

City of Austin  
Fire Station No. 3

# Introductions and Context

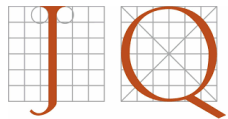
Alex Jenota, Project Manager  
Flintco – General Contractor



# Outline



Introductions and Context  
Alex Janota, Project Manager  
Flintco – General Contractor



Structural Damage  
Barry Krieger, Principal  
JQ Infrastructure – Structural Engineer



Cost Implications and Alternatives  
Michelle Noriega, Project Manager  
City of Austin – Client



Design Proposal  
Rob Robbins, Studio Director  
WestEast Design Group – Architect



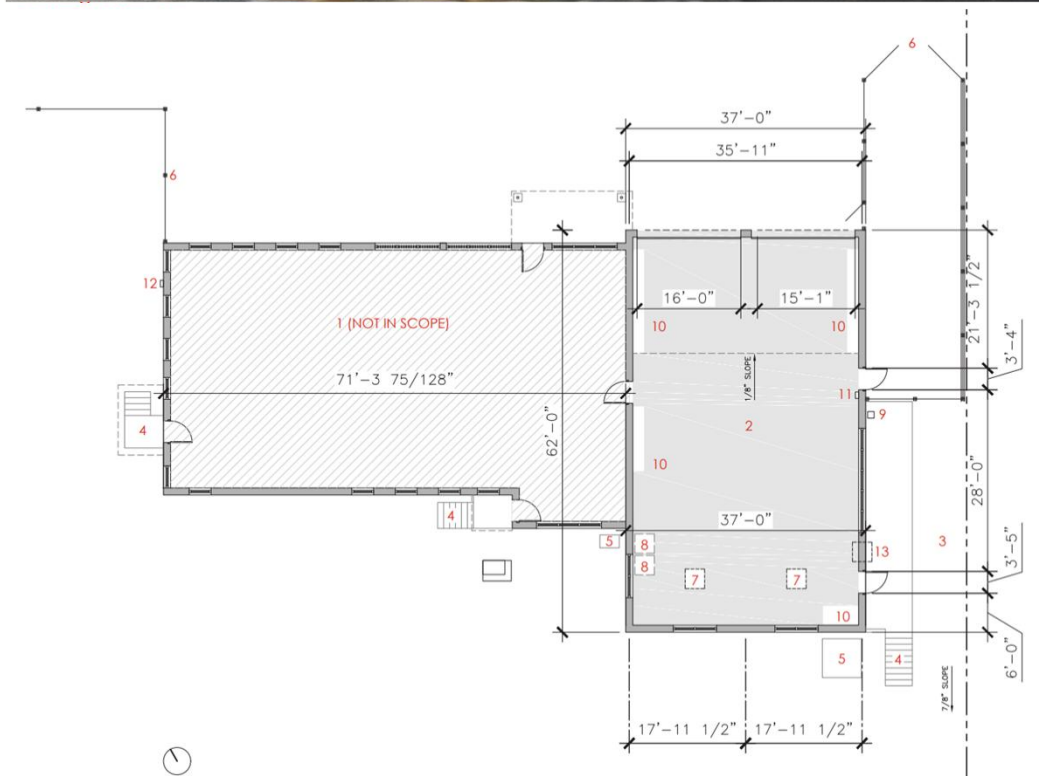
The Plan Forward  
Tony Haden, Division Chief  
Austin Fire Department – End User

# Context

Location: 201 West 30<sup>th</sup> St

Currently, all fire trucks are being parked outside the apparatus bay.

Recent changes to the floodplain maps cause a significant portion of the building to be in the floodplain.





# Overview

Construction  
completed on  
February 21, 1957

Architect:  
Roy Thomas

Does not have any  
Landmark designations  
at present

Adjacent to the  
Aldridge Place Historic  
District





# Historic

An historic survey of the area was conducted.

This building was identified in the survey.

Recommendations for landmark were included.

Reasoning: Possesses integrity and significance in Postwar Infrastructure Expansion.

City of Austin | Historic Building Survey Report for North Central Austin – West Campus, North University, Heritage, Bryker Woods, and North Hyde Park

INTENSIVE-LEVEL FORM

HHM ID No. 111516

201 W 30 ST





Wed, 20 Nov 2019

Wed, 20 Nov 2019

IDENTIFICATION

Address

201 W 30 ST 78705

Legal Description

ALL OF BLK 4,ALLEY \* & ADJ W25FT OF STREET OLT 73 DIV D FRUTH ADDN 2.8635999999999999

Property Category

Primary resource

Acreage

CLASSIFICATION

Resource Type

Building

Property Type

Fire station

No. of Stories

1

Form/Plan

Box

Exterior Material(s)

Brick

Stylistic Influence(s)

Mid-century Modern

Exterior Features

Classification Notes

ROOF AND CHIMNEYS

Roof Form/Type

Flat

No. of Chimneys

Roof Materials

Not visible

Chimney Features

DOORS AND WINDOWS

Door type(s)

Single door(s) primary entrance, Garage doors

Window type(s)

Fixed, Single-hung

Door Material(s)

Wood

Window Material(s)

Metal

Door Features

Window Features

Sills

PORCH

Porch type(s)

Full width, Flat roof

Porch Features

Plain wood posts

COMMERCIAL AND INSTITUTIONAL FEATURES

Signage location

Canopy features

Parapet

Ground level bays

LANDSCAPE AND GROUNDS

Ancillary Buildings

Landscape Features

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HHM ID No. 111516201 W 30 STPage 2

HISTORY

Current Name

Fire Station No. 3

Historic Name

Current Use

Governmental

Historic Use

Governmental

Year Built

1956

Architect

Roy L. Thomas

Source Year Built

Austin American-Statesman, 20 Jul 1956, p. 20

Builder

Associated People

History Notes

Other historical sources

Occupant History

1954/55: Not listed; 1959/60: Fire Dept Station No 3; 1965-70: Follow up - Pending AHC Reopening

