Epiphany Lutheran Church
5515 Broadway Street
Pearland, Texas 77581

FACILITY ASSESMENT REPORT

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Executive Summary

Studio RED was engaged by Epiphany Lutheran Church leadership to conduct an assessment of the original building which was built in 1994. Studio RED made site visits, reviewed the original construction drawings, and met with individuals from the church in order to conduct the assessment. In general, the building is in good condition. But demands of a changing ministry, evolving technologies, aging infrastructure, and dated interiors dictate that changes be made. Some things about the building will need to change that may not be anticipated on the surface. The level and extent of changes will determine the extent by which the building will need to be brought into current code compliance.

In its current configuration, the building does not meet the currently adopted code. With anticipated changes to the building, features such as a fire sprinkler system and HVAC equipment will need to either be added to the building or significantly improved in order for the building to be compliant. The building was built before Accessibility Codes were adopted, so features such as door entrances, restrooms and drinking fountains will need to be modified to meet current code. Depending on the extent of the project scope, other code requirements for the site may be triggered such as increased landscaping in and along parking areas and along street frontages.

Other aspects of the building simply reflect its age and use. Grading improvements around the perimeter of the building are recommended. Deferred maintenance for exterior fascia, trim, and caulking are recommended to extend the life of the building. The interior finishes of the building are dated and worn and can be easily upgraded as part of an expansion or upgrade project. Also given the age of the building, upgrades to technology features such as security and audio/video systems are anticipated with any expansion or renovation project.

This report identifies the condition of the building, known conflicts and concerns, and makes recommendations based on the assumption that certain improvements and expansions may be made in future endeavors. The report is intended to be a precursor to future feasibility Studies which would assess specific strategies for a project using the assessment as a baseline of information. This report does not suggest that the building has exceeded its usable life. To the contrary, if implemented well, changes can be made to the building that will allow it to continue to serve a vital role in the mission and ministries of Epiphany Lutheran Church. With careful and intentional strategy, the contents of this report can be used along with visionary creativity to propel the use of the original building well into the next several decades.

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Background

Epiphany Lutheran Church began with humble roots in 1990 as 113 baptized members gathered in a shopping center in Pearland, Texas. This growing group eventually dedicated a new worship and education facility on June 4, 1994 at 5515 Broadway Street. The first of two buildings, the original building has continued to serve as the primary worship, office, and education center for the campus. Largely untouched since its completion, the original building faces changing technology, aging infrastructure, and outdated aesthetics which diminish its ability to serve the mission of the church's ministries to young families in the growing community that surrounds it.

Studio RED was engaged by Epiphany Lutheran Church leadership to conduct an assessment of the original 1994 building. Studio RED conducted two site visits, to observe the various conditions and components of the building. The original construction drawings were made available to the team in order to understand the components that were not immediately visible and to analyze building use, areas, and construction. Studio RED met with key individuals from church leadership and advisory councils to discuss initial findings and develop the content for this report.

The intent of this report is to identify the condition of the building, identify known conflicts and concerns relative to currently adopted codes, and make recommendations based on the assumption that certain improvements and expansions may be made in future endeavors. This report does make recommendations on any particular project; the feasibility and design of such project is left to future studies. This report also does not aim to assess specific strategies relative to any future project, but rather provides the baseline information necessary for the church to consider when making strategic decisions for how to improve or expand the building to meet its needs.

Exterior Condition

The exterior of the building was evaluated based on the conditions that were visible at the time of inspection. In general, the condition of the building exterior is good although there are some areas that require attention mostly from a deferred maintenance standpoint.

Roofing

The existing pitched roof is clad with an existing architectural asphalt shingle roof. The roof is not the original roof. According to a WPI-8 Compliance Certificate issued by the Texas Department of Insurance, the building was re-roofed in 2002 meaning the current roofing is approximately 16 years old. There are no known issues and it is expected that the current roof should have approximately 10 years of usable life left.

Envelope

The exterior of the building is mostly brick although there are painted fascias and other wood trim. There are no visible defects with the existing brick. Two expansion joints located on the northeast elevation are not sealed. It is recommended that a backer road and sealant be installed to prevent water intrusion into the cavity.

The existing fascia, soffit, frieze board, and scotia appear to be painted wood. It is not clear if the material is pressure treated to resist rot. Most of the existing material appears to be in good condition, although there are locations where the scotia and frieze are missing sealant where it adjoins the brick. It is recommended that the building be re-painted in the next 1 to 2 years. At that time, any deteriorated

Figure 1: Water damage seen on existing fascia; weep joints missing at lintel.

fascia or soffit boards should be replaced with pressure treated lumber or cementitious fiberboard such as Hardi or other product. All joints between the frieze/scotia and brick should be sealed with caulk.

According to a review of the original construction drawings for the building, the exterior envelope consists of 2x4 wood stud framing with infill of batt insulation. The wall is clad internally with 5/8-inch gypsum board. The wall is clad externally with 5/8-inch gypsum sheathing and building paper. The anticipated R-value of the existing wall is R-13. The current envelop does not meet current Energy Code requirements but is grandfathered. Any proposed expansion or addition would be required to meet the current energy code requirements. Although the current wall assembly is grandfathered, any modification of the assembly would require compliance with the energy code. The extent of modification to meet the energy code would need to be evaluated as part of a project.

Openings

The existing windows are single-pane, double-hung aluminum unit windows and appear to be in good condition. It is recommended that the sealant between the windows and adjacent brick be repaired or replaced as several locations are showing signs of splitting or separating from the adjacent brick, see Figure 2: Caulk splitting and separating from window. Existing windows are not compliant with the currently adopted energy code. Depending on future renovations or expansions, these windows should be replaced with new units meeting code requirements. It is anticipated that new units should be double-paned, insulated units with low-e coated glazing. Additionally, it was observed that all lintels over openings, including windows, did not have full head weep joints at the brick, see Figure 1: Water damage seen on existing fascia; weep joints missing at lintel.. It is recommended that weeps be added to relieve water that may be trapped in the wall cavity. Inappropriate drainage of the cavity can lead to deterioration of the lintel or infiltration into the building.

Figure 2: Caulk splitting and separating from window.

Main entrance door to the Narthex contains stained wood doors which are weathered and require refinishing. The existing kitchen door is rusted; it is recommend that it be patch and painted with an appropriate paint to prevent further corrosion.

Grading and Drainage

The existing building is mostly surrounded by unpaved areas which mostly contain grass but some areas include landscaped beds. The pitched roof sheds water to these areas as well along eaves; the only area of the existing roof that has gutters is located along the front (southwest) façade. The grass areas are mostly flat and there are no visible signs of positive drainage, see Figure 3: Poor drainage near foundation. Despite this, it is understood from church staff that there have not been issues with drainage around the building, especially events of water infiltration. During Hurricane Harvey in 2017, there were no instances of water entering the building despite heavy, prolonged rainfall. Regardless, it is recommended that all eaves of the building have gutters installed that deliver roof drainage through downspouts to underground drains. Eaves that already have gutters are tied to underground drains that

Figure 3: Poor drainage near foundation.

carry water away from the building to pop-up relief drains. All gutters should be tied to underground drains that are connected to storm drains either existing under the parking lot or new storm rains which will flow to the existing detention pond. This will more effectively convey water away from the building. Poor drainage can lead to water seeping under the foundation and ultimately to differential settlement of heaving of the slab.

It was also observed that condensate water draining from the interior air handling units were draining out of the building and directly onto grade. This does not meet current code requirements and further exacerbates drainage issues around the building. See further comments regarding this along with HVAC elsewhere in this report.

Figure 4: mulch and landscape rocks applied directly against weep openings.

In the landscaped beds along the southwest face of the building, it was observed that mulch was piled against the brick building and in front of the existing weeps, see Figure 4. This should be removed and all finish grade including mulch be kept below brick weeks. Blocked weeps can lead to inappropriate drainage of the cavity can cause water to enter into the building as well as provide a conduit for insects into the building.

