TOWN OF MEDWAY

Fire, Police and Town Hall Feasibility Study

March 4, 2024

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February 28, 2024

Prepared for:

Mr. Michael Boynton
Town Manager
Town of Medway
155 Village Street
Medway MA 02053

Re: ***Medway Fire, Police and Town Hall Feasibility Study – FINAL REPORT***

Gorman Richardson Lewis Architects (GRLA) and our engineering consultants have prepared the following Feasibility Study to help evaluate the Town's existing Fire and Police and Town Hall facilities and the updated and proactive space needs for each.

Per discussions with the Town Manager and members of the Select Board, the town is open to considering the following options: a renovated Fire Station, a new Fire Station, a renovated Police Station with Police/Fire dispatch, a new Police Station with Police/Fire dispatch, a renovated Town Hall, a new Town Hall, and a combination of these facilities at Town-owned property at 120 Main Street. The objective of this Feasibility Study is to evaluate the feasibility and benefit of each of these options and provide a recommendation based on the overall benefit to the Town.

In 2020, GRLA completed a comprehensive facility study of 12 Town-Owned buildings, which included the main Fire Station, the Police Station and the Town Hall. In order to gather updated information, GRLA recently conducted interviews with representatives of the Fire Department and Police Department as well as the Town Manager and Assistant Town Manager. In addition, GRLA met with the DPW Director to review and discuss the 120 Main Street site and the impact of the site's development on the Town's water, sewer and stormwater systems, and local traffic.

Based upon the interviews with each department's representatives and walkthroughs of each building, the following Final Report includes:

- an Executive Recommendation and Overall Cost Summary
- an executive summary of options for expansion for each building and estimated costs;
- a summary of current space and programming deficiencies and projected requirements for each building tied to known and projected population increases in the Town and the resulting increase in the need for services by each department;

- conceptual design for renovating and expanded each building on its current site with a brief summary of the pros and cons for these options;
- conceptual design of the development of the site at 120 Main Street to accommodate a new fire station, police station and Town Hall.

This Final Report takes into consideration additional input by the Town's committees and boards.

Sincerely,
Gorman Richardson Lewis Architects, Inc.

Scott Richardson, AIA, LEED AP
Principal

Executive Recommendation

Based upon the findings included in this Feasibility Report, including the recent and previous condition assessments of each of the existing facilities, development options for each department (Fire, Police, Town Hall), whether at the existing sites for each or combined on the new site at 120 Main Street, and the estimated costs for each option, **it is our opinion that the Town would be best served by moving toward development of a new combined municipal complex (Fire – Police – Town Hall) at the 120 Main Street site.**

This will require consideration of the existing sites to be repurposed for continued use as Town-owned assets or sold to offset the cost of the new municipal complex.

This recommendation is based upon the significant benefits of a new municipal complex at the 120 Main Street site which include:

1. New state-of-the art facilities and site infrastructure to meet the current and projected needs of the Town over the next 50 years with the opportunity to further expand each department; an option not available to the existing sites going forward.
2. Improved locations for each department in response to deficiencies of the current locations, including greater centralization, visibility and access to main roadways.
3. Opportunity to develop a municipal " Town Green" to include public amenities such as outdoor gathering space and walking paths, playing courts and civic features (clock tower, fountain, etc.).
4. Combined Public Safety facility and a unified Emergency Operations Center accessible by the Town's Executive Response Team.
5. Development/ construction of needed facility upgrades at the new site avoids disruption to existing operations in the meantime.
6. Availability of the 3 existing sites for repurposed Town use or sale.

As shown on the following Overall Cost Summary, the development of a combined municipal complex at the 120 Main Street site would be less than a 14% increase over the cost to renovate and add onto the existing facilities at each existing site. Moreover, this delta cost between renovation/addition of the existing facilities and a new combined municipal complex will be further reduced by the value of selling the existing properties once vacated.

Respectfully submitted,

Gorman Richardson Lewis Architects, Inc.

Scott Richardson, AIA, LEED AP
Principal

RENOVATION & ADDITION ESTIMATES (Existing Sites)			
Fire Station	SF	Cost	Totals
Renovate Existing	9,043	$ 400	$ 3,617,200
Addition	24,957	$ 800	$ 19,965,600
Escalation/Contingency			$ 2,358,280
Total Estimate	**34,000**		**$ 25,941,080**
Police Station	SF	Cost	Totals
Renovate Existing	9,907	$ 400	$ 3,962,800
Addition	14,700	$ 800	$ 11,760,000
Escalation/Contingency			$ 1,572,280
Total Estimate	**24,607**		**$ 17,295,080**
Town Hall	SF	Cost	Totals
Renovate Existing	10,720	$ 400	$ 4,288,000
Addition	12,360	$ 800	$ 9,888,000
Escalation/Contingency			$ 1,417,600
Total Estimate	**23,080**		**$ 15,593,600**
Total All 3 Renovation Projects	SF	Cost	Totals
Renovate Existing	29,670	$ 400	$ 11,868,000
Addition	52,017	$ 800	$ 41,613,600
Escalation/Contingency			$ 5,348,160
Total Estimate	**81,687**		**$ 58,829,760**

NEW CONSTRUCTION ESTIMATES (New Complex at 120 Main Street)			
Fire Station	SF	Cost	Totals
New Construction	34,000	$ 800	$27,200,000
Escalation/Contingency			$ 2,720,000
Total Estimate	**0**		**$29,920,000**
Police Station	SF	Cost	Totals
New Construction	22,000	$ 800	$17,600,000
Escalation/Contingency			$ 1,760,000
Total Estimate	**22,000**		**$19,360,000**
Town Hall	SF	Cost	Totals
New Construction	20,000	$ 800	$16,000,000
Escalation/Contingency			$ 1,600,000
Total Estimate	**20,000**		**$17,600,000**
TOTAL NEW CONSTRUCTION	SF	Cost	Totals
New Construction	76,000	$ 800	$60,800,000
Escalation/Contingency			$ 6,080,000
Total Estimate	**76,000**		**$66,880,000**

Summary

GRLA was requested to analyze several town-owned buildings to determine the feasibility and costs to upgrade and expand each building to accommodate current and future growth as well as the potential to combine Town Hall/Police/Fire services on one location on recently purchased property on Main Street.

Commentary for the Fire Station #1

Observations of the existing building interior, building envelope (exterior), building systems (structural, MEP/FP) and adjacent site, as well as interviews with occupants/ users of the building, revealed that the Fire Station #1 is physically serviceable with a number of physical deficiencies due to the 33-year service life of the building and more serious functional deficiencies due to the restrictions of the current and future needs of the Fire Department, thereby rendering the existing Station beyond its functional service life as a primary Fire Station.

The following is a summary of the approach for expansion and renovation addressing the deficiencies as noted including the benefits and limitations of this approach.

Option	Description	Benefits	Limitations	Recommendation

1	Renovations to the existing building **with an addition at the front entry and adjacent to the Main Apparatus Bay**	• Mitigate existing physical deficiencies and thereby:
		  ○ improve service life of the building and building systems;
		  ○ improve safety and comfort of all occupants , both staff and public;
		• Addition next to Main Bay will provide additional storage space and separation of fire clothing and decontamination shower from Main Bay;
		addition at the front entry will provide needed separation of offices and living quarters from
			• Does not improve current site restrictions;
			• Does not provide for future needs of the Fire Department as the Town population increases and service calls increase;
			• Fire Station #2 must be maintained;
			• Maintains separation from Police Department;
			• Maintains existing location which is not optimal for the main fire station location.
				Not Recommended:
				• Does not resolve other (non-storage) space issues;
				• Does not resolve limitations of existing site;
				• Limits future expansion as Town population grows;
				• Eliminates opportunity to combine with Police Department in a unified public safety building;
				• Significant greater cost with very limited benefit

Option	Description	Benefits	Limitations	Recommendation
		public access; currently is not restricted access of the public to the private second floor spaces.	• Maintains limitations of traffic build-up at the Rte. 129/ 190 intersection. • Additional limitations as shown on the Proposed Site Plan	
2	**Relocate the Fire Station to a new location** as part of a new Public Safety building in conjunction with the Police Department	• Fully provides for current and future space needs; • Resolves all physical needs; • Resolves existing site restrictions; • Allows for maintaining existing building for re-purposing by Town or private owner; • Opportunity to combine the Fire and Police Departments into a unified public safety building with a centralized EOC (Emergency Operations Center); • New construction will extend service life of Fire Station far beyond the existing (50 + years); • Opportunity to achieve energy efficiency, healthy building features and state-of-the-art infrastructure • Allows for decommissioning of Fire Station #2 for demolition or repurposing.	• Higher cost than Option #1- see comparison below.	**Recommended:** • Provides for the current and future needs of the Town as the population increases and more Fire services and staff are required; • An appropriate site for a new municipal building is the current town-owned site at 120 Main Street, an 8-acre site on Main Street (Rte. 109) with direct access from/ onto Pond Street. • The site provides a central location for municipal/ public safety departments and the opportunity to create a Town Center.

Summary of Square Footages and Estimated Costs:

Item	Size (SF)	Es. Cost per SF	Total
Renovate Existing Building	9,043	$400	$ 3,617,200
Addition	24,957	$800	$19,956,600
Escalation/Contingency Allowance	10% of total		$ 2,357,380
TOTAL	**34,000**		**$25,931,180**

Summary

GRLA was requested to analyze several town-owned buildings to determine the feasibility and costs to upgrade and expand each building to accommodate current and future growth as well as the potential to combine Town Hall/Police/Fire services on one location on recently purchased property on Main Street.

Commentary for the Police Station

Observations of the existing building interior, building envelope (exterior), building systems (structural, MEP/FP) and adjacent site, as well as interviews with occupants/ users of the building, revealed that the Police Station has a number of physical deficiencies due to the 32-year service life of the building and more serious functional deficiencies due to the restrictions of the current and future needs of the Police Department.

The following is a summary of the approach for expansion and renovation addressing the deficiencies as noted including the benefits and limitations of this approach.

Option	Description	Benefits	Limitations	Recommendation
1	Renovations to the existing building **with an addition to the east side of the building**	• Mitigate existing physical deficiencies and thereby: ○ improve the service life of the building and building systems; ○ improve the safety and comfort of all occupants , both staff and public; • addresses current space needs, and to a limited degree future space needs;	• an addition will further restrict the outdoor portion of the site; • an addition will max-out the expansion potential of the Police Station and exacerbate the already limited site accommodations for parking and storage of Police vehicles and trailers. • remains remote from the Fire Department rather than part of a unified public safety building. • Maintains exiting limitations of location deep within a residential neighborhood.	**Not Recommended:** • does not resolve limitations of existing site; • limits future expansion as Town population grows; • eliminates opportunity to combine with Fire Department in a unified public safety building; • disruptive to the day-to-day operations of the Police Station which already operates in a building and site too small for current police department needs and standards.

Option	Description	Benefits	Limitations	Recommendation
2	Relocate the Police Station to a **new location** as part of a new Public Safety building in conjunction with the Fire Department	• Fully provides for current and future space needs; • Resolves all physical needs; • Resolves existing site restrictions; • Allows for maintaining existing building for re-purposing by Town or private owner; • Opportunity to combine the Police and Fire Departments into a unified public safety building with a centralized EOC (Emergency Operations Center); • New construction will extend service life of Police Station far beyond the existing (50 + years); • Opportunity to achieve energy efficiency in compliance with current and future energy conservation goals; • Opportunity to incorporate "healthy building" features such as daylighting, indoor air quality; • Opportunity to incorporate state-of-the-art building infrastructure (building controls, security, IT, digital communications)	• Higher cost than Option #1.	**Recommended:** • Provides for the current and future needs of the Town as the population increases and more Police services and staff are required; • An appropriate site for a new municipal building is the current town-owned site at 120 Main Street, an 8-acre site on Main Street (Rte. 109) with direct access from/ onto Pond Street. • The site provides a central location for municipal/ public safety departments and the opportunity to create a Town Center.

Summary of Square Footages and Estimated Costs:

Item	Size (SF)	Est Cost per SF	Total
Renovate Existing Building	9,907	$400	$ 3,962,800
Addition	14,700	$800	$11,760,000
		Escalation/Contingency Allowance: 10% of total	$ 1,572,280
TOTAL	**24,607**		**$17,295,080**

Summary

GRLA was requested to analyze several town-owned buildings to determine the feasibility and costs to upgrade and expand each building to accommodate current and future growth as well as the potential to combine Town Hall/Police/Fire services on one location on recently purchased property on Main Street.

Commentary for the Town Hall

Observations of the existing building, building systems (structural, MEP/FP) and adjacent site, as well as interviews with occupants/ users of the building, revealed that the Town Hall has significant physical and functional deficiencies.

The following is a summary of the approach for expansion and renovation addressing the deficiencies as noted including the benefits and limitations of this approach.

