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**Budget & Function-Based
Fire Station Planning**





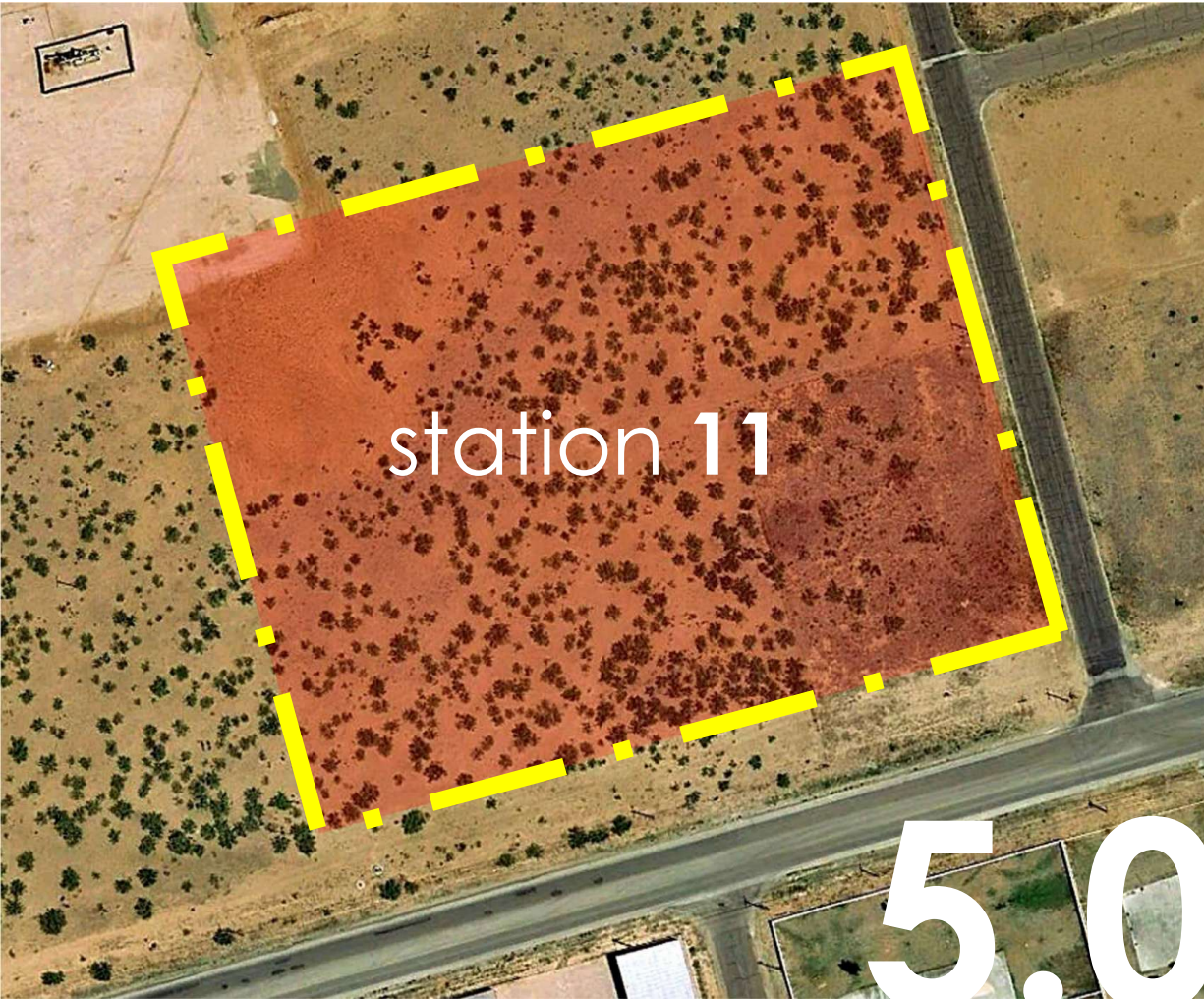
1) SITE PLANNING CASE STUDIES

2) FIRE STATION PLANNING & BUDGET

3) SITES WITH EXISTING STRUCTURES --
CAN THEY BE ADAPTED?