Interior Condition

The exterior of the building was evaluated based on the conditions that were visible at the time of inspection. In general, the condition of the building interior is dated and ready for upgrades. There are some areas that require attention mostly from a deferred maintenance standpoint. The flooring, wall finishes, ceilings, and lighting are in need for updating and are likely to be addressed as part of any renovation or expansion project.

Several instances of peeling paint were noticed during the inspection; specifically on the rear wall of the worship space, on several walls in the Narthex, and on the ceiling of the kitchen space, see Figure 5. Church staff indicated that this was a known issue that the church has been experiencing for several years and that the problem has persisted throughout the building. There are several likely causes of the issue including humidity issues, improper application, improper material use, and defective material. But a direct cause cannot be readily discerned without further investigation, the likes of which are beyond the scope of this report. At the time of this report, the church was soliciting a third party opinion and potentially testing of the affected areas and substrate to determine the cause. Upon findings from the testing, recommendations for how to remedy the issue can be made.

Figure 5: Peeling paint on Kitchen ceiling

The Kitchen utilizes residential appliances. Church staff indicated that very little, if any, cooking is done in the kitchen. The space is mostly used for staging food brought in by caterers for events, for warming staff lunches, and for making coffee on Sunday mornings. The space does not have a 3-compartment sink which would be required if the space were used for preparing meals. It is also understood that the plumbing is not connected to a grease trap;

another element that would be required if the space were used cooking meals. A residential style exhaust fan is located over the range; current codes would require this to be changed for a commercial grade grease hood with appropriate infrastructure. It should be noted that the range did not have any active cooking elements. The elements were removed in order to comply with the MDO program regulations. If the intent for the kitchen is to continue to be used in the manner it is used today, it would be recommended to fully remove the appliances and convert the space to a breakroom or staging area rather than a kitchen, see Figure 6.

Figure 6: range with heating elements removed.

According to church staff, there are known concerns about the acoustic of the main worship space. Room acoustics are affected by many variable, especially the finishes and ability of the surfaces in the room to absorb and reflect sound energy. The sound system can also be contributor to the tuning of the space. Because future renovations may involve expanding the space or modifying the audio feature sof the room, it is recommended that a full acoustic modeling be conducted as part of a project. Recommendations from an acoustical engineer can be made as to the types and locations of acoustical materials to be added to the space in order to address these concerns.

Building Code and Life Safety

Building codes are intended to protect the health, safety, and welfare of occupants. Over time, as more information is known about the risk of fire and other emergencies, building codes have become more stringent. The original structure was designed in 1993 and construction completed in 1994. The building codes at the time the structure were built have changed, as most municipalities update their building codes regularly. The City of Pearland has adopted the following codes as their current regulations:

Version	Code	Local Amendments
2015	International Building Code (IBC)	Yes
2015	International Existing Building Code (IEBC)	Yes
2015	International Plumbing Code (IPC)	Yes
2015	International Mechanical Code (IMC)	Yes
2015	International Fire Code (IFC)	Yes
2015	International Energy Conservation Code (IECC)	State Adopted
2014	National Electric Code (NEC)	Yes
2012	Texas Accessibility Standards (TAS)	State Adopted

Although the building was constructed to earlier or differing versions of these codes, any new addition or significant alternation of the existing building will be required to comply with the most current adopted codes by the City of Pearland.

Certificate of Occupancy

Most municipalities issue a Certificate of Occupancy for buildings when constructed. A certificate of occupancy is a document issued by a local government agency or building department certifying a building's compliance with applicable building codes and other laws, and indicating it to be in a

condition suitable for occupancy. A Certificate of Occupancy could not be located for the existing building. It's likely that the City of Pearland did not make regular habit of issuing certificates for buildings at the time that the building was constructed. A request was made to the City of Pearland asking for any records of a certificate having been issued, but at the time of this report, no response had been returned.

Locating the certificate, if in fact it has been issued, could have impact on future renovation of expansion projects for the facility. It is possible that without the certificate, it would be difficult to prove the original occupancy type and construction type as it relates to previous building standards. Without the certificate, it's possible that any future improvements may require the building to come into fully compliance of the currently adopted codes, regardless of the level of improvements being made. See further definitions about improvements later in this report.

Occupancy Classification

The currently adopted codes regulate the type of occupancy and use buildings. The designation of an occupancy type, along with the type of construction, is used to determine the maximum allowable building area and height.

Using the currently adopted codes, the existing facility is classified as an Assembly occupancy; more specifically an A-3 Assembly occupancy being as it is a facility used for worship purposes. There are other occupancy uses within the building including educational and offices. According to the 2015 IBC, these uses constitute different occupancy types but are allowed within the A-3 occupancy without separations so long as the overall building conforms to the more stringent occupancy type. In this case, the assembly occupancy governs. Reference Exhibit C for the locations of various occupancies in this building and other code related information.

The educational uses do carry some intricate responsibilities. Churches and other religious facilities are allowed to consider children's classrooms as part of their A-3 Assembly occupancy classification and not an Educational occupancy so long as the spaces are used as children's classroom spaces during periods of religious functions (i.e. simultaneous use during church service times). When they are during the week as part of a Mother's Day Out program or other childcare purposes, their occupancy is considered an Educational occupancy. Further, when this scenario involves children less than 2-1/2 years of age, their use more heavily scrutinized. Spaces that care for children less than 2-1/2 years of age are generally considered an I-4 Institutional occupancy type which regulates Daycare facilities. But if the aggregate area of these classrooms care for more than 5 but less than 100 children less than 2-1/2 years of age, they may be considered an Educational Occupancy.

In the case of the subject building, given that the children's classrooms are used during the week for Mother's Day Out, and given the number of children and age groups involved, these classrooms would be considered an Educational occupancy. One caveat is that any classroom used for children under the age of 2-1/2 years is required to have an exit door leading directly from the classroom to the exterior.

Construction Type

As with occupancy, the currently adopted codes regulate the type of construction buildings. The occupancy type and construction type are used to determine the maximum allowable building area and height.

The building is made of conventional wood framing, including wood stud walls and wood trusses. This is considered a combustible building type. Further, the wood construction is not protected from fire exposure. Using the currently adopted codes, this building is considered a Type V-B construction type. This combustible construction type is allowed for commercial buildings. Although it is the most permissible for use, it is the most limited in terms of allowable area and height.

Fire Protection

The existing building does not have a fire sprinkler system. Although this was allowed by the building code at the time of its construction, the currently adopted codes have more stringent requirements. An Assembly occupancy is required to have a fire sprinkler system where the building's occupant load exceeds 300 people. The current building occupant load is 466 people using the occupant load factors in

Table 1004.1.2 in the IBC. Although the building is currently grandfathered, a substantial improvement to the building will trigger this requirement and the building will be required to be fully sprinklered unless the nature of the improvement meets certain allowances defined in the IEBC. See further information contained later in this report.

Allowable Area and Height

The IBC provides minimum areas and heights for buildings based on occupancy and construction types. Using the A-3 occupancy and Type V-B construction type, Table 504.3 of the IBC indicates that the maximum allowable area for this type of building is 6,000 gsf and maximum height is 1 story and 40 feet. Section 506.3 of the IBC allows this value to be increased for open frontage of the building which allows fire truck access. The existing building meets these requirements chapter which affords an increase of 75% of the allowable area, equating to a maximum allowable area of 10,500 gsf. This is less than the existing building area of 11,562 gsf. The building is allowed to be grandfathered because it was built according to a previous code. But it would not be allowed to be expanded unless additions were separated by a fire wall or the building were improved with a fire sprinkler system.

Considering the occupant load of the building would require the building to have a fire sprinkler system, and assuming that a substantial alteration would require the building to be fully sprinklered, one can anticipate that an additional increase may be applied. Table 504.3 of the IBC allows fully sprinklered, single-story buildings of A-3 occupancy and Type V-B construction to have am allowable area of 24,000 gsf. Applying the same 75% increase for frontage noted above, the maximum allowable area for this building would be 42,000 gsf.

Fire Detection

Fire detection systems, otherwise known as a fire alarm, are required in most new buildings. The building currently has a fire alarm. Any improvements to the building will be required to maintain full operation of the existing fire alarm system. A significant improvement may require upgrades to the fire alarm including placing visual and audible warming systems in many rooms, and placing smoke detectors in rooms and corridors. A fire alarm system with voice communication is required in assembly buildings where the total occupant load exceeds 1,000 people. Although the building does not meet that requirement currently, future improvements or expansions could trigger this requirement.

