



14 May 2024

## **FIRE STATION IMPROVEMENTS - ALTERNATES**

### **PURPOSE**

This report will summarize the alternative options for the future City of West University Place Fire Department. The study will investigate additional detail and analysis for the options previously considered including renovation and expansion of the existing Fire Department location at the Municipal Building as well as the site approved in the 2022 Facilities Master Plan.

### **BACKGROUND**

The West University Place Fire Department is located in a section of the existing Municipal City Hall building that was constructed in 1954. Over the years, additions were added to the building in 1998 and 2011. The Fire Department is located on both the first and second floor of the building using approximately 9,112 DSF, not counting shared spaces such as restrooms, locker rooms, MEP spaces, emergency operations, meeting and training rooms, stairs and shared circulation.

The renovation and addition work in 1998 added space for the Council Chambers, moved City Administration to the first floor and did cosmetic renovations for the Fire Departments living space. In 2011, the City completed an addition for the Police Station to the existing building and did some cosmetic renovation to the Fire Department living space and increased the height of the fire bay doors of the Fire Department to install the water cannons on top of the pumper trucks.

Prior to the 2011 renovation, the Fire Department had three apparatus bays and one garage for parking of a command vehicle, a coed dormitory sleeping room shared by shift personnel, staff offices, a day room, support spaces and a single locker room shared by male and female shift personnel. The station was located on two different floors with the apparatus bays, gear storage, staff offices, EMT storage, exercise and support spaces located on the first floor and day room and a shared sleeping quarters located on the second floor. A portion of one of the apparatus bays was used as a wellness area. The width and height of the three existing apparatus bays doors were well below standards for modern fire stations, as well as, the City's existing fire apparatus. The clearance height of the bay doors prevented the City from installing the water cannons on top of the pumper trucks. The second floor was accessed by

two stairs, one that was accessed from inside of City Hall at the front and one that exited through the apparatus bays. The second floor was not accessed by an elevator, while compliant with the current Texas Department of Licensing and Regulations (TDLR) at the time of construction, it is no longer compliant with the current TDLR and ANSI requirements. The building did not have a fire sprinkler system. The building was partially served by an emergency generator.

The existing Municipal Building was renovated in 2011 which included a portion of the Fire Department. The renovation brought the fire department into compliance with the current 2006 IBC building code and 2008 TDLR requirements at the time. During that renovation, several Fire Department deficiencies were addressed which included the following:

- Changed apparatus bay doors to sectional doors to gain 3 inches in door height clearance which was the highest it could be raised without altering the building structure. This resulted in a clear opening of 10'-0" which is still 4 feet lower than current standards.
- Relocated the Fire Chief's office into City Hall where existing space was subdivided and repurposed for this new office. This created additional staff office on first floor.
- Added exterior access to the front stair allowing for access to the second floor without traveling through the City Hall.
- Added 7 individual dorm rooms.
- Renovated the Captain's Quarters
- Renovated the Day Room
- Added a shared (with Police) men's and women's locker room and restrooms in the new Police Department addition.
- Added fire sprinklers to the fire apparatus and sleeping dorms only. The City's Building Department did not require the entire building to be fire sprinklered. Only the new addition and a portion of the fire department was required to be fire sprinklered.
- An exterior covered equipment storage and parking was added to improve protection from elements for the fire equipment.

The 2011 renovation did not provide elevator access to the existing second floor of the Fire Department to the new shared restrooms and locker rooms because the 2008 TDLR regulations still had an exception for fire stations and did not require it. The new Police Department addition was elevated higher than the existing Municipal Building (Fire Department) to prevent future flooding of the facility that happened during Tropical Storm Allison. This increased height resulted in the new second floor restrooms and locker rooms

being higher than the finish floor elevation of the existing second floor of the Fire Department and not compliant with current TDLR and American with Disabilities Act (ADA).

The fire apparatus bays and doors were still undersized but the height was increased as high as possible without rebuilding the entire apparatus bay structure. Rebuilding could have solved the height problem but would have resulted in losing one of the existing bays to provide appropriate bay width, which would have resulted in the loss of the existing parking space for the command vehicle and wellness area due to lack of weight or cardio room in the facility itself.