SITE PLANNING CASE STUDIES



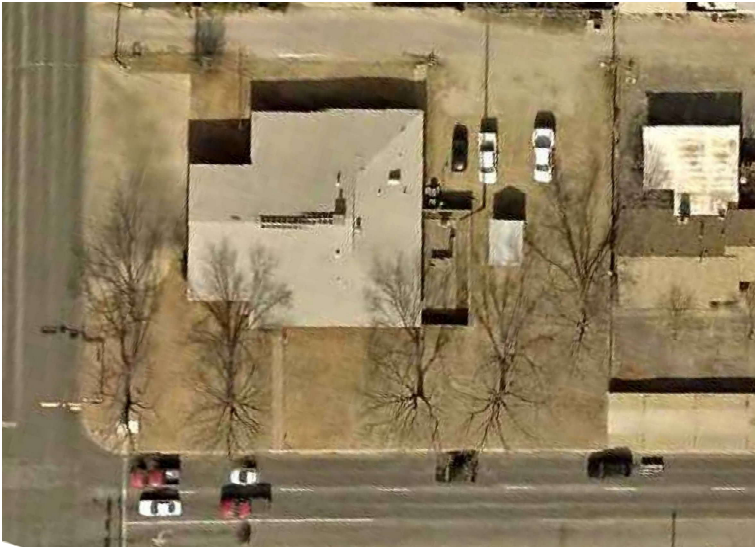
station 5

5.00.5

SITE CONSTRAINTS

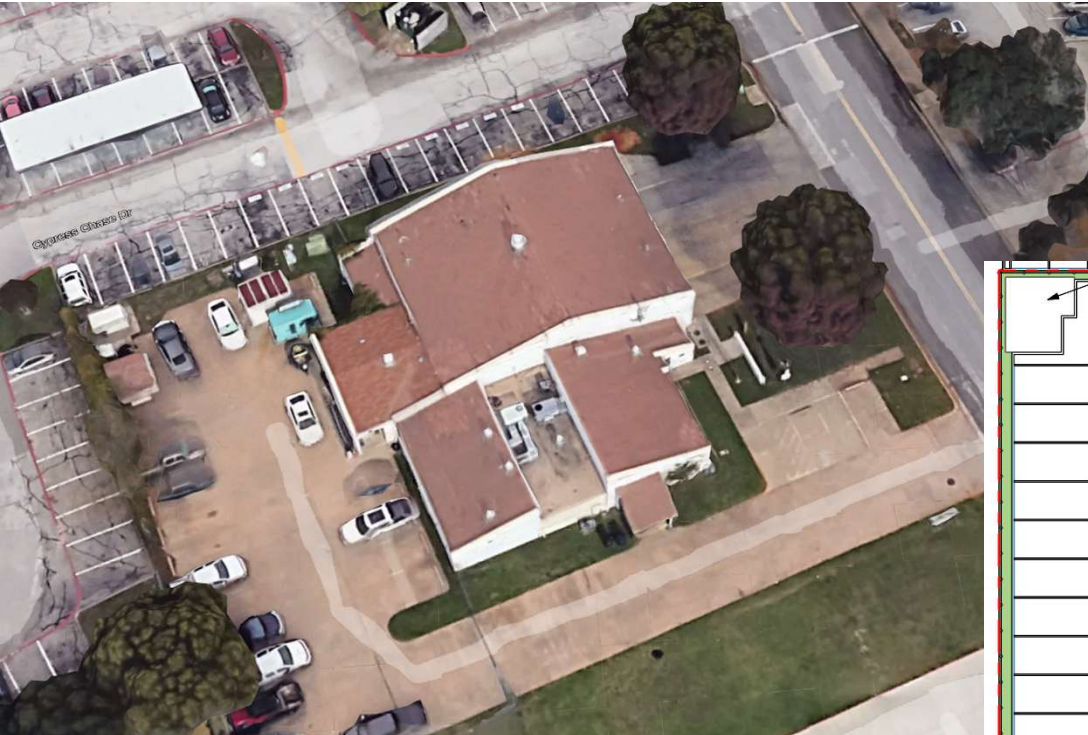
station 5

Site Plan

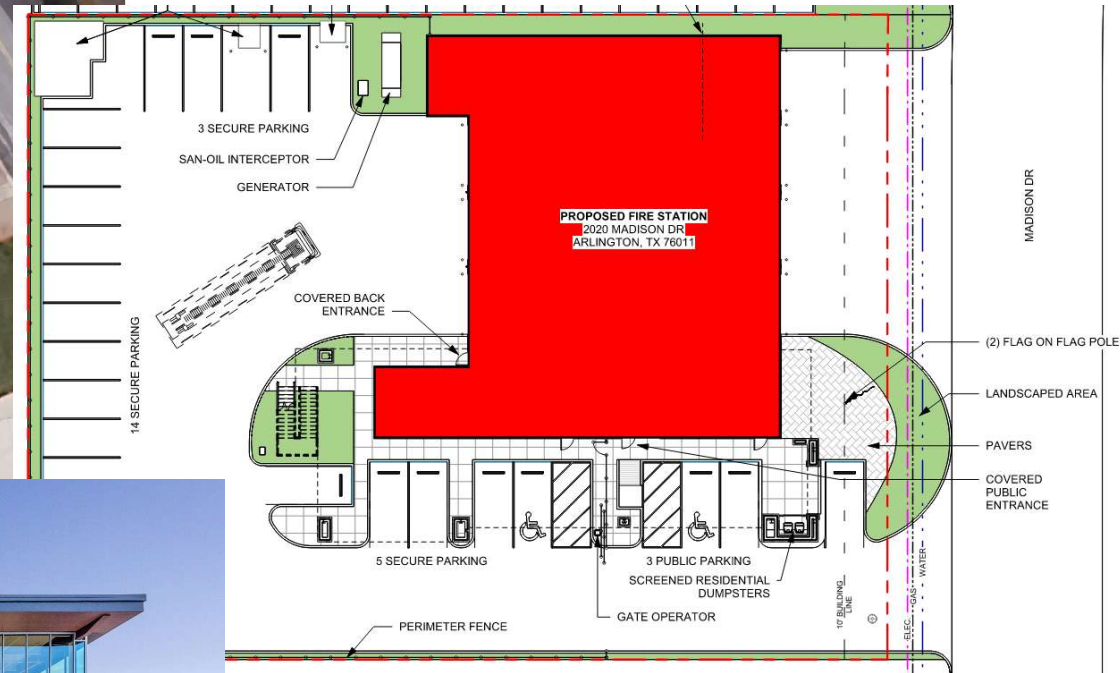




station **5**

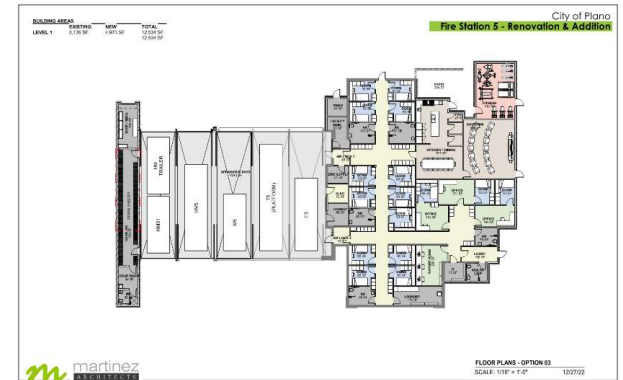
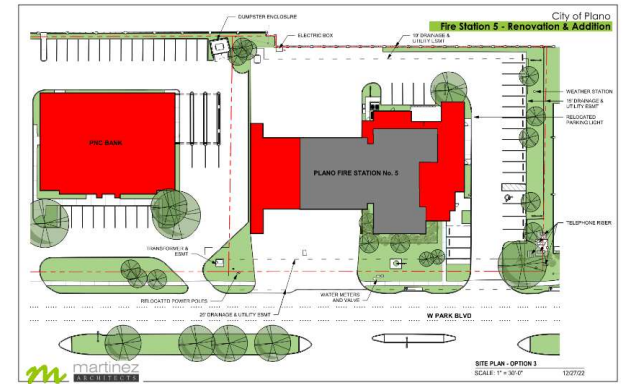
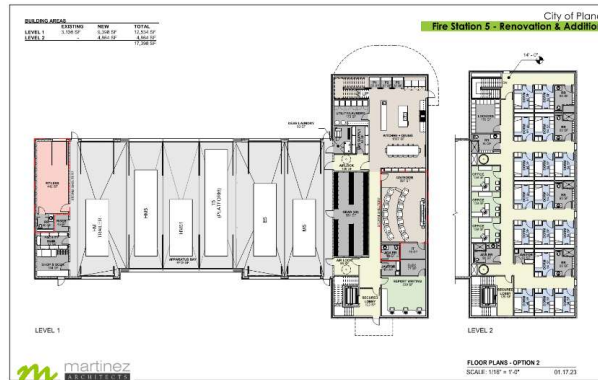
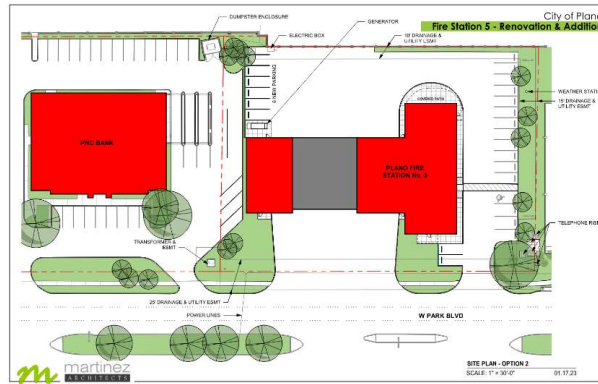
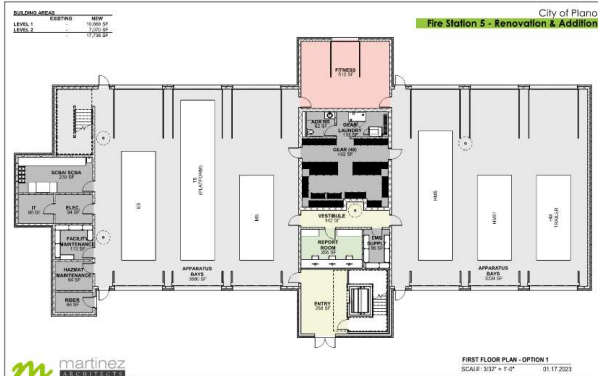
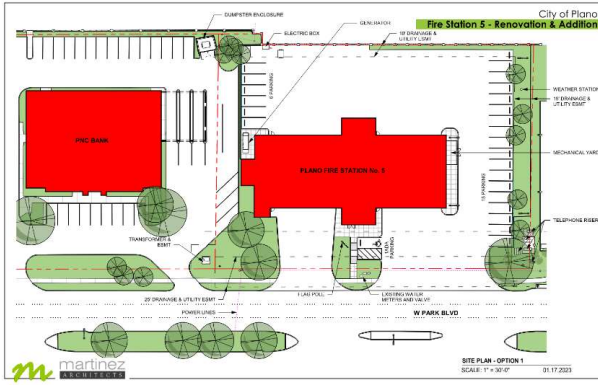