Additions and Alterations

Any improvements to the building are regulated first by the IEBC which governs existing buildings. Depending on the type and extent of improvement will trigger varying intensity of applicability. The lesser degree of improvement, such as finish upgrades or maintenance, will likely result in less applicability of current code requirements such as upgrading life safety features. The following table provides a description of the varying degrees of improvements and applicability of code requirements according to the IEBC:

Improvement Type	Description	Likely Code Impacts
Repairs	The patching, restoration, or replacement of damaged materials, equipment, or fixtures for the purpose of maintaining such components in good or sound condition with respect to existing loads or performance requirements	The actual element being repair should comply with current code requirements, but should not trigger requirements for any other element in the building.
Finishes or Equipment Upgrades	Defined by the IEBC as “Alterations – Level 1” Removal, replacement, or covering of existing materials, elements, equipment, or fixtures using new materials, equipment, or fixtures that serves the same purpose.	The actual element being altered should comply with current code requirements, but should not trigger requirements for any other element in the building. Fire protection and egress should be consistent with the existing level of protection provided. Accessibility Code

		Compliance for altered areas, accessible route and elements serving primary functions.
Minor Alterations	Defined by the IEBC as "Alterations – Level 2" Reconfiguration of space, the addition or elimination of any door or window, the reconfiguration or extension of any system, or the installation of additional equipment; such alterations comprise *less than* 50% of the building area.	In addition to requirements that the actual elements being altered comply with current code, the following must also comply *within the work area*: • Fire protection including rated wall assemblies • Automatic Fire Sprinklers • Fire Alarm • Egress requirements including stairs and corridors • Structural • Electrical, Mechanical, and Plumbing Code Compliance • Energy Code Compliance • Accessibility Code Compliance for altered areas, accessible route and elements serving primary functions
Significant Alterations	Defined by the IEBC as "Alterations – Level 3" Reconfiguration of space, the addition or elimination of any door or window, the reconfiguration or extension of any system, or the installation of additional equipment; such alterations comprise *more than* 50% of the building area.	Full compliance of the entire building with current code requirements.
Change of Occupancy	Changes to the building in any way that constitute the change in the use of the building specifically resulting in the change of occupancy type as defined by the Code.	Full compliance of the area constituting a change of occupancy with current code requirements
Additions	An extension or increase in the floor area, number of stories, or height of a building or structure.	Full compliance of the addition with current code requirements

Exiting

The building code also regulates exiting and egress. Exits are required from buildings as well as specific spaces within a building. The total occupant load of the building requires at least 2 exits. The existing building has 5 legal exits. The size and configuration of exits meet the requirements of the currently adopted codes. However the second exit located on the south side of the worship space is near capacity based on the occupant load it serves. Expansion of the seating capacity of the worship room may require the exit to be enlarged or an additional exit be provided. It is important to note that all exits should remain clear of obstructions and be clearly marked with signage.

Corridors

Another component of the egress of the building are corridors. Corridors serve as an exit pathway for internal spaces and are intended to deliver occupants safely to a building exit. The existing building has

two primary corridors which serve the educational and office area of the building. For a non-sprinklered building, these corridors are to be protected by walls and doors meeting 1-hour of fire resistance. The current construction does not meet this requirement. The existing spaces are grandfathered, but improvements to the building may require these corridors to come into compliance which could mean reconstructing walls and doors. However, a fully sprinklered building does not require fire protected corridors for a building of this occupancy and construction type. Reference Exhibit C for the locations of corridor walls.

Known Deficiencies

A copy of the latest City of Pearland Fire Marshal's inspection was provided; a copy of which is included in the Appendix of this report. No known deficiencies were noted.

A copy of the report from the latest inspection performed by the Texas Department of Family and Protective Services was provided; a copy of which is included in the Appendix of this report. No known deficiencies were noted.

Accessibility

Since the building was constructed in 1994, the Texas Accessibility Standards (TAS) has been adopted to regulate the elimination of architectural barriers for those with disabilities. A derivative of the Americans with Disabilities Act (ADA), the TAS is a more stringent form of the ADA Accessibility Guidelines (ADAAG) that was adopted by the State of Texas to provide a guideline for applying the ADA to structures and development constructed in the State of Texas. The TAS applies to all projects in all jurisdictions despite any locally adopted codes. The first form of the TAS was adopted in 1994 and has since been superseded by an updated version adopted in 2012. The 2012 TAS has similar requirements to the 1994 version but is more stringent.

Although the construction of the existing building has made some accommodations for disabled persons in the form of reserved parking spaces, larger toilet stalls in restrooms with grab bars, and open aprons under sinks, the building does not comply with the 2012 TAS and improvements to the building will trigger compliance.

Compliance Triggers

Depending on the scope and extent of renovations, improvements, or additions to the existing building, certain levels of compliance with the 2012 TAS will be required. The extent of compliance relies heavily on whether the scope of the project affects a Primary Function. Generally, alterations to a Primary Function such as a classroom, worship room, office, etc, will require that the affected space be made to comply. Additionally, an accessible route serving the primary function as well as other spaces which serve the primary function such as restrooms or parking facilities, will be required to comply. In broad terms, it is likely that the majority of the building will require compliance.

Accessibility Deficiencies

At a minimum, the following items are anticipated to be made into compliance.

Restrooms

All restrooms, including single-user restrooms at children's classrooms, will be required to come into full compliance. Toilet Stalls will need modified to allow the Accessible Stall to meet the minimum width and depth dimensions. Toilet fixtures may need to be relocated and replaced to meet the distance from the side wall and meet height requirement of the seating surface. Grab bars will need to be relocated and possibly replaced in order to meet dimensional requirements. Lavatories and counters will need to be removed and replaced to meet maximum height to rim of sink, minimum knee clearance, maximum reach to faucets, and provide either pipe insulation or aprons to protect plumbing. Doors serving the restrooms will need to be relocated and replaced in order to meet minimum clear floor areas and side clearances. Toilet Accessories such as toilet tissue dispensers, paper towel dispensers, baby changing tables, and soap dispensers will need to be relocated and/or replaced in order to meet appropriate height and reach

requirements. The existing drinking fountain will also need to be replaced with a dual-height unit that provides the appropriate knee clearance as well as service height of the water spout. The alcove will need to be widened to provide for the dual-height unit, see Figure 7.

Kitchen

The existing kitchen is understood to be a public space used by church goers and is not staffed by employees. As such, the kitchen will be required to come into full compliance. Sinks and associated counters will need to be removed and replaced to meet maximum height to rim of sink, minimum knee clearance, maximum reach to faucets, and provide either pipe insulation or aprons to protect plumbing. Other counters are allowed to have cabinetry under the counter but the height will need to be lowered to meet maximum reach requirements. Appropriate floor clearance will need to be provided at all appliances. Storage, including storage within upper and lower cabinets, will need to be evaluated. A minimum of 50% of all storage in a Kitchen must be within an accessible reach range; this will require that more storage be provided in lower cabinets and that upper cabinets be limited if not eliminated.

Figure 7: drinking fountain is not accessible.

Doors

All door hardware, as well as any other type of controls, will need to comply with requirements. This will include changing any knob type door hardware to level type. Placement and configuration of doors will need to be modified in several locations to meet minimum clear floor areas and side clearances depending on approach. Doors, especially at entrances, will need to have appropriate thresholds not exceeding 1/4-inch of vertical height change. Further explanation is provided under Accessible Routes.

Accessible Route

All areas of the building should be provided with an accessible route meeting requirements that links the space to areas which serve the primary function, egress points, building entrances, the parking lot, and point of arrival. The route should have a minimum width of 36-inches (can be restricted to 32-inches at doorways), have a travel surface meeting certain slope requirements and not having a change in vertical height more than 1/4-inch, among other requirements. The majority of the existing building appears to meet this requirement, however further investigation is required as part of a project. Specifically, the door at the West Entry has an inappropriate threshold that does not meet compliance, see Figure 8. The paving outside the door will need to be removed and replaced such that the change in height at the threshold will meet this requirement.