Option	Description	Benefits	Limitations	Recommendation
	Renovations to the existing building with an addition to the rear of the building	• Improve the service life of the building and building systems; • Improve the safety and comfort of all occupants , both staff and public; • Addresses current space needs, and to a limited degree future space needs; • Maintains the original building and its historic value.	• Requires demolition of Fire Station #2 to make expansion feasible; • Exacerbates current parking and maneuvering limitations by enlarging the footprint on the existing site; • Disruption to existing Town Hall to accomplish tie-in of new to old. • Unless fully gutted, retains the original building with inferior building components. • Vehicular circulation entering and existing the site onto Village Street is very constricted.	**Not Recommended:** • Does not resolve limitations of existing site; • Limits future expansion as Town population grows; • Disruptive to the day-to-day business of the Town Hall which is already at its functional limit. • Will likely require temporary relocation of all Town offices during construction phase.

Option	Description	Benefits	Limitations	Recommendation
2	Relocate the Municipal Town Hall offices to a **new location** at a new Municipal Facility	• Fully provides for current and future space needs; • Resolves all physical needs; • Resolves existing site restrictions; • Allows for maintaining existing building for re-purposing by Town or private owner; • Opportunity to locate new Town Hall at a more advantageous location; • Opportunity to be closer to a new public safety building and centralized EOC (Emergency Operations Center); • New construction will extend service life of Town Hall far beyond the existing (50 + years); • Opportunity to achieve energy efficiency in compliance with current and future energy conservation goals; • Opportunity to incorporate "healthy building" features such as daylighting, indoor air quality; • Opportunity to incorporate state-of-the-art building infrastructure (building controls, security, IT, digital communications).	None	**Recommended:** • Provides for the current and future needs of the Town as the population increases and more Town Hall services and staff are required; • An appropriate site for a new municipal building is the current town-owned site at 120 Main Street, an 8-acre site on Main Street (Rte. 109) with direct access from/ onto Pond Street. • The site provides a central location for municipal/ public safety departments and the opportunity to create a Town Center.

Summary of Square Footages and Estimated Costs:

Item	Size (SF)	Est Cost per SF	Total
Renovate Existing Building	10,720	$400	$4,288,000
Addition	12,360	$800	$9,888,000
		Escalation/Contingency Allowance 10% of total	$1,417,600
TOTAL	**23,080**		**$15,593,600**

Summary

GRLA was requested to analyze several town-owned buildings to determine the feasibility and costs to upgrade and expand each building to accommodate current and future growth as well as the potential to combine Town Hall/Police/Fire services on one location on recently purchased property on Main Street.

Commentary for 120 Main Street Site Development

This town-owned, centrally located parcel of approximately 8 acres appears ideal for the development of a combined Town Hall and Public Safety Complex.

GRLA completed several analyses of the potential for the development of the required building sizes and parking areas and confirm that all 3 departments can fit on the site with ample access, parking, security and the potential for a town green and other amenities.

The following is a summary of the approach for accommodating all 3 uses on the site including the benefits and virtually no limitations of this approach.

Option	Description	Benefits	Limitations	Recommendation
	Relocate the Fire Station to a new location as part of a new Public Safety building	• Fully provides for current and future space needs; • Resolves all physical needs; • Resolves existing site restrictions; • Allows for maintaining existing building for re-purposing by Town or private owner; • Opportunity to combine the Fire and Police Departments into a unified public safety building with a centralized EOC (Emergency Operations Center); • New construction will extend service life of Fire Station far beyond the existing (50 + years);		**Recommended:** • Provides for the current and future needs of the Town as the population increases and more Fire services and staff are required;

Option	Description	Benefits	Limitations	Recommendation
		• Opportunity to achieve energy efficiency in compliance with current and future energy conservation goals; • Opportunity to incorporate "healthy building" features such as daylighting, indoor air quality; • Opportunity to incorporate state-of-the-art building infrastructure (building controls, security, IT, digital communications); Allows for decommissioning of Fire Station #2 for demolition or repurposing.		
	Relocate the **Police Station** to a **new location** as part of a new Public Safety building in conjunction with the Fire Department	• Fully provides for current and future space needs; • Resolves all physical needs; • Resolves existing site restrictions; • Allows for maintaining existing building for re-purposing by Town or private owner; • Opportunity to combine the Police and Fire Departments into a unified public safety building with a centralized EOC (Emergency Operations Center); • New construction will extend service life of Police Station far beyond the existing (50 + years); • Opportunity to achieve energy efficiency in compliance with current and future energy conservation goals; • Opportunity to incorporate "healthy building" features such as daylighting, indoor air quality;		**Recommended:** • Provides for the current and future needs of the Town as the population increases and more Police services and staff are required;

Option	Description	Benefits	Limitations	Recommendation
		• Opportunity to incorporate state-of-the-art building infrastructure (building controls, security, IT, digital communications) •		
		•		
	Relocate the **Municipal Town Hall** offices to a **new location** at a new Municipal Facility	• Fully provides for current and future space needs; • Resolves all physical needs; • Resolves existing site restrictions; • Allows for maintaining existing building for re-purposing by Town or private owner; • Opportunity to locate new Town Hall at a more advantageous location; • Opportunity to be closer to a new public safety building and centralized EOC (Emergency Operations Center); • New construction will extend service life of Town Hall far beyond the existing (50 + years); • Opportunity to achieve energy efficiency in compliance with current and future energy conservation goals; • Opportunity to incorporate "healthy building" features such as daylighting, indoor air quality; • Opportunity to incorporate state-of-the-art building infrastructure (building controls, security, IT, digital communications).		**Recommended:** • Provides for the current and future needs of the Town as the population increases and more Town Hall services and staff are required;

Summary of Square Footages and Estimated Costs:

Building	Size (SF)	Est Cost per SF	Total
Fire Station	34,000	$800	$27,200,000
Escalation/Contingency Allowance		10% of total	$ 2,720,000
TOTAL			**$29,920,000**
Police Station	22,000	$800	$17,600,000
Escalation/Contingency Allowance		10% of total	$ 1,760,000
TOTAL			**$19,360,000**
Town Hall	20,000	$800	$16,000,000
Escalation/Contingency Allowance		10% of total	$ 1,600,000
TOTAL			**$17,600,000**
TOTAL ALL 3 BUILDINGS	76,000		**$66,880,000**

Current Space and Programming Deficiencies and Projected Needs– Fire Station #1 (Headquarters)

Information Sources:

- TOWN OF MEDWAY FACILITIES CONDITION ASSESSMENT OF TOWN BUILDINGS
  Fire Station #1
  44 Milford St
  7 December, 2020
  Gorman Richardson Lewis Architects

- Interview with Fire Department 09/11/2023
  - Chief Jeffrey Lynch
  - Deputy Chief Michael Fasolino
  - Deputy Chief Craig Vinton

- Follow-up Interview with Fire Department 01/03/2024
  - Deputy Chief Michael Fasolino
  - Deputy Chief Craig Vinton

Overview:

Fire Station No. 1, also known as Fire Department Headquarters, was built in 1990 and at this time is undersized for the apparatus being used today. At the time of its construction, the Medway Fire Department was primarily an “on-call” department with all male firefighters.

The 2024 Fire Department staff has changed to primarily full time with a total staff of 35, including 4 female firefighters. It is anticipated that staff needs will continue increasing to serve the needs of the growing Medway community as development and housing increases. In addition, the number of full-time female firefighters and administration staff is anticipated to increase, requiring more bathroom and living accommodations for female staff.

Fire Station No. 2 (located behind Town Hall off Village Street) has reached the end of its functional life with multiple issues both code related and structurally., as described in detail in the 2020 facilities Condition Assessment noted above.

Existing Facilities:

- Fire Station #1
  - 44 Milford Street, Medway (intersection of Rtes. 109 and 126)
  - Built: 1990 (33 years)
  - Total Building Area: ..... 9,043 sf
- Fire Station #2
  - 115R Village Street, Medway (behind Town Hall)
  - Built: 1920 (103 years)
  - Total Building Area: ..... 3,970 sf
- Total Available Building Area.....13,013 sf

Staffing:

Projected Fire Staffing for next 10-25-50 years:

yrs	Dept/ Div	Position	Current No.	Add-10 yrs	Add 25 yrs	Add 50 yrs	Totals
	Admin	Chief	1				1
		Deputy Chief	2			1	3

Fire

yrs	Dept/ Div	Position	Current No.	Add-10 yrs	Add 25 yrs	Add 50 yrs	Totals
		Captains	1		1		2
		Fire Business Manager		1			1
		Admin. Assnt.	1	1			2
		Fire Prevention	1	1			2
	Group 1	Leader	1	1			2
		FF/ EMT	1	1		1	3
		FF/Paramed	3		1	1	5
	Group 2	Leader	1	1			2
		FF/ EMT	1	1		1	3
		FF/Paramed	3		1	1	5
	Group 3	Leader	1	1			2
		FF/ EMT	1	1		1	3
		FF/Paramed	3		1	1	5
	Group 4	Leader	1	1			2
		FF/ EMT	1	1		1	3
		FF/Paramed	3		1	1	5
		Total F/T	**26**	**11**	**5**	**9**	**51**
	On-call staff		11				
10	Total f/t staff		26	37			
25	Total f/t staff				42		
50	Total f/t staff					51	

Apparatus & Vehicle Fleet:

Current 2023 Fire Apparatus and Vehicle Fleet:

Medway Apparatus	Model	Age	Height	Length	Width
					w/o mirrors
Engine 1	2010 International/E-One 1250/1000/30F	2010	9'-6"	32'-10"	8'-4"
Engine 2	2002 E-One Typhoon 1250/1000	2002	10'-1"	31'-2"	8'-4"
Engine 3	2019 KME Severe Service 2000/1000/30A/250B	2019	9'-5 1/2"	33'-8"	8'-4"
Engine 5	1990 Pemfab/FMC 1250/1000	1990	9'-7"	29'-0"	8'-4"
Ladder 1	2013 E One Cyclone 2000/450/10F 100'RMA 2015 International/4	2013	10'-7"	38'-7"	8'-4"
Tanker 1	2015 International/4-Guys 1000/3000	2015	8'-8"	22'-0"	8'-0"
Brush 1	2020 Ford F-550/Specialty Vehicles 4x4 300/300	2020	6'-10"	24'-1"	6'-8"
Brush 2	1995 Ford F-350 4x4 250/350	1995	6'-2"	19'-7"	6'-7"

Chemical 1	2016 Ford F 550/Burner Dry Chem	2016	6'-8"	18'-10"	7'-10"
Ambulance 1	2012 Ford F-450/Horton 4x4	2012	6'-7"	21'-11"	8'-0"
Ambulance 2	2016 Ford F-550/Life Line 4x4	2016	9'-9"	25'-7"	8'-0"
Ambulance 3	2020 Ford F 550/ Life Line 4x4	2020	9'-9"	25'-7"	8'-0"
Squad 3	2016 Polaris Ranger 4x4 90/55 2017 Ford	2016	6'-2"	12'-2"	5'-0"
Squad 5	2017 Ford F 350 4x4	2917	6'-9"	21'-2"	6'-8"
Car 1 (Fire Chief)	2018 Chevrolet Tahoe 4x4	2018	6'-4"	17'-7"	6'-8"
Car 2 (Deputy Chief)	2019 Chevrolet Tahoe 4x4 2022 Ford	2019	6'-3"	11'-0"	6'-9"
Car 3 (Deputy Chief)	2022 Ford Explorer 4x4	2022	6'-8"	16'-7"	6'-7"
Car 4 (Shift Commander)	2023 Chevrolet Tahoe 4x4	2023	6'-4"	17'-7"	6'-9"
Car 10 (Training & Support)	2012 Ford Expedition 4x4	2012	6'-6"	18'-5"	6'-7"
Future purchase	**E-One HP 78 Ladder** *(currently not enough staff to fully staff a new vehicle.)*	**2049**	**11'-8"**	**37'-2"**	**8'-6"**

Current Facilities – Primary Deficiencies:

- Main Apparatus Bay:
  - The station lacks sufficient space and is not configured for current-day fire apparatus. New fire fighting vehicles must be designed for the restraints of the building rather than for the optimum size and need of the vehicle;
  - The lack of sufficient space within the Main Apparatus Bay creates inefficiencies in parking and deploying the fire vehicles, increasing alarm response times as well as creating potential hazardous conditions due to the lack of appropriate clearances around the parked vehicles within the Bay.
  - Storage space is extremely inadequate.
    - Protective clothing and gear must be stored within the Main Bay exposing the protective clothing to fumes and contaminants within the Bay, which is in violation of NFPA (National Fire Protection Association) standards.
    - Equipment and other items must be stored in Stair #2 and under Stair #1, which is in violation of current building code standards.
  - Lack of a Fitness Room has led to fitness equipment being stored (and used) with the Main Bay, both a hazard to the person using the equipment and exacerbating the space limitations with the Main Bay.
  - Lack of a shower room adjacent to the Main Bay limits the opportunity for decontamination when the fire fighters return from a call.
  - Ice maker within the Main Bay is not functioning;
  - The existing air compressor and system to regenerate the oxygen tanks are inadequate, requiring longer fill times than is required.

- Administration Area:
  - There are an insufficient number of offices and no private conference rooms to accommodate the growing needs of the fire department administration;

- The large meeting/ training room on the second floor is not accessible by the public for public meetings or conferences.
- Dispatch functions are provided from the Police Station on Village Street .