INTEGRITY

Alterations

Relocation

Additions

Notes

PRIOR DOCUMENTATION

Designations

Prior Survey Data

LOCAL RECOMMENDATIONS

Recommendation

Local landmark

Justification

Possesses integrity and significance

District Name

N/A

Status (N/C)

N/A

Criteria

Architecture, Historical Associations (Section 5.1.5.5. Postwar Infrastructure Expansion)

NATIONAL REGISTER (NRHP) RECOMMENDATIONS

Recommendation

Individually eligible

Justification

Possesses integrity and significance

District Name

N/A

Status (N/C)

N/A

Criteria

A, C

Area of Significance

Community Planning and Development, Architecture

Level of Significance

Local

OTHER RECOMMENDATIONS

Tourism Tag

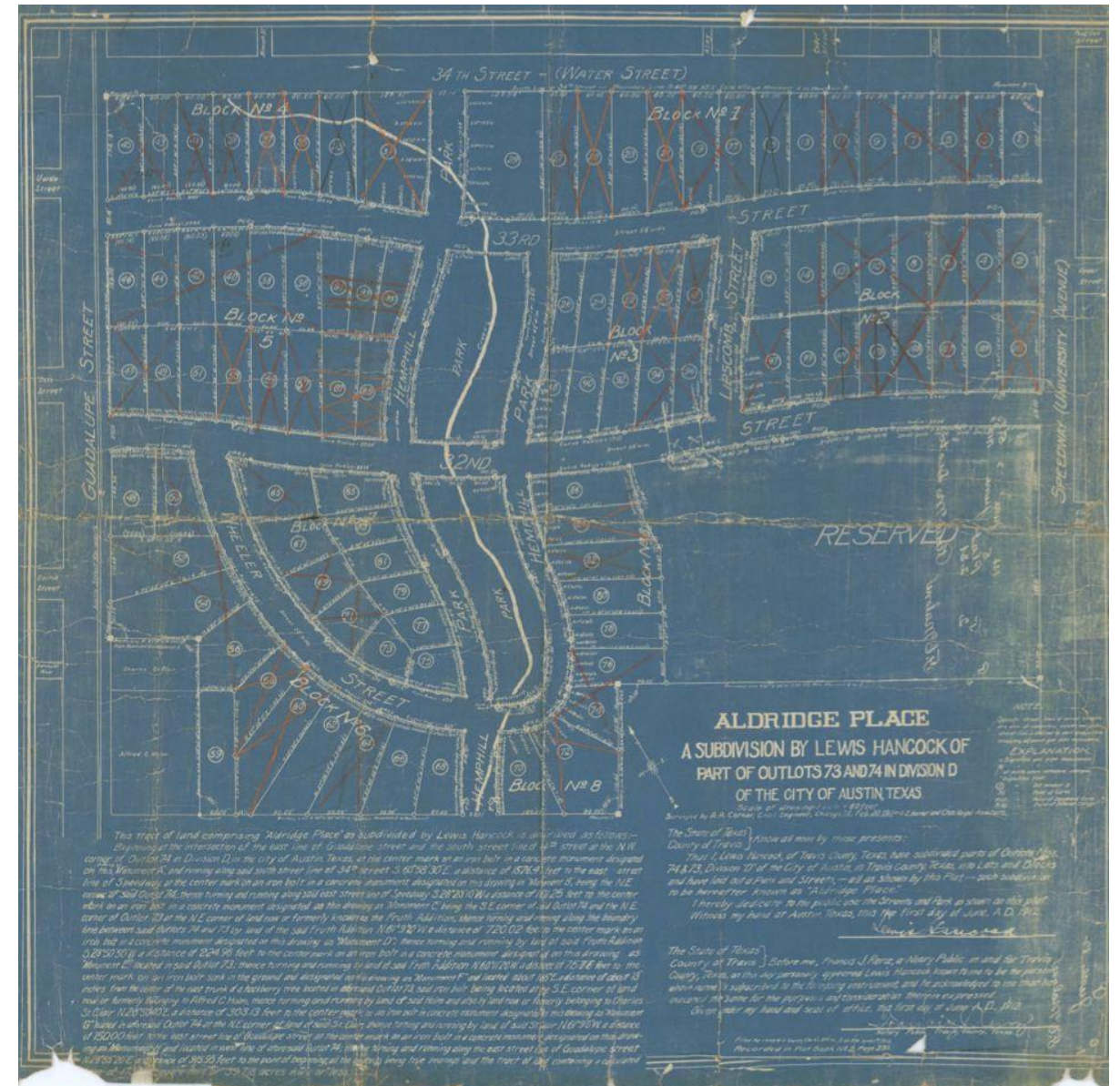
Appendix D | 102

# Neighborhood Engagement

We presented the design proposal to the North University Neighborhood Association (NUNA) and the Aldridge Place Historic District.

Meeting conducted through Zoom on May 3, 2021.

Follow up questions were answered through email.

