

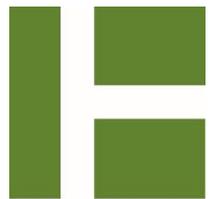


# Boscawen Fire Department

Boscawen, NH

## Feasibility Study

August 12, 2021



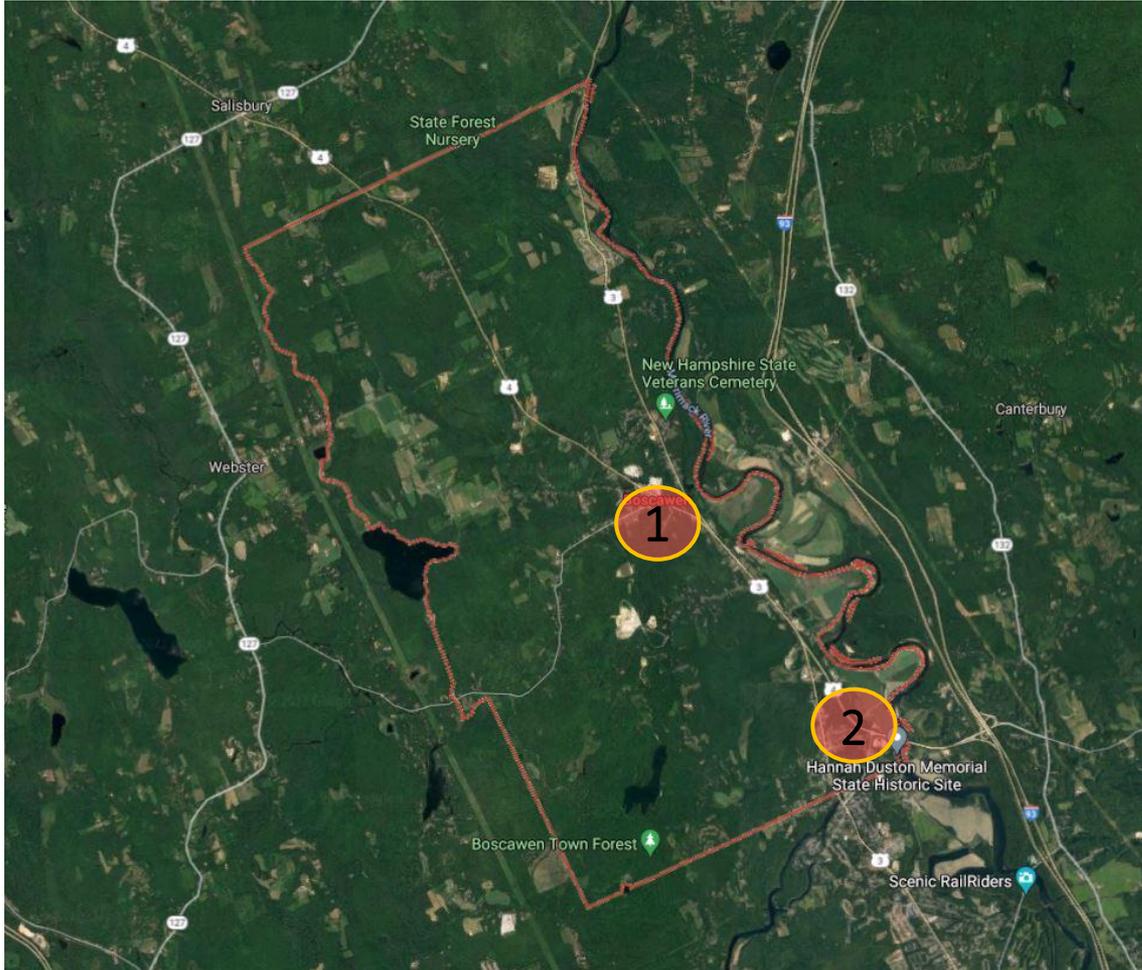
HARRIMAN

# ■ Project Goals

- 1 Review existing Fire Department facility and site conditions**
- 2 Determine Space Needs for Fire Department and Community Meeting Room**
- 3 Develop conceptual floor plans and site plan diagrams**
- 4 Create conceptual cost estimate**
- 5 Review concepts with the Town**

# ■ Current Conditions

**The Town currently utilizes a central Fire Station to support operations of an all-volunteer Fire Department.**



1. 15 High Street: Fire Department
2. 1 Oak Street: Penacook Rescue Squad (EMS)

# Current Conditions

## Assessment of the existing facility was formalized in a draft report



HARRIMAN

AUBURN  
BOSTON  
PORTLAND  
PORTSMOUTH

www.harriman.com

TOWN OF BOSCAWEN  
FIRE DEPARTMENT FACILITY AND SPACE NEEDS ASSESSMENT  
Boscawen, New Hampshire  
PROJECT # 20454

FEBRUARY 4, 2021

DRAFT FOR OWNER REVIEW



© 2021 Harriman



**TOWN OF BOSCAWEN FIRE DEPARTMENT FACILITY AND SPACE NEEDS ASSESSMENT**

**EXECUTIVE SUMMARY**

**Introduction**

The Town of Boscawen, New Hampshire hired Harriman to perform a facility assessment, space needs analysis, and develop conceptual design options of its Fire Department in November 2020. The facility assessment is a visual, non-invasive review of the current condition of each building and its site. The purpose, intent, and goals of the project are listed in italics below.

**Purpose**

To undertake an overall efficiency study on facility and space needs for its Fire Department administration, operations, equipment, and training. Work included evaluating one municipally owned building.