Figure 8: un-accessible threshold at west entry door.

As part of this requirement, any elevated surface would need to be provided with an accessible route. This would require a ramp, wheelchair lift, or elevator. The existing chancel is such an space. However, given that the chancel is part of the worship space, it can be designated a place of religious purpose which would prevent the requirement for an accessible route. The church would need to declare such a designation which can be documented on the construction documents for any

improvements. However, the church should consider this carefully as part of their own priorities. The church may desire a ramp to the chancel for operational purposes or if they desire a disabled person to be able to reach the stage. Reference Exhibit C for the potential designation for Areas of Religious Practice.

Signage
All building, room identification, and directional signage will need to comply with height and location requirements. Building signage will also be required to contain braille for the visually impaired.

Site Considerations

The City of Pearland adopted the Unified Development Code (UDC) on February 27, 2006. The UDC replaces previous zoning ordinances intended to regulate land use and development within the city. Although the code has been amended since its adoption, it continues to be the primary vehicle to regulate development within the City of Pearland. The intent of UD and similar zoning codes or land use regulations is to create minimum standards for commercial and residential development which maintain consistency within the community and promote growth that is beneficial to the community overall without hindering adjacent property owners.

Current Zoning

The church property is currently zoned as "GC" or General Commercial. This designation allows not only for use as a church, but most commercial enterprises and is a common zoning designation within the City according to the land use matrix in UDC Section 2.5.2.1. The property can be used as a church without a Conditional or Special Use Permit according to UDC Section 2.5.1.1. Thus improvements or expansion of facilities on the site should not trigger specialized approvals or variances from the Planning Commission.

Required Improvements

Although the use of the property meets the zoning code requirements, the aspects of the current development on the site do no meet current UDC requirements. Specifically, the property's signage, sidewalks, parking, landscaping, and screening/fencing to adjacent properties may not be compliant with current UDC requirements. The site is currently grandfathered as it was constructed prior to these provisions being adopted, but certain improvements will trigger requirements of the UDC.

Compliance Triggers
The UDC makes provisions for grandfathered properties; however UDC Section 4.1.3.2 identifies the threshold of improvements which will trigger compliance with current requirements. Specifically, the following types of improvements will require compliance of the developed property with UDC requirements:

1. Any expansion of existing facilities which increase the overall area of the building by 500 gsf.
2. Any improvements to the building, including expansions or renovations, having a value of greater than 50% of the appraised value of the current facility.
3. Any development which adds additional parking greater than 20% of the original parking count.

Site Development Requirements

The UDC covers requirements for all types of zoning and uses. Specific to the "GC" zone and church use, the following requirements pertain to the existing church building and site.

Off-Street Parking
All commercial facilities are required to provide a minimum number of parking spaces on their property to provide patrons with safe places to park. According to UDC Section 2.5.2.1, church facilities are required to provide 1 space for every 4 fixed seats in the main worship area or 1 space for every 100 gross sf of floor area in the main worship area if no fixed seating. The exiting worship does not have fixed seating. The existing floor area including the chancel is 4,056 gsf which would require a minimum of 41 parking

spaces. The existing parking lot contains 191 spaces which is more than sufficient to meet this requirement, however other UDC provisions may reduce the number of spaces; see further commentary in this report.

A more appropriate metric of parking for church facilities are ratios commiserate with actual use. Typically churches see parking ratios equivalent to 2.1 to 2.5 patrons per car. Such a ratio usually exceeds the minimum parking required by local municipalities and should be evaluated as part of an improvement project.

Landscaping

Section 4.2.2 of the UDC requires minimum landscaping be provided along street frontages and within parking areas. Specifically, the following requirements apply to the current property:

1. Minimum lot coverage: a minimum of 10% of total lot area must be landscaped.
    a. Landscape area defined to include pervious areas of planting area containing trees, shrubs, and grass; undeveloped areas are not considered in percentage
    b. Current property already complies.
2. Street Trees
    a. Minimum 2" caliber tree shall be placed at an interval of 15 feet along street Broadway and Hatfield Road street frontages.
    b. Current property ***does not*** comply.
3. Parking Lot Screening
    a. Shrubs and plantings are to be located along the edge of parking areas where affronting the public street for the full length of the parking area
    b. Shrubs and plantings are to be located along side streets for a minimum of 35% of the length of the parking area
    c. More specific requirements can be found in the UDC and should be studied as part of a specific project.
4. Parking Lot Trees and Landscape Islands
    a. Minimum 2" caliper tree should be located in a landscape island within the parking area
    b. Landscape island should be a minimum of 9 feet wide and equal to the area of 1 parking stall
    c. Medians should be located such that all parking spaces are located within 100 feet of a landscape island
    d. Current property ***does not*** comply. Compliance can be met by converting parking space to landscape islands so long as the reduction in parking does not jeopardize the minimum number of spaces required to meet UDC requirements, see above.
5. Tree Mitigation
    a. Tree mitigation must be provided for any existing tree removed as part of development on the site.
    b. Depending on extent and location of future development, tree mitigation measures may be required if existing trees are removed from the site.
    c. More specific requirements can be found in the UDC and should be studied as part of a specific project.

Note that the Broadway street frontage complies with the UDC requirements for parking lot screening but the Hatfield frontage does not. The site meets the minimum landscape coverage; note that any future construction or expansion on the site will change the coverage percentage. However, neither frontage meets the street tree requirements. No portion of the existing parking lot meets the parking lot tree and landscape island requirements. Reference Exhibit F for how these requirements impact the existing site.

Screening

The UDC requires that certain zoning uses screen their property from adjacent properties, especially when the adjacent property is a residential use. The existing property abuts a single-family residential development to the north and to the east; these residential areas are zoned as R-2 Residential. Currently these property boundaries are separated with typical fencing. The UDC requires a Screening ***Wall***

separate non-residential and residential properties. Unlike a fence, a Screening Wall is an opaque screen of at least 6-feet in height but no more than 8-feet in height.

In addition to a Screening Wall, where commercial developments abut residential uses, a minimum 25-foot wide landscape buffer shall be provided. The buffer should include shade trees and grass or other landscaping. In lieu of an opaque wall, a wider 30-foot buffer with dense vegetative screen may be used.

An excerpt of the Recorded Plat of the property was provided and is included in the Appendix of this report. It understood that the most adjacent properties are used as drainage easements. The current zoning map identifies has zoned these parcels as R-2 Residential use. It is recommended that the church solicit a clarification from the City of Pearland Zoning Commission if the screening wall and landscaping are required at these boundaries despite the zoning since the adjacent parcels are not used for single-family residences. A variance request may be required to solicit this determination, but could eliminate or relax the extent of these requirements. Reference Exhibit G for how these requirements impact the existing site.

Signage

Section 4.2.4 of the UDC regulates size, type, location, and quantity of signs as well as the material, configuration, and use of use of lighting and electronics. Relative to the church property, there are two primary sign types: Attached and Ground signs. Attached signs are generally signs that are affixed to the face of buildings or structures. Ground signs are generally free-standing signs that are located within the site. The following provides specific regulations relative to each sign type:

Attached Signs:		
Element	Requirement	Applicability
Extension	4’ above highest point of the roofline	4’ above highest point of the roofline
Area	20% of façade area facing a street	South Façade (Broadway) area = 1,339 sf; 20% = 267.8 sf
	10% of aggregate area of facades facing other than a street	Aggregate other façade area = 5,346 sf; 10% = 534.6 sf

Ground Signs:		
Element	Requirement	Applicability
Number	1 per street frontage of at least 100’	1 sign on Hatfield, 1 sign on Broadway (existing)
Height	Maximum of 8’, excluding base.	Existing sign complies
	Maximum height of base, 2’	Existing sign complies
Area	For GC districts: 100 sf	Existing sign appears to comply, exact measurements req’d
Location	No closer than 5’ from property line	Existing sign appears to comply, exact measurements req’d
Electronic Display	A Monument sign may include either an electronic changeable message board (ECMB) or a scrolling sign, but not both.	Exist. Sign does not contain electronic display
	Electronic display (i.e., changeable message) portion of an electronic changeable message board sign shall not exceed twenty-five (25) percent of the total allowable effective sign area	Exist. Sign does not contain electronic display
	scrolling signs the height of the scrolling display area shall not exceed 12” inches	Exist. Sign does not contain electronic display

