Proposed New Fire Station and EMS Facility Programming and Site Analysis – Chilmark, MA

January 13, 2016

PACHECO ROSS ARCHITECTS, P.C.

EMERGENCY RESPONSE FACILITIES

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Executive Summary

Chilmark, MA Board of Selectmen want to study the feasibility of locating a new fire station on the 1.41 acre site located at 399 Middle Road, Parcel 26-94.93. The Town has an option to purchase the property and needs to know if the site is suitable for a new fire station. Additionally, Chilmark also wanted to evaluate adding an EMS component from Tri-Town Ambulance to the fire station to see if a combined facility will fit on this parcel.

Pacheco Ross Architects, P.C. (PRA) met with Town Officials, Fire and EMS personnel, toured several new and existing fire and EMS stations on Martha's Vineyard and spoke with several Boards and Commissions from 1/4/16 – 1/6/16. PRA also walked the parcel and surrounding area. We acquired specific site information, reviewed the topographic survey of the property, photographed the site and gathered anecdotal information such as a possible apparatus drive connector through the Church property to the West.

Our conclusions and recommendations are based on a single story facility that meets current MA state building codes, complies with MA application of the American's with Disabilities Act (ADA) and meets general NFPA and FEMA standards for fire and EMS facilities. We assume the facility will be energy efficient, built using materials, infrastructure and systems to stand for the next 50 – 75 years. PRA was also tasked with evaluating the future flexibility and building expansion on the site: could another bay and additional non-bay space be added?

While not tasked with actual building design or budgeting, PRA site layouts account for massing, materials, heights, plan layout, design details, aesthetics and budget. All of these considerations are extremely important to the community and its residents and how a potential emergency response facility can fit into the Town Center of Chilmark. These considerations also affect structure, layout and site concerns such as topography that impact future project budgets. Our proposed layouts take into account these and other factors and concerns found during design. The proposed layouts are feasible solutions within the context of our scope of work.

Initial critical questions to be answered prior to purchase of the land are:

- Will only the fire station project fit on the site?
- Will the fire station be able to be expanded in the future?
- Will the EMS component fit on the site if added to the fire station?
- Will this combined facility be able to be expanded in the future?

Our base analysis looked at the property exactly as it lies: This means we evaluated the possible facility layout(s) in strict accordance with respect to no infringement of wetlands, wetland buffers or setbacks. In further analysis, we looked at how the possible layouts are positively, negatively or not affected at all if we are able to utilize setbacks, infringe upon the buffer or mitigate wetlands. Such infringement may be the building, site amenities, paved areas, all or any.

An identified concern from the Fire Chief is the tight tuning radius at Beetlebung Corner going north from Middle Road towards Menemsha. The Town owns the property at this corner and can expand the turning radius if the Middle Road parcel is utilized. This should be a part of the project if it moves forward.

Programming and Space Analysis

To start the process of evaluating a site, PRA needed to find out what each Department required for operations now and into the foreseeable future. To do this we created an Operations based Program for the fire and EMS departments. Our Program is a needs analysis integrated with a detailed operational and response assessment. Based on the program, we developed a Space Analysis spreadsheet to determine approximate room and building size.
From our meetings with each department and the Town, the Program and Space Analysis are meant to:

- Determine the scope and operations of fire and EMS by employing tools and techniques developed by PRA specifically for emergency response facilities. The program anticipates additional needs, changing operations over time and the flexibility to accommodate these needs.
- Describe critical functions, training regimens, specific requirements and activities within the building and on the site. It identifies crucial operations, priorities, security/public protocols, important response issues and operational efficiencies.
- Examine the requirements for gender equity, bunking now and in the future and the unique living environment for the responders.
- Examine current and future technologies and assess integrated training regimens for both active and classroom training.
- Examine pros and cons of shared space and facilities. Spaces such as public areas, day room, mechanical, storage, drives, parking etc. may be shared in a combined facility.

Each Department involved in the Programming was very cognizant of finding ways to share space, utilize innovative methods for creating multi-purpose space and tasked PRA with helping to find space that could be trimmed without compromising function.

Site Evaluation

PRA developed a land parcel observation system to help determine the quality of a site for a public safety facility. We utilized this system during the site observation walk and in reviewing the survey. Our system uses a two (2) stage process. The first stage addresses the physical characteristics of the land including; parcel size and shape, road frontage and access, topography (cut/fill), accessibility, utilities, drainage, detrimental natural features, demolition hazards and underground or hazardous waste. These attributes are common to most parcels of land.

The second stage addresses program size and scope requirements, fire and EMS issues including traffic separation, parking, ease of apparatus exiting/returning, safety/security, build-ability and land available around building for future expansion. Each category for both stages of our observation is explained in greater detail in the Appendix.

A topographic property survey from Vineyard Land Surveying shows boundaries, parcel size, easements, existing physical features, utility locations and existing structures and was utilized as a base for the proposed site layouts.

The site contours will necessitate some retaining walls in order for the building to be designed as a single story with no steps or elevator. Internal ramps from the Administration area to the Bays may mitigate some of the height changes necessary. We believe retaining walls should be no higher than 4’ and able to be dissipated into the grade over relatively short lengths.

The Fire Chief would like some exterior training regimens such as a concrete pad and ability to lay hose and draft. A training pad is located in each option. Drafting, which requires a water source and somewhere to direct the stream appears non-feasible in Option 1 that respects all setbacks and no build zones. It may be possible to design a system for Option 2 within the wetland buffer zone.

Fire stations require paving for drives, parking and response aprons. Combined with the building footprint, much of the vegetation currently found on the site would be impacted. We suggest mitigating strategies such as robust buffers to the adjacent properties to the East and West. Berms, plantings, landscape elements, fencing and other site improvements should be considered.

Summary and Conclusions

Programming, Space Analysis and Site

The Program and Space Analysis indicate the following approximate requirements:

- Fire and EMS combined Station – **10,400 sq. ft.**
- Fire Station Only – **8,100 sq. ft.**

The Program and Space Analysis are included in the Appendix.