**Intent**

The primary intent is to conduct a Facility Needs Assessment Study to determine the physical condition and capacity of existing facilities. To assess whether existing facilities are adequate to provide a level of service within the Town. Adequacy is intended to be in line with generally accepted standards and "best practices," for modern day Firefighting services. A desired outcome is to be consistent with benchmarks for safety used by comparable Fire Departments in comparable communities.

**Project Goals**

The goals are to identify facility improvement and recommend strategies that result in the improvement of space utilization and occupant safety and comfort.

**Project Background**



*Aerial Site Plan (N.T.S.) with Boscawen Fire Department marked with red pin*

Page 1 of 6

# Space Needs

## Total square footage needed to support operational current and future operational program requirements

Summary FD Area Table	2020		2021				2026				2041			
	Current Staff	Current Area	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)
I. Administration	1,309					1,034				326				0
II. Communications	0													0
III. Day Space Areas	1,210					1,043				72				0
IV. Staff Quarters & Support	0													0
V. Stationhouse Operations	66													140
VI Apparatus & Vehicles	2,794					4,150				1,050				400
VII. Vehicle Maintenance	0					200				0				0
VIII. Training	0					140				0				0
<b>Building Totals (Fire Department Only)</b>														
(NSF) Sub Total All Areas:	5,379					7,341				2,446				540
Circulation and Walls:	1.17					1.40				1.40				1.40
(GSF) Total Space Needs:	6,274					10,277				3,424				756
IX Public	0					3,160				0				0
<b>Building Totals</b>														
(NSF) Sub Total All Areas:	5,379					10,501				2,446				540
Circulation and Walls:	2.00					1.40				1.40				1.40
(GSF) Total Space Needs:	10,755					14,701				3,424				756

**Existing area supporting the Town's volunteer Fire Department needs**

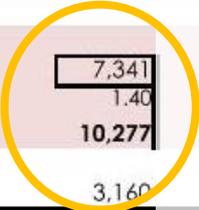


# Space Needs

## Total square footage needed to support operational current and future operational program requirements

Summary FD Area Table	2020		2021				2026				2041			
	Current Staff	Current Area	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)
<b>I. Administration</b>		1,309				1,034				326				0
<b>II. Communications</b>		0				0				0				0
<b>III. Day Space Areas</b>		1,210				1,043				167				0
<b>IV. Staff Quarters &amp; Support</b>		0				0				830				0
<b>V. Stationhouse Operations</b>		66				774				165				140
<b>VI Apparatus &amp; Vehicles</b>		2,794				4,150								400
<b>VII. Vehicle Maintenance</b>		0				200				0				0
<b>VIII. Training</b>		0				140				0				0
<b>Building Totals (Fire Department Only)</b>														
<b>(NSF) Sub Total All Areas:</b>		5,379				7,341				2,446				540
Circulation and Walls:		1.17				1.40				1.40				1.40
<b>(GSF) Total Space Needs:</b>		6,274				10,277				3,424				756
<b>IX Public</b>		0				3,160				0				0
<b>Building Totals</b>														
<b>(NSF) Sub Total All Areas:</b>		5,379				10,501				2,446				540
Circulation and Walls:		2.00				1.40				1.40				1.40
<b>(GSF) Total Space Needs:</b>		10,755				14,701				3,424				756

**Area Needed to support the Town's current volunteer Fire Department**

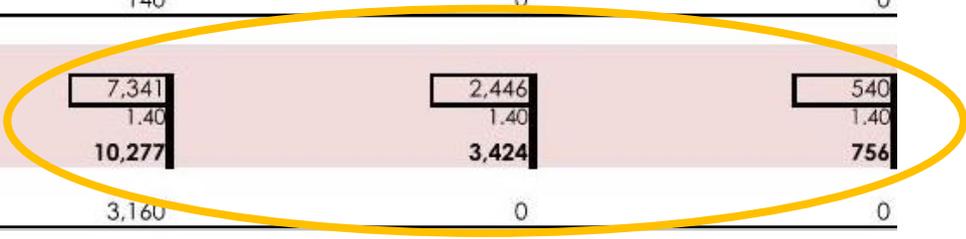


# Space Needs

## Total square footage needed to support operational current and future operational program requirements

Summary FD Area Table	2020		2021				2026				2041			
	Current Staff	Current Area	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)
I. Administration		1,309				1,034				326				0
II. Communications		0				0				0				0
III. Day Space Areas		1,210				1,043				0				0
IV. Staff Quarters & Support		0				0				830				0
V. Stationhouse Operations		66				774				168				140
VI Apparatus & Vehicles		2,794				4,150				1,058				400
VII. Vehicle Maintenance		0				200				0				0
VIII. Training		0				140				0				0
<b>Building Totals (Fire Department Only)</b>														
(NSF) Sub Total All Areas:		5,379				7,341				2,446				540
Circulation and Walls:		1.17				1.40				1.40				1.40
(GSF) Total Space Needs:		6,274				10,277				3,424				756
IX Public		0				3,160				0				0
<b>Building Totals</b>														
(NSF) Sub Total All Areas:		5,379				10,501				2,446				540
Circulation and Walls:		2.00				1.40				1.40				1.40
(GSF) Total Space Needs:		10,755				14,701				3,424				756