RENOVATE OR REPLACE?



WHERE WILL THE CREWS GO?

RENOVATE OR REPLACE?





Are we saving \$?
Can the FD really
function with this?





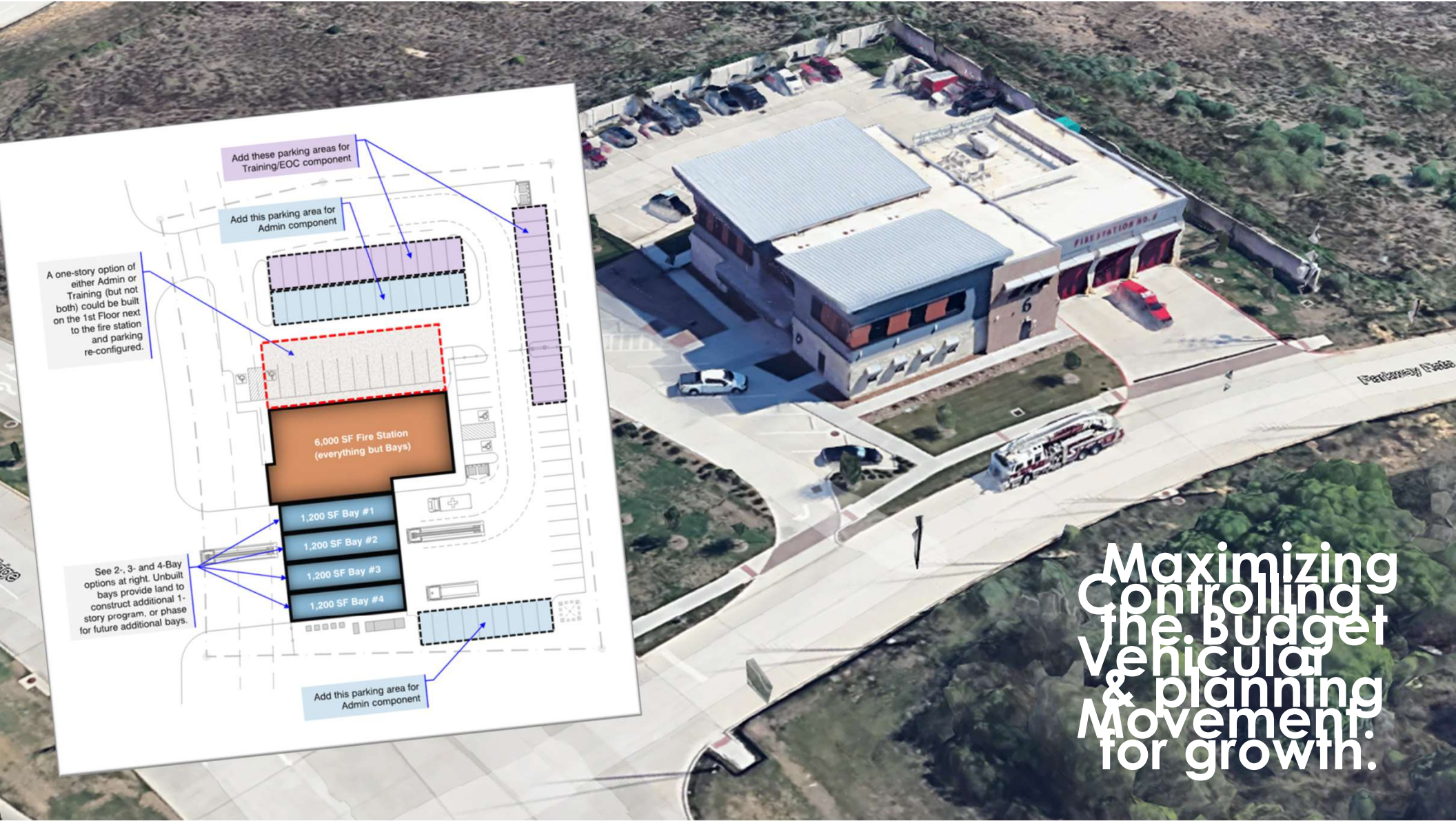
Existing site with existing paving – can we save \$?



Paris Junior College
Greenville Center

Do you want to be in
the road-building and
real estate businesses?

MONTY STRATTON PARKWAY



Maximizing
Controlling
the Budget
Vehicular
& planning
Movement:
for growth.



FIRE STATION DECISIONS: BUDGET & FUNCTIONALITY



Utilizing a Prototype.