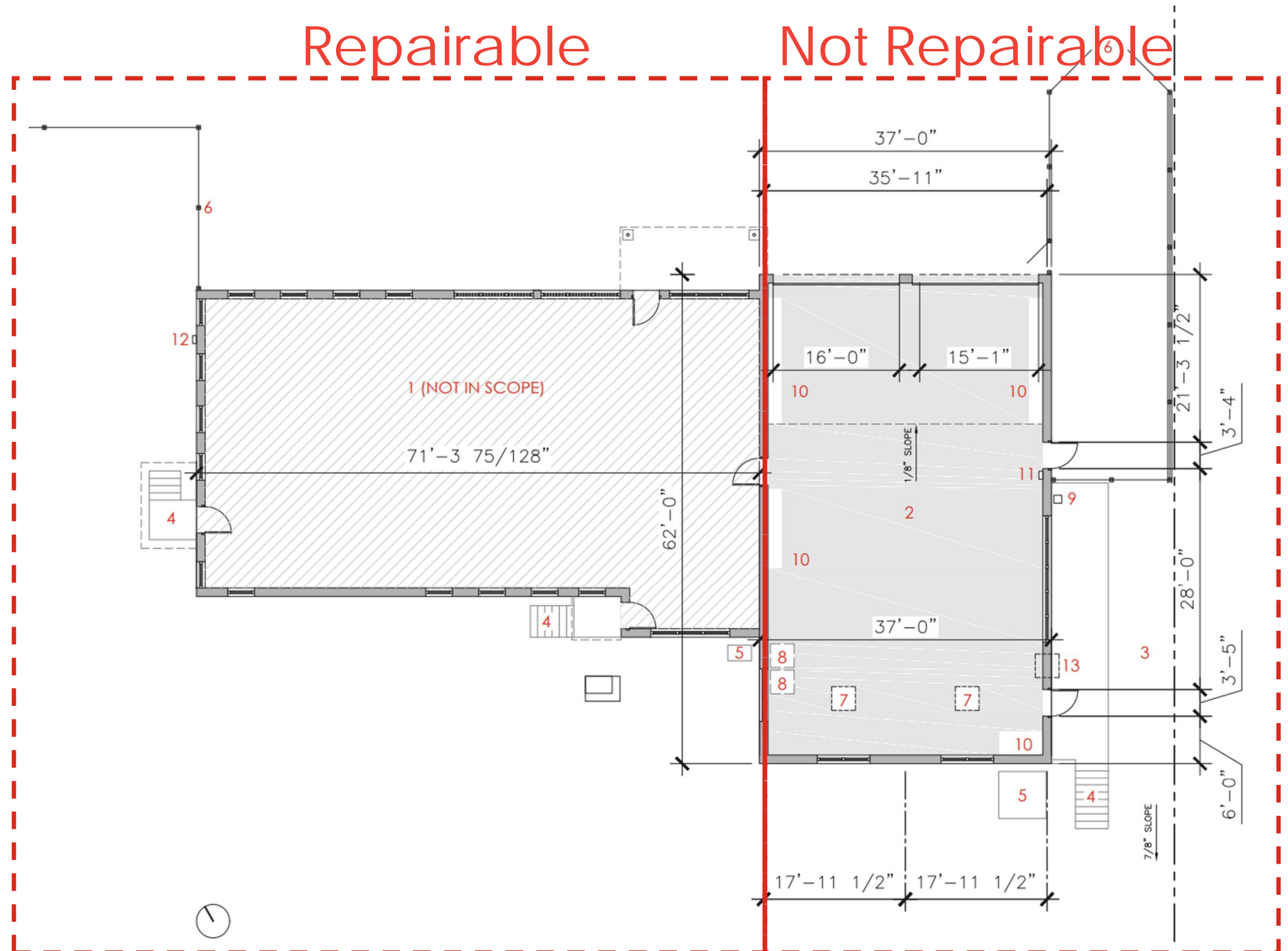




# Damage

The building has suffered two types of structural damage:

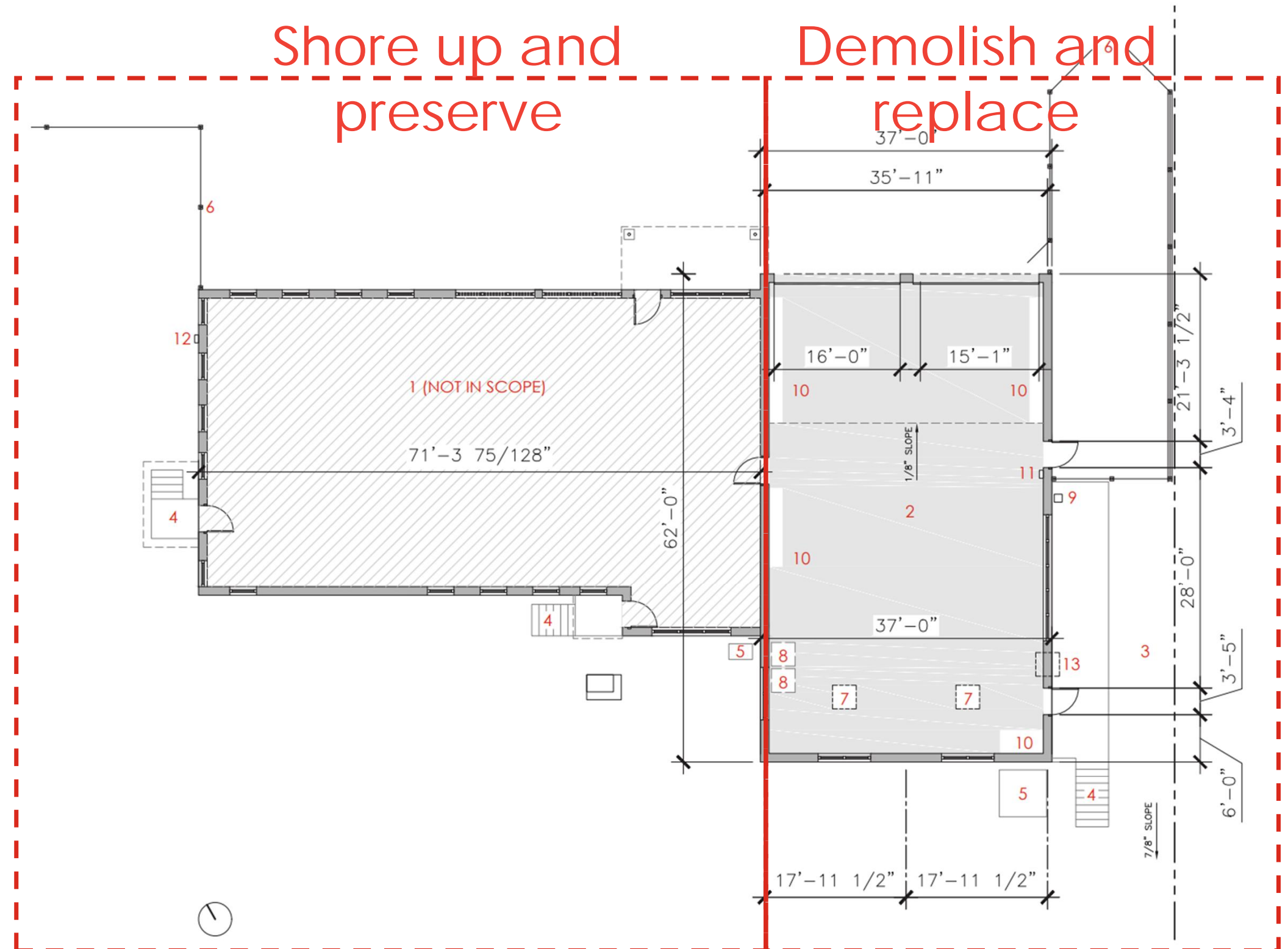
- 1) General wear and tear based on age. (entire structure)
- 2) Overstressing of the foundation due to parking trucks that are heavier than the original design load. (apparatus bay only)



# Intent

For the areas that have just suffered age-related wear and tear, the intent is to shore up that portion of the structure and preserve it.