**Area to support the Town's current and future Fire Department operations: assumes paid staff positions**

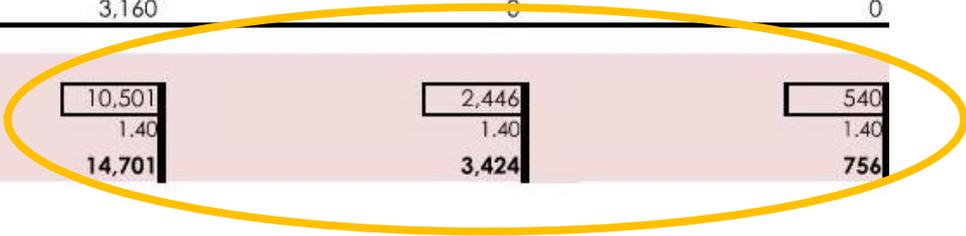


# Space Needs

## Total square footage needed to support operational current and future operational program requirements

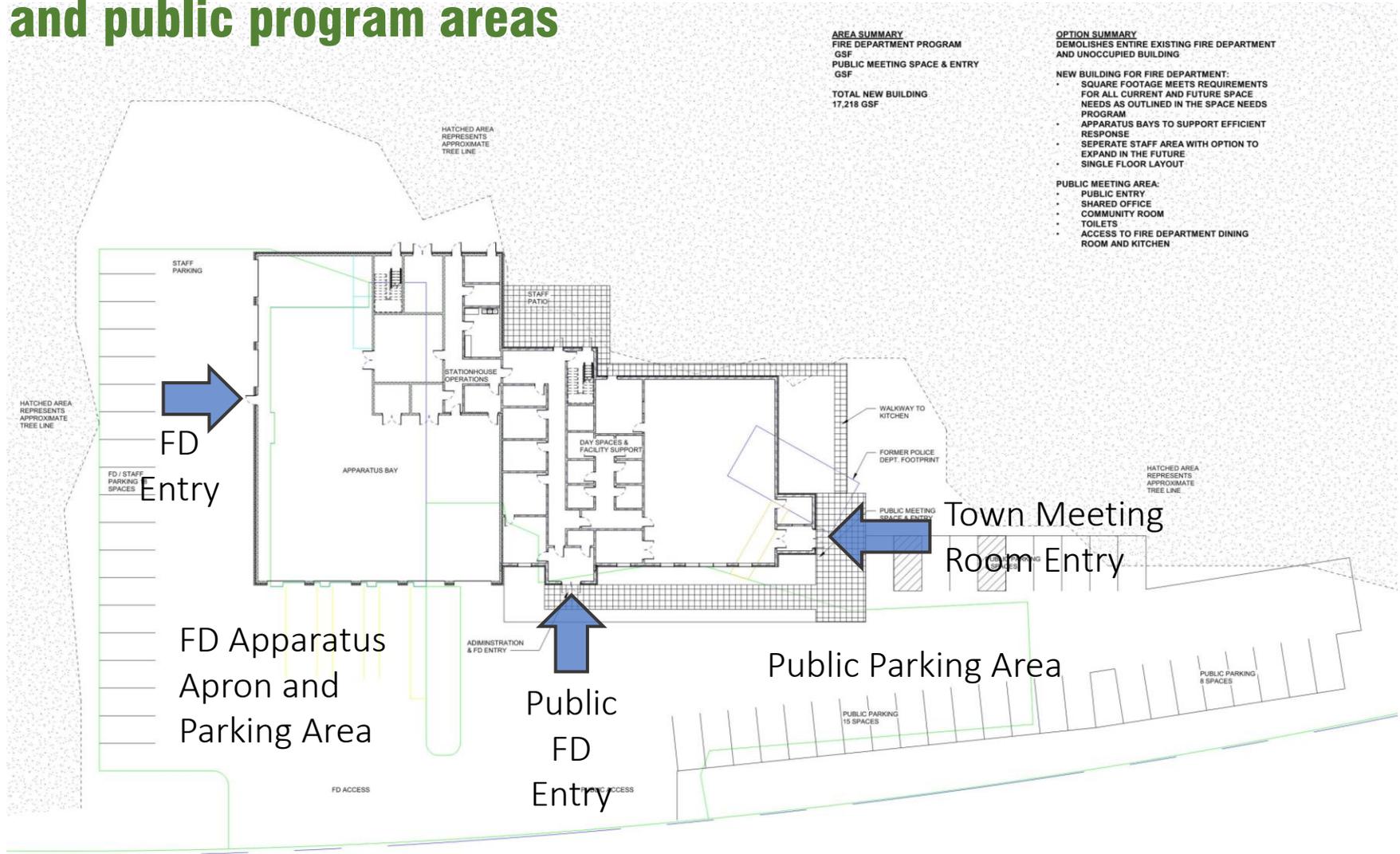
Summary FD Area Table	2020		2021				2026				2041			
	Current Staff	Current Area	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)
I. Administration		1,309				1,034				326				0
II. Communications		0				0				0				0
III. Day Space Areas		1,210				1,043				177				0
IV. Staff Quarters & Support		0				0				830				0
V. Stationhouse Operations		66				774				168				140
VI Apparatus & Vehicles		2,794				4,150				1,150				400
VII. Vehicle Maintenance		0				200				0				0
VIII. Training		0				140				0				0
<b>Building Totals (Fire Department Only)</b>														
(NSF) Sub Total All Areas:		5,379				7,341				2,446				540
Circulation and Walls:		1.17				1.40				1.40				1.40
(GSF) Total Space Needs:		6,274				10,277				3,424				756
IX Public		0				3,160				0				0
<b>Building Totals</b>														
(NSF) Sub Total All Areas:		5,379				10,501				2,446				540
Circulation and Walls:		2.00				1.40				1.40				1.40
(GSF) Total Space Needs:		10,755				14,701				3,424				756