Many industry standard fire station required spaces were not included in the 2011 project due to lack of space in the existing building or site footprint. These spaces included the following:

- Fire dedicated restrooms and locker rooms
- Weight and cardio room
- Decontamination room
- Elevator access to station second floor
- Adequate gear locker room
- Adequate laundry facilities
- Cascade and extractor facilities
- Adequate fire gear storage
- Adequate training space
- Emergency Management storage
- Equipment storage
- Supplies storage
- Watch room for emergency call response
- Emergency medical service (EMS) exam room
- Pantries
- Fourth apparatus bay

The City explored expanding the fire department to satisfy some of the known deficiencies in the current location in 2019. The four options developed were limited to expansion of the apparatus bays and limited other space. These options were not designed to satisfy the entire needs of a modern fire department. These options included the following:

- Option No. 1: Complete rebuild of the existing apparatus bays with accessible shell space created above – Two Story \$3,337,523.00 (2019 Dollars)



- Option No. 2: Complete rebuild of the existing apparatus bays with storage space created above – Two Story \$2,828,180.00 (2019 Dollars)
- Option No. 3: Complete rebuild of the existing apparatus bays with no space above – One Story \$2,223,103.00 (2019 Dollars)
- Option No. 4: Raising the roof structure only of the existing apparatus bays – One Story \$1,480,252.00 (2019 Dollars)

These four options ranged in 2019 prices between \$1.5m to \$3.4m. These costs did not include temporary relocation costs. These revisions would all require the fire apparatus to be relocated during construction with an increased department response time result during construction. The majority of the deficiencies listed above would still not have been satisfied with this limited renovation strategy. These options were primarily focused on right sizing the height of the bays and did not attempt to satisfy the remaining deficiencies, including providing the 4<sup>th</sup> bay.

The 2022 Facilities Master Plan recognized the several deficiencies that exist in the current facility, the challenges of renovating the existing building due to existing conditions, the change in industry standards and code requirements, and evaluated several options to satisfy these deficiencies that included renovation and expansion of the existing building and the relocation of the Fire Department to a new location. Changes to the TDLR regulations in 2012 removed the exemption for fire stations to not be fully ADA compliant which includes requiring an elevator for two story fire stations. The final recommendation in the Facilities Master Plan was to construct a new two story facility at the corner of Milton, Auden and Rice Boulevard. The study will summarize the reasons the recommendation was made to relocate the fire department to a new location.

## **2024 SPACE REQUIREMENTS FOR CITY OF WEST UNIVERSITY FIRE STATION**

The City's Fire Department has one fire station location which results in all space requirements to be housed at the one fire station. The attached spreadsheet projects a space need of 20,619 SF need to accommodate a new station that includes four apparatus bay, one command vehicle bay, 6 firefighter dorms, and two officer dorms. See the attached spreadsheet. The estimated square footage includes all of the industry standards required for a modern fire station to support the daily services delivered to the City of West University Place.

## **OPTION ONE - LIMITED RENOVATION AND EXPANSION OF THE EXISTING FIRE STATION AT MUNICIPAL BUILDING**

The existing fire department utilizes approximately 9,112 DSF in the existing Municipal Building. That square footage does not include the shared restrooms and locker rooms, MEP spaces, stairs and circulation that is shared with the other building users. That shared square footage is approximately 750 SF. The expected renovation will require a rebuild of 4,213 SF story apparatus bay and creation of approximately 7,805 SF of new two story space that would house some of the missing spaces listed above. The balance of the fire department will be contained within the existing footprint of the existing Municipal Building footprint. This limited renovation option would create a total fire department footprint of 17,538 SF. This option contains inefficiencies of layout and operation due to the existing building and configuration, and requirements for additional circulation in this option. This option will also require temporary housing of the fire department during construction. This could also result in longer response times depending on the location selected. The projected project budget for this option is \$9,744,788.32 in 2027 dollars. This cost does include an estimated \$1,500,000.00 for the temporary relocation cost for maintaining current operations.