For the apparatus bay, the intent is to demolish the portion of the building that is beyond repair and replace it with a new structure that is sensitive but of its time.





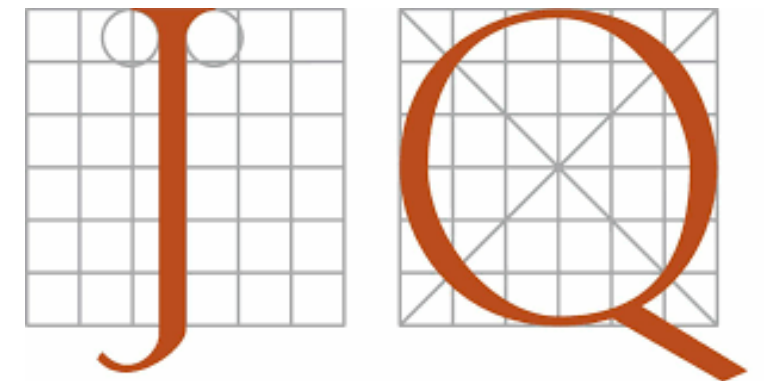
# Goals and Objectives

- 1) Save the historic fabric that can be saved and put it in good structural standing for the future.
- 2) Preserve the original historic use/function of the building.
- 3) Provide the Fire Department and EMS with the modern facility they need to operate effectively and efficiently for decades to come thus providing vital life-safety services to the area.
- 4) Get the fire trucks parked indoors for protection of the equipment, speed of response times, and aesthetic improvement of the neighborhood.
- 5) Create an addition that is respectful of the original, but not a false recreation of mindless mimicry.

City of Austin  
Fire Station No. 3

# Structural Damage

Barry Krieger, Principal  
JQ Infrastructure – Structural Engineer





# Documents and Studies

Phase One – Structural Floor System Capacity Assessment

CTL Group  
May 2017

Phase Two – Feasibility Study

CTL Group  
August 2017

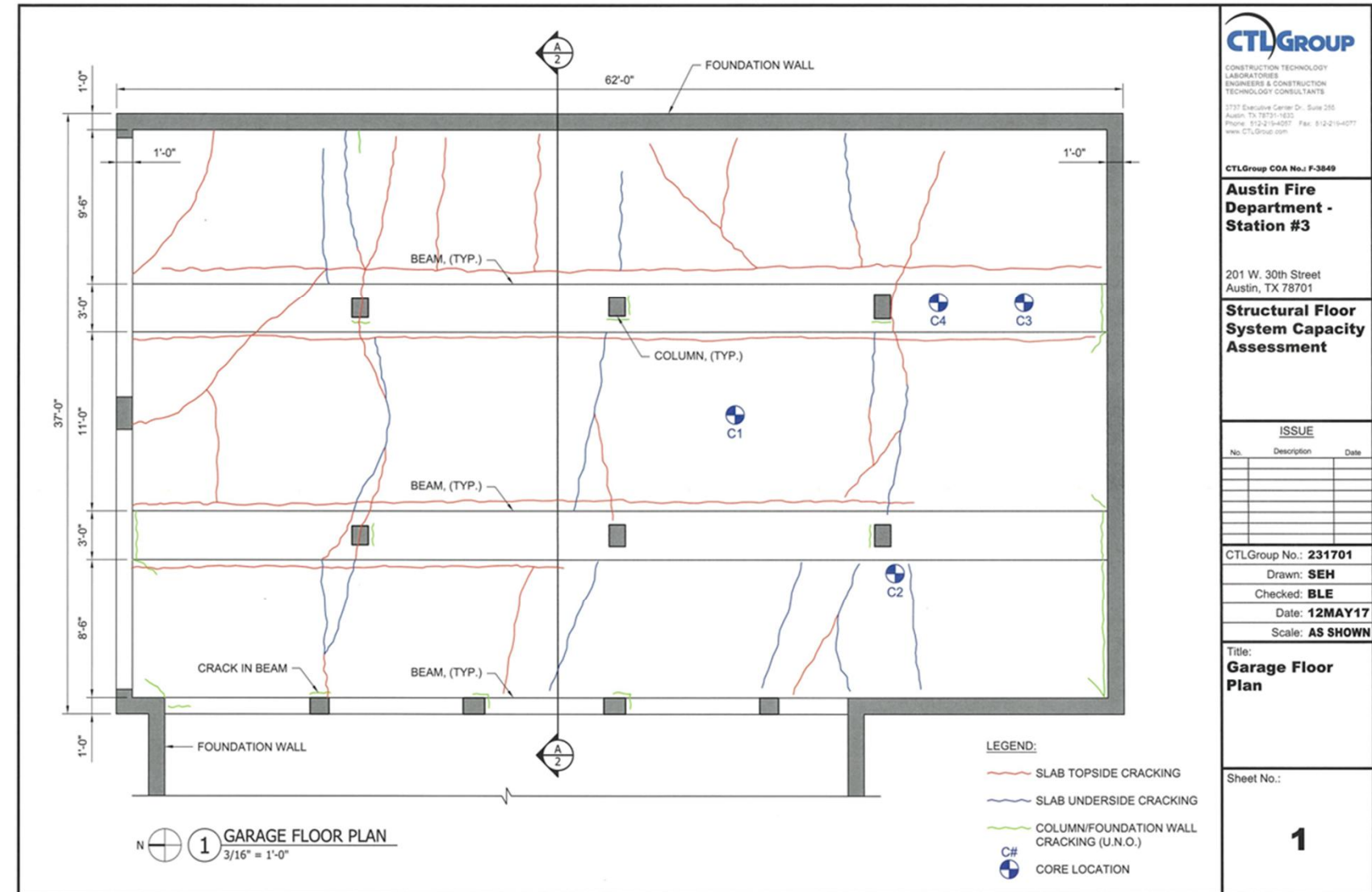
Letter of Recommendation

Karim Helmi, P.E., City Structural Engineer,  
CoA Public Works Department  
September 2017