	Scrolling signs are limited to two colors	Exist. Sign does not contain electronic display
Marquee	Signs located on the premises of a religious, educational, or other noncommercial institution, which function solely to disseminate information about events, programs, or announcements related to the institution's purpose or function shall be allowed; separate from electronic display, see above	Exist. Sign does not contain a marquee
	The sign may not exceed 6-feet in height or 32 sf in area per sign face	Exist. Sign does not contain a marquee
	Only one such sign is allowed per property	Only 1 sign, either Broadway or Hatfield frontage

Sidewalks

Section 3.2.11.1 of the UDC requires sidewalks along street frontages for for commercial developments. A minimum 6-foot sidewalk is required along major thoroughfares and collector streets. According to the City of Pearland adopted Thoroughfare Plan, Broadway is considered a Major Thoroughfare and Hatfield Road is considered a Minor Collector; both streets require a 6-foot side sidewalk. On the current property, neither street frontage has a sidewalk. Sidewalks would be required to be added with any significant improvement to the property.

Structural Condition

The building structural consists of conventional wood framing, including 2x4 wood stud walls and 2x stud trusses. This structural system bears onto a concrete slab-on-grade which transfer loads into the ground by means of thickened grade beams and drilled footings. This is a typical construction system for residential and light-commercial structures. The steeple, according to the original construction drawings, is a prefabricated aluminum structure built off-site and set on top of the building after the conventional framing was complete.

At the time of its construction, this was a typical building method for churches because of its economy and readily available materials and labor. There are no visible signs of structural deficiency and according to church staff; there are no known issues with the building structure.

Windstorm Requirements

The building, both at the time of its construction and by currently adopted codes, is required to meet Windstorm ratings which include hurricane clips which tie the building to the foundation and resist intense lateral loads from wind. Despite this requirement, the original structure was not inspected by the Texas Department of Insurance (TDI) and does not carry a WPI-8 Certificate of Compliance. Church staff indicated that they have had to make arrangements with their insurance carrier to accommodate the lack of a WPI-8 certificate. Any future modification or addition to the building will be required to meet TDI and code requirements for wind loading.

Load Bearing Walls

Based on observations and review of the original construction documents, the exterior 2x4 stud walls of the building are load bearing and carry the weight of the wood trusses which make up the majority of the structural spans for the roof and ceilings of the building interior. IT does not appear that the interior corridor walls are load bearing, but should be evaluated prior to removing any interior partition. The interior walls of the Narthex, running in the east-west direction, are load bearing for the high roof above the narthex. Reference Exhibit D for the location of load bearing walls.

Foundation

There were no visible signs of settlement or other foundations issues observed with the building. According to church staff, there was previously an issue discovered that was remediated. A void was found under the grade beam and foundation along the northwest wall of the worship space, approximately at the midpoint of the exterior wall. It is believed that the void was an old, undiscovered cistern that had not been removed or filled. The church sought a professional services to evaluate issues and the void space was filled with sand. There are no visible signs of the cistern currently and no visible consequences to the foundation. It is recommended that the church monitor this regularly and consult specialists should conditions change.

Modifications

Despite the economy of the conventional wood framing system, this type of construction can be challenging for expansion or additions. The exterior load bearing walls make it difficult to remove for large openings, especially if attempting to expand a space such as the worship room. Load bearing walls are supporting wood trusses and would need to be replaced with beams and columns. Modification of wood trusses is more complicated and may require replacement of trusses with different members which can drastically increase the scope of the renovation work. Any expansion of the existing structure will require extensive structural review as part of a project.

HVAC Condition

The existing HVAC system utilized split Direct Exchange (DX) systems. There are four zones which cover all conditioned areas of the building. The Air Handing Units (AHU's) are located within the attic space above the east and west wing of the building. These attic areas are accessed via residential style attic ladders installed in the ceilings of the corridors. Each AHU contains a gas heating element. The outside Condensing Units (ACCU's) are mounted on concrete pads outside of the building and on the north side of both east and west wings. Some of the equipment is the original equipment, although there have been various repairs of internal components over the life of the building. Reference Exhibit E which shows the service zones of the various HVAC equipment.

ACCU's 1 and 2 are the original equipment for the building and are likely to have met their usable life. Further, their refrigerant system is no longer supported and replacement refrigerant may not be available after the year 2020. It is also planned that the only refrigerant available after 2018 will be recycled refrigerant, meaning no new volumes of this refrigerant is being produced. This will mean service for these units will quickly become challenging and costly. ACCU's 3 and 4 have previously been replaced with newer units using newer refrigerant which is still widely in service.

Figure 9: a board is used to walk across top of AHU in attic.

Another challenge with the existing AHU's is where they are located and configured, see Figure 9. Being placed in the attic, access is difficult and not ideal. Further, the limited access to and around the units does not meet code which stipulates that a minimum access width be maintained around equipment. With future renovation and expansion projects, access issues will likely be required to be addressed. Given their location and limited availability to improve access, it is recommended that the church consider replacing all AHU's and ACCU's with single package units which can be located on the outside of the building. This will require reconfiguration of ductwork, but will resolve the access and longevity issues addressed in this report.

Another observation made is that much of the existing ductwork is constructed from ductboard which is an insulation product commonly used in residential construction but not allowed in commercial construction. Any modification to the ductwork system in an expansion or renovation project will likely require the removal and replacement the ductboard components.

Plumbing Condition

The plumbing systems were evaluated based on the conditions that were visible at the time of inspection. No issues were noted and church staff indicated that there were no known issues. Hot water is provided by means of a 40-gallon gas water heater located in the attic space. The unit had recently been replaced and the previous unit is still located in the attic. The location of the unit was very difficult to access and thus the particular information about the unit was not noted. It should be noted that like the HVAC equipment, the limited access is something that will likely need to be addressed as part of future projects.

Also noted above, the kitchen space is not tied to a grease trap which is typical for facilities where commercial cooking is done. That being said, the kitchen is not currently being used for cooking meals and if this trend continues, repurposing the space may alleviate the need to have a grease trap installed with future projects.

It was observed that the main water shutoff valve and point where water enters the building to the east of the worship space is exposed on the exterior of building. It is recommended that the exposed piping and valve be properly weather protected with insulation and heat tracing to prevent icing in cold weather. Enclosing the valve and in a tamper proof enclosure will also prevent vandalism and theft.

Electrical Condition

The plumbing systems were evaluated based on the conditions that were visible at the time of inspection. No significant issues were noted and church staff indicated that there were no known issues. The building is served overhead with a 600-amp, 3-phase service. This service is metered separately form the adjacent Family Life Center building. The overhead service enters the building on the northwest side from overhead power lines that run along the north property boundary.

All of the building's electrical service panels, including Main Distribution Panel (MDP), transformer, and service panels are located on the outside of the building on the northwest wall of the sanctuary space, see Figure 10. This is not ideal for several reasons. The most immediate concerns is due to the potential for tampering, vandalism, and theft. A secondary concern is due to the acceleration of deterioration due to being exposed to the elements. Lastly, their location prevents the expansion of the worship center as the panels are situated along the side wall of the worship room. The current location of the panels on the outside of the building is allowable per code and may be costly to relocate, but if future projects allow for the panels to be relocated, it would be recommended that they be relocated to the interior of the building in a secured environment.

Figure 10: MDP, transformer, and service panels.

It was observed that the convenience receptacles in the restrooms did not appear to have Ground Fault Current Interrupters (GFCI). This is

required by current code and in any renovation of that area, the receptacles should be replaced with GFCI outlets that meet current code.

The building is not equipped with lighting controls outside of dimmers in the main worship space. The current energy code requires that certain spaces be equipped with occupancy and vacancy sensors to minimize energy use when spaces are unoccupied. Spaces with natural light are required to have daylight harvesting sensors and be tied to lighting controls that sense daylight and automatically dim fixtures. These features will be required to be implemented in a significant renovation project.