- Living Quarters:
  - Overnight sleeping, bathing and living quarters were built in over the years but were not accommodated for in the original design due to the change from a volunteer to a full-time fire department.
  - The existing sleeping, bathing and living quarters are restricted and do not fully accommodate the permanent personnel shifts, which is exacerbated when additional on-call personnel are called in and must stay overnight.
  - There is no dedicated fitness room in the station, which has led to fitness equipment being located in the Main Bay.
- Site:
  - The configuration of the fire station on the site and its location adjacent to a busy intersection (Rte. 109/ Rte. 126) causes issues when fire apparatus is leaving the site in response to a call (emergency situation) as well as when returning to the station. During busy rush hours, cars are backed up from the intersection blocking the driveway access of the fire station site.
  - Chief Lynch reported that parking is very awkward especially when on-call personnel are summoned to the fire station in response to call, resulting in vehicles parked along the access drives and on the planted portion surrounding the site. The large, paved area to the west of the fire station is designated as a heliport to accommodate medical flights.
  - The location of the fire station is distant from the Police Station and Town Hall, hindering the establishment of an efficient central EOC (Emergency Operations Center) in the event of a large-scale emergency requiring the coordination of town administration, fire and police resources.

Projected Requirements:

Based upon projected staff increases and facility needs, the following is a summary of projected needs for an expanded or new Fire Station:

Area Summary:

- Total available building area (Existing Admin, Living, Apparatus in 2 buildings): 13,013 sf
- Total available building area (Projected): 20,000 sf (Admin & Living) + 14,000 sf (Apparatus Bays) = 34,000 sf

- Administration:
  - Office space (7)
  - Conference rooms (1)
  - Large Training/ Meeting/ EOC Room (include a video wall)
  - Restrooms
  - Janitor Closet
  - Kitchenette
  - Copy and Office Supply Room
  - Storage
  - IT Room

- Operations:
  - Apparatus & Equipment Areas:
    - 7 Apparatus Bays
    - Turn-out Gear Room

- De-Con Area
- Laundry Room
- Emergency Medical Services (EMS):
  - EMS Workroom
  - EMS Storage
  - EMS Patient Care Room
- Firematic Storage
- Air Compressor Room
- Hose Storage
- Communications/ Radio Workroom and Storage
- Janitor Closet
- General Storage
- Plan review room (drawings of proposed construction projects for review)
- Indoor Training Apparatus Area (see examples in Plainville and Medfield)
- Staff Vehicle Garaging

- Support:
  - Living Quarters- Men
    - Bunk Rooms (4)
    - Bathrooms (2)
    - Locker Room
  - Living Quarters – Women
    - Bunks Rooms (4)
    - Bathrooms (2)
    - Locker Room
    - Maternity Room
  - Living Quarters – Officer (1)
    - Bunk, Bath, Office
  - Fitness Room (could be shared with Police and Town Hall staff)

- Day Room (multiple refrigerators: 1 per group)
- Kitchen and Dining Area

- General:
  - Main Lobby
  - Waiting/ Meeting Room (walk-ins are primarily seeking medical assistance)
  - Public Restrooms
  - Stairs
  - Elevator
  - Mechanical Room
  - Electrical/ Emergency Electrical Rooms

- Structural:
  - Assuming that renovations would be a Level 2 alteration (where less than 50% of the existing building spaces or systems are reconfigured), the following structural related requirements would apply:
    - A structural investigation and evaluation that specifically addresses architectural or MEP changes that affect floor or roof framing, design loads, shear walls, bearing walls or braces. This would occur during schematic design of the renovation program.
    - Gravity loads (dead load, live load, snow load) that increase more than 5 percent on any element would trigger potential upgrades to existing structural elements.
    - Lateral loads (wind, seismic) that increased more than 10 percent on any bracing element would trigger upgrades to lateral bracing elements.
    - Additions should be structurally separated from the existing building via an expansion joint.

- HVAC:
  - DESIGN INTENT
    - During the schematic design stage of the project after the preferred Architectural option is selected for the building(s), a life cycle cost analysis (LCCA) be performed for a minimum of three (3) HVAC system options. As part of the LCCA these options would be studied in terms of first, operating and maintenance/replacements costs in order to determine the system that has the lowest overall lifecycle cost.

- The following three (3) HVAC systems could be studied as part of a LCCA:

  - <u>OPTION 1: Air Source VRF with VAV Energy Recovery AHUs with ASHP (Air Source Heat Pump)</u>
    - VRF Systems:
      - Fire Station Heating and Cooling – Provide a new High efficiency VRF system with heat recovery. The system shall consist of (3) VRF plants each sized for 30 Tons for a total plant size of 90 tons. Indoor evaporators and branch circuit intermediate boxes shall also be provided inside the building.

    - Ventilation System:
      - The ventilation system shall include an indoor air handling unit of the 100% outside air dedicated outdoor air system (DOAS) design Energy Recovery Ventilators (ERV). The DOAS units shall be provided with MERV 13 filters, heat pump cooling/heating coil section (split air source heat pump condensers for indoor units), supply and exhaust fans with variable frequency drives or EC motors, supplemental electric heating coils, total energy recovery wheel, and a sensible reheat wheel or hot gas re-heat coil for dehumidification.
      - VRF Fire Station Heating and Cooling – Provide a new High efficiency VRF system with heat recovery. The system shall consist of (3) VRF plants each sized for 30 Tons for a total plant size of 90 tons. Indoor evaporators and branch circuit intermediate boxes shall also be provided inside the building.

    - Vestibule, Entryway, Storage Room Supplemental Heating: New electric cabinet unit heaters, electric radiant ceiling panels and/or fin tube radiation heating equipment shall be installed to provide heating to vestibules, entry ways and storage areas.

- <u>OPTION 2: Air Source Heat Recovery Chiller with VAV Energy Recovery RTUs with HHW/CHW Coils and Fan Coil Units</u>
    - Under this option, the new buildings shall be provided with a new HVAC system similar to the one described in Option 1 but with the following exceptions:
        - In lieu of the proposed VRF systems, each building shall be provided with an air source heat recovery chiller. The chiller shall provide hot and chilled water which will be distributed to the ERVs and terminal heating/cooling equipment. The chiller shall have the following estimated capacities: Fire Station: 126 ton
        - The AHUs shall be provided with hot water and chilled water heating/cooling coils in lieu of the proposed air source heat pump heating/cooling sections.
        - The proposed VRF indoor evaporators shall be replaced by hot water/chilled water fan coil units.
        - The electric unit heaters and electric fintube/radiant ceiling panels noted above to serve vestibules, entryways, stairwells, and storage rooms shall be replaced by hot water unit heaters and fintube/radiant panels.
        - A mechanical room consisting of (2) HHW pumps, (2) CHW pumps, (1) backup electric boiler, (2) expansion tanks, (2) buffer tank, (2) glycol feeders, (2) chemical shot feeders and (2) air separators shall also be required.

- <u>OPTION 3: Geothermal Heat Pump Rooftop Units with VAV Energy Recovery RTUs and Water Source Heat Pump Fan Coil Units</u>
    - Under this option, the building renovation/addition shall be provided with a new HVAC system similar to the one described in Option 1 but with the following exceptions:
        - The proposed air source heat pump AHUs shall be replaced by a geothermal HVAC system consisting of a ground source wellfield and water source heat pump AHUs that shall be connected to the geothermal water loop for heat absorption and rejection.
        - The proposed VRF system shall be replaced by water source heat pump fan coil units.

- A new closed-loop geothermal well field shall be installed at each building. The wells shall be 600-foot vertical closed loop wells, each with an estimated capacity of 4 tons. The estimated capacities for the wellfields are listed below; the final quantity, depth, and type of wells shall be determined by a ground-source wellfield consultant.
- Fire Station: 126 tons (estimated 32 wells at 4 tons each.)
- A mechanical room consisting of (2) geothermal water pumps, (1) ground-source to VRF heat pump system, (1) ground-source to hot water heating heat pump system, (1) backup electric boiler, (1) expansion tank, (1) buffer tank, (1) glycol feeders, (1) chemical shot feeders and (1) air separators shall also be required.
- Entry ways, mechanical spaces, etc. shall be heated by hot water unit heating equipment, which shall be served by a ground source to hot water heat pump system located in the mechanical room.

- Electrical:
  - DESIGN INTENT
    - All work is new and consists of furnishing all materials, equipment, labor, transportation, facilities, and all operations and adjustments required for the complete and operating installation of the Electrical work and all items incidental thereto, including commissioning and testing.
  - Energy Efficiency: Lighting system shall be designed and installed in accordance with IECC 2021 requirements.
  - Power Distribution:
    - Electrical power will be brought into the site via underground medium voltage cables from the utility company network. A pad mounted step-down transformer will be located at grade adjacent to the building. Service entrance and distribution switchgear will be located in the electrical room along with lighting and power distribution panels. The service capacity will be sized for 800 amperes at 277/480V, 3Ø, 4 wire.

- A 400kW, 500kVA, 277/480V, 3Ø, 4W diesel fired emergency generator will be provided and include automatic starting and safety controls. The unit will be housed outdoors on a concrete pad. The generator will include three (3) service breakers: one (1) for life safety equipment, one (1) for optional standby equipment, and one (1) for the load bank.

- The generator will be sized for 100% of all lighting and power loads, including air conditioning and heating.

- The emergency power distribution system will consist of two automatic transfer switches, one 100 ampere for life safety equipment and one 800 ampere for non-life safety systems. A separate system of distribution panels and conduit systems will be provided for each level of emergency power as required by code. A kirk key interlock system will be provided for a roll up back-up generator. A manual transfer switch with kirk key interlock will also be provided for a temporary roll up generator on the life safety system for maintenance of the permanent generator in compliance with NEC 700.3 (F).

- Uninterruptible Power Supply (UPS):
  - One (1) 24 KW, three (3) phase centralized UPS System shall be provided with thirty minutes of battery back-up.
  - The system shall provide conditioned power to sensitive electronic loads, telecommunication systems, bridge over power interruptions of short duration and allow an orderly shutdown of servers and communication systems during a prolonged power outage.
  - The UPS system shall also be connected to the stand-by generator.

- Interior Lighting System
- Site Lighting System
- Wiring Devices
- Metering
- Level 2 AC Dual Electric Vehicle Charging Equipment
- Renewable Energy System Provisions
- Fire Alarm System
- Security System
- Lightning Protection System

- Plumbing:
  - GENERAL
    - The Plumbing Systems that will serve the project are cold water, hot water, sanitary waste and vent system, storm drain system and natural gas.
    - The existing Building and addition will be serviced by Municipal water and Municipal sewer system.
    - All Plumbing in the building will conform to Accessibility Codes and to Water Conserving sections of the Plumbing Code.
  - DRAINAGE SYSTEM
  - WATER SYSTEM
  - GAS SYSTEM
  - FIXTURES
  - DRAINS
  - VALVES
  - INSULATION

- Fire Protection:
  - All areas of the building, including all finished and unfinished spaces, combustible concealed spaces, all electrical rooms and closets will be sprinklered.
  - BASIS OF DESIGN
    - The mechanical rooms, Apparatus bays and storage rooms are considered Ordinary Hazard Group 1; all other areas are considered light hazard.
    - Required Design Densities:
      - Light Hazard Areas 0.10 GPM over 1,500 s.f.
      - Ordinary Hazard Group 1 0.15 GPM over 1,500 s.f.
      - Ordinary Hazard Group 2 0.20 GPM over 1,500 s.f.
    - Sprinkler spacing (max.):

- Light Hazard Areas: 225 s.f.
- Ordinary Hazard Areas: 130 s.f.

- A flow test shall be performed to determine adequate water supply capacity.

- Technology:
  - The technology system design at the Medway Fire Station is designed with category 6A cable and intended for 100/1000mbps to the workstation. The voice wiring will be capable of VOIP and standard PBX system as currently utilized in the town.

  - TECHNOLOGY COMPONENTS:
    - Installation and integration of multiple technology components are as follows:
      - Cabling for Voice, Data, and Video Technologies
      - Data Electronics for LAN/WAN Data Infrastructure (not included as part of scope)
      - Data Electronics for Internet Access (not included as part of scope)
      - Data Network Computer Hardware (not included as part of scope)
      - Data Network Software (not included as part of scope)
      - Computer Peripherals (not included as part of scope)

  - DATA SYSTEM:
    - The data system is designed for a Gigabit Ethernet (Category 6A cable) with 100/1000 Base-T connection to the work station. The high speed data transmission will allow users to retrieve data from the internet and local area network almost instantly. The data system has been designed for users to accomplish:
      - Internet access through a wireless Ian and hard wired data drops.
      - Applications for word processing, spreadsheet, and alike through a central applications server.
      - Printing of documents from any user computer connected to network printers.
      - Wireless access for employees at the facility.

- TELEPHONE SYSTEM:
  - The telephone system will utilize Category 6A cable similar to the data system. The voice wiring will be patched so that it can accommodate the existing PBX / Centrex system and can accommodate Voice-Over-IP.

- CABLE-TV SYSTEM:
  - The Cable-TV system will comprise of a coaxial cable drops at each location. The system will be bi-directional type, which allows for both receiving and transmitting broadband signals.

- SOUND SYSTEM:
  - The facility will have a paging/sound system. The system will have inputs from Radio system, and VOIP phone system.
  - The Paging system will be provided with (8) zones.