Geotechnical Report

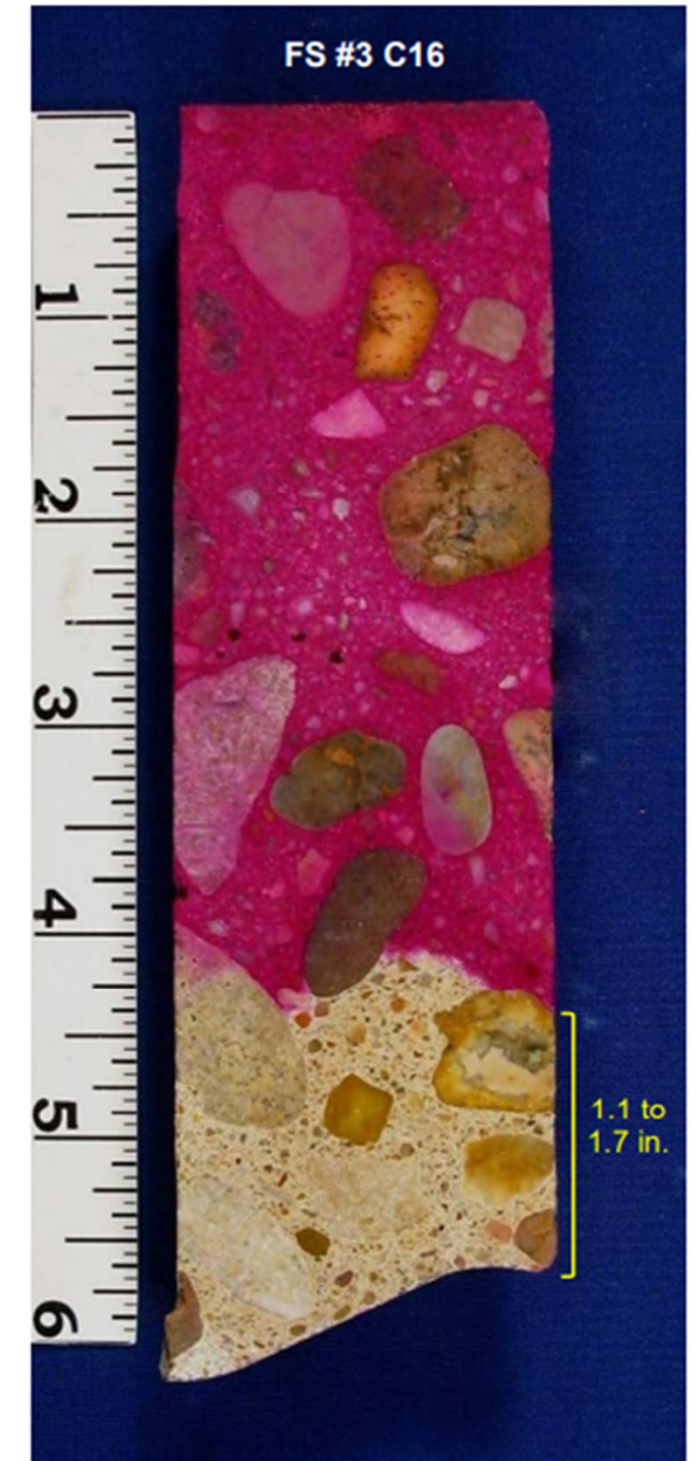
Kleinfelder  
October 2018

Total of 164 pages



# Methodologies

- Ground Penetrating Radar
- Localized Concrete Removal
- Visual Observation
- Core Samples
- Compressive Strength Testing
- Carbonation Depth Testing
- Geotechnical Borings





# Deficiencies

- Cracks
- Spalling
- Exposed, rusted reinforcing steel
- Carbonation depths exceed the depth to the reinforcing steel
- Calculations of necessary design loads far exceed that of the current structure
- All options for repair were considered costly, risky, and/or ineffectual



# Conclusions

- Trucks cannot be parked on the slab
- Misalignment of one of the trucks could cause failure of the slab
- Demand Capacity Ratio for the middle beam in shear is 3.86 meaning it is overloaded by almost 300%
- The city's Structural Engineer concluded that demolition and replacement was the best option

The forensic investigations that were performed by CTL Group of the existing elevated foundations of Fire Station 22 and Fire Station 3 revealed that the existing suspended foundations cannot safely support the vehicular loading from the new fire trucks. It is recommended that selective demolition be performed and replace the entire bays of Fire Station 3 and Fire Station 22. The new bays could be designed to accommodate the new vehicular loading requirements of the Fire Stations and anticipated future needs of the Austin Fire Department.

Please feel free to contact me if you have any questions.

Thanks

A handwritten signature in black ink, appearing to read 'K. Helmi', with a stylized flourish at the end.