**Area Needed to support the Town's Fire Department and Town meeting space**



# Conceptual Site Plan Diagram

**Site Layout works with existing constraints, safely separates FD and public program areas**



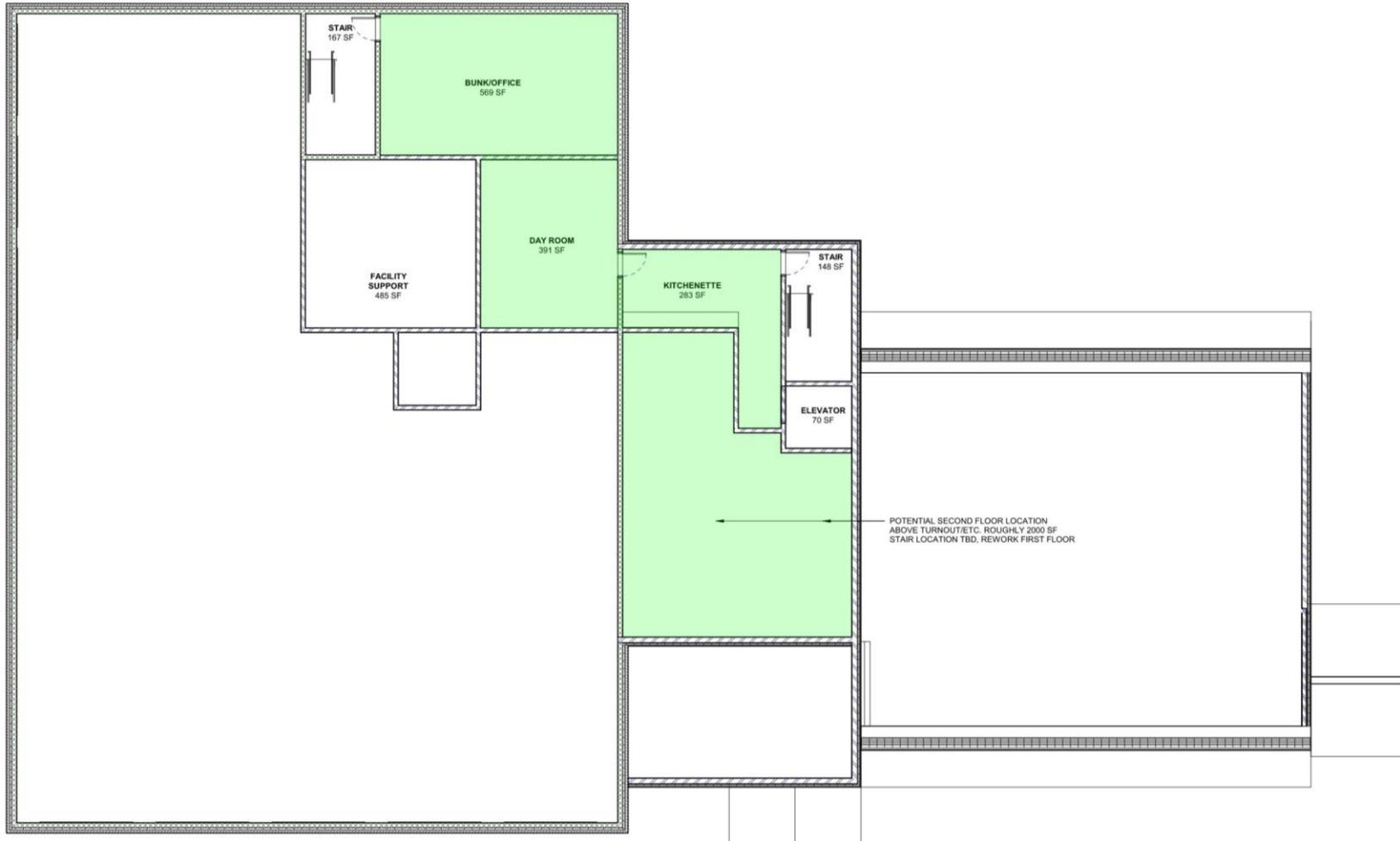
# Conceptual Floor Plans

**Ground Floor includes Apparatus Bay, Station Operations, Administration, and Community Meeting spaces**



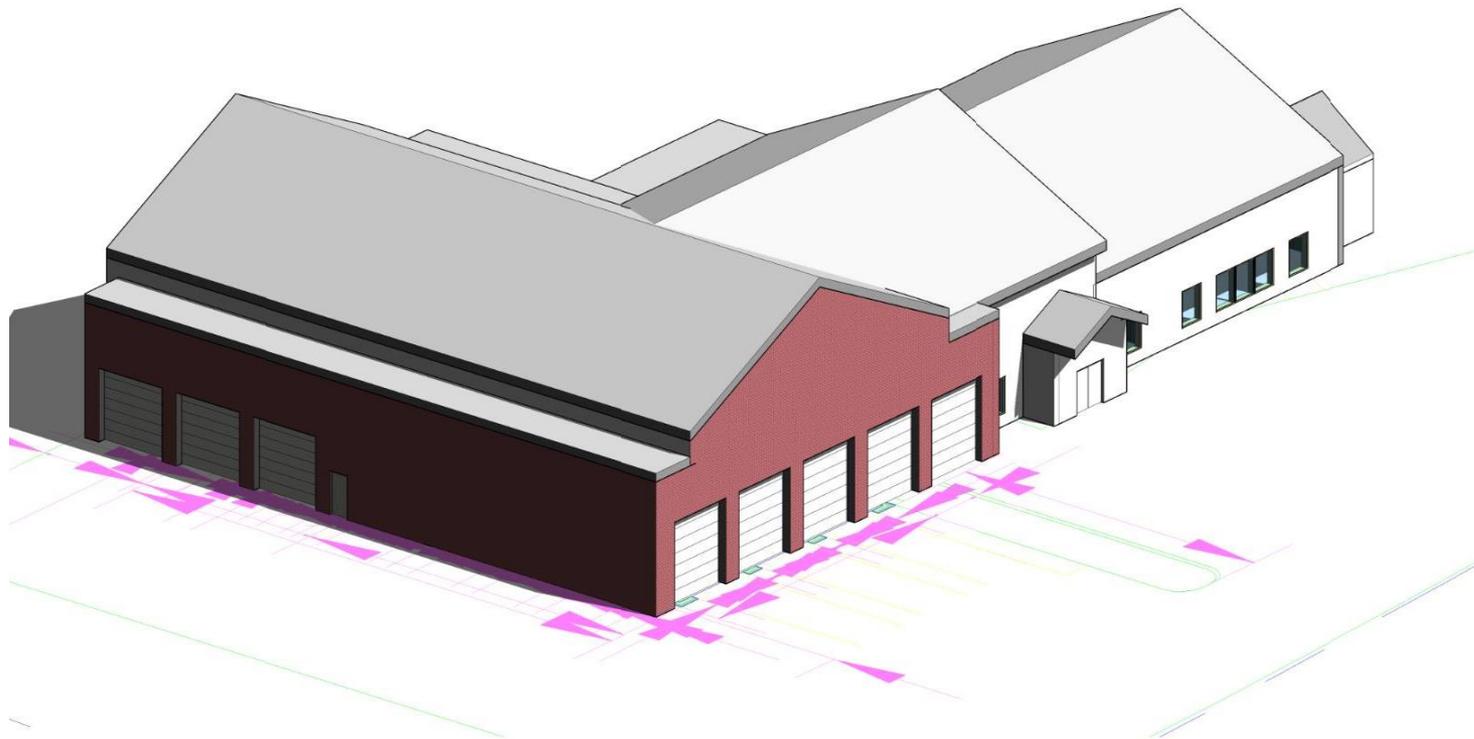
# ■ Conceptual Floor Plans

## Second Floor includes Day Room, Bunking, and other Offices spaces



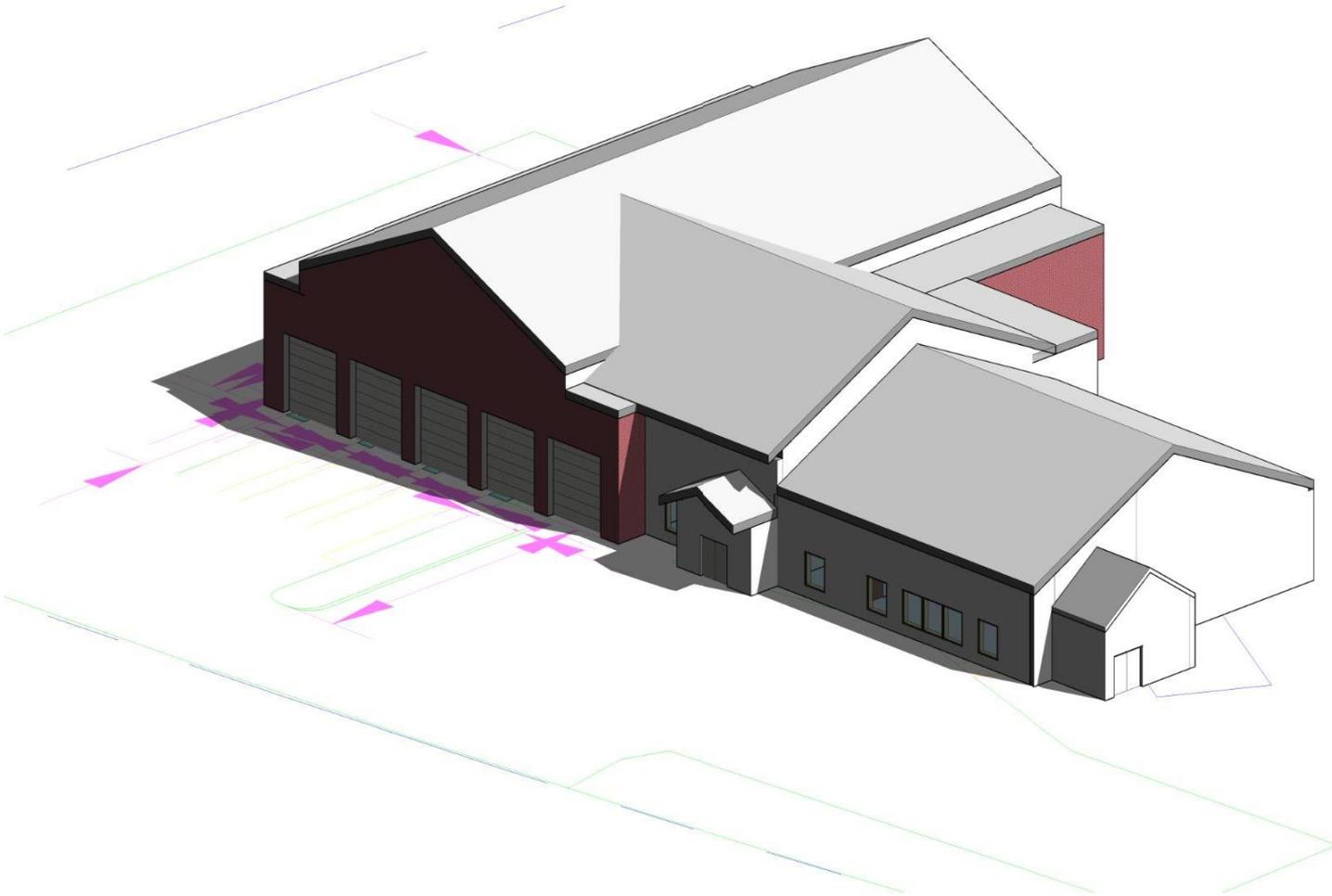
# ■ Conceptual Massing Studies

## **Brick Apparatus Bay and siding on 1-story volumes**



# ■ Conceptual Massing Studies

## **Brick Apparatus Bay and siding on 1-story volumes**



# Cost Modeling-FD Only

## Order of Magnitude estimate includes total project cost

I. Construction	<u>Option 1</u> <u>Concent Option 2-2-21</u> 12,416 sf			<u>Option 2</u> <u>Concent Option 2-2-21</u> 10,068 sf			<u>Option 3-New Only</u> <u>Concent Option 4-8-21</u> 12,243 sf			<u>Option 4-2-Story New</u> <u>Concent Option 5-18-21</u> 12,784 sf		
Notes	Reuse bldg. Small Addition to Apparatus Bay, Small Addition to FD			Reuse bldg. Apparatus Bay remains the same, Small Addition to FD			Remove bldg. 6 Apparatus Bays, 1 Story New Bldg			Remove bldg. 5 Apparatus Bays, 2 Story New Bldg		
Construction Cost	Area	Cost/SF	Cost	Area	Cost/SF	Cost	Area	Cost/SF	Cost	Area	Cost/SF	Cost
