



Financial Committee Meeting

# NORTH ACTON FIRE STATION





BLACK TUPELO/SHADE TREE



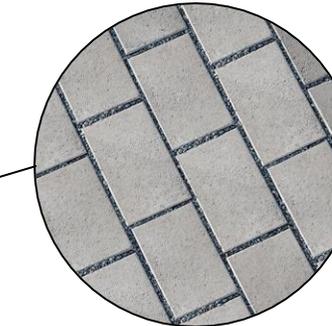
RED MAPLE/SHADE TREE



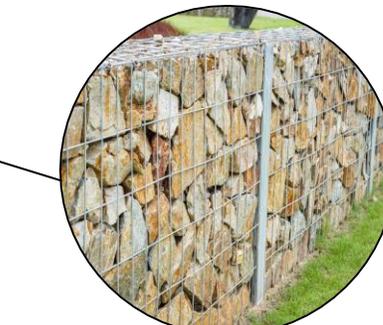
ARBORVITAE/EVERGREEN HEDGE



RESTORATION SEED MIX



CONCRETE PAVERS - DRY LAID



CONCRETE PAVERS - DRY LAID

# PROPOSED FLOOR PLAN



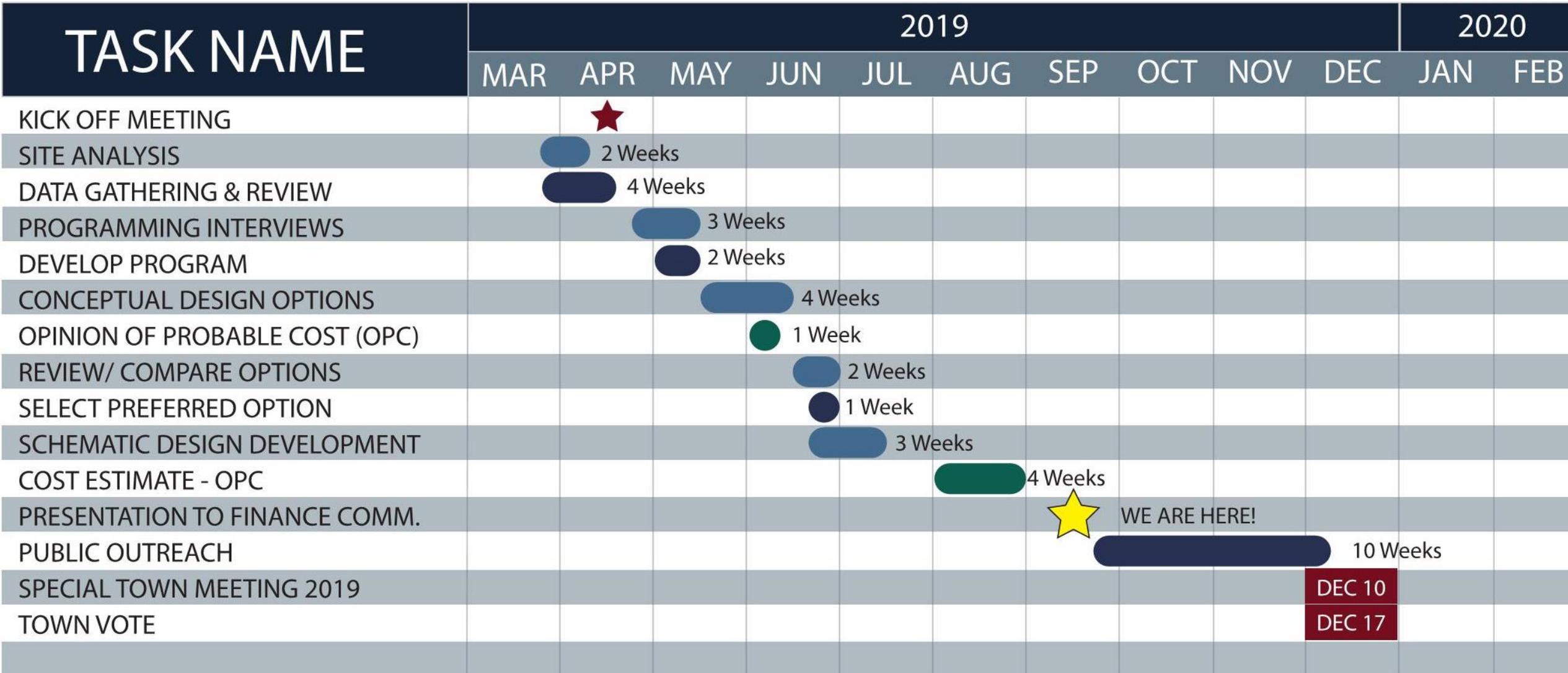
- COLOR LEGEND
- BUILDING SUPPORT
  - BUNK
  - CIRCULATION
  - FIRE APPARATUS BAYS
  - FIRE LIVING SPACE
  - FIRE SUPPORT
  - OPERATIONS
  - PUBLIC/ SHARED