Low-Voltage Systems

An extensive review of the low-voltage systems including Audio, Video, Theatrical Lighting (AVL), and Data systems was not conducted. It was noted by church staff that the AVL systems in the main worship space would be significantly changed in future renovation projects. It is recommended that regarding these systems, the involvement of an experienced AVL designer or integrator be employed to fully review the existing components and design new components that are compatible to the style of worship and configuration of the space.

It was observed that the current AVL racks and dimmers were located within the worship room. It is recommended that these be placed in a separate, secured space with appropriate ventilation that is adjacent the AV booth. This will minimize noise in the space. All AV and Lighting should be on separate circuits from other building loads and these circuits should have isolated ground wiring to minimize interference with operation an sound quality.

It was observed that the current server racks were located in a small closet off the main hallway. These systems did not have a dedicated HVAC system. In this configuration, it is likely that this equipment can get overheated. It is recommended that this equipment be placed in a secured space with either independent air system or adequate ventilation.

Safety and Security

It should not be a surprise that in our current social climate that safety and security of patrons, especially children, should be evaluated for all church facilities. The current building does not have a security system and such a system is not required. However, the church should evaluate their needs and implement such a system should they determine it is necessary. Integrating an intrusion detection system during a project along with other low-voltage systems is easily done during a renovation or expansion project.

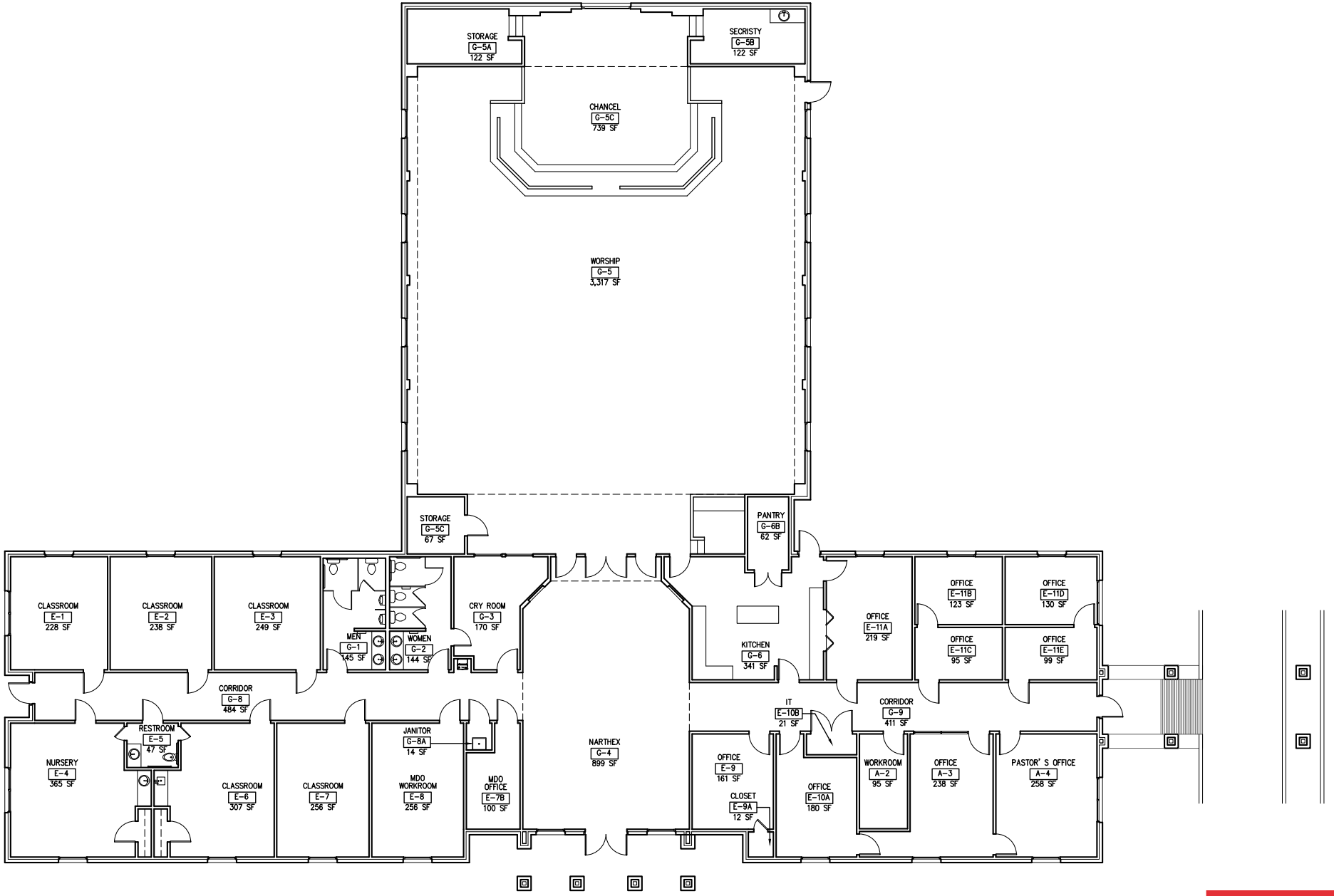
The security for the Mother's Day Out program should also be evaluated by the church. Currently the program uses classroom spaces in the building that are not separated from other activities such as the worship room and offices. These spaces are used for other functions during the week at the same time that children are in the MDO program. This can create a potential conflict in security. Most MDO programs evaluate and maintain a secured perimeter to ensure that children stay within the MDO areas and that access from outside the area is monitored and controlled. Such a perimeter could be implemented by adding doors to the corridor between the MDO area and the Narthex. Such a door could be controlled by staff and coupled with a protocol for signing in visitors.

It is recommended that the church explore their security needs with the MDO program and determine the best strategy for security that can be implemented in future projects.