For the size of the Town, type and number of apparatus, its annual increase in summer population, response volume and emergency capabilities the Program and Space Analysis sizes are reasonable. In our extensive experience this falls in line with similar response operations facilities. We objectively compared the Program and Space Analysis results to a proprietary database of over 300 fire stations from across North America. The program requirements fell well below the North American average of 17,500 sq. ft. for a volunteer facility.

Other than the infringement of setbacks, wetlands and wetland buffer areas, the site posed no unusual or insurmountable issues. These infringements however reduce the amount of useable area for building footprint and paved areas. Site contours will trigger the need for some retaining walls. There needs to be adequate space for a building generator, septic field (expanded if the building grows in the future) and hopefully a drafting training area.

To answer the initial critical questions posed:

- Will only the fire station project fit on the site? **Yes, with conditions**
- Will the fire station be able to be expanded in the future? **Yes, with limitations**
- Will the EMS component fit on the site if added to the fire station? **Yes, if the station is moved to the edge of the buffer zone**
- Will this combined facility be able to be expanded in the future? **Yes, with limitations and conditions**

Professional Opinion

Option 1

The usable area of the site is tight. **Option 1** shows just the fire station as it can sit on the parcel while respecting all setbacks and buffers. There may be other unknown conditions outside the scope of this investigation, such as buried rock, archeological artifacts, etc. that can affect the site. The response drive is located within a portion of the wetland buffer zone. This will be the case with any drive into the property and cannot be avoided. Future expansion as shown on the Option 1 layout would mean using the east setback for paving and driveway.

While the facility **does** fit on the site, options for its layout are very limited. For example, when trying different bay and response configurations, such as drive-through bays or double-deep bays, neither option was feasible. Parking is also an issue with only 11 spaces anticipated. Shared parking with other adjacent buildings can help alleviate the parking issue.

Option 2

This option utilizes the wetland buffer zone and a portion of the west setback. **Option 2** moves the face of the apparatus bays to align with the wetland buffer zone. The apparatus bay apron is now located in this buffer zone. The drive is essentially the same as Option 1. The proposed building also sits within a portion of the west setback. Option 2 allows us to create a larger facility that includes the EMS component of the Program. It also has 29 parking spaces and can accommodate an additional future bay space by sacrificing the five east parking spaces. **The Select Board and various Town commissions must be absolutely certain that they are willing to propose a combined fire/EMS station layout that has some infringement of the buffer and setback zones.**

Option 2 offers the Town, Fire Department and Tri-Town Ambulance a viable new station of needed size and function, future flexibility and parking as reflected in the Program. The Board of Selectmen must weigh the cost and viability of the parcel on 399 Middle Road now, or wait an indeterminate amount of time until other viable, well located land becomes available. **They must also decide if infringing on the setbacks is feasible. If so, Option 2 demonstrates that a workable site layout for both fire and EMS with future growth and adequate parking is possible.** Either option offers the Program, Space Analysis and concept site layouts as useable information going forward.

Recommendations

Our Professional Opinion is to choose an optimal solution such as Option 2 with preferred variables such as the infringements shown on the plan. Then proceed to the next steps required for a project. To complete the land purchase it would be prudent to perform a hazardous materials report on the existing structures and complete a Phase I Environments Site Assessment (ESA). The Town has already decided to expand the limits of the survey to included Beetlebung Corner and more of the adjacent Town property, specifically the wetlands. The Town should also contract for a geotechnical report based on soil borings that satisfies the code requirements for an essential services facility.

As previously mentioned, building design and budgeting were not tasks for this scope of work. **We suggest that the Town engage a qualified Architect to move forward with a schematic design and budget.** This will benefit the Town in several ways. From the schematic design, the budget can be refined to a greater degree of accuracy than utilizing a per sq. ft. number. A schematic design will generate graphics that are much easier for people to visualize and understand than conceptual site layouts. A design will also help correlate the costs with a tangible facility layout. All these benefits will help the Town with Community presentations and staff understanding of the proposed project.

N

W E

IP found

±141'

25' setback

±80'

DH found

Edge of Clearing

25' setback

25' setback

Existing Driveway

Stonewall

Existing Dwelling

Fenced in Garden

Shed

±141'

±266'

#399 Middle Road
Assr.–Pcl. 26–94:93
Area = 1.41 Acres

Bushes

Edge of Clearing

100' Buffer Zone

Existing Driveway

Stonewall

O–H–W

Existing Well

DH found

Electric Meter

DH found

Utility Pole

Edge of Wetlands

Old Well Pit

±176'

Middle County Road
(Undefined – Public)

Wetlands Delineated
By Cooper Environmental
December 30, 2015

±124'

Stonewall

Utility Pole

Site Plan in
Chilmark, Mass.
Prepared for
The Town Of Chilmark
Scale 1" = 20'
December 31, 2015

VINEYARD LAND SURVEYING & ENGINEERING, INC.
12 Cournoyer Road, P.O. Box 421 West Tisbury, MA 02575
P 508.693.3774 F 508.629.0440