Demolition Former Police Building	718	\$ 10.00	7,180	718	\$ 10.00	7,180	718	\$ 10.00	7,180	718	\$ 10.00	7,180
Demolition (Original 1st floor)	2,980	\$ 3.50	10,430	2,980	\$ 3.50	10,430	2,980	\$ 9.00	26,820	2,980	\$ 9.00	26,820
Demolition (Addition basement)	700	\$ 3.50	2,450	700	\$ 3.50	2,450	700	\$ 10.00	7,000	700	\$ 10.00	7,000
Demolition (Addition 1st floor)	1,723	\$ 6.50	11,200	1,723	\$ 6.50	11,200	1,723	\$ 9.00	15,507	1,723	\$ 9.00	15,507
Demolition (Addition 2nd floor)	1,575	\$ 6.50	10,238	1,575	\$ 6.50	10,238	1,575	\$ 9.00	14,175	1,575	\$ 9.00	14,175
Exterior Fire Escape			1,000			1,000						
<b>Demolition Total</b>	<b>7,696</b>		<b>42,497</b>	<b>7,696</b>		<b>42,497</b>	<b>7,696</b>		<b>70,682</b>	<b>7,696</b>		<b>70,682</b>
Renovation: Original (1st Floor) Arch + Mech + Elec (new people doors, no new apparatus doors)	2,980	\$ 80	238,400	2,980	\$ 80	238,400	0	\$ 80	0	0	\$ 80	0
Renovation: Addition (1st Floor) Code required Kitchen upgrades:vents & ADA	1,723	\$ 125	215,375	1,723	\$ 125	215,375	0	\$ 125	0	0	\$ 125	0
Renovation: Addition (2nd Floor) New partitions-all trades	1,575	\$ 85	133,875	1,575	\$ 85	133,875	0	\$ 85	0	0	\$ 85	0
<b>Renovation Total</b>	<b>6,278</b>		<b>587,650</b>	<b>6,278</b>		<b>587,650</b>	<b>0</b>		<b>0</b>	<b>0</b>		<b>0</b>
New Construction (1st floor FD apparatus bay)	2,350	\$ 275	646,250	0	\$ 275		6,200	\$ 255	1,581,000	6,000	\$ 255	1,530,000