Karim Helmi, P.E.  
City Structural Engineer - Quality Management Division  
Public Works Department  
City of Austin  
Phone: (512) 974-6539



City of Austin  
Fire Station No. 3

# Cost Implications and Alternatives

Michelle Noriega, Project Manager  
City of Austin – Client



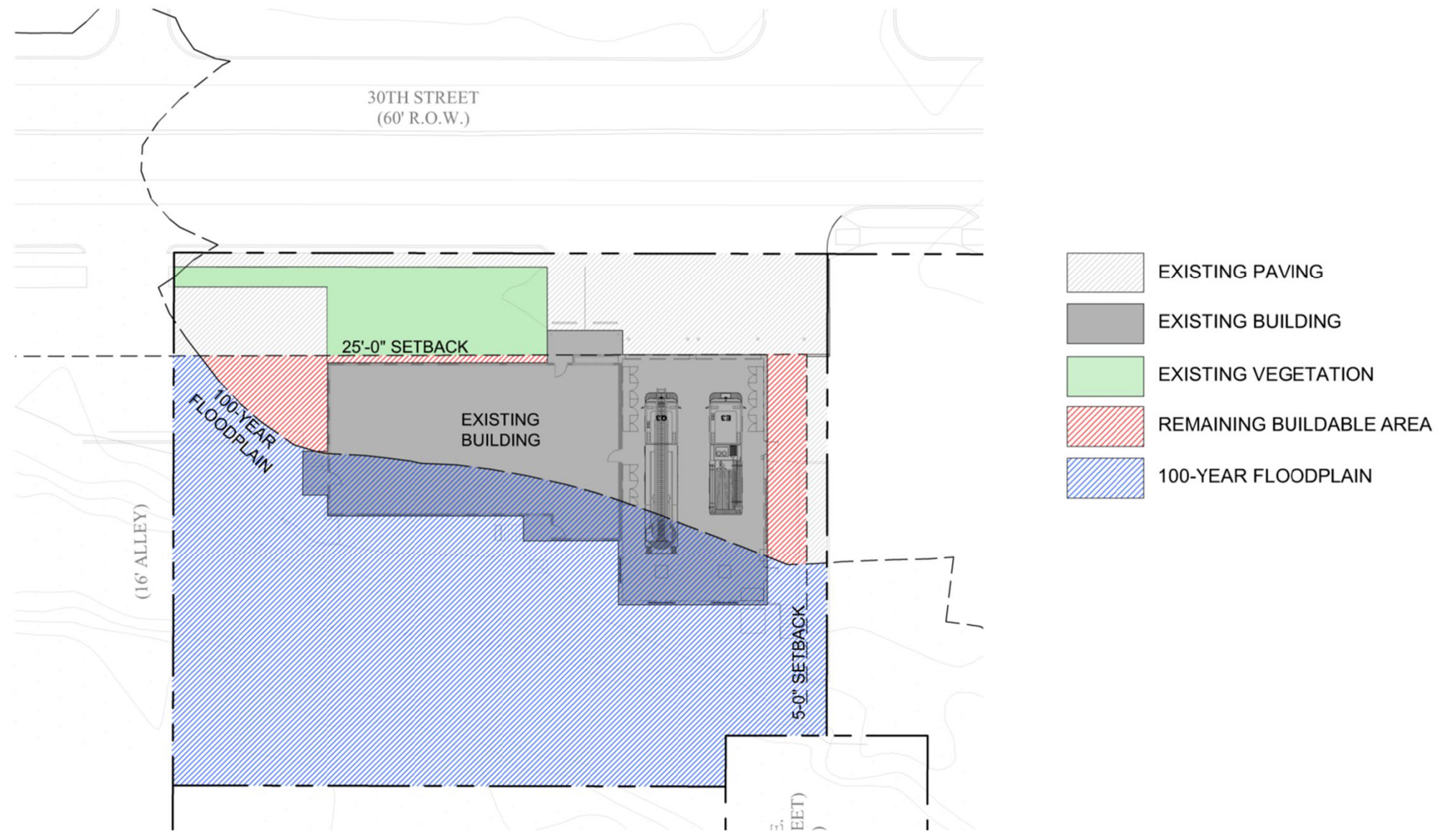


# Alternate

With the designation of the new 100-year floodplain, the remaining buildable area is extremely limited.  
(Shown in red)

This means the only available land for a new apparatus bay is the land where the existing damaged one stands.

Expansion is limited to the red area to the right of the current bay.





# Original Recommendation

“Due to the degree to which the slab and middle beams are overloaded in conjunction with the presence of carbonation-induced corrosion, we do not believe that repair/strengthening of the garage floor system at Fire Station No. 3 can be accomplished in a cost-effective manner without substantial replacement of framing elements.”

*From page 42 of the unedited reports provided for commission review*

*CTL Group, August 31, 2017*

## DISCUSSION OF REPAIR OPTIONS

### FIRE STATION NO. 3

The underside of the slab was spalled at several locations. At several spalled areas, the reinforcing steel was exposed and visibly corroded/rusted, likely indicative of carbonation-induced corrosion. Carbonation depth testing performed by CTLGroup further confirms that carbonation is an issue of concern in the garage area at Fire Station No. 3. Due to the depth of carbonation, the future service life of the garage floor system could be limited. However, additional testing and service life modeling would be needed to more accurately estimate the functional lifespan of the garage floor system.

Considering the slab thickness, it would be difficult to repair existing areas of corroded reinforcing without the repair extending through the full depth of the slab. Additional NDT work would also be needed to determine the full extent of existing corroded reinforcing. Additionally, preventing future carbonation-induced corrosion (such as with cathodic protection) would add considerable cost to any repair/strengthening program.

The slab and middle beams at Fire Station No. 3 are considerably deficient with respect to supporting the anticipated vehicular loads (see Table 4). The slab is overloaded by nearly 150% in flexure. The middle beams are overloaded by nearly 300% in shear and nearly 100% in flexure. Due to the degree to which the slab and middle beams are overloaded in conjunction with the presence of carbonation-induced corrosion, we do not believe that repair/strengthening of the garage floor system at Fire Station No. 3 can be accomplished in a cost-effective manner without substantial replacement of framing elements.

CTLGroup proposes two (2) options to address the strength deficiency and carbonation issue, which includes the following:

1. Remove and replace large portions of the existing floor system, or
2. Fill the crawlspace beneath the garage area with a cementitious flowable fill material.

