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# MEMORANDUM

**TO:** Town of Acton Finance Committee

**FROM:** John Comeau, AIA

**DATE:** November 5, 2024

**SUBJECT:** Responses to Finance Committee questions related to the design of a new DPW Facility

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1. Regarding the phasing of construction: Can we shorten the schedule and reduce the project cost by relocating operations entirely for portions of the project rather than trying to work around them?

Response: We considered having the DPW completely demobilize from the site as this would decrease the overall project duration. For this to happen, suitable industrial rentable space would need to be available in town or in a nearby community for the duration of construction. The difficulty with this approach is finding the appropriate space when it is required, specifically for Fleet Maintenance operations and workshop space. An initial search at the beginning of the SD phase did not show any available commercial/industrial space that matched our criteria in Acton or the surrounding communities. There would also be significant costs associated with renting the space (if one is available when needed). The space would need renovations to accommodate fleet maintenance and shop functions, moving and rigging costs to relocate needed equipment such as lifts, tire changers, parts washers, workbenches, tools, fluids storage and distribution, etc. Once the new facility is constructed, all equipment and materials that are programmed for the new facility would need to be moved and setup again. It would be easier to find a home for the administrative staff in existing town space or off-site rentable office space.

2. Is there cost savings and schedule savings from relocating administration temporarily to Kennedy building/red house/town hall during the construction project?

Response: Yes, it would eliminate the need to rent a temporary admin trailer but would remove the administrative staff from the site for the duration of the construction.

3. Is it possible to set up a temporary mechanic shop as a way to relocate that operation during construction?

Response: See response to question #1.

4. What is difference in the SF cost for the garage portion of the building vs the mechanic bays vs the administration areas?

Response: We'll have better information when the SD estimates are returned, but based on the most recent projects we use the following for our conceptual cost estimates: Administrative Offices= \$525 SF, Employee Facilities (Locker rooms/muster room\_ \$550 SF, Vehicle Maintenance and Shops(not including industrial equipment)= \$575 SF, Wash Bay= \$625 SF, Vehicle Storage= \$325 SF, Mezzanine Space= \$200 SF, External Canopies= \$250 SF. Additional project costs include site development, industrial equipment, design and escalation contingencies, and owner soft costs(Design Fees, OPM, Legal, FFE, Utility back charges, testing and inspections, commissioning, temp facilities, construction contingencies, etc.)

5. Can we remove the 26k SF of garage space and park the vehicles outside?

Response: See attached Memorandum, "DPW Vehicle & Equipment Storage- Indoor vs. Outdoors"

6. Can we replace a large portion of that 26k SF garage space with open air covered space and retain a smaller section that will be heated?

Response: See attached Memorandum, "DPW Vehicle & Equipment Storage- Indoor vs. Outdoors"

7. How much would it cost to lease a building instead for this use?

Response: There aren't currently any industrial/commercial vehicles available in Acton or surrounding communities that would meet the SF size, or the volume (height) needed to house the full DPW operations. An internet search for similar Industrial/commercial facilities such as a 24,000 SF space in Domino Industrial Park in Concord, lists for \$16.50 SF/Year. Another example, 60 Maple St. Mansfield, MA, lists 69,000 SF for \$10.50 SF/year. It is assumed that any rented space would require substantial upgrades and renovations to function as a code compliant DPW facility.

8. Can you please provide a one-page overview of the bidding process that will be used?

Response: See attached description of MA Chapt. 149 bidding process for building project greater than \$150k. For projects like the DPW estimated to cost more than \$10 Million, there is the additional requirement to "Prequalify" potential general contractors and Filed Sub-Bidders. That process is also included in the attached description.

9. Can we provide more details about how the facility will be EV ready? There was concern that we should not build out infrastructure for the current technology and instead just make the building able to be retrofitted later.

Response: The “Municipal Opt-in Specialized Energy adopted by Acton requires 20% of parking spaces (visitor and employee parking areas) to have the infrastructure constructed to be EV ready which would be 8 spaces for this project. Adequately sized conduit and circuit space on an electrical panel will be provided to meet this requirement. There is no mandate that the actual charging posts need to be installed as part of the project.

10. Can we provide details about the ledge on site and the environmental contamination investigation that has been conducted so far?

Response: Six (6) Geotechnical borings ranging in depth from 17ft-42ft were drilled in the proposed building and canopy footprint and no ledge was encountered. The environmental review is underway with review of historical documentation and a site visit is scheduled next week to interview DPW staff and to review the DPW site and building area. Additional investigation of the site will be scheduled based on the result of the initial review.

11. A comparison of HVAC system options is needed.

Response: The DPW’s OPM did this for North Acton Fire Station that PMA helped with. Due to the new Municipal Opt-in Specialized Stretch Energy Code, the facility will be fossil fuel free with ground source heat pumps as the most efficient method for heating and cooling the facility.