2
Scale Not Set

3
Scale Not Set

4
Scale Not Set

5
Scale Not Set

6
Scale Not Set

7
Scale Not Set

8
Scale Not Set

Utilizing a Starting Point.



9
Scale Not Set

10
 $1/16" = 1'-0"$

11
Scale Not Set

12
Scale Not Set

13
Scale Not Set

[1] A201
Scale Not Set

[1] A201
Scale Not Set



8
Scale Not Set

9
Scale Not Set

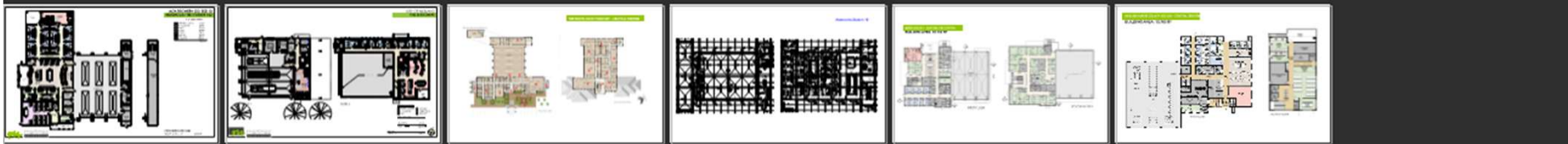
10
Scale Not Set

11
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12
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13
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17
Scale Not Set



18
Scale Not Set

1
Scale Not Set

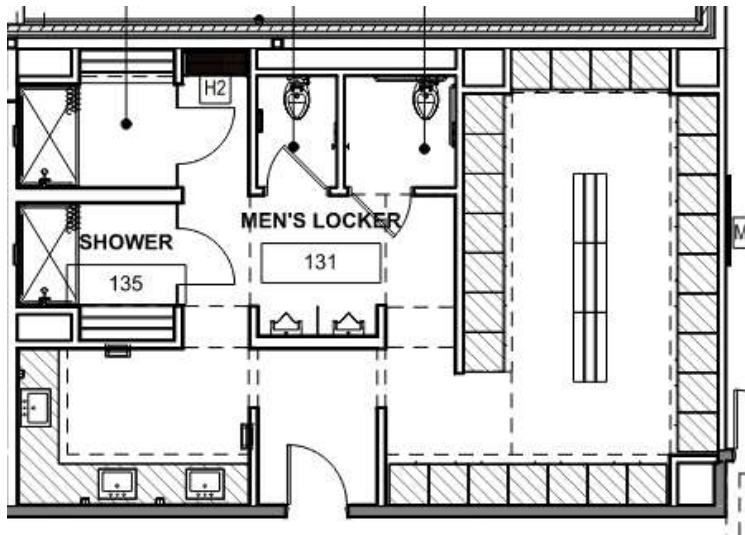
14
Scale Not Set

15
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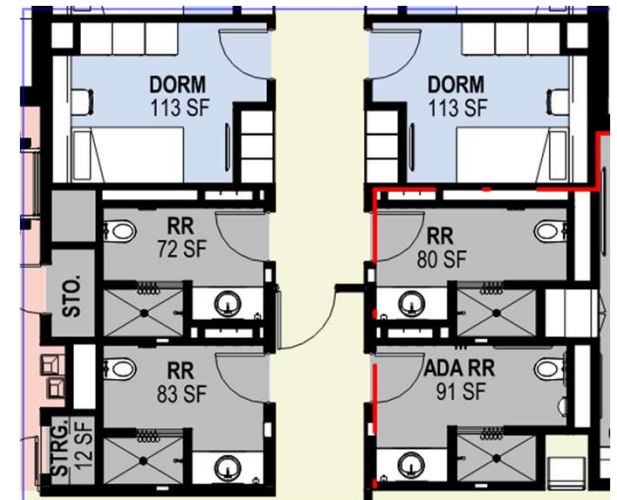
16
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17
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Analyzing Space & Functional and Needs.



VS.

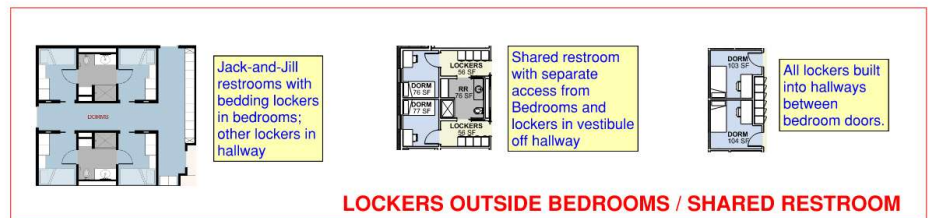
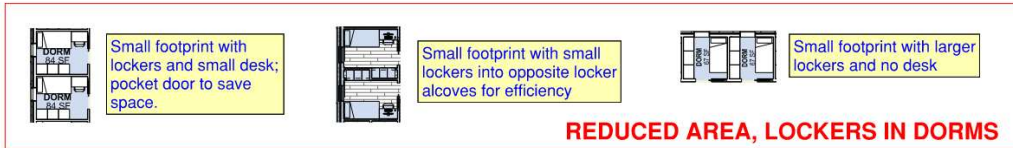
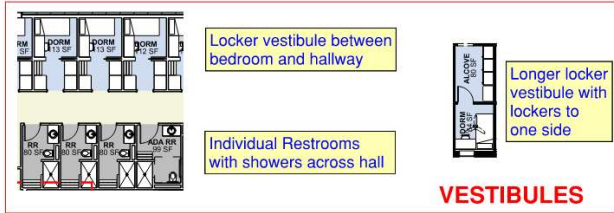
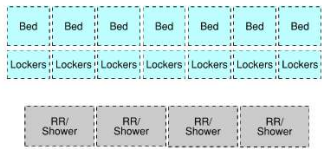


Space is \$.

- Can you predict how many male / female fire-fighters will be in your station in 10 years? 20 years?
- Lockers – Privacy/Accessibility/Sound @ Shift Change

Analyzing Space & Functional and Needs.

Sleeping, Lockers, Restroom Options



Space is \$.

Which layout is Best?



No walls: Zoned Alerting?