- DISTRIBUTION ANTENNAE SYSTEM (DAS):
  - A Public Safety Radio Distributed Antenna System (DAS) which consists of bi-directional amplifiers (BDA), donor antennas, coverage antennas, coax cable, coax connectors, splitters, combiners, and couplers. These devices will be used as part of a system for in-building public safety, 2-way radio system communication.

- TWO-WAY COMMUNICATIONS SYSTEM:
  - A Two-Way Communications System will be provided at the elevator lobbies that do not have grade access. Area of rescue assistance call boxes will be provided at Elevator Lobbies with no grade access. The call boxes connect to a main panel located adjacent to the Fire Alarm annunciator panel.

END OF SECTION

Current Space and Programming Deficiencies and Projected Needs– Police Station

Information Sources:

- TOWN OF MEDWAY FACILITIES CONDITION ASSESSMENT OF TOWN BUILDINGS
  Police Station
  315 Village Street
  7 December, 2020
  Gorman Richardson Lewis Architects

Interview with Police Department 9/11/2023

- Chief William Kingsbury
- Lieutenant Jeffrey Watson
- Sergeant Robert O'Neill
- Dispatch Supervisor Hannah Furno

Follow-up interview with Chief William Kingsbury 01/03/2024

Overview:

The Police facility was planned and built in 1991 for a department totaling 7 Law Enforcement staff, including: Police Chief, 4 Patrol Sergeants including 1 Court Officer, 1 DARE Officer and 1 Administrative Assistant. When opened in 1991, with the staff increased to 20, the current police station did not fully accommodate the needs of the department. Upgrades have been limited to HVAC upgrades in 2018, however, the current system continues to experience deficiencies in performance.

Police

Current Law Enforcement staff has grown to a total of 33 and is anticipated to continue growing to serve the needs of the growing Medway community as development and housing increases. Additionally, professionals who work alongside the police who specialize in social work, psychology and technology will add to those needing space within the Department.

Existing Facilities:

- Police Station
  - 315 Village Street, Medway
  - Built: 1991 (32 years)
  - Total Building Area: ..... 9,907 sf

Staffing:

Current staff with projected needs for next 10-25-50 years:

Yrs	Dept/ Div	Position	Current No.	Add-10 yrs	Add 25 yrs	Add 50 yrs	Totals
	Admin	Chief	1				1
		Deputy Chief			1		1
		Lieutenants	2		1		3
		Admin Assistant	1	1			2
	Investigations	Detectives	3	1		1	5
	School Resource	Officer	1		1		2

	Patrol	Sergeants	5		1		6
		Officers	13	2	2	1	18
	Dispatch	Supervisor	1		1		2
		Dispatchers*	5	1	1	1	8
	Mental Health	Clinicians	1		1		2
		Total	**33**	**5**	**9**	**3**	**50**
10	Total staff			38			
25	Total staff				47		
50	Total staff					50	
	*Dispatch	numbers based on local dispatch; do not apply if the Town moves to regional dispatch					

Vehicle Fleet:

Current 2023 Vehicle Fleet:

Cruiser K-1	2020 Chevrolet Tahoe AWD
Cruiser K-2 {Patrol Supervisor}	2023 Chevrolet Tahoe AWD
Cruiser K-3	2019 Chevrolet Tahoe AWD
Cruiser K-4	2023 Chevrolet Tahoe AWD
Cruiser K-5	2017 Ford Taurus Interceptor
Cruiser K-6	2021 Chevrolet Tahoe AWD
Cruiser K-7	2021 Chevrolet Tahoe AWD
Cruiser K-8 {School Resource Officer}	2019 Chevrolet Tahoe AWD
Cruiser K-10 {Chief of Police}	2021 Ford Explorer Hybrid 4x4
Cruiser K-11 {Lieutenant}	2019 Chevrolet Tahoe 4x4

Cruiser K-12 {Lieutenant}	2015 Ford Explorer 4x4
Cruiser K-13 {Lieutenant}	2017 Ford Interceptor Utility AWD
Special Ops. Unit K-17	2017 Ford F-250 4x4
Cruiser K-18	2011 Ford Crown Victoria
Cruiser K-19	2023 Ford Escape Plug-In Hybrid
Police UTV	2014 Polaris Ranger
Police ATV	2002 Polaris Sportsman
Police Off-Road Cycle B-4	2005 Kawasaki
Motorcycle B-1	2020 Harley Davidson
Motorcycle B-2	2016 Harley Davidson
Motorcycle B-3	2013 Harley Davidson
Police UTV	2014 Polaris Ranger
Police ATV	2002 Polaris Sportsman
Police Off-Road Cycle B-4	2005 Kawasaki
Traffic trailers	10

Current Facilities – Primary Deficiencies:

Site:

- The current location, located deep within a residential neighborhood, is both hard to find and restricts high-speed travel during emergency responses.
- Need for greater site perimeter security for the safety of officers and police vehicles.
- The existing site cannot accommodate the full fleet of Police Department vehicles and trailers, which are stored at other Town sites, including Fire Station #2 behind Town Hall and the DPW Garage.
    - The original parking lot has been increased since the building was constructed, and a shed added for motorcycles and patrol bike storage.

- Four Equipment Trailers are stored on site, one light tower, other trailers stored off site. Motor vehicle parts and radio equipment could be stored off site.
- Department vehicle count has more than tripled with the addition of cruisers, patrol cars and specialty off road vehicles.
- No vehicles are under cover.

<u>Administration:</u>

- Offices:
  - There is currently a lack of office space, shared workspace, report writing space.
  - Spaces are double and triple booked as needs arise and offices are shared.

- Conference Rooms:
  - The single existing conference room cannot accommodate the increasing administrative staff for larger meetings.
  - The current conference room is in the process of being changed to accommodate needed office space, leaving only the Training Room for any conference needs.

- Training Room:
  - The existing training room is limited to seating 12 and cannot accommodate a full staff meeting and is limited in accommodating lectures and training programs for staff. Larger space is needed.
  - Roll-call currently meets in the small First Floor Break Room
  - There is need for both lecture format presentations and a separate room for scenario (physical) training.

- Storage space:
  - There is a severe lack of dedicated storage space and storage appropriate to the type of materials being stored: general storage, evidence, department al property, other impounded property.
    - An ill-configured office supply closet and two additional small closets, one for equipment and the other “catch all” closet do not meet the needs of the department.

- The impound Garage takes overflow of impounded items with nowhere else to store items creating safety and inspection issues.
- Shelving units have been installed in the basement elevator lobby, boiler room and corridors for additional storage and are overflowing.
- The basement arms room is not adequate for the departments needs regarding the storage of department weapons, ammunition and training equipment and items that do not need to be locked are outside of the room.
- A cleaning supply closet which houses plumbing controls is under repair and supplies are relocated to a holding cell which creates a safety issue. A redesign of this space is being planned to resolve this issue.
- Locker rooms are cramped and smell and Lockers are too small requiring officers to store some uniform items at home, winter jackets etc.

<u>Operations:</u>

- Booking Interrogation/ Holding:
  - This building was designed without interview or interrogation rooms. A space was created and now serves three purposes: interrogation, report writing and space for the Department Clinician. Competing needs cause interruptions and the space does not meet current standards for safety or functionality for interrogation, including proper security to protect officers.
  - Number of cells (4) is sufficient. There has been a steady reduction in arrests.
  - However, a padded cell is needed due to an increase in mental illness.
- Traffic Enforcement:
  - Existing Traffic Enforcement is allocated a counter space off the Break Room and requires a dedicated room with multiple computer stations.
- Shift Supervisor:
  - Original Shift Supervisor's office has been given over to a small family conference space off the Waiting Room, requiring the shift supervisor to share workspace with other staff functions.

- Patrol Officers:
  - Each patrol officer should have a desk in an office shared by others.
- Evidence/ Property:
  - When built, this facility did not provide for an Evidence and Property Room to meet national standards. Initially a small closet was used and property was comingled. Since improved by adding two small locking metal cabinets for sexual assault collection kits and narcotics, these work arounds still do not meet national standards for bulk and high end items requiring secure storage.
  - A new forensics lab is needed to meet national standards and which addresses the following:
    - Room temperature
    - Intake protocols
    - Long-term storage
    - Eyewash station due to use of chemicals in processing
  - A large room off of the impound garage has been adapted to arms storage with 8' high locked metal fencing and locking metal cabinets within, however, still does not meet national standards due to location of exterior walls and a window.

- Dispatch:
  - Current dispatch is for local police, fire, DPW and animal control.
  - More staff and space is needed for a local (in-house) dispatch operation
  - Future dispatch may be a regional dispatch center in Medway, which is state-mandated.
  - An example of a regional dispatch center is the Holbrook Emergency Communications Center in Holbrook, MA:
    - 6,000 – 8,000 sf
    - 70 staff
    - Provides dispatch for 13 communities.
    - A regional dispatch center can be a stand-alone building with room for expansion.
- Armory Storage and Cleaning:
  - Current storage and service area for weapons do not meet national standards

- Existing room in Basement is only 95 sf

- Firing Range:
  - Currently, an off-site exterior range is used for training and practice.
  - An indoor firing range is needed.
  - Chief Kingsbury noted that the state may build a firing ranges for use by nearby municipal police departments.
  - An alternative to a live firing range is a MILO Range:
    - MILO Virtual — a simulation training systems provider for government, military, law enforcement, and police agencies for critical incident training, de-escalation, decision support training, traditional tactical judgment training, and firearms proficiency training. With simulations, scenario-based training, and mission-specific interactive judgment training, MILO Virtual can meet your robust training needs — any time, anywhere, any space, any place. MILO Virtual provides hundreds of complex dynamic video training scenarios, graphics-based firearms skill-builder drills, and industry-leading tactical training features. MILO Virtual is your team in the center, focused on virtual integration with live and cognitive divisions to the left and right.

<u>Support</u>:

- Locker & Shower Rooms:
  - Single shower, 1 WC and sink for women
  - Single shower, 2 WC's and 2 sinks for men
  - Locker space is minimal, requiring staff to bring uniforms home
  - Ratio of men-to-women officers is changing, requiring a more equal distribution of locker/ shower facilities.

- Breakroom:
  - Existing Break Room is very small for the need and shares space with Traffic Enforcement;
  - Larger Break Room needed for Dining, roll-call and breaks

- Fitness Room:
  - Currently in the Basement;
  - will need to be enlarged as the staff grows
- Fatigue and Lactation Room:
  - Currently no fatigue room with a couch for resting by staff.
  - Currently no dedicated lactation room for nursing mothers on staff.

Utility:

- Electrical service meets needs of current facility.
- Commissioning is required to trouble-shoot the issues with the current system
- There is a limited sprinkler system in the current facility. A full sprinkler system will be required with any major renovation or addition.
- Communications and power require redundancy in the event of power outages. There is currently a single emergency back-up generator. Another back-up to the generator is recommended to provide the appropriate redundancy.
- Improved IT and W-Fi is needed.

Electrical:

- Provide new nameplate specifying disconnect is 208V.
- Relocate data racks outside of electric room.
- Complete retrofit upgrade to LED lamps. Fixtures not able to be upgraded should be replaced with LED fixtures. Fixtures with mis-matched color temperatures should be matched with other lighting fixtures.
- Provide new automated lighting controls with occupancy and photo sensors to help reduce lighting costs.
- Provide energy efficient, dark sky compliant building mounted lighting, emergency egress lighting above all doors, and LED pole fixtures at the parking lot.

- The generator is newer and appears in good condition. While the installation of the emergency system was done to code at the time, it does not conform to current code. A 2-hour rated life safety closet will need to be created to house a life safety panel and life safety ATS. Optional standby systems would be fed from the current ATS. Add EPO button to outside of generator enclosure.
- A new, addressable, Fire Alarm system should be installed with complete coverage.

HVAC:

- Insulate new boiler room.
- Consider replacing terminal hot water heating fin tube and unit heaters in the building with larger coil capacity terminal heating to allow for lower water temperatures.
- Service existing exhaust fans to insure proper operation. In the event fans are not working, consider replacing existing exhaust fans with new.
- Consider adding a building management system for remote monitoring, adjustment and alarm settings. If the boiler plant, or any area of the building has a heating system failure, the building management system will be able to alert the proper personnel. A BMS can also provide energy savings.

Plumbing:

- Recommend insulating any domestic water piping that is uninsulated to prevent condensation and to reduce heat loss.
- The majority of the existing sanitary, waste and vent piping system is in good condition and may re-utilized in an addition or renovation project. The sanitary, waste and vent piping exposed in the sally port garage is in poor condition.
- The existing natural gas system is in good condition and may re-utilized in an addition or renovation project. Recommend normal maintenance at this time.
- There is no expansion tank for thermal expansion, nor thermostatic mixing valve installed to prevent scalding.
- The plumbing fixtures are in good condition. Current Access Code requires accessible fixtures wherever plumbing is provided. In terms of the water conservation fixtures, their use is governed by the provisions of the Plumbing and Building Code. Essentially, the code does not require these fixtures to be upgraded, but where new fixtures are installed, as may be required by other codes or concerns, the new fixtures need to be water conserving type fixtures.

Fire Protection:

- Compliance with Massachusetts General Law M.G.L. Chapter 148 Section 26G is required in all existing buildings which exceed 7,500 square feet in area and undergo major alterations. Under these conditions, an existing building must provide a full sprinkler fire suppression system. A major alteration is defined as a reconfiguration of walls, doors, windows, mechanical systems, etc., which effectively makes installation of sprinkler systems easier and which affects more than 33% of the building area or more than 33% of the assessed value of the building.