- Pros
  - Uses some existing spaces
  - Building is fully generator supported
  - Fully ADA compliant
  
- Cons
  - The completed product would still be deficient of the expectations of a modern fire station to meet current fire and EMS services
  - Requires relocation of staff to maintain current operations during construction which may impact response times
  - Some existing spaces will not meet current industry size standards due to inability to expand due to existing conditions that include the following:
    - Day Room
    - Decontamination (Note 1)
    - Adequate gear locker room (Note 1)
    - Adequate laundry facilities (Note 1)
    - Cascade and extractor facilities (Note 1)
    - Emergency medical service (EMS) exam room (Note 1)
    - Shift Pantries



- Apparatus bays will either be undersized or less than the four bays required.
- Apparatus bays will be same length as existing which are undersized. One of the bays may have to be shorted further to accommodate a new stair and/or elevator.
- The existing command garage may have to be deleted to accommodate a new required stair.
- Station will be located on four different finish floor levels that have to now be accessible
- This option will not leave space within the existing Municipal Building footprint of the building for expansion of the Police Department, IT, Building Department or other administration needs.

*Note 1: These spaces need to be located on the ground floor and there is not space on the site available*

## **OPTION TWO – FULL PROGRAM RENOVATION AND EXPANSION OF THE EXISTING FIRE STATION AT MUNICIPAL BUILDING**

The existing fire department utilizes approximately 9,112 DSF in the existing Municipal Building. That square footage does not include the shared restrooms and locker rooms, MEP spaces, stairs and circulation that is shared with the other building users. That shared square footage is approximately 750 SF. The expected renovation will require a rebuild of 4,213 SF story apparatus bay and creation of approximately 7,805 SF of new two story space that would house some of the missing spaces listed above. This option would create a total fire department footprint of 25,343 SF. This is larger than the requirement of a new stand alone fire station due to inefficiencies of the existing building and configuration, and requirements for additional circulation in this option. This option will also require temporary housing of the fire department during construction. This could also result in longer response times depending on the location selected. The projected project budget for this option is \$15,896,387.54 in 2027 dollars. This cost does include an estimated \$1,500,000.00 for the temporary relocation cost for maintaining current operations.

- Pros
  - Uses some existing spaces
  - Building is fully generator supported
  - Fully ADA compliant
  
- Cons
  - Requires relocation of staff during construction
  - Some existing spaces will not meet current industry size standards due to inability to expand due to existing conditions that include the following.
  - Apparatus bays will either be undersized or less than the four bays required.
  - Apparatus bays will be same length as existing which are undersized.
  - Station will be located on four different finish floor levels that have to now be accessible
  - Site is very constrained and may require closure of a portion of Amherst to provide adequate footprint for a fourth apparatus bay with all four bays being shorter than typical modern fire stations.

### **OPTION THREE - CONSTRUCTION OF A NEW FIRE STATION AT 6104 AND 6108 AUDEN**

The new fire station is planned to have all the spaces required for an industry standard fire station that includes 4 apparatus bays, one command vehicle bay, 6 firefighter dorms, and two officer dorms. See the attached program. The size of the new station would be approximately 20,619 SF. This new fire station would need to be a two story building with back in apparatus bays that exits on Auden Street. The projected project budget is \$13,055,922.24 in 2027 dollars.

- Pros
  - Does not require temporary relocation of fire station
  - Provides a stand alone operation
  - Building is fully generator supported
  - Building will meet current industry and code requirements
  - Apparatus bays can meet standards and correct quantity
  - Fully ADA compliant
  
- Cons
  - Moves station closer to residential property



## CONCLUSION

This report included three options for the Fire Department. They include the following:

### Option One – Limited Renovation and Expansion of Existing Building

- 17,538 SF
- Does not provide full space program requirements for a modern fire station
- \$9,744,788.32

### Option Two – Full Program Renovation and Expansion of the Existing Fire Station

- 25,343 SF
- Provides full space program requirements for a modern fire station
- \$15,896,387.54

### Option Three – New Fire Station at 6104 and 6108 Auden

- 20,619 SF
- Provides full space program requirements for a modern fire station
- \$13,055,922.24

The 2022 Facilities Master Plan evaluated the three options listed above and determined the best and most effective path forward was to construct a new replacement fire station (Option Three) within the Civic Center area and utilize the space made available for expansion of the Police Department, IT and Building Department and other administrative needs that have been identified by the City.