Jack & Jill; Pocket Doors



Locker Vestibule



Locker Vestibule II

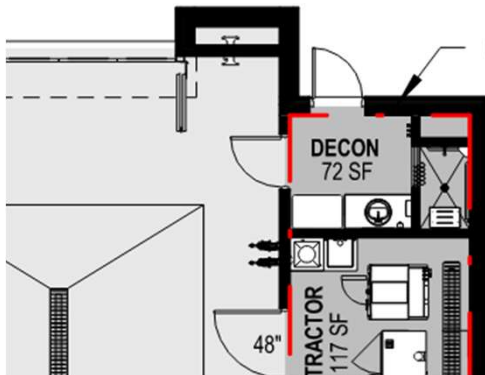
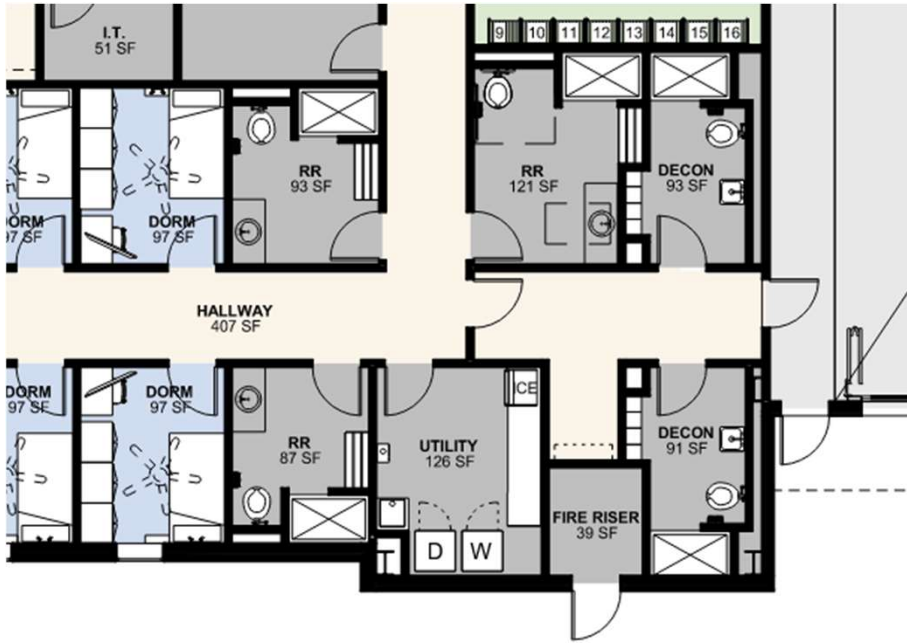


Furnishings; Larger Room

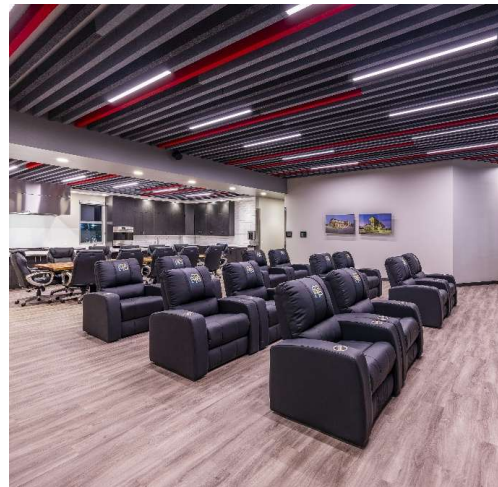
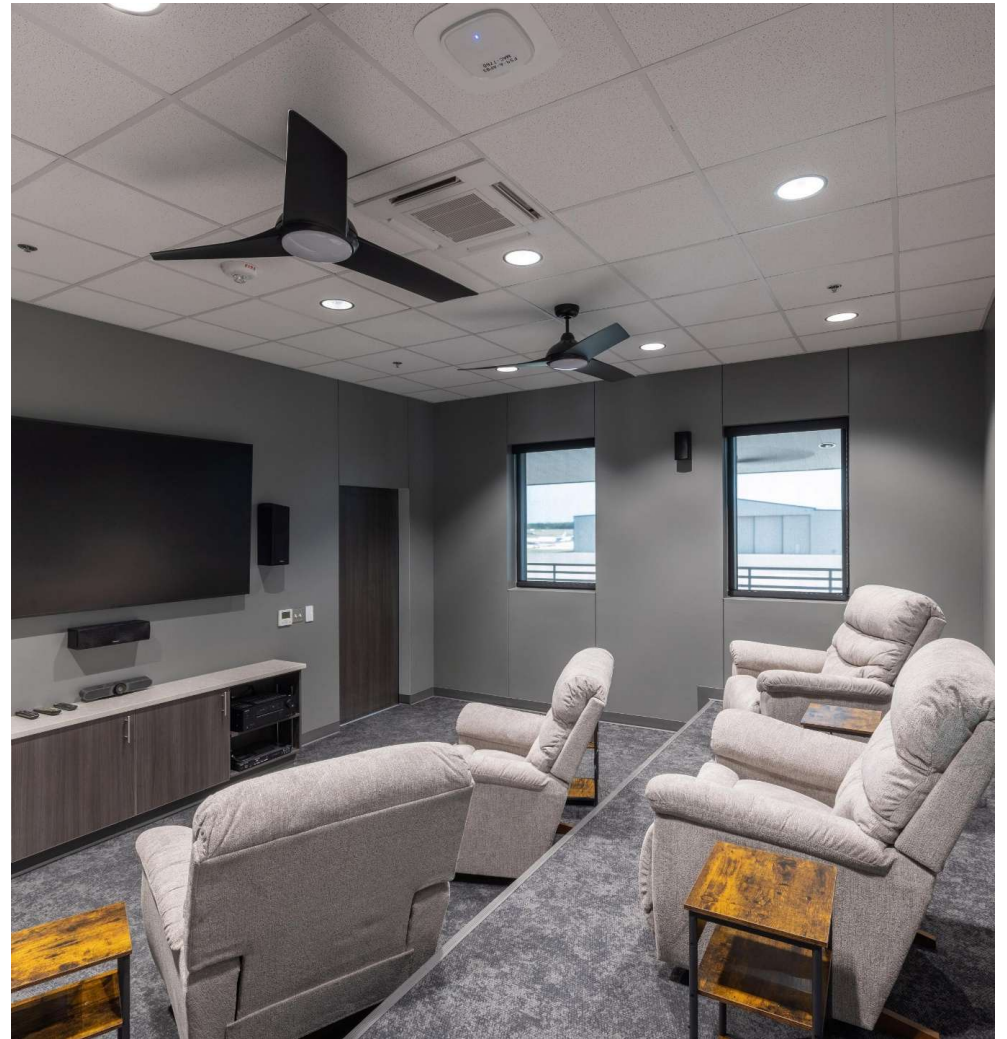


Lockers in Hallway

Decon – what's the goal?



How does Day Room Layout affect Space/Cost?





**Which
version
is Best?**



**Which Station
cost more per SF?**



Cost Factors:

- Market
- SITE DEVELOPMENT
- M/E/P
- Structure
- Size
- Built-ins
- Finishes



SEGUIN
FIRE STATION

4



Durable, low-maintenance finishes

Commercial/Residential Restroom Accessories

NFPA Compliance. Access.