Projected Requirements:

Area Summary:

- Total available building area (Existing): 9,907 sf
- Total available building area (Projected): 22,267 sf

Based upon projected staff increases and facility needs, the following is a summary of projected needs for an expanded or new Police Station:

- Site:
  - Centrally located with access to major roadways
  - Perimeter security fencing
  - Garaging:
    - Frontline patrol cars- enclosed cover
    - Other vehicles (personnel vehicles, motorcycles, support vehicles) – under cover

Police

- Administration:
  - Office space (9)
  - Shared Offices (Detectives; Patrol Officer desk space) (2)
  - Conference rooms (2)
  - Large Training/ Meeting/ EOC Room
  - Separate scenario (physical) training room
  - Restrooms
  - Janitor Closet
  - Kitchenette
  - Copy and Office Supply Room
  - Storage
  - IT Room

- Operations:
  - Role-call Room
  - Booking/ Interrogation/ Holding
  - Traffic Enforcement
  - Shift Supervisor
  - Evidence:
    - Intake
    - Analysis
    - Storage
  - Records Storage
  - General Storage
  - Ammunition and Weapon Storage
  - Weapon Workroom
  - Sallyport

- Impounding Processing Bay
- Miscellaneous Vehicle Storage
- Found Property Storage
- MILO firing range system: a virtual simulation training system
- K-9 pen

- Dispatch (911/ Police/ Fire/ DPW/ Animal Control):
  - Dispatch Area (multi-station)
  - Supervisor Office
  - Break Room
  - Toilet Room

- Support:
  - Locker Room (Male)
  - Locker Room (Female)
  - Fatigue/ Rest Room
  - Breakroom
  - Fitness Room
  - Kitchen
  - Maternity/ Nursing Room

- General:
  - Main Lobby
  - Waiting/ Interview Room
  - Public Restrooms
  - Stairs
  - Elevator
  - Mechanical Room

- Electrical/ Emergency Electrical Rooms

- Structural:
  - Assuming that renovations would be a Level 2 alteration (where less than 50% of the existing building spaces or systems are reconfigured), the following structural related requirements would apply:
    - A structural investigation and evaluation that specifically addresses architectural or MEP changes that affect floor or roof framing, design loads, shear walls, bearing walls or braces. This would occur during schematic design of the renovation program.
    - Gravity loads (dead load, live load, snow load) that increase more than 5 percent on any element would trigger potential upgrades to existing structural elements.
    - Lateral loads (wind, seismic) that increased more than 10 percent on any bracing element would trigger upgrades to lateral bracing elements.
    - Additions should be structurally separated from the existing building via an expansion joint.

- Electrical:
  - DESIGN INTENT:
    - Energy Efficiency: Lighting system shall be designed and installed in accordance with IECC 2021.
    - Power Distribution:
      - Electrical power will be brought into the site via underground medium voltage cables from the utility company network. A pad mounted step-down transformer will be located at grade adjacent to the building. Service entrance and distribution switchgear will be located in the electrical room, along with lighting, power distribution, and mechanical equipment panels. The service capacity will be sized for 1200 amperes at 120/208V, 3Ø, 4 wire.

      - A diesel powered 130KW, 162.SKVA @ .8 P.F., 120/208V, 3Ø, 4W. Diesel fired emergency generator will be provided with sound attenuating weather proof enclosure, critical grade exhaust silencer, and automatic starting and safety controls. The generator will include two (3) service breakers: one (1) for life safety equipment and one (1) for optional standby equipment and (1) for the load bank.

      - The emergency power distribution system will consist of two (2) automatic transfer switches, one for life safety equipment and one for optional stand-by systems. A separate system of distribution panels

and conduit systems will be provided for each level of emergency or standby power. A manual transfer switch with cam-lock connections for a roll-up generator will be provided on the life safety side in compliance with NEC 700.3 (F).

- Uninterruptible Power Supply (UPS):
  - One (1) 20 KW, three (3) phase centralized UPS System will be provided with eight minutes of battery back-up.
  - The system will provide conditioned power to sensitive electronic loads, telecommunication systems, bridge over power interruptions of short duration and allow an orderly shutdown of servers and communication systems during a prolonged power outage.
  - The UPS system will also be connected to the stand-by generator.
- Interior Lighting System
- Site Lighting System
- Wiring Devices
- Metering
- Level 2 AC Dual Electric Vehicle Charging Equipment
- Renewable Energy System Provisions
- Fire Alarm System
- Security System
- Lightning Protection System

- HVAC:
  - DESIGN INTENT
    - During the schematic design stage of the project after the preferred Architectural option is selected for the building(s), a life cycle cost analysis (LCCA) be performed for a minimum of three (3) HVAC system options. As part of the LCCA these options would be studied in terms of first, operating and maintenance/replacements costs in order to determine the system that has the lowest overall lifecycle cost.

    - The following three (3) HVAC systems could be studied as part of a LCCA:

- OPTION 1: Air Source VRF with VAV Energy Recovery AHUs with ASHP (Air Source Heat Pump)
    - VRF Systems:
        - Town Hall Heating and Cooling – Provide a new High efficiency VRF system with heat recovery. The system shall consist of (2) VRF plants each sized for 30 Tons for a total plant size of 60 tons. Indoor evaporators and branch circuit intermediate boxes shall also be provided inside the building.
    - Ventilation System:
        - ERV: Police Station Ventilation– Provide High efficiency heat pump heating/cooling section, energy recovery rooftop air handling unit with an estimated capacity of 8,000 CFM (32 Tons Cooling, 260 MBH heating heat pump section).
    - Vestibule, Entryway, Storage Room Supplemental Heating: New electric cabinet unit heaters, electric radiant ceiling panels and/or fin tube radiation heating equipment shall be installed to provide heating to vestibules, entry ways and storage areas.

- OPTION 2: Air Source Heat Recovery Chiller with VAV Energy Recovery RTUs with HHW/CHW Coils and Fan Coil Units
    - Under this option, the new buildings shall be provided with a new HVAC system similar to the one described in Option 1 but with the following exceptions:
        - In lieu of the proposed VRF systems, each building shall be provided with an air source heat recovery chiller. The chiller shall provide hot and chilled water which will be distributed to the ERVs and terminal heating/cooling equipment. The chiller shall have the following estimated capacities: Police Station: 92 tons
        - The AHUs shall be provided with hot water and chilled water heating/cooling coils in lieu of the proposed air source heat pump heating/cooling sections.

- The proposed VRF indoor evaporators shall be replaced by hot water/chilled water fan coil units.
- The electric unit heaters and electric fintube/radiant ceiling panels noted above to serve vestibules, entryways, stairwells, and storage rooms shall be replaced by hot water unit heaters and fintube/radiant panels.
- A mechanical room consisting of (2) HHW pumps, (2) CHW pumps, (1) backup electric boiler, (2) expansion tanks, (2) buffer tank, (2) glycol feeders, (2) chemical shot feeders and (2) air separators shall also be required.

- OPTION 3: Geothermal Heat Pump Rooftop Units with VAV Energy Recovery RTUs and Water Source Heat Pump Fan Coil Units
  - Under this option, the building renovation/addition shall be provided with a new HVAC system similar to the one described in Option 1 but with the following exceptions:
  - The proposed air source heat pump AHUs shall be replaced by a geothermal HVAC system consisting of a ground source wellfield and water source heat pump AHUs that shall be connected to the geothermal water loop for heat absorption and rejection.
  - The proposed VRF system shall be replaced by water source heat pump fan coil units.
  - A new closed-loop geothermal well field shall be installed at each building. The wells shall be 600-foot vertical closed loop wells, each with an estimated capacity of 4 tons. The estimated capacities for the wellfields are listed below; the final quantity, depth, and type of wells shall be determined by a ground-source wellfield consultant.
  - Police Station: 92 tons (estimated 23 wells at 4 tons each.)
  - A mechanical room consisting of (2) geothermal water pumps, (1) ground-source to VRF heat pump system, (1) ground-source to hot water heating heat pump system, (1) backup electric boiler, (1) expansion tank, (1) buffer tank, (1) glycol feeders, (1) chemical shot feeders and (1) air separators shall also be required.
  - Entry ways, mechanical spaces, etc. shall be heated by hot water unit heating equipment, which shall be served by a ground source to hot water heat pump system located in the mechanical room.

- Plumbing:
  - GENERAL
    - The Plumbing Systems that will serve the project are cold water, hot water, sanitary waste and vent system, storm drain system and natural gas.
    - The existing Building and addition will be serviced by Municipal water and Municipal sewer system.
    - All Plumbing in the building will conform to Accessibility Codes and to Water Conserving sections of the Plumbing Code.
  - DRAINAGE SYSTEM
  - WATER SYSTEM
  - GAS SYSTEM
  - FIXTURES
  - DRAINS
  - VALVES
  - INSULATION

- Fire Protection:
  - GENERAL
    - The new building will be served by a new 6-inch fire service, double check valve assembly, wet alarm valve complete with electric bell, and fire department connection meeting local thread standards.
    - System will be an automatic sprinkler system with control valve assemblies to limit the sprinkler area controlled to less than 52,000 s.f. as required by NFPA 13-2013.
    - Control valve assemblies shall consist of a supervised shutoff valve, check valve, flow switch and test connection with drain.
    - All areas of the building, including all finished and unfinished spaces, combustible concealed spaces, all electrical rooms and closets will be sprinklered.
    - All sprinkler heads will be quick-response, pendent in hung ceiling areas and upright in unfinished areas.

- BASIS OF DESIGN
  - The mechanical rooms, garages and storage rooms are considered Ordinary Hazard Group 1; all other areas are considered light hazard.
  - Required Design Densities:

Light Hazard Areas	0.10 GPM over 1,500 s.f.
Ordinary Hazard Group 1	0.15 GPM over 1,500 s.f.
Ordinary Hazard Group 2	0.20 GPM over 1,500 s.f.

  - Sprinkler spacing (max.):

Light Hazard Areas:	225 s.f.
Ordinary Hazard Areas:	130 s.f.

  - A flow test shall be performed to determine adequate water supply capacity.

- Technology:

The technology system design at the Medway Police Station is designed with Category 6A cable and intended for 10Gbps to the workstation. The voice wiring will be capable of VOIP.

- Technology Components:
  Installation and integration of multiple technology components are as follows:
  - Cabling for Voice, Data, and Video Technologies
  - Data Electronics for LAN/WAN Data Infrastructure (not included as part of scope)
  - Data Electronics for Internet Access (not included as part of scope)
  - Data Network Computer Hardware (not included as part of scope)
  - Data Network Software (not included as part of scope)

- Computer Peripherals (not included as part of scope)

- Data System:

  The data system is designed for a Gigabit Ethernet (Category 6A cable) with 10Gbps connection to the workstation. The high speed data transmission will allow users to retrieve data from the internet and local area network almost instantly. The data system has been designed for users to accomplish:

  - Internet access through a wireless Ian and hard wired data drops.
  - Applications for word processing, spreadsheet, and alike through a central applications server.
  - Printing of documents from any user computer connected to network printers.
  - Wireless access for employees at the facility.

- Telephone System:

  The telephone system will utilize Category 6A cable similar to the data system. The infrastructure will be designed to accommodate Voice-Over-IP.

- Two-Way Communications System:

  A Two-Way Communications System will be provided at the elevator lobbies that do not have grade access. Area of rescue assistance call boxes will be provided at Elevator Lobbies with no grade access. The call boxes connect to a main panel located adjacent to the Fire Alarm annunciator panel.

- Distribution Antennae System (DAS):

  A Public Safety Radio Distributed Antenna System (DAS) which consists of bi-directional amplifiers (BDA), donor antennas, coverage antennas, coax cable, coax connectors, splitters, combiners, and couplers. These devices will be used as part of a system for in-building public safety, 2-way radio system communication.

END OF SECTION

Current Space and Programming Deficiencies and Projected Needs– Town Hall

Information Sources:

- TOWN OF MEDWAY FACILITIES CONDITION ASSESSMENT OF TOWN BUILDINGS
  Town Hall
  115 Village Street
  7 December, 2020
  Gorman Richardson Lewis Architects

Interview with Town Administration 8/3/2023

- Michael Boynton, Town Manager
- Allison Potter, Assistant Town Manager

Overview:

Originally built in 1912, the Town Hall is a two-story brick masonry building with a full basement below grade and a hip roof with deep eave overhangs in keeping with the Italianate/ Renaissance style. The first and second floors are occupied by municipal offices and meeting rooms and the basement level is used only for storage of Town records. The primary public entrance is the central (front) entrance along Village Street and a rear entrance provides access for Town staff from the rear parking area.

Renovations in the 1980's transformed Sanford Hall into the current Town Hall with municipal offices, a large meeting room (Sanford Hall) with upgrades including a 3-stop elevator. A suspended acoustical (ACT) ceiling was installed at the second floor, typical for a modern office fit-out, but resulting in concealing the detailed high-bay ceiling of the former theatre space, which is visible above the existing ACT ceiling.