# City of West University Place Facilities Master Plan - Renovation of Existing Fire Station at Municipal Building

Conceptual Project Budget - Renovate and Expand Existing Fire Department at 3800 University Blvd.  
14-May-24

Notes:

All costs are listed in 2024 Dollars and escalated to the end of 2026 at the mid point of construction  
Includes rebuilding existing fire apparatus bays  
Includes building out the second floor above apparatus bays  
Includes adding two elevators  
Includes adding three new stairs to support the different finish floors  
Assumes no environmental issues with the existing building or site  
Assume working within the existing footprint of existing Municipal Building

Notes:

All costs are listed in 2024 Dollars and escalated to the end of 2026 at the mid point of construction  
Includes rebuilding existing fire apparatus bays  
Includes building out the second floor above apparatus bays  
Includes partial closure of Amherst  
Includes adding two elevators  
Includes adding three new stairs to support the different finish floors  
Assumes no environmental issues with the existing building or site  
Includes one story addition to the existing Municipal Building

| Projected Budget  | Option One - Renovation of Existing Fire Department and Rebuild of Apparatus Bays |           |          |                     |
|---|---|-----------|----------|---------------------|
|   | Square Feet   | Cost/SF   | Subtotal |                     |
| Sitework Development                                    | 5,000   | \$ 14.00  | \$       | 70,000.00           |
| Demolition of Existing Apparatus Bays                   | 4,213   | \$ 30.00  | \$       | 126,390.00          |
| Interior Demolition of Existing Space                   | 4,500   | \$ 45.00  | \$       | 202,500.00          |
| Construction of Two Story Replacement of Apparatus Bays | 8,426   | \$ 400.00 | \$       | 3,370,400.00        |
| Construction of One Story Addition                      | 0   | \$ 400.00 | \$       | -                   |
| Major Renovation of Existing Space                      | 4,500   | \$ 210.00 | \$       | 945,000.00          |
| Existing Spaces NOT Being Modified                      | 4,612   |           |          |                     |
| Street Modifications                                    | 17,538  |           | \$       | -                   |
| Design Contingency (5%)                                 |   |           | \$       | 235,714.50          |
| <b>Subtotal</b>   |   |           | \$       | <b>4,950,004.50</b> |
| All Permit Fees   |   |           | \$       | -                   |
| <b>Construction Subtotal</b>                            |   |           | \$       | <b>4,950,004.50</b> |
| GC General Conditions (3.5%)                            |   |           | \$       | 173,250.16          |
| GC Fees (5.5%)  |   |           | \$       | 281,779.01          |
| <b>Construction Total</b>                               |   |           | \$       | <b>5,405,033.66</b> |
|   |   |           | \$       | <b>308.19</b>       |
| <b>Total Construction Cost per Square Foot</b>          |   |           |          |                     |
| Soft Cost   |   |           | \$       | 702,654.38          |
| FFE   |   |           | \$       | 569,648.37          |
| Owners Contingency                                      |   |           | \$       | 569,648.37          |
| Temporary Estimated Relocation Costs                    |   |           | \$       | 1,500,000.00        |
| Land Costs  |   |           | \$       | -                   |
| <b>2023 Project Budget</b>                              |   |           | \$       | <b>8,746,984.78</b> |
|   |   |           | \$       | <b>498.74</b>       |
| 2024 Escalation (4%)                                    |   |           | \$       | 349,879.39          |
| 2025 Escalation (3.5%)                                  |   |           | \$       | 318,390.25          |
| 2026 Escalation (3.5%)                                  |   |           | \$       | 329,533.90          |
| <b>2026 Project Budget</b>                              |   |           | \$       | <b>9,744,788.32</b> |
|   |   |           | \$       | <b>555.64</b>       |