Lighting & Plumbing Controls

Responsibility Matrix for Furnishings

Sound control at Dorm Walls

Dorm Storage Options

Door Types, Glazing, Hardware





Treating Bay Wall like an Exterior Wall.

Mezzanine for M/E/P access, maintenance, and training

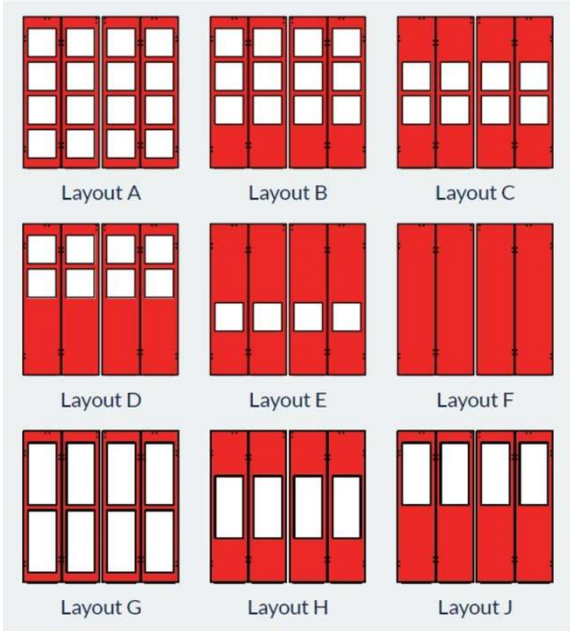
User-Friendly Lighting Controls

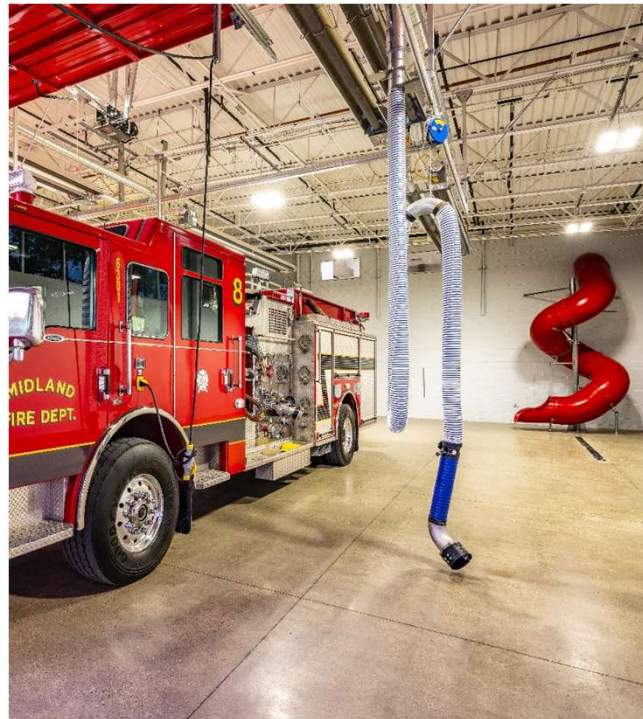
Wall Protection

Finishes and Equipment for Decon

Appliance Coordination

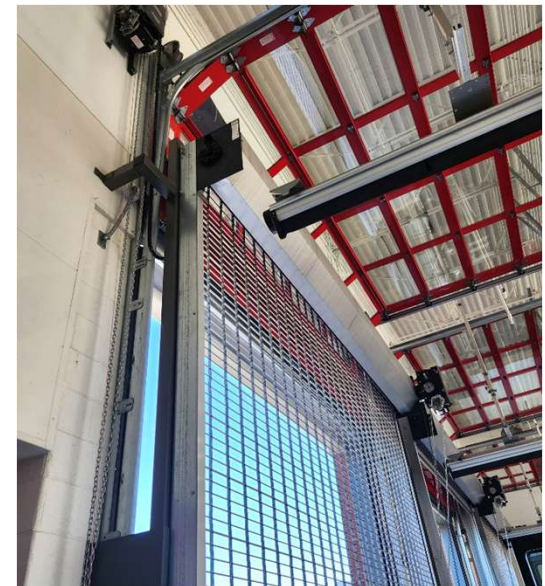
MAINTENANCE / COST SAVERS





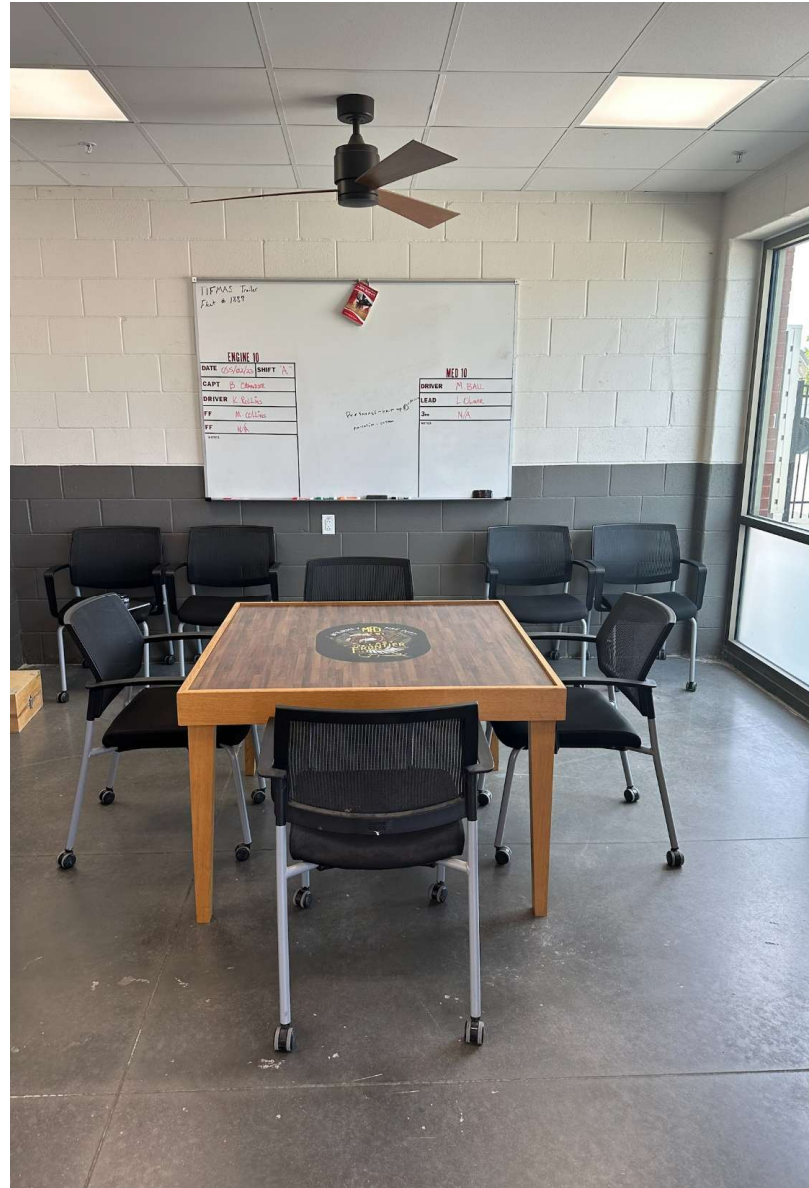
Diesel Exhaust Options – No “1 Right Answer”

- Cost? Over Time?
- Is it Used Every Time?
- Moveable Parts?
- Does it work the best?
- How much Space?