Job No. 1573–1

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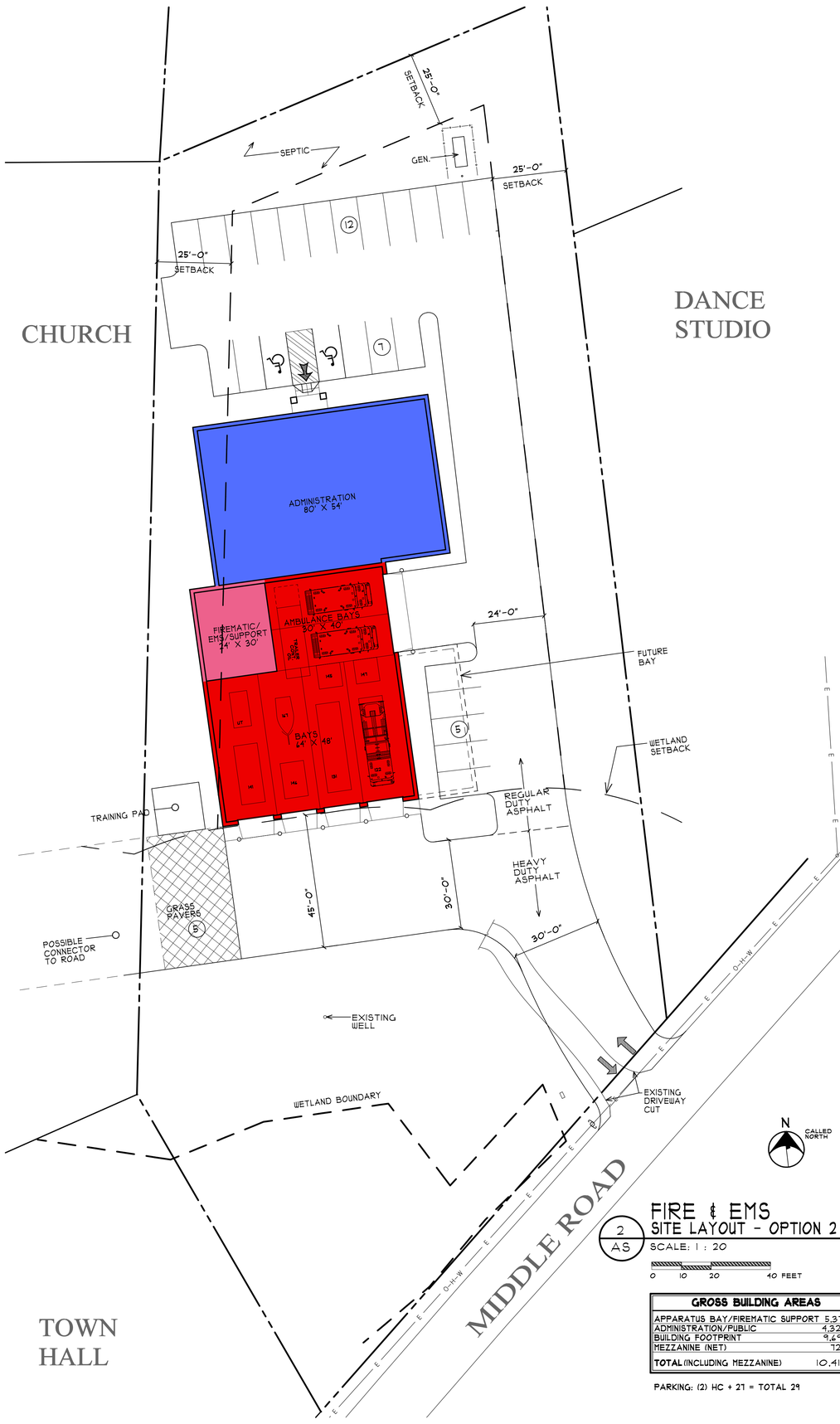