New Construction (1st floor FD)	2,040	\$ 290	591,600	2,040	\$ 290	591,600	6,043	\$ 300	1,812,900	4,626	\$ 300	1,387,800
New Construction (2nd floor FD)	1,750	\$ 205	358,750	1,750	\$ 205	358,750	0	\$ 300	0	2,158	\$ 300	647,400
New Construction (1st floor Community Spaces)	0	\$ 260	0	0	\$ 260	0	0	\$ 260	0	0	\$ 260	0
<b>New Construction Total</b>	<b>6,140</b>		<b>1,596,600</b>	<b>3,790</b>		<b>950,350</b>	<b>12,243</b>		<b>3,393,900</b>	<b>12,784</b>		<b>3,565,200</b>
<b>Total All Building Construction</b>	<b>12,416</b>		<b>2,226,747</b>	<b>10,068</b>		<b>1,580,497</b>	<b>12,243</b>		<b>3,464,582</b>	<b>12,784</b>		<b>3,635,882</b>
Phasing Costs			0			0			0			0
Site			500,000			400,000			785,000			785,000
<b>Total Revised Project Construction Subtotal</b>			<b>2,726,747</b>			<b>1,980,497</b>			<b>4,249,582</b>			<b>4,420,882</b>
Overhead and Profit (6%)			163,605			118,830			254,975			265,253
<b>Building Construction Subtotal</b>			<b>2,890,352</b>			<b>2,099,327</b>			<b>4,504,557</b>			<b>4,686,135</b>
Bond and Insurance (2%)			57,807			41,987			90,091			93,723
<b>Building Construction Subtotal</b>			<b>2,948,159</b>			<b>2,141,313</b>			<b>4,594,648</b>			<b>4,779,858</b>
April 2022 Construction Start: Escalation 9%			265,334			192,718			413,518			430,187
<b>CONSTRUCTION TOTAL</b>	<b>\$/SF \$ 258.78</b>		<b>\$3,213,493</b>	<b>\$/SF \$ 231.83</b>		<b>\$2,334,032</b>	<b>\$/SF \$ 409.06</b>		<b>\$5,008,166</b>	<b>\$/SF \$ 407.54</b>		<b>\$5,210,045</b>