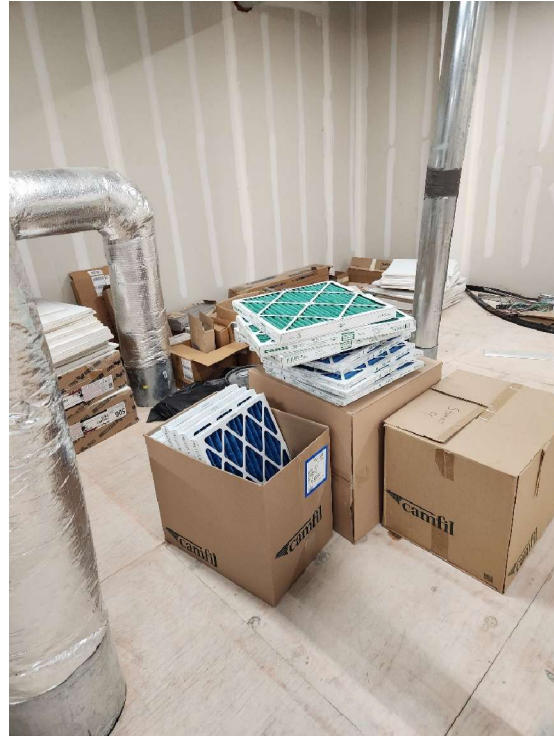
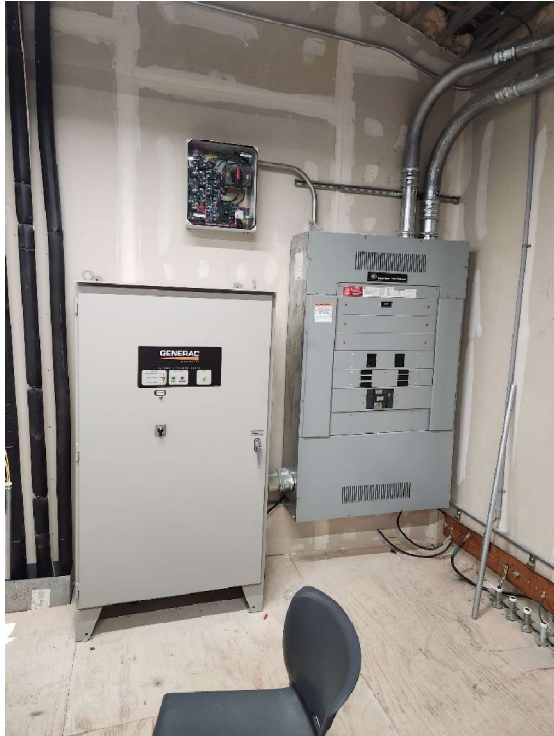


Over-Application of ADA/TAS Requirements is a Waste of (Expensive) Space!



Design to Behavior: **Not Vice Versa**

- **If fire fighters are just going to inevitably hang out in the Apparatus Bay regardless ...**
 - Provide a fan (and provide ventilation ... and capture exhaust at the source)
 - Provide a whiteboard
 - Provide a sink/counter/storage
 - Provide daylight
 - Provide space for furniture



Mechanical /
Mezzanine /
Attic Stock

Concrete? Plywood?

- Is cost of concrete worth it?
Easier to maintain ...
- Access to service equipment?
- Access to roof without roof penetration?

ADAPTIVE RE-USE OF EXISTING FACILITIES



why ADAPTIVE REUSE?

1. **speed up** DESIGN, PERMITTING & CONSTRUCTION

- Sometimes can finish project while using facility

2. **reduce costs** OF CONSTRUCTION

- Time and material

3. **popular** WITH COMMUNITY

- Especially prominent or historical buildings

4. **healthy** FOR THE EARTH

- Re-uses “Embodied energy”



case study: CY-FAIR FD OPERATIONS



VERSATILE SPACE

case study: CY-FAIR FD OPERATIONS

- room for:**
- GROWTH
 - STORAGE

THE BENEFITS

STRUCTURAL INTEGRITY & CAPACITY

- **pavement / floor slab**
 - core samples
 - petrograph analysis of mix design
 - sub-grade compaction & moisture
- **roof**
 - connections analysis
 - height
- **walls**
 - planned openings
 - load bearing analysis



adaptive reuse:

THE EVALUATION PROCESS

UTILITY CONDITION & CAPACITY

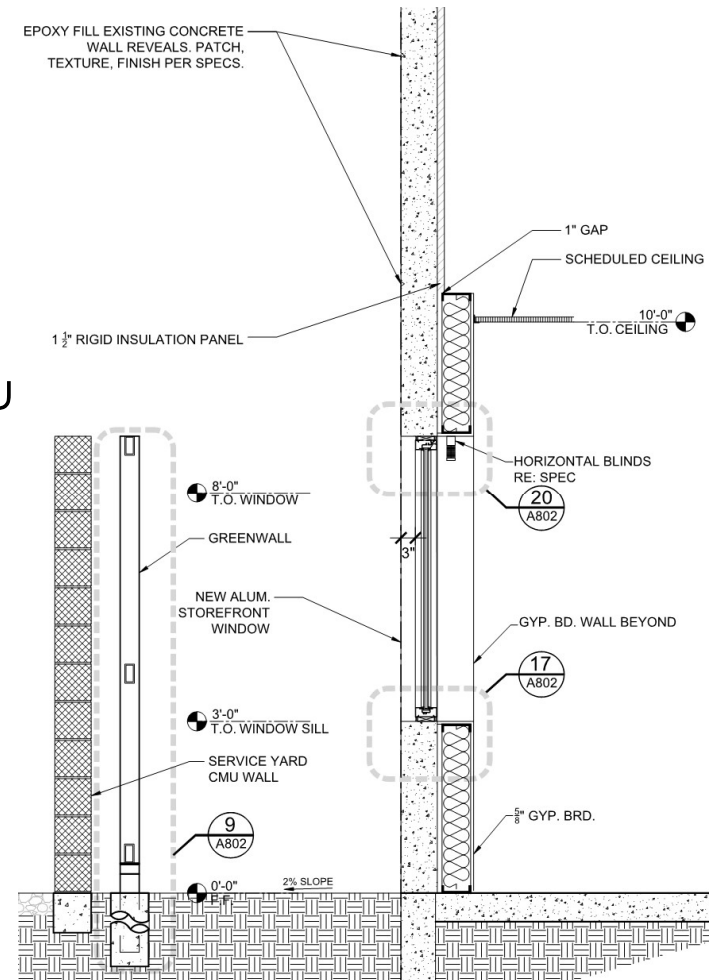
- **water / sewer / storm drainage**
 - flow/pressure test
 - impact of additional impervious area
- **electrical**
 - code compliance / **natural light**
 - service load capacity
- **mechanical / plumbing**
 - **equipment life expectancy**
 - plan for plumbing adjacency