FIRE & EMS
SITE LAYOUT - OPTION 2

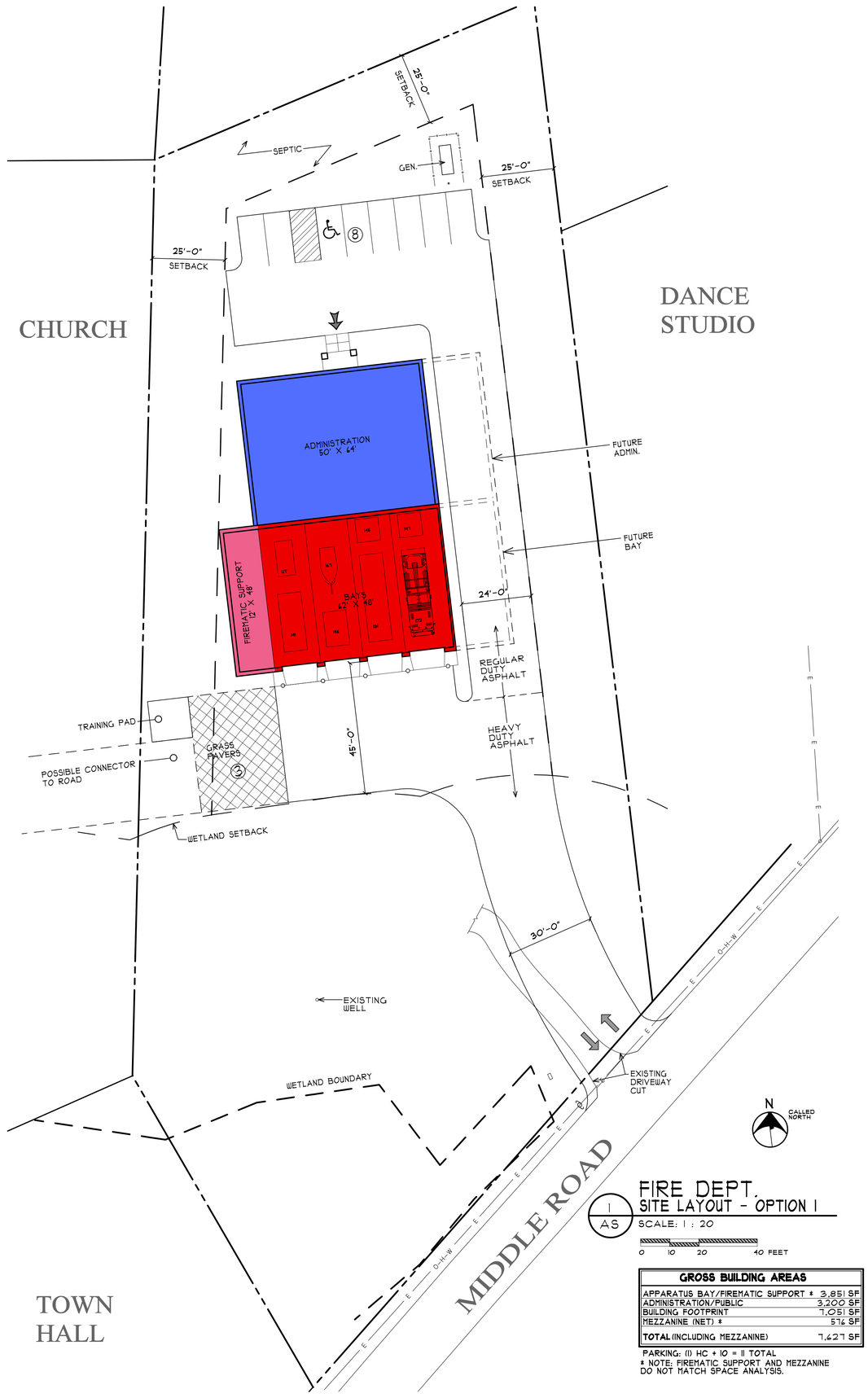
2 / AS

SCALE: 1 : 20

0 10 20 40 FEET

GROSS BUILDING AREAS	
APPARATUS BAY/FIREMATIC SUPPORT	5,318 SF
ADMINISTRATION/PUBLIC	4,320 SF
BUILDING FOOTPRINT	9,698 SF
MEZZANINE (NET)	720 SF
TOTAL (INCLUDING MEZZANINE)	10,418 SF

PARKING: (2) HC + 27 = TOTAL 29



FIRE DEPT.
SITE LAYOUT - OPTION 1

1 / AS

SCALE: 1 : 20

0 10 20 40 FEET

GROSS BUILDING AREAS	
APPARATUS BAY/FIREMATIC SUPPORT *	3,851 SF
ADMINISTRATION/PUBLIC	3,200 SF
BUILDING FOOTPRINT	7,051 SF
MEZZANINE (NET) *	576 SF
TOTAL (INCLUDING MEZZANINE)	7,627 SF

PARKING: (1) HC + 10 = 11 TOTAL
* NOTE: FIREMATIC SUPPORT AND MEZZANINE DO NOT MATCH SPACE ANALYSIS.

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NEW PUBLIC SAFTEY FACILITY
TOWN OF CHILMARK
399 MIDDLE COUNTY ROAD, CHILMARK, MA 02535

PRELIMINARY
NOT FOR CONSTRUCTION

PRELIMINARY SITE LAYOUTS

SCALE: AS NOTED
DWG. BY: KNP
DWG. ID#: P:\CHILMARK\CM_ASX.AEC

DWG DATE: 01-15-2016

DWG. DATE	DESCRIPTION

STATUS: PRELIMINARY

AS

PLOT TIME: 3:49 PM

PACHECO ROSS ARCHITECTS, P.C.

EMERGENCY RESPONSE FACILITIES

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Chilmark, MA Fire/EMS Program – Beetlebung Corner
Program Meeting Date: January 4 & 5, 2016

A General Information

A1. Type of Entity: **Town Department**

A2. County: **Dukes**

A3. **Program Attendees**

	Name	Title
A3.1.	**Timothy Carroll**	**Executive Secretary**
A3.2.	**David Norton**	**Fire Chief**
A3.3.	**Various Volunteers**	**Members**
A3.4.	**Ben Retmier**	**Tri-Town Ambulance**

A4. Number of Companies or Departments involved: **One fire and ambulance squad**

A5. Date of Fire Dept. monthly meeting: **First Monday**

A5.1. Other Fire Meeting: **Drill second Monday, Chiefs third Monday, twice/year**

A6. Town or Municipal Monthly Meetings: **1st & 3rd Tuesdays**

A7. Zoning: **Required** Exempt: **No** Variance: **Required**

A7.1. Allowable use: **Yes** Special Exception: **Required for specific site issues**

A7.2. Other Jurisdictions: **Yes, neighbors control side setbacks – at their discretion**

A8. Sustainable Design Options: LEED: **No**

B Fire/EMS Responders/Staff

B1.1. Paid: **Fire Chief**

B1.2. Fire Volunteers: **Yes**

B1.3. On Call: **No**

B1.4. Fire Vehicle Staffing: **Driver only – all others show up on site**

B1.5. Fire Members - **17M, 3F**

B2. **Fire/EMS Responders/Staff** Paid: **EMS Chief,**

B2.1. Paid: **EMS Chief**

B2.2. Paid: **3M, 1F and 2 vacancies**

B2.3. EMS Volunteers: **12M, 10F**

B2.4. Per Diem: **7M, 6F**

B2.5. Vehicle Staffing: **2/ambulance**

B2.6. EMS Totals - **male: 22, female: 17, vacancies: 2**

B2.7. Fire and EMS Calls/year: **350** Fire: **50** Rescue: **300** Transport: **Mostly summer months**