# PREFERRED OPTION F



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⇒	CONSTRUCTION ESTIMATE:	\$8,396,642	@ 13,800 SF
	<ul style="list-style-type: none"><li>• Single-Story building</li><li>• Site Improvements</li><li>• Demolition</li><li>• Escalation (4%)</li><li>• Design Contingency (20%)</li></ul>		
⇒	SOFT COSTS:	\$1,999,076	
	<ul style="list-style-type: none"><li>• Equipment Costs</li><li>• Owner Indirect Costs</li></ul>		
⇒	CONTINGENCY:	\$ 519,832	
	<ul style="list-style-type: none"><li>• Construction (5%)</li><li>• Equipment (2%)</li><li>• Owner Indirect (2%)</li></ul>		
⇒	<b>ANTICIPATED TOTAL PROJECT COST:</b>	<b>\$10,915,550</b>	



## BUSY CONSTRUCTION MARKET

- Driving costs in MEP substantially



## ENVIRONMENTAL CONSIDERATIONS

- Net Zero Ready Building
- Geothermal Heat Pump System
- All Electric Service – NO NATURAL GAS!
- Low-E Glazing
- Durable Exterior Finishes for Longevity and Maintenance



## SITE COMPLEXITITES

- Designated wetlands on site makes driveways and parking segmented and elongated.
- Site requires retaining wall due to grading needs close in proximity to wetlands.

	<b>GEOHERMAL HEAT PUMP (GROUND SOURCE)</b>	<b>VRF HEAT PUMP + PERIMETER HW RADIATION</b>	<b>CENTRAL VAV AIR HANDLING UNITS + PERIMETER HW RADIATION</b>
ENERGY COSTS	\$281,792	\$344,371	\$424,881
INSTALLATION COSTS	Base	(\$385,328)	(\$445,376)
CO2 EMISSION (tons)	1,207 tons	1,475 tons	1,853 tons
LIFECYCLE COST SAVINGS (25 years)	\$138,214	\$44,767	Base
SIMPLE PAYBACK (years)	11.5 years	16.8 years	Base

	GEOTHERMAL HEAT PUMP (GROUND SOURCE)	VRF HEAT PUMP + PERIMETER HW RADIATION	CENTRAL VAV AIR HANDLING UNITS + PERIMETER HW RADIATION
<b>PROS</b>	Most Energy Efficient	More Energy Efficient	
	No Natural Gas		
	Lowest Life Cycle Cost	Smaller Life Cycle Cost	
	Lowest Carbon Footprint	Smaller Carbon Footprint	
	System provides both heating and cooling	System provides both heating and cooling	
	All electricity, most compatible with Solar PV System = Net-Zero most achievable		
	Incentives Potential		

	GEOTHERMAL HEAT PUMP (GROUND SOURCE)	VRF HEAT PUMP + PERIMETER HW RADIATION	CENTRAL VAV AIR HANDLING UNITS + PERIMETER HW RADIATION
<b>CONS</b>	First Initial Highest Cost		
			Highest Life Cycle Cost
		Condensers Exposed to Cold Weather, Performance Degrade, Less Reliable	More Ductwork, requires more ceiling space
		Requires Natural Gas for perimeter radiation system	Requires separate exhaust fans for toilets, locker rooms, mechanical/ electrical rooms, etc.
		Requires Natural Gas for Domestic Hot Water (DHW)	Requires Natural Gas for Heating & DHW



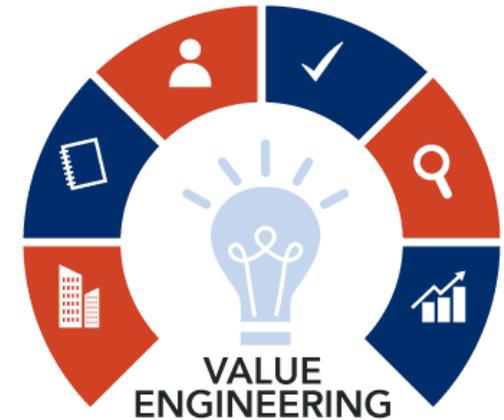
## VALUE ENGINEERING:

- Exterior finish modifications – change some brick areas to metal panel
- Review square footage at Locker Room and Bunk Room areas
- Paving by Owner – reduction in contractor mark-up
- Plantings by Owner – reduction in contractor mark-up & potentially labor costs
- Remove Geothermal system – impacts gas line service and Net Zero project goal



## ALTERNATES:

1. Delete Bifold Doors at front of Apparatus and Install Overhead Doors
2. Change Metal Panel to Hardy Plank
3. 3-Bay Pole Barn Improvements (currently not included in base estimate)



# QUESTIONS & ANSWERS