adaptive reuse:



BUILDING ENVELOPE

- **insulation**
 - flow/pressure test
 - impact of additional impervious
- **water tightness**
 - code compliance
 - service load capacity
- **finish durability**
 - equipment life expectancy
 - plan for plumbing adjacency



adaptive reuse:

THE EVALUATION PROCESS

BUILDING AESTHETICS



adaptive reuse: EVALUATION PROCESS



Churches

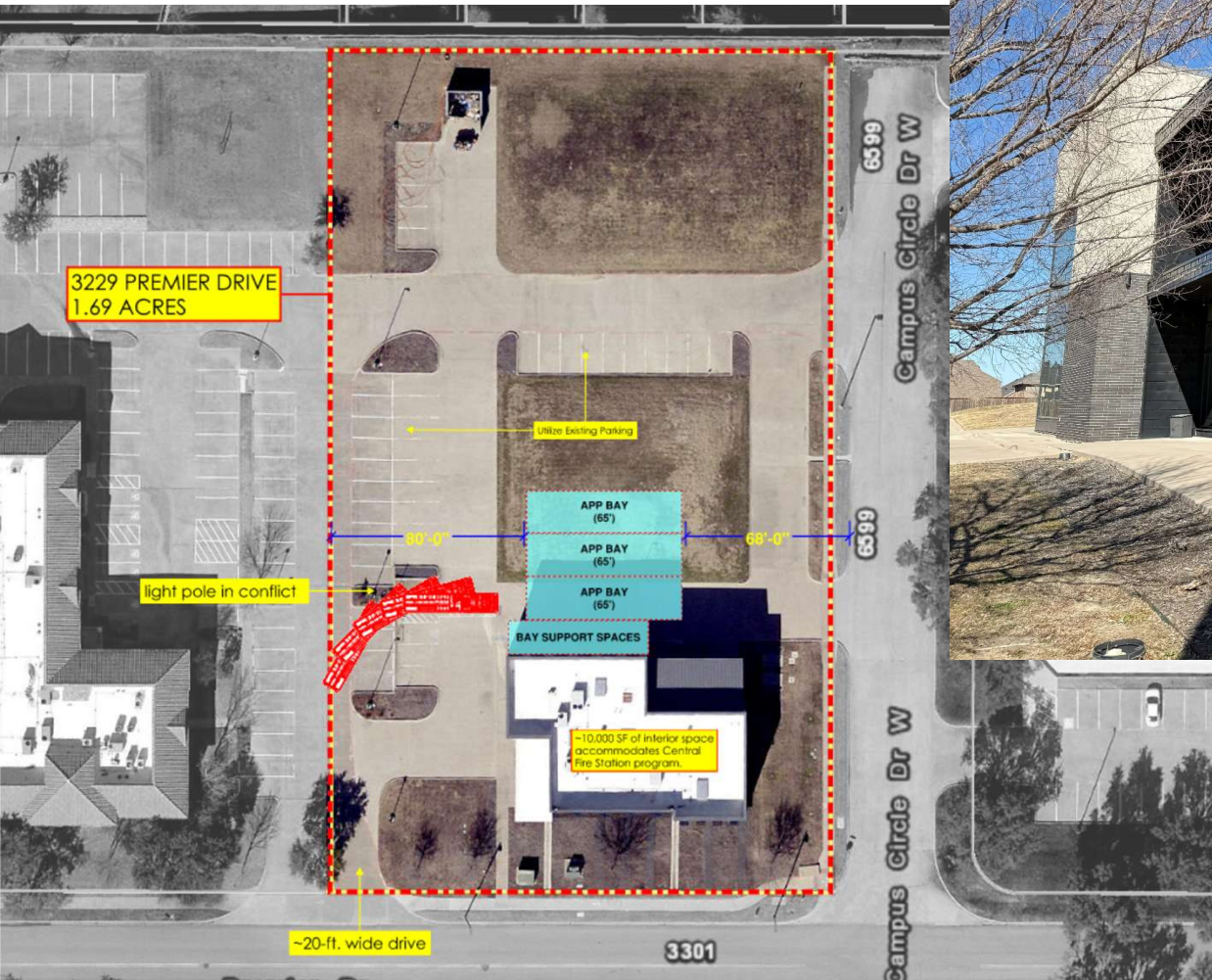
- Fit into surrounding residential areas
- Often some high-roof areas



types of existing facilities:

RECOGNIZING OPPORTUNITIES

Office Buildings



- ACCESS
- SECURITY
- DURABILITY

Fabrication Facilities



Administration / EOC /
911 Dispatch Center

Vehicle Wash Bay

Ambulance Maintenance Shop

Ambulance Deployment Center

types of existing facilities:

RECOGNIZING OPPORTUNITIES



- Is the structure adequate?
- Is the roadway access and location adequate?
- Is it too big?
 - Reserve apparatus storage?
 - CPAT (or other) training?
 - Administrative offices / EOC?
 - Department-wide quartermaster?

**Administration
Training
Dispatch/EOC
Reserve Apparatus
Maintenance/Operations
Fire House.**



types of FD facilities:

THINKING OUTSIDE THE BOX



do don't

- Think outside the box
 - Evaluate Costs
 - Due Diligence Evaluation
 - Plan for the Future
 - Look at combining programs/facilities
- Discount a facility just because it seems too big
 - Rush into something before fully vetting it
 - Stop before fully evaluating, including consideration of additions

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**Budget & Function-Based
Fire Station Planning**