Existing Facility:

- Town Hall
  - 115 Village Street, Medway
  - Built: 1912 (111 years); renovated in 1980 (43 years)
  - Total Building Area: ..... 10,720 sf

Staffing:

Current (2023) Staff and Projected Needs:

Yrs	Dept/ Div	Current No.	Add-10 yrs	Add 25 yrs	Add 50 yrs	Totals
	Community and Economic Development; Planning and Conservation	4 (+2 p/t)	1	1	1	7
	Communications	1	1		1	3
	Town Manager	3	1			4
	Finance/ Accounting	3	1		1	5
	Treasurer/ Collectors	3 (+1 p/t)	1		1	5
	Building Department	4 (+ 2 p/t)	1	1	1	7
	Human Resources	1	1	1		3

Yrs	Dept/ Div	Current No.	Add-10 yrs	Add 25 yrs	Add 50 yrs	Totals
	Assessors	2 (+1 p/t)	1		1	4
	Board of Health	1	1		1	3
	Town Clerk	1 (+5 p/t)	1	1	1	4
	DPW Administration	6	1	1	1	9
	IT	0	2	1		3
	Total staff (F/T)	**29**	**13**	**6**	**9**	**57**
10	Total staff (F/T)		42			
25	Total staff			48		
50	Total staff				57	

Current Facilities – Primary Deficiencies:

Based upon the findings of the Conditions Assessment Report for Town Hall completed in December of 2020, and recent interviews with the Town Administration, the overall condition of the Town Hall includes significant physical and functional deficiencies of the building as well as significant site and location deficiencies which severely limit the building's accommodation of the current and future needs of the Town Hall.

Site:

- Constrained parking and vehicular access into and out of the site.
- Decentralized location for the Town Hall

Building:

- General:
  - From discussions with department representatives who occupy the building the primary functional deficiencies include:
    - lack of sufficient office and public space,
    - lack of acoustical privacy,
    - significant difficulty in operating the double hung windows,
    - lack of sufficient storage, especially secure storage for each department handling public records and limited meeting/ conference space.
    - Lack of reliable IT and W-Fi infrastructure.

- Structural:
  - Foundation/Floor Slab:
    - It was reported that one or more lally columns become fully unloaded and can be moved by hand at different times throughout the year. This could be a result of differential foundation settlement from seasonal ground water fluctuations.
    - All lally columns shall be fitted with cap plates that can be secured to the supporting beams. Frequent monitoring, including deflection measurements should be performed to verify if foundation settlement is occurring.
  - Upper Floors:
    - There is noticeable sloping of both the first and second floors. Typically, there floors slope down near the perimeter exterior walls. There are uneven floor areas on the first floor likely due to previously infilled subfloors not aligning with the adjacent floors.
  - Roof:

- The inner ply of a 3-ply ceiling girder(one of two), which spans the long direction of the building and supports the ceiling joists, is cracked in at least two locations. There was measurable separation between plys of both girders which is likely a result of outward thrust of the exterior walls. A tension tie was observed to be withdrawn and bent leading to nearly 1" of local separation of the outer ply.
- Damaged ceiling girders shall be repaired or reinforced. All withdrawn tension ties shall be reinforced with steel strap ties fastened with structural screws. (1-5yrs) A comprehensive structural evaluation of the entire roof structure should be performed to determine if additional strengthening, bracing, etc. is warranted.

  - Exterior Walls:
    - Several concrete lintels with spalls and cracks. Random areas of bricks are heavily weathered with minor cracks and shallow spalls. Weathering is more severe along the base of wall adjacent to the paved areas likely a result of salt deterioration. There are numerous abandoned in place metal inserts which are corroded and causing localized cracks and spalls. Several dental bricks, just below the roof overhang have either spalled or sheared off which presents a fall hazard to the public. It is recommended that the entire perimeter of the building be evaluated for additional loose or damaged dental bricks.
  - Other:
    - There is a large chimney at the rear corner of the building which should be evaluated for seismic stability. Structural bracing may be required by code if the building undergoes structural alterations in the future.
    - A comprehensive structural evaluation of the chimney should be performed do determine if additional strengthening, bracing, etc. is warranted.

- Electrical:
  - Add occupancy sensors to each space.
  - Add pole LED lighting and perimeter sconces.
  - Replace fire alarm system with an addressable system with full coverage
  - Provide heat detectors
  - Add Lightning Protection system
  - Test signal strength and provide a BDA if required.

- HVAC:
  - Overall the fintube should be removed and replaced.
  - Ductless split cooling heat pump units are older versions although they are functioning the system should be replaced with new higher efficiency heat pump systems.
  - Overall piping and insulation should be removed and replaced as some sections of piping are beginning to show signs of corrosion and some of the insulation is missing or damaged.
  - The exhaust fan is in need of replacement and capacity should be verified as additional toilet rooms have been added.
  - Overall the control system is antiquated and in need of replacement.

- Plumbing:
  - Install Reduced Pressure Backflow Preventer if required by Local Water Department.
  - Recommend insulating all domestic water piping to prevent condensation and to reduce heat loss.
  - All gate valves may not be fully operational. Recommend replacing with ball valves.
  - The existing sanitary, waste and vent piping system is in good condition and may re-utilized in an addition or renovation project. Recommend normal maintenance at this time.
  - The sump pump discharge is PVC, which is non-Compliant.
  - The existing natural gas system is in good condition and may re-utilized in an addition or renovation project. Recommend normal maintenance at this time.
  - There is no expansion tank for thermal expansion, nor thermostatic mixing valve installed to prevent scalding. .
  - The plumbing fixtures are in good condition. Current Access Code requires accessible fixtures wherever plumbing is provided. In terms of the water conservation fixtures, their use is governed by the provisions of the Plumbing and Building Code. Essentially, the code does not require these fixtures to be upgraded, but where new fixtures are installed, as may be required by other codes or concerns, the new fixtures need to be water conserving type fixtures.

- Fire Protection:
    - Compliance with Massachusetts General Law M.G.L. Chapter 148 Section 26G is required in all existing buildings which exceed 7,500 square feet in area and undergo major alterations. Under these conditions, an existing building must provide a full sprinkler fire suppression system. A major alteration is defined as a reconfiguration of walls, doors, windows, mechanical systems, etc., which effectively makes installation of sprinkler systems easier and which affects more than 33% of the building area or more than 33% of the assessed value of the building.

Additional Requirements:

In addition to the deficiencies in the existing facility noted above, the following facilities were noted as important to the operations of the police station but not currently existing:

- Large, outdoor gathering space or "Town Green" with the Town Hall as the focal point
- Emergency Operations Center in communication with Police and Fire
- Large, public meeting room for public meetings
- Garage/ covered parking for town staff

Projected Requirements:

Area Summary:

- Total available building area (Existing):.....10,720 sf
- Total available building area (Projected):.....23,080 sf

Based upon projected staff increases and facility needs, the following is a summary of projected needs for an expanded or new Town Hall:

- Administration/ Operations:
  - Office space (35)
  - Customer Service windows:
    - Treasurer/ Collector
    - Town Clerk
    - Board of Assessors
    - Building Department
    - Board of Health
    - Park & Recreation Department
    - DPW:
      - Director's office
      - (3) administration offices
      - (1) assistant
      - (1) Sustainability Coordinator + help
      - Plan (paper) storage
  - Conference rooms (3: Town Manager; Community and Economic Development; DPW)
  - Vault (for Treasurer/ Collector Office)
  - Vault (Town Clerk)
  - Restrooms
  - Janitor Closet
  - Kitchenette
  - Copy and Office Supply Room
  - Storage (General and Dedicated)
  - Training Room (50 person occupancy)

- Records Storage
- IT Rooms

- <u>General:</u>
  - Large Public Meeting Room
  - Kitchen/ Cafeteria
  - Main Lobby
  - Information Counter
  - Public Restrooms
  - Stairs
  - Elevator
  - Mechanical Room
  - Electrical/ Emergency Electrical Rooms
  - General Storage

- Structural:
  - Assuming that renovations would be a Level 3 alteration (where more than 50% of the existing building spaces or systems are reconfigured), the following structural related requirements would apply:
    - A structural investigation and evaluation that specifically addresses architectural or MEP changes that affect floor or roof framing, design loads, shear walls, bearing walls or braces. This would occur during schematic design of the renovation program.
    - Gravity loads (dead load, live load, snow load) that increase more than 5 percent on any element would trigger potential upgrades to existing structural elements.
    - Lateral loads (wind, seismic) that increased more than 10 percent on any bracing element would trigger upgrades to lateral bracing elements.

- Additions should be structurally separated from the existing building via an expansion joint.
- Modifications to existing brick masonry walls may trigger an upgrade of the lateral bracing system to resist current wind loads and reduced seismic loads.
- If the renovation includes a substantial structural alteration (where more than 30% of the structure is altered), it may trigger an upgrade of the lateral bracing system to resist current wind loads and reduced seismic loads.
- New wall anchors between the roof members and the perimeter brick walls would need to be installed and similar anchorage would be recommended at the floor levels.

- HVAC:
  - DESIGN INTENT
    - During the schematic design stage of the project after the preferred Architectural option is selected for the building(s), a life cycle cost analysis (LCCA) be performed for a minimum of three (3) HVAC system options. As part of the LCCA these options would be studied in terms of first, operating and maintenance/replacements costs in order to determine the system that has the lowest overall lifecycle cost.

    - The following three (3) HVAC systems could be studied as part of a LCCA:

      - OPTION 1: Air Source VRF with VAV Energy Recovery AHUs with ASHP (Air Source Heat Pump)
        - VRF Systems:
          - Town Hall Heating and Cooling – Provide a new High efficiency VRF system with heat recovery. The system shall consist of (2) VRF plants each sized for 30 Tons for a total plant size of 60 tons. Indoor evaporators and branch circuit intermediate boxes shall also be provided inside the building.
        - Ventilation System:

- ERV Town Hall Ventilation– Provide High efficiency heat pump heating/cooling section, energy recovery rooftop air handling unit with an estimated capacity of 9,000 CFM (36 Tons Cooling, 293 MBH heating heat pump section).

- Vestibule, Entryway, Storage Room Supplemental Heating: New electric cabinet unit heaters, electric radiant ceiling panels and/or fin tube radiation heating equipment shall be installed to provide heating to vestibules, entry ways and storage areas.

- <u>OPTION 2: Air Source Heat Recovery Chiller with VAV Energy Recovery RTUs with HHW/CHW Coils and Fan Coil Units</u>
  - Under this option, the new buildings shall be provided with a new HVAC system similar to the one described in Option 1 but with the following exceptions:
    - In lieu of the proposed VRF systems, each building shall be provided with an air source heat recovery chiller. The chiller shall provide hot and chilled water which will be distributed to the ERVs and terminal heating/cooling equipment. The chiller shall have the following estimated capacities: Town Hall: 100 tons
    - The AHUs shall be provided with hot water and chilled water heating/cooling coils in lieu of the proposed air source heat pump heating/cooling sections.
    - The proposed VRF indoor evaporators shall be replaced by hot water/chilled water fan coil units.
    - The electric unit heaters and electric fintube/radiant ceiling panels noted above to serve vestibules, entryways, stairwells, and storage rooms shall be replaced by hot water unit heaters and fintube/radiant panels.
    - A mechanical room consisting of (2) HHW pumps, (2) CHW pumps, (1) backup electric boiler, (2) expansion tanks, (2) buffer tank, (2) glycol feeders, (2) chemical shot feeders and (2) air separators shall also be required.

- <u>OPTION 3: Geothermal Heat Pump Rooftop Units with VAV Energy Recovery RTUs and Water Source Heat Pump Fan Coil Units</u>

    - Under this option, the building renovation/addition shall be provided with a new HVAC system similar to the one described in Option 1 but with the following exceptions:
        - The proposed air source heat pump AHUs shall be replaced by a geothermal HVAC system consisting of a ground source wellfield and water source heat pump AHUs that shall be connected to the geothermal water loop for heat absorption and rejection.
        - The proposed VRF system shall be replaced by water source heat pump fan coil units.
        - A new closed-loop geothermal well field shall be installed at each building. The wells shall be 600-foot vertical closed loop wells, each with an estimated capacity of 4 tons. The estimated capacities for the wellfields are listed below; the final quantity, depth, and type of wells shall be determined by a ground-source wellfield consultant.
        - Town Hall: 100 tons (estimated 25 wells at 4 tons each.)
        - A mechanical room consisting of (2) geothermal water pumps, (1) ground-source to VRF heat pump system, (1) ground-source to hot water heating heat pump system, (1) backup electric boiler, (1) expansion tank, (1) buffer tank, (1) glycol feeders, (1) chemical shot feeders and (1) air separators shall also be required.
        - Entry ways, mechanical spaces, etc. shall be heated by hot water unit heating equipment, which shall be served by a ground source to hot water heat pump system located in the mechanical room.

- Electrical
  - DESIGN INTENT
    - Power Distribution:
      - Electrical power will be brought into the site via underground medium voltage cables from the utility company network. A pad mounted step-down transformer will be located at grade adjacent to the building. Service entrance and distribution switchgear will be located in the electrical room, along with lighting, power distribution, and mechanical equipment panels. The service capacity will be sized for 1200 amperes at 120/208V, 3Ø, 4 wire.

