55	14,196.00	6.80	21,216.00	35,412.00
New Bit. Conc. Road Top (1.5")	3,120	SY	3.75	11,700.00	5.65	17,628.00	29,328.00
New Bit. Conc. Curb	750	LF	1.50	1,125.00	2.50	1,875.00	3,000.00
New Reinf. Conc. Slab (6")	8,000	SF	5.60	44,800.00	8.40	67,200.00	112,000.00
New Asphalt Walks	300	SY	4.50	1,350.00	6.00	1,800.00	3,150.00
New Conc. Walks	500	SF	4.80	2,400.00	7.20	3,600.00	6,000.00
Trench/Backfill/Bedding (3' Depth)	250	LF	3.50	875.00	7.40	1,850.00	2,725.00
Trench/Backfill/Bedding (5-6' Depth)	350	LF	6.10	2,135.00	11.50	4,025.00	6,160.00
Sanitary Sewer Line (Gravity)	72	LF	4.80	345.60	7.20	518.40	864.00
Water Line CI (6")	150	LF	26.00	3,900.00	39.00	5,850.00	9,750.00
Tapping Service Tee	1	EA	118.00	118.00	177.00	177.00	295.00
Gate Valve & Box	1	EA	496.00	496.00	744.00	744.00	1,240.00

Item Description	Quantity		Unit	Material Cost (\$)	Labor Cost (\$)	Overhead (\$)	Total Cost (\$)	Notes
	Estimate	Actual						
New Segmental Block Wall	3,250	SFF	4.50	14,625.00	5.50	17,875.00	10.00	32,500.00
Foundation Drains (4")	500	LF	6.00	3,000.00	9.00	4,500.00	15.00	7,500.00
Storm Drain (12")	600	LF	10.00	6,000.00	6.65	3,990.00	16.65	9,990.00
Drain Structures (CB's & Manholes)	7	EA	1,400.00	9,800.00	2,100.00	14,700.00	3,500.00	24,500.00
Oil/Water Separator	3	EA	12,600.00	37,800.00	5,400.00	16,200.00	18,000.00	54,000.00
Concrete Light Pole Bases	8	EA	260.00	2,080.00	390.00	3,120.00	650.00	5,200.00
Misc. Conc. Pads (Reinf.)	1	LS					6,000.00	6,000.00
Site Rough Grading	5,500	SY	0.25	1,375.00	0.75	4,125.00	1.00	5,500.00
Spread Topsoil	500	CY	1.00	500.00	4.00	2,000.00	5.00	2,500.00
Topsoil, Fine Grade	600	SY	1.00	600.00	4.50	2,700.00	5.50	3,300.00
Lawn, Seed, Fert., Lime, Maint.	600	SY	1.50	900.00	3.00	1,800.00	4.50	2,700.00
Landscap Plantings	1	LS					1,500.00	1,500.00
Chain Link Fence (6')	250	LF	14.00	3,500.00	21.00	5,250.00	35.00	8,750.00
Protective Bollards	34	EA	350.00	11,900.00	150.00	5,100.00	500.00	17,000.00
Signs & Posts	6	EA	210.00	1,260.00	140.00	840.00	350.00	2,100.00
Guardrail	200	LF	50.00	10,000.00	75.00	15,000.00	125.00	25,000.00
Traffic / Parking Pavement Markings	1	LS					1,500.00	1,500.00
Relocate Memorial Artifacts	1	LS					30,000.00	30,000.00
Relocate Exist. Utilities	1	LS					10,000.00	10,000.00
Temp Access Rd Barriers	1	LS				0.00	3,000.00	3,000.00
Disposal of Contaminated Soil (est.)	100	CY	0.00	0.00	100.00	10,000.00	100.00	10,000.00
Storm Water Measures	1	LS					45,000.00	45,000.00

\$809,056.50

BUDGET ESTIMATE OF PROBABLE PROJECT COSTS

March 20, 2017

Basis of Design: Conceptual Public Safety Site Plan, Option No. 4A dated: 3/20/2017
Retention of Public Safety Building during Construction of Fire and Police Dept.
Construction of new 15,820 SF Fire Headquarters
Renovation of existing 7,880 SF Public Safety Facility for new Police Headquarters

1. SITE WORK

a. Site Work (Allowance) \$ 539,300.

2. CONSTRUCT NEW FIRE HEADQUARTERS

a. Construct new Fire Headquarters \$ 4,113,200.
15,820 SF @ \$260/SF (Avg.)