Comparison of HVAC 25-Year Lifecycle Costs

		Option 1: Ground-source Heat Pump System	Option 2: VRF Heat Pump + Perimeter HW Radiation	Option 3: Central VAV AHU + Perimeter HW Radiation
<b>Energy Cost</b>		\$281,792	\$344,371	\$424,881
<b>Installation Cost</b>	Ground Heat Exchanger System	\$125,000	0	0
	Other Equipment	\$495,000	\$605,000	\$550,000
	Total Installation Cost	\$620,000	\$605,000	\$550,000
<b>Salvage</b>		(\$257,693)	(\$211,823)	(\$192,567)

Air Water Energy Engineers, Inc.

10

North Acton Fire Station  
MEP/FP Systems Study & Schematic Design

July 22, 2019

<b>CO2 Emission</b>	Amount (tons)	1,207	1,475	1,853
	Cost	N/A	N/A	N/A
<b>NPV Lifecycle Cost (25 years)</b>		\$644,100	\$737,547	\$782,314
<b>Lifecycle CO2 Emissions Reduction (tons)</b>		646	378	base
<b>Lifecycle Cost Savings (25 years)</b>		\$138,214	\$44,767	base
<b>Simple Payback (years)</b>		11.5	16.8	base

12. Is there a way to account for costs that are being incurred due to inefficiencies of the current building?  
For example:

a. What is the costs to maintain vehicles we are unable to service.

Response: **Acton DPW can answer if there are cost associated with this.**

b. What is the cost of lost productivity demonstrated as lost time on job sites that results from the need to squeeze vehicles into the building at the end of the day?

Response: **Estimated to be \$12 Million Dollars over the 50 Year Life of the facility**

Town of Acton Department of Public Works Cost / Benefit Analysis - Item 11 - Loading & Unloading Costs								Avg Annual Inflation Rate Benefits Adjustment Number of Large Vehicles Number of Small Vehicles Number of Pieces of Construction Equipment Average Workforce Rate (loaded) \$		3.0% 1.5694 0 8 0 43.94
								2022		
Maintenance Activity	A	B	C	D	E	F	G	TOTAL		
	Number of Vehicles Impacted by Operations	Number of Employees Impacted by Operations	Average Loading & Unloading Time per Vehicle per Day (minutes)	Total Downtime Per Year (minutes)	Total Downtime Per Year (hours)	Loaded Labor Rate	Total Labor Cost per Year (F x E)	Total Labor Cost per Year (1st Year) (G)	Total Cost Over Life of Bldg (50 Years)	
Vehicle Loading & Unloading	22	44	30	330,000	5,500	\$ 43.94	\$ 241,688	\$ 241,688	\$ 12,084,380	
Work Days	250							\$ 241,688	\$ 12,084,380	
Assumptions:										
1. It is assumed that there is an average of 2 employees per vehicle										

c. What would be the cost of lost productivity for having to clear off vehicles that have snow on them and ice on them if they are parked outside? What is the impact on public safety and readiness? If it takes 30 minutes to prepare a truck? What does that cost and how does that impact the community?

Response: **Over the life of the facility, costs for clearing vehicles due to snow events over the life of the new building are estimated at \$590K. Parking vehicles outside will also incur millions of dollars in additional vehicle maintenance costs, costs related to reduced vehicle life expectancy, and environmental costs.**

Town of Acton Department of Public Works Cost / Benefit Analysis - Item 9 - Storm Event Costs												Avg Annual Inflation Rate Benefits Adjustment Average rate with out benefits		3.0% 1.5694 28	
								Vehicles with Plows: 22 Sanders: 10					Average Workforce Rate (loaded) 2022	\$	43.94
	FREQUENCY		C	D	LABOR	F	G	FUEL CONSUMPTION		J	K	TOTAL			
	A	B			E			H	I		L	M			
	Average Number of Plow Events	Average Number of Sand Events	Average Vehicle/Plow Preparation Time per Vehicle (minutes)	Average Sander Preparation Time per Sander (minutes)	Total Preparation Time (hours)	Loaded Labor Rate	Total Labor Cost per Year (F x E)	Fuel Consumption Rate During Warm-up (gallons/hr)	Total Fuel Consumption During Warm- up (gallons)	Fuel Cost per Gallon	Total Fuel Consumption Cost During Warm-up per Year (I x J)	Total Labor & Fuel Cost per Year (1st Year) (G + K)	Total Cost Over Life of Eldg (50 Years)		
Maintenance Activity															
Vehicle Preparation & Plow Connection	6	10	30	30	116	43.94	\$ 5,097	\$ 0.32	\$ 37	\$ 3.50	\$ 130	\$ 5,227	\$ 589,627		
											TOTALS:	\$ 5,227	\$ 589,627		

d. What is an accepted model for deterioration of equipment left outside?

Response: Vehicles Stored Indoors will typically last 3 years longer than those stored outdoors over a 15-year period and can be resold rather than disposed of as scrap.