# ■ Cost Modeling-FD Only

## Order of Magnitude estimate includes total project cost

		\$/SF \$ 258.78	\$3,213,493	\$/SF \$ 231.83	\$2,334,032	\$/SF \$ 409.06	\$5,008,166	\$/SF \$ 407.54	\$5,210,045
<b>CONSTRUCTION TOTAL</b>									
<b>II. Administrative Cost &amp; Reserve</b>									
Land			0		0		0		0
FF&E (budget to be confirmed)			100,000		90,000		100,000		100,000
Technology Infrastructure (budget)			30,000		30,000		30,000		30,000
Advertising/Printing			5,000		5,000		5,000		5,000
Insurance/Legal			5,000		5,000		5,000		5,000
Bid Contingency (5% New, 7.5% Reno)	7.5%		241,012	7.5%	175,052	5.0%	250,408	5.0%	260,502
Construction Contingency (5% New, 7.5% Reno)	7.5%		241,012	7.5%	175,052	5.0%	250,408	5.0%	260,502
<b>TOTAL</b>			<b>\$622,024</b>		<b>\$480,105</b>		<b>\$640,817</b>		<b>\$661,004</b>
<b>III Fees &amp; Services</b>									
Total Basic Services Harriman	10.2%		352,360	10.3%	258,436	8.7%	457,496	8.7%	475,938
FF&E Fee and Technology Infrastructure	10.2%	\$	13,260	10.3%	\$ 12,360	8.7%	\$ 11,310	8.7%	\$ 11,310
TEL / Data Design (Incl. in construction scope)			0		0		0		0
Fee for Planning Board Permitting (as required)			10,000		10,000		10,000		10,000
Harriman Reimbursable	3.0%		10,571	3.0%	7,753	3.0%	13,725	3.0%	14,278
Survey/Soils/Borings			12,000		12,000		18,000		18,000
Clerk Fee (clarify if needed)			0		0		0		0
Special Inspections			8,000		6,000		12,000		12,000
Cost Estimating			12,000		12,000		12,000		12,000
Commissioning			6,000		6,000		6,000		6,000
Misc Fees and Expenses			20,000		20,000		20,000		20,000
Testing and Balancing			25,000		18,000		50,000		50,000
<b>TOTAL</b>			<b>\$469,190</b>		<b>\$362,549</b>		<b>\$610,531</b>		<b>\$629,526</b>
<b>Total Project Cost (FD Only)</b>			<b>\$4,304,707</b>		<b>\$3,176,685</b>		<b>\$6,259,514</b>		<b>\$6,500,575</b>