C Response

C2.1. Fire: **Yes**

C2.2. EMS: **Yes** ALS: **EMS Squad** Transport: **Yes**

C2.3. Heavy Rescue: **No**

C2.4. HAZ MAT: **Yes**

C2.5. Water Rescue: **Yes** Ice Rescue: **Yes**

C2.6. Dive Team: **On Island**

C2.7. Other: **Ocean and overland areas**

D Active Training

D1. Mezzanine: **As much as possible**

D1.1. Rappelling: **Yes**

D1.2. Stairs: **Yes**

D1.3. Windows: **Yes**

D1.4. Hose: **Yes**

D1.5. Confined Space: **Yes**

D1.6. Bail Out: **Yes**

D1.7. Manhole: **Yes**

D1.8. Other Uses: **Storage**

D1.9. Other Specialized Training: **As applicable on mezzanine or in the bays**

D2. Active Training on the site

D2.1. Pad(s): **If possible**

D2.2. Apron: **Training for apparatus**

D2.3. Drafting: **If possible**

E Miscellaneous

E1. Emergency Shelter: **Yes, for responders**

E1.1. Tourist Walk-off: **Not required**

E2. Access control

E2.1. Electronic access: **Yes** Describe: **FOB**

E2.2. Vendor's access/drop off: **Not required**

E2.3. Mutual Aid: **NA**

F Site

F1. Ownership Status: **Town to decide on ownership**

F2. Size: **1.41 acres**

F3. Shape: **Generally rectangular**

F4. Tax map and Number: **26-94.93**

F5. Geotechnical report status: **None**

F6. Survey status: **Yes, Vineyard Land Surveying**

F7. Soils: **Clay and fill**

F8. Slope: **10'-15' N-S with 5' at road**

F9. Existing structures: **House and shed**

F10. Vegetation: **Scrub and trees**

F11. Wetlands: **Yes, SW corner at road**

F12. Rock: **Unknown**

F13. Historic: **No**

F14. Frontage: **176' total, 50' usable at east** Depth: **400' +/-**

F15. Local Road: **Yes**

F16. Ingress/Egress: **Fair**

F17. View lines: **OK**

F18. Traffic control: **None**

F19. Outdoor Recreational Needs: **NA**

F20. Dumpster: **No** Fuel tanks: **No** Satellite Dish: **No**

F21. Responder parking spaces: **3-4 for drivers**

F22. Public and volunteer parking spaces: **25-30**

F23. Signage: **Yes** Flagpoles: **Yes**

F24. Utilities at site

F24.1. Well Water: Size: **Existing 4" (will need to be increased)** Location: **Center of parcel toward south**