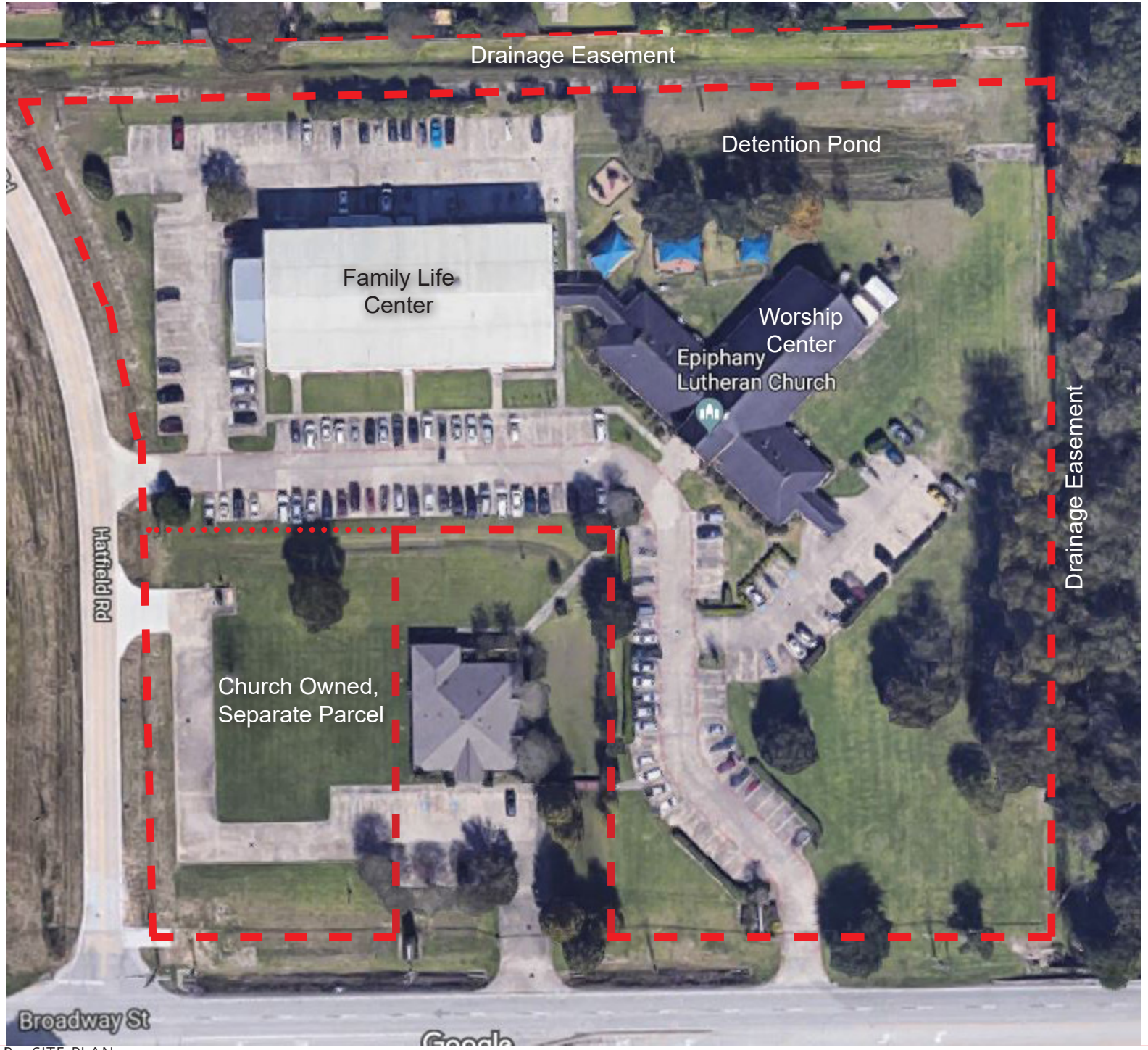
Conclusions

In general, the building is in good condition. But demands of a changing ministry, evolving technologies, aging infrastructure, and dated interiors dictate that changes be made. Some things about the building will need to change that may not be anticipated on the surface. The level and extent of changes will determine the extent by which the building will need to be brought into current code compliance. At a minimum, features such as a fire sprinkler system and HVAC equipment will need to either be added to the building or significantly improved in order for the building to be compliant. And the extent of the project scope will trigger code requirements for site elements such as increased landscaping in and along parking areas and along street frontages.

There is no information in this report that would suggest the building has exceeded its usable life. To the contrary, if implemented well, changes can be made to the building that will allow it to continue to serve a vital role in the mission and ministries of Epiphany Lutheran Church. With careful and intentional strategy, the contents of this report can be used along with visionary creativity to propel the use of the original building well into the next several decades.



STUDIO RED ARCHITECTS



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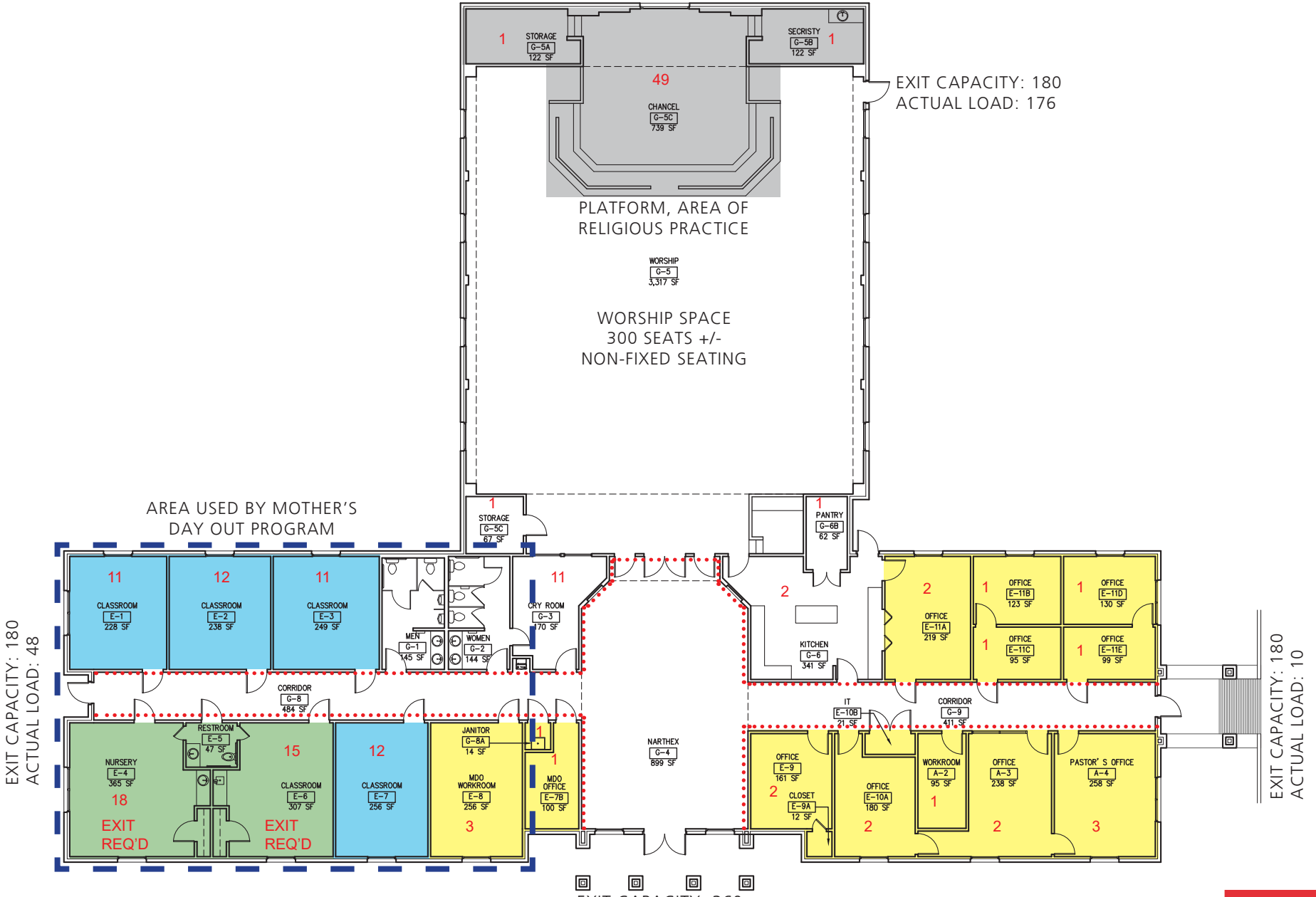