      - A diesel powered 130KW, 162.SKVA @ .8 P.F., 120/208V, 3Ø, 4W. Diesel fired emergency generator will be provided with sound attenuating weather proof enclosure, critical grade exhaust silencer, and automatic starting and safety controls. The generator will include two (3) service breakers: one (1) for life safety equipment and one (1) for optional standby equipment and (1) for the load bank.

      - The emergency power distribution system will consist of two (2) automatic transfer switches, one for life safety equipment and one for optional stand-by systems. A separate system of distribution panels and conduit systems will be provided for each level of emergency or standby power. A manual transfer switch with cam-lock connections for a roll-up generator will be provided on the life safety side in compliance with NEC 700.3 (F).

    - Uninterruptible Power Supply (UPS):
      - One (1) 20 KW, three (3) phase centralized UPS System will be provided with eight minutes of battery back-up.

- The system will provide conditioned power to sensitive electronic loads, telecommunication systems, bridge over power interruptions of short duration and allow an orderly shutdown of servers and communication systems during a prolonged power outage.
- The UPS system will also be connected to the stand-by generator.

- Interior Lighting System
- Site Lighting System
- Wiring Devices
- Metering
- Level 2 AC Dual Electric Vehicle Charging Equipment
- Renewable Energy System Provisions
- Fire Alarm System
- Security System
- Lightning Protection System

- <u>Plumbing</u>:
  - GENERAL
    - The Plumbing Systems that will serve the project are cold water, hot water, sanitary waste and vent system, storm drain system and natural gas.
    - The existing Building and addition will be serviced by Municipal water and Municipal sewer system.
    - All Plumbing in the building will conform to Accessibility Codes and to Water Conserving sections of the Plumbing Code.
  - DRAINAGE SYSTEM
  - WATER SYSTEM
  - GAS SYSTEM
  - FIXTURES
  - DRAINS

- VALVES
- INSULATION

- Fire Protection:
  - All areas of the building, including all finished and unfinished spaces, combustible concealed spaces, all electrical rooms and closets will be sprinklered.
  - BASIS OF DESIGN
    - The mechanical rooms and storage rooms are considered Ordinary Hazard Group 1; all other areas are considered light hazard.
    - Required Design Densities:
      - Light Hazard Areas 0.10 GPM over 1,500 s.f.
      - Ordinary Hazard Group 1 0.15 GPM over 1,500 s.f.
      - Ordinary Hazard Group 2 0.20 GPM over 1,500 s.f.
    - Sprinkler spacing (max.):
      - Light Hazard Areas: 225 s.f.
      - Ordinary Hazard Areas: 130 s.f.
    - A flow test shall be performed to determine adequate water supply capacity.

- Technology:
  - Technology Components:
    - The Technology system to be designed with Category 6A cable and intended for 10G bps to the workstation. The voice wiring will be capable of VOIP.
    - Installation and integration of multiple technology components are as follows:
      - Cabling for Voice, Data, and Video Technologies

- Data Electronics for LAN/WAN Data Infrastructure (not included as part of scope)
- Data Electronics for Internet Access (not included as part of scope)
- Data Network Computer Hardware (not included as part of scope)
- Data Network Software (not included as part of scope)
- Computer Peripherals (not included as part of scope)

- Data System:
  - The data system to be designed for a 10 Gig Ethernet (Category 6A cable) with 10G Base-T connection to the workstation. The high-speed data transmission will allow users to retrieve data from the internet and local area network almost instantly.
- Telephone System:
  - The telephone system will utilize Category 6A cable similar to the data system. The infrastructure will be designed to accommodate Voice-Over-IP.
- Cable-TV System:
  - The Cable-TV system will comprise of a coaxial cable drops at each location. The system will be bi-directional type, which allows for both receiving and transmitting broadband signals.
- Two-Way Communications System:
  - A Two-Way Communications System will be provided at the elevator lobbies that do not have grade access. Area of rescue assistance call boxes will be provided at Elevator Lobbies with no grade access. The call boxes connect to a main panel located adjacent to the Fire Alarm annunciator panel.
  - Distribution Antennae System (DAS):
    - A Public Safety Radio Distributed Antenna System (DAS) which consists of bi-directional amplifiers (BDA), donor antennas, coverage antennas, coax cable, coax connectors, splitters, combiners, and couplers. These devices will be used as part of a system for in-building public safety, 2-way radio system communication.

END OF SECTION

Current Space and Programming Factors– 120 Main Street Site

Information Sources:

Available documentation:

- *PURCHASE OF MEDWAY BLOCK PROPERTY 120 Main Street FAQ's* posted on the Town's website on October 28, 2022
- *OWNER'S PLAN OF LAND* dated April 11, 2023 prepared by Guerriere & Halnon, Inc.
- *PHASE V – STATUS REPORT AND STATUS REPORT TO MAINTAIN A REMEDY OPERATION STATUS* dated May 12, 2023 prepared by Tetra Tech

Interview with Medway DPW Director, Peter Pellitier 9/11/2023

Overview

1. There is an existing environmental issue on site that has been identified, reported and a remediation plan initiated.
    - Existing Environmental Issue (as described in the *Phase V – Status Report and Status Report to Maintain a Remedy Operation Status):*
        - On April 5, 1999, the former consultant Paragon Environmental Services, Inc. identified greater than ½-inch of light non-aqueous phase liquid (LNAPL) in groundwater monitoring well MW-1. The source was determined to be from a former machine pit within the former Manufacturing Building.
        - The nature and source of the LNAPL release were determined to consist of hydraulic oil that had been released into the soil and groundwater via a former machine pit and associated equipment that was located in the Manufacturing Building. The leaking equipment source had been replaced prior to reporting of the release.
        - A full description and summary of actions taken since the initial reporting is included in the *Phase V – Status Report and Status Report to Maintain a Remedy Operation Status* dated May 12, 2023 prepared by Tetra Tech.
        - To date, the original plume appears not to be migrating further. Once the existing Manufacturing Building is removed, excavation of the contaminated soils can be undertaken.

- The Town is currently pursuing a brownfield grant from the US Environmental Protection Agency (EPA) in the amount of $1million.

2. The northern site boundary abuts residential neighbors and will need to be well-defined and appropriately screened from view.
3. Stormwater will be managed on site per current state regulations to minimize infiltration into the Town's storm water system.
4. Water and sewer services will come from Main Street.
5. Water Treatment Plant:
   - As noted on the Town's website, the Town's public drinking water supply is drawn entirely from the Charles River Basin through four gravel packed groundwater wells.
   - To ensure sufficient water supply to the community at acceptable treatment levels the town has embarked on the design and construction of a Centralized DPW Water Treatment Plant, which will be located on Populatic Street, for the Populatic St., Village St. and Oakland St. wells.
6. Electricity and gas utilities are provided by Eversource; there is gas on both Main Street and Pond Street.
7. Solar will be considered with any development of the site.
8. DPW Dispatch is coordinated through the Central dispatch at the Police Station.
9. The Town owns its own fiber.
10. Trash is currently contracted with Lawrence Waste Servies in Medway. There is a recycling center at 46 Broad Street (DPW garage site).

Site Program Requirements *(see Proposed Site Plan – Option 1 at the end of this report)*

- Building locations within the site:
  - Town Hall separate from combined Public Safety building to allow positioning of the Town Hall with prominence facing Main Street and at the head of the "Town Green"
  - Public Safety building (Fire & Police) located further back from the Main Street front to reduce expanse of asphalt pavement needed for vehicle and apparatus maneuvering near the Main Street front and "Town Green".

- Town Green and Public Amenities:
  - Develop open area facing Main Street as a "Town Green"
    - Features to include:
      - Lawn, plantings and hardscape walkways appropriate for a primary town center
      - Features: reflecting pool, fountain, clock tower, gazebo/ bandstand
      - Site lighting, seating
    - Coordinate with proposed development across Main Street to emphasize a "Town Center" with the proposed Town Green
  - Playing courts (basketball, pickleball) on the municipal site with public access

- Vehicular access to Main Street and Pond Street
  - Separate vehicular access by emergency vehicles to Main Street and Pond Street

- Neighbors:
  - Substantial privacy buffer (trees, fencing, stone walls) between municipal site and adjacent residential neighbors along the north boundary;
  - Locate access to Pond Street to minimize emergency traffic directly across from private homes
  - Privacy and security buffer between municipal site and adjacent commercial neighbors.

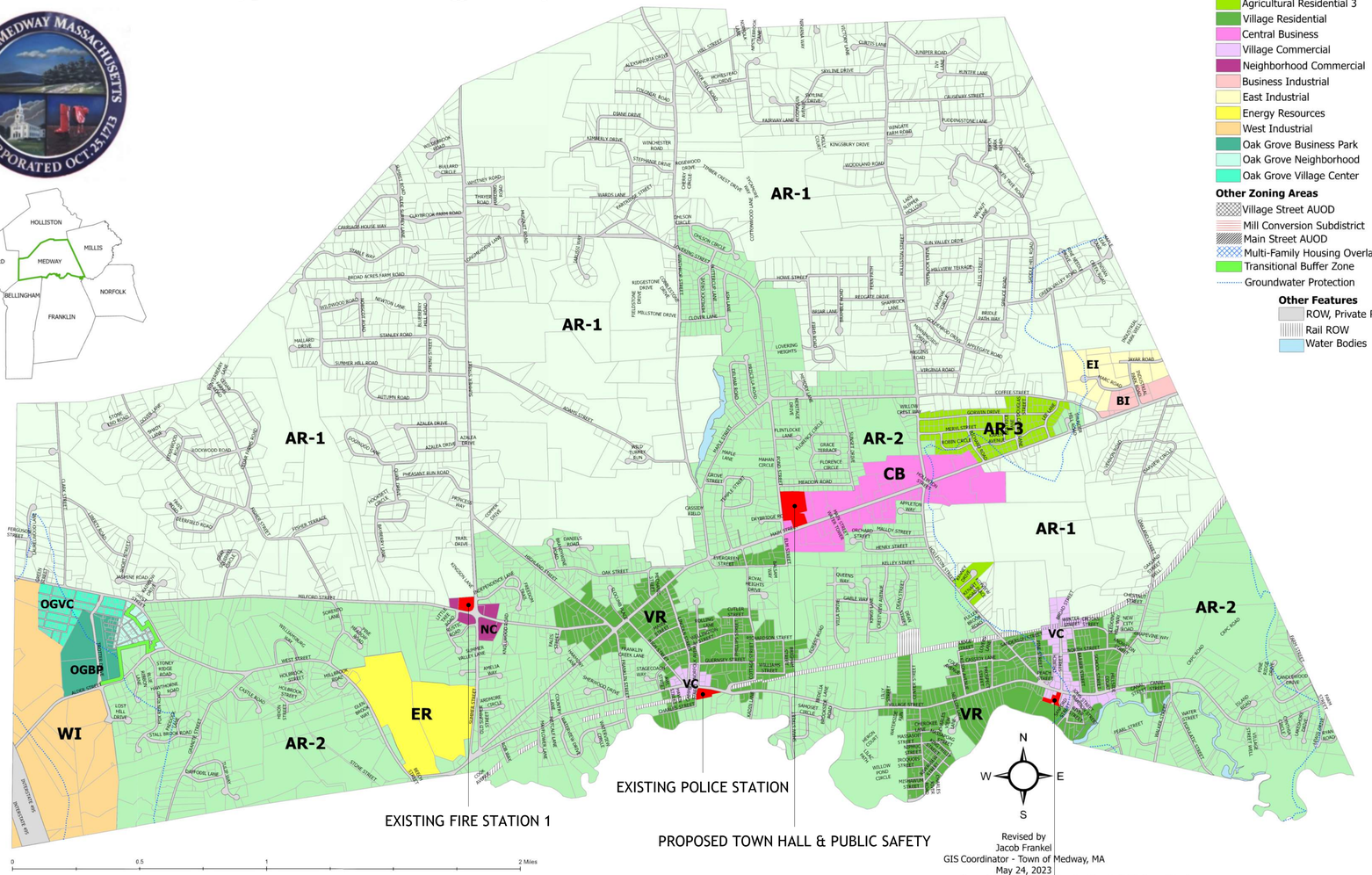
- Site Security:
  - Gated security fencing around Public Safety building.

Building Program Requirements

Projected requirements for each department are included in the *Current Space and Programming Deficiencies and Projected Needs* for each department (Fire, Police, Town Hall) in the previous sections of this report.