F24.2. Outdoor hydrant: **No**

F24.3. Septic: **Yes** Location: **Rear of property**

F24.4. Storm: **In street** Type: **Leads directly to wetlands on site**

F24.5. Electric: **Yes**

F24.6. Gas: **None**

F24.7. Phone: **Yes**

F24.8. Cable: **Yes**

Operations/Response

1 Apparatus Bays

1.1 Number of vehicles: Now: **11** Future: **one**

1.1.1 Name: **122** Type: **Engine** Length: **30** Weight: **33,000** Capacity: **1,000**

1.1.2 Name: **131** Type: **Brush Breaker** Length: **30** Weight: **40,000** Capacity: **700**

1.1.3 Name: **141** Type: **Tahoe** Length: **20**

1.1.4 Name: **146** Type: **UTV** Length: **12**

1.1.5 Name: **145** Type: **ATV** Length: **8**

1.1.6 Name: **147** Type: **ATV** Length: **8**

1.1.7 Name: **167** Type: **Jet Ski** Length: **16**

1.1.8 Name: **Utility trailer** Length: **12**

1.1.9 Name: **Oil containment trailer** Length: **24 with 7' door**

1.1.10 Name: **Ambulance** Type: **Box** Length: **22**

1.1.11 Name: **Ambulance** Type: **Box** Length: **22**

1.2 Type of bays:

1.2.1 Number of Drive-through: **Not possible on proposed site**

1.2.2 Number of Double deep: **One for EMS ambulance and spare**

1.2.3 Number of Single deep: **4 fire bays**

1.3 Total Number of Bays: **6**

1.4 Future expansion of bays: **Yes - one**

1.5 Front line response: **4-5**

1.6 Overhead doors: **14' x 14' and 12' x 14' high**

1.7 Gear lockers: **15** Future: **5, located on bay walls**

1.8 Catch Basins: **Yes, to oil/water separator to holding tank, look at gas separator for oil/water separator**

1.9 Hose reels: **Yes** Type and Quantity: **2 req'd, One with hot and cold. Hanay - Wall mounted with 40 x 3/4" hose**

1.10 Fume exhaust: **Yes – Hose type system – Not Magnagrip**

1.11 Truck fills: Wall hydrant: **If well will support the flow**

1.12 Overhead Fans: **Yes each bay between apparatus**

1.13 Electrical drops: **Yes all bays**

1.14 Air drops: **Yes** Brakes: **Yes**

1.15 Compressed air for tools: **Yes**

1.16 Sink: **Deep bowl**

1.17 Epoxy Flooring: **Alternate** Sealer: **Yes** Polished Concrete: **Alternate**

1.18 Ice Machine: **Yes if EMS locates in bays**

2 Mezzanine

2.1 Describe: **Yes, chain link fence for secure storage**

2.2 Size: **As large as possible, at rear of bays**

Firematic/EMS Support

3 Storage Room #1

3.1 Location: **Bays**

3.2 Size: **12' x 12'**

3.3 Security: **No**

3.4 Adjacencies/comments: **Some shelving**

4 Work Room

4.1 Type of work: **Minor repairs**

4.2 Workbench: **Yes**

4.3 Tool storage: **Yes**

4.4 Power tools: **Yes**

4.5 Air: **Yes**

4.6 Water: **No, use bays sink**

4.7 Size: **10' x 12'**

4.8 Security: **Yes**

4.9 Adjacencies/comments: **Flexibility for additional future uses**

5 Firematic DeCon/Laundry

5.1 Sink: **Yes**

5.2 Extractor: **Yes, to be purchased**

5.3 Gear dryer: **For dive gear**

5.4 Clothes washer: **Yes** Clothes Dryer: **Yes**

5.5 Drench/Eye Wash: **Yes**

5.6 Size: **12' x 15'**

5.7 Adjacencies/comments: **Shower stall, floor drain**

6 EMS DeCon

6.1 Red Bag: **Yes**

6.2 Blood borne pathogens: **Yes – on occasion**

6.3 Holding tank: **Yes, blood borne pathogens**

6.4 Sinks: **Yes** Foot Pedal: **Yes** Counters: **Yes**

6.5 Clothes Washer: **Use fire washer & dryer**

6.6 Backboard cleaning: **Yes**

6.7 Exterior Door: **Yes**

6.8 Drench Shower: **Yes**

6.9 NFPA 1581: **Preferred**

6.10 Size: **12' x 12'**

6.11 Adjacencies/comments: **Near Firematic DeCon, floor drain, hose bib**

7 EMS Storage

7.1 Use: **Restock ambulances**

7.2 Size: **4' x 8'**

7.3 Security: **Yes**

7.4 Adjacencies/comments: **Small secure medical cabinet, shelving all around, adjacent ambulance(s)**

8 Air Room (SCBA)

8.1 Size: **12' x 15**

8.2 Sink: **One** Counters: **Small**

8.3 Air compressor: **Yes**

8.3.1 Remote fill station: **Yes**

8.4 SCBA storage: **Yes** Air Bottles – Rack: **8**

8.5 Repair: **Future**

8.6 Adjacencies/comments: **AC and exhaust for compressor, O2 tank storage for EMS**

9 Turnout Gear Lockers

9.1 Locker: **GearGrid** Size: **20" x 24"** Quantity: **15** Future: **5**

9.2 Gear Dryer: **Yes, 4 suit Dehydrator brand**

9.3 Adjacencies/comments: **In bays mounted on walls**

10 Communications Room

10.1 Location: **Near Chief's Office**

10.2 Seating requirements: **Two**

10.3 Computer equipment: **Yes**

10.4 Closed Circuit TV, Phones, Weather Station: **Yes**

10.5 Use: **For weather events**

10.6 Size: **8' x 8'**

10.7 Adjacencies/comments: **Administration side of facility**

11 Rest Room for Apparatus Bays

11.1 Describe: **Unisex**

11.2 Plumbing: **Hose bib, sink, wall hung water closet, urinal, floor drain**

11.3 Finishes: **Hard surfaces easily cleaned, tile floor, Floor Drain, moisture resistant ceiling**

Firefighters/EMT's

12 Firefighter's/EMS Day Room

12.1 Describe: **Volunteers and EMT's** Number of Seats/Type: **8**

12.2 Furnishings: **Couch, table and chairs**

12.3 Size: **15' x 20'**

12.4 Adjacencies/comments: **TV, data/phone, direct path to bays, adjacent to kitchen**

13 Kitchen

13.1 Describe: **Residential**

13.2 Equipment: **Stove, refrigerator, microwave, under counter DW**

13.3 Refrigerators: **One**

13.4 Food Storage: **Cabinets**

13.5 Size: **15' x 15'**

13.6 Finishes/Materials: **Tile floor, cleanable walls**

13.7 Dining: **Counter or small table**

13.8 Adjacencies/comments: **Recycle bins, grease trap, small ice machine, water line to coffee maker, floor drain, Type II – Residential Hood, Vented to Exterior**

Bunking

14 Fire and EMS Bunkers/Bed Rooms

14.1 Double: **Two for each group, M & F (requested quads – do as future space)**

14.2 Location: Location: **Direct Path to Bays, Meet NFPA 1581, 3-3.1 "Sleeping Areas"**

14.3 Furnishings: **Beds, nightstand and one small wardrobe**

14.4 Size: **150 sq. ft. each, total: 600 sq. ft.**

14.5 Adjacencies/Comments: **Windows, noise insulation**

15 Bath/Showers/Lockers

15.1 Describe: **Three single bathrooms, sink, wall mounted WC, shower**

15.2 Location: **Adjacent bunks**

15.3 Size: **100 sq. ft. /room, total 300 sq. ft.**

15.4 Adjacencies/comments: **Tile floor, easily cleaned, floor drain, robe hook, small locker**

Administration

16 Training Room

16.1 State or County Programs: **Yes, up to 25 people**

16.2 AV, TV, Screen, Lectern, etc.: **Yes**

16.3 Computer/display: **Yes**

16.4 Lighting/Sound: **Yes, 2-3 levels of lighting**

16.5 Layouts/Use: **Training tables and single chairs**

16.6 Public Access: **Yes**

16.7 Size: **400 sq. ft.**

16.8 Adjacencies/comments: **Accessible to public, chair rail, training tables, TV, screen, data and outlets all around**

17 Training Room Storage

17.1 Use: **Tables and chairs**

17.2 Size: **8' x 10'**

17.3 Adjacencies/comments: **Chair rail,, cabinets above**

18 Conference Room

18.1 Seating: **8**

18.2 AV, TV, Screen, Lectern, etc.: **Yes, Smartboard**

18.3 Computer/display: **Yes**

18.4 Size: **12' x 15'**

18.5 Adjacencies/comments: **Offices, secure side of facility, 2 levels of lighting**

19 Office #1

19.1 Describe: **Fire Chief and Assistant**

19.2 Furnishings: **2 Desks, Credenza, File Cabinets**

19.3 Size: **15' x 18'**

19.4 Adjacencies/comments: **Secure – All Offices, Data, Computer, Wi-Fi, Overhead and Task Lighting, printer**

20 Office #2

20.1 Describe: **Line Officers**

20.2 Furnishings: **2 Desks, File Cabinets**

20.3 Size: **12' x 12'**

20.4 Adjacencies/comments: **Secure – All Offices, Data, Computer, Wi-Fi, Overhead and Task Lighting**

21 EMS Office

21.1 Describe: **EMS Chief**

21.2 Furnishings: **Desk, Credenza, File Cabinet**

21.3 Size: **10' x 10'**

21.4 Adjacencies/comments: **Secure – All Offices, Data, Computer, Wi-Fi, Overhead and Task Lighting**

22 EMS Office #2

22.1 Describe: **Deputy Chief and Administrative Assistant**

22.2 Furnishings: 2 **Desks, Credenza, File Cabinets**

22.3 Size: **12' x 15'**

22.4 Adjacencies/comments: **Secure – All Offices, Data, Computer, Wi-Fi, Overhead and Task Lighting, printer**

23 Network/IT

23.1 Describe: **Located in Chief's Office**

23.2 Security: **Yes**

24 Administration Rest Rooms

24.1 Describe: **M & F**

24.2 Plumbing: **Sink & wall hung WC each, urinal for male**

24.3 Size: **75 sq. ft. each**

24.4 Adjacencies/comments: **Tile floor, floor drain, will need access to training room**

Public Spaces

25 Public Entry Area

25.1 Describe: **Small Lobby near Parking**

25.2 Trophy case(s): **Yes**

25.3 Size: **60 sq. ft.**

25.4 Adjacencies/comments: **Small Lobby near Parking, access to administration through secure door and direct to training room**