With regard to removal and replacement, this will require the removal of the slab and middle beams in the garage area. The west beam, perimeter foundation walls, and columns can likely remain in place. A new monolithic slab/beam system would be designed and constructed such that it would tie into these existing elements. In lieu of a cast-in-place monolithic slab/beam system, structural precast members could also be considered. If the City of Austin decides to replace the garage floor system, CTLGroup is available to design its replacement and provide details and drawings for construction phase services. This work would be performed as part of Phase 3 of this project. Some geotechnical investigation may be necessary to demonstrate adequacy of existing foundations. As an alternative to this repair option, the City may also consider replacement of the entire bay area of the fire station. This would allow other upgrades including increasing overhead clearance.

With regard to Option 2, the existing garage floor system at Fire Station No. 3 would remain in place and the crawlspace area beneath the garage would be filled with a cementitious flowable fill material. In this scenario, the garage floor system would generally function as a slab-on-grade type system. The slab and middle beams would no longer be suspended, and as a result the strength deficiencies in these elements would no longer be a concern. This is likely the

- The CTL Group determined that the repair could not “be accomplished in a cost-effective manner” but never cited any cost analysis to back up the conclusion.
- A line-item costing model was developed to quantify the terms in the 2017 report.
- The additional costs associated with repairing the apparatus bay was determined to be \$864,099.



ITEM #	DESCRIPTION
2	Retain Existing Façade and Roof of FS #3 Apparatus Bay

[illegible]

<b>Subtotal</b>	<b>\$815,188</b>
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Markup	6.00%	\$48,911
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<b>TOTAL</b>	<b>\$864,099</b>
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# Funding and Cost Analysis

- The funded budget for the current project, which includes the demolition of the apparatus bay is:  
\$3,133,168 (2,859 SF @ \$1,096/SF)
- Costs to repair the existing bay is:  
\$3,997,267 (2,246 SF @ \$1,780/SF)
- Repairing the bay verses replacing it represents an unfunded cost overrun of:  
\$864,099 (28% by project cost calculation)  
or  
\$684/SF (62% by cost-per-square-foot calculation)

City of Austin  
Fire Station No. 3

# Design Proposal

Rob Robbins, Studio Director  
WestEast Design Group – Architect



WESTEAST  
DESIGN GROUP

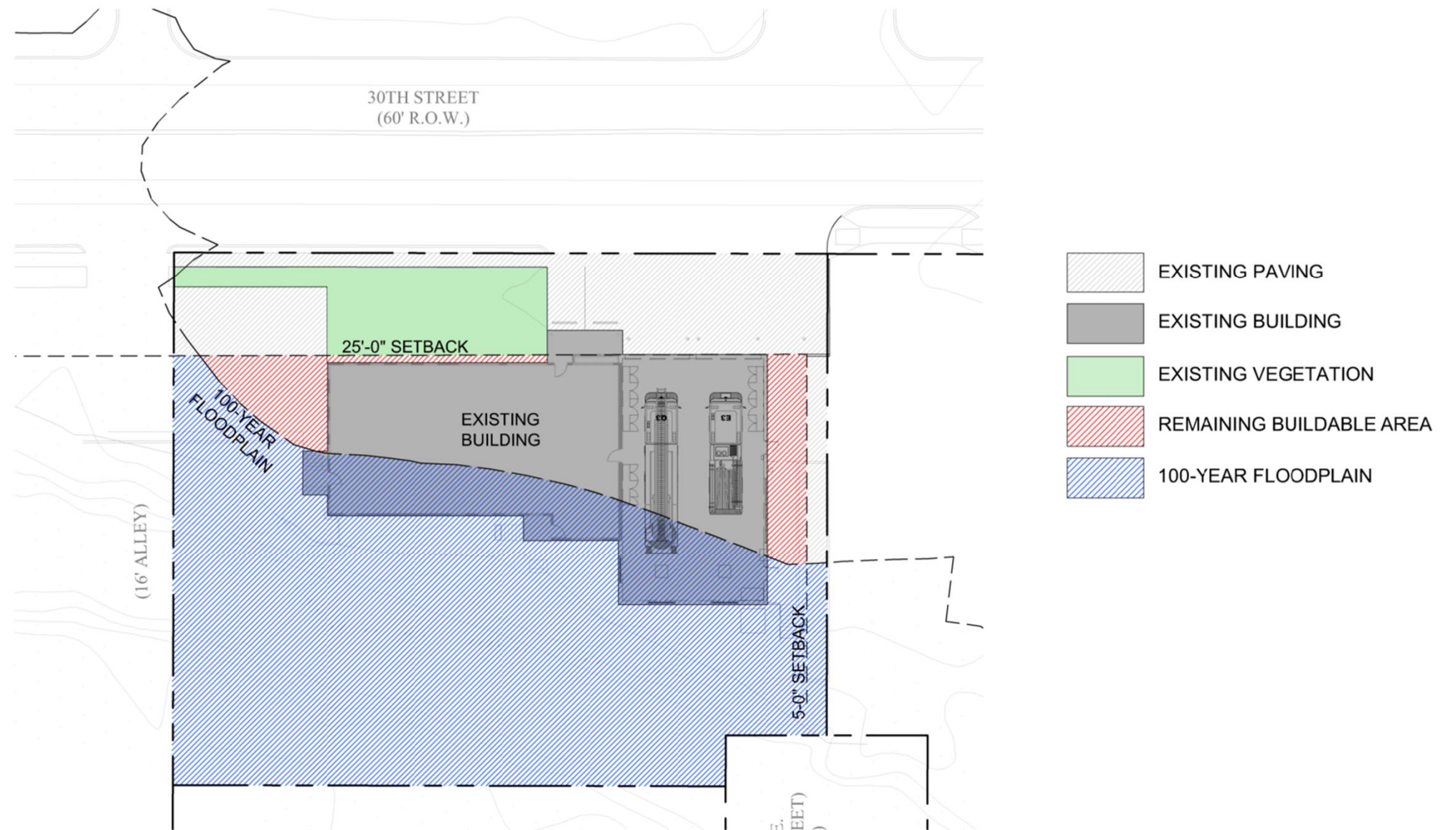
Historic Landmark Commission – Design Overview Presentations  
24 May 2021