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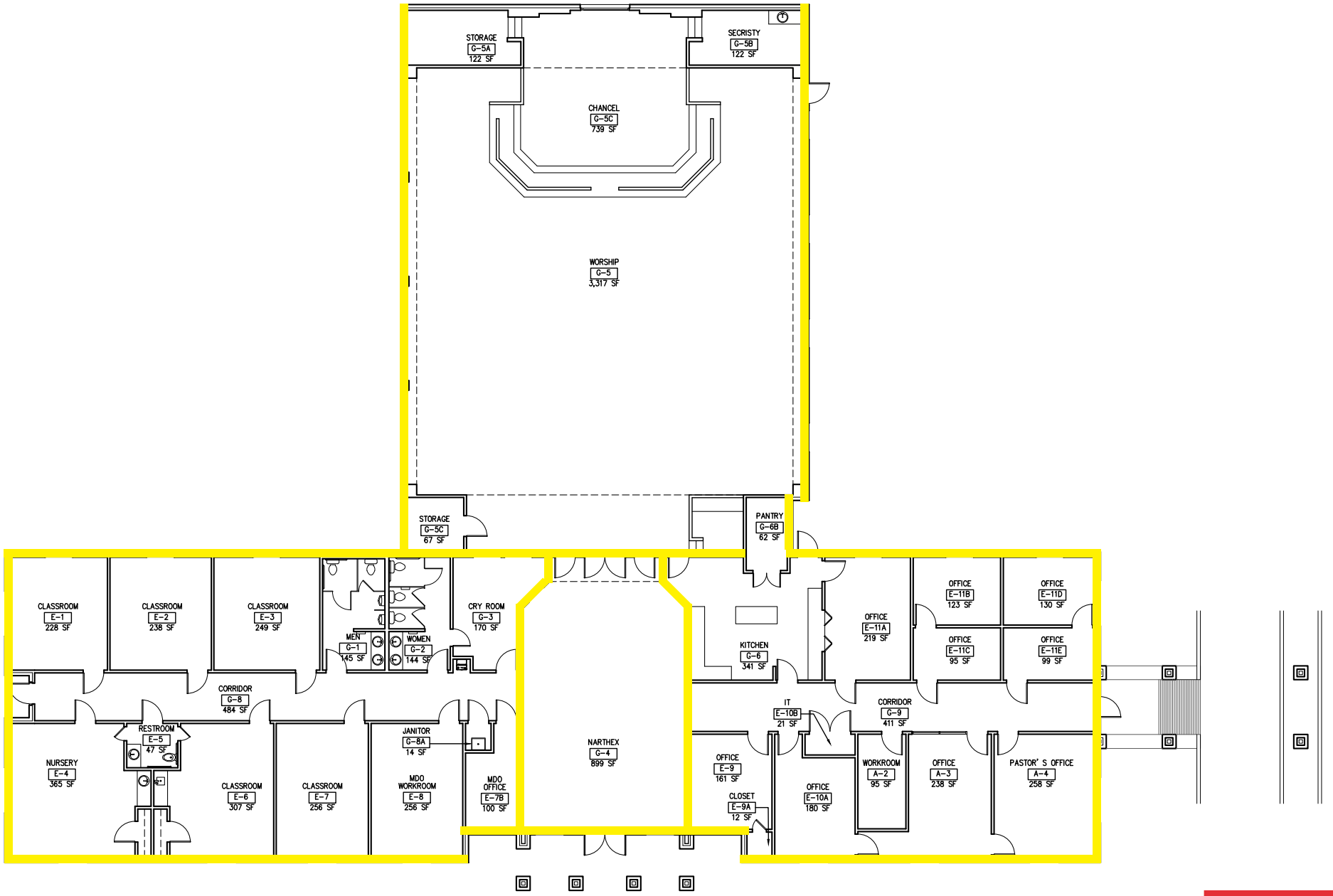


LOAD BEARING STUD WALL

STUDIO RED ARCHITECTS

EXHIBIT D - STRUCTURAL DIAGRAM

EPIPHANY LUTHERAN OCTOBER 8, 2018

STUDIO RED ARCHITECTS

ACCU-1 – Services AHU-1
Manufacturer: Trane
Model # TTA180B400BA
Serial # J04198400
Manufacture Date: January 1994 (original equipment)
Refrigerant: R22

ACCU-2 – Services AHU-2
Manufacturer: Trane
Model # TTA180B400BA
Serial # J04198347
Manufacture Date: January 1994 (original equipment)
Refrigerant: R22

ACCU-3 – Services AHU-3
Manufacturer: Trane
Model # TTA150E400AA
Serial # 10175T6CAD
Manufacture Date: April 2010
Refrigerant: R410A

ACCU-4 – Services AHU-4
Manufacturer: Trane
Model # TTA150E400AA
Serial # 10034WYPAD
Manufacture Date: April 2010
Refrigerant: R410A

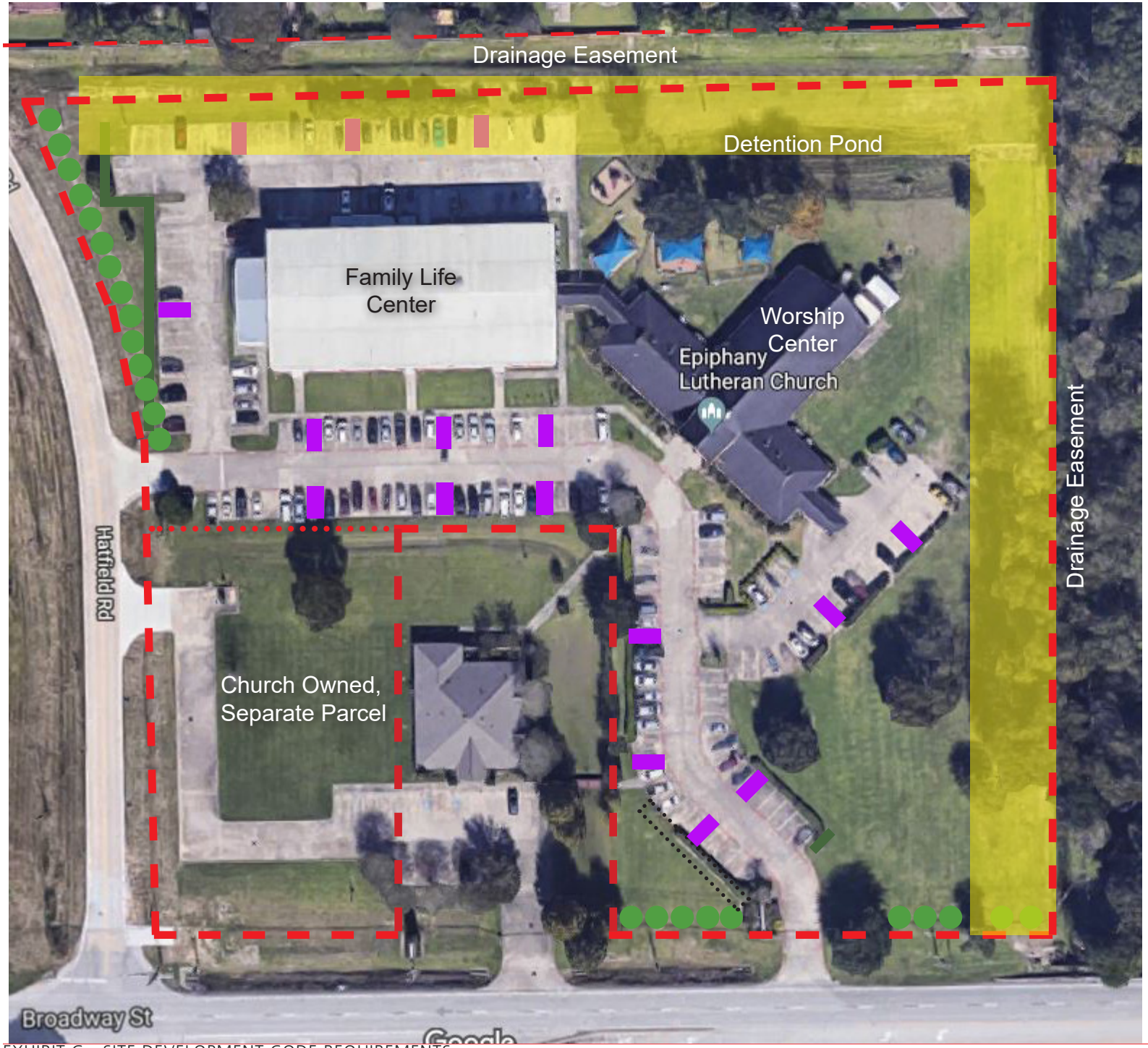
AHU-1
Service Area: West side of worship space
Manufacturer: Sterling
Model # QVED200
Serial # P1501422897001001
Manufacture Date: 2013
Furnace: Gas

AHU-2
Service Area: East side of worship space
Manufacturer Sterling
Model # QVED200
Serial # P1501422897001001
Manufacture Date 2013
Furnace: Gas

AHU-3
Service Area: West wing (Classrooms) and West side of Narthex
Manufacturer: Sterling
Model # QVED200
Serial # J1701537324001001
Manufacture Date: 2013
Furnace: Gas

AHU-4
Service Area: East wing (offices) and East side of Narthex
Manufacturer: Sterling
Model # QVED200
Serial # P1501422897001001
Manufacture Date: 2013
Furnace: Gas

STUDIO RED ARCHITECTS



PARKING LANDSCAPE ISLAND REQ'D

STREET TREE REQ'D

PARKING LOT SCREENING REQ'D

EXIST. PARKING LOT SCREENING COMPLIES

AREA OF LANDSCAPE BUFFER AND SCREEN WALL

STUDIO RED ARCHITECTS