26 Dry Storage

26.1 Describe: **Association**

26.2 Size: **8' x 8'**

26.3 Adjacencies/comments: **Secure**

Miscellaneous

27 Janitors Closet(s)

27.1 Describe: **Floor sink** Number: **One**

27.2 Adjacencies/comments: **To service all non-bay areas, shelving, mop/broom holder**

28 Mechanical/Electrical Room

28.1 Equipment: **Boiler, Water heater, Transfer switch, Main disconnect, Panels, Other**

28.2 Size: **15 x 18**

28.3 Adjacencies/Comments: **Close to generator, needs fan exhaust, floor drain, in floor radiant boilers and pumps in this room**

29 Mechanical, Electrical, Plumbing, HVAC, Sprinkler, Alarm

29.1 Mechanical: **Energy Efficient, Simple Controls, CO sensors in ductwork, setback thermostats**

29.2 Fuel type: **Fuel oil for heat and hot water, propane for cooking**

29.3 Heating type in apparatus bay: **In-floor radiant with tankless high-efficiency boilers**

29.4 Heating type elsewhere: **Furnaces or HVAC - Look at Economics**

29.5 Electrical: **Assume 400 – 600 amp**

29.6 Bay lighting: **LED**

29.7 Site lighting: **Off building, some parking lot pole mounted with shields**

29.8 Other lighting requirements: **Occupancy sensors**

29.9 Generator: **Yes entire building** Fuel: **Propane** Location: **Exterior**

29.10 Doorbell: **Yes, With Door Release at Public Entry**

29.11 Electrical requirements: **CAT 6 throughout**

29.12 Plumbing/Sprinkler: **Well, NO SPRINKLER**

29.13 Plumbing requirements: **Storage tank**

29.14 Oil/water separator: **Yes, 1,000 gallon to holding tank, review MA code for gas fumes**

29.15 Grease trap: **Yes, small kitchen tank to holding tank**

29.16 Exterior hose bibs: **yes – one keyed**

29.17 Alarm: **Smoke and heat**

29.18 Security: **FOBS, All Exterior Doors & Critical Interior Doors**

Chilmark, MA Fire Department and Tri-Town Ambulance
Space Analysis
1/4 and 1/5/16

Program Item		1st Floor Area	2nd Floor Area	Area All Floors	Cost Categor	1 Basic Space	2 Standard Space	3 Premium Space
	Apparatus/Training							
1.2.1	1 - Double-Wide Ambulance Bay	1,200		1,200	**1**	1,200		
1.2.2	* 4 - Single-Deep Bays - 48' deep	3,072		3,072	**1**	3,072		
	Subtotal - Apparatus/Training	**4,272**	**0**	**4,272**				
	Firematic Support							
2	Mezzanine		720	720	**1**	720		
3	Storage Room #1	144		144	**1**	144		
4	Work Room	120		120	**2**		120	
5	Firematic DeCon/Laundry	180		180	**2**		180	
6	EMS DeCon	144		144	**2**		144	
7	EMS Storage	32		32	**1**	32		
8	Air Room (SCBA)	180		180	**2**		180	
9	Turnout Gear - in bays	0		0	**1**	0		
10	Communications Room	64		64	**2**		64	
11	Unisex Rest Room(s) for Bays	75		75	**3**			75
	Subtotal - Firematic Support	**939**	**720**	**1,659**				
	Firefighters/EMT's							
12	Firefighter's/EMT Day Room	300		300	**2**		300	
13	Kitchen	225		225	**3**			225
	Subtotal - Firefighters/EMT's	**525**	**0**	**525**				
	Bunking							
14	2 Double Fire Bunk Rooms	300		300	**2**		300	
14	2 Double EMS Bunk Rooms	300		300	**2**		300	
15	Bath/Showers/Lockers	300		300	**3**			300
	Subtotal - Bunking	**900**	**0**	**900**				
	Administration							
16	Training Room	400		400	**2**		400	
17	Training Room Storage	80		80	**2**		80	
18	Conference Room	180		180	**2**		180	
19	Office #1 - Fire Chief/Assistant	180		180	**2**		180	
20	Office #2 - Line Officers	144		144	**2**		144	
21	EMS Chief's Office	144		144	**2**		144	
22	EMS Deputy and Assistant	180		180	**2**		180	
23	Network/IT	0		0	**2**		0	
24	Rest Rooms	150		150	**3**			150
	Subtotal - Administration	**1,458**	**0**	**1,458**				
	Public							
25	Public Entry	60		60	**2**		60	
26	Dry Storage	64		64	**2**		64	
	Subtotal Public	**124**	**0**	**124**				
	Miscellaneous							
27	Janitor's Closet(s)	36		36	**2**		36	
28	Mechanical/Electrical Room	270		270	**3**			270
	Circulation	301		301	**2**		301	
	Walls	852		852	**1**	852		
	Subtotal - Miscellaneous	**1,459**	**0**	**1,459**		**6,020**	**3,357**	**1,020**

*** Notes** Assume 12' wide doors

EMS Space = 2,272 sq. ft.

Totals >>	**9,677**	**720**	**10,397**

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Fire Station Site Considerations
Chilmark, MA
January 13, 2016

Chilmark, MA wanted to study the feasibility of the site located at 399 Middle Road, Parcel 26-94.93for evaluation of its suitability to construct a new fire station and EMS facility. Pacheco Ross Architects, P.C. (PRA) met with Town Officials on 1/5/16 and observed the parcel and surrounding area. We acquired specific site information, photographed the site and gathered anecdotal information.