# Cost Modeling-FD & Community Mtg

## Order of Magnitude estimate includes total project cost

I. Construction	Option 1 Concept Option 2-2-21 15,953 sf			Option 2 Concept Option 2-2-21 13,603 sf			Option 3-New Only Concept Option 4-8-21 16,543 sf			Option 4-2-Story New Concept Option 5-18-21 16,969 sf		
Notes	Reuse bldg. Apparatus Bay remains the same, Small Addition to FD			Reuse bldg. Addition to Apparatus Bay, Small Addition to FD			Remove bldg. 6 Apparatus Bays, 1 Story New Bldg			Remove bldg. 5 Apparatus Bays, 2 Story New Bldg		
Construction Cost	Area	Cost/SF	Cost	Area	Cost/SF	Cost	Area	Cost/SF	Cost	Area	Cost/SF	Cost
Demolition Former Police Building	718	\$ 10.00	7,180	718	\$ 10.00	7,180	718	\$ 10.00	7,180	718	\$ 10.00	7,180
Demolition (Original 1st floor)	2,980	\$ 3.50	10,430	2,980	\$ 3.50	10,430	2,980	\$ 9.00	26,820	2,980	\$ 9.00	26,820
Demolition (Addition basement)	700	\$ 3.50	2,450	700	\$ 3.50	2,450	700	\$ 10.00	7,000	700	\$ 10.00	7,000
Demolition (Addition 1st floor)	1,723	\$ 6.50	11,200	1,723	\$ 6.50	11,200	1,723	\$ 9.00	15,507	1,723	\$ 9.00	15,507
Demolition (Addition 2nd floor)	1,575	\$ 6.50	10,238	1,575	\$ 6.50	10,238	1,575	\$ 9.00	14,175	1,575	\$ 9.00	14,175
Exterior Fire Escape			1,000			1,000						
<b>Demolition Total</b>	<b>7,696</b>		<b>42,497</b>	<b>7,696</b>		<b>42,497</b>	<b>7,696</b>		<b>70,682</b>	<b>7,696</b>		<b>70,682</b>
Renovation: Original (1st Floor) Arch + Mech + Elec (new people doors, no new apparatus doors)	2,980	\$ 80	238,400	2,980	\$ 80	238,400	0	\$ 80	0	0	\$ 80	0
Renovation: Addition (1st Floor) Code required Kitchen upgrades:vents & ADA	1,723	\$ 125	215,375	1,723	\$ 125	215,375	0	\$ 125	0	0	\$ 125	0
Renovation: Addition (2nd Floor) New partitions-all trades	1,575	\$ 85	133,875	1,575	\$ 85	133,875	0	\$ 85	0	0	\$ 85	0
<b>Renovation Total</b>	<b>6,278</b>		<b>587,650</b>	<b>6,278</b>		<b>587,650</b>	<b>0</b>		<b>0</b>	<b>0</b>		<b>0</b>
New Construction (1st floor FD apparatus bay)	2,350	\$ 275	646,250	0	\$ 275		6,200	\$ 255	1,581,000	6,000	\$ 255	1,530,000
New Construction (1st floor FD)	2,040	\$ 290	591,600	2,040	\$ 290	591,600	6,043	\$ 300	1,812,900	4,626	\$ 300	1,387,800
New Construction (2nd floor FD)	1,750	\$ 205	358,750	1,750	\$ 205	358,750	0	\$ 390	0	2,158	\$ 300	647,400
New Construction (1st floor Community Spaces)	3,535	\$ 260	919,100	3,535	\$ 260	919,100	4,300	\$ 260	1,118,000	4,185	\$ 260	1,088,100
<b>New Construction Total</b>	<b>9,675</b>		<b>2,515,700</b>	<b>7,325</b>		<b>1,869,450</b>	<b>16,543</b>		<b>4,511,900</b>	<b>16,969</b>		<b>4,653,300</b>
<b>Total All Building Construction</b>	<b>15,953</b>		<b>3,145,847</b>	<b>13,603</b>		<b>2,499,597</b>	<b>16,543</b>		<b>4,582,582</b>	<b>16,969</b>		<b>4,723,982</b>
Phasing Costs			0			0			0			0
Site			500,000			400,000			785,000			785,000
<b>Total Revised Project Construction Subtotal</b>			<b>3,645,847</b>			<b>2,899,597</b>			<b>5,367,582</b>			<b>5,508,982</b>
Overhead and Profit (6%)			218,751			173,976			322,055			330,539
<b>Building Construction Subtotal</b>			<b>3,864,598</b>			<b>3,073,573</b>			<b>5,689,637</b>			<b>5,839,521</b>
Bond and Insurance (2%)			77,292			61,471			113,793			116,790
<b>Building Construction Subtotal</b>			<b>3,941,890</b>			<b>3,135,044</b>			<b>5,803,430</b>			<b>5,956,311</b>
April 2022 Construction Start: Escalation 9%			354,770			282,154			522,309			536,068
<b>CONSTRUCTION TOTAL</b>	<b>\$/SF \$ 269.33</b>		<b>\$4,296,660</b>	<b>\$/SF \$ 251.21</b>		<b>\$3,417,198</b>	<b>\$/SF \$ 382.38</b>		<b>\$6,325,738</b>	<b>\$/SF \$ 382.60</b>		<b>\$6,492,379</b>

# Cost Modeling-FD & Community Mtg

## Order of Magnitude estimate includes total project cost

CONSTRUCTION TOTAL	\$/SF \$ 269.33	\$4,296,660	\$/SF \$ 251.21	\$3,417,198	\$/SF \$ 382.38	\$6,325,738	\$/SF \$ 382.60	\$6,492,379
<b>II. Administrative Cost &amp; Reserve</b>								
Land		0		0		0		0
FF&E (budget to be confirmed)		100,000		90,000		100,000		100,000
Technology Infrastructure (budget)		30,000		30,000		30,000		30,000
Advertising/Printing		5,000		5,000		5,000		5,000
Insurance/Legal		5,000		5,000		5,000		5,000
Bid Contingency (5% New, 7.5% Reno)	7.5%	322,249	7.5%	256,290	5.0%	316,287	5.0%	324,619
Construction Contingency (5% New, 7.5% Reno)	7.5%	322,249	7.5%	256,290	5.0%	316,287	5.0%	324,619
<b>TOTAL</b>		<b>\$784,499</b>		<b>\$642,580</b>		<b>\$772,574</b>		<b>\$789,238</b>
<b>III. Fees &amp; Services</b>								
Total Basic Services Harriman	10.2%	471,129	10.3%	378,369	8.7%	577,856	8.7%	593,079
FF&E Fee and Technology Infrastructure	10.2%	\$ 13,260	10.3%	\$ 12,360	8.7%	\$ 11,310	8.7%	\$ 11,310
TEL / Data Design (Incl. in construction scope)		0		0		0		0
Fee for Planning Board Permitting (as required)		10,000		10,000		10,000		10,000
Harriman Reimbursable	3.0%	14,134	3.0%	11,351	3.0%	17,336	3.0%	17,792
Survey/Soils/Borings		12,000		12,000		18,000		18,000
Clerk Fee (clarify if needed)		0		0		0		0
Special Inspections		8,000		8,000		12,000		12,000
Cost Estimating		12,000		12,000		12,000		12,000
Commissioning		6,000		6,000		6,000		6,000
Misc Fees and Expenses		20,000		20,000		20,000		20,000
Testing and Balancing		25,000		18,000		50,000		50,000
<b>TOTAL</b>		<b>\$591,523</b>		<b>\$486,080</b>		<b>\$734,502</b>		<b>\$750,181</b>
<b>Total Project Cost</b>		<b>\$5,672,681</b>		<b>\$4,545,858</b>		<b>\$7,832,814</b>		<b>\$8,031,799</b>

# Questions