3. TEMPORARY RELOCATION OF POLICE DEPARTMENT.

a.	Site Work Preparation for Additional Office Trailers	\$ 4,000.
b.	Temporary Utility Connections / Disconnections	5,000.
c.	Modular Office Delivery / Installation	8,000.
d.	Modular Office Lease @ 6 mo.	18,000.
e.	Modular Office Disassembly / Return	8,000.
f.	Modular Office Performance Bond	1,000.
g.	Remove Existing Office Trailer	By others
h.	Miscellaneous Temporary Measures / Allowance	15,000.
Sub Total Temporary Facilities & Measures:		\$ 59,000.

4. RENOVATIONS TO EXISTING PUBLIC SAFETY

a.	Abate Public Safety Building (Allowance)	\$ 24,000.
b.	Seismic Improvements (Allowance)	100,000.
c.	Masonry Repairs (Allowance)	30,000.
d.	Replace Roofing	104,400.
e.	Replace Exterior Window / Doors	130,700.
f.	Furr and Insulate Exterior Wall	30,200.
g.	General Renovations including Mech / Elec. (Allowance) 7,880 s.f. @ \$160 / SF	1,260,800.
h.	New 3-Stop Elevator	100,000.
i.	Automatic Fire Sprinklers	51,200.
j..	New Replacement Fire Escape Addition	54,000.
Sub Total Renovations to Existing Public Safety:		\$ 1,885,300.

5. CONSTRUCTION FACTORS

a.	Design/Study Contingency @ 15%	\$ 989,500.
b.	Restricted Site / Phased Operation @ 5%	379,300.
c.	Escalation to Mid-Pt of Construction (9/18) @ 9%	716,900.
d.	Construction Contingency @ 5%	434,100.

: **Sub-Total Construction Costs: \$ 9,116,600.**

6. PROJECT DEVELOPMENT EXPENSES

a.	Architectural / Engineering Fee @ 7.85% (DCAMM Sched.)	\$ 715,600.
b.	Site/ Property Survey	8,000.
c.	Environmental / Wetlands consultant	4,000.
d.	Pre-Demo Hazmat Survey, Abatement Spec / Monitoring	12,000.
e.	Licensed Site Professional / Testing (Allowance)	25,000.
f.	Geotechnical Engineer / Borings	10,000.
g.	Construction Materials Testing	30,000.
h.	Commissioning	40,000.
i.	Legal / Bonding Counsel	By Town
j.	Printing / Reproduction	10,000.
k.	Legal Advertising / Bidding	1,000.
l.	Owner's Project Manager (OPM)	250,000.
m.	Clerk of the Works	By OPM
n.	Moving / Relocation Expenses	20,000.
o.	Furnishing / Equipment (Allowance)	125,000.
p.	Telephone / Data Systems (est.)	100,000.
q.	Radio / Antenna systems (est.)	55,000.
r.	Project Development Contingency @ 5%	70,000.
Sub Total Project Development:		\$ 1,475,600.

7. TOTAL PRELIMINARY PROJECT BUDGET SUMMARY: \$ 10,592,200.

8. ALTERNATE BID COSTS

a.	Antique Fire Pump Display Facility at 280 SF @ \$275/SF	\$ 77,000.
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9. QUALIFICATIONS

- a. This Summary of Probable Project Cost is based on a previous Public Safety Space Needs Assessment (2012) and Conceptual Site Engineering Drawings dated December 28, 2016, and the following assumptions:
1. Normal Construction schedule has been used to prepare this Estimate.
 2. Premium time costs are not included. Costs are based on forty-hour workweek, Mon. thru Fri.
 3. This Summary is based on prevailing wage rates.
 4. No costs are included for disposal or remedial work for underground fuel tanks.
 6. Items that could impact this Summary are:
 - a. Unforeseen subsurface conditions
 - b. Restrictive technical specification
 - c. Non-competitive bid conditions (less than five qualified bids)
 - d. Sole source specification of materials or products
 - e. Delays beyond the project schedule or **January 2018 bid date**
 - f. Accelerated completion
 - g. Unforeseen permitting conditions
 - h. USGBC / LEED Rating and Certification
- b. This opinion of Probable Budget Estimate of Project Cost is made on the basis of the experience, qualifications and best judgment of CBA's Professional Staff. This Estimate is for budgeting purposes only; actual construction value is determined after the completion of the Construction Documents and the Bid Award process. Variance of +/- 5% of the Estimate is probable.