The process of qualifying a site to serve as emergency response facility is a subjective process based on PRA's professional experience and a field-tested set of guidelines. With our expertise evaluating the diverse issues involved in situating and building a fire and EMS facility, we have considered the attributes of the site. This evaluation is based on our experience in similar situations and conditions, objective observation as well as architectural knowledge and expertise of emergency response facilities.

PRA developed a two-stage system for evaluating a fire/EMS station on a parcel of land. The first stage of analysis addresses physical characteristics of the land at a particular site, including parcel size and shape, road frontage and access, topography (cut/fill), accessibility, utilities, drainage, detrimental natural features, demolition hazards and underground or hazardous waste.

The second stage of analysis addresses program size and scope requirements, building and police issues including traffic separation, parking, safety/security, build-ability, land available around building, response time to potential events, acquisition cost and potential negative reactions.

We have utilized the applicable characteristics from each stage of the land analysis and scope requirements in this report to help in our conclusions and recommendations.

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Fire Station Site Location Analysis
Part 1 – Land/Site Issues – Chilmark, MA

Definitions

Size and Shape: The program addresses apparatus bays, firematic support, training, living quarters, offices, bunking, recreational use, utilities, parking and future growth needs. PRA assumes a one story building will be feasible. The project program indicates a fire station of approximately 8,000 sq. ft. With the EMS added to the fire station the total is approximately 10,000 sq. ft.

For a station that requires 4 bays, aprons, parking, drives and ancillary spaces, a potential site must respond with 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 rectangular shape in the dimensions that lays out well for a particular fire station may be more desirable.

Road Frontage and Access: Firematic buildings require adequate road frontage for both apparatus and automobile egress and entry into the site. For safety reasons, it is best to separate apparatus response drives from automobile usage, whether it is responder or public automobiles. People approaching or passing the site should have a clear view of the activities on the site. Additionally it is essential for responders to have the longest possible line of sight to oncoming traffic when exiting the site. This category evaluates the ability of firefighters and fire apparatus to effectively arrive and leave the site in a safe, efficient manner.

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 will require extensive site work to be usable.

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 work better 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 not be feasible.

Utilities: This category looks at the availability of adequate electrical and water service, sanitary sewer, natural gas service, telephone and cable at the site. We do not specifically evaluate the capacity of the utilities at the site for this report. However, we will downgrade the site if a particular utility is found to be inadequate. We may upgrade the site for utilities nearby that can be cost effectively extended.

Drainage: This category evaluates potential problems associated with storm water drainage. This includes topography and runoff, 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 evaluated. This category takes into account that the proposed firematic usage may result in large quantities of impermeable surfaces and how this may impact the site's drainage characteristics.

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Detrimental Natural Features: Natural features such as flood plains, low wet areas, standing water, streams, brooks, rock or poor soil could create problems in project layout and eventual construction. Typically a stream or brook would require a setback to protect and preserve the waterway. These observations are made without the benefit of a geotechnical or environmental report and address potential problems in terms of construction & 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 natural feature does not exist.

Demolition Hazards: This category addresses sites that require building or site demolition. In addition to the cost of demolition and disposal of debris, the building may require asbestos abatement or potential hazardous waste remediation (no analysis of the existence of asbestos or hazardous materials has been performed). This category is limited to building and site demolition and does not include clearing and grubbing a site to prepare for construction. Site demolition may include concrete pads, paving, site drainage structures or similar features.

Underground Waste or Hazardous Materials: If a site has known underground waste, serious hazardous materials or toxins, it may be stricken as a usable site. This does not include something like an underground tank unless there has been detrimental leakage. 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.

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Fire Station Site Location Analysis
Part 2 – Building/Firematic Issues – Chilmark, MA

Definitions

Traffic Separation: Ingress/egress and moving on and off the site; it is extremely important that pedestrians, fire apparatus, responder vehicles, and public vehicles do 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. This category takes into account possible traffic movement both on and around the immediate vicinity of the site.

Parking: This analysis evaluates the ability of firefighters and public vehicles arriving at the site to safely get into the site, park and access the fire station without crossing the path of moving apparatus. For volunteers, first 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 to facilitate ADA access requirements.

Ease of Apparatus Exiting/Returning: Regardless of building or bay configuration, it is imperative that emergency apparatus can safely and easily exit the bays and subsequently exit the site. Large apparatus such as the ladder truck or engines need sufficient room to completely exit the bays in a straight line before turning onto a street. Once at the street, they need adequate turning radius to safely exit the site. In addition, both apparatus drivers and public drivers on the street need good visibility for safety. The same considerations apply to apparatus returning to the site and building.

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 however, do 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.

Build-ability: This category is a subjective evaluation by PRA 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 200 fire station projects to envision how well the site will lend itself to the programmed fire station.

Land Available Around Building: Sufficient open land for future needs should remain on a site after the building footprint, parking and paving are taken into account. Open space affords flexibility, green space, possible future growth, and locations for memorials, additional firematic or training needs and space for public use. Too small a site may present problems in the near or long term future. The acreage requirements for a site should minimally satisfy this need for space.

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Response Time to Potential Events: This is a subjective analysis based on information and opinions provided by the Fire Department. PRA and the Department discuss traffic patterns, the locations of calls and make subjective judgments regarding the convenience and time required to get from the proposed parcel to potential events. This is a subjective analysis and not the result of in-depth analysis such as response time mapping.

Responder Parking: This analysis evaluates the ability of emergency responders to safely and quickly park and get into the fire station. Responder parking should be as close to the apparatus bays as possible, yet not interfere with apparatus movement.

Responder Time to Station: This is a subjective analysis based on information and opinions provided by the Department. We discussed traffic patterns, the locations of responder's homes and/or work and made subjective judgments regarding the convenience and time required to get to a proposed parcel. This is a subjective analysis and not the result of in-depth analysis such as response time mapping.

Potential Negative Reaction: This category reflects the Town 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 low-income housing or tax producing property, 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 not be worth the time and cost to acquire.