| Projected Budget  | Option Two - Renovation of Existing Fire Department, Rebuild Apparatus Bays and Expansion of Building |           |          |                      |
|---|---|-----------|----------|----------------------|
|   | Square Feet   | Cost/SF   | Subtotal |                      |
| Sitework Development                                    | 15,000  | \$ 14.00  | \$       | 210,000.00           |
| Demolition of Existing Apparatus Bays                   | 4,213   | \$ 30.00  | \$       | 126,390.00           |
| Interior Demolition of Existing Space                   | 4,500   | \$ 45.00  | \$       | 202,500.00           |
| Construction of Two Story Replacement of Apparatus Bays | 8,426   | \$ 400.00 | \$       | 3,370,400.00         |
| Construction of One Story Addition                      | 7,805   | \$ 400.00 | \$       | 3,122,000.00         |
| Major Renovation of Existing Space                      | 4,500   | \$ 210.00 | \$       | 945,000.00           |
| Existing Spaces NOT Being Modified                      | 4,612   |           |          |                      |
| Street Modifications                                    | 25,343  |           | \$       | 1,000,000.00         |
| Design Contingency (5%)                                 |   |           | \$       | 448,814.50           |
| <b>Subtotal</b>   |   |           | \$       | <b>9,425,104.50</b>  |
| All Permit Fees   |   |           | \$       | -                    |
| <b>Construction Subtotal</b>                            |   |           | \$       | <b>9,425,104.50</b>  |
| GC General Conditions (3.5%)                            |   |           | \$       | 329,878.66           |
| GC Fees (5.5%)  |   |           | \$       | 536,524.07           |
| <b>Construction Total</b>                               |   |           | \$       | <b>10,291,507.23</b> |
|   |   |           | \$       | <b>406.09</b>        |
| <b>Total Construction Cost per Square Foot</b>          |   |           |          |                      |
| Soft Cost   |   |           | \$       | 1,337,895.94         |
| FFE   |   |           | \$       | 569,648.37           |
| Owners Contingency                                      |   |           | \$       | 569,648.37           |
| Temporary Estimated Relocation Costs                    |   |           | \$       | 1,500,000.00         |
| Land Costs  |   |           | \$       | -                    |
| <b>2023 Project Budget</b>                              |   |           | \$       | <b>14,268,699.91</b> |
|   |   |           | \$       | <b>563.02</b>        |
| 2024 Escalation (4%)                                    |   |           | \$       | 570,748.00           |
| 2025 Escalation (3.5%)                                  |   |           | \$       | 519,380.68           |
| 2026 Escalation (3.5%)                                  |   |           | \$       | 537,559.00           |
| <b>2026 Project Budget</b>                              |   |           | \$       | <b>15,896,387.58</b> |
|   |   |           | \$       | <b>627.25</b>        |

# City of West University Place Facilities Master Plan - New Stand Alone Fire Station

Conceptual Project Budget - Construct New Fire Department at 6104 and 6108 Auden

14-May-24

Notes:

All costs are listed in 2023 Dollars and escalated to the end of 2026 at the mid point of construction  
 Includes Fire Department at 6108 Auden and 6104 Auden location  
 Includes Emergency Management

**Projected Budget**

Sitework Development  
 Demolition of Community Building/Seniors Center and Library (6104 and 6108 Auden)  
 New Two Story Fire Department

Design Contingency (5%)

**Subtotal**

All Permit Fees

**Construction Subtotal**

GC General Conditions (3.5%)

GC Fees (5.5%)

**Construction Total**

**Total Construction Cost per Square Foot**

Soft Cost

FFE (6%)

Owners Contingency (6%)

Land Costs

Temporary Relocation

**2023 Project Budget**

2024 Escalation (5%)

2025 Escalation (5%)

2026 Escalation (5%)

2027 Escalation (5%)

**2027 Project Budget**

| Square Feet | Cost/SF   | Subtotal                |                  |
|-------------|-----------|-------------------------|------------------|
| 45,000      | \$ 14.00  | \$ 630,000.00           |                  |
| 15,049      | \$ 22.00  | \$ 331,078.00           |                  |
| 20,619      | \$ 355.00 | \$ 7,319,745.00         |                  |
|             |           | \$ 414,041.15           |                  |
|             |           | <b>\$ 8,694,864.15</b>  |                  |
|             |           | \$ -                    |                  |
|             |           | <b>\$ 8,694,864.15</b>  |                  |
|             |           | \$ 304,320.25           |                  |
|             |           | \$ 494,955.14           |                  |
|             |           | <b>\$ 9,494,139.54</b>  | <b>\$ 460.46</b> |
|             |           |                         |                  |
|             |           | \$ 1,247,000.00         |                  |
|             |           | \$ 569,648.37           |                  |
|             |           | \$ 569,648.37           |                  |
|             |           | \$ -                    |                  |
|             |           | \$ -                    |                  |
|             |           | <b>\$ 10,741,139.54</b> | <b>\$ 520.93</b> |
|             |           | \$ 537,056.98           |                  |
|             |           | \$ 563,909.83           |                  |
|             |           | \$ 592,105.32           |                  |
|             |           | \$ 621,710.58           |                  |
|             |           | <b>\$ 13,055,922.24</b> | <b>\$ 633.20</b> |