END OF SECTION

Town of Medway, MA Zoning Map



Underlying Zoning Districts
- Agricultural Residential 1
- Agricultural Residential 2
- Agricultural Residential 3
- Village Residential
- Central Business
- Village Commercial
- Neighborhood Commercial
- Business Industrial
- East Industrial
- Energy Resources
- West Industrial
- Oak Grove Business Park
- Oak Grove Neighborhood
- Oak Grove Village Center

Other Zoning Areas
- Village Street AUOD
- Mill Conversion Subdistrict
- Main Street AUOD
- Multi-Family Housing Overlay District
- Transitional Buffer Zone
- Groundwater Protection

Other Features
- ROW, Private ROW
- Rail ROW
- Water Bodies

N
W E
S

Revised by
Jacob Frankel
GIS Coordinator - Town of Medway, MA
May 24, 2023
This revised Zoning Map reflects changes approved at the May 8, 2023 Town Meeting

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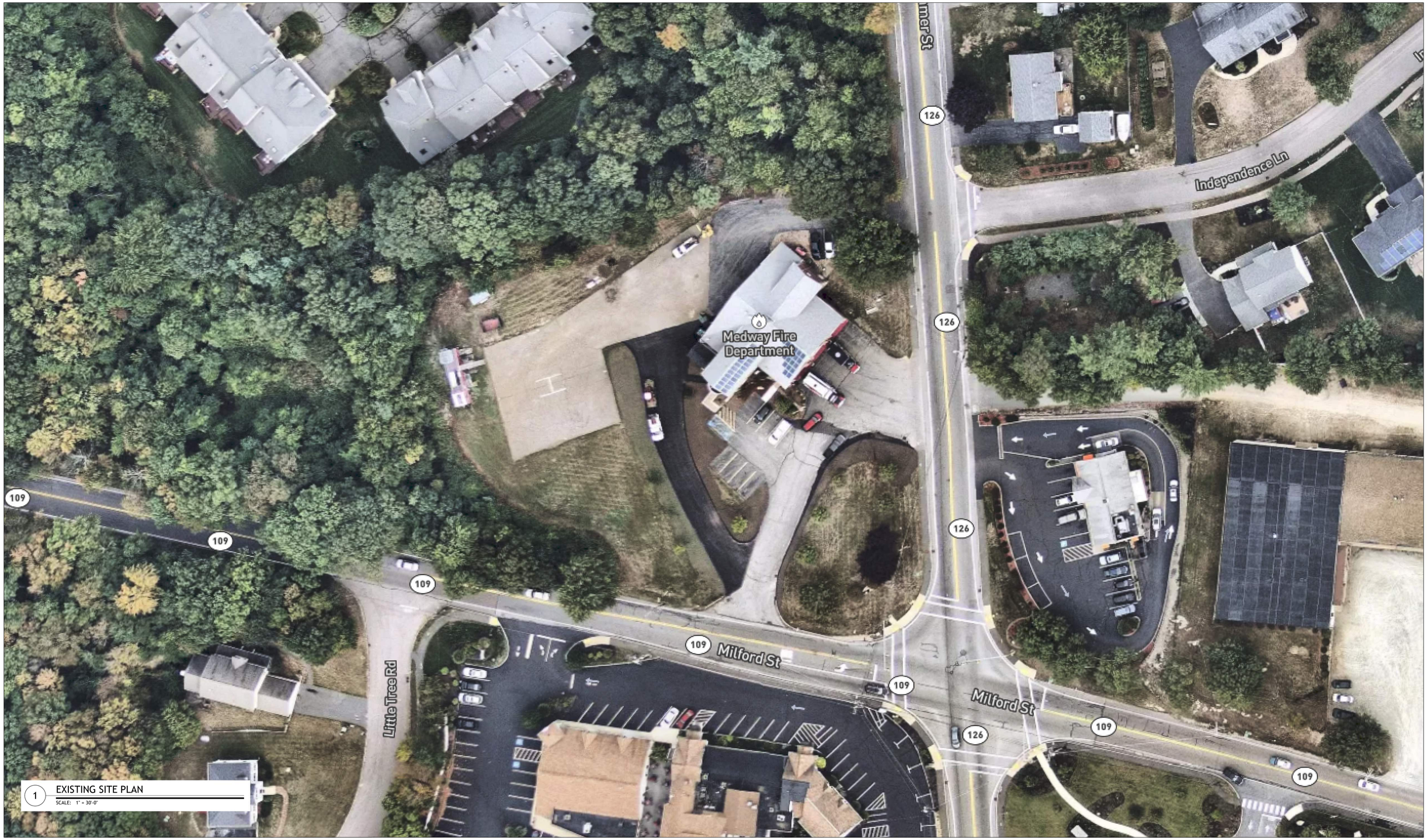
MEDWAY TOWN HALL & PUBLIC SAFETY
TOWN OF MEDWAY ZONING MAP

03/04/24

120 MAIN STREET



1 EXISTING SITE PLAN
SCALE: 1" = 30'-0"

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MEDWAY FIRE STATION 1

EXISTING SITE IMAGE

03/04/24

44 MILFORD STREET

1 PROPOSED SITE PLAN
SCALE: 1" = 30'-0"

PROS

- MITIGATES EXISTING PHYSICAL DEFICIENCIES
- IMPROVES CURRENT FUNCTIONAL DEFICIENCIES AND SPACE NEEDS, AND TO A LIMITED DEGREE FUTURE SPACE NEEDS
- IMPROVES THE SERVICE LIFE OF THE BUILDING AND BUILDING SYSTEMS
- IMPROVES THE SAFETY AND CONFORT OF OCCUPANTS

CONS

- DOES NOT RESOLVE LIMITATIONS OF EXISTING SITE:
  - NOT A CENTRAL LOCATION
  - LOCATION AT A MAJOR INTERSECTION IS PROBLEMATIC FOR SITE EGRESS AND ENTRANCE BY EMERGENCY VEHICLES
  - DISCONNECTED FROM FIRE AND TOWN ADMINISTRATION
  - SEPARATION OF VEHICLE GARAGING
- LIMITS FUTURE EXPANSION AS TOWN POPULATION GROWS
- ELIMINATES BENEFITS OF A COMBINED PUBLIC SAFETY BLDG:
  - EMERGENCY OPERATIONS CENTER (EOC)
  - SHARED RESOURCES
  - CENTRALIZED LOCATION ALONG MAIN ROADWAY

DISRUPTIVE TO THE DAY-TO-DAY OPERATIONS OF THE FIRE STATION DURING CONSTRUCTION

ZONING DISTRICT = NEIGHBORHOOD COMMERCIAL

- FRONT SET BACK = 35'-0"
- SIDE SET BACK = 15'-0"
- REAR SET BACK = 15'-0"

05 EXISTING PARKING SPACES
41 NEW PARKING SPACES @ 9'-0" X 18'-0"
46 TOTAL PARKING SPACES

EXISTING BUILDING:

5,417 GSF = FIRST FLOOR LEVEL
3,626 GSF = SECOND FLOOR LEVEL
9,043 GSF = TOTAL EXISTING BUILDING AREA

BUILDING ADDITION:

8,882 GSF = MAIN STATION FIRST FLOOR LEVEL
8,882 GSF = MAIN STATION SECOND FLOOR LEVEL
7,200 GSF = APPARATUS BAY
24,964 GSF = TOTAL BUILDING ADDITION AREA

34,007 GSF = TOTAL COMBINED AREA OF EXISTING & PROPOSED

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MEDWAY FIRE STATION 1
PROPOSED SITE PLAN

03/04/24

44 MILFORD STREET

1 EXISTING SITE IMAGE
SCALE: 1" = 20'-0"

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MEDWAY POLICE STATION
EXISTING SITE IMAGE

03/04/24

315 VILLAGE STREET

1 PROPOSED SITE PLAN
SCALE: 1" = 20'-0"

PROS

- MITIGATES EXISTING PHYSICAL DEFICIENCIES
- IMPROVES CURRENT FUNCTIONAL DEFICIENCIES AND SPACE NEEDS, AND TO A LIMITED DEGREE FUTURE SPACE NEEDS
- IMPROVES THE SERVICE LIFE OF THE BUILDING AND BUILDING SYSTEMS
- IMPROVES THE SAFETY AND COMFORT OF OCCUPANTS

CONS

- DOES NOT RESOLVE LIMITATIONS OF EXISTING SITE:
  - NOT A CENTRAL LOCATION
  - LOCATED WITHIN DENSE RESIDENTIAL NEIGHBORHOOD
  - DISCONNECTED FROM FIRE AND TOWN ADMINISTRATION
  - EXACERBATES THE ALREADY TIGHT SITE FOR VEHICLE STORAGE
  - LIMITS FUTURE EXPANSION AS TOWN POPULATION GROWS
  - ELIMINATES BENEFITS OF COMBINED PUBLIC SAFETY BUILDING:
  - EMERGENCY OPERATIONS CENTER (EOC)
  - SHARED RESOURCES
  - CENTRALIZED LOCATION ALONG MAIN ROADWAY
  - DISRUPTIVE TO THE DAY-TO-DAY OPERATIONS OF THE POLICE STATION DURING CONSTRUCTION

ZONING DISTRICT = VILLAGE COMMERCIAL

- FRONT SET BACK = 20'-0"
- SIDE SET BACK = 10'-0"
- REAR SET BACK = 10'-0"

06 EXISTING PARKING SPACES
42 PARKING SPACES @ 9'-0" X 18'-0"
48 TOTAL PARKING SPACES

EXISTING BUILDING:

1,776 GSF = BASEMENT LEVEL
4,166 GSF = FIRST FLOOR LEVEL
3,965 GSF = SECOND FLOOR LEVEL
9,907 GSF = TOTAL EXISTING BUILDING AREA

BUILDING ADDITION:

4,120 GSF = BASEMENT
4,120 GSF = FIRST FLOOR
4,120 GSF = SECOND FLOOR
12,360 GSF = TOTAL BUILDING ADDITION AREA

22,267 GSF = TOTAL COMBINED AREA OF EXISTING & PROPOSED

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MEDWAY POLICE STATION
PROPOSED SITE PLAN

03/04/24

315 VILLAGE STREET

1 EXISTING SITE IMAGE
SCALE: 1" = 20'-0"

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MEDWAY TOWN HALL
EXISTING SITE IMAGE

03/04/24

155 VILLAGE STREET

1 PROPOSED SITE PLAN
SCALE: 1" = 20'-0"

PROS

- IMPROVES CURRENT PHYSICAL AND FUNCTIONAL DEFECIENCIES AND SPACE NEEDS, AND TO A LIMITED DEGREE FUTURE SPACE NEEDS
- IMPROVES THE SEFVICE LIFE OF THE BLDG & BLDG SYSTEMS
- IMPROVES THE SAFETY AND COMFORT OF OCCUPANTS
- MAINTAINS HISTORIC CHARACTER OF TOWN HALL

CONS

- DOES NOT RESOLVE LIMITATIONS OF EXISTING SITE:
  - NOT A CENTRAL LOCATION
  - HEMMED IN BY SURROUNDING BUILDINGS
  - DISCONNECTED FROM FIRE AND POLICE
  - EXACERBATES THE ALREADY TIGHT SITE FOR PARKING
- LIMITS FUTURE EXPANSION AS TOWN POPULATION GROWS
- ELIMINATES BENEFITS OF A COMBINED PUBLIC SAFETY BLDG:
  - EMERGENCY OPERATIONS CENTER (EOC)
  - SHARED RESOURCES
  - CENTRALIZED LOCATION ALONG MAIN ROADWAY

WILL REQUIRE RELOCATION OF TOWN HALL OPERATIONS DURING CONSTRUCTION

ZONING DISTRICT = VILLAGE COMMERCIAL

- FRONT SET BACK = 20'-0"
- SIDE SET BACK = 10'-0"
- REAR SET BACK = 10'-0"

08 EXISTING PARKING SPACES
64 NEW PARKING SPACES @ 9'-0" x 18'-0"
72 TOTAL PARKING SPACES

EXISTING BUILDING:

3,266 GSF = BASEMENT LEVEL
3,737 GSF = FIRST FLOOR LEVEL
3,717 GSF = SECOND FLOOR LEVEL
10,720 GSF = TOTAL EXISTING BUILDING AREA

BUILDING ADDITION:

4,120 SF = BASEMENT LEVEL
4,120 SF = FIRST FLOOR LEVEL
4,120 SF = SECOND FLOOR LEVEL
12,360 SF = TOTAL BUILDING ADDITION AREA

23,080 SF = TOTAL COMBINED AREA OF EXISTING & PROPOSED

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MEDWAY TOWN HALL
PROPOSED SITE PLAN

03/04/24

155 VILLAGE STREET

1 EXISTING SITE IMAGE
SCALE: 1" = 50'-0"

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MEDWAY TOWN HALL & PUBLIC SAFETY

03/04/24

EXISTING SITE IMAGE

120 MAIN STREET

1 PROPOSED SITE PLAN
SCALE: 1" = 50'-0"

ZONING DISTRICT = CENTRAL BUSINESS

- FRONT SET BACK = 10'-0"
- SIDE SET BACK = 10'-0"
- REAR SET BACK = 25'-0"

PARKING SPACES @ 9'-0" x 18'-0"
064 = PUBLIC
018 = TOWN HALL STAFF
060 = POLICE DEPARTMENT
058 = FIRE DEPARTMENT
200 = TOTAL PARKING

TOWN HALL: 6,600 GSF x 3 LEVELS = 19,800 GSF

FIRE STATION:
- MAIN STATION: 10,000 GSF x 2 LEVELS = 20,000 GSF
- APPARATUS BAYS: 14,000 GSF x 1 LEVEL = 14,000 GSF

POLICE STATION:
- MAIN STATION: 10,000 GSF x 2 LEVELS = 20,000 GSF
- GARAGE : 2,000 GSF x 1 LEVEL = 2,000 GSF

BUILDING CONNECTORS: 1,200 GSF

TOTAL AREA = 77,000 GSF

North

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MEDWAY TOWN HALL & PUBLIC SAFETY
PROPOSED SITE PLAN

03/04/24

120 MAIN STREET