MILLS WHITAKER ARCHITECTS
ARLINGTON MA www.millswhitaker.com BRIDGTON ME

20 November 2013

David Ramsay, Town Administrator
Town of Dover
5 Springdale Avenue
Dover MA 02030

RE: Protective Agencies Building / Ladder Truck Apparatus Bay Headroom

Dear Mr. Ramsay,

Attached please find a preliminary budget for increasing the height of two apparatus bay doors at D1 and D2 from 12'-0" to 12'-8" in order to improve overhead clearances. Treatment at both bay doors is recommended in order to maintain the symmetrical appearance that is present at all of the other bay doors.

Existing conditions are such that the top of the new ladder truck passes below the current door head with clearances ranging from 5 3/8" when exiting and 4 5/8" when backing in. A maximum clearance of approximately 7 3/4" is present when halfway through the process of entering or exiting. If the vehicle is moving quickly, or if the brakes are suddenly deployed, the vehicle would rock and reduce the clearances further. Also, if a windrow of snow were present at the bay doors, these minimal distances could be diminished even further.

As mentioned during earlier discussions, the solution to raise the overhead door height was seen as the most prudent and reliable solution for improving the clearances. Other solutions, such as heating the pavement to reduce the chances of snow accumulation, will not increase the amount of clearance that is available. Lowering the floor level of the bays would involve recasting the reinforced floor slab and regrading the exterior lot, resulting in significant effort and expense while also creating a tripping hazard at the interior floor area.

The existing structure at these two bays was constructed c.1975 and consists of a reinforced concrete masonry wall sheathed at the exterior in beveled edge vertical tongue-and-groove siding. The interior ceiling is 5/8" thick painted gypsum wallboard at 14'-3 1/2" above the finished floor at the bay doors. The roof structure is a faux clerestory shape constructed of pre-engineered wood trusses 24" on center. The finished ceiling is attached to 7/8" metal furring channels that are attached directly to the lower chord of the roof trusses. The bay door openings are spanned with 16" deep reinforced concrete masonry bond beams that are supported between the doors by a central 8" x 16" reinforced CMU structural mullion.

The motor housing and existing chain rails for the overhead door operators are 9 1/8" below the finished ceiling. The door tracks could be raised about 8" in height without incurring the cost and disruption of raising the ceiling or modifying the roof trusses.

In order to increase the height of the bay doors, we recommend the following work:

P.O. Box 750089
Arlington MA 02475
617.876.7611 voice
617.876.6420 fax

1. Remove the existing 8" wide x 16" deep CMU bond beam headers and central CMU mullion. Infill the CMU at the side jambs by one course to raise the height by 8".
2. Replace the door headers with an 8" x 8" x 3/8" galvanized tube steel header supported centrally by a 4" galvanized tube steel column.
3. Clad the steel column mullion in CMU "soaps" (1 5/8" deep) at the interior surface and vertical wood siding at the exterior surface to match existing finishes.
4. Raise the exterior door head height by trimming the wood siding. Move the existing sign up (if necessary). Trim the door jambs and heads to match existing.
5. Increase the height of the existing 18-light glass and aluminum motorized operable bay doors by replacing a pair of horizontal panels in each door. Maximum available panel height dimension of each 3-light horizontal band is limited, so an increased height of 8" can only be achieved by replacing two sets of panels in each door.
6. Extend the door tracks and raise the chain rails to accommodate the increased door height. Replace the older of the two operator motors with an updated motor that incorporates an infrared door sensor to reverse door operation if any obstructions are encountered within six feet of the door head. (The other door has a new operator that already incorporates this feature.)
7. Temporarily remove and reinstall the pneumatic tubing and power outlets at the central door mullion. Patch and repair interior finishes and ceiling where disrupted.
8. Provide architectural and structural design services for the project as needed for plans, specifications, assistance with bidding and construction administration.

The project budget for the above work, as itemized on the attachment is $75,000.

The following two alternates are also offered for consideration:

Alternate No. 1: $5,400 New door operators are equipped with infrared sensors to protect doors from closing on the equipment. An upgrade from the standard sensor can protect the full height of the opening, and can include interior red/green lights to signal the driver when the bay door is fully open and safe for exiting.

Alternate No. 2: $11,840 Instead of replacing two horizontal panels in each door, resulting in two panels that are 4" taller than adjacent panels that may not match the exact shade of existing aluminum finish, both doors could be fully replaced with new doors. This cost includes insulated glass in lieu of matching existing single pane.

If you have any questions regarding this preliminary study or budget, or if you need any additional information, please do not hesitate to contact me.

Sincerely,

Donald W. Mills, RA
Mills Whitaker Architects LLC

Attachment

Dover Protective Services Building
Door Height Increase at Ladder Truck & Adjacent Bay
20 Nov 2013

CSI Division	Budget	Description
01-General	$19,134	Contractor Supervision, Management, Insurance, Bond, OH+P
02-Sitework	$3,850	Temporary Shoring, Selective Demolition, Protection
04-Masonry	$4,420	Concrete Masonry Unit Structure at Head, Jambs & Mullion
05-Steel	$6,240	Galvanized Tube Steel Header, Mullion Post, Connections
06-Wood	$6,240	Lateral Bracing of CMU Wall in Attic; Studs & Siding
07-Moisture	$500	Sealants, Air Barrier and Building Wrap at Modifications
08-Openings	$12,060	Increase Height of Existing Doors (Replace 2 Panels per Door)
09-Finishes	$1,540	Paint Siding & Surround; Touch up Ceiling and Floor
22-Plumbing	$725	Remove & Reinstall Pneumatic Lines at Mullion
26-Electrical	$725	Remove & Reinstall Power Outlets at Mullion
Subtotal	**$55,434**	**Order-of-Magnitude Pricing of Construction Cost**

Contingency	$8,315	15% Project Contingency (Changes & Unforeseen Conditions)
A/E Services	$4,500	Structural Engineering (Design & Constr. Admin.)
	$7,500	Architectural Services (Design, Bidding & Admin.)
Project Cost	**$75,749**	**Approximate Project Cost As Noted**

NOTES:
1. Project involves raising height of two adjacent apparatus bay doors from 12'-0" to 12'-8".
2. Information is based on a preliminary study by Mills Whitaker Architects LLC.
3. Structural information provided by Structures North Consulting Engineers.
4. Door cost provided by Door Systems, Inc., original installers of the existing doors.
5. The following Alternates are also provided for consideration:

   ALT NO. 1 $5,400 : Add for IR Door Safeties & Red/Green Light Signals
   ALT. NO. 2 $11,840 : Add for Replacement of Doors with Insulated Glass Units
   ($23,900 Replacement Cost Less $12,060 for Modification Cost)
6. All costs are approximate and could higher or lower than these preliminary estimates.