# Existing

With the designation of the new 100-year floodplain, the remaining buildable area is extremely limited.  
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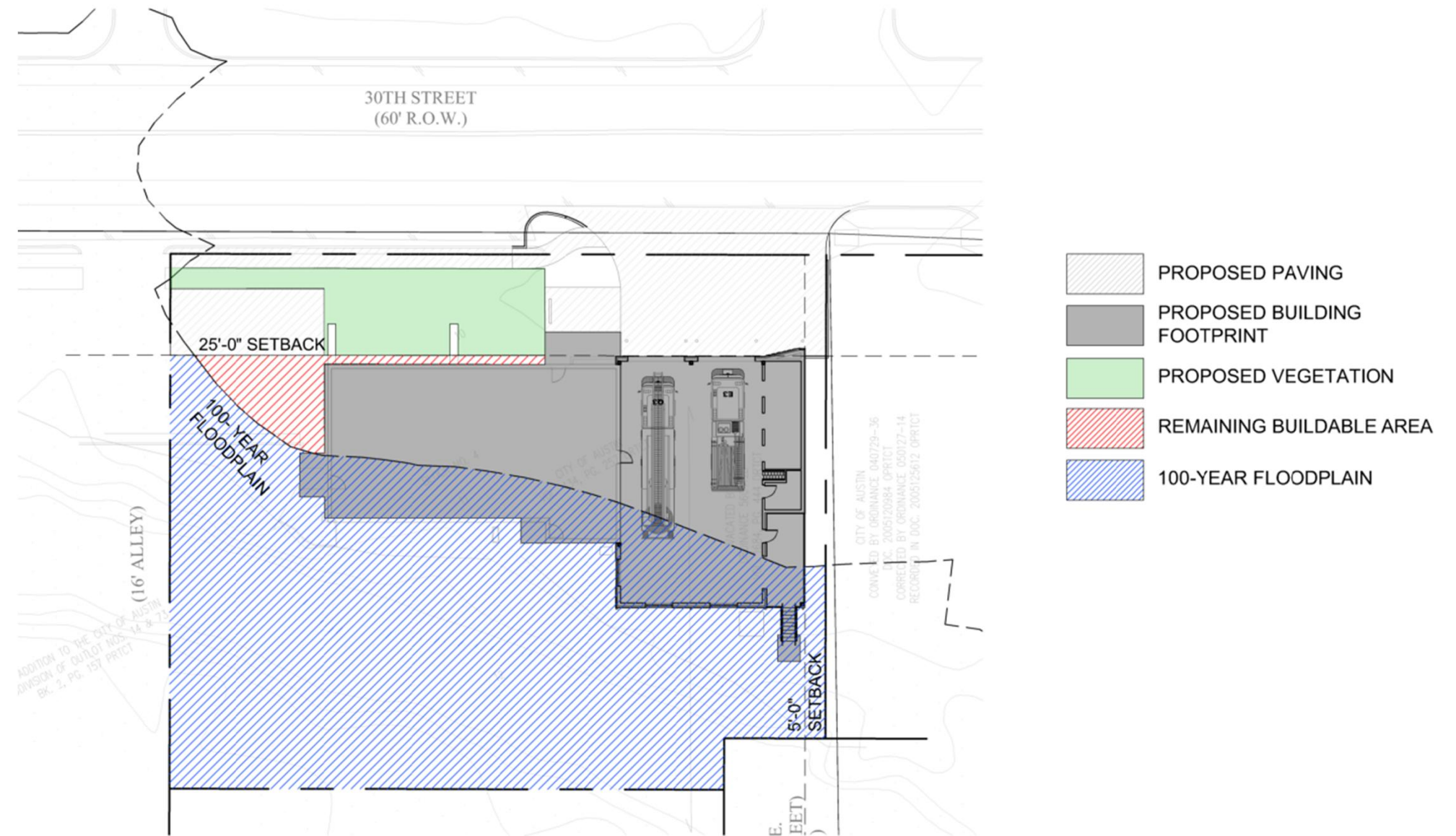


# Proposed

Apparatus bay is expanded into the building area to the right of the plan.

Parking in front is reconfigured to meet ADA.

Site lighting is added for safety, convenience, and function.





# Design

Importance of roof line

Use of brick, but in an obviously different blend to distinguish old from new

Reuse of original signage

Compatible massing

Use of period-appropriate detailing

Addition of "UT Burnt Orange" elements to tie into area pride





# Improvements

Faster operating bay doors to improve response times.

Addition of spaces to provide for operational requirements.

Significantly stronger structure accommodating the weight of both current and future vehicles.

Slightly higher apparatus bay allowing for the height of new vehicles and the maintenance clearances they require.

Improved site lighting and ADA compliance.



















FIRE  
STATION  
NO. 3

SAN ANTONIO



City of Austin  
Fire Station No. 3

## The Plan Forward

Tony Haden, Division Chief  
Austin Fire Department – End User

Historic Landmark Commission – Design Overview Presentations  
24 May 2021



# The Need

- 1) The apparatus bay is structurally compromised and cannot be reasonably repaired.
- 2) We need to be able to park our trucks inside.
- 3) The land is not big enough to locate a new apparatus bay elsewhere on the site.
- 4) We do not have another site to move to.
- 5) For life safety and operational efficiency, we need to be able to bring this facility up to current standards.
- 6) The funds to repair the bay are not available, and even if they were, the current bay does not provide adequate facilities for the future.



# What We Are Asking For

- 1) We need approval for the demolition of the apparatus bay.
- 2) Without landmark designation, we need the commission to allow the building department to issue a demolition permit.
- 3) If landmark designation is initiated, we still need the demolition permit, but we will also need a certificate of appropriateness for the new structure.
- 4) We are asking for a timely decision such that construction can proceed and delays to the fire department's needs are not unduly extended.
- 5) We are asking for advice and counsel as to anything we may do on our end to help facilitate the requests we are making.

# City of Austin Fire Station No. 3

## Thank You

